



City of Rockville  
Rockville, Maryland  
**INVITATION FOR BIDS #13-24**

**ROCKVILLE SWIM & FITNESS CENTER OUTDOOR  
RECREATION POOL RENOVATIONS PROJECT**

**Bids Due by 2:00 PM (EDT)  
April 10, 2024**

ISSUED BY:  
Procurement Division  
City of Rockville, City Hall  
111 Maryland Avenue, 1st Floor  
Rockville, Maryland 20850  
Phone: (240) 314-8430  
Fax: (240) 314-8439

**A 5% Bid Bond is required for this Invitation for Bid**

Any individual with a disability who would like to receive the information in this publication in another form may contact the ADA Coordinator at 240-314-8100, TDD 240-314-8137

**MFD Outreach Program**

**It is the intent of the City of Rockville to increase opportunities for minority, female and disabled (MFD) owned businesses to compete effectively at supplying goods, equipment, and services to the City, within the constraints of statutory purchasing requirements, departmental needs, availability, and sound economical considerations. Suggested changes and MFD enhancements to this solicitation's requirements for possible consideration and/or inclusion in future solicitations are encouraged. Any questions regarding MFD outreach or questions/concerns regarding the City's bidding process should be addressed to Pat Ryan, [pryan@rockvillemd.gov](mailto:pryan@rockvillemd.gov) or 240-314-8434.**





### Statement of "No Bid Submittal"

If you do not intend to submit on this requirement, please complete and return this form prior to date shown for receipt of bids to the buyer listed in this IFB by **email only to [jpierson@rockvillemd.gov](mailto:jpierson@rockvillemd.gov)**.

I/WE HAVE DECLINED TO BID ON **IFB #13-24**, titled **Outdoor Recreation Pool Renovations** for the following reason(s): [Please place a check mark (ü) next to the reason(s) as applicable]

(ü)	Reason
	Proposal requirements too "restrictive".
	Insufficient time to respond to the Invitation for Bids.
	We do not offer this service.
	Our schedule would not permit us to perform.
	Unable to meet requirements.
	Unable to meet insurance or bond requirements.
	Scope of Services unclear (please explain below).
	Other (please specify below).

REMARKS:

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Are you a Minority, Female, or Disabled (MFD) business? \_\_\_\_\_ Yes \_\_\_\_\_ No

Company Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Email Address: \_\_\_\_\_

\_\_\_\_\_  
Authorized Signatory

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



**CITY OF ROCKVILLE**  
**ROCKVILLE, MARYLAND**

**INVITATION FOR BIDS #13-24**  
**OUTDOOR RECREATION POOL RENOVATIONS**

**TABLE OF CONTENTS**

Section	Contents
I	Announcement, Description and General Information
II	General Conditions, and Instructions to Bidders
III	Special Provisions
IV	Technical Specifications/Scope of Work
V	Bid Packet, Proposal Forms and Sample Documents
VI	<p>Appendices and Permits</p> <p>Appendix A Site Plan Aerial</p> <p>Appendix B Site Furnishings Add/Alternate Pricing List</p> <p>Appendix C Fiscal Year 2024 Capital Improvements Program Budget Page for Project RC18 – Outdoor Recreation Pool Renovations</p> <p>Appendix D Geotechnical Report for Project Site, Dated 5.17.24</p> <p>Appendix E City of Rockville, Minor Site Plan Amendment Approval Letter, STP2024-00466</p> <p>Appendix F City of Rockville Stormwater Management Plan Permit, SMP2024-00016 As Built Plan Review Requirements Checklist</p>

	<p>Appendix G City of Rockville, Forest Conservation Plan Approval Letter, FTP2023-00058</p> <p>Appendix H Montgomery County Department of Health and Human Services, Swimming Pool Construction Plans Approval, 2024-7317-ALT</p> <p>Appendix I Montgomery County Department of Environmental Protection Noise Control Ordinance</p>
VII	<p>Drawings Log</p> <p>Drawings</p> <p>Note - Past Construction Plans and Historical Documents Provided For Information Purposes Only At The Web Link Below:</p> <p><a href="https://www.dropbox.com/scl/fo/ptfrbiszc2pxpcpovx5ux/h?rlkey=kxgjivibwr1zpexa3v8nmt2iv&amp;dl=0">https://www.dropbox.com/scl/fo/ptfrbiszc2pxpcpovx5ux/h?rlkey=kxgjivibwr1zpexa3v8nmt2iv&amp;dl=0</a></p> <p><b>Note: Drawings are included for bidding purposes. In the event of any changes notations will be made on the Drawings Log and revised pages published via Addendum(s).</b></p>

## **INVITATION FOR BID #13-24 OUTDOOR RECREATION POOL RENOVATIONS**

### **SECTION I: PROJECT OVERVIEW**

**1.1 SECURED BIDS** will be received electronically via a City designated bid receipt software solution until **2:00 PM (EDT) on April 10, 2024**. The bidder assumes full responsibility for the timely delivery of a bid via the designated solution. Bids delivered in any other fashion will not be considered. Properly submitted bids will be opened in a virtual environment after the time set for receipt of bids and will be read aloud via a City telepresence software solution at the phone number and/or web address provided by the City and contained within this solicitation.

Submission of a bid electronically is consent by the bidder to conduct any or all elements of the procurement by electronic means, in accordance with the terms of this invitation for bids.

Bids presented after the bid receiving deadline will not be received for any reason. The official time clock for receiving bids will be that of the City's computer server system, located at Rockville City Hall. In order to be considered, bids must be received on or before 2:00 p.m. (Rockville Server Time). Therefore, a bid submitted at 2:00 p.m. is acceptable, where a bid received a fraction of a second after 2:00 p.m. (Rockville Server Time) is late and will not be accepted.

**ATTENTION: BIDDERS ARE HEREBY NOTIFIED THAT ROCKVILLE SERVER TIME MAY DIFFER FROM THAT OF OTHER ELECTRONIC DEVICES, COMPUTER SOFTWARE AND COMPUTER HARDWARE THAT MAY BE USED TO ELECTRONICALLY SUBMIT THE BID. BIDDERS ARE RESPONSIBLE FOR ALLOWING ADEQUATE TIME TO SUCCESSFULLY DELIVER THE BID TO THE REQUIRED ELECTRONIC LOCATION BY THE REQUIRED TIME.**

### **1.2 SITE LOCATION**

The Outdoor Recreation Pool Renovations Project is located at the Rockville Swim & Fitness Center, 355 Martins Lane, Rockville, Maryland 20850. The project limits are shown on Appendix A.

### **1.3 BACKGROUND**

The Rockville Swim and Fitness Center, located at 355 Martins Lane, Rockville Maryland 20850 is the City's sole municipal aquatics facility and currently consists of two indoor pools, indoor whirlpool and sauna, two large outdoor pools, an outdoor tot pool and sprayground, fitness center, activity classrooms and associated locker room and support spaces. The complex is managed by the Recreation and Parks Department and serves over 350,000 customer visits per year throughout its facilities and programs. The City of Rockville's Capital Improvement Program Budget funds major renovations to the Outdoor Recreation Pool complex at the Rockville Swim and Fitness Center (RSFC). The City has engaged with a design firm to seek community input on user preferences, facility design and amenities and

subsequently provide architectural and engineering services to develop construction documents for bidding of said renovations.

#### **1.4 PROJECT DESCRIPTION**

The current recreation pool (and adjacent to pool) were opened in 1991 and were constructed within the complex's original 1968 outdoor pool. The adjacent sprayground was added in 2003 and the bathhouse serving the area was recently renovated in 2012. This project includes demolition of the existing recreation pool, tot pool, sprayground and associated decks and mechanical equipment and construction of modern, engaging and accessible aquatics elements. New construction consists of 3 bodies of water: a free-form shaped activity pool with beach entries and interactive play features, a rectangular shaped wellness pool to serve a variety of uses and a water slide structure with its self-contained water recirculation system. In addition to the pools, construction work will include necessary filtration equipment, installation of play features, deck areas, shade structures, overhead lighting, landscape and forestry work as well as other components. See the full drawings set and technical specifications for details and specifics. Note that while the existing outdoor bathhouse, outdoor fitness pool and indoor amenities are outside the scope of this project, the contractor must acknowledge and coordinate these areas to ensure continuity of operations, connections to/from adjacent areas and overall site usage patterns. It is intended that other areas of the facility will remain operational during the recreation pool areas' renovations.

#### **1.5 SUMMARY DESCRIPTION OF ADD/ALTERNATE ITEMS:**

The contractor shall submit a bid for each add alternate section. The City reserves the right to award, to the lowest responsible bidder, the combination of base plus add/alternate sections that will allow the most work to be completed within the City's budget. Please find the descriptions provided for each Add/Alternates below.

- A. Add Alternate 1 – Add 2nd floating lily pad course assembly to the Activity Pool
- B. Add Alternate 2 – Add small semi-commercial water slide to the Wellness Pool
- C. Add Alternate 3 – Add new plaster “white” coat to the Fitness Pool. Coordinate the timing of work with Owners' Representative
  - a. Note that this work is to include appropriate surface preparations, replacing the racing lane tiles and expansion joints and be completed in accordance with pertinent Division 13 specification requirements.
- D. Add Alternate 4 – Add sports lighting and public address system around Fitness Pool
- E. Add Alternate 5 – Add thermal cover and reels for Wellness Pool
- F. Add Alternate 6 – Add water heater for Wellness Pool.
  - a. The work will be design build by contractor.
- G. Add Alternate 7 – Add pool area furnishings. Quantities and unit prices to be reviewed and finalized by owner.

## **1.6 PROJECT DURATION/COMPLETION**

Timing is critical for the success of this project. Construction work involving the outdoor recreation pool must commence on Mon. August 19, 2024, and progress until substantial completion on May 1 2025. This timeframe includes periods of varying and inclement weather conditions and additional time will not be granted. A limited notice to proceed is anticipated for mid-June 2024 to allow for contractor planning, ordering of long lead items, pre-mobilization, survey and other approved, limited construction activities not requiring the closure of the pool.

Contractor shall begin the project within ten (10) calendar days following issuance of a City of Rockville Purchase Order (Notice to Proceed). All work shall be completed within 12 months (365 consecutive calendar days). Important note: Substantial completion of the project must be made prior to 05/01/2025, and all inspections required for operations and occupancy must be successfully obtained no later than 05/16/2025. The time allotted for the work is of the essence. It is possible that the City may issue a Limited Notice to Proceed (LNTP) to allow for coordination, field measuring, shop drawing review/approval, submission of work plan and ordering long lead time components. The recreation pool will be available for construction activities to begin on site starting 08/19/2024.

Liquidated damages shall be assessed at One Thousand Seven Hundred Dollars (\$1,700) per day for each calendar day the work exceeds beyond the specified time allotted, commencing on 05/16/2025 should occupancy and operations permits not be received from the authorities having jurisdiction as described in the paragraph above.

The time allotted for the work is of the essence. Liquidated damages shall be assessed at One Thousand Seven Hundred Dollars (\$1,700) per day for each calendar day the work exceeds beyond the specified time allotted, commencing after May 16, 2025, which is the due date for all inspections to be passed allowing for public use for this contract. Beginning September 2, 2025 liquidated damages are reduced to four hundred dollars (\$400) per day. A Limited Notice to Proceed Award Letter will be issued prior to issuing Purchase Order to allow awardee to purchase all long lead materials and begin the pre-mobilization process prior to starting construction. Contractor shall prioritize the ordering process of water slides, in-water play features and other long lead items to ensure they are delivered in time for installation according to the project's schedule.

## **1.7 PERMITS**

The City of Rockville is listed as the applicant for all permits in order to waive City of Rockville permit fees. It is the contractor's responsibility to comply with all permit terms and conditions, including maintenance and warranty requirements. The Contractor is contractually responsible for implementation and compliance with all conditions of all permits as listed below and also responsible for obtaining additional trade/utility permits listed to successfully complete the Rockville Swim and Fitness Center Outdoor Recreation Pool Renovations project:

- City of Rockville, Building Permit, 2024-7317-ALT
- City of Rockville, Minor Site Plan Amendment, STP2024-00466
- City of Rockville, Stormwater Management Plan, SMP2024-00016
- City of Rockville, Sediment and Erosion Control Plan, SCP2024-00002
- City of Rockville, Public Works Plan, PWK2024-00048
- City of Rockville, Natural Resource Inventory/Forest Stand Delineation (NRI/FSD), FTP2023-00058
- City of Rockville, Forestry Conservation Plan, FTP2023-00058
- Montgomery County Department of Health and Human Services, Swimming Pool Construction Permit, 2024-7317-ALT
- State of Maryland Department of Labor Requirements for Water Slides

The Contractor is responsible for all reporting, inspection requests, documentation and notifications associated with these permits. Compensation for implementation of the requirements of the above permits is to be included in appropriate bid items and no special compensation will be made.

## 1.8 PROPOSED SCHEDULE

- IFB release date – March 1, 2024
- Pre-Bid Conference – March 11, 2024, At 1:30 PM (EDT)
- Site Visits – March 12, 2024, Through March 22, 2024 (See Section 1.11 For Details)
- Questions Due – March 25, 2024, At 4:00 PM (EDT)
- City's Response to Questions – On Or About March 29, 2024
- IFB closing date – April 10, 2024, At 2:00 PM (EDT)

### Anticipated Construction Schedule – Critical Dates

June/July 2024	Limited Notice to Proceed (LNTP) to allow for coordination, field measuring, shop drawing review/approval, submission of work plan and ordering long lead time components.
Early August 2024	Site Mobilization
August 19, 2024	Construction to begin on Recreation Pool areas
November 1, 2024*	Adjacent Fitness Pool closed for season
February 2025	City provided electric distribution panels to arrive (see drawings for selected equipment)
April 1, 2025*	Adjacent Fitness Pool must be available for City's seasonal preparation and opening
No later than May 1, 2025	Substantial completion for City to begin user training, final punch list, operational preparations
No later than May 16, 2025	All inspections passed for public use

\* The adjacent Fitness Pool (not in construction scope, with exception of surrounding overhead lights and public address system) must remain operational for public use and equipment accessible for staff in the months of April, May, June, July, August, September and October. Customers will enter/exit via the indoor complex while the Recreation Pool is under construction. See Appendix A for aerial site map.

Note: Refer to drawings and technical specifications for detailed requirements.

## 1.9 UTILITY SERVICE SHUTDOWNS

The electric power, gas, water, sewer and telecommunications services and HVAC units for the Rockville Swim & Fitness Center may be allowed to be shutdown at various times throughout the duration of the project. Timing of shutdowns, duration, and pre-shutdown requirements shall be as specified in Technical Specifications, Special Provisions, and drawings of this IFB. The Contractor shall coordinate demolition and installation of all equipment to limit loss of utilities including electric power, gas, water, sewer and telecommunications service. Any shutdowns extending beyond the time frames specified in this IFB or that are outside of the notice requirements provided here within, and may result in lost revenue to the City and/or additional costs associated with renting/leasing additional space, as well as, any additional transportation costs associated with relocating Rockville Swim & Fitness Center patrons, will be subject to liquidated damages as follows: \$1,000 for the first hour or any portion thereof; \$500 for each hour thereafter or portion thereof, up to a maximum of \$1,700 per 24-hour period.

When the adjacent outdoor Fitness Pool is in service (months of April, May, June, July, August, September and October) or for any work affecting the indoor complex the indoor complex, any interruptions to any portion of the electric power, gas, water, sewer, HVAC or telecommunications must be scheduled in advance with final scheduling at the discretion of the City and be limited to a maximum of 48 hours. The Project Manager shall be notified of all proposed outages no less than 15 days prior to the outage. The City has final right to approve / deny outages. Limited short duration outages to non-critical systems may be allowed if approved by the Project Manager in advance of the outage. Outages may be scheduled, at the discretion of the City to occur during non-occupied hours which are typically 10pm to 5am.

When the adjacent outdoor fitness pool is not in service (months of November, December, January, February and March), utility service may without notice be disrupted to the fitness pool areas which are closed to the public. However, utility service (including electric power, water, sewer, gas and telecommunications) to the other areas of the complex serving the indoor facility must maintain in operation. Any service outages to these areas must be scheduled and approved by the City in accordance with the notice procedures in the paragraph above. Outages may be scheduled, at the discretion of the City to occur during non-occupied hours which are typically 10pm to 5am.



### 1.10 LIQUIDATED DAMAGES

Liquidated damages shall be assessed at One Thousand Seven Hundred Dollars (\$1,700) per day for each calendar day the work exceeds beyond the specified time allotted, commencing on 05/16/2025 should occupancy and operations permits not be received from the authorities having jurisdiction as described in the paragraph above.

The time allotted for the work is of the essence. Liquidated damages shall be assessed at One Thousand Seven Hundred Dollars (\$1,700) per day for each calendar day the work exceeds beyond the specified time allotted, commencing after May 16, 2025, which is the due date for all inspections to be passed allowing for public use for this contract. Beginning September 2, 2025 liquidated damages are reduced to four hundred dollars (\$400) per day.

### 1.11 PRE-BID/SITE VISIT MEETING

A virtual pre-bid meeting will be held on March 11, 2024 at 1:30 PM (EDT). Bidders MUST register below prior to attending the meeting. This meeting is not mandatory; however, bidders are strongly encouraged to attend. Individuals interested in viewing the vicinity of the work are encouraged to do so at a later time (see below). Bidders shall assume complete responsibility and liability for any and all visits.

Register for Virtual Pre-Bid Meeting Here: [REGISTER](#)

Prior to the Proposal Due Date, multiple site visit options, located at the Rockville Swim and Fitness Center, 355 Martins Lane, Rockville MD 20850 are available for MONDAYS, WEDNESDAYS, and FRIDAYS between the hours of 2:00 P.M. and 3:00 P.M. and TUESDAYS and THURSDAYS between the hours of 9:00 A.M. and 10:00 A.M. beginning March 12, 2024, through March 22, 2024. All visitors MUST sign-in at the front desk prior to viewing the work site(s). The City will not be able to answer questions at these Site Visits. See DEADLINE FOR QUESTIONS below regarding how questions shall be addressed.

**It is mandatory that the bidder attend a minimum of one (1) Site Visit as outlined in the preceding paragraph. To record and provide evidence of your visit, all visitors MUST sign-in at the front desk prior to viewing the work site(s). All individuals interested in viewing the vicinity of the work area shall assume complete responsibility and liability for any and all visits.**

### 1.12 DEADLINE FOR QUESTIONS

Questions pertaining to this bid may be directed to Jonathan Pierson, Assistant Director of Procurement via City's Collaboration Portal only at <https://contracts.rockvillemd.gov/gateway/Default.aspx> no later than 4:00 PM (EDT) on March 25, 2024. Oral answers to questions relative to interpretation of specification or the bid process will not be binding on the City.

### 1.13 BID SECURITY

Bids must be accompanied by an electronic copy of the Bid security made payable to the Mayor and Council of Rockville in an amount of five percent (5%) of Bidder's Total Bid

Price and in the form of a Bid Bond (AIA Bid bond form is acceptable) or a certified check, where the original security instrument must be mailed to City of Rockville, Procurement Division, 111 Maryland Avenue, Rockville, Maryland 20850, referencing the solicitation number. The City reserves the right to disqualify any bid, in any instance, where the City cannot locate the mailed, original security instrument. The City shall not be liable for any certified checks it cannot locate, or in any instance where a certified check is cashed by any individual not employed by the City of Rockville.

#### **1.14 AGREEMENT/PERFORMANCE & PAYMENT BONDS**

The successful contractor shall be required to complete and electronically return a copy of the City's Standard Form of Agreement along with Performance and Payment Bonds in the amount of 100% of the Contract award within fifteen days after the date of issuance (samples attached), where two (2) sets of the original agreement and original bonds must be mailed to City of Rockville, Procurement Division, 111 Maryland Avenue, Rockville, Maryland 20850. No other form of performance or payment security will be permitted. Failure by the contractor to provide both the electronic versions and original versions of the agreement or bonds, as required, shall be just cause for annulment of the award and the forfeiture of the Bid Guarantee which shall become the property of the City, not as a penalty but in liquidation of damages sustained. Any instance where the City cannot locate the mailed versions of the agreement or bonds shall be just cause for annulment of the award and the forfeiture of the Bid Guarantee which shall become the property of the City, not as a penalty but in liquidation of damages sustained.

#### **1.15 SUBMISSION**

All bid forms and documents must be electronically filled out, signed, and submitted via one combined pdf document using the City's Collaboration Portal **only** at:

<https://contracts.rockvillemd.gov/gateway/Default.aspx>

At a minimum the file name of the pdf document must contain the Bid Number, Bidders Name and Bid Due Date.

A virtual, telepresence bid opening will be held a few minutes after the bid submittal due date and time. Individuals interested in attending the virtual bid opening must register below:

Register for Virtual Bid Opening Here: [REGISTER](#)

#### **1.16 SUBMITTALS**

The following information must be submitted with the bid, **where failure to submit requested items may result in rejection of the bid:**

- Bid Proposal Forms (See Section 5)
- A certified check or bid bond must be in the amount of five percent (5%) of the total bid amount, made payable to the Mayor and Council of Rockville as in General Conditions and Instructions to Bidders, #24.

- If the bidder intends to subcontract any or part of the work, then the bidder must identify and include references for each qualified subcontractor, together with a description of the proposed subcontract work. This evidence shall be submitted with the bid. A minimum of three references shall be provided; additional project references may be required to meet all the requirements. Note: See section 3.2 for special Swimming Pool subcontractor requirements.
- Project Schedule showing responsiveness with City's required deadlines.

Bidders must provide written evidence of ability to meet the responsibility of the verified project schedule, for the price bid, by submitting a schedule in writing, which meets the critical dates listed above in section 1.8, and includes delivery and staging locations, for incorporation into any subsequent contract. The project schedule must demonstrate the ability to maintain other areas of the Swim & Fitness Center facility in operation for the duration of the project work, meeting all requirements as outlined in the project manual and outlined herein for the price bid. Failure by the Bidder to submit a Project Schedule Plan meeting the City's timeline may result in the determination that the bid is nonresponsive.

The selected contractor is to submit electronic versions of the construction schedule (with bid submission, after award of the bid, at the pre-construction conference meeting) and with no less than monthly updates. The schedule shall be submitted in both its source form and PDF version.

### **1.17 ADDENDUM**

Oral answers to questions relative to interpretation of specifications or the proposal process will not be binding on the City.

To ensure fair consideration for all offerors, any interpretation made to prospective offerors will be expressed in the form of an addendum to the specifications, if such information is deemed necessary for the preparation of proposals or if the lack of such information would be detrimental to the uninformed offeror. Such addendums, if issued, will be posted at City's Collaboration Portal listed below:

<https://contracts.rockvillemd.gov/gateway/Default.aspx>

Please note, that it is the respondent's responsibility to check this site frequently for Addendums, which may impact pricing, this documents requirements, terms and/or conditions. Failure to sign and return an Addendum with your response may result in disqualification of proposal.

### **1.18 ENVIRONMENTAL IMPACT**

It is the intent of the City of Rockville to purchase goods, equipment, and services having the least adverse environmental impact, within the constraints of its codified purchasing requirements, departmental needs, availability, and sound economical considerations.

Suggested changes and environmental enhancements for possible inclusion in future revisions of this specification are encouraged.

#### **1.19 NOTICE TO BIDDERS**

"Pursuant to 7-201 et seq. of the Corporations and Associations, Article of the Annotated Code of Maryland corporations not incorporated in the State, shall be registered with the Department of Assessments and Taxation, 301 West Preston Street, Baltimore, Maryland 21201 before doing any interstate or foreign business in this state. Before doing any intrastate business in this state, a foreign corporation shall qualify with the Department of Assessments and Taxation."

#### **1.20 BID AWARD**

The basis of award will be to the responsible bidder submitting the lowest responsive Total Bid including any alternates, if awarded, provided the price is reasonable and in the City's best interest. The purchasing agent reserves the right to waive a minor informality, or immaterial bid defect and/or technicality if such waiver is determined to be in the best interest of the City. A minor informality or immaterial defect means a bid requirement that is merely a matter of form or is an immaterial provision in the solicitation. A bid defect is immaterial when the significance of the defect is negligible when contrasted with the total cost or scope of the procurement. A technicality is a small detail in specification, requirement, term or condition that forces an unwanted, unexpected and/or negative result upon the City. The decision of the purchasing agent with respect to whether a requirement is a minor informality, or whether a bid defect is immaterial, or whether a technicality exists, as well as, whether or not a waiver is in the best interest of the City is final and may not be challenged by a bidder.

#### **1.21 US TREASURY IDENTIFICATION NUMBER**

Bidders must supply with their bids their U.S. Treasury Department Employers' Identification Number as such number is shown on their Employer's quarterly Federal Tax Return (U.S. Treasury Department Form No. 941). This number shall be inserted on the Bid Sheet in the space provided.

#### **1.22 QUALIFICATION TO CONTRACT WITH PUBLIC BODY**

Bidders must be qualified to bid in the State in accordance with Section 14-308 of the State Finance and Procurement Article of the Annotated Code of Maryland which ordains that any person convicted of bribery (upon acts committed after July 1, 1997) in furtherance of obtaining a contract from the state or any subdivision of the State of Maryland shall be disqualified from entering into a contract with the City.

#### **1.23 DISABILITY INFORMATION**

ANY INDIVIDUALS WITH DISABILITIES WHO WOULD LIKE TO RECEIVE THE INFORMATION IN THIS PUBLICATION IN ANOTHER FORM MAY CONTACT THE ADA COORDINATOR AT 240-314-8100 TDD 240-314-8137.



**CITY OF ROCKVILLE  
MARYLAND  
Section II: GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS  
CONSTRUCTION 3/2022**

1. **TERMS AND CONDITIONS** The terms and conditions of this document govern in event of conflict with any terms of the bidder's proposal and are not subject to change by reasons of written or verbal statement by the contractor unless accepted in writing. Words and abbreviations which have well known technical or trade meanings are used in accordance with such meanings.
2. **PRE-BID MEETING** A virtual, telepresence pre-bid meeting may be held for the purpose of describing the project and for answering any questions prospective bidders may have. If applicable, time and date will be shown on the bid announcement page.
3. **SUBMISSION OF BID** All bids are to be submitted electronically, in a pdf format file, via a City designated bid receipt software solution. File name of the pdf document must contain the Bid Number, Bidders Name and Bid Due Date. The following forms must be submitted:
  - Bid proposal page(s)
  - Non-collusion/non-conviction affidavit
  - Bid Bond
  - Reference sheet
  - Other forms as required in the bid document.

The bid proposal form must be filled out and submitted electronically. Conditional bids and bids containing escalator clauses will not be accepted. All bids must be regular in every respect and no interlineation, exclusions, or special conditions shall be made or included. Bids must contain an electronic or scanned signature, in the space provided, of an individual authorized to bind the bidder.

4. **LATE BIDS** It is the bidder's responsibility to assure delivery of the bid at the proper time via the designated electronic, software solution. Bids delivered in any other fashion will not be considered. All bids will be publicly opened in a virtual environment after the time set for receipt of bids and read aloud via a City telepresence software solution. Bidders may attend bid openings at the phone number and/or web address provided by the City.
5. **ADDENDUM** In the event that any addenda to this solicitation are issued, all solicitation terms and conditions will retain in effect unless they are specifically changed in the addendum. It is the responsibility of the bidder to make inquiry as to addenda issued. Oral answers to questions relative to interpretation of specifications or the proposal process will not be binding on the City.

Such addendums, if issued, will be posted via the city's designated electronic, software solution.

Please note, that it is the bidder's responsibility to check this site frequently for Addendums, which may impact pricing, this document's requirements, terms and/or conditions. Failure to acknowledge an addendum on the bid proposal form or to sign and return an Addendum with your response may result in disqualification of proposal.

6. **BID OPENING** All bids received in response to an Invitation for Bid will be opened at the date, time and place specified and publicly read via a City telepresence software solution. A tabulation of bids received are posted using the City's designated electronic software solution.
7. **ACCEPTANCE OF BIDS** Unless otherwise specified in the Invitation for Bid documents, the City will accept or reject any or all bids or any or all items within ninety (90) days after the date of bid opening. Bids may not be withdrawn during that period.
8. **BID WITHDRAWAL** Bids may be electronically withdrawn (deleted) or modified by deleting the initial file uploaded and replacing it with a modified file using the City's electronic, software solution before the time specified for bid opening. Requests received after bid opening will not be considered.

9. **BID AWARD** Unless otherwise specified in the Invitation for Bid documents, award will be made to lowest responsive and responsible bidder complying with all provisions of the Invitation for Bid, provided the price is reasonable and in the best interest of the City to accept. The City reserves the right to award by individual commodities/services, group, all or none or any combination thereof. When a group is specified, all items in the group must be bid.

In determining the responsibility of a bidder, the following criteria will be considered:

- a. The ability, capacity and skill of the bidder to perform the contract or provide the services required;
- b. Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay or interference;
- c. The character, integrity, reliability, reputation, judgment, experience and efficiency of the bidder;
- d. The quality of performance on previous contracts or services;
- e. The previous and existing compliance by the bidder with laws and ordinance relating to the contract or service;
- f. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service;
- g. The quality, availability and adaptability of the goods or services to the particular use required;
- h. The ability of the bidder to provide future maintenance and service for the use of the subject of the contract;
- i. Whether the bidder is in arrears to the City or a debt or contract or is in default on a surety to the City;
- j. Such other information as may be secured by the City having a bearing on the decision to award the contract.

10. **ELECTRONIC PAYMENT OPTION**

The Vendor ACH Payment Program of the City allows payments to be deposited directly to a designated financial institution account. Funds will be deposited into the account of your choice automatically and on time. All transactions are conducted in a secure environment. The program is totally free as part of the Finance Department's efforts to improve customer services.

11. **SENSITIVE DOCUMENTS**

All project participants needing either electronic or hardcopy documents dealing with critical facilities or sensitive information will be required to make application with and receive approval from the City prior to receiving this information. Permission to receive said documents (herein referred to as "sensitive") will pertain only to the individual approved. Sensitive documents (either electronic or hardcopy documents dealing with critical facilities or sensitive information) received from the City must be handled consistent with the terms of non-disclosure required for application. Contractor is responsible to restrict use of sensitive documents to project participants only and shall take appropriate measure to prevent distribution of sensitive document to anyone inside or outside of the Contractor's company except Contractor's project participants. After completion of the project, all sensitive documents remaining in the Contractor's possession shall continue to be governed under the terms of non-disclosure and must continue to be stored in a secure manner. After such records are no longer needed for record purposes, the records shall be destroyed or returned to the City.

Where services require the Contractor to access the City's electronic information resources and/or its electronic data assets, the Contractor shall adhere to all requirements, terms and conditions of the City's Contractor/Vendor On-Site and Remote Access Confidentiality Agreement, which can be viewed at the following web address:

<https://www.rockvillemd.gov/documentcenter/view/36407>

12. **DOCUMENTS, MATERIALS AND DATA** All documents, materials, or data developed as a result of this contract are the City's property. The City has the right to use and reproduce any documents, materials, and data, including confidential information, used in the performance of, or developed as a result of this contract. The City may use this information for its own purposes, including reporting to state and federal agencies. The contractor warrants that it has title to or right to use all documents, materials or data used or developed in connection with this contract. The Contractor must keep confidential all documents, materials and data prepared or developed by the contractor or supplied by the City.
13. **ERRORS IN BIDS** When an error is made in extending total prices, the unit price will govern. Erasures in bids must be initialed by the bidder. Carelessness in quoting prices or in preparation of the bid will not relieve the bidder from performing the contract. Errors discovered after public opening cannot be corrected and the bidder will be required to perform if the bid is accepted.
14. **MISTAKES** Bidders are expected to be thoroughly familiar with all bid documents, including all addenda. No consideration will be granted for any alleged misunderstanding of the intent of the contract documents. In the process of assembling and binding the bid documents individual pages or drawings may have been inadvertently omitted. Each bidder shall carefully and thoroughly examine these bid documents for completeness. No claim of any bidder will be allowed on the basis that these bid documents are incomplete.
15. **PRICES** Bids must be submitted on a firm, fixed price, F.O.B. destination basis only unless otherwise specified herein.

16. **PROMPT PAYMENT DISCOUNTS** All discounts other than prompt payment are to be included in the bid price. Prompt payment discounts will be considered in the evaluation of your bid if the discount on payment is not conditioned on payment being made in less than thirty (30) days from receipt of invoice.
17. **BIDDER'S PAYMENT TERMS** The City will reject as non-responsive a bid under this solicitation, which is conditioned on payment of proper invoices in less than thirty (30) days. However, this does not preclude a bidder from offering a prompt payment discount for payment of proper invoices in less than thirty (30) days.
18. **INTEREST IN MORE THAN ONE BID AND COLLUSION**  
**Multiple bids uploaded/received in response to a single solicitation from an individual, firm, partnership, corporation, affiliate, or association under the same or different names will be rejected.** Reasonable grounds for believing that a bidder is interested in more than one bid for a solicitation both as a bidder and as a subcontractor for another bidder will result in rejection of all bids in which the bidder is interested. However, a firm acting only as a subcontractor may be included as a subcontractor for two or more bidders submitting a bid for the work. Any or all bids may be rejected if reasonable grounds exist for believing that collusion exists among any bidders. Bidders rejected under the above provisions shall be disqualified if they respond to a re-solicitation for the same work.
19. **QUALIFICATION OF THE BIDDER** The City shall have the right to take such steps as it deems necessary to determine the responsibility of the bidder to perform the obligations under the contract and the bidder shall furnish to the City all such information for this purpose as the City may request. The right is reserved to reject any bid where an investigation of available information does not satisfy the City that the bidder is qualified to carry out the terms of the contract.
20. **PLACING OF ORDERS** Orders against contracts will be placed with the Contractor on a Purchase Order (or Procurement Card – currently Mastercard) executed by the Purchasing Agent or designee. Where Master Agreements have been released by the City, orders may be placed directly with the Contractor by authorized personnel in the ordering Department(s). Issuance of all purchase orders will be contingent upon appropriation of funds by the Mayor and Council and encumbrance of such funds after July 1st of each year, as provided by the City Code.
21. **INSPECTION OF THE WORK SITE** Each bidder shall visit the site of the proposed work and become fully acquainted with the existing conditions and fully informed as to any facility involved, and the difficulties and restrictions attending the performance of this contract. Applicable drawings, technical specifications and contract documents should be thoroughly examined. The successful bidder shall in no way be relieved of any obligation due under the executed contract by the failure to examine any form of legal instrument or to visit the site.
22. **RISK OF LOSS AND CONDITION OF SITE** The City makes no representation and assumes no responsibility for the condition of the site or applicable structures on the site. The contractor shall accept the site and the contents thereon in the condition in which they are represented. Any damages or loss whatsoever while the contract is in effect (whether by reason of fire, theft, breakage, or other happenings) shall not relieve the Contractor from any obligations under this contract. The Contractor shall store any materials on site as not to damage the materials and shall maintain such storage areas, as directed by the City, in hazard free condition.
23. **SUBCONTRACTORS** Nothing contained in the contract documents, shall create any contractual relationship between the City and any subcontractor or sub-subcontractor.  
  
Unless otherwise indicated, the successful contractor who will subcontract the delivery, installation, or portion of the work herein described will submit to the Project Manager, prior to the start of work, the following information: 1) A description of the items to be subcontracted, 2) the subcontractor name, address, and telephone number, and 3) the nature and extent of the work utilized during the life of the contract. Subcontractors shall be considered agents of the Contractor, who shall be held fully accountable for all of the subcontractor services, labor, and materials relative to the contract.
24. **BID BOND** Bids must be accompanied by an electronic copy of a certified check or bid bond for five percent (5%) of the total amount of the bid, made payable to the Mayor and Council of Rockville, where the original security instrument must be mailed to City of Rockville, Procurement Division, 111 Maryland Avenue, Rockville, Maryland 20850, referencing the solicitation number. AIA Bond forms are acceptable. Bonds must be issued by a surety licensed to do business in the State of Maryland. The City reserves the right to disqualify any bid, in any instance, where the City cannot locate the mailed, original security instrument. The City shall not be liable for any certified checks it cannot locate, or in any instance where a certified check is cashed by any individual not employed by the City of Rockville. Bid bonds will not be returned.
25. **EXECUTION OF AGREEMENT/BONDS** Subsequent to award and within fifteen (15) calendar days after the prescribed forms are presented to the Contractor, the Contractor shall execute and electronically deliver to the City the required Agreement and Bonds, where two (2) sets of the original agreement and original bonds must be mailed to City of Rockville, Procurement Division, 111 Maryland Avenue, Rockville, Maryland 20850.

Bonds shall be in effect during the original term of the contract and during the guarantee and warranty period required under the Contract, unless otherwise stated therein.

**PERFORMANCE BOND** The Contractor shall execute and deliver to the City the required Performance Bond for 100% of the bid amount.

**PAYMENT BOND** For a contract exceeding One Hundred Thousand Dollars (\$100,000) the payment bond shall be in an amount equal to 100% of the bid amount. For a contract exceeding Twenty-Five Thousand Dollars (\$25,000) but not exceeding One Hundred Thousand Dollars (\$100,000) the payment bond shall be in an amount equal to fifty percent (50%) of the bid amount. Bonds shall be executed by a surety company authorized to do business in the State of Maryland.

The successful bidder may request that in lieu of bonds, the City accept the equivalent in the form of a certified check or other security. Such requests will be accepted or rejected by the City Manager. If rejected, the successful bidder will be required to furnish the bonds or forfeit the bid bond. **The City shall not be liable for any certified checks it cannot locate, or in any instance where a certified check is cashed by any individual not employed by the City of Rockville.**

**Failure of the successful bidder to execute the agreement and supply both the electronic versions and original versions of the required forms within fifteen (15) calendar days shall constitute a default. Any instance where the City cannot locate the mailed versions of the agreement or bonds shall also constitute a default. The successful bidder shall forfeit to the City as liquidated damages for such failure or refusal an amount in cash equal to the security deposited with the bid.**

The City may either award the contract to the next low responsive and responsible bidder or re-advertise the bids and may charge against the original bidder the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed. If a more favorable bid is received by a re-advertising, the defaulting bidder shall have no claim against the City for a refund.

26. **LEGAL REQUIREMENTS** All materials, equipment, supplies and services shall conform to applicable Federal, State, County and City laws, statutes, rules, and regulations. The Contractor shall observe and comply with all Federal, State, County and City laws, statutes, rules, and regulations that affect the work to be done. The provisions of this contract shall be governed by the laws of the State of Maryland.
27. **INDEMNIFICATION OF THE COUNCIL** The Contractor shall indemnify and save harmless the Mayor and Council from all suits, actions and damages or costs, of every name and description to which the Council may be subjected or put by reason of injury to persons or property as a result of the work, whether caused by negligence or carelessness on the part of the Contractor, or subcontractors or agents thereof.
28. **DELIVERY** Time is of the essence. The Contractor shall expedite the work and achieve substantial completion within the contract time. If time limits are not specified, state the number of days required to make delivery/completion in the space provided. Defective or unsuitable materials or workmanship shall be rejected and shall be made good by the Contractor, notwithstanding that such materials/workmanship have previously been overlooked and accepted.
29. **CHANGES IN QUANTITIES/ITEMS** The City reserves the right to add or delete any item(s) from the bid in whole or in part at the City's discretion as given in the Bid or Proposal wherever it deems it advisable or necessary so to do and such changes shall in no way vitiate the contract nor affect the bid prices for any item or remaining work. Unit prices submitted in the bid shall not be increased or decreased regardless of changes in quantity. The City may waive minor differences in specifications in bids provided these differences do not violate the specifications' intent nor materially affect the operation for which the items or services are being purchased.

The Contractor will be paid for the actual amount of authorized work done or material furnished under any item of the bid at the price bid and stipulated for such item. In case any quantity is increased, the Contractor shall not be entitled to any increased compensation over and above the unit price bid for such item, or any claim for damages on account of loss of anticipated profits should any quantities be decreased. The Contractor shall be responsible for confirming the accuracy of the specified quantities prior to ordering materials or supplies and the City's payment shall be based on the actual quantities incorporated in the work and not the quantities specified in the bid document. The quantities must not exceed the Contract specified quantities without specific written authorization of the Project Manager and it is the Contractor's responsibility to obtain said authorization.
30. **MATERIALS** All materials shall be new and free from defects. They shall be standard products of current manufacture. Unless otherwise noted in the contract documents, the Contractor shall abide by specific manufacturer instructions and recommendations on installation and operation.
31. **BRAND NAME OR EQUAL** Identification of an item by manufacturer's name, trade or brand name, or catalog number is for information and establishment of a quality level desired and is not intended to restrict competition. Bidders may offer any brand which meets or exceeds the specification, unless 'brand name only' is specified. Bids on other makes and/or models will be considered provided the bidder clearly states on the proposal what is being proposed and forwards with



the bid complete descriptive literature indicating how the characteristics of the article being offered will meet the specifications. The City reserves the right to accept or reject items offered as an equal.

32. **DEFECTIVE MATERIALS/WORKMANSHIP**

Defective or unsuitable materials or workmanship shall be rejected and shall be made good by the Contractor. If the work shall be found to be defective or to have been damaged before final acceptance, the Contractor shall make good such defect in a manner satisfactory to the City, without extra compensation even though said defect or injury may have not been due to any act or negligence of the Contractor.

33. **TIME OF BEGINNING AND COMPLETION** Unless otherwise specified in the Invitation for Bid documents, the Contractor shall begin work as directed by the City on the Contract within ten (10) working days after the mailing of a purchase order and shall diligently prosecute the same, so that it shall be fully completed within the time as stated in the contract. The Contractor shall not commence any work under the Contract until a written Purchase Order is received from the Purchasing Agent.

34. **FAILURE TO COMPLETE WORK ON TIME/ LIQUIDATED DAMAGES** The Contractor accepts this contract with the understanding and intention to perform fully and in an acceptable manner within the time stated. Should he fail to complete fully, to all intent and purpose, the work specified in the time specified, or within the time as it may have been extended by the City, the Contractor shall pay, for each calendar day that any work shall remain uncompleted, not including Sundays, the sum of \$400 per calendar day or such other amount as specified in the Special Provision, unless otherwise specified in the Invitation for Bid documents. This sum is hereby agreed upon, not as a penalty, but as liquidated damages and the City shall have the right to deduct the amount of such damages from any moneys due the Contractor under this Contract.

The City shall recover such Liquidated Damages by deducted the amount thereof out of any moneys due or that may become due the Contractor, and if said moneys are insufficient to cover said damages, then the Contractor or the Surety shall pay the amount due upon demand by the City.

35. **AUTHORITY OF THE CITY MANAGER IN DISPUTES** Except as may otherwise be provided by the final agreement, any dispute concerning a question of fact arising under the agreement signed by the City and the Contractor which is not disposed of by the final agreement shall be decided by the City Manager who shall notify the Contractor in writing of his determination. The Contractor shall be afforded the opportunity to be heard and offer evidence in support of the claim. Pending final decision of the dispute herein, the Contractor shall proceed diligently with performance under the agreement signed by the City and the Contractor. The decision of the City Manager shall be final and conclusive unless an appeal is taken pursuant to the City Purchasing Ordinance.

36. **CONTRACT DELAYS/EXTENSION OF TIME** The

Contractor shall pursue the contract so as to complete all work within the time allotted in the bid document. The completion date as set in the bid document allows for inclement weather, holidays, and coordination with other companies. If the Contractor is delayed in the delivery of the supplies, equipment, or services by any act of neglect of the City or by a separate Contractor employed by the City, or by any changes, strikes, lockouts, fires, unusual delays in transportation or delay authorized by the City, the City shall review the cause of such delay and shall make an extension of time if warranted. All claims for extensions must be in written notice sent to the Project Manager within ten (10) calendar days after the date when such alleged cause for extension of time occurred. All such claims shall state specifically the amount of time of the delay the Contractor believes to have suffered. If written notice is not received within the prescribed time the claim shall be forfeited and invalidated.

37. **CONTRACT DELAYS - NO DAMAGE CLAIMS ACCEPTED** The Contractor shall make no claim for extra monetary compensation for delays, whether ordered by the City or not, caused by delays in funding, governmental approvals, private or public companies' actions, inclement weather, site conditions, or from any cause whatsoever. The Contractor shall adjust its operation to continue the work at other locations under the contract, if available, and as directed by the City. If it is necessary to discontinue the work temporarily, the Contractor shall resume work within 48 hours of notice from the City. The City may adjust the completion date to compensate for the lost day(s) on a day-for-day basis, if the City finds that the Contractor could not make up for such lost day(s) by reallocating its forces or rescheduling the work, up to the time remaining on the original schedule at the time of shutdown.

38. **PROGRESS SCHEDULE AND SCHEDULE OF OPERATIONS** The construction of this project will be planned and recorded with an Activities Chart Project Schedule (AC) and Written Narrative (WN) unless specifically determined to be unnecessary by the Project Manager. The AC Project Schedule and Written Narrative will break down, in detail, the time (working days or completion date) involved in performing major construction activities for the duration of the project. The AC Project Schedule shall be used for the coordination and monitoring of major work under the contract including the activities of subcontractors, vendors, and suppliers. , if applicable to this project, the AC Project Schedule shall be prepared in accordance with the requirements of the Maryland State Highway Administration Standard Specifications for Construction and Materials dated January 1982, and the errata and addend thereto, subsequent supplement(s) and the Special Provisions as set forth in this Invitation for Bids, unless otherwise directed or approved by the Project Manager.

The schedule shall be consistent with the contract specified completion date(s) and/or working days. The Contractor is responsible for preparing the initial AC Project Schedule and Written Narrative.

Preparation of Initial Schedule – Unless otherwise specified in the Invitation for Bid documents, Within 10 calendar days after notification that the Contractor is the apparent successful bidder, the Contractor will complete development of an initial AC Project Schedule and Written Narrative (describing the logical time representations as proposed in the AC Project Schedule) and submit 2 (two) copies of each AC and WN to the Project Manager for review and approval.

Updating Project Schedule: At any time that it becomes apparent the schedule, created as above and approved by the Project Manager, is not being implemented, either because the work or service is ahead or behind schedule, the Contractor shall immediately notify the Project Manager and shall submit a revised, written, updated AC and WN for the Project Manager's review, revision and approval. The contractor shall make every effort to meet the original completion date and/or working days allowed unless otherwise so directed by the Project Manager.

Payment for Schedule AC/WN: No special compensation will be paid for preparing or revising the above project AC/WN as the cost shall be considered incidental to the contract with compensation incorporated into the bid items(s).

39. **SPECIFICATIONS** The Construction Specifications for this contract will be those shown below and additions included in the bid document, if applicable. In the event of conflict, the City determination shall govern. The following specifications and standards, listed below, including all subsequent addenda, amendments and errata are made part of this contract to the extent required by the references thereto:

1. Maryland Department of Transportation, State Highway Administration, "Standard Specifications for Construction and Materials" (Maryland Department of Transportation, State Highway Administration), dated January 2008 and all errata and addenda thereto. MDSHA Book of Standards for Highway and Incidental Structures.
2. Montgomery County Department of Transportation "Montgomery County Road Construction Code and Standard Specifications."
3. Standard Specifications of WSSC dated July 2005.
4. Montgomery County Department of Transportation "Design Standards" August 1991.
5. Maryland Dept of the Environment "1994 Standards and Specifications Soil Erosion and Sediment Control"
6. The U. S. Department of Transportation, Federal Highway Administration, "Manual on Uniform Traffic Control Devices" latest edition.
7. Montgomery County Noise Ordinance.

40. **CONTRACT DOCUMENTS** The contract documents are complementary and what is required by anyone shall be binding as if required by all. Words and abbreviations that have well known technical or trade meanings are used in the contract documents in accordance with such recognized meanings. On drawings, the figured dimensions shall govern in the case of discrepancy between the scales and figures. Anything shown on the construction plans and not mentioned in the specifications or mentioned in the specifications and not shown on the plans shall have the same effect as if shown or mentioned respectively in both.

Prior to bidding, the Contractor should obtain clarification of all questions which may have arisen as to intent of the contract document, or any actual conflict between items in the contract documents. Should the Contractor have failed to obtain such clarification, then the City may direct that the work proceeds by any method indicated, specified, or required, in the judgment of the City, by the contract documents. Such direction by the City shall not constitute the basis for a claim for extra costs by the Contractor. The Contractor acknowledges that he had the opportunity to request clarification prior to submitting his bid to the City and that he is not entitled to a claim for extra cost as a result of failure to receive such clarification.

Any discrepancies which may be discovered during the execution of work between actual conditions and those represented by the contract documents shall be reported to the City and work shall not proceed until written instruction has been received by the contractor from the City.

41. **INTERPRETATION** Any questions concerning terms, conditions and definitions of the contract and bidding regulations shall be directed in writing to the Contract Officer. Any questions concerning the technical specifications and drawings shall be directed in writing to the Project Manager. The submission of a bid shall be prima facie evidence that the bidder thoroughly understands the terms of the contract documents. The Contractor shall take no advantage of any error or omission in these contract documents.
42. **PRE-CONSTRUCTION CONFERENCE** A pre-construction conference may be held in person or virtually following contract award. The meeting must be attended by the Contractor. No compensation will be made by the City to the Contractor for meetings.
43. **EMERGENCY CONTACT** The Contractor shall provide at least two local telephone numbers which may be used for contacting an official of the Contractor at all times, 24 hours per day, seven days per week: at which numbers person(s) of responsibility will be available to respond to City directives relative to the contract. The Contractor shall have available

sufficient personnel and equipment to immediately respond to emergency needs, as determined by the City. There will be no special compensation paid for this requirement, but the cost is to be considered incidental to the other contract pay items.

44. **SUPERVISION AND DIRECTION OF WORK** The work shall be under the general supervision of the Project Manager. While it is intended that the Contractor shall be allowed in general to carry on the contract in accordance with such general plan as may appear to the Contractor most desirable, the Project Manager, at the Project Manager's discretion, may from time to time, direct the order in which, and points at which, the work shall be prosecuted and may exercise such general control over the conduct of the work at a time or place, as shall be required, in the Project Manager's opinion, to safeguard the interests of the City, and the Contractor shall have no claims for damages or extra compensation on account of the fact that it shall have been necessary to carry on the work in different sequence from that which the Contractor may have contemplated. The Contractor shall immediately comply with any and all orders and instructions given by the Project Manager, but nothing herein contained shall be considered such an assumption of control over the work by the City or the Project Manager as to relieve the Contractor of any obligations or liabilities under the contract.
45. **INSPECTION** Work and materials will be inspected promptly to see that the same strictly correspond with the drawings and specifications, but if, for any reason, delay should occur in connection with such inspection, the Contractor shall have thereby no claim for damages or extra compensation. Materials and workmanship shall be always subject to the approval of the Project Manager, but no inspection, approval or acceptance of any part of the work or of the materials used therein, nor any payment on account thereof shall prevent the rejection of said materials or work at any time, thereafter, should said work or materials be found to be defective or not in accordance with the requirements of the contract. Any costs for any "re-inspection" of the job shall be the responsibility of the contractor.
46. **TERMINATION FOR DEFAULT** The contract may be cancelled or annulled by the City in whole or in part by written notice of default to the Contractor upon nonperformance or violation of contract terms and an award made to next low Bidder, or, articles specified may be purchased on the open market similar to those so terminated. In either event, the defaulting Contractor (or his surety) shall be liable to the City for costs to the City in excess of the defaulted contract prices: provided, that the Contractor shall continue the performance of this contract to the extent not terminated under the provisions of this clause.
47. **TERMINATION FOR CONVENIENCE** This Contract may be terminated, in whole or in part, upon written notice to the Contractor when the City determines that such termination is in its best interest. The termination is effective 10 days after the notice is issued unless a different time is given in the notice. The City is liable only for payment for goods and services delivered and accepted or approved by the City prior to the effective date of the termination.
48. **EMPLOYEES** The Contractor shall employ only competent, skillful persons to do the work, and whenever the Project Manager shall notify the Contractor in writing that any person employed on the work is, in his opinion, incompetent, disobedient, disorderly, discourteous, or otherwise unsatisfactory, such person shall be discharged from the work and shall not again be employed for this contract except with the consent of the Project Manager.
49. **NON-WORKDAY** The City observes the following holidays: New Year's Day, Martin Luther King's Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Juneteenth, Veterans' Day, Thanksgiving Day, Thanksgiving Friday and Christmas Day, all days of general and congressional elections throughout the State, and a five-day work week.

The Contractor will not be permitted to do any work which requires the services of the City's inspection, supervisory or line and grade forces on the days on which the above-mentioned holidays are observed by the City or on Saturdays or Sundays, unless otherwise authorized by the Project Manager in writing. However, the Contractor, with verbal permission of the Project Manager, may be permitted to perform clean up and such other items for which no specific payment is involved on Saturdays and holidays.

The normal number of working hours per day on this Contract will be limited to eight, unless otherwise authorized by the Project Manager in writing.

In case of an emergency, which may require the services of the City on Saturdays, Sundays, holidays or longer than eight hours per day, the Contractor shall request permission of the Project Manager to work. If, in the opinion of the Project Manager the emergency is bona fide, he will grant permission to the Contractor to work such hours as may be necessary. Also, if in the opinion of the Project Manager, a bona fide emergency exists, the Project Manager may direct the Contractor to work such hours as may be necessary whether the Contractor requests permission to do so or not.

50. **LANGUAGE** The Contractor shall appoint one or more crewmembers or supervisors to act as liaison with the City and emergency services personnel. All liaisons shall be fluently bilingual in English and the Contractor's employees' language(s), and at least one liaison shall be present at each work site at all times when any of the Contractor's employees or agents are at the site.

51. **IMMIGRATION REFORM AND CONTROL ACT**

The Contractor awarded a contract pursuant to this bid shall warrant that it does not and shall not hire, recruit or refer for a fee, for employment under the contract, an individual knowing the individual is an unauthorized individual and hire any individual without complying with the requirements of the Immigration Reform and Control Act of 1986 (the Act), including but not limited to any verification and record keeping requirements. The Contractor shall further assure the City that, in accordance with the Act, it does not and will not discriminate against an individual with respect to hiring, or recruitment or referral for a fee, of the individual for employment or the discharging of the individual from employment because of such individual's national origin or in the case of a citizen or intending citizen, because of such individual's citizenship status.

52. **EQUAL EMPLOYMENT OPPORTUNITY** The Contractor will not discriminate against any employee or applicant for employment because of age (in accordance with applicable law), ancestry, color, national origin, race, ethnicity, religion, disability, genetics, marital status, pregnancy, presence of children, gender, sexual orientation, gender identity or expression, or veteran status. The Contractor will take affirmative action to ensure that applicants are employed, and the employees are treated fairly and equally during employment with regard to the above. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment, layoff or termination, rates of pay or other form of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. Contractors must also include the same nondiscrimination language in all subcontracts.

If the Contractor fails to comply with nondiscrimination clauses of this contract or fails to include such contract provisions in all subcontracts that subcontractors will not discriminate against any employee or applicant for employment in the manner described above, this contract may be declared void AB INITIO, cancelled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further contracts with the City of Rockville. Any employee, applicant for employment, or prospective employee with information concerning any breach of these requirements may communicate such information to the City Manager who shall commence a prompt investigation of the alleged violation. Pursuant to such investigation, the Contractor will permit access to the Contractor's books, records, and accounts. If the City Manager concludes that the Contractor has failed to comply with nondiscrimination clauses, the remedies set out above may be invoked.

53. **ETHICS REQUIREMENTS** In accordance with the City's financial disclosure and ethical conduct policy and/or ordinances a prerequisite for payment pursuant to the terms of this contract is that the Contractor may be required to furnish explicit statements, under oath, that the City Manager, and/or any other officer, agent, and/or employee of the City, and any member of the governing body of the City of Rockville or any member or employee of a Commission, Board, or Corporation controlled or appointed by the City Council, Rockville, Maryland has not received or has not been promised directly or indirectly any financial benefit by way of fee, commission, finder's fee, or in any other manner, remuneration arising from directly or indirectly related to this contract, and that upon request by the City Manager, or other authorized agent, as a prerequisite to payment pursuant to the terms of this contract, the Contractor will furnish to the Mayor and Council of the City of Rockville, under oath, answers to any interrogatories to a possible conflict of interest has herein embodied.

54. **DRAWINGS TO BE FOLLOWED** The approved drawings, profiles and cross sections on file with the City will show the location, details and dimensions of the work contemplated, which shall be performed in strict accordance therewith and in accordance with the specifications. Any deviations from the drawings or specifications as may be required by the exigencies of construction in all cases will be determined by the Project Manager. There shall be no such deviations without the written authorization of the Project Manager. On all drawings, etc., the figured dimensions shall govern in the case of discrepancy between the scales and figures. The Contractor shall take no advantage of any error or omission in the drawings or specifications. The Project Manager shall make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the specifications and of the drawings as construed by the Project Manager whose decision shall be final.

55. **CERTIFICATION** Under no circumstances will Contractors be paid for materials utilized on any City contract unless certified to by the Project Manager. The Contractor must not incorporate any materials into a City project without prior authorization and certification of the Project Manager, unless necessary to eliminate or avoid hazardous conditions. Under these emergency circumstances the responsibility for notification to the Project Manager and quantity/quality confirmation rests with the Contractor and must be obtained within 24 hours of the work.

56. **DECISIONS AND EXPLANATIONS BY PROJECT MANAGER** The Project Manager shall make all necessary explanations as to the meaning and intent of the specifications and drawings, and shall give all orders and directions, either contemplated therein or thereby, or in every case in which a difficult or unforeseen condition arises during the prosecution of the work. Should there be any discrepancies, or should any misunderstanding arise as to the intent of anything contained in the drawings and specifications, the decision of the Project Manager shall be final and binding. The Project Manager shall in all cases determine the amount, quality, acceptability and estimates of the work to be paid for under the Contract and shall decide all questions in relation to the work. In case any questions arise between parties relating to the Contract, such decision and estimate shall be a condition precedent to the right of the Contractor to receive payment under that part of the Contract which is in dispute.

57. **WORK TO BE DONE AND MATERIALS TO BE FURNISHED** The Contractor shall do all the work and furnish all the labor, materials, tools, and equipment necessary or proper for performing the work required by the Contract, in the manner called for by the drawings and specifications and within the Contract time. The Contractor shall complete the entire work together with such extra work as may be required, at the prices fixed therefore, to the satisfaction of the Project Manager and in accordance with the specifications and drawings.
58. **NOTIFICATION TO OTHER AGENCIES** The Contractor will be responsible for notifying all concerned agencies affected by the work a minimum of 48 hours in advance of any activity, as prescribed by said agencies, including, but not limited to: the Washington Gas, PEPCO, Verizon Comcast Cable, Transcontinental Gas, City of Rockville Utilities Division, Montgomery County Government, State Highway Administration and the Washington Suburban Sanitary Commission. The Contractor must notify MISS UTILITY at 1-800-257-7777 a minimum of 72 hours and no more than 5 working days prior to removal of any pavement or beginning any excavation. There shall be no measurement or direct payment to the Contractor for such notification, working around, the protection of, or repair of damage to such existing utilities caused by the proposed construction activities directly or indirectly.
59. **PERMITS AND REGULATIONS** Unless stipulated elsewhere in these specifications, the Contractor shall be responsible for obtaining and paying for all applicable permits. Where signatures of the City are required in connection with the obtaining of such permits, certificates, etc., the Contractor shall prepare the proper paperwork and present it to the City for signature. City of Rockville Permit fees shall be waived. If the Contractor ascertains at any time that any requirement of this contract is at variance with applicable laws, ordinances, regulations and/or building codes, notification to the Project Manager shall be made immediately and any necessary adjustment to the contract shall be made. Without proper notice to the Project Manager, the Contractor shall bear all costs arising from the performance of work the Contractor knows to be contrary to such laws, ordinances, etc.
60. **EXCAVATION** Unless specifically provided in the specifications, all trench and roadway excavation is hereby unclassified as to the character of materials. The lump sum or unit price, as specified, for or including excavation shall constitute full payment for removal and disposal of all materials, regardless of type, encountered in trenching and roadway excavation, within the limits of this Contract, as necessary and as shown to be removed on the Contract drawings and/or as directed by the Project Manager, except as otherwise provided for under this Contract. All bidders are hereby directed to familiarize themselves with all site conditions including subsurface and the proximity of adjacent features.
61. **SERVICE OF NOTICES** The mailing a written communication, notice or order, addressed to the Contractor at the business address filed with the City, or to his office at the site of the work shall be considered as sufficient service upon the Contractor of such communication, notice or order; and the date of said service shall be the date of such mailing. Written notice shall also be deemed to have been duly served if delivered in person to the individual or member of the firm or to any officer of the corporation for whom it was intended if delivered or sent by registered or certified mail to the last known address.
62. **PATENT RIGHTS** Whenever any article, materials, equipment, process, composition, means, or things called for by these specifications is covered by letters of patent, the successful bidder must secure, before using or employing such article, material etc., the assent in writing of the Owner or Licensee of such Letters of Patent and file the same with the City.
- The said assent is to cover not only the use, employment, and incorporation of said article, material, equipment, process, composition, combination, means, or thing in the construction and completion of the work but also the permanent use of said article, material, etc., thereafter by or on behalf of the City, in the operation and maintenance of the project for the purposes for which it is intended or adapted. The Contractor shall be responsible for any claims made against the City, its agents and employees or any actual or alleged infringement of patents by the use of any such patented articles, etc., in the construction and completion of the work, and shall save harmless and indemnify the City, its agents and employees from all costs, expenses, and damages, including Solicitor's and Attorney's fees which the City may be obligated to pay by reason of any actual or alleged infringement of patents used in the construction and completion of the work herein specified.
63. **CARE AND PROTECTION OF WORK** From the commencement of the Contract until its completion, the Contractor shall be solely responsible for the care of the work and all injury or damage to the same, from whatever cause, shall be made good by the Contractor at the Contractor's own expense, before the final estimate is made. The Contractor shall provide suitable means of protection for all materials intended to be used in the work and for work in progress, as well as completed work.
64. **ABANDONMENT OF OR DELAY IN WORK** If the work under the Contract shall be abandoned by the Contractor, or if at any time the Project Manager shall be of the opinion and shall so certify, in writing, to the Contractor, that the performance of the Contract is unnecessarily or unreasonably delayed, or that the Contractor has violated any of the provisions of the Contract or is executing the same in bad faith or if the work is not fully completed within the time specified for its completion, together with such extension of time as may have been granted, the City by written notice, may order the Contractor to discontinue all work there under, or any part thereof, within the number of days specified on such notice. At the expiration of said time the Contractor shall discontinue the work, or such part thereof, and the City shall have the power, by Contract, or otherwise, to complete said work and deduct the entire cost thereof from any monies due or to

become due the Contractor under the Contract. For such completion of work the City may, for itself or its Contractor, take possession of and use or cause to be used any or all materials, tools, and equipment found on the site of said work. When any part of the Contract is being carried on by the City, as herein provided, the Contractor shall continue the remainder of the work in conformity with the terms of the Contract and in such manner as not to interfere with the City's workmen.

65. **SUBLETTING OR ASSIGNING OF CONTRACT** The City and the Contractor each bind themselves, their partners, successors, assigns and legal representatives of such other parties in respect to all covenants, agreements, and obligations contained in the contract documents. Neither party to the contract shall sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of the work provided for therein, or of his right, title or interest therein to any person, firm or corporation without the written consent of the other party, nor shall the Contractor assign any monies due or to become due hereunder without the previous written consent of the City.
66. **NO WAIVER OF CONTRACT** Neither the acceptance by the City or its Project Manager nor any order, measurement, certificate or payment of money, of the whole or any part of the work, nor any extension of time nor possession taken by the City or its Project Manager shall operate as a waiver of any portion of the Contract, or any right to damage therein provided. The failure of the City to strictly enforce any provision of this contract shall not be a waiver of any subsequent breach of the same or different nature.
67. **DUTIES, OBLIGATIONS, RIGHTS AND REMEDIES** The duties and obligations imposed by the contract documents and the rights and remedies available there under shall be in addition to and not a limitation of the duties, obligations, rights, and remedies otherwise imposed or available by law, unless so indicated.
68. **IMPLIED WORK** All incidental work required by the drawings or specifications for which no payment is specifically provided, and any work or materials not therein specified which are required to complete the work and which may fairly be implied as included in the Contract, and which the Project Manager shall judge to be so included, shall be done or furnished by the Contractor without extra compensation. The intent is to prescribe a complete work or improvement which the Contractor undertakes to do in full compliance with the contract documents together with any authorized alterations, special provisions, and supplemental agreements.
69. **MEASUREMENT OF WORK AND MATERIAL** The work and material to be paid for will be measured and determined by the Project Manager according to the specifications and drawings, and the working lines that may be given. No allowance will be made for any excess above the quantities required by the specifications, drawings, and lines on any part of the work, except where such excess material has been supplied or work done by order of the Project Manager and in the absence of default or negligence on the part of the Contractor. Should the dimensions of any part of the work or of the materials be less than those required by the drawings or the directions of the Project Manager, only the actual quantities placed will be allowed in measurement.
70. **EXTRA COSTS** If the contractor claims that any instructions by the contract documents or otherwise involve extra compensation or extension of time, a written protest must be submitted to the Project Manager within ten (10) calendar days after receipt of such instructions and before proceeding to execute the work, stating in detail the basis for objection. No such claim will be considered unless so made.
71. **CONTINGENT ITEMS & QUANTITIES** Items and quantities identified as being contingent are provided in the Contract for use when and as directed by the Project Manager. These items shown on the Plans or in the specifications are established for the purpose of obtaining a bid price. The quantities for these contingent items may be increased or decreased without any adjustment to the Contract unit price bid or the contingent items may be deleted entirely from the Contract by the Project Manager without negotiation. The Contractor shall submit no claim against the City for any adjustment to the Contract unit price bid, should the contingent items be increased, decreased, or eliminated entirely. Payment for any contingent items used will be made on the basis of the quantities as actually measured and as specified in the Specifications. Materials, Construction Requirements and Basis of Payment shall be as specified elsewhere in the Specifications, Plans or Special Provisions.
72. **CHANGES IN THE SCOPE OR EXTRA WORK** The City, without invalidating the contract, may issue written changes in the work consisting of additions, deletions, or modifications with the contract sum and completion date being adjusted accordingly. All such changes, or additional work must be authorized in writing by the Purchasing Agent prior to starting such work. Costs shall be limited to the cost of materials, labor, field supervision and field office personnel directly involved in and attributed to the change. All costs and/or credits to the City for a change in the work shall be determined by the unit price bid or by mutual agreement, where any agreed upon charges related to overhead may not exceed 5% of the total cost of the changes and any agreed upon charges to profit may not exceed 10% of the total cost of the changes.

The Contractor shall do all work that may be required to complete the work contemplated at the unit prices bid or at a lump sum price to be mutually agreed upon.

The Contractor shall perform extra work, for which there is no quantity or price included in the Contract, whenever it is deemed necessary or desirable, to complete fully the work as contemplated, and such work shall be done in accordance

with the specifications therefore, or in the best workmanlike manner as directed. Where such a price or sum cannot be agreed upon by both parties, or where this method of payment is impracticable, the Project Manager may order the Contractor to do such work on a force account basis, which will be paid for as follows.

73. **FORCE ACCOUNT WORK** When the Contractor is required to perform work as a result of additions or changes to the contract for which there are no applicable unit prices in the contract, the City and Contractor shall make every effort to come to an agreed upon price for the performance of such work. If an agreement cannot be reached, the City may require the Contractor to do such work on a force account basis to be compensated in accordance with the following:

- A. Labor. For all labor and for foremen in direct charge of the specific operations the Contractor shall receive the actual wages for each and every hour that said labor and foremen are actually engaged in such work.
- B. Materials. For materials accepted by the Project Manager and incorporated into the project, the Contractor shall receive the actual cost of such materials, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth). Excess materials delivered to the job site and not incorporated into the project will not be paid for and it is the Contractor's responsibility to remove said excess material from the job site.
- C. Equipment. For any machinery or special equipment (other than small equipment tools, whether rented or owned), the use of which has been authorized in writing, by the Project Manager the Contractor shall receive the rates agreed upon in writing before such work is begun which price shall include fuel, oil and miscellaneous necessities, or the Contractor shall receive those rates which may be specified elsewhere in the Special Provisions. For the purpose of definition, equipment with a new cost of \$1000 or less will be considered small tools and equipment.
- D. Materials and Supplies Not Incorporated in the Work. For materials and supplies expended in the performance of the work (excluding those required for rented equipment) and approved by the Project Manager, the Contractor shall receive the actual cost of such materials and supplies used.
- E. Subcontractors. The Contractor shall receive the actual cost of work performed by a subcontractor. Subcontractor's cost is to be determined as in A., B., C., and D. above, plus the fixed fee for overhead and profit allowance computed as in G.
- F. Superintendence. No additional allowance shall be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided
- G. Contractor's Fixed Fee. The procurement officer and the Contractor shall negotiate a fixed fee for force account work performed pursuant to this specification by his force and by his subcontractors. The City shall pay 10 percent of A as compensation for overhead and profit for the work performed. The Contractor shall proceed diligently with the performance of the force account work to completion. The Contractor's fixed fee shall include an amount equal to the sum of 65 percent of A, which shall include, but not be limited to the following:

(1) Compensation for all costs paid to, or in behalf of, workmen by reason of subsistence and travel allowances, health and welfare benefits, pension fund benefits or other benefits that may be required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed in the work; and

(2) Bond premiums, property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions and Social Security taxes on the force account work.

In addition, the Contractor's fixed fee may include an amount not to exceed 10 percent of B, unless specifically authorized by the Project Manager in advance of the work; 5 percent of D, and 5 percent of E with the exception of that portion chargeable to equipment as defined above.

- H. Compensation. The compensation as set forth above shall be received by the Contractor as payment in full for change order work done on a force account basis. At the end of each day, the Contractor's representatives and the Project Manager, shall compare records of the cost of work as ordered on a force account basis. Differences shall be immediately resolved, and any unresolved difference shall be brought to the attention of the Project Manager by written notice from the Contractor within two working days of the occurrence.
- I. Statements. No payment will be made for work performed on a force account basis until the Contractor furnishes the Project Manager duplicate itemized statements of the cost of such force account work detailed as to the following:
  - (1) Name, classification, date, daily hours, total hours, rate, and extension for such workmen. Contractor shall provide certified payrolls

(2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment. Contractor shall provide original receipted invoices.

(3) Quantities of materials, prices, and extensions. Contractor shall provide original receipted invoices.

(4) Transportation of materials. Contractor shall provide original receipted invoices.

If, however, the materials used in the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the original invoices the statements shall contain or be accompanied by an affidavit of the Contractor which shall certify that such materials were taken from his stock that the quantity claimed was actually used and that the price and transportation of the material as claimed represent actual cost. Any request for payment under this Section should be submitted in the order outlined by the above.

The Contractor shall be responsible for all damages resulting from work done on a force-account basis, the same as if this work had been included in the original Contract.

Work performed without previous written order by the Project Manager will not be paid.

74. **ALLOWANCES** Whenever an allowance is mentioned in the specifications, then the contractor shall include in his contract sum the entire amount of such specified allowances. The expenditure of these allowances is to be at the Purchasing Manager's direction. However, the allowance expenditure is limited to items properly inferable from the title and description of the allowance. Unexpended balances are to be credited to the City. Compensation payable to the contractor for expenditure of allowances directed by the Purchasing Manager shall be based on the cost to the contractor as shown by actual invoices or receipts, and no additional overhead or profit shall be payable to the contractor for such allowances.

75. **PROGRESS PAYMENTS AND RETAINAGE** The Contractor shall submit a detailed application for payment on a monthly basis, preferable on an AIA G702 form. Such application for payment, notarized, if required, must be accompanied by supporting data and documents substantiating the Contractor's right to payment and reflecting a five percent (5%) retainage.

Applications for payment shall not include payment for equipment or materials delivered to the site but not installed or for materials or equipment properly stored off-site unless specifically approved by the Project Manager. If such approval is granted, the Contractor must submit with the application for payment, bills of sale or other such documentation satisfactory to the City to establish the City's title to such materials or equipment or otherwise to protect the City's interest, including applicable insurance and transportation to the site for materials and equipment stored off site. Such approvals are typically reserved for "big ticket" items that individually would exceed five percent (5%) of the bid total. The Contractor shall promptly pay each subcontractor and supplier for work completed upon receipt of payment from the City the amount to which said subcontractor is entitled, reflecting any percentage retained from payments to the Contractor on account of each subcontractor's work. The Contractor shall, by an appropriate agreement with each subcontractor, require each subcontractor to make prompt payments to his subcontractors in a similar manner.

The City shall be under no obligation to pay or to see to the payment of any moneys to any subcontractor except as may otherwise be required by law.

No Certificate of Payment or partial or entire use of the facility by the City shall constitute an acceptance of any work which is not in accordance with the Contract Documents.

**Payments Withheld** – The City may decline to certify payment or because of subsequently discovered evidence or observations, nullify the whole or any part of any Certification of Payment previously issued, as may be necessary to protect the City from loss because of: (1) defective work not remedied, (2) third party claim filed or evidence indicating probable filing of such claim, (3) failure of the Contractor to make payments properly to subcontractors or suppliers, (4) reasonable evidence that the work cannot be completed for the unpaid balance of the contract sum, (5) reasonable evidence that the work will not be completed within the Contract time, (6) persistent failure to carry out the work.

76. **FINAL PAYMENT REQUEST** Upon reaching substantial completion, as defined by receipt of occupancy permit or when all related punch list items have been completed, whichever date is later, the Contractor may submit a written Application for Final Payment. All supporting documentation and data shall be submitted with the Request for Final Payment as is applicable to the monthly Requests for Payment referenced heretofore.

Out of the amount representing the total of the final payment request the City shall deduct five (5%) percent, which shall be in addition to any and all other amounts which, under the Contract, it is entitled or required to retain and shall hold said sum for a period of one hundred and twenty (120) days after the date of acceptance of the work by the City.



Within thirty (30) days after the approval of the final payment request, the City will pay to the Contractor the amount remaining after deducting from the total amount of the final estimate all such sums as have hereto before been paid to the Contractor under the provision of the Contract and also such amounts as the City has or may be authorized under the Contract to reserve or retain.

Neither the final payment nor the remaining retainage shall become due until the Contractor submits to the Project Manager:

1. An affidavit that all payrolls, bills for materials and equipment and other indebtedness connected with the work for which the City or his property might in any way be responsible, have been paid.
2. Consent of surety to final payment, and
3. If requested, data establishing payment or satisfaction of obligations, such as receipt, release and waivers of liens arising out of the Contract;
4. All punch list items are completed to the satisfaction of the Project Manager.

If any subcontractor refuses to furnish a release or waiver of liens required by the City, the Contractor may furnish a bond satisfactory to the City to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorney fees.

Acceptance by the Contractor of final payment shall operate as a release to the Mayor and Council and every officer and agent thereof, from all claims and liabilities to the Contractor for anything done or furnished or relating to the work under the contract.

77. **RELEASE OF RETAINAGE** Upon the expiration of the aforesaid period of one hundred and twenty (120) days succeeding the date of acceptance, the City will pay to the Contractor all sums reserved or retained, less such amount as it may be empowered under the provisions of the Contract to retain.
78. **GUARANTEES / WARRANTIES** All guarantees and warranties required shall be furnished by the Contractor and shall be delivered to the Project Manager before final payment is made. The Contractor guarantees that the items conform to the contract documents.
79. **GUARANTEE PERIOD** Unless otherwise specified in the Invitation for Bid documents, the Contractor shall warrant and guarantee the work required under this Contract for a period of twelve (12) months from the date of Final Acceptance. The Contractor warrants and guarantees to the City, that materials and equipment furnished under the Contract shall be of good quality and new unless otherwise required or permitted by the Contract Documents, that all work will be in accordance with the Contract Documents, and that all work will be of good quality, free from faults and defects. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the City, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

The Contractor's obligation to perform and complete the work in a workmanlike manner, free from faults and defects and in accordance with the Contract Documents shall be absolute. The Contractor shall remedy, at his own expense, and without additional cost to the Owner, all defects arising from either workmanship or materials, as determined by the City, or City's representative. The obligations of the Contractor under this Paragraph shall not include normal wear and tear under normal usage.

If the Contractor does not, within ten (10) days after notification from the Project Manager, signify his intention in writing or in action to correct work, as described above, then the Project Manager may proceed with the work and charge the cost thereof to the account of the Contract as herein before provided.

80. **Substantial Completion**. Sufficient completion of the project or the portion thereof to permit utilization of the project, or portion thereof for its intended purpose. Substantial completion requires not only that the work be sufficiently completed to permit utilization, but that the City can effectively utilize the substantially completed work. Determination of substantial completion is solely at the discretion of the City. Substantial completion does not mean complete in accordance with the contract nor shall substantial completion of all or any part of the project entitle the Contractor to acceptance under the contract.

At such time as the Contractor has completed the work and prior to requesting a final inspection, the Contractor shall make written request for an inspection for substantial completion. Such request shall be made no less than seven (7) calendar days prior to the requested date of inspection. An inspection will be made by the City and a determination will be made as to whether or not the work is in fact substantially complete and a "punch list" will be developed. "Punch Lists" containing numerous items or items which may affect the intended use of the work will be considered cause to delay issuance of a document of Substantial Completion. Operation and Maintenance manuals shall be submitted and approved prior to issuance of any document of Substantial Completion.

81. **TRANSFER OF TITLE** The Contractor warrants that title to all work, materials and equipment covered by the Application for Payment will pass to the City either by incorporation in construction or upon the receipt of payment by the Contractor, free and clear of all liens, claims, interests or encumbrances, and that no work, materials, or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any person performing the work at the site or furnishing materials or equipment for the project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other persons.
82. **USE OF PREMISES** Whenever, in the opinion of the Project Manager, any portion of the work is completed or is in an acceptable condition for use, it shall be used for the purpose it was intended, however, such use shall not be held as acceptance of that portion of the work, or as a waiver of any of the provisions of the Contract.
83. **DETERMINATION OF CITY'S LIABILITY** The acceptance by the Contractor of the final payment made as aforesaid shall operate as and be a release to the City and every officer and agent thereof, from all claims by and liabilities to the Contractor for anything done or furnished for or relating to or affecting the work under the contract.
84. **NO LIMITATION OF LIABILITY** The mention of any specific duty or liability of the Contractor in any part of the specification shall not be construed as a limitation or restriction upon any general liability or duty imposed upon the Contractor.
85. **PRESERVATION OF MONUMENTS AND TREES** The Contractor shall be responsible for the preservation of all public and private property, trees, monuments, highway signs, markers, fences, and curbs or other appurtenances, and shall use every precaution to prevent damage or injury thereto. Any expense necessary to provide adequate protection, whether such designated item be on or off the right-of-way, shall be assumed by the Contractor.
86. **PUBLIC ACCESS** The Contractor shall at all times conduct the work in such a manner as to insure the least obstruction to traffic practicable. The convenience and safety of the general public and the residents along the improvement shall be provided for in an adequate and satisfactory manner. Fire hydrants shall be kept accessible to fire apparatus at all times. Handicap access shall remain accessible.
87. **HAZARDOUS AND TOXIC SUBSTANCES** Manufacturers and distributors are required by Federal "Hazard Communication" provision (29 CFR 1910.1200), and the Maryland "Access to Information About Hazardous and Toxic Substances" law to label each hazardous material or chemical container, and to provide Material Safety Data Sheets to the purchaser. The Contractor must comply with these laws and must provide the City with copies of all relevant documents, including Material Safety Data Sheets, prior to performance of services or contemporaneous with the delivery of goods.
88. **MAINTENANCE OF VEHICULAR TRAFFIC (if applicable)** Unless otherwise directed by the Project Manager, traffic must be maintained on all roadways within the construction area continuously or with the least amount of interruption during the construction period necessary to minimize accidents and accident severity and maintain safety while at the same time minimizing inconvenience to the traveling public and the Contractor. The Project Manager shall have the exclusive right to order a road to be closed or to remain open. No equipment will be stored or permitted to stand within the limits of the roadway right-of-way where traffic must be maintained. Any earth dropped on the surface of the existing road shall be removed immediately to avoid possible hazardous conditions. The Contractor shall prepare and submit a Traffic Control Plan (TCP) for the Project Manager's review, revision, and approval, at least ten days before beginning work, unless otherwise directed.

All Traffic Control Devices shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), latest edition (and all revisions). With the approved TCP implemented, the Contractor will be permitted to work with the following provisions: All traffic lanes must be restored at the end of each day unless specifically authorized otherwise, in advance, by the Project Manager:

The City reserves the right to modify or expand on the methods of traffic control specified and to restrict working hours if, in the opinion of the Project Manager, the Contractor's operations are a detriment to traffic during rush hour periods.

Signs on fixed supports shall be mounted on two posts. Signs mounted on portable supports are suitable for temporary conditions. During periods of partial shutdown, or extended periods when no work is being performed, the Contractor shall remove or adequately cover all construction signs as directed by the Project Manager.

The Contractor shall be responsible for removing, storing, covering, and resetting all existing traffic signs and delineators that become inapplicable and will confuse traffic during the various stages of construction, the cost of which shall be included in the price for Maintenance of Traffic or in the absence of such a pay item it shall be accomplished at no additional compensation, as incidental to the contract. Any signs lost or damaged will be replaced by the Contractor at its expense.

The Contractor shall provide, maintain in new condition, and move when necessary or directed all traffic control devices used for the guidance and protection of vehicles.

The Contractor shall be responsible for providing the appropriate signs to reflect varying traffic patterns prior to the commencement of a new stage of construction.

Traffic must be safely maintained at all times throughout the entire length of the project. No additional compensation shall be paid to the contractor for traffic maintenance, even if the contract time exceeds the contractually specified completion date or working days.

When required lane shifts are implemented, existing painted lane markings no longer applicable shall be removed to the satisfaction of the Project Manager.

Temporary crash cushions are to be installed as shown on the Plans. Unless otherwise specified, sand containers shall be used. The crash cushions shall conform to Subsection 104.10 of the MDSHA Specifications.

Crash cushions shall be reset to reflect changing traffic patterns caused by different stages of Traffic Control. The crash cushions shall be reset at locations shown on the Plans or as directed by the Project Manager.

Should any of the sand container components be damaged during the resetting of the system or during the course of the project, the Contractor shall replace the damaged components at its own expense.

The Contractor shall have flaggers on this Project for the purpose of controlling traffic while maneuvering heavy equipment. This may require a temporary lane closure in any of the specified Traffic Control Phases. These temporary lane shutdowns shall be kept to a minimum and the normal traffic pattern for the Traffic Phase shall be restored as quickly as possible. The Contractor shall comply with Section B-20 of the MUTCD regarding flagger signing.

Prior to stopping work each day the Contractor will be required to reshape all graded areas and eliminate all drop-offs not protected by barriers by filling with compacted stone at maximum of 8:1 slope.

All barriers and barricades shall be adequately illuminated at night, as specified herein, and all lights for this purpose shall be kept operative from sunset to sunrise.

No work shall be commenced in any stage of construction until the barriers and barricades for that stage, indicated on the Plans, or as specified by the Project Manager, are completely in place. The Contractor will be solely responsible for all accidents and damages to any persons and property resulting from its operations. Compliance with prescribed precautions contained herein or in the MDSHA Specifications or Manual On Uniform Traffic and Control shall not relieve the Contractor of its primary responsibility to take all necessary measures to protect and safeguard the work, nor relieve the Contractor from any responsibilities prescribed by GP-7 of the January 2001 MDSHA Standard Specifications for Construction and Materials.

The Contractor shall notify and obtain approval in writing from the Project Manager, at least 48 hours before changing any Traffic Control Phase.

Any construction materials or debris dropped on the roadway surface shall be removed immediately to avoid possible hazardous conditions.

Materials The Contractor shall provide, maintain in first class condition, replace, and move when necessary or directed all materials, devices, flagging, etc., required to maintain traffic in accordance with the Traffic Control Plans or as directed by the Project Manager. Reference is made to the latest edition of the MUTCD, wherein all such items are fully described with regard to use, application, warranties, size, color, placement, etc., and wherein typical traffic control device layouts are shown, as all such devices and techniques planned for use on this project shall strictly conform to the Manual's request except as noted on the Plans.

When any of the following items have been established on the Plans or as directed by the Project Manager, the Specifications will be adhered to in accordance with the respective sections.

Lights, Warnings, Etc.: - All banners and imitation barrels shall be adequately illuminated at night, and all lights for this purpose shall be kept operative from sunset to sunrise.

Steady burning warning lights shall be used to delineate channelization through and around obstructions in a construction or maintenance area, on detour curves, on lane closures, and in other similar conditions (MUTCD 6E-4, 6E-5). Flashing warning lights shall be the means for identifying a particular and individual hazard and shall not be used in sequence, in clusters, or for delineation (MUTCD: 6E-5, 6E-6).

Where noted on the plans the first two (2) warning signs shall include a "High Level Warning Device." In addition to the flags the signs shall also be equipped with a Type "B" High Intensity Flag Warning Light. This device must meet the requirements of MUTCD 6C-11 and 6E-5. The device shall be incidental to the Temporary Traffic Sign item if provided for, otherwise the costs shall be considered incidental, and no special compensation will be paid.

**Barriers:** Temporary concrete barriers shall be installed on the roadway approaches as shown on the plans or as approved in writing.

Any permanent facilities damaged as a result of anchoring temporary concrete barriers (anchor holes, etc.) shall be repaired to the satisfaction of the Project Manager using an epoxy grout or other material as may be specified by the Project Manager. Epoxy grout shall consist of sand and epoxy, mixed by volume according to manufacturer's recommendations.

**Method of Measurement and Basis of Payment:** All work and materials required under the TCP not covered or specified as a pay item on the price proposal form will be included in the lump sum price bid for Maintenance of Traffic. In the absence of such an item the Contractor agrees that there will be no special compensation paid for maintenance of vehicular traffic as described above and the cost shall be considered incidental to the contract and compensated as part of other contract bid item(s).

89. **PARKING, STORAGE AND STAGING AREAS** Parking, storage and staging areas for the Contractor's use during the Project must have prior approval of the Project Manager. All areas used for storage of equipment or material shall be restored to their original condition, immediately upon completion of the work. No additional compensation will be provided for restoring, re-grading, placement of topsoil, and seed and mulch in these areas.
90. **PEDESTRIAN TRAFFIC** Pedestrians shall be safeguarded by the use of signs lights, barricades and barriers as shown on the traffic control plan and/or directed by the Project Manager. Pedestrian traffic shall be maintained at all times unless specifically authorized otherwise, in advance, by the Project Manager. The Contractor shall submit a pedestrian traffic safety plan in accordance with the MUTCD, incorporating safety measures and other provisions to fully implement the intent of this paragraph. All work and materials required to prepare and implement the pedestrian traffic safety plan shall be considered incidental to the contract and there shall be no special compensation paid for this item unless special pay items are included in the Price Proposal page. No additional compensation shall be paid for maintenance of vehicular and pedestrian traffic if for whatever reason the project time extends beyond the contract specified completion date or working days.
91. **HANDICAP ACCESS** Where handicap access exists within the line of work under this contract it will be the contractor's responsibility to maintain said access during the life of this contract. This service is incidental to this contract and no special compensation will be paid for this service unless provided on the Price Proposal page.
92. **TOILET FACILITIES** Toilet facilities meeting MOSHA standards shall be provided at the job site for all projects exceeding \$100,000 in value and at all other job sites when directed by the City. No special compensation shall be paid unless specifically provided for in the Price Proposal page of this solicitation.
93. **STAKEOUT-CONSTRUCTION CONTROL** Survey construction control provided by the City shall be limited to the baseline with stations not over 100 feet, and the elevation of the top of each marked point. P.C.s, P.T.s, P.I.s, P.V.T.s, and at least one point on the tangent beyond the end of each curve will be staked. The Contractor shall request baseline stakeout a minimum of five days in advance of construction. Stakeout data other than stated above will be furnished by the construction Contractor per MDSHA Section 815 for structures, otherwise per WSSC specs. section 01000(H) and as described in detail below and in these specifications. The City's responsibility for stakeout for the entire project shall be limited to that data described above and this shall be provided only once. The Contractor shall preserve or otherwise ensure adequate survey controls exist throughout the life of the contract.

Surveys and stakeout shall be accomplished by the Contractor as outlined above and in conformance with WSSC specifications Section 01000-10-I (H), entitled "Construction Stakeout By Contractor."

The provisions therein are primarily for pipeline stakeout. The Contractor's responsibilities under this contract are hereby expanded to include, in addition to pipeline stakeout, similar responsibilities for all phases of stakeout necessary to construct all facilities under this contract including but not limited to clearing and grubbing excavation, pavement, curbs and gutters, storm drainage pipes and facilities, culverts, structures, storm water management facilities, street lights, traffic signal conduits and components, noise walls, retaining walls, ditches and sediment control features.

The stakeout and survey record data shall be preserved and turned over to the City for filing following completion of specific components of work.

**Method of Measurement and Payment** Generally, stakeout shall be considered incidental to the contract and no special compensation shall be paid, unless a specific pay item is included in the contract Price Proposal page of this contract. Where payment is provided, progress payments for stakeout shall be made based on the percentage resulting from the price bid for stakeout divided by the total bid, multiplied by the monthly payment exclusive of the stakeout payment, except the final payment shall be adjusted as necessary to equal the total price bid for stakeout.

**Grade Sheet by Contractor:** Grade sheets showing hub and design elevations for roadway, water mains, drainage structures and piping, walks, lights, infiltration facilities clearing/grubbing, excavation, and related components will be

provided by the construction Contractor at least 8 hours in advance of construction and will be subject to approval by the Project Manager. Stakeout for curb and gutter in all vertical and horizontal curves is to be at intervals of 25 feet or less unless otherwise specifically authorized by the Project Manager. This work is considered incidental to the contract and no extra compensation will be paid.

94. **DEBRIS** Under no circumstance will any open fires be permitted within the City of Rockville. All debris will be removed and hauled from site (except when otherwise specifically authorized in the bid document) and disposed in accordance with Local, State and Federal laws in effect at the disposal site. No special compensation will be paid as all costs for off-site disposal shall be included in the applicable bid prices and considered incidental to the contract.
95. **CLEAN UP** In addition to any provisions regarding clean up in the bid document, clean up, including the restoration of areas of construction, shall proceed as quickly as is practicable. The period between construction and final clean up shall normally not exceed one week. If at any time during the course of the work the cleaning operation in any given area becomes delinquent in the opinion of the Project Manager, he may order that construction be stopped until such cleaning is completed. Any such order shall not extend the Final Completion date under this contract. Unless otherwise indicated, all materials razed, demolished, or otherwise removed from the work site shall become the property of the Contractor and shall be disposed of legally and properly off site at his expense.

Upon Final Completion of the work and before acceptance and final payment shall be made, the Contractor shall clean and remove from the street, footways, lawns, and adjacent property, all surplus and discarded materials, rubbish and temporary structures, restore in an acceptable manner all property, both public and private, which has been damaged during the prosecution of the work and shall leave the work area in a neat and presentable condition throughout the entire length of the project under contract.

If the Contractor fails to clean up at Final Completion of the work, the City may do so, and the cost thereof shall be charged to the Contractor.

## INSURANCE REQUIREMENTS REV2 (09/08)

Prior to the execution of the contract by the City, the Contractor must obtain at their own cost and expense and keep in force and effect during the term of the contract including all extensions, the following insurance with an insurance company/companies licensed to do business in the State of Maryland evidenced by a certificate of insurance and/or copies of the insurance policies. The Contractor's insurance shall be primary. **The Contractor must electronically submit to the Purchasing Division a certificate of insurance prior to the start of any work.** In no event may the insurance coverage be less than shown below.

Unless otherwise described in this contract the successful contractor and subcontractors will be required to maintain for the life of the contract and to furnish the City evidence of insurance as follows:

**MANDATORY REQUIREMENTS FOR INSURANCE**

Contractor's insurance coverage shall be primary insurance as respects the City, its elected and appointed officials, officers, consultants, agents and employees and any insurance or self-insurance maintained by the City, shall be excess of the Contractor's insurance and shall not be called upon to contribute with it.

Type of Insurance	Amounts of Insurance	Endorsements and Provisions
<b>1. Workers' Compensation</b> <b>2. Employers' Liability</b>	Bodily Injury by Accident: \$100,000 each accident  Bodily Injury by Disease: \$500,000 policy limits  Bodily Injury by Disease: \$100,000 each employee	Waiver of Subrogation: <b>WC 00 03 13 Waiver of Our Rights to Recover From Others Endorsement signed and dated.</b>
<b>3. Commercial General Liability</b> a. Bodily Injury b. Property Damage c. Contractual Liability d. Premise/Operations e. Independent Contractors f. Products/Completed Operations g. Personal Injury	Each Occurrence: \$1,000,000	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage. <b>CG 20 37 07 04 and CG 20 10 07 04 forms to be both signed and dated.</b>
<b>4. Automobile Liability</b> a. All Owned Autos b. Hired Autos c. Non-Owned Autos	Combined Single Limit for Bodily Injury and Property Damage - (each accident): \$1,000,000	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage. <b>Form CA20 48 02 99 form to be both signed and dated.</b>
<b>5. Excess/Umbrella Liability</b>	Each Occurrence/Aggregate: \$1,000,000	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage.
<b>6. Professional Liability</b>	Each Occurrence/Aggregate: \$1,000,000	Non-Applicable

Alternative and/or additional insurance requirements, when outlined under the special provisions of this contract, shall take precedence over the above requirements in part or in full as described therein.

**BUILDERS RISK INSURANCE**

In addition to the insurance requirements contained above, a Builders Risk Insurance Policy with coverage limits equivalent to the amount of the construction materials, equipment and property, evidencing the Mayor and Council as an additional insured to the policy is also required.

**POLICY CANCELLATION**

No change, cancellation or non-renewed shall be made in any insurance coverage without a thirty (30) day written notice to the City Purchasing Division. The Contractor shall electronically furnish a new certificate prior to any change or cancellation date. The failure of the Contractor to deliver a new and valid certificate will result in suspension of all payments and cessation of on-site work activities until a new certificate is furnished.

**ADDITIONAL INSURED**

**The Mayor and Council of Rockville, which includes its elected and appointed officials, officers, consultants, agents and employees must be named as an additional insured** on the Contractor's Commercial and Excess/Umbrella Insurance for liability arising out of contractor's products, goods, and services provided under this contract. Additionally, The Mayor and Council of Rockville must be named as additional insured on the Contractor's Automobile and General Liability Policies. Endorsements reflecting the Mayor and Council of Rockville as an additional insured are required to be submitted with the insurance certificate.

**SUBCONTRACTORS**

All subcontractors shall meet the requirements of this Section before commencing work. In addition, Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

**CERTIFICATE HOLDER**

**The Mayor and Council of Rockville**

**(Contract #, title)**

City Hall

111 Maryland Avenue

Rockville, MD 20850

**INVITATION FOR BIDS #13-24**  
**OUTDOOR RECREATION POOL RENOVATIONS**  
**SECTION III: SPECIAL PROVISIONS**

These Special Provisions are hereby made a part of the contract. In case of conflict with the terms and conditions or the Specifications of the City of Rockville, Montgomery County Government, the Washington Suburban Sanitary Commission, the Maryland State Highway Administration, the Maryland Department of the Environment or the Montgomery Soil Conservation District, the Special Provisions shall govern.

**3.1 Point of Contact**

To ensure fair consideration for all Bidders, the City prohibits communication to or with any department, elected official or employee during the submission process, other than the Procurement Division, regarding the requirements for this submittal. Any such contact may be considered grounds for disqualification. The City shall not be responsible for oral interpretations given by any City employee or its representative.

All inquiries concerning clarifications of this solicitation or for additional information shall be submitted in writing by email only and directed as follows:

The sole point of contact at the City for purposes of this RFP, prior to award of any contract, is Jonathan Pierson, [jpierson@rockvillemd.gov](mailto:jpierson@rockvillemd.gov).

**Jonathan Pierson, Assistant Director**  
City Hall – Procurement Division  
111 Maryland Avenue  
Rockville, MD. 20850  
Telephone: (240) 314-8433  
Email: [jpierson@rockvillemd.gov](mailto:jpierson@rockvillemd.gov)

All responses to questions/clarifications will be sent to all prospective Bidders in the form of a written addendum. Material changes, if any, to the scope of work, or bid procedures will also be transmitted by written addendum.

**3.2 Minimum Qualification Requirements**

Bidders must provide written evidence (through references) of a minimum of five (5) years prior experience with the scope of work as detailed in the specifications. General Contractors must submit evidence and references for their firm **and the swimming pool subcontractor (if the bidder is not primarily a swimming pool constructor contractor)** with the bid to be considered responsive. Five days after Notice of Intent to Award by the City, a listing of subcontractors (except Swimming Pool contractor as noted herewith) along with evidence of their experience and references meeting the requirements listed within pertinent sections of the technical specifications shall be submitted to the City. The Bidder shall satisfy the City that they and any subcontractors have been engaged in the particular skills required and appropriately licensed to perform the following categories of work according to the requirements listed in the technical specifications.

The general contractor and swimming pool subcontractor must have established a successful performance record of completed swimming pool and associated site and



equipment construction, at a commercial or municipal facility of comparable size and scope within the Metropolitan Baltimore - Washington D.C area. as follows:

- 1) General Contracting;
- 2) Concrete;
- 3) Masonry;
- 4) Heating, Ventilating & Air Conditioning Work;
- 5) Electrical Work;
- 6) Finishes;
- 7) Plumbing;
- 8) Landscaping;
- 9) Swimming Pool Construction\* (see technical specifications section 13 for details)
- 10) Aquatic Play Units and Water Slides
- 11) Provision of facility access during construction

\* If bidder's primary trade is not Swimming Pool construction, the name, qualifications and references for this subcontractor must be provided at time of bid for the City's evaluation. If swimming pool subcontractor changes after bid submission, the new subcontractor must be submitted to the City for review. The City retains sole discretion to approve the initial and any subsequent changes to the Swimming Pool subcontractor .

The City reserves the right to take such steps as it deems necessary to determine the ability of the Bidder to perform the work and reserves the right to request additional information and to reject any bid where an investigation of the evidence or information submitted by such Bidder does not satisfy the City that the Bidder is qualified to properly carry out the terms of the Bid Document.

Subcontractors shall conform in all respects to the applicable provisions specified for the prime contractor and shall be subject to approval by the City. If a subcontractor or proposed subcontractor is determined to be unacceptable the City the Contractor shall substitute an acceptable subcontractor with no change in any contract unit prices or overall contract sum. The Contractor will use only those subcontractors approved by the City.

### 3.3 **Contract Term**

The anticipated terms of this contract shall be 12 (12) months or (365) Calendar days, including project close-out. Important note: Substantial completion of the project must be made prior to 05/01/2025, and all inspections and permits required for operations and occupancy successfully obtained not later than 05/16/2025. See section 1.10 regarding liquidated damages to be enforced. It is possible that the City may issue a Limited Notice to Proceed (LNTP) to allow for coordination, field measuring, shop drawing review/approval, submission of work plan and ordering long lead time components.

### 3.4 **Estimated Quantities**

No warranty is given or implied by the City as to any components listed in this Bid and are considered to be estimates for the purpose of information only. The City reserves the right to accept all or any part of the bid and to increase or decrease quantities of Bidder's bid to meet additional or reduced requirements of the City.

**3.5 Additional Items/Duties**

The City may require additional items/duties of a similar nature, but not specifically listed in the contract. The Contractor agrees to provide such items/duties and shall provide the City prices on such additional items or duties based upon a formula or method which is the same or similar to that used in establishing the prices in the bid. If the price(s) offered are not acceptable to the City, and the situation cannot be resolved to the satisfaction of the City, the City reserves the right to purchase those items from other vendors, or to cancel the contract upon giving the Contractor thirty (30) days written notice.

**3.6 No Exclusive Contract/Additional Services**

Contractor agrees and understands that the contract shall not be construed as an exclusive arrangement and further agrees that the City may, at any time, secure similar or identical services at its sole option.

**3.7 Exceptions**

An exception is any condition, limitation, restriction, term, or other deviation from the requirements of the Invitation for Bids that is a condition of the bidder's bid or that the bidder expects to become part of a contract with the City. Bidders are strongly discouraged from taking exceptions to the requirements of the Invitation for Bids. Exceptions may result in the City declaring the bidder's bid to be non-responsive. Any exceptions taken must refer to the specific language of the Invitation for Bids to which the bidder objects and must be included with the bid on a separate page. The City shall be entitled to assume that the absence of any exceptions constitutes the bidder's willingness to comply with all requirements of all parts of the Invitation for Bids.

**3.8 Complete Information Required on Bid Form**

All bids must be submitted on the attached Bid Form with all sections completed. To be considered a valid bid, the bid form pages and required forms must be returned, properly completed, as outlined in the General Conditions.

**3.9 Cooperative Procurement**

The Contractor may extend all of the terms, conditions, specifications, and unit or other prices of any award resulting from this solicitation to any and all other public bodies, subdivisions, school districts, community colleges, colleges, and universities. The City assumes no authority, liability, or obligation, on behalf of any other public entity that may use any contract resulting from this solicitation.

**3.10 License and Support Agreements**

In the event a bidder or manufacturer requires an agreement to be signed the agreement must be returned with the bid for review prior to any subsequent award. The City reserves the right to refuse consideration of an agreement and may hold the bidder to any agreement entered into as a result of a purchase order being issued as a result of this IFB without prior knowledge that the bidder and/or manufacturer will require an additional document, contract or agreement to be executed.

### **3.11 Notice to Proceed and Completion Schedule**

The specified completion date and time shown herein below is to be strictly adhered to unless authorized or directed otherwise in writing by the City's Project Manager. The completion date, where specified, has an allowance for inclement weather and holidays. Time extensions for unusual conditions causing project delays not covered in these special provisions will be subject to the conditions covered under the GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS; however, no compensation above that indicated herein for specific items shall be paid to the Contractor for any delay, regardless of the source of delay.

The Contractor shall provide a bar-chart schedule at the Project Kick-Off Meeting or at such time as directed by the City Construction Manager, but not more than once per month or with any change order. In addition, the contractor shall verbally provide updates to the Project Inspector as requested.

### **3.12 Construction Work Hours**

Work is permitted between 7:00 am to 5:00 pm, Monday through Friday except on adopted City Holidays. Working outside of these hours may be permitted to meet the project's schedule but must first be approved in writing by the City. Work on any street, other than secondary residential (generally 26' in width) shall be limited to 9:00 am to 3:00 pm Monday through Friday. No work shall be permitted outside these hours unless written approval is obtained from the City Project Manager or his designee.

### **3.13 Contract Documents**

In addition to the requirements of GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS, in the case of discrepancies in the Contract Documents and need for interpretation, the documents shall be given precedence in the following order:

- Change Orders
- Architect's Supplemental Instructions
- Addenda
- General Conditions and Instructions to Bidders (City of Rockville)
- Technical Specifications
- Special Provisions
- Drawings
- Standard Details by others
- City of Rockville Standard Details for Construction
- Applicable Standards listed below

### **3.14 Applicable Standards**

Any questions, requests for information or revisions to the specifications must first be reviewed and approved by the City of Rockville. As a minimum standard of quality workmanship, all work is to comply with the latest provisions and recommendation of the following documents in the following order of precedence. In the event of conflict, the City's determination shall govern.

- City of Rockville Standards and Details for Construction, dated January 1988.
- Current Montgomery County Department of Public Works and Transportation Design Standards
- Maryland Department of Transportation, State Highway Administration's (MDSHA) "Standard Specifications for Construction and Materials" dated May 2017 including all errata and addenda thereto and additions included in these special provisions.
- MDE, WMA and SCS 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control
- American Society for Testing and Materials, "ASTM Standards", latest edition.
- American Water Works Association Standards (AWWA Standards), latest edition
- American Association of State Highway and Transportation Officials, "AASHTO Standards", latest edition
- American Concrete Institute (ACI) Standards, latest edition.
- US Access Board Americans with Disabilities Act (ADA)
- Washington Suburban Sanitary Commission Standard Specifications and Details for Construction
- Code of Maryland Regulations (COMAR) 10.17.01: Public Swimming Pools and Spas
- Code of Maryland Regulations (COMAR) 09.12.63: Water Slides Erected Permanently or Temporarily in the State
- NSF/ANSI 61
- Safe Drinking Water Act
- Code of Montgomery County Regulations (COMCOR) 51.00.01: Manual on Swimming Pool Construction
- Code of Montgomery County Regulations (COMCOR) 51.00.02: Manual of Swimming Pool Operation
- International Swimming Pool and Spa Code

### 3.15 **Project Kick-Off Meeting and Pre-Construction Meetings**

Upon issuance of the Notice to Proceed, the City may arrange a project kick-off meeting with all appropriate City staff and the Contractor. This will be an on-site meeting to review the project requirements. The City will decide which City staff will attend. The Contractor shall arrange any pre-construction meetings required by associated permits. These pre-construction meetings shall be held on the project site between the Contractor, the design engineer's representative, and appropriate City staff, including the Project Inspector, Sediment Control Inspector, and Engineering Project Manager. In addition, the contractor shall invite the following agency representatives to the pre-construction meeting and shall provide at least four (4) business days' notice.

All subsequent notifications for inspection and coordination with the City and all other agencies are the responsibility of the Contractor.

### 3.16 **Mobilization/Demobilization**

Mobilization shall include all activities and costs for transportation of personnel, equipment, and operating supplies to and from the site; establishment of offices, and other necessary facilities for the Contractor's operations at the site; premiums paid for performance and

payment bonds, including coinsurance and reinsurance agreements as applicable; and other items as specified in this specification. Demobilization shall include all activities and costs for transportation of personnel, equipment, and supplies not included in the contract from the site; including the disassembly, removal and site cleanup/repair of offices, buildings, and other facilities assembled on the site for this contract. This work includes mobilization and any additional mobilization and demobilization activities, and costs as required during the performance of the contract. The Contractor shall provide and pay all the cost for temporary utilities including electricity, telephone, and water. All temporary facilities shall be available for the duration of the project. The Contractor shall be responsible for compliance with code ordinances and requirements of local officials for temporary facilities, controls, and related health and safety requirements. It shall be the responsibility of the Contractor to provide all necessary electrical service. In the event electrical power will not be available, it shall be the Contractor's responsibility to provide any necessary generator to continue construction. The Contractor shall provide and pay all the cost for toilet facilities for all workmen, as required by local ordinances for complete and adequate sanitary arrangements. Sanitary facilities and the surrounding shall be always kept clean and neat. They shall be located on the project site as approved by the City.

The cost of mobilization shall be considered as incidental to the cost of the entire project. No separate bid item is provided.

The City is willing to provide access to the outdoor bathhouse and lifeguard office for the contractor's use at no additional cost. The Lifeguard office will be available from the closing of the recreation pool through May 1 and includes HVAC capabilities for interior temperature control of the office. The outdoor bathhouse may be used for toilet facilities after the recreation pool's closing until November, and from April to May. The bathhouse's plumbing must be winterized (by City Staff) to prevent freeze damage. Should the contractor wish to use the bathhouse and/or lifeguard office, a pre and post occupancy inspection will be conducted with City Staff, and the contractor will be responsible for daily maintenance and cleaning as well as remediation and repair of any damage incurred through the contractor's use.

### **3.17 Emergency Contact Information**

The Contractor shall provide the name(s) and phone number(s) of a representative(s) of the Contractor who can be reached in case of an emergency. This shall be submitted to the City prior to the start of construction.

### **3.18 Emergency Information**

The Contractor shall post information concerning emergency medical, fire, rescue, and hazardous waste phone numbers from which personnel on the site can obtain information if needed. The Contractor shall also list the name and number of at least two representatives of the Contractor who can be reached in case of an emergency. The representatives must be fluent in English. The emergency information shall be in a central position, so it is visible and accessible 24 hours a day. The emergency information shall be posted for the entire length of the Contract.

### 3.19 **Project Signs**

Prior to the start of construction, the contractor shall provide and erect a project sign at a prominent location at the construction site. The signs shall be prepared in accordance with the instructions below and as shown on the construction plans:

- Submit 8.5"x11" or greater size scaled shop drawings or sketch indicating dimensions, layout, content, and materials for each sign, for approval by the City's Project Manager.
- Locations to be flagged and approved or otherwise verified with City's Project Manager.
- The sign shall be 4' x 8' in size, constructed of 3/4" exterior density overlaid plywood or equal, and shall have a smooth white finish.
- Lettering shall be black latex or adhesive vinyl firmly affixed to the plywood surface, and each letter shall be a minimum of 3" in height. Letters shall be legible graphic type, as approved by the City's Project Manager.
- The sign shall be mounted on two 4" x 4" timber posts with adequate bolts and fittings to ensure proper stability. If unacceptable reflection or other viewing or safety issues are identified by the City's Project Manager, the sign's positioning shall be adjusted by the Contractor.
- The sign shall be posted at a proper location and erected at a height where the bottom of the sign is a minimum of 5' from the ground or as directed to permit public viewing.
- If applicable, the MDE decal shall be provided by the Maryland Department of the Environment.
- If peeling or damage occurs due to weather, construction activity or vandalism, it shall be the Contractor's responsibility to restore the sign to its original condition at no cost to the City.
- At the completion of the project, the Contractor shall remove the sign from the project site and restore the area to original condition.

Costs associated with project signs shall be incidental to the work and no specific payments will be made.

### 3.20 **Public Utilities**

Comply with MDSHA Specifications under Sections GP 5.05, and GP 7.17 regarding public utilities.

It shall be the Contractor's responsibility to cooperate to the fullest extent possible with the utility owners in their work of adjusting the existing utilities to suit the proposed construction under this contract. All utilities, unless provided for on the Engineering Drawings, shall be relocated or constructed by their respective owners.

The location of existing utilities shown on the plans and profiles are approximate only and it shall be the Contractor's responsibility to determine the exact location of the utilities prior to commencing work in all areas of possible conflict. All test pits must be completed in coordination with the City and the affected utility companies. The existence of utilities other than those shown on the plans is not known. If, during construction operations, the Contractor should encounter additional utilities, he shall immediately notify the City and take all necessary and proper steps to protect the continuance of service of such facilities.

The Contractor shall notify the utility owner and City when previously unknown or different utilities are encountered. The Contractor shall support and protect existing utilities whether shown on the plans at no additional cost to the City. The Contractor shall not receive compensation for the temporary relocation of or temporary installation of utilities that are constructed for the convenience of the Contractor.

In case of any damage to utilities by the Contractor, either above or below ground, the owner shall be immediately notified. The Contractor shall arrange for restoration of such utilities to a condition satisfactory to the utility company at the Contractor's entire cost and expense.

The Contractor shall take into consideration when preparing his bid, the costs associated with the coordination during construction with various utility companies for any relocation or installation by the utility companies which may be necessary in areas within, or adjacent to, the limits of his contract. No additional compensation or time extensions will be allowed the Contractor for work interruptions, changes in construction sequences, changes in methods of handling excavation and drainage, and changes in types of equipment used, made necessary by others performing work within, or adjacent to, the limits of this contract. The contract time as stated in this contract includes the time needed for utility adjustments and no extension of time will be granted for delays caused by utility adjustments.

All other expenses likely to be incurred by the Contractor as a result of working around and protecting utilities, as well as cooperating with the owners of same during the relocating of such facilities, will not be measured or compensated for under any stipulated pay item.

### 3.21 **Project Contacts**

The following utility companies and City departments may be affected by this project. It shall be the Contractor's responsibility to notify all utilities and/or City departments and coordinate his construction operations with them to avoid unnecessary delays.

- **City of Rockville**  
**Project Manager/ Senior Construction Project Manager**  
Mr. Eric Grieshaber  
240-314-8609  
[egrieshaber@rockvillemd.gov](mailto:egrieshaber@rockvillemd.gov)
- **City of Rockville**  
**Co-Project Manager/ Rockville Swim and Fitness Center Superintendent**  
Mr. Adam Goldstein  
240-314-8752  
[agoldstein@rockvillemd.gov](mailto:agoldstein@rockvillemd.gov)
- **City of Rockville**  
**Parks and Facilities Development Coordinator**  
Mr. Mauricio Daza  
240-314-8708  
[mdaza@rockvillemd.gov](mailto:mdaza@rockvillemd.gov)

- **City of Rockville**  
**Forestry Division**  
Ms. Paula Perez  
240-314-8705
- **City of Rockville**  
**Superintendent of Parks and Facilities**  
Mr. Steve Mader  
240 -314-8702
- **City of Rockville**  
**Sediment Control Inspector**  
Mr. Arthur Simpson  
240-314-8700
- **City of Rockville**  
**Forestry Inspector**  
Ms. Natasha Shangold  
240-314-8205
- **City of Rockville**  
**Water and Sewer Utilities**  
240-314-8567
- **MISS UTILITY**  
1-800-257-7777 or 811
- **Washington Gas**  
**Manager of Construction – Maryland**  
Mr. Austin Jordan  
703-750-5903
- **PEPCO**  
Montgomery County Region Office  
301-670-8700

For Locations of Utilities, call "MISS UTILITY", at 811, 1-800-257-7777 or <http://www.missutility.net/>

Before interfering with any utility service, the Contractor shall notify the affected utility companies and affected property owners in advance and coordinate any required service interruption with the owner and City. For any water service shutdown, the Contractor must provide at least 21 calendar days' notice such that the City can provide proper notification.

The Contractor shall be responsible for contracting Miss Utility for the location of all utilities prior to the start of work.



### 3.22 **Protection of Work, Property and Persons**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with this project. All necessary precautions shall be taken: to prevent injury to the Contractor's employees and other persons who may be affected by the project; to prevent damage to or loss of materials or equipment incorporated into the project; and to protect other property at or adjacent to the site including but not limited to trees, shrubs, lawns, walks, fences, pavements, roadways, utilities, structures, buildings, playgrounds and park facilities not designated for removal, relocation, or replacement in the course of construction; to provide warning signs as directed by the City for personnel and the public. Costs associated with this work are incidental to the work and no specific payments will be made.

### 3.23 **Weather Protection / Limitations**

Weather Protection means the temporary protection of that Work adversely affected by moisture, wind, and heat or cold by covering, enclosing, and/or heating. This protection shall provide adequate working areas during the months of November through March as determined by the City and consistent with the construction schedule to permit the continuous progress of all work necessary to maintain an orderly and efficient sequence of construction operations. The Contractor shall furnish and install "Weather Protection" material and be responsible for all costs, including heating required to maintain a minimum of 40 degrees F. at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials, or the applicable conditions set forth in the Contract Documents with added regard to performance obligations of the Contractor. Weather protection costs associated with this work are incidental to the project and no specific payments will be made. The City reserves the right to stop work if the weather does not meet specifications, manufacturers recommendations and industry standards and specification to complete the work scheduled daily.

### 3.24 **Site Access**

Access to the site is by public streets and thoroughfares. After the completion of the project, all roads, driveways, parking lots, sidewalks, landscaping, fences, utilities, structures, buildings, lawns, and other facilities not designated for removal, relocation or replacement that are damaged by the Contractor's actions shall be restored to the same condition or better. Prior to any construction activities, it is the Contractor's responsibility to document any existing damage or conditions indicative of substandard facilities. Costs associated with this work shall be included with the appropriate Pay Item.

Access to parks, easements across private property and other City-owned property in wooded areas must be coordinated with the City and the private property owners prior to the Contractor entering the property. Due to the proximity of public park property, private property and natural resources, the Contractor shall exercise extreme care in their construction operations. All work must be kept within these limits and within the "Limits of Disturbance" as shown on the Engineering Drawings.

It should be noted that the adjacent park and other areas of the swim complex will be open to the public during construction. The Contractor shall exercise prudence regarding site security, storage, staging, safety, worker identification/background and other matters that may impact the public. The Contractor must be sensitive to the community and adjacent property owners. The Contractor shall immediately advise the Engineer and/or the City Project Manager of any problems involving the community.

Due to project location, the potential for trespassers is high. The job site will need to be secured every day. The Contractor shall be held responsible for securing their own equipment.

### **3.25 Access to Adjacent Properties**

Access must be maintained to all properties always abutting this project. All work affecting private properties is to be coordinated with the property owner by the Contractor. The Contractor shall always maintain access to private driveways unless specifically approved in advance by the City.

### **3.26 Preservation and Restoration of Property & Monuments**

The Contractor is to carefully examine the plans provided with the Engineering Drawings to ensure a clear understanding of the private property limits and work limits. The Contractor shall not enter upon private property for any purpose without first obtaining permission from the City and written permission from the property owner. The Contractor shall be responsible for the preservation of all public and private property, including but not limited to plants (trees, shrubs, and seasonal vegetation), lawns, walks, fences, pavements, roadways, utilities, structures, buildings, playgrounds, and park facilities not designated for removal, relocation, or replacement, along and adjacent to the work areas, and shall use every precaution necessary to prevent damage or injury thereto. The Contractor shall take suitable precaution to prevent damage to underground or overhead public utility structures and must protect carefully from disturbances or damages all land monuments and property markers until the Project Inspector has witnessed or otherwise referenced their locations. All disturbed monuments and markers must be reset to their correct location by the Contractor at no additional compensation.

The Contractor shall be responsible for all damages or injury to public or private property of any character during the prosecution of the work, resulting from any act, omission, neglect or misconduct in his manner or method of executing said work satisfactorily, or due to the non-execution of said work, or at any time due to defective work or materials. When or where any direct or indirect damage or injury is done to public or private property or on account of any act, omission, neglect or misconduct in the execution of the work or in consequence of the non-execution thereof on the part of the Contractor, the Contractor must restore, at its own expense, such property to a condition similar or equal to rebuilding or otherwise restoring as may be directed by the City, or he shall make good such damage or injury in an acceptable manner. In case of the failure on the part of the Contractor to restore such property in a reasonable amount of time or make good such damage or injury the City may, upon 24 hours' notice, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted from any monies due, or

which may become due the Contractor under this Contract. City crews or another Contractor may accomplish said work.

After the completion of the project, all plants (trees, shrubs, and seasonal vegetation), lawns, walks, fences, pavements, roadways, utilities, structures, buildings, playgrounds and park facilities and other facilities not designated for removal, relocation or replacement that are damaged by the Contractor's actions shall be restored to the same condition or better. Prior to any construction activities, it is the Contractor's responsibility to document any existing damage or conditions indicative of substandard facilities. The Contractor shall provide pre-project photographs or videotape of the project work areas to the Project Inspector. Costs associated with this work are incidental to the work and no specific payments will be made.

All the requirements outlined above shall be considered incidental to this contract and no special compensation shall be paid.

### **3.27 Site Conditions**

The Contractor shall visit each work site prior to performing the work to verify the existing conditions.

The geotechnical data on the Engineering Drawings is provided for the Contractor's information only. The City does not warrant or guarantee the accuracy or completeness of the data. The Contractor should note the date and method(s) of data collection. The interpretation of the data and its applicability to the project is the responsibility of the Contractor and they are responsible for satisfying themselves as to the actual conditions and/or confirming the data provided prior to submitting their bid. There is no warranty or guarantee that geotechnical conditions other than those identified will not be encountered.

The topography shown on the Engineering Drawings represents the existing conditions at the time of the survey. However, the Contractor shall satisfy themselves as to all conditions at the time of bidding this project and include in their proposal any changes necessary to accomplish a complete and functional project. The Contractor will only be permitted to bring discrepancies in earthwork quantities to the attention of the City at the time of bidding. After award of Contract, payment for Earthwork pay items will be considered fixed.

Should there be any discrepancies between Engineering Drawings, specifications and/or field conditions after bidding and prior to the beginning of work, the Contractor shall bring such discrepancies to the attention of the City of Rockville at the pre-construction meeting.

The Contractor shall use the horizontal and vertical survey control points shown on the Engineering Drawings to layout the lines of work, stake out the location of all proposed structures, and test the levels of all construction. No other datum or control points will be accepted.

The Contractor shall create a video record of the project areas prior to beginning work. The City shall be notified 48 hours prior to the scheduled video recording of the site and will have a representative present to identify other areas that may be affected by the proposed

construction. The Contractor shall be responsible for the repair, replacement and/or reconstruction of any property destroyed or damaged as a result of this Contract. This shall include all public and/or privately constructed driveways, fences, gates, buildings, landscaping, utility lines and other permanent items. All claims will be verified by the City through the video record of the area. The video record shall be submitted to the City prior to mobilization of any equipment for the Contract.

### **3.28 Contractor's Staging and Storage**

The Contractor will establish temporary staging areas as approved by the City. Cleanup of each staging area shall occur daily. Contractor shall cover topsoil, stone, and aggregate stockpiles with tarps to prevent sedimentation of the street.

Submit a sketch (a marked up set of plans is acceptable) and brief description for approval by the City's Project Manager showing the location of equipment and materials, location of portable sanitary toilet, and means and methods to protect pedestrians and existing public facilities (including trees) within the area as shown on the plans. This plan may have to be approved by the City Forester, if any grassed or tree areas will be utilized.

There shall be no payment for this work. It shall be considered incidental to the contract.

### **3.29 Temporary Utilities**

The Contractor shall pay all fees, obtain necessary permits, and have meters installed for temporary utilities as may be required for the execution of this contract. As needed, the Contractor through direct local arrangements must obtain temporary electric service for the purpose of this contract with the electric company, PEPCO. The Contractor shall furnish and install all necessary temporary service drops, wiring, connections, etc., necessary for temporary service required by the Contractor. All costs associated with any temporary electric service required by the Contractor are considered incidental to other pertinent pay items. This item shall not be measured for payment.

The Contractor shall, at the beginning of the project, provide suitable temporary sanitary toilet facilities on the premises, in accordance with the GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS. The City shall approve the location of the sanitary toilet.

### **3.30 Construction Stakeout and As-Builts**

Construction Stakeout shall be in accordance with Section 107 of the MDSHA "Standard Specifications for Construction and Materials", dated July 2018, with the following exceptions:

The Contractor shall be responsible for all construction stakeout. The Contractor shall complete project as shown on approved plans. The City will not provide any construction stakeout for this project. Contractors are to use benchmark and layout information as shown on the plans.

The Contractor shall provide as-built information. One set of redline as-builts shall be always maintained and kept on-site. Any deviations from approved plans shall be marked, in red, on the as-builts. As-built information shall consist of any deviation to the approved plan such as grading limits, slopes, types/length/height of restoration features, and any modifications to typical details. As-built requirements do not include any topographic survey.

Upon completion of project, submit as-builts for approval. Retainage shall not be released until as-builts are approved.

A copy of the Department of Public Works Stormwater As-built Plan Requirements is attached in Appendix F

The City will provide an electronic CAD file of the layout information for the Contractor via the design architect. The Contractor must complete an agreement for receipt of the electronic file.

**3.31 Aerial Electric Lines**

The Contractor shall be aware that State law requires that a 10-foot radial clearance shall be maintained for all construction equipment and materials in relation to electric lines carrying 750 volts or more. Because the State law is more stringent than the Federal laws, the State law shall be considered the minimal distance.

**3.32 Noise Control Measures**

All work must comply with the noise ordinance requirements for Montgomery County. A copy of the ordinance enforced by the Department of Environmental Protection (DEP) is attached to these contract documents in Appendix L for observation and compliance. With City approval, the Contractor may request a waiver through Montgomery County. The Contractor is fully responsible to submit the request and comply with any conditions of the waiver approval. The Contractor shall consider the processing time of this request, which includes a public notice element, when scheduling their work.

**3.33 Water Pollutions Control Measures**

The Contractor shall not discharge or permit discharge into the waters, canals, ditches, or drainage system any fuels, oil, bitumen, garbage, sewage, or other materials which may be harmful to fish, wildlife, or vegetation or that may be detrimental to outdoor recreation. The Contractor shall be responsible for investigation and complying with all applicable federal, state, and local laws and regulations governing pollution of water. All work under this Contract shall be performed in such a manner that objectionable conditions will not be created in waters through or adjacent to the project areas.

**3.34 Air Pollution Control Measures**

All fine-grained, loose materials hauled to or from this project shall be covered to prevent spillage and blowing. Material, which is not covered after notification by the City, will not be accepted for use on this project. This material will not be included in measurement for payment.

Burning will not be permitted.

### **3.35 Environmental Protection Measures**

Impervious barriers, (i.e., plastic, metal drip pans, etc.) shall be placed under any compressors, generators, welding machines, etc., to prevent oils, solvents, organic compounds, or other contaminants from leaching into the soil. Any oils, solvents, organic compounds, or contaminants spilled on the site during the process of the work shall be immediately removed and cleaned up by the Contractor. Any earth contaminated by a spill shall also be removed and replaced with new certified clean material to the satisfaction of the City and the Maryland Department of the Environment (MDE). If the City has to remove the oils, solvents, organic compounds, contaminants, or earth, the City may deduct the costs of removal and clean up from the total contract amount owed the Contractor.

### **3.36 Erosion and Sediment Controls**

The Contractor is responsible for adhering to the City's laws and ordinances regarding sediment control. The Contractor shall be responsible for coordinating all work, and for notifying the City:

- Upon installation of all erosion and sediment control devices to schedule a “Notice to Proceed” inspection prior to commencing work.
- Prior to removing sediment control devices; and
- Upon completion of final grading, establishment of ground covers and approved land stabilization.
- During the progression of all work, the Contractor shall make periodic inspections and maintain sediment control devices, including cleaning and routine maintenance as directed or necessary, to ensure that the intended purpose is accomplished. Under no circumstances shall sediment be allowed to enter private properties, storm drains, or City waterways.

When directed in the field by the Project Inspector, the Contractor shall be required to make adjustments in location and/or increase or decrease quantities of sediment control measures and provide temporary stabilization measures.

All sediment control measures shall be installed and maintained as shown on the Contract Documents, City Notes in Section VII, approved plans and details per latest City of Rockville Standards, Maryland Department of the Environment’s 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control, in compliance with the MDE/WMA Notice of Intent (NOI) General Permit for construction activities, and as directed by the Project Inspector. Please refer to Maryland Department of Transportation, State Highway Administration’s Specifications entitled, “Standard Specifications for Construction and Material” dated May 2017, revisions thereof, or additions thereto. Comply with MSHA specifications section 308.02 Material and section 308.03 Construction.

Furnish and install temporary erosion and sediment controls. The Contractor is to protect the integrity of the erosion control measures installed. The erosion control measures shall

be provided until such times as the temporary ground cover is sufficiently developed, and the Project Inspector gives written authorization to remove said measures. The Contractor shall comply with all local, state, and federal laws, ordinances, and regulations pertaining to erosion, sediment, and pollution control, including those promulgated by the State of Maryland, and shall indemnify and hold harmless the City from and against all claims, damages, losses, and expenses resulting from such work.

The Contractor shall always have an employee present on site who has met the requirements for certification of the Responsible Personnel training in erosion and sediment control according Maryland State Law. This employee shall have sufficient authority to install, maintain, adjust, or otherwise implement approved sediment control measures.

The Contractor shall take all measures to control erosion and sedimentation at construction site, including borrow and waste areas and temporary access roads, and at off-site areas especially vulnerable to damage from erosion and sedimentation. All erosion and sediment control measures will be subject to approval by the City. All erosion and sediment control measures shall be implemented prior to any construction occurring. All temporary erosion and sediment control measures shall be removed within thirty (30) days after completion of construction and establishment of permanent erosion control.

Work shall be scheduled so that areas subject to erosion are exposed for the shortest possible time. Only those trees, shrubs and grasses shall be removed that are necessary for construction as designated by the forest conservation plan and/or approved plans; those remaining shall be protected to preserve their aesthetic and erosion control values. Temporary on-site structures and buildings shall be located to preserve the existing landscape and to minimize erosion, including that from construction traffic. If practicable, work shall be scheduled in seasons when erosion is less of a hazard, particularly for sites with steep slopes and erodible soils.

Temporary protection shall be required for disturbed areas until final grading is completed, and permanent vegetation is established, and shall consist of planting temporary grass cover or other vegetation when feasible. Other short-term protection shall include covering disturbed areas, stockpiles, and topsoil piles with a mulch of hay, straw, or wood chips, stabilizing with netting, or covering with plastic sheets. Graded slopes and fills shall be limited to an angle and to lengths that will maintain stability and allow easy maintenance. Construction equipment shall not be operated in a way to make the land more susceptible to erosion, such as leaving tracks up and down slopes. Access roads shall be located and constructed to prevent erosion.

Controls for surface water runoff shall be constructed as early as possible to prevent the formation of gullies or rills. These controls shall be maintained during the entire construction period or until permanent storm drains/revetments are completed. Diversion channels or berms, slope drains, flow barriers, dikes, or other structures, which retard or spread water flow, shall control runoff. Compacted embankments, ditches, furrows, or temporary diversions across slopes shall be provided to intercept runoff before it reaches

erodible areas. Diversions and drains shall be directed into stabilized areas where the discharge can be spread out and dissipated.

If unusually intense storms cause planned control measures to fail, prompt restoration and cleanup of sediment deposits shall be made, including damage to adjacent property. If construction is delayed or shut down, temporary cover of exposed and disturbed areas shall be provided.

### 3.37 Forest and Tree Conservation Requirements

The Contractor shall complete all forest and tree conservation requirements according to the approved contract documents:

- All forestry related work shall be under the direct supervision of someone who is both certified by the International Society of Arboriculture and registered in the State of Maryland as Licensed Tree Expert. Provide proof of both prior to on-site Forestry pre-construction meeting.
- Promptly replace any existing trees designated to remain that are damaged or destroyed during development.
- Perform all site preparation, including removal of pavements, structures, and inclusion of soil amendments, PRIOR to installing plantings.
- Maintain and monitor all tree plantings in accordance with the contract documents, for a period of two years from the date the plantings are inspected and approved by the City Forester. Such maintenance shall include when appropriate, but not necessarily be limited to:
  - Watering, fertilizing and control of competing vegetation during the initial planting and through the two (2) year maintenance period as may be necessary or as dictated by the FTP Permit.
  - Pruning, mulching, tightening and removal of guys and stakes within six (6) months, resetting of plants to proper grades or upright position, and furnishing and applying such sprays or other items necessary to thwart damage from insects and disease.
  - Providing protection measures such as fencing and interpretive signs as necessary, to prevent destruction or degradation of the planting site.
  - Eradicate, suppress, and control non-native invasive plant species, as approved by the City Forester, to maintain the health of the trees planted.
  - Guarantee survival of 100% of landscape tree plantings and 85% of forest plantings under 2" caliper in good health and in flourishing condition of active growth for a minimum period of two years from the date that the plantings are inspected and approved by the City Forester.
  - Replace, as soon as weather permits, any dead plantings to ensure compliance with the above minimum survival requirements; provided, however, that dead trees and plantings shall be removed immediately.

Special attention must be given the existing landscape features and special care taken to protect the natural surroundings. The roots of such trees or shrubbery will not be cut unnecessarily. The Contractor will be required to root prune the tree roots, which extend



into grading limits and/or from trees intended to be left in an undamaged state or otherwise prevent damage to roots of trees. No road machinery of any description, which might throw off gas or smoke in such volume as to damage vegetation, shall be allowed to stand under such trees or shrubbery.

Any tree that in the opinion of the City, may be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or operations must be protected prior to the start of work by means acceptable to the City. Contractor must verify all saved trees prior to construction. Prior to commencing construction, all tree protection techniques must be approved by the City Forester's office.

Any tree, or landscape features scarred or damaged by the Contractor's operations must be removed, correctively pruned, restored, or replaced as nearly as possible to the original conditions, as required by the Project Inspector and at the Contractor's expense. No ropes, cables or guys are to be fastened to or attached to any nearby trees for anchorage or in lieu of placing of deadmen.

### **3.38 Care of Water During Construction**

The Contractor shall furnish, install, test, operate, monitor, and maintain dewatering systems of sufficient scope, size, and capacity to control water flow into excavations and permit construction to proceed on dry, stable sub-grades. Dewatering operations shall be maintained to ensure erosion control, stability of excavations and constructed slopes, prevent excavation from flooding, and prevent damage to sub-grades and permanent structures.

The Contractor shall provide a suitable watercourse (i.e., fire hose, etc.) to direct the flow of water to have minimal impact upon the environment, private property, roadway, and pedestrian traffic. Any damage caused by discharge of water is the responsibility of the Contractor. The Contractor shall not discharge any water so as to cause sediment to reach any storm drain inlet or water course.

The Contractor shall provide shoring, bracing and cofferdams during construction as necessary to protect personnel, structures, and equipment. No special payment will be made for shoring, bracing or cofferdams. The Contractor is responsible for ensuring the safety of his employees and sub-contractors, and for complying with all applicable provisions of Maryland Occupational Safety and Health Administration.

The Contractor shall protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations. The Contractor shall provide an adequate system to lower and control water to permit excavation, construction of structures, and placement of fill materials on dry sub-grades. The Contractor shall install sufficient dewatering equipment to drain water-bearing strata above and below bottom of ponds and other excavations.

Work areas shall be dewatered in a manner that avoids endangering public health, property, and portions of work under construction or completed. The Contractor shall provide sumps,

sedimentation tanks, dewatering basins or non-woven dewatering bags as required by the Project Inspector. Standby equipment shall be provided on-site, installed, and available for immediate operation, to maintain dewatering on continuous basis if any part of the system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, the Contractor shall restore damaged structures and foundation soils at no additional expense to the City. The Contractor shall remove all dewatering systems from project site on completion of dewatering.

All pumps and generators utilized for bypass and dewatering operations shall be “quiet” rated with a full-load noise level of less than 63 dB at 23 feet or as approved by the Construction Manager. The City may require additional measures, such as the use of straw bale baffle walls, for work approved outside of normal working hours.

Care of water during construction shall be considered incidental to the appropriate pay item.

### **3.39 Daily Clean-Up**

The Contractor shall always keep the work areas clean and orderly and shall promptly remove all waste and rubbish. The daily debris shall be collected in covered containers and disposed of in proper fashion. All directions from authorized public officials having jurisdiction over health and safety shall be obeyed. The site will be “broom cleaned” at the end of each working shift. Open excavations may not be left unattended. Site must be secured each night.

The Contractor shall clean every street upon which any work has been performed under this contract daily. The cleanup shall be accomplished by use of a vacuum assisted sweeper truck, manual (push) broom sweeping, or other method as directed and or approved by the Project Inspector. Under no circumstance shall the contractor use compressed air or jet water sprays for cleanup purposes.

### **3.40 Submittals of Materials**

The Contractor shall submit electronic copies of all delivery tickets, shop drawings, inspection, testing or certification reports, obtained approvals or permits, and other submittals required for this project to the City Project Manager.

### **3.41 Inspection and Certification**

All materials shall be subject to inspection or test by the City and/or other designated inspectors prior to installation and no previous certification or inspection shall bar rejection if the material is found to be inferior, damaged, or defective. The certification requirements may be waived for any or all of the materials at the discretion of the City. The City reserves the right to engage additional inspections and testing in addition to the requirements of the contractor as listed in the technical specifications.

### **3.42 Inspection and Repairs**

The City reserves the right to inspect all work either in progress or completed. All work shall be inspected prior to backfill. Any portion of the work that is backfilled prior to inspection shall be uncovered at the contractor’s expense to enable the Project Inspector to adequately

inspect. If the work is found to be unsatisfactory or in conflict with the provisions in these specifications the City may hold back payment for work completed. The City's Recreation and Parks Project Manager will give written notification of the unsatisfactory work to the contractor. The Contractor shall have no more than 10 days to correct the condition.

### **3.43 Contractor's Employees**

Contractor's employees are to present a professional appearance, shall be neat, clean, well groomed, courteous, and conduct themselves in a respectable manner while performing duties and while on City and/or private property.

The Contractor's employees shall conduct themselves in a professional manner. They shall minimize their impacts to the surrounding properties, including when they arrive to the site, take breaks, eat lunch, and depart the site. Contractor's employees shall be respectful and polite to inquiries from residents or individuals not associated with the project. Any inquiries beyond basic information should be referred to the City. The Contractor shall inform the City of any inquiries that occur that is beyond providing basic information.

The Contractor shall provide the City with a listing of all personnel assigned to the contract. In addition, the Contractor shall provide a listing of names, and emergency telephone numbers of supervisory personnel assigned to the contract. It will be the Contractor's responsibility to keep this list up to date.

The City reserves the right to request that the contractor remove any employee if it is determined that services are not being performed in accordance with the terms and conditions of the contract

### **3.44 Sub-Contractors**

The Contractor shall have the right to sub-contract but shall be fully responsible and cannot be relieved of any liability under this contract on account of any sub-contractor. All sub-contracting must have prior written City approval. The City reserves the right to approve or reject any sub-contractor if they do not possess the appropriate experience, installer license or certification.

Nothing contained in the contract documents shall create any contractual relationship between the owner and any subcontractor or sub-subcontractor. Vendors who will subcontract the delivery, installation, or any other portion of the work herein described will submit, prior to construction, the following information:

A description of the items to be subcontracted, and the subcontractor's name, address, and telephone number. During the life of the contract, the Contractor shall provide the name, nature, and extent of all subcontractors.

Subcontractors shall be considered an agent of the Contractor, who shall be held fully accountable for all the subcontractor services, labor, and materials relative to the contract.

### **3.45 Changes in Work**

If an event arises which the contractor considers may result in the addition, deletion or modification to the contract, the Contractor shall notify the City prior to commencing work under that change.

All such changes, or additional work must be authorized in writing by the City Project Manager prior to starting such work. In the event that a Change Order is authorized by the City, the contractor is limited to charging a maximum of 5% overhead and 10% profit in addition to direct expenses associated with said change order

### **3.46 Invoices and Payment**

The Contractor shall submit a detailed invoice to the City's Project Manager, for payment at the end of each month for all work completed and accepted by the City during that month. The Contractor shall attach to each monthly invoice, all required documentation of testing results.

### **3.47 Conditions for Approval for Access to City of Rockville Facilities**

All Contractor and subcontractor employees that will access occupied areas of a City facility or who have access to sensitive information are to have initial background checks performed by the City to assure the City information used and generated by this project will not end up in unauthorized hands. The initial background checks are valid for one year and subject to annual renewal for employees continuing to work on the project. The Contractor shall submit personnel information for background checks during the pre-mobilization process (after NTP and prior to being on-site) to allow for the City to perform background checks.

"Sensitive" documents and information are defined as those that could reasonably be used to aid in or plan for contaminating or damaging the City's system or City customers. Examples of such documents include, but are not limited to:

- plans/blueprints, as-built drawings, or contract documents of City facilities
- plans/blueprints, as-built drawings, contract documents, or 200-foot sheets of the water distribution system or the wastewater collection system

For any document or information to be provided to the Contractor where there is uncertainty whether it is "sensitive", the City shall have sole discretion to make such determination.

### **3.48 Technical Contact / Project Architect**

Amol Deshpande, ASLA, RLA, LEED Green Associate – Principal  
LSG Landscape Architecture  
Telephone 703-821-2045  
Email: [adeshpande@lsginc.com](mailto:adeshpande@lsginc.com)

Alternate:

Laurie Beth Donnachie, PLA, ISA – Senior Landscape Architect  
LSG Landscape Architecture  
Telephone: 202-987-3648  
Email: [ldonnachie@lsginc.com](mailto:ldonnachie@lsginc.com)



# **Invitation to Bid Number 13-24 Project Manual & Technical Specifications**

**Procurement Division  
City of Rockville, City Hall  
111 Maryland Avenue  
Rockville, Maryland 20850**

## **ROCKVILLE SWIM & FITNESS CENTER (RSFC) OUTDOOR RECREATION POOL RENOVATIONS PROJECT**

**Rockville Swim and Fitness Center  
355 Martins Lane  
Rockville, MD 20850**

**LSG Landscape Architecture  
8260 Greensboro Drive, Ste 325  
Tysons, Virginia 22102  
Project No. 22.00036.00**



**SECTION 00 00 01 – TABLE OF CONTENTS**

**DIVISION 00 – GENERAL REQUIREMENTS**

00 00 00	COVER SHEET
00 00 01	TABLE OF CONTENTS

**DIVISION 01 – GENERAL REQUIREMENTS**

01 10 00	SUMMARY
01 22 00	UNIT PRICES
01 25 00	SUBSTITUTION PROCEDURES
01 26 00	CONTRACT MODIFICATION PROCEDURES
01 29 00	PAYMENT PROCEDURES
01 31 00	PROJECT MANAGEMENT AND COORDINATION
01 32 00	CONSTRUCTION PROGRESS DOCUMENTATION
01 32 33	PHOTOGRAPHIC DOCUMENTATION
01 33 00	SUBMITTAL PROCEDURES
01 40 00	QUALITY REQUIREMENTS
01 50 00	TEMPORARY FACILITIES AND CONTROLS
01 56 39	TEMPORARY TREE PROTECTION
01 60 00	PRODUCT REQUIREMENTS
01 73 00	EXECUTION
01 74 19	CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
01 77 00	CLOSEOUT PROCEDURES
01 78 23	OPERATION AND MAINTENANCE DATA
01 78 39	PROJECT RECORD DOCUMENTS
01 79 00	DEMONSTRATION AND TRAINING

**DIVISION 02 – SITE CONSTRUCTION**

02 41 19	SELECTIVE DEMOLITION
----------	----------------------

**DIVISION 04 – MASONRY**

04 72 00	CAST STONE MASONRY
----------	--------------------

**DIVISION 05 – METALS**

05 52 13	PIPE AND TUBE RAILINGS
----------	------------------------

**DIVISION 9 – FINISHES**

09 96 00	HIGH-PERFORMANCE COATINGS
----------	---------------------------

**DIVISION 10 – SPECIALTIES**

10 14 19	DIMENSIONAL LETTER SIGNAGE
----------	----------------------------

### **DIVISION 13 – PRE-ENGINEERED STRUCTURES**

13 11 00	SWIMMING POOL GENERAL REQUIRMENTS
13 11 01	SWIMMING POOL EXCAVATION
13 11 02	SWIMMING POOL CONCRETE
13 11 03	SWIMMING POOL SHOTCRETE
13 11 04	SWIMMING POOL CERAMIC TILE
13 11 05	SWIMMING POOL PLASTER
13 11 06	SWIMMING POOL EQUIPMENT
13 11 07	SWIMMING POOL MECHANICAL
13 11 08	SWIMMING POOL ELECTRICAL
13 11 65	FIBERGLASS WATERSLIDE
13 31 23	PRE-ENGINEERED TENSILE SHADE STRUCTURES
13 34 23	PRE-ENGINEERED PAVILION

### **DIVISION 26 – ELECTRICAL**

26 56 68	EXTERIOR SPORTS LIGHTING
----------	--------------------------

### **DIVISION 31 – EARTHWORK**

31 10 00	SITE CLEARING
31 10 05	SITE DEMOLITION
31 20 00	EARTHMOVING

### **DIVISION 32 – EXTERIOR IMPROVEMENTS**

32 01 26.74	CONCRETE OVERLAYS
32 05 00	COMMON WORK RESULTS FOR EXTERIOR IMPROVEMENT
32 13 13	CONCRETE PAVING
32 13 73	PAVING JOINT SEALANTS
32 16 13	CURBS & GUTTERS
32 31 13	CHAIN LINK FENCES & GATES
32 31 19	DECORATIVE METAL FENCES AND GATES
32 32 23	SEGMENTAL RETAINING WALLS
32 33 00	SITE FURNISHINGS
32 91 13	SOIL PREPARATION
32 92 00	TURF AND GRASSES
32 93 00	PLANTS

### **DIVISION 33 – SITE UTILITIES**

33 31 13	SITE SANITARY SEWERAGE GRAVITY PIPING
33 42 00	STORMWATER CONVEYANCE
33 46 01	PLANTER SUBDRAINAGE



## SECTION 01 10 00 SUMMARY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to respective drawing sets for Specifications on Electrical, Mechanical, Plumbing, Swimming Pool, and Structural.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Project information.
  - 2. Work covered by Contract Documents.
  - 3. Work by Owner.
  - 4. Access to site.
  - 5. Coordination with occupants.
  - 6. Work restrictions.
  - 7. Specification and drawing conventions.
  - 8. Miscellaneous provisions.
- B. Related Requirements:
  - 1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

#### 1.3 PROJECT INFORMATION

- A. Project Identification: Rockville Swim and Fitness Center outdoor recreation pool renovations project
  - 1. Project Location: 355 Martins Ln, Rockville, MD 20850.
- B. Owner: Mayor and Council of Rockville.
  - 1. Owner's Representative: Adam Goldstein, Superintendent, Rockville Swim and Fitness Center, email: [agoldstein@rockvillemd.gov](mailto:agoldstein@rockvillemd.gov).
  - 2. Owner's Representative/Construction Manager: Eric Grieshaber, Senior Construction Project Manager, Department of Recreation and Parks, email: [egrieshaber@rockvillemd.gov](mailto:egrieshaber@rockvillemd.gov).

C. Architect: LSG Landscape Architecture

22.00036.00

Rockville Outdoor Recreation Pool Renovation

BID SET

SUMMARY

01 10 00 - 1

1. 8260 Greensboro Drive, Ste 325
2. Tysons, Virginia 22102
3. 703-821-2045.

D. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Civil Engineer: Clark | Azar & Associates, Inc., 20440 Century Blvd. Suite 220 Germantown, MD, 204-912-3499. The Civil Engineer has retained the following design professionals who have prepared designated portions of the Contract Documents:
  - a. Structural Engineer: Greenman-Pedersen, Inc., 530 Gaither Road Suite 100 Rockville, MD 20850, 240-268-1820.
  - b. Mechanical Engineer: Greenman-Pedersen, Inc., 530 Gaither Road Suite 100 Rockville, MD 20850, 240-268-1820.
  - c. Electrical Engineer: Diamondback Engineering, LLC, 9501 Foxlair Place Gaithersburg, MD 20882, 301-717-1353.
  - d. Plumbing Engineer: Diamondback Engineering, LLC, 9501 Foxlair Place Gaithersburg, MD 20882, 301-717-1353.
2. Aquatic Specialist: Aquatic Design Group, 22226 Faraday Ave. Carlsbad, CA, 800-938-0542.
3. ADA Compliance Review: Universal Designers and Consultants Inc., 6909 Laurel Avenue Suite 5479, Takoma Park, MD 20913, 301-442-6437.
4. Arborist: Wetland Studies and Solutions, Inc., 5300 Wellington Branch Drive Suite 100 Gainesville, VA, 410-672-5990.

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of but not limited to the following:

1. The following base bid components,
  - a. Activity pool with water play structures and associated mechanical and filtration system
  - b. Wellness pool with water play structures and associated mechanical and filtration system
  - c. Dual flume waterslide and associated mechanical and filtration system
  - d. Shade structures
  - e. Stormwater management facilities and other site infrastructure
  - f. Relocation of underground gas line, including coordination with Washington Gas and any other required entities.
  - g. Paved pool decking, seating areas and walkways
  - h. Landscape plantings
  - i. Entry signage and fencing
  - j. Athletic lighting for Activity pool and Wellness pool
  - k. Public address system for Activity pool, Wellness pool, and Fitness pool

Coordination of all wet and dry utilities extensions, relocations, and modifications as stated in the Contract Documents.

2. The following bid alternates are included,
  - a. Alternate 1 - Add 2<sup>nd</sup> floating lily pad course assembly to Activity Pool.
  - b. Alternate 2 – Add small semi-commercial water slide to Wellness Pool.
  - c. Alternate 3 – Add new plaster “white” coat to the Fitness Pool including appropriate surface preparations, replacing the racing lane tiles and expansion joints and in compliance with Section 13 11 05 Swimming-Pool-Plaster. Coordinate the timing of the work with Owner’s Representative.
  - d. Alternate 4 – Add thermal pool cover and reels for Wellness Pool.
  - e. Alternate 5 - Add athletic lighting and public address system around Fitness Pool.
  - f. Alternate 6 – Add water heater for Wellness Pool. The work will be design build by contractor.
  - g. Alternate 7 - Add pool area furnishings. Quantity and unit prices to be reviewed and finalized by owner

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 WORK BY OWNER

- A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.
- B. Preceding Work: Owner will perform the following construction operations at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.
  1. Owner will remove all existing FF&E from the limits of construction that are being preserved by the Owner.
- C. Subsequent Work: Owner will perform the following additional work at site after Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract.
  1. Owner will place all non-permanently affixed FF&E .

1.6 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish products indicated. The Work includes receiving, unloading, handling, storing, protecting, and installing Owner-furnished products and making building services connections.
- B. Owner-Furnished Products:
  1. Movable furniture, including but not limited to seating, tables, and umbrellas.

2. Movable pool equipment, including but not limited to lane lines, lane line reel, lifeguard stations, backstroke flags, except as noted to be provided as part of base bid in the construction documents.
3. Panelboards for certain equipment listed in base bid, including but not limited to aquatic equipment and sports lighting.

#### 1.7 ACCESS TO SITE

- A. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  1. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

#### 1.8 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and existing buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
  1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

#### 1.9 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to normal working hours of 7 a.m. to 5 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend Hours: Comply with City of Rockville regulations for restrictions on weekend work. If not in conflict with local ordinances, weekend work may proceed with Owner approval in advance.
  2. Early Morning Hours: Comply with City of Rockville regulations for restrictions on noisy work. If not in conflict with local ordinances, early morning work may proceed with Owner approval in advance.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
1. Notify Owner not less than five days in advance of proposed utility interruptions.
  2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
1. Notify Owner not less than three days in advance of proposed disruptive operations.
  2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- F. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site, if requested.

#### 1.10 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  2. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

## SECTION 01 22 00 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
  - 1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
  - 2. Section 014000 "Quality Requirements" for field testing by an independent testing agency.

#### 1.3 DEFINITIONS

- A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: Provide in the Bid Pricing Form.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 22 00**

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

UNIT PRICES  
01 22 00 - 2



## SECTION 01 25 00 - SUBSTITUTION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and other Division 01 and Division 13 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

#### 1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by the Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

#### 1.4 SUBMITTALS

- A. Substitution Requests: Submit digital copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use CSI Form 13.1A.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.

- c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
  - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within ten days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 14 days of receipt of request, or 10 days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
  - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Requested substitution provides sustainable design characteristics that specified product provided.
    - c. Substitution request is fully documented and properly submitted.
    - d. Requested substitution will not adversely affect Contractor's construction schedule.
    - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - f. Requested substitution is compatible with other portions of the Work.
    - g. Requested substitution has been coordinated with other portions of the Work.
    - h. Requested substitution provides specified warranty.
    - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

## PART 3 - EXECUTION (Not Used)

**END OF SECTION 01 25 00**

## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

#### 1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions" or a City provided form that is similar to it.

#### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within maximum of 10 business days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

CONTRACT MODIFICATION PROCEDURES

01 26 00 - 1

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  4. Include costs of labor and supervision directly attributable to the change.
  5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
  7. Proposal Request Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail."

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Owner will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 or a City provided form that is similar to it.
- B. Approval for additional funding that exceeds both \$100,000 and 10% of the original contract award must also be approved by the Mayor and Council. Pay and Performance Bond modifications are required for change orders that amount to 10% of the original contract award or greater.
- C. Approval by Mayor and Council may have an impact on the project's schedule while awaiting review and approval.

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714 or a City provided form that is similar to it. Construction Change Directive will be issued only upon written approval of the Owner's Representative, and it will instruct Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates a method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 26 00**

## **SECTION 01 29 00 - PAYMENT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
  - 1. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
  - 2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

#### **1.3 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### **1.4 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule. Cost-loaded Critical Path Method Schedule may serve to satisfy requirements for the schedule of values.
  - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the schedule of values to Owner's Representative and Architect through Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Payments for swimming pool work completed shall not be approved until Schedule of Values has been submitted to and approved by Architect
  - 4. Provide a single Schedule of Values for the entire project.
  - 5. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.

6. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
  7. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract, as described in Section 011000 "Summary."
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
    - a. Project name and location. RSFC outdoor recreation pool renovations, Rockville, Maryland.
    - b. Project Address. 355 Martins Lane Rockville, MD 20-850.
    - c. Owner's name. Mayor and Council of Rockville.
    - d. Owner's Project number: IFB 13-24
    - e. Name of Architect. LSG Landscape Architecture
    - f. Architect's Project number. 22.00036.00
    - g. Contractor's name and address.
    - h. Date of submittal.
  1. Arrange schedule of values consistent with format of AIA Document G703.
  2. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or division.
    - b. Description of the Work.
    - c. Name of subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Change Orders (numbers) that affect value.
    - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
      - 1) Labor.
      - 2) Materials.
      - 3) Equipment.
  3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
  4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
    - a. Differentiate between items stored on-site and items stored off-site.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

PAYMENT PROCEDURES  
01 29 00 - 2



5. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
6. Purchase Contracts: Provide a separate line item in the schedule of values for each Purchase contract. Show line-item value of Purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.
7. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
8. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
9. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
10. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
11. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect and Owner by the **15<sup>th</sup> day** of the month. The period covered by each Application for Payment is one month, ending on the last day of the prior month.
  1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect and Owner's Representative.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
  1. Other Application for Payment forms proposed by the Contractor may be acceptable to Architect and Owner. Submit forms for approval with initial submittal of schedule of values.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
  2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Materials stored offsite without prior approval of the owner are not eligible for any payment. In special circumstances, such as long lead items, the contractor may submit an application along with a list of items that may require storage outside the site. Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- G. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit conditional final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

PAYMENT PROCEDURES

01 29 00 - 4

- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of values.
  3. Contractor's construction schedule (preliminary if not final).
  4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
  5. Products list (preliminary if not final).
  6. Sustainable design action plans, including preliminary project materials cost data.
  7. Schedule of unit prices.
  8. Submittal schedule (preliminary if not final).
  9. List of Contractor's staff assignments.
  10. List of Contractor's principal consultants.
  11. Copies of building permits.
  12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  13. Initial progress report.
  14. Report of preconstruction conference.
  15. Certificates of insurance and insurance policies.
  16. Performance and payment bonds.
  17. Data needed to acquire Owner's insurance.
- J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
    - a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."
  2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Certification of completion of final punch list items.
  3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  4. Updated final statement, accounting for final changes to the Contract Sum.
  5. AIA Document G706.
  6. AIA Document G706A.
  7. AIA Document G707.
  8. Evidence that claims have been settled.

9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 29 00**

## SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Coordination drawings.
  - 3. Requests for Information (RFIs).
  - 4. Project meetings.
- B. Related Requirements:
  - 1. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 2. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.
  - 3. Division 13 Section "Swimming Pool General Requirements"

#### 1.3 DEFINITIONS

- A. RFI: Request from Contractor seeking information required by or clarifications of the Contract Documents.

#### 1.4 SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project

22.00036.00

Rockville Outdoor Recreation Pool  
Renovation  
BID SET

PROJECT MANAGEMENT AND COORDINATION

01 31 00 - 1

site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Provide copies of list to Owner and Architect. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone, as applicable. Keep list current at all times.

#### 1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  1. Submit shop drawings and coordinate long lead items so they are procured and delivered at appropriate times as to not delay the project's schedule.
  2. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  3. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  4. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
- C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

#### 1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI AIA G716-2004 or the form specified.
  1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
  2. Project number.
  3. Date.
  4. Name of Contractor.
  5. RFI number and pdf file name in the following format:
    - a. Specification number-sequential number-revision number\_Subject.
    - b. Example: 12 93 00-001-r0\_Product Data
  6. Specification article/paragraph number, drawing number, and/or detail references, as appropriate.
  7. Field dimensions and conditions, as appropriate.
  8. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  9. Contractor's signature.
  10. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Forms and attachments shall be created and submitted as electronic files in Adobe Acrobat PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow five working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Architect's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.

3. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.
  4. RFI number including RFIs that were returned without action or withdrawn.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven Insert number days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

#### 1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times. Coordinate schedules so representative(s) from each group are available.
  2. Agenda: Prepare the meeting agenda that also includes 4 weeks' look ahead and 4 weeks look back. Distribute the agenda to all invited attendees.
  3. Minutes: Contractor will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting. Provide attendees an opportunity to review meeting minutes and submit revisions. Submit to the Architect, a revised version of the meeting minutes inclusive of accurate revisions within three days of revisions due date.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
  2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, if applicable, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference.

22.00036.00  
Rockville Outdoor Recreation Pool  
Renovation  
BID SET

PROJECT MANAGEMENT AND COORDINATION  
01 31 00 - 4



Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing.
    - c. Critical work sequencing and long-lead items.
    - d. Designation of key personnel and their duties.
    - e. Lines of communications.
    - f. Procedures for processing field decisions and Change Orders.
    - g. Procedures for RFIs.
    - h. Procedures for testing and inspecting.
    - i. Procedures for processing Applications for Payment.
    - j. Distribution of the Contract Documents.
    - k. Submittal procedures.
    - l. Preparation of record documents.
    - m. Use of the premises.
    - n. Work restrictions.
    - o. Working hours.
    - p. Owner's occupancy requirements.
    - q. Responsibility for temporary facilities and controls.
    - r. Procedures for disruptions and shutdowns.
    - s. Construction waste management and recycling.
    - t. Parking availability.
    - u. Office, work, and storage areas.
    - v. Equipment deliveries and priorities.
    - w. First aid.
    - x. Security.
    - y. Progress cleaning.
  4. Minutes: Contractor will be responsible for recording and distributing draft meeting minutes. Submit to Architect for review and issue.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Owner's Commissioning Authority, if applicable, of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Options.
    - c. Related RFIs.
    - d. Related Change Orders.

22.00036.00  
Rockville Outdoor Recreation Pool  
Renovation  
BID SET

PROJECT MANAGEMENT AND COORDINATION

01 31 00 - 5

- e. Purchases.
  - f. Deliveries.
  - g. Submittals.
  - h. Review of mockups.
  - i. Possible conflicts.
  - j. Compatibility requirements.
  - k. Time schedules.
  - l. Weather limitations.
  - m. Manufacturer's written instructions.
  - n. Warranty requirements.
  - o. Compatibility of materials.
  - p. Acceptability of substrates.
  - q. Temporary facilities and controls.
  - r. Space and access limitations.
  - s. Regulations of authorities having jurisdiction.
  - t. Testing and inspecting requirements.
  - u. Installation procedures.
  - v. Coordination with other work.
  - w. Required performance results.
  - x. Protection of adjacent work.
  - y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 30 days prior to the scheduled date of Substantial Completion.
- 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  - 2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, if applicable, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.

22.00036.00  
Rockville Outdoor Recreation Pool  
Renovation  
BID SET

PROJECT MANAGEMENT AND COORDINATION

01 31 00 - 6

- d. Requirements for preparing operations and maintenance data.
  - e. Requirements for delivery of material samples, attic stock, and spare parts.
  - f. Requirements for demonstration and training.
  - g. Preparation of Contractor's punch list.
  - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
  - i. Submittal procedures.
  - j. Responsibility for removing temporary facilities and controls.
4. Minutes: Contractor will be responsible for recording and distributing meeting minutes.
- E. Progress Meetings: Conduct progress meetings bi-weekly unless decided otherwise by the owner.
- 1. Coordinate dates of meetings with preparation of payment requests.
  - 2. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, if applicable, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Progress cleaning.
      - 10) Quality and work standards.
      - 11) Status of correction of deficient items.
      - 12) Field observations.

22.00036.00  
Rockville Outdoor Recreation Pool  
Renovation  
BID SET

PROJECT MANAGEMENT AND COORDINATION

01 31 00 - 7

- 13) Status of RFIs.
  - 14) Status of proposal requests.
  - 15) Pending changes.
  - 16) Status of Change Orders.
  - 17) Pending claims and disputes.
  - 18) Documentation of information for payment requests.
4. Minutes: Contractor will be responsible for recording and distributing meeting minutes to each party present and to parties requiring information.
    - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- F. Coordination Meetings: Conduct Project coordination meetings Bi-weekly unless decided otherwise by the owner. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, if applicable, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    - c. Review present and future needs of each contractor present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.

- 9) Work hours.
  - 10) Hazards and risks.
  - 11) Progress cleaning.
  - 12) Quality and work standards.
  - 13) Change Orders.
3. Reporting: Contractor will be responsible for recording and distributing meeting minutes to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 31 00**

22.00036.00  
Rockville Outdoor Recreation Pool  
Renovation  
BID SET

PROJECT MANAGEMENT AND COORDINATION  
01 31 00 - 9

## **SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Startup construction schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Construction schedule updating reports.
  - 4. Daily construction reports.
  - 5. Material location reports.
  - 6. Site condition reports.
  - 7. Unusual event reports.
- B. Related Requirements:
  - 1. Section 014000 "Quality Requirements" for schedule of tests and inspections.
  - 2. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.

#### **1.3 DEFINITIONS**

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.

- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
  - 1. Working electronic copy of schedule file.
  - 2. PDF file.
- B. Startup construction schedule.
  - 1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  - 1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
  - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
  - 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.

- 3. Total Float Report: List of activities sorted in ascending order of total float.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit bi-weekly intervals, unless otherwise decided by owners
- H. Material Location Reports: Submit at bi-weekly intervals, unless otherwise decided by owners.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.
- J. Unusual Event Reports: Submit at time of unusual event.
- K. Qualification Data: For scheduling consultant.

#### 1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:
  - 1. Review software limitations and content and format for reports.
  - 2. Verify availability of qualified personnel needed to develop and update schedule.
  - 3. Discuss constraints, including phasing, work stages, area separations, and interim milestones.
  - 4. Review delivery dates for Owner-furnished products.
  - 5. Review schedule for work of Owner's separate contracts.
  - 6. Review submittal requirements and procedures.
  - 7. Review time required for review of submittals and resubmittals.
  - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
  - 9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
  - 10. Review and finalize list of construction activities to be included in schedule.
  - 11. Review procedures for updating schedule.

#### 1.6 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from entities involved.



2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

#### 1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
- B. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting, using CPM scheduling.
  1. In-House Option: Owner may waive requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
  2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- C. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
  1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- D. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
  1. Activity Duration: Define activities so no activity is longer than 60 days, unless specifically allowed by Architect.
  2. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
  4. Startup and Testing Time: Include no fewer than 15 days for startup and testing prior to Substantial Completion.
  5. Commissioning Time: Include no fewer than 15 days for commissioning prior to Final Completion.
  6. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's and Owner's administrative procedures necessary for certification of Substantial Completion.
  7. Punch List and Final Completion: Include not more than 20 days for completion of punch list items and Final Completion.
- E. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." The delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." The delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:
  - a. Coordination with existing construction.
  - b. Limitations of continued occupancies.
  - c. Uninterruptible services.
  - d. Partial occupancy before Substantial Completion.
  - e. Use-of-premises restrictions.
  - f. Provisions for future construction.
  - g. Seasonal variations.
  - h. Environmental control.
7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
  - a. Subcontract awards.
  - b. Submittals.
  - c. Purchases.
  - d. Mockups.
  - e. Fabrication.
  - f. Sample testing.
  - g. Deliveries.
  - h. Installation.
  - i. Tests and inspections.
  - j. Adjusting.
  - k. Curing.
  - l. Building flush-out.
  - m. Startup and placement into final use and operation.
  - n. Commissioning.
8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
  - a. Structural completion.
  - b. Temporary enclosure and space conditioning.
  - c. Permanent space enclosure.
  - d. Completion of dry utilities such as Gas line relocation.
  - e. Completion of mechanical & plumbing installation.
  - f. Completion of electrical installation.
  - g. Substantial Completion.

9. Other Constraints:
  - a. The fitness pool should remain operational if and when construction period overlaps with the swimming pool season. The fitness pool must remain operational in the months of April, May, June, July, August, September and October.
  - b. No vehicular activity, heavy equipment, or storage of construction material is allowed on top of the pump room slab.
- F. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion
  1. Temporary enclosure and space conditioning.
- G. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
  1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.
- H. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
  1. Unresolved issues.
  2. Unanswered Requests for Information.
  3. Rejected or unreturned submittals.
  4. Notations on returned submittals.
  5. Pending modifications affecting the Work and the Contract Time.
- I. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate Final Completion percentage for each activity.
- J. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- K. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

#### 1.8 STARTUP CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

#### 1.9 CPM SCHEDULE REQUIREMENTS

- A. Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's Construction Schedule using a time-scaled CPM network analysis diagram for the Work.
  1. Develop network diagram in sufficient time to submit CPM schedule, so it can be accepted for use no later than 50 days after date established for the Notice of Award.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates.
  2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
  1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

- a. Preparation and processing of submittals.
  - b. Mobilization and demobilization.
  - c. Purchase of materials.
  - d. Delivery.
  - e. Fabrication.
  - f. Utility interruptions.
  - g. Installation.
  - h. Work by Owner that may affect or be affected by Contractor's activities.
  - i. Testing and inspection.
  - j. Commissioning.
  - k. Punch list and Final Completion.
  - l. Activities occurring following Final Completion.
2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
  - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
  - a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
  - b. Total cost assigned to activities shall equal the total Contract Sum.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall Project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
  1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Main events of activity.
  4. Immediately preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.

7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the schedule of values).

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
  - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
  - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

## 1.10 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.

12. Meter readings and similar recordings.
  13. Emergency procedures.
  14. Orders and requests of authorities having jurisdiction.
  15. Change Orders received and implemented.
  16. Construction Change Directives received and implemented.
  17. Services connected and disconnected.
  18. Equipment or system tests and startups.
  19. Partial completions and occupancies.
  20. Substantial Completions authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
  2. Material stored prior to previous report and since removed from storage and installed.
  3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.
1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 32 00**

## SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Preconstruction photographs.
  - 2. Concealed Work photographs.
  - 3. Periodic construction photographs.
  - 4. Final Completion construction photographs.
  - 5. Additional photographs.
  - 6. Construction webcam.
- B. Related Requirements:
  - 1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
  - 2. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.
  - 3. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.
  - 4. Section 311000 "Site Clearing" for photographic documentation before site clearing operations commence.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and webcam. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within three days of taking photographs.
  - 1. Submit photos by uploading to web-based Project management software site. Include a copy of key plan indicating each photograph's location and direction.
  - 2. Identification: Provide the following information with each image description in file metadata tag in web-based Project management software site:
    - a. Name of Project.
    - b. Name and contact information for photographer.



- c. Name of Architect and Construction Manager.
- d. Name of Contractor.
- e. Date photograph was taken.
- f. Description of location, vantage point, and direction.
- g. Unique sequential identifier keyed to accompanying key plan.

#### 1.4 QUALITY ASSURANCE

- A. Construction Webcam Service Provider: A firm specializing in providing photographic equipment, web-based software, and related services for construction projects, with a record of providing satisfactory services similar to those required for Project.

#### 1.5 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels, and with vibration-reduction technology. Use flash in low light levels or backlit conditions.
- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- C. Metadata: Record accurate date and time from camera.
- D. File Names: Name media files with date Project area and sequential numbering suffix.

#### 1.6 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs with maximum depth of field and in focus.
  - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Construction Manager.
  - 1. Flag construction limits before taking construction photographs.
  - 2. Take a minimum of 20 photographs to show existing conditions adjacent to property before starting the Work.
  - 3. Take a minimum of 20 photographs of existing buildings either on or adjoining property, to accurately record physical conditions at start of construction.
  - 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

- D. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:
1. Underground utilities.
  2. Underslab services.
  3. Piping.
  4. Electrical conduit.
  5. Waterproofing and weather-resistant barriers.
  6. Foundations.
  7. Bioretention facilities.
- E. Periodic Construction Photographs: Take 20 photographs weekly. Select vantage points to show status of construction and progress since last photographs were taken.
- F. Final Completion Construction Photographs: Take 20 photographs after date of Substantial Completion for submission as Project Record Documents. Construction Manager will inform photographer of desired vantage points.
- G. Additional Photographs: Architect or Construction Manager may request photographs in addition to periodic photographs specified.
1. Three days' notice will be given, where feasible.
  2. In emergency situations, take additional photographs within 24 hours of request.
  3. Circumstances that could require additional photographs include, but are not limited to, the following:
    - a. Special events planned at Project site.
    - b. Immediate follow-up when on-site events result in construction damage or losses.
    - c. Photographs are to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
    - d. Substantial Completion of a major phase or component of the Work.
    - e. Extra record photographs at time of final acceptance.
    - f. Owner's request for special publicity photographs.

#### 1.7 CONSTRUCTION WEBCAM

- A. Webcam: Provide two fixed-location cameras with weatherproof housing, mounted to provide unobstructed view of construction site from location approved by Owner, with the following characteristics:
1. Static view.
  2. Capable of producing minimum 8 megapixel images.
  3. Provide pole mount, power supply, active high-speed data connection to service provider's network, and static public IP address for each camera.
- B. Live Streaming Images: Provide web-accessible image of current site image, updated at 15-minute intervals when construction is underway.

- C. Web-Based Interface: Provide online interface to allow viewing of each high-definition digital still image captured and stored during construction, from the Internet.
1. Access Control: Provide password-protected access for Project team administered by Contractor, providing current image access and archival image access by date and time, with images downloadable to viewer's device.
  2. Software: Provide responsive software interface for use on computer, tablet, and mobile screens with accompanying iPhone/iPad app and Android apps.
  3. Storage: Maintain images on the website for reference during entire construction period, and for not less than 30 days after Final Completion. Provide sufficient memory on remote server to store all Project images.
  4. Online Interface: Provide website interface with Project and client information, calendar-based navigation interface for selecting images, and pan and zoom capability within high-definition images.
  5. Forward and Reverse: Provide capability to browse through images, moving forward and backward in time by individual image and by day.
  6. Time-Lapse: Provide capability for online display of project time-lapse.
  7. Dashboard: Provide capability to view thumbnails of all cameras on one screen.
  8. Weather: Provide corresponding weather data for each image captured.
- D. Maintain cameras and web-based access in good working order, in accordance with web-based construction photographic documentation service provider's written instructions until Final Completion. Provide for service of cameras and related networking devices and software.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION 01 32 33**

## SECTION 01 33 00 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.
- C. Related Requirements:
  - 1. Section 01 25 00 Substitution Procedures
  - 2. Section 01 26 00 Contract Modification Procedures
  - 3. Section 01 29 00 Payment Procedures
  - 4. Section 01 32 00 Construction Progress Documentation
  - 5. Section 01 32 33 Photographic Documentation
  - 6. Section 01 40 00 Quality Requirements
  - 7. Section 01 60 00 Product Requirements
  - 8. Section 01 77 00 Closeout Procedures
  - 9. Section 01 78 23 Operation and Maintenance Data
  - 10. Section 01 78 39 Project Record Documents
  - 11. Section 01 79 00 Demonstration and Training
  - 12. Section 13 11 00 Swimming Pool General Requirements

#### 1.3 DEFINITIONS

- A. Submittals: Written and graphic information and physical samples, indicated in individual Specification Sections as "Submittals." Submittals may be rejected for not complying with requirements.
- B. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### 1.4 SUBMITTALS

- A. Submittal Log: Submit a log of submittals, arranged in order by Specification Section and paragraph number. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
  - 1. Submit concurrently with the first complete submittal of Contractor's construction schedule.
  - 2. Format: Arrange the following information in a tabular format:
    - a. Scheduled date for first submittal.
    - b. Specification Section number and title.
    - c. Name of subcontractor.
    - d. Description of the Work covered.
    - e. Scheduled date for Architect's final release or approval.
    - f. Scheduled date of fabrication.

#### 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings can be provided by Architect for Contractor's use in preparing submittals upon request and only after signing the CAD release form provided by the Architect.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Submit all submittal items required for each Specification Section concurrently, except Samples for Verification.
  - 3. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 business days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 8 business days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 5 days for each reviewing party for initial review of each submittal.
- D. Paper Submittals: Prohibited.
- E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with specification number or other unique identifier, including revision identifier.
    - a. File name shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include another decimal point followed by an "r" followed by a sequential revision number (e.g., 061000.01.r0, 061000.01.r1, etc.).
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Architect, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name of Contractor.
    - d. Name of firm or entity that prepared submittal.
    - e. Names of subcontractor, manufacturer, and supplier.
    - f. Submittal purpose and description.
    - g. Specification Section number and title.
    - h. Specification paragraph number or drawing designation and generic name for each of multiple items.
    - i. Drawing number and detail references, as appropriate.
    - j. Related physical samples submitted directly.
    - k. Other necessary identification.
    - l. Remarks.
- F. Options: Identify options requiring selection by Architect.
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract

Documents, including minor variations and limitations. Include same identification information as related submittal.

- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  - 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

## **PART 2 - PRODUCTS**

### **2.1 SUBMITTAL PROCEDURES**

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
  - 1. Submit electronic submittals via an online construction management software as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  - 2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2. Mark each copy of each submittal to show which products and options are applicable.
  - 3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.

- e. Testing by recognized testing agency.
  - f. Application of testing agency labels and seals.
  - g. Notation of coordination requirements.
  - h. Availability and delivery time information.
- 4. For equipment, include the following in addition to the above, as applicable:
  - a. Wiring diagrams showing factory-installed wiring.
  - b. Printed performance curves.
  - c. Operational range diagrams.
  - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- 5. Submit Product Data before Samples.
- 6. Submit Product Data in the following format:
  - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm) .
  - 3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
  - 1. Transmit Samples that contain multiple, related components, such as accessories, together in one submittal package.
  - 2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.



- e. Specification paragraph number and generic name of each item.
- 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
- 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
  - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
  - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
- 5. Samples for Initial Selection: Submit manufacturer's original native (not scanned) PDF color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
  - a. Submit two sets of manufacturer's sample kits, if requested by the Architect.
  - b. Architect will return submittal with options selected.
- 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  - a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
    - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
    - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least enough sets of paired units as necessary to demonstrate the complete limits of variations.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- F. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- G. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."

- H. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- I. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- J. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- K. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- L. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- M. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- N. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- O. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- P. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- Q. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- R. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- S. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- T. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads.

Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

## 2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic files of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- C. BIM File Incorporation: Incorporate delegated-design drawing and data files into Building Information Model established for Project.
  - 1. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as the original Drawings.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S REVIEW

- A. Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
  - 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

### 3.2 ARCHITECT'S ACTION

- A. Submittals: Architect will review each submittal, apply notations, apply an action stamp indicate action, and return the submittal.
- B. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents may be returned by the Architect without action.

**END OF SECTION 01 33 00**

## **SECTION 01 40 00 - QUALITY REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with the requirements specified or indicated. The Contractor is responsible for all testing requirements and services. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover the production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Commissioning Authority if applicable, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.

#### **1.3 DEFINITIONS**

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where

indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.4 DELEGATED DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in

compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

#### 1.5 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

#### 1.6 SUBMITTALS

- A. Shop Drawings: For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
  - 1. Indicate manufacturer and model number of individual components.
  - 2. Provide isometric drawings for conditions difficult to illustrate in two dimensions.
- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Number of tests and inspections required.

#### 1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.

5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

- B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.



- G. Testing Agency Qualifications: An NRTL, an NVLAP, WACEL, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
  3. WACEL: Washington Area Council of Engineering Laboratories
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
1. Contractor responsibilities include the following:
    - a. Provide test specimens representative of proposed products and construction.
    - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
  2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, if applicable, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect seven days in advance of dates and times when mockups will be constructed.

3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
  - a. Allow seven days for initial review and each re-review of each mockup.
6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
7. Demolish and remove mockups when directed, unless otherwise indicated.

## 1.9 QUALITY CONTROL

- A. Contractor Responsibilities: Tests and inspections are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
  1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
  3. Notify testing agencies at least 72 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- C. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

- E. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority, if applicable, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect, Commissioning Authority if applicable, Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, Commissioning Authority, if applicable, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

**3.1 TEST AND INSPECTION LOG**

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
  - 1. Date test or inspection was conducted.
  - 2. Description of the Work tested or inspected.
  - 3. Date test or inspection results were transmitted to Architect.
  - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, Commissioning Authority's reference during normal working hours.

**3.2 REPAIR AND PROTECTION**

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01 40 00**

## **SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

#### **1.3 USE CHARGES**

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum, unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- D. At no point shall the contractor's use of utilities have adverse effect on the operations of the occupied areas of the complex. If Contractor's need is greater than utilities currently available on site, Contractor is responsible for provision and cost of supplemental utilities.

#### **1.4 SUBMITTALS**

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or Maryland Standards and Specifications for Soil Erosion and Sediment Control, or the City of Rockville standards, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

## 1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, UL and City of Rockville standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete bases for supporting posts.

### 2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading. Contractor can work with the owner to use the outdoor guard office for the construction field office during the recreation pool off-season (months of September, October, November, December, January, February, March and April). There will be no fee for this use, however Contractor is responsible for cleaning and for remediation of any damages to the satisfaction of the Owner.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.

### 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### **3.2 TEMPORARY UTILITY INSTALLATION**

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- F. Heating and Cooling: Contractor to provide and pay for the temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
- H. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- I. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service overhead unless otherwise indicated.
- J. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  1. Provide construction for temporary offices, shops, and sheds located within construction area of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
  1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
  2. Remove snow and ice as required to minimize accumulations.
- E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
  1. Identification Signs: Provide Project identification signs as approved by the Owner.
  2. Temporary Signs: Provide other signs as required to inform public and individuals seeking entrance to Project.
    - a. Provide temporary, directional signs for construction personnel and visitors.
  3. Maintain and touchup signs so they are legible at all times.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.



### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - 1. Comply with work restrictions specified in Division 01 Section "Summary."
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or Maryland Standards and Specifications for Soil Erosion and Sediment Control, or the City of Rockville standards, whichever is more stringent., whichever is more stringent and requirements specified in Section 311000 "Site Clearing."
- D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings.
  - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
  - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
  - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
  - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- F. Tree and Plant Protection: Comply with requirements specified in Division 01 Section "Temporary Tree and Plant Protection."
- G. Site Enclosure Fence: Before construction operations begin, furnish and install a minimum of 6'0" tall site enclosure fence with gaps not greater than 4 inches in size and in a manner that will prevent people and animals from easily entering site except by entrance gates.
  - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
  - 2. Note that access must be maintained between the indoor complex and the fitness pool and the outdoor pool's mechanical room.
  - 3. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- K. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Termination and Removal: Remove each temporary facility when the need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
  - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

**END OF SECTION 01 50 00**

## SECTION 01 56 39 – TEMPORARY TREE PROTECTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS AND REFERENCES

- A. Section 01 32 33 "Photographic Documentation" for documenting existing and construction conditions.
- B. Section 31 10 00 "Site Clearing" for removing existing trees and shrubs.
- C. See Section 32 93 00 "Plants" for wood chip mulch for use in landscape planting applications.
- D. Tree protection plans and inventory appear on full-size plan sheets.
- E. ANSI A300 Standard Practices for Trees, Shrubs, and Other Woody Plant Maintenance
- F. ANZI Z133.1–2017 and most recent updates, Safety Requirements for Arboricultural Operations

#### 1.2 SUMMARY

- A. The scope of work includes all labor, materials, tools, equipment, facilities, transportation, and services necessary for, and incidental to, performing all operations in connection with protection of existing trees and other plants as shown on the drawings and as specified herein.
  - 1. Provide preconstruction evaluations.
  - 2. Provide tree and plant protection fencing.
  - 3. Provide protection of root zones and above ground tree and plants
  - 4. Provide pruning of existing trees and plants.
  - 5. Provide all insect and disease control.
  - 6. Provide maintenance of existing trees and plants including irrigation during the construction period as recommended by the arborist report.
  - 7. Provide maintenance of existing trees and plants including irrigation during the post construction plant maintenance period as recommended by the arborist report.
  - 8. Remove tree protection fencing and other protection from around and under trees and plants upon completion of active construction.
  - 9. Clean up and disposal of all excess and surplus material.

#### 1.3 VERIFICATION

- A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities and shall immediately inform the Owner of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Owner.

#### 1.4 PERMITS AND REGULATIONS

- A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner and Architect in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.
- B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.
- C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner shall determine which shall govern.

#### 1.5 PROTECTION OF WORK, PROPERTY, AND PERSON

- A. The Contractor shall protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.
- B. Refer to §3.21 for remedial measures for damaged trees.

#### 1.6 CORRECTION OF WORK

- A. The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner, at the soonest possible time that can be coordinated with other work and seasonal weather demands.

#### 1.7 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.
- B. Certified Arborist: Credential of an individual arborist issued and administered by the International Society of Arboriculture (ISA). This credential must be current and valid to qualify to use the copyrighted designation of "Certified Arborist". Refer to [www.isa-arbor.com](http://www.isa-arbor.com) for additional information.
- C. Design Team Forester: Consulting firm contracted to provide planning and design services, technical assistance and advice to the Design Team and Owner. Duties include but are not limited to the following: design phase tree inventories, assessments, and root investigations, etc.; developing tree preservation plans, methods, details, and specifications; and to provide site monitoring, construction submittal document review, and monitoring of the Contract Arborist.

- D. Contract Arborist: Arboricultural contracting firm implementing the approved tree preservation plans on site. All crews conducting arboricultural operations on site shall consist of at least one Certified Arborist who directly oversees all work by that crew. Arboricultural operations include, but are not limited to, pruning, tree protection device installation and maintenance (e.g., fence, matting, etc.), root pruning, air tool root excavation/exploration (SSAT), soil care activities, soil testing, mulch application, tree inspections, pesticide/chemical applications, and tree removal. Special qualifications submittal is required for review and approval, detailed below. Contract Arborist will be sub-contracted by the general contractor, at Owner's discretion.
- E. Diameter at Breast Height (DBH): Tree trunk diameter measured at 4.5 feet above grade.
- F. Critical Root Zone (CRZ): The estimated minimum area of tree roots required to be protected to maintain tree health. Area shown on drawings for all trees within scope of this project is a circle with radius in feet of 1.5 times the DBH in inches — a commonly accepted method of estimation within the arboricultural industry. Actual CRZ may vary due to site conditions. Any ground disturbance within the CRZ must be mitigated based on severity up to and including tree removal if the impact or disturbance is severe.
- G. Structural Root Zone (SRZ): The estimated minimum distance from the tree trunk that may be impacted without severe damage to large roots providing anchorage and support. Severing roots within the SRZ is likely to reduce the tree's structural stability, making whole-tree failure more likely. Area shown on drawings for all trees within scope of this project depicted as a circle with radius in feet equal to 0.45 times the DBH in inches. This distance is based on the most recent publications on tree response to construction disturbance from Dr. Kim Coder of the University of Georgia School of Forestry.
- H. Tree Protection Action Key (TPAK): Matrix provided on Plan sheets indicating designated protection and stress reduction measures for each tree.
- I. Supersonic Air Tool (SSAT): Handheld air excavation tool that focuses compressed air from a large air compressor (typically 185-375 cfm). Widely used by arboricultural firms and consultants to excavate soil without damaging major roots or underground utility conduits or cables. This technique is used in multiple applications including but not limited to root collar investigation, CRZ investigation, root pruning, vertical mulching and invigoration of compacted soils, excavation for utilities within protected CRZs.
- J. Tree Removal by Arborist: Action whereby the Contract Arborist removes trees designated for "Removal by Arborist." Trees shall be taken down by hand sectionally, or directionally felled to minimize damage to adjacent tree canopies, root systems, or adjacent structures. Roots and stump are not disturbed unless so designated in TPAK.
- K. Reasonable and reasonably: When used in this specification is intended to mean that the conditions cited will not affect the establishment or long-term stability, health or growth of the plant. This specification recognizes that plants are not free of defects, and that plant conditions change with time. This specification also recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinions, the Owner's expert shall determine when conditions within the plant are judged as reasonable.
- L. Root Pruning: The action of pre-cutting roots behind proposed excavation to prevent tearing, ripping, or shredding of roots by construction equipment. Removal of roots is always a cause

for concern by arborists, however proper root pruning will minimize damage and increase the likelihood of re-sprouting from cut ends. Various methods and equipment may be used as specified.

- M. Root Protection Matting (RPM): Ground covering designed to reduce soil compaction, rutting, and contamination within root systems of trees to be retained should staging, temporary stockpile, or equipment access be required within the CRZ areas due to extreme site constraints. Location of all RPM may or may not be shown but shall be coordinated between the Contractor, Design Team Forester, and City or Rockville (COR) Forest Conservation Inspector. Various configurations of materials and layers are to be submitted by the Contractor for applications with varying ground pressure, duration, and/or frequency of use, and reviewed and approved by the Design Team Forester and COR Forest Conservation Inspector.
- N. Root Aeration Matting (RAM): Permanent matting installed under grade fills and/or paving such as walks and drives within the CRZs of trees to be retained. RAM is designed to allow gas exchange and water infiltration into the topsoil below while accommodating typical paving techniques.
- O. Mulching of Trees: Application of a wood mulch product to areas surrounding designated trees. Mulch increases moisture-holding capacity, helps mitigate soil compaction, and increases needed soil organic composition for urban trees.
- P. Soil Amendments: Various product components applied to existing soil environment of protected trees. Examples may include but are not limited to biochar, Tree Growth Regulator, wetting agent, PolyPhosphite 30™, or other.
  - 1. Biochar: Organic soil amendment manufactured from salvage cut coniferous wood in the US, which is process with a slow-pyrolysis process (i.e., burned in a low-oxygen environment). Biochar is a stable organic matter; it does not decompose like compost, mulch, or liquid organics. Biochar has been found to enhance soil characteristics for plant growth by providing soil aeration and porosity, water-holding, ion exchange, microbial habitat, carbon storage, and modifying the mineralogy of soil. Product must meet national certifications.
  - 2. Tree Growth Regulator (Paclobutrazol): A compound used to regulate plant growth in such a way as to restrict canopy growth and free stored or produced energy for other uses in the tree. For highly impacted trees, this means more energy may be made available for fibrous root growth (to combat root loss), thicker darker leaves (allowing for increased photosynthesis, and increased drought tolerance), and pest suppression (often an issue with construction stressed trees); among other potential benefits.
  - 3. PolyPhosphite 30™ (0-0-27): A pure Potassium PolyPhosphite fertilizer solution.
- Q. Shrub: Woody plants with mature height approximately less than 25 feet.
- R. Silt Soxx or Filter Tubes: A three-dimensional woven tubular sediment control and storm water filtration device, typically used as a silt fence replacement for perimeter control, filtration of sediment and soluble pollutants. Unlike silt fences it does not need to be trenched into the soil and is therefore favored for tree protection projects.
- S. Vacuum Excavation: Extraction of soil and gravel from a confined or sensitive area where standard heavy equipment is restricted such as CRZs or architectural elements. Combines high-pressure air or hydro tools with oscillating heads to break up soil and gravel without damage to

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BID SET

TEMPORARY TREE  
PROTECTION  
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major roots. Soil is then extracted by vacuum hose by a 27 inHg pressure vacuum truck from up to 350 ft distance.

- T. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

## 1.8 PRE-CONSTRUCTION MEETING

- A. Preinstallation Conference: Conduct conference at Project site.

1. A meeting will be held at the project site prior to commencement of any project related site activities.
2. Schedule pre-construction meeting with Landscape Architect at least seven (7) days before beginning work.
3. The following parties shall attend the preconstruction conference:
  - a. Public Works Inspector.
  - b. COR Forest Conservation Inspector.
  - c. Owner.
  - d. Landscape Architect.
  - e. Design Team Forester.
  - f. General Contractor.
  - g. Contract Arborist.
  - h. Earthwork Contractor.
  - i. All site utility Contractors that may be required to dig or trench into the soil.
  - j. Landscape subcontractor.
  - k. Irrigation subcontractor

- B. Prior to this meeting, mark all trees and plants to remain and or be removed as described in this specification for review and approval by the COR Forest Conservation Inspector.

- C. Agenda: Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:

1. Tree-service firm's personnel, and equipment needed to make progress and avoid delays.
2. Arborist's responsibilities.
3. Quality-control program.
4. Coordination of Work and equipment movement with the locations of protection zones.
5. Trenching by hand or with air spade within protection zones.
6. Field quality control.
7. Locations and extents of fencing, root pruning, and matting.
8. Construction methods within CRZs.

## 1.9 SUBMITTALS

- A. Product Data: Required for each type of product indicated for specific protection work within Critical Root Zones. Submit manufacturer product data and literature describing all products required by this section for approval. Provide submittal 15 days before the start of any work at the site.

1. Root Protection Matting materials and configurations

2. Root Aeration Matting materials and configurations
  3. Supplemental watering materials, methods, and timing
  4. Root pruning methods
  5. Mulch sample and source
  6. Liquid fertilization materials
  7. Soil amendment materials, including biochar and compost
  8. Tree growth regulator material
  9. Woven filter sock if used inside CRZs
  10. SSAT and/or vacuum excavation methods if applicable
  11. Vertical mulching methods if applicable
  12. Pesticides
- B. Qualification Data: Submit Contract Arborist firm and individual qualifications as follows and as detailed under Quality Assurance below.
1. Resumes and qualifications
  2. References
- C. Pedestrian/Property Safety Plan: Contract Arborist to submit a concise written plan describing all protective measures proposed to be used to minimize potential risks to pedestrians, parked cars, workers and other public and private property. Protection measures shall be required for all on-site tree care activities including but not limited to SSAT excavation, root pruning, and canopy pruning.
- D. Maintenance Prescription: At the completion of work the Contract Arborist shall submit recommendations for maintenance and stress reduction measures as a result of construction, changes in weather patterns or events, and response in health from individual trees at the completion the Work.
- E. Samples: For each type of the following:
1. Organic Mulch: 1-liter (1-quart) volume of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.
  2. Protection-Zone Signage: Full-size Samples of each size and text, ready for installation.
- F. Site Documentation: Contract Arborist shall submit monthly reports to Owner, Landscape Architect, General Contractor, and Design Team Forester containing documentation of all tree protection or stress reduction work for each tree. These activities are including but not limited to supplemental watering, root pruning, tree protection fencing, excavation within critical root zones, temporary root protection matting, excavation with SSAT, vertical mulching, and fertilization, and recommendations for additional treatments. Documentation shall include tree numbers, date or dates of installation/applications and plan markup. Representative photos of each activity are also required.
- G. Shop Drawings:
1. Include plans, elevations, sections, and locations of protection-zone fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
  2. Detail fabrication and assembly of protection-zone fencing and signage.
  3. Indicate extent of trenching by hand or with SSAT within protection zones.



- H. Soil Samples: Submit soil sample for analysis during Early Site Demo work phase of this project. Take the samples during April through October. The sample shall be a combined mix of representative soil samples from all areas of protected trees. Samples and procedures per local cooperative extension shall be followed. Assessment shall include micronutrients. Forward reports to Owner, Landscape Architect, General Contractor, and Design Team Forester.
- I. Soil Amendments: Typically incorporated in radial or vertical mulching operations to increase organic matter around principal root systems. May be used for trench backfill material among protected roots to increase structure while still providing drainage.
- J. Tree Pruning Schedule: Written schedule from the arborist detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
  - 1. Species and size of tree.
  - 2. Location on site plan. Include unique identifier for each.
  - 3. Reason for pruning.
  - 4. Description of pruning to be performed.
  - 5. Description of maintenance following pruning.

#### 1.10 QUALITY ASSURANCE

- A. On-site Arborist (individual) Qualifications: An arborist certified by the International Society of Arboriculture (ISA). All work performed by Contract Arborist including any oversight and documentation work, shall be performed or directly supervised by at least one on-site arborist with these minimum qualifications.
- B. Arborist Firm Qualifications: Contractor Arborist Firm shall comply with the following:
  - 1. Established business with documented experience of at least five years.
  - 2. Experience working on a minimum of three commercial, nongovernmental or governmental projects where similar tree preservation programs have been successfully implemented.
  - 3. Properly licensed and insured to perform arboricultural work in the region/jurisdiction where the project is located.
  - 4. Provide names of each individual to comply with the following education, credentials, and experience.
- C. Herbicide/Pesticide Applicator Qualifications: All applications of pesticide or herbicide shall be performed by a person maintaining a current state license to apply chemical pesticides valid in the jurisdiction of the project. Submit copies of all required state licensing certificates including applicable chemical applicator licenses.
- D. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and signage, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

## 1.11 PROJECT CONDITIONS

- A. The following practices are prohibited within all Tree Protection Zones except as specifically indicated herein:
  - 1. Storage or stockpiling of construction materials, chemicals, debris, or excavated materials
  - 2. Parking vehicles, trailers or equipment
  - 3. Repeated foot traffic
  - 4. Erection of sheds or structures
  - 5. Impoundment or discharge of water
  - 6. Excavation or other digging unless otherwise approved by the Design Team Forester and COR Forest Conservation Inspector
  - 7. Attachment of signs or other materials to or wrapping materials around trees or plants unless otherwise indicated
  - 8. Concrete washout
- B. Exhaust from vehicles or equipment shall not be directed toward Tree Protection Zones or tree crowns.
- C. Heat sources, flames, smoking, and other possible sources of ignition are prohibited within or near Tree Protection Zones or organic mulch.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Biochar
  - 1. Organic soil amendment manufactured from salvage cut wood in the US. A Slow pyrolysis process is used to make the biochar. Acceptable biochar must have a test report from an independent laboratory showing at least 75% organic carbon content.
  - 2. Certifications required to be acceptable biochar: USDA Certified biobased product, OMRI certification, and US EPA certification for release into the environment (TSCA listing).
  - 3. As manufactured by Biochar Now, 2409 Lake Drive, Loveland, CO 80537. [info@biocharnow.com](mailto:info@biocharnow.com); 970.593.9110, or approved equivalent.
- B. Root Protection Matting (RPM): Typically, a combination of layers of materials to meet varying levels of protection.
  - 1. Light Duty RPM: Configured in single layers for foot traffic and small equipment with rubber tracks and ground pressure of 4.4 psi or less: Alturnamat or equal working surface over one layer of double sided geonet mat. White geo-net matting is recommended in lieu of black to reduce heat build-up on turf causing brown out. For unstable site conditions or carrying loads for equipment access and set up, it is recommended to double the Alturnamats.
  - 2. Heavy Duty RPM: For ground pressure loads exceeding 4.4 psi, for long-term material storage within CRZs, or for equipment access such as directional drilling rigs and larger tracked machines. Configuration as follows: two (2) layers of double-sided geonet core

with top and bottom non-woven, needle-punched covering with two (2) layers of Alternamat or equal working surface on top. Other extreme duty working surface materials will be considered and may include MegaDeck or equal as manufactured by DuraDeck. Submit shop drawings/cut sheets and material samples for review by Design Team Arborist and COR Forest Conservation Inspector. An additional wood chip layer may be required for some work; refer to details.

- C. Root Aeration Matting: SITEDRAIN Sheet 184 DS, manufactured by American Wick Drain, 1200 Airport Road, Monroe, NC, 28110, USA, +1-800-242-9425, or equivalent, capable of 125 psi compressive strength.
- D. Filter Fabric
  - 1. Filter fabric shall be nonwoven polypropylene fibers, inert to biological degradation and resistant of naturally occurring chemicals, alkalis and acids.
    - a. Mirafi 135 N as manufactured by Ten Cate Nicolon, Norcross, GA. <http://www.tencate.com> or approved equal.
  - 2. Submit supplier's product data that product meets the requirements for approval.
- E. Temporary Trunk/Limb Protection Wrap: To provide specific protection to tree trunks or scaffold limbs when construction activities are expected to be in proximity. Material shall be triple ply geocomposite or approved equivalent. Wood bracing installed vertically may be required over geocomposite. Submit proposed materials.
- F. Woven Filter Sock: A three-dimensional tubular sediment control and storm water runoff filtration device, typically used for perimeter control of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities. This method of sediment control provides a non-invasive approach when used within tree protection zones as there is no root disturbance. Diameter of tube to be indicated in civil specifications.
- G. Wood Chip Mulch
  - 1. Wood chip mulch for use in tree preservation applications only. See Section 32 93 00 Plants for wood chip mulch for use in landscape planting applications.
  - 2. Mulch shall be coarse, double ground, whole tree and woody brush hardwood, aged a minimum 6 months from production, free from deleterious materials. Green chips or mulch aged less than 6 months shall not be used. Non-native invasive mulch shall not be used. Submittal shall include original material source(s), number and type of grindings/chippings, duration of aging, timing of turning/aeration.
  - 3. The minimum range of fine particles shall be 3/8-inch or less in size and a maximum size of individual pieces shall be approximately 1 to 1-1/2 inch in diameter and maximum length of approximately 4 to 8 inches. No more than 25% of the total volume shall be fine particles and no more than 20% of total volume be large pieces.
    - a. It is understood that Mulch quality will vary significantly from supplier to supplier and region to region. The above requirements may be modified to conform to the source material from locally reliable suppliers as approved by the COR Forest Conservation Inspector.
  - 4. Submit supplier's product data that product meets the requirements and two-gallon sample for approval.

5. Wood Chips from an arborist chipping operation may be used for some applications. Chips must be less than 20% by volume green leaves. Chips stockpiled from the tree removal process may be used.
- H. Hardwood Destructive Borer/Beetle Control: Bifenthrin, such as Onyx or equivalent. Applied per label.
- I. Tree Growth Regulator: Paclobutrazol (trade name Cambistat®) or equal.
- J. Soil Care/Soil Amendments: One or more of the following as approved by COR Forest Conservation Inspector.
  1. Biochar
  2. Humate, dried kelp, fish hydroxylate or other as approved.
  3. Liquid Subsurface Fertilizations: To be PolyPhosphite 30™ (0-0-27) or equal; Davey Arborgreen Pro (Phosphate free formula, 30-0-10), fortified with poly amino acid or equal; or other as approved by Design Team Forester and COR Forest Conservation Inspector.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. Refer to the TPAK and drawings sheet, detail sheet, and notes sheet for specific measures determined for each tree.
- B. Installation/implementation of the following measures shall be performed in the field by an ISA Certified Arborist as provided by the Contract Arborist.
- C. All work, substitutions and/or modifications shall be subject to review and approval by COR Forest Conservation Inspector and Design Team Forester.
- D. All work shall conform to applicable federal, state, and local regulations and industry standards.
- E. The Contract Arborist shall be responsible for all items in this section.

#### **3.2 EXAMINATION**

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion and sediment control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

### 3.3 COORDINATION OF TEMPORARY TREE AND PLANT PROTECTION

- A. Existing underground utility marker conflicts shall be brought to the attention of the Contractor for resolution as well uncovered underground utilities as a result of work.
- B. Coordinate necessary survey layout of proposed construction elements to provide accurate locations for tree protection measures.
- C. Layout location of designated tree protection based upon proposed construction and methods of construction for that area.
- D. Site walk with Design Team Forester and Site Superintendent to verify locations of all tree protection measures prior to execution.
- E. Prior to the start of Work, prepare a detailed schedule of the work for coordination with other trades.
- F. Coordinate the relocation of any irrigation lines currently present on the irrigation plan, heads or the conduits of other utility lines or structures that conflict with tree locations. Root balls shall not be altered to fit around lines. Notify Owner and Landscape Architect of any conflicts encountered.
- G. Notify Site Superintendent and Design Team Forester if construction adjacent to tree protection does not appear to follow specifications or prior agreement or conflicts with tree protection seem eminent.
- H. Coordinate with Site Superintendent, Construction Managers, COR Forest Conservation Inspector, and Security for access of deliveries, crews, equipment, start up, and clean-up of each item of work.
- I. Provide as built of any change to location of tree protection.
- J. Attend progress meetings as requested.
- K. Provide submittals as required.
- L. Notify Superintendent and Design Team Forester of any breach or damage to tree protection requiring attention.

### 3.4 PREPARATION

- A. Prior to the preconstruction meeting, layout the limits of the Tree and Plant Protection Areas and alignments of required Tree and Plant Protection Fencing and root pruning. Obtain the COR Forest Conservation Inspector's approval of the limits of the protection area and the alignment of all fencing and root pruning.
- B. Flag all trees and shrubs to be removed by wrapping orange plastic ribbon around the trunk and obtain the COR Forest Conservation Inspector's approval of all trees and shrubs to be removed prior to the start of tree and shrub removal. After approval, mark all trees and shrubs to be re-

moved with orange paint in a band completely around the base of the tree or shrub 4.5 feet above the ground.

- C. Flag all trees and shrubs to remain with white plastic ribbon tied completely around the trunk or each tree and on a prominent branch for each shrub. Obtain the COR Forest Conservation Inspector's approval of all trees and shrubs to be remain prior to the start of tree and shrub removal.
- D. Prior to any construction activity at the site including utility work, grading, storage of materials, or installation of temporary construction facilities, install all tree protection fencing, Filter Fabric, silt fence, tree protection signs, Geogrid, Mulch, and or Wood Chips as shown on the drawings.

### 3.5 PROTECTION

- A. Protect the Tree Protection Area at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the COR Forest Conservation Inspector of any spills, compaction or damage and take corrective action immediately using methods approved by the COR Forest Conservation Inspector.

### 3.6 GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE AND PLANT PROTECTION AREA:

- A. The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the COR Forest Conservation Inspector including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Area may be indicated on the drawings along with any required remedial activity as listed below.
- B. In the event that construction activity is unavoidable within the Tree Protection Area, notify the COR Forest Conservation Inspector and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Area from the activity.

### 3.7 TREE REMOVAL

- A. All trees and shrubs or hedges designated for removal shall be marked in red or orange for review and approval by COR Forest Conservation Inspector.
- B. All trees designated for removal shall be taken down sectionally, or directionally felled to minimize damage to adjacent tree canopies or root systems by a qualified Contract Arborist. Gouges in turf from impacts shall be filled with topsoil and seeded at the direction of COR Forest Conservation Inspector. Damage to adjacent trees shall be reviewed by Project Arborist and COR Forest Conservation Inspector for remedial recommendations or replacement.

- C. All work shall be done by hand, bucket truck or crane operated equipment.
- D. Motorized equipment shall operate on existing pavement and not enter Tree Protection Areas without prior approval. Temporary root protection matting may be required for such access to prevent rutting and compaction.
- E. Stumps shall be ground to 8 in. below grade and grindings raked and removed from site. Backfill holes with approved topsoil and sod per COR Forest Conservation Inspector. Coordinate with underground utilities locators prior to grinding. SSAT may be used by the Arborist to verify utilities around the stump to be ground. All stump grinding shall be performed by the Contract Arborist.
- F. Only trees with stumps within proposed excavations may have stumps removed by excavator.
- G. Removal of shrubs and hedges designated for removal for each phase shall be cut and stumps ground out or hand dug to remove stumps. Prior to removal, verify with COR Forest Conservation Inspector.
- H. Remove all wood debris from site promptly. All wood debris shall be removed each day unless directed otherwise by COR Forest Conservation Inspector.

### 3.8 ROOT PRUNE

- A. Select areas of high-profile trees may be designated for Root Diversion option. Smaller roots uncovered by the SSAT are bundled with burlap and pulled aside, or stapled down, wetted, and covered with topsoil or compost. Larger roots may require hand pruning.
- B. Purpose of the root pruning is to provide a more suitable cut to not rip or tear roots during excavations and grading with standard construction equipment. The exact location and depth along the LOD or edge of utility excavation will be determined during the layout by an ISA Certified Arborist.
- C. Root pruning shall be in conformance with ANSI A300 (Part 8) latest edition.
- D. Root Pruning for urban sites with specimen trees or for transplanting requires the use of SSAT excavation for hand pruning. Refer to SSAT specifications in this section.
- E. Sufficient moisture is necessary for reducing the level of dust, increase work efficiency, and provide a hospitable environment for the tree roots and pedestrians. At a pre-work site inspection by the Contract Arborist — to be no less than 72 hours in advance of work start — subsurface probing to 12 in. with a tile probe or similar method will determine if sufficient soil moisture exists. If sufficient moisture is not found, Contract Arborist will coordinate with the site manager to irrigate the proposed work area(s). Methodology may be high pressure water injection needle from a plant health care rig, soaker hose, sprinklers, soaker cans with small holes to release water slowly, or other methods.
- F. All root pruning operations shall be performed by the Contract Arborist and directed in the field by an ISA Certified Arborist with documented experience in similar SSAT excavation and root pruning.

- G. Should nighttime temperatures create frozen ground during work hours soil warming equipment shall be provided by the General Contractor if the schedule cannot be delayed for favorable weather.

### 3.9 PRUNING:

- A. Within six months of the estimated date of substantial completion, prune all dead or hazardous branches larger than 2 inch in diameter from all trees to remain.
- B. Implement all pruning recommendations found in the Tree Preservation Plan.
- C. Prune any low, hanging branches and vines from existing trees and shrubs that overhang walks, streets and drives, or parking areas as follows:
  - 1. Walks - within 8 feet vertically of the proposed walk elevation.
  - 2. Parking areas - within 12 feet vertically of the proposed parking surface elevation.
  - 3. Streets and drives - within 4 feet vertically of the proposed driving surface elevation.
- D. All pruning shall be done in accordance with ANSI A300 (Part 1).
- E. Perform other pruning tasks as indicated on the drawings or requested by the COR Forest Conservation Inspector.
- F. Where tree specific disease vectors require it, sterilize all pruning tools between the work in individual trees.

### 3.10 TEMPORARY TREE PROTECTION FENCE

- A. Install and maintain temporary tree protection fence for each tree protection zone as shown, for as long as the duration of adjacent construction. fence shall be the following unless approved by COR Forest Conservation Inspector:
  - 1. 6 feet high, light gauge (11-13), chain link fence fabric mounted on 8 feet, 1.5 in. Ø galvanized steel pipe driven line posts. Corner posts shall be minimum 2 in. Ø.
- B. Fence shall be attached to posts using aluminum ties. Plastic zip ties shall not be used.
- C. Fence posts suitable for pavement may be used as approved by COR Forest Conservation Inspector.
- D. Tree Protection Zone signs shall be affixed to all tree protection fence at 30 ft spacing average. Signs shall be bilingual (English and Spanish). Signs shall not be affixed directly to trees. Sign shall include the following or equal language: "Tree Protection Zone — No entry. The following is prohibited: equipment access, staging, stockpile, maintenance, dewatering outfall." Sign material shall be waterproof.
- E. Silt fence shall be coordinated for installation to enhance protection and avoid unnecessary root cuts by silt fence installation.



- F. Tree protection fence may be removed only after all construction and final landscaping is complete and with COR Forest Conservation Inspector 's approval.

### 3.11 ROOT PROTECTION MATTING (RPM)

- A. The purpose of the RPM is to reduce compaction, rutting, and contamination of soils and root systems of trees to be retained should staging, temporary stockpile, or equipment access be required within CRZs due to site constraints.
- B. RPM shall be used for all equipment access within CRZ areas of trees to remain. Matting is required where existing pavement or concrete will remain undisturbed, needing protection from equipment. Contractor shall include in Submittal package.
- C. Shop drawings indicating the various vehicles, weight, ground pressure, RPM placement, and types of panels and layers to be used, and method of removal shall be submitted.
- D. Light Duty RPM is for construction access receiving temporary or minimally repetitive materials staging, foot traffic, or light equipment access within protected root zones and below 4.4 psi typically. Refer to details. These materials may be shifted and re-used as work progresses.
- E. Heavy Duty RPM is for all-weather staging, stockpile, or other repetitive construction operations exceeding 4.4 psi. Contractor to submit materials configurations and locations for this application.
- F. Extreme Duty matting may include MegaDeck or equivalent and combined with a geonet layer or wood chip layer as reviewed and approved by Design Team Forester and COR Forest Conservation Inspector.

### 3.12 ROOT AERATION MATTING (RAM)

- A. RAM is permanent matting to protect existing roots and soils from proposed grade fills and structures.
- B. RAM sequence, site preparation, extents, and transitions to be reviewed with the Design Team Forester at the pre-construction meeting.
- C. Design Team Forester shall review painted or flagged layout before installation.
- D. Install a single layer of matting on existing, undisturbed grade. Remove debris by hand.
- E. RAM shall be anchored by 12-inch landscape nails at 3-foot average spacing.
- F. RAM shall be installed by a Certified Arborist experienced with these systems.
- G. Proposed RAM in structural situations shall be reviewed and approved by the project civil engineer. Additional layers of materials such as geogrid may be required.

- H. Proposed surface section and geotextile/geogrid selection shall be reviewed and approved by the project civil engineer.
- I. Topsoil shall not be disturbed or removed. No grubbing or equipment traffic shall be allowed in the area to receive RAM. All site preparation/grading to be done using SSAT to minimize root damage.
- J. All adjacent work shall be supervised by a Certified Arborist.
- K. Equipment may travel on RAM following installation and placement of fill material but should be minimized.
- L. Matting material shall be American Wick Drain SITEDRAIN sheet 184 DS or approved equivalent.
- M. Matting edges shall be lapped over with filter fabric material to prevent contamination of the RAM core. Edge of RAM shall be coincident or nearly coincident with edge of fill material — no more than 2 inches of fill material may be placed over the edge of the RAM to allow for gas exchange with the atmosphere.
- N. RAM is permanent and shall not be removed by site contractors. Fill material shall be placed directly on RAM.
- O. Installation of silt fence for erosion control shall be coordinated with the arborist and must be performed by the arborist to prevent damage to tree roots from trenching operations. Erosion control socks may be used in lieu of silt fabric.

### 3.13 SUPERSONIC AIR TOOL (SSAT) EXCAVATION

- A. When adjacent to pedestrians, vehicles, or structures, SSAT work shall include the use of a barrier system such as temporary plywood box screen, fencing with sound abatement fabric, or construction tents to protect property and pedestrians from flying debris and/or loud noise.
- B. Proposed underground utility excavation within Tree Protection Areas shall be reviewed by the Contract Arborist, Design Team Forester, contractor, and COR Forest Conservation Inspector in the field to determine potential for damage to priority roots of select trees and layout the limit of work.
- C. Pre-watering of the proposed areas of excavation during summer and fall months is essential to maintain root/soil moisture. During drought times pre-watering should commence two weeks prior to work startup. Verify the soil is adequately moistened with the Design Team Forester.
- D. The Contract Arborist shall provide a qualified arborist crew experienced with the SSAT and utility excavation to protect adjacent structures and pedestrians, install temporary RPM, open the excavation, hand prune minor roots, and identify and protect priority roots to remain. Coordination with the appropriate sub-contractor shall be made to determine appropriate width, depth, and sequencing.
- E. Individual exposed roots being protected within the area of excavation shall be protected with wrapped burlap (3 layers minimum) or pipe insulation material. Protected roots shall not be

used as steps for workers in and out of excavations. Exposed masses of roots shall be covered to prevent desiccation with burlap or plastic sheeting awaiting pipe or conduit installation and backfill. Moisten soil and roots as needed with misters to prevent root desiccation.

- F. Vacuum rig soil extraction may be needed where site conditions such as dust or debris or deeper excavations of 61 cm (24 in) or greater are specified.
- G. Trenches left open overnight must be safely secured per ANSI standards and COR directions.

### 3.14 WOOD CHIP MULCH

- A. Mulching for the duration of construction for protection and stress reduction. Mulching will increase moisture-holding capacity, minimize soil compaction, and increase needed organic composition.
- B. For individual trees designated on the TPAK within Tree Protection Areas, install mulch to a radius in feet equal to trunk diameter in inches (e.g., 24 in. trunk diameter = 24 ft diameter mulch ring). Where planting pit areas are restricted by hardscape or other restrictions, mulch the greatest area possible.
- C. Motorized equipment shall not enter the Tree Protection Area unless specifically approved by the Design Team Forester and specific conditions met (RPM, AlturnaMATS, etc.). Any such motorized equipment shall be operated by a Certified Arborist while inside the Tree Protection Area.
- D. Do not allow mulch to contact trunk or root flare.
- E. Mulch depth shall be 3 – 4 in. for stress reduction and 6 in. for protection with RPM.
- F. Mulch shall remain for the duration of construction and may remain permanently if Owner approves.
- G. If the mulch is to be removed after construction, it must be removed by hand only. No equipment may be used unless the mulch is on RPM.

### 3.15 TREE GROWTH REGULATOR (PACLOBUTRAZOL)

- A. Paclobutrazol is a compound used to regulate plant growth in such a way as to restrict canopy growth and free stored or produced energy for other uses in the tree. For highly impacted trees, this means more energy may be made available for fibrous root growth (to combat root loss), thicker darker leaves allowing for increased photosynthesis, and increased drought tolerance.
- B. Specific methods and dosages are contained on the label and are determined by size and species and applied by a licensed pesticide applicator. Designated trees are shown on the TPAK.

### 3.16 SUPPLEMENTAL WATERING

- A. This action is for high impact trees of significance during seasonal drought times of project construction. Based upon the number and size of trees various strategies can be considered to maintain adequate soil moisture during these times. These strategies may include but are not limited to the following:
1. Quick connect landscape supply with drip irrigation hose/tubing.
  2. Water tank trunk, hand applied as directed.
  3. High pressure sub-surface injection from arborist rig.
  4. Temporary above grade tank with timers for drip or soaker hoses at each Tree Protection Area.
  5. 30-50-gallon soaker cans with 6-8 holes in bottom to allow slow seeping of water; spacing and rotation to reach desired watering dose.
  6. Equivalent means of effectively watering trees as approved by COR Forest Conservation Inspector or Design Team Forester.
- B. Trees requiring this treatment are indicated in the TPAK. Additional trees needing this treatment will be designated prior to work in each area as weather and site conditions dictate.
- C. Drought times shall be defined as:
1. Periods during the growing season of two weeks or longer, where daytime high temperatures reach 80° F or higher and less than 0.75 in. rainfall is recorded per week.  
Or,
  2. Periods during the growing season designated as “abnormally dry” or “drought” of any severity, by the U.S. Drought Monitor: (<http://droughtmonitor.unl.edu/>). Or,
  3. Any period of extraordinary circumstance, as determined by the Project Arborist or COR Forest Conservation Inspector.
- D. A prescription for the number of gallons and strategy for watering designated trees will be developed. Large mature trees with impacts to root systems require as much as 5-10 gallons per diameter inch per week during 90°+ F days during summer drought times.
- E. Volumetric soil moisture level, in all soils within the Tree Protection Area shall be maintained above permanent wilt point to a depth of at least 28 in. No soil work or other activity shall be permitted within the Tree and Plant Protection Area when the volumetric soil moisture is above field capacity. The permanent wilt point and field capacity for each type of soil texture shall be defined as follows (numbers indicate percentage volumetric soil moisture).

Soil type	Permanent wilt point v/v	Field capacity v/v
Sand, Loamy sand, Sandy loam	5-8%	12-18%
Loam, Sandy clay, Sandy clay loam	14-25%	27-36%
Clay loam, Silt loam	11-22%	31-36%
Silty clay, Silty clay loam	22-27%	38-41%

1. Volumetric soil moisture shall be measured with a digital, electric conductivity meter. The meter shall be the Hydrosense II, by Campbell Scientific, or approved equivalent meter.
  2. The Contract Arborist shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend operations until the soil moisture drains to below field capacity.
- F. Minimum watering shall be six (6) applications per growing season — typically July through October with the exact timing and duration to be determined by the Contract Arborist.

### 3.17 OVERHEAD CLEARANCE

- A. Trees to remain shall be assessed prior to construction for overhead clearance for construction activities. Contract Arborist shall recommend either canopy pruning, temporary guying/tying of select limbs, or alternative construction methods.
- B. All pruning proposed by the Contractor and/or Contract Arborist shall first be reviewed and approved by COR Forest Conservation Inspector and Design Team Forester.
- C. Equipment exhaust should be directed away from trees as much as possible. Stationary equipment shall not exhaust directly under or towards trees.
- D. Contractor shall use appropriate equipment near trees to ensure that trees are not damaged by construction. Contractor shall provide any specialized equipment needed at no additional cost to Owner.
- E. Any pruning shall also conform to the pruning specifications in this section.

### 3.18 SOIL TESTS AND SOIL CARE/FERTILIZATION

- A. Initial soil testing within vegetation and soil protection zones is required. Conduct individual soil tests for separate lawn/Tree Protection Zones (small adjacent areas may be tested together). Soil test shall be a representative sample from each area. Soil testing shall include a texture analysis (sand, silt, and clay percentages), soluble salts, and sodium tests.
- B. Treatments to the Tree Protection Zones for specified trees (see TPAK) shall be based on the results of the soil analysis. Fertilization should be consistent with the recommendations of the ANSI A300 (Part 2) Soil Management (2018), except as described herein.
- C. Application rates shall not exceed a rate of 1.5 lbs. of actual nitrogen per 91,000 square feet annually. Fertilizer may be supplemented with humic acids, soluble seaweed extracts and soil biological inoculants (mycorrhizae, etc.).
- D. Liquid subsurface injection shall use a standard hydraulic sprayer with either mechanical agitation or high-pressure jet agitation such as with a venture nozzle, spray gun and soil injection needle with at least four (4) lateral ports. Operating pressure should be 150-200 psi or one-half gallon per four seconds. Apply one half (1/2) gallon of suspension per injection on spacing of three (3) feet between injections. Inject at a depth beginning at 4 in. below the surface through a depth of 12 in.

- E. Applications to confined areas (e.g., street tree planting pits) should be made by soil injection. In areas where adequate application rates cannot be achieved, injection should be made to the point of refusal.
- F. Inject liquid PolyPhosphite 30 (PP30) into the root system of selected trees. Dose and trees to receive treatment to be based on soil test results.

3.19 FERTILIZER AND PESTICIDE APPLICATION:

- A. Fertilizer and pesticides will be applied in accordance with the manufacturer's label instructions and applicable federal, state, and local requirements.
- B. Fertilizer, soil conditioners, and pesticide applications must be approved by COR Forest Conservation Inspector prior to application.
- C. Safety Data Sheets (SDS) will be available for fertilizers and pesticides in the Contract Arborists' possession while on the site.
- D. Pesticides must be applied by an applicator who is licensed in this jurisdiction.

3.20 FIELD QUALITY CONTROL AND MONITORING

- A. Tree Condition Monitoring
  - 1. An ISA Certified Arborist (provided by the Contract Arborist) shall perform monitoring once per month year-round to monitor insects, disease, soil moisture levels, weather, and health changes on all trees designated on Tree Protection Action Key.
  - 2. The monitoring will include a report that details problematic areas that have been addressed, treatments provided to reduce the problem, and anticipated treatments forecast for 30 days. This report will be forwarded to the Design Team Forester, COR Forest Conservation Inspector, Owner, Landscape Architect, and General Contractor for documentation.
  - 3. Any treatments recommended by the Contract Arborist not already included in the project scope shall be noted in the reports for review by the Design Team Forester, and COR Forest Conservation Inspector. No additional work is to be performed unless approved in writing by COR Forest Conservation Inspector.
- B. Construction Oversight by Contract Arborist
  - 1. Any work within CRZs of retained trees shall be directly supervised by the Contract Arborist.
  - 2. If roots are encountered during excavations, work shall progress as directed by the Contract Arborist. Contract Arborist, in coordination with the construction and design teams, shall determine appropriate means and methods to address the roots. Options may include, but not be limited to, severing the roots, hand or SSAT excavation. Contractor shall not cut roots.
  - 3. All work shall be documented thoroughly, including photo documentation. Refer to site documentation submittal requirements.

C. City of Rockville Inspection

1. Upon completion of the project, all trees within the project area will be inspected by the COR Forest Conservation Inspector for any signs of tree damage, soil compaction, and/or other negative impacts to the site. If any issues are found, the Contractor shall be responsible for remediation activities including, but not limited to, root zone invigoration/air spading, liquid fertilization/bio-stimulant injections, root pruning, branch pruning, bark tracing, and/or supplemental watering.

3.21 CONTRACTOR DAMAGES AND PENALTIES

- A. Any trees or plants designated to remain and which are damaged by the Contractor shall be replaced in kind by the Contractor at their own expense. Trees shall be replaced with a tree of similar species and of equal size or 6-inch caliper whichever is less. Shrubs shall be replaced with a plant of similar species and equal size or the largest size plants reasonably available whichever is less. Where replacement plants are to be less than the size of the plant that is damaged, the COR Forest Conservation Inspector shall approve the size and quality of the replacement plant.
- B. All trees and plants shall be installed per the requirements of Specification Section 32 93 00 Plants.
- C. Plants that are damaged shall be considered as requiring replacement or appraisal in the event that the damage affects more than 25 % of the crown, 25% of the trunk circumference, or root protection area, or the tree is damaged in such a manner that the tree could develop into a potential hazard. Trees and shrubs to be replaced shall be removed by the Contractor at his own expense.
- D. The COR Forest Conservation Inspector may engage an independent arborist to assess any tree or plant that appears to have been damaged to determine their health or condition.
- E. Any tree that is determined to be dead, damaged or potentially hazardous by the Owner's arborist and upon the request of the COR Forest Conservation Inspector shall be immediately removed by the Contractor at no additional expense to the Owner. Tree removal shall include all cleanup of all wood parts and grinding of the stump to a depth sufficient to plant the replacement tree or plant, removal of all chips from the stump site and filling the resulting hole with topsoil.
- F. Any remedial work on damaged existing plants recommended by the consulting arborist shall be completed by the Contractor at no cost to the Owner. Remedial work shall include but is not limited to soil compaction remediation and vertical mulching, pruning and or cabling, insect and disease control including injections, compensatory watering, additional mulching, and could include application tree growth regulators (TGR).
- G. Remedial work may extend up to two years following the completion of construction to allow for any requirements of multiple applications or the need to undertake applications at required seasons of the year.

**END OF SECTION 01 56 39**

## SECTION 01 60 00 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
  - 1. Division 01 Section "Summary" for products selected under an alternate.
  - 2. Division 01 Section "Substitution Procedures" for requests for substitutions.
  - 3. Division 13 Section "Swimming Pool Equipment".
  - 4. Division 13 Section "Fiberglass Waterslide".

#### 1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.



- 1.4 Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents, proposed by Contractor. Refer to Section 01 25 00 "Substitution Procedures" for definition and limitations on substitutions.

1.5 SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven Insert number days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
    - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.6 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.8 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents. If there are conflicts between warranty requirements required, the more stringent requirement(s) and/or longer term will apply

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Architect will make selection.
  5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
  6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  3. Products:
    - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
    - b. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide specified product or system. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
  4. Manufacturers:
    - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
  1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range," or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Architect will consider requests for substitutions if received with [60] days following Notice to Proceed. Requests received after that time may be considered or rejected at the Architect's discretion.
- B. Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return request without action, except to record non-compliance with these requirements.
  1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
  2. Requested substitution does not require extensive revisions to the Contract Documents, as determined by Architect.
  3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  4. Substitution request is fully documented and properly submitted.
  5. Requested substitution will not adversely affected Contractor's Construction Schedule.
  6. Requested substitution has received necessary approvals of authorities having jurisdiction.
  7. Requested substitution is compatible with other portions of Work.
  8. Requested substitution has been coordinated with other portions of Work.
  9. Requested substitution provides specified warranty.
  10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is

compatible with other products, and is acceptable to all contractors and subcontractors involved.

## 2.3 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

## **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 60 00

## SECTION 01 73 00 - EXECUTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering.
  - 3. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Progress cleaning.
  - 6. Starting and adjusting.
  - 7. Protection of installed construction.
- B. Related Requirements:
  - 1. Division 01 Section "Summary" for limits on use of Project site.
  - 2. Division 01 Section "Submittal Procedures" for submitting surveys.
  - 3. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
  - 4. Division 02 Section "Selective Demolition" for demolition and removal of selected portions of the building.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### 1.4 SUBMITTALS

- A. Qualification Data: For professional engineer.

- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Certified Surveys: Submit two copies signed by professional engineer.

## 1.5 QUALITY ASSURANCE

- A. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and systems and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where

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Rockville Outdoor Recreation Pool Renovation  
BID SET

EXECUTION

01 73 00 - 2

indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work.
  2. List of detrimental conditions, including substrates.
  3. List of unacceptable installation tolerances.
  4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to layout the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.



- B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.
1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  2. Establish limits on use of Project site.
  3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  4. Inform installers of lines and levels to which they must comply.
  5. Check the location, level and plumb, of every major element as the Work progresses.
  6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
  7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

### 3.4 FIELD ENGINEERING

- A. Identification: Identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

EXECUTION  
01 73 00 - 4

2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and site work.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
  4. Maintain minimum headroom clearance of 96 inches (2440 mm) in structures.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and

items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Division 01 Section "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. Use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

### 3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

EXECUTION  
01 73 00 - 8

- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

## **SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for the following:
  - 1. Salvaging nonhazardous demolition and construction waste.
  - 2. Recycling nonhazardous demolition and construction waste.
  - 3. Disposing of nonhazardous demolition and construction waste.
- B. Related Requirements:
  - 1. Section 31 10 00 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.
  - 2. Refer to Division 13 "Swimming Pool Excavation".
  - 3. Refer to Division 01 "Selective Demolition".

#### **1.3 DEFINITIONS**

- A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.
- C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

#### 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

### PART 2 - EXECUTION

#### 2.1 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
  - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  - 4. Store components off the ground and protect from the weather.
  - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

#### 2.2 RECYCLING DEMOLITION WASTE

- A. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Polystyrene Packaging: Separate and bag materials.



3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Paint: Seal containers and store by type.

## 2.3 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of materials.
- C. Burning: Do not burn waste materials.

**END OF SECTION 01 74 19**

## **SECTION 01 77 00 - CLOSEOUT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Division 01 Section "Photographic Documentation" for submitting final completion construction photographic documentation.
  - 2. Division 01 Section "Execution" for progress cleaning of Project site.
  - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 4. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 5. Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.

#### **1.3 SUBMITTALS**

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Certificates of Release: From authorities having jurisdiction.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CLOSEOUT PROCEDURES  
01 77 00 - 1

- B. Certificate of Insurance: For continuing coverage.

#### 1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

#### 1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
  - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 3. Complete startup and testing of systems and equipment.
  - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
  - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Division 01 Section "Demonstration and Training."
  - 6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 7. Complete final cleaning requirements, including touchup painting.

8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

#### 1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties for portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  2. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
1. Use cleaning products that comply with Green Seal's GS-37.

## **PART 3 - EXECUTION**

### **3.1 FINAL CLEANING**

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.

- f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
  - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  - h. Remove labels that are not permanent.
  - i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - j. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - k. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls" and "Construction Waste Management and Disposal."

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

**END OF SECTION 01 77 00**

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CLOSEOUT PROCEDURES  
01 77 00 - 5

## **SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation manuals for systems, subsystems, and equipment.
  - 2. Product maintenance manuals.
  - 3. Systems and equipment maintenance manuals.
- B. Related Requirements:
  - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

#### **1.3 DEFINITIONS**

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Architect will comment on whether content of operations and maintenance submittals is acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file, composed of native PDF files (not scans) prepared by the Manufacturer. Submit on digital media acceptable to Owner's Representative and Architect.
    - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    - b. Enable inserted reviewer comments on draft submittals.
  2. One paper copy. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable, and Commissioning Authority if applicable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Owner's Representative, Architect will return copy with comments, and Commissioning Authority if applicable.
1. Correct or revise each manual to comply with Owner's Representative's and Architect's comments, and Commissioning Authority if applicable. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training, and Commissioning Authority if applicable..

## **PART 2 - PRODUCTS**

### **2.1 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS**

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
  2. Table of contents.
  3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name and contact information for Contractor.
  6. Name and contact information for Architect.
  7. Name and contact information for Commissioning Authority if applicable.
  8. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.



9. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
    1. If operation or maintenance documentation requires more than one volume to accommodate data, include a comprehensive table of contents for all volumes in each volume of the set.
  - D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
  - E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
    1. Electronic Files: Use native electronic files prepared by manufacturer, not scans, where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
    2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
  - F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
    1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf post-type binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
      - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
      - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
    2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
    3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
    4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.

5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
  - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
  - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.2 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
  1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
  2. Performance and design criteria if Contractor has delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
  1. Product name and model number. Use designations for products indicated on Contract Documents.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
  1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.

- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.
- F. Pool Data and Operation Instructions: Provide mounted, waterproof signage (and valve / pipe labels) for each swimming pool system with pool data and operation instructions as required by local health department regulations. Information to include pool size, volume, flowrate, bather load, instructions for normal operation, instructions for backwash operation and other pertinent details. Include a copy in Operation Manual as well.

## 2.3 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Color, pattern, and texture.
  - 4. Material and chemical composition.
  - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
  - 1. Inspection procedures.
  - 2. Types of cleaning agents to be used and methods of cleaning.
  - 3. List of cleaning agents and methods of cleaning detrimental to product.
  - 4. Schedule for routine cleaning and maintenance.
  - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.
- G. Printed and Digital copies: Provide two printed and bound copy of the entire maintenance manual and one digital copy of the same on a USB drive.

## 2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 1. Test and inspection instructions.
  - 2. Troubleshooting guide.
  - 3. Precautions against improper maintenance.
  - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 5. Aligning, adjusting, and checking instructions.
  - 6. Demonstration and training video recording, if available.
  - 7. Winterization and Summerization procedures, as needed
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

### **PART 3 - EXECUTION**

#### **3.1 MANUAL PREPARATION**

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to operation and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
  1. Do not use original project record documents as part of operation and maintenance manuals.
  2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

### **END OF SECTION 01 78 23**

## SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Division 01 Section "Execution" for final property survey.
  - 2. Division 01 Section "Closeout Procedures" for general closeout procedures.
  - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Initial Submittal:
    - a. Markups:
      - 1) Use annotation software, Adobe Acrobat or similar, to electronically apply clear, uniform, legible annotations in red, oriented to match document text, and clouded, to the full-size native PDF electronic files provided by Architect. Do not obscure background.
      - 2) Use Flatten utility and/or re-print to new PDF file at 150 DPI, full-size for each sheet.
      - 3) Combine all PDF electronic sheet files in order into a single file prior to submitting.
    - b. Number of Documents: Submit one paper-copy set and one PDF electronic data file.
    - c. Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

2. Final Submittal:
  - a. Incorporate Architect's direction.
  - b. Provide Markups, as above.
  - c. Provide each sheet in paper copy and PDF electronic data file, whether or not changes and additional information were recorded. Combine PDF files into single file, as above.
  - d. Number of Documents: Submit one paper-copy set and one PDF electronic data file.
- B. Record Specifications: Submit one set of annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
  1. Where record Product Data is required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

## **PART 2 - PRODUCTS**

### **2.1 RECORD DRAWINGS**

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
  1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an acceptable drawing technique.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Changes made by Change Order or Construction Change Directive.
    - i. Changes made following Architect's written orders.
    - j. Details not on the original Contract Drawings.
    - k. Field records for variable and concealed conditions.
    - l. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
  2. Format: DWG, Version , Microsoft Windows operating system.
  3. Format: Annotated PDF electronic file with comment function enabled.
  4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
  5. Refer instances of uncertainty to Architect for resolution.
  6. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
    - a. See Division Section 01 "Submittal Procedures" for requirements related to use of Architect's digital data files.
    - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Format: Annotated PDF electronic file.
  3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
  4. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.



## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file.
  - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

# PART 3 - EXECUTION

## 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

**END OF SECTION 01 78 39**

## SECTION 01 79 00 - DEMONSTRATION AND TRAINING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 01 and Division 13 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
  - 2. Demonstration and training video recordings.
- B. Unit Price for Instruction Time: Length of instruction time will be measured by actual time spent performing demonstration and training in required location. No payment will be made for time spent assembling educational materials, setting up, or cleaning up. See requirements in Section 012200 "Unit Prices."

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
  - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For facilitator and instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module. One digital copy and one hard copy.

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

DEMONSTRATION AND TRAINING

01 79 00 - 1

1. Identification: On each copy, provide a label with the following information:
  - a. Name of Project.
  - b. Name of Construction Manager.
  - c. Name of Contractor.
  - d. Date of video recording.
2. Printed Transcript: Prepared and bound in format matching operation and maintenance manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
3. Digital Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
4. At completion of training, submit complete training manual(s) for Owner's use prepared in same paper and PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

#### 1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.
- D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
  1. Inspect and discuss locations and other facilities required for instruction.
  2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
  3. Review required content of instruction.
  4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

#### 1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

DEMONSTRATION AND TRAINING  
01 79 00 - 2

- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

#### 1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  - 2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Systems and equipment operation manuals.
    - c. Systems and equipment maintenance manuals.
    - d. Product maintenance manuals.
    - e. Project Record Documents.
    - f. Identification systems.
    - g. Warranties and bonds.
    - h. Maintenance service agreements and similar continuing commitments.
  - 3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.
    - b. Instructions on stopping.
    - c. Shutdown instructions for each type of emergency.
    - d. Operating instructions for conditions outside of normal operating limits.
    - e. Sequences for electric or electronic systems.
    - f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
5. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
6. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning.
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
7. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

## 1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

## 1.9 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of an oral or a demonstration performance-based test or as directed by the owner.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

## 1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
  - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode with vibration reduction technology.
  - 1. Submit video recordings on CD-ROM or thumb drive.
  - 2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
  - 3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.
  - 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the

following for each Contractor involved on the Project, arranged according to Project Manual table of contents:

- a. Name of Contractor/Installer.
  - b. Business address.
  - c. Business phone number.
  - d. Point of contact.
  - e. Email address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
1. Film training session(s) in segments not to exceed 15 minutes.
    - a. Produce segments to present a single significant piece of equipment per segment.
    - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
    - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

## **PART 2 - PRODUCTS**

## **PART 3 - EXECUTION**

**END OF SECTION 01 79 00**

## SECTION 02 41 19 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Division 13 Section "Swimming Pool Excavation".
- C. Division 31 Section "Site Demolition".

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Demolition and removal of selected site elements.
  - 3. Salvage of existing items to be reused or recycled.
- B. Related Requirements:
  - 1. Division 01 Section "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.
  - 2. Refer to specifications in FCP Plans for protecting existing trees to remain; for any work inside or adjacent to Tree Protection areas.
  - 3. Division 01 Section "Temporary Tree Protection."
  - 4. Division 01 Section "Execution" for cutting and patching procedures.
  - 5. Division 31 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

#### 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, store and protect from damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.



#### 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
  - 1. Owner will have the opportunity to label items to be salvaged prior to demolition. Contractor to remove identified items for Owner to secure. Carefully salvage in a manner to prevent damage and promptly return to Owner.
  - 2. At the owner's discretion, the Water Slide and/or its support structure may be removed by a third party. Owner will coordinate with the contractor if this is to proceed.

#### 1.5 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
  - 1. Attendees must include Owner's Representative, Landscape Architect, General Contractor, all Subcontractors that are performing demolition work.
  - 2. Inspect and discuss condition of construction to be selectively demolished.
  - 3. Review structural load limitations of existing structure.
  - 4. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 5. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 6. Review areas where existing construction is to remain and requires protection.

#### 1.6 SUBMITTALS

- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's and other tenants' on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Coordination of Owner's continuing occupancy of portions of site.
- C. Inventory: Submit a list of items to be removed and salvaged and delivered to Owner prior to start of demolition.
- D. Predemolition Photographs and Video: Submit before Work begins.

## 1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

## 1.8 FIELD CONDITIONS

- A. The Owner will occupy portions of site immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
  - 1. The Olympic size competition pool (known as Fitness Pool) adjacent to the limit of disturbance will remain operational during parts of the construction period (months of March, April, May, June, July, August, September, October. No construction activity, including demolition, shall impact owner's ability to operate this pool.
  - 2. Pump room houses equipment for the recreational pool as well the Olympic size competition "Fitness" pool. Demolition work inside the pump room shall not impact owner's ability keep the competition pool operational through the construction period.
  - 3. Roof of the Pump room is flush with the pool deck, but it is not designed for any vehicular or heavy equipment loading.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, contractor shall coordinate with Owner to remove the following items:
    - a. Movable furnishings and objects.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is prohibited.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

## **PART 2 - PRODUCTS**

### **2.1 PERFORMANCE REQUIREMENTS**

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. During demolition activities, continue to protect all existing structures to remain; including but not limited to:
  - 1. The bath house and the pump room: Contractor shall take precaution against any damage to existing pump room below grade. The roof of pump room acts as decking of pool area. Contractor to take care that demolition or construction activities does not compromise the structural integrity of the existing structure.
  - 2. The outdoor Fitness Pool and associated equipment must remain operational and available for public use in the months of April, May, June, July, August, September and October. During other months, the pool and equipment must be accessible to facility staff, however it will not be in operation and it's equipment may be temporarily disabled to accommodate adjacent construction.
- D. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- E. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- F. Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
  - 2. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

- G. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs, preconstruction videotapes, and templates.
1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
  2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. Arrange to shut off indicated utilities with utility companies.
  2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  3. Disconnect, demolish, and remove systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    - c. Components to Be Removed: Disconnect and cap services and remove equipment.
    - d. Components to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    - e. Components to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Comply with requirements for temporary enclosures Division 01 Section "Temporary Facilities and Controls."
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  - 5. Maintain adequate ventilation when using cutting torches.
  - 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  - 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  - 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - 9. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until delivery to Owner.
  - 4. Transport items to Owner's storage area on-site, designated by Owner.
  - 5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.
- B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  3. Remove debris from elevated areas by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

**END OF SECTION 02 41 19**

## **SECTION 04 72 00 - CAST STONE MASONRY**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Cast stone curbing.
- B. Related Sections include the following:
  - 1. Division 32 13 73 Paving Joint Sealants.

#### **1.3 DEFINITIONS**

- A. Cast Stone: Architectural precast concrete building units intended to simulate natural cut stone.

#### **1.4 SUBMITTALS**

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for cast stone units.
- C. Shop Drawings: Show fabrication and installation details for cast stone units. Include dimensions, details of reinforcement and anchorages if any, and indication of finished faces.
  - 1. Include building elevations showing layout of units and locations of joints and anchors.
- D. Samples for Initial Selection:
  - 1. Cast stone trim, in the form of small-scale units, representing Manufacturer's full range of standard colors and textures.
  - 2. Colored mortar from Manufacturer's full range of standard colors.

- E. Samples for Verification:

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CAST STONE MASONRY  
04 72 00 - 1



1. For each color and texture of cast stone required, 4 inches (100 mm) square in size.
  2. For colored mortar and other joint materials. Make Samples using same sand and mortar ingredients to be used on Project. Label Samples to indicated types and amounts of pigments used.
- F. Mockup Samples: Furnish sample units for each color and texture of cast stone required, 20 inches (5000 mm) square in size for installation in mockups.
- G. Approved Samples may be installed in the Work.
- H. Qualification Data: For manufacturer and testing agency.
1. Include copies of material test reports for completed projects, indicating compliance of cast stone with ASTM C 1364.
- I. Quality-Control Plan: Manufacturer's written quality-control plan that includes all elements of the Cast Stone Institute's "Quality Control Procedures Required for Plant Inspection."
1. Provide copies of documentation showing compliance with quality-control plan as requested by Architect.
- J. Material Test Reports: For each mix required to produce cast stone, based on testing according to ASTM C 1364, including test for resistance to freezing and thawing.
1. Provide test reports based on testing within previous two years.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer of cast-stone units similar to those indicated for this Project, with sufficient production capacity to manufacture required units, and is a plant certified by the Cast Stone Institute.
1. Manufacturer is a producing member of the Cast Stone Institute.
- B. Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.
- C. Source Limitations for Cast Stone: Obtain cast stone units through one source from a single manufacturer.
- D. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build mockup of typical wall area as shown on Drawings.

- F. Texture and Color of Cast Stone shall be in accordance with Cast Stone Institute's *Technical Bulletin 36*.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery of cast stone with unit masonry work to minimize the need for on-site storage and to avoid delaying the Work.
- B. Pack, handle, and ship cast stone units in suitable packs or pallets.
  - 1. Lift with wide-belt slings; do not use wire rope or ropes that might cause staining. Move cast stone units, if required, using dollies with wood supports.
  - 2. Store cast stone units on wood skids or pallets with nonstaining, waterproof covers, securely tied. Arrange to distribute weight evenly and to prevent damage to units. Ventilate under covers to prevent condensation.
- C. Store installation materials on elevated platforms, under cover, and in a dry location.
- D. Store mortar aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

#### 1.7 PROJECT CONDITIONS

- A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until cast stone has dried, but not less than 7 days after completing cleaning.
- B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

## 2.2 CAST STONE MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or Type III, containing not more than 0.60 percent total alkali when tested according to ASTM C 114.
- B. Coarse Aggregates: Granite, quartz, or limestone complying with ASTM C 33/C33M; gradation as needed to produce required textures and colors as needed to produce required cast stone colors.
- C. Fine Aggregates: Natural sand or crushed stone complying with ASTM C 33/C33M, gradation as needed to produce required textures and colors as needed to produce required cast stone colors.
- D. Color Pigment: ASTM C 979/C979M, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.
- E. Admixtures: Do not use admixtures unless specified or approved in writing by Architect.
  - 1. Do not use admixtures that contain more than 0.1 percent water-soluble chloride ions by mass of cementitious materials. Do not use admixtures containing calcium chloride.
  - 2. Use only admixtures that are certified by manufacturer to be compatible with cement and other admixtures used.
  - 3. Air-Entraining Admixture: ASTM C 260. Add to mixes for units exposed to the exterior at manufacturer's prescribed rate to result in an air content of 4 to 6 percent, except do not add to zero-slump concrete mixes.
  - 4. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 5. Water-Reducing, Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 6. Water-Reducing, Accelerating Admixture: ASTM C 494/C 494M, Type E.
- F. Compressive Strength: ASTM C1194. 10,000 psi (68 Mpa).
- G. Absorption Rate: ASTM C1195. 4.4%.
- H. Reinforcement: Deformed steel bars complying with ASTM A 615/A 615M, Grade 60 (Grade 420). Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches (38 mm) of cast stone material.
  - 1. Epoxy Coating: ASTM A 775/A 775M.
  - 2. Galvanized Coating: ASTM A 767/A 767M.
- I. Embedded Anchors and Other Inserts: Fabricated from stainless steel complying with ASTM A 240/A 240M, ASTM A 276, or ASTM A 666, Type 304.

## 2.3 CAST STONE UNITS

- A. Available Manufacturers:
  - 1. Hanover Architectural Products (PA)

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CAST STONE MASONRY  
04 72 00 - 4

2. Advanced Architectural Stone, Inc. (TX)
3. AHI Supply, Inc. (TX)
4. American Artstone Co., Inc. (MN)
5. Architectural Cast Stone (IL.)
6. Architectural Cast Stone, Inc. (KS)
7. Bassco Caststone (AL)
8. Caliber Cast Stone (MO)
9. Capital Cast Stone (IN)
10. Cast Stone Systems, Inc. (NC)
11. Concrete Designs, Inc. (AZ)
12. Corinthian Cast Stone, Inc. (NY)
13. CSCS/Stone Legends/Stone Magic (TX)
14. Custom Cast Stone, Inc. (IN)
15. Dallas Cast Stone Co., Inc. (TX)
16. Edwards Cast Stone Company. (IA)
17. MidCon Products, Inc. (WI)
18. Premier Stoneworks, LLC (FL)
19. Reading Rock, Inc. (OH)
20. Reading Rock, Inc. (NJ)
21. Royal Stone, Inc. (OH)
22. Siteworks, Inc. (TX)
23. Southern Castings, Inc. (GA)
24. Stafford Stone Works, LLC (VA)
25. Stoneworks Architectural Precast / Cast Stone
26. Sun Precast Co., Inc. (PA)
27. Superior Precast Products, Inc. (MI)

B. Provide cast stone units complying with ASTM C 1364 using the vibrant dry tamp or wet-cast method.

1. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364.

C. Fabricate units with sharp arris and details accurately reproduced with indicated texture on all exposed surfaces, unless otherwise indicated.

1. Slope exposed horizontal surfaces 1:12, unless otherwise indicated.
2. Provide drips on projecting elements, unless otherwise indicated.

D. Fabrication Tolerances:

1. Variation in Cross Section: Do not vary from indicated dimensions by more than 1/8 inch (3 mm).
2. Variation in Length: Do not vary from indicated dimensions by more than 1/360 of the length of unit or 1/8 inch (3 mm), whichever is greater.
3. Warp, Bow, and Twist: Not to exceed 1/360 of the length of unit or 1/8 inch (3 mm), whichever is greater.
4. Location of Grooves, False Joints, Holes, Anchorages, and Similar Features: Do not vary from indicated position by more than 1/8 inch (3 mm) on formed surfaces of units and 3/8 inch (10 mm) on unformed surfaces.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CAST STONE MASONRY  
04 72 00 - 5

- E. Cure units by one of the following methods:
  - 1. Cure units with steam in enclosed curing room at temperature of 105 deg F (41 deg C) or above and 95 to 100 percent relative humidity for 6 hours.
  - 2. Cure units with dense fog and water spray in enclosed warm curing room at 95 to 100 percent relative humidity for 24 hours.
  - 3. Cure units to comply with one of the following:
    - a. Not less than 5 days at mean daily temperature of 70 deg F (21 deg C) or above.
    - b. Not less than 6 days at mean daily temperature of 60 deg F (16 deg C) or above.
    - c. Not less than 7 days at mean daily temperature of 50 deg F (10 deg C) or above.
    - d. Not less than 8 days at mean daily temperature of 45 deg F (7 deg C) or above.
- F. Acid etch units after curing to remove cement film from surfaces to be exposed to view.
- G. Colors and Textures: As selected by Architect from manufacturer's full range.
- H. Color and Texture: Provide units with fine-grained texture and buff color resembling Indiana limestone.
- I. Color and Texture: Provide units with fine texture and red-brown color resembling brownstone on adjacent buildings.

#### 2.4 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.
- D. Masonry Cement: ASTM C 91.
  - 1. Available Products:
    - a. Capital Materials Corporation; Flamingo Color Masonry Cement.
    - b. Essroc, Italcementi Group; Brixment or Velvet.
    - c. Holcim (US) Inc.; Mortamix Masonry Cement.
    - d. Lafarge North America Inc.; Lafarge Masonry Cement.
    - e. Lehigh Cement Company; Lehigh Masonry Cement.
    - f. National Cement Company, Inc.; Coosa Masonry Cement.
- E. Mortar Cement: ASTM C 1329.
  - 1. Available Products:
    - a. Lafarge North America Inc.; Lafarge Mortar Cement.

- F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

1. Available Products:

- a. Bayer Corporation, Industrial Chemicals Div.; Bayferrox Iron Oxide Pigments.
- b. Davis Colors; True Tone Mortar Colors.
- c. Solomon Grind-Chem Services, Inc.; SGS Mortar Colors.

- G. Colored Cement Product: Packaged blend made from mortar cement and mortar pigments, all complying with specified requirements and containing no other ingredients.

1. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
2. Pigments shall not exceed 10 percent of portland cement by weight.
3. Available Products:

a. Colored Mortar Cement:

- 1) Lafarge North America Inc.; Magnolia Superbond Mortar Cement.

- H. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
3. White-Mortar Aggregates: Natural white sand or crushed white stone.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

- I. Water: Potable.

## 2.5 SEALANT FOR JOINTS

- A. Latasil; Laticrete International, Inc.; Bethany, Connecticut; 800-243-4788.

1. High performance, one component, neutral cure, 100% silicone sealant designed for exterior stone applications.
2. Conforms to the following properties under ASTM C-920: Type S, Grade NS, Class 25, Use NT, Use I, Use M, Use G.
3. Conforms to ASTM C-794 Adhesion Properties.
4. Equipped with fungicides to resist mold & mildew growth.
5. Resistant to pool chemicals.
6. Minimum 25% extension & compression.

- B. Color: As selected from Manufacturer's full range of standard colors and approved by Architect.

## 2.6 ACCESSORIES

- A. Anchors: Type and size indicated, fabricated from stainless steel complying with ASTM A 240/A 240M, ASTM A 276, or ASTM A 666, Type 304.
- B. Anchors: Type and size indicated, fabricated from steel complying with ASTM A 36/A 36M, and hot-dip galvanized to comply with ASTM A 123/A 123M.
- C. Dowels: Round stainless-steel bars complying with ASTM A 615, Grade 60, and 1/2-inch (12-mm) diameter.
- D. Proprietary Acidic Cleaner: Manufacturer's standard-strength, general-purpose cleaner designed for removing mortar/grout stains, efflorescence, and other construction stains from new masonry surfaces without discoloring or damaging masonry surfaces; expressly approved for intended use by cast stone manufacturer and expressly approved by cleaner manufacturer for use on cast stone and adjacent masonry materials.
  - 1. Available Manufacturers:
    - a. Diedrich Technologies, Inc.
    - b. EaCo Chem, Inc.
    - c. ProSoCo, Inc.

## 2.7 MORTAR MIXES

- A. Comply with requirements in Division 4 Section "Unit Masonry" for mortar mixes.
- B. Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar.
  - 2. Limit cementitious materials in mortar to portland cement, mortar cement, and lime.
- C. Comply with ASTM C 270, Proportion Specification.
  - 1. For setting mortar, use Type N.
  - 2. For pointing mortar, use Type N.
- D. Pigmented Mortar: Use colored cement product.
  - 1. Pigments shall not exceed 10 percent of portland cement by weight.
  - 2. Mix to match Architect's sample.

## 2.8 SOURCE QUALITY CONTROL

- A. Employ an independent testing agency to sample and test cast stone units according to ASTM C 1364.
  - 1. Include one test for resistance to freezing and thawing.

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
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CAST STONE MASONRY

04 72 00 - 8

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of cast stone.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 SETTING CAST STONE IN MORTAR**

- A. Set cast stone as indicated on Drawings. Refer to drawings by Architect. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
  - 1. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place.
- B. Wet joint surfaces thoroughly before applying mortar or setting in mortar.
- C. Set units in full bed of mortar with full head joints, unless otherwise indicated.
  - 1. If not indicated, set units with joints 1/4 to 3/8 inch (6 to 10 mm) wide.
  - 2. Build anchors and ties into mortar joints as units are set.
  - 3. Fill dowel holes and anchor slots with mortar.
  - 4. Fill collar joints solid as units are set.
  - 5. Build concealed flashing into mortar joints as units are set.
  - 6. Keep head joints in units with exposed horizontal surfaces open to receive sealant.
- D. Rake out joints for pointing with mortar to depths of not less than 3/4 inch (19 mm). Rake joints to uniform depths with square bottoms and clean sides. Scrub faces of units to remove excess mortar as joints are raked.
- E. Point mortar joints by placing and compacting mortar in layers not greater than 3/8 inch (10 mm). Compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
- F. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
- G. Provide expansion, control, and pressure-relieving joints of widths and at locations indicated. Keep joints free of mortar and other rigid materials.
  - 1. Form open joint of width indicated, but not less than 3/8 inch (10 mm).
- H. Prepare joints indicated to receive sealant and apply sealant of type and at locations indicated to comply with applicable requirements in Division 07 Section "Joint Sealants."



1. Prime cast stone surfaces to receive sealant and install compressible backer rod in joints before applying sealant, unless otherwise indicated.

### 3.3 SETTING ANCHORED CAST STONE WITH SEALANT-FILLED JOINTS

- A. Set cast stone as indicated on Drawings. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
  1. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place.
  2. Shim and adjust anchors, supports, and accessories to set cast stone in locations indicated with uniform joints.
- B. Keep cavities open where unfilled space is indicated between back of cast stone units and backup wall; do not fill cavities with mortar or grout unless otherwise indicated.
- C. Fill anchor holes with sealant.
  1. Where dowel holes occur at pressure-relieving joints, provide compressible material at ends of dowels.
- D. Set cast stone supported on clip or continuous angles on resilient setting shims. Use material of thickness required to maintain uniform joint widths. Hold shims back from face of cast stone a distance at least equal to width of joint.
- E. Keep joints free of mortar and other rigid materials. Remove temporary shims and spacers from joints after anchors and supports are secured in place and cast stone units are anchored. Do not begin sealant installation until temporary shims and spacers are removed.
  1. Form open joint of width indicated, but not less than 3/8 inch (10 mm).
- F. Prepare joints and apply sealant of type and at locations indicated to comply with applicable requirements in Division 7 Section "Joint Sealants."
  1. Prime cast stone surfaces to receive sealant and install compressible backer rod in joints before applying sealant, unless otherwise indicated.

### 3.4 INSTALLATION TOLERANCES

- A. Variation from Plumb: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
- B. Variation from Level: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch in 36 inches (3 mm in 900 mm) or one-fourth of nominal joint width, whichever is less.

- D. Variation in Plane between Adjacent Surfaces (Lipping): Do not vary from flush alignment with adjacent units or adjacent surfaces indicated to be flush with units by more than 1/16 inch (1.5 mm), except due to warpage of units within tolerances specified.

### 3.5 TOUCHUP AND REPAIR

- A. Refer to Cast Stone Institute's *Technical Bulletin 38* for touchup and repair procedures and requirements.

### 3.6 ADJUSTING AND CLEANING

- A. Remove and replace stained and otherwise damaged units and units not matching approved Samples. Cast stone may be repaired if methods and results are approved by Architect.
- B. Replace units in a manner that results in cast stone matching approved Samples, complying with other requirements, and showing no evidence of replacement.
- C. Refer to Division 04 Section "Unit Masonry" for cleaning materials and procedures.
- D. In-Progress Cleaning: Clean cast stone as work progresses.
  - 1. Remove mortar fins and smears before tooling joints.
  - 2. Remove excess sealant immediately, including spills, smears, and spatter.
- E. Final Cleaning: After mortar is thoroughly set and cured, clean exposed cast stone as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample; leave one sample uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of cast stone.
  - 3. Protect adjacent surfaces, plant material, and planting soil from contact and/or absorption with cleaner.
  - 4. Wet surfaces with water before applying cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
  - 5. Clean cast stone by bucket-and-brush hand-cleaning method described in BIA Technical Notes No. 20.

**END OF SECTION 04 72 00**

## SECTION 05 52 13 - PIPE AND TUBE RAILINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 RELATED SECTIONS

- A. Division 13 “Swimming-Pool-Electrical”

#### 1.3 SUMMARY

- A. This Section includes the following:
  - 1. Aluminum pipe and tube railings.
  - 2. Steel pipe and tube railings.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
  - 1. Aluminum: The lesser of minimum yield strength divided by 1.65 or minimum ultimate tensile strength divided by 1.95.
  - 2. Steel: 72 percent of minimum yield strength.
- B. Structural Performance: Provide railings capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
  - 1. Hand Rails:
    - a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
    - b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
    - c. Uniform and concentrated loads need not be assumed to act concurrently.
  - 2. Top Rails of Guards:
    - a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
    - b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
    - c. Uniform and concentrated loads need not be assumed to act concurrently.

3. Infill of Guards:

- a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
  - b. Uniform load of 25 lbf/sq. ft. (1.2 kN/sq. m) applied horizontally.
  - c. Infill load and other loads need not be assumed to act concurrently.
- C. Thermal Movements: Provide exterior railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.5 SUBMITTALS

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.
- B. Product Data: For the following:
1. Grout, anchoring cement, and paint products.
- C. Shop Drawings: Provide the following
1. Typical sections, details, and attachments to other work.
  2. Plans indicating locations and extent of all railings.
  3. Elevations of each railing, indicating materials and dimensions to adjacencies.
- D. Samples for Initial Selection: For products involving selection of color, texture, or design.
- E. Samples for Verification: For each type of exposed finish required.
1. Sections of each distinctly different linear railing member, including hand rails, top rails, and posts.
  2. Fittings and brackets.
- F. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.
- G. Welding certificates.

## 1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of railing through one source from a single manufacturer.
- B. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code-Steel."
  - 2. AWS D1.2, "Structural Welding Code--Aluminum."

## 1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls, stair treads, ramps, and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.
  - 1. Provide allowance for trimming and fitting at site.

## 1.8 COORDINATION AND SCHEDULING

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS AND PRODUCTS

- A. Steel Handrails
  - 1. Finish: Galvanized
  - 2. For details, see drawings.
- B. Add Alt: Aluminum Handrails
  - 1. Finish: Powder coated
  - 2. For details, see drawings.
- C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Steel Pipe and Tube Railings:
    - a. Capitol IronWorks.
    - b. Urbana IronWorks.
    - c. Maryland Iron, Inc.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

PIPE AND TUBE RAILINGS  
05 52 13 - 3

- d. Aluminum Pipe and Tube Railings:
- e. AlumaGuard Corp.
- f. ATR Technologies, Inc.
- g. Blum, Julius & Co., Inc.
- h. Braun, J. G., Company; a division of the Wagner Companies.
- i. CraneVeyor Corp.
- j. Hollaender Manufacturing Company.
- k. Moultrie Manufacturing Company.
- l. Pisor Industries, Inc.
- m. Sterling Dula Architectural Products, Inc.
- n. Superior Aluminum Products, Inc.
- o. Thompson Fabricating, LLC.
- p. Tubular Specialties Manufacturing, Inc.
- q. Tuttle Aluminum & Bronze.
- r. Wagner, R & B, Inc.; a division of the Wagner Companies.

## 2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.

## 2.3 ALUMINUM

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- B. Extruded Bars and Tubing: ASTM B 221 (ASTM B 221M), Alloy 6063-T5/T52.
- C. Extruded Structural Pipe and Round Tubing: ASTM B 429, Alloy 6063-T6.
  - 1. Provide Standard Weight (Schedule 40) pipe, unless otherwise indicated.
- D. Drawn Seamless Tubing: ASTM B 210 (ASTM B 210M), Alloy 6063-T832.
- E. Plate and Sheet: ASTM B 209 (ASTM B 209M), Alloy 6061-T6.
- F. Die and Hand Forgings: ASTM B 247 (ASTM B 247M), Alloy 6061-T6.
- G. Castings: ASTM B 26/B 26M, Alloy A356.0-T6.

## 2.4 STEEL AND IRON

- A. Tubing: ASTM A 500 (cold formed) or ASTM A 513, Type 5 (mandrel drawn).

- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
  - 1. Provide galvanized finish for exterior installations and where indicated.
- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Castings: Either gray or malleable iron, unless otherwise indicated.
  - 1. Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.
  - 2. Malleable Iron: ASTM A 47/A 47M.

## 2.5 FASTENERS

- A. General: Provide the following:
  - 1. Aluminum Railings: Type 316 stainless-steel fasteners.
  - 2. Steel Railings: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated.
- C. Fasteners for Interconnecting Railing Components:
  - 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.
- D. Anchors: Provide chemical or torque-controlled expansion anchors, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

## 2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
  - 1. For aluminum railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Shop Primers: Provide primers that comply with Division 09 Section "High-Performance Coatings."

- C. Shop Primer for Galvanized Steel: Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint systems indicated, and complying with SSPC-Paint 5.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- F. Non-shrink, Non-metallic Grout: Factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- G. Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
  - 1. Water-Resistant Product: At exterior locations provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

## 2.7 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections, unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.



1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove flux immediately.
  4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.
- J. Non-welded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
- K. Form changes in direction as follows:
1. As detailed.
  2. By radius bends of radius indicated or by inserting prefabricated elbow fittings of radius indicated.
- L. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- M. Close exposed ends of railing members with prefabricated end fittings.
- N. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work, unless otherwise indicated.
- O. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- P. For railing posts set in concrete, provide stainless steel sleeves not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (13 mm) greater than outside dimensions of post, with steel plate forming bottom closure.

## 2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
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PIPE AND TUBE RAILINGS  
05 52 13 - 7

acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.9 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Mechanical Finish: AA-M12 (Mechanical Finish: nonspecular as fabricated).
- C. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.
- D. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.
- E. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.
  - 1. Color: As selected by Architect from full range of industry colors and color densities.
- F. High-Performance Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coatings; Organic Coating: manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
  - 1. Color and Gloss: As indicated by manufacturer's designations.

## 2.10 STEEL AND IRON FINISHES

- A. Galvanized Railings:
  - 1. Hot-dip galvanize steel and iron railings, including hardware, after fabrication.
  - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
  - 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
- B. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- C. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

- D. For non-galvanized steel railings, provide non-galvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors to be embedded in exterior concrete or masonry.
- E. Powder-Coat Finish Over Galvanized Substrate: Prepare, treat, and coat galvanized metal to comply with resin manufacturer's written instructions and as follows:
  - 1. Prepare galvanized metal by, aging, profiling surface, and cleaning to provide optimum bonding & uniform, smooth finish coat. Remove grease, dirt, oil, flux, and other foreign matter.
  - 2. Treat prepared metal with zinc-phosphate pretreatment, rinse, and seal surfaces.
  - 3. Apply thermosetting polyester or acrylic urethane powder coating with cured-film thickness not less than 1.5 mils (0.04 mm).
  - 4. Color: As indicated.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION, GENERAL**

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
  - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
  - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
  - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).
- C. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

#### **3.2 RAILING CONNECTIONS**

- A. Non-welded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.

- B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in Part 2 "Fabrication" Article whether welding is performed in the shop or in the field.
- C. Expansion Joints: Install expansion joints at locations indicated or, if not indicated, not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side, fasten internal sleeve securely to 1 side, and locate joint within 6 inches (150 mm) of post.

### 3.3 ANCHORING POSTS

- A. Use stainless steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with non-shrink, non-metallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.
  - 1. Contractor Option: Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, non-metallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Cover anchorage joint with flange of same metal as post, welded to post after placing anchoring material.
- C. Leave anchorage joint exposed; wipe off surplus anchoring material; and leave 1/8-inch (3-mm) buildup, sloped away from post.
- D. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
  - 1. For aluminum pipe railings, attach posts using fittings designed and engineered for this purpose.
  - 2. For stainless-steel pipe railings, weld flanges to post and bolt to supporting surfaces.
  - 3. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.

### 3.4 ATTACHING HAND RAILS TO WALLS

- A. Attach hand rails to wall with wall brackets. Provide brackets with 1-1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.
- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets to building construction as follows:
  - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
  - 2. For hollow masonry anchorage, use toggle bolts.

3.5 ADJUSTING AND CLEANING

- A. Clean aluminum and stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.6 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

**END OF SECTION 05 52 13**

## **SECTION 09 96 00 - HIGH PERFORMANCE COATINGS**

### **PART 1 - GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Coating systems for site metals.

#### **1.2 RELATED SECTIONS**

- A. Division 05 Section "Pipe and Tube Railings."
- B. Division 05 Section "Decorative Metal Railings."
- C. Division 10 "Dimensional Letter Signage"

#### **1.3 REFERENCES**

- A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
- B. ASTM F 1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

#### **1.4 DEFINITIONS**

- A. Definitions of Painting Terms: In accordance with ASTM D 16, unless otherwise specified.
- B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

#### **1.5 SUBMITTALS**

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
  - 4. Operation and maintenance data.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

HIGH-PERFORMANCE COATINGS  
09 96 00 - 1

- C. Samples for Initial Selection: For each product specified, complete set of color chips representing Manufacturer's full range of standard colors, finishes, and patterns.
- D. Samples for Verification: For each product specified, two samples, minimum size 4 inches (100 mm) square, demonstrating actual product, color, and patterns, prepared on actual substrate.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Submit Manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.
- B. Applicator's Qualifications: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
  - 1. Project name and location.
  - 2. Name of owner.
  - 3. Name of contractor.
  - 4. Name of architect.
  - 5. Name of coating Manufacturer .
  - 6. Approximate area of coatings applied.
  - 7. Date of completion.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Prepare 10 x 10 foot (3.05 by 3.05 M) mock-up for each coating system specified using same materials, tools, equipment, and procedures intended for actual surface preparation and application.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.
  - 4. Retain mock-ups to establish intended standards by which coating systems will be judged.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in Manufacturer's original, unopened containers and packaging, with labels clearly identifying:
  - 1. Coating or material name.
  - 2. Manufacturer .
  - 3. Color name and number.
  - 4. Batch or lot number.
  - 5. Date of manufacture.
  - 6. Mixing and thinning instructions.
- B. Storage:

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

HIGH-PERFORMANCE COATINGS  
09 96 00 - 2

1. Store materials in a clean dry area and within temperature range in accordance with Manufacturer's instructions.
  2. Keep containers sealed until ready for use.
  3. Do not use materials beyond Manufacturer's shelf life limits.
- C. Handling: Protect materials during handling and application to prevent damage or contamination.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

## 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions within limits recommended by Manufacturer for optimum results. Do not install products under environmental conditions outside Manufacturer's absolute limits.
- B. Weather:
1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with Manufacturer's instructions.
  2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
  3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with Manufacturer's instructions.
  4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
  5. Wind: Do not spray coatings if wind velocity is above Manufacturer's recommended limit.
- C. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with Manufacturer's instructions.
- D. Dust and Contaminants:
1. Schedule coating work to avoid excessive dust and airborne contaminants.
  2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturer : Tnemec Company Incorporated, Kansas City, Missouri; 800-863-6321.

### 2.2 COATING SYSTEMS FOR STEEL - EXTERIOR

- A. Atmospheric, Chemical, UV Exposure, Physical Abuse:
1. System Type: Epoxy/urethane.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

HIGH-PERFORMANCE COATINGS  
09 96 00 - 3



2. Surface Preparation: SSPC-SP 6/NACE 3.

B. Primer:

1. Series 66 Hi-Build Epoxoline, DFT 3.0 to 5.0 mils (75 to 125 microns).
2. Series N69 Hi-Build Epoxoline II, DFT 3.0 to 5.0 mils (75 to 125 microns).

C. Intermediate Coat:

1. Series 66 Hi-Build Epoxoline, DFT 2.0 to 3.0 Mils (50 to 75 microns).
2. Series N69 Hi-Build Epoxoline II, DFT 2.0 to 3.0 Mils (50 to 75 microns).
3. Series 27 F.C. Typoxy, DFT 2.0 to 3.0 Mils (50 to 75 microns).

D. Finish Coat:

1. Series 73 Endura-Shield, 5.0 to 8.0 mils (125 to 205 microns).
2. Series 1074 Endura-Shield II, 5.0 to 8.0 mils (125 to 205 microns).
3. Series 1075 Endura-Shield II, 5.0 to 8.0 mils (125 to 205 microns).

E. Total DFT: 7.0 to 13.0 mils (175 to 325 microns).

F. Finish Color:

1. As selected by Architect from Manufacturer's standard colors and finishes.

2.3 COATING SYSTEMS FOR EXTERIOR GALVANIZED STEEL AND NONFERROUS METAL

A. Moderate Conditions and/or UV Exposure:

1. System Type: Epoxy/urethane.
2. Surface Preparation: Abrasive blast and/or chemically clean (etch).

B. Primer:

1. Series 66 Hi-Build Epoxoline
2. Series N69 Hi-Build Epoxoline II. DFT 3.0 to 5.0 mils (75 to 125 microns).

C. Finish Coat:

1. Series 73 Endura-Shield, DFT 2.0 to 3.0 Mils (50 to 75 microns).
2. Series 1074 Endura-Shield II, DFT 2.0 to 3.0 Mils (50 to 75 microns).
3. Series 1075 Endura-Shield II, DFT 2.0 to 3.0 Mils (50 to 75 microns).

D. Clear Top Coat

1. Total DFT: 5.0 to 8.0 mils (125 to 200 microns).
2. Finish Color: As selected by Architect from Manufacturer's full range of standard colors and finishes.

2.4 ACCESSORIES

A. Coating Application Accessories:

1. Accessories required for application of specified coatings: Provide in accordance with coating Manufacturer's instructions, including thinners.

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

HIGH-PERFORMANCE COATINGS

09 96 00 - 4

2. Products of coating Manufacturer.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### **3.2 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED**

- A. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
- B. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

#### **3.3 SURFACE PREPARATION, GENERAL**

- A. Surface preparation requirements may vary depending on substrate and exposure conditions. Consult Manufacturer for latest written specifications.

#### **3.4 SURFACE PREPARATION OF STEEL**

- A. Prepare steel surfaces in accordance with Manufacturer's instructions. Correct all defects and otherwise deleterious conditions in substrate prior to commencing Work.
- B. Fabrication Defects include, but are not limited to, the following:
  1. Correct steel and fabrication defects revealed by surface preparation.
  2. Remove weld spatter and slag.
  3. Round sharp edges and corners of welds to a smooth contour.
  4. Smooth weld undercuts and recesses.
  5. Grind down porous welds to pinhole-free metal.
  6. Remove weld flux from surface.
- C. Ensure surfaces are dry.
- D. Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 6/NACE 3, unless otherwise specified.
- E. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. Do not leave blast-cleaned surfaces uncoated for more than 8 hours.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

HIGH-PERFORMANCE COATINGS  
09 96 00 - 5

- F. Shop Primer: Prepare shop primer to receive field coat in accordance with Manufacturer's instructions.

### 3.5 SURFACE PREPARATION OF GALVANIZED STEEL AND NONFERROUS METAL

- A. Prepare galvanized steel and nonferrous metal surfaces in accordance with Manufacturer's written specifications. Surface preparation recommendations will vary depending on substrate and exposure conditions.

### 3.6 APPLICATION

- A. Apply coatings in accordance with Manufacturer's written specifications.
- B. Do not proceed with application when actual and/or potential environmental and adjacent conditions may deleteriously affect the coating.
- C. Mix and thin coatings, including multi-component materials, in accordance with Manufacturer's instructions.
- D. Keep containers closed when not in use to avoid contamination.
- E. Do not use mixed coatings beyond pot life limits.
- F. Use application equipment, tools, pressure settings, and techniques in accordance with Manufacturer's instructions.
- G. Uniformly apply coatings at spreading rate required to achieve specified DFT.
- H. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
- I. Stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer.

### 3.7 REPAIR

- A. Materials and Surfaces Not Scheduled To Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.
- B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.
- C. Coating Defects: Repair in accordance with Manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.8 CLEANING

- A. Remove temporary coverings and protection of surrounding areas and surfaces.

3.9 PROTECTION OF COATING SYSTEMS

- A. Protect surfaces of coating systems from damage during construction.
- B. Touch-up, or repair damaged products before Substantial Completion.

3.10 ONE-YEAR INSPECTION AND WARRANTY

- A. Contractor will work with Owner to set date for inspection of coating systems prior to end expiration of the warranty period.
- B. Inspection shall be attended by Owner, Contractor, Architect, and Manufacturer's representative.
- C. Repair deficiencies in coating systems, as determined by Architect, in accordance with Manufacturer s instructions.
- D. Warranty: Provide warranty for (1) year after date of substantial completion for high performance coatings.

**END OF SECTION 09 96 00**

## **SECTION 10 14 19 - DIMENSIONAL LETTER SIGNAGE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Cutout dimensional characters.
  - 2. Fabricated channel dimensional characters.

#### **1.3 DEFINITIONS**

- A. Illuminated: Illuminated by lighting source integrally constructed as part of the sign unit.

#### **1.4 COORDINATION**

- A. Furnish templates for placement of electrical service embedded in permanent construction by other installers.

#### **1.5 SUBMITTALS, GENERAL**

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.

#### **1.6 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Shop Drawings: For dimensional letter signs at entrance wall.
  - 1. Include fabrication and installation details and attachments to other work.
  - 2. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
  - 3. Show message list, typestyles, graphic elements, and layout for each sign at 1:1 scale.
  - 4. Show locations of electrical service connections.
  - 5. Include diagrams for power, signal, and control wiring.

- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
  - 1. Include representative Samples of available typestyles and graphic symbols.
- D. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:
  - 1. Dimensional Characters: Half-size Sample of dimensional character.
  - 2. Exposed Accessories: Half-size Sample of each accessory type.
- E. Sign Schedule: Use same designations specified or indicated on Drawings or in a sign schedule.
- F. Delegated-Design Submittal: For entrance wall signage, contractor shall engage a signage fabricator to comply with requirements and furnish submittals for architectural review.
  - 1. Include structural analysis calculations for signs indicated to comply with design loads; signed and sealed by the qualified professional engineer responsible for their preparation.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and manufacturer.
- B. Sample Warranty: For special warranty.

#### 1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

#### 1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer of products.

#### 1.10 FIELD CONDITIONS

- A. Custom Art: Part of the entry wall will have mosaic tile by others. Signage installation methods and schedule should be closely coordinated with installation methods and schedule of the mosaic tile installation. Any damage to mosaic tile shall be replaced by contractor at no cost to the owner.
- B. Field Measurements: Verify locations of electrical service embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Deterioration of finishes beyond normal weathering.
    - b. Separation or delamination of sheet materials and components.
  - 2. Warranty Period: Five years from date of Substantial Completion or manufacturer standard.

**PART 2 - PRODUCTS**

2.1 DIMENSIONAL LETTER SIGNS, GENERAL

- A. ENTRY SIGNAGE:
  - 1. Subject to compliance with requirements, provide following product or equivalent:
    - a. Manufacturer: Frederick Sign and Banner or equal.
    - b. Model: TBD
    - c. Type: Exterior
    - d. Material and Finish: Galvanized steel with powder coated
    - e. Color: See drawings.
    - f. Details and dimensions: Delegated design. Provide submittals for Architectural review.
    - g. Shall comply with Maryland Health Department Requirements.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section "Quality Requirements," to design sign letters, logos, and anchorage of dimensional character at entrance wall signage as detailed in 1/L302 to withstand design loads as assessed by the engineer and avoid creating a laddering effect on the vertical surface.
- B. Thermal Movements: For exterior fabricated channel dimensional characters, allow for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.3 DIMENSIONAL CHARACTERS

- A. Cutout Characters (See: 1/L302) Characters with uniform faces; square-cut, smooth, eased edges; precisely formed lines and profiles.
  - 1. Character Material: Sheet or plate, material as indicated.
  - 2. Character Height: As indicated.
  - 3. Thickness: Manufacturer's standard for size of character.
  - 4. Finishes: As indicated.
    - a. Integral Stainless-Steel Finish: As indicated.
    - b. Baked-Enamel or Powder-Coat Finish: As indicated.
  - 5. Mounting: As indicated.
  - 6. Typeface: As indicated.
- B. Fabricated Channel Characters: Metal face and side returns, formed free from warp and distortion; with uniform faces, sharp corners, and precisely formed lines and profiles; internally braced for stability and for securing fasteners; and as follows.
  - a. Weeps: Provide weep holes to drain water at lowest part of exterior characters.
  - 2. Material Thickness: As indicated by manufacturer's design for size of lettering.

## 2.4 DIMENSIONAL CHARACTER MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M, alloy and temper recommended by sign manufacturer for casting process used and for type of use and finish indicated.
- B. Aluminum Sheet and Plate: ASTM B 209 (ASTM B 209M), alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- C. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- D. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, stretcher-leveled standard of flatness.
- E. Zinc Castings: ASTM B 240, alloy and temper recommended by sign manufacturer for type of use and finish indicated.

## 2.5 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
  - 1. Use concealed fasteners and anchors unless indicated to be exposed.
  - 2. For exterior exposure, furnish hot-dip galvanized devices unless otherwise indicated.
  - 3. Exposed Metal-Fastener Components, General:
    - a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.



- b. Fastener Heads: For nonstructural connections, use flathead or oval countersunk screws and bolts with tamper-resistant slots unless otherwise indicated.
- 4. Sign Mounting Fasteners:
  - a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
  - b. Projecting Studs: Threaded studs with sleeve spacer, welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
  - c. Through Fasteners: Exposed metal fasteners matching sign finish, with type of head indicated, installed in predrilled holes.
- B. Adhesives: As recommended by sign manufacturer and that comply with the testing and product requirements of the Maryland Department of Environment.
- C. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch (1.14 mm) thick, with adhesive on both sides.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.6 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
  - 1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
  - 2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
  - 3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
  - 4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
  - 5. Internally brace signs for stability and for securing fasteners.
  - 6. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
  - 7. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.
- B. Brackets: Fabricate brackets, fittings, and hardware for bracket-mounted signs to suit sign construction and mounting conditions indicated. Modify manufacturer's standard brackets as required.

1. Aluminum Brackets: Factory finish brackets with baked-enamel or powder-coat finish to match sign-background color, unless otherwise indicated.
2. Stainless-Steel Brackets: Factory finish brackets to match sign background finish, unless otherwise indicated.

## 2.7 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

## 2.8 ALUMINUM FINISHES

- A. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

## 2.9 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
  1. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

## 2.10 CLEAR ORGANIC COATING FOR COPPER-ALLOY FINISHES

- A. Clear Organic Coating: Clear, waterborne, air-drying, acrylic lacquer called "Incralac"; specially developed for coating copper-alloy products; consisting of a solution of methyl methacrylate copolymer with benzotriazole to prevent breakdown of the film in UV light; shop applied in two uniform coats per manufacturer's written instructions, with interim drying between coats and without runs or other surface imperfections, to a total dry film thickness of 1 mil (0.025 mm).

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of signage work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Verify that electrical service is correctly sized and located to accommodate signs.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
  - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
  - 3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Mounting Methods:
  - 1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
    - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
    - b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.
  - 2. Projecting Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
    - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place spacers on studs, place sign in position, and push until spacers are pinched between sign and substrate, embedding the stud ends in holes. Temporarily support sign in position until adhesive fully sets.
    - b. Thin or Hollow Surfaces: Place spacers on studs, place sign in position with spacers pinched between sign and substrate, and install washers and nuts on stud ends projecting through opposite side of surface, and tighten.

3. Through Fasteners: Drill holes in substrate using predrilled holes in sign as template. Countersink holes in sign if required. Place sign in position and flush to surface. Install through fasteners and tighten.
4. Back Bar and Brackets: Remove loose debris from substrate surface and install backbar or bracket supports in position so that signage is correctly located and aligned.
5. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of sign and of suitable quantity to support weight of sign after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position, and push to engage adhesive. Temporarily support sign in position until adhesive fully sets.
6. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.

### 3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed characters and signs that do not comply with specified requirements. Replace characters with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

**END OF SECTION 10 14 19**

## SECTION 13 11 00– SWIMMING POOL GENERAL REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. The scope of the work included under this Section of the Specifications shall include swimming pool(s) as illustrated on the Drawings and specified herein. The General and Supplementary Conditions of the Specifications shall form a part and be included under this Section of the Specifications. The Swimming Pool Subcontractor shall provide all supervision, labor, material, equipment, machinery, plant and any and all other items necessary to complete the work. ALL OF THE WORK IN SECTIONS 13 11 00 - 13 11 08 IS TO BE THE RESPONSIBILITY OF ONE EXPERIENCED SWIMMING POOL SUBCONTRACTOR PRIMARILY ENGAGED IN THE CONSTRUCTION OF COMMERCIAL PUBLIC-USE SWIMMING POOLS. A SWIMMING POOL SUBCONTRACTOR SHALL BE CONSIDERED PRIMARILY ENGAGED AS REQUIRED HEREIN IF THE SUBCONTRACTOR DERIVED 50% OF ITS ANNUAL REVENUE FROM PUBLIC-USE SWIMMING POOL CONSTRUCTION FOR EACH OF THE LAST FIVE YEARS. THE SUBCONTRACTOR MUST HAVE ALSO, IN THE LAST FIVE YEARS CONSTRUCTED AT LEAST FIVE (5) COMMERCIALLY DESIGNED MUNICIPAL or COMMERCIAL AND PUBLIC-USE SWIMMING POOLS, IN THE BALTIMORE - WASHINGTON DC METROPOLITAN AREA (as designated by the United States Office of Management and Budget), EACH OF WHICH SHALL HAVE INCORPORATED A MINIMUM SIZE OF 6,000 SQUARE FEET OF WATER SURFACE AREA WITH A STAINLESS STEEL PERIMETER OVERFLOW GUTTER AND SELF-MODULATING BALANCE TANK AND WET PLAY FEATURES. The Swimming Pool Subcontractor shall furnish and install the swimming pool structures, finishes, cantilever forming, swimming pool mechanical and electrical systems, and all accessories necessary for a complete, functional swimming pool system, as herein described. Work shall include start-up, winterizing and summerizing preparation (for first Winter and first Summer), instruction of Owner's personnel, as-built drawings and warranties as required.

#### 1.2 CODES, RULES, PERMITS, FEES

- A. The swimming pools shall be constructed in strict accordance with the applicable provisions set forth by authorities having jurisdiction over swimming pool construction and operation in the State of Maryland and Montgomery County, Maryland.
- B. The Swimming Pool Subcontractor shall give all necessary notices, obtain all permits, and pay all government sales taxes, fees, and other costs in connection with their work; file all necessary plans, prepare all documents and obtain all necessary approvals of governmental departments having jurisdiction; obtain all required certificates of inspection for their work and deliver same to the Designated Representative before request for acceptance and final payment for the work.
- C. The Swimming Pool Subcontractor shall include in the work any labor, materials, services, apparatus, or drawings in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on Drawings and/or specified.

- D. The Contractor shall submit all required documents and materials to all Governmental Departments having jurisdiction for any deferred approval items or substituted materials or products to obtain final approval to installation.

### 1.3 DESCRIPTION OF WORK

- A. Furnish and perform supervision, coordination, all layout, formwork, excavation, hand trim, disposing off-site of all unused material or debris to complete the swimming pool excavation to the dimensions shown on the plans.
- B. Furnish and install complete swimming pool structures, including reinforcing steel and cast-in-place or pneumatically placed concrete walls and floors.
- C. Furnish and install swimming pool finishes, including ceramic tile and marble plaster or other waterproof finishes.
- D. Furnish and install complete swimming pool mechanical system(s), including, but not limited to, circulation systems, filtration systems, pool water heating systems, water chemistry control and disinfection systems, domestic water fill line systems, booster pump and special effects systems, and all pumps, piping, valves, and connections between system(s) and swimming pool(s).
- E. Furnish and install complete swimming pool electrical system(s) from P.O.C. in Mechanical Room, including, but not limited to, water level control systems, recreational water features, water slides, special effects systems, control circuitry, motor starters, time clocks, bonding, and all conduits, conductors, contactors, and switches between the system(s) and swimming pool(s).
- F. Furnish and install stainless steel pool gutter, deck equipment and required anchors and inserts for the specified equipment as required by code, shown on the Drawings and specified herein.
- G. After the initial filling of the swimming pool system(s), should any repairs, continuing work, or other Subcontractor responsibility require drainage or partial drainage of the swimming pool systems, the Swimming Pool Subcontractor shall be responsible for any subsequent refilling and shall complete the project with the swimming pool system(s) full of water, water in chemical balance, complete in every way, and in full operation.
- H. Furnish and install of waterslides and water play features.
- I. Coordinate and provide the first seasonal cycle of winterization and subsequent summerization of the pools. To be coordinated with owner's representative who will provide qualified staff to work alongside the contractor's personnel for the initial winterization and summerizing.

### 1.4 ASSIGNED RESPONSIBILITIES AND RELATED WORK

- A. It is the intent of this section of the Specifications to clarify Work responsibilities of the trades directly and indirectly involved in construction of the pool systems. All labor, equipment, materials and supplies furnished by the Swimming Pool Subcontractor and other Subcontractors per the contractual agreement with the General Contractor and Owner and shall be as directed by the Owner through their Designated Representative.

- B. THE SWIMMING POOL SUBCONTRACTOR SHALL NOT SUBCONTRACT ANY PORTION OF THE SWIMMING POOL CONSTRUCTION OR SWIMMING POOL EQUIPMENT INSTALLATION TO ANYONE OTHER THAN A SUBCONTRACTOR THAT SATISFIES THE REQUIREMENTS OF SECTION 13 11 00
- C. References to “swimming pool systems” shall include the swimming pools, equipment, and accessories.
- D. The Owner will provide one complete water filling of the swimming pool(s), but will not assume any responsibility for the swimming pool system(s) until they have been proved fully operational, complete in every way and accepted by the Designated Representative.
- E. Pool Contractor to coordinate with General Contractor to schedule preconstruction meeting (which may be virtual) with Architect, City, General Contractor prior to any swimming pool construction.

#### 1.5 RESPONSIBILITIES OF THE CONTRACTOR

- A. The Contractor shall grade the swimming pool site(s), establish benchmarks, cut and fill as necessary to provide as level an area as possible at swimming pool deck elevation before swimming pool layout.
- B. The Contractor shall be responsible for horizontal dimensions and grade elevations accurately from established lines and benchmarks (as indicated on the Drawings) and be responsible for those grades.
- C. The Contractor shall provide adequate temporary light, electric power, heat and ventilation per Federal and State OSHA requirements to construct the swimming pool system(s).
- D. The Contractor shall not permit any heavy equipment activity over any area or within five (5) feet of any area under which swimming pool piping is buried. There shall be no exceptions to this requirement.
- E. The Contractor shall keep the swimming pool excavation(s) and swimming pool structure(s) free of construction residue and waste materials of their workmen or Subcontractors, removing said material from the swimming pools as required.
- F. The Contractor shall protect the swimming pool(s) from damage caused by their construction equipment and /or workmen and Subcontractors.
- G. The Contractor shall provide a representative at time of swimming pool start-up to coordinate all trades related to swimming pool system(s).

#### 1.6 RESPONSIBILITIES OF THE MECHANICAL SUBCONTRACTOR

- A. The Mechanical Subcontractor shall be licensed in the State of Maryland and the City of Rockville and provide written notifications to Swimming Pool Subcontractor and contractor when necessary to excavate and backfill within the swimming pool construction site.

- B. The Mechanical Subcontractor shall not utilize any swimming pool piping trench for installation of any sanitary sewer, storm sewer, domestic water, hot water, chilled water or natural gas line.
- C. The Mechanical Subcontractor shall furnish and install all sanitary sewer piping, including vent stacks (if necessary), for backwash pits, floor drains and floor sinks as required by code, shown on Drawings, and herein specified.
- D. The Mechanical Subcontractor shall furnish and install all storm sewer piping and site drainage systems as required by code, shown on the Drawings, and herein specified.
- E. The Mechanical Subcontractor shall provide a minimum 75 psi water supply for swimming pool construction work within fifty (50) feet of the swimming pool construction site(s).
- F. The Mechanical Subcontractor shall furnish and install reduced pressure backflow protected domestic water lines to P.O.C. within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.
- G. The Mechanical Subcontractor shall furnish and install natural gas piping, pressure regulation and valving to P.O.C. within swimming pool Mechanical Room as required by code, shown on the drawings, and herein specified.
- H. The Mechanical Subcontractor shall furnish and install all ductwork, louvers, heater flues, and all HVAC equipment within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.
- I. The Mechanical Subcontractor shall provide a representative at time of swimming pool start-up to coordinate work related to swimming pool system(s).

#### 1.7 RESPONSIBILITIES OF THE ELECTRICAL SUBCONTRACTOR

- A. The Electrical Subcontractor shall be licensed in the State of Maryland and the City of Rockville and shall furnish and install electrical service to swimming pool Mechanical Room sized to accommodate all necessary swimming pool equipment as shown on the Drawings and herein specified.
- B. The Electrical Subcontractor shall furnish any temporary power needed by the Swimming Pool Subcontractor within fifty (50) feet of the swimming pool construction site(s).
- C. The Electrical Subcontractor shall furnish and install all conduits, conductors, starters/disconnects, panels, circuits, switches and equipment as required for lighting, ventilation and HVAC equipment within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.
- D. The Electrical Subcontractor shall furnish and install all conduits, conductors, panels, circuits, switches and equipment for area lighting as required by code, shown on the Drawings, and herein specified.
- E. All equipment, material and installation shall be as required under Division 16 of the Specifications and shall conform to NEC Article 680 (latest revision), State and Local Codes,



and as may be required by all authorities having jurisdiction over swimming pool construction within the State of Maryland.

- F. Electrical sub contractor shall conduct electrical bond test of the swimming pool and all items connected to it, per NEC Article 680. Documentation of satisfactory bond test to be provided to Owner.
- G. The Electrical Subcontractor shall provide a representative at time of swimming pool start-up to coordinate work related to swimming pool system(s).

#### 1.8 INTENT

- A. It is the intention of these specifications and Drawings to call for finished work, tested and ready for operation. Wherever the work "provide" is used, it shall mean "furnish and install complete and ready for use."
- B. Minor details not usually shown or specified, but necessary for proper installation and operation, shall be included in the work, the same as if herein specified or shown.

#### 1.9 SCHEDULE OF VALUES

- A. Provide a Schedule of Values for all work specified in each of the technical specifications listed in the table below, regardless of whether the work is performed by the swimming pool contractor or others. Values listed shall be fully burdened, with contractor general conditions, overhead, profit and bonds included. Payments for swimming pool work completed shall not be approved until Schedule of Values has been submitted to and approved by Architect.

SWIMMING POOL SCHEDULE OF VALUES			
No.	Section #	Description	Value
1.	13 11 01	Swimming Pool Excavation	
2.	13 11 02	Swimming Pool Concrete	
3.	13 11 03	Swimming Pool Shotcrete	
4.	13 11 04	Swimming Pool Ceramic Tile	
5.	13 11 05	Swimming Pool Plaster	
6.	13 11 06	Swimming Pool Equipment	
7.	13 11 07	Swimming Pool Mechanical	
8.	13 11 08	Swimming Pool Electrical	
9.	13 11 65	Swimming Pool Water Slide (large slides)	
10.		Swimming Pool Play Equipment	
<b>Total</b>			

Add Alt.No.	Section #	Description	Value
1.		Add 2 <sup>nd</sup> Floating Lily Pad Course to Rec Pool	
2.		Add small semi -commercial waterslide to Wellness Pool	

3.		Add new plaster 'white' coat to the Fitness Pool. Coordinate the timing of work with Owner's Representative.	
4.		Add sports lighting and public address system around Fitness Pool	
5.		Add thermal pool cover and reels for Wellness Pool	
6.		Add water heater for Wellness Pool. The work will be design/build by Contractor.	
7.		Add pool area furnishings. Quantity and unit prices to be reviewed and finalized by Owner.	

#### 1.01 SUBMITTAL PROCEDURES

- B. General: Electronic copies of CAD Drawings of the Contract Drawings can be provided by Architect for Subcontractor's use in preparing submittals after CAD release is signed by Contractor's Representative.
- C. Coordination: Coordinate preparation and processing submittals with performance construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- D. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for schedules performance of related construction activities.
- E. Processing Time: Allow enough time for submittal review, including time for re-submittals as follows. Time for review shall commence on Architect's receipt of submittal.
  - 1. Initial Review: Allow fifteen (15) days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contract when a submittal being processed must be delayed for coordination.
  - 2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow fourteen (14) days for initial review of each submittal.
  - 3. Direct Transmittal to Consultant: Where the Contract Documents indicate that submittals may be transmitted directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Submittal will be returned to Architect before being returned to Subcontractor.
  - 4. If intermediate submittal is necessary, process it in same manner as initial submittal.
  - 5. Allow fifteen (15) days for processing each submittal.
  - 6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

- F. Identification: Place a title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on title block.
  2. Provide a space on title block to record Subcontractor's review and approval markings and action taken by Architect.
  3. Include the following information on title block for processing and recording action taken: (See Attached Sample)
    - a. Project name.
    - b. Date.
    - c. Name and address of Subcontractor.
    - d. Name of Subcontractor.
    - e. Name of Supplier.
    - f. Name of Manufacturer.
    - g. Unique identifier, including revision number.
    - h. Number and title of appropriate Specification Section.
    - i. Drawing number and detail references, as appropriate.
    - j. Other necessary identification.

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**SUBMITTAL FOR:**

**SUBMITTAL TO:**

**SUBCONTRACTOR:**

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Item Number: \_\_\_\_\_  
Section Number: \_\_\_\_\_  
Section Description: \_\_\_\_\_  
Subcontractor: \_\_\_\_\_  
Supplier: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_  
Product Code: \_\_\_\_\_  
Quantity: \_\_\_\_\_

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**Subcontractor Certification:**

**Contractor's Submittal Stamp:**

It is hereby certified that the equipment or material designated in this submittal is proposed to be incorporated in the above-named project and is in compliance with the contract drawings and / or specifications and is submitted for approval.

Certified by: \_\_\_\_\_

Date: \_\_\_\_\_

Job Superintendent: \_\_\_\_\_

Revisions: \_\_\_\_\_

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**Architect's Review Stamp and Comments**

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- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract documents on submittal.
- H. On all catalogue or cut sheets identify which model or type is being submitted.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Product data and shop drawings shall be packaged within a three-ring binder and colored samples shall be packaged on a heavy cardboard. Transmit each submittal using a transmittal form.
  - 1. On an attached separate sheet, prepared on Subcontractor's letterhead, record relevant information, request for data, revisions other than those requested by Architect on previous submittals and deviations from requirements of the Contract documents, including minor variations and limitations. Include the same label information as the related submittal.
  - 2. Include Subcontractor's certification stating that information submitted complies with requires of the Contract Documents.
  - 3. Transmittal Form: Provide locations on form for the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).
    - e. Names of Subcontractor, manufacturer, and supplier.
    - f. Category and type of submittal.
    - g. Submittal purpose and description.
    - h. Remarks.
- J. Distribution: Furnish copies of final submittals to manufacturers, Subcontractors, suppliers, fabricators, installers, authorities having jurisdiction and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

#### 1.10 SUBSTITUTIONS

- A. To obtain approval to use unspecified products, bidders shall submit requests for substitution at least fifteen (15) days prior to bid date. Requests shall only be considered if they clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. All unspecified products and equipment will be considered on an "or equal" basis at the discretion of the Designated Representative(s) with final approval by Owner. Requests for substitution received after the specified deadline will not be considered. Where a conflict exists between the requirements of the General Conditions / Special Conditions / Division 1 concerning substitutions and the requirements of this Article, this Article (Section 13 11 00, Article 1.10) shall govern.
- B. Where the Swimming Pool Subcontractor proposes to use an item of equipment other than that specified or detailed on the Drawings which requires any redesign of the structure, partitions, foundations, piping, wiring, or any other part of the architectural, mechanical, or electrical layout, all such redesign and all new drawings (stamped by Maryland Licensed Engineer) and

detailing required shall be prepared by the Swimming Pool Subcontractor, at their own expense, submitted for review and approval by the Designated Representative prior to bid.

- C. Where such approved deviation requires a different quantity and arrangement of piping, supports and anchors, wiring, conduit, and equipment from that specified or indicated on the Drawings, the Swimming Pool Subcontractor shall furnish and install any such piping, structural supports, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment required by the system, at no additional cost to the Owner.

#### 1.11 SURVEYS AND MEASUREMENTS

- A. The Swimming Pool Subcontractor shall base all measurements, both horizontal and vertical, from benchmarks established by the Contractor. All work shall agree with these established lines and levels. The mechanical Drawings do not give exact details as to elevations of piping, exact locations, etc. and do not show all offsets, control lines, pilot lines and other installation details. Verify all measurements at site and check the correctness of same as related to the work.

#### 1.12 DRAWINGS

- A. Drawings are diagrammatic and indicate the general arrangement of the systems and work included in the Subcontractor. Drawings are not to be scaled. The architectural drawings and details shall be examined for exact dimensions. Where they are not definitely shown, this information shall be obtained from the Designated Representative.

#### 1.13 SWIMMING POOL SUBSUBCONTRACTOR

- A. The swimming pool construction work as herein described and specified in Division 13 of the Project Manual shall be the complete responsibility of a qualified and specifically licensed (C-53 license classification within the State of Maryland) Swimming Pool Subcontractor with extensive experience in commercial public use swimming pool installations.
- B. The Contractor shall require the Swimming Pool Subcontractor to furnish to the Contractor performance and payment bonds in the amount of 100% of the Swimming Pool Subcontractor's bid written by a surety Company properly registered in the State of Maryland and listed by the U.S. Treasury. The expense of the bond(s) is to be borne by the Subcontractor. The Contractor shall clearly specify the amount and requirements of the bond(s) in the Contractor's written or published request for subbids. The Contractor's written or published request for subbids shall also specify that the bond(s) expense is to be borne by the Subcontractor.
- C. Subcontractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Requirements, Section 13 11 00, as follows:
  1. Subcontractor has derived 50% of its annual revenue from public-use swimming pool construction for each of the last five (5) years.
  2. Subcontractor has, in the last five (5) years, constructed at least five (5) commercially designed municipal and public-use swimming pools in the metropolitan DC area, each of which have incorporated a minimum size of 6,000 square feet of water surface area with a concrete and stainless steel perimeter overflow gutter and self-modulating balance tank.

3. The following list of projects meet the requirements of section (b) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.

a.	Owner:	_____
	Scope of Project:	_____
	Contact Person:	_____
	Phone Number:	_____
	Architect for Project:	_____
b.	Owner:	_____
	Scope of Project:	_____
	Contact Person:	_____
	Phone Number:	_____
	Architect for Project:	_____
c.	Owner:	_____
	Scope of Project:	_____
	Contact Person:	_____
	Phone Number:	_____
	Architect for Project:	_____
d.	Owner:	_____
	Scope of Project:	_____
	Contact Person:	_____
	Phone Number:	_____
	Architect for Project:	_____
e.	Owner:	_____
	Scope of Project:	_____
	Contact Person:	_____
	Phone Number:	_____
	Architect for Project:	_____

- D. Swimming Pool Deck Subcontractor other than the swimming pool Subcontractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Requirements, Section 13 11 00, as follows:

1. Subcontract has, in the last five (5) years, constructed at least five (5) commercially designed stainless-steel perimeter gutters, each of which have incorporated a minimum size of 6,000 square feet of water surface area of the swimming pool.
2. The following list of projects meet the requirements of section (b) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.

### SWIMMING POOL DECK SUBCONTRACTOR

- a. Owner: \_\_\_\_\_  
 Scope of Project: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Architect for Project: \_\_\_\_\_
  
- b. Owner: \_\_\_\_\_  
 Scope of Project: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Architect for Project: \_\_\_\_\_
  
- c. Owner: \_\_\_\_\_  
 Scope of Project: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Architect for Project: \_\_\_\_\_
  
- d. Owner: \_\_\_\_\_  
 Scope of Project: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Architect for Project: \_\_\_\_\_
  
- e. Owner: \_\_\_\_\_  
 Scope of Project: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Architect for Project: \_\_\_\_\_

#### 1.14 OPERATING INSTRUCTIONS

- A. The Swimming Pool Subcontractor shall determine from actual samples of pool water supplied by the Owner, the proper water management program necessary for maximum operating efficiency and comfort. The Swimming Pool Subcontractor shall provide the services of experienced personnel familiar with this type of pool system operation, in conformance with Section 13 11 05 of the Specifications.

#### 1.15 MAINTENANCE MANUALS

- A. The Swimming Pool Subcontractor shall provide two (2) laminated, bound sets for delivery to the Designated Representative of instructions for operating and maintaining all systems and equipment included in this Contract. Manufacturer's advertising literature or catalog pictures will not be acceptable for operating and maintenance instructions. A digital submission of the same is also required. Laminated pool data charts and operating instructions are required to be posted in the mechanical room for all swimming pool systems.



- B. Bound in ring binders shall be all parts lists, periodic maintenance instructions and troubleshooting guidelines for all pool equipment, including but not limited to filters, pumps, controllers, water chemistry control equipment, etc.

1.16 SECURE FROM THE OWNER

- A. A complete Owner-furnished filling of the swimming pools.
- B. The Owner's assistance, as specified herein, from the time of start-up until final written acceptance of the swimming pool system(s).
- C. Chemicals as required for swimming pool operation after Swimming Pool Subcontractor completes initial water chemistry balance and water treatment during the maintenance period described in Section 13 11 05 of the Specifications.

1.17 WARRANTY

- A. The Swimming Pool Subcontractor shall warrant all swimming pool structures, finishes and systems against defects in material and workmanship for a period of two years after the date of acceptance by the Owner. Any repair or replacement required due to defective material or workmanship will be promptly corrected by the Swimming Pool Subcontractor.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**END OF SECTION 13 11 00**

## SECTION 13 11 01 – SWIMMING POOL EXCAVATION

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Finish and fine grading to bring the surface of the ground to the required grades and elevations as indicated on the Drawings.
- B. Subgrade improvements and placing of compacted fills.
- C. Excavation and backfill for all swimming pool, pool deck, surge chamber and backwash retention tank structural requirements, including footings, foundations, slabs and walls.

#### 1.2 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Conform with requirements of the General Conditions, and more specifically the following:
  - 1. Comply with International Building Code, latest edition.
  - 2. Comply with applicable construction safety orders, latest edition, Federal and State OSHA.
  - 3. Comply with applicable trench safety provisions, latest edition, Federal and State OSHA.
- B. Qualifications of Workers:
  - 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
  - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
  - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- C. Project/Site Conditions:
  - 1. Be familiar with site and subsurface conditions.
  - 2. Excavation is unclassified and includes excavation to sub-grade elevations indicated or necessary, regardless of character of materials and obstructions encountered.
  - 3. Provisions for mitigation of wet soils due to seepage or rain shall be made during excavation and throughout construction. If wet soils are encountered within the swimming pool excavations, de-watering shall be provided and the Geotechnical Engineer shall make recommendations for moist soil mitigation.
  - 4. Where slope instability is encountered, all excavations within those areas shall be 1:1 or flatter. Forming of vertical walls may be necessary, and all soil conditions shall be field verified by the Geotechnical Engineer.

5. Contractor shall review the Geotechnical Investigation Report as furnished by the Owner to determine the suitability of the soils.
6. Refer to General Conditions, Articles 3.17 and 3.18.

D. Adverse Weather Conditions:

1. During the periods when site soil moisture content is substantially in excess of moisture content required for optimum compaction, do not perform fill compaction.
2. When unfavorable weather conditions necessitate interrupting filling and grading operations, prepare areas by compaction of surface and grading to avoid collection of water. Provide adequate temporary drainage to prevent erosion.

1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with requirements of Section 01 33 00. Requests for substitution shall conform to requirements of Article 1.10.A of Section 13 11 00.
- B. Required submittals include:
  1. Offsite fill material, if applicable.
- C. Submit proof of qualifications as specified in Article 1.02.B of this Section.

1.4 EXCAVATING & TRENCHING, GENERAL REQUIREMENTS

- A. Refer to Section 01 50 00, Temporary Facilities and Controls.
- B. All trenches, holes, etc. are to be completely protected using solid barricades, steel plates, and plywood both during construction and during off hours, including night time.
- C. Flashing warning light barricades are required on sidewalks, roads, and any other critical areas that require night time protection.
- D. Roads, paths and sidewalks shall not be blocked at any time or in any way. Trenching across roads, paths or sidewalks involves special instructions and review of the construction procedure by the Owner at least three (3) days prior to the Work actually being started.
- E. Construction equipment, including all trucks, cars, etc. shall not be parked or driven on roads, paths or sidewalks. Items not allowed on roads, paths or sidewalks include hoses, power cords, ropes, construction materials, dirt and debris, etc.
- F. All roads, paths and sidewalks must remain clear and the Contractor shall maintain temporary safe and effective pedestrian access at all times.
- G. Drawings show existing major underground utilities using the best information available. The Contractor shall also fully check public works reference drawings prior to excavation. Call local Dig Alert to locate utilities to ensure safety.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. All materials to be used as fill or backfill shall be examined, tested, and approved by the Geotechnical Engineer. Based on the SPT borings, in general, the on-site soils natural granular soils which are free from organic and root fragments can be re-used as site fill. Materials suitable for various construction purposes can be identified by the Geotechnical Engineer or their designated representative during grading operations.
- B. Moisture conditioning (that is, wetting or drying) of the soils shall be anticipated to achieve proper compaction. The moisture contents of the soils shall be controlled properly to avoid extensive construction delays. If imported fill material is required, those materials shall have Unified Soil Classifications of SM or more granular.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Verify drawing dimensions and elevations with actual field conditions. Inspect related Work and adjacent surfaces and report discrepancies and conditions which prevent proper execution of the Work to the Owner's Representative.

### **3.2 SUBGRADE IMPROVEMENTS**

- A. It should be noted that relatively soft/loose soils were noted at each of the six boring locations. Once the foundation subgrade has been exposed it shall be observed and tested by the Geotechnical Engineer or the Geotechnical Engineer's representative by performing Dynamic Cone Penetration (DCP) tests to locate foundation subgrade areas requiring local undercut and replacement.
- B. Soft or loose pockets of soil encountered in the footing excavations shall be removed and replaced with suitable soils meeting the recommendations outlined in Section 2.1 Fill Selection, Placement and Compaction. Alternatively, the footings may be established at a lower elevation, or the unsuitable materials could be replaced with lean (2000 psi) concrete.
- C. All structural fill shall be placed in relatively horizontal 8 (maximum) loose lifts and shall be compacted to a minimum of 95 percent of the Standard Proctor (ASTM D-698) maximum dry density. Field moisture contents shall be maintained within 2 percentage points of the optimum moisture content to provide adequate compaction.
- D. New fills shall be properly benched into existing slopes. A sufficient number of in-place density tests shall be performed by an experienced Engineering Technician on a full-time basis to verify that the proper degree of compaction is being obtained. All excavations shall be properly benched and/or shored per OSHA and MOSH requirements.

### 3.3 GROUND SUPPORTED SLABS

- A. Floor slabs shall be supported on approved, firm subsoils, or on new compacted fill. The slab subgrade shall be prepared in accordance with the procedures outlined in Sections 3.2 of this section. In particular, the slab subgrade shall be proofrolled to verify stability or delineate any soft or loose areas requiring undercutting and/or stabilization. The Geotechnical Engineer or their designated representative shall be on-site to confirm the suitability of subgrade materials.
- B. It is recommended that the slab be directly supported on a minimum 4-inch layer of clean granular materials such as washed sand, clean sand, and gravel, or screened, crushed stone. A suitable moisture/vapor barrier (that is, polyethylene sheeting) shall also be provided. These procedures will provide a moisture break that will help to prevent capillary rise and dampness of the floor slabs, and also help to cure the slab concrete. It is also recommended that construction joints on the slab surface and isolation joints between the slab and structural walls be provided (such that the slab would be ground-supported).
- C. On most projects, there is a significant time lag between initial grading and a point when the contractor is ready to pour the slabs-on-grade. Environmental conditions and construction traffic often disturb the subgrade soils, particularly those predominately clayey soils encountered on-site. Provisions shall be made in the construction specifications for the restoration of the subgrade soil to a stable condition before the placement of the concrete for the floor slabs.
- D. Dimensions: Excavate to proper dimensions as shown, cut square and smooth with firm level bottoms. Prepared excavations shall be approved by Geotechnical Engineer. Excavations shall be free of loose or disturbed materials.
- E. Excess Water Control: Keep all excavations free from standing water by pumping, draining or providing proper protection against water intrusion. If soil becomes soft, soggy or saturated, perform additional excavation to firm soil not affected by water.
- F. Form Removal: Make all excavations of sufficient size to permit installation and removal of forms and all other required work.
- G. Alternate Forming: Sides of structures may be formed by neat excavations where banks will stand without caving. If banks cave, provide forming as required and widen excavation to permit forming, bracing and inspection. Provide forming in conformance with Section 13 11 02 and all recognized safety standards. Form all grade beams.

### 3.4 BACKFILLING

- A. Method: After concrete has been placed, forms removed and concrete work approved, backfill the excavations with earth to indicated or required grades. Carry on backfilling simultaneously on each side of walls or grade beams. Remove all rubbish and wood from the excavations before placing backfill.
- B. Concrete Protection: Prior to placing any backfill, adequately cure all concrete and provide any bracing required to ensure the stability of the structure. Protect waterproofing and dampproofing against damage in a manner acceptable to the Owner's Representative. Remove bracing as backfill operations progress.

- C. Material: Use the material from the excavations for backfilling, subject to approval by Soils Testing Agency. The earth shall be free from debris, large clods or stones.
- D. Lifts: Place backfill in eight (8) inch loose layers, bring to optimum moisture content and compact to a minimum 95% of the standard proctor maximum dry density, sloping down and away from the structures being backfilled.
- E. Moisture: Rigidly control the amount of water used to ensure optimum moisture conditions for the type of fill material used. Excessive amounts of water causing saturation of earth will not be permitted. Compaction by flooding or jetting is prohibited.

### 3.5 GRADING

- A. Slopes: Grade to finish grades indicated on Drawings, with uniform slopes between all points.
- B. Subgrades: Blade to required grade and roll or tamp subgrades for exterior slabs, decks and paving.

### 3.6 CLEAN-UP

- A. Disposal: Haul away rubbish, debris, and rocks from site promptly and dispose of legally. Burning rubbish on site is prohibited.
- B. Dust and Noise Abatement: During entire period of construction keep area and material being loaded sprinkled to reduce dust in air and annoyance to premises and surrounding property.

**END OF SECTION 13 11 01**

## SECTION 13 11 02 – SWIMMING POOL CONCRETE

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Forming for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.
- B. Reinforcement for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.
- C. Cast-in-place concrete for swimming pool structures. Do not use waterproofing admixture of any kind.
- D. Cast-in-place concrete for swimming pool decks with Xypex C-500 crystalline waterproofing admixture. Waterproofing admixture for swimming pool decks only.
- E. Provide labor, materials and equipment as required to install sealant for all pool deck expansion joints, or any other caulking, as indicated on the aquatic Drawings and herein specified.

#### 1.2 QUALITY ASSURANCE

- A. Qualifications of Workers:
  - 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
  - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
  - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Standards:
  - 1. In addition to complying with the International Building Code, latest edition, ACI-318-19, comply with all pertinent recommendations contained in "Guide to Formwork for Concrete" Publication ACI 347R-14 of the American Concrete Institute.
  - 2. In addition to complying with the International Building Code, latest edition, comply with all pertinent recommendations contained in "Guide to Presenting Reinforcing Steel Design Details," Publication ACI 315R-18 of the American Concrete Institute.
  - 3. In addition to complying with all local codes and regulations, comply with all pertinent recommendations contained in American Society for Testing and materials (ASTM); ASTM C 920 "Standard Specification for Elastomeric Joint Sealants."
- C. Tolerances: Construct all swimming pool concrete straight, true, plumb and square within a tolerance horizontally of one in 200 and vertically of one in 2000.

### 1.3 SUBMITTAL AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform to requirements of Article 1.10.A of Section 13 11 00.
- B. Samples and Certificates, Concrete Reinforcement:
  - 1. Provide all data and access required for testing as described in Section 01 45 00 of the Specifications.
  - 2. All material shall bear mill tags with heat number identification. Mill analysis and report shall be made available upon request.
  - 3. Rebar samples shall be taken from bundles as delivered from the mill with the bundles identified as to heat number and the accompanying mill certificate. One tensile test and one bend test shall be made from a sample from each 10 tons or fraction thereof of each size of reinforcing steel.
  - 4. Design mix from batch plant demonstrating previous use history and associated strengths at 28 days.
  - 5. The Contractor shall submit a mix design stamped and signed by a licensed engineer for approval by the Owner's Representative prior to any placement of concrete.
  - 6. The Contractor shall submit a separate mix design stamped and signed by a licensed engineer for the swimming pool decks which contains the specified Xypex C-500 crystalline waterproofing admixture for approval by the Owner's Representative prior to any placement of concrete.
- C. Submit proof of qualifications as specified in Article 1.2.A of this Section.
- D. Submit reinforcing shop drawings for pool walls, gutters, floors, dike walls and balance tank, etc. as shown on the construction drawing.

### 1.4 PRODUCT HANDLING

- A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.
- C. Protection: Use all means necessary to protect the swimming pool concrete before, during, and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

## PART 2 - PRODUCTS

### 2.1 CONCRETE FORMWORK

- A. Form Materials:
  - 1. Form Lumber: All form lumber in contact with exposed concrete shall be new except as allowed for reuse of forms in Part 3 of this Section, and all form lumber shall be one of the following, a combination thereof, or an equal approved in advance by the Owner's Representative.



- a. "Plyform," Class I or II, bearing the label of the Douglas Fir Plywood Association; "Inner-Seal" Form as manufactured by Louisiana-Pacific, or approved equal.
    - b. Douglas Fir-Larch, number two grade, seasoned, surfaced four sides.
  2. Form Release Agent: Colorless, non-staining, free from oils; chemically reactive agent that shall not impair bonding of paint or other coatings intended for use.
- B. Ties and Spreaders:
1. Type: All form ties shall be a type which do not leave an open hole through the concrete and which permits neat and solid patching at every hole.
  2. Design: When forms are removed, all metal reinforcement shall be not less than two (2) inches from the finished concrete surface.
  3. Wire Ties and Wood Spreaders: Do not use wire ties or wood spreaders.
- C. Alternate Forming Systems: Alternate forming systems may be used subject to the advance approval of the Owner's Representative.

## 2.2 CONCRETE REINFORCEMENT

- A. Bars: Bars for reinforcement shall conform to "Specifications for Deformed Carbon-Steel Bars for Concrete Reinforcement," ASTM A-615, Grade 60.
- B. Wire Fabric: Wire fabric shall conform to "Specifications for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete," ASTM A1064.
- C. Tie Wire: Tie wire for reinforcement shall conform to "Specifications for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete," ASTM A1064 black annealed 16-gauge tie wire.

## 2.3 CAST-IN-PLACE CONCRETE

- A. Concrete:
1. All concrete, unless otherwise specifically permitted by the Owner's Representative, shall be transit-mixed in accordance with ASTM C94. Concrete for water retaining structures that do not receive a waterproofing finish such as ceramic tile or swimming pool plaster shall receive a topical waterproofing finish.
  2. The control of concrete production shall be under the supervision of a recognized testing agency, selected by the Owner in accordance with Section 01 25 00 of the Specifications.
  3. Quality: All concrete shall have the following minimum compressive strengths at twenty-eight (28) days and shall be proportioned within the following limits
    - a. 4,000 psi minimum compressive strength for cast-in-place concrete swimming pool structures.
    - b. 4,000 psi minimum compressive strength for cast-in-place swimming pool decks with Xypex C-500 waterproofing admixture.
    - c. 1" maximum size aggregate.
    - d. 6.0 minimum sacks of cement per cubic yard.\*
    - e. Maximum water to cement ratio of 0.40 minimum to 0.45 maximum.
    - f. 4" maximum slump.

- g. Xypex Admix C-500 2% - 2.5% by weight of cement content. Contact Xypex Technical Services to confirm dosage. (To be used for swimming pool decks only.)  
\* For estimate only: to be determined by mix design.
- 4. Cement: All cement shall be Portland Cement conforming to ASTM C-150, Type II or V and shall be the product of one manufacturer.
- 5. Aggregates:
  - a. Shall conform to "Standard Specifications for Concrete Aggregates," ASTM C33, except as modified herein.
  - b. Coarse Aggregate: Clean sound washed gravel or crushed rock. Crushing may constitute not more than 30% of the total coarse aggregate volume. Not more than 5% flat, thin, elongated or laminated material nor more than 1% deleterious material shall be present. 1" aggregate graded from 1/4" to 1", fineness modulus 6.90 to 7.40. 1-1/2" graded from 1/2" to 1-1/2", fineness modulus 7.80 to 8.20.
  - c. Fine Aggregate: Washed natural sand of hard, strong particles and shall contain not more than 1% of deleterious material, fineness modulus 2.65 to 3.05.
  - d. Aggregate must be certified, non-expansive from a "known" good source.
- 6. Water: ASTM C1602 Clean, fresh, free from acid, alkali, organic matter or other impurities liable to be detrimental to the concrete (potable).
- 7. Admixtures: Admixtures shall be used upon approval of the Owner's Representative.
  - a. Air-entraining admixture: Conform to ASTM C260.
  - b. Water-reducing admixture: Conform to ASTM C494.
  - c. Waterproofing admixture for swimming pool decks only: Xypex Admix C-500, No substitutions permitted. Conform to ASTM C494.
- 8. Xypex Admix C-500 Dosage: To be used for swimming pool decks only.
  - a. General: Xypex Admix must be added to concrete mix at time of batching. It is important to obtain a homogeneous mixture of Xypex Admix with the concrete. Do not add dry Admix powder directly to wet mixed concrete as this could cause clumping and thorough dispersion may not occur.
  - b. Dosage Rate: Under normal conditions, the crystalline waterproofing powder shall be added to the concrete mix at the following rates:
    - 1.) Xypex Admix C-500 2% – 2.5% by weight of cement content
  - c. Weather Conditions: For mixing, transporting and placing concrete under conditions of high temperature or low temperature, follow concrete practices such as those referred to in ACI 305R (Hot Weather Concreting) and ACI 306R (Cold Weather Concreting) or other applicable standards.
  - d. Concrete Batching & Mixing Procedures: Procedures for the addition of Xypex admixture will vary according to type of batch plant operation and equipment. Prior to the placement of any concrete, the concrete batch plant and the contractor shall be responsible to consult with the local Xypex representative concerning additional procedures for the addition, mixing and to confirm dosage.  
Note: For enhanced chemical protection or for meeting specific project requirements or where the concrete mix design contains higher than 25% type F fly ash content or includes a portland cement/slag cement/type C fly ash blend, consult with manufacturer or its authorized representative to determine appropriate dosage rates.

- B. Construction Joints: Use keyform for slab pour joints. Either preformed galvanized or PVC construction joint forms of a standard manufacturer may be used. Install per manufacturer's recommendations and tool edges of slabs.
- C. Waterstops: PVC bulb-type for use between concrete pours / lifts, conforming with ASTM D 570, D 624, and D 638. Provide in configuration(s) as recommended by manufacturer for specific application. Greenstreak, W.R. Meadows, or approved equal.
- D. Curing Materials:
  - 1. Liquid Membrane (covered slab): Chlorinated rubber membrane forming, curing-sealing compound conforming to ASTM C309.
  - 2. Liquid Membrane (exposed slab): Clear methyl and butyl methacrylate non-staining, membrane forming, curing-sealing compound conforming to ASTM C309.
- E. Cement Grout and Drypack:
  - 1. Cement Grout: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make mixture flow under its' own weight.
  - 2. Drypack: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make a stiff mix that will mold into a ball. Mix no more than can be used in 30 minutes.

## 2.4 JOINT SEALANT MATERIALS

- A. Caulking: Multipart, non-sag gun grade polyurethane based sealant meeting the requirements of ASTM C920-02, Type S or M, Sika Corp., Pecora, Sonneborn Building Products, Tremco or approved equal. Self leveling caulking materials are not allowed.
- B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- C. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- D. Sealant Backer Rod: Provide compressible polyethylene or polyurethane backer rod as recommended by the sealant manufacturer.
- E. Bond Breaker Tape: Provide polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant.
- F. Sand: Cover the surface of the caulking with #30 silica sand.

## 2.5 OTHER MATERIALS

- A. All other materials, not specifically described but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the advance review by the Owner's Representative.

# PART 3 - EXECUTION

## 3.1 SURFACE CONDITIONS

- A. Inspection:

1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Verify that all Work may be constructed in accordance with all applicable codes and regulations, the referenced standards, the original design, and in accordance with site specific Geotechnical Report.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner's Representative.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive work.

### 3.2 CONCRETE FORMWORK

A. Construction of Forms:

1. General: Construct all required forms to be substantial, sufficiently tight to prevent leakage of concrete paste, and able to withstand excessive deflection when filled with wet concrete.
2. Layout:
  - a. Form for all required cast-in-place concrete to the shapes, sizes, lines and dimensions indicated on the Drawings.
  - b. Exercise particular care in the layout of forms to avoid necessity for cutting concrete after placement.
  - c. Make proper provisions for all openings, offsets, recesses, anchorages, blocking and other features of the Work as shown or required.
  - d. Perform all forming required for Work of other trades and do all cutting and repairing of forms required to permit such installation.
  - e. Carefully examine the Drawings and Specifications and consult with other trades as required relative to providing for pipe and conduit penetrations, reglets, chases and other items in the forms.
3. Imbedded Items: Set all required steel frames, angles, bolts, inserts and other such items required to be anchored in the concrete prior to concrete being placed.
4. Bracings:
  - a. Properly brace and tie the forms together so as to maintain position and shape and to ensure safety to workmen.
  - b. Construct all bracing, supporting members and centering of ample size and strength to safely carry, without excessive deflection, all dead and live loads to which they may be subjected.
  - c. Properly space the forms apart and securely tie them together, using metal spreader ties that give positive tying and accurate spreading.

5. Wetting: Keep forms sufficiently wetted to prevent joints from opening up before concrete is placed.
- B. Plywood Forms:
1. Design: Nail the plywood panels directly to studs and apply in a manner to minimize the number of joints.
  2. Joints: Make all panel joints tight butt joints with all edges true and square.
- C. Footing Forms:
1. Wood Forms: All footing forms shall be wood unless otherwise specifically approved by the Owner's Representative, or as specified in paragraph 3.2(C)(2).
  2. Earth Forms:
    - a. Side walls for footings may be of earth provided the soil will stand without caving and the sides of the bank are made with a neat cut to the minimum dimensions indicated on the Drawings.
    - b. For excavation and backfill of earth forms, conform with applicable provisions of Section 13 11 01.
- D. Reuse of Forms:
1. Reuse of forms shall be subject to advance approval of the Owner's Representative.
  2. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way delay or change the schedule for placement of concrete from the schedule obtainable if all forms were new.
  3. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way impart less structural stability to the forms nor less acceptable appearance to finished concrete.
- E. Removal of Forms:
1. General:
    - a. In general, side forms of footings may be removed seven (7) days after placement of concrete, but time may be extended if deemed necessary by the Owner's Representative.
    - b. Forms for footings, foundations, grade beams, slabs, walls, and other formed concrete may be removed fourteen (14) days after placement of concrete.
  2. Removal:
    - a. Use all means necessary to protect workers, passersby, the installed Work of other trades and the complete safety of the structure.
    - b. Cut nails and tie wires or form ties off flush, and leave all surfaces smooth and clean.
    - c. Remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface and pointing up and rubbing the resulting pockets to match the surrounding areas.

- d. Flush all holes resulting from the use of spreader ties and sleeve nuts using water, and then solidly pack throughout the wall thickness with cement grout applied under pressure by means of a grouting gun; grout shall be one part Portland Cement to 2-1/2 parts sand; apply grout immediately after removing forms.

### 3.3 CONCRETE REINFORCEMENT

#### A. Bending:

- 1. General:
  - a. Fabricate all reinforcement in strict accordance with the Drawings.
  - b. Do not use bars with kinks or bends not shown on the Drawings.
  - c. Do not bend or straighten steel in a manner that will injure the material. (When opposite end is already encased in concrete.)
- 2. Design:
  - a. Bend all bars cold.
  - b. Make bends for stirrups and ties around a pin having a diameter of not less than four (4) times the minimum thickness of the bar (#3 - #5) per ACI.
  - c. Make bends for other bars, including hooks, around a pin having a diameter of not less than six (6) times the minimum thickness of the bar.

#### B. Placing:

- 1. General: Before the start of concrete placement, accurately place all concrete reinforcement, positively securing and supporting by concrete blocks, metal chairs or spacers, or by metal hangers.
- 2. Clearance:
  - a. Preserve clear space between bars of not less than one and one-half (1-1/2) times the nominal diameter of the round bars.
  - b. In no case let the clear space be less than one and one-half (1-1/2) inches nor less than one and one-third (1-1/3) times the maximum size of the aggregate.
  - c. Provide the following minimum concrete covering of reinforcement:
    - 1) Concrete deposited against earth: three (3) inches minimum.
    - 2) Concrete below grade deposited against forms: two (2) inches minimum.
    - 3) Concrete elsewhere: As indicated on Drawings or otherwise approved by the Owner's Representative.
- 3. Splicing:
  - a. Horizontal Bars:
    - 1) Place bars in horizontal members with minimum lap at splices sufficient to develop the strength of the bars.
    - 2) Bars may be wired together at laps except at points of support of the member, at which points preserve clear space described above.
    - 3) Whenever possible, stagger the splices of adjacent bars.
    - 4) Splice forty (40) bar diameters minimum.

- 5) Provide non-contact lap slices for shotcrete.
  - b. Wire Fabric: Make all splices in wire fabric at least one and one-half (1-1/2) meshes wide.
  - c. Other Splices: Make only those other splices that are indicated on the Drawings or specifically approved by the Owner's Representative.
4. Dowels: Place all required steel dowels and securely anchor them into position before concrete is placed.
5. Obstructions: In the event conduits, piping, inserts, sleeves and other items interfere with placing reinforcement as indicated on the Drawings or otherwise required, immediately consult with the Owner's Representative and obtain approval of a new procedure prior to placing concrete.
- C. Cleaning Reinforcement: Steel reinforcement, at the time concrete is placed around it, shall be free from rust scale, loose mill scale, oil, paint and all other coatings which will destroy or reduce the bond between steel and concrete. Bend down all tie wire away from the top of the pool deck. Maintain a 2" clear from top of concrete to the tie wire.

### 3.4 SHOTCRETE REINFORCEMENT

- A. Shotcrete reinforcement shall be in accordance with the requirements of ACI 318-19, along with the provisions of ACI 506R and ACI 506.2. For parallel nonprestressed reinforcement in shotcrete members, the clear spacing between bars shall be at least the greater of 6 bar diameters and 2-1/2 in. Where two curtains of reinforcement are provided, the clear spacing between bars in the curtain nearer the nozzle shall be at least 12 bar diameters; the clear spacing between bars in the remaining curtain shall be at least the greater of 6 bar diameters and 2-1/2 in. Adequate encasement of bars larger than No. 5 shall be demonstrated by a preconstruction test shotcrete mockup panel.
- B. Subject to the approval of the building official, it shall be permitted to use a clear spacing that does not meet the clear spacing provisions listed above provided that shotcrete mockup panels are used to demonstrate the proper reinforcement encasement in accordance with the following:
  1. The shotcrete mockup panels shall be representative of the most complex reinforcement configurations to be encountered.
  2. The licensed design professional shall specify the shotcrete mockup panel quantity, frequency of shooting per nozzle man and member type, and panel thickness to verify reinforcement encasement.
  3. Information on shotcrete mockup panels is provided in ACI 506R.
- C. Non-contact lap splices for reinforcement in shotcrete shall have clear spacing in accordance with the following:
  1. For No. 6 and smaller bars, the clear spacing between bars shall be at least greater of 6 bar diameters and 2-1/2" in.
  2. For No. 7 and larger bars, the clear spacing shall be established using a shotcrete mockup panel to demonstrate that the reinforcement is properly encased.
  3. Subject to the approval of the building official, contact lap splices for reinforcement in shotcrete shall be oriented with the plane of the spliced bars perpendicular to the surface

of the shotcrete and approved by the licensed design professional based on a shotcrete mockup panel to demonstrate that the reinforcement is properly encased.

### 3.5 CAST-IN-PLACE CONCRETE

#### A. Conveying and Placing Concrete:

1. Before placing concrete, mixing and conveying equipment shall be well cleaned, and the forms and space to be occupied by concrete shall be thoroughly cleaned and wetted. Ground water shall be removed until the completion of the work.
2. No concrete shall be placed in any unit of work until all formwork has been completely constructed, all reinforcement has been secured in place, all items to be built into concrete are in place, and form ties at construction joints tightened.
3. Concrete shall be conveyed from mixer to place of final deposit in such a way to prevent the separation or loss of ingredients. It shall be placed as nearly as practicable in its' final position to avoid rehandling or flowing. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six (6) feet. Use tremies, spouts and dump boxes in deep sections. Vibrators are not acceptable for facilitating concrete transport.
4. Concrete shall be tamped and spaded to insure proper compaction into all parts of forms and around reinforcement. A mechanical vibrator shall be used to thoroughly compact the concrete. Vibration must be by direct action in the concrete and not against forms or reinforcement.
5. Mixing and transport time as indicated in ASTM C94 is required. If air temperatures are between 85° and 90° F the delivery time is to be reduced to 75 minutes. When air temperatures is in excess of 90° F the delivery time should be reduced to 60 minutes.
6. Truck mixes without batch certificates will be rejected.

#### B. Construction Joints / Expansion Joints: Construction joints and expansion joints shall be provided at locations and in the manner shown on the Drawings. With exception of existing concrete / new shotcrete joints, use PVC bulb-type waterstops appropriate for design condition between all concrete pours / lifts to avoid cold joints. Waterstops shall be placed in such a way to protect reinforcing steel from rust and oxidation. All expansion joints must be the full depth of the concrete section in which they are located.

#### C. Slab Finishes: Concrete slabs shall be compacted and screeded uniformly to grades shown. Push large aggregates below the surface with a screen tamper, screed and bull float. As soon as the surface becomes workable, it shall be wood floated, then finished as indicated on the Drawings to a uniform smooth, true surface in a neat and workmanlike manner. Carefully coordinate slab finish requirements with other trades (ceramic tile, pool plaster) to insure concrete finish is appropriate substrate for final finish material.

1. Contractor shall provide three mock-up deck samples, minimum 3'x 3', with a wedge anchor installed in one sample. These (3) samples shall be constructed; one with a light broom finish, one (1) with a medium broom finish and one (1) with a heavy broom finish for determination and selection of an appropriate deck finish. Each sample shall be edged on all four sides to demonstrate a 3/4" radius edge. Anchor installation shall demonstrate acceptable interface between anchor and the top of deck. Deck samples shall remain on job site through final inspection for reference.
2. Pool Floor Slab: Heavy Wire Broom Finish.



D. Protection and Curing:

1. Concrete shall be protected from injurious action of the elements and defacement of any nature during construction.
2. All forms must be kept wet to prevent drying out of the concrete.
3. All concrete surfaces including footings must be kept wet for at least seven (7) days after concrete is placed.
4. Apply the appropriate curing materials, as specified in 2.03 of this Section, immediately after finishing slabs. Application shall be as specified by the manufacturer.

E. Form Removal:

1. Take care in removing forms so that surfaces are not marred or gouged and that corners are true, sharp and unbroken.
2. No steel spreaders, ties or other metal shall project from or be visible on any concrete surfaces.

F. Defective Work:

1. Should the strength of any concrete for any portion of the work indicated by tests of molded cylinders and core tests fall below minimum 28 days strength specified or indicated, concrete will be deemed defective work and shall be replaced.
2. Concrete work that is not formed as indicated, is not true to intended alignment, not plumb or level where so intended, not true to intended grades or elevations, not true to specified or selected finish, contains sawdust shavings, wood, or embedded debris, which exhibits cracks or contains fine or coarse sulfide particles, or expansive aggregates detrimental to performance or appearance of the concrete shall be deemed defective.
3. Promptly perform work required to replace and properly clean (by sandblasting if necessary) any defective concrete panels (control joint or expansion joint to control joint or expansion joint), at Contractor's expense, including all expense of additional inspection, tests, or supervision made necessary as a result of defective concrete.
4. Contractor must verify slopes of concrete pool deck match Contract Documents using a 2' long level. Test locations random and determined by Owner's Representative or Architect. Test observation by the Owner's Representative or the Architect is required.
5. Contractor must perform a flood test of cured concrete pool deck to verify concrete is draining per the Contract Documents and there are no low areas of standing water. Test observation by the Owner's Representative or the Architect is required.

### 3.6 EXPANSION JOINTS

- A. Temperatures: Do not install sealants when air temperature is less than 40°F.
- B. Tooling: Tool exposed joints to a slightly concave surface using slicking materials recommended by the manufacturer. The tooling procedure shall press sealant against the sides of the joint. No materials shall be left "feathered" out or smeared on the abutting materials. Completed joints shall have a uniform professional appearance.
- C. Joint Construction: Sealant joint width, thickness and cross-sectional profile to be constructed in strict accordance with the sealant manufacturer's recommendations.
- D. Sand: At the appropriate time cover the sealant with sand to provide a sanded finish.

3.7 CLEAN-UP

- A. Upon completion of the Work of this Section, immediately remove all swimming pool concrete materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

**END OF SECTION 13 11 02**

## SECTION 13 11 03 – SWIMMING POOL SHOTCRETE

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Provide labor, materials and equipment as required to install structural wet mix shotcrete for swimming pool structures as indicated on the Drawings and herein specified.

#### 1.2 QUALITY ASSURANCE

- A. Qualifications of Workers:

- 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
  - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
  - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

- B. Standards: Except as otherwise indicated, provide shotcrete per American Concrete Institute Standard ACI 506. In addition, conform to recommendations contained in "Shotcrete," Brochure G84 as published by the Guniting Contractors Association of Sylmar, California and the International Building Code (latest edition).

- C. Mix Design: The Contractor shall submit a mix design stamped and signed by a licensed engineer for approval by the Owner's Representative prior to any placement of shotcrete. Mix design shall indicate source of aggregate and brands of cement and admixtures used. All mix designs shall take character of locally available aggregate into consideration and make adjustments as necessary to conform with specified design criteria.

- D. Testing and Inspection: A test panel shall be shot, cured, cored or sawn, examined and tested (representing the most congested and difficult project scenario) prior to commencement of the project in accordance with ASTM C1140. All project conditions and personnel shall be represented in the test panel. Additionally, one test panel shall be provided for each 50 yards (or portion thereof) of shotcrete placed for each day or each nozzleman, whichever is greater. The size of the strength test panel shall be per the direction of the Special Shotcrete Inspector. At least three (3) cores shall be taken from each test panel. (At least three (3) cores shall be taken from the completed work for each day of shotcrete operation.) Testing shall be performed by the Owner's designated Testing Lab and comply with Section 1908A.10ACI 318. Contractor shall contract ICC licensed third party shotcrete inspector for continuous inspection of all shotcrete work. Contractor shall submit third party inspector's qualifications and license for review and approval by Architect and Owner. Contractor shall be responsible for all testing and inspection costs.

- E. Tolerances: Construct all swimming pool shotcrete straight, true, plumb and square within a tolerance horizontally of one in 200 and a tolerance vertically of one in 2000.

### 1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00 and ACI 506.2. Requests for substitution shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Materials List: Within thirty (30) days after issuance of Notice to Proceed, and before shotcrete materials are delivered to the project site, submit to the Owner a complete list of materials proposed to be used in this portion of the Work, showing manufacturer's name and catalog number of all items such as admixtures and curing membranes, and the name and address of the supplier of cement and aggregate to be used.
- C. Submit proof of qualifications as specified in Article 1.2.A of this Section.

### 1.4 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect shotcrete materials before, during and after installation and to protect the installed Work specified in other Sections.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cement: Cement shall be Type 1 Portland Cement conforming to ASTM C150. Cement type shall be the same for all shotcrete work.
- B. Aggregate: ASTM C33, washed hard dense durable clean sharp sand from approved pit, free of organic matter and opaline, feldspar, or silicious magnesium substances and containing not more than 3% by weight of deleterious substances. Maximum size aggregate for shotcrete is ¾" per ACI 318-19. When tested for organic impurities by ASTM C40 method, fine aggregate color not darker than reference standard color. When tested for soundness by ASTM C88 method, grading No. 2 of ASTM C1436, loss after 5 cycles not over 10% of fine aggregate.
- C. Water: Potable, clean, fresh, free from acid, alkali, organic matter or other impurities liable to be detrimental to the shotcrete.
- D. Admixtures: Admixtures shall conform to ASTM C1141 and only be used upon approval of the Owner's Representative.

## **PART 3 - EXECUTION**

### **3.1 EXECUTION**

#### **A. Inspection:**

1. Prior to all Work of this Section carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Verify that items to be imbedded in shotcrete are in place and that shotcrete may be placed to the lines and elevations shown on the Drawings, with all required clearance from reinforcement.

#### **B. Discrepancies:**

1. In the event of discrepancy, immediately notify the Owner's Representative.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive the Work.

### **3.2 PREPARATION**

#### **A. General:**

1. Thoroughly clean all areas where shotcrete is to be placed to insure proper bonding of shotcrete.
2. Where shotcrete is to be placed against smooth surfaces (i.e., cast-in-place concrete), sandblast surfaces to receive shotcrete to provide clean aggregate surface, thereby insuring proper bond between materials.

#### **B. Ground Wires:** Adequate ground wires, to be used as screeds, shall be installed to establish the thickness and surface planes of the shotcrete work. Ground wires shall be placed so that they are tight and true to line and grade and in such a manner that they can be easily tightened.

### **3.3 PROPORTIONING AND MIXING**

- A. Accurately control proportion of water to Portland cement to produce thorough and uniform hydration of the shotcrete that, when shot, forms a homogeneous mass containing neither sags nor dry sand formation. Proportion by mass per ASTM C94 or by volume per ASTM C685.
- B. Shotcrete shall have a minimum compressive strength of 4,000 PSI at 28 days. Shotcrete material shall have a water/cement ratio of 0.40-0.45 per ACI 506R, Chapter 6, Proportioning and Preconstruction Testing; Section 6.3.3, Wet Mix Process.
- C. Discontinue shotcrete work if the time between the addition of mixing water to cement and aggregate, or cement to aggregates, and placement of shotcrete exceeds ninety (90) minutes when the ambient temperature is below 85 degrees Fahrenheit, or exceeds sixty (60) minutes

when the ambient temperature is above 85 degrees Fahrenheit. Batch, mix and deliver wet-mixture shotcrete per ASTM C94 or C685.

- D. Hot Weather Shotcreting – Unless otherwise specified, do not place shotcrete when shotcrete temperature is above 95°F, unless prequalification testing shows that the required quality of materials can be achieved at high temperatures. The temperature of reinforcement and receiving surfaces shall be below 90°F prior to shotcrete placement. If temperature mitigation measures are taken, it is at the Contractor's expense.
- E. Cold Weather Shotcreting – Unless otherwise specified, shooting may proceed when ambient temperature is 40°F and rising. Stop shooting when ambient temperature is 40°F and falling, unless measures are taken to protect the shotcrete. Shotcrete material temperature, when shot, shall not be less than 50°F. Do not place against frozen surfaces. If temperature mitigation measures are taken, it is at the Contractor's expense.

### 3.4 SHOTCRETE PLACING, FINISHING, AND CURING

- A. Operations: Utilize a standard type of air compressor, capable of providing a minimum of 250 cubic feet of air per minute per nozzle.
- B. Placing: Except when shooting reinforcing, hold the nozzle perpendicular to and 2-1/2 to 3 feet from surface. At reinforcing bars, hold the nozzle so as to direct shotcrete behind the bars, and shoot each side of each bars separately. A nozzleman's helper equipped with an air jet shall precede the nozzle and blow out rebound or sand lodged behind bars, on forms, or placed shotcrete. Placing shotcrete horizontal members from the top is not allowed unless approved methods are employed to eliminate all rebound. Material shall emerge from the nozzle in a uniform flow. If flow becomes intermittent for any reason, direct the nozzle away from the surface until the flow is again steady and constant. Do not reuse rebound or loose sand for any purpose.
- C. Puddled Shotcrete: Use of "puddled shotcrete" in which the air pressure is reduced and the water content is increased to facilitate placing in difficult locations is not allowed. Do not place shotcrete where nozzle stream cannot impinge directly on the involved surface. Where difficult shooting conditions occur, obtain proper results by maintaining correct air pressure and water ratio and reduce supply of material.
- D. Construction Joints: Form joints with sloping beveled edges. Clean and dampen the hardened joint surfaces before placing additional shotcrete. Square edged construction joints are not allowed. The film of laitance which forms on the surface of the shotcrete shall be removed within approximately two hours after application by brushing with a stiff broom. If this film is not removed within two hours, it shall be removed by thorough wire brushing or sand blasting. Construction joints over eight hours old shall be thoroughly cleaned with air and water prior to receiving shotcrete.
- E. Finishing: Rod exposed surfaces to true planes and lines on reaching the thickness and plane established by forms and ground wires. Tamp and wood float surfaces level and provide a rough raked finish. Carefully coordinate finish requirements with other trades (ceramic tile, pool plaster) to ensure shotcrete finish is appropriate substrate for final finish material.

- F. Curing: Keep shotcrete continuously damp for not less than seven (7) days after placing. Use sealed curing sheeting or other approved curing method where water curing is not feasible. Do not use curing compound of any kind.

### 3.5 DEFECTIVE WORK

- A. Cut out, remove and replace, or repair to the satisfaction of the Owner's Representative, shotcrete not meeting minimum strength, not true, plumb or level, not to required elevations, containing cracks detrimental to performance or appearance, containing shavings, debris or with honeycombs or voids.
- B. Promptly perform Work required to repair, patch, replace, render properly cleaned surfaces (by sandblasting if necessary) or otherwise make good any defective shotcrete at Contractor's expense, including all expense of additional inspection, tests, or supervision made necessary as a result of defective shotcrete.

### 3.6 CLEAN-UP

- A. Upon completion of the Work of this Section, immediately remove all swimming pool shotcrete materials, debris and rubbish occasioned by this work to the approval of the Owner's Representative.

**END OF SECTION 13 11 03**

## SECTION 13 11 04 – SWIMMING POOL CERAMIC TILE

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Swimming pool ceramic tile detailed on the Drawings, including, but not limited to, the following:
  - 1. Lane Line / Target Tile / 5'-0" Depth Tile.
  - 2. Trim Tile. (At Underwater Steps, Benches, and Beach Entry)
  - 3. Depth Marker Tile. (On top of rim flow bond beam and waterline)
  - 4. Zero Depth Entry Transition Strip (between plaster and diamond brite)
  - 5. Underwater Tile Markings

#### 1.2 QUALITY ASSURANCE

- A. Qualifications of Workers:
  - 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
  - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
  - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Standards: In addition to complying with all pertinent codes and regulations:
  - 1. Manufacture of all tile shall be in accordance with ANSI A-137.1-1976.
  - 2. Install ceramic tile in accordance with the recommendations contained in the 2023 "Handbook for Ceramic Tile Installation" of the Tile Council of America, Inc.
- C. Tolerances: Install all swimming pool ceramic tile straight, true, plumb and square within a tolerance horizontally of one in 200 and a tolerance vertically of one in 500. Waterline and gutter bullnose tile shall be level to 1/8" (+/- 1/16") around entire perimeter of swimming pools.

#### 1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform to requirements of Article 1.10.A of Section 13 11 00.
- B. Samples: Submit samples of each color and pattern in the specified groups. Character samples can be representative for review prior to screening of actual tile.



- C. Master Grade Certificate: Prior to opening ceramic tile containers, submit a Master Grade Certificate, signed by the manufacturer of the tile used and issued when the shipment is made, stating the grade, kind of tile, identification marks for the tile containers, and the name and location of the Project.
- D. Specifications: Submit manufacturer's recommended installation specifications for the Work.
- E. Submit proof of qualifications as specified in Article 1.2.A of this Section.

#### 1.4 PRODUCT HANDLING

- A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.
- C. Protection: Use all means necessary to protect swimming pool ceramic tile before, during and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

### PART 2 - PRODUCTS

#### 2.1 TILE (All tile to have minimum coefficient of friction of 0.42 per ANSI standard A137.1)

- A. Lane Line / Target Tile / 5'-0" Depth Tile:
  - 1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
  - 2. Size: 1 x 1 inches.
  - 3. Color: Dal-Tile #D-621, 'Nautical Blue', in 25YD direction. Dal-Tile# D-311, 'Black' at 5'-0" depth tile. To be approved by Owner prior to ordering.
- B. Trim Tile (on underwater steps, benches and beach entry)
  - 1. Material: Group 3 quality, frost proof unglazed ceramic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
  - 2. Size: 1 x 1 inches with S-812 quarter round.
  - 3. Color: Dal-Tile #D-621. 'Nautical Blue'. To be approved by Owner prior to ordering.
- C. Depth / Caution Marker Tile (on top of bond beam and waterline at rim flow pool/spa):
  - 1. Material: All depth/caution marker tile shall be unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Inlays or approved equal.
  - 2. Size: 6 x 6 inches.
  - 3. Depth Markers: Inlays FT and IN Series. To be approved by Owner prior to ordering.

4. Caution Markers: Inlays MG and TMG Series. To be approved by Owner prior to ordering.

D. Zero Depth Entry:

1. Material: All zero-depth entry transition strip tile shall be Diamond Brite or approved equal. To be approved by Owner prior to ordering.
2. Zero Depth Entry Edge Tile:
  - a. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
  - b. Size: 1 x 1 inch tile to form 4" tile band.
  - c. Color: Dal-Tile #D-617, 'Artic White'

E. Underwater Tile Markings (at swimming pool floor):

1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
2. Size: 1 x 1 inch tile to form 6" x 6" floor markers.
3. Color: Dal-Tile #D-621, 'Nautical Blue'.

2.2 MORTAR

- A. Laticrete 3701 fortified mortar #LCR-37-1017.
- B. Site mortar mix shall comply with ASTM C270 standards.
  1. Sand for Mortar: Comply with requirements of fine aggregate for concrete.
  2. Cement: Type 1 portland cement, conforming to ASTM C150.
  3. Hydrated Lime: Conforming to ASTM C206 or 207, Type S.
  4. Water: From a potable source.
- C. Water: From a potable source.
- D. Mortar shall meet ASTM C627.

2.3 THIN SET MORTAR

- A. Laticrete 254 Platinum. Laticrete, Custom or equal.
- B. Water from a potable source.
- C. Mortar shall meet ASTM C627.

2.4 GROUT

- A. All tile grout shall be waterproof grout complying with the recommendations of referenced standards. Grout color shall be grey for dark backgrounds, white for light backgrounds (verify colors with Architect).

## 2.5 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of ceramic tile as indicated on the Drawings, shall be new, first quality of their respective kinds, and subject to the approval of the Owner's Representative.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Inspection:
  - 1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
  - 2. Verify that ceramic tile can be installed in accordance with the original design and all referenced standards.
- B. Discrepancies:
  - 1. In the event of discrepancy, immediately notify the Owner's Representative.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
  - 3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive its Work.

### 3.2 INSTALLATION

- A. Method:
  - 1. Install all ceramic tile in strict accordance with installation method P601-90 of the 2023 Handbook for Ceramic Tile Installation of the Tile Council of America, Inc.
  - 2. Be certain to install all ceramic tile perfectly level, flush, plumb, and to the finish grades and elevations indicated on the Drawings.
- B. Interface:
  - 1. Carefully establish and follow the required horizontal and vertical elevations to insure proper and adequate space for the work and materials of other trades.
  - 2. Coordinate and cooperate as required with other trades to insure proper and adequate interface of ceramic tile Work with the Work of other trades.

### 3.3 GROUTING

- A. Follow grout manufacturer's recommendations as to grouting procedures and precautions.

- B. Remove all grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.

#### 3.4 EXTRA STOCK

- A. Provide two (2) unopened boxes of extra tile for 2.1A, 2.1B, 2.1C and 2.1E for Owners use at a future time.

#### 3.5 CLEAN-UP

- A. Upon completion of the swimming pool ceramic tile installation, thoroughly clean and polish the exposed surfaces of tile work. Completely clean work area of debris and rubbish occasioned by this Work and dispose of to the approval of the Owner's Representative.

**END OF SECTION 13 11 04**

## SECTION 13 11 05 – SWIMMING POOL PLASTER

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Swimming pool plaster and waterproofing of swimming pool structures as indicated on the Drawings and herein specified.
- B. Start-up and operation instructions to Owner's operations and maintenance personnel and properly balance swimming pool water chemistry until the Owner takes occupancy.

#### 1.2 QUALITY ASSURANCE

- A. Qualifications of Workers:
  - 1. The entity performing the work of this Section shall have been successfully engaged in application and installation of commercial pool plaster for at least five (5) years immediately prior to commencement of the Work.
  - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
  - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Standards: Swimming pool plaster shall conform with requirements of International Building Code, latest edition. In addition, meet requirements of applicable portions of most current edition of the "Technical Manual," National Plasterers Council, Wauconda, Illinois.
- C. Start-up:
  - 1. Furnish a swimming pool water chemistry consultant, with a minimum of five (5) years experience, possessing either AFO (Aquatic Facility Operator) or CPO (Certified Pool Operator) certification(s), to supervise and properly balance swimming pool water chemistry.
  - 2. Demonstrate to the Owner that all systems are fully operational and that calcium hardness, total alkalinity, chlorine residual and pH levels are within specified limits.
  - 3. Standards: Furnish labor and chemicals as required to condition the water properly to the following specifications:
    - a. Calcium Hardness: 200-400 parts per million (PPM)
    - b. Total Alkalinity: 80-100 PPM
    - c. Chlorine Residual: 1.5 to 10.0 PPM
    - d. pH Factor: 7.2 to 7.8

### 1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Submit proof of qualifications as specified in Article 1.2.A and 1.2.C.1 of this Section.

### 1.4 PRODUCT HANDLING

- A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.
- C. Protection: Use all means necessary to protect the swimming pool plaster before, during, and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

### 1.5 ENVIRONMENTAL CONDITIONS

- A. No plastering shall be done under unsuitable conditions of weather or temperature. No plastering shall be done when prevailing temperature is 40 degrees Fahrenheit or less.
- B. Do not install plaster during rain and, if rain commences after plastering has begun, immediately protect the plaster from rain by all means necessary until the plaster has set.
- C. Do not install plaster during wind greater than 10 mph and, if wind commences after plastering has begun, immediately protect the plaster from wind by all means necessary until the plaster has set.

## PART 2 - PRODUCTS

### 2.1 CEMENT / AGGREGATE

- A. All Interior Pool Surfaces, unless otherwise noted: Luna Quartz® tiny pebble finish by Wet Edge Technologies. Altima® quartz finish by Wet Edge Technologies. Pebble-Fina® pool finish by Pebble Technologies or approved equal.
- B. Sun Shelf: Diamond Brite Diamond Quartz finish with select aggregates and polymer modified Portland Cement and BondKote by SGM, Inc., no known equal. Color to be white.  
[www.sgm.com](http://www.sgm.com) \_800) 641-9247

## 2.2 COLOR

- A. All swimming pool plaster shall be white in color. Wet Edge Technologies shall be Luna Quartz® “Polar White”. Wet Edge Technologies shall be Altima® “White”. Pebble Technology shall be Pebble-Fina® “Classico”. Contractor to obtain written approval on selected pebble color from the local Health Department prior to installation. Submit cut sheet, color sample and written approval for review by Architect and Owner.”
- B. Sun Shelf: Color shall be White Diamond Brite Diamond Quartz Finish.

## 2.3 WATER

- A. Water for swimming pool plaster shall be clean and free from injurious amounts of acid, alkali, and organics.

## 2.4 PUMP PIT, BACKWASH PIT & SURGE CHAMBER WATERPROOFING

- A. Xypex, Miracote Miraflex Membrane C Hycrete Waterproofing System concrete additive or approved equal. Mix and apply per manufacturer’s recommendations for specific application. Color shall be Gray.

# PART 3 - EXECUTION

## 3.1 SURFACE CONDITIONS

- A. Inspection:
  - 1. Prior to Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation can properly commence.
  - 2. Verify that swimming pool plaster can be installed in accordance with the original design and all referenced standards, including proprietary application techniques and application training/certifications.
- B. Discrepancies:
  - 1. In the event of discrepancy, immediately notify the Owner's Representative.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
  - 3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive the Work.

3.2 INSTALLATION OF PUMP PIT, BACKWASH PIT & SURGE CHAMBER WATERPROOFING

- A. Provide two (2) coats of the specified gutter and surge chamber waterproofing prior to plastering the swimming pool. Prepare surfaces to receive waterproofing and cure in conformance with manufacturer's recommendations. Provide steel trowel application method to ensure uniform smooth, dense surface finish.

3.3 INSTALLATION OF POOL PLASTER

A. Indoor Pools or Spas:

1. Completion of Other Work: DO NOT commence plastering of swimming pool(s) or spa(s) until the following conditions have been met:
  - a. The Health Department has approved the pool(s) and/or spa(s) for plaster.
  - b. All work above the pool(s) and/or spa(s) is complete.
  - c. All painting in the pool area is complete.
  - d. All welding and grinding in locations adjacent to the pool area are complete.
  - e. The backwash sewer connection is complete.
  - f. All concrete pool deck construction is complete and the pool decks have been thoroughly cleaned.
  - g. The circulation pump(s) is/are operation.
  - h. The mechanical system has been flushed sufficiently to remove all dirt and debris from the piping system.
  - i. All necessary chemicals (Chlorine, Acid, Sodium Bicarbonate and Calcium Chloride) are on site and ready to use.
  - j. Obtain written approval from the Owner and the Architect.

- B. Contractor accepts all liability from damage done to the pool plaster if the pool(s) or spa(s) is (are) plaster before the completion of the above listed items or without the written approval of the Owner and the Architect.

C. POOL PLASTER AUTHORIZATION FORM:

1. The pool(s) and or spa(s) at Rockville Outdoor Recreation Pool is/are hereby approved for the installation of the pool plaster. Pursuant to the requirements of specification section 13 11 05, paragraph 3.3.

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Date

\_\_\_\_\_  
Architect / Project Manager

\_\_\_\_\_  
Date

- D. Preparation:



1. Do not apply plaster over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to the formation of a durable plaster finish.
2. Consult with manufacturer on application to specific surfaces being treated. Follow manufacturer's recommendation for curing of cast-in-place concrete or shotcrete surfaces prior to application of plaster.
3. Protect ceramic tile, decking, deck equipment, gratings, fittings and other items by suitable covering or masking.
4. Mask or remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures and similar items in place not to receive pool plaster. Following completion of plaster for each space or area remove masking. Re-install all removed items utilizing workers skilled in the trades involved.

E. Application:

1. Finish shall be applied to a uniform thickness of 3/8" to 1/2" over the entire surface. The walls shall be scratch-coated followed by a finish coat. Material applied to the floor after the walls have been applied shall be accelerated to assure uniform setting time throughout the pool surface.
2. Float the plaster to a uniform plane and trowel to a smooth, dense, impervious surface using extreme care to avoid stains.
3. Take special care in finishing around pool fittings, making sure to mask off or plug openings so as not to fill such openings with excess plaster. Be certain to completely enclose pool fittings with plaster to insure a leak-proof seal around pipes, fittings, lights, anchors, etc.
4. Accurately interface with the finish planes of items installed by other trades.
5. Quartz and pebble plaster finish is to be applied by a licensed applicator as approved by the manufacturer, and in accordance with manufacturer's training.

### 3.4 CURING

- A. Preparation: Anticipate the need for required equipment and have all such equipment immediately available for use upon completion of pool plastering.
- B. Pool Filling:
1. After the plaster has sufficiently dried and before drying has proceeded to a damaging point, cure the plaster by gradually filling the pool with water, preventing all damage to finished plaster surfaces.
  2. Flow the water continuously until the pool is filled.
  3. When the weather is hot and/or water pressure is low, keep the pool walls damp while the pool is filling.
  4. Coordinate with Contractor to ensure that the pool is continuously monitored while filling to prevent overfill.

### 3.5 EQUIPMENT ACTIVATION

- A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.

- B. For the first fourteen (14) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure that the plaster is carefully maintained after the initial fourteen day period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial fourteen day period.
- C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

### 3.6 CLEAN-UP

- A. Upon completion of swimming pool plaster, remove all materials, equipment and debris occasioned by this Work and leave the job site in a clean and presentable condition. Perform all such clean-up to the approval of the Owner's Representative.

### 3.7 WARRANTY

- A. All applicators must provide a minimum of five (5) year warranty for application and workmanship additional to the manufacturer's warranty for product.

**END OF SECTION 13 11 05**

## **SECTION 13 11 06 – SWIMMING POOL EQUIPMENT**

### **PART 1 - GENERAL**

#### **1.1 WORK INCLUDED**

- A. Swimming pool equipment items required for this Work as indicated on the Drawings and specified herein.

#### **1.2 QUALITY ASSURANCE**

- A. Qualifications of Workers:
  - 1. The entity performing the work of this Section shall have been successfully engaged in commercial pool work for at least five (5) years immediately prior to commencement of the Work.
  - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
  - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. All equipment supplied or work performed shall comply with regulations governing public swimming pools and spas as contained within International Building Code, latest edition, Maryland Department of Health and Montgomery County Health and Human Services regulations for swimming pool operation and construction, International Swimming Pool and Spa Code, Swimming Pool Code, latest edition.

#### **1.3 SUBMITTALS AND SUBSTITUTIONS**

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Required submittals include:
  - 1. Swimming Pool Safety and Maintenance as specified in Article 2.1-2.2 of this Section.
  - 2. Swimming Pool Fittings as specified in Article 2.3 of this Section.
  - 3. Wet Play Equipment as specified in Article 2.4-2.7
  - 4. Swimming Pool Deck and Mechanical Equipment as specified in Article 2.8-2.30 of this Section.
  - 5. Winterization Plan/Instructions and Summerization Plan/Instructions for all pools and equipment.
- C. Submit proof of qualifications as specified in Article 1.2.A of this Section.

- D. The equipment shown on the plans represent the first listed items in the technical specifications. The Contractor shall be responsible for all required field coordination and installation of any approved equal product to provide a fully working and warranted system. The Contractor shall submit detailed shop drawings for any products used other than the first listed specified items. Allow fifteen (15) days for initial review per swimming pool specification section 13 11 00. Contractor provided shop drawings shall include details and quality equal to the original plans and construction documents. The Contractor shall provide any and all required engineering including but not limited to structural and anchorage requirements for any proposed equipment other than the first listed specified equipment. The Contractor is responsible to provide a factory certified representative(s) to start-up and provide on-site training for all swimming pool mechanical equipment provided. Allow fifteen (15) days for initial review.

#### 1.4 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect swimming pool equipment items before, during and after installation and to protect the installed work specified in other Sections.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative.

### PART 2 - PRODUCTS

#### 2.1 SAFETY EQUIPMENT

- A. Pool Safety Signs: As required by the Department of Health. Size, layout, materials, and text to be approved by Owner. Submittal required. Placement at the pool site shall be in conformance with Health Department requirements. Two (2) sets minimum.

#### 2.2 MAINTENANCE EQUIPMENT

- A. Commercial Pool Vacuum: Provide pool vacuum cart with a 155-square foot single-cartridge filter, lid-mounted handle, separate lid-mounted bracket for electrical cord, and two rubber-tired ball bearing wheels with grease fittings. Cart and filter shall be fabricated from schedule 304 stainless steel with welds treated and passified. Provide Whisperflo pump with a 1 1/2 hp, 115/230 volt, maximum 20 amp draw @ 120 volts, single phase motor and integral trap. Pump shall be UL and NSF listed, have 2" suction and 1 1/2" discharge fittings, and have a brass priming valve with hose bib. Entire pump assembly shall be anchored to vacuum cart with two stainless steel bolts. Provide a 100 foot 10 AWG 3/C SJ electrical cord with ground fault interrupter (GFI) plus. Cord shall be wired to a double pole, 30-amp switch which shall be mounted on pump motor. Lincoln Aquatics Model # 27015, one (1) required.

#### 2.3 FITTINGS

- A. Main Drain Frame & Grate (18" x 36"): 'Daldorado' DalmaxSG-183634, Super Sump with VGB Compliant Grates, or approved equal, eight (8) required. Provide two (2) Hayward #SP-1056 1-1/2" collector tubes and two (2) #SP-1055 Hayward 1-1/2" hydrostatic relief valve, one

per main drain sump. Contractor shall provide to the Owner a Certificate of Compliance, signed by a licensed design professional, for main drain sump(s) and frame(s) and grate(s), as required by the Virginia Graeme Baker Act.

- B. Floor Return Inlet 1-1/2" Adjustable: StaRite #08417-0000, United Industries, or approved equal. Twenty two (22) required. Contractor shall field verify prior to ordering. Ten (10) additional spare covers to be provided.

## 2.4 WET PLAY EQUIPMENT

	Product	Qty.
1.	Foam Jet #WMO-104 'Crystal Fountains' or approved equal.	7
2.	Split Spurt #0010-7482 'Waterplay or approved equal.	3
3.	Hopper #0011-0839 'Waterplay or approved equal.	1
4.	Bamboo Down Jet 'Splashtacular' or approved equal. No themeing required.	1
5.	Funbrella #0010-0485 'Waterplay' or approved equal.	1
6.	Water Trough Garden 'Splashtacular' or approved equal.	1
7.	Spiral Tunnel #0010-0377 'Waterplay' or approved equal.	1
8.	'Splashtacular' Custom Activity Structure #225st or approved equal.	1

## 2.5 AQUA ZIP

- A. Aqua Zip'N Pool Adventure Rope Swim with 304SS frame, high tenacity polyester rope and recessed SS anchors, one (1) required. To be provided with one (1) Aqua Zip safety crash pad at pool edge and 4'-0" high removeable UV resistant safety padding at vertical support poles, and one (1) additional safety crash pad. Two (2) safety crash pads total.

## 2.6 SPLASHTACTULAR ACTIVITY STRUCTURE

- A. PLAY FEATURE SCOPE – (225st) See plans for layout and additional information.
1. Platform(s) and other items
    - a. (Qty 3) Square 6' x 6' Platform (108 Sq Ft) at 5', 4' and 3' Elevation
    - b. (Qty 6) Cantilever 20" x 6' Platforms (72 Sq Ft) at 6', 4' and 3' Elevation.
- B. PLAY FEATURE SPECIFICATIONS
1. Design Influence
    - a. Components and assemblies to meet ASTM and CPSC codes
  2. Steel and Fasteners
    - a. All steel supports and components to be made from a minimum of 304L stainless steel.
    - b. All fasteners and hardware to be made from 304L and 316 stainless steel.

- c. Anchor system to use two-part high strength epoxy such as Hilti RE500 or equal and stainless steel structural anchor bolts.
- d. Structural connections and feature connections placed in user-accessible areas must use flangeless connections.
- e. All fabricated steel components to be made in the United States of America.
- 3. Platforms and Decking
  - a. Platforms and decking components to be made from self-supporting fiberglass with coring added for rigidity and longevity. To have non-skid texture on all walking surfaces.
  - b. Choice of 180 colors to be offered for gel-coat on platforms.
  - c. Fiberglass components to use 20 mil minimum gel-coat and laminate thickness of ¼”.
  - d. All bridging material to be made from PVC lumber with non-skid surface on all walking surfaces.
  - e. All fabricated platforms and decking components to be made in the United States of America.
- 4. Waterslides
  - a. All slides to be made from fiberglass using a smooth gel-coat finish on the riding surface.
  - b. Choice of 180 colors to be offered for gel-coat on waterslides.
  - c. Fiberglass components to use 20 mil minimum gel-coat and laminate thickness of ¼”.
  - d. Exterior of fiberglass to have industrial automotive grade UV protective clear coating applied.
  - e. All slides to be fed with water enhancing the user experience and controller the rider.
  - f. All fabricated waterslide components to be made in the United States of America.
  - g. Activity Structure to be provided with one (1) open flume double slide, and one (1) closed tube slide with fiberglass runout.
- 5. Coatings and Graphics
  - a. Exposed stainless steel to be coated with ‘super durable’ powder coat.
  - b. Choice of 180 colors to be offered for powder coat.
  - c. All skirting panels to use UV laminated graphic-wraps with 150 dpi printed artwork.
- 6. Plumbing
  - a. Manifold to be made from stainless steel and anchored to pool floor or play equipment.
  - b. Manifold to be powder coated.
  - c. All features to be individually fed off of manifold and individually valved.
- 7. Accessibility
  - a. None see-thru skirting panels or no-climb netting to be fastened under platforms and slides under 84” tall.
  - b. Exposed under-side of platforms to be skirted with PVC mesh material.
  - c. Manifold to be hidden by skirting panels or under-deck mesh.
  - d. Custom 48” wide ADA transfer platform per plans with transfer rails and 19” maximum height platform.
  - e. All steps to be 6” rise and 14” run and a minimum clearance width of 48”.
  - f. All stairs to have a continuous handrail with a height of 34” to 38” inches.
  - g. All elevated platforms and stairs to have 42” guardrail height.

## C. INSTALLATION

1. Full Installation to be provided by fully experienced and capable team. To include all labor, materials and equipment to complete the installation of the equipment, as well as cleaning and waxing in accordance of good workmanship.

D. WARRANTY

1. All materials, components and coatings to be warranted to be free from defects in workmanship or materials and free from defects arising from process of manufacture for a period of 1 year.

2.7 SWIMMING POOL LILY PATH

A. Water Walk

1. General: The specifications for products in this section have been developed utilizing designs and data provided by PLAYTIME. All materials and components of the Water Walk system shall be designed, manufactured, and/or supplied by PLAYTIME, (303) 962-7625.
2. Materials:
  - a. Water Walk Floatables
    - 1) Provide seven (7) floatables consistent with the following theme and sizes:
    - 2) Seven (7) "Lily Pad" Floatables: 42" L x 8" H
  - b. All shall be constructed as shown on the drawings and anchored to the pool bottom to provide a floating walkway across the pool as shown in the plans. The pads are to be constructed as follows:
    - 1) High gloss vibrant colors, as approved by Owner.
    - 2) Coated foam impact attenuating protection on all surfaces
    - 3) One stainless steel U-bolt inset to a stainless steel plate inside each floatable element located in the center of each pad for connection to PLAYTIME Anchor Kit
    - 4) SS Anchor Kit connecting Floatable embed Cup Anchor. Anchor Kit shall include: One (1) 5/16" stainless steel shackle, a 5/16" eye-to-jaw swivel, 9/32" stainless steel chain (cut to length with a protective, flexible tubing. – (One per Floatable)
    - 5) Embed Cup Anchor w/ Custom Cap: Flush mounted to pool floor – (One per Floatable), see 2.8C of this section.
    - 6) Embed 7 additional cup anchors for future float walk and provide cap for each as listed in #2.b.6 above
    - 7) Provide two additional cup anchors at swimming pool for zip course. Enclosure ropes as specified on the Drawings.
  - c. Overhead Netting
    - 1) Provide overhead Netform System by InCord that spans the pool over the Water Walk suspended from the posts shown in the plans. Ropes should be fed through the holes in the column at the desired height and secured to the posts using stainless steel turnbuckles on each end to allow for height adjustment. The rope shall be 3/4" diameter and come with a steel core and have integral Schedule 40 stainless steel spreader bars to reduce sag. High density polypropylene knot connections shall be provided. All connection hardware shall be stainless steel and have strength consistent with rope.
  - d. Safety Padding
    - 1) Provide a minimum 2" thick safety padding according to the manufacturer's recommendations at the entry and exit to the Water Walk. Recommended 8'

- L (along pool edge) x 4' Deep (back from pool edge) x 1' Turndown - Refer to the drawings for the required extent of the padding or requirement of custom spacers to fit with gutter systems or other custom edge dimensions. Safety Padding shall be supplied by PLAYTIME, or approved equal.
- 2) Provide 4'-0" high removeable UV resistant safety padding at vertical support poles.
- 3) Provide Owner with two (2) additional safety pads for attic stock.
- e. Cargo Net Support Posts
  - 1) Structural calculations to support the Water Walk loads shall be supplied by PLAYTIME, or approved equal. Provide (2) 'T' frame support posts for the overhead netting system, one (1) at the Water Walk entry and one (1) at the Water Walk exit as shown on the drawings. All Water Walk posts shall be made as schedule 40, galvanized steel post with choice of powder-coating color (1 color per 4 posts). The pre-engineered posts shall have a diameter of 8" and a height of 10'-0" – 11' 0" (above pool deck). Structural calculations to support the Water Walk shall be provided by the manufacturer.
  - 2) Additive Alternate: See Section 01 10 00, 1.4.A.2; 2<sup>nd</sup> Lily Path Crossing to include all additional items above needed to install the second lily path crossing as indicated as plans.

## 2.8 ADDITIVE ALTERNATE: SWIMMING POOL SLIDE (See Section 01 10 00, 1.4.A.2)

- A. Spectrum single flume model #1810371 360 tri-deck 8 ft high (or approved equal), closed flume and powder coated construction with engineered footings. Contractor to submit shop drawings for review. Shop drawings and structural calcs to be prepared by Maryland registered structural engineered. Base bid to include all piping, connections and anchorage. Additive alternate to furnish and install the slide.
- B. Provide 4'-0" high removeable UV resistant safety padding at vertical support poles.

## 2.9 DECK EQUIPMENT

- A. Stanchion Sockets and covers: 1.90" I.D. Bronze. KDI-Paragon 38201TC, no known equal. Sixteen (16) required. Coordinate remaining 8 anchor locations around swimming pool slide and zipline with Owner for line queuing / separation. Provide two (2) spare cover and key sets.
- B. Stanchion Posts: 1.90" O.D. x .145 wall. KDI-Paragon #38106 8' post, six (6) required, and #38105 4'-6" post, four (4) required and #38301 hook and collar, no known equal. Ten (10) posts total. Coordinate location of 4'-6" posts and anchors with Owner.
- C. Commercial Cup Anchor: Spectrum #58316 or equal. Eleven (11) required. To be provided with custom fabricated Spectrum cup anchor threaded cap. Provide two (2) spare cup anchor eyebolts.
- D. Racing Lanes, 25 M: Kiefer TSP Racing Lanes 4" disc. #33.0025, no known equal. Verify color with Owner's Representative prior to ordering. 25-meter lanes. Seven (7) required. Provide vinyl covered stainless steel lane line extensions, as required, two (2) per lane line.



- E. Racing Lane Reel with Cover: KDI-Paragon #75101SS with cover #75133, no known equal. One (1) required.
- F. Moveable Lifeguard Chair: 1.90" O.D. x .065 wall. KDI-Paragon 20302, no known equal. Three (3) required.
- G. Deck Level Lifeguard Station: Paragon 1-step lookout chair, model #20350. Four (4) required.
- H. Adjustable Figure 4 Grab Rails: KDI-Paragon #30302, 1.90" O.D. x .104" wall, no known equal. Nine (9) sets required.
- I. Recessed Steps, Set of 3: Paddock custom recessed gutter steps. Nine (9) sets of three required.
- J. Handrail: Spectrum Custom length three bend handrails, 90", 66", 39", 42", 72, 1.90" O.D. x .109" wall, or approved equal. See plans, thirteen (13) required.
- K. Anchor Sockets for Grab Rails and Handrails: KDI-Paragon 28102, no known equal. Sixty-two (62) required.
- L. Stainless steel Escutcheon Plates for Grab Rails and Handrails: Spectrum Model #35214, no known equal. Sixty-two (62) required.
- M. Accessible Lift: Pentair "Aqua Tram 360" 500 lb. max lifting capacity. Furnish complete with anchors, cover, extra battery pack and transporter cart. No known equal. Two (2) required.
- N. Backstroke Pennants: 'Champion' 12" x 18" vinyl coated polyester pennants #53-006 Blue and White, Lincoln Equipment, Knorr Systems or equal. Two (2) total.
- O. Basketball Hoop: SR Smith #S-BASK-ERS-ER Commercial Basketball hoop, square tube w/ 30" setback and rock-solid anchor custom height of 48" above water level. Spectrum or equal. One (1) required.
- P. Basketball Safety Net: Justfornets.com, model JFN #18 6'-0" x 11'-0". Contractor to field verify and coordinate with Owner.
- Q. Lifelines with bouys and rope to separate aqua zip area from swimming pool, beach entry areas from main activity pool, and lily path area from activity pool. Contractor to field verify length of rope required.

Location	Length	Quantity
Activity Pool	35 feet	3
	28 feet, 9 inches	1
Swimming Pool	82 feet	1
	21 feet, 6 inches	3
	42 feet, 6 inches	1

R. Pool Cover System (Wellness Pool):

- 1. A pool cover system as described below shall be provided and shall include all the specified features, without exception. Submittal data must include complete documentation relating to all the specified features and include manufacturer's sales

literature, specification sheets, and installation/operation/maintenance manuals. Upon written request by the specifying agent, the following samples must be provided: samples of tubing used for storage reel winding tubes and end frames; a sample winding tube bearing; a sample castor wheel assembly; and a cover sample measuring at least 8" x 11", including weighted side edge, reinforced end edge, and grommet.

2. Cover Material:

- a. Material shall be woven, 10 by 10 count per inch, high-density polyethylene, ultraviolet stabilized film fabric, laminated to both sides of 1/8" thick, closed cell, medium density, white, polyethylene foam. The woven polyethylene film fabric shall be coated on both sides with an ultraviolet stabilized, chemically resistant polyethylene coating. The combination of film, foam and woven components shall be non-toxic, non-absorbent, non-permeable and buoyant. Color shall be blue on upper surface and black on under surface. In addition to the above, cover must meet the following requirements:

Thickness	1/8 inch minus or plus 10%
Foam Density	2 lbs. per cubic foot
Weight	5 oz. per square foot
*Tensile Strength	318 lbs. (ASTM 1682264)
*Tear Strength	60 lbs. (ASTM D2261-71)
*Bursting Strength: (Mullen Tester)	425 psi (ASTM 751-73)
Service Temperature	-40°F to +160°F
K Factor	.25 BTU/sq. ft.-Hr – degrees F/inch (ASTM D2326)
Reinforced Edge Tear Strength	1225 lbs. pull strength, corner to corner
Open Seam Tear Strength	70 lbs.

3. Cover Design Criteria:

- a. Cover panels shall totally cover the surface of the pool without gaps or overlaps with reinforced cutouts to accommodate rounded corners, step areas, rails, etc. Cover panels shall be of the following quantities and sizes:

<u>Qty.</u>	<u>Size</u>
3	14 feet, 7 inch x 82 feet
1	Custom width to be provided with stair fold outs.

- b. Along end and side edges of each panel, a weighted material shall be sewn in and shall be continuous, non-corrosive and conform to the flat shape of the cover. End edges shall be reinforced with a double layer of polyethylene-coated film fabric and designed in such a manner as to prevent panels from dividing when the covers are being pulled across the water. On all corners, weighted edge shall wrap corners and be itself encapsulated by the two layers of end reinforcement. The entire corner construction shall be reinforced with an 1/8" thick load dispersion plate and non-corrosive grommet.
- c. Both ends of each cover panel shall be equipped with no less than three (3) non-corrosive grommets and quick-release loops for easy connection to the storage reel or to the next cover panel. All sewing shall be ultra-violet stabilized and chemically resistant 100% polyester thread. Main body seams shall be welded, glued or heat sealed. Complete mechanical attachment with lock-stitched thread shall be required. Warning labels consistent with the recommendations of the Federal Consumer Protection Agency shall be permanently affixed to each end of each cover panel and to the sides of perimeter panels.

4. Storage Reels:

- a. The following quantity, type, and size of storage reels shall be provided:

<u>Qty.</u>	<u>Winding Tubes Per Reel</u>	<u>Length of Winding Tubes</u>
1	3	17 Foot
1	1	17 Foot

- b. Storage reel frame, winding tubes, castors, brake shafts, cranks and fasteners shall be made of type 304 stainless steel. Each reel shall have six wheels, each of which shall be 6 inches in diameter, be rated at 1150 pounds load capacity and be made of solid polyurethane. Wheels shall be lubricateable through grease fittings on stainless steel axle shafts and have stainless steel swivel yoke assemblies. The reel shall have two frame mounted, screw-type brakes with pads that lock directly to the pool deck and have a total of 18 square inches of total braking surface. Castor brakes or other types of foot-operated or lever-operated brakes will not be considered equal. Each winding tube shall be 4 1/2 inches in diameter; have a wall thickness of .120 inches; and shall consist of continuous length of tubing without joints or welds. Reels with tubes fabricated from two or more pieces of tubing joined together will not be acceptable. End frames shall be fabricated from 1 1/2-inch square Schedule 304 stainless steel box beam tubing with .120" wall thickness. To facilitate field repair, 3/8" stainless steel bolts, nuts and washers shall be used to connect major reel frame parts, wheels, brakes, bearings and winding tubes. Reels that use welding to connect these components will not be considered equal. Winding tube bearings shall be heavy duty, self-aligning, pillow block ball bearings with set screws to secure tube shafts and prevent their lateral movement. All bearings shall be lubricateable through grease fittings. Plastic surface bearings will not be acceptable.
- c. Each storage reel shall be provided with a protective cover constructed of vinyl-laminated polyester cloth, 1000 denier, totaling 13 ounces per square yard.

5. Measuring and Training:

- a. A representative of the manufacturer shall visit pool site to confirm measurements prior to fabrication of cover, and once cover is delivered, train operating personnel and supervise initial installation of cover.

6. Warranty:

- a. Cover panels shall be provided with manufacturer's three- year full replacement warranty covering defects in material and workmanship. Storage reel shall be provided with manufacturer's 10-year warranty covering defects in material and workmanship

2.10 CIRCULATION PUMP STRAINERS

- A. 'Mer-Made' FO Series FRP reducing basket strainer: one (1) 10" x 8" standard, (1) 6" x 5" standard each with acrylic lids and two (2) stainless steel strainers each. (150 lbs.)

2.11 ACTIVITY POOL CIRCULATION PUMP

- A. Paco #60123, 6" x 8" x 9.5" type LC end suction centrifugal pump, 1750 RPM 460V, 3PH; 30 HP rated at 1250 GPM @ 60 ft. TDH; 80% efficient; premium efficiency TEFC motor; epoxy coat all wet surfaces. Paco, Aurora, or approved equal. (425 lbs.) Provide with Acudrive

#AD300X-2303-N4X variable speed drive 30 HP 208V with manual bypass and fused disconnect. Coordinate mounting location to maintain desired clearances. Two (2) strainer baskets per pump to be provided.

## 2.12 ACTIVITY POOL PLAY STRUCTURE BOOSTER PUMP

- A. Jandy #JCP15-3AT-S JCP Series; 15 HP; 208V 3PH rated at 708 GPM @ 60 ft. TDH; with integral strainer. One (1) total (249 lbs.) Provide with Acudrive #AD150X-2303-N4X variable speed drive 15 HP 208V with manual bypass and fused disconnect. Coordinate mounting location to maintain desired clearances. Two (2) strainer baskets per pump to be provided.

## 2.13 ACTIVITY POOL WET PLAY BOOSTER PUMP AND MANIFOLDS

- A. Jandy #JCP05-3AT-S JCP Series; 5 HP; 208V 3PH rated at 268 GPM @ 60 ft. TDH; with integral strainer. Two (2) total (72 lbs.) Provide with Acudrive #AD050X-2303-N4X variable speed drive 5 HP 208V with manual bypass and fused disconnect. Two (2) total. Provide booster pump with 4" manifold wet play features as shown per plumbing plan. Manifold to be provided with individual isolation ball valves per feed line, pressure gauge and drain down ports for winterization. All feed lines to be routed away from existing footings as necessary. Two (2) total. Two (2) strainer baskets per pump to be provided.

## 2.14 ACTIVITY POOL FILTERS

- A. 'Paddock' #6730-V-3C vertical 3 cell stainless steel filter with manual filter control hi rate permanent media filter with 99.6 sq. ft of filter area rated at 1494 GPM at 15 GPM/sq. ft. Complete with 10" face piping, 8" backwash (with independent tank backwash). Filters to be ASME code compliant and labeled as required by Health Code. Provide all utilities, piping, valving etc. (7400 each tank) Paddock, no known equal. Provide Signet MK-515 flowsensor with digital readout. One (1) system total.

## 2.15 ACTIVITY POOL ULTRAVIOLET SYSTEM

- A. 'Evoqua' wafer UV model #WF-225-8-N, validated at 1540 GPM 8" flanged connection in-line UV with two (2) lamps at 1500 watts, 208V 1PH. Control Unit" 208V 1PH, 23" x 31" x 12" deep. (121 lbs.) Provide piping bypass, valving, ETS EZ valve strainer and installation and piping per manufacturers recommendations. One (1) system total.

## 2.16 SWIMMING / WELLNESS POOL CIRCULATION PUMP

- A. Paco #40129, 4" x 5" x 12" type LC end suction centrifugal pump, 1,750 RPM 208V, 3PH; 15 HP rated at 400 GPM @ 60 ft. TDH; 74% efficient; premium efficiency TEFC motor; epoxy coat all wet surfaces. Paco, Aurora, or approved equal. (425 lbs.) Provide with Acudrive #AD150X-2303-N4X variable speed drive 15 HP 208V with manual bypass and fused disconnect. Coordinate mounting location to maintain desired clearances.

2.17 SWIMMING / WELLNESS POOL FILTERS

- A. 'Paddock' #6726-V-2C vertical 2 cell stainless steel filter with manual filter control hi rate permanent media filter with 31.8 sq. ft of filter area rated at 477 GPM at 15 GPM/sq. ft. Complete with 6" face piping, 4" backwash (with independent tank backwash). Filters to be ASME code compliant and labeled as required by Health Code. Provide all utilities, piping, valving etc. (7,400 each tank) Paddock, no known equal. Provide Signet MK-515 flowsensor with digital readout. One (1) system total.

2.18 SLIDE BALANCE TANK CIRCULATION PUMP

- A. 'Jandy' #SHPH-2.0-3PH SH series; 2HP 208V 3PH, rated at 125 GPM at 60 ft. TDH with integral strainer. One (1) total. Provide with Danfoss variable speed drive 2HP 208V with by pass and fused disconnect. Variable speed drive shall be provided with user lockout. VFD to be programed with normal circulation flow rate of 80 GPM. Backwash and night time flow rates shall be set to non-operational hours only. 230V 3PH. One (1) total. (58 lbs) Two (2) strainer baskets per pump to be provided.

2.19 SLIDE BALANCE TANK FILTER

- A. 'Pentair' Triton #TR-140C-3 hi rate permanent media filters with 7.06 sq. ft of filter area rated at 105 GPM at 15 GPM/sq. ft. Complete with 3" manifold, 3" flanges and valved together, 3" backwash, seismic anchorage. Provide all utilities, piping, valving, etc. One (1) tank total. (1007 lbs.)

2.20 SLIDE BOOSTER PUMP STRAINERS

- A. Mer-Made' F.O. Series FRP basket strainer: one (1) 8" x 5" standard and one (1) 10" x 6" standard. Each provided with acrylic lid and two (2) stainless steel strainers each.

2.21 SLIDE 'A' BOOSTER PUMP

- A. 'Paco' #50123, 6" x 5" type 'LC' end suction centrifugal pump, 1,187 RPM, 208V, 3PH, 15HP, rated at 1,000GPM @ 45 ft. TDH; 80.24% efficient; premium efficiency TEFC motor; epoxy coat all wet surfaces. 'Paco', 'Aurora', or approved equal. (600 lbs.) Interconnect with circulation pump so it can only operate when circulation pump is on.

2.22 SLIDE 'B' BOOSTER PUMP

- A. Paco #4012A, 4" x 5" x 12" type LC end suction centrifugal pump, 1187 RPM 208V, 3PH; 7.5 HP rated at 500 GPM @ 45 ft. TDH; 80.76% efficient; premium efficiency TEFC motor; epoxy coat all wet surfaces. Paco, Aurora, or approved equal. (600 lbs.) Interconnect with circulation pump so it can only operate when circulation pump is on.

2.23 WATER CHEMISTRY CONTROLLERS

- A. Activity Pool: CAT 4000 complete system control package.
- B. Swimming Pool: CAT 4000 complete system control package.
- C. Slide Balance Tank: CAT 4000 complete system control package.

2.24 CHLORINE STORAGE / FEED SYSTEM

- A. Provide 'Chem-Tainer' 150 gallon #TC3448C; dual storage/containment tank with lid; Operating weight = 1250 lbs. Complies with Fed Reg. #40CFR-264-193 Six (6) total. Feed pumps shall be as listed below, all feed pumps shall be provided with FRP shelf brackets and hard piped to point of injection.
  - 1. Activity Pool: 'Blue and White' A1N20X-7T 91 GPD @ 100 PSI, two (2) total.
  - 2. Swimming Pool: 'Blue and White' A1N10X-7T 52 GPD @ 100 PSI, two (2) total.
  - 3. Fitness Pool Metering Pumps: (Existing) to be relocated to new storage room and plumbed to existing injection point.

2.25 CARBON DIOXIDE /FEED SYSTEM

- A. CO2 flow control units with flow adjustments from 0-200 SCFH with pressure regulator and gauges for up to 850 PSI nominal cylinder pressure and 40 PSI output to CO2 feed unit fed from storage tanks. Three (3) feed systems furnished by gas service provider. Contractor shall connect to each pool system per manufacturer's requirements. Provide within mechanical room hard wired 'Analox' #API KIT CO2 detector with audible and visual alarms, UL 1971 standard listed, one (1) total.

2.26 CARBON DIOXIDE STORAGE SYSTEM

- A. Two (2) 750 lb. storage tanks with remote fill ports (operating weight = 680 liquid lbs. each) tanks to be furnished by gas service provider.

2.27 ELECTRICAL

- A. Provide all electrical wiring, conduit, panel(s), starter/disconnect interconnect(s), etc. as required for proper equipment installation per manufacturer's recommendations and shop drawings. Coordinate all work with other trades as required. Refer to electrical plans for additional information.

2.28 EYEWASH/SHOWER

- A. Provide Haws model #8300-8309 CRP, corrosion resistant combination eyewash shower. See MEP sheets for water supply piping. Two (2) required.

2.29 BACKWASH PIT

- A. Existing backwash pit with P-trap outlet to storm.

2.30 AUTO FILL SYSTEM

- A. Aquatic Controller Technologies ELS-810 fill system to include 2" bronze body solenoid control valve, bronze trim flanged globe pattern, 24V solenoid wiring shall be wired to water level controller. Provide 6" air gap at fill point. Three (3) total. Connected to source down stream of reduced pressure backflow preventor (by others).

2.31 POOL OPERATOR WORKSTATION

- A. 'Total Lab Solutions' epoxy countertop with drop-in sink and two (2) end cabinets. Furnish with wall mounted five (5) faucets 'Broen Boss' or approved equal. See MEP plans for water supply piping.

2.32 SLIDE BALANCE TANK TABLET CHLORINE FEEDER / STORAGE

- A. 'PPG' Accu-Tab Powerbase chlorination unit model 1030 with 67.2 lbs./day output. 30 lb. storage. Complete with piping, valving, venturi injection and ¾ HP booster pump. NSF 50 certified. One (1) total.

2.33 SWIMMING POOL HEATER: ADD ALTERNATE

- A. 'Lochinvar' #CPN1442, 1,440,000 BTU input, 2" gas connection, 2 ½" flanged water influent/effluent connections and 12" intake and exhaust with category IV double wall venting with drain tees. One (1) total (1,042 lbs.) As part of the add. Alternate the contractor shall provide engineered shop drawings for the permitting and installation of the new heater and modification of the existing gas and venting system which shall include:
  - 1. Lochinvar stacking support rack system, 4" reinforced concrete equipment pad and anchors. Rack to be positioned over existing pool heater. Contractor may reposition heaters as necessary.
  - 2. All new necessary plumbing fittings, valves, temperature sensors, thermometers, pipe hangers, etc for the connection of the new pool heater to the swimming pool circulation plumbing.
  - 3. The modifications required to tie in the new heater exhaust venting to the existing roof vent system.
  - 4. The modifications required to tie in the new heater intake venting to the existing roof intake system or propose alternate intake system.
  - 5. The modifications required to the existing gas supply plumbing and regulator system within the mechanical room to provide the necessary gas volume to each heater. The gas line modifications will not be required to allow both heaters to be used simultaneously.
  - 6. Conduit, feeder lines, disconnects and interlock connections to the chemical controller and electrical panel per the manufacturer's installation requirements.
  - 7. Pipe hangers and support systems for related pool plumbing and all utilities.

8. All modifications required by the manufacturer for a fully functioning heating system with start-up and training per the manufacturer's guidelines.

## **PART 3 - EXECUTION**

### **3.1 SURFACE CONDITIONS**

#### **A. Inspection:**

1. Prior to installing the items of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Verify that the swimming pool equipment items may be installed in strict accordance with original design, pertinent codes and regulations, and the manufacturers' recommendations.

#### **B. Discrepancies:**

1. In the event of discrepancy, immediately notify the Owner's Representative.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies are fully resolved.
3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Installer of existing conditions as fit and proper to receive its Work.

### **3.2 INSTALLATION**

- A. Supply and install items of swimming pool equipment in strict accordance with applicable codes and regulations, the original design, and the manufacturer's published recommendations, anchoring firmly and securely for long life under hard use.
- B. Coordinate with other trades to insure all imbedded items are set plumb and flush. Railing ends must have anchor sockets and escutcheon plates. Be certain that deck equipment and railings are properly bonded prior to imbedding.
- C. All equipment shall be braced and/or anchored to resist a horizontal force acting in any direction using the criteria shown on the Drawings.

### **3.3 INSTRUCTION**

- A. The Contractor shall provide a factory certified representative(s) to start-up and certify proper installation, operation and full warranty status of all swimming pool mechanical equipment. The Contractor shall provide not less than two 8-hour days of on-site training for facility staff in the operation and maintenance of the swimming pool mechanical equipment and systems. The two 8-hour days shall be separated by a minimum of seven calendar days and be completed within the 14-day start-up period.



- B. The contractor shall provide a factory certified representative(s) to perform instruction training for the first year's winterization of the pools. This will occur in the fall, after the first summer's operation of the pools and on a schedule approved by the Owner. The contractor shall provide no less than four (4) 8-hour days of on-site work with the facility staff. The four days may be separated based on the Owners' needs to winterize the different pools at different times.
- C. The contractor shall provide a factory certified representative(s) to perform instruction and training for the second year's summerization of the pools. This will occur in the subsequent spring after the first summer's operation of the pools and on a schedule approved by the owner. The contractor shall provide no less than four (4) 8-hour days of on-site work with the facility staff. The four days may be separated based on the Owners' needs to summerize the different pools at different times

### 3.4 EQUIPMENT ACTIVATION

- A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.
- B. For the first fourteen (14) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure that the plaster is carefully maintained after the initial fourteen-day period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial fourteen-day period.
- C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

### 3.5 CLEAN-UP

- A. Upon completion of swimming pool equipment, remove all debris, materials and equipment occasioned by this Work to the approval of the Owner's Representative.

**END OF SECTION 13 11 06**

## SECTION 13 11 07 – SWIMMING POOL MECHANICAL

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Swimming pool mechanical piping as indicated on the Drawings for circulation and filtration systems, pool water heating systems, chemical control systems, booster pump systems and appurtenances.
- B. Domestic water system from points of connection within swimming pool mechanical equipment room to make-up water system.
- C. Filter backwash piping to point of connection with backwash retention pit as required.

#### 1.2 QUALITY ASSURANCE

##### A. Qualifications of Workers:

- 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
- 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
- 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

##### B. Standards:

- 1. All equipment supplied or work performed shall comply with International Building Code, latest edition.
- 2. Work shall be performed in accordance with the applicable editions of all National, State and local codes, laws, regulations and ordinances, including the following:
  - a. American National Standards Institute (ANSI).
  - b. American Society for Testing Materials (ASTM).
  - c. American Waterworks Association (AWWA).
  - d. American Welding Society (AWS).
- 3. Do not construe anything in the Drawings or Specifications to permit Work not conforming to these requirements.

#### 1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitutions shall conform with requirements of Article 1.10.A of Section 13 11 00.

- B. Required submittals include:
  - 1. Pipe and Fittings as specified in Article 2.2 of this Section.
  - 2. Valves as specified in Article 2.3 of this Section.
  - 3. Pressure / Vacuum Gauges as specified in Article 2.4 of this Section.
  - 4. Pipe Hangers and Supports as specified in Article 2.5 of this Section.
  - 5. Sleeves and Waterstops as specified in Article 2.6 of this Section.
- C. Submit proof of qualifications as specified in Article 1.2.A of this Section.

#### 1.4 PRODUCT HANDLING

- A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.
- C. Protection: Use all means necessary to protect swimming pool mechanical items before, during and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

#### 1.5 JOB CONDITIONS

- A. Cooperate with entities performing Work specified in other Sections to so that no conflict of new construction or occupied space may occur. Should any installation Work be done without such craft coordination, that Work so installed shall be removed and re-installed.

### PART 2 - PRODUCTS

#### 2.1 PRODUCT QUALITY

- A. Materials and equipment shall be new, of the best quality for the purpose intended, and shall be clearly marked with the manufacturer's name and nameplate data or stamp and rating. As far as practicable, materials and equipment shall be of one manufacturer.

#### 2.2 PIPE AND FITTINGS

- A. PVC Schedule 40: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be white. Dura, Lasco, or approved equal.
- B. PVC Schedule 80: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be gray. Dura, Lasco, or approved equal.

- C. CPVC Schedule 80 Influent/Effluent Heater Piping: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be gray. Dura, or Lasco.
- D. PVC DR25: Conforming to ATSM D-1784, use with epoxy coated bell and spigot-type fittings or epoxy coated mechanical joint by flange adapters with epoxy coated cast iron fittings as specified in Article 2.02 (F), below. Johns-Manville "Big Blue", Diamond Plastics, or approved equal.
- E. Copper Tubing: ASTM Specification B-88, hard drawn, with ANSI Standard B16.22 wrought copper fittings.
- F. Steel: ASTM Specification A-120, Schedule 40 black or galvanized pipe with ASTM A-47 150 lb. banded malleable iron threaded fittings.
- G. Cast Iron: ASTM Specification B16.1, cast iron flanged fittings, provide epoxy coating as required for use with chlorinated water.

## 2.3 VALVES

### A. Ball Valves:

- 1. For pool system: True-Union design, PTFE seat material with FPM or FKM Double O-ring stem seals, locking handle, NSF certified. PVC schedule 80 body for below grade installation. PVC Schedule 80 body for above grade installation. Furnish ball valves on all pipe diameters 2 1/2" or less with a rating of at least 200psi at 73° F, Asahi, or approved equal.
- 2. For copper pipe system: 3-piece full-port Bronze body valve with Teflon seat, 'Apollo', 'Nibco' or approved equal.

### B. Butterfly Valves:

- 1. Epoxy coated cast or ductile iron body, 316 stainless steel disc and stem, viton seat material, furnish hand wheel/gear operators on all valves 8" and larger. DeZurick, Keystone, Ipex or equal.
- 2. PVC body, PVC disc and EPDM construction suitable for chlorinated water applications. Stem shall be of 316 stainless steel and non-wetted. Valves shall be self-gasketed design with a convex sealing arrangement. Valves 1-1/2" – 10" shall be rated to 150 psi and 12" valves shall be rated to 100 psi at 70°F. Asahi Pool-Pro, no known equal.

- C. Check Valves: Wafer-type, epoxy coated cast or ductile iron body, 316 stainless steel plates and shaft, viton seat material. Centerline, Metraflex, or approved equal.
- D. Surge Chamber Float Valve: EPD #2-0020-019 Float Control Valve, 8" line size, one (1) required, and one (1) 10" line size as manufactured by Environmental Products Division of Doughboy Recreational, Rancho Cucamonga, CA, Neptune Benson, or Mer-Made.
- E. Surge Chamber Isolation Valve: Butterfly valve, tapped lug style, bronze body, stainless steel stem, bronze disc, phenolic back-up ring, EPT seat material. Provide stainless steel shaft extension, shaft housing and tool operator located 2'-0" above floor level with deck access grate and waterproof gear operator as required. Asahi, Keystone, Spears, Ipex or approved equal.

- F. RP Backflow Preventer: Febco #835-B for 2" and smaller; #825 for 2-1/2" and larger. Febco, Watts, or approved equal. Must comply with pertinent requirements of the City of Rockville and Washington-Suburban Sanitary Commission.
- G. Make-up Water Control: Cla-Val make-up water control valve with ductile iron body/cover, bronze trim, globe pattern, Buna-N rubber seals. Pilot system materials to consist of bronze/brass with stainless steel wetted parts and Buna-N rubber seals.
- H. System to include: 100-01 Hytrol valve, CF1-C1KX float control, X46A flow clean strainers, and copper tubing with brass fittings. Float linkage and float rod shall be PVC and brass. Base plate shall be 316 stainless steel. The plastic float shall be provided with 8' PVC rod and stops and a brass counter weight. Provide model #124-01AKX available KSI (714) 754-044.

## 2.4 PRESSURE / VACUUM GAUGES

- A. Furnish and install pressure and vacuum gauges on the discharge and suction sides of all pumps. 2" or 2 1/2" diameter dial, liquid filled, bottom connection, chrome ring, shut-off cock and snubber. Ranges shall be selected to indicate between mid-point and two-thirds of maximum range under design conditions. Marsh, Terice, or approved equal.

## 2.5 PIPE HANGERS AND SUPPORTS

### A. General:

- 1. The requirements of this Section relates to various requirements of the Agreement, General and Supplementary Conditions, Specifications, Drawings, and modifying documents which are part of the Construction Contract. Responsibility for coordination of all such applicable requirements will be that of the Contractor.

### B. Description:

- 1. This section provides guidelines and limitations for the support of all mechanical, electrical, plumbing or architectural items from the building structure, and for the seismic bracing of such items.
- 2. Design and install all support and bracing systems as required for the swimming pool systems. Provide for attachment to portions of the building structure capable of bearing the loads imposed. Design these systems to not overstress the building structure.

### C. Quality Assurance:

- 1. Design and install all support systems to comply with the requirements of the International Building Code.
- 2. Pipe hanger system is to be designed by a professional engineer licensed in the State of Maryland.
- 3. For the support bracing of mechanical, electrical and plumbing system, refer to "Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems" by Sheet Metal and Air conditioning Contractors National Association, Inc., (SMACNA) for guidelines.

D. Submittals:

1. Submit shop drawings for all substructures and attachment methods.
2. Submit proposed alternative methods of attachment for review and approval by the Architects, prior to deviating from the requirements given below.
3. For all pipe hangers and support systems, submit structural calculations and details which include all resultant forces applied to the building structure and are prepared and signed by the Contractor's licensed Maryland professional engineer. Calculations will be reviewed for compliance with design criteria, not for arithmetic.

E. Materials:

1. Use Kin-Line, Grinnel, or approved equal.
2. Support all pipelines individually with hangers, each branch having at least one hanger. Lateral brace as noted and required.
3. Support piping near floor with steel stanchions welded to end plates secured to pipe and floor or use of pre-engineered galvanized Unistrut system.
4. Support vertical piping at each floor level. Install coupling in piping at each support. Coupling shall rest on and transmit load to support. Isolate copper from steel supports with vinyl electrician's tape around pipe and coupling.
5. Use Stoneman "Trisolator," Unistrut, or approved equal, isolators at each hanger and other support points on bare copper tubing system.
6. For PVC pipe, space hangers four (4) feet apart for pipe sizes 1" and under, five (5) feet apart for pipe sizes 1-1/4" to 2", and six (6) feet apart for pipe sizes over 2". Space hangers for horizontal pipes at a maximum of six (6) feet for copper 2" and smaller and for steel 1-1/4" and smaller; ten (10) feet for copper 2-1/2" and larger and for steel 1-1/2" and larger.
7. Size hanger rods, screws, bolts, nuts, etc., according to manufacturer's sizing charts.
8. Trapeze hangers may be used for parallel lines.
9. Use galvanized plated hangers, attachments, rods, nuts, bolts, and other accessories in pool mechanical room, high humidity areas, or where exposed to weather. Hot dip galvanize all items which are not factory furnished. Plating for hinged movements must be done at the factory.
10. Lateral Bracing: To prevent swaying of the piping systems, provide angle iron bracing and anchor into wall or overhead framing. Piping shall be braced or anchored in such a way as to resist a horizontal force of 50% of its operating weight in any direction.
11. Do not use wire or other makeshift devices for hangers.
12. Furnish all substructures and fasteners required to comply with the limitations given below. Use material as specified in the various sections and as appropriate to their use.

F. Guidelines & Limitations:

1. Each Contractor will coordinate the load requirements from all subcontractors so that no combination of loads overstresses the building structure or exceed the limitations given below.
2. Concrete Structure:
  - a. Support all loads hung from concrete structure with cast-in-place inserts, unless drilled-in anchors are specifically approved in writing prior to placing the concrete.
  - b. Concrete anchors must not penetrate into reinforcing bars. Where the anchors boring indicates the presence of reinforcing bar, patch hole with an epoxy type grout and relocate anchor 12 diameters away.

- c. Individual expansion anchors cannot support any loads greater than 300 pounds or manufacturer's specified load capacity without approval.
- 3. Steel Structure:
  - a. Hang no more than 20 pounds per metal deck rib in any span.
  - b. At beams, hang all beam loads greater than 40 pounds concentric to beam, not off the flanges.
  - c. Attached no loads to the beams or girders greater than the following without specific approval from the architect;
    - 1) Roof beams and girders: 300 pound point load or 600 pound total load for a single span.
- G. Pipe Bracing and Supports:
  - 1. Design and install pipe supports to not ground out vibration and sound isolation systems.
  - 2. All items of mechanical and electrical equipment 60" or more in height are to be supported and braced whether such bracing is shown or not.

## 2.6 SLEEVES AND WATERSTOPS

- A. Provide sleeves where work of this Section passes through fire rated partitions, floors and ceilings, concrete slabs or exterior of structure. Caulk clearance space using sealant appropriate for application in conformance with manufacturer's recommendations and Title 24 of Maryland Code of Regulations. 3m, Dow Corning, or approved equal. In lieu of sleeves and caulking, "Link Seal" products may be used.
- B. Provide prefabricated waterstops as indicated on the Drawings at all pipe penetrations through structures containing stored water (i.e., swimming pools, balance/surge tanks, etc.) to insure leak-proof seals.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Inspection:
  - 1. Prior to Work of this Section, carefully inspect the installed Work of other trades and verify that such work is complete to the point where this installation may properly commence.
  - 2. Verify that items of this Section may be installed in accordance with the original design and referenced standards.
- B. Discrepancies:
  - 1. In the event of discrepancy, immediately notify the Owner's Representative.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive his work.

### 3.2 ABBREVIATIONS AND SYMBOLS

- A. Abbreviations and symbols on the Drawings are those most commonly used. Obtain clarification from the Owner's Representative on any questionable items before bid.

### 3.3 GENERAL PIPING REQUIREMENTS

- A. Size any section of pipe for which size is not indicated or any intermediate section erroneously shown undersized the same size as the largest pipe connecting to it. Sizes listed are nominal.
- B. Cut pipe accurately to job measurements and install without springing or forcing, true to line and grade, generally square with building and/or structures and adequately supported to prevent undue stress on pipe, fittings and accessories.
- C. Make changes of direction with manufactured fittings. Street ells, bushings, reducing flanges, close nipples or bending of pipe is not allowed.
- D. Use great care to install piping in accordance with best practice. Plastic pipe shall be "snaked" in trenches to allow for thermal expansion.
- E. All above grade, below grade and buried or imbedded PVC shall be installed using solvent weld fittings. Also, each and every fitting and pipe end shall be prepared with solvent primer. Fittings shall be joined individually and with enough time between assembly of adjacent joints to allow them to seal solidly. After joining, an even ring of primer must be visible around the entire fitting. If any fittings are installed without visible primer, the fitting shall be removed and discarded and piping recut, rechamfered and joint made up again using a new fitting. All procedures, methods and techniques used to make up solvent weld joints shall be in strict accordance with manufacturer's recommendations.
- F. Arrange pipe and hangers to allow for expansion, contraction and structural settlement. No pipe shall contact structure except penetrations as shown on the Drawings.
- G. Provide dielectric connections between copper and dissimilar metals. In copper systems, threaded piping including connections to equipment shall be brass pipe and fittings. Install dielectric connections in vertical sections of piping only.
- H. Run pipe full size through shut-off valves, balancing valves, etc. Change pipe size within three (3) pipe diameters of final connection to control valves, fixtures and other equipment.
- I. Provide unions or flanges at connections to equipment, on service side of valves and elsewhere as required to facilitate ease of maintenance.
- J. Locate equipment shut-off valves as close to equipment as possible maintaining easy valve access.



- K. Make all connections between domestic water systems and equipment or face piping with approved backflow prevention devices as required.
- L. All PVC pipe exposed to direct sunlight shall be painted with two coats of Exterior Acrylic Semi-Gloss Paint, Sherwin Williams or equal. Color to be selected by the Architect. Prior to painting the PVC pipes, the exterior of all PVC pipes shall be wiped with Methyl Ethyl Ketone, or an approved equal, to remove the glaze from the pipes.
- M. The Main Drain pipe must run either level or uphill from the main drain sump, through the surge pit (if applicable) and then to the circulation pump.

### 3.4 TRENCH EXCAVATION AND BACKFILL

#### A. Excavation:

- 1. Excavate and backfill trenches as required for the Work of this Section. Conform to requirements of Section 13 11 01.
- 2. The Contractor shall perform all excavation of every description and of whatever materials encountered, to the depths indicated on the Drawings or as necessary. The Contractor shall dispose of the excavated materials not required or suitable for backfill as directed, and shall perform such grading as may be necessary to prevent surface water from flowing into the trenches. The Contractor shall provide adequate equipment for the removal of storm or subsurface waters, which may accumulate in the excavated areas.

#### B. Trenching:

- 1. Excavate trenches to lines and grades as indicated on the Drawings and with banks as nearly vertical as practicable.
- 2. Bottoms of trenches shall be accurately graded to provide uniform bearing on undisturbed soil for the entire length of each section of pipe.
- 3. The width of the trench at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench wall shall not exceed 8" on either side of the pipe. The width of trench above the top of pipe may be wider if necessary.
- 4. Over-depth excavations shall be filled with tamped sand to required grades.
- 5. Excavations of five (5) feet or more in depth shall be shored or supported in conformance with rules, and regulations of State and Federal Governments. Shoring shall be constructed, maintained and removed in a manner to prevent caving of the excavation walls or other load on the pipe.

#### C. Backfilling:

- 1. Material for backfilling of pipes shall be approved granular material less than two (2) inches in diameter obtained from the excavation. No material of a perishable, spongy or otherwise unsuitable nature shall be used as backfill.
- 2. Backfilling of pipe trenches shall commence immediately after installation and testing to preclude damage to the installed pipe. Backfill around pipe shall be carefully placed so as not to displace or damage the pipe, and shall be carried up symmetrically on each side of the pipe to one foot above the top of the pipe. The material shall be carefully compacted or consolidated before additional backfill is placed.

3. Backfill above an elevation of one foot above the top of pipe in conformance with requirements of Section 131101. Material for balance of backfill shall be approved granular material less than six (6) inches in diameter taken from the excavation.
4. Unless otherwise indicated on the Drawings, all pipe shall have a minimum of eighteen (18) inches of cover.

### 3.5 GENERAL EQUIPMENT REQUIREMENTS

- A. Position equipment to result in good appearance and easy access to all components for maintenance and repairs.
- B. Install piping, flues, breeching and ducts so that they do not interfere with equipment access.
- C. Install level, secure and out of moisture. Provide shims, anchors, support straps, angles, grouted bases, or other items as required to accomplish proper installation.
- D. All screws, nuts, bolts and washers shall be galvanized, cadmium plated or stainless steel. After fabrication, hot-dip galvanize unfinished ferrous items for outdoor, below grade or other use subject to moisture.
- E. Extend 1/2" Schedule 40 black steel pipe lubrication tubes from all hard-to-reach locations to front of equipment or to access points. Terminate with proper type of lubrication fitting.

### 3.6 VALVES AND STRAINERS

- A. If no shut-off is indicated, provide ball valves at inlet connections and balance valves at outlet connections to fixtures and equipment. Provide proper valve trim for service intended.
- B. Use no solder end valves unless noted otherwise; provide adapters in copper tubing systems.
- C. Locate valves with stems above horizontal plane of pipe. In general, locate valves within six (6) feet of floor, out from under equipment, in accessible locations with adequate clearance around hand wheels or levers for easy operation.
- D. Provide all valves, cocks and strainers, full pipe size unless indicated otherwise.
- E. Provide hand wheel operators on all valves 8" and larger, under 6" lever operators may be used.
- F. Provide tool operated valve with stainless steel shaft extension and 'on deck' tool operation for surge chamber butterfly isolation valve.

### 3.7 IDENTIFICATION OF PIPING

- A. Identify each valve by laminated, block lettered/numbered tag with hole and brass chain mounted on valve stem or handle. Tag to be a minimum of 2" in size. Valves and plumbing lines shall be labeled clearly with the source or destination descriptions.

- B. Install an identification chart in a plastic or other weatherproof framed enclosure, which schematically illustrates the proper operation of all piping systems and indicates number and location of all valves and control devices within the system.
- C. The direction of flow for the recirculation equipment shall be labeled clearly with directional symbols such as arrows on all piping in the equipment area. Where the recirculation equipment for more than one pool is located on site, the equipment shall be marked as to which pool the system serves. Color coding must comply with local health department requirements.

### 3.8 TESTS

- A. Perform tests in presence of Owner's Representative with no pressure loss or noticeable leaks.
- B. Do not include valves and equipment in tests. Include connection to previously tested sections if systems are tested in sections.
- C. Perform tests as follows:

<u>System</u>	Test Pres- sure	Test Medium	Duration
Skimmer Lines and Lawson Main Drain sump lines	20psig	Water*	4 hours
Pool Piping	50 psig	Water*	4 hours
Pool Main Drains	30 psig	Water*	4 hours
Domestic Water	150 psig	Water*	4 hours

**\*Never test PVC pipe or fittings with air or other gases, always use water.**

### 3.9 PIPE MATERIAL APPLICATION

- A. PVC Schedule 40: Below grade swimming pool piping and domestic water piping up to 12" line size; use standard solvent weld fittings.
- B. PVC Schedule 80: Above grade swimming pool piping up to 12" line size; use solvent weld Schedule 80.
- C. Type L Hard Copper: Above grade domestic water piping.
- D. CPVC Schedule 80; Pool Heater Piping.
- E. Schedule 40 Steel: Natural gas piping.

### 3.10 CUTTING AND DRILLING

- A. Cutting or drilling necessary for installation of Work of this Section shall be done only with approval of Owner's Representative.

3.11 CLOSING-IN OF UNINSPECTED WORK

- A. Do not cover or enclose Work before testing and inspection. Re-open Work prematurely closed and restore all Work damaged.

3.12 QUIETNESS

- A. Quietness is a requirement. Eliminate noise, other than that caused by specified equipment operating at optimum conditions, as directed by Owner's Representative.

3.13 FLUSHING OF LINES

- A. Flush or blow out pipes free from foreign substances before installing valves, stops or making final connections. Clean piping systems of dirt and dust prior to initial start-up.
- B. Just prior to plastering the pool, under the observations of the IOR, the pool mechanical system shall be flushed using the pool circulation pump. Circulate water through the mechanical system until the effluent water from the pool return heads runs clean.

3.14 CLEAN-UP

- A. After all Work has been tested and approved, the Swimming Pool Subcontractor shall thoroughly clean all parts of the equipment installations, including all pool pipe and fittings in the pool mechanical room. Exposed parts shall be cleaned of cement, plaster and other materials and all grease and oil spots removed with solvent.
- B. The Swimming Pool Subcontractor shall remove debris from the Project site. Cartons, boxes, packing crates and excess materials not used, occasioned by this work shall be disposed of to the satisfaction of the Owner's Representative.
- C. If the above requirements of clean up are not performed to the satisfaction of the Owner's Representative, the Owner reserves the right to order the work done, the cost of which shall be borne by the Swimming Pool Subcontractor.

**END OF SECTION 13 11 07**

## SECTION 13 11 08 – SWIMMING POOL ELECTRICAL

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Provide labor, materials and equipment as required to install the swimming pool electrical system including but not limited to:
1. A complete and operable system of service equipment, switchboards, panelboards, conduits, switches, time clocks and wiring for power and lighting, motor control centers.
  2. Junction and/or pull boxes, conduits, disconnects, starters, contactors, wiring and connection of all motors and mechanical equipment, including connection and wiring of line voltage controls associated with the mechanical systems.
  3. Complete grounding system as required and shown on the Drawings.
  4. Complete equipotential bonding system as required and shown on the Drawings.
  5. Adjusting and preliminary operation of the completed electrical system as described in Article 3.6, A of this Section.
  6. Cleaning of all completed Work and installation adjustment of all trim and decorative items.

#### 1.2 QUALITY ASSURANCE

- A. Qualifications of Workers:
1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
  2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
  3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Ordinances and Codes: Materials and construction shall conform with all applicable code requirements, including:
1. National Electrical Code, latest edition; Electrical Safety Orders of the State of Maryland; Department of Industrial Relations; regulations of the State Fire Marshal; rules and regulations of the Board of Underwriters of the Pacific, UL 50, 50E and NEMA 250 rating. Montgomery County Manuals on Swimming Pool Construction and Operation, State of Maryland COMAR 10.17.01 and International Swimming Pool and Spa Code (latest edition).
  2. City of Rockville and International Building Code, latest edition.
- C. Verification of Conditions:

1. The locations shown on the Drawings are diagrammatic only and the exact finish location of equipment and materials cannot be indicated. Therefore, locations of all Work and equipment shall be verified to avoid interferences, preserve head room and keep openings and passageways clear. Changes shall be made in locations of equipment and materials which may be necessary to accomplish these purposes.

D. Preliminary Operations and Testing:

1. Motor driven equipment shall be tested for correct rotation and completion of all connections.

1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitutions shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Required submittals include:
  1. Conduit and Fittings as specified in Article 2.2 of this Section.
  2. Panelboards as specified in Article 2.8 of this Section.
  3. Circuit Breakers as specified in Article 2.9 of this Section.
  4. Motor Starters as specified in Article 2.12 and 2.13 of this Section.
  5. Fuses as specified in Article 2.15 of this Section.
  6. Time Clocks as specified in Article 2.16 of this Section.
  7. Ground Fault Circuit Interrupters as specified in Article 2.17 of this Section.
  8. NEMA Type 4x corrosion resistant UL 50, 50E & NEMA 250 rating for enclosures, cabinets and boxes as specified in Article 2.11 & 2.18 of this Section.
- C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.4 PRODUCT HANDLING

- A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.
- C. Protection: Use all means necessary to protect swimming pool electrical materials before, during, and after installation and to protect the installed Work specified in other Sections.

**PART 2 - PRODUCTS**

2.1 MATERIALS, GENERAL

- A. Materials shall be new, in unbroken packages and bear the U.L. label of approval.

- B. Equipment of one type shall be by same manufacturer. One type of equipment for classifications such as:
1. Switchboards, panels, buss duct, disconnect switches and allied items.
  2. Conduit.
  3. Wire.
  4. Conduit fittings.
  5. Fixtures of the same general type.
  6. Wiring devices.

## 2.2 CONDUIT AND FITTINGS

- A. Conduit within or under buildings or where exposed outdoors shall be rigid metal threaded, hot dipped galvanized, or U.L. approved plastic except where noted otherwise on the Drawings. Metallic conduit shall be of the same metal between outlets or terminals.
- B. Use flexible metallic conduit only for short connections of motors and where specifically called for on Drawings. Maximum length shall be 40". Use only liquid tight flexible metal conduit. Install an unbroken #12 AWG insulated copper grounding conductor in each liquid tight flexible conduit with permanent connection at motor junction box and service panel ground.
- C. Protect, before installation, metallic conduit runs in all slabs laid on grade or in contact with the earth or exposed in damp locations, with two (2) heavy coats of asphaltum rust-resisting compound.
- D. Encase conduits 2-1/2" or larger run underground, outside, or under buildings, in concrete envelopes a minimum of 3" thick, except as indicated otherwise on Drawings or stubouts. Conduits 2 and smaller laid 18" below finish surface in soil.
- E. Low voltage runs underground outside buildings, 1-1/4" or smaller, may be G.I. or sherardized steel conduit, with machine applied wrapping equal to double wrap or Scotch-Wrap #50 tape, half lapped and quadrupled at joints in lieu of concrete encasement.
- F. Service conduits through foundations or concrete members shall run through metal sleeves with adequate clearances for full movement of the conduit. Do not run conduits through footings.
- G. Secure conduits run exposed on surfaces with one hole heavy-duty straps or fasten with matching fittings to inserts or trapezes, parallel to building walls and ceilings.
- H. Cap all conduit or duct stub-outs with standard factory caps; except cap threaded steel conduit with B.I. water pipe caps in outdoor locations.
- I. Use conduit fittings as manufactured by Crouse-Hinds Company, Appleton Electric Co., or approved equal.
- J. Employ U.L. liquid tight fittings for use with liquid tight flexible metal conduit.
- K. Use unions as manufactured by Appleton, O-Z/Gedney, or approved equal. The use of running threads will not be permitted.

- L. Exposed conduit and fittings in chemical rooms shall be nonmetallic rigid polyvinyl chloride, corrosion resistant rated suitable for installation in corrosive environments and in accordance with the latest NEC requirements.

## 2.3 EQUIPOTENTIAL BONDING/GROUNDING

- A. Bond together and ground to a common ground at a single point all metallic conduit, piping systems, pool reinforcing steel, metal parts of ladders, lifeguard stands, handrails and their supports and the like. The solid copper bonding conductor shall not be smaller than #8 copper.

## 2.4 WIRING CONNECTIONS

- A. Make connections without strain on conductors, allowing the conductors to take a natural position after connections or taps are made. Include all strand of wire in making the connection.
- B. Make connections for wiring by one of the following means:
  - 1. Make all taps or connections to conductors with compression type connectors except those smaller than #8 B&S gauge may have soldered connections. Solderless connections for #10 AWG or smaller may be used and shall be "Scotchlok", Buchanan, or approved equal. For #8 AWG or larger, they shall be T&B "LockTite", Burndy "Versitaps", or approved equal.
  - 2. All cable or conductor terminal lugs shall be Burndy "Quicklug", Ilsco, or approved equal. Two piece stamped lugs and solder lugs will not be approved.
  - 3. Paint taped splices in damp or outdoor locations with two (2) coats of insulating paint.
  - 4. Tag all branch circuit wires with circuit number at the panelboard and at each point of use with linen or plastic tags.

## 2.5 CONDUCTORS

- A. Copper RHW or THW. Do not make splices between boxes.

## 2.6 COLOR CODING

- A. Neutrals (identified conductors shall be white).
- B. Phase conductors shall be red for phase B; blue for phase C.
- C. Green shall be used for mechanical equipment and receptacle grounds only.

## 2.7 MOTOR WIRING

- A. Make final connections to motors with the required AWG (Minimum #12), Flamenol machine tool wire, 19 strand. Control wiring for equipment shall be Flamenol machine tool wire, 19 strand of required AWG. Provide corrosion resistant junction boxes at each item of equipment to change from standard building wiring to machine tool wire.



- B. Phase motors as proper in direction of rotation.

## 2.8 PANELBOARDS

- A. Panelboards shall be flush or surface mounting as indicated with circuit breakers as shown on panel schedule, hinged lockable doors, index card holders and proper bussing.
- B. Where indicated on the drawings, panelboards shall be furnished with subfeed breakers and/or lugs, split bussing, contractors, time switches, relays, etc., as required.
- C. All panelboards shall be keyed alike.
- D. All panelboard enclosures shall be corrosion resistant rated in accordance with the latest NEC requirements.
- E. Furnish corrosion resistant panelboard enclosures and terminal cabinets with Yale 46515 flush locks and LL806 keys except where indicated otherwise herein. Fasten the trim to panel boards and terminal cabinet by means of concealed, bolted or screwed fasteners accessible only when the door is open.
- F. Panelboards 208/120 volt, three phase, 4 wire, S/N or 120/240 volt, single phase, 3 wire, S/N.

Panelboard types as manufactured by:

Westinghouse	Type B10B
General Electric	Type NLAB
Square D	Type NQOB

- G. Panelboards for 480/277 volt, three panes, 4 wire, S/N.

Panelboard types as manufactured by:

Westinghouse	Type Pow-R-Line 2
General Electric	Type AE
Square D	Type NEHB
Sylvania	Type NH1B
I.T.E.	Type Approved Equal

- H. Panelboard for bussing sizes thru 400 amp shall be 20" wide surface mounted type. Recess mounted type shall have a 20" wide (maximum) recess metal enclosure with trim plate cover extending 1" on all sides of enclosure. Depth shall be 5-3/4" nominal. Height of panel as required for devices.
- I. Provide 6" additional gutter space in all panels where double lugs are required, or where cable size exceeds bus size. Minimum bottom gutter space shall be 6" high. 12" additional gutter space may be required for aluminum feeders where used.
- J. Panelboards shown on the drawings with relays, time clocks or other control devices shall have a separate metal barriered compartment mounted above panel with separate hinged locking door to match panelboard. Provide mounting sub-base in cabinet for control devices and wiring terminal strips.

- K. Panelboard shall have a circuit index card holder removable type, with clear plastic cover. Index card shall have numbers imprinted to match circuit breaker numbers.

## 2.9 CIRCUIT BREAKERS

- A. Breakers shall have a minimum short circuit interrupting rating of 10,000A symmetrical for panelboard voltage thru 240 volt and 14000A for panelboards thru 600 volts or as specified on the drawings. In no case shall the interrupting rating be less than the bus withstand rating unless noted otherwise on the drawings.
- B. Circuit breakers as manufactured by the following companies only are acceptable:
  - 1. General Electric Company
  - 2. Square D Company
  - 3. Westinghouse Company
  - 4. I.T.E. Company
- C. Circuit breakers shall be arranged in the panels so that the breakers of the proper trip settings and numbers correspond to the numbering in the panel schedules on the drawings. Circuit numbers of breakers shall be black-on-white micarta tabs or other previously approved method. Circuit number tabs which can readily be changed from front of panel will not be accepted. Circuit number tabs shall not be attached to or be a part of the breaker.
- D. Where two or three pole breakers occur in the panels, they shall be common trip units. Single pole breakers with tie-bar between handles will not be accepted.
- E. All circuit breakers shall be padlockable in the "off" position. Locking facilities shall be riveted or mechanically attached to the circuit breaker (submit sample for approval). Other means of attachment shall not be accepted without prior written approval of Architect.
- F. Where branch circuit breakers supply the power to motors and signal systems, the breakers shall be furnished with lockout clips, mounted in the "on" position. The breakers shall be able to trip automatically with lockout clips in place.
- G. Panelboard circuit breakers shall be bolt-on type.

## 2.10 BUSSING

- A. Bussing shall be rectangular cross section copper, or full-length silver or tin-plated aluminum.
- B. Bussing shall be braces to withstand symmetrical short circuit ratings as follows or as noted on drawings. In no case shall bus short circuit bracing be less than specified circuit breakers.
- C. Each panelboard shall be equipped with a ground bus secured to the interior of the enclosure. The bus shall have a separate lug for each ground conductor. No more than one conductor shall be installed per lug.

2.11 POOL MECHANICAL EQUIPMENT ENCLOSURES, TERMINAL CABINETS & MISC CABINETS

- A. All pool mechanical equipment enclosures, terminal cabinets and miscellaneous cabinets in the pool mechanical room or chemical storage rooms shall be corrosion resistant rated in accordance with the latest NEC requirements. Enclosures and all cabinets shall be flush mounted (except where noted a surface) of the size indicated on the drawings, and complete with hinged lockable doors and the number of 2-way screw terminals required for termination of all conductors. Terminal cabinet locks to operated form same key used for panelboards. The trim to terminal cabinets shall be fastened by means of concealed bolted or screwed fasteners accessible behind door to terminal cabinets. Terminal cabinets shall have 5/8" plywood backing.
- B. Provide engraved nameplate on each enclosure and cabinet indicating its designation and system (i.e., Swimming Pool - Panel 'SP').

2.12 MOTOR CONTROL INDIVIDUAL STARTERS

A. Manual Motor Starters:

- 1. Provide flush or surface mounting manual motor starters with number of poles and size of thermal overload heaters as required for the motor being controlled (equipped with overload heaters, one for each motor lead). Back boxes shall be supplied with all flush mounting starters whether they are toggle type requiring only a 4" square outlet box or the larger type requiring a special box and cover designed to accept the particular unit. All box types shall be corrosion resistant rated in accordance with the latest NEC requirements.
- 2. Unless otherwise noted on the drawings, all manual starters for single phase motors, smaller than 1 h.p., shall be the compact toggle type. Manual starters for all single phase motors, 1 to 5 h.p., and all three phase motors up to 5 h.p. shall be the heavy duty type.
- 3. Where manual motor starter is shown with pilot light, the pilot light shall be installed in a separate outlet box adjacent to the starter outlet, and engraved nameplate in indicate function of pilot light.
- 4. The following motor starters as manufactured by:

Manufacturer	Single Phase 1HP and Below	Others
Arrow Hart	Type RL	Type LL
General Electric	CR 101	Class CR 1062
I.T.E.	Class C10, C11 or C12	Class C20
Square D Company	Class 2510, Type A	Class 2510, Type B & C
Westinghouse	Type MS	Type A100
Allen Bradley	Approved Equal	Approved Equal.

B. Individual Magnetic Motor Starters:

- 1. Magnetic motor starters shall be A.C. line voltage, across-the-line units in a corrosion resistant rated enclosure in accordance with the latest NEC requirements.

2. All starters located outside of a building whether or not indicated shall be W.P. (weatherproof), and all starters noted W.P. shall be furnished in a corrosion resistant rated stainless steel enclosure in accordance with the latest NEC requirements.
3. Starter shall be horsepower rated for the motor controlled, and shall be equipped with properly sized overload elements. Every pole shall be with overload element.
4. Verify the exact motor current and voltage characteristics with the Contractor supplying the motor before installation of a starter.
5. Each starter shall be equipped with "Hand-Off-Auto" switch or stop-start pushbutton as required.
6. Coils shall be designed to operate on voltage indicated on control diagrams and have built-in-under the voltage release for coil circuit to drop motor starter off the line when the line voltage drops below normal operating voltage.
7. The coil control circuit shall be independently fused, sized to protect coil.
8. Starters to be equipped with running pilot light indication with a "Push-to-Test" feature.
9. Magnetic starters shall have a minimum of two auxiliary contacts. Additional auxiliary contacts shall be provided as required to comply with the requirements of the wiring diagrams on the electrical and mechanical drawings and the description of the function in the Mechanical Section of the Specifications.
10. Starters shall comply with NEMA standards, size and horsepower ratings as indicated on drawings.
11. The following types of magnetic motor starters as manufactured by:

<b>Manufacture</b>	<b>Type</b>
General Electric	Class CR 106
I.T.E.	Class A20
Square D Company	Class 8536
Westinghouse	Type A200 (Size 4 Max.) or Class II-200 (Sizes 5-8)

### 2.13 INDIVIDUAL COMBINATION MOTOR STARTERS

- A. Combination starter shall incorporate fused disconnect switch and individual magnetic motor starter. Combination starters shall be mounted in a corrosion resistant rated enclosure in accordance with the latest NEC requirements.
- B. Starters shall comply with NEMA standards, size and horsepower ratings as indicated on drawings General Electric, Square D, Westinghouse or I.T.E.
- C. The disconnect handle used on combination starters shall control the disconnect device with the door opened or closed. The disconnect handle shall be clearly marked as to whether the disconnect device is "ON" or "OFF", and shall include a two-color handle grip, the black side visible in the "OFF" position indicating a safe condition, and the red side visible in the "ON" position indicating an unsafe or danger condition.
- D. All starters used in combination starters shall be manufactured in accordance with the latest published NEMA standards, sizes, and horsepower ratings. These starters shall be furnished with three melting alloy type thermal overload relays.
- E. Thermal units shall be of one-piece construction and interchangeable. The starter shall be inoperative if a thermal unit is removed.

2.14 MOTOR CONTROL CENTER, INTERLOCKS AND CONTROL DEVICES

- A. Refer to mechanical and plumbing drawings and specifications and provide all control devices including timeswitches, relays and interconnection of starters as required.
- B. Mount all relays and timeswitches in a separate compartment in motor control center unless otherwise indicated.
- C. Whether shown on mechanical and plumbing drawings or control center schedules or not, where motors are controlled by external devices (i.e., thermostats, relays, float or pressure switches, etc.) or interlocked with other motors, each motor starter to be equipped with a "Hand-Off-Auto" selector switch in starter cover. Other starters equipped with a "Start' Stop" pushbutton station in starter cover. The Contractor shall be responsible to submit a complete and detailed set of shop drawings, electrical schematic design along with electrical component cut sheets from the MCC panel or the interlock control device manufacturer. RSD Total Control: Allan Pearson 949-380-7878, South Coast Controls: Anthony Ellis 714-998-5656 or approved equal.

2.15 FUSES

- A. Fuses shall be dual element, current limiting type, U.L. Class RK5 unless otherwise indicated on the drawings. Provide one spare set of fuses of each size and type in each motor control center.

2.16 GROUND FAULT CIRCUIT INTERRUPTERS

- A. Minimum rating shall be 20 amperes, 125V, 5 milliampere trip setting, Class A per UL943.
- B. Manufacturer to be Crouse-Hinds, Leviton, or approved equal.

2.17 BOXES

- A. Boxes shall be of the size required by ordinances or larger, must be corrosion resistant in accordance with the latest NEC requirements where concealed or exposed on ceilings or walls.
- B. Outlets to be surface where wiring is exposed and flush in areas where conduit is concealed.
- C. Provide surface outlets with proper corrosion resistant surface covers. Box and cover shall be deep enough to provide at least 1/4" clearance between back of device and back of box. Where box contains more than one device, use a corrosion resistant rated gang box with proper cover in accordance with the latest NEC requirements. Surface outlet boxes shall be of the threaded hub type wherever below 8'0".
- D. If necessary for cable installation, additional pull boxes or junction boxes may be installed in accessible locations. Exposed pull boxes and junction boxes shall be corrosion resistant rated in accordance with the latest NEC requirements.
- E. Where exposed to weather pull boxes larger than outlet boxes are required, galvanized code gauge sheet steel boxes may be used with covers attached by brass machine screws may be used. Boxes exposed to the weather shall be approved for the purpose, and conduit entrances

shall be on the bottom made by means of an interchangeable hub with gasket and adapter nut. Pull boxes not shown on Drawings may be added only after approval of size and location is obtained.

- F. For outlets exposed to weather or where noted, cast outlet boxes shall be Crouse-Hinds, Appleton, or approved equal. Boxes shall have proper number and size hubs. Device plates, covers, adapters and boxes shall be as manufactured by Crouse-Hinds, Appleton, or approved equal.
- G. Exposed junction boxes, outlet boxes and pull boxes for pool chemical rooms shall be non-metallic suitable for a corrosive environment and in accordance with the latest NEC requirements.

## 2.18 IDENTIFICATION MARKINGS

- A. Plainly mark all motor and electrical appliance control equipment indicating the equipment controlled with laminated tags at least 2' x 2' in size.
- B. Provide laminated plastic nameplates on panelboards on the outside of the door at the top indicating panel designation and feeder source.
- C. Provide laminated plastic nameplates on distribution switchboards and motor control centers at the top center indicating panel designation and feeder source.
- D. Identify each distribution switchboard and motor control center circuit breaker with a laminated plastic nameplate indicating its' use.
- E. Type panelboard directories on the forms provided with the equipment, indicating the use of each branch circuit breaker.
- F. Fasten all laminated plastic nameplates to surfaces with two (2) or more screws.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Verify conditions at the Project site before submitting bid. Be responsible for providing all necessary wiring for the new electrical systems. Wherever wiring is being disrupted due to remodeling or changes, reconnect existing and provide new wiring circuits to accomplish a fully operable system at no additional cost to the Owner.

### 3.2 COORDINATION

- A. The Drawings are essentially diagrammatic and indicate the desired location, size, routes, connection points, etc., and are to be followed as closely as possible. Proper judgment must be exercised in executing the Work so as to provide the best possible installation in the available space and to overcome difficulties, limitations or interference wherever encountered. Be responsible for the correct placement of this Work, the proper location and connection in

relation to Work of other trades, for determining the exact location of all conduits, outlets and equipment, and for installing the conduits in such a manner as to conform to the structure, avoid obstruction, preserve headroom and keep openings and passageways clear. Particular attention is directed to the close coordination required on exposed Work. Locations shown on Architectural or Mechanical Drawings if different than those shown on Electrical Drawings should be communicated to the Owner's Representative in writing for clarification.

### 3.3 INSTALLATION

- A. Trenching and Backfill: Conform with requirements of Section 13 11 01. Provide minimum cover as required by Code.
  - 1. Conduit Installation:
  - 2. Conduit and metallic raceway systems shall be mechanically and electrically continuous from sources of current to all outlets in a manner to provide a continuous grounding path. Close ends of conduit during construction to prevent entrance of dirt or moisture.
  - 3. Securely fasten conduit to the building construction within three feet of each outlet and within every ten feet thereafter. Secure it to boxes, cabinets, pull boxes, terminals with two locknuts and ends equipped with bushings or a terminal fitting. Cut square with ends carefully reamed.
  - 4. Make bends or elbows so that the conduit will not be injured or flattened.
  - 5. Use insulated metallic bushings in all places where bushings are required.
  - 6. Run exposed conduits level or plumb and parallel to the construction members of the building. No cutting across or diagonal runs will be permitted. Neatly surmount structural obstructions encountered on conduit runs by the use of fittings or pull boxes.
  - 7. Identify feeder conduits by stamped metal tags secured to exposed section of conduit in main or sub-panels.
  - 8. Make up all threaded conduit joints gas and watertight with conductive sealer except conduit above ground in dry indoor locations.
  - 9. Rigidly support all boxes independently of the conduit system.
- B. Connections to Equipment:
  - 1. Fully connect, in an approved manner, all electrical outlets, apparatus, motors, equipment, fixtures, wiring devices and appliances whether they are installed under the Electrical Contract or not, which require electrical connections, to the corresponding electrical system outlet.
  - 2. Where the Work of this Section requires connections to be made to equipment that is furnished and set-in-place under other Sections, obtain such roughing-in dimensions from the manufacturer or supplier of each item as required and assume full responsibility for the installation of the connections thereto.

### 3.4 ADJUSTMENT AND CLEAN-UP

- A. Preliminary Operation: Should the Owner's Representative deem it necessary to operate the electrical installation or any part thereof prior to Substantial Completion of the Work, consent to such preliminary operation and supervise conduction of same. Subcontractor shall pay all costs occasioned by such operation. Preliminary operation shall not be construed as an acceptance of any Work installed under this Contract.

- B. Clean-up: Upon completion of the Work of this Section, immediately remove all swimming pool electrical materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

**END OF SECTION 13 11 08**



## SECTION 13 11 65 – FIBERGLASS WATERSLIDE

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Design, manufacture and installation of the fiberglass waterslide indicated on the Drawings, specified herein, and as necessary for proper completion, including, but not necessarily limited to:
1. Fiberglass flume components.
  2. Flume structural support systems.
  3. Foundations as required for flume structural support systems.

#### 1.2 QUALITY ASSURANCE

- A. Qualifications of Suppliers and Personnel:
1. The waterslide flume supplier shall have at least five (5) years experience in the fabrication of fiberglass waterslides.
  2. The waterslide flume installer shall have at least five (5) years experience in the installation of fiberglass waterslides.
  3. All welding shall be performed by operators who are qualified as prescribed in "Qualification Procedure" of the American Welding Society, and welding shall be performed only under field welding or shop welding.
- B. Codes and Standards: In addition to complying with all applicable codes and regulations, comply with pertinent recommendations contained in:
1. Code of Maryland Regulations 09.12.60 Amusement Attractions and 09.12.63 Water Slides Erected Permanently or Temporarily in the State.
  2. ASTM standard F2376-22.
  3. Waterslide flumes shall conform to requirements of the "Suggested Health and Safety Guidelines for Recreational Water Slide Flumes," July 1981, as published by the U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, GA.
  4. "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings," of the American Institute of Steel Construction.
  5. "Code for Welding in Building Construction," of the American Welding Society.
  6. "Specifications for Architecturally Exposed Structural Steel," of the American Institute of Steel Construction.
  7. "Manual of Standard Practice for Detailing Reinforced Concrete Structures," Publication ACI 315-74 of the American Concrete Institute.
  8. "Structural Concrete for Buildings," Publication ACI 301-72 of the American Concrete Institute.
- C. Where provisions of pertinent codes and standards conflict with this Specification, the more stringent shall govern.

### 1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in accordance with the requirements of Section 01 33 00.
- B. Shop Drawings: Within thirty (30) calendar days of issuance of Notice to Proceed, and before any materials are delivered to the job site, submit the following shop drawings to the Owner's Representative for approval and Building Department review:
  - 1. Slide path design with X, Y and Z (elevation) coordinates.
  - 2. Flume component details, including interface at slide entry and exit.
  - 3. Flume structural support system details.
  - 4. Foundation plan and details as required for flume structural support.
  - 5. Structural calculations stamped and sealed by State of Maryland licensed Structural Engineer.
- C. Show all shop erection details including cuts, copes, connections, holes, threaded fasteners, rivets and welds.
- D. Show all welds, both shop and field, by the currently recommended symbols of the American Welding Society.
- E. All shop drawings and calculations shall be certified and sealed by a Professional Engineer, registered and licensed as same in the State of Maryland.
- F. The slide manufacturer shall certify to the Owner's Representative that the depth and configuration of the receiving pool is acceptable and compatible with all known safety standards for the manufacturer's designed product.
- G. Proofs of Compliance: Submit proofs of compliance to the Owner's selected testing laboratory in accordance with Section 014400.

### 1.4 PRODUCT HANDLING

- A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.
- C. Protection: Use all means necessary to protect fiberglass waterslide components and support systems before, during, and after installation and to protect the installed work of all other trades.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative and at no additional cost to the Owner.

### 1.5 GUARANTEE / WARRANTY

- A. All work of this Section shall be warranted against all defects of material and/or application for a period of one (1) year from date of acceptance. Any failures that may occur within this warranty period, due to defective installation and/or materials, shall, upon written notification of such failure, be immediately repaired or replaced.

## PART 2 - PRODUCTS

### 2.1 FIBERGLASS FLUME COMPONENTS (Acceptable manufacturers include Splashtacular, Whitewater West Industries, Columbus, Ohio, or ProSlide Technology, Ottawa, Ontario.)

#### A. Fiberglass Laminate Materials:

1. Gelcoat: Interior gelcoat shall be a high quality isophthalic polyester gel, .02" in thickness, with added ultraviolet inhibitors.
2. Spray Up Lamination:
  - a. First Step- Resin #010W2209:
    - 1) Gelcoat- 18 to 24 mils wet.
    - 2) 3 oz. chop/square foot.
    - 3) 18 oz. woven roving.
    - 4) Allow to set.
  - b. Second Step- Filled Resin #010W1817:
    - 1) 1-1/2 oz. chop/square foot, apply balsa or wood reinforcement.
    - 2) 1-1/2 oz. chop/square foot over entire area.
    - 3) Exterior gelcoat application to cover.
3. Structure: 3/16" to 1/4" body thickness, 1/4" to 3/8" flange thickness, minimum 32 oz. / square foot weight.

#### B. Joints, Connections and Seams:

1. Flume to flume joints shall be fastened with 3/8" stainless steel bolts, washers (2 per bolt) and self-locking nuts.
2. Flume to support system connections shall be made with stainless steel hardware.
3. Fiberglass seams shall be made up using waterproof caulking to be provided by fiberglass slide manufacturer.

#### C. Color: Manufacturer shall provide standard color samples to Owner's Representative for selection as a part of the shop drawings. Color shall be integral to the fiberglass and the same top and bottom (inside and out).

#### D. Ride Configuration: The preliminary slide layout has been developed utilizing a 32 inch enclosed aqua tube body flume. Slide A Length = 174.40 ft. and height = 24 ft. Slide B: Length = 80.43 ft. and slide height and platform height = 24 ft.

#### E. Required Components: All waterslide configurations shall be furnished with the following components:

1. Slide entry section / start piece.
2. Pool entry section / end piece / slide runoff.
3. Factory pre-drilling of all sections.
4. Waterproof caulking as required for seams.
5. Stainless steel assembly hardware.

### 2.2 FLUME STRUCTURAL SUPPORT SYSTEM

#### A. Components: The flume structural support system shall consist of all elements necessary to safely and securely support the fiberglass waterslides from the slide entry to the receiving pool, including, but not limited to:

- B. Concrete footings and foundations.
  - 1. Columns and support arms.
  - 2. Support yokes.
  - 3. Connecting hardware.
- C. Design:
  - 1. Structural support system shall be designed to safely support the fiberglass slides given the following design criteria: Seismic, wind speed, and live loading per IBC, latest edition for the State of Maryland.
  - 2. All concrete footings/foundations shall have a minimum 28-day compressive strength of 4,000 psi.
- D. Bolts and Nuts:
  - 1. High Strength Bolts:
    - a. All high strength bolts shall meet the requirements of ASTM A-325.
    - b. Use high strength friction bolts for all bolted connections unless otherwise indicated.
    - c. Make bolt holes 1/16 inch larger than nominal bolt diameter.
  - 2. Machine Bolts and Anchor Bolts: All machine bolts and anchor bolts shall meet the requirements of ASTM A-307.

## 2.3 PAINT FOR STRUCTURAL SUPPORT SYSTEMS

- A. Fabrications should arrive at site shop primed and ready to receive final paint coats per manufacturer's recommendations.

## 2.4 OTHER MATERIALS:

- A. All other materials, not specifically described but required for a complete installation of fiberglass waterslides, shall be new, free from rust, first quality of their respective kinds, and subject to the approval of the Owner's Representative.

# PART 3 - EXECUTION

## 3.1 SURFACE CONDITIONS

- A. Inspection:
  - 1. Prior to installation of the work of this Section, carefully inspect the installed work of other trades and verify that all such work is complete to the point where this installation may properly commence.
  - 2. Verify that fiberglass slides and structural support systems may be fabricated and erected in strict accordance with the original design, the approved Shop Drawings and the referenced standards.
- B. Discrepancies:
  - 1. In the event of discrepancy, immediately notify the Owner's Representative.

2. Do not proceed with fabrication or installation in areas of discrepancy until all such discrepancies are fully resolved.

### 3.2 FABRICATION

- A. General: Fabricate all fiberglass slides and structural support systems in strict accordance with the approved Shop Drawings and the referenced standards.
- B. Shop Cleaning and Priming:
  1. Shop paint all structural steel one coat with the exception of the following:
    - a. Steel to be encased in concrete.
    - b. Surfaces to be field welded.
    - c. Contact surfaces to be high strength bolted.
  2. Thoroughly clean all steel to be encased in concrete.

### 3.3 GRADING, EXCAVATION AND BACKFILL

- A. Conform with requirements of Section 131101 and in strict accordance with the approved Shop Drawings.

### 3.4 INSTALLATION OF FOOTINGS AND FOUNDATIONS

- A. Conform with requirements of Section 131102 and install in strict accordance with the approved Shop Drawings.

### 3.5 WELDING

- A. General:
  1. For details of joints, comply with requirements for AWS joints accepted without qualification tests.
  2. Use ASTM A-233, E-70 series electrodes.
  3. Follow applicable sections of AWS specifications.
- B. Types of Welds (unless otherwise noted):
  1. Make all fillet welds 3/16 inch minimum.
  2. Make all butt welds full penetration welds, using back-up or chip and back-weld.

### 3.6 ERECTION

- A. General: Erect all fiberglass waterslides and structural support systems in strict accordance with the approved Shop Drawings and all pertinent regulations and standards.
- B. Tolerance: Align all structural steel straight, plumb, and level with a tolerance of one in 500.
- C. Touch-up: After erection is complete, touch-up all shop priming coats damaged during transportation and erection, and prime all field welds, using the priming paint specified for shop priming.

- D. Fiberglass Joints: All flange to flange connections shall be made utilizing the waterproof caulking supplied by the fiberglass manufacturer and shall be joined in such a way as to provide for a safe and matless ride.

### 3.7 CLEAN-UP

- A. Upon completion of the work of this Section, immediately remove all fiberglass, structural support system materials, debris and rubbish occasioned by this work to the approval of the Owner's Representative and at no additional cost to the Owner.

**END OF SECTION 13 11 65**

## SECTION 13 31 23 PRE-ENGINEERED TENSILE SHADE STRUCTURES

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this section.

#### 1.2 SUMMARY

- A. The shade structure contractor shall be responsible for the design, engineering, fabrication, and supply of the work specified herein. An authorized distributor of the manufacturer shall be responsible for the installation of the work specified herein. The intent of this specification is to have only one single contractor be responsible for all the above functions.

#### 1.3 REFERENCES

- A. Shade structures must comply with the latest revision of applicable codes and regulations including IBC 2018. or the latest revision required by the city.
- B. American Society for Testing Materials (ASTM)
- C. American Welding Society: Structural Welding Code AWS D1.1: Symbols for Welding and Nondestructive Testing AWS 2.3.
- D. International Accreditation Services (IAS) of the manufacturer.
- E. American Institute of Steel Construction (AISC): Specifications for the design, fabrication and erection of structural steel.
- F. OSHA – Occupational Safety and Health Administration Steel Erection Standard 29 CFR 1926 Subpart R-Steel Erection.
- G. PCI - Powder Coating Institute.
- H. SSPC – The Society for Protective Coatings.
- I. Architecturally Exposed Structural Steel (AESS) - as defined by AISC

#### 1.4 SUBMITTALS

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by unsubmitted or late submittals or the return of incomplete or incorrect submittals.

- B. Provide proof of installed reference sites with five structures for similar scope of project and installation that are engineered to IBC 2018 specifications, or the latest revision required by the city, Include in reference list sizes and design style of structures with install dates and project locations.
- C. Provide product data and a minimum of 7 fabric samples to demonstrate fabric color range and powder coat color selections.
- D. General submittal:
  - 1. Submit a set of engineered drawings and a set of engineered calculations. Indicate Dimensions, Materials, Bolted Connections. Shop drawings will be certified, stamped and sealed by a structural engineer.
- E. Foundation design:
  - 1. The shelter shall be set on prepared foundations designed by an engineer retained by the manufacturer using the column reactions provided by the manufacturer.
- F. Anchor bolts:
  - 1. Anchor bolts shall be provided by manufacturer.
  - 2. Hooked anchors are not permitted per AISC requirements.
- G. Provide proof of all quality assurance items per 1.05 including:
  - 1. A list of at least three reference projects of similar scope and scale that have been installed a minimum of 5 years.
  - 2. Proof of IAS certification for the manufacturer.
  - 3. Proof of a Corporate Safety Program along with an Injury & Illness Prevention Program for the manufacturer.
  - 4. Proof of Corporate Quality Control Manual for the manufacturer.

## 1.5 QUALITY ASSURANCE

- A. A single shade contractor shall design, engineer, manufacture and erect the fabric shade structures including the foundations.
- B. The Contractor shall have at least 10 years, “not combined” experience in the design, engineering, manufacture, and installation of structures, engineered with similar scope and a successful construction record of in-service performance.
- C. Manufacturer shall be accredited by the IAS (International Accreditation Service) for Structural Steel Fabrication under UBC 97 & 2000 Section 1701.7 and IBC 2018 Section 1704.2.2.
- D. The shade manufacturer shall have a Corporate Quality Control program and manual describing their complete quality assurance program.
- E. All bidders must have an in-house warranty & service department and local distributor to assist in repairs and service calls.



## 1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for shade structures shown on the project drawings in relation to the property survey and existing structures and verify locations by field measurements prior to construction for shade structures.
- B. Each area location with dimensions will be provided so that the shade manufacturer can review and update installation pricing in accordance with site conditions. The shade manufacturer will need to determine/verify what access is available to the installation site for various required equipment. Since locations are not determined at time of bid, updated installation pricing may be required.
- C. Verify depth of footing excavations in relation to potentially hazardous existing soil.

## 1.7 WARRANTY

- A. The successful bidder shall provide a 12-month warranty on all labor and materials.
- B. A supplemental warranty from the manufacturer shall be provided for a period of 10 years (prorated) on fabric and 10 years on the structural integrity of the steel from date of substantial completion. All invoices are to be paid in full.
- C. The warranty shall not deprive Owner of other rights under the provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by Contractor under requirements of the Contract Documents.

## PART 2 – PRODUCTS

### 2.1 GENERAL

- A. Scope of Work: Refer to project quotation.

Shade Structures shall be manufactured by TensoShade, LLC. or approved equivalent and include the structural steel frame, fabric roof, steel cables, all fasteners, and installation of structure(s) including project management and foundations.

Contact: TensoShade, LLC.  
17595 W Blanco Rd. Ste 300  
San Antonio, Texas. 78232  
Attn: Irving Allande  
(210) 888-0128,  
[Info@TensoShade.com](mailto:Info@TensoShade.com)  
[www.TensoShade.com](http://www.TensoShade.com)

- B. To qualify as an approved equivalent, submit product documentation, fabric samples, and all quality assurance criteria as noted herein, as specified in the IFB document, Division 01

"Substitution Procedures", and Section 1.5. No substitutions will be allowed after award of bid without Architect and Owners' express approval.

- C. The shade structure shall conform to the current adopted version of the International Building Code 2018 and local agency additions and amendments.
- D. All shade structures are engineered and designed to meet a minimum of 5 lbs./sf<sup>2</sup> snow load, a minimum of 90 mph wind load, Exposure C and a live load of 5 lbs./sf<sup>2</sup>. All shade structures shall be engineered with a zero-wind pass-through factor on the fabric. When ASD Steel Design Method is used based on IBC 2018 Section 1605.3.1 the Dead + 0.75 of Live + 0.75 of Wind Load cases must be combined.

## 2.2 FABRIC STRUCTURE

### A. Steel:

- 1. All steel members of the shade structure shall be designed conforming to the current adopted version of the International Building Code 2018 and local agency additions and amendments.
- 2. All connections shall have a maximum internal sleeves tolerance of .0625 inches using high tensile strength steel sections with a minimum sleeve length of 6 inches.
- 3. All non-hollow structural steel members shall comply with ASTM A-36. All hollow structural steel members shall be cold formed, high strength steel and comply with ASTM A-500, Grade C. All steel plates shall comply with ASTM A-572, Grade 50. All galvanized steel tubing shall be triple coated for rust protection using an in-line electro plating coat process. All galvanized steel tubing shall be internally coated with zinc and organic coatings to prevent corrosion.

### B. Bolts:

- 1. All structural framing connections of the shade structure shall be designed and made with high strength bolted connections for field assembly only with no field welding.
- 2. Columns & Beams: ASTM A500 Grade C Structural Steel tube.
- 3. Plates: ASTM A572 Grade 50.
- 4. Fasteners:
  - a. Structural fasteners shall be zinc plated. Structural fasteners shall be hidden within framing members wherever possible.
  - b. Exposed fasteners shall be powder coated by manufacturer prior to shipment to match frame or roof colors as applicable.
  - c. Manufacturer shall provide extra structural and roofing fasteners.
  - d. Bolts: ASTM A325 Grade B or SAE J249. Grade 8.
  - e. Nuts: ASTM A563 high strength nuts.
  - f. Stainless Steel Bolts: ASTM F-593, Alloy Group 1 or 2.
  - g. Stainless Steel Nuts: ASTM F-594, Alloy Group 1 or 2.
- 5. Column Anchors:
  - a. ASTM F1554 Grade 55.

- b. Unless columns are direct buried, columns shall be anchored directly to concrete foundation with a minimum of four anchor rods to meet OSHA requirement 1926.755(a)(1).

C. Welding:

1. All shop-welded connections of the shade structure shall be designed conforming to the current adopted version of the International Building Code 2018 and local agency additions and amendments.
2. Structural welds shall be made in compliance with the requirements of the "Prequalified" welded joints where applicable and by certified welders. No onsite or field welding shall be permitted.
3. All full penetration welds shall be continuously inspected by an independent inspection agency and shall be design conforming to the current adopted version of the International Building Code 2018 and local agency additions and amendments.
4. All welds shall be free of burrs and inconsistencies.

D. Powder coating:

1. Galvanized steel tubing preparation prior to powder coating shall be executed in accordance to solvent cleaning SSPC-SP1. Solvent such as water, mineral spirits, xylol, toluol, which are to be used to remove foreign matter from the surface. A mechanical method prior to solvent cleaning prior to surface preparation shall be executed according to Power Tool Cleaning SSPC-SP3 and utilizing wire brushes abrasive wheels and needle gun, etc.
2. Carbon structural steel tubing preparation prior to powder coating shall be executed in accordance to commercial blast cleaning SSPC-SP6 or NACE #3. A commercial blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, mill scale, rust, coating, oxides, corrosion, products and other foreign material.
3. Powder coating shall be sufficiently applied, with a minimum three mils thickness and cured at the recommended temperature to provide proper adhesion and stability to meet salt spray and adhesion tests as defined by the American Society of Testing Materials.
4. Powder used in the powder coat process shall have the following characteristics:
  - a. Specific Gravity: 1.68 +/- 0.05
  - b. Theoretical coverage: 114 +/- 4ft<sup>2</sup>/lb/mil
  - c. Mass loss during cure: <1%
  - d. Maximum storage temperature: 80°F
5. TIGER Drylac® powder coating systems shall be applied in accordance with the manufacturers' specifications. Primer should be fused only and then top coated with the selected powder coat to ensure proper inter-coat adhesion.

E. Tension Cable:

1. Steel cable is determined based on calculated engineering load.
2. For light and medium loads, 1/4" (nominal) galvanized 7x19 strand cable to be used.
3. For heavy loads, 3/8" (nominal) galvanized 7 x 19 cable to be used.

F. Fabric Roof Systems

1. UV Shade Fabric

- a. UV shade fabric is made of a UV stabilized Synthesis® Commercial 95 Shade cloth HDPE high-density polyethylene mesh. Mesh shall be lock-stitch knitted with monofilament and tape yarn filler to ensure that material will not unravel if cut. Panels to be at least 9ft wide.
- b. Fire Testing: Fabric shall conform and pass the ASTM E-84 (Class A), California Fire Marshall and NFPA No. 225, and UBC No. 8-1.
- c. The fabric knot is to be made using monofilament and tape filler, which has a weight of 340g per square meter.
- d. Shade cloth designed to provide UV block ranging from 91% to 98% creating safer outdoor daytime environments which can be utilized for longer periods.
- e. Manufacturer to provide owner with product information and pricing to order additional fabric directly if desired.

2. Fabric Properties:

- a. Life Expectancy: A minimum of 10 years continuous exposure to the sun
- b. Fading: Minimum fading after 5 years (3 years for red and yellow)
- c. Fabric Mass: 10 1/2 oz/sqft (340g/sm)
- d. Fabric Width: 9.8425 (3m)
- e. Roll Length: 164.04 (50m)
- f. Roll Dimensions: 62.99"x16.5354" (160 cm x 42 cm)
- g. Roll Weight: +/- 122 lbs
- h. Minimum Temperature: -22°F
- i. Maximum Temperature: +167°F

3. Stitching & Thread:

- a. All sewing threads are to be double stitched.
- b. Thread shall be GORE Tenara Sewing Thread manufactured from 100% expanded PTFE (Teflon); mildew resistant exterior approved thread. Thread shall meet or exceed the following:
  - 1) Flexible temperature range
  - 2) Very low shrinkage factor
  - 3) Extremely high strength, durable in outdoor climates
  - 4) Resists flex and abrasion of fabric
  - 5) Unaffected by cleaning agents; acid rain, mildew, salt water and rot resistant, unaffected by most industrial pollutants
  - 6) Treated for prolonged exposure to the sun

**2.3 SHIPPING AND HANDLING**

- A. All steel surfaces touched by tie down straps are to be padded before final clinching. This can be accomplished by using carpet pads or factory manufactured padding.
- B. All dunnage must be padded before painted products are set in place. Smaller and loose pieces must be padded and totally separate from paint padding.
- C. Unloading: Lift forks to be covered with properly fitted padding. All dunnage must be padded vertically and horizontally to prevent damage to painted surfaces. When unloading, take care to prevent tools and other hard surface items from making contact with painted items.

## **PART 3 – EXECUTION**

### **3.1 INSTALLATION**

- A. Installations of shade structures shall be by the approved manufacturer shown on 2.01 and licensed and bonded contractor by Maryland.
- B. The contractor installing, if any, the structure shall comply with manufactures instructions for assembly, installation, and erection per approved drawings.
- C. Concrete
  - 1. Unless noted otherwise for footing and piers by the approved manufacturer or General Contractor's Engineer, concrete specification for footings, piers, slabs, curbs and walkways shall meet a minimum 2,500 psi at 28-day strength with an appropriate finished weight of 183 lbs. per cu. ft.
  - 2. Concrete work is executed in strict accordance with the latest American Concrete Institute Building Code (ACI 318-99).
  - 3. Slump 4" maximum.
  - 4. Whenever daily ambient temperatures are below 80 degrees Fahrenheit, the contractor may have mix accelerators and hot water added at the batch plant.
    - a. temperature range between 75-80 degrees, 1% accelerator High Early (non- calcium)
    - b. temperature range between 70-75 degrees, 2% accelerator High Early (non- calcium)
    - c. temperature range below 70 degrees, 3% accelerator High Early (non-calcium)
  - 5. The contractor shall not pour any concrete when daily ambient temperature is below 55 degrees Fahrenheit.
  - 6. Concrete will be left to set up a minimum of 24 hours before any load bearing member shall be attached to the structure.
  - 7. Reinforcing shall be ASTM A615, grade 60.
- D. Foundations:
  - 1. All Anchor Bolts set in new concrete shall be ASTM A-325.
  - 2. All Anchor Bolts shall be Hot Dipped Galvanized.
  - 3. Footings shall be a minimum as listed below:
    - a. The minimum footing size for the shade structure is in accordance with and conform to manufactures engineered specifications and drawings.

### **3.2 SAFETY PROCEDURES**

- A. The Contractor is responsible for the coordination of work with other trades.
- B. All staff personnel are to be dressed and conduct themselves in accordance with OSHA standards. All staff must be properly trained for equipment that they might use. Safety is a top priority.
- C. All vehicles and machinery are to be properly licensed and insured and must be operated by licensed operators in accordance with OSHA standards. All cranes and lifts must be operated in accordance with manufacturer's guidelines.

- D. The handling of steel during installation is critical. Exercise care when lifting items so that it does not come into contact with other surfaces. Clean sand and other deleterious material from structural items before moving or lifting. Before installation, all items are to be washed with soap and water and dried with cloths. All grease, dust, oils, and other latent materials are to be removed during this washing. When pouring concrete pour backs at columns, protect paint by using plastic and tape to prevent concrete from splashing on finish surfaces.
- E. All concrete must be cut with a wet diamond blade to ensure that it leaves a clean finish. If at any stage the existing remaining surface lifts, creating a tripping hazard, additional saw cutting will be required so as to leave a neat and uniform joint.
- F. Cover all open holes at all times with solid plywood and spoils to prevent access until concrete is poured.
- G. All equipment and/or product must be stored inside the fenced area.

**END OF SECTION 13 31 23**

## **SECTION 13 34 23 - PRE-ENGINEERED PAVILION**

### **PART 1: BUILDING SUPPLIER SCOPE**

#### **1.1 SUMMARY**

- A. The work shall include furnishing the sealed architectural, structural, mechanical, and electrical plan sets and furnishing the structural, mechanical, and electrical building components as a complete, pre-designed Pavilion building package as shown on drawings and as specified herein.

#### **1.2 RELATED SECTIONS**

- A. Division 09 “High-Performance Coatings”
- B. Division 13 “Swimming Pool Concrete”

#### **1.3 GENERAL REQUIREMENTS**

- A. Packaged Pavilion design and engineering and furnishing all specified building package components shall be supplied by Romtec, Inc., or pre-approved alternate, hereafter designated as the building supplier.
- B. The building supplier shall be a single source design, engineering, and manufacturing firm who shall meet all the following requirements.
- C. The packaged Pavilion shall be a current standard product of building supplier.
- D. Building supplier shall be regularly engaged in and have at least ten (10) years of experience in packaged Pavilion building engineering, design, supply, and construction.
- E. The building supplier must meet or exceed the product specifications. The Romtec, Inc. building package is an approved guide and example.
- F. Alternate building suppliers shall demonstrate that they have designed, engineered, produced, delivered, and constructed at minimum ten (10) functioning site-built Pavilion buildings of similar type. Project completion dates and a reference contact from the owner of each project must be provided.
- G. Alternate building suppliers must disclose all instances of any prior municipal reviewer or landscape architect’s rejection of the same or similar product as an “or equal” to the specified basis of design building package.
- H. Bidders who propose and alternate building supplier other than Romtec, Inc. are required to provide a complete submittal package minimum of ten (10) calendar days prior to the bid opening date with full sealed plan sets, calculations, and all pre-engineered structural items.

- I. Any products proposed as “or equal” that are not as specified must be specifically listed in the alternate building supplier submittal package and accompanied by manufacturers data sheets for review. These products will be approved or denied prior to the bid opening. Incomplete submittals will be rejected and returned to the bidder.
  - J. The building and its concrete footings, foundation, and slab are to be engineered by the building supplier to meet site-specific conditions, including wind and snow loading, local frost depth, and ground conditions.
  - K. Fasteners that are normally included with individual components, as well as any atypical fasteners, shall be supplied by building supplier.
  - L. Building is to be designed and constructed to meet local codes and approvals for permanent structures. Any building that is temporary, permanently relocatable, prefabricated modular, an offsite constructed product, or constructed of precast material is not an accepted equal to permanent, onsite, conventional construction.
  - M. No approval by any external entity will override the local building authority’s codes and inspections. Seals meant for modular homes and production plant certifications will not be allowed in lieu of sealed plans from a licensed engineer and conventional inspection during construction.
  - N. Building sidings, treatments, and roofing are to be as specified. Precast buildings with painted textures are not considered architecturally equivalent.
  - O. The building supplier shall provide complete, code-compliant building plans including plans, elevations, sections, and details, under seal of a National Kitchen and Bathroom Association (NKBA) certified technical designer.
  - P. The building supplier shall provide complete structural calculations meeting code for design loads and seismic design under seal of a professional Engineer with current license in the state of Maryland.
  - Q. The reviewing authority reserves the right to review or reject all submittals at its sole discretion.
  - R. All work and materials shall comply with current industry building codes and regulations for the state of Maryland.
  - S. Americans with Disabilities Act Accessibility Guidelines (ADAAG) will be followed in design, manufacture, and construction.
- 1.4 DESIGN & SUBMITTAL DOCUMENTATION
- A. The building supplier work shall include the design of the architectural, mechanical, structural, and electrical components that will be required for this building.
  - B. The building will be designed as a complete building package to be delivered to the job site for construction on-site by the contractor.



- C. Within one (1) week of contract award, the building supplier shall submit the packaged Pavilion building preliminary Scope of Supply and Design Submittal (SSDS), including the building plan view and elevation drawings.
- D. The building supplier will provide complete submittal documentation in the building supplier's standard electronic submittal format for review.
- E. The preliminary SSDS will be reviewed by relevant parties and returned to the building supplier with any required revisions to the terms, product data sheets, and/or building plan view and elevation drawings noted as comments.
- F. The building supplier shall make any required corrections or revisions and resubmit the preliminary SSDS until the preliminary SSDS is approved by the relevant parties.
- G. Once the preliminary SSDS has been approved, the building supplier will provide full sealed plan sets stamped by an engineer licensed in the state that the building is located for review by the permitting authority.
- H. Up to three (3) wet stamped sets of the plans and structural calculations shall be provided by building supplier before any additional fees apply. Standard plan set size is 11" x 17".
- I. Permitting authority will review the full sealed plan set and return with any required revisions or corrections noted as comments.
- J. Building supplier shall provide one full round of sealed plan revisions in response to permitting authority comments before any additional fees are allowed.
- K. The following sections shall be included in the building supplier's preliminary Scope of Supply and Design Submittal. Incomplete submittals will be rejected and returned to the bidder.
  - 1. INTRODUCTION
  - 2. BUILDING DESIGN,
    - (a) SUPPLIED ITEMS
    - (b) EXCLUDED ITEMS
    - (c) PLAN VIEW AND ELEVATION DRAWINGS
  - 3. PRODUCT DATA
  - 4. WARRANTY & LIMITATIONS
  - 5. Overall site plan is not part of building supplier's scope.

## 1.5 WARRANTY

- A. The building package and all associated components provided by building supplier shall be warranted against defects in materials and workmanship for a period of not less than one (1) year from the date of acceptance. Acceptance is the date of delivery of the building package, or, if delivery is delayed for any reason beyond building supplier's control, the date that the building and all its associated components were ready to deliver.
- B. Building supplier shall pass through to owner all relevant manufacturers warranties for individual products and components of the building package.

## PART 2: BUILDING PACKAGE PRODUCTS

### 2.1 APPROVED BUILDING SUPPLIERS

- A. Romtec, Inc.,  
18240 North Bank Road, Roseburg, OR 97470  
Tel: 541-496-3541; Fax: 541-496-0803; Email: travis.olson@romtec.com  
Web: www.Romtec.com
- B. Requests for use of an alternate building supplier will be considered in accordance with provisions of 01 25 00 "Substitution Procedures" and Section 1.

### 2.2 BUILDING DESCRIPTION

- A. Refer to drawings for quantities, dimensions, locations, and installation methods for the materials and items described in this section.
- B. Building dimensions shall match what is indicated on drawings.

### 2.3 STRUCTURE

- A. Structure shall consist of pre-engineered wood truss package with 36" overhang all around and glulam beam, ridge connector, and steel columns.
- B. All exposed steel to be powder coated in color selected by Owner from the manufacturers standard color chart.

### 2.4 ROOFING

- A. The following roof components shall be supplied by building supplier.
  - 1. Glulam beam shall be 24F-V4 and architectural grade.
  - 2. tongue & groove decking shall be 1x6 V-edge deck boards, select deck Douglas fir.

- B. Roofing shall be Fabral, 26-gauge, Horizon 16, standing seam panels, with 16 in. coverage width.
  - 1. Roofing package shall include inside and outside foam closures, matching trim (eaves, gables, and ridge) and fasteners, sheet metal flashing (all sides), and 30# felt (under metal).
  - 2. Roofing color to be selected by the owner from the manufacturers standard color chart.

## 2.5 DELIVERY, STORAGE, AND HANDLING

- A. The building supplier freight shall be based on delivering the product on a 48' to 53' flatbed or van truck and trailers, or as close to those dimensions as can legally access the site. Overall dimensions of the truck and trailers allowed to access the site are: 70' overall length, 102" wide and 168" high.
- B. Building supplier shall deliver organized building package components in stages as shrink-wrapped pallets that correspond to a typical sequence of construction. A bill of material stating the stages of palletized components shall be included with every delivery.
  - 1. Stage 1 pallets shall include structural components such as block, frames, vents, beams, connectors, trusses, etc.
  - 2. Stage 2 pallets shall include second stage structural components such as filler wall material, windows, skylights, roofing, etc.
  - 3. Stage 3 pallets shall include structural finish components such as siding material, tile, doors etc.
  - 4. Stage 4 pallets shall include plumbing and electrical fixtures and other finish materials such as toilets, sinks, drinking fountains, electrical fixtures, accessories, etc.

## PART 3: BUILDING INSTALLER SCOPE

### 3.1 SUMMARY

- A. The installing contractor or subcontractor, hereafter designated as the building installer, is responsible for building package installation. Building installer work will generally include building package assembly/construction only.
- B. Note: Building supplier's scope is separate from the building installer's scope. Romtec, Inc., is the approved building supplier, not a designated building installer.

### 3.2 CONSTRUCTION SUBMITTALS

- A. If required by owner and/or reviewing authority, building installer shall submit product data sheets and relevant information about the specified building installer supplied products below for review and approval.

### 3.3 WARRANTY

- A. Building installer's work shall be warranted against defects in materials and workmanship for a period of not less than one (1) year from the date of acceptance. Acceptance is the date that installation work for the building package is completed, including any relevant final punch list. In the event that final acceptance of the completed building is delayed for reasons beyond building installer's control, the warranty shall be one (1) year from the completion of building installer's installation work and demobilization.
- B. Building installer shall pass through to owner all relevant manufacturers warranties for individual products and components supplied by building installer.

### 3.4 STRUCTURE

- A. Sealant for all exposed wood shall be supplied and installed by building installer.
- B. Gutters and downspouts are supplied and installed by building installer

### 3.5 CAST IN-PLACE CONCRETE FOR BUILDING PACKAGE

- A. All equipment, labor, trades, and materials for cast-in-place concrete shall be provided by concrete contractor.
  - 1. Includes all materials and labor for building package foundations/footings and interior slabs.
- B. Footings shall meet local code for permanent structures. A prefabricated, modular mat placed on compacted base is not an accepted equal to a site specific, site poured, engineered foundation.
- C. All rebar used in the building must meet ASTM A615 manufacturing standards and is to be placed per the final approved plans.
- D. Engineered fill shall be ¾" minus crushed aggregate around footings, foundations, and slabs, or as required in the final approved plans.
- E. The foundation shall be installed as designed with all cast in-place concrete poured to dimensions specified, or as required in the final plans.
  - 1. Footings will be built to minimum 24" depth or greater if required by local frost depth or permitting authority.
  - 2. Minimum compressive strength of foundation concrete shall be 3,000 psi at 28 days, 4" +/- 1" slump, with max ¾" aggregate, cured in accordance with ACI 308, or as required in approved final plans.
  - 3. Steel rebar shall be installed as specified in final plans.

3.6 DELIVERY, STORAGE, AND HANDLING

- A. The building installer will be responsible for all equipment and labor required for off-loading of the delivered building package onsite.
- B. The building installer will assume responsibility for adequate protection and maintenance of delivered building package materials from weather, damage, and pilferage during installation work. Any failure to adequately protect building package materials that affects the warranty of those materials will be at building installer's expense.
- C. Building installer shall collect and maintain for final delivery to owner any operation & maintenance manuals included by individual product manufacturers with their respective product packaging. Any failure to collect, maintain, and/or deliver these O&M manuals to the owner that results in fees from building supplier for additional copies shall be at building installer's expense.

**END OF SECTION 13 34 23**

## SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the lighting system performance and design standards for an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
- C. The sports lighting will be for the following venues:
  - 1. Activity Pool and Wellness Pool (Base bid includes P5, P6, P7, P8 as shown on L601)
  - 2. Fitness Pool (Add alternate includes P1, P2, P3, P4 as shown on L602)
- D. The primary goals of this athletic lighting project are:
  - 1. Guaranteed Light Levels: Selection of appropriate light levels impacts the safety of players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years.
  - 2. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to players, spectators, and neighbors.
  - 3. Cost of Ownership: To reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
  - 4. All lighting designs shall comply with Lighting Standard.
  - 5. Control and Monitoring – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Pool areas should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
    - a. Control and monitoring system shall provide contactor control of all existing circuits. Key switches shall be provided to provide field-level control of existing circuit groups.

#### 1.2 LIGHTING PERFORMANCE

- A. Illumination Levels and Design Factors: Pool water and deck surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will incorporate the lumen maintenance projections into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Minimum Target Illumination Levels	Maximum to Minimum Uniformity Ratio
Activity & Wellness Pools	30	2.5:1
Fitness Pool	30	2.5:1
All Pool Decks	15	

- B. Color Temperature: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.
- C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare on water surface and providing sufficient uplight.
1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
  2. Glare Control Technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvers. No symmetrical beam patterns are acceptable.
  3. Mounting Heights: To ensure proper aiming angles, minimum mountings heights shall be as described below. Higher mounting heights may be necessary for luminaire with lesser glare control to meet field angle requirements of section 1.2.C.1.

# of Poles	Pole Designation	Pole Height
4	P1, P2, P3, P4	50'
1	P5	60'
3	P6, P7, P8	70'

### 1.3 ENVIRONMENTAL LIGHT CONTROL

- A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers, and external shields. No symmetrical beam patterns are accepted.
- B. Lighting Ordinance: In accordance with Rockville, MD lighting ordinance, maximum initial horizontal illumination at the property line shall not exceed 0 footcandles.
- C. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following levels taken at 3 feet above grade.

	Average	Maximum Level at the outside perimeter of the grid
Specified Spill Line Horizontal Foot-candles to match 0-foot-candle blanket grid (900' x 750' with a 30'x30' spacing)	5fc	0fc

- D. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be provided in 30-foot intervals along the boundary line at 3 ft above grade.
- E. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.
- F. Field Verification: Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:
  - 1. Spill verification: Illumination levels shall be taken in accordance with IESNA RP-6-22. The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

#### 1.4 COST OF OWNERSHIP

- A. Manufacturer shall submit a 25 year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

### PART 2 – PRODUCT

#### 2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

- A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.
- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
- C. System Description: Lighting system shall consist of the following:
  - 1. Galvanized steel poles and cross-arm assembly. Alternate: Concrete pole with a minimum of 8,000 psi and installed with concrete backfill will be an acceptable alternative provided building code, wind speed and foundation designs per specifications are adhered to.
  - 2. Non-approved pole technology:
    - a. Square static cast concrete poles will not be accepted.



- b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
  - a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
  - b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-enforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
4. Manufacturer will supply all drivers and supporting electrical equipment.
  - a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
  - b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2\_2002.
5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
7. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.
8. Contactor cabinet to provide on-off control.
9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
  - a. Integrated grounding via concrete encased electrode grounding system.
  - b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.
10. Enhanced corrosion protection package: Due to the potentially corrosive environment for this project, manufacturers must provide documentation that their products meet the following enhanced requirements in addition to the standard durability protection specified above:
  - a) Exposed carbon steel horizontal surfaces on the crossarm assembly shall be galvanized to no less than a five (5) mil average thickness.
  - b) Exposed die cast aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.
  - c) Exposed extruded aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.

- D. Safety: All system components shall be UL listed for the appropriate application.

## 2.2 ELECTRICAL

- A. Electric Power Requirements for the Sports Lighting Equipment:
1. Electric power: 208 Volt, 3 Phase
  2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.
- B. Energy Consumption: The kW consumption for the lighting system shall be 32.31.

## 2.3 CONTROL

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
- C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.
- D. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.
- E. The owner may assign various security levels to schedulers by function and/or pool areas. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all pool areas to only having permission to execute "early off" commands by phone. Scheduling tool shall be capable of setting curfew limits.
- F. Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.
- G. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).
- H. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS and Android devices.
- I. Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.
1. Cumulative hours: shall be tracked to show the total hours used by the facility.
  2. Report hours saved by using early off and push buttons by users.

- J. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.
- K. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of wireless communication.

## 2.4 STRUCTURAL PARAMETERS

- A. Wind Loads: Wind loads shall be based on the 2018 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 115 and exposure category C.
- B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).
- C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2018 IBC Table 1806.2.
- D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

## PART 3 – EXECUTION

### 3.1 SOIL QUALITY CONTROL

- A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
  - 1. Providing engineered foundation embedment design by a registered engineer in the State of MD for soils other than specified soil conditions.
  - 2. Additional materials are required to achieve alternate foundation.
  - 3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

### 3.2 DELIVERY TIMING

- A. Delivery Timing Equipment On-Site: The equipment must be on-site 8 to 12 weeks from receipt of approved submittals and receipt of complete order information.

### 3.3 FIELD QUALITY CONTROL

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-22.

- B. Field Light Level Accountability
  - 1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as “guaranteed” on the illumination summary provided by the manufacturer.
  - 2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
  - 3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these pool and pool decks back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the pool and pool deck during these repairs.
- C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

#### 3.4 WARRANTY AND GUARANTEE

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.
- B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any pool or pool deck is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

**END OF SECTION 26 56 68**

## SECTION 31 10 00 - CLEARING

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions, and Division 1, Specification Sections apply to work in this section.

#### 1.2 DESCRIPTION OF WORK

- A. Section specifies materials and work required to clear project site.

#### 1.3 RELATED SECTIONS

- A. Refer to Section 01 56 39 "Temporary Tree Protection"
- B. Refer to Section 02 41 19 "Selective Demolition"
- C. Refer to Section 31 10 05 "Site Demolition"
- D. Refer to Section 31 20 00 "Earthmoving"
- E. Refer to Section 32 92 00 "Turf & Grasses"

#### 1.4 CODES AND STANDARDS

- A. Maryland Standards and Specifications for Soil Erosion and Sediment Control, current edition.
- B. Comply with applicable federal, state and local disposal requirements and regulations for material removed from site.
- C. Recycle, compost and/or salvage plants and demolition waste in accordance with Division 1, "Construction Waste Management" requirements
- D. Comply with permits, approved plans and conditions thereof.
- E. Comply with terms and conditions of Approved final Forest Conservation Plan, Tree Save Plan or other Landscape Credit Plans.

#### 1.5 PROJECT CONDITIONS

- A. Refer to Section 31 20 00 "Earthmoving" and as noted.
- B. Existing Utilities: Locations of existing utilities are approximate. Locations have been determined from field survey, public utility records and Owner records.
  - 1. Contractor shall be responsible for contacting "Miss Utility" and Owner or controlling agencies of existing utilities within construction area for verification of locations, prior to beginning of work.

2. Contractor shall be responsible for coordination of utility relocation or removal by others with phases of construction activities.
- C. Traffic: Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.
- D. Protection of existing improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
  1. Protect improvements on adjoining properties and on Owner's property.
  2. Restore damaged improvements to original condition, as acceptable to property Owners.
- E. Protection of Existing Trees and Vegetation: Employ and provide services of an appropriately Licensed Maryland Arborist at no additional cost to Owner, when necessary, that appropriate measures are implemented to ensure continued health of and protect existing trees and vegetation indicated to remain in place. Protect existing trees and vegetation indicated to remain in place protected against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing. Clearing operations are to be conducted in strict accordance with requirements of approved Final Forest Conservation Plan, Tree Save Plan or other landscape credit plan for project.
  1. Water trees and other vegetation indicated to remain during clearing and subsequent construction operations within limits of Contract work as required maintaining health during construction operations.
  2. Provide protection for roots over 1-1/2 inch in diameter that are cut during construction operations. Temporarily cover exposed roots with wet burlap or mulch to prevent roots from drying out; cover with earth as soon as possible.
  3. Repair or replace trees and vegetation to remain that are damaged during construction operations in a manner acceptable to Architect. Employ a licensed arborist to repair damage to trees and shrubs.
  4. Replace trees that cannot be repaired and restored to full-growth status, as determined by arborist.
  5. Trees and plants indicated to be relocated shall be prepared, moved, protected and maintained under direction of an arborist.
- F. Salvageable Improvements: Carefully remove items indicated to be salvaged and, unless directed otherwise, store on Owner's premises where indicated or directed.

#### 1.6 EXISTING SERVICES

- A. General: Indicated locations are approximate; determine exact locations before commencing work.
- B. Notify affected utility companies in advance and obtain approval before starting Work.
- C. Place markers to indicate location of disconnected services. Identify service lines and capping locations on project record documents.

#### 1.7 SUBMITTALS

- A. Submit written advanced notification to public utility companies as required by respective utility purveyor, but no less than one week prior to planned work, for disconnection of active utilities.
- B. Documentation of legal off-site disposal areas.

## 1.8 DEFINITIONS

- A. Topsoil: Topsoil shall conform to requirements of Section 32 92 00 "Lawns & Grasses".

## 1.9 CONSTRUCTION SURVEYS

- A. Provide survey equipment and qualified personnel for construction surveys. Provide stakes, fencing and/or flag trees as required by City of Rockville Forestry Inspector and Sediment Control Inspector to designate limits of clearing operations/limits of disturbance.

## PART 3 EXECUTION

### 3.1 SITE CLEARING

- A. General: Clear project site, removing trees and vegetation, within "Clearing and Grading Limits" indicated. Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots. Repair or remove and replace trees indicated "To Remain" or located beyond indicated "Clearing and Grading Limits" and damaged by clearing or subsequent construction operations, with new trees of equal species, caliper and quality, as directed by Architect, at no increase to Contract Sum
  - 1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
- B. Topsoil Stripping: Topsoil shall conform to definitions and requirements of Section 32 92 00 "Lawns & Grasses".
  - 1. Strip topsoil within Limits of Disturbance or Clearing and Grading Limits shown on approved plans. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping.
    - a. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
    - b. Do not strip topsoil in any areas beyond limit of disturbance shown on approved Sediment Control and/or Final Forest Conservation Plan.
  - 2. Stripped topsoil shall be removed off-site or stockpiled on site with sediment controls installed on downstream sides. Topsoil shall be screened and trucked to the site, if stored offsite, as needed for re-spreading on-site in accordance with the plans and specifications.
- C. Clearing and Grubbing: Clear site of trees, shrubs, and other vegetation, except for those indicated to be left standing.

1. Except as otherwise indicated on approved Final Forest Conservation Plan completely remove stumps, roots, and other debris within approved Limits of Disturbance as required to facilitate proposed construction. At a minimum completely remove stumps, roots and other debris to a minimum depth of 12-inches below existing or proposed grade.
  2. Use only hand methods for grubbing inside drip line of trees indicated to remain.
  3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
  4. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact each layer to a density equal to adjacent original ground or as otherwise indicated.
- D. Removal of Improvements: Remove existing above-grade and below-grade improvements as indicated and as indicated on mechanical or electrical drawings and as included under work of related sections. Removal of abandoned underground piping or conduits interfering with construction is included under this Section. Remove existing overhead and underground utilities in accordance with specification section 31 10 05 Site Demolition.

### 3.2 WASTE MANAGEMENT

- A. Burning on Owner's Property: Burning is not permitted on Owner's property.
- B. Removal from Owner's property: Remove waste materials and unsuitable or excess top-soil from the Owner's property. On-site waste stockpiling is not permitted. Burning of waste materials is prohibited.
- C. Transportation and Disposal: Promptly transport combustible and non-combustible waste materials from project site to legal offsite disposal areas. Document legal offsite waste disposal areas.
- D. Recycling, Composting and Salvage: Recycle, compost and/or salvage site clearing debris in accordance with Division 1 "Construction Waste Management" requirements.
- E. Permitting and Approvals: Obtain required federal, state, county, local and Soil Conservation District approvals for off-site borrow areas or waste sites if located on private property and/or Maryland Department of the Environment- WMA approval if on State or Federal property. Furnish documentation of such local approvals in advance of any off-site borrow operations.

END OF SECTION



## SECTION 31 10 05 - SITE DEMOLITION

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The General Conditions, Supplementary Conditions and Division 1, General Requirements, are a part of this section.

#### 1.2 RELATED SECTIONS

- B. Refer to Division 1 "Construction Waste Management", Section 31 10 00 "Clearing", and Section 31 20 00 "Earthmoving"
- C. Refer to Division 13 "Swimming Pool Excavation".
- D. Refer to Division 01 "Selective Demolition".

#### 1.3 DESCRIPTION OF WORK

- E. This section specifies demolition of existing site elements improvements and underground utilities. Removal and disposal, off site, of all portions of existing site items indicated (drives, parking surfaces, etc.)

#### 1.4 CODES AND REGULATORY REQUIREMENTS

- A. For existing flammable liquid storage tanks refer to National Fire Protection Association (NFPA).
- B. Code of Maryland Regulations, Section 08.05.04; State of Maryland, Department of the Environment, Title 20, Subtitle 10, "Oil Pollution and Tank Management".
- C. Comply with all applicable federal, state and local disposal requirements and regulations for material removed from site.
- D. Recycle, compost and/or salvage plants and demolition waste in accordance with Division 1 "Construction Waste Management" requirements.
- E. Comply with permits, approved plans and conditions thereof.
- F. Comply with terms and conditions of approved Final Forest Conservation Plan, Tree Save Plan or other Landscape Credit Plans.
- G. Comply with governing EPA notification regulations before starting demolition.
- H. Comply with hauling and disposal regulations of authorities having jurisdiction.

#### 1.5 PROJECT CONDITIONS

- A. Owner Responsibility: Owner assumes no responsibility for actual conditions of areas to be demolished. Conditions existing at time of bid will be maintained by Owner as far as is practical.
- B. Storage or sale of removed items or materials will not be permitted.

- C. Existing Utilities: Locations of existing utilities are approximate. Locations have been determined from field survey, public utility records and Owner records.
  - 1. Contractor shall be responsible for contacting "Miss Utility", Owner or controlling agencies of existing utilities within construction area for verification of locations and marking of utilities, prior to beginning of work.
  - 2. Contractor shall be responsible for coordination of utility relocation or removal by others with phases of construction activities.
- D. Existing Subsurface Conditions: Verify existing pavement materials and respective thicknesses during prebid inspection. Obtain written authorization from Owner before conducting test hole explorations of existing pavements within project site.
- E. Traffic: Obtain written permission from local jurisdiction prior to obstructing public rights-of-way and easements.
- F. Pre-bid Inspection Conditions: Conditions, existing during prebid inspections, will not be altered or modified.
- G. No tree removal or site clearing other than specifically noted on the Contract drawings shall be performed without written consent of City of Rockville Forestry Inspector and Owner.

#### 1.6 SUBMITTALS

- A. General: Submit each item according to Conditions of Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.
- B. Proposed dust-control measures.
- C. Proposed noise-control measures.
- D. Schedule of selective demolition activities indicating the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
  - 2. Interruption of utility services.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
- E. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
- F. Record drawings at Project closeout according to Division 1 Section "Contract Closeout."
  - 1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
- G. Landfill records showing receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

#### 1.7 QUALITY ASSURANCE

- A. Demolition firm qualifications: Engage an experienced demolition firm that has successfully completed demolition work similar to that indicated for this project.

- B. Regulatory Requirements: Comply with applicable codes and regulatory requirements. Refer to Paragraph 1.04 of this section.
- C. Submit written advanced notification to public utility companies as required by respective utility purveyor, but no less than one week prior to work planned, for disconnection of active utilities.

#### 1.8 DEFINITIONS:

- A. Demolition: Complete removal and legal off-site disposal of existing facilities specified or indicated, "Remove".
- B. Salvage: Complete removal, by methods, which prevent damage or destruction of any items indicated to be relocated (or salvaged) and subsequent relocation and reinstallation in an area designated by Owner.
- C. Remove & Dispose: Remove to an approved off site facility and legally dispose of items noted in Contract documents.
- D. Remove and Salvage: Items indicated to be removed and salvaged remain Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.
- E. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare for reuse; store and protect against damage. Reinstall items in locations indicated.
- F. Existing to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in original locations.

#### 1.9 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from site with further disposition at Contractor's option.

#### PART 2 PRODUCTS (Not Used)

#### PART 3 EXECUTION

##### 3.1 PROTECTION AND RESTORATION

- A. Refer to Section 31 10 00 "Clearing."
- B. Existing Facilities: Protect existing facilities and structures designated to remain, temporarily or permanently, from damage during demolition or construction activities. Repair items damaged during demolition or construction activities to their original condition, or replace with new. Do not overload structural elements or pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition and/or removal work. Repairs, reinforcement or structural replacement shall be approved by Architect or Owner's Representative.

- C. Weather Protection: For portions of existing building to remain, protect building interior and materials and equipment from weather at all times. Where removal of roofing or walls is necessary to accomplish work, immediately provide adequate temporary covering of exposed areas to assure protection of remaining facilities.
- D. Existing Utility Services: The locations of underground utility services are approximate, and are taken from Owner's record information and record information provided by utility companies. Protect existing utility services designated to remain temporarily or permanently, or to be relocated or removed by others. Contractor shall sequence demolition and construction activities to minimize utility service interruptions to existing facilities to remain. Where removal of existing utility services is required for other site construction, provide temporary covering of exposed areas, and temporary service or connections for utilities until permanent utility service replacements are completed.
  - 1. Contractor shall coordinate with affected utility companies to determine extent of relocation work to be done by others.
  - 2. Contractor shall coordinate utility relocation or removal by others with phases of construction activity.

### 3.2 EXISTING SITE IMPROVEMENTS DEMOLITION

- A. Existing Pavements: Demolish existing pavements, regardless of pavement thickness, to limits indicated at no increase to Contract Sum. Neatly saw cut existing bituminous concrete pavement to straight, smooth and sharp edges perpendicular to pavement surface.
- B. Existing Curbing: Demolish existing curbing to limits indicated, unless nearest expansion joint is less than six (6) feet from indicated limits of removal. In that case, remove existing concrete curbing to nearest expansion joint beyond indicated demolition limits at no increase to the Contract Sum. Neatly saw cut existing Portland cement concrete curbing, to limits indicated, to smooth, clean and sharp edges perpendicular to top and face of curbing.
  - 1. Contractor's Option: Remove existing concrete curbing to nearest expansion joint beyond demolition limits indicated at no increase to Contract Sum.
- C. Existing Entrances and Aprons: Demolish existing entrances and aprons indicated.
- D. Miscellaneous: Demolish existing fencing indicated, including posts, footings and related appurtenances. Demolish additional miscellaneous existing site improvements indicated, specified and required to construct project.

### 3.3 EXISTING OVERHEAD UTILITY DEMOLITION

- A. Existing overhead electrical service facilities will be removed by the responsible Power Company. Contractor shall contact appropriate power company to schedule and arrange for payment for removals.
- B. Existing overhead telephone facilities will be removed by responsible Telephone Company. Contractor shall contact Telephone Company to schedule and arrange for payment for removals.
- C. Existing overhead cable television service facilities will be removed by responsible cable company. Contractor shall contact Cable Company to schedule and arrange for payment for removals.

### 3.4 EXISTING UNDERGROUND UTILITY DEMOLITION

- A. Excavate and expose existing underground utilities and related structures designated for, or as required to implement, removal. For excavation operations refer to Section 32 05 00 "Common Work Results for Exterior Improvements". Remove existing utility structure castings. Backfill excavations, upon completion of utility demolition operations. For backfill operations refer to Section 32 05 00 "Common Work Results for Exterior Improvements".
- B. Place markers to indicate location of disconnected services. Identify service lines and capping locations on project record documents.

### 3.5 MAINTENANCE

- A. Refer to Section 31 20 00 "Earthmoving".

### 3.6 SALVAGE MATERIALS

- A. Carefully remove items designated for Salvage, or "Remove and Relocate", to avoid damage. Store site items indicated for salvage, or "Remove and Relocate", to prevent damage during construction. Relocate items as indicated on site plan or as directed in field by Owner's Representative. Contractor shall replace salvage items damaged during removal, storage or relocation operations at no increase to Contract Sum.

### 3.7 WASTE MANAGEMENT

- A. Transport demolition waste materials from project site to legal offsite waste disposal areas. Document legal offsite waste disposal areas.
- B. Recyclable/salvageable/compostable site-clearing materials to be recycled, salvaged, or chipped/composted in accordance with Division 1 "Construction Waste Management" requirements.

END OF SECTION

## SECTION 31 20 00 - EARTHMOVING

### PART 1 GENERAL

#### 1.1 RELATED DRAWINGS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1, Specification Sections, apply to Work in this section.

#### 1.2 DESCRIPTION OF WORK

- B. Section specifies materials, equipment and Work required to perform earthwork and grading operations for site development including:
  - 1. Rough grading
  - 2. Sediment control measures
  - 3. Excavation of materials and disposal of unsuitable materials
  - 4. Footing and foundation trenches and pits
  - 5. Stability of excavations
  - 6. Removal of water
  - 7. Filling, backfilling and compacting
  - 8. Finish grading
  - 9. Trenching and backfilling for piped utilities
  - 10. Porous fill under concrete slabs
  - 11. Testing and inspections

#### 1.3 RELATED SECTIONS

- A. Refer to Section 01 56 39 "Temporary Tree Protection", 31 10 00 "Clearing", Section 31 10 05 "Site Demolition", Section 32 92 00 "Turf and Grasses" and Section 32 93 00 "Plants".

#### 1.4 CODES AND REGULATORY REQUIREMENTS

- A. Contractor shall comply with applicable requirements of governing agencies and/or authorities having jurisdiction.
- B. Latest edition of Maryland Department of Transportation, State Highway Administration, Standard Specifications for Construction and Materials and approved addenda, except Method of Measurement and Basis of Payment, are controlling specifications for Work within State rights-of-way.
- C. Latest City of Rockville Transportation standards and specifications for Work in City rights-of-way and on City property.

#### 1.5 EXAMINATION OF SITE DOCUMENTS

- D. Plans, surveys, measurements, and dimensions under which Work will be performed are believed to be correct. Examine both site and documents and report inconsistencies to Architect prior to beginning Work.

#### 1.6 SPECIAL REQUIREMENTS

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

EARTHMOVING  
31 20 00 - 1

- A. Topsoil Removal: Topsoil may be removed from site due to limited space on the site and fill material shall be subject to approval of Geotechnical/Soils Engineer and as further approved by both Architect and Owner.
- B. Soil Erosion and Sediment Control: Implement and maintain soil erosion and sediment control measures and conduct activities in accordance with City of Rockville-Public Works approved Contract drawings. Arrange for and secure required inspections and approvals and provide documentation of same.
- C. Layout and Grades: Layout lines and grade Work in accordance with Contract Documents. Establish permanent benchmarks determined by a Maryland Registered Land Surveyor or Professional Engineer. Maintain established bounds and benchmarks and replace, as directed, any which are destroyed or disturbed.
- D. Maintenance of Traffic: Do not close or obstruct any street, sidewalk, alley or passage-way unless specifically designated to be closed or obstructed on Contract drawings.
- E. Cleaning of Paved Surfaces: Clean and maintain paved roadways, sidewalks, and public thoroughfares on or adjacent to Job Site of dirt, earth and debris spillage from equipment involved in connection with Work at all times.
- F. Existing Utilities:
  - 1. Locate existing underground utilities in areas of Work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations. Notify Miss Utility 48 hours prior to excavation.
  - 2. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult utility Owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility Owner.
  - 3. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided/if required.
  - 4. Provide minimum of 48-hour notice to Owner and receive written notice to proceed before interrupting any utility.
  - 5. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.
  - 6. Underground pipes greater than 4-inches in diameter that are indicated to be abandoned in place shall be filled with flow-able fill and permanently sealed at both ends.

## 1.7 DEFINITIONS

- A. Excavation: Removal of earth materials to sub-grade elevations indicated or specified.
- B. Over-Excavation: Removal of earth materials, beyond sub-grade elevations indicated or specified, without written authorization from Architect.
- C. Unsuitable Earth/Material: Defined as topsoil, organic soils, stone greater than 2" (in any direction), rock fragments, ice, snow, construction debris, shrink-swell soils, existing fill, and other material judged unsuitable by geotechnical engineer and material so classified in geotechnical report and soft or unstable earth materials (e.g. muck, soft clays, organic soils, peat, etc.), not meeting requirements of Section 31 20 00 paragraph 2.01.B.

- D. **Unclassified Excavation:** Defined as complete removal of materials encountered during excavation including rocks, organic materials, slabs, debris, concrete, paving, slabs etc. All excavation is unclassified to subgrade or as indicated on the plans.
- E. **Fill:** Placement of earth materials over existing ground surfaces to sub-grade elevations indicated or specified.
- F. **Backfill:** Placement of earth materials in excavations to sub-grade elevations indicated or specified.
- G. **Soils Engineer:** Shall be a Professional Engineer, currently registered in State of Maryland, or shall be an authorized representative of such an engineer.
- H. **Trench:** Defined as an excavation having vertical sides of any length in which width is not more than 10-feet and whose depth exceeds its width.
- I. **Unauthorized Excavation:** Defined as removal of materials beyond indicated sub-grade elevations or dimensions saving and, excepting required undercutting, without specific direction of Owner or Architect. Unauthorized excavation, as well as remedial Work directed by Construction Manager or General Contractor, shall be at Contractor's expense.
- J. **Finished Grade:** Defined as required final grade elevations indicated. Spot elevations shall be given uniformed slopes between points for which finished grades are indicated or between such points and existing established grades.
- K. **Sub-grade:** Defined as required surface of subsoil, borrow fill or compacted fill. Surface is immediately beneath site improvements, specially dimensioned fill, paving, loam or other surfacing material. See Section 32 93 05, "Lawns & Grasses" for preparation of landscape areas.
- L. **Structure:** Defined, within this scope of the Work, to include buildings, foundations, slabs, curbs and gutters, site improvements, and other man-made stationary features occurring above or below ground surface.

## 1.8 SUBMITTALS

- A. **Density Test Results:** Contractor shall submit copies of results of specified density testing to Owner's Representative for review and approval.
- B. **Submit location of product manufacture and of harvest, extraction/recovery of primary raw materials.**
- C. **Submit recycled-content data, designating percentages of post-consumer and post-industrial recycled material.**
- D. **Test Reports-Excavating:** Testing and inspection service will submit following reports directly to Architect from testing services, with copy to Contractor and Owner's representative.
  - 1. Test reports on borrow material.
  - 2. Verification of each footing sub-grade.
  - 3. Field density test reports.
  - 4. One optimum moisture-maximum density curve for each type of soil encountered, but no less than one curve for each 1,000 cubic yards of any particular soil encountered.
  - 5. Report of actual unconfined compressive strength and/or results of bearing.



- E. Documentation of Acceptance of Limits of Disturbance from the City of Rockville Sediment Control Inspector and Forestry Inspector.
- F. Documentation from City of Rockville Forestry Inspector that site has been prepared and tree protection measures have been installed in accordance with approved Final Forest Conservation or Tree Save Plan.
- G. Copies of inspection reports and violation notices.
- H. Inspection Certification that on-site topsoil has been screened on-site and meets the requirements of this specification.

#### 1.9 PROJECT CONDITIONS

- A. Existing Subsurface Conditions: Refer to Section 00 31 32 "Geotechnical Data". All excavation materials shall be "unclassified" to subgrade elevations or as indicated on the plans.
- B. Existing Utilities: Locations of existing utilities are approximate. Locations have been determined from field survey, public utility records and Owner records.
  - 1. Contractor shall be responsible for contacting "Miss Utility", Owner or controlling agencies of existing utilities within construction area for verification of locations, prior to beginning of Work.
  - 2. Contractor shall be responsible for coordination of utility relocation or removal by others with phases of construction activities.

#### 1.10 TESTING AND INSPECTIONS

- A. Contractor will employ and pay for a qualified Maryland Registered Professional Soils Engineer and testing agency that is acceptable to Owner and Architect to perform soil testing and inspection services for quality control testing during earthwork operations.
- B. Contractor shall provide testing and inspection services in complete compliance with Specification Division 1 and the following:
  - 1. Agency will be responsible for soil type identification on site, sub-grade monitoring, testing of bearing capacity at each spread footing, monitoring fill operations and requirements and other geotechnical testing
- C. Services of Soils Engineer will not necessarily be on a full time basis, but will include number of visits and tests required to observe performance of earthwork under this Section. If in opinion of Soils Engineer, Work performed under this Section does not meet technical or design requirements stipulated for Work, the Contractor shall make all necessary readjustments to obtain approval.
- D. Earthwork procedures shall be performed in presence of Soils Engineer. Make all submittals in accordance with Section 1.8D above.

#### 1.11 CONSTRUCTION SURVEYS

- A. Provide survey equipment and qualified personnel for construction surveys. Provide stakes required to perform earthwork operations to sub-grade elevations indicated or specified.

#### 1.12 EARTHWORK BALANCE

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

EARTHMOVING  
31 20 00 - 4

A. Perform earthwork operations regardless of actual quantities encountered.

1. Excess materials shall be legally disposed of off project property.
2. Off-site borrow shall be provided at no increase to Contract Sum.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Provide products manufactured of primary raw materials harvested, extracted/recovered within a 500-mile radius of project site.
- B. Some on-site soils may be suitable for use as structural fill or general fill. Contractor shall provide adequate test data indicating such soils meet requirements of section prior to placement.
- C. Fill material shall be free of deleterious matter such as ice, snow, organic matter, building rubble, construction debris, shrink-swell soils and rock greater than 2-inches in diameter.
- D. Definitions:
  1. Satisfactory/suitable soils are defined as those complying with ASTM D 2487 soil classification groups ML, SM, SC, GC, GP, GW or GM except where modified by geotechnical report.
    - a. Soils shall have a liquid limit less than 40 and a plasticity index less than 20.
    - b. Soils shall have a minimum CBR value of 3.0 and swell shall be less than 1 percent in accordance with ASTM D 1883 when compacted to 98% compaction per ASTM D 1557.
  2. Unsatisfactory soil materials are defined as those not meeting requirements above. Unacceptable fill materials include topsoil, organics (OH, OL), high plasticity silts and clays (MH, CH), and those specified in geotechnical report.
- E. Structural Fill: Provide satisfactory/suitable soils or gravel fill, compacted – in-place, to support site improvements and pavement sections.
- F. Dense-graded aggregate base for asphalt pavement support shall meet requirements of GA Base per latest edition of Maryland Department of Transportation, Standard Specifications for Construction and Materials (January 2001) and subsequently approved addenda thereto. Dense-graded aggregate base shall be compacted to at least 95 percent of maximum dry density per ASTM D 698 (AASHTO T-99).
- G. Gravel Fill: Natural or artificially graded mixture of gravel or stone as follows:

Percent Passing Square Mesh Sieves	By Weight
1/2"	100
1/4"	25-60
#10	15-45
#40	5-25
#200	0-12

- H. Crushed Stone/Washed Gravel Floor Slab Moisture Barrier / Drainage Fill: MDOT-SHA Size No. 57 aggregate.

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

EARTHMOVING  
31 20 00 - 5

- I. General Fill: Satisfactory/suitable on-site or borrow material compacted in place for general site grading.
- J. Sub-base Fill Material: Natural or artificially graded mixture of natural or crushed gravel, crushed stone, natural or crushed sand and as noted on drawings.
- K. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or un-crushed gravel, with 100 percent passing a 1 ½ inch sieve and not more than 5 percent passing a No. 4 sieve.
- L. Fill Materials: Soils used as fill materials shall have Unified Soils Classification (ASTM 2487) of ML or better, but shall exclude highly plastic clays or silts (MH-CH). Soil for fill shall be free of organic matter or debris, waste materials, frozen materials, vegetable matter and rock or stones exceeding three inches in dimension. No more than 15 percent of rocks or lumps shall be larger than 2½ inches in dimension. Materials shall be non-frost susceptible soils, and shall have a liquid limit of less than 40 and a plasticity index of less than 20. Altering moisture contents to obtain adequate degrees of compaction shall be performed at no additional cost to Owner.
  - 1. Fill material used within the top 12 inches of fill shall be free of rocks or stones exceeding two inches in any dimension.
  - 2. Crusher Run CR-6 may, at Contractor's discretion, be used for fill in approved locations. RC-6 may be used for approved on-site locations only.
- M. Backfill Material: As indicated for fill material.
- N. Borrow Material: Off-site borrow, if required, shall be as specified for Fill Materials. Obtain and transport borrowed material at no increase to Contract Sum.
- O. Product Handling:
  - 1. Take means necessary to protect materials of this Section before, during, and after installation and to protect installed Work of other trades. In event of damage to these items, immediately make repairs or replacements necessary to approval of Architect and at no additional cost to Owner.
  - 2. Take means necessary to control dust on and near Work if caused by Contractor's operation during performance of Work of this Section and if resulting from condition in which Contractor leaves site.
  - 3. Locate all active utilities traversing site or areas of off-site Work and protect from damage.
- P. Excavation Materials:
  - 1. Classification of Material: All Materials to be excavated on this project are unclassified excavations to design subgrade elevation.
  - 2. Differing Conditions: Should, during progress of Work, rock or physical conditions substantially differing from those described in project Geotechnical Report and generally recognized as being inherent in Work of such character be encountered, immediately notify Architect of conditions before they are disturbed.
  - 3. Excess Excavation Materials: Excess materials resulting from operations and not used backfilling shall become property of Contractor and shall be legally disposed of off-site using approved methods to legal disposal sites. No on-site burying will be permitted.

- Q. Sand: Sand shall be clean and free from silt, clay, sticks and other foreign material complying with gradation requirements in ASTM C 33 for fine aggregate.

## 2.2 TOPSOIL

- A. Topsoil stockpiled for re-use (if any) shall be approved prior to incorporation in Work. If quantity of stockpiled topsoil is insufficient, provide additional topsoil as required.
- B. Prior to re-use on-site, stockpiled and imported topsoil shall be screened and inspected by geotechnical engineer for compliance with specifications. Geotechnical engineer shall inspect and certify topsoil prior to its re-use on-site.
- C. Imported topsoil shall be a fertile, friable, sandy loam containing organic matter of 2 percent or greater and shall be capable of sustaining vigorous plant growth. Topsoil shall consist of 60-75 percent sand, 15-30 percent silt, and 5-10 percent clay. It shall be free of admixture of subsoil, and contain no stones, lumps or clods of hard earth, slag, cinders, sticks, plants or their roots, trash or other extraneous materials greater than 1" in dimension. Topsoil must also be free of plant parts of Mugwort, Bermuda grass, Quack grass, Johnson grass, nut sedge, poison ivy, Canada thistle, or others as specified. Topsoil shall not be used for planting operations while in a frozen or muddy condition. Topsoil sources shall be tested by a recognized laboratory at expense of Contractor for pH, soil texture and soluble salts. Test results must be presented to Landscape Architect prior to placement of topsoil on site. Topsoil shall contain 3 percent decomposed organic determined by loss on ignition on moisture-free samples dried in accordance with current methods of Association of Official Agricultural Chemists.
- D. Acceptable soil test results:
1. pH range: 5.8-7.0
  2. Organic Matter 10%
  3. Magnesium (Mg) 100+ units
  4. Phosphorus (P205) 150+ units
  5. Potassium (K20) 120+ units
  6. Soluble Salts/Conductivity Not to exceed 450 ppm/0.9 mmhos/cm (in soil); Not to exceed 300 ppm/2.5 mmhos/cm (in high organic mix)
  7. Boron not to exceed 3 lbs./acre
  8. Manganese not to exceed 50 lbs./acre

## PART 3 EXECUTION

### 3.1 GENERAL

- A. Familiarization and General Information:
1. Prior to beginning Work, become thoroughly familiar with site, site conditions and portions of Work specified in this section.
  2. Contractor shall conduct operations and execute Work in such fashion as not to preclude or obstruct required on-going operations of Owner and site occupant. Contractor shall immediately repair damages to buildings, streets, site improvements and utilities at no expense to Owner.
  3. Data on indicated subsurface conditions as specified in geotechnical report, provided by Owner, are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn by Contractor. Data are made available for

convenience of Contractor. Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

4. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility Owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility Owner.

B. Blasting: Will not be permitted.

C. Backfilling prior to approvals:

1. Do not allow or cause any Work to be performed, installed, covered up or enclosed by Work of this section prior to required inspections, tests, and approvals. Contractor is solely responsible for arranging and securing required inspections, tests and approvals.
2. Should Work be enclosed or covered up before it has been approved, Contractor shall uncover such Work at no additional cost to Owner.
3. After Work has been completely inspected, tested, and approved, make repairs and replacements necessary to restore Work to condition in which it was found at time of uncovering, at no additional cost to Owner.

### 3.2 CLEARING & SITE PREPARATION

- A. Before start of construction, all topsoil, organic soils, soils mixed with excessive amounts roots or other organic materials, and all soft, loose, excessively wet or frozen soils shall be removed from building and pavement areas and including at least 5-ft. offsets outside building and pavement lines.
- B. There is limited stockpile locations available onsite. Therefore, suitable material or topsoil, etc. may be required to be trucked to the site as necessary.
- C. Prepare site for construction by removing topsoil, and existing loose, soft, wet, organic, or otherwise unsuitable materials encountered within building construction limits which shall extend approximately ten feet beyond actual building and paving lines. Tree stumps shall be removed in their entirety. Stockpile topsoil in well-drained piles in locations as approved by Architect for later use. The entire stripped area shall be proof rolled utilizing a heavily-loaded dump truck or other pneumatic-tired vehicle of similar size and weight in presence of Soils Engineer. Proof rolling shall not be performed during or following wet weather conditions. Any unsuitable materials shall be removed and replaced as directed by Soils Engineer.
- D. Remove and dispose of materials resulting from site stripping, and on-site materials not acceptable for use as structural fill in an approved and lawful manner.

### 3.3 GRADING AND TOPSOIL INSTALLATION

- A. Topsoil is to be trucked to the site and certified for conformance to specifications by geo-technical/soils engineer prior to placement or spreading of topsoil on site.
- B. Uniformly grade areas covered by project, including transition areas. Finished surface to be smooth, compacted and free from irregular surface changes. Ditches and swales to readily drain as shown on plans and be free of humps or hollows.
- C. Rough Grade or Finish Grade to following tolerances:
  1. Rough Grade:

- Building, paved and sidewalk areas..... Plus or minus 0.1 foot
- Landscaped Areas.....Plus or minus 0.3 foot
- Athletic Fields.....Plus or minus 0.2 foot
- 2. Finish Grade:
  - Building, paved and sidewalk areas.....Plus or minus 0.05 foot
  - Landscaped Areas.....Plus or minus 0.1 foot
  - Athletic Fields.....Plus or minus 0.04 foot

D. Topsoil Installation:

1. Topsoil mixture shall not to be spread until underground pipe work and fine sub-grading is completed to satisfaction of Owner in accordance with the drawings.
2. Immediately prior to dumping and spreading topsoil mixture, subsurface shall be loosened by disking or by scarifying to depth of at least 5 inches to permit thorough bonding. Fine grade all areas to be top soiled to new contour grades, less topsoil mixture depth.
3. The topsoil mixture shall have a minimum thickness of six inches after natural settlement and light rolling and shall conform to grades and elevations as shown on plans. Do not place topsoil mixture when muddy or frozen conditions exist.
4. Topsoil mixture shall be spread on areas to be sodded or seeded.

3.4 FILL MATERIAL

- A. Fill material, imported or on-site, shall be free of organic inclusions, such as tree roots, frozen materials debris, cinders, or other deleterious materials. Fill material shall be approved by Soils Engineer and shall be ML or SM per ASTM D-2487. Fill material shall not contain rocks and lumps greater than 6 inches in dimension and not more than 15% of rocks and lumps shall be greater than 2-1/2" in dimension. Altering moisture contents to obtain adequate degrees of compaction shall be performed at no additional cost to Owner.
  1. Provide aggregate (CR-6) for paving and walkway sub-base and fill material.
  2. RC-6 is acceptable as sub base material for on-site sidewalks
- B. Fill material shall be subject to approval of Soils Engineer and as further approved by Owner and Architect.

3.5 PROOF-ROLLING

- A. After site clearing and cutting of excavation areas, cleared and cut sub-grades shall be proof-rolled with a fully loaded 10-ton dump-truck in presence of Contractor's testing agency and Owner's Representative. Proof-roll two complete coverage's of building and pavement areas. Soft, loose, or unsuitable areas shall be removed and replaced with suitable compacted material.

3.6 PROTECTION AND RESTORATION

- A. General: Provide protection to prevent settlement, movement, undermining of or erosion to existing site improvements, existing utilities, existing buildings, new site improvements, new buildings and new utilities.
- B. Do not permit heavy equipment to pass over any utility until a minimum of two feet of compacted fill or backfill is placed over the top of utility.
- C. Restore damage resulting from lack of protection or improper installation of protective measures or careless execution of construction activities at no increase to Contract Sum. Restoration Work to be approved by Soils Engineer and Owner's Representative.

- D. Protect structures, utilities, curbs, paving and trees indicated to remain, and other facilities in areas of Work. Barricade open excavations and provide warning lights from dusk to dawn each day. Use barrier gates and orange cones with yellow traffic tape to block off area of construction.
- E. Sheeting and Shoring:
  - 1. Prepare and coordinate any shoring, sheeting and bracing at excavations, as required, to ensure complete safety against collapse and/or displacement of earth at side of excavations. Comply with local safety regulations or in absence thereof, with provisions of AGCA's "Manual of Accident Prevention in Construction."
  - 2. Remove shoring as backfilling operations progress, taking necessary precautions to prevent collapse of excavation sides.
  - 3. Shoring or sheeting will not constitute a condition for which an increase may be made in Contract Sum.
  - 4. Sheeting and shoring, if required, shall be designed by the contractor. Submit shop drawings prior installation and contractor shall obtain any permits required by the local jurisdiction for said sheeting and shoring.
- F. Freezing Temperature: Make no excavations to full depth indicated when freezing temperature may be expected, unless footings or slabs can be placed immediately after excavation has been completed. Protect bottom from frost if placing of concrete is delayed. Should protection fail, remove frozen materials and replace with concrete or gravel fill, as directed. Protect newly placed footings from frost penetration below bottom of footing.
- G. Barricade Open Excavations occurring as part of Work; post with warning lights. Operate warning lights as recommended by authorities having jurisdiction and standard practices.
- H. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- I. Perform Excavation, within drip-line of large trees to remain, by hand and protect root system from damage or dry out to greatest extent possible. Maintain moist condition for root system and cover exposed roots with burlap. Paint root cuts of 1-inch diameter and larger with emulsified asphalt tree paint.

### 3.7 MEASUREMENT AND PAYMENT

- A. Unanticipated Soil Conditions: If unsuitable bearing materials are encountered at depths greater than indicated on borings and required by Contract Documents, extend excavation deeper and replace excavated material as directed.
- B. If part of excavation is extended, through error, beyond depth and dimensions indicated or specified, Contractor shall provide suitable compacted fill or concrete where directed by Architect up to required level at Contractor's expense.
- C. Excavation and removal of unsuitable materials below sub-grades indicated or as required by Contract Documents will be paid for as an extra only after removal of materials has been authorized by Owner. Quantities of excavation and removal involving an extra or other adjustment of Contract Sum are subject to measurement, verification, and approval by Architect, prior to removal of materials. Volume shall be established from dimensions of cut. Such dimensions shall be submitted to Owner's representative by Contractor for record.

### 3.8 EXISTING UTILITIES

- A. Notify public utility companies, 48 hours prior to start of earthwork operations. Verify and mark horizontal utility locations prior to start of earthwork operation. Manually excavate and expose utilities as earthwork operations approach marked locations.
- B. Immediately notify Owner's Representative or Architect in event horizontal or vertical utility locations differ from locations indicated. Provide horizontal and vertical details of utility locations as directed by Owner's Representative or Architect. Conflicts with construction are to be determined by Owner's Representative or Architect. Payment for correction of unforeseen conflicts with construction shall be by change order.
- C. Coordinate public utility relocation Work required for public utilities conflicting with construction. Owner's Representative or Architect will provide directions and details required to relocate utilities conflicting with construction.
- D. Do not disconnect or interrupt existing utilities serving existing facilities to remain without notification and authorization of Architect or Owner's representatives.

### 3.9 DEWATERING

- A. Perform earthwork and grading operations to prevent surface or subsurface water from flowing into excavations, surface or subsurface water from flooding project site or adjacent property and water accumulations detrimental to stability of sub-grades. Provide, in-stall, operate and maintain required pumps, dikes, diversions, Sumps, discharge lines and related equipment required to maintain site, excavations and trenches free of standing water.

### 3.10 EXCAVATION

- A. Excavation Classifications:
  - 1. Excavate materials encountered to sub-grade elevations indicated or as indicated on the plans. Excavation is unclassified. Excavate materials regardless of character of the materials encountered, at no increase to Contract Sum. Remove substrate materials required to achieve proper sub-base, including, but not limited to: soils, organics, abandoned structures, rock, etc.
- B. General:
  - 1. Excavate to lines, elevations, and limits indicated on plans and in specifications plus sufficient distance and space to permit erection of forms, shoring and inspections. Placing of concrete footings or foundations on existing fill is not per-mitted. Remove all existing fill below foundations. Fill any excess cuts under footings and foundation with structural fill. Excavate as required, regardless of type, condition, or moisture content of material encountered. If suitable bearings for foundations are not encountered at depths indicated, immediately notify Architect, protect excavation, and do not proceed further until instructions are given. Exposure of footing sub-grade shall be kept to a minimum. Footing concrete shall be placed on same day of excavation. If excavation must remain open overnight or if rainfall or other precipitation is eminent, protect sub-grade with a 2- to 4-inch-thick mud mat and other protection devices to ensure that excavation remains dry.
    - a. Remove existing man-placed fill in areas of addition and replace with satisfactory/suitable compacted fill.



- b. Remove existing foundations and structures in areas of excavation and replace with satisfactory/suitable compacted fill.
- c. The Contractor's testing agency shall evaluate suitability of sub-grades including those for building and wall footings, building slabs, below-grade structures and pavement areas and certify suitability prior to further construction.

C. Excavation for Footings, Foundations, Slabs and Pavements:

1. Grade site so as to prevent water from entering footing excavations and/or ponding on floor sub-grades. Protect excavations from exposure to direct rainfall.
2. Contractor shall undercut, repair and restore damaged sub-grades at no additional cost to Owner.
3. Extend all sub-grade undercuts at least five (5') feet outside building foundation, footing, slab and pavement lines.

D. Excavation for Trenches:

1. Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample Working room. Provide 6 to 9 inches of clearance on both sides of pipe or conduit.
2. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.
3. Where rock is encountered, carry excavation 6 inches below required elevation and backfill with a 6 inch layer of crushed stone or gravel prior to installation of pipe.
4. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

E. Backfill of Trenches

1. Provide suitable compacted material, backfill and/or approved on-site soil material backfill in accordance with detail(s) shown on drawings.
2. Backfill trenches with concrete where trench excavations pass within 18" of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.
3. Do not backfill trenches until tests and inspections have been made and backfilling authorized by Architect/Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.

F. Stability of Excavations:

1. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Shoring or bracing shall be designed as required by the contractor. Should any permits be necessary for said shoring or bracing, said permits shall be the responsibility of the contractor.

3.11 EXCESS WATER CONTROL

A. Unfavorable Weather:

1. Do not place, spread, or roll fill material during unfavorable weather conditions.
2. Do not resume operations until moisture content and fill density are acceptable to Contractor's testing agency.

3. Protect all open excavations as well as slab on grade, sub-grade from damage due to rain or runoff.

B. Flooding:

1. Provide berms or channels to prevent flooding of sub-grade. Promptly remove water collecting in depressions.

C. Softened Sub-grade:

1. Where soil has been softened or eroded by flooding or placement during unfavorable weather, remove damaged areas and re-compact or replace with suitable material as required to ensure properly stabilized sub-grade. Replaced or re-compacted sub-grades shall be certified as being satisfactory by Contractors Testing agency.

D. Dewatering:

1. Provide and maintain during construction, ample means and devices to promptly remove and dispose of water from every source entering excavations or other parts of Work.

### 3.12 SUB-GRADE PREPARATION

- A. Sub-grade Preparation: Upon completion of excavation activities, exposed sub-grade should be proof-rolled utilizing a heavily loaded dump truck or other pneumatic-tired vehicle of similar size and weight, in presence of Soils Engineer. Proof-rolling shall not be performed during or following wet weather conditions. Unsuitable materials discovered during proof-rolling operations shall be removed and replaced as specified below. Upon completion of proof-rolling activities and approval of sub-grade by Soils Engineer, exposed sub-grade shall be further prepared as follows:

1. Unpaved Areas: Scarify sub-grade to six-inch depth prior to topsoil placement.
2. Paved Areas: Scarify sub-grade to twelve-inch depth and compact to 95 percent maximum dry density. Density test methods: ASTM D 1557. Remove unsuitable earth, exhibiting excessive weaving during compaction operations, as specified.

### 3.13 FILL AND COMPACTION

A. Fill and Excavation Requirements:

1. Fill or excavate as required under items of constructions in accordance with Specification Section 31 20 00 and as follows:
  - a. In planting areas, sub-grade shall be 12 inches below finish grades with 12 inches of topsoil applied over sub-grade. In lawn areas, sub-grade shall be 4 inches below finished grades with 4 inches of topsoil applied over sub-grade.
  - b. Under concrete sidewalks, sub-grade shall be to bottom of granular fills under sidewalks.
  - c. Under floor slabs on grade, sub-grade shall be at underside of stone or washed gravel moisture barrier below bottom of slab.
  - d. Under building foundations, sub-grade shall be to bottom of footing. Place compacted structural fill to bottom of footing where required, due to undercutting.
  - e. Under pavement sections, sub-grade shall be to bottom of base course or graded aggregate base.

- f. In areas with existing fill materials, sub-grade shall be as indicated on the structural drawings. Compacted structural fills shall be used to bring such areas back to required elevations.
2. Construct fills at location and to lines and grades required. Use sheepfoot rollers, rubber-tired rollers, or other equipment capable of obtaining required density in placing fills. Use power tampers or hand tampers to compact material in areas where rollers are impractical to use.

B. Backfilling and Compaction:

1. Fill placing operation shall be such that materials when compacted will be blended sufficiently to meet compaction requirements. Suitability of materials is subject to Architect's approval. Dump successive loads of materials, then spread and mix to give horizontal layer of not more than eight inches in loose thickness.
2. Do not roll or compact fill material until layer of material has uniform moisture content within two percentage points of optimum moisture content and which will keep under action of rollers, and material in each layer of fill, while being compacted by rolling or tamping equipment, maintained as nearly as practical at that degree of moisture content which is optimum for obtaining required compaction.
3. Dry material having moisture content too high for proper compaction, should be modified by aeration until moisture content is lowered to point where satisfactory compaction may be obtained.
4. If moisture of fill material is too low, add water to material and thoroughly mix by blading and disking to produce uniform and satisfactory moisture content. In applying water, do not use jets having sufficient force to wash out fine material. Water or aerate fill material, as necessary, and thoroughly mix to obtain a moisture content which will permit proper compaction but remain within +/- 2 percent of optimum moisture content as determined by ASTM Specification D-698.
5. After sub-grade has been approved by Soils Engineer, spread specified fill material in horizontal layers not to exceed 8 inches in loose thickness.
6. During placement and compaction of fill, scarify and bench existing sub-grades so that a seak plane cannot be formed between new fill and existing sub-grade soils. Existing soils shall be scarified to depths of at least 6 inches, and benching generally shall be provided for every 5 ft. height of new fill placed.
7. Do not begin backfilling until construction below finish grade has been approved, forms removed, and excavations cleaned of trash and debris. Bring backfill to required grades. Do not place backfill in wet or frozen areas. Do not operate compaction equipment exceeding 3,000 pounds in dead weight for spreading and compacting closer to foundations, curbs, or walls than a distance equal to height of backfill above top of structural members or height of wall; compact area remaining by power-driven hand tampers suitable for material being compacted. Do not place backfills against walls prior to 7 days after completion of walls.
8. After material has been brought to uniform and satisfactory moisture content, compact fill material to maximum dry density requirements specified below.

Zone	Maximum Dry Density Required (%)	Specification
Top 18" of fill placed below foundation and slabs.	100	ASTM D 698

Fill areas within building, 10' from building perimeter, and paved areas	95	ASTM D 698
Back fill at retaining walls	90	ASTM D 698
Other site grading	90	ASTM D 698

9. Special care should be taken in compacting structural fill at interface with natural soils to ensure uniformity of settlement at transition between fill and natural ground.

C. Compaction Testing and Monitoring:

1. Fill placed in building, pavement, and utility excavations shall be tested in accordance with ASTM D 1556 (Sand Cone Method), or ASTM D 2922, or ASTM D 3017 (Nuclear Method) to verify density and moisture content. A minimum of one test per 2,000 square feet of material placed in building areas should be performed on each lift. A minimum of one test per 5,000 square feet of material placed in parking areas should be performed on each lift. A minimum of one test per 100 linear feet of material placed in footings and utility trenches should be performed on each lift. However, no fewer than three tests per day should be performed on each lift.

3.14 OVER-EXCAVATION

- A. Correct over-excavated areas as directed by Soils Engineer. Remove unsuitable earth encountered as a direct result of over-excavation. Excavate and dispose of all unsuitable earth. Correct excavated area as directed.

3.15 UNSUITABLE EARTH

- A. Immediately notify Owner's Representative or Architect and Soils Engineer in event unsuitable earth is encountered during earthwork or subsequent construction operations beyond limit of excavation and grading specified in this section. Stop Work within immediate area of unsuitable earth. Do not remove unsuitable earth until written authorization is obtained from Owner's Representative and proper measurements are obtained. Excavate and dispose of unsuitable earth upon receipt of written authorization from Owner's Representative. Backfill excavated area as specified. Payment for unsuitable earth removal and associated backfill operations below design grade to be by change order.

3.16 EXCAVATED MATERIAL STORAGE AND DISPOSAL

B. General:

1. Excavation is unclassified. Remove substrate materials required to achieve proper sub-base, including, but not limited to: soils, organics, abandoned structures, rock, etc.
2. Excavate to lines, elevations, and limits indicated on drawings and specifications plus sufficient distance and space to permit erection of forms, shoring and inspections. No concrete footings shall be placed on existing fill material unless existing fill at subgrade elevation is approved by the geotechnical engineer. Fill any excess cuts under footings and foundation with structural fill. Excavate as required, regardless of type, condition, or

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

EARTHMOVING  
31 20 00 - 15

moisture content of material encountered. If suitable bearings for foundations are not encountered at depths indicated, immediately notify Architect, protect excavation, and do not proceed further until instructions are given. Exposure of footing sub-grade shall be kept to a minimum. Footing concrete shall be placed on same day of excavation. If excavation must remain open overnight or if rainfall or other precipitation is eminent, protect sub-grade with a 2- to 4-inch-thick mud mat and other protection devices to ensure that excavation remains dry.

- a. Remove existing man-placed fill in areas of addition and replace with satisfactory/suitable compacted fill.
  - b. Remove existing foundations and structures in areas of excavation and replace with satisfactory/suitable compacted fill.
  - c. Contractor's testing agency shall evaluate suitability of sub-grades including those for building and wall footings, building slabs, below-grade structures and pavement areas and certify suitability prior to further construction.
- C. Stockpile select excavated materials required for fill and/or backfill operations. Stockpile locations to be approved by Owner's Representative or Architect. Shape and grade stockpiles to prevent ponding of surface water. Temporarily stabilize stockpiles as specified on Drawings. Dispose of excess excavation materials as specified.
- D. Excess excavated material shall be legally disposed of by removal from project site.
- E. Site Clearing Debris, Rubble, and Unsuitable Soils: Remove and legally dispose of excavated materials not suitable for re-use on-site as fill or backfill, site clearing debris and rubble resulting from clearing grading and removal operations to an approved off-site disposal area.
- F. Suitable Soils/Materials: Soils and materials suitable for re-use on-site shall remain on job site.
- G. Stockpiling of Excavated Materials suitable for re-use on-site will be permitted where convenient on-site and does not interfere with Work. Stockpiling shall be performed in accordance with approved sediment control plans or with approval by the sediment control inspector. In event that stockpiled materials are rendered unsuitable for re-use on-site, Contractor shall remove all unsuitable materials from site and replace same with suitable soils at no additional cost to Owner.

### 3.17 EARTH FILL

- A. Existing Ground Surface Preparation: Remove vegetation and topsoil as specified in Section 31 10 00 "Clearing". Proofroll exposed sub-grade utilizing a heavily loaded dump truck or other pneumatic-tired vehicle of similar size and weight, in the presence of Soils Engineer. Proofrolling shall not be performed during or following wet weather conditions.
- B. Existing Sub-grade Preparation: Remove unsuitable earth, upon completion of clearing and proofrolling operations, as specified. Continuously bench existing slopes exceeding four feet horizontal to one foot vertical. Bench sufficiently to accommodate earthmoving and compaction equipment and meet requirements of Maryland Department of the Environment Standards and Specifications for Soil and Erosion Control. Select material, re-moved as a result of benching operations, may be used for fill and/or backfill as specified.
  1. Unpaved Areas: Scarify existing sub-grade to six-inch depth and compact to 92 percent maximum dry density. Density test method: ASTM D 1557.
  2. Paved Areas: Scarify existing sub-grade to twelve-inch depth and compact to 98 percent maximum dry density. Density test method: ASTM D 1557. Remove unsuitable earth, exhibiting excessive weaving during compaction operations, as specified.

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

EARTHMOVING

31 20 00 - 16

- C. Fill Placement: Do not place fill material on frozen or muddy sub-grades.
1. Unpaved Areas: Place fill material in loose lifts not exceeding eight-inches.
  2. Paved Areas: Place fill material in loose lifts not exceeding eight-inches.
- D. Fill Compaction and Moisture Control: Obtain compaction with approved compaction equipment. Provide compaction equipment of proper size and in proper mechanical operating condition. Fill material shall be moisture conditioned to within two percent of optimum moisture content.
1. Unpaved Areas: Compact each lift to 92 percent maximum dry density. Density test method: ASTM D 1557.
  2. Paved Areas: Compact each lift to 98 percent maximum dry density. Density test method: ASTM D 1557.
    - a. Control moisture during placement and compaction operations. Remove and replace or scarify and aerate excessively moist material until required moisture content is obtained. Moisten excessively dry material by applying measured amounts of water uniformly to fill material until required moisture content is obtained.

### 3.18 EARTH BACKFILL

- E. General: Backfill excavations as promptly as Work permits, but not until completion of inspection, testing and approval by Soils Engineer.
- F. Placement and Compaction: Do not place backfill on frozen or muddy sub-grades.
1. Unpaved Areas: Place backfill material in loose lifts not exceeding twelve inches. Compact each lift to 92 percent maximum dry density. Density test method: ASTM D 1557.
  2. Paved Areas: Place backfill material in loose lifts not exceeding eight inches. Compact each lift to 98 percent maximum dry density. Density test method: ASTM D 1557.
  3. All material to be moisture conditioned to within two percent of optimum moisture content.

### 3.18 GRADING

- A. General: Grade unpaved and paved areas to smooth and uniform surfaces and to prevent ponding of surface water.
1. Unpaved Areas: Areas to receive topsoil shall be graded to allow for installation of 6 inches of topsoil. Refer to Section 32 93 05 "Lawns & Grasses". Grade slopes exceeding four feet horizontal to one foot vertical, to smooth and uniformly rounded surfaces.
  2. Paved Areas: Grade paved area sub-grades to lines, elevations and sections indicated or specified.

### 3.19 MAINTENANCE, PROTECTION AND REMEDIAL WORK

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

- B. Protection of Existing Conditions: Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, under-mining, washout, and other hazards created by earthwork operation. Protect all trees shown or scheduled to remain. Comply with tree protection requirements specified in Section 31 10 00 Clearing.
- C. Maintenance of Erosion and Sediment Control Measures: Protect and maintain erosion and sediment controls throughout duration of Project until removal is authorized by City of Rockville Sediment Control Inspector. Comply with any directives for maintenance of, or modifications to, these measures issued by said inspector.
- D. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction at no additional cost to Owner.
- E. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent Work, and eliminate of restoration to greatest extent possible.
- F. Clean-Up: Thoroughly clean entire Job Site of trash and other debris. Haul materials away and dispose of off-site in an approved manner.
- G. Maintain all paved access roads in a clean and dust free condition during earthwork or subsequent construction operations. Clean trucks and equipment, removing mud and debris, prior to entering project site access roads and public right-of-way.
- H. Maintain completed areas of project site free of trash and debris. Scarify, re-grade and re-compact sub-grades damaged or disturbed by adverse weather, soil erosion, settlement and subsequent construction operations.

### 3.20 TESTING

- A. Conduct following tests:
  - 1. Laboratory Density Tests:
    - a. Test method: As specified.
    - b. Test interval: One test per each 15,000 s.f., or fraction thereof, of each lift of fill or backfill compacted by other than hand-operated machines, and 1 per each 5,000 s.f., etc., for areas done by hand-operated machines.
  - 2. In-place Field Density Tests:
    - a. Test method: ASTM D 1556-82 or D 2167.
    - b. Density required: As specified.
    - c. Test Interval: One test per 2,000 s.f., or fraction thereof, of compacted sub-grade, or of each lift of fill or backfill compacted by other than hand-operated machines, and 1 per 1000 s.f., etc., for each lift of fill or backfill compacted by hand-operated machines..
- B. Correct Work not conforming to specified densities as directed by Soils Engineer, at no increase to Contract Sum.

### 3.21 WASTE MANAGEMENT

- A. Recycle or salvage waste earthwork materials in accordance with Division 1 “Construction Waste Management” requirements.
- B. Completely remove from Site and dispose of in a legal manner debris and excess material resulting from Work of this Section.

**END OF SECTION**



## **SECTION 32 01 26.74 - CONCRETE OVERLAYS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following exterior paving overlay applications:
  - 1. Textured, colored overlay of concrete paving.
- B. Related Sections include the following:
  - 1. Division 13 Section "Swimming Pool Concrete" for concrete base.

#### **1.3 REFERENCES**

- A. ANSI A 118.4 - Specifications for Latex Portland Cement Mortar.
- B. ASTM A756 D & E - Standard Test Methods for Aging Test by Acceleration.
- C. ASTM C1 028 - Standard Test Methods for Coefficient of Friction.
- D. ASTM D1242 - Standard Test Methods for Abrasion Resistance.
- E. ASTM D570 - Standard Test Methods for Water Absorption.
- F. ASTM D229 - Standard Test Methods for Chemical Resistance by 12 Reagents.

#### **1.4 SUBMITTALS**

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.
- B. Product Data: Manufacturer's data sheets for each type of product indicated, including the following:
  - 1. Preparation instructions and recommendations.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CONCRETE OVERLAYS  
32 01 26.74 - 1

2. Storage and handling requirements and recommendations.
  3. Installation methods.
- C. Shop Drawings: Section, indicating all materials, thicknesses, dimensions, and installation techniques.
- D. Samples for Initial Selection: For each finish product specified, Manufacturer's full range of available colors and patterns.
- E. Samples for Verification:
1. Submit two samples of each color/texture application.
  2. Each sample to be minimum 4 by 4 inches (100 by 100 mm) and exhibit final finishes, materials, and workmanship for pavement installation.
- F. Qualification Data: For Manufacturer and Installer .
- G. Material Certificates: Signed by Manufacturers.
- H. Minutes of preinstallation conference.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with 10-years experience in manufacture of specified products.
- B. Installer Qualifications: An employer of workers trained and approved by Manufacturer of specified concrete overlay systems.
- C. Source Limitations: Obtain concrete overlay system products from the same Manufacturer's plant.
- D. Mockups: Provide mockups of full-size sections of concrete overlay to demonstrate typical pattern, texture, surface finish, color, joints, and standard of workmanship.
1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect seven days in advance of dates and times when mockups will be completed and ready for inspection.
  3. In presence of Architect, damage part of the exposed surface of decorative cement concrete pavement for each finish, color, and texture required, and demonstrate materials and techniques proposed for repair to match adjacent undamaged surfaces.
  4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
  5. Undamaged portions of approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CONCRETE OVERLAYS  
32 01 26.74 - 2

- F. Coordinate with work of other trades to verify jointing techniques and materials installed in concrete base slab are consistent with Work of this Section.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in original factory unopened, undamaged packaging bearing identification of product, Manufacturer, batch number, and expiration data, as applicable.
- B. Store the product in a location protected from damage, construction activity, and precipitation in strict accordance with the Manufacturer's recommendations.
- C. Deliver and store all materials to prevent damage to product and containers.
- D. Store all material in a clean, dry location where temperatures are maintained between 40 and 90 degrees Fahrenheit.
- E. Comply with manufacture's Material Safety Data Sheets (MSDS) for delivery, storage, and handling of products.

#### 1.7 PROJECT CONDITIONS

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURER

- A. Basis of design is SunDek's "Classic Texture" overlay system. See Product Schedule on Drawings indicating color, finish, and additional remarks.
- B. Subject to compliance with requirements, provide the named product(s) produced by the named Manufacturer(s), unless otherwise indicated

#### 2.2 SYSTEM

- A. Copolymer modified cementitious spray texture, knockdown finish.

#### 2.3 MATERIALS

- A. Premix:
  - 1. Copolymer modified thin-set cement coating to be used in conjunction with Additive.
    - a. Color: As recommended by Manufacturer, based on Finish Coat color.
- B. Primer/Additive:

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CONCRETE OVERLAYS  
32 01 26.74 - 3

1. Vinyl acetate emulsion with 53 percent solids content.
- C. Finish Coat:
  1. Water-based acrylic.
    - a. Color: As indicated.
- D. Clear Coat:
  1. Water-based Acrylic Clear coat with 20 percent solids.

## 2.4 PERFORMANCE

- A. Weighs lbs.ft @ (3/16 inch): 1.3 pounds.
- B. Thickness (Typical): 3/16 inch.
- C. Bond Strength (ASTM C297): 469 psi.
- D. Accelerated Aging (ASTM A756 O&E): Unaffected.
- E. Freeze-Thaw (ASTM C67): No Breakage <1% weight loss.
- F. Slip Resistance (S.C.O.F., ASTM C1028): 81 Wet-1.03 dry.
- G. Abrasion (ASTM 01242): 0.0328 in. = 3000 psi concrete.
- H. Absorption (ASTM 0570): 12.7 percent.
- I. Percolation (ASTM 01242) 48 inches/48hour: <1 %.
- J. Chemical Resistance (ASTM 0229) 12 Reagents: Unaffected.
- K. Impact Resistance (Mil 03134 F: No Breakage/< 0.62 inch.
- L. Concentrated Load Test (500 lb): No Breakage/< 0.001 inch.
- M. Fire Resistance (ASTM E108/UBCSTD #32-7/UL 790): Class A

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine concrete surfaces for compliance with tolerances for dimensional, grade, and elevation tolerances. Concrete shall be structurally sound, include all reinforcement and jointing indicated, and be placed and finished in a skilled manner.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CONCRETE OVERLAYS  
32 01 26.74 - 4

- B. Proceed with overlay operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

### 3.2 PREPARATION

- A. Clean concrete surface with high-pressure power washer.
- B. Remove dirt, grease, oil, curing compounds or other foreign substances which may prevent proper bonding.
- C. Repair cracks, surface damage, and any corrective measures on concrete.
- D. Protect adjacent construction from discoloration, spillage, wind drift, and overspray during application.

### 3.3 APPLICATION

- A. Refer to Manufacturer's written specification. General guidelines follow.
- B. Primer/Additive:
  - 1. Spray or roll on area to be coated.
  - 2. Allow to dry and become transparent.
- C. Base Coat:
  - 1. Apply using squeegee or trowel uniformly on area to be coated, minimum thickness of 1/16 inch, and allow drying.
- D. Masonry Effect: Place templates at area to be coated. Pattern as indicated.
- E. Mix Premix for Base Coat application using mechanical agitation for 3-6 minutes, per mix design:
  - 1. Additive/Primer: 0.5 gallon; 4.5 pounds
  - 2. Premix: 1 bag; 45 pounds
  - 3. Clean Water: 1 gallon (Water ratio will vary with temperature and humidity.)
- F. Mix Premix for Texture application using mechanical agitation for 3-6 minutes per mix design:
  - 1. 1. Additive/Primer: 0.3 gallon; 4.5 pounds
  - 2. 2. Premix: 1 Bag; 45 pounds
  - 3. Clean Water: 0.6 gallon (Water ratio will vary with temperature and humidity.)
- G. Spray Texture Premix through hopper gun with air pressure at 12 pounds.
- H. Knock down sprayed texture after it loses its gloss.

- I. Allow to dry completely.
- J. Apply Finish Coat on surface by roller or airless type sprayer.
- K. Allow drying completely.
- L. Score desired pattern into Texture using masonry cutting wheel and grinder.
- M. Apply Clear Coat with roller or sprayer.

#### 3.4 REPAIRS AND PROTECTION

- A. Remove and replace overlay that is broken, damaged, delaminating, discolored, or does not comply with requirements in this Section.
- B. Perform minor repairs, as approved by Architect, using Manufacturer's touch-up kit and written specifications for use.
- C. Protect all phases of overlay from moisture, freezing and foot traffic for no less than 24 hours. Exclude vehicular traffic from for no less than 72 hours. When traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain overlay free of stains, discoloration, dirt, and other foreign material. Sweep overlay not more than two days before date scheduled for Substantial Completion inspections.

**END OF SECTION 32 01 26.74**

## SECTION 32 05 00 – COMMON WORK RESULTS FOR EXTERIOR IMPROVEMENTS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions, and Division 1, Specification Sections apply to work in this section.

#### 1.2 DESCRIPTION OF WORK

- A. Section specifies materials, work and standards for site and utility construction materials and work.

#### 1.3 RELATED SECTIONS

- A. Refer to Section 31 20 00 "Earthmoving"; Section 33 31 13 "Site Sanitary Sewerage Gravity Piping", and Section 33 42 00 "Stormwater Conveyance"

#### 1.4 STANDARDS

- A. Washington Suburban Sanitary Commission's (WSSC) current "General Conditions and Standard Specifications".
- B. Maryland Department of Transportation - State Highway Administration current "Standard Specifications for Construction and Materials", measurement and payment clauses do not apply.
- C. American Concrete Institute (ACI).
- D. Other utility purveyors' standards as applicable. Contractor to coordinate with other utility purveyors.
- E. City of Rockville Requirements as applicable.

#### 1.5 SUBMITTALS

- A. Products:
  - 1. Submit typewritten list of selected products, when options are specified, within 10 calendar days after Contract execution. Submit detailed shop drawings of utility modifications required by selection of options.
  - 2. Submit manufacturer's descriptive literature of structure castings.
  - 3. Submit Portland cement concrete mix design formula for each class specified.
  - 4. Submit certificates, signed by manufacturer or producer and Contractor, stating the following comply with this specification:
    - a. Portland cement.
    - b. Fine aggregates.
    - c. Coarse aggregates.
    - d. Portland cement concrete.

- e. Concrete masonry units.
  - f. Brick.
  - g. Foundation materials.
  - h. Bedding materials.
5. Submit shop drawings, of the following, indicating concrete reinforcement locations, size and placement:
- a. Cast in place reinforced concrete structures.
  - b. Pre-cast reinforced concrete structures.
6. Submit location of product manufacture and of extraction/recovery of primary raw materials.
7. Submit recycled-content data, designating percentages of post-consumer and post-industrial recycled material.
8. Submit certification of FSC-certified sustainably harvested wood formwork materials, if applicable.
- B. Compaction Equipment: Submit compaction equipment data prior to start of controlled fill earthwork operations.
- C. Testing: Submit test reports of testing specified.
- D. "As-Built" Plans: Submit "as-built" plans for water, sanitary sewer, storm drainage and stormwater management systems within 60 days of achieving substantial completion. Submit to Owner's Representative and to controlling utility agencies as required.

#### 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery: Schedule delivery operations to avoid unnecessary re-handling.
- B. Storage:
- 1. General: Store in accordance with manufacturer's recommendations and as noted.
  - 2. Portland cement: Store on platforms above ground and protect from adverse environmental conditions.
  - 3. Aggregates: Store to prevent foreign material contamination.
  - 4. Utility Joint Materials and Lubricants: Store in cool and dry location free of oil, grease, excessive heat and direct sunrays.
- C. Handling:
- 1. General: Comply with manufacturer's recommendations and as noted.
  - 2. Aggregates: Handle to prevent segregation.
  - 3. Pre-cast Concrete Structures: Handle to prevent damage. Utilize lifting holes provided by structure manufacturer.

#### 1.7 DEFINITIONS

- A. Refer to Section 31 20 00 "Earthmoving".

#### 1.8 PROJECT CONDITIONS

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

COMMON WORK RESULTS FOR  
EXTERIOR IMPROVEMENTS  
32 05 00 - 2



- A. Refer to Section 31 20 00 "Earthmoving" and as noted.
- B. Traffic: Maintain pedestrian and vehicular traffic during utility construction operations.
- C. Environmental Limitations: Do not place Portland cement products or erect masonry when ambient air temperature is below 40 degrees Fahrenheit or air temperature has been below 35 degrees Fahrenheit for three or more consecutive days or between 15 November and 01 March without written authorization from Owner's Representative or Architect.
- D. Certifications, Inspections and As-Built Documents: Contractor shall provide "as-built" plans of on-site water, sanitary sewer service and storm sewer work by a State of Maryland Licensed Surveyor, or Professional Engineer. Contractor shall notify Architect within 15 calendar days of signing Contract identity of Licensed Surveyor or Registered P.E. who will certify as-built water and sewer plan. Show any changes and include ties for location of valves, bends, manholes, fire hydrants, and laterals accompanied by qualifying air test date and certification of compliance. See Division One "Project Record Documents" for format of "as-built" drawings.

Stormwater Management As-Built Inspections, Certifications and As-Built: General Contractor and/or Construction Manager (GC/CM) shall engage civil engineer of record (CER) and geotechnical engineer of record (GER) to perform and document inspections, observations, provide required certifications and obtain approval thereof from City of Rockville Department of Public Works. As-built surveys and measurements required to prepare complete and accurate As-Built Plans shall be provided by the GC/CM to the CER in electronic and hard copy format. The surveys and/or measurements shall be signed and sealed by a Maryland licensed surveyor.

- 1. Required services include providing and certifying accuracy and correctness of information and As-Built Plans in strict conformance with current applicable City of Rockville "As-Built / Record Drawing Plan Review Checklist"
- 2. Services must be performed by and/or under direct supervision of CER/GER and be based upon direct observations and field information obtained under their direct supervision.
- 3. GC/CM shall collect and provide supporting certifications required by CER/GER to satisfy City of Rockville checklist requirements. GC/CM shall provide certifications from suppliers for materials used in construction of facility (principal spillway, control structure, PVC pipe, aggregate, wetland plantings, etc.)
- 4. Under no circumstances shall any construction or materials deviate from approved stormwater management/sediment control plans without prior approval of Owner, CER/GER and City of Rockville.
- 5. Any changes to designs or construction shown on approved stormwater management plans must be appropriately pre-approved and permitted by CER, Owner and City of Rockville prior to being implemented and/or submitted for review and approval as an as-built condition.
- 6. CER/GER shall confirm and document to Owner, via physical measurement and survey, that pipes, structures and facilities have been set to approved final design grade prior to being backfilled. If pipes, structures and facilities have not been set to approved elevations and configuration, GC/CM shall remove and reset structures, pipes and facilities to approved elevations at no additional cost to owner.
- 7. GC/CM shall be responsible for costs, damages and delays arising from or in connection with corrective measures, re-designs, re-approvals, re-reviews required for as-built approval by City of Rockville.
- 8. Prior to preparing and/or submitting any as-built documentation to City of Rockville, GC/CM shall arrange and attend a site meeting with CER/GER, City Sediment Control Inspector and representative(s) of City of Rockville Department of Parks and Rec to

observe stormwater management facilities and site conditions/stabilization and to obtain City Inspector's approval to prepare and submit as-built documents and certifications to City of Rockville Department of Public Works for review. All required documentation will be submitted to City of Rockville for initial review within forty-five (45) days of that meeting

9. Corrections, either to plans or construction, identified during review of as-built documents shall be made, re-inspected and corrected as-built documentation at no additional cost to Owner. Revised as built plans must be re-certified by CER and re- submitted to City of Rockville such that final as-built approval will be obtained within two (2) weeks of the CER's receipt of City of Rockville comments on initial submittal at no additional cost to Owner.
10. CER shall provide to City of Rockville-Department of Parks and Rec electronic files, in .PDF formats, for submittals and of review comments received from City.
11. In addition to City of Rockville requirements, GC/CM shall provide the following documentation to City of Rockville-Department of Parks and Rec in hard copy and electronic format.
  - a. Date/Time-Stamped Digital (.jpg) photographs documenting the chronology of construction of stormwater management facilities from beginning to end.
  - b. Electronic files, AutoCAD and/or .PDF format, of stormwater management facilities as-built construction including Montgomery County signed/approved as-built drawings, plans, and certifications.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Provide products manufactured of primary raw materials extracted/recovered within a 500-mile radius of Project Site.
- B. Portland Cement Concrete: MDOT-SHA Section 902, Portland Cement Concrete and Related Products.
  1. Water: Clean and free of oil, acid and injurious amounts of vegetable matter, alkalis and salts. River, stream or lake water is prohibited.
  2. Forms: Wood, steel or as specified. Form materials to produce smooth surfaces, free of irregularities. Non-rented wood formwork shall be made of FSC-certified sustainably harvested wood materials.
- C. Mixes:
  1. Class "A" Concrete: MDOT-SHA Mix No. 4, Table 902 A. 28-Day compressive strength 3500 P.S.I. Maximum 50 percent GGBF slag replacement for Portland cement, per MDOT-SHA Specification 902.06.05.
  2. Class "B" Concrete: MDOT-SHA Mix No. 2, Table 902 A. 28-Day compressive strength 3000 P.S.I. Maximum 50 percent GGBF slag replacement for Portland cement, per MDOT-SHA Specification 902.06.05.
- D. Concrete Reinforcements:

1. Steel bars: ASTM A 615, Grade 60, deformed, designation as indicated or specified. Minimum 99 percent recycled-content, of which minimum 60 percent shall be post-consumer and the remainder may be post-industrial material.
2. Steel Wire Mesh: ASTM A 185 welded wire mesh, roll type, size as indicated or specified.

E. Brick:

1. Type A: ASTM C 55 Concrete Building Brick, type I, grade N, standard manufacture size.
2. Type B: ASTM C 32 Clay or Shale Brick, grade SS or as specified, solid, 2-1/4 by 3-3/4 by 8 inches.

F. Cement Mortar: SHA Section 902.05, Masonry Cement.

1. Water: As specified for Portland cement concrete.

G. Cast-in-Place Reinforced Concrete Structures:

1. Structure Bases: Class "B" Portland Cement Concrete.
2. Structure Walls and Top Slabs: Class "A" Portland Cement Concrete.
3. Concrete Reinforcement, Structural Steel, Structure Castings and Appurtenances: As indicated and specified.

H. Pre-Cast Reinforced Concrete Structures:

1. Square and Rectangular Structures: ASTM C 858.
2. Structural Design Loading: ASTM C 858, live load designation A-16.
3. Circular Structures: ASTM C 478.
4. Structure Joints: ASTM C 443.

I. Foundation Materials:

1. Type I: ASTM C 33 Coarse Aggregate, size No. 8 (3/8 inch to No. 8).
2. Type II: MDOT-SHA Coarse Aggregate Size No. 57 stone (1 1/2 inch to No. 8).
3. Type III: Earth material free of debris, waste materials, frozen materials, vegetable matter, clay, rocks or stones exceeding 1 inch in any dimension. Obtain Type III material from on-site excavations or off-site borrow areas approved by Soils Engineer.

J. Bedding Materials:

1. Type A: ASTM C 33 Fine Aggregate.
2. Type B: ASTM C 33 Coarse Aggregate, size No. 6 (1 inch to No. 4).
  - a. Contractor's Option: MDOT-SHA Coarse Aggregate Size No. 57 stone (1 1/2 to No. 8.)
  - b. Recycled concrete RC-6 may, at Contractor's discretion, be used for bedding in locations approved by Architect and Soils Engineer.
3. Type C: Earth material free of debris, waste materials, frozen materials, vegetable matter, clay and rocks or stones exceeding one inch in dimension.

K. Bedding Material Schedule:

1. Storm drainage system: Type B, or as per manufacturers recommendations.
  2. Water Distribution System: City of Rockville standards, or Type A if there are no standards.
  3. Sanitary Sewer System: City of Rockville standards, or Type B if there are no standards.
  4. All other utilities: Type C.
- L. Backfill Materials: As specified for Fill or Backfill, Section 31 20 00 "Earthmoving", and as noted.
1. Utility Trenches:
    - a. Phase I: Earth material free of debris, waste materials, frozen materials, vegetable matter and rock or stones exceeding one inch in any dimension.
    - b. Phase II: Earth material free of debris, waste material, frozen material, vegetable matter and rock or stones exceeding one inch in dimension.
  2. Utility Structures: Earth material free of debris, waste material, frozen material, vegetable matter and rock or stones exceeding two inches in any dimension. Obtain backfill material from the following: Excavated material approved by Soils Engineer or Owner's Representative.

### PART 3 EXECUTION

#### 3.1 PROTECTION AND RESTORATION

- A. Refer to Section 31 20 00 "Earthmoving" and as noted.
- B. General: Provide support systems (e.g. sheeting, shoring, sheet piling, cribbing, etc.) at no increase to Contract Sum. Cut off timber when using timber support systems above top of utility to prevent utility displacement. Exercise care when using trench shields or boxes during shield movement to prevent utility displacement.

#### 3.2 EXISTING UTILITIES

- A. Refer to Section 31 20 00 "Earthmoving", and as noted. Contractor shall notify "Miss Utility" at least 48 hours prior to start of construction.
- B. Provide test pits at existing utility crossings prior to system construction. Verify utility inverts for review by Architect or Owner's Representative to determine potential conflicts prior to start of system construction.

#### 3.3 DEWATERING

- A. Refer to Section 31 20 00 "Earthmoving".

#### 3.4 EXCAVATION

- A. Refer to Section 31 20 00 "Earthmoving" and as noted.
- B. Trench Excavation: Open cut method or as specified. Excavate materials encountered to sub-grade elevations indicated or specified.

1. Trench width below top of utility not to exceed the following clearances on each side of utility:
2. Utility Exterior Width,

<u>Clearance</u>	<u>Diameter or Span</u>
1 thru 30 inches,	24 inches
31 inches and higher,	36 inches

3. Excavate utility trenches to following depths:
  - a. Circular storm drainage pipe: Six inches below bottom of pipe.
  - b. Water distribution pipe: City of Rockville standards or four inches below bottom of pipe.
  - c. Sanitary sewer pipe: City of Rockville standards or six inches below bottom of pipe.
  - d. All other utilities: Bottom of utility.

C. Structure Excavation:

1. Utility structure excavation to produce 12-inch clearance between exterior structure walls and excavation walls or support systems.
2. Extend excavation to following:
  - a. Cast in place reinforced concrete structures: Six inches beyond structure base.
  - b. Pre-cast reinforced concrete structures: Six inches below bottom of pre-cast structure base.
  - c. Pre-cast reinforced concrete structure with cast in place concrete base: Bottom of structure base.
  - d. Masonry structures: Bottom of structure base.

### 3.5 OVER-EXCAVATION

A. Refer to Section 31 20 00 "Earthmoving", except as noted.

B. Utility Trenches:

1. Correct over-excavation of water distribution, storm drainage and gravity flow sanitary sewer systems by backfilling over-excavated trenches with Type II foundation (Type B bedding) material and compacting.
2. Correct over-excavation of other utilities by backfilling over-excavated trenches with Type III foundation (Type C bedding) material and compacting.
3. Place material in loose lifts not exceeding eight inches. Compact each lift to 98 percent maximum dry density. Density test method: ASTM D 698.

C. Structures: Correct utility structure over-excavation by backfilling over-excavation with Type II foundation (Type B bedding) material and compacting.

1. Place material in loose lifts not exceeding eight inches. Compact each lift to 98 percent maximum dry density. Density test method: ASTM D 698.

### 3.6 UNSUITABLE EARTH

A. Refer to Section 31 20 00 "Earthmoving", except as noted.

- B. Restore unsuitable earth excavation as specified for over-excavation.

### 3.7 EXCAVATED MATERIAL STORAGE

- A. Refer to Section 31 20 00 "Earthmoving" and as noted.
- B. Stockpile select excavated materials required for backfill operations.

### 3.8 PORTLAND CEMENT CONCRETE CONSTRUCTION

- A. Mixing:
  - 1. Ready-Mixed Concrete: ASTM C 94.
  - 2. Project Site Batch Mixing: ACI 301, Chapter 7.
- B. Formwork: ACI 301, Chapter 4.
- C. Reinforcement: ACI 301, Chapter 5.
- D. Joints and Embedded Items: ACI 301, Chapter 6.
- E. Placement: ACI 301, Chapter 8.
- F. Surface Defects: ACI 301, Chapter 9.
- G. Finishes: ACI 301. Non-Exposed: Section 10.2.1. Exposed: Section 10.2.2.
- H. Curing and Protection: ACI 301, Chapter 12.
- I. Cold Weather Concreting: ACI 306R.
- J. Hot Weather Concreting: ACI 305R.

### 3.9 STRUCTURES

- A. Cast in Place Reinforced Concrete Structures: Construct cast in place concrete structures as indicated and specified.
- B. Pre-cast Reinforced Concrete Structures:
  - 1. Pre-cast structure base: Place Type I foundation material, on excavation sub-grade, to bottom of structure base and compact to 98 percent of maximum dry density by ASTM D 698. Install pre-cast structure base, on compacted foundation material, level to 1/8 inch in 5 feet. Clean and lubricate structure joints, immediately prior to installation, in accordance with manufacturer's recommendation. Install pre-cast reinforced structure sections, on structure base, plumb to 1/4 inch in 10 feet. Position structure sections on previously installed section and push joints tightly together. Position concrete top slabs on structure as indicated. Plug lifting holes with cement mortar. Install frames and covers to finished grade with bricks and cement mortar.
- C. Masonry Structures:

1. Erect structure walls with masonry materials specified. Wet each masonry unit thoroughly before placement. Shove each unit into place in full bed of cement mortar. Horizontal and vertical joints not to exceed 1/2 inch.
2. Bond and Coursing: Brick Masonry - Common Bond.
3. Fill joints completely with cement mortar. Fit masonry units tightly around utilities projecting through structure walls. Space, set and bond structure appurtenances as indicated or specified during masonry erection. Point up interior structure joints and clean removing excess cement mortar. Parge exterior structure walls with 1/2 inch thick cement mortar and finish with smooth trowel. Masonry construction tolerances not to exceed 1/4 inch in 10 feet vertical from plumb.

D. Stormwater Management Facility Structures:

1. As specified on the plans

3.10 BEDDING

- A. Storm drainage pipe: Place bedding material, on excavated trench sub-grade to bottom of pipe and compact. Upon completion of pipe installation, place and compact bedding material to springline of pipe.
- B. Water and Sewer: Place bedding in accordance with City of Rockville Standards and Specifications.
- C. Other Utilities: Bedding not required. Install utilities on excavated trench sub-grade as indicated or specified.

3.11 BACKFILL

- A. Backfill utility trenches in two consecutive phases as follows:
  1. Phase I - Backfill to 12-inch depth above top of utility. Place backfill material in loose lifts not exceeding six inches. Compact each lift to 98 percent maximum dry density. Density test method: ASTM D 698.
  2. Phase II - Unpaved Areas: Place backfill material to grade in loose lifts not exceeding 24 inches. Compact each lift to 90 percent maximum dry density. Density test method: ASTM D 698
  3. Phase II - Paved Areas: Place backfill material to grade in loose lifts not exceeding eight inches. Compact each lift to 98 percent maximum dry density. Density test method: ASTM D 698.
- B. Backfill utility structures as follows: Place backfill material carefully and in loose lifts not exceeding 12 inches (paved areas - 8 inches) in depth. Compact each lift to 95 percent maximum dry density. Density test method: ASTM D 1557. Do not backfill masonry structures until cement mortar parge attains initial set.

3.12 EXCAVATED MATERIAL DISPOSAL

- A. Refer to Section 31 20 00 "Earthmoving".

3.13 WASTE MANAGEMENT

- A. Recycle waste materials in accordance with Section 01 74 19 “Construction Waste Management” requirements.

END OF SECTION



## SECTION 31 23 13 – CONCRETE PAVING

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1, Specification Sections apply to work in this section.

#### 1.02 DESCRIPTION OF WORK

- A. Section specifies materials and work required to construct Portland cement concrete walk excluding pool decking.

#### 1.03 SECTIONS

- A. Refer to Section 31 20 00 "Earthmoving", Section 32 05 00 "Common Work Results for Exterior Improvements", and Section 32 16 13 "Curbs & Gutters".

#### 1.04 STANDARDS

- A. Maryland Department of Transportation State Highway Administration's current "Standard Specifications for Construction and Materials".
- B. City of Rockville Department of Public Works - current standards and specifications.

#### 1.05 SUBMITTALS

- A. Contractor shall provide a sample of eight linear feet of typical concrete walk, with a control joint, for approval by Owner's Representative. No additional concrete walk may be constructed until sample is inspected and approved.
- B. Submit location of product manufacture and of extraction/recovery of primary raw materials.
- C. Submit recycled-content data, designating percentages of post-consumer and post-industrial recycled material.
- D. Submit certification of compliance with albedo requirements.
- E. Submit certification of FSC-certified sustainably harvested wood formwork materials, if applicable.

#### 1.06 PROJECT CONDITIONS

- A. Traffic: Maintain pedestrian traffic during walk construction operations.
- B. Limitations:
  - 1. Underground Utilities: Do not proceed with concrete construction until under-ground utility construction is complete.
  - 2. Curbing: Do not proceed with concrete walk construction until adjacent or adjoining curb construction is complete.

3. Environmental: Refer to Section 32 05 00 "Common Work Results for Exterior Improvements".

## PART 2 - PRODUCTS:

### 2.01 MATERIALS:

- A. General: Provide products manufactured and of raw materials extracted/recovered within a 500-mile radius of the Project Site.
- B. Gravel Base:
  1. MDOT-SHA GA Base.
  2. Recycled concrete RC-6 may, at Contractor's discretion, be used for base in approved locations.
- C. Concrete: Class "A" Portland cement concrete, Section 32 05 00 "Common Work Results for Exterior Improvements".
  1. Maximum 50 percent GGBF slag replacement for Portland cement, per MDOT-SHA Specification 902.06.05
  2. Albedo: Concrete mix design, including cement and aggregate materials, shall achieve a minimum reflectance (albedo) of 0.3 when compared with tested values of mix designs included in Lawrence Berkeley National Laboratory's "Effects of Composition and Exposure on the Albedo of Portland Cement Concrete", Appendix A: Images and Albedos of All Concretes".
- D. Joint Materials: Expansion and Isolation Joints: ASTM D 994, bituminous preformed joint filler, 1/2 inch thick or Cork expansion joint per ASTM D 1752, Type II, 1/2 inch thick
- E. Expansion Joint sealant: Polyurethane elastomeric sealant per ASTM C 920
- F. Forms: Steel or wood for straight or tangent walks. Non-rented wood materials shall be FSC-certified sustainably harvested.
- G. Curing Materials: Burlap Mats: AASHTO M182, Class 1.
- H. Miscellaneous Products:
  1. Form Release Compound: Non-staining, zero-VOC, 100 percent biodegradable made from plant-based oils and approved by Architect.
  2. Cement Mortar: Section 32 05 00 "Common Work Results for Exterior Improvements".

## PART 3 - EXECUTION

### 3.01 PROTECTION AND RESTORATION

- A. Concrete: Protect completed concrete from damage. Restore damaged concrete as directed by Owner's Representative or Architect.

### 3.02 SUBGRADE PREPARATION

- A. Paved Areas: Section 31 20 00 "Earthmoving" and as noted. Verify sub-grade elevations and compaction and correct discrepancies before proceeding with construction. Verify utility casting elevations and reset or adjust to meet flush with finished concrete surface. Remove loose material from sub-grade prior to gravel base placement.

### 3.03 GRAVEL BASE PLACEMENT

- A. Place and compact gravel base on prepared sub-grade to depth indicated. Remove debris from surface of gravel base prior to placement of concrete. Do not place gravel base material on frozen or muddy sub-grade.

### 3.04 FORMS

- A. Clean and coat forms with form release compound, prior to use. Install forms to lines, grades and elevations indicated or as specified. Brace forms to prevent movement during concrete placement.

### 3.05 EXPANSION JOINTS

- A. Install expansion joints at maximum 25-foot intervals or as indicated. Install expansion joints, adjacent to curbing, opposite curbing joints and as indicated. Place expansion joints perpendicular to concrete surface and with top edge 1/4 inch below concrete surface.
- B. All expansion joints are to be sealed

### 3.06 ISOLATION JOINTS

- A. Install isolation joints where concrete abuts buildings, existing walk sections, utility structures and concrete curb. Place isolation joints with top edge 1/4 inch below concrete surface.

### 3.07 CONTRACTION JOINTS (SCORE LINES)

- A. Provide Contraction joints at five-foot intervals or as indicated. Form Contraction joints with 3/4 inch jointing tool.

### 3.08 CONCRETE PLACEMENT

- A. Sample Approval: No concrete walks may be constructed until sample section has been inspected and approved by Owner's Representative.
- B. General: Place concrete in forms in one uniform layer. Consolidate concrete by tamping, spading or vibrating to prevent honeycombing. Place and consolidate concrete carefully to prevent dislocation of joint materials.

### 3.09 FINISHING

- A. General: Draw a fine hair broom across concrete surface. Where longitudinal grade exceeds five percent, use a coarse texture finish by drawing a stiff bristle broom across concrete surface. Do not add water to finish. Do not wet broom to finish.
- B. Handicapped Ramps: Handicapped ramps shall have a truncated dome surface.

### 3.10 CURING

- A. Mat Method: Moisten mats thoroughly with water before placing on exposed concrete surfaces and overlap six inches. Cover mats with polyethylene sheeting and maintain mats in continuously moist condition for seven calendar days. Repair or replace damaged mats.

### 3.11 TESTING

- A. General: Correct work not conforming to tolerances as directed by Owner's Representative or Architect, at no increase to Contract Sum.
- B. Walk Horizontal Alignment Test: Tolerance not to exceed 1/2 inch between any two contacts on 10-foot straightedge, except along horizontal curves. Test locations random and determined by Owner's Representative or Architect. Test observation by Owner's Representative or Architect is required.
- C. Walk Surface Smoothness Test: Tolerance not to exceed 3/8 inch between any two surface contacts on 10-foot straightedge. Test locations random and determined by the Owner's Representative or the Architect. Test observation by the Owner's Representative or the Architect is required.
- D. Contractor must verify slopes of concrete walks, ramps, and steps match Contract Documents using a 2' long level. Test locations random and determined by Owner's Representative or Architect. Test observation by the Owner's Representative or the Architect is required.
- E. Contractor must perform a flood test of cured concrete to verify concrete is draining per the Contract Documents and there are no low areas of standing water. Test observation by the Owner's Representative or the Architect is required.
- F. Contractor shall provide third party inspector for all testing at the contractor's expense.

### 3.12 WASTE MANAGEMENT

- A. Recycle waste materials in accordance with Division 1 "Construction Waste Management" requirements.

**END OF SECTION 32 13 13**

## SECTION 32 13 73 - PAVING JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Expansion and contraction (control) joints within concrete pavement.
- B. Related Sections include the following:
  - 1. Division 13 Section "Swimming Pool Concrete" for constructing joints on pool deck.
  - 2. Division 32 Section "Concrete Paving" for constructing joints in concrete pavement.

#### 1.3 SUBMITTALS

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.
- B. Product Data: For each joint-sealant product indicated.
- C. Product Test Reports: For each joint-sealant product indicated.
- D. Samples for initial selections: For each type of joint sealant required, as selected by Architect from manufacturer's full range.
- E. Samples for Verification: For each type and color of joint sealant required. Install joint-sealant samples in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- F. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- G. Qualification Data:
  - 1. For Installer.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

PAVING JOINT SEALANT  
32 13 73 - 1

2. For Testing Agency.

H. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

#### 1.4 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Use manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
3. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.

D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing of current sealant products within a 36-month period preceding the commencement of the Work.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 for testing indicated, as documented according to ASTM E 548.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (4.4 deg C).
2. When joint substrates are wet or covered with frost.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

### **2.2 MATERIALS, GENERAL**

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

### **2.3 COLD-APPLIED JOINT SEALANTS**

- A. Type NS Silicone Sealant for Concrete: Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS.
  1. Available Products:
    - a. Crafcro Inc.; RoadSaver Silicone.
    - b. Dow Corning Corporation; 888.
- B. Single-Component, Self-Leveling, Silicone Joint Sealant for Concrete: ASTM D 5893, Type SL.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Crafcro Inc., an ERGON company; RoadSaver Silicone SL.
    - b. Dow Corning Corporation; 890-SL.
    - c. Pecora Corporation; 300 SL.

## 2.4 JOINT-SEALANT BACKER MATERIALS

- A. General: Provide joint-sealant backer materials that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
- B. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, closed cell polyethylene, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
  - 1. Minimum diameter: 25% greater than joint width.
- C. Cork or self-expanding cork: ASTM D 1752, Type 2.
- D. Sponge rubber: ASTM D 1752, Type I, closed cell sponge rubber.
- E. Contractor option: Provide ½ inch deep snap caps with any of the above to hold space for sealant during concrete installation. Match joint width.
  - 1. For applications where snap cap is to remain as surface joint filler, color shall be as selected by Architect from Manufacturer's full range of standard colors.
- F. Pre-fabricated PVC Expansion Joint. Above snap cap required.

## 2.5 PRIMERS

- A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior

22.00036.00

Rockville Outdoor Recreation Pool Renovation  
BID SET

PAVING JOINT SEALANT

32 13 73 - 4



experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of backer materials.
  - 2. Do not stretch, twist, puncture, or tear backer materials.
  - 3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses provided for each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealants from surfaces adjacent to joint.
  - 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
- G. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

3.4 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

**END OF SECTION 32 13 73**

## SECTION 32 16 13 – CURBS & GUTTERS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Conditions and Division 1 and Specification Sections apply to work in this section.

#### 1.02 DESCRIPTION OF WORK

- A. Section specifies materials and work required to construct Portland cement concrete curbing.

#### 1.03 RELATED SECTIONS

- A. Refer to Section 31 20 00 "Earthmoving", Section 32 05 00 "Common Work Results for Exterior Improvements" and Section 32 13 13 "Concrete Paving".

#### 1.04 STANDARDS

- A. Maryland Department of Transportation State Highway Administration's current "Standard Specifications for Construction and Materials".
- B. City of Rockville Department of Public Works – current standards and specifications.

#### 1.05 SUBMITTALS

- A. Submit cut sheets for construction of curb in public right-of-way to and obtain approval from governing jurisdiction and Architect prior to curb construction.
- B. Contractor shall provide a sample of eight linear feet of typical concrete curb-and-gutter, with a control joint, for approval by Owner's Representative. No additional concrete curbing may be constructed until sample is inspected and approved.

#### 1.06 PROJECT CONDITIONS

- A. Traffic: Maintain vehicular and pedestrian traffic during curb construction operations.
- B. Limitations:
  - 1. Environmental: Refer to Section 32 05 00 "Common Work Results for Exterior Improvements".
  - 2. Underground Utilities: Refer to Section 32 13 13 "Concrete Paving".

#### 1.07 CONSTRUCTION SURVEYS

- A. Retain services of a Maryland Registered Land Surveyor or Professional Engineer to provide combined horizontal and vertical alignment stakes for curb construction within public right of way. Horizontal stake interval 25 feet maximum.
- B. Provide combined horizontal and vertical alignment stakes for project site curb construction. Horizontal stake interval 25 feet maximum.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Concrete: Class 'A' Portland cement concrete, Section 32 05 00 "Common Work Results for Exterior Improvements"
- B. Joint Materials: Expansion and isolation joints: ASTM D 994, bituminous preformed joint filler, 1/2 inch thick.
- C. Forms: For straight or tangent curbing use steel or wood. For curved curbing use flexible spring steel or laminated wood.
- D. Curing Material: Refer to Section 32 13 13 "Concrete Paving".
- E. Stone Base: Refer to Section 32 13 13 "Concrete Paving".

## PART 3 - EXECUTION

### 3.01 PROTECTION AND RESTORATION

- A. Refer to Section 32 13 13 "Concrete Paving".

### 3.02 SUBGRADE PREPARATION

- A. Refer to Section 32 13 13 "Concrete Paving".

### 3.03 FORMS

- A. Refer to Section 32 13 13 "Concrete Paving", and as noted.
- B. Form curbing to standards indicated and specified.

### 3.04 EXPANSION JOINTS

- A. Refer to Section 32 13 13 "Concrete Paving" and as noted.
- B. Install expansion joints at maximum 30-foot intervals or as indicated. Place expansion joints perpendicular to surface and curbing face. Place combination curb and gutter expansion joints, with top edge 1/2 inch below gutter surface.

### 3.05 ISOLATION JOINTS

- A. Refer to Section 32 13 13 "Concrete Paving".

### 3.06 CONTRACTION JOINTS

- A. to Section 32 13 13 "Concrete Paving" and as noted.
- B. Provide Contraction joints, perpendicular to surface and face of curbing, at 10 foot intervals. Place Contraction joints at points where curved and tangent sections of curbing meet. Place Contraction joints with removable form spreader places. Contractor's option: Score or saw joints to 1-1/4 inch depth.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

CURBS AND GUTTERS  
32 16 13 - 2

### 3.07 CONCRETE PLACEMENT

- A. Refer to Section 32 13 13 "Concrete Paving".

### 3.08 FINISHING

- A. Strike off top surfaces of curbing to top of forms and to smooth and uniform texture. Strip curb face forms when concrete takes initial set. Trowel curb face to smooth and uniform texture. Finish top surfaces and curb face to fine texture by drawing a soft bristle brush longitudinally along curb. Finish edges of curbing with edging tool having a radius as indicated. Maintain forms, except curb face forms, in place 12 hours after concrete placement. Correct defects (e.g. holes, honeycomb areas, broken edges, etc.) upon removal of remaining forms, with cement mortar. Finish contraction joints with 1/4-inch radius edging tool. Finish curbing joints to clean and true edges. Maintain curbing surfaces moist during finishing operations.
- B. Curing: Refer to Section 32 13 13 "Concrete Paving".
- C. Protection: Contractor shall protect concrete curbs from damage, effacing, etc. during construction. Contractor shall remove and replace any curb damaged, effaced and/or marred during construction at no additional cost to Owner.

END OF SECTION

## SECTION 32 31 13 – CHAIN LINK FENCES & GATES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including the General Conditions and other Division 1 Specification Sections, apply to the work of this Section.

#### 1.02 DESCRIPTION OF WORK

- A. Materials and Work Required to Construct Chain Link Fence and Gates and Related Accessories.

#### 1.03 RELATED SECTIONS

- A. Refer to Section 31 20 00 "Earthmoving", and Section 32 16 13 "Curbs & Gutters"

#### 1.04 CODES

- A. Existing Underground Utilities: Refer to Section 31 20 00 "Earthmoving".

#### 1.05 STANDARDS

- A. Installation shall be per chain link manufacturer's standards (CLFMI).

#### 1.06 SUBMITTALS

- A. Submit manufacturer's descriptive literature, specifications and installation instructions for chain link fence and gates.
  - 1. Include location of product manufacture
- B. Submit samples of vinyl-coated fabric 12 by 24 inches.
- C. Warranty:
  - 1. Submit typewritten vinyl coated fence warranty signed by Manufacturer and Contractor.

#### 1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver chain link fencing to Project Site in original unopened containers bearing manufacturer's label.

#### 1.08 QUALITY ASSURANCE

- A. Provide complete fencing (of each type) produced by a single manufacturer.

#### 1.09 PROJECT CONDITIONS

- A. Refer to Section 02 100 "Earthwork and Grading" and as noted.

- B. Limitations: Do not proceed with fencing installation until underground utility, bituminous concrete pavement and concrete curb and gutter construction is complete.

#### 1.10 WARRANTY

- A. Warrant vinyl coated fencing for 10 years against peeling, cracking and corrosion.

#### 1.11 CONSTRUCTION SURVEYS

- A. Retain the services of a registered land surveyor or professional engineer to provide horizontal alignment stakes for fencing located adjacent to site property lines. Horizontal stake interval 50 feet maximum, and at all angle points along property line.
- B. Provide horizontal alignment stakes for project site fencing. Horizontal stake interval 50 feet maximum and at all corner points.

### PART 2 - PRODUCTS

#### 2.01 CHAIN LINK FENCING

- A. Acceptable Manufacturers, giving preference to products manufactured within a 500-mile radius of Project Site:
  - 1. Anchor Fencing
  - 2. Long Fence
  - 3. Other pre-bid approved manufacturer(s) meeting the requirements of this Specification Section will be considered in accordance with Specification Section 01 25 00: Substitution Procedures.
- B. General: Posts, rails, braces and bracing assemblies shall be high tensile steel pipe, cold-rolled and electric resistance welded from steel conforming to ASTM A 569, and hot-dip galvanized to ASTM A 525 G-90 zinc weight both inside and outside pipe.
- C. All fencing installed along the perimeter of the pool to separate it from a non-pool (such as the adjoining park) area shall have no gaps or areas where a 4" or greater sphere would be able to fit.
- D. Finish: Outsides shall receive a conversion coating and fusion bonded polyester powder coating equivalent to "Lifecoat LCX" by P & H Tube. Coating color shall be black.
  - 1. Fencing shall have bottom rail.
  - 2. Fencing shall have continuous top rail.
- E. Fabric: 9-gauge (0.148-inch) core size, finished steel wires, galvanized in accordance with ASTM A 641-71a Finish shall be thermally bonded PVC over galvanized steel, Class 2B, in accordance with ASTM F 668. Coating color shall be black. Fabric shall have 2-inch diamond mesh pattern with top and bottom selvages knuckled.
- F. Posts, Rails and Braces:
  - 1. Terminal Posts (Corner Posts): Up to 6 feet: 2.375 inch O.D.; over 6 feet: 2.875 inch O.D.
  - 2. Line Posts: Up to 6 feet: 1.90 inch O.D.; over 6 feet: 2.375 inch O.D.

3. Gate Posts (Hinge Posts): Leaf widths up to 6 feet: 2.875 inch O.D.; leaf widths 6 feet to 13 feet: 4.00 inch O.D.
4. Top Rail and Bottom Rail: Manufacturer's longest lengths, with expansion couplings (approximately 6 inches long) for each joint. Provide means of attaching top rail securely to each corner, end, and pull post.
5. Terminal and Gate Post Bracing Assemblies: Manufacturer's standard adjust-able brace at end posts and at both sides of corner and pull posts, with horizontal brace located at mid-height of fabric. Use same material as top rail for braces. Brace line posts with 0.375-inch diameter rod and adjustable tightener.
6. Stretcher Bars: One-piece lengths equal to full height of fabric, with minimum cross section of 3/16" x 3/4". Provide one stretcher bar at each end post and two for each corner and pull post, except where fabric is integrally woven into post.

G. Gates:

1. Gate framing shall be 2-inch square aluminum tube with fabric installed inside frame with "J" bolts.
2. Hinges shall be Manufacturer's standards.
3. Latches shall be butterfly type.
4. Height shall match adjacent fencing fabric, leaf swings 180 degrees.

H.

- I. Post Tops (Caps): Weathertight closure caps, dome type, at each post, with openings to permit passage of top rails.
- J. Hardware and Accessories: Galvanized per ASTM A 152 with manufacturer's standard polyvinyl chloride (PVC) plastic resin finish over galvanizing, not less than 10 mils (0.010") thick.

## 2.02 CHAIN LINK FENCING HEIGHTS

- A. Heights shall be as indicated or as specified on plans.

## 2.03 PADLOCKS

- A. Padlocks manufactured by Master Lock Company, Milwaukee, Wisconsin. Provide one "Steel Secret Service" lock and furnish Owner with two keys for each gate. All padlocks shall be master keyed to owner's system.

## 2.04 CONCRETE

- A. Class "B" Portland cement concrete, Specification Section 32 05 00 "Common Work Results for Exterior Improvements"

## PART 3 - EXECUTION

### 3.01 PROTECTION AND RESTORATION

- A. Refer to Section 31 20 00 "Earthmoving" and as noted.



- B. Existing Utilities: Verify utility locations prior to fencing excavation operation. Adjust horizontal fencing alignment to avoid utilities at no increase to Contract Sum.

### 3.02 GRADING

- A. Grade fence lines to smooth and uniform surfaces, free of depressions and high spots exceeding four inches in ten feet.

### 3.03 CHAIN LINK FENCING

- A. General: Install in accordance with Manufacturer's installation instructions and as noted. Install corner posts at horizontal alignment changes exceeding 30 degrees. Install line posts at intervals not exceeding ten feet. Install gateposts on both sides of gate opening.
- B. Post Installation:
  - 1. Excavate post footings to minimum 18-inch diameters and 39 inch depths or as otherwise indicated.
  - 2. Place and consolidate concrete in footing excavations. Install posts in concrete plumb to 1/4 inch in 10 feet. Provide bracing to prevent movement. Embed line post in concrete to 18 inches, terminal and gate posts to 24 inches. Slope ex-posed concrete footing surface one inch with outside edge flush with ground surface. Trowel exposed concrete footing surface to smooth finish. Contractor shall allow concrete footings to cure a minimum of 14 calendar days before removing bracing, or performing subsequent fencing operations.
- C. Terminal and Gate Post Bracing Assemblies, Truss Rods and Tighteners and Tension Wire and Post Tops: Install in accordance with Manufacturer's installation instructions and as specified.
- D. Fabric: Each span shall be attached independently at pull and corner posts. Ends of fabric rolls and other section to be spliced shall be joined by weaving a single strand of fabric wire into ends of fabric to create a continuous pattern of mesh. Fabric shall be stretched taut and securely fastened to each post and rail. Fastenings at ends, gates, corners, and pull posts shall be with stretcher bars and metal bands.

### 3.04 MAINTENANCE

- A. Refer to Section 31 20 00 "Earthmoving".

### END OF SECTION

## SECTION 32 31 19 - DECORATIVE METAL FENCES AND GATES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Decorative steel fences.
- 2. Swing gates.

- B. REFERENCES

- 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- 2. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- 3. ASTM D523 - Test Method for Specular Gloss. 0020
- 4. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- 5. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- 6. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- 7. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- 8. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- 9. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- 10. ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.

- C. Related Sections:

- 1. Division 31 Section "Earth Moving" for site excavation, fill, and backfill where decorative metal fences and gates are located.
- 2. Division 03 Section "Cast-in-Place Concrete " for concrete fill.
- 3. Division 09 "High-Performance Coatings" for finish.
- 4. Division 32 "Chain-Link Fences and Gates".

### 1.3 PERFORMANCE REQUIREMENTS

- A. Lightning-Protection System: Maximum grounding-resistance value of 25 ohms under normal dry conditions.

### 1.4 SUBMITTALS

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.
- B. Product Data: For each type of product indicated.
- C. Shop Drawings: For each gate, for each type of typical fence panel required, for typical racked panels, and for each configuration of stepped panels. Include plan drawings indicating location and extent of each. Include elevations, sections, details, and attachments to other work.
  - 1. Wiring Diagrams: For power, signal, and control wiring.
- D. Samples: For each fence material and for each color specified.
  - 1. Provide Samples 6 inches (150 mm) in length for linear materials.
  - 2. Provide Samples 6 inches (150 mm) square for wire mesh and sheet or plate materials.
- E. Welding certificates.
- F. Maintenance Data: For gate operators to include in maintenance manuals.
- G. Warranty:

All structural fence components (i.e. rails, pickets, and posts) shall be warranted within specified limitations, by the manufacturer for a period of 20 years from date of original purchase. Warranty shall cover any defects in material finish, including cracking, peeling, chipping, blistering or corroding.

### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
- C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators on gates that must provide emergency access.

- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Include 10-foot (3-m) length of fence complying with requirements.
  - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Pre-installation Conference: Conduct conference at Project site.

## **PART 2 - PRODUCTS**

### **2.1 PRODUCTS**

- A. Pool Fence: Basis of design (substitution shall be subject to compliance with requirements):
  - 1. Manufacturer: Ameristar
  - 2. Model: Montage Plus Pool, Pet and Play (PPP)
  - 3. Picket Style: Majestic
  - 4. Color: Black
  - 5. Finish: Powder coated
  - 6. Accessories: See Drawings
  - 7. Details: See Drawings
- B. Pool Gate: Basis of design (substitution shall be subject to compliance with requirements):Manufacturer: Ameristar
  - 1. Model: Montage Plus Pool, Pet and Play (PPP)
  - 2. Picket Style: Majestic
  - 3. Gate: single swing
  - 4. Color: Black
  - 5. Finish: Powder coated
  - 6. Accessories: See Drawings
  - 7. Details: See Drawings

### **2.2 MATERIAL**

- A. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.60 oz/ft<sup>2</sup> (184 g/m<sup>2</sup>), Coating Designation G-60.
- B. Material for pickets shall be 3/4" square x 14 Ga. tubing. The rails shall be steel channel, 1.5" x 1.4375" x 14 Ga. Picket holes in the rail shall be spaced 3.500" o.c. for 3" air space. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

## 2.3 FABRICATION

- A. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.
- B. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated alignment fixture. The aligned pickets and rails shall be joined at each picket-to-rail intersection by fusion welding process, thus completing the rigid panel assembly.
- C. The manufactured panels and posts shall be subjected to an inline electrode position coating (E-Coat) process consisting of a multi-stage pretreatment/wash, followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The powdercoat color shall be black.

## 2.4 GROUNDING MATERIALS

- A. Grounding Conductors: Bare, solid wire for No. 6 AWG and smaller; stranded wire for No. 4 AWG and larger.
  - 1. Material above Finished Grade: Copper.
  - 2. Material on or below Finished Grade: Copper.
  - 3. Bonding Jumpers: Braided copper tape, 1 inch (25 mm) wide, woven of No. 30 AWG bare copper wire, terminated with copper ferrules.
- B. Grounding Connectors and Grounding Rods: Comply with UL 467.
- C. Exit Hardware: See drawings. Per manufacturer or compliant with BHMA A156.3, Grade 1, Type 1 (rim exit device), with push pad actuating bar, suitable for exterior use.
  - 1. Function: Self Latching gate, exit device with lever.
  - 2. Mounting Channel: Bent-plate channel formed from 1/8-inch- (3.2-mm-) thick, steel plate. Channel spans gate frame. Exit device is mounted on channel web, recessed between flanges, with flanges extending 1/8 inch (3.2 mm) beyond push pad surface.
- D. Finish exposed welds to comply with NOMMA Guideline 1, Finish #4 - good-quality, uniform undressed weld with minimal splatter.
- E. Galvanizing: For items other than hardware that are indicated to be galvanized, hot-dip galvanize to comply with ASTM A 123/A 123M unless otherwise indicated. For hardware items, hot-dip galvanize to comply with ASTM A 153/A 153M.

2.5 Steel Finish: Primed Shop painted High-performance coating.

2.6 STEEL FINISHES

- A. Clean surfaces according to SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning."
  - 1. After cleaning, apply a conversion coating suited to the organic coating to be applied over it.
- B. Powder Coating: Immediately after cleaning, apply 2-coat finish consisting of epoxy primer and TGIC polyester topcoat, with a minimum total dry film thickness of not less than 8 mils (0.20 mm). Comply with coating manufacturer's written instructions.
  - 1. Color and Gloss: Per manufacturer.
- C. Primer Application: Apply zinc-rich epoxy primer immediately after cleaning, to provide a minimum dry film thickness of 2 mils (0.05 mm) per applied coat, to surfaces that will be exposed after assembly and installation, and to concealed surfaces.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, and other conditions affecting performance of the Work.
- B. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet (152.5 m) or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.
  - 1. Construction layout and field engineering are specified in Division 1 Section "Execution Requirements."

3.3 DECORATIVE FENCE INSTALLATION

- A. Install fences according to manufacturer's written instructions.
- B. Install fence panels with horizontal rails level and pickets plumb, unless otherwise indicated.

22.00036.00

Rockville Outdoor Recreation Pool Renovation

BID SET

DECORATIVE METAL FENCES AND GATES

32 31 19 - 5

1. For racked panels, maintain matched angle among minimum 5 adjacent panels, unless otherwise indicated.
  2. For stepped panels, maintain matched step height within each fence run. Provide custom bottom of stepped panels, parallel with grade. Maintain matched angle among minimum 5 adjacent panels, unless otherwise indicated.
- C. Fine grade below fence centerline, minimum 48" wide with maximum 5.0 percent side slopes, as necessary to maintain required fence clearance above grade.
- D. Install fences by setting posts as indicated and fastening rails to posts. Cut off excess threads at 1/8 inch beyond nut. Peen threads of bolts after assembly to prevent removal.
- E. Post Excavation: Drill or hand-excavate holes for posts in firm, undisturbed soil. Excavate holes to a diameter of not less than 4 times post size and a depth of not less than 24 inches (600 mm) plus 3 inches (75 mm) for each foot (300 mm) or fraction of a foot (300 mm) that fence height exceeds 4 feet (1200 mm).
- F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
  2. Concrete Fill: Place concrete around posts and sleeves and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
    - a. Exposed Concrete: Extend 1 inch (25 mm) above grade. Finish and slope top surface to drain water away from post, and as indicated.
  3. Posts Set in Concrete: Extend post to within 6 inches (150 mm) of specified excavation depth, but not closer than 3 inches (75 mm) to bottom of concrete.
  4. Posts Set into Concrete in Sleeves: Use galvanized-steel pipe sleeves with inside diameter at least 3/4 inch (20 mm) larger than outside diagonal dimension of post, preset and anchored into concrete for installing posts.
    - a. Extend posts at least 5 inches (125 mm) into sleeve.
    - b. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink grout, mixed and placed to comply with grout manufacturer's written instructions; shape and smooth to shed water. Finish and slope top surface of grout to drain water away from post.
  5. Posts Set into Voids in Concrete: Form or core drill holes not less than 3/4 inch (20 mm) larger than outside diagonal dimension of post.
    - a. Extend posts at least 5 inches (125 mm) into concrete.
    - b. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink grout, mixed and placed to comply with grout manufacturer's written instructions. Finish and slope top surface of grout to drain water away from post.
  6. Space posts uniformly as indicated or per manufacturer.

7. All fencing installed along the perimeter of the pool to separate it from a non-pool (such as the adjoining park) area shall have no gaps or areas where a 4" or greater sphere would be able to fit.

### 3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.
- B. All gates installed along the perimeter of the pool to separate it from a non-pool (such as the adjoining park) area shall have no gaps or areas where a 4" or greater sphere would be able to fit.

### 3.5 GROUNDING AND BONDING

- A. Fence Grounding: Install at maximum intervals of 1500 feet (450 m) except as follows:
  1. Fences within 100 Feet (30 m) of Buildings, Structures, Walkways, and Roadways: Ground at maximum intervals of 750 feet (225 m).
    - a. Gates and Other Fence Openings: Ground fence on each side of opening.
      - 1) Bond metal gates to gate posts.
      - 2) Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches (460 mm) below finished grade.
- B. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a maximum distance of 150 feet (45 m) on each side of crossing.
- C. Fences Enclosing Electrical Power Distribution Equipment: Ground as required by IEEE C2 unless otherwise indicated.
- D. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6 inches (150 mm) below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at the grounding location.
- E. Bonding Method for Gates: Connect bonding jumper between gate post and gate frame.
- F. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
  1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.



2. Make connections with clean, bare metal at points of contact.
  3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
  4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
  5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- G. Bonding to Lightning-Protection System: If fence terminates at lightning-protected building or structure, ground the fence and bond the fence grounding conductor to lightning-protection down conductor or lightning-protection grounding conductor, complying with NFPA 780.

### 3.6 FIELD QUALITY CONTROL

- A. Grounding-Resistance Testing: Engage a qualified testing agency to perform tests and inspections.
1. Grounding-Resistance Tests: Subject completed grounding system to a megger test at each grounding location. Measure grounding resistance not less than two full days after last trace of precipitation, without soil having been moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural grounding resistance. Perform tests by two-point method according to IEEE 81.
  2. Excessive Grounding Resistance: If resistance to grounding exceeds specified value, notify Architect promptly. Include recommendations for reducing grounding resistance and a proposal to accomplish recommended work.
  3. Report: Prepare test reports certified by a testing agency of grounding resistance at each test location. Include observations of weather and other phenomena that may affect test results.

### B. FENCE INSTALLATION MAINTENANCE

1. When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Manufacturer provided spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Do not use products that may negate the manufactures' warranty.

### 3.7 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

- B. Lubricate hardware and other moving parts.

3.8 DEMONSTRATION

- A. Train Owner's personnel to adjust, operate, and maintain gates.

**END OF SECTION 32 31 19**

## SECTION 33 32 23 – SEGMENTAL RETAINING WALLS

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.02 DESCRIPTION OF WORK

- A. This Section includes the following:
  - 1. Modular block retaining wall system.
    - 1a. Standard Small Dry-Cast Modular Blocks
    - 1b. Large Wet-Cast Precast Modular Blocks
  - 2. Precast concrete retaining wall caps.
    - 2a. Standard Small Dry-Cast Modular Block Caps

#### 1.03 RELATED SECTIONS

- A. Section 31 20 00 "Earthmoving"

#### 1.04 PERFORMANCE REQUIREMENTS

- A. Employ a qualified professional engineer to design all segmental block retaining walls in accordance with wall Manufacturer's specifications and based upon information, including, but not limited to, soil properties, bearing capacities, and existing and proposed construction provided in project Geotechnical Engineering Report and shown on Contract Drawings, plans, profiles, details and notes. Review and request clarification of any information provided prior to submittal of bid to ensure that all Work costs are included in Contractor's bid. The contractor shall provide a global stability analysis for all segmental walls with the design submittal for review and approval by MCPS or their designee.
- B. Design and construct segmental block retaining walls to withstand and resist applied soil, hydrostatic, or other pressures and wind loads on fencing set in block. Provide wall construction, wall materials, backfill materials, geo-grid and/or other soil/wall reinforcement materials required to accomplish this.
- C. Design and construct all segmental block retaining walls to lines and grades indicated on the Contract Drawings and to other dimensions and depths required so as not to de-stabilize or be de-stabilized by, or undermine or be undermined by, adjacent construction.
- D. Install segmental retaining walls without damaging existing buildings, pavements, and other adjacent site improvements.
- E. Obtain building permit for segmental retaining walls from authorities having jurisdiction.

#### 1.05 SUBMITTALS

- A. Product Data: Include data for proposed materials, method of installation, and list of materials

proposed for use.

1. Include location of product manufacture.
- B. Shop Drawings, System Designs and Calculations: Prepared by or under direct supervision of a qualified professional engineer who is experienced in design of proposed segmental retaining wall system. Include drawings and comprehensive engineering analysis that shows system's compliance with specified requirements. System designs, materials, calculations and shop drawing must be signed and sealed by qualified professional engineer responsible for their preparation and must be submitted to, reviewed by, and bear approval stamp of authorities having jurisdiction prior to their submittal for review and approval by Architect, Project Engineer and/or Owner.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units providing the full range of colors, textures, and patterns available for each type of concrete units required shall be submitted to Architect and Owner for review and approval.
- D. Samples for Verification: Full-size units of each type of concrete unit for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and Owners, and other information specified.

#### 1.06 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed segmental retaining wall installations similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of concrete unit from one source with resources to provide materials and products of consistent quality in appearance and physical properties.
- C. Engineering Responsibility: Contractor shall engage a qualified professional engineer who will be responsible for preparation of designs and data for segmental retaining walls including drawings and comprehensive engineering analysis that shows system's compliance with specified requirements.
- D. Professional Engineer Qualifications: A professional engineer, in good standing, who is legally qualified and currently licensed to practice in State of Maryland and who is experienced in providing engineering services for designing segmental retaining walls that are similar to those indicated for this Project in material, design, and extent.
- E. Arrange for and obtain any required inspections and certifications by authorities having jurisdiction.
- F. Provide as-built information as required by Contract and by authorities having jurisdiction.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials during storage and construction from earth and other materials. Protect segmental retaining wall materials from damage. Do not incorporate damaged materials into

retaining wall structure.

## PART 2 – PRODUCTS

### 2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, Manufacturers offering products that may be incorporated into Work include, but are not limited to, the following, giving preference to products manufactured within a 500-mile radius of Project Site:

1. Available Manufacturers:

Small Dry-Cast Segmental Block Walls:

- a. Versa-Lok Retaining Wall Systems
- b. Keystone Retaining Wall Systems, Inc.
- c. Anchor Wall Systems
- d. Tensar Earth Technologies, Inc.
- e. Rockwood Retaining Walls, Inc.
- f. Cornerstone Wall Solutions, Inc.

Large Wet-Cast Segmental Block Walls

- g. Stone Strong Systems
- h. Magnum Stone Retaining Walls
- i. Redi Rock

### 2.02 COLORS AND TEXTURES

A. Colors and Textures:

1. Modular Block Retaining Wall Units: As selected by Architect and approved by Owner from Manufacturer's full range.
  - a. Small Dry-Cast Segmental Blocks: Preference will be given to solid color blocks over blended color options
  - b. Large Wet-Cast Segmental Blocks: Blocks to be plain concrete without the use of stains or colorings. Finishes shall be per plans. Any deviation from finishes noted on plans will require approval by the City of Gaithersburg.
2. Precast Concrete Retaining Wall Caps: Match color of color-conditioned concrete retaining wall.

### 2.03 MODULAR CONCRETE RETAINING WALL SYSTEM

- A. Modular Concrete Retaining Wall System: Use wall system materials and construct in accordance with wall engineer's design and wall Manufacturer's specifications to meet performance requirements set forth in this specification.
- B. Concrete Units: Small Dry-Cast blocks shall comply with ASTM C1372 and the following requirements:
1. Face Finish: As selected by Architect and approved by Owner.
  2. Strength: Minimum 28-day compressive strength of 3000 psi.
  3. Maximum Moisture Absorption: 8 percent.

4. Concrete Units: Provide concrete units, mini, cap and end units provided by wall Manufacturer for use with selected wall system and as required to meet performance requirements set forth in this specification. Provide double faced block as necessary to prevent the rear exposure of non-double faced block.

Large Wet-Cast Segmental Blocks shall comply with ASTM C1776

- C. Base Leveling Pad Material: Provide and install continuous footing or base material required by wall Manufacturer and wall engineer for use with selected wall system to meet performance requirements set forth in this specification. Do not exceed soil bearing limitations.
- D. Unit Fill: Provide and install unit fill material required by wall Manufacturer and wall engineer for use with selected wall system to meet performance requirements set forth in this specification.
- E. Backfill Material: Provide and install backfill material required by wall Manufacturer and wall engineer for use with selected wall system to meet performance requirements set forth in this specification. Where possible use site excavated soils. Do not use unsuitable soil for backfill, such as heavy clays or organic soils. Comply with Division 2 Section "Earthwork" for backfill requirements.
- F. Soil and Wall Reinforcement/Stabilization: Provide and install temporary and/or permanent soil and wall reinforcement and stabilization materials required by wall Manufacturer and wall engineer for use with selected wall system to meet performance requirements set forth in this specification. Such materials include, but are not limited to, high density polyethylene expanded sheet, polyester woven fiber materials, mechanical anchors, sheeting, shoring and bracing specifically fabricated for use as soil reinforcement.
- G. Non-Corrosive Connectors: Provide pins, clips, or bars to connect successive horizontal rows of concrete blocks, possessing a verifiable strength and durability consistent with design calculations of wall as a whole and required by wall Manufacturer and wall engineer for use with selected wall system to meet performance requirements set forth in this specification.
- H. Adhesive: Construction adhesive complying with ASTM 2339 or other material required by wall Manufacturer and wall engineer for use with selected wall system to meet performance requirements set forth in this specification.

## 2.04 PRECAST CONCRETE RETAINING WALL CAPS

Except for walls with cast in place caps or as otherwise required or recommended by wall Manufacturer and Contractor's wall engineer for use with selected wall system and to meet performance requirements set forth in this specification, retaining wall caps will meet following minimum specifications:

- A. Structural Performance:
  1. Provide precast concrete wall cap units and connections capable of withstanding design loads within limits and under conditions indicated.
  2. Provide cap block capable of accepting guard rail and/or fence. See paragraph 2.5 below.
  3. Where cap block extends above grade and is exposed on both sides both sides must be finished and cap must cover entire section of concrete wall units.
  4. Where asphalt paving abuts segmental retaining wall, wall face is to be continuous flat surface.

5. Provide ½ inch premolded expansion joint filler between wall and any abutting concrete.

B. Materials: Comply with PCI MNL 117 and following:

1. Molds: Provide molds and, where required, form-facing materials of metal, plastic, wood or another material that is nonreactive with concrete and dimensionally stable to produce continuous and true precast concrete surfaces within fabrication tolerances and suitable for required finishes.
2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
3. Portland Cement: ASTM C 150, Type I or III.
4. Normal-Weight Aggregates: Washed, inert, natural sand, or well-graded crushed stone or gravel complying with ASTM A 33 and matching aggregate used in cast-in-place retaining wall.
5. Lightweight Aggregates: ASTM C 330.
6. Air-Entraining Admixture: ASTM C 260, certified by manufacture to be compatible with other required admixtures.

C. Accessories:

1. Dowels: Round stainless steel bars complying with ASTM A 276, Type 304, ½-inch diameter.

D. Concrete Mix: Prepare design mixes for each type of concrete required. Design mixes may be prepared by a qualified independent testing agency or by qualified precast plant personnel.

1. Compressive Strength (28 Days): 5000 psi.
2. Maximum Water-Cement Materials Ratio: 0.45.

## 2.05 RETAINING GUARD RAILS

A. Fencing as indicated on the plans shall be placed directly into cap of retaining wall as indicated on drawings. Engineer will be responsible for designing wall to account for loading onto guardrail or fence that will be mounted into cap. Placing guard rail or fence outside of cap will not be accepted or approved.

## PART 3 – EXECUTION:

### 3.01 PREPARATION

A. Place leveling materials upon approved foundation to a minimum thickness of 6 inches. Compact material to provide a level surface. Compaction shall be 95 percent of Standard Proctor for sand or gravel type materials. Prepare leveling pad to ensure complete contact of retaining wall unit with base.

### 3.02 SEGMENTAL RETAINING WALL INSTALLATION

A. Install segmental retaining walls according to modular concrete unit Manufacturer's written instructions and approved shop drawings. Use wall system materials and construct in accordance with wall engineer's design and wall Manufacturer's specifications to meet performance requirements set forth in this specification.

B. Except as otherwise required or recommended by wall Manufacturer and Contractor's wall

engineer for construction of selected wall system to meet performance requirements set forth in this specification, retaining wall construction will meet following minimum specifications:

1. Place first course of concrete wall units on base leveling pad. Check units for levelness and alignment. Ensure that units are in full contact with base.
2. Place units side by side for full length of wall alignment. Install non-corrosive connectors and fill voids at units with unit fill material as required by Manufacturer. Tamp fill.
3. Sweep excess material from top of units and install next course. Ensure each course is complete unit filled and compacted prior to proceeding to next course.
4. Install Soil and Wall Reinforcement/Stabilization system, backfill and continue to lay up wall according to modular concrete unit Manufacturer's written instructions and approved shop drawings. When using geogrid, lay geogrid soil reinforcement horizontally on compacted backfill and connect to concrete wall units as indicated on Manufacturer's shop drawings. Pull geogrid taut and anchor before backfill is placed on it.

### 3.03 PRECAST CONCRETE WALL CAP INSTALLATION

- A. Except as otherwise required or recommended by wall Manufacturer and Contractor's wall engineer for construction of selected wall system to meet performance requirements set forth in this specification, installation of precise wall cap will meet following minimum specifications:
1. Install precast concrete wall caps as indicated. Provide temporary supports and bracing as required to maintain position, stability, and alignment as units are being permanently connected.
  2. Anchor precast units in position as indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring and grouting are completed.

### 3.04 CONSTRUCTION TOLERANCES

- A. Except as otherwise required or recommended by wall Manufacturer and Contractor's wall engineer for construction of selected wall system to meet performance requirements set forth in this specification, the installation of precise wall cap will comply with following as-built construction tolerances:
1. Vertical Alignment: Do not vary from plumb by more than 1-1/2 inches over any 10-ft distance.
  2. Wall Batter: Do not vary more than 1 degrees of design batter.
  3. Horizontal Alignment: Do not vary more than 1-1/2 inches over any 10-ft distance.
  4. Corners, Bends and Curves: Do not vary 1-ft to theoretical location.
  5. Maximum Horizontal Gap Between Erected Units: 1/2-inch.

### 3.05 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to provide quality assurance and testing services during construction. Quality testing shall include foundation soil inspection, soil and backfill testing, and observation of construction.

**END OF SECTION 32 32 23**



## SECTION 32 33 00 - SITE FURNISHINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Benches: curved bench, straight backless bench, bench top
  - 2. Bike Racks
  - 3. Bike Lockers
  - 4. Trash and Recycling receptacles
  - 5. Drinking Water Fountain: Type 1 & Type 2
- B. Related Sections include the following:
  - 1. Refer to Division 31 Section "Earth Moving" for excavation for installation of concrete footings.
  - 2. Refer to Division 13 "Swimming Pool Concrete" and Division 31 "Concrete Paving" for concrete slabs and footings.
- C. Products furnished, but not installed under this Section, include pipe sleeves, anchor bolts and caps to be cast in concrete footings or installed in paving as indicated.

#### 1.3 SUBMITTALS

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by unsubmitted or late submittals or the return of incomplete or incorrect submittals.
- B. Product Data: For each type of product indicated.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Size: Not less than 4-inch- (100-mm-) long linear components and 4-inch- (100-mm-) square sheet components.
- E. Product Schedule: For site furnishings. Use the same designations indicated on Drawings.
- F. Material Certificates: For site furnishings, signed by manufacturers.
1. Wood Preservative Treatment: Include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
  2. Sustainably Harvested Wood: Include certification by manufacturer and from sources that participate in sustained yield programs.
  3. Recycled plastic.
- G. Maintenance Data: For site furnishings to include in maintenance manuals.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of site furnishing(s) through one source from a single manufacturer.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Manufacturer's requirements.
- B. Transport, store, and handle concrete and cast stone units in position consistent with their shape and design.
- C. Protect members to prevent staining, cracking, chipping, spalling, bowing, and warping.
- D. Use equipment and methods for transportation, site handling and erection, as recommended by Manufacturer.
- E. Store units off ground and in manner to prevent cracking, distortion, warping, staining, or other physical damage.
- F. Place stored units so that identification marks are discernible.
- G. Store so that lifting devices are accessible and undamaged.
- H. Protect from water and ice.

#### 1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Bench Replacement Slats Planks: No fewer than two full-size units for each size indicated.
2. Trash and Recycling Receptacle Inner Containers: 4 full-size units for each size indicated, but no fewer than 2 units.

#### 1.7 MEASUREMENT AND PAYMENT

- A. Site furnishings shall be measured in units of each and shall be paid for at the contract price per each. These prices shall include the cost of furnishing all labor, equipment, and materials necessary to provide and install each item specified, including required hardware and adjustments.

### PART 2 - PRODUCTS

#### 2.1 PRODUCTS

- A. Products: Subject to compliance with requirements, provide the named product(s) produced by the named manufacturer(s), unless otherwise indicated.
- B. CURVED BENCH
  1. Subject to compliance with requirements, provide following product or equivalent:
    - a. Manufacturer: Sitecraft or approved equal.
    - b. Model: circular with back – YB
    - c. Type: Custom configuration, embed mount bench.
    - d. Frame Finish: Powdercoat.
    - e. Color: See drawings.
    - f. Details and dimensions: See drawings. Provide shop drawings for review.
    - g. Frame: Steel.
    - h. Slats: Greenwood.
- C. STRAIGHT BENCH
  1. Subject to compliance with requirements, provide following product or equivalent:
    - a. Manufacturer: Sitecraft or approved equal.
    - b. Model: straight without back - YF
    - c. Type: Custom configuration, embed mount bench.
    - d. Frame Finish: Powdercoat.
    - e. Color: See drawings.
    - f. Details and dimensions: See drawings. Provide shop drawings for review.
    - g. Frame: Steel.
    - h. Slats: Greenwood.
- D. BENCH TOP
  1. Subject to compliance with requirements, provide following product or equivalent:
    - a. Manufacturer: Maglin or approved equal.
    - b. Model: Ogden
    - c. Type: Custom configuration, surface mounted.
    - d. Frame Finish: Powdercoat.

22.00036.00  
Rockville Outdoor Recreation Pool Renovation  
BID SET

SITE FURNISHINGS  
32 33 00 - 3

- e. Color: See drawings.
- f. Details and dimensions: See drawings. Provide shop drawings for review.
- g. Frame: Steel.
- h. Slats: Thermally modified ash.

E. BIKE RACK

- 1. Subject to compliance with requirements, provide following product or equivalent:
  - a. Manufacturer: Victor Stanley or approved equal.
  - b. Model: BRHS 101
  - c. Type: Surface mount on concrete pads
  - d. Material and Finish: Galvanized steel with powder coated.
  - e. Color: See drawings.
  - f. Details and dimensions: See drawings. Provide shop drawings for review.

F. DRINKING WATER FOUNTAIN 1

- 1. Subject to compliance with requirements, provide following product or equivalent:
  - a. Manufacturer: Most Dependable Fountains. Inc, or approved equal (note: all water fountains must be from the same manufacturer).
  - b. Model: 440 SMSSFA with foot spray and hose bib.
  - c. Type: Surface mount on concrete.
  - d. Material and Finish: Stainless steel powder coated.
  - e. Color: See drawings and as approved by owner prior to ordering.
  - f. Details and dimensions: See drawings. Provide shop drawings for review.

G. DRINKING WATER FOUNTAIN 2

- 1. Subject to compliance with requirements, provide following product or equivalent:
  - a. Manufacturer: Most Dependable Fountains. Inc, or approved equal (note: all water fountains must be from the same manufacturer).
  - b. Model: 10150 SMSS with foot spray and hose bib.
  - c. Type: Surface mount on concrete.
  - d. Material and Finish: Stainless steel powder coated.
  - e. Color: See drawings and as approved by owner prior to ordering.
  - f. Details and dimensions: See drawings. Provide shop drawings for review.

H. TRASH AND RECYCLING RECEPTACLES

- 1. Subject to compliance with requirements, provide following product or equivalent:
  - a. Manufacturer: Anova furnishing or approved equal.
  - b. Model: Exposition 70 Gal Trash Receptacle/Recycler, Side Doors
  - c. Type: Surface mount on concrete.
  - d. Material and finish: Galvanized steel, powder coated, textured.
  - e. Color: See drawings and as approved by owner prior to ordering.
  - f. Details and dimensions: See drawings. Provide shop drawings for review.

I. BIKE LOCKERS

- 1. Subject to compliance with requirements, provide following product or equivalent:
  - a. Manufacturer: Madrax or approved equal.
  - b. Model: ML1-1
  - c. Type: Surface mount on concrete.
  - d. Material and finish: Steel, powder coated.
  - e. Color: See drawings.

- f. Accessories: Bike Perforated Door, Padlock Handle
- g. Details and dimensions: See drawings. Provide shop drawings for review.

## 2.2 MATERIALS

- A. Steel and Iron: Free of surface blemishes and complying with the following:
  - 1. Plates, Shapes, and Bars: ASTM A 36/A 36M.
  - 2. Steel Pipe: Standard-weight steel pipe complying with ASTM A 53, or electric-resistance-welded pipe complying with ASTM A 135.
  - 3. Tubing: Cold-formed steel tubing complying with ASTM A 500.
  - 4. Mechanical Tubing: Cold-rolled, electric-resistance-welded carbon or alloy steel tubing complying with ASTM A 513, or steel tubing fabricated from steel complying with ASTM A 1011/A 1011M and complying with dimensional tolerances in ASTM A 500; zinc coated internally and externally.
  - 5. Sheet: Commercial steel sheet complying with ASTM A 1011/A 1011M.
  - 6. Expanded Metal: Carbon-steel sheets, deburred after expansion, and complying with ASTM F 1267.
  - 7. Malleable-Iron Castings: ASTM A 47/A 47M, grade as recommended by fabricator for type of use intended.
  - 8. Gray-Iron Castings: ASTM A 48/A 48M, Class 200.
- B. Wood: Surfaced smooth on four sides with eased edges; kiln dried, free of knots, solid stock of species indicated.
  - 1. Wood Species: Manufacturer's standard.
    - a. Finish: Manufacturer's standard stain and transparent wood preservative treatment and sealer.
- C. Anchors, Fasteners, Fittings, and Hardware: Manufacturer's standard, corrosion-resistant-coated or noncorrodible materials; commercial quality, tamperproof, vandal and theft resistant, concealed, recessed, and capped or plugged.
  - 1. Angle Anchors: For inconspicuously bolting legs of site furnishings to on-grade substrate; one per leg.
- D. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107; recommended in writing by manufacturer, for exterior applications.
- E. Galvanizing: Where indicated for steel and iron components, provide the following protective zinc coating applied to components after fabrication:
  - 1. Zinc-Coated Tubing: External, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. (0.27 kg/sq. m) of zinc after welding, a chromate conversion coating, and a clear, polymer film. Internal, same as external or consisting of 81 percent zinc pigmented coating, not less than 0.3 mil (0.0076 mm) thick.

2. Hot-Dip Galvanizing: According to ASTM A 123/A 123M, ASTM A 153/A 153M, or ASTM A 924/A 924M.

## 2.3 FABRICATION

- A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
- B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
- C. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.
- D. Preservative-Treated Wood Components: Complete fabrication of treated items before treatment if possible. If cut after treatment, apply field treatment complying with AWP A M4 to cut surfaces.
- E. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
- F. Factory Assembly: Assemble components in the factory to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

## 2.4 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.5 ALUMINUM FINISHES

- A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

## 2.6 STEEL AND GALVANIZED STEEL FINISHES

- A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.
- B. PVC Finish: Manufacturer's standard, UV-light stabilized, mold-resistant, slip-resistant, matte-textured, dipped or sprayed-on, PVC-plastisol finish, with flame retardant added; complying with coating manufacturer's written instructions for pretreatment, application, and minimum dry film thickness.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.
- D. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
- E. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch (19 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- F. Pipe Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

3.3 CLEANING

- A. After completing site furnishing installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

**END OF SECTION 32 33 00**



## SECTION 32 91 13 - SOIL PREPARATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes Planting Soils specified by composition of the mixes.
- B. Related Requirements:
  - 1. Refer to specifications in FCP Plans for protecting existing trees to remain; for any work inside or adjacent to Tree Protection areas.
  - 2. Division 01 Section "Temporary Tree Protection".
  - 3. Division 31 Section "Earth Moving" for excavation, filling and backfilling, and rough grading.
  - 4. Division 31 Section "Site Clearing" for topsoil stripping and stockpiling.
  - 5. Division 32 Section "Turf and Grasses" for placing Planting Soil for turf and grasses.
  - 6. Division 32 Section "Plants" for placing Planting Soil for plantings.

#### 1.3 DEFINITIONS

- A. AAPFCO: Association of American Plant Food Control Officials.
- B. Backfill: The earth used to replace or the act of replacing earth in an excavation. This can be amended or unamended soil, as indicated.
- C. CEC: Cation exchange capacity.
- D. Compost: The product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.
- E. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.
- F. Foreign Matter: Any matter over a 1/16 inch (2 mm) dimension that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present, but excluding mineral soils, woody material and rocks.
- G. Imported Soil: Soil that is transported to Project site for use.

- H. Layered Soil Assembly: A designed series of Planting Soils, layered on each other, that together produce an environment for plant growth.
- I. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce Planting Soil.
- J. NAPT: North American Proficiency Testing Program. An SSSA program to assist soil-, plant-, and water-testing laboratories through interlaboratory sample exchanges and statistical evaluation of analytical data.
- K. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."
- L. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- M. RCRA Metals: Hazardous metals identified by the EPA under the Resource Conservation and Recovery Act.
- N. SSSA: Soil Science Society of America.
- O. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before Planting Soil is placed.
- P. Subsoil: Lower 'B' horizon from a natural or cultivated soil profile, well-drained and not including bogs or wetlands, typified by the lack of organic matter and soil organisms.
- Q. Topsoil: Surface 'A' horizon from natural or cultivated surface profile, well-drained and not including bogs or wetlands, containing organic matter, sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of weeds, weed propagules, roots, and deleterious materials. Percentage by mass and pH shall meet ASTM D5268-92, Table 1.
- R. USCC: U.S. Composting Council.

#### 1.4 COORDINATION

- A. Coordinate with work of other trades to preset conduits and position equipment travel ways in areas not used for planting.
  - 1. Where positioning equipment travel ways in areas not used for planting is unavoidable, as determined by the Architect, install Construction Matting and Tree Protection Fencing per Division 01 Section "Temporary Tree and Plant Protect" along route, as approved by Architect, to prevent soil compaction.
- B. Prevent mixing, contamination, or reversing soil profile from other Work. Repair any disturbance to the soil layers after placing to comply with the specified requirements.

- C. Contractor is responsible for inspecting the site and reviewing entire set of Construction Documents to become familiar with effects and potential effects on Planting installation, including but not limited to the following: access, laydown and stockpile areas, excavation, fill, soil compaction, known and potentially known utilities, persistent winds, surface drainage, and drainage of subgrade.

#### 1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.6 SUBMITTALS, GENERAL

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals may be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete submittals.

#### 1.7 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include test data substantiating that products comply with requirements.
  - 2. Include sieve analyses for aggregate materials.
  - 3. Material Certificates: For each type of imported soil, soil amendment, and fertilizer to be used, before delivery to the site, according to the following:
    - a. Manufacturer's qualified testing agency's certified analysis of standard products.
    - b. Analyses of fertilizers, by a qualified testing agency, made according to AAPFCO methods for testing and labeling and according to AAPFCO's SUIP #25.
- B. Samples: For each bulk-supplied material, 1-quart (1-L) volume of each in clear, rigid, sealed containers labeled with content, source, and date obtained. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of composition, color, and texture.

#### 1.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For each testing agency.
- B. Preconstruction Test Reports:
  - 1. Soil Analyses
  - 2. Percolation Testing.
- C. Field quality-control reports:
  - 1. Soil Analyses, for Planting Soils the Architect has approved to be blended on site.

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Rockville Outdoor Recreation Pool Renovation  
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SOIL PREPARATION

32 91 13 - 3

2. Compaction Testing.
3. Percolation Testing.

#### 1.9 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

#### 1.10 PRECONSTRUCTION TESTING

- A. Soil Analyses: Contractor will engage a qualified testing agency to perform soil analyses on each Planting Soil Mix type to be used in planting operations.
  1. Testing agency shall provide a written report containing soil-amendment and fertilizer recommendations according to "Sampling Requirements" and "Testing Requirements" articles.
  2. Testing agency shall identify and label samples and test reports according to sample collection and labeling requirements.
  3. Submit test results not less than 60 days prior to installation and before material is purchased.
- B. Percolation Testing:
  1. Submit percolation test reports for placed, properly compacted, presoaked planting soil, not less than one for each general planting type and area (i.e.; tree pits, general planting, on-structure, off structure, etc.) certifying that proposed pre-soaked soil absorbs water at not less than 0.25 inch (6 mm) per hour by either of the following:
    - a. Double ring infiltrometer.
    - b. Rectangular pit 24 inches (600 mm) square by 18 inches (450 mm) deep. Fill pit with 6 inches (150 mm) of water, and time the infiltration rate.
  2. If the rate is less than, notify Architect to determine need for subsurface drainage or other drainage relief measures.

#### 1.11 SAMPLING REQUIREMENTS

- A. General: Extract soil samples according to requirements in this article.
- B. Sample Collection and Labeling: Have samples taken and labeled by soil scientist (CPSS) certified by SSSA, soil classifier (CPSC) certified by SSSA, soil scientist (RPSS) registered by the National Society of Consulting Soil Scientists, or state-certified, -licensed, or -registered soil scientist under the direction of the testing agency.
  1. Number and Location of Samples: Minimum of three representative soil samples from varied locations, unless otherwise indicated, for each soil to be used or amended for landscaping purposes.

2. Procedures and Depth of Samples: According to USDA-NRCS's "Field Book for Describing and Sampling Soils."
3. Division of Samples: Split each sample into two, equal parts. Send half to the testing agency and half to Owner for its records.
4. Labeling: Label each sample with the date, location keyed to a site plan or other location system, visible soil condition, and sampling depth.

#### 1.12 TESTING REQUIREMENTS

A. Soil Analysis Reports: Furnish analyses and written reports by a qualified soil-testing laboratory stating the following:

1. Texture Analysis: State sand, silt, and clay content, including particle size analysis of sand fraction
2. pH
3. Percentage of Organic Matter
4. Calcium
5. Magnesium
6. Potassium
7. Phosphorous
8. Iron
9. Boron
10. Manganese
11. Copper
12. Zinc
13. Soluble Salts
14. Cation Exchange Capacity
15. Presence and quantities of problem materials including salts and metals indicated. If such problem materials are present, provide additional recommendations for corrective action.
16. Other deleterious materials, including their characteristics and content of each.

B. Results: Soils falling within the following ranges may be considered provisionally acceptable. Soils that fall outside of any of the indicate ranges may be amended, retested, and resubmitted for Architect's review.

1. Texture Analysis: Within 5% each of 20% clay, 30% silt, 50% sand.
2. pH range: 5.5-7
3. Organic material content: Minimum 4%
4. Calcium: 2400-3000 ppm
5. Magnesium: 150-450 ppm
6. Potassium: 140-250 ppm
7. Phosphorous: 30-40 ppm
8. Iron: 20-25
9. Boron: 0.5-1
10. Manganese: 5-20
11. Copper: 0.3-1
12. Zinc: 1-3
13. Soluble Salts: 0.2-1.5 mmhos/cm (dS/m, or mS/cm)
14. Cation exchange capacity: Minimum 10

- C. Recommendations: Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated to produce satisfactory Planting Soil suitable for healthy, viable plants indicated. Include, at a minimum, recommendations for nitrogen, phosphorous, and potassium fertilization, and for micronutrients.
  - 1. Fertilizers and Soil Amendment Rates: State recommendations for each planting type in weight per 1000 sq. ft. (100 sq. M) for 6-inch (150-mm) depth of soil.
  - 2. Soil Reaction: State the recommended liming rates for raising pH or sulfur for lowering pH according to the buffered acidity or buffered alkalinity in weight per 1000 sq. ft. (100 sq. M) for 6-inch (150-mm) depth of soil.
- D. Methodology:
  - 1. Texture: Soil-particle, size-distribution analysis by the following methods according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods":
    - a. Sieving Method: Report sand-gradation percentages for very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments; according to USDA sand and fragment sizes.
    - b. Hydrometer Method: Report percentages of sand, silt, and clay.
  - 2. CEC: Analysis by sodium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."
  - 3. Metals Hazardous to Human Health: Test for presence and quantities of RCRA metals including aluminum, arsenic, barium, copper, cadmium, chromium, cobalt, lead, lithium, and vanadium. If RCRA metals are present, include recommendations for corrective action.
  - 4. Phytotoxicity: Test for plant-available concentrations of phytotoxic minerals including aluminum, arsenic, barium, cadmium, chlorides, chromium, cobalt, copper, lead, lithium, mercury, nickel, selenium, silver, sodium, strontium, tin, titanium, vanadium, and zinc.
  - 5. Fertility Testing: Soil-fertility analysis according to standard laboratory protocol of SSSA NAPT NCR-13 including the following:
  - 6. Organic-Matter Content: Analysis using loss-by-ignition method according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."

#### 1.13 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable.
- B. Bulk Materials:
  - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
  - 2. Protect planting soil mix stockpiles after mixing from erosion, saturation, and weed growth.
  - 3. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

4. Do not move or handle materials when they are wet or frozen.
5. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Regional Materials: Imported soil, manufactured Planting Soil, and soil amendments and fertilizers shall be manufactured within 500 miles (800 km) of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.

### **2.2 TOPSOIL**

#### **A. General Characteristics:**

1. Friable and with sufficient structure to give good tilth and aeration. Continuous, air-filled pore space content on a volume/volume basis shall be at least 15 percent when moisture is present at field capacity. Soil shall have a field capacity of at least 15 percent on a dry weight basis.
2. Free of undesirable organisms and their eggs; disease-, stress-, and damage-causing plant pathogens; or weeds, noxious species and invasive plants including, but not limited to, quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and brome grass.
3. Free of stones, roots, plants, sod, and clay lumps exceeding 3 inches (75 mm) in any dimension, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.
4. Free of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful or potentially harmful to plant growth.

#### **B. Sources:**

1. Existing, on-site surface soil, with the duff layer, if any, retained; free of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth; and stockpiled on-site; complying with requirements herein; modified to produce viable Planting Soil.
2. Imported, naturally formed soil from off-site sources modified to produce viable Planting Soil.
  - a. Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches (100 mm) deep, not from agricultural land, bogs, or marshes

## 2.3 PLANTING SOILS

- A. Blend the following Planting Soil components by volume mechanically using a commercial mixer or shredder. Uniformly incorporate ingredients. Do not over-mix or create fines. Do not allow mix to become contaminated with foreign material or saturated.
1. General Planting Beds on Grade:
    - a. 2 parts topsoil.
    - b. 2 parts excavated soil.
    - c. 1 part compost.
    - d. 1 part coarse sand.
  2. Micro Bioretention Basin:
    - a. Shall meet MCDPS Standard criteria for micro bioretention soils. "Planting medium shall consist of 1/3 perlite or Solite, 1/3 compost and 1/3 topsoil. The perlite shall be coarse grade horticultural perlite. The compost shall be high grade compost free of stones and partially composted woody material. The topsoil component shall meet the following criteria: contain no more than 10% clay, 10-25% silt and 60-75% sand and be free of stones, stumps, roots or other similar objects larger than 2 inches. The first layer of the planting medium shall be lightly tilled to mix it into the 6-inch sand layer, so as not to create a definitive boundary. The planting bed shall be flooded after placement. Any settlement that occurs shall be filled back to the design elevation."

## 2.4 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:
1. Class: O, with a minimum of 95 percent passing through a No. 8 (2.36-mm) sieve and a minimum of 55 percent passing through a No. 60 (0.25-mm) sieve.
  2. Form: Provide lime in form of ground dolomitic limestone.
- B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 (3.35-mm) sieve and a maximum of 10 percent passing through a No. 40 (0.425-mm) sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Perlite: Horticultural perlite, soil amendment grade.
- E. Expanded Shale: per ASTM D 5883 Use of Rotary Kiln Produced Expanded Shale.
- F. Calcined Clay: Lightweight, absorbent mineral capable of holding up to 90-130 percent of its weight in water while resisting compaction. Must meet ASTM-C88 sulfate Soundness Test. Not to exceed 5% degradation on Static Degradation Test.



- A. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through a No. 50 (0.30-mm) sieve.
  - 1. Recycled gypsum meeting this specification above is acceptable.
- B. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C 33/C 33M.

## 2.5 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter produced by composting source material, and bearing USCC's "Seal of Testing Assurance," and as follows:
  - 1. Sources:
    - a. Screened Leaf Compost: Compost generated from a clean and consistent source of locally obtained leaves and yard trimmings, bearing the Seal of Testing Assurance (STA) by the US Composting Council and complying with the following:
      - 1) Cured for not less than 21 days.
      - 2) Heated to not less than 140 degrees Fahrenheit.
      - 3) 100 percent passing a ½ inch screen.
      - 4) Reduction of organic matter greater than 60 percent by weight.
    - b. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
    - c. Composted Sewage Sludge: Commercially available, high quality, environmentally safe, sterile, EPA-approved soil product for agronomic use. The product shall be composed of lime-stabilized or naturally dewatered biosolids, combined with wood chips according to EPA standards, aerated and composted for 21 days, including 3 days at 131 degrees Fahrenheit, and screened through a ¾ inch screen. The product shall exhibit the following characteristics:
 

Total Nitrogen (N)	1.2% available
Phosphoric Acid (P2O5)	1% soluble
Potash (K2O)	0.25%
Micro-nutrient Content (Fe, Mn, S, Zn, Ni, Cu, B)	
Low Cadmium Content	
EPA Approval Pathogen Destruction	
  - 2. Reaction: pH of 5.5 to 8.
  - 3. Soluble-Salt Concentration: Less than 4 dS/m.
  - 4. Moisture Content: 35 to 55 percent by weight.
  - 5. Organic-Matter Content: 50 to 60 percent of dry weight.
  - 6. Inert Contaminants: Not exceeding 0.5 percent.
  - 7. Particle Size: Minimum of 98 percent passing through a 1/2-inch (13-mm) sieve.
- B. Composted Cotton Burr: Compost generated from cotton seed pods, having a neutral pH value, and bearing the Seal of Testing Assurance by the US Composting Council.

- C. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture with 100 percent passing through a 1/2-inch (13-mm) sieve, a pH of 6 to 7.5, a soluble-salt content measured by electrical conductivity of maximum 5 dS/m, having a water-absorbing capacity of 1100 to 2000 percent, and containing no sand.
- D. Pine Fines: Finely ground pine bark; screened; aged not less than 9 months; pH of 4-5; 100 percent passing through a 1/2-inch (13-mm) sieve; free of foreign material.

## 2.6 FERTILIZERS

- A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.
- C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
  - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.
- D. Chelated Iron: Commercial-grade FeEDDHA for dicots and woody plants, and commercial-grade FeDTPA for ornamental grasses and monocots.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Notify Architect minimum 10 days prior to soil installation. Do not proceed with installation of soil materials until obtaining Architect's approval of Submittals including, but not limited to, soil analyses and percolation tests.
- A. Protection Zone: Identify protection zones and perform Work according to requirements of Division 01 Section "Temporary Tree and Plant Protection."
- B. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- C. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

- D. Exercise care working over structure and/or subsurface drainage to avoid damage to adjacent work. Contractor shall be responsible and bare all related costs for correcting all such damages. Should any damage occur during planting, immediately notify the Architect.
- E. Place planting soil and fertilizers according to requirements in other Specification Sections.
- F. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in Planting Soil.
- G. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
- H. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- I. Proceed with placement only after unsatisfactory conditions have been corrected. Commencement of Work constitutes acceptance of conditions and resulting affects and potential effects on plant health. Contractor shall be responsible and bare all related costs for correcting all unsatisfactory and defective work.

### 3.2 PREPARATION OF UNAMENDED, ON-SITE TOPSOIL BEFORE AMENDING

- A. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
- B. Unsuitable Materials: Clean soil to contain a maximum of 8 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.
- C. Screening: Pass through a 3-inch (75-mm) sieve to remove large materials.

### 3.3 MIXING AND PLACING PLANTING SOIL

- A. General: Mix Planting Soil components off-site. Do not mix or handle if components or subgrade are frozen, muddy, or excessively wet.
  - 1. Apply amendments and fertilizers according to testing laboratory's recommendations.
    - a. Mix lime and sulfur, if required, with dry soil before mixing fertilizer.
    - b. Mix other amendments and fertilizers with Planting Soil no more than seven days before planting.
  - 2. Contractor Option: Planting Soil may be blended on site, if previously approved in writing by the Architect.
  - 3. Do not overwork subgrade. Some stones, roots, and soil clods are expected to remain.

- B. Application: Spread planting soil to total depth indicated, but not less than required to meet finish grades after natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
  - 1. Lifts: Apply planting soil in lifts not exceeding 12 inches (300 mm) in loose depth for material compacted by compaction equipment, and not more than 6 inches (150 mm) in loose depth for material compacted by hand-operated tampers.
- C. Compaction: Compact each lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698 except where a different compaction value is indicated on Drawings.
- D. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

### 3.4 FIELD QUALITY CONTROL

- A. Engage a qualified testing agency to perform the following test.
  - 1. Compaction: Test planting-soil compaction after placing each lift and at completion using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D 698. Space tests at no less than one for each 1000 sq. ft. (100 sq. M) of in-place soil or part thereof.
- B. Perform the following test:
  - 1. Percolation: Immediately following compaction and finished grading of Planting Soil installation.
    - a. Test each type of planting section including, but not limited to, the following conditions: on Structure, on Grade, General Planting, Tree Pit, Raised Planter, with subdrainage, without subdrainage, etc.
    - b. Excavate a typical planting pit per typical Planting Details. Fill the pit with water to a depth of 12 inches (300 mm). Report length of time required for the water to percolate into the soil, leaving the pit empty. Within 6 hours of the time the water has drained from the pit, and in the presence of the Architect, again fill the pit with water to a depth of 12 inches (300 mm).
    - c. Open down-stream clean-outs and verify that water is flowing at an acceptable rate through all planter subdrainage systems.
    - d. If the water does not completely percolate into the soil within 9 hours, submit a proposal for drainage system improvements. Do not proceed with planting until a determination is made by the Architect.
- C. Soil will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.

### 3.5 PROTECTION

- A. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
  - 1. Storage of construction materials, debris, or excavated material.
  - 2. Parking vehicles or equipment.
  - 3. Vehicle traffic.
  - 4. Foot traffic.
  - 5. Erection of sheds or structures.
  - 6. Impoundment of water.
  - 7. Excavation or other digging unless otherwise indicated.
- B. If Planting Soil or subgrade is over-compacted, disturbed, or contaminated by foreign or deleterious materials, remove the Planting Soil and contamination; restore the subgrade as directed by Architect and replace contaminated Planting Soil with new Planting Soil.

### 3.6 CLEANING

- A. Protect areas adjacent to Planting Soil preparation and placement areas from contamination. Keep adjacent paving and construction clean and work area in an orderly condition.
- B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

**END OF SECTION 32 91 13**

## SECTION 32 92 00 - TURF AND GRASSES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Seeding.
  - 2. Hydroseeding.
  - 3. Sodding.
  - 4. Erosion-control material(s).

- B. Related Requirements:

- 1. Refer to specifications in FCP Plans for protecting existing trees to remain; for any work inside or adjacent to Tree Protection areas.
  - 2. Division 01 Section "Temporary Tree Protection".
  - 3. Division 32 Section "Plants" for trees, shrubs, ground covers, and other plants.
  - 4. Division 33 Section "Planter Subdrainage" for below-grade drainage of landscaped areas.

#### 1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Division 32 "Soil Preparation" and drawing designations for planting soils.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

#### 1.4 COORDINATION

- A. Plant turf after finished grades are established and after trees, shrubs, and other plants are installed.
- B. Contractor is responsible for inspecting the site and reviewing entire set of Construction Documents to become familiar with effects and potential effects on Planting installation, including but not limited to the following: access, known and potentially known utilities, persistent winds, surface drainage, and drainage of subgrade.

#### 1.5 SUBMITTALS, GENERAL

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals may be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete submittals.
  - 1. Architect's Approval of complete Qualification Data submittal is required, prior to review of other submittals. Should the requirements of the Qualification Data and Quality Assurance articles not be met, as assessed by the Architect, the Contractor acknowledges and accepts the Architect's rejection of the installer.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For landscape Installer.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
  - 1. Certification of each seed mixture used in sod production. Include identification of source and name and telephone number of supplier.
- C. Certification of Meadow/Prairie Seed: From seed vendor for each meadow-seed mixture stating the classification, botanical name, common name, percent pure live seed, percentage by weight of each species and variety, and percentage of purity, minimum percent germination and hard seed, maximum percent weed seed content, and date tested. Include the year of production and date of packaging.
- D. Product Certificates: For fertilizers and other amendments, from manufacturer.
- E. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.
- F. Sample Warranty: Sample of special warranty.

- G. Schedule: Two weeks following contract award, submit description of Work and schedule dates for each type of planting and maintenance. Include dates for each of the following items of work:

1. Plant material order verification.
2. Delivery of plant materials to the project site.
3. Plant and seed installation.
4. Conditions at time of installation, including weather (temperature, winds, precipitation, etc.) and soil conditions.
5. Substantial Completion.
6. Maintenance period.
7. Warranty period
8. Final acceptance.

#### 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

#### 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Five years' experience in turf installation in addition to requirements in Division 01 Section "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
  - a. Landscape Industry Certified Technician - Exterior.
  - b. Landscape Industry Certified Lawncare Manager.
  - c. Landscape Industry Certified Lawncare Technician.
5. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.
6. Pesticide Applicator: State licensed, commercial.

- B. Source Limitations: All material of a specific size and cultivar shall be grown at the same nursery and in the same lot.

1. Notify Architect of sources of planting materials minimum 60 days in advance of delivery to site.



- C. Lead Times: Some materials may require longer than anticipated lead times, seasonal dependencies, and/or may be in limited supply. No extensions of time or variations shall be considered if supply is compromised by late sourcing and/or ordering.
- D. Observation: Products are subject to review, both at the nurseries and at the delivery site. Review shall not impair the right of review and rejection during progress of the Work. The Architect reserves the right to refuse the review if, in the Architect's opinion, a sufficient quantity and/or quality is not available.
- E. Inspection: Notify Architect not less than ten business days prior to delivery of Products.
  - 1. Seed shall be inspected upon arrival at the site for conformity to species and quality and condition. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected.
- F. Plant material shall be inspected upon arrival at the site for conformity to species and quality. Plant material that is damaged, infested, and/or otherwise unhealthy is rejected.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Schedule deliveries to minimize on-site storage.
- B. Seed and Other Packaged Materials:
  - 1. Notify Architect 1 week in advance of all delivery times.
  - 2. Deliver in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
  - 3. Keep and protected from temperature extremes to maintain dormancy and viability while in transit, storage, or during installation operations.
  - 4. If it is necessary to store the seed and other packaged materials on the site, store in an approved weatherproof building in such a manner as to protect from deterioration and to permit easy access for inspection. Store in cool, dry locations away from contaminants. The Architect's approval of the storage building and the method of storage shall not relieve the Contractor of the responsibility for the quality and viability of the seed at the time of installation.
- C. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.
- D. Container-grown Stock:
  - 1. Do not bend, stack, or bind plants in a manner that damages leaves, deforms root, or affects natural shape.
  - 2. Water root systems of all plants stored on-site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.
  - 3. Do not remove from containers until planting time.

4. If planting is delayed more than two hours after delivery, set plants in shade, protect from weather and mechanical damage, and keep roots moist.

E. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

1.10 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. Turf Seed and Sod:
  - a. Spring Planting: April 1 to June 15.
  - b. Fall Planting: September 1 to November 1.
2. Meadow/Prairie Seed Installation:
  - a. Spring Planting: March 15 to May 15.
3. Meadow/Prairie Plant Installation:
  - a. Spring Planting: April 1 to June 15.
  - b. Fall Planting: September 1 to November 1.
4. If conditions are present that warrant installation outside the specified planting schedule, submit a written request to the Architect describing conditions and stating the proposed variance.
  - a. If approved, provide supplemental watering and other addition care at a frequency and duration required for proper vegetation establishment and development at no additional cost.

B. Weather Limitations: Proceed Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

C. Special Warranty: Warrant plant material against defects including, but not limited to, death, disease, infestation, weeds, and unsatisfactory growth, except for defects resulting from neglect or abuse by Owner, or incidents following installation that are beyond Contractor's control. Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within the following Warranty Periods:

1. Turfgrass Sod and Seed Installation: Throughout the 90-day Maintenance Period.
  2. Meadow/Prairie Seed and Plant Installation: Two years from date of Substantial Completion.
  3. Include the following remedial actions as a minimum:
    - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
    - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of Warranty Period.
    - c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.
    - d. Provide Warranty for period for replaced plant material of 90 days, but not less than 30 days into the succeeding planting season.
- D. Where Owner or a third party is engaged to conduct maintenance operations within the Warranty Period, Installer remains responsible for Failures, described herein, except those occurring as a direct result of action or lack of prescribed action taken by the Owner or referenced third party and without the Installer's knowledge.
1. Inspect the site during the Warranty period, not less than once per month, and notify the Owner in writing if proper maintenance is not being performed.
  2. Failure document such notification to the Owner within a reasonable time may invalidate the Installer's claim.

#### 1.11 MAINTENANCE

- A. Initial Maintenance: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable plant material is established, but for not less than the 90 day Maintenance Period.

#### 1.12 Post-Maintenance Walkthrough: At the close of the Maintenance Period and turnover of plant maintenance operations to Owner, conduct a site conference with Owner and Architect to document health and condition of material.

#### 1.13 MEASUREMENT AND PAYMENT

- A. Sodding shall be measured in square yards placed, and shall be paid for at the contract unit price per square yard. This price shall include preparing areas to receive topsoil; stripping, stockpiling, and furnishing topsoil; loading, transporting, and applying topsoil; finishing areas; restoring damaged areas; sod, all labor, equipment and incidentals required for installation
- B. Seeding shall be measured in square yards placed, and shall be paid for at the contract unit price per square yard. This price shall include preparing areas to receive topsoil; stripping, stockpiling, and furnishing topsoil; loading, transporting, and applying topsoil; finishing areas; restoring damaged areas; seed, mulch, all labor, equipment and incidentals required for installation.

- C. Protective coverings and soil stabilization mats shall be measured in square yards of area covered, complete-in-place, in accordance with the nominal plan dimensions and shall be paid for at the contract unit price per square yard. Overlaps, over widths, and cut slots shall not be measured for separate payment. This price shall include furnishing, installing, and stapling soil retention coverings; smoothing and shaping slopes and swales; preparing seed beds; and furnishing and applying topsoil, lime, seed, fertilizer, and water.
- D. Fertilizer, lime, amendments, and conditioners shall not be measured for separate payment; the cost thereof shall be included in the price for seeding or protective covers and soil stabilization mats.

## **PART 2 - PRODUCTS**

### **2.1 SEED**

#### **A. Grass Seed:**

- 1. Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.
- 2. State-certified seed of grass species indicated, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed.
- 3. Labels: Furnish all seed in bags or containers clearly labeled to show the name and address of the supplier, the seed name, the lot number, net weight, the percent of weed seed content and the guaranteed percentage of purity and germination.
- 4. Varieties: Listed by the latest publication of the Maryland-Virginia Turfgrass Variety Recommendation Work Group for Category 1 tall fescue variety recommendations.
  - a. K-31 is prohibited.

### **2.2 TURFGRASS SOD**

#### **A. Turfgrass Sod:**

- 1. Certified Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.
- 2. Viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted. Sod shall be cut to uniform 3/4-1 inch thickness, kept sufficiently moist so that the soil will adhere to the roots when handled, not more than 5% broken rolls, free of moldy, withered, yellow, or dry areas.
- 3. Sod cultivated from state-certified seed of grass species indicated, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed.
- 4. Varieties: Varieties listed by the latest publication of the Maryland-Virginia Turfgrass Variety Recommendation Work Group for Category 1 tall fescue variety recommendations.

- a. K-31 is prohibited.

## 2.3 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.
- B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
  1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

## 2.4 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch (25-mm) sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  1. Organic Matter Content: 50 to 60 percent of dry weight.
  2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- C. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

## 2.5 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

- C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

## 2.6 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Install biodegradable resin stakes or staples at intervals recommended by the blanket Manufacturer for slope condition.
- B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd. (0.5 kg/sq. m), with 50 to 65 percent open area. Install biodegradable resin stakes or staples at intervals recommended by the mesh Manufacturer for slope condition.
- C. Erosion-Control Mats: Cellular, nonbiodegradable slope-stabilization mats designed to isolate and contain small areas of soil over steeply sloped surface, of 3-inch (75-mm) nominal mat thickness. Install biodegradable resin stakes or staples at intervals recommended by the mat manufacturer for slope conditions.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Invisible Structures, Inc.; Slopetame 2.
    - b. Presto Products Company, a business of Alcoa; Geoweb.
  - 2. Tenax Corporation - USA; Tenweb.
- D. Biodegradable Resin Stakes:
  - 1. 100% biodegradable material within 12 months.
  - 2. 5 inch length x  $\frac{3}{4}$  inch diameter.
  - 3. Barbed shaft.
- E. Biodegradable Resin Staples:
  - 1. 100% biodegradable material within 12 months.
  - 2. U-shape Universal Staple.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.

2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

### 3.2 PREPARATION

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
  2. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.3 TURF AREA PREPARATION

- A. Prepare subgrade for soil mixing and placing according to Division 32 Section "Soil Preparation."
- B. Placing Topsoil: Spread Topsoil to 6 inches (150 mm) depth indicated, but not less than that required to meet finish grades after mixing with amendments and accounting for natural settlement. Do not spread if soil or subgrade is frozen or wet.
1. Spread approximately one-half the thickness of Topsoil over loosened subgrade. Mix into top 4 inches (100 mm) of subgrade. Turn blade at lowest setting to minimize creation of fines. Spread remainder of Topsoil.
- C. Compaction: Compact each blended lift of Topsoil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698 and tested in-place.
1. Finish Grading: Grade Topsoil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
    - a. Reduce elevation of planting soil to allow for soil thickness of sod.
- D. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

### 3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation" Article.
- B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
- C. Fill cells of erosion-control mat with planting soil and compact before planting.
- D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

### 3.5 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h).
  - 1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  - 2. Do not use wet seed or seed that is moldy or otherwise damaged.
  - 3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at total rates indicated.
  - 1. Rake seed lightly into top 1/8 inch (3 mm) of soil, roll lightly, and water with fine spray.
- C. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets and 1:6 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.
- D. Protect seeded areas with erosion-control mats where indicated on Drawings; install and anchor according to manufacturer's written instructions.
- E. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
  - 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.
- F. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch (4.8 mm), and roll surface smooth.



### 3.6 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
  - 1. Mix slurry with nonasphaltic tackifier.
  - 2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre (15.6-kg/92.9 sq. M) dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

### 3.7 SODDING

- A. Lay sod within 24 hours of harvesting unless a suitable preservation method is accepted in writing by Architect prior to delivery time. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
  - 1. Lay sod across slopes exceeding 1:3.
  - 2. Anchor sod on slopes exceeding 1:6 biodegradable resin stakes or staples at intervals recommended by the by sod manufacturer, but not less than two anchors per sod strip to prevent slippage.
- C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches (38 mm) below sod.

### 3.8 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
  - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
  - 2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
  - 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches (100 mm).
  - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
  - 2. Water turf with fine spray at a minimum rate of 1 inch (25 mm) per week unless rainfall precipitation is adequate.
    - a. The automatic irrigation system may be used, if available and approved by the Architect.
      - 1) Advise the Architect if adjustments are required to the automatic irrigation system to provide adequate moisture to plant materials during the Maintenance Period. Return system to original programming at the end of the Maintenance Period.
      - 2) The Contractor remains responsible for providing adequate and appropriate water to all areas of the plantings.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
  - 1. Mow grass 3 inches (75 mm) high.
- D. Turf Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.
  - 1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. M) to turf area.

### 3.9 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
  - 1. Satisfactory Seeded Turf: At end of Maintenance Period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
  - 2. Satisfactory Sodded Turf: At end of Maintenance Period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to re-establish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

### 3.10 MEADOW

#### A. Seed-only Planting:

1. Sow seed with spreader or seeding machine at rate indicated. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h).
  - a. Before sowing, mix seed with seed carrier at a ratio of parts seed carrier recommended by seed vendor to one part seed.
  - b. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  - c. Do not use wet seed or seed that is moldy or otherwise damaged.
  - d. Brush seed into top 1/16 inch (1.6 mm) of soil, roll lightly, and water with fine spray.
  - e. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch (4.8 mm), and roll surface smooth.
2. Water newly planted areas and keep moist until meadow is established.
3. Seasonal Contingency: If warm season grasses are installed outside of schedule herein, provide the following:
  - a. Areas where installation consists of seed only, install cover crop as follows, as approved by the Architect:
    - 1) Summer: Oats (*Avena sativa*) seed at 1 pound/1000 square feet.
    - 2) Early fall: If oats, above, are not installed, provide annual rye seed at 5 pounds/1000 square feet. Overseed with cosmos (*Cosmos bipinnatus*) at 1 ounce/1000 square feet.
    - 3) Late fall: Mow and remove thatch. Install specified seed mix.
  - b. Areas where installation requires both container-grown plants and seed, install cover crop as follows:
    - 1) Summer: Install oats (*Avena sativa*) seed at 1 pound/1000 square feet.
    - 2) Early fall: Install container-grown plants.
    - 3) Late fall or following spring: Mechanically scarify planting surface by hand. Do not damage container-grown plants or grade. Install specified seed mix at 125% of the specified rate.

### 3.11 MEADOW MAINTENANCE

- #### A. Maintain and establish meadow by watering, weeding, mowing, trimming, replanting, and performing other operations as required to establish a healthy, viable meadow. Roll, regrade, and replant bare or eroded areas and re-mulch. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and meadow damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep meadow and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
4. Weeding: Do not allow weeds to exceed 10% of total ground cover. Control weeds to the satisfaction of the Architect.
  - a. Hand weeding shall include the removal of all above- and below-ground stems, rhizomes, roots, tubers, and flower masses prior to the development of seeds. Disturb as little soil as possible to avoid exposure of additional weed seed in the soil layer, and protect adjacent emerging seedlings.

B. Watering: Install and maintain temporary piping, hoses, and meadow-watering equipment to convey water from sources and to keep meadow uniformly moist.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water meadow/prairie with fine spray at a minimum rate of 1/2 inch (13 mm) per week for eight weeks after planting unless rainfall precipitation is adequate.
  - a. The automatic irrigation system may be used, if available and approved by the Architect.
    - 1) Advise the Architect if adjustments are required to the automatic irrigation system to provide adequate moisture to plant materials during the Maintenance Period. Return system to original programming at the end of the Maintenance Period.
    - 2) The Contractor remains responsible for providing adequate and appropriate water to all areas of the plantings.

3.1 SATISFACTORY MEADOW

- A. At the end of the maintenance period, 95% of the container-grown plants are alive and growing in a healthy, vigorous condition and the plantings are free of weeds and irregularities.

3.2 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

### 3.3 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- D. Remove non-degradable erosion-control measures after grass establishment period.

### 3.4 MAINTENANCE SERVICE

- A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:
  - 1. Seeded Turf: 30 days from date of Substantial Completion.
    - a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.
  - 2. Sodded Turf: 30 days from date of Substantial Completion.
- B. Meadow/Prairie Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Meadow Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable meadow is established, but for not less than maintenance period below.
  - 1. Maintenance Period: 60 days from date of Substantial Completion.

**END OF SECTION 32 92 00**

## SECTION 32 93 00 - PLANTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Planting and related details and schedules provided on the Drawings.

#### 1.2 SUMMARY

##### A. Section Includes:

- 1. Plant Material.
- 2. Tree stabilization.
- 3. Landscape edgings.

##### B. Related Sections:

- 1. Refer to specifications in FCP Plans for protecting existing trees to remain; for any work inside or adjacent to Tree Protection areas.
- 2. Division 01 Section "Temporary Tree Protection".
- 3. Division 31 Section "Clearing" for topsoil stripping and stockpiling and site clearing.
- 4. Division 31 Section "Earthmoving" for excavation, filling, and rough grading and for subsurface aggregate drainage and drainage backfill materials.
- 5. Division 32 Section "Turf and Grasses" for turf and meadow planting and planting-related erosion-control materials.
- 6. Division 32 Section "Soil Preparation."
- 7. Division 33 Sections "Planter Subdrainage" and "Subdrainage" for below-grade drainage of landscaped areas.

##### C. Applicable Standards:

- 1. ANSI Z60.1 American Standard for Nursery Stock, Current Edition, American Association of Nurserymen.
- 2. ANSI A300 Tree, Shrub and other Woody Plant Maintenance - Standard Practices, Current Edition, American National Standards Institute.
- 3. USDA Cold Hardiness System, United States Department of Agriculture published zone map.
- 4. ASTM C136-84a - Method for Sieve Analysis of Fine and Coarse Aggregates.
- 5. ASTM D422-63 (1972) - Method for Particle Size Analysis of Soils
- 6. ASTM D2607-69 - Classification of Peats, Mosses, Humus, and Related Products.
- 7. ASTM D2974-84 - Test Method for Moisture, Ash, and Organic Matter of Peat Materials.

8. ASTM D2976-71 (1981) - Test Method for pH of Peat Materials.
9. ASTM D-3385-75 Infiltration Testing.
10. ASTM D5268-92 - Standard Specification for Topsoil Used for Landscaping Purposes.
11. United States Department of Agriculture: Soil Particle Size & Texture Classes.

### 1.3 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.
- C. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required.
- D. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for type and size of plant required.
- E. Clear Trunk or Branching Height: The portion of the lower trunk maintained free of any branches measured from the top of root ball to the underside of the first lowest permanent branch.
- F. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.
- G. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1 for type and size of plant.
- H. Finished Grade: Elevation of finished surface of planting soil, not including mulch.
- I. Included Bark: Bark squeezed between two branches or between branch and trunk.
- J. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- K. Pests: Living organisms that occur where they are not desired, or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks, rodents, unwanted plants, fungi, bacteria, and viruses.
- L. Planting Area: Areas to be planted.

- M. Planting Soil: Standardized topsoil; existing, existing, in-place surface topsoil; imported topsoil; or manufactured topsoil modified with soil amendments to produce a soil mixture best for plant growth.
- N. Plant; Plants; Plant Material: Vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.
- O. Root Ball Diameter: The average diameter of the widest portion of the root ball.
- P. Root Flare (Root Collar, Trunk Flare): The area at the base of the trunk that broadens to form roots; the area of transition between the root system and the stem or trunk.
- Q. Girdling Roots: Roots that encircle the trunk(s), including those not in immediate contact with the trunk(s).
- R. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- S. Subsoil: Lower 'B' horizon from a natural or cultivated soil profile, well-drained and not including bogs or wetlands, typified by the lack of organic matter and soil organisms.
- T. Topsoil: Surface 'A' horizon from natural or cultivated surface profile, well-drained and not including bogs or wetlands, containing organic matter, sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of weeds, weed propagules, roots, and deleterious materials. Percentage by mass and pH shall meet ASTM D5268-92, Table 1.
- U. Water: Potable.

#### 1.4 COORDINATION

- A. Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
  - 1. When planting trees, shrubs, and other plants after planting turf areas is necessary and approved by Architect, protect turf areas, and promptly repair damage caused by planting operations.
  - 2. Prevent mixing, contamination or reversing soil profile from other Work. Repair any disturbance to the soil layers after placing to comply with the specified requirements.
- B. Complete all Work on slopes, including irrigation, soil, erosion control, before preparing adjacent flatter areas.

#### 1.5 PREINSTALLATION MEETINGS:

- A. Preinstallation Conference: Conduct conference at Project site, unless otherwise indicated.



## 1.6 SUBMITTALS, GENERAL

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals may be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete submittals.
  - 1. Architect's Approval of complete Qualification Data submittal is required, prior to review of other submittals. Should the requirements of the Qualification Data and Quality Assurance articles not be met, as assessed by the Architect, the Contractor acknowledges and accepts the Architect's rejection of the installer.
  - 2. Plant material received on site prior to approval of all other Plants submittals and/or that does not fully comply with approved submittals and other requirements herein is automatically rejected and shall not be unloaded.

## 1.7 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated, including soils. Provide also the following specific items.
  - 1. Plant Materials:
    - a. Not later than 60 days following the General Contractor's Notice to Proceed and a minimum 21 days prior to tree-tagging trips, submit list of proposed sources for all plant materials, including certificates of inspection of plant materials, as may be required by Federal, State, or other authorities to accompany shipments.
      - 1) Source List:
        - a) Include quantities, sizes, quality, and sources for plant materials.
        - b) Include identification of any supply difficulties and substantiate if any material specified is not obtainable, including copies of supplier's correspondence.
        - c) Review of sources is provisional, pending review of Plant Photographs for Prequalification.
      - 1) Substitutions: Submit any proposed substitutions, with itemized adjustments of Contract Price. No substitutions will be accepted unless approved in writing by the Architect at least seven days prior to bid.
- B. Plant Photographs for Prequalification:
  - 1. Not later than 60 days following the General Contractor's Notice to Proceed, provide Plant Photographs for prequalification:
    - a. Two color photographs, minimum 3- by 5-inch (76- by 127-mm), of each required cultivar and size of plant material, as follows:

- 1) Take photographs from angles depicting true sizes and conditions of the material, representing the full range of qualities available within the lot.
- 2) Include a scale rod or other measuring device in each photograph for reference.
- 3) For trees, provide clear views of canopies to demonstrate representational form, vigor, and health. Provide clear views of trunks to demonstrate representational form, health, and absence of scars and damages. Remove trunk wrap.
- 4) Arrange multiple photographs on letter-size pages in \*.pdf format.
- 5) Label each photograph with the following:
  - a) Plant key, as noted on the Plant Schedule.
  - b) Sequential number.  
Botanical name, plant size, and name of the growing nursery.
  - c) Example:

GS-1  
Genus species 'Cultivar'  
The Nursery, Inc.

- b. Provide the above a minimum 21 days prior to tree-tagging trips. Owners' representative and/or City staff shall be invited to attend any tree-tagging trips and attend at their discretion.
2. Architect may reject individual plants, groups of plants, and/or suppliers on the basis of photographs submitted and/or other conditions deemed pertinent by the Architect.
3. Do not dig or otherwise reserve other material prior to receiving Architect's approval of photos submitted for initial selection.

C. Samples for Verification: For each of the following:

1. Mulch[es]: 1-pint (0.5-liter) volume of each mulch required; in clear, sealed, heavy-duty plastic bags or rigid containers, labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and makeup.
2. Edging Materials and Accessories: Manufacturer's standard size, to verify color selected.
3. Tree Grates, Frames, and Accessories: Manufacturer's standard size delivered to the site for review, to verify design and color/finish selected.
4. Root Barrier: 12 inches (300 mm) square.

D. Unit Costs:

1. Not later than 60 days following the General Contractor's Notice to Proceed, submit an itemized list of bid costs for all plant material identifying cost of plant and separate cost of installation.

E. Documentation of Orders:

1. Not less than six months prior to installation, provide documentation of accepted orders to growers for all trees, including such deposits as individual growers may require to reserve material.

- F. Schedule: Two weeks following contract award, submit description of Work and schedule dates for each type of planting and maintenance. Re-submit as proposed schedule changes occur. Include dates for each of the following items of work:
1. Plant material order verification.
  2. Delivery of plant materials to the project site.
  3. Installation.
  4. Substantial Completion.
  5. Maintenance period.
  6. Warranty period.
  7. Final acceptance.

#### 1.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified landscape Installer. Include list of projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, year completed, and recent photographs. Include names and addresses of owners' contact information. Provide documentation of items required in Quality Assurance article.
- B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:
1. Manufacturer's certified analysis of standard products.
  2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- C. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to the Project.
- D. Sample Warranty: Sample of special warranty.
- E. Installation Conditions: Date and site conditions at time of installation, including weather (temperature, winds, precipitation, etc.) and soil conditions.

#### 1.9 CLOSEOUT SUBMITTALS

- A. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before start of required maintenance periods.

#### 1.10 QUALITY ASSURANCE

- A. Installer Qualifications:
1. Landscape Installer: A qualified landscape Installer whose work has resulted in successful establishment of plantings, including soil preparation, finished grading, and appurtenances.

- a. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
  - b. Experience: Installer shall have not less than 5 years of experience in landscape installation of local projects of similar size, program, scope, and client sector.
    - 1) Sector shall be defined as municipal government, state or federal government, institutional, private retail developer, private multi-family residential developer, or individual residence owner.
  - c. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
  - d. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
    - 1) Certified Landscape Technician - Exterior, with installation, maintenance, and irrigation specialty area(s), designated CLT-Exterior.
    - 2) Certified Ornamental Landscape Professional, designated COLP.
2. Pesticide Applicator: State licensed, commercial.
- B. Delivery Inspection: Architect and Installer shall inspect plant material upon delivery to the site. Notify Architect not less than fourteen (14) days prior to delivery. Unload trees in an upright position with tops untied to enable inspection of all sides.
- 1. For plant material not in accordance with the Contract Documents:
    - a. Reject and remove the plant material from site and replace within 2 days at no cost.
    - b. If approved in writing by the Architect, plant(s) not in accordance with Contract Documents may be provisionally accepted at lower value, as assessed by the Architect.
- C. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.
- D. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.
- 1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches (150 mm) above the root flare for trees up to 4-inch (100-mm) caliper size, and 12 inches (300 mm) above the root flare for larger sizes.
    - a. Measure following pruning, when pruning is required.
    - b. When ranges are specified, provide minimum 50% of each respective plant size/type at the maximum size.
  - 2. Measure with stems, petioles, and foliage in their normal position.

- E. Source Limitations: All material of a specific size and cultivar shall be grown at the same nursery and in the same lot.
1. Notify Architect of sources of planting materials minimum 60 days in advance of delivery to site.
  2. Trees may be obtained from up to three different locations, each within approximately 75 miles of the Washington, D.C. metropolitan area, unless otherwise approved by the Architect.
- F. Lead Times: Some materials may require longer than anticipated lead times, seasonal dependencies, and/or may be in limited supply. No extensions of time or variations shall be considered if supply is compromised by late sourcing and/or ordering.
- G. Plant Material Observation: Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
1. Notify Architect of sources of planting materials minimum 30 days in advance of delivery to site.
- H. Tagging: Following acceptable review of plant photographs for Initial Selection and Sources, Architect will select and tag trees at places of growth prior to being prepared for transplanting.
1. Notify Architect of request to tag trees minimum 21 days in advance of proposed date(s).
  2. Contractor shall limit tagging trips to no more than one at a maximum of one day each.
  3. Contractor is responsible for verifying that adequate numbers of acceptable trees are available at their place(s) of growth, as indicated in the List of Sources, for Architect's consideration prior to the tagging visit.
  4. Contractor shall pay for Architect's time and costs associated with tagging trip(s) in excess of that herein or if sufficient quantities and acceptable material, as defined by the Architect, are not available upon arrival.
  5. In lieu of tagging, and solely at the Architect's discretion, Architect may request Photographs for Final Selection of some or all individual trees to be tagged.
    - a. Submit not less than two 5- by 8 inch clear, color photos of each individual tree being review, taken 90 degrees opposed to each other, depicting full view of trunk, structure, and canopy.
    - b. Comply with additional requirements of preceding Plant Photographs for Prequalification article.
  6. Do not dig or otherwise reserve trees prior to Architect's tagging.
    - a. The Contractor shall be responsible for all costs related to material dug and/or reserved prior to the above.
  7. Architect may subsequently reject previously pre-qualified individual plants at any time that no longer meet specification for reasons of damage, infestation, mineral deficiency, chlorosis, necrosis, circling roots, unsatisfactory subsequent growth, or other conditions

that were not readily discernible at time of tagging or developed/occurred following tagging.

- I. Mockup: Construct a full-size mockup of fine grading for landforms, if applicable, at locations as directed in the field by Architect. Establish fine grading standards for sharp ridges, toes, and planar grading of slopes to the satisfaction of the Architect.
  - 1. Notify Architect minimum 14 days' notice in advance of proposed date(s).
  - 2. If approved, mockup may be incorporated into the works.

#### 1.11 PENALTIES

- A. Provide Documentation of Orders in full within the specified time. Failure to provide such Documentation within specified time shall result in penalties assessed by the Owner against the Contractor's fees in the amount of 0.50 percent of the total Planting Installation per day. Penalties shall be credited against each successive payment application during the time period in which they are assessed.

#### 1.12 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.
- B. Bulk Materials:
  - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
  - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
  - 3. Accompany each delivery of bulk fertilizers, lime, and soil amendments with appropriate certificates.
- C. Do not prune trees and shrubs before delivery, except as specifically approved by the Architect. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to affect their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- D. Deliver balled and bare-root stock freshly dug.
  - 1. Immediately after digging bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.
- E. Handle planting stock by root ball with a tree strap only.
  - 1. Handling by any other means including, but not limited to, jaws, chains, bars, trunk lift is prohibited.

- F. Do not remove container-grown stock from containers before time of planting.
- G. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F (16 to 18 deg C) until planting.
- H. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than four hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather, mechanical damage, and temperature extremes, and keep roots moist.
  - 1. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
  - 2. Place trees upright immediately upon unloading; do not lay trees down at any time.
  - 3. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
  - 4. Do not remove container-grown stock from containers before time of planting.
  - 5. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

#### 1.13 TEMPORARY HOLDING AREAS

- A. Locate in an area protected from winds and excessive heat, as approved by the Architect.
  - 1. Parking lots, equipment yards, and other exposed areas are prohibited.
- B. Irrigation system: Supply and install a system as follows:
  - 1. Bypasses existing irrigation main with a temporary diversion main and associated control wires.
  - 2. Ability to maintain the plants in peak condition at all times by having the capacity to apply a summer weekly target application rate of 2 inches.
  - 3. A fully automatic, night-time, unattended low maintenance operation, vandal resistant.
  - 4. A meter to record volume of water used.
  - 5. A QCV valve to wash foliage.
  - 6. Containment of runoff
- C. Enclosures: 6 foot high galvanized chain wire and lockable gates. Provide padlocks to gates and submit a set of keys to the Owner.
- D. Reinstatement: Restore any areas, which have been disturbed by the Work to their original condition.

#### 1.14 PROJECT CONDITIONS

- A. Contractor is responsible for inspecting the site and reviewing entire set of Construction Documents to become familiar with effects and potential effects on Planting installation, including but not limited to the following: access, known and potentially known utilities, persistent winds, surface drainage, and drainage of subgrade.

- B. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.
- C. B&B Digging Restrictions: Dig during one of the following periods or as agreed to by the Nursery and Architect in writing:
  - 1. Spring digging for deciduous trees: April to May.
  - 2. Fall Digging for deciduous and evergreen trees: September to October.
- D. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
  - 1. Deciduous Trees and Shrubs: March 1 to May 30 or September 15 to December 1. (Oak, tupelo, and beech shall be planted only in the spring, unless container-grown).
  - 2. Evergreen Trees, Shrubs, Groundcover and Perennials: March 1 to May 15 or September 15 to November 15.
- E. Seasonal Contingencies: In the event that scheduled planting is delayed, Contractor is responsible for including and executing acceptable contingencies to reduce the risk of seasonal stress, meet completion dates, and protect the Warranty.
  - 1. Acceptable contingencies may include:
    - a. Pre-digging and hardening-off.
    - b. Digging larger root ball.
    - c. Storage while in leaf.
    - d. Winterizing mulch.
    - e. Early planting of individual species more susceptible to stress.
  - 2. Unacceptable contingencies include:
    - a. Delayed planting of trees.
    - b. Species substitution.
- F. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Do not proceed with work when soil is frozen or wet. Apply products during favorable weather conditions according to manufacturers' written instructions and warranty requirements.

#### 1.15 WARRANTY

- A. Special Warranty: Installer is responsible for complete and proper planting supports, installation layout, watering, drainage, fertilizing, and pest and pathogen control during warranty period. Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
  - 1. Failures include, but are not limited to, the following:



- a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
    - b. Structural failures including plantings falling or blowing over.
    - c. Faulty performance of tree stabilization, edgings, tree grates, or drainage.
    - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  2. Warranty Period, per City of Rockville Forest and Tree Preservation Ordinance requirements:
    - a. Trees: 5 years post construction warranty & maintenance period.
    - b. Shrubs, Vines, and Ornamental Grasses: 2 years.
    - c. Ground Covers, Biennials, Perennials, and Other Plants: 2 years.
  3. Include the following remedial actions as a minimum:
    - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season. Stabilize bare areas with mulch, if not immediately replanted
    - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
    - c. A limit of one replacement of each plant will be required, except for losses or replacements due to failure to comply with requirements.
    - d. Provide Warranty for period for replaced plant material of 90 days, but not less than 30 days into the succeeding planting season.
    - e. Coordinate with Owner and Owner's maintenance provider to flag or otherwise note locations of replaced plant material.
- B. Where Owner conducts or engages a third party to conduct maintenance operations within the Warranty Period, Installer remains responsible for Failures, described herein, except those occurring as a direct result of action or lack of prescribed action taken by the Owner or referenced third party and without the Installer's knowledge, as follows.
1. Inspect the site during the Warranty period, not less than once per month, and notify the Owner in writing if proper maintenance is not being performed.
  2. Failure to document such notification to the Owner within a reasonable time may invalidate the Installer's claim.
- C. Manufacturer's Warranty: Where a Manufacturer offers a warranty on a particular component, the Contractor shall honor the warranty to the full extent of the Manufacturer's Warranty Statement. Such components include, but are not limited to edgings, tree grates.
1. Contractor labor for the above shall be provided at no cost.

#### 1.16 MAINTENANCE

- A. Initial Maintenance: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and

continue until acceptable plant material is established, but for not less than the Maintenance Period of 90 days.

- B. Post-Maintenance Walkthrough: At the close of the Maintenance Period and turnover of plant maintenance operations to Owner, conduct a site conference with Owner and Architect to document health and condition of material.

#### 1.17 MEASUREMENT AND PAYMENT

- A. Plants shall be measured by an actual count of living plants in a healthy growing condition and will be paid for at the contract unit price per each. Plants deleted from the Contract will not be measured for payment. This price shall include furnishing and delivering plants and miscellaneous planting materials; preparing planting pits, except when established as a separate pay item; forming saucers; installing plant materials; watering, except during establishment period; applying fertilizer; back filling with approved planting soil mixture; staking; guying; anchoring; pruning; applying mulch, except to areas designated on the plans as plant beds; replacing dead or damaged plants; repairing, replacing and removing stakes and guys when no longer needed; and maintaining plants in a healthy growing condition until final acceptance.
- B. Planting soil shall be measured in cubic yards computed to the nearest cubic yard and shall be paid for at the contract unit price per cubic yard. This price shall include soil testing and provision of test reports; providing and mixing admixtures, preparing areas to receive planting soil, furnishing, loading, transporting, and applying planting soil, finishing areas, and restoring damaged areas.
- C. Rain garden planting soil shall be measured in cubic yards computed to the nearest cubic yard and shall be paid for at the contract unit price per cubic yard. This price shall include soil testing and provision of test reports, providing and mixing admixtures, preparing areas to receive planting soil, furnishing, loading, transporting, and applying planting soil, finishing areas, and restoring damaged areas.
- D. Mulch shall be measured in units of square yards of surface area to the depth specified. Mulch for plant beds at the time of initial installation shall be paid for at the contract unit price per square yards of surface area. This price shall include furnishing, delivering, and applying mulch. No separate payment will be made for initial application or maintenance of mulch around plants that are not in continuous mulched plant beds. The cost thereof shall be included in the price for the Plants.
- E. Maintenance of planted materials, including watering, weeding, replacing and removing stakes and guys when no longer needed, and maintaining plants until final acceptance will not be measured for separate payment. The cost thereof shall be included in the price of Plants.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide named products by the named Manufacturers, or equals, as approved by the Architect

## 2.2 PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated and complying with ANSI Z60.1; and with healthy, well-developed root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, flush cuts, injuries, abrasions, and disfigurement. Provide stock grown under climatic conditions similar to those in the locality of the Project, as determined by the most current USDA Hardiness Zone or less, for at least two years and grown in soil similar to the native soil into which the stock will be planted.
  1. Trees with damaged, crooked, or multiple leaders; tight vertical branches presenting or capable of developing included bark; crossing trunks; cut-off limbs more than 3/4 inch (19 mm) in diameter; cracked root balls; or with stem girdling roots are prohibited.
  2. Canopy Development for Trees
    - a. Strong Central Leader to the top of the canopy. The tip of the leader on the main trunk must be intact and its terminal bud must be the highest part of the tree.
    - b. No branch shall have a diameter greater than 2/3 the trunk diameter measured directly above the branch crotch. The tree crown must be structurally uniform. Branches shall be evenly distributed around the trunk. The crown shall be full of foliage which is evenly distributed around the tree.
  3. Trees with abrasion of the bark, sunscalds, disfiguring knots, or recent cuts more than 1 1/4 inches in diameter, which have not completely callused, will be rejected.
  4. Plants that meet the measurements specified, but do not possess an acceptable balance between height and spread, or height and caliper, as defined by the ANSI Z760.1 and the Architect, will be rejected.
  5. Containerized Stock: Sturdy, stable root ball free from cracks and breaks with a symmetrical and radial pattern of well-branched fibrous roots without crushed or torn ends.
  6. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.
- C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- D. Labeling: Label each tree and shrub of each variety and size with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable.
  1. Label at least one of each cultivar and size of remaining materials.
- E. If formal arrangements or consecutive order of plants is shown on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

- F. Annuals and Biennials: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery and that are in bud but not yet in bloom.
- G. Dormant Propagule Quality: Use hard and resilient bulbs, tubers and rhizomes with top growth cut back.
- H. Unrooted Cutting Quality: Use cuttings that are alive, fresh, with bark intact and at least two bud scars near the top to facilitate branch development.
  - 1. Vary length between 24 and 36 inches.
  - 2. Vary caliper between 1 and 2 inches.
  - 3. Bottom with clean angle cut and top with clean square cut.
- I. Live Stake Quality: Use cuttings that are alive, fresh, with bark intact and at least two buds near the top to facilitate branch development.
  - 1. General:
    - a. Collect during dormant season.
    - b. Bottom with clean angle cut and top with clean square cut.
    - c. Vary age of material between 2 to 5 years.
    - d. Store in cool, humid and dark environment.
    - e. Presoak cuttings for 24 hours prior to use.
  - 2. Live Stakes:
    - a. Straight wood with side branches trimmed off.
    - b. Vary length between 24 and 36 inches.
    - c. Vary caliper between 1 and 2 inches.
  - 3. Branch Cuttings for Fascines:
    - a. Some side branches may be left.
    - b. Vary length between 6 and 9 foot.
    - c. Vary caliper between 3/4 and 1 inch.

## 2.3 FERTILIZERS

- A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
  - 1. Analysis: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients, plus micronutrients derived from a sulfate source.
  - 2. Size: 10-gram tablets.
- B. Granular Fertilizer:

1. General Plant Material: 14 percent nitrogen, 14 percent phosphorous, and 14 percent potassium, by weight plus micronutrients, plus micronutrients derived from a sulfate source.
  - a. Woodace Flowering Plant Special Fertilizer or equal, as approved by Architect.
2. Ericaceous Plant Material: 4 percent nitrogen, 3 percent phosphorous, and 4 percent potassium, by weight plus micronutrients, plus micronutrients derived from a sulfate source.
  - a. Holly-tone Plant Food by Espoma or equal, as approved by Architect.

C. Additional Amendments:

1. Apply additional amendments, as recommended in Soil Analyses.

2.4 EROSION CONTROL FABRIC

- A. North American Green DS150, FHWA Type 1.D, ultra-short term double-net erosion control blanket
  1. Longevity: 2 months
  2. Matrix: 100% straw fiber (0.50-lb/yd<sup>2</sup>)
  3. Netting: both sides, lightweight photodegradable with photo-accelerators, minimum netting weight 1.50-lb/1000-ft<sup>2</sup>.
    - a. Thread: degradable
- B. North American Green S150, S150BN, FHWA Type 2.D, short-term double-net erosion control blanket
  1. Longevity: 12 months.
  2. Matrix: 100% straw fiber (0.50-lb/yd<sup>2</sup>)
  3. Netting:
    - a. S150: both sides, lightweight minimum netting weight 1.50-lb/1000-ft<sup>2</sup>
    - b. S150BN: top – leno woven 100% biodegradable organic jute fiber, minimum netting weight 9.30-lb/1000-ft<sup>2</sup>, bottom - 100% biodegradable organic jute fiber, minimum netting weight 7.70-lb/1000-ft<sup>2</sup>
  4. Thread:
    - a. S150: degradable.
    - b. S150BN: biodegradable.
- C. North American Green C125, C125BN, FHWA Type 4, long term double-net erosion control blanket or open weave textile.
  1. Longevity: 36 months (C125), 24-months (C125BN).
  2. Matrix: 100% coconut fiber, 0.50-lb/yd<sup>2</sup>

3. Netting:
  - a. C125: both sides, heavyweight UV stabilized approximate netting weight 3.00-lb/1000-ft<sup>2</sup>
  - b. C125BN: Top: leno woven 100% biodegradable organic jute fiber, minimum netting weight 9.30-lb/1000-ft<sup>2</sup>; bottom: 100% biodegradable organic jute fiber, minimum netting weight 7.70-lb/1000-ft<sup>2</sup>
4. Thread:
  - a. C125: 100% black polypropylene.
  - b. C125BN: Biodegradable.

## 2.5 MULCHES

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting the following:
  1. Shredded hardwood.
    - a. Size Range: 3 inches (76 mm) maximum, 1/2 inch (13 mm) minimum.
    - b. Color: Natural.
  2. Leaf Mulch:
    - a. Karbon by Loudoun Composting, LLC. or equal as approved by Architect.
    - b. Free of viable weed seed and other contaminants.
    - c. Size Range: One-half inch minus.
    - d. Color: Natural.
- B. Mineral Mulch: Hard, durable stone, washed free of loam, sand, clay, and other foreign substances, of type, size range, and color indicated.

## 2.6 PESTICIDES

- A. General: Pesticide registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

## 2.7 TREE STABILIZATION MATERIALS

### A. Stakes and Guys:

1. Upright and Guy Stakes: Rough-sawn, sound, new hardwood or softwood with specified wood pressure-preservative treatment, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal (38-by-38-mm actual) by length indicated, pointed at one end.
2. Wood Deadmen: Timbers measuring 8 inches (200 mm) in diameter and 48 inches (1200 mm) long, treated with specified wood pressure-preservative treatment.
3. Tree-Tie Webbing: UV-resistant polypropylene or nylon webbing with brass grommets or integral tension buckles, minimum 800 pound break strength.
4. Guy Cables: Five-strand, 3/16-inch- (4.8-mm-) diameter, galvanized-steel cable, with zinc-coated compression springs, a minimum of 3 inches (75 mm) long, with two 3/8-inch (10-mm) galvanized eyebolts.
5. Duckbill Anchors: Aluminum alloy or nylon drive anchor with attached wire leader. Size and depth of embedment per Manufacturer's written specifications for anchored tree caliper.
6. Flags: Standard surveyor's plastic flagging tape, not less than 6 inches (150 mm) long.

### B. Root-Ball Stabilization Materials:

1. Proprietary Root-Ball Stabilization Devices: Proprietary at- or below-grade stabilization systems to secure each new planting by root ball; sized per manufacturer's written recommendations unless otherwise indicated.
  - a. Products: Subject to compliance with requirements, provide one of the following:
    - 1) Border Concepts, Inc.; Tomahawk Tree Stabilizers.
    - 2) Foresight Products, LLC; Duckbill Root Ball Fixing System.
    - 3) Tree Staple, Inc.; Tree Staples.

## 2.8 EROSION CONTROL FABRIC

- A. Lay loosely on surface to ensure fabric/ground contact. Provide at least 12 inches (300mm) overlap at joints. If not detailed on drawings, use dead stout stake per Manufacturer's written recommendations.

## 2.9 TEMPORARY WATERING DEVICES

- A. Slow-Release Watering Device: Standard product manufactured for drip-irrigation of plants and emptying its water contents over a period of 2 to 5 hours; manufactured from UV-light stabilized nylon-reinforced polyethylene sheet, PVC, or HDPE plastic.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Spectrum Products, Inc; Treegator (Original).
    - b. A.M. Leonard Horticultural Tool and Supply Company; Leonard ArborRain Hydration System, 20 Gallon.

- c. A.M. Leonard Horticultural Tool and Supply Company; Ooze Tube Tree Watering System, 25 Gallon

## 2.10 LANDSCAPE EDGINGS

- A. Steel Edging: Standard commercial-steel edging, rolled edge, fabricated in sections of standard lengths, with loops stamped from or welded to face of sections to receive stakes.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or a comparable product by one of the following:
    - a. Border Concepts, Inc.
    - b. Collier Metal Specialties, Inc.
    - c. Russell, J. D. Company (The).
    - d. Sure-Loc Edging Corporation.
  - 2. Edging Size: As indicated.
  - 3. Accessories: Standard stakes, tapered ends, corners, and splicers.
  - 4. Finish: Zinc coated.
  - 5. Paint Color: Black.
- B. Plastic Edging: Black polyethylene or vinyl edging, V-lipped bottom and horizontally grooved.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated .
  - 2. Accessories: Manufacturer's standard stakes and alignment clips or plugs.

## 2.11 MISCELLANEOUS PRODUCTS

- A. Wood Pressure-Preservative Treatment: AWPAC2, with waterborne preservative for soil and freshwater use, acceptable to authorities having jurisdiction, and containing no arsenic; including ammoniacal copper arsenate, ammoniacal copper zinc arsenate, and chromated copper arsenate.
- B. Root Barrier: Black, molded, modular panels manufactured with 50 percent recycled polyethylene plastic with ultraviolet inhibitors, 85 mils (2.2 mm) thick, with vertical root deflecting ribs protruding 3/4 inch (19 mm) out from panel.
- C. Burlap: Non-synthetic, biodegradable.
- D. Planter Drainage Gravel: Washed, sound crushed stone or gravel complying with ASTM D 448 for Size No. 8.
- E. Planter Filter Fabric: Nonwoven geotextile manufactured for separation applications and made of polypropylene, polyolefin, or polyester fibers or combination of them.
- F. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb (0.45 kg) of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb (0.45 kg) of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.



## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Before planting, obtain Architect's acceptance of finish grading.
- B. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
    - a. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of Work constitutes acceptance of conditions and resulting affects and potential effects on plant health. Contractor shall be responsible and bare all related costs for correcting all unsatisfactory and defective work.

### **3.2 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Exercise care during planting operations over structure and/or subsurface drainage to avoid damage to adjacent work. Contractor shall be responsible and bare all related costs for correcting all such damages. Should any damage occur during planting, immediately notify the Architect.

### **3.3 DELIVERY INSPECTION**

- A. Notify Architect minimum 10 days prior to arrival of plants on site. Do not proceed with installation until obtaining Architect's approval of all Submittals.
- B. Contractor's Delivery Supervisor: Inspect the following prior to delivery and again upon delivery:
  - 1. Quality grade, general conformance, and labeling.
  - 2. Blending and batching of plants to suit the delivery sequence.
  - 3. Proposed on-site temporary holding areas.

### 3.4 LAYOUT

- A. Place trees and containerized material at proposed planting locations. Stake or heel in trees as necessary to keep upright. Outline edges of beds. Adjust locations and orientation of individual trees when requested, and obtain Architect's acceptance of layout before excavating or planting.
  - 1. The Architect reserves the right to refuse to review if, in his/her opinion, the layout is inconsistent with the Contract Documents.
- B. Notify the Architect if it appears necessary to vary the locations and spacing to avoid utilities or to cover planting areas uniformly.

### 3.5 LIMITS OF PLANTING BED SOIL PREPARATION

- A. Enclosed planters defined by walls, curbs, or edges of pavement: Planter edge.
- B. Tree and shrub beds bordered by turf: As indicated. If not indicated, set Limits no closer than 10 feet (3.3 M) 5 feet (1.65 M) from any tree planting location and no closer than 30 inches (0.75 M) from any shrub planting location.
- C. Groundcover and perennial beds bordered by turf: Edge of bed, as indicated. If not indicated, extent of plant symbols and hatch patterns shown on Planting Plan.

### 3.6 PLANTING BED EXCAVATION

- A. Prepare subgrade for Planting Soil mixing and placing according to Division 32 Section "Soil Preparation."
- B. Excavation
  - 1. Depth:
    - a. General Planting on Grade: 18 inches (450 mm) total depth.
    - b. Tree pits, and other beds enclosed by pavements, raised planters, and over structure.
      - 1) Placing Planting Soil: Spread Planting Soil to total depth indicated, but not less than that required to meet finish grades after mixing with amendments and accounting for natural settlement. Do not spread if soil or subgrade is frozen or wet.
      - 1) Spread approximately one-half the thickness of prepared Planting Soil over loosened subgrade. Mix into top 4 inches (100 mm) of subgrade. Turn blade at lowest setting to minimize creation of fines. Spread remainder of Planting Soil.
      - 2) Where planter subdrainage occurs, remove backfill above sudrainage field to full depth and width of planter and sudrainage. Exclude sudrainage area from above turning of Planting Soil into subgrade. Do not damage or disturb fabric barrier(s) and other components of subdrainage system.

- c. Excavate pits with sides sloped inward at approximately 45 degrees.
    - d. For individual tree root balls, trim base leaving center area raised slightly, as indicated. Do not further disturb base.
    - e. Scarify sides of pit aggressively by hand with a pick axe.
    - f. Do not excavate subgrade of adjacent improvements.
    - g. Maintain supervision of excavations during working hours.
    - h. Keep excavations covered or otherwise protected when unattended by Installer's personnel.
  - 2. Compaction: Compact each blended lift of Planting Soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698 and tested in-place.
  - 3. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finished grades.
  - 4. Restore planting beds if eroded or otherwise disturbed after finished grading and before planting.
- C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
- 1. Hardpan Layer: Drill 6-inch- (150-mm-) diameter holes, 24 inches (600 mm) apart, into free-draining strata or to a depth of 10 feet (3 m), whichever is less, and backfill with free-draining material.
- D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or any retention in tree or shrub planting pits.

### 3.7 TREE AND SHRUB PLANTING

- A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.
- C. Set tree stock with root flare 1 inch (25 mm) above adjacent finish grades. Set shrubs and plants with root flare flush with adjacent finished grades.
- D. Backfill with Planting Soil.
- E. Restore planting area if eroded or otherwise disturbed after finished grading.
- F. Balled and burlapped stock:
  - 1. Do not use planting stock if root ball is cracked or broken before or during planting operation.

2. After placing enough backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from top one-third of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly and allow all water to drain away before placing remainder of backfill. Do not tamp sodden soil.
4. Continue backfilling process. Water again after placing and tamping final layer of soil.

G. Balled and potted stock:

1. Carefully remove root ball from container without damaging root ball or plant.
2. For container grown plants, make 4 vertical cuts, 1 inch deep, evenly spaced about the root ball with a clean, sharp utility knife.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly and allow all water to drain away before placing remainder of backfill. Do not tamp sodden soil.
4. Continue backfilling process. Water again after placing and tamping final layer of soil.

H. Bare-root stock:

1. Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling, and maintain plumb while working backfill around roots and placing layers above roots.
2. Continue backfilling process. Water again after placing and tamping final layer of soil.

- I. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

### 3.8 MECHANIZED TREE SPADE PLANTING

- A. Trees may be planted with an approved mechanized tree spade. Do not use tree spade to move trees larger than the maximum size allowed for a similar field-grown, balled-and-burlapped root-ball diameter according to ANSI Z60.1, or larger than the manufacturer's maximum size recommendation for the tree spade being used, whichever is smaller.
- B. Use the same tree spade to excavate the planting hole as will be used to extract and transport the tree.
- C. When extracting the tree, center the trunk within the tree spade and move tree with a solid ball of earth.
- D. Cut exposed roots cleanly during transplanting operations.
- E. Plant trees as shown on Drawings, following procedures in "Tree and Shrub Planting" article, above.
- F. Orient the tree in the same direction as in its original location, unless otherwise directed by the Architect.

### 3.9 TREE AND SHRUB PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape, unless otherwise directed by Architect.
- B. Where specifically directed by the Architect, prune, thin, and shape trees and shrubs according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.
- C. Do not apply pruning paint to wounds.

### 3.10 TREE STABILIZATION

#### A. Trunk Stabilization:

##### 1. Staking:

- a. Stake trees of 2- through 5-inch (50- through 125-mm) caliper. Use a minimum of two stakes of length required to penetrate at least 18 inches (450 mm) below bottom of backfilled excavation and to extend one-third of trunk height above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.
  - 1) Use two stakes for trees up to 12 feet (3.6 m) high and 2-1/2 inches (63 mm) or less in caliper; three stakes for trees less than 14 feet (4.2 m) high and up to 4 inches (100 mm) in caliper. Space stakes equally around trees.
  - 2) Stake trees of less than 2-inch (50-mm) caliper only as required to prevent wind tip out.
- b. For trees more than 6 inches (150 mm) in caliper, anchor guys to wood deadmen buried at least 36 inches (900 mm) below grade. Provide turnbuckle for each guy wire and tighten securely.

##### 2. Guying:

- a. Support trees with Tree-tie Webbing and integral tension buckles.
- b. For trees more than 6 inches (150 mm) in caliper, use strands of cable, connected to brass grommets on tree-tie webbing at contact points with tree trunk and reaching to turnbuckle. Allow enough slack to avoid rigid restraint of tree.

##### 3. Flags:

- a. Attach flags to each horizontal guy within 6 inches (100 mm) of the stake.
- b. Attach flags to each diagonal guy, 30 inches (760 mm) above finish grade.

- B. Root-Ball Stabilization: Install at- or below-grade stabilization system to secure each new planting by the root ball unless otherwise indicated.

1. Wood Hold-Down Method: Place vertical stakes against side of root ball and drive them into subsoil; place horizontal wood hold-down stake across top of root ball and screw at each end to one of the vertical stakes.
  - a. Install stakes of length required to penetrate at least 18 inches (450 mm) below bottom of backfilled excavation. Saw stakes off at horizontal stake.
  - b. Install screws through horizontal hold-down and penetrating at least 1 inch (25 mm) into stakes. Predrill holes if necessary to prevent splitting wood.
  - c. Install second set of stakes on other side of root trunk for larger trees as indicated.
2. Proprietary Root-Ball Stabilization Device: Install root-ball stabilization system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

### 3.11 ROOT-BARRIER INSTALLATION

- A. Install root barrier where trees are planted within 60 inches (1500 mm) of paving or other hardscape elements, such as walls, curbs, and walkways unless otherwise shown on Drawings.
- B. Align root barrier vertically and run it linearly along and adjacent to the paving or other hardscape elements to be protected from invasive roots.
- C. Install root barrier as indicated.
  1. Position top of root barrier per manufacturer's recommendations.
  2. Interlock adjacent edges or overlap root barrier a minimum of 12 inches (300 mm) at joints.
  3. Do not distort or bend root barrier during construction activities.
  4. Do not install root barrier surrounding the root ball of tree.

### 3.12 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated in even rows with triangular spacing.
- B. Use planting soil for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- E. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- F. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

### 3.13 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.
  - 1. Organic Mulch in Planting Areas: Apply 3-inch (75-mm) average thickness of organic mulch extending 12 inches (300 mm) beyond edge of individual planting pit or trench and over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches (75 mm) of trunks or stems.
  - 2. Mineral Mulch in Planting Areas: Install weed-control barriers before mulching according to Manufacturer's written instructions. Completely cover area to be mulched, overlapping edges a minimum of 6 inches (150 mm). Apply mineral mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches (75 mm) of trunks or stems.

### 3.14 PLANT MAINTENANCE

- A. Maintenance Period:
  - 1. 12 months from date of Substantial Completion.
- B. Maintain plantings throughout Maintenance Period by pruning, cultivating, providing supplementary water, weeding, fertilizing, mulching, restoring planting grade, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Treat as required to keep plant material free of insects and disease. Monitor for boring insects and signs of stress.
  - 1. Contractor remains responsible for Maintenance operations herein, except where specific maintenance operations are turned over to and accepted in writing by the Owner.
- C. Grow-in Watering: Ensure that adequate moisture is provided to all plants.
  - 1. General:
    - a. Water thoroughly at time of planting.
    - b. Provide water weekly for a period of 1 month following planting. Provide a minimum of 1 inch of precipitation per week.
    - c. Provide water bi-weekly for 2 additional months.
    - d. Provide additional watering during periods of heat and drought as necessary to maintain good health and vigor of all plant material.
  - 2. The automatic irrigation system may be used, if available and approved, and at the discretion of the Architect. Advise the Architect if adjustments are required to the automatic irrigation system to provide adequate moisture to plant materials.
    - a. The Contractor remains responsible for providing adequate and appropriate water to all areas of the plantings.
  - 3. Slow Release Watering Devices may be used.
    - a. Provide water delivery at uniform rate, appropriate to the soil, exposure, and other relevant conditions.

- b. Scout weekly to provide seasonal adjustment to application rate, reset to proper position, correct clogged or missing emitters, and replaced damaged and missing Devices. Provide documentation of each visit, signed by Owner's representative, noting conditions encountered, deficient devices, and remedial action taken
- D. Weeding:
  - 1. Promptly remove weeds from tree plantings.
  - 2. Do not let weeds exceed 10% of total ground cover in herbaceous plantings.
- E. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- F. Provide Integrated Pest Management (IPM) and chemical and biological treatments during maintenance and aftercare period, by Certified Pesticide Applicator. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
- G. Fertilizer, General: Fertilize 60 days after Substantial Completion.

### 3.15 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Pre-Emergent Herbicides (Selective and Non-Selective): Apply to tree, shrub, and ground-cover areas in accordance with manufacturer's written recommendations. Do not allow material to come in contact with Plants. Do not apply to seeded areas. Do not overspray.
- C. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations. Do not allow material to come in contact with Plants. Do not overspray.

### 3.16 CLEANUP AND PROTECTION

- A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.
- B. Protect plants from damage due to landscape operations, operations of other contractors and trades, and feeding animals. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
- C. After Final Inspection and when directed by the Architect, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.



3.17 DISPOSAL

- A. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

**END OF SECTION 32 93 00**

## SECTION 33 31 13 – SITE SANITARY SEWERAGE GRAVITY PIPING

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions, and Division 1, Specification Sections apply to work in this section.

#### 1.02 DESCRIPTION OF WORK

- A. Section specifies materials and work required to construct gravity flow sanitary sewer system.

#### 1.03 RELATED SECTIONS

- A. Refer to Section 312000 "Earthmoving", Section 320500 "Common Work Results for Exterior Improvements"; Section 334200 "Stormwater Conveyance", and Division 40 "Process Interconnections".

#### 1.04 STANDARDS

- A. Refer to Section 320500 "Common Work Results for Exterior Improvements", and as noted.
- B. Washington Suburban Sanitary Commission's (WSSC) current "General Conditions and Standard Specifications" and "Standard Details".
- C. Washington Suburban Sanitary Commission's current "Regulations Governing Installation of Plumbing and Sewer Cleaning in Washington Suburban Sanitary District".
- D. Washington Suburban Sanitary Commission's current "Plumbing and Gasfitting Regulations.
- E. City of Rockville "Water and Sewer Notes", latest edition.

#### 1.05 SUBMITTALS

- A. Refer to Section 320500 "Common Work Results for Exterior Improvements" and as noted.
- B. Products: Submit product manufacturer's specifications and installation instructions and certificates of compliance signed by manufacturer and Contractor stating that products comply with this specification to Architect. Certificates of compliance must be notarized, signed by an officer of Manufacturer, and shall include WSSC Contract Number or On-site number, job location, Contractor's name, types, classes and strengths of pipe and fittings, and Manufacturer's name.
- C. Options: Submit typewritten list of selected products when options are specified within 10 calendar days after Contract execution. Submit detailed shop drawings of system modifications required by selection of options.
- D. Submit shop drawings of precast structures indicating concrete reinforcement location, size and placement.

- E. Submit As-built drawings to Architect.
- F. Service Connection Permit: Contractor shall submit to MCPS all items required by WSSC to obtain a Service Connection Permit including but not limited to: All required WSSC Bonds, Letter indicating Utility Contractor, and Certificate of Insurance. MCPS will obtain Service Connection Permit once all these items are received.

#### 1.06 PRODUCT, DELIVERY, STORAGE AND HANDLING

- A. Refer to Section 320500 "Common Work Results for Exterior Improvements".

#### 1.07 PROJECT CONDITIONS

- A. Refer to Section 320500 "Common Work Results for Exterior Improvements" and as noted.
- B. On-site construction and materials shall be in accordance with latest edition of WSSC General Conditions and Standard Specifications, Design Manual, Standard Details and Plumbing and Gasfitters Regulations.
- C. Equipment required to divert sewage (bypass pumping) during system construction. Extend pump discharge lines to existing sanitary sewer structures. Surface flow is prohibited.
- D. Traffic: Maintain vehicular and pedestrian traffic during system construction per the approved temporary traffic control plan.

#### 1.08 CONSTRUCTION SURVEYS

- A. Provide survey equipment and qualified personnel for construction surveys. Provide combined horizontal and vertical alignment stakes for system construction. Horizontal stake interval to be 25 feet maximum and at structures. Provide construction cut sheet preparation as required.

#### 1.09 SPECIAL INSPECTIONS, TESTING OBSERVATION AND CERTIFICATIONS

- A. Special utility inspections, testing observation and certifications are those services specifically required by government agencies and/or utility purveyors, and that must be performed by Engineer of Record.
- B. ON-SITE SEWER SYSTEM: In accordance with requirements and regulations of City of Rockville Public Works Division, contractor shall hire the Engineer of Record or other WSSC approved entity to provide services in connection with preparations of as-built drawings of On-Site sewer lines and appurtenances. All inspections of the on-site system shall be performed by a WSSC inspector in accordance with WSSC requirements.
- C. ADDITIONAL INSPECTIONS, OBSERVATIONS AND CERTIFICATIONS: It shall be responsibility of Contractor to hire Engineer-of-Record to perform additional special inspections, testing observations and certifications required beyond those specific services identified herein as being provided by Owner or City of Rockville.

#### PART 2 - PRODUCTS

## 2.01 MATERIALS

- A. All materials shall be per City of Rockville Public Works Standards and shall meet City and WSSC requirements indicated.
- B. Polyvinyl Chloride (PVC) Pipe: WSSC Standards indicated. ASTM D 3034, SDR 35 PVC gravity sewer pipe, size as indicated, standard manufacture laying length.
  - 1. Gasket Seals. Gaskets shall meet requirements of ASTM F 477.
  - 2. Fittings shall be as indicated and required.
- C. Cleanouts: WSSC standards indicated.
  - 1. Cleanouts for Use in Paved Walk Areas: Refer to Section 33 42 00 "Stormwater Conveyance", and as noted.
    - a. Expansion Joint: ASTM D 994, bituminous preformed joint filler, 1/2 inch thick.
  - 2. Furnish Owner with one cleanout wrench.
- D. Structures: WSSC standards specified and indicated.
- E. Foundation and Bedding Materials: Refer to Section 32 05 00 "Common Work Results for Exterior Improvements".
- F. Concrete: Refer to Section 32 05 00 "Common Work Results for Exterior Improvements".
- G. Miscellaneous Products:
  - 1. Underground identification type manufactured by Allen Systems, Houston, Texas. "Detectatape" type, three inches wide, marked "Caution Sewer Line Buried Below", "Safety Green" color.

## PART 3 - EXECUTION

### 3.01 DEWATERING, EXCAVATION, OVER-EXCAVATION AND UNSUITABLE EARTH

- A. Refer to Section 32 05 00 "Common Work Results for Exterior Improvements".

### 3.02 EXISTING SYSTEM CONNECTION

- A. Notify City of Rockville Public Works Division no less than 48 hours prior to start of system construction.
- B. Excavate and expose existing pipe at connection location indicated. Adjust connection location, as required, in event of conflicts with existing pipe joints. Neatly cut existing pipe and prepare cut end as required for connection with new pipe. Make connections with existing pipe using fittings designed for purpose, in accordance with manufacturer's installation instructions.

### 3.03 PIPE

- A. General: Install in accordance with manufacturer's installation instructions and as noted. Inspect each pipe laying length and pipe joint materials for defects. Remove defective products from project site. Install pipe to horizontal and vertical alignment indicated. Begin with installation at lowest system elevation and proceed up-grade. Field cut pipe only where required to complete structure-to-structure closures, install fittings or as specified. Cut pipe to smooth square end with equipment designed for cutting pipe.
- B. Polyvinyl Chloride (PVC) Pipe: Install pipe in accordance with ASTM D 2321, manufacturer's installation instructions, and as noted.
  - 1. Install with pipe spigot end pointing in flow direction. Begin installation of pipe, with vertical gradient exceeding 10 percent, at lowest elevation and proceed up-grade. Clean bell and spigot interior and exterior surfaces, removing oil, grit and foreign matter. Lubricate pipe ends and gasket in accordance with manufacturer's instructions. Position each laying length of previously installed pipe and manually push joint tightly together.
  - 2. Field Pipe Cutting: Shape spigot end of cut pipe to resemble manufactured spigot end, with a pipe-beveling tool designed for PVC pipe. Copy the full insertion mark provided on manufactured spigot end onto prepared field cut end.

#### 3.04 EXISTING PIPE/STRUCTURE CONSTRUCTION

- A. location as directed by Architect or Owner's Representative in event existing pipe joint interferes with structure walls, or as required to obtain required invert, at no increase to Contract Sum. Manually excavate below existing pipe prior to structure base placement. Place concrete structure base and construct structure as specified. Neatly cut and remove upper half of existing pipe and construct invert flow channel.

#### 3.05 STRUCTURES

- A. Refer to Section 320500 "Common Work Results for Exterior Improvements" and as noted.
- B. Pipe Connections: Install pipe opening sleeves in accordance with manufacturer's installation instructions. Neatly cut pipes flush with interior structure walls except as otherwise indicated or specified.
- C. Structure Joints: Apply liberal coat of joint coating material to each structure section joint in accordance with manufacturer's application instructions.
- D. Invert Flow Channels: Construct invert flow channels smooth and semicircular in shape. Shape channels with horizontal circular curve radii as large as structure will permit. Neatly form channels in structure base with bricks and cement mortar.

#### 3.06 CLEANOUTS

- A. Refer to Section 334200 "Stormwater Conveyance", and as noted.
- B. Install cleanouts in accordance with manufacturer's installation instructions and as indicated.
  - 1. Construct concrete pads of Class "A" concrete as indicated.

2. Cleanouts in paved walk shall be installed without a concrete pad. Top shall be cast into and set flush with finished walk surface.

### 3.07 BACKFILL

- A. Refer to Section 320500 "Common Work Results for Exterior Improvements", and as noted.
- B. Sanitary Sewer mains must be inspected by Engineer of Record prior to completion of backfill operations. Contractor shall provide a minimum of 48 hour notice to Engineer of Record before completion of backfill operations.
- C. Identification Tape: Install tape during backfill operations. Tape shall be centered over pipe, located 12 inches above top of pipe.

### 3.08 SYSTEM TESTING

- A. Provide equipment, materials and labor required to test system. Conduct low pressure air tests in accordance with WSSC standards. Provide a minimum of 48 hour notification of planned testing. Test observation by the Engineer of Record and WSSC personnel.
- B. Repair or replace defective products and system construction, which fails tests as directed by local jurisdiction approving agency. Provide additional corrective work and retesting until system is approved and accepted. Provide corrective work and retesting at no increase to Contract Sum.

### 3.09 SYSTEM INSPECTION

- A. In accordance with requirements on approved City of Rockville drawings, City shall provide all inspection of the on-site piping.
- B. Provide additional corrective work, determined necessary by television inspection, as specified for system testing.

END OF SECTION

## SECTION 33 42 00 – STORMWATER CONVEYANCE

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1, Specifications Section, apply to work in this section.

#### 1.02 DESCRIPTION OF WORK

- A. Section specifies materials and work required to construct storm drainage system.

#### 1.03 RELATED SECTIONS

- A. Refer to Section 31 10 00 "Clearing", Section 31 20 00 "Earthmoving", and Section 32 05 00 "Common Work Results for Exterior Improvements"

#### 1.04 STANDARDS

- A. Washington Suburban Sanitary Commission (WSSC) current "General Conditions and Standard Specifications" and "Standard Details".
- B. Montgomery County Department of Transportation current "Design Standards".
- C. Maryland Department of Transportation State Highway Administration current "Standard Specifications for Construction and Materials".
- D. Maryland Standards and Specifications for Soil Erosion and Sediment Control, current edition.
- E. City of Rockville "Storm Drain and Paving Notes" latest edition.
- F. American Concrete Pipe Association (ACPA).
- G. Cast Iron Soil Pipe Institute (CISPI).
- H. City of Rockville "AsBuilt Checklist" latest edition.

#### 1.05 SUBMITTALS

- A. Products:
  - 1. Submit certificate signed by manufacturer and Contractor stating that pipe and pipe joint materials comply with this specification.
  - 2. Submit shop drawings of pre-cast reinforced structures and cast in place reinforced concrete structures indicating location, size and placement of concrete reinforcement.
  - 3. Submit manufacturer's descriptive literature of cleanouts.
  - 4. Submit location of product manufacture.
  - 5. Special shop drawing and submittal reviews are those requiring third-party (governing agency) review and approval in addition to normal reviews by Owner, Architect and/or Engineer of Record. In instances where shop drawings and Contractors submittals must also be reviewed and approved by municipal agencies or other entities, Contractor shall

allow extended time as required to accommodate these reviews and approvals at no additional cost or delay to Owner, Architect and/or Engineer of Record. Contractor shall schedule and/or adjust work schedules accordingly.

6. Contractor shall bear surveying, engineering and permitting costs for re-design and/or re-engineering required for substitutions and/or to expedite construction and/or accommodate changes in Contractor's construction methods and means.

#### 1.06 PROJECT CONDITIONS

- A. Refer to Section 31 20 00 "Earthmoving" and as noted.
- B. Existing Storm Drainage System: Provide, install, operate and maintain pumps and related equipment required to divert storm water during system construction.
- C. Traffic: Maintain pedestrian and vehicular traffic during system construction per the approved temporary traffic control plan.
- D. As-Built Documents:
  1. Refer to Section 32 05 00 "Common Work Results for Exterior Improvements"

#### 1.07 CONSTRUCTION SURVEYS

- A. Provide survey equipment and qualified personnel for construction surveys. Provide combined horizontal and vertical alignment stakes for system construction. Horizontal stake interval to be 25 feet maximum and at structures. Provide construction cut sheet preparation as required.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. General: Provide products manufactured within a 500-mile radius of Project Site
- B. Polyvinyl Chloride (PVC) Pipe: ASTM D 3034, SDR 35 PVC gravity sewer pipe, size as indicated, standard manufacture laying length.
  1. Pipe Joints: ASTM D 3212, bell and spigot type, with flexible elastomeric gasket seals. Gaskets shall meet ASTM F 477 requirements.
  2. Fittings shall be as indicated and required.
- C. Concrete Pipe: ASTM C 76, Class IV, standard manufacture laying length.
  1. Pipe Joints: Rubber gaskets, ASTM C 443 with vegetable oil soap joint lubricant.
  2. Mortar Joints: Modified tongue and groove pipe with cement mortar.
- D. Corrugated Steel Pipe: ASTM A 819 and AASHTO M 274 Aluminized Steel Type 2 pipe, corrugations and thickness as specified on plans.
  1. Pipe Joints: Shall be watertight joints, made with bands gaskets as specified on plans.
- E. High Density Polyethylene Pipe: ADS Type N-12, or approved equal.



1. Pipe Joints: Joints must meet a modified ASTM 3212 at 3.5-psi held for 10 minutes as certified by an independent testing laboratory.
- F. Structures: Standards specified and as indicated.
- G. Structure Castings: MDOT-SHA or City of Rockville Standards.
1. Grates for storm drain inlets with grate tops shall be waffle shaped for wheel chair and bicycle safety. Slots shall not exceed 4" by 1 1/2".
- H. PVC Pipe for Infiltration Drywell and Biofilter Underdrains: Schedule 40 Polyvinyl Chloride (PVC) sewer pipe as indicated and required by City of Rockville.
1. Size: As indicated.
  2. Perforations: Drill 3/8-inch perforations all around for entire length as indicated.
  3. Fittings: As indicated and required.
- I. Cleanouts:
1. Cleanout Ferrules and Plugs: Josam Series No. 58460A with cast iron body and bronze countersunk flanged plug. Size matching pipe size indicated. Contractor shall provide Owner with two "T" handles for recessed plugs.
  2. Cleanouts for Use in Paved Walk Areas: Josam Series No. 58360 adjustable floor cleanout with cast iron body and bronze plug and top. Size matching pipe size indicated. Contractor shall provide Owner with one cleanout wrench.
  3. Expansion Joint: ASTM D 994, bituminous preformed joint filler, 1/2 inch thick.
  4. Fittings: Shall be as specified for PVC pipe (for pipe materials indicated).
- J. Filter Fabric: "Mirafi 140N" manufactured by Mirafi Incorporated, Charlotte, North Carolina, or approved equal.
1. Quality: Free of defects of flaws, which affect strength or filtering properties.
- K. Sand: ASTM C33 Fine Aggregate.
- L. Concrete: Refer to Section 32 05 00 "Common Work Results for Exterior Improvements ".
- M. Reinforcing Steel and Hardware: Refer to Section 32 05 00 "Common Work Results for Exterior Improvements ", and as noted:
1. Size and type of steel and hardware shall be as indicated.
  2. Exposed reinforcing steel shall be hot dip galvanized, ASTM A 767, Coating Class I.
  3. Hardware shall be hot dip galvanized, ASTM A 153.
- N. Miscellaneous Products:
1. Underground Identification Tape: Manufactured by Allen Systems, Houston, Texas.
    - a. Type: "Markline".
    - b. Color: Precaution Blue.
    - c. Legend: Caution sewer line buried below.
    - d. Tape Width: Three inches.

## PART 3 - EXECUTION

### 3.01 DEWATERING, EXCAVATION, OVER-EXCAVATION AND UNSUITABLE EARTH

- A. Refer to Section 32 05 00 "Common Work Results for Exterior Improvements".

### 3.02 CONNECTIONS TO EXISTING SYSTEM

- A. For structure construction over existing pipe, excavate and expose existing pipe at structure location indicated. Adjust structure location as directed by Owner's Representative in event existing pipe joint interferes with structure walls, at no increase to Contract Sum. Manually excavate below existing pipe prior to structure base placement. Place concrete base and construct structure as specified. Neatly cut and remove upper half of existing pipe and construct invert flow channel.
- B. For pipe connections to existing structures, excavate and expose existing structure. Cut and remove portion of existing structure wall required for pipe connection. Install pipe, through existing structure wall, flush with interior wall surface. Remove portion of existing invert flow channel required for connection and reconstruct as specified. Fill joint between pipe and existing structure wall with cement mortar.

### 3.03 PIPE

- A. General: Install in accordance with manufacturer's installation instructions and as noted. Inspect each pipe laying length and pipe joint materials for defects. Remove defective products from project site. Install pipe to horizontal and vertical alignment indicated. Begin installation at lowest system elevation and proceed up-grade. Field cut pipe only where required to complete structure-to-structure closures, install fittings or as specified. Cut pipe to smooth square end.
- B. Concrete Pipe: Install with tongue end of pipe pointing in direction of flow. Clean and thoroughly wet joints immediately prior to joining pipe. Apply thick liberal coat of mastic to groove and tongue. Position each laying length in previously installed pipe and pull joint tightly together with mechanical device designed for pipe jointing.
  - 1. Clean interior of each joint removing excess cement mortar and finish flush with surface. Fill exterior upper half of pipe joint with cement mortar.
- C. Polyvinyl Chloride (PVC) Pipe: Install pipe in accordance with ASTM D 2321, manufacturer's installation instructions, and as noted.
  - 1. Install with pipe spigot end pointing in flow direction. Begin installation of pipe, with vertical gradient exceeding 10 percent, at lowest elevation and proceed up-grade. Clean bell and spigot interior and exterior surfaces, removing oil, grit and foreign matter. Lubricate pipe ends and gasket in accordance with manufacturer's instructions. Position each laying length of previously installed pipe and manually push joint tightly together
  - 2. Field Pipe Cutting: Shape spigot end of cut pipe to resemble manufactured spigot end, with a pipe-beveling tool designed for PVC pipe. Copy full insertion mark provided on manufactured spigot end onto prepared field cut end.
- D. Corrugated Steel Pipe: Install in accordance with manufacturer's recommendations and instructions, and ASTM A 798.

- E. High Density Polyethylene Pipe: Install in accordance with manufacturer's recommendations.

### 3.04 CLEANOUTS

- A. Refer to Section 32 05 00 "Common Work Results for Exterior Improvements" and as noted.
- B. Install cleanouts and construct concrete pads of Class "A" concrete as indicated.
- C. Cleanout in paved walk area shall be installed without a concrete pad. Top shall be cast into and set flush with finished walk surface.

### 3.05 STRUCTURES

- A. Refer to Section 32 05 00 "Common Work Results for Exterior Improvements" and as noted. Neatly cut pipes flush with interior structure walls. Construct invert flow channels smooth and semicircular in shape. Shape channels with horizontal circular curves, with radii as large as structure will permit or as indicated. Neatly form channels in structure base with bricks and cement mortar. Provide steps in structures exceeding 3.0 feet in depth. Vertical step spacing per standards specified.

### 3.06 BACKFILL

- A. Refer to Section 32 05 00 "Common Work Results for Exterior Improvements", and as noted.
- B. Polyvinyl Chloride (PVC) Pipe: Conduct backfill operations when pipe temperature is below 60 degrees Fahrenheit or during early morning hours to prevent excessive Contraction.
- C. Underground Identification Tape: Install during backfill operations. Tape shall be centered over pipe, located 12 inches above pipe.

### 3.07 WASTE MANAGEMENT

- A. Management" requirements.

### 3.08 STORMWATER MANAGEMENT AS-BUILTS

- A. Contractor shall be responsible for efforts necessary to submit and obtain City of Rockville Public Works approval of As-Built plans and to deliver a City-approved stormwater management system within 60 days of final site stabilization.
- B. Contractor shall keep all as-built information current on a record set of drawings as stormwater management system is being constructed. As-built information regarding the elevation and location of all stormwater management components shall be provided to the Civil Engineer of Record (CER) in electronic and hard copy format. The hard copy information must be signed and sealed by a MD licensed surveyor. Contractor shall also keep all material tickets and deliver to CER for the as-built submission.
- C. Contractor shall hire Civil Engineer of record to produce a set of certified as-built drawings. Once prepared, Civil Engineer of Record shall obtain City approval of record documents.
- D. Contractor shall be responsible for pumping down and cleaning of system as required for final inspection and acceptance by City of Rockville.

- E. Final City approval and close out of stormwater management and sediment control permits are required before Contract completion is achieved for stormwater management work.
- F. Contractor shall hire Maryland licensed surveyor to prepare the as-built survey of the stormwater management system. Survey shall provide spot elevations at critical points of the stormwater management systems and inverts and elevations of the storm drainage conveyance system as well as any other items noted in the City of Rockville As-Built Checklist, latest edition
- G. Contractor shall hire a third party geotechnical engineer to verify subgrade for stormwater management facilities and confirm all materials and compaction are per the project documents.
- H. Contractor shall complete a “Contractor’s Construction Inspection Checklist” with supporting information for each stormwater facility.

END OF SECTION

## **SECTION 33 46 01 – PLANTER SUBDRAINAGE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes subdrainage systems for the following:
  - 1. Landscaped areas.
- B. This Section does not include the following:
  - 1. Subdrainage systems for foundation, underslab, or plaza deck drainage.
  - 2. Use of drainage panels against and for waterproofing membrane protection.

#### **1.3 DEFINITIONS**

- A. ABS: Acrylonitrile-butadiene-styrene plastic.
- B. HDPE: High-density polyethylene plastic.
- C. PE: Polyethylene plastic.
- D. PP: Polypropylene plastic.
- E. PS: Polystyrene plastic.
- F. PVC: Polyvinyl chloride plastic.
- G. Subdrainage: Drainage system that collects and removes subsurface or seepage water.

#### **1.4 SUBMITTALS**

- A. The Contractor acknowledges its responsibility to submit complete submittals in a timely fashion. Failure to do so may result in automatic rejection of work and/or materials. Incomplete submittals will be returned to the Contractor unreviewed. No time extensions or cost increases will be allowed for delays or costs caused by un-submitted or late submittals or the return of incomplete or incorrect submittals.

- B. Product Data: For the following:
  - 1. Perforated-wall pipe and fittings.
  - 2. Solid-wall pipe and fittings.
  - 3. Drainage conduits.
  - 4. Drainage panels.
  - 5. Geotextile filter fabrics.
- C. Approval of waterproofing manufacturer's service agent for use of drainage panels against and for waterproofing membrane protection.
- D. Shop Drawings: Plan identifying all planter subdrainage pipes, drainage boards, and appurtenances. Indicate all conduits and conduit sizes, as well as each connection to the adjacent storm water system and/or approved outfall, whether one is indicated or not

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

### **2.2 PIPING MATERIALS**

- A. Refer to the "Piping Applications" Article in Part 3 for applications of pipe, tube, fitting, and joining materials.

### **2.3 PERFORATED-WALL PIPES AND FITTINGS**

- A. General: Fabric socks are prohibited.
- B. Perforated PE Pipe and Fittings:
  - 1. NPS 6 (DN 150) and Smaller: ASTM F 405 or AASHTO M 252, Type CP; corrugated, for coupled joints.
  - 2. NPS 8 (DN 200) and Larger: ASTM F 667; AASHTO M 252, Type CP; or AASHTO M 294, Type CP; corrugated; for coupled joints.
  - 3. Couplings: Manufacturer's standard, band type.
  - 4. Perforations: Per AASHTO Class I.

## 2.4 SOLID-WALL PIPES AND FITTINGS

- A. ABS Sewer Pipe and Fittings: ASTM D 2751.
  - 1. Solvent Cement: ASTM D 2235.
  - 2. Gaskets: ASTM F 477, elastomeric seal.
- B. PE Drainage Tubing and Fittings: AASHTO M 252, Type S, corrugated, with smooth waterway, for coupled joints.
  - 1. Couplings: AASHTO M 252, corrugated, band type, matching tubing and fittings.
- C. PE Pipe and Fittings: AASHTO M 294, Type S, corrugated, with smooth waterway, for coupled joints.
  - 1. Couplings: AASHTO M 294, corrugated, band type, matching tubing and fittings.

## 2.5 CLEANOUTS

- A. Cast-Iron Cleanouts: ASME A112.36.2M; with round-flanged, cast-iron housing; and secured, scoriated, Medium-Duty Loading class, cast-iron cover. Include cast-iron ferrule and countersunk, brass cleanout plug.
- B. PVC Cleanouts: ASTM D 3034, PVC cleanout threaded, countersunk plug and threaded pipe hub.

## 2.6 DRAINAGE PANELS

- A. Molded-Sheet Drainage Panels: Prefabricated geocomposite, 36 to 60 inches (915 to 1525 mm) wide with drainage core faced with geotextile filter fabric.
  - 1. Miradrain 9000 or equal approved by Architect.
  - 2. Drainage Core: Three-dimensional, non-biodegradable, molded PP or PS.
    - a. Minimum Compressive Strength: 15,000 lbf/sq. ft. (718 kPa) when tested according to ASTM D 1621.
    - b. Minimum In-Plane Flow Rate: 15 gpm/ft. (188 L/min. per m) of unit width at hydraulic gradient of 1.0 and compressive stress of 25 psig (172 kPa) when tested according to ASTM D 4716.
  - 3. Filter Fabric: Non-woven needle-punched geotextile, manufactured for subsurface drainage, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with the following properties determined according to AASHTO M 288:
    - a. Survivability: Class 2.
    - b. Apparent Opening Size: No. 70 (0.212-mm) sieve, maximum.
    - c. Permittivity: 0.1 per second, minimum.

## 2.7 SOIL MATERIALS

- A. Backfill, drainage course, impervious fill, and satisfactory soil materials are specified in Division 31 Sections "Earth Moving" and "Earth Moving – Landscape."

## 2.8 GEOTEXTILE FILTER FABRICS

- A. Description: Fabric of PP or polyester fibers or combination of both, with flow rate range from 110 to 330 gpm/sq. ft. (4480 to 13 440 L/min. per sq. m) when tested according to ASTM D 4491.
  - 1. Structure Type: Nonwoven, needle-punched continuous filament.
  - 2. Style(s): Flat.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.
- B. If subdrainage is required for landscaping, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 EARTHWORK

- A. Excavating and trenching are specified in Division 31 Section "Earth Moving." Backfill of planting areas is specified in Division 31 Section "Earth Moving – Landscape."

### 3.3 PIPING APPLICATIONS

- A. Underground Subdrainage Piping:
  - 1. Perforated PE pipe and fittings, couplings, and coupled joints.
- B. Header Piping:
  - 1. ABS pipe and fittings, solvent-cemented joints.
  - 2. PE drainage tubing and fittings, couplings, and coupled joints.



### 3.4 CLEANOUT APPLICATIONS

- A. In Underground Subdrainage Piping:
  - 1. At Grade in Earth: Cast-iron or PVC cleanouts, as indicated.
  - 2. At Grade in Paved Areas: Cast-iron cleanouts.

### 3.5 RAISED PLANTER DRAINAGE INSTALLATION

- A. Place impervious fill material on subgrade adjacent to bottom of footing after concrete footing forms have been removed. Place and compact impervious fill to dimensions indicated, but not less than 6 inches (150 mm) deep and 12 inches (300 mm) wide.
- B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.
- C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches (100 mm).
- D. Install drainage piping as indicated in Part 3 "Piping Installation" Article for foundation subdrainage.
- E. Add drainage course to width of at least 6 inches (150 mm) on side away from wall and to top of pipe to perform tests.
- F. After satisfactory testing, cover drainage piping to width of at least 6 inches (150 mm) on side away from footing and above top of pipe to within 12 inches (300 mm) of finish grade.
- G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.
- H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches (100 mm).
- I. Install vertical drainage panels as follows:
  - 1. Coordinate placement with other drainage materials.
  - 2. Lay perforated drainage pipe at base of footing. Install as indicated in Part 3 "Piping Installation" Article. Do not install aggregate.
  - 3. Separate 4 inches (100 mm) of fabric at beginning of roll and cut away 4 inches (100 mm) of core. Wrap fabric around end of remaining core.
  - 4. Wrap bottom of panel around drainage pipe.
  - 5. Attach panel to wall at horizontal mark and at beginning of pipe. Place core side of panel against wall.
    - a. Cut away 6 inches (150 mm) of panel core from the top of upper-most panels. Do not damage fabric or remaining core. Adhere fabric to face of wall.
    - b. Use Construction adhesives, metal stick pins, or double-sided tape to affix panels and top fabric to wall. Do not penetrate waterproofing. Before using adhesives, discuss with waterproofing manufacturer.

6. If additional panels are required on same row, cut away 4 inches (100 mm) of installed panel core, install new panel against installed panel, and overlap new panel with installed panel fabric.
  7. If additional rows of panels are required, overlap lower panel with 4 inches (100 mm) of fabric.
  8. Cut panel as necessary to keep top 12 inches (300 mm) below finish grade.
  9. For inside corners, bend panel. For outside corners, cut core to provide 3 inches (75 mm) for overlap.
- J. Place initial backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches (150 mm). Compact each layer to 85% density in planting areas. Final backfill to finish elevations and slope away from building.

### 3.6 LANDSCAPING DRAINAGE INSTALLATION

- A. Provide trench width to allow installation of drainage conduit. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.
- B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.
- C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches (100 mm).
- D. Install drainage conduits as indicated in Part 3 "Piping Installation" Article for landscaping subdrainage with horizontal distance of at least 6 inches (150 mm) between conduit and trench walls. Wrap drainage conduits without integral geotextile filter fabric with flat-style geotextile filter fabric before installation. Connect fabric sections with adhesive tape.
- E. Add drainage course to top of drainage conduits.
- F. After satisfactory testing, cover drainage conduit to within 12 inches (300 mm) of finish grade.
- G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.
- H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches (100 mm).
- I. Place initial backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches (150 mm). Compact each layer to 85% density in planting areas. Final backfill to finish elevations and slope away from building.

### 3.7 PIPING INSTALLATION

- A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Landscaping Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent and with a minimum cover of 36 inches (915 mm), unless otherwise indicated.
  2. Lay perforated pipe with perforations down.
  3. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.
- B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.
- C. Install ABS piping according to ASTM D 2321.
- D. Install PE piping according to ASTM D 2321.

### 3.8 PIPE JOINT CONSTRUCTION

- A. Join ABS pipe and fittings according to ASTM D 2751.
- B. Join PE pipe, tubing, and fittings with couplings for soil-tight joints according to AASHTO's "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4, "Joint Properties."
- C. Join perforated, PE pipe and fittings with couplings for soil-tight joints according to AASHTO's "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4, "Joint Properties"; or according to ASTM D 2321.

### 3.9 CLEANOUT INSTALLATION

- A. Cleanouts for Landscaping Subdrainage:
1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
  2. In vehicular-traffic areas, use NPS 4 (DN 100) cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 18 by 18 by 12 inches (450 by 450 by 300 mm) in depth. Set top of cleanout flush with grade. Cast-iron pipe may also be used for cleanouts in nonvehicular-traffic areas.
  3. In non-vehicular-traffic areas, use NPS 4 (DN 100) cast-iron or PVC pipe and fittings, as indicated, for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches (300 by 300 by 100 mm) in depth. Set top of cleanout plug 1 inch (25 mm) above grade.

### 3.10 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.

- B. Connect low elevations of subdrainage system to solid-wall-piping storm drainage system.

### 3.11 FIELD QUALITY CONTROL

- A. Testing: After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

### 3.12 CLEANING

- A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

**END OF SECTION 33 46 01**



City of Rockville  
Rockville, Maryland

# **BID PROPOSAL FORMS**

## **INVITATION FOR BID # 13-24**

### **ROCKVILLE SWIM & FITNESS CENTER OUTDOOR RECREATION POOL RENOVATIONS PROJECT**

**THESE FORMS, UNLESS NOTED OTHERWISE, MUST BE**  
**COMPLETED, SIGNED**  
**AND**  
**SUBMITTED**

**FAILURE TO COMPLY**  
**WILL RESULT IN THE**  
**DISQUALIFICATION OF**  
**YOUR BID**

In response to the advertisement by the City of Rockville inviting bids for the work and in conformance with the bid document on file in the Purchasing Division of the City of Rockville, we hereby certify that we are the only person, or persons interested in this bid proposal as principals, and that an examination has been made of the work site, the specifications, the plans and the bid documents. We propose to furnish all necessary machinery, materials, equipment, tools, labor and other means of construction required to complete the project. Bidders must bid all items.

The following items shall be performed per the referenced Standard Specification and the Contract Documents. Measurement and Payment shall be as described in the Technical Specifications unless otherwise specified in the Contract Documents. All work items described in the Contract Documents that are not referenced by a specific pay item shall be considered incidental to all other items in the Contract Documents.

**INVITATION FOR BIDS #13-24**  
**SECTION V: BID PRICING FORMS/BID PACKET**

**OUTDOOR RECREATION POOL RENOVATIONS**

**THIS FORM MUST BE COMPLETED AND INCLUDED WITH THE BID SUBMITTAL**  
**FAILURE TO SUBMIT THIS FORM SHALL DEEM THE BIDDER NON-RESPONSIVE**

IN ACCORDANCE WITH ALL TERMS, SPECIFICATIONS AND REQUIREMENTS, WE PROPOSE TO FURNISH ALL LABOR, EQUIPMENT, MATERIALS AND SERVICES AND THE PERFORMANCE OF ALL WORK NECESSARY FOR THE PROJECT. PROVIDE PRICING BELOW TO INCLUDE OVERHEAD, PROFIT, TAXES, INSURANCE AND OTHER APPLICABLE FEES AND COSTS. ALTERATIONS TO THIS FORM OR BID ALTERNATES (UNLESS OTHERWISE SPECIFIED) ARE NOT ACCEPTABLE. LINE ITEMS LEFT BLANK OR MARKED "\$0" SHALL DEEM THIS BID NON-RESPONSIVE.

Bid Item No.	Description	Qty.	Unit	Unit Bid Price	Total Bid Price
1	GENERAL CONDITIONS	1	LS	Subtotal:	
2	DEMOLITION (SITE AND SELECTIVE)	1	LS	Subtotal:	
3	EARTHWORK: SITE CLEARING & EARTHMOVING	1	LS	Subtotal:	
4	MASONRY	1	LS	Subtotal:	
5	METALS	1	LS	Subtotal:	
6	THERMAL & MOISTURE	1	LS	Subtotal:	
7	HIGH-PERFORMANCE COATINGS	1	LS	Subtotal:	
8	DOORS & WINDOWS	1	LS	Subtotal:	
9	ENTRY SIGN FINISHES: LOGO, LETTERS, MOSAIC TILE	1	LS	Subtotal:	
10	EXTERIOR STRUCTURES – TENSILE, PAVILION, STORAGE, ETC.	1	LS	Subtotal:	
11	PLUMBING	1	LS	Subtotal:	
12	MECHANICAL	1	LS	Subtotal:	
13	ELECTRICAL: SPORTS LIGHTING	1	LS	Subtotal:	
14	ELECTRICAL: ALL OTHER SITE LIGHTING, WIRING	1	LS	Subtotal:	
15	EXTERIOR IMPROVEMENTS: VERTICAL CONCRETE	1	LS	Subtotal:	
16	EXTERIOR IMPROVEMENTS: HORIZONTAL CONCRETE	1	LS	Subtotal:	
17	EXTERIOR IMPROVEMENTS: FENCE AND GATES	1	LS	Subtotal:	
18	EXTERIOR IMPROVEMENTS: SITE FURNISHINGS	1	LS	Subtotal:	
19	EXTERIOR IMPROVEMENTS: OTHER	1	LS	Subtotal:	
20	SITE UTILITIES	1	LS	Subtotal:	
21	SPECIAL CONSTRUCTION: POOL EXCAVATION	1	LS	Subtotal:	
22	SPECIAL CONSTRUCTION: POOL CONCRETE	1	LS	Subtotal:	
23	SPECIAL CONSTRUCTION: POOL SHOTCRETE	1	LS	Subtotal:	
24	SPECIAL CONSTRUCTION: POOL CERAMIC TILE	1	LS	Subtotal:	
25	SPECIAL CONSTRUCTION: POOL PLASTER	1	LS	Subtotal:	
26	SPECIAL CONSTRUCTION: POOL EQUIPMENT	1	LS	Subtotal:	
27	SPECIAL CONSTRUCTION: POOL MECHANICAL	1	LS	Subtotal:	
28	SPECIAL CONSTRUCTION: POOL ELECTRICAL	1	LS	Subtotal:	
29	SPECIAL CONSTRUCTION: POOL WATER SLIDE	1	LS	Subtotal:	
30	SPECIAL CONSTRUCTION: POOL PLAY EQUIPMENT	1	LS	Subtotal:	

Base Bid Grand Total (Bid items 1 through 30.)					
UNIT RATES (Not Part of Base Bid Grand Total)					
31	EXCAVATION & REMOVE –SOIL	1	CY	Unit Rate:	
32	EXCAVATION & REMOVE – ROCK REMOVAL	1	CY	Unit Rate:	
33	EXCAVATION & REMOVE – CONCRETE	1	CY	Unit Rate:	
34	IMPORTED FILL	1	CY	Unit Rate:	
35	ADDITIONAL CONCRETE	1	CY	Unit Rate:	

**GRAND TOTAL IN WORDS** \_\_\_\_\_

\_\_\_\_\_ (\$ \_\_\_\_\_)

**EXCEPTIONS**

All exceptions taken to the specifications contained in this document must be clearly indicated in the space provided below. Unless noted as an exception, the bidder will be held responsible for providing each component or standard called for.

The City Manager for the City of Rockville, Maryland retains the exclusive right to approve or reject any exception taken to the specifications contained in this bid. It is hereby agreed that if this bid is rejected due to an exception taken to a specification by the bidder, the rejection taken will be final and no further action may be taken.

Do you claim an exception to any specification to this bid? If yes, please explain.

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**Bidders Pricing for Add and Deduct Alternates**

**Note that Pricing for all Alternates shall be held firm for a period of six months after the Bid Opening date.**

**ALTERNATE BID #1 (Additive):**

Add 2nd floating lily pad course assembly to the Activity Pool	\$
--	----

**ALTERNATE BID #1 ADD IN WORDS** \_\_\_\_\_  
 \_\_\_\_\_ (\$ \_\_\_\_\_)

**ALTERNATE BID #2 (Additive):**

Add small semi-commercial water slide to the Wellness Pool	\$
--	----

**ALTERNATE BID #2 DEDUCT IN WORDS** \_\_\_\_\_  
 \_\_\_\_\_ (\$ \_\_\_\_\_)

**ALTERNATE BID #3 (Additive):**

Add new plaster "white" coat to the Fitness Pool	\$
--	----

**ALTERNATE BID #3 ADD IN WORDS** \_\_\_\_\_  
 \_\_\_\_\_ (\$ \_\_\_\_\_)

**ALTERNATE BID #4 (Additive):**

Add sports lighting and public address system around Fitness Pool	\$
---	----

**ALTERNATE BID #4 ADD IN WORDS** \_\_\_\_\_  
 \_\_\_\_\_ (\$ \_\_\_\_\_)

**ALTERNATE BID #5 (Additive):**

Add thermal cover and reels for Wellness Pool	\$
---	----

**ALTERNATE BID #5 ADD IN WORDS** \_\_\_\_\_  
 \_\_\_\_\_ (\$ \_\_\_\_\_)

**ALTERNATE BID #6 (Additive):**

Add water heater for Wellness Pool	\$
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**ALTERNATE BID #6 ADD IN WORDS** \_\_\_\_\_  
 \_\_\_\_\_ (\$ \_\_\_\_\_)



**ALTERNATE BID #7 (Additive):**

Add pool area furnishings	\$
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**ALTERNATE BID #7 ADD IN WORDS** \_\_\_\_\_  
 \_\_\_\_\_ (\$ \_\_\_\_\_)

**ADDENDUM** In the event that any addenda to this solicitation are issued, all solicitation terms and conditions will retain in effect unless they are specifically changed in the addendum. It is the responsibility of the bidder to make inquiry as to addenda issued. Oral answers to questions relative to interpretation of specifications or the proposal process will not be binding on the City.

Such addendums, if issued, will posted via the city's designated electronic, software solution:

<https://contracts.rockvillemd.gov/gateway/Default.aspx>

Please note, that it is the bidder's responsibility to check this site frequently for Addendums, which may impact pricing, this document's requirements, terms and/or conditions. Failure to acknowledge an addendum on the bid proposal form or to sign and return an Addendum with your response may result in disqualification of proposal.

Acknowledgment is hereby made of the following Addenda (identified by number) received since the issuance of this bid:

Addendum # _____	Date _____	Addendum # _____	Date _____
Addendum # _____	Date _____	Addendum # _____	Date _____

**CONTRACT DURATION**

Contractor shall begin the project within ten (10) calendar days following issuance of a City of Rockville Purchase Order (Notice to Proceed). All work shall be completed within 12 months (365 consecutive calendar days). Important note: Substantial completion of the project must be made prior to 05/01/2025, and all inspections required for operations and occupancy must be successfully obtained no later than 05/16/2025. The time allotted for the work is of the essence. It is possible that the City may issue a Limited Notice to Proceed (LNTP) to allow for coordination, field measuring, shop drawing review/approval, submission of work plan and ordering long lead time components. The recreation pool will be available for construction activities to begin on site starting 08/19/2024.

Liquidated damages shall be assessed at One Thousand Seven Hundred Dollars (\$1,700) per day for each calendar day the work exceeds beyond the specified time allotted, commencing on 05/16/2025 should occupancy and operations permits not be received from the authorities having jurisdiction as described in the paragraph above.

Confirm your ability to meet the above schedule. \_\_\_\_\_ YES \_\_\_\_\_ NO

***This bid and its Firm Fixed Prices shall remain valid through October 31, 2024 for acceptance by the City.***

The City of Rockville reserves the right to reject any or all bids, offer or proposals, to waive informalities, and to accept all or any part of any bid, offer proposal as they may deem to be in the best interest of the City of Rockville.

I hereby certify that I have read and understand the requirements of this Invitation for Bid No. 13-24 and, that I, as the Bidder, will comply with all requirements, and that I am duly authorized to execute this proposal/offer document and any contract(s) and/or other transactions required by award of this Invitation For Bid.

**Comprehensive Signature Page**

**BIDDER MUST COMPLETE UNDER APPROPRIATE SECTION & RETURN WITH BID**

**Instruction for Signature on Bid Proposal**

The bid, if submitted by an individual, shall be signed by an individual; if submitted by a partnership, shall be signed by such member or members of the partnership as have authority to bind the partnership; if submitted by a corporation the same shall be signed by the President and attested by the Secretary or an Assistant Secretary. If not signed by the President as aforesaid, there must be attached a copy of that portion of the By-Laws, or a copy of a Board resolution, duly certified by the Secretary, showing the authority of the person so signing on behalf of the corporation. In lieu thereof, the corporation may file such evidence with the Administration, duly certified by the Secretary, together with a list of the names of those officers having authority to execute documents on behalf of the corporation, duly certified by the Secretary, which listing shall remain in full force and effect until such time as the Administration is advised in writing to the contrary. In any case where a bid is signed by an Attorney in Fact the same must be accompanied by a copy of the appointing document, duly certified.

IF AN INDIVIDUAL					
Individual Name					
DBA					
Address					
City		State		ZIP	
Signature					
Printed Name					
Title					
Date					
Witness Signature					
Witness Name					
Witness Title					
Date					

IF A PARTNERSHIP					
Name of Partnership					
Address					
City		State		ZIP	
Member Signature					
Printed Name					
Title					
Date					
Witness Signature					
Witness Name					
Witness Title					
Date					

IF A CORPORATION					
Name of Corporation					
Address					
City		State		ZIP	
Fed ID or SSN					
State Of Incorporation					
Signature					
Printed Name					
Title					
Date					
Witness Signature					
Witness Name					
Witness Title					
Date					

CONTACT FOR ADMINISTRATION	
Individual Name	
e-mail	
Telephone	
FAX	
EMERGENCY SERVICE (24hr.) PHONE	

REMITTANCE ADDRESS (if different than organizational address above)					
Address					
City		State		ZIP+4	

MFD INFORMATION	
MFD-V Information	<p><b><i>For informational purposes only</i></b> – Is your company certified as a Minority, Female, Disabled or Veteran (MFD-V) business: ____ yes ____ no ____ I choose not to respond</p>

## AFFIDAVIT OF QUALIFICATION TO CONTRACT WITH A PUBLIC BODY

### **BIDDER MUST COMPLETE, SIGN, AND RETURN WITH BID**

I hereby affirm that: I am the \_\_\_\_\_ (insert title) and the duly authorized representative of \_\_\_\_\_ (insert organization name) whose address is \_\_\_\_\_

And, that I possess the legal authority to make this affidavit on behalf of myself and the firm for which I am acting.

I affirm:

1. Except as described in Paragraph 2 below, neither I nor the above firm nor, to the best of my knowledge, any of its controlling stockholders, officers, directors, or partners, performing contracts with any public body (the State or any unit thereof, or any local governmental entity in the state, including any bi-county or multi-county entity), has:

A. been convicted under the laws of the State of Maryland, any other state, or the United States of any of the following:

- (1) bribery, attempted bribery, or conspiracy to bribe.
- (2) a criminal offense incident to obtaining, attempting to obtain, or performing a public or private contract.
- (3) fraud, embezzlement, theft, forgery, falsification or destruction of records, or receiving stolen property.
- (4) a criminal violation of an anti-trust statute.
- (5) a violation of the Racketeer Influenced and Corrupt Organization act, or the Mail Fraud Act, for acts in connection with the submission of bids or proposals for a public or private contract.
- (6) a violation of Section 14-308 of the State Finance and Procurement Article of the Annotated Code of Maryland.
- (7) conspiracy to commit any of the foregoing.

B. pled *nolo contendere* to, or received probation before verdict for, a charge of any offense set forth in subsection A of this paragraph.

C. been found civilly liable under an anti-trust statute of the State of Maryland, another state, or the United States for acts or omissions in connection with the submission of bids or proposals for a public or private contract.

D. during the course of an official investigation or other proceeding, admitted, in writing or under oath, an act or omission that would constitute grounds for conviction or liability under any law or statute described in subsection A or C of this paragraph.

2. [State "none," or as appropriate, list any conviction, plea or admission as described in Paragraph 1 above, with the date, court, official or administrative body, the individuals involved and their position with the firm, and the sentence or disposition, if any]. \_\_\_\_\_

3. I further affirm that neither I nor the above firm shall knowingly enter into a contract with the Mayor and Council of Rockville under which a person or business debarred or suspended from contracting with a public body under Title 16 of the State Finance and Procurement Article of the Annotated Code of Maryland, will provide, directly or indirectly, supplies, services, architectural services, construction related services, leases of real property, or construction.

I acknowledge that this Affidavit shall be furnished to the Mayor and Council of Rockville and, where appropriate, to the State Board of Public Works and to the Attorney General. I acknowledge that I am executing this Affidavit in compliance with the provisions of Title 16 of the State Finance and Procurement Article of the Annotated Code of Maryland which provides that persons who have engaged in certain prohibited activity may be disqualified, either by operation in law or after a hearing, from entering into contracts with the Mayor and Council of Rockville. I further acknowledge that if the representations set forth in this Affidavit are not true and correct, the Mayor and Council of Rockville may terminate any contract awarded, and take any other appropriate action.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**NON—COLLUSION AFFIDAVIT**

**BIDDER MUST COMPLETE, SIGN, AND RETURN WITH BID**

I hereby affirm that: I am the \_\_\_\_\_ (insert title) and the duly authorized representative of \_\_\_\_\_ (insert organization name) whose address is \_\_\_\_\_

And, that I possess the legal authority to make this affidavit on behalf of myself and the firm for which I am acting.

I affirm:

1. I am fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid;

2. Such bid is genuine and is not a collusive or sham bid

3. Neither the said bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other bidder, firm or person to submit a collusive or sham bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any other bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Mayor and Council of Rockville, Maryland (Local Public Agency) or any person interested in the proposed Contract; and

4. The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant. I do solemnly declare and affirm under the penalties of perjury that the contents of these affidavits are true and correct.

Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**OUTDOOR RECREATION POOL RENOVATIONS EXPERIENCE**

**BIDDER REFERENCE FORM**

**BIDDER MUST COMPLETE AND SUBMIT WITH BID**

The City of Rockville reserves the right to reject bids from any company not meeting the minimum qualifications. The Bidder shall be a competent and experienced contractor with an established reputation within the community. The bidder shall have performed similar work for a minimum period of five (5) years. He shall furnish a representative list of five (5) projects involving work as specified, two of which shall be the last jobs completed. The City may make such investigations as it deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the City all such information and data for this purpose as the City may request.

Bidder Name	
-------------	--

#1 Project Name			
Project Owner's Name			
Project Site Address			
Project Owner's Contact Name			
Project Owner's Contact Telephone			
Project Owner's Contact e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			
Name of your project foreman			



**BIDDER REFERENCE FORM - BIDDER MUST COMPLETE AND SUBMIT WITH BID**

#2 Project Name			
Project Owner's Name			
Project Site Address			
Project Owner's Contact Name			
Project Owner's Contact Telephone			
Project Owner's Contact e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			
Name of your project foreman			

#3 Project Name			
Project Owner's Name			
Project Site Address			
Project Owner's Contact Name			
Project Owner's Contact Telephone			
Project Owner's Contact e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			
Name of your project foreman			

**BIDDER REFERENCE FORM - BIDDER MUST COMPLETE AND SUBMIT WITH BID**

#4 Project Name			
Project Owner's Name			
Project Site Address			
Project Owner's Contact Name			
Project Owner's Contact Telephone			
Project Owner's Contact e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			
Name of your project foreman			

#5 Project Name			
Project Owner's Name			
Project Site Address			
Project Owner's Contact Name			
Project Owner's Contact Telephone			
Project Owner's Contact e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			
Name of your project foreman			

**SUB-CONTRACTOR REFERENCE FORM**

**BIDDER MUST COMPLETE AND SUBMIT WITH BID FOR SWIMMING POOL SUBCONTRACTOR(S)**

**CITY MAY REQUIRE COMPLETION AND SUBMISSION FOR OTHER SUBCONTRACTORS AFTER RECEIPT OF BIDS**

**SUBMIT A SEPARATE REFERENCE FORM FOR EACH PROPOSED SUBCONTRACTOR**

Subcontractor's Name			
Address			
Telephone			
Subcontractor's Contact Name			
Description of Work to be Subcontracted			

#1 Reference Organization Name			
Address			
Contact Name			
Contact Name Telephone			
Contact Name e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			

**SUB-CONTRACTOR REFERENCE FORM**

**BIDDER MUST COMPLETE AND SUBMIT WITH BID FOR SWIMMING POOL SUBCONTRACTOR(S)**


**CITY MAY REQUIRE COMPLETION AND SUBMISSION FOR OTHER SUBCONTRACTORS AFTER RECEIPT OF BIDS**

#2 Reference Organization Name			
Address			
Contact Name			
Contact Name Telephone			
Contact Name e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			

#3 Reference Organization Name			
Address			
Contact Name			
Contact Name Telephone			
Contact Name e-mail			
Contract Value	\$		
Scheduled completion date		Percent complete	
Description of Project Work			

**BIDDER'S QUESTIONNAIRE****BIDDER MUST COMPLETE AND SUBMIT WITH BID**

In order to be considered for award, the Bidder must complete this questionnaire in its entirety and submit it to the Purchasing Manager within the time specified. The bidder must answer all questions. If additional space is required, attach continuation sheets and clearly indicate the question being answered. The City reserves the right to verify any information contained within this report and to request additional information or clarification. The City reserves the right to reject the bid of a bidder who has previously failed to perform properly or to complete in a timely manner contracts of a similar nature, or if investigation shows the bidder unable to perform the requirements of the Contract or if the bidder fails to complete and submit the Bidder's Questionnaire in its entirety. If additional sheets are necessary please attach to this form and reference the applicable number.

Bidder's Name			
Bidder's Address			
City		State / Zip	
Telephone		Fax Number	
Organized under the laws of State of:			
BIDDER'S AUTHORIZED REPRESENTATIVE'S SIGNATURE BELOW		DATE	
			
Print Name:			
Title:			

**1. ORGANIZATION**

1.1 How many years has your organization been in business as a Contractor?

1.2 How many years has your organization been in business under its present business name?

1.3 Under what **other** or former names has your organization operated?

1.4 If your organization is a corporation, answer the following:

Date of incorporation:

State of incorporation:

President's name:

Vice-president's name(s):

Secretary's name:

Treasurer's name:

1.5 If your organization is a partnership, answer the following:

Date of organization:

Type of partnership (if applicable):

Name(s) of general partner(s):

1.6 If your organization is individually owned, answer the following:

Date of organization:

Name of owner:

1.7 If the form of your organization is other than those listed above, describe it and name the principals:

## **2. LICENSING**

2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

## **3. EXPERIENCE**

3.1 List the categories of work that your organization normally performs with its own forces.

3.2 Has your organization ever failed to complete any work awarded to it? If yes, provide details on a separate sheet. NO: \_\_\_\_\_ YES: \_\_\_\_\_

3.3 Are there any judgment, claims, arbitration, proceedings or suits pending or outstanding against your organization or its officers? If yes, provide details. NO: \_\_\_\_\_ YES: \_\_\_\_\_

3.4 Within the past five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? If yes, provide details. NO: \_\_\_\_\_ YES: \_\_\_\_\_

3.5 Within the last two years, has any owner of any project threatened to impose or imposed liquidated damages against your organization? If yes, provide details. NO: \_\_\_\_\_ YES: \_\_\_\_\_

3.6 Within the last two years, has your organization constructed any projects where the date of substantial completion was more than 30 days after the contract completion date as determined by the contract and any changes orders? If yes, provide details. NO: \_\_\_\_\_ YES: \_\_\_\_\_

3.7 Within the last 2 years, has your organization constructed any projects where the change orders exceeded 10% of the contract price? If yes, provide details. NO: \_\_\_\_\_ YES: \_\_\_\_\_

3.8 State the total worth of work in progress and under contract:

In Progress	\$
Under Contract	\$

3.9 State the average annual amount of construction work performed during the past five years:

\$
----

#### 4. FINANCIAL

4.1 State that you will provide a copy of your firm's audited financial statements for the past two (2) years, if requested, by the City of Rockville. YES: \_\_\_\_\_ NO: \_\_\_\_\_

4.2 Is your firm currently for sale or involved in any transaction to expend or to become acquired by another business entity? If yes, please explain the impact both in organizational and directional terms.

NO: \_\_\_\_\_ YES: \_\_\_\_\_

4.3 Is your firm currently in default on any loan agreement or financing agreement with any bank, financial institution, or other entity? If yes, specify date(s), details, circumstances, and prospects for resolution. NO: \_\_\_\_\_ YES: \_\_\_\_\_

## 5. SAFETY

5.1 Has your organization been cited by OSHA (or State equivalent) in the past five years? If so, provide a copy of the citation(s). NO: \_\_\_\_\_ YES: \_\_\_\_\_

5.2 Has your organization experienced a work-related fatality in the past 10 years? If so, provide details. NO: \_\_\_\_\_ YES: \_\_\_\_\_

5.3 Provide copies of the last 3-years OSHA Form 300A or OSHA 300 Log. Please omit any personally identifiable or confidential information.

5.4 Provide a copy of your current Workers' Compensation Experience Rating from the NCCI.

5.5 Does your organization have a written safety program? NO: \_\_\_\_\_ YES: \_\_\_\_\_

5.5.1 Describe the safety training programs offered to all employees on the elements of the safety program.

5.6.2 When was the last year the written safety program was audited or updated?

5.6.3 Provide an overview of the elements of your written safety program (i.e., table of contents). (This may be returned to non-awarded bidders.)

5.7 Does your organization hire subcontractors? NO: \_\_\_\_\_ YES: \_\_\_\_\_

5.7.1 Does your organization conduct pre-contractor qualification of these subcontractors specifically focusing on their safety performance? NO: \_\_\_\_\_ YES: \_\_\_\_\_

5.7.2 Describe how your organization manages the safety performance of subcontractors on the jobsite.



5.7.3 Does your organization have a written policy addressing subcontractor's responsibility for complying with OSHA regulations on jobsites? (i.e., OSHA's multi-employer citation policy).

NO: \_\_\_\_\_ YES: \_\_\_\_\_

#### CERTIFICATION

The above statements are certified to be true and accurate.

BY: \_\_\_\_\_

Signature

Date

\_\_\_\_\_  
Print Signature/Title

**SAMPLE**  
**Do Not Complete or Return**

**CITY OF ROCKVILLE, MARYLAND**  
**CONSTRUCTION CONTRACT AGREEMENT (STIPULATED PRICE)**

This Construction Contract Agreement (this “**Agreement**”) is entered into as of this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ (the “**Effective Date**”) by and between **THE MAYOR AND COUNCIL OF ROCKVILLE**, a body corporate and politic and municipal corporation of the State of Maryland with an address of 111 Maryland Avenue, Rockville, Maryland (the “**City**” or the “**Owner**”), acting by and through its City Manager, and **[CONTRACTOR TBD]** a Maryland limited liability company with a principal office address of [Company Address TBD] (the “**Contractor**”). Individually, the Mayor and Council and the Contractor may each be referred to hereinafter as the “**Party**,” or collectively as the “**Parties**.”

**RECITALS**

On **[MONTH 00, 20\_\_]**, the City Manager caused to be issued an Invitation for Bid (“**IFB #13-24**”) for construction and construction-related services including but not limited to the selective demolition, construction of new pools and pool features, as well as repair, retrofit, alteration and modernization of the pool equipment and pool equipment room at the Rockville Swim and Fitness Center.

On **[MONTH 00, 20\_\_]**, the IFB #13-24 closed and [Contractor TBD] was determined to be the best qualified responsive bidder.

On **[MONTH 00, 20\_\_]**, Mayor and Council awarded this Agreement to [Contractor TBD] and authorized the City Manager to execute this Agreement.

Terms used in this Agreement but not defined have the meanings stated in the General Conditions, attached hereto as Exhibit C.

For good and valuable consideration, each to the other given, the receipt and sufficiency of which each party acknowledges, Owner and Contractor agree as follows:

The parties agree and acknowledge that the Recitals stated above are incorporated and form a material part of this Agreement.

**ARTICLE 1—WORK**

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Contractor shall provide construction and construction-related services including but not limited to the selective demolition, construction of new pools and pool features, as well as repair, retrofit, alteration and modernization of the pool equipment and pool equipment room for the Project. The scope of work to be done under this Agreement consists of, without limitation, demolition of the existing recreation pool, tot pool, sprayground and associated decks and mechanical equipment, and the furnishing of all materials and the construction, complete in place, of three distinct water features: a free-form shaped activity pool with beach entries and interactive play features; a rectangular shaped wellness pool to serve a

variety of uses; and a water slide structure with self-contained water recirculation system. In addition to the pools, construction work will include necessary filtration equipment, installation of play features, deck areas, shade structures, overhead lighting, landscape and forestry work, and incidental items of work as shown on the Contract Drawings, specified herein and/or in the other Contract Documents, or as may be directed by the Owner and/or Architect. In addition, the Work includes, without limitation, the following additional components: [Add/Alternates TBD]. The Work and scope thereof are set forth in further detail herein and in the other Contract Documents. All of the same, all other work, services, labor, materials and supplies associated with the Project and to be performed, acquired and/or installed, incorporated or otherwise included by or on behalf of the Contractor, and all of Contractor's obligations under or in connection with any of the Contract Documents are collectively referred to as the "**Work**".

## ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Owner's Outdoor Recreation Pool Renovations as advertised in City of Rockville Invitation for Bids #13-24, including all addenda, attachments and enclosures (the "**IFB**"). The Project is located at 355 Martins Lane, Rockville, Maryland 20850. The Project is as defined in the General Conditions and as further described in the other Contract Documents. For purposes of all Contract Documents and the "**Project**", the "**Proposal**" or "**Contractor's Proposal**" means that certain response to the IFB from the Contractor and proposal to the City Manager for completion of the Work and the Project, including all attachments and other materials, answers to clarifications and other inquiries, and including all external documents, materials and things referenced therein, as accepted by the City in connection with award of the Contract.

## ARTICLE 3—ARCHITECT

- 3.01 The Owner has retained LSG Landscape Architecture, Inc., a [Virginia] corporation ("**Architect**") to act as Owner's representative, assume all duties and responsibilities of Architect, and have the rights and authority assigned to Architect in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by the Architect.

## ARTICLE 4—CONTRACT TIMES AND DAMAGES

- 4.01 *Time is of the Essence*
- A. All time, time limits, dates and deadlines for completion and delivery of the Work and the Project, including Substantial Completion, Final Completion and all other respective requirements and obligations of the parties, including completion and readiness for final payment as stated in the Contract Documents, and all other aspects of the Work and the Project, including Contractor's performance, are of the essence of the Contract.
- 4.02 *Contract Times: Days*
- A. Contractor shall begin performance of the Work within 10 calendar days of Owner's issuance of a City of "Rockville Purchase Order" (the "**Notice to Proceed**"). Contractor shall finally complete all Work within [TBD] consecutive calendar days from the date of the Notice to Proceed. The City may, but is not obligated to, issue a Limited Notice to Proceed (a "**LNTP**") to

allow for mobilization, coordination, field measuring, shop drawing review/approval, submission of Work plan and ordering long lead time components, and possible Work.

4.03 *Final Completion Date*

- A. Contractor shall achieve Final Completion of the Work and the Project on or before the date that is [TBD] consecutive calendar days from the date of the Notice to Proceed.

4.04 *Liquidated Damages*

- A. Contractor and Owner recognize and agree that time is of the essence for all purposes of the Work and the Project and that Owner will suffer, without implied limitation, financial and other losses if the Work is not completed and milestones not achieved within the Contract Times. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion:* Contractor shall pay Owner \_\_\_\_\_ and 00/100 Dollars (\$\_\_\_\_\_) for each calendar day that expires after the time (as duly adjusted pursuant to the Contract) specified in this Agreement or elsewhere in the other Contract Documents for Substantial Completion, until the Work is substantially complete in all respects.
  2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse or fail to complete any component of the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \_\_\_\_\_ and 00/100 Dollars (\$\_\_\_\_\_) for each calendar day that expires after such time until the Work is finally completed in all respects and ready for final payment.
  3. Liquidated damages for failing to timely attain any Project milestone, Substantial Completion, final completion or any other component of the Work or Project are not additive, and will not be imposed concurrently or cumulatively, all of the same to be assessed and imposed severally.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages shall in no event be deemed Owner's sole and exclusive remedy for such delay, and Owner shall be entitled to seek and recover any and all other losses and other damages, whether actual, direct, excess, consequential or otherwise, for such delay, as well as any and all other remedies and relief available at law, in equity or otherwise, except only such special damages (if any) expressly specified in the General Conditions.
- C. Owner and Contractor acknowledge and agree that Owner's actual losses and damages in any of the foregoing circumstances, as well as in the event of any other event or circumstance entitling Owner to liquidated damages related to the Project, are extremely difficult, if not impossible, to ascertain and calculate as of the Effective Date and that the aforementioned amounts represent the good faith, reasonable estimation and approximation of the anticipated compensation for such losses and damages by and between the parties hereto, determined as of the Effective Date.

#### 4.05 *Special Damages*

- A. Contractor shall reimburse Owner upon demand (1) for any and all fines and penalties imposed on Owner in connection with the Contractor's failure to attain Substantial Completion, Final Completion or any other date for performance according to the Contract Times, and (2) for any and all costs and expenses, including reasonable attorneys' fees, incurred by Owner for engineering, construction observation, inspection, administrative services, or any other work or services needed or otherwise utilized or obtained after the time specified for performance.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse or fail to complete any component of the remaining Work within the Contract Times, Contractor shall reimburse Owner for any and all costs and expenses, including reasonable attorneys' fees, incurred by Owner for engineering, construction observation, inspection, administrative services, or any other work or services needed or otherwise utilized or obtained after the time specified for Work to be completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.
- D. For the avoidance of doubt, Owner may, but in no event be obligated to, complete all or any portion of the Work not timely performed in full by Contractor, on behalf of Contractor and at Contractor's sole cost and expense. Contractor shall, on demand, reimburse Owner the positive difference, if any, between (i) all costs and expenses incurred by Owner in connection with so performing on behalf of Contractor, including reasonable attorneys' fees, and (ii) the Contract Sum.

#### ARTICLE 5—CONTRACT SUM

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow:
  - A. For all Work, including all Work for [Add/Alts TBD], a lump sum of [Value TBD] and 00/100 Dollars (\$TBD) (the "**Contract Sum**"), as set forth in further detail in the Proposal. Of such Contract Sum, (i) [Add/Alt Value TBD] and 00/100 Dollars (\$TBD) is allocated to Add/Alt 1, and (ii) [Add/Alt Value TBD] and 00/100 Dollars (\$TBD) is allocated to Add/Alt 2, in total for both, all as set forth in further detail in the Proposal. The Contract Sum represents Contractor's full compensation for performance of the Work and completion of the Project. All specific cash allowances are included in the above price.
  - B. Notwithstanding the foregoing, for all Unit Price Work (*i.e.*, items of Work for which a unit price has been allocated in the Proposal) necessitated beyond the amounts set forth in the Proposal, Owner shall pay Contractor an amount equal to the amount reached by multiplying the unit price of such items as set forth in the Proposal by the actual quantity of that item installed or otherwise incorporated into the Work. The amounts for Unit Price Work set forth in the Proposal are based on estimated quantities and remain estimates only as of the Effective Date. Estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Architect.
  - C. Total of Contract Sum and Unit Price Work (subject to final Unit Price adjustment), inclusive of both Alt/Add 1 and Alt/Add 2, is [Add/Alt Value TBD] and 00/100 Dollars (\$TBD).

- D. For all Work, at the prices stated in Contractor's Proposal.

## **ARTICLE 6—PAYMENT PROCEDURES**

### **6.01 *Submittal and Processing of Payments***

- A. Contractor shall submit Applications for Payment in accordance with the General Conditions. Applications for Payment will be processed by Architect as provided in the General Conditions.

### **6.02 *Progress Payments; Retainage***

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment within 30 days of receipt, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will, in the case of Unit Price Work, be based on the number of units completed.
1. Progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract or otherwise authorized pursuant to any one or more Laws and Regulations.
    - a. ninety-five percent (95%) of the value of the Work completed (with the balance being retainage) as set forth in further detail in the General Conditions.

### **6.03 *Final Payment***

- A. Upon final completion and acceptance of the Work and the Project, Owner shall pay Contractor the remainder of the Contract Sum.

### **6.04 *Consent of Surety***

- A. Owner will not make final payment nor return or release retainage at Final Completion or any other time unless Contractor submits written consent of the surety to such payment, return or release in each instance, as the case may be.

### **6.05 *Interest***

- A. All amounts not paid when due and payable will bear interest at the rate of two percent per annum.

## **ARTICLE 7—CONTRACT DOCUMENTS**

### **7.01 *Contents***

- A. The Contract Documents consist of all of the following including any and all exhibits, schedules, addenda, attachments and other documents, materials and things attached thereto and/or referenced, linked or otherwise incorporated therein:
1. This Agreement.
  2. Bonds:
    - a. Performance bond (together with power of attorney).
    - b. Payment bond (together with power of attorney).

3. General Conditions.
4. The IFB.
5. Contractor's Proposal.
6. All Plans, Specifications, and Drawings. The following Contract Drawings are included, without limitation:
  - (a) City of Rockville Building Plans, 2024-xxxx-xxx, containing TBD pages;
  - (b) City of Rockville Minor Site Plan Amendment, STP2024-00466, containing 32 pages;
  - (c) City of Rockville Sediment Control Plan, SCP2024-xxxxx, containing four pages;
  - (d) City of Rockville Forest Conservation Plan, FCP2024-xxxx, containing seven pages;
  - (e) City of Rockville Stormwater Management Plan, SMP2024-xxxx, containing eight pages;
  - (f) City of Rockville National Resource Inventory/Forest Stand Delineation (NRI/FSD) Plan, [FTP2023-00058](#), containing three pages;
  - (g) Maryland Department of Health Public Swimming Pool Construction Permit, XXXXX, consisting of 42 pages; and
  - (d) TBD Additional Permits.
7. Exhibits to this Agreement (enumerated as follows):
  - a. form of Performance Bond
  - b. form of Payment Bond
  - c. General Conditions
  - d. Contractor's Proposal(the IFB and Plans, Drawings and Specifications are not attached as exhibits to this Agreement.)
8. The following which may be delivered or issued on or after the Effective Date of this Agreement and are not attached hereto:
  - a. Notice to Proceed.
  - b. Work Change Directives.
  - c. Change Orders.
  - d. Field Orders.
  - e. Warranty Bond, if any.
- B. There are no Contract Documents other than those listed above in this Article 7. All Contract Documents are incorporated into this Agreement by reference as if fully restated herein.
- C. This Agreement and all other Contract Documents may only be amended, modified, or supplemented by written agreement duly authorized and executed by Owner and Contractor as provided in the Contract.

## ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

### 8.01 *Contractor's Representations*

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations, warranties and certifications to Owner that:
1. Contractor has examined and carefully studied the Contract Documents, including all addenda, attachments, supplements, and materials referenced and/or linked therein.
  2. Contractor has visited the Project site, conducted a thorough examination of the Site and adjacent areas, and become familiar with the general, local, Site and other conditions that may affect cost, progress, and/or performance of the Work.
  3. Contractor is familiar with all Laws and Regulations that may affect cost, progress and/or performance of the Work or that are otherwise applicable to any component of the Work or Project.
  4. Contractor has carefully studied all reports of explorations and tests of subsurface conditions at and adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures and other conditions and characteristics at the Site.
  5. Contractor has carefully studied all reports and drawings relating to hazardous, toxic or otherwise dangerous or harmful (or potentially so) environmental conditions, if any, at, near and adjacent to the Site.
  6. Contractor has considered all information known to Contractor itself; all information commonly known to contractors doing business in the locality of the Site; all information and observations obtained from visits to the Site; the Contract Documents; and all technical specifications and other information and data set forth in the IFB ("**Technical Data**"), with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress and/or performance of the Work; (b) the means, methods, techniques, sequences and/or procedures of construction to be employed by Contractor; (c) Contractor's safety precautions and programs; and (d) any other aspect or component of the Work or Project.
  7. Based on the information, observations and Technical Data referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, data or other information or materials are necessary for the performance of the Work at the Contract Sum, within the Contract Times, and in accordance with all terms and conditions of the Contract.
  8. Contractor is aware of the nature of work to be performed by Owner and others at the Site that relates to the Work, whether in whole or in part, as may be indicated in the Contract Documents.
  9. Contractor has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and that all of the same have been resolved or otherwise rectified to Owner's full satisfaction as of the Effective Date.



10. The Contract Documents are sufficient to indicate and convey clear understanding of all terms and conditions for performance and furnishing of the Work, and Contractor does, in fact, have such an understanding thereof.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in this Agreement are premised upon performing and furnishing the Work required by the Contract Documents.
12. Contractor is a duly formed, registered and qualified entity in good standing in all applicable jurisdictions and is otherwise fully authorized to do business in the State of Maryland, and further that the Person executing this Agreement on behalf of Contractor is a duly qualified officer of Contractor and that he or she is duly authorized to execute, acknowledge and deliver this Agreement and all other Contract Documents to the Owner such that all of the same shall be binding upon Contractor in accordance with their terms.
13. Contractor (a) has adequate power and authority to enter into this Agreement and all other Contract Documents and to fully perform Contractor's obligations under these Contract Documents; (b) possesses full authority to execute and deliver this Agreement and all other Contract Documents and that same does not contravene any of the Laws and Regulations; (c) neither Contractor nor any principal (or beneficiary) of Contractor is subject to any pending, threatened or current litigation, merger or acquisition, corporate or other restructuring or financial oversight; (d) neither Contractor nor any of Contractor's principals (or beneficiaries) is currently subject to any voluntary or involuntary bankruptcy or other insolvency, reorganization, bankruptcy, receivership or other similar proceeding, Contractor has no knowledge of any of the same pending or being imminent, none of such parties have been subject to any of the same at any time during the 10 year period immediately preceding the Effective Date, and Contractor has not made an assignment for the benefit of its creditors; (e) Contractor is not in violation of any order, decree or judgment arising out of, connected with or otherwise related to the design, construction, operation or management of any facility, building, project or system; (f) all representations, warranties, certifications and other statements set forth in the Proposal or otherwise made by, under, through or at the direction of Contractor in or in connection with the Proposal or Contractor's response to the IFB and/or other aspect of the Project were true, complete and correct when made and remain true, complete and correct as of the Effective Date; (g) Contractor is financially and professionally positioned and has all appropriate wherewithal to perform all covenants and other obligations on the part of Contractor to be performed and observed under or in connection with this Agreement or any of the other Contract Documents, all in accordance with their terms and by the dates and other deadlines set forth in the Agreements and other Contract Documents; (h) this Agreement and the other Contract Documents is and shall be binding upon the Contractor in accordance with their respective terms, provisions and conditions; (i) neither Contractor's entering into the Contract nor performing in accordance therewith shall breach or contravene any contract, agreement or relationship to which Contractor is a party or is otherwise bound, and there are no additional impediments whatsoever; (j) Contractor is in compliance with all Laws and Regulations of both the State of Maryland and the City of Rockville, Maryland, including all of the same related to campaign finance and/or contribution.

All representations, warranties and certifications of Contractor set forth in this Agreement or elsewhere in the Contract Documents shall remain true, correct and complete for the Duration of the Project through and including Contractor's final completion of the Work, and Contractor shall immediately inform Owner of any and all changes thereto arising during the Project.

#### 8.02 *Contractor's Certifications*

- A. Contractor further certifies to Owner that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
1. **"corrupt practice"** means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  2. **"fraudulent practice"** means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  3. **"collusive practice"** means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  4. **"coercive practice"** means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### 8.03 *General Conditions*

- A. The general conditions of the Contract are attached as Exhibit C (the "General Conditions"). Owner and Contractor agree to perform in accordance with the terms, conditions and provisions of this Agreement, the General Conditions, and all other Contract Documents.

### ARTICLE 9—MISCELLANEOUS PROVISIONS

#### 9.01 *Governing Law*

This Agreement and all other Contract Documents are entered into in and shall be construed in accordance with the Laws and Regulations of the State of Maryland without regard to the choice-of-law rules thereof.

#### 9.02 *Party Contacts*

Except for matters requiring compliance with the notice provisions of the General Conditions, the parties' respective contacts for emergencies and all other purposes of the Contract are as follows:

City Contact:

TBD

[City TBD]

Street Address

City, State & Zip Code

Phone: (000) 000-0000

Email: TBD

Contractor Contact:

TBD

[Contractor TBD]

Street Address

City, State & Zip Code

Phone: (000) 000-0000

Email: TBD

#### 9.03 *Certificate of Good Standing*

Contractor shall deliver to Owner no later than the Effective Date an original Certificate of Good Standing issued by the State of Maryland or its applicable department or agency showing Contractor in good standing as of the Effective Date for all intents and purposes of contracting and otherwise transacting business in the State of Maryland.

#### 9.04 *Integration; Incorporation*

The Contract Documents collectively represent the entire and integrated agreement between the City and the Contractor with respect to the subject matter and supersede all prior negotiations, representations and agreements, either written or oral, concerning the same. All other Contract Documents and all exhibits, schedules and other attachments hereto, as well as all other external documents, instruments and things expressly referenced herein, are hereby incorporated into this Agreement by reference and made a part hereof. Further, the parties acknowledge and agree that one (1) or more of the Laws and Regulations may require that certain legally required provisions be contained in the Contract. Accordingly, while every attempt to expressly include all of the same in the Contract, any and all legally required provisions not expressly set forth in the Contract are hereby deemed incorporated into this Agreement as if fully set forth herein.

#### 9.05 *Precedence of Documents for Interpretation*

In the event of a material conflict between/among the provisions of this Agreement, the General Conditions, the IFB and/or the Proposal, the provisions govern and control in accordance with the following order of precedence: first, provisions of this Agreement shall govern and control over all others; second, provisions of the General Conditions shall govern and control over those of the IFB and those of the Proposal; third, provisions of the IFB shall govern and control over those of the Proposal.

#### 9.06 *Owner's Appropriation*

The Owner's obligations under the Contract are subject to Owner having appropriated all funds sufficient to carry out its obligations thereunder in accordance with applicable Laws and Regulations.

**[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK. SIGNATURES TO FOLLOW.]**

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement, intending to be legally bound.  
This Agreement will be effective as of and on the Effective Date (which is the Effective Date stated above).

Owner:  
MAYOR AND COUNCIL OF ROCKVILLE, MD

Contractor:  
[CONTRACTOR TBD]

By: \_\_\_\_\_  
Name: Craig Simoneau  
Title: Acting City Manager  
Signature Date: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Signature Date: \_\_\_\_\_

Attest: \_\_\_\_\_  
Name: Sara Taylor-Ferrell  
Title: City Clerk  
Signature Date: \_\_\_\_\_

Attest: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Signature Date: \_\_\_\_\_

Approved as to form and legality:

By: \_\_\_\_\_  
Name: Robert Dawson, Esq.  
Title: City Attorney  
Signature Date: \_\_\_\_\_

**EXHIBIT A**

Form of Performance Bond

**SAMPLE**  
**Do Not Complete or Return**

**CONTRACT PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS: That we (1) \_\_\_\_\_  
\_\_\_\_\_ a (2) \_\_\_\_\_  
hereinafter called "Principal" and (3) \_\_\_\_\_  
of \_\_\_\_\_, State of \_\_\_\_\_ hereinafter called the "Surety", are held  
and firmly bound unto (4) The Mayor and Council of Rockville, Maryland, hereinafter called "Owner", in the  
penal sum of *(100% of Contract Amount)* \_\_\_\_\_  
Dollars (\$ \_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly  
to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally,  
firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract  
with the Owner, dated the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, a copy of which is hereto  
attached and made a part hereof for the construction of: \_\_\_\_\_  
\_\_\_\_\_

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings,  
covenants, terms, conditions, and agreements of said contract during the original term thereof, and any  
extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall  
satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the  
Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and  
repay the Owner all outlay and expense which the Owner may incur in making good any default, then this  
obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no  
change, extension of time, alteration or addition to the terms of the contract or to the work to be performed  
thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond,  
and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of  
the contract or to the work or to the specifications.

CONTRACT PERFORMANCE BOND

PAGE 2

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IT WITNESS WHEREOF, this instrument is executed in two (2) counterparts, each one of which shall be deemed an original, this the day of \_\_\_\_\_, 20\_\_\_\_.

ATTEST:

\_\_\_\_\_  
Corporate Secretary or Asst. Secretary  
  
\_\_\_\_\_  
(Print or Type Name and Title)

\_\_\_\_\_  
Principal  
  
By \_\_\_\_\_ (Seal)  
President or Vice President  
  
\_\_\_\_\_  
(Print or Type Name and Title)

\_\_\_\_\_  
(Address)

ATTEST:

\_\_\_\_\_  
Witness as to Surety  
  
\_\_\_\_\_  
(Print or Type Name and Title)

\_\_\_\_\_  
Surety  
  
By \_\_\_\_\_ (Seal)  
Attorney-in-Fact  
  
\_\_\_\_\_  
(Print or Type Name)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

NOTE: Date of Bond must not be prior to date of Contract.

- (1) Correct name of Contractor
- (2) A Corporation, a Partnership or an Individual
- (3) Name of Surety
- (4) Name of Owner
- (5) If Contract is Partnership, all partners should execute bond

**EXHIBIT B**

Form of Performance Bond

**SAMPLE**  
**Do Not Complete or Return**

**CONTRACT PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS: That we (1)\_\_\_\_\_

\_\_\_\_\_ a (2)\_\_\_\_\_

hereinafter called "Principal" and (3)\_\_\_\_\_

of\_\_\_\_\_, State of \_\_\_\_\_hereinafter called  
the "Surety", are held and firmly bound unto (4) The Mayor and Council, of Rockville, Maryland , hereinafter  
called "Owner", in the penal sum of *(100% of Contract Amount)*\_\_\_\_\_  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind  
ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these  
presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract  
with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, a copy of which is hereto  
attached and made a part hereof for the construction of:\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors,  
and corporations furnishing materials for or performing labor in the prosecution of the work provided for  
in such contract, and any authorized extension or modification thereof, including all amounts due for  
materials, lubricants, oil, gasoline, coal, repairs on machinery, equipment and tools, consumed or used in  
connection with the construction of such work, and all insurance premiums on said work, and for all labor,  
performed in such work whether by subcontractor or otherwise, then this obligation shall be void;  
otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no  
change, extension of time, alteration or addition to the terms of the contract or to the work to be  
performed thereunder or the specifications accompanying the same shall in any way affect its obligation  
on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition  
to the terms of the contract or to the work or to the specifications

CONTRACT PAYMENT BOND

PAGE 2

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in two (2) counterparts, each one of which shall be deemed an original, this the \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ATTEST:

_____	_____
Corporate Secretary or Asst. Secretary	Principal
_____	By _____ (Seal)
(Print or Type Name and Title)	President or Vice President
_____	_____
(Print or Type Name and Title)	(Print or Type Name and Title)

_____	_____
	(Address)

ATTEST:

_____	_____
Witness as to Surety	Surety
_____	By _____ (Seal)
(Print or Type Name and Title)	Attorney-in-Fact
_____	_____
(Print or Type Name and Title)	(Print or Type Name)

_____	_____
(Address)	(Address)

NOTE: Date of Bond must not be prior to date of Contract.

- (1) Correct name of Contractor
- (2) A Corporation, a Partnership or an Individual
- (3) Name of Surety
- (4) Name of Owner
- (5) If Contract is Partnership, all partners should execute bond



## **Exhibit C**

### General Conditions

#### **GENERAL CONDITIONS**

**1.TERMS AND CONDITIONS; DEFINITIONS** The terms and conditions of this document govern in event of conflict with any terms of the bidder's proposal and are not subject to change by reasons of written or verbal statement by the Contractor unless accepted in writing. Words and abbreviations which have well known technical, or trade, meanings are used in accordance with such meanings. Terms used but not defined in these Conditions shall have the definition ascribed in the Agreement. Further, the following terms shall have the following definitions for all purposes of all Contract Documents:

**"City"** is synonymous with "Owner", meaning the Mayor and Council of Rockville.

**"City Manager"** means the City Manager or the Manager's designee.

**"Contract"** means, collectively, all Contract Documents and the relationship of the Parties in connection to the Contract.

**"Contract Time"** or **"Contract Times"** means the amount of time available for delivery or performance as required by any of the Contract Documents, as well as the dates and deadlines by which any aspect or component of the Work or the Project shall be completed, delivered or otherwise satisfied as required by the Contract Documents.

**"Drawings"** means any and all approved drawings and other graphic representations contained within or included with any of the Contract Documents or otherwise associated with the Work or the Project, including all profiles, cross sections and shop drawings.

**"Person"** means any individual, corporation, company, partnership, venture, association or other form of legal entity, including public and private entities of all types and natures.

**"Plans"** means any and all approved design, engineering, site and other plans contained within or included with any of the Contract Documents or otherwise associated with the Work or the Project.

**"Project"** means that certain Owner's Rockville Swim and Fitness Center Outdoor Recreation Pool Renovations Project as advertised by the City in the IFB and located at 355 Martins Lane, Rockville, Maryland 20850 and as is further described throughout the Contract Documents.

**"Project Manager"** is synonymous with "Architect" as defined in the Agreement.

**"Special Provisions"** means the provisions set forth in Section III of the IFB.

**"Specifications"** means any and all approved specifications, details and standards contained within or included with any of the Contract Documents or otherwise associated with the Work or the Project, including all technical specifications.

**“State”** means the State of Maryland.

**2. COVID-19 VACCINATION REQUIREMENT** All COVID-19 vaccination requirements have been repealed by Mayor and Council.

**3. SENSITIVE DOCUMENTS** All project participants needing either electronic or hardcopy documents dealing with critical facilities or sensitive information will be required to make application with, and receive approval from, the City prior to receiving this information. Permission to receive said documents (“sensitive”) will pertain only to the individual approved. Sensitive documents (either electronic or hardcopy documents dealing with critical facilities or sensitive information) received from the City must be handled consistent with the terms of non-disclosure required for application. Contractor is responsible to restrict use of sensitive documents to project participants only and shall take appropriate measure to prevent distribution of sensitive document to anyone inside or outside of the Contractor’s company except Contractor’s project participants. After completion of the project, all sensitive documents remaining in the Contractor’s possession shall continue to be governed under the terms of non-disclosure and must continue to be stored in a secure manner. After such records are no longer needed for record purposes, the records shall be destroyed or returned to the City. Where services require the Contractor to access the City’s electronic information resources and/or its electronic data assets, the Contractor shall adhere to all requirements, terms and conditions of the City’s Contractor/Vendor On-Site and Remote Access Confidentiality Agreement, which can be viewed at the following web address: <https://www.rockvillemd.gov/documentcenter/view/36407>

**4. DOCUMENTS, MATERIALS AND DATA** All documents, materials, or data developed as a result of the Contract are the City’s property. The City has the right to use and reproduce any documents, materials, and data, including confidential information, used in the performance of, or developed as a result of the Contract. The City may use this information for its own purposes, including reporting to state and federal agencies. The Contractor warrants that it has title to or right to use all documents, materials or data used or developed in connection with this contract. The Contractor must keep confidential all documents, materials and data prepared or developed by the Contractor or supplied by the City.

**5. INSPECTION OF THE WORK SITE** Contractor shall visit the site of the Work and become fully acquainted with the existing conditions and fully informed as to any facility involved, and the difficulties and restrictions attending the performance of the Contract. Applicable Drawings and Specifications and all Contract Documents shall be thoroughly examined by Contractor. The Contractor shall in no way be relieved of any obligation due under the executed Agreement by the failure to examine any form of instrument or to visit the site.

**6. RISK OF LOSS AND CONDITION OF SITE** The City makes no representation and assumes no responsibility for the condition of the site or applicable structures on the site. The Contractor shall accept the site and the contents thereon in the condition in which they are represented. Any damages or loss whatsoever while the Contract is in effect (whether by reason of fire, theft, breakage, or other happenings) shall not relieve the Contractor from any obligations under the Contract. The Contractor shall store any materials on site as not to damage the materials and shall maintain such storage areas, as directed by the City, in hazard free condition.

**7. SUBCONTRACTORS** Nothing contained in the Contract Documents shall create any contractual relationship between the City and any subcontractor or sub-subcontractor. Unless otherwise indicated, if the Contractor proposes to subcontract the delivery, installation, or other portion of the Work, it will submit to the Project Manager, prior to the start of Work, the following information:

- 1) A description of the items proposed to be subcontracted,
- 2) the proposed subcontractor's name, address, and telephone number, and
- 3) the nature and extent of the Work utilized during the life of the Contract.

Subcontractors shall be considered agents of the Contractor, who shall be held fully accountable for all the subcontractor services, labor, and materials relative to the Contract.

Contractor may not subcontract any component or portion of the Work or the Project to a subcontractor or other party without the City's prior written consent in each instance, except only as expressly identified and detailed in Contractor's Proposal accepted by the City.

## **8. BONDS**

**A.) PERFORMANCE BOND** The Contractor shall execute and deliver to the City the required Performance Bond for 100% of the bid amount by no later than the Effective Date.

**B.) PAYMENT BOND** The Contractor shall execute and deliver to the City the required payment bond in an amount equal to 100% of the bid amount by no later than the Effective Date.

Bonds shall name the City as beneficiary and shall be in the forms attached to the Agreement as Exhibits A and B and shall be provided and executed by a surety company authorized to do business in the State of Maryland rated "A" or better per current A.M. Best Company ratings, and whose name appears on U.S. Treasury Department Circular 570. Contractor shall pay all costs and expenses of and associated with obtaining and maintaining all bonds during the life of the Project and thereafter as required by the Contract Documents.

**9. LEGAL REQUIREMENTS** All materials, equipment, supplies and services shall conform to applicable Federal, State, County, City and other laws, statutes, rules, ordinances, orders, codes, and regulations. The Contractor shall observe and comply with all Laws and Regulations applicable to or that otherwise affect or may affect the Work to be done or any portion of the Project. The provisions of the Contract shall be governed by the laws of the State of Maryland.

**10. INDEMNIFICATION** To the fullest extent permitted by law, the Contractor shall indemnify, defend and save harmless the City, the Mayor and Council, and all of their respective officers, employees, agents, representatives, consultants and contractors from and against any and all suits, actions and damages, costs, losses, injuries and other recoveries of every name and description, including all reasonable attorneys' fees, to which any of the foregoing may be subjected or put by reason of, in relation to, or otherwise in connection with, whether in whole or in part: (i) injury to persons or property as a result of

any portion of the Work or the performance thereof, whether caused by negligence or carelessness on the part of the Contractor, or subcontractors or agents thereof, or otherwise; (ii) any breach of, default under or other failure on the part of Contractor to fully perform pursuant to the Agreement or any of the other Contract Documents by and in accordance with all terms, conditions and provisions thereof strictly by the dates and other deadlines established therein; (iii) any negligence, willful misconduct or other act or omission of Contractor or any Contractor Party; or (iv) any labor, product, material or supply furnished and/or utilized in connection with any portion of the Work or the Project or any other aspect of the Work or Project or performance thereof. The foregoing provisions of this Section 10 shall not apply to losses, injuries or damages caused directly and in full by the City's gross negligence or willful misconduct.

**11. DELIVERY** Time is of the essence. The Contractor shall expedite the Work and achieve Substantial Completion and Final Completion within the Contract Time. Defective or unsuitable materials or workmanship shall be rejected and shall be made good by the Contractor, notwithstanding that such materials/workmanship may have previously been overlooked and accepted.

**12. CHANGES IN QUANTITIES/ITEMS** The City reserves the right to add or delete any item(s) from the Contract in whole or in part at the City's discretion as given in the IFB or Proposal wherever it deems it advisable or necessary so to do and such changes shall in no way vitiate the Contract nor affect the Contract Sum or other prices for any item or remaining Work. Unit prices submitted in the Proposal shall not be increased or decreased regardless of changes in quantity. The Contractor will be paid for the actual amount of authorized Work done or material furnished under any item of the Proposal at the price set forth in the Proposal. In case any quantity is increased, the Contractor shall not be entitled to any increased compensation over and above the unit price for such item, or any claim for damages on account of loss of anticipated profits should any quantities be decreased. The Contractor shall be responsible for confirming the accuracy of the specified quantities prior to ordering materials or supplies and the City's payment shall be based on the actual quantities incorporated in the Work in accordance with the Contract. The quantities must not exceed the Contract specified quantities without specific prior written authorization of the Project Manager and it is the Contractor's responsibility to obtain said authorization.

**13. MATERIALS** All materials shall be new and free from defects. They shall be standard products of current manufacture. Unless otherwise expressly noted in the Contract Documents, the Contractor shall abide by specific manufacturer instructions and recommendations on installation and operation.

**14. DEFECTIVE MATERIALS/WORKMANSHIP** Defective or unsuitable materials or workmanship shall be rejected and shall be made good by the Contractor. If any portion or component of the Work shall be found to be defective or to have been damaged before final acceptance, the Contractor shall make good such defect in a manner satisfactory to the City, without extra compensation even though said defect or injury may have not been due to any act or negligence of the Contractor. Contractor further agrees to return to the Project site at any time during the one-year period following Final Completion to fix, repair and/or replace any component of the Work found to be noncompliant with any provision of any one or more of the Contract Documents, notwithstanding acceptance or payment.

**15. TIME OF BEGINNING AND COMPLETION** Unless otherwise specified in the Invitation for Bid documents, Contractor shall begin work on the Contract and shall diligently prosecute the same, so that

it shall be fully completed within the time as stated in the Contract, all as set forth in Section 4.02 of the Agreement. The Contractor shall not commence any work under the Contract until a written Notice to Proceed or LNTP is received from the Purchasing Agent.

**16. FAILURE TO COMPLETE WORK ON TIME/ LIQUIDATED DAMAGES** The Contractor accepts the Contract with the understanding and intention to perform fully and in an acceptable manner within the time stated. Should Contractor fail to complete fully, to all intent and purpose, the Work specified in the time specified, or within the time as it may have been extended by the City, the Contractor shall pay, for each calendar day that any work shall remain uncompleted the sum of \$400 per calendar day as set forth in and per the provisions of Section 4.04 of the Agreement, unless otherwise specified in the Invitation for Bid documents. This sum is agreed upon, not as a penalty, but as liquidated damages and the City shall have the right to deduct the amount of such damages from any moneys due the Contractor under the Contract. The City may, but shall not be obligated to, recover such liquidated damages by deducting the amount thereof out of any moneys due or that may become due the Contractor, and if said moneys are insufficient to cover said damages, then the Contractor or the Surety shall pay the amount due upon demand by the City. The City may also seek any and all other and/or alternative methods of collecting liquidated damages as may be available or allowable at law, in equity or otherwise, there being no limitation implied as to the provisions of this Section 16.

**17. AUTHORITY OF THE CITY MANAGER IN DISPUTES** Any dispute concerning a question of fact arising under the Agreement which is not disposed of by the Agreement shall be decided by the City Manager who shall notify the Contractor in writing of his determination. The Contractor shall be afforded the opportunity to be heard and offer evidence in support of the claim. Pending final decision of the dispute in question, the Contractor shall proceed diligently with performance under the Agreement and all other Contract Documents. The decision of the City Manager shall be final and conclusive unless an appeal is taken pursuant to the City Purchasing Ordinance.

**18. CONTRACT DELAYS/EXTENSION OF TIME** The Contractor shall pursue the Contract so as to complete all work within the time allotted. The completion date as set in the Agreement allows for inclement weather, holidays and coordination with other companies and parties. If the Contractor is delayed in the delivery of the supplies, equipment, or services by any act of neglect of the City or by a separate Contractor employed by the City, or by any delay authorized by the City, the City shall review the cause of such delay and shall make an extension of time if warranted. All claims for extensions must be in written notice sent to the Project Manager within 10 calendar days after the date when such alleged cause for extension of time occurred. All such claims shall state specifically the amount of time of the delay the Contractor believes to have suffered. If written notice is not received within the prescribed time, the claim shall be forfeited and invalidated. Relief in the form of time extension shall be the sole and exclusive remedy available to Contractor in connection with any Project delay whatsoever, notwithstanding any contrary provision of any of the other Contract Documents, except that the provisions of this sentence shall not apply in instances in which it has been determined by a court or other tribunal of competent jurisdiction that a particular delay was caused by the City's gross negligence or intentional wrongdoing, a fraud perpetrated by the City or an intentional misrepresentation by the City.

**19. CONTRACT DELAYS - NO DAMAGE CLAIMS ACCEPTED** The Contractor shall make no claim for extra monetary compensation for any delay, whether ordered by the City or not, caused by delays in funding, governmental approvals, private or public companies' actions, inclement weather, site conditions, or from any cause whatsoever. The Contractor shall adjust its operation to continue the Work at other locations under the Contract, if available, and as directed by the City. If it is necessary to discontinue the Work temporarily, the Contractor shall resume Work within 48 hours of notice from the City. The City may adjust the completion date to compensate for the lost day(s) on a day-for-day basis, if the City finds that the Contractor could not make up for such lost day(s) by reallocating its forces or rescheduling the work, up to the time remaining on the original schedule at the time of shutdown.

**20. PROGRESS SCHEDULE AND SCHEDULE OF OPERATIONS** The construction of the Project will be planned and recorded by the Contractor with an Activities Chart Project Schedule (the "AC Project Schedule" or "AC") and Written Narrative ("WN") unless specifically determined in writing to be unnecessary by the Project Manager. The AC Project Schedule and WN will break down, in detail, the time (working days or completion date) involved in performing major construction activities for the duration of the Project. The AC Project Schedule shall be used for the coordination and monitoring of major Work under the Contract including the activities of subcontractors, vendors, and suppliers. The AC Project Schedule shall be prepared in accordance with the requirements of the Maryland State Highway Administration Standard Specifications for Construction and Materials dated January 1982, and the errata and addenda thereto, subsequent supplement(s) and the Special Provisions as set forth in the IFB, unless otherwise directed or approved by the Project Manager in writing. The schedule shall be consistent with the Contract specified completion date(s) and/or working days. The Contractor is responsible for preparing the AC Project Schedule and Written Narrative.

Preparation of Initial Schedule - Unless otherwise specified in the Invitation for Bid documents, the Contractor will complete development of a initial AC Project Schedule and Written Narrative (describing the logical time representations as proposed in the AC Project Schedule), and submit two copies of each AC and WN to the Project Manager for review and approval by no later than 10 calendar days from the Effective Date. Updating Project Schedule: At any time that it becomes apparent the schedule, created as above, and approved by the Project Manager, is not being implemented, either because the Work or service is ahead or behind schedule, the Contractor shall immediately notify the Project Manager and shall submit a revised, written, updated AC and WN for the Project Manager's review, revision, and written approval. The Contractor shall make every effort to meet the original completion date and/or working days allowed unless otherwise so directed by the Project Manager. Payment for Schedule AC/WN: No special compensation will be paid for preparing or revising the Project AC or WN, as the cost shall be considered incidental to the Contract with compensation incorporated into the Contract Sum.

**21. SPECIFICATIONS** The Specifications for the Contract will be those shown below, and additions included in the IFB, if applicable. In the event of conflict, the City's determination shall govern. The following specifications and standards, listed below, including all subsequent addenda, amendments and errata are made part of the Contract to the extent required by the references thereto:

- (a) Maryland Department of Transportation, State Highway Administration, "Standard Specifications for Construction and Materials" (Maryland Department of Transportation, State

Highway Administration), dated January 2008 and all errata and addenda thereto. MDSHA Book of Standards for Highway and Incidental Structures.

- (b) Montgomery County Department of Transportation "Montgomery County Road Construction Code and Standard Specifications."
- (c) Standard Specifications of WSSC dated July 2005.
- (d) Montgomery County Department of Transportation "Design Standards" August 1991.
- (e) Maryland Dept of the Environment "1994 Standards and Specifications Soil Erosion and Sediment Control".
- (f) The U. S. Department of Transportation, Federal Highway Administration, "Manual on Uniform Traffic Control Devices" latest edition.
- (g) Montgomery County Noise Ordinance.

**22. CONTRACT DOCUMENTS** The Contract Documents are complementary and what is required by one shall be binding as if required by all. Words and abbreviations that have well known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings. On Drawings, the figured dimensions shall govern in the case of discrepancy between the scales and figures. Anything shown on the Plans and not mentioned in the Specifications or mentioned in the Specifications and not shown on the Plans shall have the same effect as if shown or mentioned respectively in both. The City may direct that the Work proceed by any method indicated, specified, or required, in the judgment of the City, by any of the Contract Documents. Such direction by the City shall not constitute the basis for a claim for extra costs by the Contractor. The Contractor acknowledges that it has been afforded the opportunity to request clarification prior to the Effective Date and that Contractor is not entitled to a claim for extra cost or otherwise because of failure to request or receive such clarification. Any discrepancies which may be discovered during the execution of Work between actual conditions and those represented by the Contract Documents shall be reported to the City and Work shall not proceed until written instruction has been received by the Contractor from the City.

**23. INTERPRETATION** Any questions concerning terms, conditions and definitions of the contract and bidding regulations shall be directed in writing to the Project Manager. Any questions concerning any of the Specifications and Drawings shall be directed in writing to the Project Manager. The Contractor shall take no advantage of any error or omission in any of the Contract Documents.

**24. PROJECT MEETINGS; PRE-CONSTRUCTION MEETING** A pre-construction meeting(s) may be held in person or virtually as set forth in the IFB. The meeting(s) must be attended by the Contractor. Further, Contractor agrees to attend, participate in, and otherwise perform in accordance with the IFB and other Contract Documents regarding additional Project meetings, including keeping all minutes thereof and details of attendance. No compensation will be made by the City to the Contractor for meetings.

**25. EMERGENCY CONTACT** The Contractor has provided the following two local telephone numbers which may be used for contacting an official of the Contractor at all times, 24 hours per day, seven days per week, at which numbers person(s) of responsibility will be available to respond to City directives relative to the contract: (\_\_\_\_) \_\_\_\_ - \_\_\_\_\_ and (\_\_\_\_) \_\_\_\_ - \_\_\_\_\_. The Contractor shall have available sufficient personnel and equipment to immediately respond to emergency needs, as determined by the City. There will be no special compensation paid for this requirement, but the cost is to be considered incidental to the other Contract pay items.

**26. SUPERVISION AND DIRECTION OF WORK** The Work shall be under the general supervision of the Project Manager. While it is intended that the Contractor shall be allowed in general to carry on the Contract in accordance with such general plan as may appear to the Contractor most desirable, the Project Manager, at the Project Manager's discretion, may from time to time, direct the order in which, and points at which, the Work shall be prosecuted and may exercise such general control over the conduct of the Work at a time or place, as shall be required, in the Project Manager's opinion, to safeguard the interests of the City, and the Contractor shall have no claims for damages or extra compensation on account of the fact that it shall have been necessary to carry on the work in different sequence from that which the Contractor may have contemplated. The Contractor shall immediately comply with all orders and instructions given by the Project Manager, but nothing herein contained shall be considered such an assumption of control over the Work by the City or the Project Manager as to relieve the Contractor of any obligations or liabilities under the Contract.

**27. INSPECTION** Work and materials will be inspected promptly to see that the same strictly correspond with the Drawings and Specifications and all Contract Documents, but if, for any reason, delay should occur in connection with such inspection, the Contractor shall have thereby no claim for damages or extra compensation. Materials and workmanship shall be always subject to the approval of the Project Manager, but no inspection, approval or acceptance of any part of the Work or of the materials used therein, nor any payment on account thereof shall prevent the rejection of said materials or Work at any time thereafter, should said Work or materials be found to be defective or not in accordance with the requirements of the Contract Documents. Any costs for any "re-inspection" of the job shall be the responsibility of the Contractor.

**28. DEFAULT AND TERMINATION** The Contract may be terminated by the City in whole or in part by written notice of default to the Contractor upon nonperformance or violation of contract terms as set forth in further detail below in this Section 28. In either event, the Contractor shall, without limitation, be liable to the City for all costs and expenses of the City in excess of the Contract Sum, and the Contractor shall continue the performance of the Contract to the extent not terminated under the provisions of this clause. The Contract may be terminated by the Contractor only as expressly set forth in this Section 28.

(a) Except as set forth to the contrary in subsection (b) below, either party to the Contract may terminate the Contract should the other party fail to perform in accordance with any provision thereof; provided, however, that prior to terminating the Contract, the terminating party must have delivered a 30 day written notice of such failure to perform and must have allowed the other party 30 days (unless a different cure period is specifically provided for in this Section 28, in which case such period shall apply) in which to cure the same. Notwithstanding the foregoing, if a party's failure to perform is such that it cannot



reasonably be cured within 30 days, the other party shall not have the right to terminate the Contract by reason thereof as long as the non-performing party commences to cure within the applicable cure period and thereafter diligently pursues the same towards completion. Notwithstanding the foregoing or any other provision of the Contract to the contrary, any failure to perform a covenant under or in connection with the Contract performable by the payment of money shall be subject only to a seven-day cure period following notice from the other party thereof.

(b) In addition to all other rights and remedies set forth in the Contract, including those set forth elsewhere in this Section 28, the City may terminate the Contract, by notice to Contractor if the Contractor:

- (i) fails to submit or deliver any item by the date required by the Contract, or if no date is indicated, within a reasonable time consistent with the date of Substantial Completion of the Project;
- (ii) refuses or fails to supply proper materials or the appropriate subcontractors or enough properly skilled workers;
- (iii) fails to make timely payment to any subcontractor or consultant, except only if the Contractor has a good faith claim against such subcontractor or consultant;
- (iv) disregards or violates any of the Laws and Regulations or any other requirement;
- (v) has breached any material provision of the Contract or has at any time provided a representation, warranty or certification to the City in connection with the Project that was untrue, misleading, incorrect or incomplete; or
- (vi) files for bankruptcy, receivership or other manner of insolvency, has any of the same filed against it, admits it cannot pay any one or more of its debts as they become due, makes an assignment for the benefit of creditors, or becomes otherwise financially positioned such that Contractor can no longer perform the Contract in accordance with its terms.

(c) Notwithstanding the provisions of Section 28(a) above, when any of the above reasons (i), (ii), (iii) or (v) in Section 28(b) exist, the City may, without prejudice to any other rights or remedies of the City, immediately terminate the Contract, with a three day curing option to the Contractor, and, for items (iv) and (vi) in Section 28(b), the City may immediately terminate the Contract. Further, in any of such events described in the above sections (i) through (vi) shall occur, the City shall, without prejudice to any other right or remedy of the City, also be entitled to:

- (i) Exclude the Contractor from the Project site and take possession of the Work and Project and all materials, equipment, tools, and construction equipment and machinery thereon or thereat owned or controlled by the Contractor;
- (ii) Accept assignment of one or more of the subcontractor, consulting and/or other agreements entered into by Contractor in connection with any aspect of the Project (although the City shall under no circumstances be obligated to do so); and
- (iii) Finish the Work, at the sole cost and expense of the Contractor, by whatever means and method the City may deem appropriate.

**29. TERMINATION FOR CONVENIENCE** The Contract may be terminated, in whole or in part, upon written notice to the Contractor when the City determines that such termination is in its best interest. The termination is effective 10 days after the notice is issued unless a different time is given in the notice. The

City is liable only for payment for goods and services delivered, accepted, and approved by the City prior to the effective date of the termination.

**30. EMPLOYEES** The Contractor shall employ only competent, skillful persons to do the Work, and whenever the Project Manager shall notify the Contractor in writing that any person employed on the Work is, in his opinion, incompetent, disobedient, disorderly, discourteous or otherwise unsatisfactory, such person shall be discharged from the work and shall not again be employed for the Contract or the Project except with the prior written consent of the Project Manager.

**31. NON-WORKDAY** The City observes the following holidays: New Year's Day, Martin Luther King's Birthday, President's Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Thanksgiving Friday and Christmas Day, all days of general and congressional elections throughout the State, and a five-day work week. The Contractor will not be permitted to do any work which requires the services of the City's inspection, supervisory or line and grade forces on the days on which the above-mentioned holidays are observed by the City or on Saturdays or Sundays, unless otherwise authorized by the Project Manager in writing. However, the Contractor, with verbal permission of the Project Manager, may be permitted to perform clean up and such other items for which no specific payment is involved on Saturdays and holidays. The normal number of working hours per day on the Contract will be limited to eight, unless otherwise authorized by the Project Manager in writing. In case of an emergency which may require the services of the City on Saturdays, Sundays, holidays or longer than eight hours per day, the Contractor shall request permission of the Project Manager to work. If, in the opinion of the Project Manager the emergency is bona fide, he will grant permission to the Contractor to work such hours as may be necessary. Also, if in the opinion of the Project Manager, a bona fide emergency exists, the Project Manager may direct the Contractor to work such hours as may be necessary whether the Contractor requests permission to do so or not, and Contractor shall abide by such direction.

**32. LANGUAGE** The Contractor shall appoint one or more crewmembers or supervisors to act as liaison with the City and emergency services personnel. All liaisons shall be fluently and sufficiently proficient in English and the Contractor's employees' language(s), and at least one liaison shall be always present at each work site when any of the Contractor's employees or agents are at the site.

**33. IMMIGRATION REFORM AND CONTROL ACT**

Contractor represents and warrants to Owner (i) that it does not and shall not hire, recruit or refer for a fee, for employment under the Contract, an individual knowing the individual is an unauthorized individual and hire any individual without complying with the requirements of the Immigration Reform and Control Act of 1986 (the "Act"), including but not limited to any verification and record keeping requirements, and (ii) that, in accordance with the Act, it does not and will not discriminate against an individual with respect to hiring, or recruitment or referral for a fee, of the individual for employment or the discharging of the individual from employment because of such individual's national origin or in the case of a citizen or intending citizen, because of such individual's citizenship status.

**34. EQUAL EMPLOYMENT OPPORTUNITY** The Contractor will not discriminate against any employee or applicant for employment because of age (in accordance with applicable law), ancestry, color, national origin, race, ethnicity, religion, disability, genetics, marital status, pregnancy, presence of children, gender,

sexual orientation, gender identity or expression, or veteran status. The Contractor will take affirmative action to ensure that applicants are employed, and the employees are treated fairly and equally during employment with regard to the above. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment, layoff or termination, rates of pay or other form of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. Contractors must also include the same nondiscrimination language in all subcontracts. If the Contractor fails to comply with any nondiscrimination clause of the Contract or fails to include such contract provisions in all subcontracts that subcontractors will not discriminate against any employee or applicant for employment in the manner described above, the Contract may be declared void AB INITIO, cancelled, terminated or suspended in whole or in part at the City's discretion and, without limitation, the Contractor may be declared ineligible for further contracts with the City of Rockville. Any employee, applicant for employment, or prospective employee with information concerning any breach of these requirements may communicate such information to the City Manager who shall commence a prompt investigation of the alleged violation. Pursuant to such investigation, the Contractor will permit access to the Contractor's books, records, and accounts. If the City Manager concludes that the Contractor has failed to comply with any of the applicable nondiscrimination clauses, the remedies set out above may be invoked.

**35. ETHICS REQUIREMENTS** In accordance with the City's financial disclosure and ethical conduct policy and/or ordinances a prerequisite for payment pursuant to the terms of the Contract is that the Contractor may be required to furnish explicit statements, under oath, that the City Manager, and/or any other officer, agent, and/or employee of the City, and any member of the governing body of the City of Rockville or any member or employee of a Commission, Board, or Corporation controlled or appointed by the City Council, Rockville, Maryland has not received or has not been promised directly or indirectly any financial benefit by way of fee, commission, finder's fee, or in any other manner, remuneration arising from directly or indirectly related to the Contract, and that upon request by the City Manager, or other authorized agent, as a prerequisite to payment pursuant to the terms of the Contract, the Contractor will furnish to the Mayor and Council of the City of Rockville, under oath, answers to any interrogatories to a possible conflict of interest as herein embodied.

**36. DRAWINGS TO BE FOLLOWED** The approved Drawings show the location, details and dimensions of the Work contemplated, which shall be performed by Contractor in strict accordance therewith and in accordance with the Specifications. Any deviation(s) from the Drawings or Specifications as may be required by the exigencies of construction in all cases will be determined by the Project Manager. There shall be no such deviations without the prior written authorization of the Project Manager in each instance. On all Drawings, Plans and Specifications, the figured dimensions shall govern in the case of discrepancy between the scales and figures. The Contractor shall take no advantage of any error or omission in the Drawings, Plans or Specifications. The Project Manager shall make such corrections and interpretations as he or she may deem necessary for the fulfillment of the intent of the Specifications and of the Drawings as construed by the Project Manager whose decision shall be final.

**37. CERTIFICATION** Under no circumstances will Contractor be paid for materials utilized on or in connection with the Contract unless certified to in writing by the Project Manager. The Contractor must

not incorporate any materials into the Project without prior written authorization and certification of the Project Manager, unless necessary to eliminate or avoid hazardous conditions. In the event of such hazardous conditions, the responsibility for notification to the Project Manager and quantity/quality confirmation rests with the Contractor, and Contractor must obtain written confirmation within 24 hours of the commencement of the first of the hazardous conditions in question.

**38. DECISIONS AND EXPLANATIONS BY PROJECT MANAGER** The Project Manager shall make all necessary explanations as to the meaning and intent of the Specifications and Drawings, and shall give all orders and directions, either contemplated therein or thereby, or in every case in which a difficult or unforeseen condition arises during the prosecution of the Work. Should there be any discrepancy, or should any misunderstanding arise as to the intent of anything contained in the Drawings and Specifications, the decision of the Project Manager shall be final and binding. The Project Manager shall in all cases determine the amount, quality, acceptability and estimates of the Work to be paid for under the Contract and shall decide all questions in relation to the Work. In case any question arises between the parties hereto relating to the Contract, a decision to such question shall be a condition precedent to the right of the Contractor to receive payment under that part of the Contract which is in dispute.

**39. WORK TO BE DONE AND MATERIALS TO BE FURNISHED** The Contractor shall do all the Work and furnish all the labor, materials, tools, and equipment necessary or proper for performing the Work required by the Contract, in the manner called for by the Drawings and Specifications and all other provisions of the Contract Documents and within the Contract Time. The Contractor shall complete the entire Project and all Work together with such extra work as may be required, at the prices fixed therefore, to the satisfaction of the Project Manager and in accordance with the Specifications and Drawings.

**40. NOTIFICATION TO OTHER AGENCIES** The Contractor will be responsible for notifying all concerned agencies affected by the Work a minimum of 48 hours in advance of any activity, as prescribed by said agencies, including, but not limited to: the Washington Gas, PEPCO, Verizon Comcast Cable, Transcontinental Gas, City of Rockville Utilities Division, Montgomery County Government, State Highway Administration and the Washington Suburban Sanitary Commission. The Contractor must notify MISS UTILITY at 1-800-257-7777 a minimum of 72 hours and no more than five working days prior to removal of any pavement or beginning any excavation. There shall be no measurement or direct payment to the Contractor for such notification, working around, the protection of, or repair of damage to such existing utilities caused by the proposed construction activities directly or indirectly.

**41. PERMITS AND REGULATIONS** The City is listed as the applicant for all permits, and it is Contractor's responsibility to comply with all permit terms and conditions, including maintenance and warranty requirements. Unless stipulated elsewhere in the Specifications, the Contractor shall be responsible for obtaining and paying for all applicable permits. Where signatures of the City are required in connection with the obtaining of such permits, certificates, etc., the Contractor shall prepare the proper paperwork and present it to the City for signature. City of Rockville Permit fees shall be waived. If the Contractor ascertains at any time that any requirement of the Contract is at variance with any one or more of the Laws and Regulations, notification to the Project Manager by Contractor shall be made immediately. Without proper notice to the Project Manager, the Contractor shall bear all costs arising from the performance of Work the Contractor knows to be contrary to such laws, ordinances, etc. The Contractor

is solely responsible for implementation and compliance with all conditions of all permits, including those listed below, and is also responsible for obtaining additional trade/utility permits in order to successfully complete the Work and the Project:

- City of Rockville, Building Permit, 2024-7317-ALT
- City of Rockville, Minor Site Plan Amendment, STP2024-00466
- City of Rockville, Stormwater Management Plan, SMP2024-00016
- City of Rockville, Sediment and Erosion Control Plan, SCP2024-00002
- City of Rockville, Public Works Plan, PWK2024-00048
- City of Rockville, Natural Resource Inventory/Forest Stand Delineation (NRI/FSD), FTP2023-00058
- City of Rockville, Forestry Conservation Plan, FTP2023-00058
- Montgomery County Department of Health and Human Services, Swimming Pool Construction Permit, 2024-7317-ALT
- City of Rockville Plumbing Permit (PMB) (Contractor to apply for and obtain such permit).
- City of Rockville Electrical Permit (ELE) (Contractor to apply for and obtain such permit).
- City of Rockville Mechanical Permit (MEC) (Contractor to apply for and obtain such permit)
- City of Rockville Occupancy Permit (OCC) (Contractor to apply for and obtain such permit)

**42. EXCAVATION** Unless specifically provided in the Specifications, all trench and roadway excavation is unclassified as to the character of materials. The lump sum or unit price, as specified, for or including excavation shall constitute full payment for removal and disposal of all materials, regardless of type, encountered in trenching and roadway excavation, within the limits of the Contract, as necessary and as shown to be removed on the Drawings and/or as directed by the Project Manager, except as otherwise provided for under the Contract. Contractor hereby represents, warrants, and certifies to Owner that it has familiarized itself with all site conditions including subsurface and the proximity of all adjacent and other nearby features.

**43. SERVICE OF NOTICES** The mailing a written communication, notice or order, addressed to the Owner or Contractor in accordance with this Section 43 at the respective addresses set forth below shall be considered as sufficient service upon the Owner or Contractor, as applicable, of such communication, notice or order, and the date of said service shall be one (1) business day from the date of such mailing or shipping. All of the same shall be either (i) mailed by U.S. First Class certified mail for next business day delivery, postage prepaid, or (ii) shipped by nationally recognized courier service, such as Federal Express, for next business day delivery, with all shipping and other charges prepaid. Unless and until changed by Owner or Contractor by way of written notice delivered to the other in accordance with the provisions of this Section 43, each parties' respective address for notice and service is:

If to Owner:

City of Rockville, MD  
Attn: \_\_\_\_\_  
111 Maryland Avenue  
Rockville, MD 20850

If to Contractor:

[Contractor TBD]  
Attn: TBD  
Contractor Address  
Contractor Address

with copies to:

City Attorney's Office  
City of Rockville, MD  
Attn: Robert Dawson, City Attorney.  
111 Maryland Avenue  
Rockville, MD 20850

with a copy to:

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and to:

West Group Law, PLLC  
Attn: Managing Partner  
81 Main Street, Suite 510  
White Plains, NY 10601

**44. PATENT RIGHTS** Whenever any article, material, equipment, process, composition, means, or thing called for by the Specifications is covered by letters of patent, Contractor shall secure, before using or employing such article, material, equipment, process, composition, means, or thing, the assent in writing of the owner or licensee of such letters of patent and file the same with the City. The said assent is to cover not only the use, employment, and incorporation of said article, material, equipment, process, composition, combination, means, or thing in the construction and completion of the Work but also the permanent use thereof thereafter by or on behalf of the City, in the operation and maintenance of the project for the purposes for which it is intended or adapted. The Contractor shall be responsible for any claims made against the City, its agents and/or employees and for any actual or alleged infringement of patents by the use of any such patented articles, etc., in the construction and completion of the Work, and shall save harmless and indemnify the City, its agents and employees from all costs, expenses (including all reasonable attorneys' fees), and damages, including Solicitor's and Attorney's fees which the City may be obligated to pay by reason of any actual or alleged infringement of any patent used in the construction and/or completion of the Work.

**45. CARE AND PROTECTION OF WORK** From the Effective Date until its Final Completion, the Contractor shall be solely responsible for the care of the Work and all injury or damage to the same, from whatever cause, shall be made good by the Contractor at the Contractor's own expense, before the final estimate is made. The Contractor shall provide suitable means of protection for all materials intended to be used in the Work and for Work in progress, as well as completed Work.

**46. ABANDONMENT OF OR DELAY IN WORK** If the Work under the Contract shall be abandoned by the Contractor, or if at any time the Project Manager shall be of the opinion and shall so state, in writing, to the Contractor, that the performance of the Contract is unnecessarily or unreasonably delayed, or that the Contractor has violated any of the provisions of the Contract or is executing the same in bad faith or if the Work is not fully completed within the time specified for its completion, together with such extension of time as may have been granted, the City by written notice, may order the Contractor to discontinue all Work, or any part thereof, within the number of days specified on such notice. At the expiration of said time the Contractor shall discontinue the Work, or such part thereof, and the City shall have the power, by Contract, or otherwise, to complete said work and deduct the entire cost, including reasonable attorneys'

fees, thereof from any monies due or to become due the Contractor under the Contract. For such completion of Work the City may, for itself or its contractors, take possession of and use or cause to be used any or all materials, tools, and equipment found on the site of said Work. When any part of the Contract is being carried on by the City, as herein provided, the Contractor shall continue the remainder of the Work in conformity with the terms of the Contract and in such manner as not to interfere with the City's workmen.

**47. SUBLETTING OR ASSIGNING OF CONTRACT** The City and the Contractor each bind themselves and their respective successors, assigns and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents. Neither party to the contract shall sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of the Work provided for therein, or of Contractor's right, title, or interest therein to any person, to any person without the City's prior written consent, nor shall the Contractor assign any monies due or to become due hereunder without the previous written consent of the City. Notwithstanding the foregoing, Contractor may subcontract to the subcontractor expressly identified in the Proposal for the express purposes set forth therein.

**48. NO WAIVER OF CONTRACT** Neither the acceptance by the City or its Project Manager nor any order, measurement, certificate or payment of money, of the whole or any part of the Work, nor any extension of time nor possession taken by the City or its Project Manager shall operate as a waiver of any portion of the Contract, or any right to damage therein provided. The failure of the City to strictly enforce any provision of the Contract shall not be a waiver of any subsequent breach of the same or different nature.

**49. DUTIES, OBLIGATIONS, RIGHTS AND REMEDIES** The duties and obligations imposed by the Contract Documents and every one of the rights, relief, and remedies available thereunder are cumulative, shall be in addition to and not a limitation of the duties, obligations, rights, and remedies otherwise imposed or available by law or in equity, unless so indicated.

**50. IMPLIED WORK** All incidental work required by the drawings or specifications for which no payment is specifically provided, and any work or materials not therein specified which are required to complete the Work and which may fairly be implied as included in the Contract, and which the Project Manager shall judge to be so included, shall be done or furnished by the Contractor without extra compensation. The Project and the Work represent a complete work or improvement which the Contractor undertakes to do in full compliance with the Contract Documents together with any authorized alterations, special provisions, and supplemental agreements.

**51. MEASUREMENT OF WORK AND MATERIAL** The work and material to be paid for will be measured and determined by the Project Manager according to the Specifications and Drawings, and the working lines that may be given. No allowance will be made for any excess above the quantities required by the Specifications, Drawings, and lines on any part of the Work, except only where such excess material has been supplied or work done by written order of the Project Manager and in the absence of default or negligence on the part of the Contractor. Should the dimensions of any part of the Work or of the materials be less than those required by the Drawings or the directions of the Project Manager, only the actual quantities placed will be allowed in measurement for purposes of payment.

**52. EXTRA COSTS** If the Contractor claims that any instructions by the Contract Documents or otherwise involve extra compensation or extension of time, a written protest must be submitted to the Project Manager within 10 calendar days after receipt of such instructions and before proceeding to execute the Work, stating in detail the basis for objection. No such claim will be considered unless so made.

**53. CONTINGENT ITEMS & QUANTITIES** Items and quantities identified as being contingent are provided in the Contract for use when and as directed by the Project Manager in writing. Such items have been included for the purpose of obtaining a price for Contractor's performance and delivery thereof. The quantities for these contingent items may be increased or decreased by the City without any adjustment to the Contract Sum or any unit price(s) or the contingent items may be deleted entirely from the Contract by the Project Manager without negotiation, all at the City's sole discretion. The Contractor shall submit no claim against the City for any adjustment to the Contract Sum or any unit price should the contingent items be increased, decreased, or eliminated entirely. Payment for any contingent items used will be made based on the quantities as actually measured and as specified in the Specifications. Materials, construction requirements and basis of payment shall be as specified elsewhere in the Contract Documents.

**54. CHANGES IN THE SCOPE OR EXTRA WORK** The City, without invalidating the Contract, may issue written changes in the Work consisting of additions, deletions, or modifications with the Contract Sum and completion date being adjusted accordingly. The Contract Sum shall be adjusted in accordance with the unit prices set forth in the Proposal, if covered thereby, or otherwise in accordance with a written change order executed by both the City and the Contractor. All such changes, or additional Work must be authorized in writing by the Architect prior to starting such Work. Costs shall be limited to the actual, verified, and substantiated cost of materials, labor, field supervision and field office personnel directly involved in and directly attributed to the change. All costs and/or credits to the City for a change in the Work shall be determined by the unit price bid or by mutual written agreement, where any agreed upon charges related to overhead may not exceed 5% of the total cost of the changes and any agreed upon charges to profit may not exceed 10% of the total cost of the changes. The Contractor shall do all Work that may be required to complete such Work contemplated at the unit prices bid or at a lump sum price to be mutually agreed upon. The Contractor shall perform extra Work, for which there is no quantity or price included in the Contract, whenever it is deemed necessary or desirable to complete fully the Work as contemplated, and such Work shall be done in accordance with the Specifications therefore, or in the best workmanlike manner as directed. Where such a price or sum cannot be agreed upon by both parties, or where this method of payment is impracticable, the Project Manager may order the Contractor to do such Work on a force account basis, which will be paid for as set forth below in Section 55.

**55. FORCE ACCOUNT WORK** When the Contractor is required to perform Work as a result of additions or changes to the Contract for which there are no applicable unit prices in the Contract, the City and Contractor shall make every effort to come to an agreed upon price for the performance of such Work and reduce same to writing. If a written agreement cannot be reached, the City may require the Contractor to do such Work on a force account basis to be compensated in accordance with the following:

A. Labor. For all labor and for foremen in direct charge of the specific operations the Contractor shall receive the actual wages for each and every hour that said labor and foremen are actually engaged in such work.



B. Materials. For materials accepted by the Project Manager in writing and incorporated into the Project, the Contractor shall receive the actual cost of such materials, including transportation charges paid by Contractor (exclusive of machinery and special equipment rentals as hereinafter set forth). Excess materials delivered to the job site and not incorporated into the Project will not be paid for and it is the Contractor's responsibility to remove said excess material from the job site.

C. Equipment. For any machinery or special equipment (other than small equipment tools, whether rented or owned), the use of which has been authorized in writing by the Project Manager, the Contractor shall receive the rates agreed upon in writing before such work is begun which price shall include fuel, oil and miscellaneous necessities, or the Contractor shall receive those rates which may be specified elsewhere in the Special Provisions. For the purpose of definition, equipment with a new cost of \$1000 or less will be considered small tools and equipment.

D. Materials and Supplies Not Incorporated in the Work. For materials and supplies expended in the performance of the Work (excluding those required for rented machinery and equipment as discussed above) and approved by the Project Manager in writing, the Contractor shall receive the actual cost of such materials and supplies used.

E. Subcontractors. The Contractor shall receive the actual cost of work performed by a subcontractor approved by the City in writing. Subcontractor's cost is to be determined as in A., B., C., and D. above, plus the fixed fee for overhead and profit allowance computed as in G.

F. Superintendence. No additional allowance shall be made for general superintendence, the use of small tools, or other costs for which no specific allowance is provided in this Section 55.

G. Contractor's Fixed Fee. The City and the Contractor shall negotiate a fixed fee for force account Work performed pursuant to the Contract by his force and by his subcontractors. The City shall pay 10 percent of A as compensation for overhead and profit for the work performed. The Contractor shall proceed diligently with the performance of the force account Work to completion. The Contractor's fixed fee shall include an amount equal to the sum of 65 percent of A, which shall include, but not be limited to the following:

(1) Compensation for all costs paid to, or on behalf of, workmen by reason of subsistence and travel allowances, health and welfare benefits, pension fund benefits or other benefits that may be required by collective bargaining agreement or other employment contract generally applicable to the laborers employed in the Work; and

(2) Bond premiums, property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions and Social Security taxes on the force account Work. In addition, the Contractor's fixed fee may include an amount not to exceed 10 percent of B. unless specifically authorized by the Project Manager in advance of the Work; 5 percent of D., and 5 percent of E except for that portion chargeable to machinery and/or equipment as defined above.

**H. Compensation.** The compensation as set forth above shall be received by the Contractor as payment in full for change order work done on a force account basis. At the end of each day, the Contractor and the Project Manager shall compare records of the cost of work as ordered on a force account basis. Differences shall be immediately resolved, and any unresolved difference shall be brought to the attention of the Project Manager by written notice from the Contractor within two working days of the occurrence.

**I. Statements.** No payment will be made for any Work performed on a force account basis until the Contractor furnishes the Project Manager duplicate itemized statements of the cost of such force account Work detailed as to the following:

- (1) Name, classification, date, daily hours, total hours, rate, and extension for such workmen. Contractor shall provide certified payrolls;
- (2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment. Contractor shall provide original receipted invoices;
- (3) Quantities of materials, prices, and extensions. Contractor shall provide original receipted invoices; and
- (4) Transportation of materials. Contractor shall provide original receipted invoices.

If, however, the materials used in the force account Work are not specifically purchased for such Work but are taken from the Contractor's stock, then in lieu of the original invoices the statements shall contain or be accompanied by an affidavit of the Contractor which shall certify that such materials were taken from Contractor's stock and that the quantity claimed was actually used and that the price and transportation of the material as claimed represent actual cost. Any request for payment under this Section should be submitted in the order outlined by the above. The Contractor shall be responsible for all damages resulting from Work done on a force-account basis, the same as if such Work had been included in the original Contract. Work performed without previous written order by the Project Manager will not be paid. Notwithstanding the foregoing or any other provision of these general conditions or any one or more of the other Contract Documents to the contrary, Contractor shall only be compensated for Work actually performed and for materials and supplies actually installed or otherwise incorporated into the work, all such costs and expenses to be properly and sufficiently verified and substantiated by reliable documentation.

**56. ALLOWANCES** The parties acknowledge and agree that the Contract Sum includes the entire amount of all Project allowances. The expenditure of these allowances is to be at the Purchasing Manager's direction. However, the allowance expenditure is limited to items properly inferable from the title and description of the allowance. Unexpended balances are to be credited to the City. Compensation payable to the Contractor for expenditure of allowances directed by the Purchasing Manager shall be based on the cost to the Contractor as shown by actual invoices or receipts, and no additional overhead or profit shall be payable to the Contractor for any such allowances.

**57. PROGRESS PAYMENTS AND RETAINAGE** The Contractor shall submit a detailed application for payment on a monthly basis, preferable on an AIA G702 form (an "Application for Payment") to the Project Manager. Such Application for Payment, notarized, if required, must be accompanied by supporting data and documents substantiating the Contractor's right to payment and reflecting a retainage of five percent (5%) of the Contract Sum. Applications for Payment shall not include payment for equipment or materials

delivered to the site but not installed or for materials or equipment properly stored off-site unless specifically approved by the Project Manager in writing in advance. If such approval is granted, the Contractor must submit with the Application for Payment, bills of sale, or other such documentation satisfactory to the City to establish the City's title to such materials or equipment or otherwise to protect the City's interest, including applicable insurance and transportation to the site for materials and equipment stored off site. Such approvals are typically reserved for "big ticket" items that individually exceed five percent of the Contract Sum. The Contractor shall promptly pay each subcontractor and supplier for Work completed upon receipt of payment from the City the amount to which said subcontractor is entitled, reflecting any percentage retained from payments to the Contractor on account of each subcontractors Work. The Contractor shall, by an appropriate agreement with each subcontractor, require each subcontractor to make prompt payments to its subcontractors in a similar manner. The City shall be under no obligation to pay or to see to the payment of any moneys to any subcontractor except as may otherwise be required by Laws and Regulations. No certificate of payment or partial or entire use of the Work or Project by the City shall constitute an acceptance of any Work which is not in accordance with the Contract Documents.

Payments Withheld – The City may decline to certify payment or because of subsequently discovered evidence or observations, nullify the whole or any part of any certification of payment previously issued, as may be necessary to protect the City from loss because of: (1) defective Work not remedied, (2) third party claim filed or evidence indicating probable filing of such claim, (3) failure of the Contractor to make payments properly to subcontractors or suppliers, (4) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum, (5) reasonable evidence that the Work will not be completed within the Contract Time, (6) persistent failure to carry out the Work.

**58. FINAL PAYMENT REQUEST** Upon reaching Substantial Completion, as defined herein, the Contractor shall submit a written application for final payment. All supporting documentation and data shall be submitted with the request for final payment as is applicable to the monthly requests for payment referenced heretofore. Out of the amount representing the total of the final payment request the City shall deduct five) percent, which shall be in addition to any and all other amounts which, under the Contract, it is entitled or required to retain and shall hold said sum for a period of 120 days after the date of acceptance of the Work by the City. Within 30 days of the approval of the final payment request, the City will pay to the Contractor the amount remaining after deducting from the total amount of the final estimate all sums and amounts as have already been paid to the Contractor under the provision of the Contract and also such amounts as the City has reserved or retained and/or that the City may be authorized under the Contract to reserve or retain. Neither the final payment nor the remaining retainage shall become due until the Contractor submits to the Project Manager:

1. An affidavit that all payrolls, bills for materials and equipment and other indebtedness connected with the work for which the City or his property might in any way be responsible, have been paid;
2. Consent of surety to final payment;
3. If requested, data establishing payment or satisfaction of obligations, such as receipt, release and waivers of liens arising out of the Contract; and
4. All punch list items are completed to the satisfaction of the Project Manager.

If any subcontractor refuses to furnish a release or waiver of liens required by the City, the Contractor may furnish a bond satisfactory to the City to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorney fees. Acceptance by the Contractor of final payment (*i.e.*, final payment under the Contract except for retainage and other amounts otherwise withheld by the City) shall operate as a release of the City, the Mayor and the Council and every officer, employee, representative and agent thereof, from all claims and liabilities to the Contractor for anything done or furnished or relating to the Work under the Contract, except only for any surviving right to retainage or other amount(s) otherwise withheld by the City.

**59. RELEASE OF RETAINAGE** Upon the expiration of the 120 days succeeding the date of acceptance, the City will pay to the Contractor all sums reserved or retained, less such amount as it may be empowered under the provisions of the Contract or any of the Laws and Regulations to retain. Notwithstanding any provision of any of the Contract Documents to the contrary, the City and the Contractor agree to and shall abide by all provisions of the Maryland Little Miller Act, Md. Code Ann., State Fin. & Proc. § 17-101 *et seq.*, as and to the extent applicable, applying to retainage in connection with the Project.

**60. GUARANTEES / WARRANTIES** All guarantees and warranties required shall be furnished by the Contractor and shall be delivered to the Project Manager before final payment is made. The Contractor guarantees that the items conform to the Contract Documents.

**61. GUARANTEE PERIOD** Unless otherwise specified in the Invitation for Bid documents, the Contractor shall warrant and guarantee the Work required under the Contract for a period of 12 months from the date of final acceptance. The Contractor warrants and guarantees to the City that materials and equipment furnished under the Contract shall be of good quality and new unless otherwise required or permitted by the Contract Documents, that all Work will be in accordance with the Contract Documents, and that all Work will be of good quality, free from faults and defects. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the City, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. The Contractor's obligation to perform and complete the Work in a workmanlike manner, free from faults and defects and in accordance with the Contract Documents shall be absolute. The Contractor shall remedy, at its own expense, and without additional cost to the Owner, all defects arising from either workmanship or materials, as determined by the City, or City's representative. The obligations of the Contractor under this Paragraph shall not include normal wear and tear under normal usage. If the Contractor does not, within ten (10) days after notification from the Project Manager, signify his intention in writing or in action to correct work, as described above, then the Project Manager may proceed with the Work and charge the cost thereof to the account of the Contract as herein before provided.

**62. Substantial Completion; Final Completion.** "Substantial Completion" (including similar and like phrases, such as "substantially complete" and "substantially completed") and "Final Completion" (including similar and like phrases, such as "finally complete" and "finally completed") of the Project or the portion thereof shall have the meaning respectively ascribed to such terms in this Section 62. "Substantial Completion" means the Work and the Project have been substantially complete to permit utilization of the Project or the Work, or portion thereof, for its intended purpose with only agreed-to punch list items

remaining. Substantial completion requires not only that the Work be sufficiently completed to permit utilization, but that the City can *effectively* utilize the substantially completed Work. "Final Completion" means that the Work and the Project are finally, fully and completely installed and completed in accordance with the Contract Documents, with all punch list items having been finally and fully completed to the City's satisfaction and no outstanding item of Work or other Project obligation on the part of Contractor remains. Determination of substantial completion and final completion is solely at the discretion of the City and shall be determined and certified by the City in writing (for purposes of the Project, all Work, and all Contract Documents, a "Certificate of Substantial Completion" and a "Certificate of Final Completion", respectively). Substantial completion of all or any part of the project entitle the Contractor to acceptance under the contract. At such time as the Contractor believes it has substantially completed the Work and the Project and prior to requesting a final inspection, the Contractor shall make written request for an inspection for substantial completion. Such request shall be made no less than seven calendar days prior to the requested date of inspection. An inspection will be made by the City and a determination will be made as to whether or not the Work is in fact substantially complete. If the City determines that the Work and the Project are substantially complete, a "punch list" will be developed and agreed to in writing by the parties. "Punch Lists" generated by Contractor containing numerous items or items which may affect the intended use of the work will be considered cause to delay issuance by the City of a Certificate of Substantial Completion. Operation and Maintenance manuals shall be submitted and approved by the City prior to issuance of any Certificate of Substantial Completion.

**63. TRANSFER OF TITLE** The Contractor warrants that title to all work, materials and equipment covered by any Application for Payment will pass to the City either by incorporation in construction or upon the receipt of payment by the Contractor, free and clear of all liens, claims, interests or encumbrances, and that no Work, materials, or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any person performing the Work at the site or furnishing materials or equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person(s). Notwithstanding any provision hereof or of any one or more of the Contract Documents to the contrary, the City shall have all, full, sole and exclusive right, title and ownership of, in and to all aspects and components of the Work and the Project for which the City has remitted payment to the Contractor, immediately thereupon and free and clear of all liens, claims, interests and other encumbrances of all types and natures.

**64. USE OF PREMISES** Whenever, in the opinion of the Project Manager, any portion of the Work is completed or is in an acceptable condition for use, it shall be used for the purpose it was intended, however, such use shall not be held as acceptance of that portion of the Work, or as a waiver of any of the provisions of the Contract.

**65. DETERMINATION OF CITY'S LIABILITY** The acceptance by the Contractor of payment made as aforesaid in Sections 58 and 59 above shall operate as and be a release to the City, the Mayor, the Council and every officer and agent thereof, from all claims by and liabilities to the Contractor for anything done or furnished for or relating to or affecting the Work under the Contract.

**66. LIMITATIONS OF LIABILITY** The mention of any specific duty or liability of the Contractor in any part of the Specifications shall not be construed as a limitation or restriction upon any general or other liability or

duty imposed upon the Contractor. Except only as expressly set forth to the contrary elsewhere in the Contract Documents, the Contractor waives recovery of any and all punitive, special, indirect and consequential damages, including damages, losses and other injuries incurred by the Contractor for principal office expenses, including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of overhead and profit, from the City arising out of, relating to or connected with, whether in whole or in part, the Contract, the Work and/or the Project, and Contractor hereby agrees not to seek any of the same from the City. Said waiver is applicable to all punitive, special, indirect, and consequential damages in any way related to the City's termination in accordance with any provision of the Contract or as otherwise authorized by any one or more of the Laws and Regulations. Notwithstanding the foregoing, Contractor does not waive damages arising out of bodily injury to any Person or damage to any property caused by or resulting from the sole negligence of the City or its agents or employees.

**67. PRESERVATION OF MONUMENTS AND TREES** The Contractor shall be responsible for the preservation of all public and private property, trees, monuments, highway signs, markers, fences, and curbs or other appurtenances, and shall use every precaution to prevent damage or injury thereto. Any expense necessary to provide adequate protection, whether such designated item be on or off the right-of-way, shall be assumed by the Contractor.

**68. PUBLIC ACCESS** The Contractor shall at all times conduct the Work in such a manner as to ensure the least obstruction to traffic practicable. The convenience and safety of the general public and the residents along the improvement and anywhere near the Project site shall be provided for by Contractor in an adequate and satisfactory manner. Fire hydrants shall be kept accessible to fire apparatus at all times. Handicap access shall remain accessible. Contractor hereby acknowledges and agrees that the Project site is part of a greater public space which is frequented by members of the public on a regular basis for various reasons and uses, and Contractor shall take all necessary and advisable precautions to and for such persons, reasons and uses.

**69. HAZARDOUS AND TOXIC SUBSTANCES** Manufacturers and distributors are required by Federal "Hazard Communication" provision (29 CFR 1910.1200), and the Maryland "Access to Information About Hazardous and Toxic Substances" law to label each hazardous material or chemical container, and to provide Material Safety Data Sheets to the purchaser. The Contractor must comply with these laws and must provide the City with copies of all relevant documents, including Material Safety Data Sheets, prior to performance of services or contemporaneous with the delivery of goods. Further, Contractor shall at all times during or in connection with performance of the Work or the Project observe and follow (and require all subcontractors and all other persons whatsoever to observe and follow) all applicable local, county, state, federal and other laws, statutes, rules, orders, regulations, codes, ordinances, bylaws, orders, requirements and the like governing or addressing in any manner any one or more substances, materials or things which are or may be dangerous or harmful to health and/or the environment or that have otherwise been deemed hazardous, toxic or dangerous (including potentially so) (each a "Hazardous Substance"). Contractor shall be solely responsible for full compliance with all applicable Laws and Regulations governing or otherwise addressing any Hazardous Substance in connection with any aspect of the Project.

**70. MAINTENANCE OF VEHICULAR TRAFFIC** If applicable and unless otherwise directed by the Project Manager, traffic must be maintained on all roadways within the construction area continuously or with the least amount of interruption during the construction period necessary to minimize accidents and accident severity and maintain safety while at the same time minimizing inconvenience to the traveling public and the Contractor. The Project Manager shall have the exclusive right to order a road to be closed or to remain open. No equipment will be stored or permitted to stand within the limits of the roadway right-of-way where traffic must be maintained. Any earth or other object dropped on the surface of the existing road shall be removed immediately to avoid possible hazardous conditions. The Contractor shall prepare and submit a Traffic Control Plan ("TCP") for the Project Manager's review, revision, and approval, at least ten days before beginning Work, unless otherwise directed. All Traffic Control Devices shall be in accordance with the Manual on Uniform Traffic Control Devices ("MUTCD"), latest edition (and all revisions). With the approved TCP implemented, the Contractor will be permitted to work with the following provisions:

- (a) Traffic Lanes; General. All traffic lanes must be restored by Contractor at the end of each day unless specifically authorized otherwise, in advance in writing, by the Project Manager. The City reserves the right to modify or expand on the methods of traffic control specified and to restrict working hours if, in the opinion of the Project Manager, the Contractor's operations are a detriment to traffic during rush hour periods.
- (b) Signage. Signs on fixed supports shall be mounted on two posts. Signs mounted on portable supports are suitable for temporary conditions. During periods of partial shutdown, or extended periods when no Work is being performed, the Contractor shall remove or adequately cover all construction signs as directed by the Project Manager. The Contractor shall be responsible for removing, storing, covering, and resetting all existing traffic signs and delineators that become inapplicable and will confuse traffic during the various stages of construction, the cost of which is included in the Contract Sum and it shall be accomplished by Contractor at no additional compensation, as incidental to the Contract. Any signs lost or damaged will be replaced by the Contractor at its expense. The Contractor shall provide, maintain in new condition, and move when necessary or directed all traffic control devices used for the guidance and protection of vehicles. The Contractor shall be responsible for providing the appropriate signs to reflect varying traffic patterns prior to the commencement of a new stage of construction. Traffic must be safely maintained at all times throughout the entire length of the Project. No additional compensation shall be paid to the Contractor for traffic maintenance, even if the Contract Time exceeds the contractually specified completion date or working days. When required lane shifts are implemented, existing painted lane markings no longer applicable shall be removed by Contractor to the satisfaction of the Project Manager.
- (c) Crash Cushions. Temporary crash cushions are to be installed as shown on the Plans. Unless otherwise specified, sand containers shall be used. The crash cushions shall conform to Subsection 104.10 of the MDSHA Specifications. Crash cushions shall be reset to reflect changing traffic patterns caused by different stages of Traffic Control. The crash cushions shall be reset at locations shown on the Plans or as directed by the Project Manager. Should any of the sand container

components be damaged during the resetting of the system or during the course of the Project, the Contractor shall replace the damaged components at its own expense.

- (d) Flaggers; Traffic Control. The Contractor shall have flaggers on the Project for the purpose of controlling traffic while maneuvering heavy equipment. This may require a temporary lane closure in any of the specified Traffic Control Phases. These temporary lane shutdowns shall be kept to a minimum and the normal traffic pattern for the Traffic Phase shall be restored as quickly as possible. The Contractor shall comply with Section B-20 of the MUTCD regarding flagger signing. Prior to stopping Work each day the Contractor will be required to reshape all graded areas and eliminate all drop-offs not protected by barriers by filling with compacted stone at maximum of 8:1 slope. All barriers and barricades shall be adequately illuminated at night, as specified herein or elsewhere in the Contract Documents, and all lights for this purpose shall be kept operative from sunset to sunrise. No Work shall be commenced in any stage of construction until the barriers and barricades for that stage, indicated on the Plans, or as specified by the Project Manager, are completely in place. The Contractor will be solely responsible for all accidents and damages to any persons and property resulting from its operations. Compliance with prescribed precautions contained herein, elsewhere in the Contract Documents or in the MDSHA Specifications or Manual on Uniform Traffic and Control shall not relieve the Contractor of its primary responsibility to take all necessary measures to protect and safeguard the Work, nor relieve the Contractor from any responsibilities prescribed by GP-7 of the January 2001 MDSHA Standard Specifications for Construction and Materials. The Contractor shall notify and obtain approval in writing from the Project Manager at least 48 hours before changing any Traffic Control Phase. Any construction materials or debris dropped on the roadway surface shall be removed immediately to avoid possible hazardous conditions.
- (e) Materials. The Contractor shall provide, maintain in first class condition, replace, and move when necessary or directed all materials, devices, flagging, etc., required to maintain traffic in accordance with the Traffic Control Plans or as directed by the Project Manager. Reference is made to the latest edition of the MUTCD, wherein all such items are fully described with regard to use, application, warranties, size, color and placement, and wherein typical traffic control device layouts are shown, as all such devices and techniques planned for use on the Project shall strictly conform to the Manual's requirements except as noted on the Plans. When any of the following items have been established on the Plans or as directed by the Project Manager, the Specifications will be adhered to in accordance with the respective sections.
- (f) Lights; Warnings. All banners and imitation barrels shall be adequately illuminated at night, and all lights for this purpose shall be kept operative from sunset to sunrise. Steady burning warning lights shall be used to delineate channelization through and around obstructions in a construction or maintenance area, on detour curves, on lane closures, and in other similar conditions (MUTCD 6E-4, 6E-5). Flashing warning lights shall be the means for identifying a particular and individual hazard and shall not be used in sequence, in clusters, or for delineation (MUTCD: 6E-5, 6E-6). Where noted on the Plans the first two (2) warning signs shall include a "High Level Warning Device." In addition to the flags the signs shall also be equipped with a Type "B" High Intensity Flag Warning Light. This device must meet the requirements of MUTCD 6C-11 and 6E-5. The device



is included in the Contract Sum and shall be considered incidental, and no special compensation will be paid.

- (g) Barriers. Temporary concrete barriers shall be installed on the roadway approaches as shown on the Plans or as approved in writing. Any permanent facilities damaged as a result of anchoring temporary concrete barriers (anchor holes, etc.) shall be repaired to the satisfaction of the Project Manager using an epoxy grout or other material as may be specified by the Project Manager. Epoxy grout shall consist of sand and epoxy, mixed by volume according to manufacturer's recommendations.
- (h) Method of Measurement and Basis of Payment. All work and materials required under the TCP are included in the Contract Sum and Contractor agrees that there will be no special compensation paid for maintenance of vehicular traffic as described above and the cost shall be considered incidental to the Contract and included in the Contract Sum.

**71. PARKING, STORAGE AND STAGING AREAS** Parking, storage, and staging areas for the Contractor's use during the Project must have prior written approval of the Project Manager. All areas used for storage of equipment or material shall be restored to their original condition, immediately upon completion of the Work. No additional compensation will be provided for restoring, re-grading, placement of topsoil, and seed and mulch in these areas.

**72. PEDESTRIAN TRAFFIC** Pedestrians shall be safeguarded by the use of signs, lights, barricades and barriers as shown on the traffic control plan and/or directed by the Project Manager. Pedestrian traffic shall be maintained by Contractor at all times unless specifically authorized otherwise, in advance in writing, by the Project Manager. The Contractor shall submit a pedestrian traffic safety plan in accordance with the MUTCD, incorporating safety measures and other provisions to fully implement the intent of this paragraph. All work and materials required to prepare and implement the pedestrian traffic safety plan are included in the Contract Sum and shall be considered incidental to the Contract and there shall be no special compensation paid for this item. No additional compensation shall be paid for maintenance of vehicular and pedestrian traffic if for whatever reason the Project time extends beyond the Contract-specified completion date or working days.

**73. ADA ACCESS** Where ADA access exists within the line of work under the Contract, it will be the Contractor's responsibility to maintain said access during the life of the Contract. This service is included in the Contract Sum and is considered to be incidental to the Contract and no special compensation will be paid for this service.

**74. TOILET FACILITIES** Toilet facilities meeting MOSHA standards shall be provided at the job site. All costs and expenses thereof are included in the Contract Sum. No special compensation shall be paid therefor.

**75. STAKEOUT-CONSTRUCTION CONTROL** Survey construction control provided by the City shall be limited to the baseline with stations not over 100 feet, and the elevation of the top of each marked point. P.C.s, P.T.s, P.I.s, P.V.T.s, and at least one point on the tangent beyond the end of each curve will be staked. The Contractor shall request baseline stakeout a minimum of five days in advance of construction. Stakeout

data other than stated above will be furnished by the construction Contractor per MDSHA Section 815 for structures, otherwise per WSSC specs. section 01000(H) and as described in detail below and in any one or more of the other Contract Documents. The City's responsibility for stakeout for the entire Project shall be limited to that data described above and this shall be provided only once. The Contractor shall preserve or otherwise ensure adequate survey controls exist throughout the life of the Contract.

Surveys and stakeout shall be accomplished by the Contractor as outlined above and in conformance with WSSC specifications Section 01000-10-I I(H), entitled "Construction Stakeout By Contractor." The provisions therein are primarily for pipeline stakeout. The Contractor's responsibilities under the Contract are hereby expanded to include, in addition to pipeline stakeout, similar responsibilities for all phases of stakeout necessary to construct all facilities, systems and other improvements under the Contract including but not limited to clearing and grubbing excavation, pavement, curbs and gutters, storm drainage pipes and facilities, culverts, structures, storm water management facilities, street lights, traffic signal conduits and components, noise walls, retaining walls, ditches and sediment control features. The stakeout and survey record data shall be preserved and turned over to the City for filing following completion of specific components of Work.

Method of Measurement and Payment Generally: stakeout is included in the Contract Sum and shall be considered incidental to the Contract and no special compensation shall be paid therefor. Where payment is provided, progress payments for stakeout shall be made based on the percentage resulting from the price bid for stakeout divided by the total bid, multiplied by the monthly payment exclusive of the stakeout payment, except the final payment shall be adjusted as necessary to equal the total price bid for stakeout.

Grade Sheet by Contractor: Grade sheets showing hub and design elevations for roadway, water mains, drainage structures and piping, walks, lights, infiltration facilities clearing/grubbing, excavation, and related components will be provided by the Contractor at least 8 hours in advance of construction and will be subject to approval by the Project Manager. Stakeout for curb and gutter in all vertical and horizontal curves is to be at intervals of 25 feet or less unless otherwise specifically authorized by the Project Manager. This Work is considered incidental to the Contract and no extra compensation will be paid.

**76. DEBRIS** Under no circumstance will any open fires be permitted within the City of Rockville. All debris will be removed and hauled from site (except when otherwise specifically authorized in the bid document) and disposed in accordance with all applicable Laws and Regulations. No special compensation will be paid as all costs for off-site disposal are included in the Contract Sum and shall be considered incidental to the Contract.

**77. CLEAN UP** In addition to any provisions regarding clean up in any one or more of the other Contract Documents, clean up, including the restoration of areas of construction, shall proceed as quickly as is practicable. The period between construction and final clean up shall normally not exceed one week. If at any time during the course of the Work the cleaning operation in any given area becomes delinquent in the opinion of the Project Manager, the Project Manager may order that construction be stopped until such cleaning is completed. Any such order shall not extend the Final Completion date under the Contract. Unless otherwise indicated, all materials razed, demolished, or otherwise removed from the Work site shall become the property of the Contractor and shall be disposed of legally and properly off site by

Contractor at its expense. Upon Final Completion of the Work and before acceptance and final payment shall be made, the Contractor shall clean and remove from the street, footways, lawns, and adjacent property, all surplus and discarded materials, rubbish and temporary structures, restore in an acceptable manner all property, both public and private, which has been damaged during the prosecution of the Work, and shall leave the Work area in a neat and presentable condition throughout the entire length of the project under contract. Notwithstanding the foregoing, Contractor shall keep the Work area in a neat and presentable condition at all times during the Project. If the Contractor fails to clean up at Final Completion of the Work or at any other time, the City may do so for and on behalf of Contractor and the cost thereof shall be charged to the Contractor.

**78. SEVERABILITY** If any clause, provision, paragraph, subsection, Section or Article of the Agreement or these General Conditions shall be ruled invalid by any court of competent jurisdiction or other tribunal having jurisdiction, then the parties shall: (i) promptly negotiate a substitute for such clause, provision, paragraph, subsection, Section or Article which shall, to the greatest extent legally permissible, effectuate the intent of the parties in the invalid clause, provision, paragraph, subsection, Section or Article; (ii) if necessary or desirable to accomplish item (i) above, apply to the court or other tribunal having declared such invalidity for a judicial construction of the invalidated portion hereof or thereof, as the case may be; and (iii) negotiate such changes, in substitution for or addition to the remaining provisions hereof or thereof, as the case may be, as may be necessary in addition to and in conjunction with items (i) and (ii) above to effect the intent of the parties in the invalid provision. The invalidity of such clause, provision, paragraph, subsection, Section or Article shall not affect any of the remaining provisions hereof or of the Agreement, and the Agreement and these General Conditions shall be construed and enforced as if such invalid portion did not exist.

**79. CITY'S CONSENT, APPROVAL AND DETERMINATION** For all purposes of the Work, the Project and the Contract Documents, in any and all cases and instances in which the City may or is required to approve, consent, opine, accept or otherwise make any decision, choice or determination, including any determination of satisfaction, the City may do so in each instance at the City's sole, absolute and unfettered discretion, notwithstanding any other provision hereof or thereof to the contrary. Without limiting the generality of the foregoing, the parties agree there shall be no implied or constructive acceptance with respect to any portion of the Work or the Project. For purposes of this Section 79, "City" includes the Architect, Project Manager, the City Council, the Mayor and all other officers, employees, agents and representatives of the City.

**80. CONTRACTOR'S INSURANCE** Prior to the Effective Date, the Contractor must obtain at its own cost and expense and keep in force and effect during the duration of the Work and the Project including all extensions, as well as beyond Final Completion as and to the extent required by any of the Contract Documents, the following insurance with an insurance company/companies licensed to do business in the State of Maryland evidenced by a certificate of insurance and/or copies of the insurance policies. The Contractor's insurance shall be primary. The Contractor must electronically submit to the Purchasing Division a certificate of insurance prior to the start of any Work. In no event may the insurance coverage be less than shown below or otherwise required by any of the Contract Documents. Contractor shall so obtain and maintain insurance as follows:

Type of Insurance	Amounts of Insurance	Endorsements and Provisions
<b>1. Workers' Compensation</b> <b>2. Employers' Liability</b>	Bodily Injury by Accident: \$100,000 each accident  Bodily Injury by Disease: \$500,000 policy limits  Bodily Injury by Disease: \$100,000 each employee	Waiver of Subrogation: <b>WC 00 03 13 Waiver of Our Rights to Recover From Others Endorsement signed and dated.</b>
<b>3. Commercial General Liability</b>  a. Bodily Injury b. Property Damage c. Contractual Liability d. Premise/Operations e. Independent Contractors f. Products/Completed Operations g. Personal Injury	Each Occurrence: \$1,000,000	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage. <b>CG 20 37 07 04 and CG 20 10 07 04 forms to be both signed and dated.</b>
<b>4. Automobile Liability</b>  a. All Owned Autos b. Hired Autos c. Non-Owned Autos	Combined Single Limit for Bodily Injury and Property Damage - (each accident): \$1,000,000	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage. <b>Form CA20 48 02 99 form to be both signed and dated.</b>
<b>5. Excess/Umbrella Liability</b>	Each Occurrence/Aggregate: \$1,000,000	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage.
<b>6. Builders Risk Insurance</b>	Coverage limits equivalent to the amount of the construction materials, equipment and property.	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage.

Alternative and/or additional insurance requirements, when outlined under the Special Provisions, shall take precedence over the above requirements in part or in full as described therein.

Contractor's insurance coverage shall be primary insurance as respects the City, its elected and appointed officials, officers, consultants, agents and employees, and any insurance or self-insurance maintained by the City shall be excess of the Contractor's insurance and shall not be called upon to contribute with it.

No change, cancellation or non-renewal shall be made or allowed in or for any insurance coverage without a thirty (30) day prior written notice to the City Purchasing Division in each instance. The Contractor shall electronically furnish a new certificate prior to any change or cancellation date. The failure of the Contractor to deliver a new and valid certificate will result in suspension of all payments and cessation of on-site work activities until a new certificate is furnished.

The Mayor and Council and the City's elected and appointed officials, officers, consultants, agents, and employees must be named as an additional insured on the Contractor's Commercial and Excess/Umbrella Insurance for liability arising out of Contractor's products, goods and/or work or services provided under the Contract. Additionally, the Mayor and Council must be named as additional insured on the Contractor's Automobile and General Liability Policies. Endorsements reflecting the Mayor, Council and all others as an additional insured are required to be submitted with the insurance certificate.

For all of Contractor's insurance, the certificate holder shall be the Mayor and the Council shown as follows:

**CERTIFICATE HOLDER**

The Mayor and Council of Rockville

(Contract #, title)

City Hall

111 Maryland Avenue

Rockville, MD 20850

**81. SUBCONTRACTORS' INSURANCE** Contractor agrees that all of its subcontractors and consultants and all other parties performing any aspect or component of the Work or the Project for or on behalf of Contractor shall obtain and maintain the same insurance as required of Contractor in Section 80 above and shall otherwise comply in full with all provisions thereof and all of the other Contract Documents respecting insurance. In addition, Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All insurance coverages for Contractor's subcontractors and consultants and all other parties performing any aspect or component of the Work or the Project for or on behalf of Contractor shall be subject to all the requirements stated herein and/or elsewhere in the Contract Documents, including those applicable to insurance.

**82. UNCONTROLLABLE CIRCUMSTANCES**

- (a) Definition. For purposes of the Contract and all Contract Documents, "Uncontrollable Circumstances" (each, an "Uncontrollable Circumstance") means any act, event or condition that is beyond the reasonable control of the party relying thereon as justification for not performing an obligation required of such party hereunder and that materially interferes with or materially increases the cost or time required for performing its obligations hereunder (other than payment or other monetary obligations) to the extent such act, event or condition is not the result of any error, act, omission, negligence, failure to exercise reasonable diligence, willful misconduct, or breach of the Contract by or on the part of such party. The provisions of this Section 82 shall supersede and govern and control over any contrary provision elsewhere in any of the other Contract Documents.
- (b) Inclusions. Subject to the foregoing provisions of Section 82(a) and the below provisions of Section 82(c), Uncontrollable Circumstances shall include the following:
  - (i) A change in the Laws and Regulations;
  - (ii) Naturally occurring events (but not including reasonably anticipated weather conditions) for the City of Rockville, MD geographic area, such as landslides, underground movement, hurricanes, earthquakes, fires, tornadoes, floods, epidemics, pandemics, lightning strikes, and other natural occurrences;
  - (iii) Explosion, sabotage, or similar occurrence, acts of a declared public enemy, war, terrorism, blockade or insurrection, riot or civil disturbance; and

- (iv) Strikes in the State of Maryland or nationwide; provided, however, that in the case of Contractor such strike must make the particular goods or services in question effectively unavailable to Contractor.
- (c) Exclusions. The City and Contractor agree that none of the following acts, events or circumstances shall constitute an Uncontrollable Circumstance, notwithstanding the provisions of Sections 82(a) or (b) above:
- (i) Any act, event or circumstance to the extent it would not have occurred if the affected party had complied with its obligations under or in connection with the Contract;
  - (ii) A change in interest rates, inflation rates, wage rates, insurance costs, commodity prices, currency values, exchange rates or other general economic conditions;
  - (iii) A change in the financial condition of the City, the Contractor, or any subcontractor, consultant or other party, person, individual or entity affecting any party's ability to perform its respective obligations in connection with the Project;
  - (iv) Any consequence of error, neglect or omission by the Contractor in the performance of any aspect of the Project;
  - (v) The failure of the Contractor to secure any one or more of the permits, licenses, consents, authorizations or other approvals necessary or advisable for the performance of any aspect of the Project;
  - (vi) Any reasonably anticipated weather condition for the Rockville, MD geographic area;
  - (vii) Any labor or other dispute involving one (1) or more employees of the Contractor or any of the Project subcontractors or consultants;
  - (viii) Any union or labor rule, requirement or demand having the effect of increasing the number of employees employed at the Project or otherwise increasing the cost or burden to the Contractor of performing any aspect of the Project;
  - (ix) The failure of any subcontractor or supplier to furnish any labor, material, service or equipment for any reason other than for an act or event expressly listed in Section 82(b) above as an Uncontrollable Circumstance;
  - (x) Any increase for any reason in premiums charged by the Contractor's insurer(s) or the insurance market generally for any of the insurance policies required by the Contract;
  - (xi) Any impact of prevailing wages, laws, or rates on one (1) or more of Contractor's costs or expenses with respect to wages and/or benefits; and
  - (xii) Any change in the Laws and Regulations pertaining to income taxes or otherwise monetarily affecting Contractor.
- (d) Relief from Obligations. Except as provided elsewhere in the Contract Documents to the contrary, neither the City nor the Contractor shall be liable to the other for any loss, damage, delay, default, or failure to perform any obligation under the Contract to the extent it results directly and wholly from an Uncontrollable Circumstance, provided the Party seeking to rely thereupon for nonperformance timely complies with all provisions of this Section 82. The City and Contractor agree that the relief for an Uncontrollable Circumstance described in this Section 82 shall apply to all obligations in the Contract, except that, notwithstanding the foregoing or any other provision of this Contract to the contrary, no occurrence of an

Uncontrollable Circumstance shall excuse or delay (i) the performance of a party's obligation to pay monies due and owing under this Contract, nor (ii) the performance of any obligation not directly affected by the occurrence of the Uncontrollable Circumstance.

- (e) Notice and Mitigation. The party relying upon the occurrence of an Uncontrollable Circumstance shall notify the other party by electronic mail as soon as practicable once the party experiencing such Uncontrollable Circumstance first knew or should have known of the occurrence thereof, followed by written notice delivered to the other party within 15 days of said email notice, which subsequent written notice shall detail: (i) the Uncontrollable Circumstance and the cause thereof (to the extent known); (ii) the date the Uncontrollable Circumstance began, its estimated duration, and the estimated period during which the performance of such Party's obligations hereunder shall be delayed or otherwise affected; (iii) its estimated impact on the other obligations of such party under the Contract; and (iv) reasonable mitigating action(s) which the party relying thereupon shall take in response thereto. The affected party shall also provide prompt written notice to the other party of the cessation of such Uncontrollable Circumstance. Whenever an Uncontrollable Circumstance shall occur, the Party claiming to be adversely affected thereby shall, as promptly as practicable, use all reasonable efforts to eliminate the cause thereof and to otherwise resume performance under the Contract. Further, while any Uncontrollable Circumstance continues, the party relying thereupon for nonperformance shall give notice to the other party before the first day of each succeeding month updating the information previously submitted by way of electronic or other notice. The party relying upon an Uncontrollable Circumstance shall bear the burden of proof and shall furnish promptly any additional documents and other information relating to the Uncontrollable Circumstance reasonably requested by the other party.
- (f) Schedule Relief. If and to the extent that an Uncontrollable Circumstance does or will delay Contractor's performance of any aspect of the Project or the Work, Contractor shall be entitled to a reasonable and appropriate extension of the Project schedule which properly reflects the interference with performance or the time lost as a result of the Uncontrollable Circumstance, and the Contractor shall perform all other Work without delay. In the event Contractor believes it is entitled to such Project schedule relief on account of any Uncontrollable Circumstance, Contractor shall expressly state the same in the email notice and subsequent written notice discussed in Section 82(e) above. Within 30 days of its receipt of such subsequent written notice from the Contractor, the City shall issue to Contractor a written determination as to the extent, if any, it concurs with the Contractor's claim for Project schedule relief.
- (g) Acceptance of Relief Constitutes Release. The Contractor's acceptance of any schedule relief in connection with an Uncontrollable Circumstance shall be deemed a full release of the City by the Contractor (as well as all persons claiming by, through or under the Contractor) from any and all losses, costs, expenses, damages, recoveries, remedies, and liabilities resulting from, connected with or otherwise attributable to, the event giving rise to the relief claimed.

**83. CONSTRUCTION** The various headings and captions to sections, subsections, paragraphs other provisions and parts of these General Conditions and those of the other Contract Documents are inserted for convenience, are not a part hereof or thereof, and shall not be used in the interpretation hereof or thereof. For all purposes of all Contract Documents, “including” means “including without implied limitation”, unless a different meaning is clearly intended. Further, there shall be no limitation implied with respect to any of the provisions of any of the Contract Documents. Notwithstanding any rule or legal principal to the contrary, no one or more of the Contract Documents nor any provision therein shall be read more favorably for or against any particular party by reason of the fact that such party or its representative(s) may have drafted the instrument or provision in question.

**84. BINDING EFFECT; RELATIONSHIP OF PARTIES; NO THIRD-PARTY BENEFICIARIES**

All Contract Documents are binding upon and inure to the benefit of the City and the Contractor, as well as their respective successors, permitted assigns, and legal representatives. There are no third-party beneficiaries of any of the Contract Documents whatsoever, notwithstanding anything to the contrary contained in any one or more of the same. Notwithstanding the foregoing, any one or more persons or parties associated with the City that are benefitted by any indemnification, defense or hold-harmless provisions hereof or of any of the other Contract Documents may enforce same fully as, if and when applicable, although no such enforcement or any other act or omission by any or such persons or parties shall expose such persons or parties to any liability or obligation whatsoever under or in connection with this Contract at any time. Notwithstanding anything to the contrary contained in elsewhere in any of the other Contract Documents, the City and Contractor are arm’s length contracting parties only for all purposes of the Project and the Contract, and no other association, such as a partnership, joint venture, or other relationship, is established or exists between them.

**85. SURVIVAL** All indemnification, defense and hold-harmless obligations set forth in any of the Contract Documents or otherwise associated with the Work or the Project, in whole or in part, shall survive the expiration or earlier termination of the Contract. Further, the following shall survive the expiration or earlier termination of the Contract: (i) all respective covenants, obligations and other liabilities of the parties that per the terms hereof or of any one (1) or more of the other Contract Documents expressly survive expiration or earlier termination of the Contract; and (ii) all respective covenants, obligations and other liabilities of the parties designed and/or intended to survive the expiration or termination of the Contract, although such design or intent is not expressly stated. The provisions of this Section 85 shall operate notwithstanding anything to the contrary contained herein or in any of the other Contract Documents to the contrary.

**86. CONTRACTOR’S COMPLIANCE, GENERALLY** For the avoidance of doubt, Contractor shall abide by and shall cause all its subcontractors and consultants, as well as all other persons and parties performing any portion of the Work by, on behalf of or at the direction of Contractor, all terms, provisions and conditions set forth in the Contract Documents, timely, fully and completely in accordance with the provisions thereof. Without limiting the generality of the foregoing, Contractor shall follow all Specifications, Plans and Drawings, shall comply with all Laws and Regulations in connection with the Work and the Project, and shall otherwise perform and complete all Work and the Project in accordance with all Contract Documents.



**87. STANDARD OF PERFORMANCE; LICENSURE** The Contractor agrees that all Work and all components of the Project performed by itself or any other person, individual, party or entity shall at all times be performed in accordance with all Laws and Regulations and the following professional standard: All such Work shall be performed consistent with the professional skill and care ordinarily provided by prudent and professional contractors practicing in the same or similar locality under the same or similar circumstances. The Contractor shall perform all Work and shall ensure all Work performed by any other person, individual, party or entity shall be performed as expeditiously as is consistent with such professional skill and care and the orderly progress of the Work and the Project. The Contractor shall staff its office(s) with sufficient personnel and shall otherwise take all actions in order to perform the covenants under or in connection with the Contract in a prompt and continuous manner. Contractor further agrees to ensure that all Work and other aspects and components of the Project required to be provided by certain licensed, registered, authorized, or otherwise qualified persons shall be performed only by persons fully licensed, registered, authorized and otherwise qualified to perform same, at all times in full compliance with all Laws and Regulations.

**88. STATUTE OF REPOSE.** To the extent applicable to the Project and required by any one (1) or more of the Laws and Regulations, the City shall not seek contribution or indemnity from Contractor for damages incurred for a claim, action or demand for wrongful death, personal injury or injury to real or personal property resulting from the defective and unsafe condition of an improvement to the real property of which the Project is a part occurring more than ten (10) years after the date the entire Work and Project first became available for their intended use. Application of this Section 1 shall be governed and limited by, as well as construed in accordance with, the provisions of applicable Laws and Regulations, the rights, remedies, and relief of and available to the City being restricted only as required thereby. For purposes of this Section 1, the meaning of "Laws and Regulations" is expanded to include all binding precedential case law of the State of Maryland and of the United States.

**89. MARYLAND PUBLIC INFORMATION ACT.** Contractor acknowledges and agrees that the City is subject to and must comply with the State of Maryland's Public Information Act, Annotated Code of Maryland, Chapter 698, Title 4 of the General Provisions Article (the "PIA"). Contractor accordingly agrees that the City may disclose any and all materials, documents and other things, including photographs, photostats, films, microfilms, recordings, tapes, computerized records, communications, maps, drawings and any copy of a public record, subject to the PIA if requested, unless covered by one (1) or more exceptions to disclosure per the PIA. To the extent legally permissible, the City shall notify Contractor of any imminent disclosure of materials Contractor has delivered to the City labeled "Confidential" to afford Contractor a chance to seek judicial protection from disclosure thereof.

**90. DISPUTE RESOLUTION; VENUE; JURISDICTION; CERTAIN WAIVERS** Disputes regarding changes in and interpretations of the terms or scope of the Contract and denials of or failures to act upon claims for payment for extra work or materials or otherwise arising out of, related to or connected with the Project, the relationship of the Parties in connection therewith, and/or the Contract or any one or more of the other Contract Documents shall be solely and exclusively initiated, filed, tried and maintained in the state court located in Montgomery County, Maryland. The parties each expressly and irrevocably (i) waive any and all rights otherwise provided by any applicable law or legal rule or principle to remove the matter to any other state venue or to a federal venue, (ii) consent to the jurisdiction of such state courts in any such

legal proceeding, (iii) waive any objection such party may have to the laying of the jurisdiction of any such legal proceeding, and (iv) waive its right to a trial by jury.

**Exhibit D**

Contractor's Proposal/Bid

## APPENDIX A SITE PLAN AERIAL




### Rockville Swim and Fitness Center, 355 Martins Lane, Rockville MD 20850 Outdoor Recreation Pool





A. Approximate project limits within yellow. See Construction Drawings for details.





**Site Furnishing Add Alternate Product Listing**

All Brand Names are listed as basis of design and other “equals” may be submitted for approval as described in the Technical Specifications. The City reserves the right to purchase from the Construction Contractor any item(s) in any quantity for the unit cost provided as part of the bid package. Contractor is responsible for delivery and assembly where required. The City may, in its sole discretion decide to seek products (same or differing items) from a separate vendor.

Item	Approximate Quantity	Unit Cost	Extended Cost for Quantity Listed
Small Picnic Table (with umbrella mount) <a href="#">Wabash Valley 46" Square Picnic Table Signature Collection</a> Colors TBD 	12 tables	\$_____	\$_____
Small Picnic Table - ADA (with umbrella mount) <a href="#">Wabash Valley 46" x 55" Square Picnic Table Signature Collection</a> Colors TBD 	3 tables	\$_____	\$_____
Umbrella for Picnic Tables <a href="#">Wabash Valley Market One Pole Umbrella (manual opening)</a> Note: Must mount to tables above. Colors TBD 	4 umbrellas	\$_____	\$_____
Large Picnic Table – ADA <a href="#">Wabash Valley 8' ADA Accessible Signature Collection</a> Colors TBD	9 tables	\$_____	\$_____

			
<p>Chaise Lounge  <a href="#">Florida Patio Furniture Strap Chaise Lounge C-150 (1" round aluminum frame with 2" double wrapped vinyl straps)</a>            Colors TBD</p> 	72 chairs	\$ _____	\$ _____
<p>Sand Chairs  <a href="#">Florida Patio Furniture Strap Sand Chair C-40 (1" round aluminum frame with 2" double wrapped vinyl straps)</a>            Colors TBD</p> 	40 chairs	\$ _____	\$ _____
<p>Dining (Upright) Chairs  <a href="#">Florida Patio Furniture Strap Dining Chair C-50 (1" round aluminum frame with 2" double wrapped vinyl straps)</a>            Colors TBD</p> 	98 chairs	\$ _____	\$ _____
<p>In-Water Chaise Lounge  <a href="#">Ledge Loungers Signature Chaise for water depth more than 9"</a>            Colors TBD</p>	6 chairs	\$ _____	\$ _____

			
<p>Trash and Recycling Receptables</p> <p><a href="#">Belson Outdoors KC42-WT Polyethylene 42 Gallon Round Receptacle w/Liner &amp; Two-Way Waste Top</a></p> <p>Colors TBD</p> 	10 units	\$ _____	\$ _____
<p><b>GRAND TOTAL (for all items and quantities listed)</b></p> <p>The City reserves the right to purchase from the Construction Contractor any item(s) in any quantity for the unit cost provided as part of the bid package.</p>			\$ _____




## APPENDIX C

# Fiscal Year 2024 Capital Improvements Program Budget


## Page for Project RC18 – Outdoor Recreation Pool Renovations

*Note: The budgetary amounts listed on this page include all anticipated costs for the project, some of which are outside the scope of this IFB and will be procured through separate processes as the City deems fit.*



City of Rockville, Maryland  
 FY 2024 Adopted Budget

### Outdoor Recreation Pool Renovations (RC18)



**Description:** This project funds major renovations and improvements to the outdoor recreation pool, tot pool, sprayground, outdoor pool filter room, overhead pool lights, and surrounding deck areas. Funding includes replacing the existing water slide tower and flume, built in 1989, as the structures are at the end of their lifecycle and will soon be unsafe.

**Changes from Previous Year:** Timeline shifted to allow for community outreach, architectural/engineering design in FY 2023-2024, construction procurement to commence in FY 2024, and construction to begin in FY 2025. Additional funding was added based on final design and cost estimates.

Recreation and Parks

**Current Project Appropriations**

Prior Appropriations:	1,268,000
Less Expended as of 4/14/23:	122,289
Total Carryover:	1,145,712
New Funding:	10,446,000
<b>Total FY 2024 Appropriations:</b>	<b>11,591,712</b>

**Critical Success Factor:** Stewardship of Infrastructure and Env.

**Mandate/Plan:** 2020 Recreation & Parks Strategic Plan; 2016 ADA Transition Plan; Montgomery County Manual on Swimming Pool Construction; 2015 Aquatic Facility Audit and Recommendations for Enhancements

**Anticipated Project Outcome:** An updated and safe recreation facility that meets the needs of users.

**Project Timeline and Total Cost by Type:** Project timeline shifted to allow for completion of the indoor locker room renovation prior to the start of this project. Construction funding increased to add an escalation factor and additional construction contingency. Conceptual design was delayed due to the COVID-19 pandemic.

Type	Estimated Start		Estimated Completion		Estimated Cost			
	Original	Current	Original	Current	Original	Current	\$ Change	% Change
Planning / Design	FY 2019	FY 2021	FY 2020	FY 2023	859,000	1,061,000	202,000	24%
Construction	FY 2019	FY 2024	FY 2020	FY 2025	5,560,000	10,456,000	4,896,000	88%
Other (contract mgmt.)	FY 2020	FY 2024	FY 2021	FY 2025	140,000	197,000	57,000	41%
<b>Project Total (\$):</b>					<b>6,559,000</b>	<b>11,714,000</b>	<b>5,155,000</b>	<b>79%</b>

**Project Funding:** This project is fully funded.

Source	Prior	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Future	Total
Paygo (Cap)	1,268,000	-	-	-	-	-	-	1,268,000
Bonds (Cap)	-	10,446,000	-	-	-	-	-	10,446,000
<b>Total Funded (\$)</b>	<b>1,268,000</b>	<b>10,446,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11,714,000</b>
Unfunded (Cap)	-	-	-	-	-	-	-	-
<b>Total w/Unfunded (\$)</b>	<b>1,268,000</b>	<b>10,446,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11,714,000</b>

**Operating Cost Impact:** Specific ongoing operating cost impacts will be determined during the design phase.

Fund	Prior	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Future	Total
General	-	-	-	-	-	-	-	-

**Project Manager:** Adam Goldstein, Swim and Fitness Center Superintendent, 240-314-8752.

**Notes:** This project first appeared in the FY 2018 CIP. FY 2024 work includes completion of architectural and engineering design, procurement process for construction, and purchase of long-lead items. In accordance with the "Incorporation of Works of Art in Public Architecture" ordinance, the General Fund will contribute \$104,460 to the Art in Public Architecture program in FY 2024.



**HILLIS-CARNES****ENGINEERING ASSOCIATES**

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Annapolis Junction, MD 20701  
Phone (410) 880-4788  
Fax (410) 880-4098  
www.hcea.com

May 17, 2023

Mr. Sean Lindaman  
Project Manager  
Clark Azar & Associates, Inc.  
20440 Century Blvd, Suite 220  
Germantown, MD 20874

Re: Geotechnical Engineering Services  
**Rockville Outdoor Recreation Renovation SWM**  
355 Martins Ln, Rockville, MD 20850  
HCEA Project No. 23270A


Mr. Lindaman:


Hillis-Carnes Engineering Associates, Inc. (HCEA) is pleased to submit this report conveying the results of the subsurface exploration and infiltration testing for the proposed project referenced above.

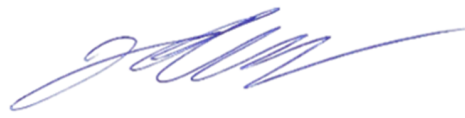
The material samples collected during the site exploration will be stored at our Annapolis Junction, Maryland office for 30 days from the date of this letter. If you require the samples to be stored for a longer period or to be delivered to you or another party, please request in writing before the end of the 30 days. Otherwise, the samples will be discarded at the end of the 30-day storage period.

HCEA appreciates having had the opportunity to provide the geotechnical consultation for this project, and we will remain available for further consultation during the various design stages. Please contact our office if questions arise concerning the contents of this report, or if additional consultation, design, inspection, or testing services are required.

Sincerely,  
**HILLIS-CARNES ENGINEERING ASSOCIATES, INC.**

  
Michael P. Johnson, P.E.  
Chief Engineer



  
John R. Gruber, E.I.  
Staff Engineer

**Rockville Outdoor Recreation Renovations SWM**  
Geotechnical Engineering Services  
HCEA Project No. 23270A

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## TABLE OF CONTENTS

1.0	PURPOSE AND SCOPE.....	2
2.0	SUBSURFACE EXPLORATION AND LABORATORY TESTING .....	2
3.0	SUBSURFACE CONDITIONS .....	3
3.1	Geology.....	3
3.2	Surface and Man-Placed Fill Materials.....	4
3.3	Natural Materials .....	4
3.4	Groundwater .....	4
3.5	Bedrock.....	5
4.0	IN-SITU INFILTRATION SUMMARY .....	5
4.1	Seasonal High Groundwater Table .....	5
4.2	Measured Infiltration Rates .....	5
4.3	Conclusions.....	6

## SUMMARY OF TABLES

Table 1: Laboratory Testing Summary .....	3
Table 2: Groundwater Summary .....	4
Table 3: Summary of Infiltration Test Results.....	6

**Rockville Outdoor Recreation Renovations SWM**  
Geotechnical Engineering Services  
HCEA Project No. 23270A

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**1.0 PURPOSE AND SCOPE**

The project site is located at 355 Martins Lane in the Rockville area of Montgomery County, MD. A subsurface exploration including soil borings and in-situ infiltration testing was requested at the proposed stormwater management (SWM) facility locations. This report summarizes the field and laboratory test results obtained from the requested exploration. The work covered by this report deals solely with stormwater management (SWM) considerations for the project.

The evaluations and recommendations presented in this report were developed from a review of project characteristics and an interpretation of the general subsurface conditions at the site based on the results of the site exploration. The stratification lines indicated on the Records of Soil Exploration (boring logs) represent the approximate boundaries between soil types. However, the actual in-situ transitions may be gradual. Such variations can best be evaluated during construction and any minor design changes can be made at that time, if necessary.

**2.0 SUBSURFACE EXPLORATION AND LABORATORY TESTING**

Three (3) geotechnical Standard Penetration Test (SPT) borings (numbered B-2, B-3, and B-6) were drilled at the site at locations selected and staked in the field by the Client. The boring locations were staked in the field by Clark Azar & Associates, Inc. The approximate boring locations are shown on the Boring Location Plan, contained in the Appendix. Each of the borings was drilled to a depth of 10.5 feet below existing site grades and in-situ infiltration tests were performed in offset locations, from each boring, at depths of between 6 feet and 7 feet below existing site grades.

The borings were advanced with hollow-stem augers and the subsurface soils were generally sampled at 2.5 feet intervals. Samples were taken by driving a 1-3/8-inch I.D. (2-inch O.D.) split-spoon sampler in general accordance with ASTM D-1586 specifications. The sampler was first seated 6 inches to penetrate any loose cuttings and then was driven an additional 12 inches with blows of a 140-pound hammer, falling 30 inches. The number of hammer blows required to drive the sampler the final 12 inches is designated as the "Penetration Resistance" or "N-value." The penetration resistance (N-value) can be used as an indication of the soil strength and compression characteristics.

Portions of each SPT soil sample were placed in glass jars and transported to HCEA's laboratory. All of the jarred samples were visually examined in the laboratory by the Geotechnical Engineer and visually-manually classified in general accordance with the Unified Soil Classification System (USCS) and ASTM D-2488. The Unified Soil Classification Symbols appear on the Records of Soil

**Rockville Outdoor Recreation Renovations SWM**

Geotechnical Engineering Services

HCEA Project No. 23270A

Exploration and the system nomenclature is generally described in the Soil Description Sheet in the Appendix.

The results of the laboratory testing are presented in the Appendix and the USCS classifications presented on the Records of Soil Exploration were reviewed based on the laboratory testing results. The results of these tests are included in the Appendix of this report and summarized below:

**Table 1: Laboratory Testing Summary**

Boring ID	Depth (ft)	Moisture Content (%)	USDA Description	USDA Fractions (%)		
				Sand	Silt	Clay
B-2	7.5'-9.0'	27.4	Silt Loam	32.2	57.6	10.2
B-3	7.5'-9.0'	23.6	Loam	25.6	40.4	31.7
B-6	7.5'-9.0'	15.4	Silt Loam	30.8	62.1	7.1

**3.0 SUBSURFACE CONDITIONS**

Details of the subsurface conditions encountered at the boring locations are shown on the Records of Soil Exploration. Strata divisions shown on the Records of Soil Exploration have been estimated based on visual examinations of the recovered boring samples and the sampling intervals. In the field, strata changes could occur gradually and/or at different levels than indicated. Also, groundwater conditions indicated on the Records of Soil Exploration are those observed during the period of the subsurface exploration. Fluctuations in groundwater levels could occur seasonally and might also be influenced by changes in grading, runoff and infiltration, and other influencing factors.

**3.1 Geology**

The Geologic Bedrock Map of Montgomery County, MD (Froelich, A.J., 1975) shows that the project site lies in the Piedmont Plateau physiographic province. Soils in the Piedmont region are generally residual soils derived from the in-place weathering of the parent bedrock.

Furthermore, the site appears to be located within a Schist geologic formation, which is described as *"a foliated, silvery gray rock consisting of interlocking plates of mica or chlorite...commonly interbedded with schistose gneiss...and impure quartzite in beds ranging from a few inches to tens of feet."*

Additionally, the site lies in close proximity to the neighboring Gneiss formation, which is described as *"a banded massive rock composed mainly of quartz and feldspar...it commonly weathers to silty saprolite as much as 100 feet (30m) thick"*.

**Rockville Outdoor Recreation Renovations SWM**Geotechnical Engineering Services  
HCEA Project No. 23270A**3.2 Surface and Man-Placed Fill Materials**

Topsoil was encountered surficially in each of the borings drilled. The measured topsoil thickness was approximately 4-inches at the specific boring locations. It should be noted that topsoil thickness may vary widely across the site.

Fill materials are those materials showing evidence of having been worked or man-placed in the past. Fill noted by HCEA may be either controlled, engineered structural fill or else uncontrolled fill, potentially containing rubble, debris, organics, etc. Materials identified as fill material or man-placed possible fill soils were encountered in all three of the stormwater boring locations to depths of between 2.5± ft to 5.0± ft below existing site grades, during this study.

Fill materials were visually and manually classified as silt (ML) with varying amounts of sand. The consistencies indicated by the SPT N-values of the fill materials were in the soft to medium stiff range.

Since the size of the samples obtained is relatively small in comparison to the areal extent of the site and since the fill materials could be of similar composition to the natural soils encountered at the site, it is often difficult to determine the presence and composition of fill materials from the SPT samples.

**3.3 Natural Materials**

Naturally occurring soils encountered during this study appear to be consistent with the geology description outlined in Section 3.1. Natural soils encountered in the borings were visually classified as sandy silt (ML), silt with sand (ML), silty clay (CL-ML), and combinations thereof.

The SPT N-values indicated that the more fine-grained natural materials encountered on-site had consistencies in the soft to very stiff range.

**3.4 Groundwater**

Groundwater levels were observed during this subsurface exploration during drilling operations, at boring completion, and 24 hours after boring completion. Groundwater was not encountered within the depths explored in any of the three SWM borings.

**Table 2: Groundwater Summary**

Boring ID	Groundwater encountered (ft)	Groundwater at completion (ft)	Groundwater after 24 hrs of completion (ft)	Cave depth after 24hrs of completion (ft)
B-2	Dry	Dry	Dry	6.0
B-3	Dry	Dry	Dry	6.0
B-6	Dry	Dry	Dry	5.0

**Rockville Outdoor Recreation Renovations SWM**

Geotechnical Engineering Services

HCEA Project No. 23270A

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A more accurate determination of the hydrostatic water table would require the installation of perforated pipes or piezometers which could be monitored over an extended period. The actual level of the hydrostatic water table and the amount and level of perched water should be anticipated to fluctuate throughout the year, depending on variations in precipitation, surface run-off, infiltration, site topography, and drainage.

**3.5 Bedrock**

Bedrock was not encountered at the boring locations within the depths explored during this exploration.

**4.0 IN-SITU INFILTRATION SUMMARY**

Information about the soil and groundwater conditions encountered in the SWM area borings can be found on the Records of Soil Exploration in the Appendix. We have evaluated the subsurface conditions encountered in the SWM borings in accordance with the State of Maryland's, "2000 Maryland Stormwater Design Manual, Volumes I & II".

Based on the State of Maryland's "2000 Maryland Stormwater Design Manual, Volumes I & II", infiltration basins and trenches are not acceptable practices when an infiltration rate of less than 0.52 inches per hour is obtained. Bio-retention facilities in areas with in-situ infiltration rates of less than 0.52 inches per hour require underdrains. Also, the bottom of the facility should be located a minimum of 4 feet above the seasonally high-water table and/or bedrock.

**4.1 Seasonal High Groundwater Table**

As stated above, groundwater was not encountered within the depths explored in any of the three SWM borings at the time of our subsurface exploration.

An accurate determination of the seasonal-high hydrostatic water table would require the installation of perforated pipes or piezometers as described in Section 3.4. Grading operations in other parts of the site may also significantly influence the level of the groundwater at the SWM boring locations. We (HCEA) cannot be responsible for changes in groundwater conditions at the site due to seasonal variation and changes caused by other factors, such as grading operations at the site.

**4.2 Measured Infiltration Rates**

In-situ infiltration testing was performed at locations offset from each of the three SWM boring locations. The reported in-situ infiltration rates have had no factor

**Rockville Outdoor Recreation Renovations SWM**  
Geotechnical Engineering Services  
HCEA Project No. 23270A

of safety applied to them. The results of the in-situ infiltration tests are given in Table 3 below:

**Table 3: Summary of Infiltration Test Results**

Boring No.	Approximate Depth of Test (ft)	Measured In-Situ Infiltration Rate (in/hr.)
B-2	6.75	0.00
B-3	7.0	0.00
B-6	6.25	12.71

### 4.3 Conclusions

The State of Maryland's, "2000 Maryland Stormwater Design Manual, Volumes I & II" states that infiltration basins and trenches are not acceptable practices when an infiltration rate of less than 0.52 inches per hour is obtained." Also, the bottom of the facility should be located a minimum of 4 feet above the seasonally high-water table and/or bedrock.

The infiltration rates observed at borings B-2 and B-3 do not meet the minimum infiltration rates required by the "2000 Maryland Stormwater Design Manual, Volumes I & II". While the measured infiltration rate at B-6 exceeds the minimum rate required, the soil classification for the likely SWM facility subgrade does not meet the "2000 Maryland Stormwater Design Manual, Volumes I & II" requirements. Infiltration methods at the site are therefore not recommended for the locations tested.

We understand the results of the borings, groundwater depths, and infiltration rates mentioned in this report will be used by others in the design of the SWM facilities.

**Rockville Outdoor Recreation Renovations SWM**  
Geotechnical Engineering Services  
HCEA Project No. 23270A

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**APPENDIX**

Important Information about This  
Geotechnical-Engineering Report

Project Location Map

Boring Location Plan

Geology Map

Geology Legend

Records of Soil Exploration (Boring Logs)

Particle Size Distribution Reports

Field Classification Sheet



# Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

**The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.**

## Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

## Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

## You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

## This Report May Not Be Reliable

*Do not rely on this report* if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an “apply-by” date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

## Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

### This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

### This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

### Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

### Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

### Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

### Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.

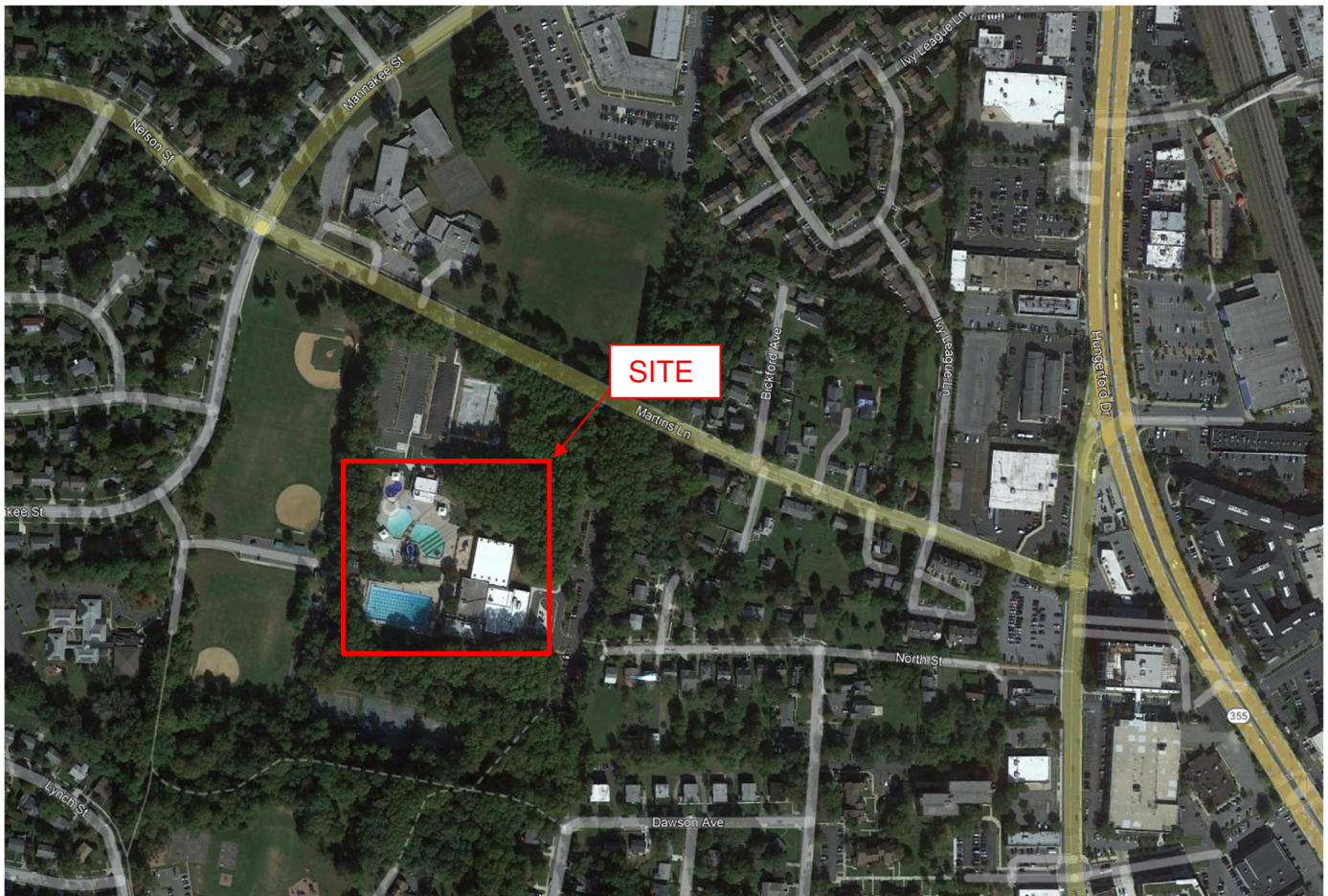


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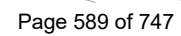




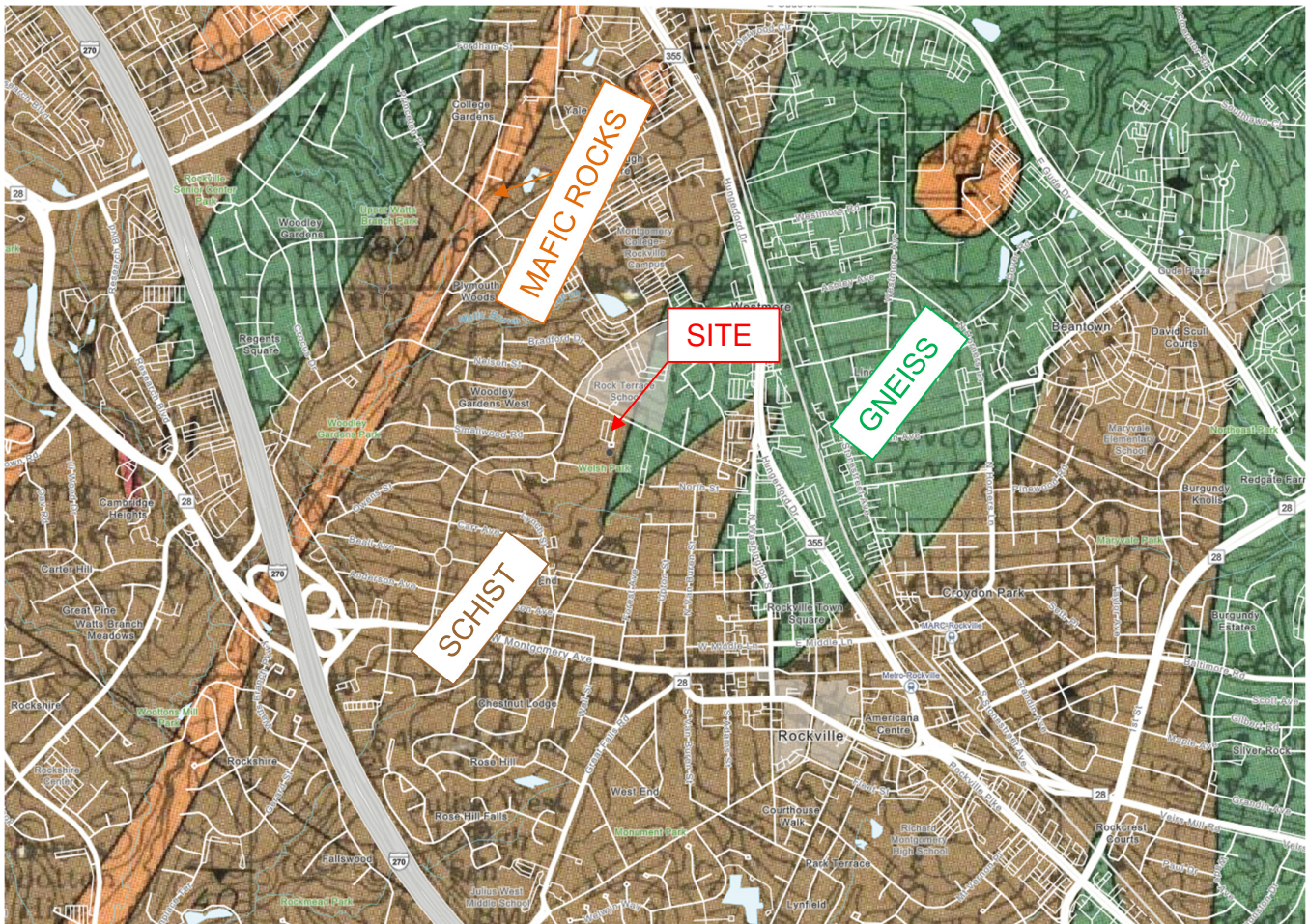
**HILLIS-CARNES**  
ENGINEERING ASSOCIATES, INC.

**PROJECT LOCATION MAP**

Scale: Reduced







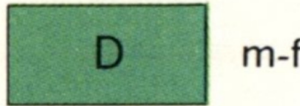
**HILLIS-CARNES**  
ENGINEERING ASSOCIATES, INC.

## GEOLOGY MAP

Scale: Reduced



**SCHIST**, mica, chlorite, quartz, pelitic; with metagraywacke, gneiss, and quartz veins—The schist is a foliated, silvery gray rock consisting of interlocking plates of mica or chlorite and minor amounts of other common rock-forming minerals. It is commonly interbedded with schistose gneiss (a massive to banded rock containing quartz and feldspar) and impure quartzite in beds ranging from a few inches to tens of feet. Foliation, the dominant planar element, generally dips steeply east or west. Unit B is folded and faulted with fractures commonly parallel to foliation; some fractures are filled and healed, others are brecciated or filled with soft, clayey gouge. Jointing is irregular, but the main breakage is parallel to the foliation; additional sets are commonly perpendicular to foliation and facilitate splitting into polygonal blocks. Schist weathers to a thick micaceous saprolite and soil. Unit B forms rolling uplands and steep-sided strike valleys with local relief rarely more than 100 feet (30 m)



**GNEISS**, quartz, feldspar, mica, hornblende; includes granite, granofels, granodiorite, pegmatite—The gneiss is a banded massive rock composed mainly of quartz and feldspar with lesser amounts of mica and other accessory minerals. It is commonly interbedded with impure sandstone and mica schist, especially near contacts with unit B. Unit D includes small bodies of massive igneous rocks, such as granite, granodiorite, and coarsely crystalline pegmatite which contains similar minerals. Steeply dipping intersecting joint sets commonly 3 feet (1 m) or more apart are prominent, and locally split the gneiss into large polygonal blocks. Unit D forms rolling uplands and steep-sided valleys. It commonly weathers to silty saprolite as much as 100 feet (30 m) thick with thick soils on uplands; locally, fresh massive gneiss pinnacles jut through the soil cover



## APPENDIX D

**HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.****RECORD OF SOIL EXPLORATION**

Project Name Rockville Outdoor Recreation Renovations Boring No. B-2  
 Location Rockville, MD Job # 23270A

**SAMPLER**

Datum \_\_\_\_\_ Hammer Wt. 140 lbs. Hole Diameter 6 in. Foreman G. Davis  
 Surf. Elev. \_\_\_\_\_ ft Hammer Drop 30 in. Rock Core Diameter n/a Inspector \_\_\_\_\_  
 Date Started 4/24/2023 Pipe Size (O.D.) 2 in. Boring Method HSA Date Completed 4/24/2023

Elevation/ Depth (ft)	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	SPT N (blows/ft)			
								N	10	30	50
0		Brown, moist, medium stiff , sandy SILT, with some gravel (ML: FILL)	Topsoil: 4"	1	8		3-4-4	8			
		Trace clay, trace organics and some gravel, odourous		2	4		2-2-4	6			
5		Gray brown, moist, medium stiff to very stiff, sandy SILT with trace gravel (ML)	Groundwater was not encountered while drilling	3	6		5-4-3	7			
		Orange brown, with trace clay (ML) (USDA; SILT LOAM)		4	8	27.4	5-5-7	12			
10		Bottom of boring at 10.5ft	Boring backfilled 24 hours after completion	5	12		5-7-10	17			
15											
20											
25											
30											

**SAMPLER TYPE**

DRIVEN SPLIT SPOON UNLESS OTHERWISE

PT - PRESSED SHELBY TUBE

CA - CONTINUOUS FLIGHT AUGER

RC - ROCK CORE

**SAMPLE CONDITIONS**

D - DISINTEGRATED

I - INTACT

U - UNDISTURBED

L - LOST

AT COMPLETION

AFTER 24 HRS.

AFTER \_\_\_\_\_ HRS.

**GROUND  
WATER**DRY ft.DRY ft.

\_\_\_\_\_ ft.

**CAVE IN  
DEPTH**

\_\_\_\_\_ ft.

6 ft.

\_\_\_\_\_ ft.

**BORING METHOD**

HSA - HOLLOW STEM AUGERS

CFA - CONTINUOUS FLIGHT AUGERS

DC - DRIVING CASING

MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

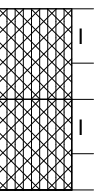
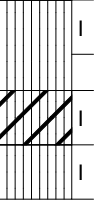
## APPENDIX D

**HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.****RECORD OF SOIL EXPLORATION**

Project Name Rockville Outdoor Recreation Renovations Boring No. B-3  
 Location Rockville, MD Job # 23270A

**SAMPLER**

Datum \_\_\_\_\_ Hammer Wt. 140 lbs. Hole Diameter 6 in. Foreman G. Davis  
 Surf. Elev. \_\_\_\_\_ ft Hammer Drop 30 in. Rock Core Diameter n/a Inspector \_\_\_\_\_  
 Date Started 4/24/2023 Pipe Size (O.D.) 2 in. Boring Method HSA Date Completed 4/24/2023

Elevation/ Depth (ft)	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	SPT N (blows/ft)			
								N	10	30	50
0		Brown, moist, soft, sandy SILT with trace gravel (ML: POSSIBLE FILL)	Topsoil: 4"	1	8		3-2-2	4			
		Brown, moist, soft, SILT with sand, trace gravel and organics (ML: POSSIBLE FILL)		2	8		2-1-3	4			
5		Brown, moist, soft, sandy SILT (ML)	Groundwater was not encountered while drilling	3	6		2-2-3	5			
		Orange brown, moist, medium stiff, silty CLAY (CL-ML) (USDA; LOAM)		4	10	23.6	3-6-4	10			
10		Orange brown, medium stiff, loose, sandy SILT (ML)	Boring backfilled 24 hours after completion	5	12		3-4-5	9			
		Bottom of boring at 10.5ft									
15											
20											
25											
30											

**SAMPLER TYPE**

DRIVEN SPLIT SPOON UNLESS OTHERWISE  
 PT - PRESSED SHELBY TUBE  
 CA - CONTINUOUS FLIGHT AUGER  
 RC - ROCK CORE

**SAMPLE CONDITIONS**

D - DISINTEGRATED  
 I - INTACT  
 U - UNDISTURBED  
 L - LOST

AT COMPLETION  
 AFTER 24 HRS.  
 AFTER \_\_\_\_\_ HRS.

**GROUND  
WATER**

DRY ft.  
DRY ft.  
 \_\_\_\_\_ ft.

**CAVE IN  
DEPTH**

\_\_\_\_\_  
6 ft.  
 \_\_\_\_\_ ft.

**BORING METHOD**

HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.



## APPENDIX D

# HILLIS - CARNES

## ENGINEERING ASSOCIATES, INC.

### RECORD OF SOIL EXPLORATION

Project Name Rockville Outdoor Recreation Renovations Boring No. B-6  
 Location Rockville, MD Job # 23270A

## SAMPLER

Datum \_\_\_\_\_ Hammer Wt. 140 lbs. Hole Diameter 6 in. Foreman G. Davis  
 Surf. Elev. \_\_\_\_\_ ft Hammer Drop 30 in. Rock Core Diameter n/a Inspector \_\_\_\_\_  
 Date Started 4/24/2023 Pipe Size (O.D.) 2 in. Boring Method HSA Date Completed 4/24/2023

Elevation/ Depth (ft)	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	SPT N (blows/ft)			
								N	10	30	50
0		Brown, moist, medium stiff, sandy SILT, with trace organics and rock fragments (ML: FILL)	Topsoil: 4"	1	6		2-3-4	7			
		Brown to orange brown, moist, stiff to very stiff, SILT with sand, trace organics and rock fragments (ML)	Groundwater was not encountered while drilling	2	8		4-8-10	18			
5				3	8		4-8-8	16			
		Orange brown to brown, moist, medium stiff, sandy SILT (ML) (USDA; SILT LOAM)	Boring backfilled 24 hours after completion	4	14	40	2-3-4	7			
10		Bottom of boring at 10.5ft		5	18		3-3-5	8			
15											
20											
25											
30											

## SAMPLER TYPE

DRIVEN SPLIT SPOON UNLESS OTHERWISE  
 PT - PRESSED SHELBY TUBE  
 CA - CONTINUOUS FLIGHT AUGER  
 RC - ROCK CORE

## SAMPLE CONDITIONS

D - DISINTEGRATED  
 I - INTACT  
 U - UNDISTURBED  
 L - LOST

AT COMPLETION

AFTER 24 HRS.

AFTER \_\_\_\_\_ HRS.

GROUND  
WATERDRY ft.DRY ft.

\_\_\_\_\_ ft.

CAVE IN  
DEPTH

\_\_\_\_\_ ft.

5 ft.

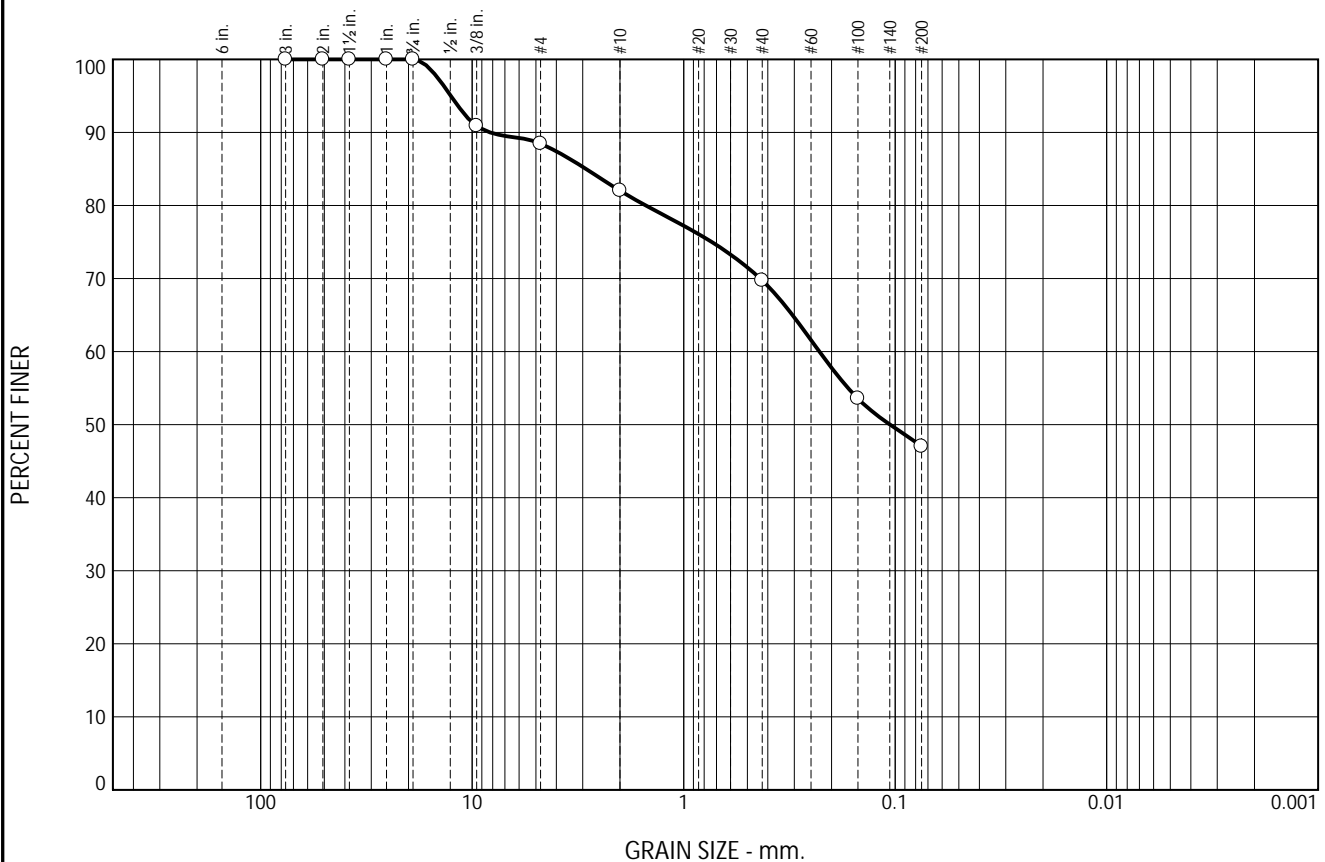
\_\_\_\_\_ ft.

## BORING METHOD

HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

## Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.5	6.5	12.3	22.7	47.0	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100.0		
2"	100.0		
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	90.9		
#4	88.5		
#10	82.0		
#40	69.7		
#100	53.6		
#200	47.0		

\* (no specification provided)

Soil Description

Light red brown silty sand

Atterberg Limits

PL= 29

LL= 38

PI= 9

CoefficientsD<sub>90</sub>= 8.2289D<sub>85</sub>= 2.9001D<sub>60</sub>= 0.2281D<sub>50</sub>= 0.1058D<sub>30</sub>=D<sub>15</sub>=D<sub>10</sub>=C<sub>u</sub>=C<sub>c</sub>=Classification

USCS= SM

AASHTO= A-4(2)

Remarks

Moisture content: 15.4%

Location: B-5, S-2

Sample Number: 1

Depth: 2.5'-4.0'

Date: 05/11/23

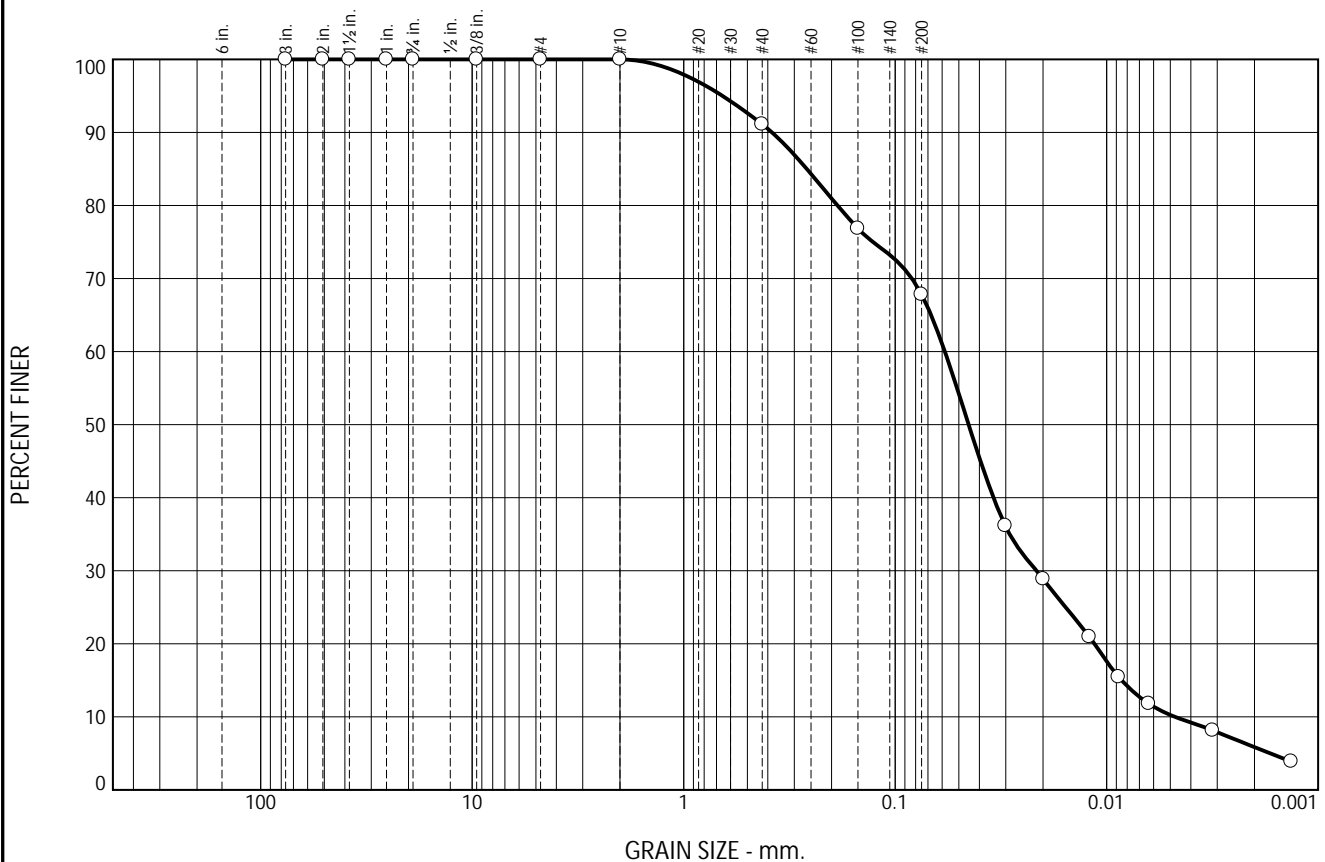
**HILLIS-CARNES**  
ENGINEERING ASSOCIATES, INC.  
Annapolis Junction, MD

Client: Clark Azar & Associates, Inc.  
Project: Rockville Outdoor Recreation Renovations

Project No: 23270A

Figure

## Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.9	23.3	57.6	10.2

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100.0		
2"	100.0		
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#40	91.1		
#100	76.9		
#200	67.8		
0.0301 mm.	36.2		
0.0200 mm.	28.8		
0.0121 mm.	20.9		
0.0088 mm.	15.4		
0.0063 mm.	11.8		
0.0032 mm.	8.1		
0.0013 mm.	3.9		

\* (no specification provided)

## Soil Description

USDA: Orange brown silt loam

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3822D<sub>85</sub>= 0.2619D<sub>60</sub>= 0.0582D<sub>50</sub>= 0.0449D<sub>30</sub>= 0.0215D<sub>15</sub>= 0.0085D<sub>10</sub>= 0.0048C<sub>u</sub>= 12.23C<sub>c</sub>= 1.66

## Classification

USCS=

AASHTO=

## Remarks

Moisture content: 27.4%

USDA Fractions- Sand: 43.5%, Silt: 50.6%, Clay: 5.9%

Location: B-2, S-4  
Sample Number: 2

Depth: 7.5'-9.0'

Date: 05/11/23

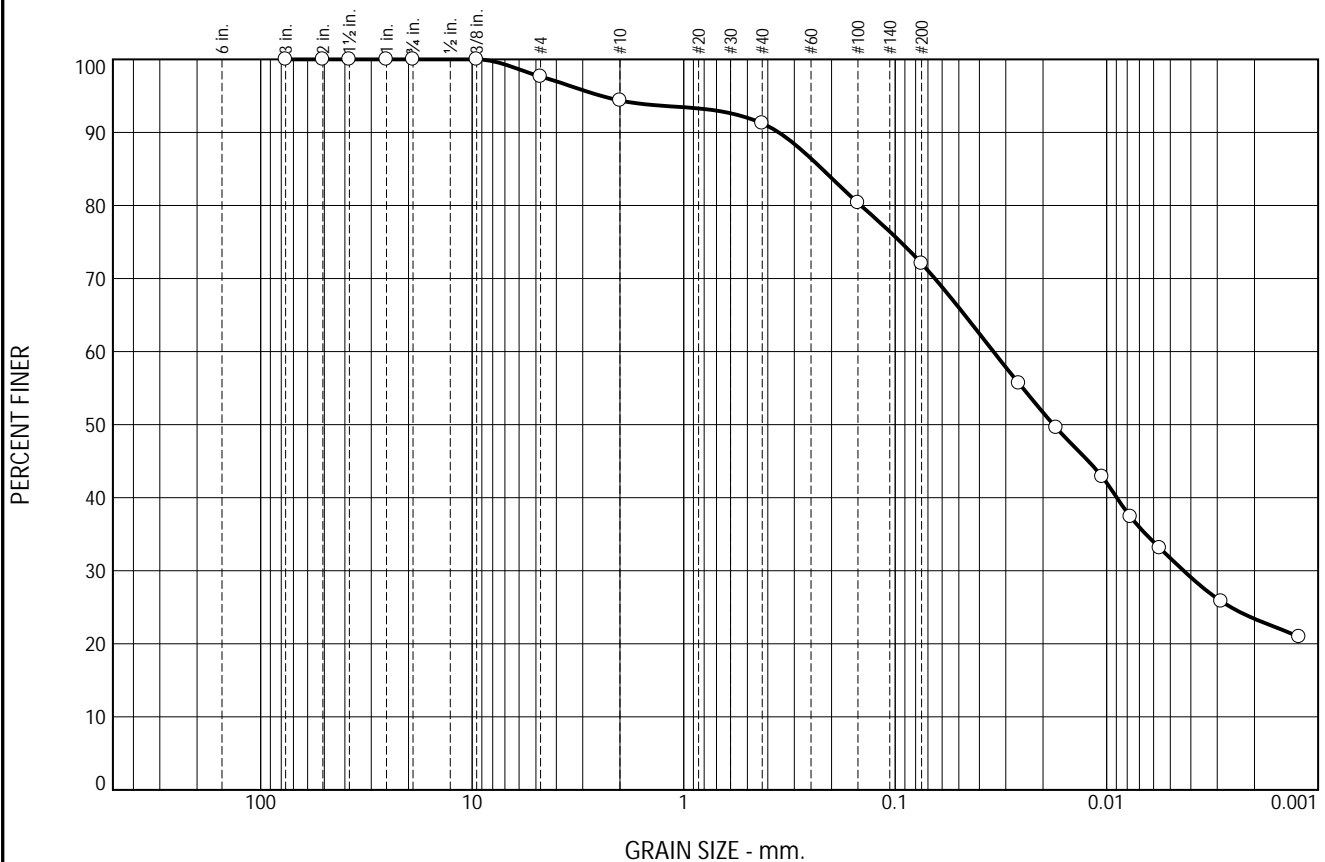
**HILLIS-CARNES**  
ENGINEERING ASSOCIATES, INC.  
Annapolis Junction, MD

Client: Clark Azar & Associates, Inc.  
Project: Rockville Outdoor Recreation Renovations

Project No: 23270A

Figure

## Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	3.3	3.2	19.1	40.4	31.7

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100.0		
2"	100.0		
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	97.7		
#10	94.4		
#40	91.2		
#100	80.4		
#200	72.1		
0.0260 mm.	55.7		
0.0173 mm.	49.6		
0.0105 mm.	42.9		
0.0077 mm.	37.4		
0.0056 mm.	33.1		
0.0029 mm.	25.8		
0.0012 mm.	20.9		

\* (no specification provided)

## Soil Description

USDA: Orange brown loam

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3555D<sub>85</sub>= 0.2215D<sub>60</sub>= 0.0343D<sub>50</sub>= 0.0178D<sub>30</sub>= 0.0043D<sub>15</sub>=D<sub>10</sub>=C<sub>u</sub>=C<sub>c</sub>=

## Classification

USCS=

AASHTO=

## Remarks

Moisture content: 23.6%

USDA Fractions- Sand: 29.1%, Silt: 46.1%, Clay: 24.8%

Location: B-3, S-4  
Sample Number: 3

Depth: 7.5'-9.0'

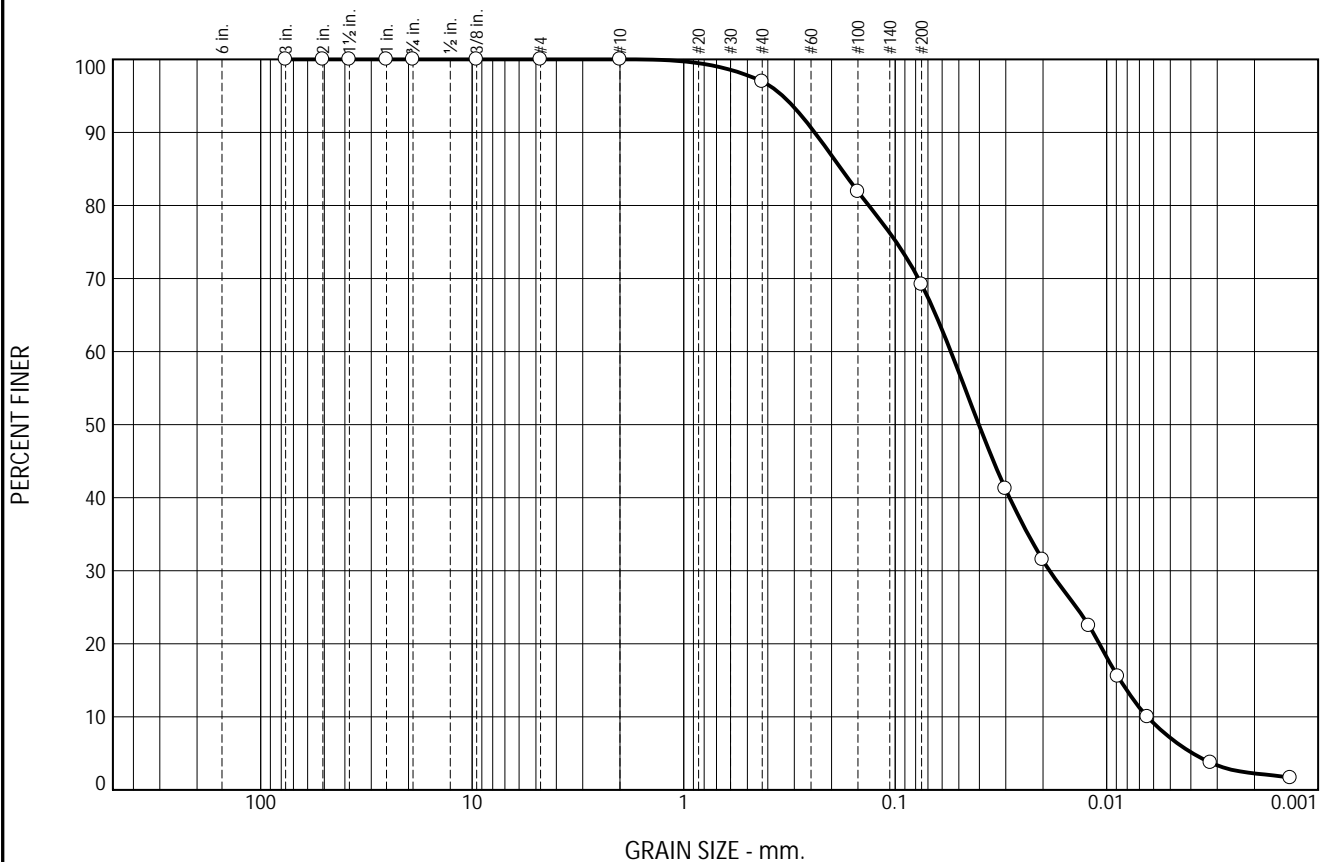
Date: 05/11/23

HILLIS-CARNES  
ENGINEERING ASSOCIATES, INC.  
Annapolis Junction, MDClient: Clark Azar & Associates, Inc.  
Project: Rockville Outdoor Recreation Renovations

Project No: 23270A

Figure

## Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.0	27.8	62.1	7.1

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100.0		
2"	100.0		
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#40	97.0		
#100	81.9		
#200	69.2		
0.0301 mm.	41.2		
0.0201 mm.	31.5		
0.0121 mm.	22.5		
0.0089 mm.	15.5		
0.0064 mm.	10.0		
0.0032 mm.	3.7		
0.0014 mm.	1.6		

\* (no specification provided)

Location: B-6, S-4  
Sample Number: 4

Depth: 7.5'-9.0'

Date: 05/11/23

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES, INC.  
Annapolis Junction, MD

Client: Clark Azar & Associates, Inc.  
Project: Rockville Outdoor Recreation Renovations

Project No: 23270A

Figure

# HILLIS-CARNES ENGINEERING ASSOCIATES, Inc.

10975 Guilford Road, Suite A • Annapolis Junction, Maryland 20701

Phone: (410)880-4788 • Fax: (410)880-4098

## Description of Soils – per ASTM D2487

Major Component	Component Type	Component Description	Symbol	Group Name
<b>Coarse-Grained Soils</b> , More than 50% is retained on the No. 200 sieve	<b>Gravels</b> – More than 50% of the coarse fraction is retained on the No. 4 sieve. Coarse = 1" to 3" Medium = ½" to 1" Fine = ¼" to ½"	Clean Gravels <5% Passing No. 200 sieve	<b>GW</b>	Well Graded Gravel
			<b>GP</b>	Poorly Graded Gravel
		Gravels with fines, >12% Passing the No. 200 sieve	<b>GM</b>	Silty Gravel
			<b>GC</b>	Clayey Gravel
	<b>Sands</b> – More than 50% of the coarse fraction passes the No. 4 sieve. Coarse = No.10 to No.4 Medium = No. 10 to No. 40 Fine = No. 40 to No. 200	Clean Sands <5% Passing No. 200 sieve	<b>SW</b>	Well Graded Sand
			<b>SP</b>	Poorly Graded Sand
		Sands with fines, >12% Passing the No. 200 sieve	<b>SM</b>	Silty Sand
			<b>SC</b>	Clayey Sand
<b>Fine Grained Soils</b> , More than 50% passes the No. 200 sieve	Silts and Clays Liquid Limit is less than 50 Low to medium plasticity	Inorganic	<b>ML</b>	Silt
			<b>CL</b>	Lean Clay
		Organic	<b>OL</b>	Organic silt
				Organic Clay
	Silts and Clays Liquid Limit of 50 or greater Medium to high plasticity	Inorganic	<b>MH</b>	Elastic Silt
			<b>CH</b>	Fat Clay
		Organic	<b>OH</b>	Organic Silt
				Organic Clay
<b>Highly Organic Soils</b>	Primarily Organic matter, dark color, organic odor		<b>PT</b>	Peat

## Proportions of Soil Components

Component Form	Description	Approximate percent by weight
Noun	Sand, Gravel, Silt, Clay, etc.	50% or more
Adjective	Sandy, silty, clayey, etc.	35% to 49%
Some	Some sand, some silt, etc.	12% to 34%
Trace	Trace sand, trace mica, etc.	1% to 11%
With	With sand, with mica, etc.	Presence only

## Particle Size Identification

Particle Size	Particle dimension
Boulder	12" diameter or more
Cobble	3" to 12" diameter
Gravel	¼" to 3" diameter
Sand	0.005" to ¼" diameter
Silt/Clay (fines)	Cannot see particle

## Cohesive Soils

Field Description	No. of SPT Blows/ft	Consistency
Easily Molded in Hands	0 – 3	Very Soft
Easily penetrated several inches by thumb	4 – 5	Soft
Penetrated by thumb with moderate effort	6 – 10	Medium
Penetrated by thumb with great effort	11 – 30	Stiff
Indented by thumb only with great effort	Greater than 30	Hard

## Granular Soils

No. of SPT Blows/ft	Relative Density
0 – 4	Very Loose
5 – 10	Loose
11 – 30	Medium Dense
31 – 50	Dense
Greater than 50	Very Dense

## Other Definitions:

- **Fill:** Encountered soils that were placed by man. Fill soils may be controlled (engineered structural fill) or uncontrolled fills that may contain rubble and/or debris.
- **Saprolite:** Soil material derived from the in-place chemical and physical weathering of the parent rock material. May contain relic structure. Also called residual soils. Occurs in Piedmont soils, found west of the fall line.
- **Disintegrated Rock:** Residual soil material with rock-like properties, very dense, N = 60 to 51/0".
- **Karst:** Descriptive term which denotes the potential for solutioning of the limestone rock and the development of sinkholes.
- **Alluvium:** Recently deposited soils placed by water action, typically stream or river floodplain soils.
- **Groundwater Level:** Depth within borehole where water is encountered either during drilling, or after a set period of time to allow groundwater conditions to reach equilibrium.
- **Caved Depth:** Depth at which borehole collapsed after removal of augers/casing. Indicative of loose soils and/or groundwater conditions.

## APPENDIX E



111 Maryland Avenue | Rockville, Maryland 20850-2364 | 240-314-5000  
[www.rockvillemd.gov](http://www.rockvillemd.gov)

December 6, 2023

Adam Goldstein  
Department of Recreation and Parks  
City of Rockville  
111 Maryland Avenue  
Rockville, Maryland 20850

**Re: Minor Site Plan Amendment Application STP2024-00466, Rockville Swim Center Pool Renovations, 355 Martins Lane, Rockville, Maryland**

Dear Mr. Goldstein,

In accordance with Section 25.07.01 and 25.05.07.b of the City of Rockville Zoning Ordinance, the above referenced Minor Site Plan Amendment STP2024-00466 has been approved as an amendment to approved Use Permit USE1988-00425 and Site Plan Amendment STP2020-00400. This approval permits renovations to the onsite outdoor swim pool including replacements of the recreation pool, slides, splash pad and pool decking at the Rockville Swim and Fitness Center located at 355 Martins Lane. There are no changes contemplated to the uses or parking previously approved on the site.

Approval is subject to the following conditions:

***Community Planning and Development Services Department (CPDS)***

1. Before the issuance of any building permits, the applicant must sign and return the approval letter.

***Forestry***

2. As a condition of this approval, STP2024-00466, the applicant must obtain approval of Final Forest Conservation Plan, FTP2023-00058.
3. Prior to the issuance of any related building permits, the applicant must obtain a forestry permit, to authorize the on-site improvements approved therein.

STP2024-00466 Approval Letter  
December 6, 2023  
Page 2

***Department of Public Works (DPW)***

**Engineering**

4. Stormwater Management (SMP) and Erosion and Sediment Control (SCP) engineering plans shall be submitted on 24"x36" City base sheets at a minimum scale of 1"=30' unless otherwise approved by DPW. Post sureties for all permits based on an approved construction estimate in a format acceptable to the City Attorney prior to issuance of the SMP and SCP permits. Approval is coordinated through DPW staff. DPW permits must be issued prior to issuance of a building permit.
5. DPW will not approve any Demolition Permits until a Sediment Control Permit (SCP) for the area disturbed by the demolition is issued.
6. The Applicant shall comply with the conditions of the Combined SWM Concept approval letter dated November 7, 2023.
7. Location of dry utilities shown on the Site Plan is conceptual. Unless otherwise approved by the Director of Public Works, the final layout of the dry utilities shall not impact the locations of the proposed storm drain, water, sanitary sewer, SWM facilities, street trees and other public improvements.

Section 25.07.06 of the Zoning Ordinance requires that construction or operation must commence within two (2) years of the effective date of the Chief of Zoning approval letter or the application approval shall expire. If the applicant can show just cause, a maximum of two (2) time extensions may be granted by the Chief of Zoning, one (1) year for the first extension and six (6) months for the second extension. However, time extensions are not automatically approved, and sufficient detail and justification will be required in order for the Chief of Zoning to consider granting an extension.

Sincerely,



R. James Wasilak, AICP  
Chief of Zoning

(Please see next page for acknowledgement statement)



## APPENDIX E

STP2024-00466 Approval Letter

December 6, 2023

Page 2

I ACKNOWLEDGE RECEIPT OF THIS LETTER REGARDING SITE PLAN AMENDMENT APPLICATION STP2024-00466 AND AGREE TO FULLY COMPLY WITH CONDITIONS UPON WHICH APPROVAL WAS GRANTED. I FURTHER ACKNOWLEDGE THAT FAILURE TO COMPLY WITH THESE CONDITIONS MAY CAUSE APPROVAL TO BE REVOKED BY THE CITY OF ROCKVILLE.



1/3/2024

---

(Applicant's Signature)

Timothy Chesnutt

---

(Applicant's Printed Name)

APPENDIX F



**AS-BUILT PLAN REVIEW CHECKLIST**

**October 2021**

CITY OF ROCKVILLE

DEPARTMENT OF PUBLIC WORKS (DPW)

111 Maryland Avenue

Rockville, Maryland 20850

240-314-8500

[www.rockvillemd.gov](http://www.rockvillemd.gov)

**Project Information:**

Project Name: \_\_\_\_\_

Legal Description: Subdivision: \_\_\_\_\_ Lot(s) and Block(s): \_\_\_\_\_ Parcel(s): \_\_\_\_\_

Property Address: \_\_\_\_\_

Tax Acct. ID(s): \_\_\_\_\_

Engineering Firm: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

DPW PWK Permit No.: \_\_\_\_\_ (assigned by DPW)

DPW SMP Permit No.: \_\_\_\_\_ (assigned by DPW)

DPW SCP Permit No.: \_\_\_\_\_ (assigned by DPW)

DPW Project Manager: \_\_\_\_\_

**How to Use this Checklist:**

This checklist has been developed to provide the engineer with guidance in preparing and submitting As-Built Plans. All items in this checklist must be addressed. The engineer must complete each item in the checklist prior to submittal and indicate the status by completing the left hand column entitled "Initial Submission." Use the legend below to complete this column. Any items that are marked INC (incomplete) must be explained. The engineer must sign this checklist indicating that it has been completed in accordance with this guidance and the Submission Acceptance Policy below.

**Legend:** ☒ = Complete or Provided, N/A = Not Applicable, INC = Incomplete (provide explanation)

**Submission Acceptance Policy:**

Correctly filling out this checklist will assist in the acceptance, review and approval process. All of the items in SECTION A - APPLICATION SECTION must be provided with the initial submission for the City to accept the package and forward it to the Reviewer. Incomplete submissions may be rejected. Once forwarded to the Reviewer, the Reviewer will have one week to review the package for the items listed in SECTION B - SUBMISSION REQUIREMENTS. Failure to include the required items or to explain items not included may result in the rejection of the submission without review.

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Responsible Person

\_\_\_\_\_  
Responsible Person's Name

\_\_\_\_\_  
Title

## APPENDIX F

## AS-BUILT PLAN REVIEW CHECKLIST - PAGE 2

Initial Submission		Rockville's Review		
		1st	2nd	3rd
<b>A) APPLICATION SECTION</b> (Submissions shall be made using the City's Virtual Permit Application portal available at <a href="http://www.rockvillemd.gov">www.rockvillemd.gov</a> )				
1	One digital (PDF) copy of the proposed plans. Plans must be on 24" x 36" sheets and must utilize the standard City base sheet. Vector-Based PDF files are required for all plans, calculations, reports and other supporting documentation. It is recommended that drawings created in AutoCAD are converted to Vector-Based PDF by using the Autodesk Vector Graphic Converter "DWG to PDF.pc3 plotter driver."	_____	_____	_____
<b>B) SUBMISSION REQUIREMENTS</b>				
1	Transmittal explaining the purpose of submission including plan type and associated permit numbers	_____	_____	_____
2	One set of a red-lined digital (PDF) As-Built plan. As-Built information shall be prepared using the most current, revised construction drawings approved by the City and with original P.E. seal. Placing As-Built information upon a scanned image or other reproduction of the original construction drawings is acceptable so long as the quality, integrity, and legibility of the original drawings are substantially preserved without undue compromise	_____	_____	_____
3	Construction inspection checklists signed by the Owner/Developer and City Inspector for each facility. Completed checklists may be superimposed on approved plans or included with supporting documentation	_____	_____	_____
4	State of MD Professional Engineer or Professional Land Surveyor As-Built certification on the first sheet of the plan set (see Section G below)	_____	_____	_____
5	Completed Stormwater Management Database Form summarizing the on-site treatment provided and listing each SWM facility constructed	_____	_____	_____
6	One copy of each supporting document in electronic (PDF) format, as necessary (see Section H below)	_____	_____	_____
7	AutoCAD file of all public improvements and stormwater management facilities, suitable for use in ESRI ArcMap. Required upon City's request prior to as-built approval	_____	_____	_____
<b>C) GENERAL INFORMATION</b>				
1	Scale 1" = 30' or larger with Legend, North arrow and Datum (NAD 83/91, NGVD 88) unless otherwise approved. Provide two benchmarks with location, elevation and description. Provide two graticular tick marks per plan view sheet for georeferencing	_____	_____	_____
2	All As-Built information shall be blocked in and shown on the original construction drawings in red. A red check mark must be made beside design values/items if they were actually the constructed values/items	_____	_____	_____
3	Horizontal variations greater than one (1.0) foot should be shown dimensionally or through plus stations. Horizontal variations greater than ten (10.0) feet should also show the graphic relocation of the object	_____	_____	_____
4	Vertical elevation variations greater than one-tenth (0.1) foot shall be provided for all shown design elevations	_____	_____	_____
5	Elevations measured to the nearest one-tenth (0.1) foot are sufficient	_____	_____	_____
6	Constructed public streets and alleys labeled with finished centerline profile grade elevations, horizontal and vertical curve data, finished grade slope, etc.	_____	_____	_____
7	All sheets included in the permit set must be submitted in the final as-built set	_____	_____	_____
8	Original seal and signature, license number of qualified preparer on all sheets	_____	_____	_____
9	Add 'As-Built' label to all sheets, preferably in the lower right-hand corner of the drawing	_____	_____	_____

**AS-BUILT PLAN REVIEW CHECKLIST - PAGE 3**

Initial Submission		Rockville's Review		
		1st	2nd	3rd
<b>D) STORM DRAIN, SANITARY SEWER AND WATER PLANS</b>				
1	Invert elevations (inlet, outlet, weir, etc.) measured to the nearest tenth-foot (0.1) for structures and field connections	_____	_____	_____
2	Pipe diameter, distance between structures (measured centerline to centerline), pipe slope and structure stationing labeled on profile view	_____	_____	_____
3	Rim elevation of structures	_____	_____	_____
4	Any changes in type of structure noted in the structure schedule	_____	_____	_____
5	Any changes in type or class of pipe noted in the pipe schedule	_____	_____	_____
6	Water valve tie drawings	_____	_____	_____
7	Length, width, depth and outfall elevation of rip rap and other outfall protection as specified	_____	_____	_____
<b>E) STORMWATER MANAGEMENT PLAN</b>				
1	Grading, storage volume and hydrology must be approved by DPW prior to landscaping/planting. All plantings must be added to the As-Built plans after plant installation. As-Built plans will not be approved without required plantings	_____	_____	_____
2	Profile along the centerline of the embankment	_____	_____	_____
3	Profiles and/or cross sections of the stormwater management facilities with associated details	_____	_____	_____
4	Elevations of the "water quality", 2, 5, 10 and 100-year storms as appropriate	_____	_____	_____
5	Profile along the centerline of the principal spillway/outfall pipe extending below the protected outfall or to the downstream manhole structure	_____	_____	_____
6	Length, width, slope information and depth or contours (one-foot intervals) of the pond area along with a verification of the original design volume	_____	_____	_____
7	Profile along the centerline of the emergency spillway	_____	_____	_____
8	Design and As-Built Stage versus Storage Table on the plan view sheet	_____	_____	_____
9	Establishment of a benchmark on the riser/control structure or inlet headwall to the nearest one-tenth (0.1) foot	_____	_____	_____
10	As-Built information for concept condition items (i.e. SVI reforestation, grading requirements, bio-sensitive stream crossing, etc.)	_____	_____	_____
11	Infiltration rate test results as required by SWM construction inspection checklists	_____	_____	_____
12	Include SWM Drainage Area Map. Modify delineated drainage areas if constructed is different than approved. Use modified areas in as-built computations	_____	_____	_____
<b>F) MATERIALS USED</b> (Material/delivery tickets for materials used in the construction must be provided to the DPW Construction Inspector at the time of construction)				
1	Dimensions and type of material for the riser/control structure	_____	_____	_____
2	Diameter, length and type of material for the principal spillway, underdrains, and observation wells/cleanouts	_____	_____	_____
3	Trash rack device(s): Size, location and type	_____	_____	_____
4	Anti-seep collars, precast collars and concrete cradles: Number, size and location	_____	_____	_____
5	Low stage orifice: Invert, size and length	_____	_____	_____
6	High stage weir/riser crests: Invert, size and length	_____	_____	_____
7	Manhole covers/facility access: Vented/non-vented delineation, with steps/ladders provided for maintenance access	_____	_____	_____
8	Flow splitter: Diversion pipe/weir invert, size and location	_____	_____	_____
9	Storm drain pipes/appurtenances: Incoming and outgoing sizes, inverts and outfall dimensions	_____	_____	_____
10	Aggregates and planting soil: Coarse/fine type and thickness	_____	_____	_____
11	Filter (geotextile) fabric: Type and location (vertical and horizontal)	_____	_____	_____

## AS-BUILT PLAN REVIEW CHECKLIST - PAGE 4

Initial Submission		Rockville's Review		
		1st	2nd	3rd
G) CERTIFICATIONS				
1	Certifications from suppliers which are not included as material tickets (e.g., filter cartridge information or secondary as-built of plumbing system from contractor)			
2	As-built certification statement, signed by a Professional Engineer or Professional Land Surveyor indicating, “I hereby certify that the information shown on this record drawing is an accurate and complete representation of data established from field information obtained under the direction of a Professional Engineer or a Professional Land Surveyor, and that the physical dimensions or elevations shown thus 37.55' are as-built information and the facility was constructed according to the approved plans, except as otherwise noted hereon”			
3	As-built certification statements for green roofs only, signed by the Owner / Developer indicating, <b>Green Roof Bearing Capacity Certification</b> “I hereby certify that the constructed roof meets the load bearing capacity specified on the approved plans” <b>Green Roof Waterproofing Certification</b> “I hereby certify that the waterproofing membrane has been installed and has been tested to ensure water tightness”			
4	As-built certification statement for ponds only, signed by a Professional Engineer indicating, “This record drawing is accurate and complete and the pond is constructed as per the approved stormwater management plan or subsequent approved revisions and substantially meets and/or exceeds the requirements of the Soil Conservation Service MD-378 Standards and Specifications for ponds”			
5	As-built certification statement for single-family development only, signed by the Owner/Developer AND City Inspector indicating, “This record drawing accurately and completely represents the stormwater management practices as they were constructed. All stormwater management practices were constructed per the approved Sediment Control/Stormwater Management plans or subsequent approved revisions”			
6	Geotechnical engineer's inspection and testing reports verifying that the materials used (i.e. soils, concrete, reinforcing steel, etc) meet the project specifications of the approved plan			
7	Landscape plan included with as-built plan set. Number and location of landscape/wetland plantings shown, as-built planting schedule and details, certified by a Maryland licensed design professional			
H) SUPPORTING DOCUMENTATION				
1	Completed “Contractor's Construction Inspection Checklist” with supporting documentation for all SWM facilities (one checklist per facility)			
2	Revised design computations verifying the functionality of SWM facilities. One copy of a red-lined electronic (PDF) SWM Report shall include a stormwater summary sheet comparing the approved and as-built critical design parameters, shown by values and percent change			
3	Storage deviation verification (i.e., TR-20 model to show adequate storage if the available storage does not agree with the original design)			
4	Verify easements, covenants and any other legal agreements are recorded and provide the Liber and Folio reference. Verify the SWM facility was constructed within the recorded easement area			
5	Verify structural computations and approved shop drawings are submitted			



February 28, 2024

Rockville Swim and Fitness Center  
Timothy Chesnutt  
111 Maryland Avenue  
Rockville, MD  
20850

Re: Rockville Swim and Fitness Center 355 Martins Lane, FTP2023-00058

Dear Mr. Chesnutt:

The Forest Conservation Plan (FCP) received on February 23, 2024 for 355 Martins Lane under [FTP2023-00058](#) has been approved by the Community Planning and Development Services Department (CPDS). The approved FCP is required as part of a Minor Site Plan Amendment application for the proposed renovations to the onsite outdoor swim pool including replacements of the recreation pool, slides, splash pad and pool decking at the Rockville Swim and Fitness Center.

#### FOREST AND TREE PRESERVATION ORDINANCE (FTPO) REQUIREMENTS

The proposed development within the City requires compliance with the City of Rockville's FTPO. CPDS approved a Natural Resources Inventory/Forest Stand Delineation plan on August 18, 2023.

#### FOREST CONSERVATION

The forest conservation requirement for this project is based on the following:

- Total tract area (LOD Area): 1.53 acres
- Site zoning: Park
- Existing forest (within net tract): 0.03 acres
- Reforestation required: 0.08 acres
- Afforestation required: 0.20 acres

The site within the LOD area has 0.03 acres of existing forest. Outside of the LOD, the site has adjacent forest stands to the east (stand 4) and northwest (stand 3). The site has an afforestation threshold of 0.23 acres and a forest conservation threshold of 0.31 acres. The applicant is proposing to meet the afforestation and reforestation requirements through a proposed forest conservation easement (retained forest) within stand 3 of 0.28 acres.

**MINIMUM TREE COVER**

The minimum tree cover requirement for this project is 15%, or 9,989 square feet. This requirement is met through the proposed forest conservation easement in forest stand 3 as detailed on the approved forest conservation plan.

**SIGNIFICANT TREES/SPECIMEN TREES**

Significant trees are defined as trees located outside of a forest and being 12" DBH (diameter at breast height) and trees located within a forest and being 24" DBH and greater. Specimen trees are defined as trees with a diameter equal to or greater than 30" DBH or trees that are 75% of the diameter of the state champion tree of that species. Removal of specimen trees requires written justification approved by the City Forester in accordance with Section 10.5-2(c) of the FTPO. There are two significant trees within the LOD on site. Outside of the LOD, there are eight specimen trees and 23 significant trees, with one of the significant trees being dead.

**Significant Trees**

The project proposes to remove seven significant trees from the project site for which ten significant tree replacements will be required. Three trees less than 12" DBH outside of a forest will be removed and seven trees less than 24" DBH within a forest will be removed. No specimen trees will be removed. All other trees on site will be preserved.

**CONDITIONS OF APPROVAL FOR FOREST CONSERVATION PLANS**

1. The Approved FCP and Minor Site Plan Amendment must comply with the FTPO and Zoning Ordinance. In addition to compliance with applicable codes, the following specific directives must be followed unless modified by Community Planning and Development Services:
2. Ensure tree plantings meet minimum spacing requirements, which include:
  - a. Shade trees spaced 20 feet apart, large, or small evergreens and ornamental trees spaced 15 feet apart. Shade trees 15 feet from ornamental trees. Spacing between evergreens and shade trees is 15 or 20 feet, as determined by the City since distance is dependent on growth habit of the species.
  - b. 10 feet from wet and dry utilities, except when these are under streets or as otherwise authorized by designated staff.
  - c. 15 feet from streetlights and driveways (DPW provide requirements for sight distances and stop signs) or as authorized by designated staff.
  - d. 10 feet from inlets.
  - e. Shade trees and large evergreens shall be spaced a minimum of 7 feet, and ornamental trees and small evergreens to be spaced a minimum of 5 feet from micro bioretention underdrain pipes (6" diameter and smaller)
  - f. Street trees can be planted over stormwater conveyance pipes when pipes have a minimum of 4 feet of cover and are immediately behind the curb.
  - g. Trees planted to meet FTPO or other forestry requirements on the site may not be located within existing or proposed easements (excluding forest conservation easements).
3. Ensure that significant tree replacement plantings are minimum 2.5" caliper for shade and large evergreen trees, and minimum 7'-8' height for small ornamental or small evergreen trees. All significant tree plantings must be B&B grown.

Page 3

4. Please ensure that the Recreation & Parks City Forester is present at the pre-planting meeting to approve final tree planting locations on-site.
5. Please include signage for the Permanent Forest Conservation Easement per the City of Rockville Forest and Tree Preservation details, available on the City website:  
<https://www.rockvillemd.gov/1066/Forest-and-Tree-Preservation>
6. Soil augmentation per the city's Forest and Tree Preservation Ordinance Notes will be required prior to installation of new trees within existing green space or where pavement was previously located.
7. The applicant must obtain a forestry permit and submit all necessary legal documents prior to the release of any building permits associated with the project.

#### FORESTRY PERMIT

The applicant is required to obtain a Forestry permit prior to forestry sign off on any sediment control permit and building permit associated with the site plan. The following items are required before issuance of the Forestry permit:

- Execution of a Forest Conservation Easement or other method of long-term preservation agreement, as authorized by Chapter 10.5-26 of the City Code.
- Submission of the FTP permit application.

The FCP approval does not infer or supersede other required project approvals and is contingent upon meeting all other city requirements including, but not limited to stormwater management, erosion and sediment control, water and sewer, traffic and transportation, and zoning and building codes.

Any significant modification to the approved FCP must be consistent with Minor Site Plan Amendment approval.

Sincerely,



Shayda Musavi  
Principal Planner- Forest Conservation  
City of Rockville, Maryland

Cc:

Jim Wasilak, Zoning and Development Manager  
John Foreman, Development Services Manager  
Shaun Ryan, Development Review Supervisor



**Adam Goldstein**

---

**From:** Murrell, Ryan G. <Ryan.Murrell@montgomerycountymd.gov>  
**Sent:** Wednesday, February 14, 2024 1:11 PM  
**To:** Adam Goldstein  
**Cc:** Laurie Beth Donnachie  
**Subject:** Permit #2024-7317-ALT, Rockville Swim and Fitness, 355 Martins Lane, Rockville

**WARNING - External email. Exercise caution.**

Hello,

The plans for the above referenced facility have been approved by our office. The City of Rockville have also been notified of this approval. Approval of these plans and specifications by this office does not indicate compliance with any other code, law or regulation that may be required by other approving authorities. Final approval is contingent upon field inspections of facility. **You may not deviate from the approved plans without written approval from this office.**

**A piping inspection of the facility is required per COMCOR 51.00.01.02.B1.** Once the work is complete, please call us at 240-777-3829 to arrange for a piping inspection of the facility. Approval to continue construction will be issued only after an inspection confirms that the facility meets all pressure test requirements as required by ANSI/NSPI-1 2003 (Static Pressure Test at 25psi for 24 hours). Therefore, you must allow sufficient time for the initial inspection, as well as any corrective re-inspections.

**A final construction inspection of the facility is required.** Once the work is complete, and site has passed the required **piping inspection**, please call us at 240-777-3829 to arrange for a final construction inspection of the facility. Approval to operate and open to the public will be issued only after an inspection confirms that the facility meets all regulations as required by COMAR 10.17.01. Therefore, you must allow sufficient time for the initial inspection, as well as any corrective re-inspections.

**A pre-opening inspection of the facility is required to begin operations.** Once the facility has passed the **final construction inspection and has been provided with a U&O for the pool**, please call us at 240-777-3829 to arrange for a preopening inspection of the facility. Approval to operate and open to the public will be issued only after an inspection confirms that the facility meets all regulations as required by COMAR 10.17.01. Therefore, you must allow sufficient time for the initial inspection, as well as any corrective re-inspections.

Within 30 days of pre-opening inspection, prior to scheduling, the owner must also submit the **Swimming Pool Operating Permit Application, Swimming Pool Management Company Registration** (if needed), **Public Swimming Pool And Spa Facility Review Form For Compliance With The Virginia Graeme Baker Pool And Spa Safety Act** and **Corresponding Fees**. This information may be found at:

<https://www.montgomerycountymd.gov/HHS-Special/LandRLicensePermitSwimmingPools.html#planreview>

Please let me know if you have any questions.

Thank you,  
Ryan Murrell

Ryan Murrell, REHS/RS  
Environmental Health Specialist II

Department of Health and Human Services  
Licensure and Regulatory Services  
2425 Reedie Drive, 9<sup>th</sup> Floor  
Wheaton, Maryland 20902  
Desk: 240-777-3829  
Office: 240-777-3986  
Ryan.Murrell@Montgomerycountymd.gov

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**For more helpful Cybersecurity Resources, visit:** <https://www.montgomerycountymd.gov/cybersecurity>

## Chapter 31B – Noise Control

- § 31B-2. Definitions.
- § 31B-3. Regulations.
- § 31B-4. Noise control advisory board.
- § 31B-5. Noise level and noise disturbance violations.
- § 31B-6. Noise level and noise disturbance standards for construction.
- § 31B-7. Measurement of sound.
- § 31B-8. Noise sensitive areas.
- § 31B-9. Leafblowers.
- § 31B-10. Exemptions.
- § 31B-11. Waivers.
- § 31B-12. Enforcement and penalties.

### Sec. 31B-1. Declaration of policy.

- (a) The County Council finds that excessive noise harms public health and welfare and impairs enjoyment of property. The intent of this Chapter is to control noise sources to protect public health and welfare and to allow the peaceful enjoyment of property. This Chapter must be liberally construed to carry out this intent.
- (b) The Department of Environmental Protection administers this Chapter.
  - (1) The Department must coordinate noise abatement programs of all County agencies, municipalities, and regional agencies.
  - (2) A County agency, municipality in which this Chapter applies, or regional authority subject to County law must not adopt a standard or regulation that is less stringent than this Chapter or any regulation adopted under this Chapter.
  - (3) The Director may form an Interagency Coordinating Committee to assist the Director in coordinating noise control policy. If the Director forms the Committee, the Director must designate an individual to chair the Committee. The members of the Committee should be designated by County, local, and regional agencies that the Director invites to participate.
  - (4) The Department must establish procedures to identify and reduce noise sources when the County plans and issues permits, variances, exemptions, or approvals.
  - (5) The Department should make recommendations to the County Executive, County Council, and Planning Board regarding noise control policy, regulations, enforcement, and noise sensitive areas. (1996 L.M.C., ch. 32, § 1.)

**Editor's note**—See County Attorney Opinion dated 3/16/92 explaining that the Washington Metropolitan Area Transportation Authority (esp. Metrorail) is subject to the County's noise control law, although an exemption may be obtained if it is in the public interest.

### Sec. 31B-2. Definitions.

In this Chapter, the following words and phrases have the following meanings:

- (a) *Construction* means temporary activities directly associated with site preparation, assembly, erection, repair, alteration, or demolition of structures or roadways.
- (b) *dba* means decibels of sound, as determined by the A-weighting network of a sound level meter or by calculation from octave band or one-third octave band data.
- (c) *Daytime* means the hours from 7 a.m. to 9 p.m. on weekdays and 9 a.m. to 9 p.m. on weekends and holidays.

- (d) Decibel means a unit of measure equal to 10 times the logarithm to the base 10 of the ratio of a particular sound pressure squared to the standard reference pressure squared. For this Chapter, the standard reference pressure is 20 micropascals.
- (e) *Department* means the Department of Environmental Protection.
- (f) *Director* means the Director of the Department of Environmental Protection or the Director's authorized designee.
- (g) *Enforcement officer* means:
  - (1) for a noise originating from any source:
    - (A) an employee or agent of the Department designated by the Director to enforce this Chapter;
    - (B) a police officer; or
    - (C) a person authorized under Section 31B-12(a) to enforce this Chapter;
    - (D) a person authorized by a municipality to enforce this Chapter; or
  - (2) for a noise originating from an animal source, the Director of the Animal Services Division in the Police Department or the Director's authorized designee.
- (h) *Impulsive noise* means short bursts of a acoustical energy, measured at a receiving property line, characterized by a rapid rise to a maximum pressure followed by a somewhat slower decay, having a duration not greater than one second and a field crest factor of 10 dBA or more. Impulsive noise may include, for example, noise from weapons fire, pile drivers, or punch presses.
- (i) *Leaf blower* means any portable device designed or intended to blow, vacuum, or move leaves or any other type of unattached debris or material by generating a concentrated stream of air. Leafblower includes devices or machines that accept vacuum attachments.
- (j) *Nighttime* means the hours from 9 p.m. to 7 a.m. weekdays and 9 p.m. to 9 a.m. weekends and holidays.
- (k) *Noise* means sound, created or controlled by human activity, from one or more sources, heard by an individual.
- (l) *Noise area* means a residential or non-residential noise area:
  - (1) *Residential noise area* means land in a zone established under Section 59-C-1.1, Section 59-C-2.1, Division 59-C-3, Section 59-C-6.1, Section 59-C-7.0, Section 59-C-8.1, Section 59-C-9.1 for which the owner has not transferred the development rights, or Section 59-C-10.1, or land within similar zones established in the future or by a political subdivision where Chapter 59 does not apply.
  - (2) *Non-residential noise area* means land within a zone established under Section 59-C-4.1, Section 59-C-5.1, Section 59-C-9.1 for which the owner has transferred the development rights, or Division 59-C-12, or land in similar zones established in the future or by a political subdivision where Chapter 59 does not apply.
- (m) *Noise disturbance* means any noise that is:
  - (1) unpleasant, annoying, offensive, loud, or obnoxious;
  - (2) unusual for the time of day or location where it is produced or heard; or
  - (3) detrimental to the health, comfort, or safety of any individual or to the reasonable enjoyment of property or the lawful conduct of business because of the loudness, duration, or character of the noise.
- (n) *Noise sensitive area* means land designated by the County Executive as a noise sensitive area under Section 31B-8.

- (o) *Noise-suppression plan* means a written plan to use the most effective noise-suppression equipment, materials, and methods appropriate and reasonably available for a particular type of construction.
- (p) *Person* means an individual, group of individuals, corporation, firm, partnership, or voluntary association; or a department, bureau, agency, or instrument of the County or any municipality, or of any other government to the extent allowed by law.
- (q) *Prominent discrete tone* means a sound, often perceived as a whine or hum, that can be heard distinctly as a single pitch or a set of pitches. A prominent discrete tone exists if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:
  - (1) 5 dB for center frequencies of 500 Hz and above;
  - (2) 8 dB for center frequencies between 160 and 400 Hz; or
  - (3) 15 dB for center frequencies less than or equal to 125 Hz.
- (r) *Qualifying performing arts facility* means the outdoor area of a building, outdoor seasonal, temporary, or permanent stage, or other clearly defined outdoor area or space, which is:
  - (1) used for an outdoor arts and entertainment activity; and
  - (2) owned or operated by the County; and
  - (3) so designed by the County Executive in an Executive Order published in the County Register. The Executive may revoke a designation at any time by publishing an Executive Order revoking the designation in the County Register.
- (s) *Receiving property* means any real property where people live or work and where noise is heard, including an apartment, condominium unit, or cooperative building unit.
- (t) *Sound* means an auditory sensation evoked by the oscillation of air pressure.
- (u) *Source* means any person, installation, device, or animal causing or contributing to noise. (1996 L.M.C., ch. 32, § 1; 2001 L.M.C., ch. 2, § 1.)

**Editor's note**—See County Attorney Opinion dated 10/6/00 indicating that long-term parking on public streets is prohibited in certain circumstances, but not based on the size of the vehicle. See County Attorney Opinion dated 3/16/92 explaining that the Washington Metropolitan Area Transportation Authority (esp. Metrorail) is subject to the County's noise control law, although an exemption may be obtained if it is in the public interest.

### **Sec. 31B-3. Regulations.**

The County Executive may establish noise control regulations and standards as necessary to accomplish the purposes and intent of this Chapter. Any regulation must be at least as stringent as this Chapter. The Executive by regulation may set fees that are sufficient to offset the costs of Department reviews or other actions required or authorized by this Chapter. (1996 L.M.C., ch. 32, § 1.)

### **Sec. 31B-4. Noise control advisory board.**

- (a) A Noise Control Advisory Board must advise the County Executive, Director, County Council, and Planning Board on noise control issues, including administration and enforcement of this Chapter.
- (b) The Board consists of 11 members appointed by the Executive and confirmed by the Council.
- (c) The Board must elect one member as Chair and another member as Vice-Chair to serve at the pleasure of the Board. The Board must meet at the call of the chairperson as required to perform its duties, but not less than once each quarter. A majority of the members of the

Board constitutes a quorum for transacting business. The Board may act by a majority vote of those present.

- (d) At least every third year, the Board must evaluate the effectiveness of the County's noise control program and recommend any improvements to the Director, County Executive, County Council, and Planning Board.
- (e) No later than March 1 each year, the Chair of the Board must report to the Director, County Executive, County Council, and Planning Board on activities and actions the Noise Control Advisory Board took during the previous calendar year. (1996 L.M.C., ch. 32, § 1; 1999 L.M.C., ch. 2, § 1.)

**Editor's note**-1999 L.M.C., ch. 2, § 1, increased the number of Board members from 7 to 11. 1999 L.M.C., ch. 2, § 2, states:

Sec. 2. Transition.

- (a) The terms of the 4 members of the Noise Control Advisory Board added by this Act end:
    - (1) for 1 member, on September 30, 1999, and every third year thereafter;
    - (2) for 2 members, on September 30, 2000, and every third year thereafter; and
    - (3) for 1 member, on September 30, 2001, and every third year thereafter.
  - (b) When appointing the first individual to serve in one of the 4 new positions, the County Executive must designate the term in subsection (a) for which the Executive is appointing the individual.
  - (c) This Act does not affect the term of any current member of the Board.
- Cross reference**-Boards and commissions generally, § 2-141 et seq.

**Sec. 31B-5. Noise level and noise disturbance violations.**

- (a) *Maximum allowable noise levels.*
  - (1) Except as otherwise provided in Sections 31B-6(a) and 31B-8, a person must not cause or permit noise levels that exceed the following levels:

<i>Maximum Allowable Noise Levels (dBA) for Receiving Noise Areas</i>		
	<i>Daytime</i>	<i>Nighttime</i>
Non-residential noise area	67	62
Residential noise area	65	55

- (2) A person must not cause or permit the emission of a prominent discrete tone or impulsive noise that exceeds a level, at the location on a receiving property where noise from the source is greatest, that is 5 dBA lower than the level set in paragraph (1) for the applicable noise area and time.
    - (3) Sound that crosses between residential and non-residential noise areas must not exceed the levels set in paragraph (1) for residential noise areas.
  - (b) *Noise disturbance.* A person must not cause or permit noise that creates a noise disturbance.
  - (c) *Examples.* The following examples illustrate common noise-producing acts that violate this section if they exceed the noise level standards set in subsection (a) or create a noise

disturbance. The examples are illustrative only and do not limit or expand the noise level or noise disturbance standards of this section:

- (1) Sounding a horn or other signaling device on any motor vehicle on private property except:
  - (A) in an emergency; or
  - (B) as a danger warning signal during daytime hours if the device complies with noise level limits.
- (2) Operating a sound-producing device on public streets for commercial advertising or to attract public attention.
- (3) Selling anything by outcry.
- (4) Loading, unloading, opening, closing or otherwise handling containers, building materials, construction equipment, or similar objects.
- (5) Operating a device that produces, reproduces, or amplifies sound.
- (6) Allowing an animal to create a noise disturbance.
- (7) Operating power equipment mounted on a motor vehicle or operating other devices powered by a generator or a motor vehicle. (1996 L.M.C., ch. 32, § 1.)

**Editor's note**—See County Attorney Opinion dated 10/6/00 indicating that long-term parking on public streets is prohibited in certain circumstances, but not based on the size of the vehicle. See County Attorney Opinion dated 3/16/92 explaining that the Washington Metropolitan Area Transportation Authority (esp. Metrorail) is subject to the County's noise control law, although an exemption may be obtained if it is in the public interest.

#### **Sec. 31B-6. Noise level and noise disturbance standards for construction.**

- (a) *Maximum allowable noise levels for construction.*
  - (1) A person must not cause or permit noise levels from construction activity that exceed the following levels:
    - (A) From 7 a.m. to 5 p.m. weekdays:
      - (i) 75 dBA if the Department has not approved a noise-suppression plan for the activity; or
      - (ii) 85 dBA if the Department has approved a noise-suppression plan for the activity.
    - (B) The level specified in Section 31B-5 at all other times.
  - (2) Construction noise levels must be measured at the location, at least 50 feet from the source, on a receiving property where noise from the source is greatest.
  - (3) The Department must by regulation establish requirements for noise-suppression plans and adopt procedures for evaluating and approving plans. The regulations must provide that, at least 10 days before approving a noise-suppression plan, the Director must provide public notice reasonably calculated to reach at least a majority of households that might be affected by the construction activity noise levels above 75 dBA.
- (b) *Construction noise disturbance.* The prohibition on noise disturbance in Section 31B- 5(b) applies to construction activities, notwithstanding subsection (a).
- (c) *Examples.* The following examples illustrate common construction noise-producing acts that violate this section if they exceed the noise level standards set in subsection (a) or create a noise disturbance. The examples are illustrative only and do not limit or expand the construction noise level or noise disturbance standards of this section:
  - (1) Delivering materials or equipment, or loading or unloading during nighttime hours in a residential noise area.
  - (2) Operating construction equipment with audible back-up warning devices during nighttime hours. (1996 L.M.C., ch. 32, § 1.)

**Sec. 31B-6A. Seasonal noise level standard for qualifying outdoor arts and entertainment activities.**

- (a) Each outdoor arts and entertainment activity held at a qualifying performing arts facility must not exceed the following noise decibel limits:
  - (1) from 11 a.m. to 11 p.m. during April 1 through October 31, 75 dBA, as measured on the receiving property; and
  - (2) at all other times, the maximum allowable noise level set in Section 31B-5.
- (b) A qualifying performing arts facility which has complied with this Section must not cause or permit noise levels from an outdoor arts and entertainment activity to exceed the standards in subsection (a).
- (c) Any outdoor arts and entertainment activity conducted at a qualifying performing arts facility which has complied with this Section must not be cited as causing a noise disturbance.
- (d) The Department must annually advise the Executive and Council, and the operator of each qualifying performing arts facility, whether the noise levels specified in this Section remain appropriate for that facility and the extent of compliance with those levels. (2011 L.M.C., ch. 7, § 1)

**Sec. 31B-7. Measurement of sound.**

- (a) The Department must issue regulations establishing the equipment and techniques it will use to measure sound levels. The Department may rely on currently accepted standards of recognized organizations, including the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), and the United States Environmental Protection Agency.
- (b) For multiple sources of sound, the Department may measure sound levels at any point to determine the source of a noise. (1996 L.M.C., ch. 32, § 1.)

**Sec. 31B-8. Noise sensitive areas.**

- (a) The County Executive may designate by regulation land within any geographical area as a noise sensitive area to protect public health, safety, and welfare. The regulation may prohibit certain noise producing activities in the noise sensitive area.
- (b) A regulation under subsection (a) must:
  - (1) describe the area by reference to named streets or other geographic features;
  - (2) explain the reasons for the designation;
  - (3) establish specific noise limits or requirements that apply in the noise sensitive area; and
  - (4) describe by example or enumeration activities or sources that violate the limits or requirements.
- (c) A regulation under subsection (a) may establish limits or requirements for a noise sensitive area that are more stringent than those that otherwise would apply to the area under this Chapter. (1996 L.M.C., ch. 32, § 1.)

**Sec. 31B-9. Leafblowers.**

- (a) Except as provided in this section, a person must not sell, buy, offer for sale, or use a leafblower at any time that has an average sound level exceeding 70 dBA at a distance of 50



feet. This requirement is in addition to any other noise level or noise disturbance standard that applies under this Chapter.

- (b) An individual who owns or occupies a residence in a residential noise area may use at the individual's residence a leafblower bought or manufactured before July 1, 1990, until July 1, 1998, even if it exceeds the standard in subsection (a). After July 1, 1998, a person must not use any leafblower that violates the standard in subsection (a).
- (c) The Department must apply the standard in subsection (a) in accordance with the most current leaf-blower testing standard of the American National Standards Institute (ANSI).
- (d) The Department may inspect, and on its request a person must produce, any leafblower that is sold, offered for sale, or used in the County, to determine whether the leafblower complies with this section. A person who relies in good faith on a manufacturer's written representation of the sound level of a leafblower that has not been modified is not subject to a penalty for violating this section. (1996 L.M.C., ch. 32, § 1.)

#### **Sec. 31B-10. Exemptions.**

- (a) This Chapter does not apply to:
  - (1) agricultural field machinery used and maintained in accordance with the manufacturer's specifications;
  - (2) emergency operations by fire and rescue services, police agencies, or public utilities and their contractors;
  - (3) a source or condition expressly subject to any State or federal noise-control law or regulation that is more stringent than this Chapter;
  - (4) sound, not electronically amplified, created between 7 a.m. and 11 p.m. by sports, amusements, or entertainment events or other public gatherings operating according to the requirements of the appropriate permit or licensing authority. This includes athletic contests, carnivals, fairgrounds, parades, band and orchestra activities, and public celebrations.
- (b) The County Executive may issue regulations exempting from Section 31B-5 sources associated with routine residential living during daytime hours, such as home workshops, power tools, and power lawn and garden equipment, when used in accordance with manufacturer specifications. This exception does not apply to repairs or maintenance on a motor vehicle that is not registered for use on public roads. (1996 L.M.C., ch. 32, § 1.)

#### **Sec. 31B-11. Waivers.**

- (a) *Temporary waiver.*
  - (1) The Director may waive any part of this Chapter for a temporary event if the noise the event will create or cause in excess of the limits established under this Chapter is offset by the benefits of the event to the public.
  - (2) When the Director receives an application under this subsection, the Director must provide public notice of the application reasonably calculated to reach at least a majority of households that might be affected by noise levels anticipated for the event. The Director must not approve an application under this subsection less than 10 days after the public notice.
- (b) *General waiver.*
  - (1) The Director may waive any part of this Chapter if the Director determines that compliance in a particular case is not practical and would impose undue hardship.
  - (2) When the Director receives an application under this subsection, the Director must schedule a hearing on the application within 60 days.
  - (3) At least 30 days before the hearing, the applicant must advertise the hearing by:

- (A) placing a display advertisement in a newspaper of general circulation in the community where the source that is the subject of the application is located; and
  - (B) posting a sign at the location of the source.
- (4) Based on evidence presented at the hearing, the Director may grant a waiver for up to 3 years, under terms and conditions appropriate to reduce the impact of the exception.
- (5) The Director may renew a waiver granted under this subsection if the applicant shows that the circumstances supporting the original waiver have not changed.
- (c) *Violation of waiver.* The Director may suspend, modify, or revoke a waiver granted under this section if a person violates the terms or conditions of the waiver.
- (d) *Regulations and fees.* The County Executive must issue regulations implementing this section that:
  - (1) set the procedures and fees to apply for a waiver under subsections (a) or (b);
  - (2) require the applicant to use the best technology and strategy reasonably available to mitigate noise, as determined by the Director;
  - (3) allow temporary waivers under subsection (a) of no more than 30 days, renewable at the discretion of the Director no more than twice; and
  - (4) specify the requirements for the hearing advertisement and sign required under subsection (b)(3). (1996 L.M.C., ch. 32, § 1.)

#### **Sec. 31B-12. Enforcement and penalties.**

- (a) The Department must enforce this Chapter. The County Executive may delegate in writing the authority to enforce parts of this Chapter to the Police Department or any other Executive agency.
- (b) A violation of this Chapter is a Class A violation. Each day a violation continues is a separate offense. A violation of Section 31B-6 is a separate offense in addition to any other violation of this Chapter arising from the same act or occurrence.
- (c) The Department may seek injunctive or other appropriate judicial relief to stop or prevent continuing violations of this Chapter.
- (d) If the Director finds that a person has violated this Chapter, the Director may issue a notice of violation and corrective order to the person. The notice must contain the following information:
  - (1) the section of this Chapter that the person violated;
  - (2) the date, nature, and extent of the violation;
  - (3) the action required to correct the violation;
  - (4) if the Director requires a compliance plan, the deadline for submitting the plan to the Director; and
  - (5) the deadline for compliance.
- (e) The compliance plan referred to in subsection (d)(4) must establish a schedule for achieving compliance with this Chapter, as specified in the corrective order. A compliance plan, and amendments to a plan, are not effective until the Director approves the plan or amendment. An action allowed under an approved compliance plan does not violate this Chapter.
- (f) An enforcement officer may issue a civil citation for any violation of this Chapter if the enforcement officer:
  - (1) witnesses the violation; or

- (2) receives complaints from at least 2 witnesses of a noise disturbance. Complaints by 2 witnesses are required to issue a citation under paragraph (2), but are not required to prove that a person violated this Chapter.
- (g) The Director of the Animal Services Division may initiate administrative action before the Animal Matters Hearing Board instead of an enforcement officer issuing a citation under subsection (f) for a violation of this Chapter originating from an animal source.
- (h) A person aggrieved by any action or order of the Director under Sections 31B-9 and 31B-11 may seek reconsideration within 10 days after the date of the action or order. A request for reconsideration must be in writing to the Director, and must specify the date and nature of the action or order, the injury sustained, the remedy requested, and the legal basis for the remedy. If the Director finds that there are material facts in dispute, the Director may refer the matter to a hearing officer under the procedures specified in Chapter 2A. If the Director finds that there are no material facts in dispute, the Director must make a final decision on the request for reconsideration in writing within 45 days after receiving the request. The aggrieved person may appeal from the Director's final decision within 30 days after the Director issues the decision, as provided in Section 2A-11.
- (i)
  - (1) A person responsible for a violation of Section 31B-6 and the person responsible for the management or supervision of the construction site where the source of the violation is located are jointly and severally liable for the violation.
  - (2) For recurring violations of Section 31B-6 on the same construction site, in addition to any other penalty under this Chapter, the Director may issue a stop work order, as provided in Section 8-20, for up to:
    - (A) 3 consecutive working days for a second violation within 30 days after the first violation;
    - (B) 5 consecutive working days for a third violation within 60 days after the first violation; and
    - (C) 7 working days per offense for the fourth and subsequent violations within a 120-day period.
  - (3) This Chapter does not limit the Director's authority under Chapter 8 to revoke a permit or approval issued under that Chapter.
- (j) Any person aggrieved by a violation of this Chapter may file a civil action in any court with jurisdiction against a person responsible for the alleged violation. The aggrieved person must notify the alleged violator and the Director of the alleged violation at least 60 days before filing the action. A person must not file an action under this subsection if the County Attorney has filed a civil action against the same alleged violator regarding the same violation. (1996 L.M.C., ch. 32, § 1; 2001 L.M.C., ch. 2, § 1.)

#### Endnotes

Editor's note—In *Burrows v. United States*, 2004 U.S. Dist. LEXIS 1104 (2004), the Court interpreted Montgomery County Code Chapter 31B neither to permit a private cause of action for noise control, nor to permit suit against the federal government. Chapter 31B is discussed in *Miller v. Maloney Concrete Company*, 63 Md.App. 38, 491 A.2d 1218 (1985). \*Cross references—Noise from quarries, § 38-14; radio, etc., without earphones prohibited in public transit facilities, § 54A-2; industrial area noise regulations, § 59-A-5.7.

[Note]

Discipline	Drawing No.	Drawing Title	Revision	Drawing Date	Set Name
Architect, Landscape	L001	Cover Sheet		2/23/2024	Bid Set
Civil	C-001	Civil Cover Sheet		2/23/2024	Bid Set
Civil	C-003	Stormwater Management Cover Sheet		2/23/2024	Bid Set
Civil	C-004	Sediment Control Cover Sheet		2/23/2024	Bid Set
Civil	C-005	Site Plan Amendment Cover Sheet		2/23/2024	Bid Set
Civil	C-100	Existing Condition & Demolition Plan		2/23/2024	Bid Set
Civil	C-200	Site Plan		2/23/2024	Bid Set
Civil	C-205	Site Details		2/23/2024	Bid Set
Civil	C-210	Grading Plan		2/23/2024	Bid Set
Civil	C-220	Retaining Wall Plan		2/23/2024	Bid Set
Civil	C-301	Stormwater Management Plan		2/23/2024	Bid Set
Civil	C-302	Drainage Area Map		2/23/2024	Bid Set
Civil	C-305	Stormwater Management Details		2/23/2024	Bid Set
Civil	C-320	Storm Drainage Plan		2/23/2024	Bid Set
Civil	C-400	Erosion and Sediment Control Plan		2/23/2024	Bid Set
Civil	C-405	Erosion and Sediment Control Details		2/23/2024	Bid Set
Civil	C-410	Erosion and Sediment Control Notes		2/23/2024	Bid Set
Civil	C-500	Utility Plan		2/23/2024	Bid Set
Civil	SS-001	Sanitary Sewer Plan and Profile		2/23/2024	Bid Set
Arborist	LI-1	FCP Plan View		2/23/2024	Bid Set
Arborist	LI-2	FCP Plan Tables		2/23/2024	Bid Set
Arborist	LI-3	FCP Tree Table (TPAK)		2/23/2024	Bid Set
Arborist	LI-4	FCP Tree Table (TPAK)		2/23/2024	Bid Set
Arborist	LI-5	FCP Tree Table (TPAK)		2/23/2024	Bid Set
Arborist	LI-6	FCP FTPO Notes		2/23/2024	Bid Set
Arborist	LI-7	FCP Details		2/23/2024	Bid Set
Arborist	LI-8	FCP Details		2/23/2024	Bid Set
Arborist	LI-9	FCP Details Mitigation Planting		2/23/2024	Bid Set
Architect, Landscape	L100	Overall Site Plan & Egress Diagram		2/23/2024	Bid Set
Architect, Landscape	L101	Reference Plan And Add Alternates		2/23/2024	Bid Set
Architect, Landscape	L101A	Reference Plan: Add Alternate: Movable Furniture		2/23/2024	Bid Set
Architect, Landscape	L102	Enlargment Plan		2/23/2024	Bid Set
Architect, Landscape	L103	Enlargment Plan		2/23/2024	Bid Set
Architect, Landscape	L104	Layout Plan		2/23/2024	Bid Set
Architect, Landscape	L105	Site Accessibility Plan		2/23/2024	Bid Set
Architect, Landscape	L301	Sections and Elevations		2/23/2024	Bid Set
Architect, Landscape	L302	Sections and Elevations		2/23/2024	Bid Set
Architect, Landscape	L303	Sections and Elevations		2/23/2024	Bid Set
Architect, Landscape	L311	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L312	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L312A	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L312B	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L313	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L314	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L315	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L316	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L317	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L318	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L319	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L320	Construction Details		2/23/2024	Bid Set
Architect, Landscape	L401	Planting Plan		2/23/2024	Bid Set
Architect, Landscape	L402	Planting Plan		2/23/2024	Bid Set
Architect, Landscape	L411	Planting Details		2/23/2024	Bid Set
Architect, Landscape	L601	Lighting Plan		2/23/2024	Bid Set

DRAWINGS LOG  
03-01-24IFB # 13-24  
SECTION VII

Architect, Landscape	L602	Lighting Plan		2/23/2024	Bid Set
Architect, Landscape	L603	Canopy Lighting Plan		2/23/2024	Bid Set
Structural	S-001	General Notes		2/23/2024	Bid Set
Structural	S-002	General Notes		2/23/2024	Bid Set
Structural	S-100	Pump Room Repair Plan		2/23/2024	Bid Set
Structural	S-101	Sunning Deck Repair Plan		2/23/2024	Bid Set
Structural	S-200	Repair Details		2/23/2024	Bid Set
Structural	S-201	Masonry & Repair Details		2/23/2024	Bid Set
Structural	S-202	Site Retaining Wall Key Plan and Details		2/23/2024	Bid Set
Aquatic	O-1	Overall Layout Plan		2/23/2024	Bid Set
Aquatic	DP-1	Deck Plan North		2/23/2024	Bid Set
Aquatic	DP-2	Deck Plan South		2/23/2024	Bid Set
Aquatic	SP-1	Swimming Pool Layout		2/23/2024	Bid Set
Aquatic	SP-2	Swimming Pool Plumbing		2/23/2024	Bid Set
Aquatic	SP-3	Swimming Pool Sections		2/23/2024	Bid Set
Aquatic	SL-1	Slide Layout		2/23/2024	Bid Set
Aquatic	SL-2	Slide Plumbing		2/23/2024	Bid Set
Aquatic	SL-3	Details		2/23/2024	Bid Set
Aquatic	SL-4	Details		2/23/2024	Bid Set
Aquatic	AP-1	Activity Pool Layout		2/23/2024	Bid Set
Aquatic	AP-2	Activity Pool Plumbing		2/23/2024	Bid Set
Aquatic	AP-2.1	Overall Plumbing Plan		2/23/2024	Bid Set
Aquatic	AP-3	Activity Pool Sections		2/23/2024	Bid Set
Aquatic	AP-4	Activity Pool Sections		2/23/2024	Bid Set
Aquatic	AP-5	Details		2/23/2024	Bid Set
Aquatic	AP-6	Details		2/23/2024	Bid Set
Aquatic	AP-7	Details		2/23/2024	Bid Set
Aquatic	AP-8	Details		2/23/2024	Bid Set
Aquatic	AP-9	Details		2/23/2024	Bid Set
Aquatic	AP-10	Details		2/23/2024	Bid Set
Aquatic	AP-11	Details		2/23/2024	Bid Set
Aquatic	AP-12	Details		2/23/2024	Bid Set
Aquatic	AP-13	Details		2/23/2024	Bid Set
Aquatic	AP-14	Details		2/23/2024	Bid Set
Aquatic	AP-15	Details		2/23/2024	Bid Set
Aquatic	AP-16	Details		2/23/2024	Bid Set
Aquatic	AP-17	Details		2/23/2024	Bid Set
Aquatic	AP-18	Details		2/23/2024	Bid Set
Aquatic	AP-19	Details		2/23/2024	Bid Set
Aquatic	AP-20	Details		2/23/2024	Bid Set
Aquatic	MR-1	Mechanical Room Layout		2/23/2024	Bid Set
Aquatic	MR-1.1	Mechanical Room Plumbing Layout		2/23/2024	Bid Set
Aquatic	MR-2	Details		2/23/2024	Bid Set
Aquatic	MR-3	Details		2/23/2024	Bid Set
Aquatic	MR-4	Details		2/23/2024	Bid Set
Aquatic	MR-5	Details		2/23/2024	Bid Set
Aquatic	MR-6	Details		2/23/2024	Bid Set
Aquatic	MR-7	Details		2/23/2024	Bid Set
Aquatic	MR-8	Details		2/23/2024	Bid Set
Aquatic	MR-9	Details		2/23/2024	Bid Set
Aquatic	MR-10	Details		2/23/2024	Bid Set
Electric	E001	Specifications and Symbols		2/23/2024	Bid Set
Electric	E002	Demolition Site Plan		2/23/2024	Bid Set
Electric	E003	Demolition Site Plan		2/23/2024	Bid Set
Electric	E004	Site Plan		2/23/2024	Bid Set
Electric	E005	Site Plan		2/23/2024	Bid Set

DRAWINGS LOG  
03-01-24

IFB # 13-24  
SECTION VII

Electric	E006	Pool Equipment Room Demolition, Power & Lighting Plans		2/23/2024	Bid Set
Electric	E007	Bath House & Snack Bar Demolition and New Work Plans		2/23/2024	Bid Set
Electric	E008	Fitness Pool Storage Room Demolition & New Work Plans		2/23/2024	Bid Set
Electric	E009	Bath House Riser Diagrams		2/23/2024	Bid Set
Electric	E010	Snack Bar and Pool Equipment Room Riser Diagrams		2/23/2024	Bid Set
Electric	E011	Panel and Light Fixture Schedules		2/23/2024	Bid Set
Electric	E012	Panel Schedules		2/23/2024	Bid Set
Electric	E013	Panel Schedules		2/23/2024	Bid Set
Plumbing	P001	Specifications and Symbols		2/23/2024	Bid Set
Plumbing	P002	Site Plan		2/23/2024	Bid Set
Plumbing	P003	Floor Plan		2/23/2024	Bid Set
Plumbing	P004	Risers, Schedules, and Details		2/23/2024	Bid Set
Mechanical	M-001	Specifications, Legend, Notes, Abbreviations & Schedules		2/23/2024	Bid Set
Mechanical	M-101	Mechanical Room Demolition & New Work Plans		2/23/2024	Bid Set
Drawings Log Last Updated			2/26/2024		



# ROCKVILLE SWIM & FITNESS CENTER OUTDOOR RECREATION POOL RENOVATIONS

DEPARTMENT OF RECREATION AND PARKS

## BID DOCUMENTS



### GENERAL NOTES:

1.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT AND/OR DISCREPANCY BETWEEN THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE OR APPLICABLE CODES, REGULATIONS, LAWS, RULES, STATUTES AND/OR ORDINANCES, IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO NOTIFY THE PROJECT ARCHITECT OF RECORD, IN WRITING, OF SAID CONFLICT AND/OR DISCREPANCY PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR'S FAILURE TO NOTIFY THE PROJECT ARCHITECT SHALL CONSTITUTE CONTRACTOR'S FULL AND COMPLETE ACCEPTANCE OF ALL RESPONSIBILITY TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, STATUTES, ORDINANCES AND CODES AND, FURTHER, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SAME.
2.

CONTACT 'MISS UTILITY' 48 HOURS PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR BEING FAMILIAR WITH ALL PUBLIC AND PRIVATE UNDERGROUND UTILITIES, PIPES AND OTHER STRUCTURES BY CONTACTING MISS UTILITY.
3.

BASE INFORMATION INCLUDING, BUT NOT LIMITED TO, RIGHTS-OF-WAY, EASEMENTS, SIGHT DISTANCES, UTILITY LOCATION, TOPOGRAPHY, AND PROPOSED GRADING PROVIDED BY CLARK | AZAR & ASSOCIATES, INC., GERMANTOWN, MD.
4.

FIELD STAKEOUT SURVEYOR IS RESPONSIBLE FOR VERIFYING EXISTING SITE CONDITIONS AND NOTING ANY DISCREPANCIES BETWEEN SITE FIELD CONDITIONS AND STAKING PLAN PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR IS RESPONSIBLE FOR WORK PERFORMED PRIOR TO VERIFICATION OF STAKING PLAN. CONTRACTOR SHALL BEAR THE COSTS ASSOCIATED WITH REMEDIAL ACTION, AS DIRECTED BY ARCHITECT.
5.

ARCHITECT SHALL APPROVE STAKING IN FIELD OF ALL WORK PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT 72 HOURS IN ADVANCE OF STAKEOUT.
6.

PRIOR TO CONSTRUCTION OF WALLS, CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACTUAL FINISH GRADE ELEVATIONS IN THE FIELD AND ADJUST TOP OF WALL ELEVATIONS, AS APPROVED BY THE ARCHITECT, TO MEET THE DESIGN INTENT.
7.

DO NOT PROCEED WITH CONSTRUCTION WHEN OBSTRUCTIONS AND/OR GRADE CONFLICTS EXIST. IMMEDIATELY ALERT ARCHITECT OF SUCH CONDITIONS IN WRITING. THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR ALL REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
8.

ALL DIMENSIONS SHOWN ON L-SERIES PLANS ARE PARALLEL AND PERPENDICULAR UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO THE FACES OF WALLS AND BACKS OF CURBS, UNLESS OTHERWISE NOTED. DO NOT SCALE DIMENSIONS OFF THE DRAWINGS.
9.

THESE PLANS ARE REPRESENTATIVE OF DESIGN INTENT ONLY AND, AS SUCH, DENOTE VERTICAL AND HORIZONTAL RELATIONSHIPS, MATERIALS AND FINISHES. SUBMIT SHOP DRAWINGS FOR ARCHITECT'S REVIEW INDICATING ELECTRICAL AND STRUCTURAL DESIGNS APPROPRIATE TO ENSURE DESIGN INTENT IS MET.
10.

PROVIDE SUBMITTALS, SHOP DRAWINGS, SAMPLES, AND MOCKUPS FOR REVIEW BY THE ARCHITECT PRIOR TO ORDERING/CONSTRUCTING. CONTRACTOR SHALL BEAR RESPONSIBILITY FOR WORK UNDERTAKEN AND/OR MATERIALS ORDERED PRIOR TO OBTAINING THE ARCHITECT'S APPROVAL. CONTRACTOR SHALL BEAR THE COSTS ASSOCIATED WITH REMEDIAL ACTION, AS DIRECTED BY THE ARCHITECT .
11.

ALL IMPROVEMENTS SHOWN WITHIN THE PUBLIC RIGHT-OF-WAY ARE RECOMMENDATIONS OR PREFERENCES AND SUBJECT TO FINAL APPROVAL BY THE APPROPRIATE AUTHORITY OR JURISDICTION. OBTAIN APPROVAL FROM CITY OF ROCKVILLE AND/OR MARYLAND PRIOR TO CONSTRUCTION.
12.

ALL EQUIPMENT SERVING THE EXISTING FITNESS POOL WILL NEED TO REMAIN OPERATIONAL IN THE MONTHS OF MARCH – OCTOBER.
13.

ALL WORK SHALL CONFORM TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS, AND ADOPTED STANDARDS OF CITY OF ROCKVILLE AND MARYLAND UNLESS WAIVED AND/OR MODIFIED UNDER SEPARATE APPLICATION. OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION. SEE BELOW FOR A LIST OF DESIGN CODES AND STANDARDS USED FOR THIS PROJECT, INCLUDING BUT NOT LIMITED TO THE FOLLOWING. SEE SUBCONSULTANTS DRAWING SETS FOR ADDITIONAL REQUIREMENTS FOR THE PROJECT.

i.

MONTGOMERY COUNTY EXECUTIVE REGULATION: 22-12, MANUAL ON SWIMMING POOL CONSTRUCTION

ii.

MONTGOMERY COUNTY EXECUTIVE REGULATION: 21-12AM, MANUAL ON SWIMMING POOL OPERATION

iii.

CODE OF MARYLAND REGULATIONS (COMAR)10.17.01: PUBLIC SWIMMING POOLS AND SPAS, CODE OF MARYLAND REGULATIONS (COMAR) 09.12.63: WATER SLIDES

iv.

AMERICANS WITH DISABILITIES ACT AS AMENDED AND 2010 ADA STANDARDS OF ACCESSIBLE DESIGN & MARYLAND ACCESSIBILITY CODE (COMAR 05.02.02)

v.

BUILDING CODE - 2018 INTERNATIONAL BUILDING CODE

vi.

MECHANICAL – 2018 INTERNATIONAL MECHANICAL CODE

vii.

PLUMBING - 2018 INTERNATIONAL PLUMBING CODE

viii.

ELECTRICAL – 2017 NATIONAL ELECTRICAL CODE (NFPA 70)

ix.

GAS – 2015 INTERNATIONAL FUEL GAS CODE

x.

SPRINKLER – 2016 NFPA 13 FIRE SPRINKLER CODE

xi.

FIRE ALARM – 2016 NFPA 72 FIRE ALARM CODE

xii.

AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS, LATEST EDITION

xiii.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (MDE) LATEST EDITION

xiv.

ENERGY EFFICIENCY – 2018 INTERNATIONAL ENERGY CONSERVATION CODE

xv.

CITY OF ROCKVILLE AMENDMENTS: [HTTPS://WWW.ROCKVILLEMD.GOV/2169/BUILDING-AND-SAFETY-CODES](https://www.rockvillemd.gov/2169/BUILDING-AND-SAFETY-CODES)

xvi.

CITY OF ROCKVILLE FOREST AND TREE PRESERVATION ORDINANCE: [HTTPS://WWW.ROCKVILLEMD.GOV/1066/FORESTRY](https://www.rockvillemd.gov/1066/FORESTRY)

xvii.

CITY OF ROCKVILLE STORMWATER ORDINANCE: [HTTPS://WWW.ROCKVILLEMD.GOV/2375/STORMWATER-MANAGEMENT-PERMIT](https://www.rockvillemd.gov/2375/STORMWATER-MANAGEMENT-PERMIT)

xviii.

CITY OF ROCKVILLE, DEPARTMENT OF PUBLIC WORKS STANDARDS AND DETAILS FOR CONSTRUCTION, LATEST EDITION

xviii.

2021 INTERNATIONAL SWIMMING POOL AND SPA CODE

14.

PERMIT NUMBERS ASSOCIATED WITH PROJECT: PWK2024-00048, SCP2024-00002, SMP2024-00016

15.

EQUIPMENT SERVING THE EXISTING FITNESS POOL WILL NEED TO REMAIN OPERATIONAL IN THE MONTHS OF MARCH – OCTOBER.

16.

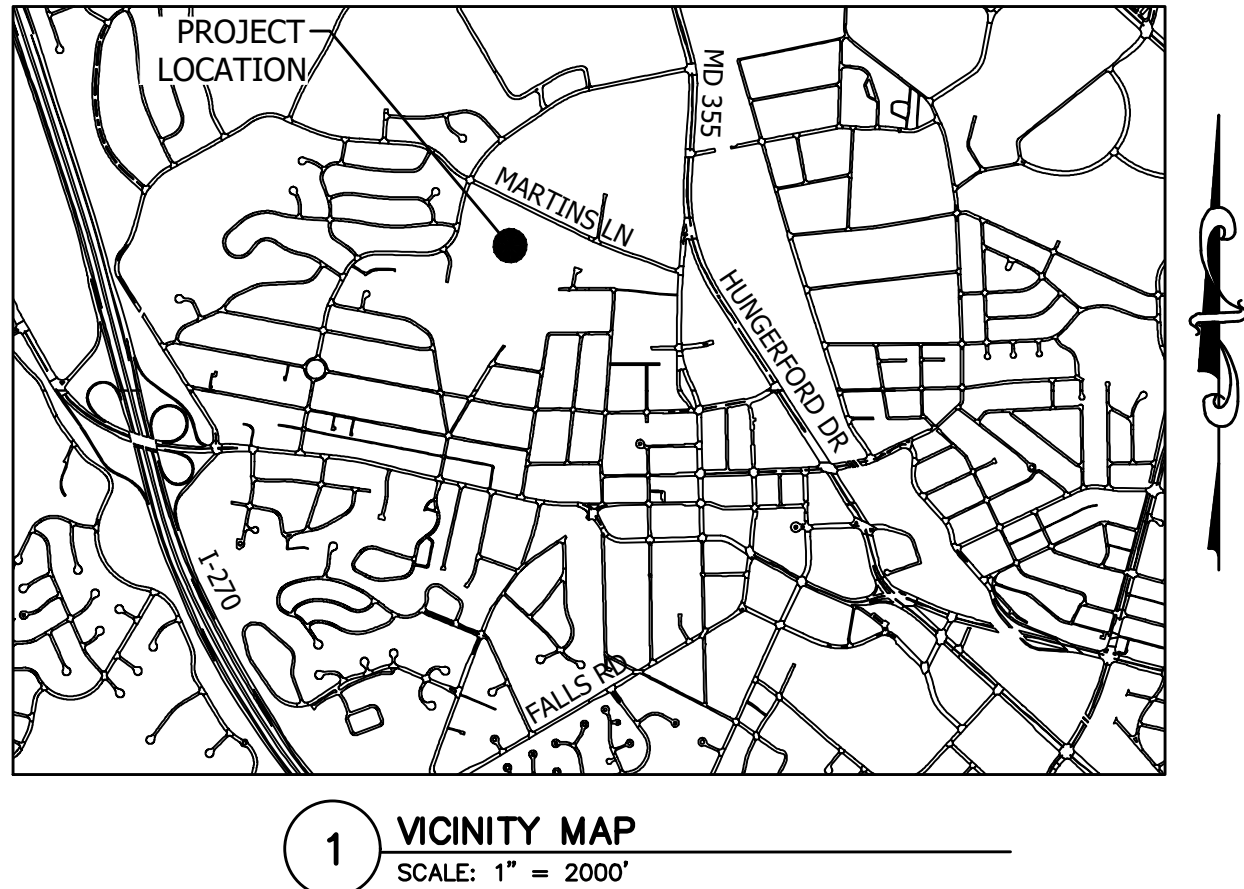
CONTRACTOR RESPONSIBLE FOR COORDINATING WITH WASHINGTON GAS AND NPL (THIRD PARTY CONTRACTOR) FOR FINAL DECISION ON GAS LINE RELOCATION. BASE BID TO INCLUDE ANY FEES ASSOCIATED WITH THE GAS LINE RELOCATION. NPL CONTACT INFO: KAREN MALDONADO, KMALDONADO@GONPL.COM, 571-428-3176.
- 
- ## INDEX OF DRAWINGS
- | SHEET # |        | DESCRIPTION                                      | SHEET # |        | DESCRIPTION  |
|---------|--------|--|---------|--------|--|
| 1       | L001   | COVER SHEET                                      | 74      | AP-1   | ACTIVITY POOL LAYOUT                                     |
| 2       | C-001  | CIVIL COVER SHEET                                | 75      | AP-2   | ACTIVITY POOL PLUMBING                                   |
| 3       | C-003  | STORMWATER MANAGEMENT COVER SHEET                | 76      | AP-2.1 | OVERALL PLUMBING PLAN                                    |
| 4       | C-004  | SEDIMENT CONTROL COVER SHEET                     | 77      | AP-3   | ACTIVITY POOL SECTIONS                                   |
| 5       | C-005  | SITE PLAN AMENDMENT COVER SHEET                  | 78      | AP-4   | ACTIVITY POOL SECTIONS                                   |
| 6       | C-100  | EXISTING CONDITIONS & DEMOLITION PLAN            | 79      | AP-5   | DETAILS  |
| 7       | C-200  | SITE PLAN  | 80      | AP-6   | DETAILS  |
| 8       | C-205  | SITE DETAILS                                     | 81      | AP-7   | DETAILS  |
| 9       | C-210  | GRADING PLAN                                     | 82      | AP-8   | DETAILS  |
| 10      | C-220  | RETAINING WALL PLAN                              | 83      | AP-9   | DETAILS  |
| 11      | C-301  | STORMWATER MANAGEMENT PLAN                       | 84      | AP-10  | DETAILS  |
| 12      | C-302  | DRAINAGE AREA MAP                                | 85      | AP-11  | DETAILS  |
| 13      | C-305  | STORMWATER MANAGEMENT DETAILS                    | 86      | AP-12  | DETAILS  |
| 14      | C-320  | STORM DRAINAGE PLAN                              | 87      | AP-13  | DETAILS  |
| 15      | C-400  | EROSION AND SEDIMENT CONTROL PLAN                | 88      | AP-14  | DETAILS  |
| 16      | C-405  | EROSION AND SEDIMENT CONTROL DETAILS             | 89      | AP-15  | DETAILS  |
| 17      | C-410  | EROSION AND SEDIMENT CONTROL NOTES               | 90      | AP-16  | DETAILS  |
| 18      | C-500  | UTILITY PLAN                                     | 91      | AP-17  | DETAILS  |
| 19      | SS-001 | SANITARY SEWER PLAN AND PROFILE                  | 92      | AP-18  | DETAILS  |
| 20      | LJ-1   | FCP PLAN VIEW                                    | 93      | AP-19  | DETAILS  |
| 21      | LJ-2   | FCP PLAN TABLES                                  | 94      | AP-20  | DETAILS  |
| 22      | LJ-3   | FCP TREE TABLE (TPAK)                            | 95      | MR-1   | MECHANICAL ROOM LAYOUT                                   |
| 23      | LJ-4   | FCP TREE TABLE (TPAK)                            | 96      | MR-1.1 | MECHANICAL ROOM PLUMBING LAYOUT                          |
| 24      | LJ-5   | FCP TREE TABLE (TPAK)                            | 97      | MR-2   | DETAIL   |
| 25      | LJ-6   | FCP FIPO NOTES                                   | 98      | MR-3   | DETAIL   |
| 26      | LJ-7   | FCP DETAILS                                      | 99      | MR-4   | DETAIL   |
| 27      | LJ-8   | FCP DETAILS                                      | 100     | MR-5   | DETAIL   |
| 28      | LJ-9   | FCP MITIGATION PLANTING                          | 101     | MR-6   | DETAIL   |
| 29      | L100   | OVERALL SITE PLAN & EGRESS PATH DIAGRAM          | 102     | MR-7   | DETAIL   |
| 30      | L101   | REFERENCE PLAN AND ADD ALTERNATES                | 103     | MR-8   | DETAIL   |
| 31      | L101A  | REFERENCE PLAN: ADD ALTERNATE: MOVABLE FURNITURE | 104     | MR-9   | DETAIL   |
| 32      | L102   | ENLARGEMENT PLAN                                 | 105     | MR-10  | DETAIL   |
| 33      | L103   | ENLARGEMENT PLAN                                 | 106     | E001   | SPECIFICATIONS AND SYMBOLS                               |
| 34      | L104   | LAYOUT PLAN                                      | 107     | E002   | DEMOLITION SITE PLAN                                     |
| 35      | L105   | SITE ACCESSIBILITY PLAN                          | 108     | E003   | DEMOLITION SITE PLAN                                     |
| 36      | L301   | SECTIONS AND ELEVATIONS                          | 109     | E004   | SITE PLAN  |
| 37      | L302   | SECTIONS AND ELEVATIONS                          | 110     | E005   | SITE PLAN  |
| 38      | L303   | SECTIONS AND ELEVATIONS                          | 111     | E006   | POOL EQUIPMENT ROOM DEMOLITION, POWER & LIGHTING PLANS   |
| 39      | L311   | CONSTRUCTION DETAILS                             | 112     | E007   | BATH HOUSE & SNACK BAR DEMOLITION AND NEW WORK PLANS     |
| 40      | L312   | CONSTRUCTION DETAILS                             | 113     | E008   | FITNESS POOL STORAGE ROOM DEMOLITION & NEW WORK PLANS    |
| 41      | L312A  | CONSTRUCTION DETAILS                             | 114     | E009   | BATH HOUSE RISER DIAGRAMS                                |
| 42      | L312B  | CONSTRUCTION DETAILS                             | 115     | E010   | SNACK BAR AND POOL EQUIPMENT ROOM RISER DIAGRAMS         |
| 43      | L313   | CONSTRUCTION DETAILS                             | 116     | E011   | PANEL AND LIGHT FIXTURE SCHEDULES                        |
| 44      | L314   | CONSTRUCTION DETAILS                             | 117     | E012   | PANEL SCHEDULES  |
| 45      | L315   | CONSTRUCTION DETAILS                             | 118     | E013   | PANEL SCHEDULES  |
| 46      | L316   | CONSTRUCTION DETAILS                             | 119     | P001   | SPECIFICATIONS AND SYMBOLS                               |
| 47      | L317   | CONSTRUCTION DETAILS                             | 120     | P002   | SITE PLAN  |
| 48      | L318   | CONSTRUCTION DETAILS                             | 121     | P003   | FLOOR PLAN   |
| 49      | L319   | CONSTRUCTION DETAILS                             | 122     | P004   | RISERS, SCHEDULES AND DETAILS                            |
| 50      | L320   | PRODUCT SCHEDULE                                 | 123     | M-001  | SPECIFICATIONS, LEGEND, NOTES, ABBREVIATIONS & SCHEDULES |
| 51      | L401   | PLANTING PLAN                                    | 124     | M-101  | MECHANICAL ROOM DEMOLITION & NEW WORK PLANS              |
| 52      | L402   | PLANTING PLAN                                    |         |        |  |
| 53      | L411   | PLANTING DETAILS                                 |         |        |  |
| 54      | L601   | LIGHTING PLAN                                    |         |        |  |
| 55      | L602   | LIGHTING PLAN                                    |         |        |  |
| 56      | L603   | CANOPY LIGHTING PLAN                             |         |        |  |
| 57      | S-001  | GENERAL NOTES                                    |         |        |  |
| 58      | S-002  | GENERAL NOTES                                    |         |        |  |
| 59      | S-100  | PUMP ROOM REPAIR PLAN                            |         |        |  |
| 60      | S-101  | SUNNING DECK REPAIR PLAN                         |         |        |  |
| 61      | S-200  | REPAIR DETAILS                                   |         |        |  |
| 62      | S-201  | MASONRY & REPAIR DETAILS                         |         |        |  |
| 63      | S-202  | SITE RETAINING WALL KEY PLAN AND DETAILS         |         |        |  |
| 64      | O-1    | OVERALL LAYOUT PLAN                              |         |        |  |
| 65      | DP-1   | DECK PLAN NORTH                                  |         |        |  |
| 66      | DP-2   | DECK PLAN SOUTH                                  |         |        |  |
| 67      | SP-1   | SWIMMING POOL LAYOUT                             |         |        |  |
| 68      | SP-2   | SWIMMING POOL PLUMBING                           |         |        |  |
| 69      | SP-3   | SWIMMING POOL SECTIONS                           |         |        |  |
| 70      | SL-1   | SLIDE LAYOUT                                     |         |        |  |
| 71      | SL-2   | SLIDE PLUMBING                                   |         |        |  |
| 72      | SL-3   | DETAILS  |         |        |  |
| 73      | SL-4   | DETAILS  |         |        |  |
- ### LSG LANDSCAPE ARCHITECTURE
- 8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045
- 
- ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850
- 
- DEPARTMENT OF  
RECREATION AND PARKS
- ## OUTDOOR RECREATION POOL RENOVATIONS
- 355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND
- ### COVER SHEET
- ### BID SET
- |   |                                      |
|---|--------------------------------------|
| 1 | 65% CONSTRUCTION DOCUMENT 06/25/2023 |
| 2 | 80% CONSTRUCTION DOCUMENT 08/18/2023 |
| 3 | 95% CONSTRUCTION DOCUMENT 10/10/2023 |
| 4 | BUILDING PERMIT SET 12/08/2023       |
| 5 | HD COMMENT RESPONSE 01/08/2024       |
| 6 | BID SET 02/01/2024                   |
| 7 | BUILDING PERMIT SET 02/06/2024       |
| 8 | BUILDING PERMIT SET 02/20/2024       |
| 9 | BID SET 02/22/2024                   |
- | No.                         | Description | Date |
|-----------------------------|-------------|------|
| Revisions                   |             |      |
| Project Number: 22.00036.00 |             |      |
| Scale: AS SHOWN             |             |      |
| Drawn By: AD, HW, BS        |             |      |
| Checked By: AD              |             |      |
| Date: 01/08/2024            |             |      |
| Sheet No.                   |             | L001 |
- © 2019 LSG LANDSCAPE ARCHITECTURE
- Page 624 of 747
- BID SET 02/23/2024



# ROCKVILLE SWIM AND FITNESS CENTER OUTDOOR RECREATION POOL RENOVATIONS

### GENERAL NOTES

1. TOPOGRAPHY SURVEY PERFORMED BY KCW. DATED SEPTEMBER 2022 AND UPDATED JUNE 2023.
2. THE HORIZONTAL DATUM OF THIS SURVEY IS MARYLAND STATE PLANE (NAD83/91).
3. THE VERTICAL DATUM OF THIS SURVEY IS NAVD 88
4. THE LOCATION OF UNDERGROUND UTILITIES IS BASED ON AVAILABLE RECORDS. CONTRACTOR TO VERIFY IN FIELD.
5. THERE IS NO MAPPED FLOODPLAIN ASSOCIATED WITH THIS SITE PER FEMA FLOOD INSURANCE RATE MAP NUMBER 2403C0333D, DATED SEPT. 29, 2006.
6. DETAIL DRAWINGS AND SCHEDULES DESCRIBE CONSTRUCTION AT GIVEN AREAS. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL UTILIZE EQUIVALENT CONSTRUCTION METHODS IN ALL AREAS NOT DETAILED.
7. ALL NOTES ON DRAWINGS SHALL BE ASSUMED AS TYPICAL, UNLESS OTHERWISE SHOWN OR NOTED ON THE DRAWINGS.
8. IT SHALL BE THE DUTY OF THE CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS GIVEN ON THE DRAWINGS AND TO REPORT TO THE ENGINEER ANY ERROR OR INCONSISTENCY WITH THE ACTUAL CIRCUMSTANCES IN THE FIELD BEFORE COMMENCING WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL AND ALL ITEMS REQUIRED TO PROVIDE A SITE CLEAR OF OBSTRUCTIONS (ABOVE & BELOW GRADE) AND GRADED TO SPECIFIED ELEVATIONS.
10. ALL BIDDERS: THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE HIM/HERSELF WITH THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED PRIOR TO SUBMITTING BID.
11. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL SITE SUB-CONTRACTORS/BIDDERS WITH FULL AND COMPLETE SETS OF ALL CIVIL DRAWINGS AND SPECIFICATIONS FOR THEIR USE IN PREPARING BIDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DELAYS AND COSTS ARISING DURING CONSTRUCTION FROM BIDS BASED UPON INCOMPLETE SETS OF SITE BID DOCUMENTS.
12. PRIOR TO VEGETATIVE STABILIZATION, ALL DISTURBED AREAS MUST BE TOPSOILED PER THE SPECIFICATION FOR TOPSOIL (SEE SHEET C-410) AND TECHNICAL SPECIFICATIONS. IF ON-SITE MATERIALS DO NOT MEET REQUIREMENTS OF TOPSOIL, COORDINATE WITH CITY OF ROCKVILLE REGARDING TILLING-IN OF CERTIFIED COMPOST TO ON-SITE SOILS IN ORDER TO MEET SPECIFICATION.
13. ANY DISCREPANCIES, OMISSIONS, AMBIGUITIES, OR CONFLICTS IN AND AMONG THE CONSTRUCTION DOCUMENTS OR DOUBT ABOUT THEIR MEANING, SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER FOR DIRECTION BEFORE PROCEEDING WITH WORK. IF AMBIGUITIES EXIST, THE BETTER QUALITY AND GREATER QUANTITY OF MATERIAL SHALL BE BID UPON AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED BY THE OWNER IN WRITING.
14. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL TRADE PERMITS AND PAY FEES ASSOCIATED WITH SAID PERMITS. CITY OF ROCKVILLE PERMIT FEES WILL BE WAIVED
15. ALL WORK ASSOCIATED WITH THE CITY OF ROCKVILLE PUBLIC WORKS PERMIT SHALL BE PERFORMED BY A WSSC LICENSED CONTRACTOR IN ACCORDANCE WITH WSSC REGULATIONS.
16. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH WASHINGTON GAS FOR FINAL DECISION ON GAS LINE MOVEMENT. BASE BID SHALL INCLUDE ANY FEES ASSOCIATED WITH THE GAS LINE RELOCATION.
17. CLARK J AZAR & ASSOCIATES WILL RELEASE CAD BASE FILES OF THE SITE CIVIL DRAWINGS TO THE SUCCESSFUL CONTRACTOR PRIOR TO THE START OF THE CONSTRUCTION. FILES WILL BE FORWARDED PRIOR TO THE START OF CONSTRUCTION.



CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



CLARK | AZAR &amp; ASSOCIATES

0440 Century Blvd, Suite 2  
Germantown, MD. 20874  
T(301) 528-2010  
[www.clarkazar.com](http://www.clarkazar.com)

## A Woman Owned Small Business



I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO.

EXPIRATION DATE

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 208



DEPARTMENT OF  
RECREATION AND PARKS

# OUTDOOR RECREATION POOL RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

# CIVIL COVER SHEET

# PERMIT SET

1	65% CONSTRUCTION DOCUMENT 06/25/202
2	80% CONSTRUCTION DOCUMENT 08/18/202
3	95% CONSTRUCTION DOCUMENT 10/10/202
4	PERMIT SET 12/08/202

No.	Description	Date
Revisions		

Project Number: 22.00036.0  
Scale: 1" = 200'  
Drawn By: S  
Checked By: J  
Date: 02/08/202

Sheet No. C-001



# ROCKVILLE SWIM AND FITNESS CENTER OUTDOOR RECREATION POOL RENOVATIONS SMP2024-00016

## GENERAL NOTES November 2016

- The Applicant is the entity for which the City of Rockville Department of Public Works (DPW) has issued a permit. For DPW projects where a permit is not applicable, the entity for which the City contract is issued shall be considered the Applicant in these notes. The Applicant is responsible for all contractors, agents, subcontractors, or other entities completing work under this permit and/or approved plan.
- The Applicant must arrange a pre-construction meeting prior to commencing any work. Provide at least 48 hours of notice to the following: City Project Inspector listed in the permit, City Forestry Inspector at 240-314-8713, if required by either a DPW and/or Forestry permit, or DPW Sediment Control Inspector at 240-314-8879, if required by permit.
- The Applicant must contact Miss Utility at 1-800-257-7777 or #811 or missutility.net so that utilities are marked prior to holding any pre-construction meeting.
- Information concerning existing underground utilities was obtained from available records. The Contractor must determine the exact location and elevation of existing utilities by digging test pits at the utility crossings well in advance of trenching. If clearance is less than shown on this plan, contact the Professional Engineer who stamped the design plans before proceeding with construction.
- Maintain a minimum one-foot vertical clearance between all City utilities crossing any other utility. Unless otherwise noted, maintain a five-foot horizontal clearance between a City utility with any other utility or structure. The only exception is that there shall be a two-foot horizontal clearance between City water and sewer mains.
- At the end of each day, all trenches shall be backfilled, all equipment secured, and the area left in a safe condition. Steel plates are allowed to remain no longer than seven days. Plates are to be notched (recessed) and pinned to the roadways. Plates must be large enough to allow a minimum of one-foot bearing on all four sides of the pavement surrounding the excavation. The steel plate requirements only apply to public streets.
- The public road utility patch shall be in accordance with City Standard Detail #60, or as shown on the plans. All trenches in public streets shall be filled with compacted Graded Aggregate Base (GAB) from the pavement to the top of the pipe embedment zone or to a depth of five-feet, whichever is less.
- DPW normal working hours are Monday through Friday, except holidays, from 7 a.m. to 5 p.m. The City observes the following holidays: New Year's Day, Martin Luther King's Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Thanksgiving Friday, and Christmas Day, and all days of general and congressional elections throughout the State. The Contractor will not be permitted to close lanes or do any work that requires the services of the City forces, outside of the normal working hours, unless listed in the permit or authorized by DPW in writing. However, the Contractor, with verbal permission of DPW may be permitted to work outside of the normal work hours for clean-up activities or other such items that do not adversely impact traffic, residents or City services.
- Traffic must be maintained on all roadways within the construction area as directed by DPW. No lane closure shall be permitted between 7:00-9:00 A.M. or 3:30-6:00 P.M. Monday through Friday. An exception is that lane closures are permitted on secondary residential streets at any time during normal working hours. Deployment and design of all traffic control devices shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). If required, traffic control plans shall be reviewed and approved by the Chief of the Traffic and Transportation Division. DPW may suspend lane closure or other traffic controls at any time during, or in advance of, inclement weather events.
- Sheeting and shoring is the total responsibility of the Applicant. A Professional Engineer licensed in the State of Maryland shall seal these drawings. Provide three copies to DPW for informational purposes only.
- In addition to all City permits, the Applicant is responsible to ensure that all necessary Federal, State and/or Montgomery County approvals and/or permits have been obtained in association with this approved plan.
- Shop drawings must be prepared and sealed by a Professional Engineer licensed in the State of Maryland prior to fabrication. The Professional Engineer who sealed the design plans (but not the shop drawings) must approve the shop drawings for conformance to the approved design. Provide three copies of approved shop drawings to DPW prior to construction. Standard pre-cast structures previously approved by the Maryland State Highway Administration, Montgomery County and Washington Suburban Sanitary Commission do not require a shop drawing submission. Use actual field wall data for design of pipes and structures. All pipes and structures in paved areas shall be designed for HS-20 vehicle loading.
- Upon completion of construction, the Applicant shall provide three sets of red lined As-Built prints (24" x 36") for review and approval by DPW. The drawings must contain the original approval signatures and Professional Engineer's seal and signature (a scanned image of the original mylar is acceptable). The As-Built shall be sealed by a Professional Engineer or Professional Surveyor, as appropriate and must be licensed by the State of Maryland. The seal shall note that it is only for the As-Built and shall include an as-built certification acceptable to DPW. Upon receipt of written approval, the Applicant shall provide approved As-Built mylar drawings along with the original mylars (with all original signatures) to DPW prior to the release of the permit.
- The Applicant must comply with the Montgomery County Noise Control Ordinance. Please refer to the Montgomery County Department of Environmental Protection at 240-777-7770, askdep@montgomerycountymd.gov, or www.montgomerycountymd.gov/DEP.

- Concrete design shall meet the requirements of ACI 350, Environmental Engineering Concrete Structures, with freezing and thawing exposures. Concrete mix shall use type II or IIA cement, with a 28-day compressive strength of 4500 psi for cast in place and 5000 psi for pre-cast structures. Concrete shall also meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 420 and 902.10, Mix No. 6.
- The Applicant shall supply DPW with certified concrete strength results from an independent firm, stamped by a Professional Engineer who is licensed in the State of Maryland.
- Reinforcing steel to be ASTM A615, Grade 60. Epoxy coated reinforcing, when specified, shall conform to ASTM A775. Minimum steel spacing requirement to be in accordance with ACI 350,  $A_s = 0.003$  bh at maximum rebar spacing of 12-inches. Minimum concrete cover over steel is 2-inches for walls or slabs; 3-inches for base slabs cast against earth or mat soil. Wall thickness and clear distance to reinforcing shall be as shown on drawings. All bars to be lapped 90 bar diameters unless noted otherwise. Top slab steel shall be lapped over a support wall. Walls greater than 10-inches in thickness shall have reinforcement on both faces.
- Construction joints on structures, including SWM risers and weir walls, shall be located as shown or as directed by DPW. All construction joints shall have a 2-inch x 4-inch keyway with rubber, neoprene or silicon water stop. Bentonite water stops are not acceptable.
- DPW must approve any changes to the SWM riser structure at least 48 hours prior to ordering of the pre-cast structure. If a pre-cast structure is substituted for a designed cast-in-place structure, DPW must be provided new anti-rotation computations, sealed by Professional Engineer who is licensed in the State of Maryland, for the pre-cast structure if the structure has smaller dimensions than the original structure.

### Corrugated Metal Pipe Used For Stormwater Management Storage

- Corrugated metal pipe shall be aluminum Type 2 corrugated steel pipe. The pipe and its appurtenances shall conform to AASHTO M-36, AASHTO M-274, ASTM A760 and ASTM A529. Pipe over 60-inches shall be 12 gauge with 5-inch x 1-inch corrugations. All pipe 60-inches and less shall be 14 gauge with 2-2/3-inch x 1/2-inch corrugations.
- Aluminized steel pipe that comes in contact with concrete shall be coated with zinc chromate primer.
- Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 millimeters thickness.
- All connections with pipes must be completely watertight. The drainpipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars and ari-seep shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight. All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled with an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe, a 12-inch wide standard lap type band with 12-inches wide by 3/8-inches thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with O-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using rods and lugs (two on each side of the lug). A 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24-inches. Gaskets shall be pre-stressed in accordance with manufacturer's installation specifications.
- Corrugated metal pipe shall be constructed in accordance with MSHA specifications, Sections 303 and 304. Pipe over 60-inches shall have a minimum 2-foot of cover.

All pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy, or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support to a minimum depth of 6-inches below sub-grade.

## STORMWATER MANAGEMENT STRUCTURE NOTES May 2012

### General

- All work and materials for construction shall be in accordance with the latest general specifications and standard details of the Maryland State Highway Administration (MSHA), Montgomery County, Maryland Department of the Environment Stormwater Design Manual and NRCS-MD No. 378 Pond Standards/Specifications.
- Care of Water During Construction – All work on permanent structures shall be carried out in areas free from water. The Applicant shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels and stream diversions necessary to protect the areas to be occupied by the permanent work. The Applicant also shall furnish, install, operate and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation and other parts of the work free from water as required or directed by the Department of Public Works (DPW) for constructing each part of the work. After having served its purpose, all temporary protective work shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet and so as not to interfere, in any way, with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent work.
- The removal of water from the required excavation and/or foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavation and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations, which may require draining the water to surps from which the water shall be pumped. An exception to this will be made when compacting a filter diaphragm under a stormwater management (SWM) structure; barred; it is acceptable to flood the sand diaphragm with water to enhance compaction.
- Silt and debris shall not be allowed to enter any SWM storage or control structure. Runoff shall not enter structures until the contributing drainage areas have been stabilized. All openings shall be protected with appropriate sediment control measures during construction. Where storm drainpipes convey construction runoff to sediment control traps or basins, the pipes shall be flushed clean at the end of construction prior to the removal of the sediment control trap/basin. Under no circumstances should water be discharged without using proper dewatering procedures.
- All sand used in SWM facilities must be washed silica sand. Limestone sand is unacceptable.
- All proprietary stormwater management structures and facilities shall be installed and maintained according to manufacturer's recommendations.

### Concrete

- Concrete design shall meet the requirements of ACI 350, Environmental Engineering Concrete Structures, with freezing and thawing exposures. Concrete mix shall use type II or IIA cement, with a 28-day compressive strength of 4500 psi for cast in place and 5000 psi for pre-cast structures. Concrete shall also meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 420 and 902.10, Mix No. 6.
- The Applicant shall supply DPW with certified concrete strength results from an independent firm, stamped by a Professional Engineer who is licensed in the State of Maryland.
- Reinforcing steel to be ASTM A615, Grade 60. Epoxy coated reinforcing, when specified, shall conform to ASTM A775. Minimum steel spacing requirement to be in accordance with ACI 350,  $A_s = 0.003$  bh at maximum rebar spacing of 12-inches. Minimum concrete cover over steel is 2-inches for walls or slabs; 3-inches for base slabs cast against earth or mat soil. Wall thickness and clear distance to reinforcing shall be as shown on drawings. All bars to be lapped 90 bar diameters unless noted otherwise. Top slab steel shall be lapped over a support wall. Walls greater than 10-inches in thickness shall have reinforcement on both faces.
- Construction joints on structures, including SWM risers and weir walls, shall be located as shown or as directed by DPW. All construction joints shall have a 2-inch x 4-inch keyway with rubber, neoprene or silicon water stop. Bentonite water stops are not acceptable.
- DPW must approve any changes to the SWM riser structure at least 48 hours prior to ordering of the pre-cast structure. If a pre-cast structure is substituted for a designed cast-in-place structure, DPW must be provided new anti-rotation computations, sealed by Professional Engineer who is licensed in the State of Maryland, for the pre-cast structure if the structure has smaller dimensions than the original structure.

### Corrugated Metal Pipe Used For Stormwater Management Storage

- Corrugated metal pipe shall be aluminum Type 2 corrugated steel pipe. The pipe and its appurtenances shall conform to AASHTO M-36, AASHTO M-274, ASTM A760 and ASTM A529. Pipe over 60-inches shall be 12 gauge with 5-inch x 1-inch corrugations. All pipe 60-inches and less shall be 14 gauge with 2-2/3-inch x 1/2-inch corrugations.
- Aluminized steel pipe that comes in contact with concrete shall be coated with zinc chromate primer.
- Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 millimeters thickness.
- All connections with pipes must be completely watertight. The drainpipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars and ari-seep shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight. All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled with an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe, a 12-inch wide standard lap type band with 12-inches wide by 3/8-inches thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with O-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using rods and lugs (two on each side of the lug). A 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24-inches. Gaskets shall be pre-stressed in accordance with manufacturer's installation specifications.
- Corrugated metal pipe shall be constructed in accordance with MSHA specifications, Sections 303 and 304. Pipe over 60-inches shall have a minimum 2-foot of cover.

All pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy, or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support to a minimum depth of 6-inches below sub-grade.

## GEOTECHNICAL NOTES November 2016

- The Applicant shall be responsible for all subgrade inspection and soil compaction testing associated with any work within a City right-of-way, private property subject to a public access easement, or private property subject to City easement for public utilities or public improvements; and/or any work associated with a sediment control facility, or stormwater management practice. This work shall be completed by or under the supervision of a Professional Engineer licensed in the State of Maryland. For the purposes of these notes and associated approved plans, this Engineer shall be referred to as the Geotechnical Engineer and shall be an independent firm from the Applicant.
- Any plans subject to NRCS-MD Pond Code 378 Standards/Specifications, as shown on the plans, shall supersede these notes when these notes are less stringent or in case of conflict. Any reference to the Engineer in the 378 Standard/Specifications shall be the Professional Engineer who stamped and sealed the design plans. Any reference to the Geotechnical Engineer shall be the Geotechnical Engineer as defined above or the Geotechnical Engineer who completed certain aspects of the pond design.
- All inspections, tests, supporting data, reports, and certifications shall be provided to the City of Rockville Department of Public Works (DPW) and shall be sealed by the Geotechnical Engineer. Daily inspection reports, if requested by the City, can be provided without being immediately sealed by the Geotechnical Engineer. These reports shall be compiled, reviewed, sealed and then submitted to DPW at a later date as agreed upon by the City.
- The Geotechnical Engineer shall approve all fill materials that are used for the project. The Geotechnical Engineer shall obtain samples of proposed fill materials and perform all required testing to determine that fill materials are in conformance with this plan.
- The Geotechnical Engineer shall provide a report that certifies the subgrade preparation and fill/backfill placement are in conformance with this plan. The certification applies to all fill, backfill, and subgrade operations subject to this plan as detailed in Note #1, including utility trenches. When constructing new roadway pavement this certification report shall be provided prior to the placement of Graded Aggregate Base (GAB). All other certifications shall be provided as requested by the City.
- All fill and/or backfill material shall be free from organics, frozen material, rocks/stones greater than one and a half inches in any dimension, waste metal products, unsightly debris, toxic material, or other deleterious materials shall be a minimum of 105 pounds per cubic foot for the maximum dry density according to AASHTO T-180, Method C; and shall not have a liquid limit greater than 30 nor a plasticity index greater than six according to ASTM D 4318. All other materials shall meet the requirements stated in Category 900 of the latest edition of the Maryland State Highway Administration (MSHA) Standard Specifications for Construction and Materials.
- Compact the material that is one foot below the top of subgrade to at least 92 percent of the maximum dry density per AASHTO T-180. Compact the top one foot to at least 97 percent of the maximum dry density. When necessary, add water or dry the layer in order to compact to the required density. Generally the material shall be within two percent of the optimum moisture content but may be outside of this range if approved by the Geotechnical Engineer.
- Fill and backfill materials must completely fill all spaces under and adjacent to the structure or pipe. For Stormwater Management structures, the Applicant shall scarify each lift with a sheepsfoot roller or claw to a minimum depth of two-inches prior to placing the next lift. The Applicant shall scarify embankments parallel with the centerline of the dam core and perpendicular to the principal spillway. Bedding shall be provided in accordance with details indicated on the construction drawings. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four-feet, measured horizontally, to any part of a structure. Under no circumstances shall the Applicant drive equipment over any part of a corrugated metal pipe unless there is a compacted fill of 24-inches or greater over the structure or pipe.
- At a minimum, compaction tests shall be completed for every lift of fill or backfill. The testing frequency shall be at least once per 150 linear feet of trench or once per 1,500 square feet of fill. At a minimum, there shall be at least one compaction test per lift and a least two compaction tests per day. The Geotechnical Engineer shall supply DPW with certified compaction test results, including certification of pipe bedding subgrade and fill subgrade.
- Prior to placing any roadway fill on existing grades (original grade after topsoil has been stripped, fill prepared by others outside of this plan or fill not prepared under the supervision of the Geotechnical Engineer), scarify the minimum top eight-inches of soil material. Compact this layer to the compaction requirements in these Notes. Proof-roll this compacted layer using a fully loaded dump truck (minimum 20 ton payload capacity). The Geotechnical Engineer shall inspect the proof-rolling and determine if the subgrade is acceptable or if there are areas that require remediation. Subgrade areas that fail proof-rolling shall be remediated to the satisfaction of the Geotechnical Engineer by either of the following methods:

- Scarifying, moisture conditioning, and re-compaction of the GAB materials.
  - Undercutting soft of unsuitable areas of GAB and replacing with compacted GAB.
- DPW may approve an alternate approach for GAB remediation/improvement if it is recommended and sealed by the Geotechnical Engineer. The Geotechnical Engineer shall provide a sealed approval of the GAB prior to placement of asphalt. DPW may accept an oral or email approval while the final approval and reports are being compiled and completed.
- Except when specified, do not place layers exceeding eight-inches un-compacted depth. Place the material in horizontal layers across the full width of the embankment. Perform all rolling in a longitudinal direction along the embankment. Begin at the outer edges and progress towards the center. Vary the travel paths of traffic and equipment over the width of the embankment to aid in obtaining uniform compaction.
  - Uniformly grade areas to a smooth surface, free of irregular surface changes. Grade and prepare the subgrade section to the lines, grades, cross sections and/or elevations shown on the plans. At all times, maintain the subgrade surface in such condition as to readily drain.

DPW may approve an alternate approach for soil remediation/improvement if it is recommended and sealed by the Geotechnical Engineer.

EXCEPT WHEN SPECIFIED, DO NOT PLACE LAYERS EXCEEDING EIGHT-INCHES UN-COMPACTED DEPTH. PLACE THE MATERIAL IN HORIZONTAL LAYERS ACROSS THE FULL WIDTH OF THE EMBANKMENT. PERFORM ALL ROLLING IN A LONGITUDINAL DIRECTION ALONG THE EMBANKMENT. BEGIN AT THE OUTER EDGES AND PROGRESS TOWARDS THE CENTER. VARY THE TRAVEL PATHS OF TRAFFIC AND EQUIPMENT OVER THE WIDTH OF THE EMBANKMENT TO AID IN OBTAINING UNIFORM COMPACTION.		UNIFORMLY GRADE AREAS TO A SMOOTH SURFACE, FREE OF IRREGULAR SURFACE CHANGES. GRADE AND PREPARE THE SUBGRADE SECTION TO THE LINES, GRADES, CROSS SECTIONS AND/OR ELEVATIONS SHOWN ON THE PLANS. AT ALL TIMES, MAINTAIN THE SUBGRADE SURFACE IN SUCH CONDITION AS TO READILY DRAIN.	
1. All work and materials for construction shall be in accordance with the latest general specifications and standard details of the Maryland State Highway Administration (MSHA), Montgomery County, Maryland Department of the Environment Stormwater Design Manual and NRCS-MD No. 378 Pond Standards/Specifications.			
2. Care of Water During Construction – All work on permanent structures shall be carried out in areas free from water. The Applicant shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels and stream diversions necessary to protect the areas to be occupied by the permanent work. The Applicant also shall furnish, install, operate and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation and other parts of the work free from water as required or directed by the Department of Public Works (DPW) for constructing each part of the work. After having served its purpose, all temporary protective work shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet and so as not to interfere, in any way, with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent work.			
The removal of water from the required excavation and/or foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavation and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations, which may require draining the water to surps from which the water shall be pumped. An exception to this will be made when compacting a filter diaphragm under a stormwater management (SWM) structure; barred; it is acceptable to flood the sand diaphragm with water to enhance compaction.			
Silt and debris shall not be allowed to enter any SWM storage or control structure. Runoff shall not enter structures until the contributing drainage areas have been stabilized. All openings shall be protected with appropriate sediment control measures during construction. Where storm drainpipes convey construction runoff to sediment control traps or basins, the pipes shall be flushed clean at the end of construction prior to the removal of the sediment control trap/basin. Under no circumstances should water be discharged without using proper dewatering procedures.			
All sand used in SWM facilities must be washed silica sand. Limestone sand is unacceptable.			
All proprietary stormwater management structures and facilities shall be installed and maintained according to manufacturer's recommendations.			
Concrete design shall meet the requirements of ACI 350, Environmental Engineering Concrete Structures, with freezing and thawing exposures. Concrete mix shall use type II or IIA cement, with a 28-day compressive strength of 4500 psi for cast in place and 5000 psi for pre-cast structures. Concrete shall also meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 420 and 902.10, Mix No. 6.			
The Applicant shall supply DPW with certified concrete strength results from an independent firm, stamped by a Professional Engineer who is licensed in the State of Maryland.			
Reinforcing steel to be ASTM A615, Grade 60. Epoxy coated reinforcing, when specified, shall conform to ASTM A775. Minimum steel spacing requirement to be in accordance with ACI 350, $A_s = 0.003$ bh at maximum rebar spacing of 12-inches. Minimum concrete cover over steel is 2-inches for walls or slabs; 3-inches for base slabs cast against earth or mat soil. Wall thickness and clear distance to reinforcing shall be as shown on drawings. All bars to be lapped 90 bar diameters unless noted otherwise. Top slab steel shall be lapped over a support wall. Walls greater than 10-inches in thickness shall have reinforcement on both faces.			
Construction joints on structures, including SWM risers and weir walls, shall be located as shown or as directed by DPW. All construction joints shall have a 2-inch x 4-inch keyway with rubber, neoprene or silicon water stop. Bentonite water stops are not acceptable.			
DPW must approve any changes to the SWM riser structure at least 48 hours prior to ordering of the pre-cast structure. If a pre-cast structure is substituted for a designed cast-in-place structure, DPW must be provided new anti-rotation computations, sealed by Professional Engineer who is licensed in the State of Maryland, for the pre-cast structure if the structure has smaller dimensions than the original structure.			
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Aluminized steel pipe that comes in contact with concrete shall be coated with zinc chromate primer.			
Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 millimeters thickness.			
All connections with pipes must be completely watertight. The drainpipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars and ari-seep shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight. All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled with an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe, a 12-inch wide standard lap type band with 12-inches wide by 3/8-inches thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with O-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using rods and lugs (two on each side of the lug). A 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24-inches. Gaskets shall be pre-stressed in accordance with manufacturer's installation specifications.			
Corrugated metal pipe shall be constructed in accordance with MSHA specifications, Sections 303 and 304. Pipe over 60-inches shall have a minimum 2-foot of cover.			

- Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice. Vehicular and equipment traffic shall be distributed across the prepared surface in such a manner as to prevent disturbance. Repair any damage to the prepared subgrade to the satisfaction of the Geotechnical Engineer. The Geotechnical Engineer must approve the storage or stockpiling of heavy loads on a roadway subgrade.
- Unsuitable existing fill, soft or loose natural soils, organic material, and rubble shall be stripped to approved grades as determined by the Geotechnical Engineer.
- Protect all structures and utilities from any damage in the handling, processing or compacting of embankment or backfill material. Exercise caution near arches, retaining walls, culverts and utility trenches to prevent undue strain or movement. The Geotechnical Engineer may require the use of specially selected material adjacent to structures to protect against damage. Do not use rock greater than one and a half inches in any dimension adjacent to structures.
- When placing and compacting embankment on hillsides or against existing embankments, continuously bench the slopes where the slope is steeper than 4:1 when measured at right angles to the roadway or embankment centerline. Perform the benching operation as the embankment is constructed in layers. Maintain a bench width of at least five-feet. Begin each horizontal cut at the intersection of the original ground and the vertical sides of the previous cut. If the material cut from the benches meets fill requirements, compact this material along with the new embankment material.
- When placing fill over existing pavement, thoroughly break up, scarify, or remove the pavement as specified or as directed by the Geotechnical Engineer.
- Prior to the placement of asphalt pavement, proof-roll the compacted graded aggregate base (GAB) layer using a fully loaded dump truck (minimum 20 ton payload capacity). The Geotechnical Engineer shall inspect the proof-rolling and determine if the GAB is acceptable or if there are areas that require remediation. GAB areas that fail proof-rolling shall be remediated to the satisfaction of the Geotechnical Engineer by either of the following methods:

- Scarifying, moisture conditioning, and re-compaction of the GAB materials.
- Undercutting soft of unsuitable areas of GAB and replacing with compacted GAB.

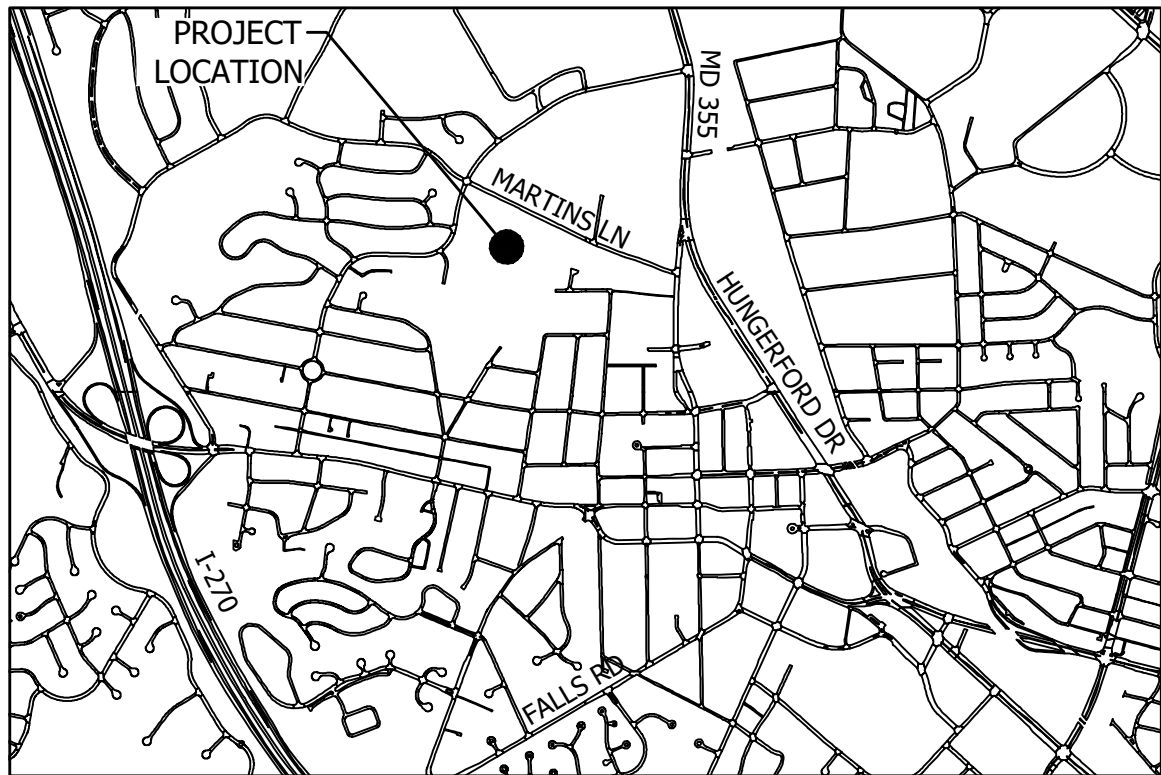
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## GENERAL NOTES

(THESE NOTES DO NOT SUPERCEDE CITY OF ROCKVILLE GENERAL NOTES)

- TOPOGRAPHY SURVEY PERFORMED BY KCW. DATED SEPTEMBER 2022 AND UPDATED JUNE 2023.
- THE HORIZONTAL DATUM OF THIS SURVEY IS MARYLAND STATE PLANE (NAD83/91).
- THE VERTICAL DATUM OF THIS SURVEY IS NAVD 88
- THE LOCATION OF UNDERGROUND UTILITIES IS BASED ON AVAILABLE RECORDS. CONTRACTOR TO VERIFY IN FIELD.
- THERE IS NO MAPPED FLOODPLAIN ASSOCIATED WITH THIS SITE. PER FEMA FLOOD INSURANCE RATE MAP NUMBER 24031C03330, DATED SEPT. 29, 2006.
- DETAIL DRAWINGS AND SCHEDULES DESCRIBE CONSTRUCTION AT GIVEN AREAS. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL UTILIZE EQUIVALENT CONSTRUCTION METHODS IN ALL AREAS NOT DETAILED.
- ALL NOTES ON DRAWINGS SHALL BE ASSUMED AS TYPICAL, UNLESS OTHERWISE SHOWN OR NOTED ON THE DRAWINGS.
- IT SHALL BE THE DUTY OF THE CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS GIVEN ON THE DRAWINGS AND TO REPORT TO THE ENGINEER ANY ERROR OR INCONSISTENCY WITH THE ACTUAL CIRCUMSTANCES IN THE FIELD BEFORE COMMENCING WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL ITEMS REQUIRED TO PROVIDE A SITE CLEAR OF OBSTRUCTIONS (ABOVE & BELOW GRADE) AND GRADED TO SPECIFIED ELEVATIONS.
- ALL BIDDERS: THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE HIM/HERSELF WITH THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED PRIOR TO SUBMITTING BID.
- IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL SITE SUB-CONTRACTORS/BIDDERS WITH FULL AND COMPLETE SETS OF ALL CIVIL DRAWINGS AND SPECIFICATIONS FOR THEIR USE IN PREPARING BIDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DELAYS AND COSTS ARISING DURING CONSTRUCTION FROM BIDS BASED UPON INCOMPLETE SETS OF SITE BID DOCUMENTS.
- PRIOR TO VEGETATIVE STABILIZATION, ALL DISTURBED AREAS MUST BE TOPSOILED PER THE CONTRACTOR FOR TOPSOIL (SEE SHEET C-410) AND TECHNICAL SPECIFICATIONS. IF ON-SITE MATERIALS DO NOT MEET REQUIREMENTS OF TOPSOIL, COORDINATE WITH CITY OF ROCKVILLE REGARDING TILLING-IN OF CERTIFIED COMPOST TO ON-SITE SOILS IN ORDER TO MEET SPECIFICATION.
- ANY DISCREPANCIES, OMISSIONS, AMBIGUITIES, OR CONFLICTS IN AND AMONG THE CONSTRUCTION DOCUMENTS OR DOUBT ABOUT THEIR MEANING, SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER FOR DIRECTION BEFORE PROCEEDING WITH WORK. IF AMBIGUITIES EXIST, THE BETTER QUALITY AND GREATER QUANTITY OF WORK SHALL BE BID UPON AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED BY THE OWNER IN WRITING.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL TRADE PERMITS AND PAY FEES ASSOCIATED WITH SAID PERMITS.
- ALL WORK ASSOCIATED WITH THE CITY OF ROCKVILLE PUBLIC WORKS PERMIT SHALL BE PERFORMED BY A WSSC LICENSED CONTRACTOR IN ACCORDANCE WITH WSSC REGULATIONS.
- CLARK | AZAR & ASSOCIATES WILL RELEASE CAD BASE FILES OF THE SITE CIVIL DRAWINGS TO THE SUCCESSFUL CONTRACTOR WITHOUT FEE AFTER A RELEASE IS SIGNED. NO CAD FILES WILL BE RELEASED PRIOR TO AWARD OF CONTRACT.

SWM Summary Table		
Study Point	1	
Facility	A	B
Drainage Area	18,242	18,323
Impervious Area	14,282	15,586
Type of Measure	MB	MB
Target ESDv	8,364	
Required ESDv	8,364	
Provided ESDv	5,746	
AsBuilt ESDv		
Target P <sub>e</sub>	2.20	
Required P <sub>e</sub>	2.20	
Provided P <sub>e</sub>	1.51	
AsBuilt P <sub>e</sub>		
Target WQv	0	
Target Rev	0	
Target Cpv	0	
Target Q <sub>10</sub>	0	



1 VICINITY MAP  
 SCALE: 1" = 2000'

### CITY OF ROCKVILLE AS-BUILT REQUIREMENTS:

- ALL ENTITIES WHO CONSTRUCT PUBLIC WATER OR SEWER LINES, STORM DRAINAGE SYSTEMS, BIKE PATHS, SIDEWALKS OR STREETS TO BE MAINTAINED BY THE CITY OF ROCKVILLE MUST SUBMIT AN "AS-BUILT" SET OF CONSTRUCTION DRAWINGS FOR APPROVAL AS A PART OF THE CITY'S ACCEPTANCE PROCESS. ADDITIONALLY, ENTITIES CONSTRUCTING ANY STORMWATER MANAGEMENT OR STREAM RESTORATION FACILITIES MUST SUBMIT AN "AS-BUILT" SET OF CONSTRUCTION DRAWINGS. THE INITIAL SUBMITTAL SHALL BE THREE (3) SETS OF RED-LINED MARKED UP PRINTS, WHICH SHOULD BE DELIVERED TO THE DEPARTMENT OF PUBLIC WORKS COUNTER AT CITY HALL (ATTN: DON JACKSON, ENGINEERING TECHNICIAN). THIS SUBMITTAL SHALL INCLUDE RECORDED COPIES OF ANY PUBLIC EASEMENTS REQUIRED WITH THE PROJECT.
- THE AS-BUILT DRAWINGS SHALL CLEARLY SHOW ANY CHANGES OR VARIATIONS FROM THE APPROVED DESIGN. HORIZONTAL VARIATIONS GREATER THAN 1.0 FOOT SHOULD BE SHOWN DIMENSIONAL OR THROUGH PUT STATIONS. HORIZONTAL VARIATIONS GREATER THAN 1.0 FOOT SHOULD BE SHOWN DIMENSIONAL OR THROUGH PUT STATIONS. HORIZONTAL VARIATIONS GREATER THAN 0.1 FEET SHALL BE PROVIDED FOR ALL SHOWN DESIGN ELEVATIONS. A BENCHMARK ELEVATION AND BENCHMARK DESCRIPTION AND LOCATION SHALL ALSO BE PROVIDED ON EACH PLAN SHEET.
- AS-BUILT PLANS FOR A SURFACE SWM FACILITY SHALL INCLUDE THE FOLLOWING ADDITIONAL INFORMATION.
  - LENGTH, WIDTH, SLOPE INFORMATION AND DEPTH OR CONTOURS (1 FOOT INTERVALS) OF THE POND AREA ALONG WITH A VERIFICATION OF THE ORIGINAL DESIGN VOLUME.
  - A BENCHMARK ON THE RISER, INLET HEADWALL, OR OTHER APPROVED LOCATION.
- REVISED DESIGN COMPUTATIONS VERIFYING THE FUNCTIONALITY OF THE POND. COMPUTATIONS SHALL BE SUBMITTED DIRECTLY TO THE DPW PROJECT ENGINEER, ALONG WITH AN ADDITIONAL PAPER COPY OF THE AS-BUILT PLANS.
- THE GRADING/STORAGE VOLUMES MUST BE APPROVED BY DPW PRIOR TO LANDSCAPING/PLANTING. ALL PLANTINGS MUST BE ADDED TO THE AS-BUILT PLANS AFTER PLANT INSTALLATION. AS-BUILT PLANS WILL NOT BE APPROVED WITHOUT REQUIRED PLANTINGS.
- NOTE: AS-BUILT DATA, WHICH SHOWS THAT THE CONSTRUCTED FACILITY VARIES FROM THE ORIGINAL DESIGN STORAGE ELEVATIONS BY GREATER THAN OR EQUAL TO 10%, WILL HAVE TO BE CORRECTED (REGRADED) PRIOR TO SUBMISSION FOR REVIEW UNLESS STORAGE IS VERIFIED. ALL CONSTRUCTED FEATURES NOT PREVIOUSLY APPROVED ON THE ORIGINAL CONSTRUCTION DRAWINGS MAY HAVE TO BE MODIFIED AT THE CITY'S DISCRETION.
- ALL AS-BUILT INFORMATION SHALL BE BLOCKED IN AND SHOWN ON THE ORIGINAL CONSTRUCTION DRAWINGS AND SHALL BE BLOCKED IN AS THUS 386.25 .
- THE CITY'S INSPECTOR AND PROJECT ENGINEER WILL REVIEW THE AS-BUILT INFORMATION. THE DESIGN ENGINEER WILL BE NOTIFIED TO SUBMIT MYLARS FOR AS-BUILT APPROVAL ONCE ALL CHANGES HAVE BEEN SATISFACTORILY SHOWN. THE AS-BUILT INFORMATION SHALL PREFERABLY BE SHOWN ON THE ORIGINAL CONSTRUCTION DRAWINGS (I.E. THE ORIGINAL MYLARS WITH THE PERMIT APPROVAL STAMP AND ORIGINAL P.E. SEAL). PLACING AS-BUILT INFORMATION UPON A SCANNED IMAGE OR OTHER REPRODUCTION OF THE ORIGINAL CONSTRUCTION DRAWINGS IS ACCEPTABLE SO LONG AS THE QUALITY, INTEGRITY, AND LEGIBILITY OF THE ORIGINAL DRAWINGS ARE SUBSTANTIALLY PRESERVED WITHOUT UNIQUE COMPROMISE. AS-BUILT DRAWINGS WILL BE SCANNED BY THE CITY FOR ARCHIVING. SO BOTH THE AS-BUILT AND ORIGINAL INFORMATION MUST BE SUFFICIENTLY DISCERNIBLE. THE AS BUILT PLAN SET SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION (ATTN: DON JACKSON, ENGINEERING TECHNICIAN) FOR SIGNATURE AND SHALL CONTAIN THE SAME RED-LINED INFORMATION AS APPROVED IN THE AS-BUILT REVIEW. NO PAPER PRINTS, PAPER OR MYLAR SEPIAS WILL BE ACCEPTED.

RELATED REQUIRED PERMITS					
To be completed by the consultant and placed on the first sheet of the Sediment Control / Stormwater Management plan set for all projects					
IT IS THE RESPONSIBILITY OF PERMITEE/OWNER OF THIS SITE TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ISSUANCE OF THE APPROVED SEDIMENT CONTROL PERMIT					
TYPE OF PERMIT	REQD	NOT REQD	PERMIT #	EXPIRATION DATE	WORK RESTRICTION DATES
MCDPS Floodplain District		X			
WATERWAYS/WETLAND(S):		X			
a. Corps of Engineers		X			
b. MDE		X			
b. MDE Water Quality Certification		X			
MDE Dam Safety		X			
COR Public Works		X			
COR Stormwater Management	X				
COR Sediment Control	X				
N.P.D.E.S Notice of INTENT	X		XXXXXX		DATE FILED TBD
FEMA LOMR (Required Post Construction)		X			
OTHERS (Please List):		X			
Forest Conservation Amendment	X			APPROVAL DATE	



# ROCKVILLE SWIM AND FITNESS CENTER OUTDOOR RECREATION POOL RENOVATIONS SCP2024-00002

## EROSION AND SEDIMENT CONTROL NOTES

November 2016

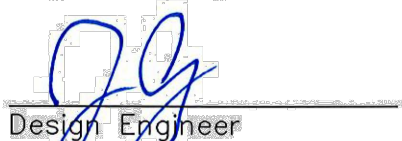
- The Applicant must obtain inspection and approval by the City of Rockville Department of Public Works (DPW) at the following points:
  - At the required preconstruction meetings.
  - Following installation of sediment control measures and prior to any other land disturbing activity.
  - During the installation of a sediment basin or stormwater management structure at the required inspection points (see Inspection Checklist on plan). Notification prior to commencing construction is mandatory.
  - Prior to removal or modification of any sediment control devices.
  - Prior to final acceptance.
- All erosion control measures are to be constructed and maintained in accordance with applicable published standards and specifications and the most current "Maryland Standards and Specifications for Soil Erosion and Sediment Control."
- The Applicant shall construct all erosion and sediment control measures per the approved plan and construction sequence, shall have them inspected and approved by DPW prior to beginning any other land disturbances, shall ensure that all runoff from disturbed areas is directed to the sediment control devices and shall not remove any erosion or sediment control measures without prior permission from DPW.
- Any request for changes to the approved sediment control plan or sequence of construction must be submitted to the DPW Sediment Control Inspector and approved before implementing changes. Major changes will require a plan revision.
- The Applicant shall protect all points of construction ingress and egress to prevent the deposition of materials onto traversed public thoroughfare(s). All materials deposited onto public thoroughfare(s) shall be removed immediately.
- The Applicant shall inspect daily and maintain continuously in effective operating condition all erosion and sediment control measures until such time as they are removed with prior permission from the DPW Sediment Control Inspector.
- All sediment basins, trap embankments, swales, perimeter dikes and permanent slopes steeper or equal to 3:1 shall be stabilized with sod, seed and anchored straw mulch or other approved stabilization measures, within seven calendar days of establishment. All areas disturbed outside of the perimeter sediment control system must be minimized and stabilized immediately. Maintenance must be performed as necessary to ensure continued stabilization. Restabilization or overseeding will be required, if necessary.
- The Applicant shall apply sod, seed and anchored straw mulch, or other approved stabilization measures to all disturbed areas within seven (7) calendar days after stripping and grading activities have ceased on that area. Maintenance shall be performed as necessary to ensure continued stabilization. Other active construction areas that are not being actively graded (i.e. noise for construction vehicles within a site) may be required to be stabilized at the direction of the inspector. Stockpiles, which have not been used for seven (7) calendar days, shall be stabilized through the application of sod, seed, and anchored straw mulch, or other approved stabilization methods.
- Prior to removal of sediment control measures, the Applicant shall stabilize all contributory disturbed areas using sod or an approved permanent seed mixture with required soil amendments and an approved anchored mulch. Wood filter mulch may only be used in seeding season to promote sheet flow drainage. Areas brought to finished grade during the seeding season shall be permanently stabilized within seven (7) calendar days of establishment. When property is brought to finished grade during the months of November through February, and permanent stabilization is found to be impractical, approved temporary seed and straw anchored mulch shall be applied to disturbed areas. The final permanent stabilization of such property shall be completed prior to the following April 15.
- The site work, materials, approved Sediment Control and Stormwater Management Plans, and any required test reports shall be available, at the site for inspection by duly authorized officials of the City of Rockville.
- Surface drainage flows over uninstalled cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing mechanical devices to lower the water downslope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to it are fully stabilized, at which time they must be removed and final grading done to promote sheet flow drainage. Mechanical devices must be provided at points of concentrated flow where erosion is likely to occur.
- Permanent swales or other points of concentrated water flow shall be stabilized with sod or seed with approved erosion control matting or by other approved stabilization measures.
- Temporary sediment control devices shall be removed, with permission of DPW, within 30 calendar days following establishment of permanent stabilization in all contributory drainage areas. If establishment is not full and uniform as determined by the DPW Sediment Control Inspector, overseeding will be required. Stormwater management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.
- No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in lane maintenance areas. A slope gradient of up to 2:1 will be permitted in areas that are not to be maintained provided that those areas are indicated on the erosion and sediment control plan with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetative stabilization.
- The Applicant shall install a splash block at the bottom of each downspout unless the downspout is connected by a drain line to an acceptable outlet.
- All water pumped from an excavation during construction shall be pumped either to sediment tanks and/or sediment traps. No water will be pumped to the storm drain system or swale. De-watering:

shall be performed in accordance with the most current Maryland Standards and Specifications for Soil Erosion and Sediment Control.

- For finished grading, the Applicant shall provide adequate gradients so as to: (1) prevent water from standing on the surface of lawns more than 24 hours after the end of a rainfall, except in designated drainage courses and swale flow areas which may drain as long as 48 hours after the end of a rainfall, and (2) provide positive drainage away from all building foundations or openings.
- Sediment traps or basins are not permitted within 20-feet of a building, which exists or is under construction. No building may be constructed within 20-feet of a sediment trap or basin.
- All inlets in non-sump areas shall have asphalt berms installed at the time of base paving to direct runoff to inlets.
- The DPW Sediment Control Inspector has the option of requiring additional sediment control measures, if deemed necessary.
- All trap elevations are relative to the outlet elevation, which must be on existing undisturbed ground.
- Vegetative stabilization shall be performed in accordance with the most current Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Temporary sediment trap(s) shall be cleaned out and restored to the original dimensions when sediment has accumulated to a point one-half the depth between the outlet crest and the bottom of the trap.
- Sediment removed from traps shall be placed and stabilized in approved areas in such a manner that it does not foul existing or proposed storm drainage systems or areas already stabilized. Sediment shall not be placed within a flood plain or wetland.
- All sediment basins and traps must be surrounded with a welded wire safety fence. The fence must be at least 42-inches high, have posts spaced no farther apart than eight feet, have mesh openings no greater than two-inches in width and four-inches in height with a minimum of 14 gauge wire. Safety fence must be maintained in good condition at all times.
- Off-site spoil or borrow areas must have approved sediment control plans.
- Protect all trees to be preserved during construction in accordance with the approved Forest Conservation Plan.
- The Applicant is responsible for all actions of contractor and subcontractors, including repairing damage to sediment control devices and existing infrastructure.
- The Applicant shall comply with all provisions of the NPDES Construction Discharge Permit. A copy of the permit and all required reports shall be available on site at all times.

## DESIGN AND QUANTITIES CERTIFICATION

I hereby certify that this plan has been prepared in accordance with the latest Maryland Standards and Specifications for Soil Erosion and Sediment Control and the Ordinance of the Rockville City Code. The estimated total amount of excavation and fill has been computed to be 410 cubic yards of excavation and 410 cubic yards of fill and the total area to be disturbed as shown on these plans has been determined to be 66,594 square feet of which 66,594 SF is onsite and 0 SF is in the adjacent right-of-way. The impervious area subject to Stormwater Management shown on this plan is 1.11 acres of which 1.11 ac. is on-site and 0 ac. is in the adjacent right-of-way.

  
Design Engineer

JASON AZAR, VICE PRESIDENT  
Printed Name and Title

10/20/2023  
Signature Date  
31168  
P.E. Registration Number

## OWNER/DEVELOPER CERTIFICATION

I/We hereby certify that any clearing, grading, construction or development, or all of these, will be done pursuant to this plan and that Responsible Personnel involved in the construction project will have a certification of training at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project and the applicable sediment control conditions and requirements of the City of Rockville and the State of Maryland and its agencies are hereby made part of this plan.

  
Signature

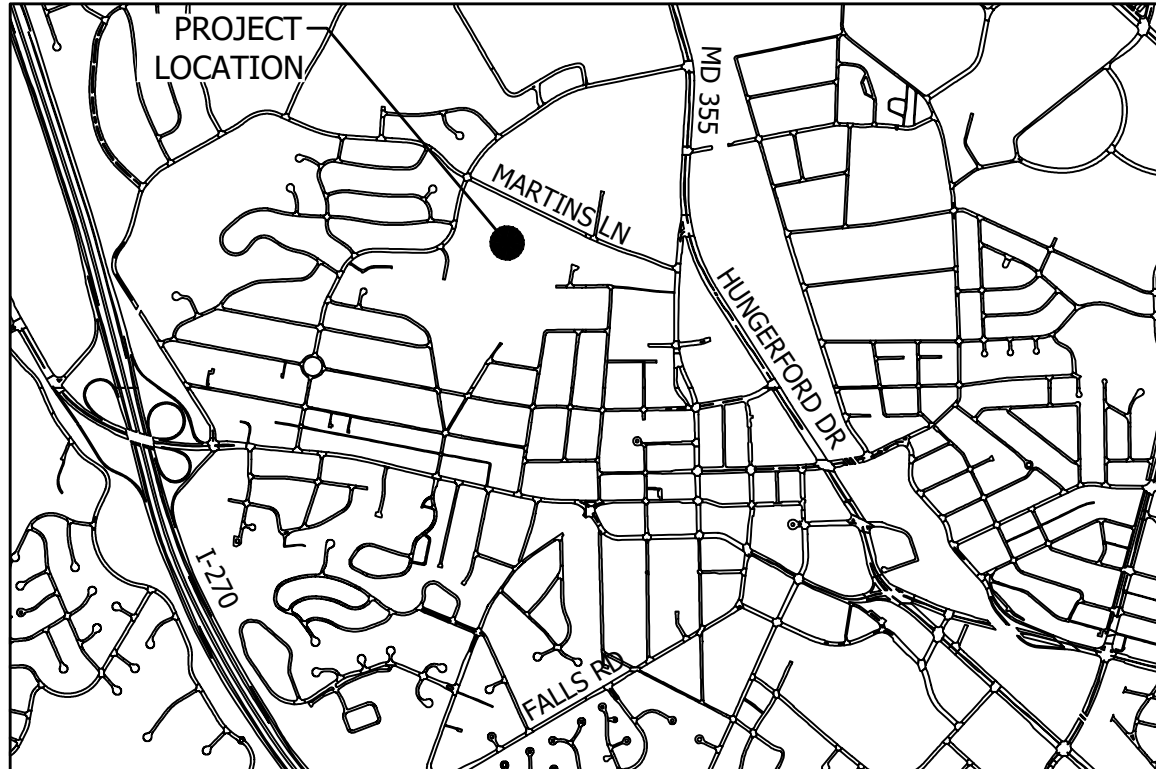
Timothy Chesnutt, Director of Recreation and Parks  
Printed Name and Title

ROCKVILLE POOL - SCP SHEET INDEX		
SMP #	SHEET TITLE	SHEET NUMBER
1	SCP COVER SHEET	C-004
2	SEDIMENT CONTROL PLAN	C-400
3	SEDIMENT CONTROL DETAILS	C-405
4	SEDIMENT CONTROL NOTES	C-410

## GENERAL NOTES

November 2016

- The Applicant is the entity for which the City of Rockville Department of Public Works (DPW) has issued a permit. For DPW projects where a permit is not applicable, the entity for which the City contract is issued shall be considered the Applicant in these notes. The Applicant is responsible for all contractors, agents, subcontractors, or other entities completing work under this permit and/or approved plan.
- The Applicant must arrange a pre-construction meeting prior to commencing any work. Provide at least 48 hours of notice to the following: City Project Inspector listed in the permit, City Forestry Inspector at 240-314-8713, if required by either a DPW and/or Forestry permit, or DPW Sediment Control Inspector at 240-314-8879, if required by permit.
- The Applicant must contact Miss Utility at 1-800-257-7777 or #811 or missutility.net so that utilities are marked prior to holding any pre-construction meeting.
- Information concerning existing underground utilities was obtained from available records. The Contractor must determine the exact location and elevation of existing utilities by digging test pits at the utility crossings well in advance of trenching. If clearance is less than shown on this plan, contact the Professional Engineer who stamped the design plans before proceeding with construction.
- Maintain a minimum one-foot vertical clearance between all City utilities crossing any other utility. Unless otherwise noted, maintain a five-foot horizontal clearance with between a City utility with any other utility or structure. The only exception is that there shall be a ten-foot horizontal clearance between City water and sewer mains.
- At the end of each day, all trenches shall be backfilled, all equipment secured, and the area left in a safe condition. Steel plates are allowed to remain no longer than seven days. Plates are to be notched (recessed) and pinned to the roadway. Plates must be large enough to allow a minimum of one-foot bearing on all four sides of the pavement surrounding the excavation. The steel plate requirements only apply to public streets.
- The public road utility patch shall be in accordance with City Standard Detail #60, or as shown on the plans. All trenches in public streets shall be filled with compacted Graded Aggregate Base (GAB) from below the pavement to the top of the pipe embedment zone or to a depth of five feet, whichever is less.
- DPW normal working hours are Monday through Friday, except holidays, from 7 a.m. to 5 p.m. The City observes the following holidays: New Year's Day, Martin Luther King's Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Thanksgiving Friday, and Christmas Day, and all days of general and congressional elections throughout the State. The Contractor will not be permitted to close lanes or do any work that requires the services of the City forces, outside of the normal working hours, unless listed in the permit or authorized by DPW in writing. However, the Contractor, with verbal permission of DPW may be permitted to work outside of the normal work hours for clean-up activities or other such items that do not adversely impact traffic, residents or City services.
- Traffic must be maintained on all roadways within the construction area as directed by DPW. No lane closure shall be permitted between 7:00-9:00 A.M. or 3:30-6:00 P.M. Monday through Friday. An exception is that lane closures are permitted on secondary residential streets at any time during normal working hours. Deployment and design of all traffic control devices shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). If required, traffic control plans shall be reviewed and approved by the Chief of the Traffic and Transportation Division. DPW may suspend lane closure or other traffic controls at any time during, or in advance of, inclement weather events.
- Sheeting and shoring is the total responsibility of the Applicant. A Professional Engineer licensed in the State of Maryland shall seal these drawings. Provide three copies to DPW for informational purposes only.
- In addition to all City permits, the Applicant is responsible to ensure that all necessary Federal, State and/or Montgomery County approvals and/or permits have been obtained in association with this approved plan.
- Shop drawings must be prepared and sealed by a Professional Engineer licensed in the State of Maryland prior to fabrication. The Professional Engineer who sealed the design plans (but not the shop drawings) must approve the shop drawings for conformance to the approved design. Provide three copies of approved shop drawings to DPW prior to construction. Standard pre-cast structures previously approved by the Maryland State Highway Administration, Montgomery County and Washington Suburban Sanitation Commission do not require a shop drawing submission. Use actual field soils data for design of pipes and structures. All pipes and structures in paved areas shall be designed for HS-20 vehicle loading.
- Upon completion of construction, the Applicant shall provide three sets of red lined As-Built plans (24"x36") for review and approval by DPW. The drawings must contain the original approval signatures and Professional Engineer's seal and signature (a scanned image of the original mylar is acceptable). The As-Built shall be sealed by a Professional Engineer or Professional Surveyor, as appropriate and must be licensed by the State of Maryland. The seal shall note that it is only for the As-Built and shall include an as-built certification acceptable to DPW. Upon receipt of written approval, the Applicant shall provide approved As-Built mylar drawings along with the original mylars (with all original signatures) to DPW prior to the release of the permit.
- The Applicant must comply with the Montgomery County Noise Control Ordinance. Please refer to the Montgomery County Department of Environmental Protection at 240-777-7770, askdep@montgomerycountymd.gov, or www.montgomerycountymd.gov/DEP.



1 VICINITY MAP  
SCALE: 1" = 2000'

## GEOTECHNICAL NOTES

November 2016

- The Applicant shall be responsible for all subgrade inspection and soil compaction testing associated with any work within a City right-of-way, private property subject to a public access easement, or private property subject to City easement for public utilities or public improvements; and/or any work associated with a sediment control facility, or stormwater management practice. This work shall be completed by or under the supervision of a Professional Engineer licensed in the State of Maryland. For the purposes of these notes and associated approved plans, this Engineer shall be referred to as the Geotechnical Engineer and shall be an independent firm from the Applicant.
- Any plans subject to NCRS-MD Pond Code 378 Standards/Specifications, as shown on the plans, shall supersede these notes when these notes are less stringent or in case of conflict. Any reference to the Engineer in the 378 Standard/Specifications shall be the Professional Engineer who stamped and sealed the design plans. Any reference to the Geotechnical Engineer shall be the Geotechnical Engineer as defined above or the Geotechnical Engineer who completed certain aspects of the pond design.
- All inspections, tests, supporting data, reports, and certifications shall be provided to the City of Rockville Department of Public Works (DPW) and shall be sealed by the Geotechnical Engineer. Daily inspection reports, if requested by the City, can be provided without being immediately sealed by the Geotechnical Engineer. These reports shall be compiled, reviewed, sealed and then submitted to DPW at a later date as agreed upon by the City.
- The Geotechnical Engineer shall approve all fill materials that are used for the project. The Geotechnical Engineer shall obtain samples of proposed fill materials and perform all required testing to determine that fill materials are in conformance with this plan.
- The Geotechnical Engineer shall provide a report that certifies the subgrade preparation and fill/backfill placements are in conformance with this plan. The certification applies to all fill, backfill, and subgrade operations subject to this plan as detailed in Note #1, including utility trenches. When constructing new roadway pavement this certification report shall be provided prior to the placement of Graded Aggregate Base (GAB). All other certifications shall be provided as requested by the City.
- All fill and/or backfill material shall be free from organics, frozen material, rocks/stones greater than one and a half inches in any dimension, waste metal products, unsightly debris, toxic material, or other deleterious materials; shall be a minimum of 105 pounds per cubic foot for the maximum dry density according to AASHTO T-180, Method C, and shall not have a liquid limit greater than 30 nor a plasticity index greater than six according to ASTM D-4318. All other materials shall meet the requirements stated in Category 900 of the latest edition of the Maryland State Highway Administration (MSHA) Standard Specifications for Construction and Materials.
- Compact the material that is one foot below the top of subgrade to at least 92 percent of the maximum dry density per AASHTO T-180. Compact the top one foot to at least 97 percent of the maximum dry density. When necessary, add water or dry the layer in order to compact to the required density. Generally the material shall be within two percent of the optimum moisture content but may be outside of this range if approved by the Geotechnical Engineer.
- Fill and backfill materials must completely fill all spaces under and adjacent to the structure or pipe. For Stormwater Management embankments, the Applicant shall scarify each lift with a sheepsfoot roller or claw to a minimum depth of two-inches prior to placing the next lift. The Applicant shall scarify embankments parallel with the centerline of the dam core and perpendicular to the principal spillway. Bedding shall be provided in accordance with details indicated on the construction drawings. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four-feet, measured horizontally, to any part of a structure. Under no circumstances shall the Applicant drive equipment over any part of a corrugated metal pipe unless there is a compacted fill of 24-inches or greater over the structure or pipe.
- At a minimum, compaction tests shall be completed for every lift of fill or backfill. The testing frequency shall be at least once per 150 linear feet of trench or once per 1,500 square feet of fill. At a minimum, there shall be at least one compaction test per lift and a least two compaction tests per day. The Geotechnical Engineer shall supply DPW with certified compaction test results, including certification of pipe bedding subgrade and fill subgrade.
  - Scarifying, moisture conditioning, and re-compaction of the subgrade materials.
  - Undercutting soft of unsuitable areas of subgrade and backfilling with compacted select borrow (MSHA Section 916).
  - Undercutting of soft or unsuitable areas of subgrade and placing a layer of geotextile covered by # MSHA 57 coarse aggregate (Table 901A).
- Except when specified, do not place layers exceeding eight-inches un-compacted depth. Place the material in horizontal layers across the full width of the embankment. Perform all rolling in a longitudinal direction along the embankment. Begin at the outer edges and progress towards the center. Vary the travel paths of traffic and equipment over the width of the embankment to aid in obtaining uniform compaction.
- Uniformly grade areas to a smooth surface, free of irregular surface changes. Grade and prepare the subgrade section to the lines, grades, cross sections and/or elevations shown on the plans. At all times, maintain the subgrade surface in such condition as to readily drain.

## PROFESSIONAL CERTIFICATION:

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 31168, Expiration Date: 1/12/2025

JASON AZAR  
NAME



## THIS PLAN IS FOR EROSION AND SEDIMENT CONTROL ONLY

June 2017



NO.	DESCRIPTION OF REVISION	P.E. INITIAL	DATE	DPW	DATE
APPROVAL OF REVISIONS AFTER INTIAL PLAN APPROVAL					

DATE SUBMITTED:  
2/7/2024

SCALE

SHEET

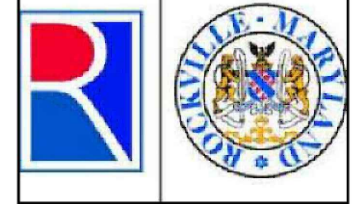
FILE #

NO. 1  
OF 4

CIVIL ENGINEER  
CLARK AZAR & ASSOCIATES, INC.  
20440 CENTURY BLVD., SUITE 220  
GERMANTOWN, MD 20874

OWNER/APPLICANT  
CITY OF ROCKVILLE  
RECREATION AND PARKS DEPARTMENT  
CONTACT: ADAM GOLDSTEIN  
agoldstein@rockvillemd.gov  
240-314-8752  
355 MARTINS LANE  
ROCKVILLE, MARYLAND 20850

BEFORE BEGINNING CONSTRUCTION  
CONTACT  
"MISS UTILITY"  
WWW.MISSUTILITY.NET  
OR  
1-800-257-7777  
OR 811  
AT LEAST 48 HOURS  
PRIOR TO EXCAVATION



DEPARTMENT OF PUBLIC WORKS  
CITY OF  
ROCKVILLE  
111 MARYLAND AVE. ROCKVILLE, MARYLAND

DESIGNED \_SL\_  
DRAFTED \_MS\_  
CHECKED \_JA\_

## DESIGN PLAN APPROVAL

DIRECTOR OF PUBLIC WORKS  
APPROVAL DATE

PKW# \_\_\_\_\_ SCP# 2024-00002  
SMP# \_\_\_\_\_ REVIEWED BY \_\_\_\_\_

## AS BUILT PLAN APPROVAL

CHIEF, CONSTRUCTION MANAGEMENT  
APPROVAL DATE

SCP2024-00002

SEDIMENT CONTROL COVER SHEET

ROCKVILLE SWIM & FITNESS CENTER  
OUTDOOR RECREATION POOL RENOVATIONS  
355 MARTINS LANE PARCEL 630

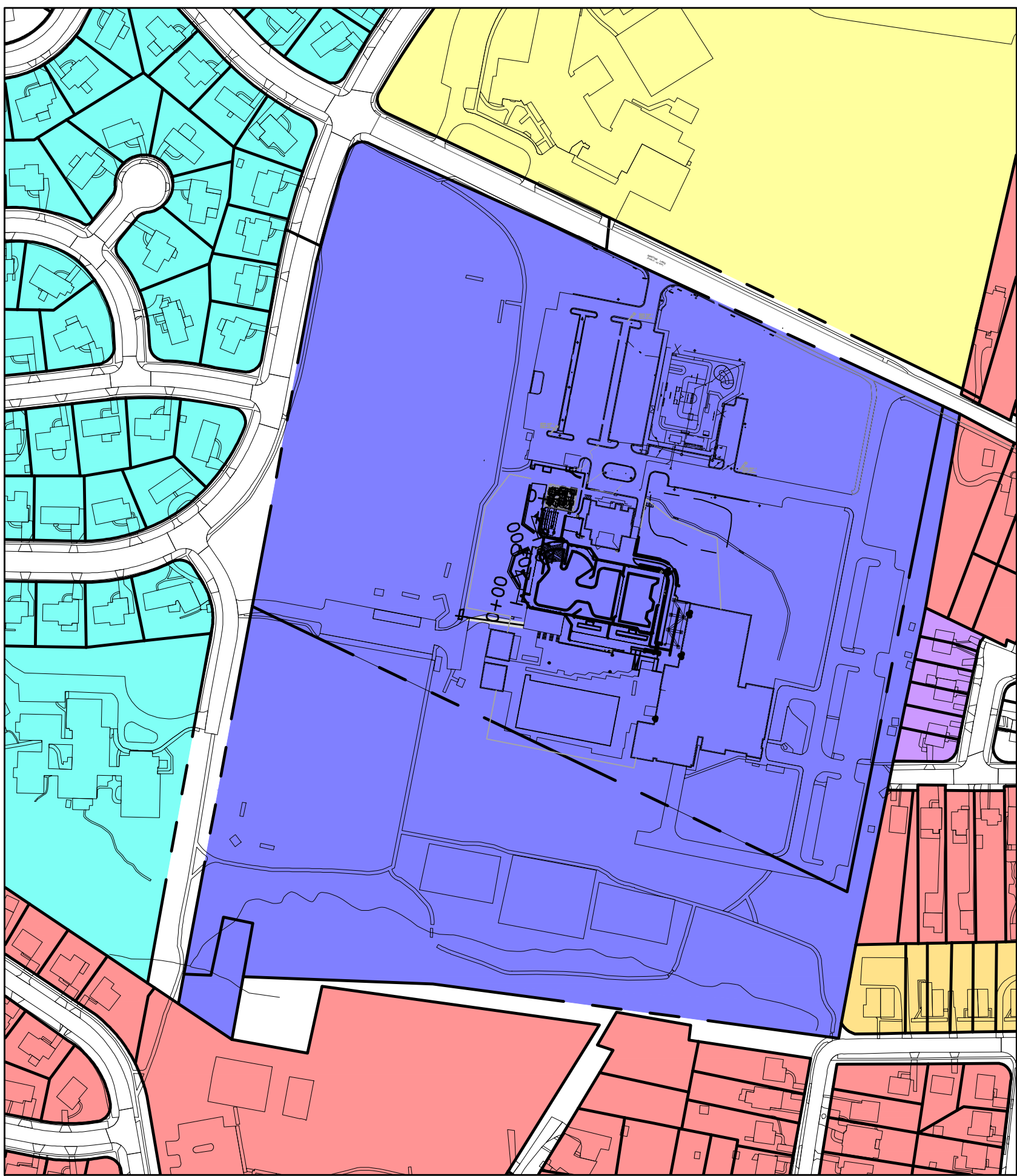
Election District No. 4 City of Rockville, Maryland



# ROCKVILLE SWIM AND FITNESS CENTER

# OUTDOOR RECREATION POOL RENOVATIONS

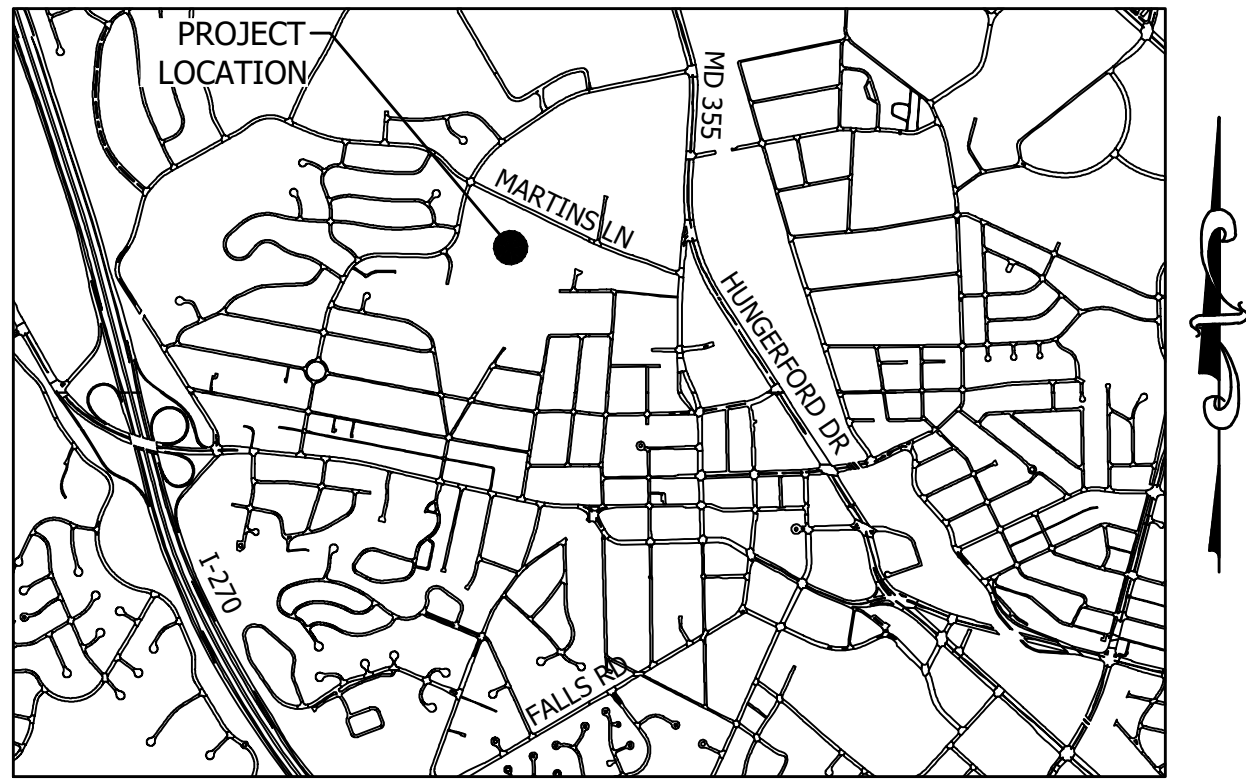
## MINOR SITE PLAN AMENDMENT STP2024-00466



1 LOCAL AREA PLAN  
SCALE: 1" = 200'

### ZONING LEGEND

	R-60
	R-30
	R-40
	RMD-25
	PARK
	R-200
	R-90



2 VICINITY MAP  
SCALE: 1" = 2000'

SHEET INDEX		
SHT #	SHEET TITLE	SHEET NUMBER
1	SITE PLAN AMENDMENT COVER SHEET	C-005
2	EX. CONDITIONS/DEMOLITION PLAN	C-100
3	SITE PLAN	C-200
4	PARKING EXHIBIT	C-201
5	SITE DETAILS	C-205
6	GRADING PLAN	C-210
7	RETAINING WALL PLAN	C-220
8	STORMWATER MANAGEMENT PLAN	C-300
9	UTILITY PLAN	C-500
10	OVERALL SITE PLAN	L100
11	REFERENCE PLAN	L101
12	ENLARGEMENT PLAN	L102
13	ENLARGEMENT PLAN	L103
14	LAYOUT PLAN	L104
15	SITE ACCESSIBILITY PLAN	L105
16	SECTIONS AND ELEVATIONS	L301
17	SECTIONS AND ELEVATIONS	L302
18	SECTIONS AND ELEVATIONS	L303
19	CONSTRUCTION DETAILS	L311
20	CONSTRUCTION DETAILS	L312
21	CONSTRUCTION DETAILS	L312A
22	CONSTRUCTION DETAILS	L313
23	CONSTRUCTION DETAILS	L314
24	CONSTRUCTION DETAILS	L315
25	CONSTRUCTION DETAILS	L316
26	PRODUCT SCHEDULE	L320
27	PLANTING PLAN	L401
28	PLANTING DETAILS	L411
29	LIGHTING PLAN	L601
30	LIGHTING PLAN	L602
31	LIGHTING PLAN	L603
32	DETAILS	AP-5

**PROPERTY ADDRESS**  
ROCKVILLE SWIM AND FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850

**OWNER:**  
MAYOR AND COUNCIL OF ROCKVILLE  
111 MARYLAND AVENUE  
ROCKVILLE, MD 20850  
c/o ADAM GOLDSTEIN, SUPERINTENDENT,  
ROCKVILLE SWIM AND FITNESS CENTER  
240-314-8752  
AGOLDSTEIN@ROCKVILLEMD.GOV

### LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



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EXPIRATION DATE:  
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DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

## SITE PLAN AMENDMENT COVER SHEET

## PERMIT SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023

No. Description Date

### Revisions

Project Number: 22.00036.00  
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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

CITY OF ROCKVILLE, MARYLAND  
EXISTING CONDITIIONS  
& DEMOLITION  
PLAN

PERMIT SET

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Revisions		

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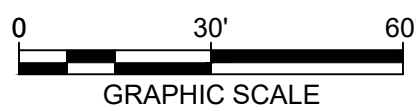
GENERAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL BE LIMITED TO STORING MATERIALS WITHIN THE LIMITS OF DISTURBANCE FOR THIS PROJECT.
2. ALL CONSTRUCTION ACTIVITY SHALL BE COORDINATED WITH THE CITY OF ROCKVILLE DEPARTMENT OF PARKS AND RECREATION.
3. CONTRACTOR SHALL PROVIDE REQUIRED SIGNAGE AND FLAGMEN ALONG ALL PUBLIC STREETS ADJACENT TO THE SITE, TO ASSURE THE SAFETY OF ALL VEHICULAR AND PEDESTRIAN TRAFFIC IF REQUIRED. ALL TRAFFIC CONTROLS MUST BE IN ACCORDANCE WITH THE MOST CURRENT MUTCD AND MDMUTCD REQUIREMENTS AND WITH THE MOST CURRENT MONTGOMERY COUNTY DOT WORK ZONE TRAFFIC CONTROL STANDARDS AND DETAILS.
4. ALL WORK SHALL BE PERFORMED IN STRICT CONFORMANCE WITH THE MOST CURRENT APPLICABLE EPA, OSHA, AND MOSHA REGULATIONS AND MUST COMPLY WITH THE MOST CURRENT FEDERAL, STATE AND/OR LOCAL REGULATIONS AND CODES APPLICABLE TO SAID WORK.
5. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WORK WITH REPRESENTATIVE UTILITY COMPANIES AND IMPLEMENTING REQUIRED UTILITY-RELATED WORK ACCORDINGLY.
6. THE CONTRACTOR SHALL NOTIFY THE OWNER AND/OR OWNERS REPRESENTATIVE IMMEDIATELY UPON ENCOUNTERING ANY HAZARDOUS MATERIALS. THE CONTRACTOR SHALL DOCUMENT SAME TO THE OWNER TO OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
7. WHERE NEW WORK IS TO BE DONE, CARE SHALL BE TAKEN TO PROTECT ALL EXISTING ADJACENT SURFACES, STRUCTURES, AND AREAS FROM DAMAGE. ANY ITEM SHOWN TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
8. CONTRACTOR SHALL BACKFILL EXCAVATED AREAS WITH ACCEPTABLE MATERIAL, AS SPECIFIED IN THE CONTRACT DOCUMENTS.
9. THE CONTRACTOR SHALL SHEET/SHORE AND BRACE ANY AND ALL STRUCTURES EXPOSED BY EXCAVATION/CONSTRUCTION IF REQUIRED AND SHALL CONTAIN ALL EXCAVATION WITHIN THE LIMITS OF DISTURBANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF SHEETING AND SHORING IN ACCORDANCE WITH LOCAL, STATE, OR FEDERAL REQUIREMENTS.
10. IN THE EVENT THAT, DURING DEMOLITION OR CONSTRUCTION ACTIVITIES THE CONTRACTOR ENCOUNTERS ANY EXISTING UTILITIES/STRUCTURES NOT SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE OWNER FOR DIRECTIONS PRIOR TO PROCEEDING WITH ANY WORK.
11. ALL SAWCUTS ARE TO BE STRAIGHT AND EVEN, JAGGED EDGES WILL NOT BE ACCEPTED.
12. IT IS THE INTENT OF THE DEMOLITION PHASE TO PROVIDE A SITE CLEAR OF ALL PHYSICAL CONSTRUCTIONS THAT WILL IMPEDE NEW CONSTRUCTION. PHASE STORM DRAIN REMOVAL AND GRADING AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE THROUGHOUT CONSTRUCTION.
13. THE DEMOLITION PLAN IS INTENDED TO PROVIDE AN OVERALL INTENT OF DEMOLITION THAT WILL BE PERFORMED THROUGHOUT CONSTRUCTION. SOME DEMOLITION IS PHASED AND PROGRESSES AS CONSTRUCTION CONTINUES. ALL DEMOLITION MUST BE PERFORMED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND THE SEQUENCE OF CONSTRUCTION.
14. PRIOR TO THE START OF CONSTRUCTION AN ON-SITE MEETING WITH THE CITY OF ROCKVILLE DEPARTMENT OF PARKS AND RECREATION, THE ROCKVILLE SWIM & FITNESS CENTER, AND THEIR GENERAL CONTRACTOR SHALL BE HELD TO DISCUSS TIMING OF OPERATIONS AND CONSTRUCTION COORDINATION.
15. BEFORE ANY EXCAVATION BELOW SUBGRADE IS ALLOWED, THE CONTRACTOR SHALL VERIFY THAT NO UTILITY PIPING IS IN THE VICINITY OF EXCAVATION.
16. THE CONTRACTOR SHALL CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL UNDERGROUND UTILITIES IN THE AREA OF PROPOSED WORK ARE LOCATED PRIOR TO COMMENCING CONSTRUCTION WORK. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.
17. THE CONTRACTOR IS ALSO RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES (NOT LOCATED BY MISS UTILITY) WITHIN THE PROPERTY AT THEIR EXPENSE. ALL UTILITIES SHOWN ON THE PLANS ARE PROVIDED FOR INFORMATION ONLY AND SHALL BE CONSIDERED APPROXIMATE. THE CITY OF ROCKVILLE WILL NOT LOCATE ANY OF THE EXISTING UNDERGROUND UTILITIES. ANY UTILITIES OR OTHER UNDERGROUND FACILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED/REPLACED AT THE CONTRACTOR'S EXPENSE.
18. WHEN AN ITEM IS STATED TO BE REMOVED, IT SHALL INCLUDE REMOVAL OF ANY AND ALL APPURTENANCES ABOVE OR BELOW GRADE ASSOCIATED WITH SAID ITEM.
19. ALL SIDEWALKS ARE TO BE REMOVED AT THE NEAREST WHOLE PANEL.
20. ANY MANHOLE, VALVE, OR OTHER UTILITY THAT IS TO REMAIN WITHIN THE LIMITS OF DISTURBANCE SHALL HAVE THEIR LIDS MODIFIED TO MEET PROPOSED GRADE.
21. BEFORE DEMOLITION BEGINS, CONTRACTOR SHALL HOLD MEETING WITH OWNER TO DETERMINE WHICH DEMOLITION ITEMS ARE TO BE SALVAGED TO THE OWNER. ALL DEMOLITION AND SALVAGING TO BE CONDUCTED BY THE CONTRACTOR. OWNER TO SPECIFY LOCATION FOR SALVAGED ITEMS
22. CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE AND CONSTRUCTION DOCUMENTS FROM ALL DISCIPLINES TO DEVELOP A THOROUGH UNDERSTANDING OF THE PROJECT, INCLUDING ANY SPECIAL CONDITIONS AND CONSTRAINTS BEFORE COMMENCING ANY WORK

DEMOLITION LEGEND

- X--- EXISTING STORM DRAIN TO BE REMOVED
- X EXISTING LIGHT POLE, BASE, AND ASSOCIATED WIRING TO BE REMOVED
- EX. ASPHALT TO BE REMOVED

CONSTRUCTION PHASING NOTE:  
ALL WORK SHALL BE COORDINATED WITH OWNER TO ENSURE THAT ADJOINING AREAS OF THE FACILITY WILL REMAIN OPERATIONAL, INCLUDING THE EQUIPMENT SERVICING THE OUTDOOR LAP POOL (OPERATING SEASON APRIL-OCTOBER)





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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

SITE PLAN

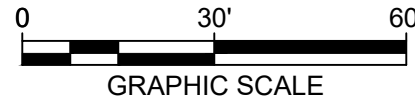
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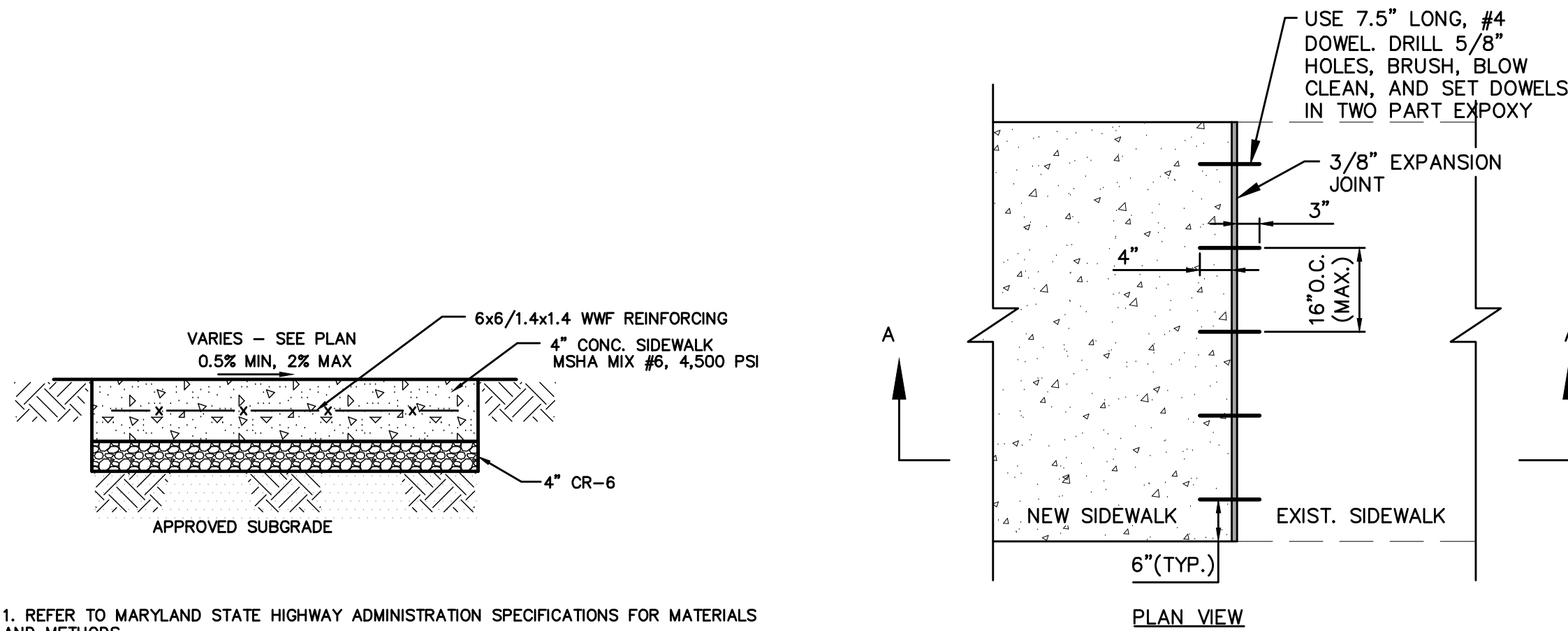
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Drawn By: SL  
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Date: 02/08/2024

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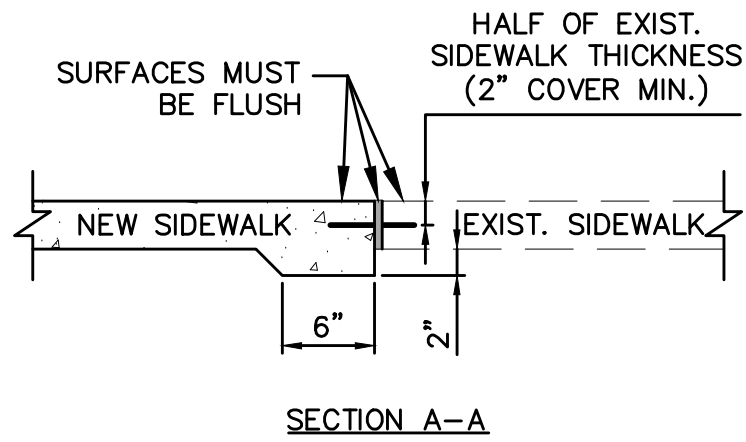




1. REFER TO MARYLAND STATE HIGHWAY ADMINISTRATION SPECIFICATIONS FOR MATERIALS AND METHODS.
2. EXPANSION JOINT MATERIAL SHALL BE PLACED AROUND POLES, HYDRANTS, ETC. AND ALONG THE PROPERTY LINE WHEN THE SIDEWALK ABUTS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE.
3. EXPANSION JOINT MATERIAL SHALL HAVE A MAXIMUM LONGITUDINAL SPACING OF 100 FEET. THE MATERIAL SHALL BE 1/2-INCH PREFORMED CORK, TRIMMED AND SEALED WITH NON-STAINING, TWO-COMPONENT POLYSULFIDE OR POLYURETHANE ELASTOMERIC TYPE SEALANT COMPLYING WITH FS TT-5-00227.
4. SCORE THE CONCRETE TO A DEPTH OF 1/3 THE SLAB THICKNESS TO PROVIDE WEAKENED PLANE TRAVERSE JOINTS AT 5'-0" INTERVALS, PARALLEL WITH AND PERPENDICULAR TO THE CURBING OR AS INDICATED ON THE SCORING PLAN.
5. POOL TO BE BONDED AS REQUIRED BY CODE. SEE POOL PLANS FOR DETAIL AND LOCATIONS

NOTE: SEE POOL PLANS FOR CONCRETE POOL DECKING LIMITS. CONCRETE SIDEWALK SECTION SHALL BE USED FOR ALL CONCRETE WALKWAYS OUTSIDE THE POOL DECK LIMITS.

1 TYPICAL CONCRETE SIDEWALK SECTION  
NOT TO SCALE



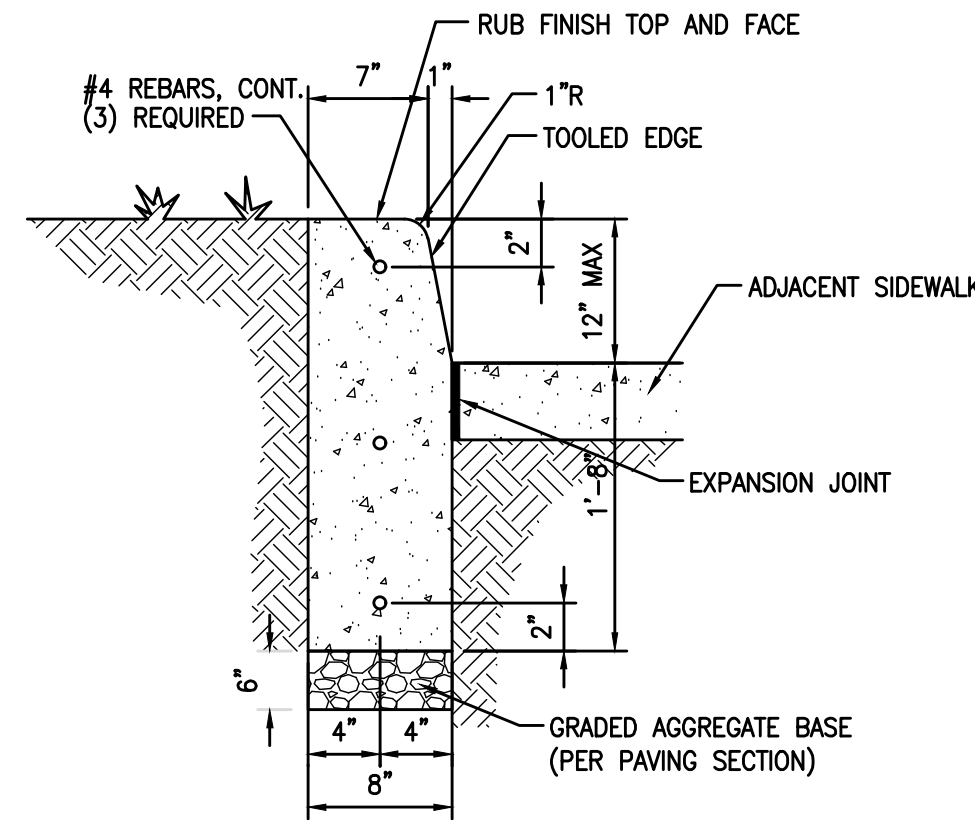
2 CONNECTION TO EX. CONCRETE DETAIL  
NOT TO SCALE

NOTES:

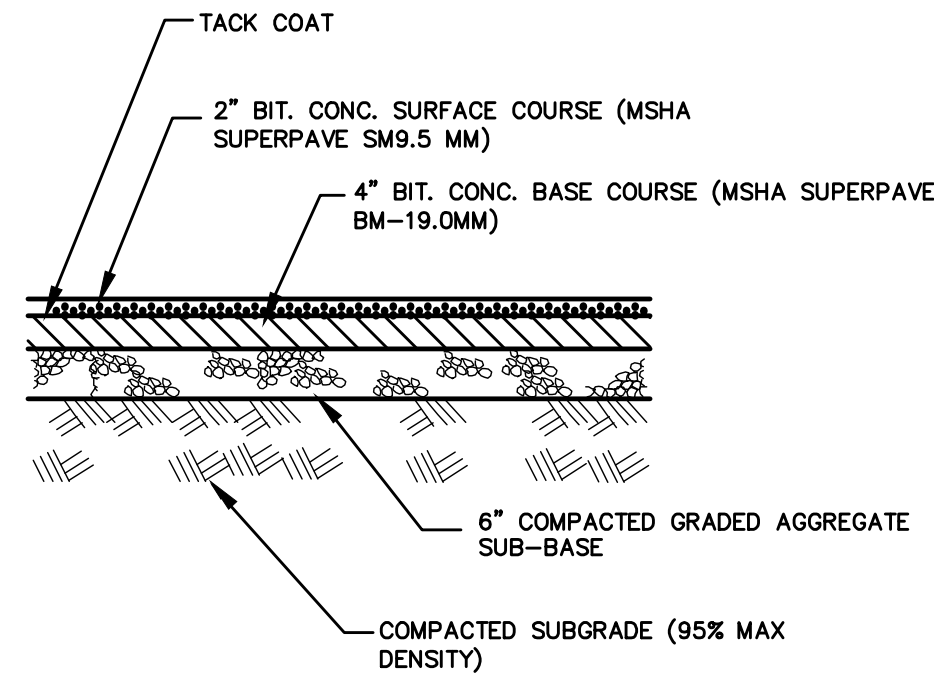
DOWELS SHALL BE GRADE 60, PER ASTM-A615.

WHERE CONNECTION IS PROPOSED PER THE PLAN, ONLY IN RIGHT-OF-WAY, CONTRACTOR SHALL SAWCUT EXISTING SIDEWALK AT THE NEAREST JOINT AND CONNECT PER THIS DETAIL.

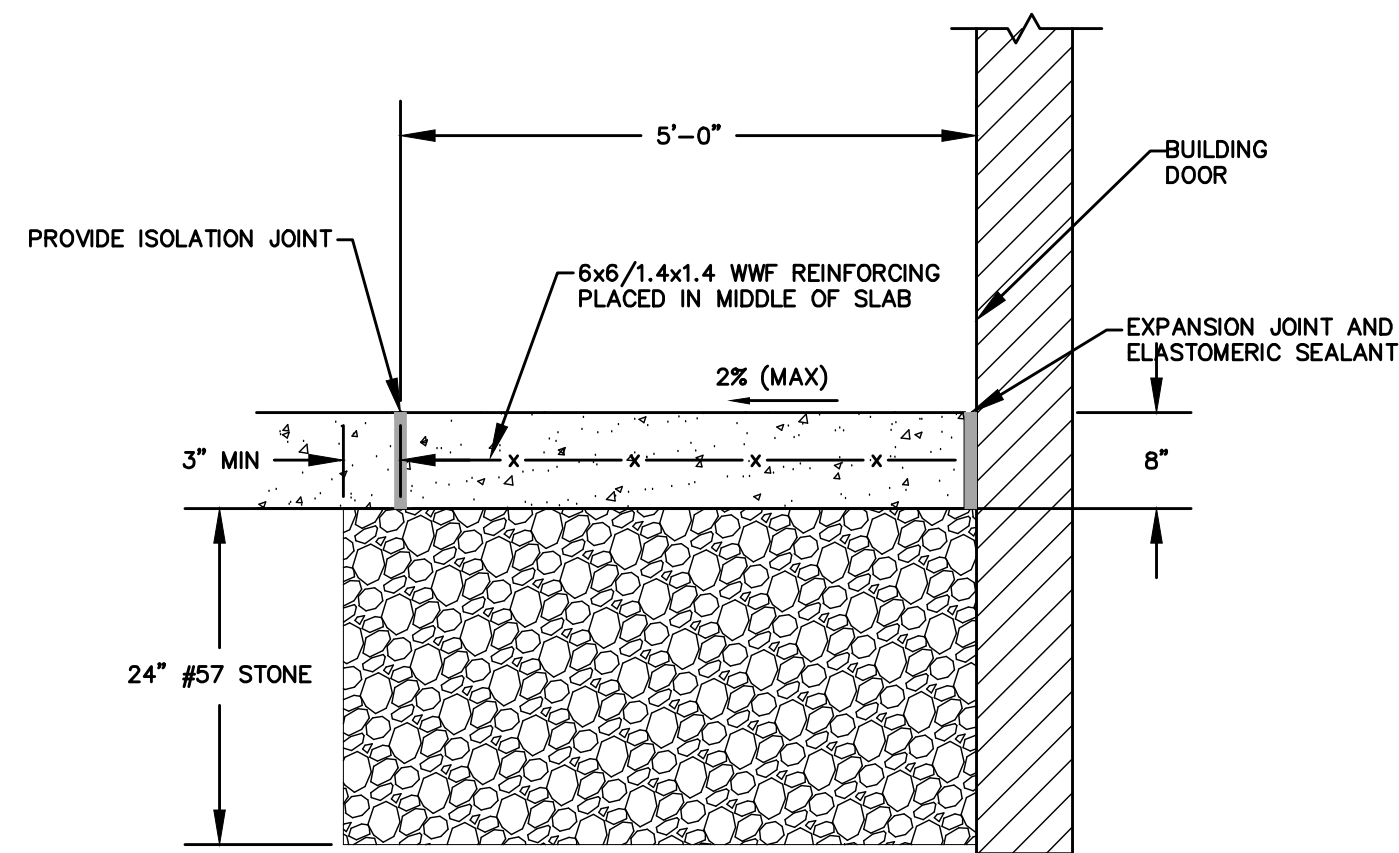
EXPANSION JOINT MATERIAL SHALL BE 3/8" PREFORMED CORK, TRIMMED AND SEALED WITH NON-STAINING TWO-COMPONENT POLYSULFIDE OR POLYURETHANE ELASTOMERIC TYPE SEALANT COMPLYING WITH ASTM-C920. SEALANT SHALL BE FLUSH WITH ADJOINING SURFACES. UNDER NO CIRCUMSTANCES SHALL AN ELEVATION DIFFERENCE BETWEEN THE TOP OF ADJOINING SURFACES AND SEALANT BE MORE THAN 1/4".



3 12" CONCRETE CURB  
NOT TO SCALE

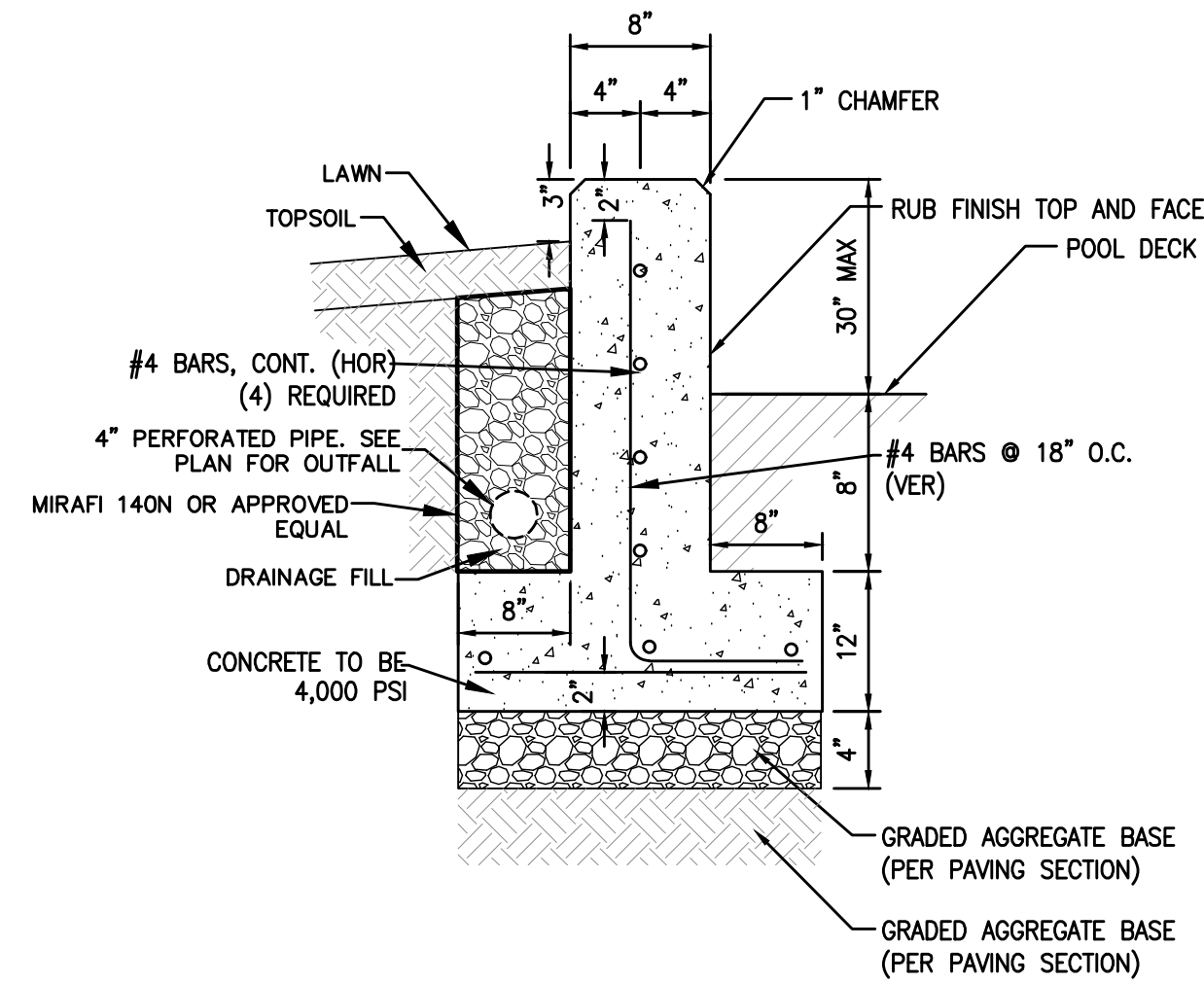


5 PARKING LOT PAVING SECTION  
NOT TO SCALE

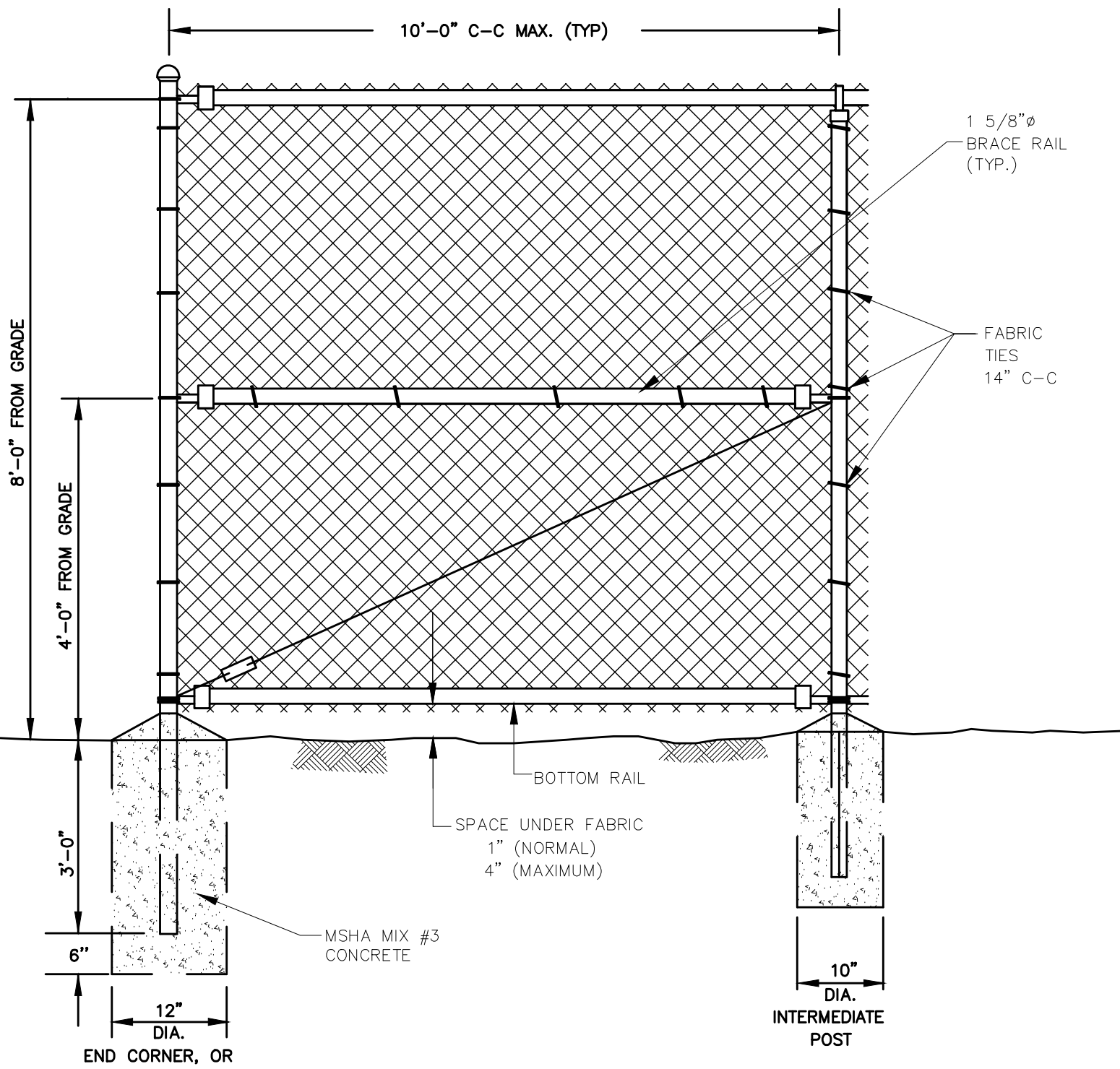


- NOTE:
1. THIS DETAIL TYPICAL FOR 5' CLEAR OUTSIDE ALL DOORWAYS
  2. INSTALL 1/2" EXPANSION JOINT WHERE SUPPORT MEETS ADJACENT SURFACE AND BUILDING. EXPANSION JOINT MATERIAL SHALL BE 1/2" PREFORMED CORK, TRIMMED AND SEALED WITH NON-STAINING POLY-URETHANE ELASTOMERIC TYPE SEALANT COMPLYING WITH ASTM C 920 (NON-EXTRUDING).
  3. THE SLOPE OF THE SIDEWALK AT THE DOOR SHALL NOT EXCEED 2% IN ANY DIRECTION

4 DOORWAY LANDING DETAIL  
NOT TO SCALE

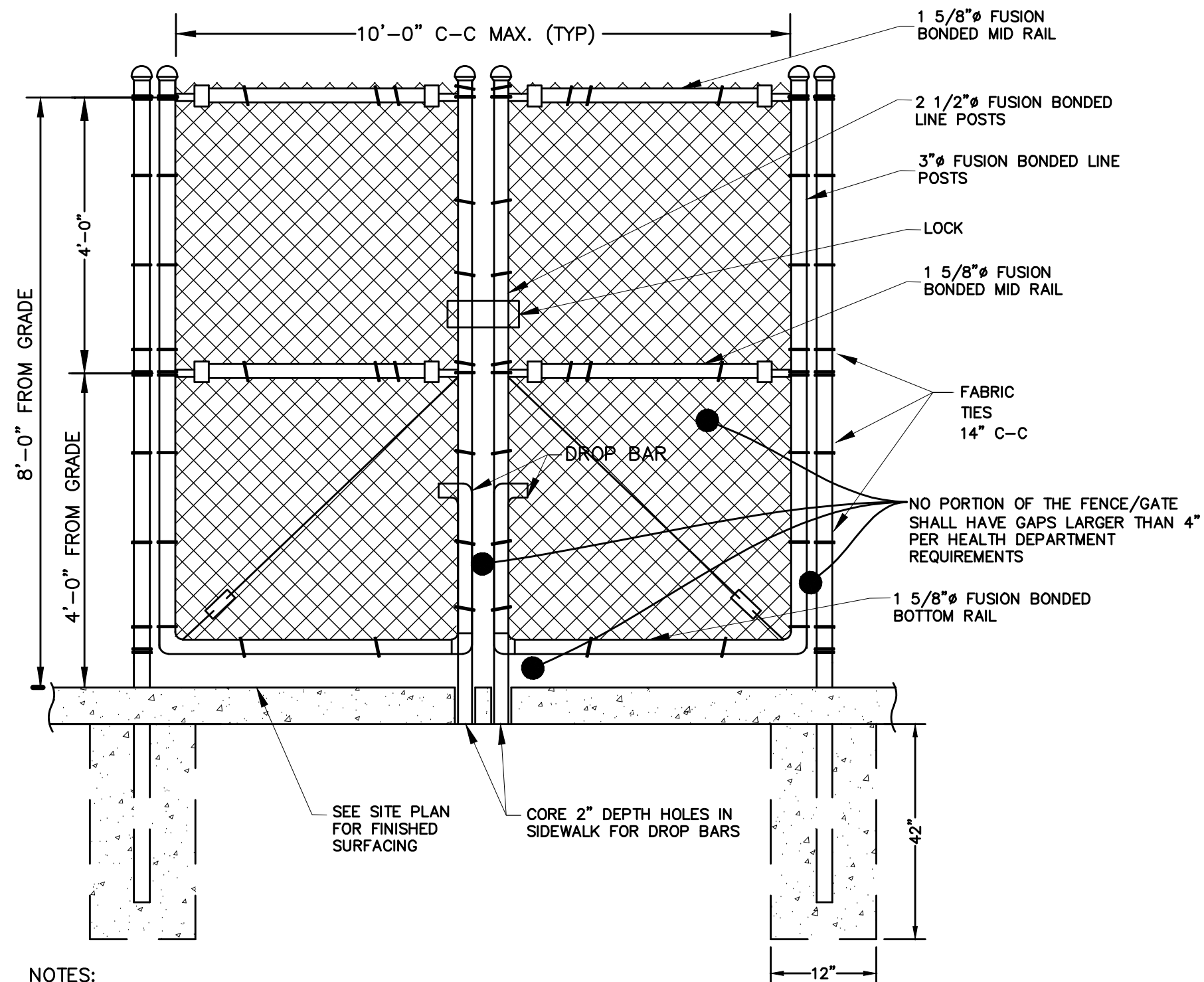


6 LAWN RETAINING WALL DETAIL  
NOT TO SCALE



- NOTES:
1. GATE FABRIC SHALL BE KNUCKLED ON TOP SELVAGES.
  2. CONCRETE FOUNDATIONS AT GATES. SIZE RECOMMENDED BY GATE MANUFACTURER.
  3. ALL FENCE, GATE POSTS & FRAMES TO BE GROUNDED.
  4. ATTACH FENCE FABRIC TO LINE POSTS, TOP AND BOTTOM TENSION WIRES WITH THE WIRES.
  5. ALL TYPE V-1 & V-2 GATES SHALL ALLOW 180° OPENING SWING.
  6. POSTS, RAILS AND RODS TO BE INSTALLED INSIDE OF FENCE FABRIC.
  7. MATERIALS TO MEET REQUIREMENTS OF AASHTO M181.
  8. NO GAPS 4" OR GREATER WILL BE ACCEPTED FOR PERIMETER FENCE

7 8' HIGH CHAIN-LINK FENCE DETAIL  
NOT TO SCALE



NOTES:

1. GATE FABRIC SHALL BE KNUCKLED ON TOP SELVAGES.
2. CONCRETE FOUNDATIONS AT GATES. SIZE RECOMMENDED BY GATE MANUFACTURER.
3. ALL FENCE, GATE POSTS & FRAMES TO BE GROUNDED.
4. ATTACH FENCE FABRIC TO LINE POSTS, TOP, MID AND BOTTOM RAILS WITH THE WIRES.
5. ALL TYPE V-1 & V-2 GATES SHALL ALLOW 180° OPENING SWING.
6. POSTS, RAILS AND RODS TO BE INSTALLED INSIDE OF FENCE FABRIC.
7. MATERIALS TO MEET REQUIREMENTS OF AASHTO M181.
8. FOUNDATIONS TO BE SET 6" BELOW PROPOSED GRADE TO ALLOW FOR 6" MOW STRIP OVERTOP.
9. ALL DIMENSIONS AND SIZES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR TO SUBMIT SHOP DRAWINGS CERTIFIED BY STRUCTURAL ENGINEER.

8 8' TALL DOUBLE SWING GATE  
NOT TO SCALE

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RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

SITE DETAILS

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CITY OF ROCKVILLE, MARYLAND

GRADING PLAN

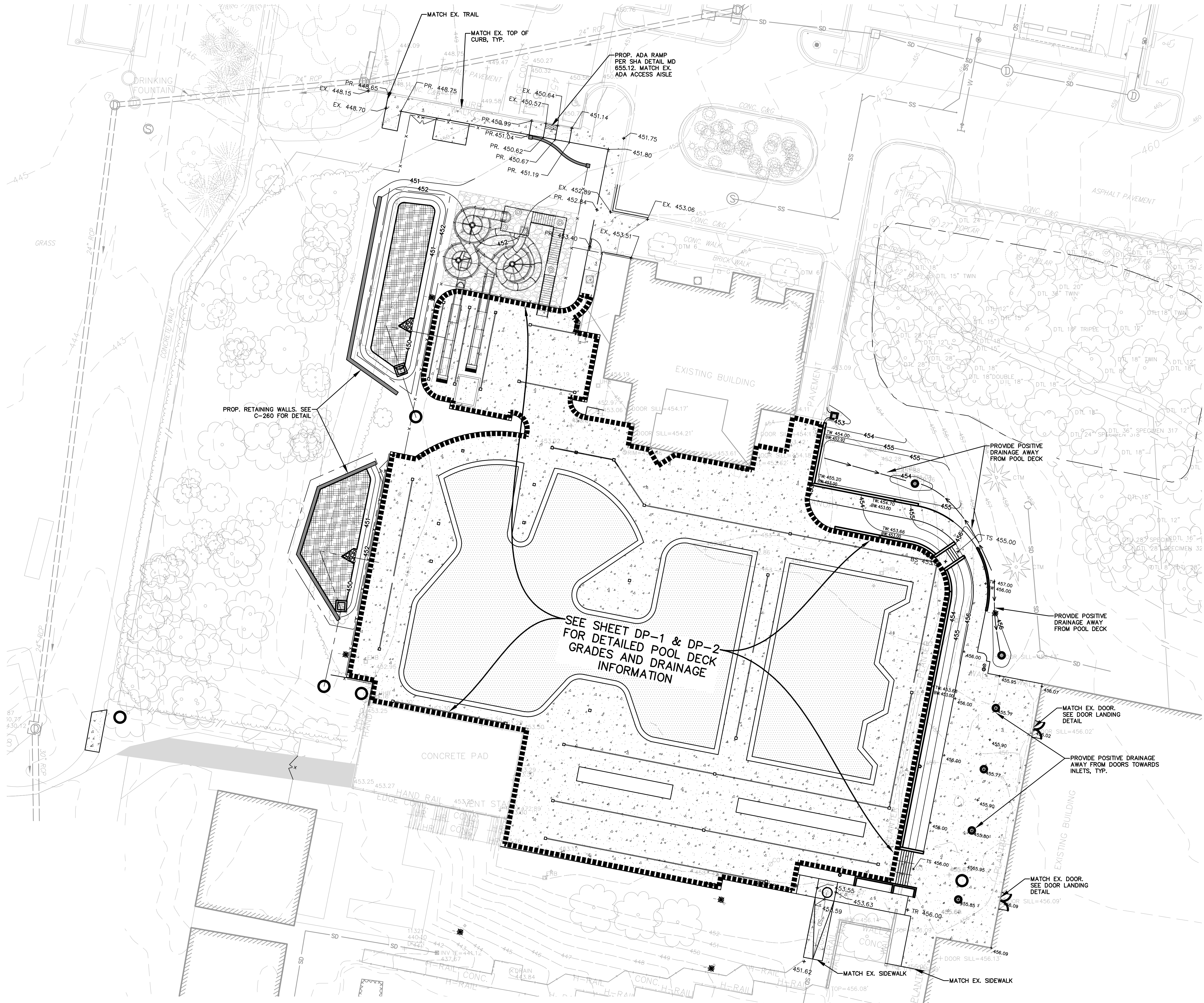
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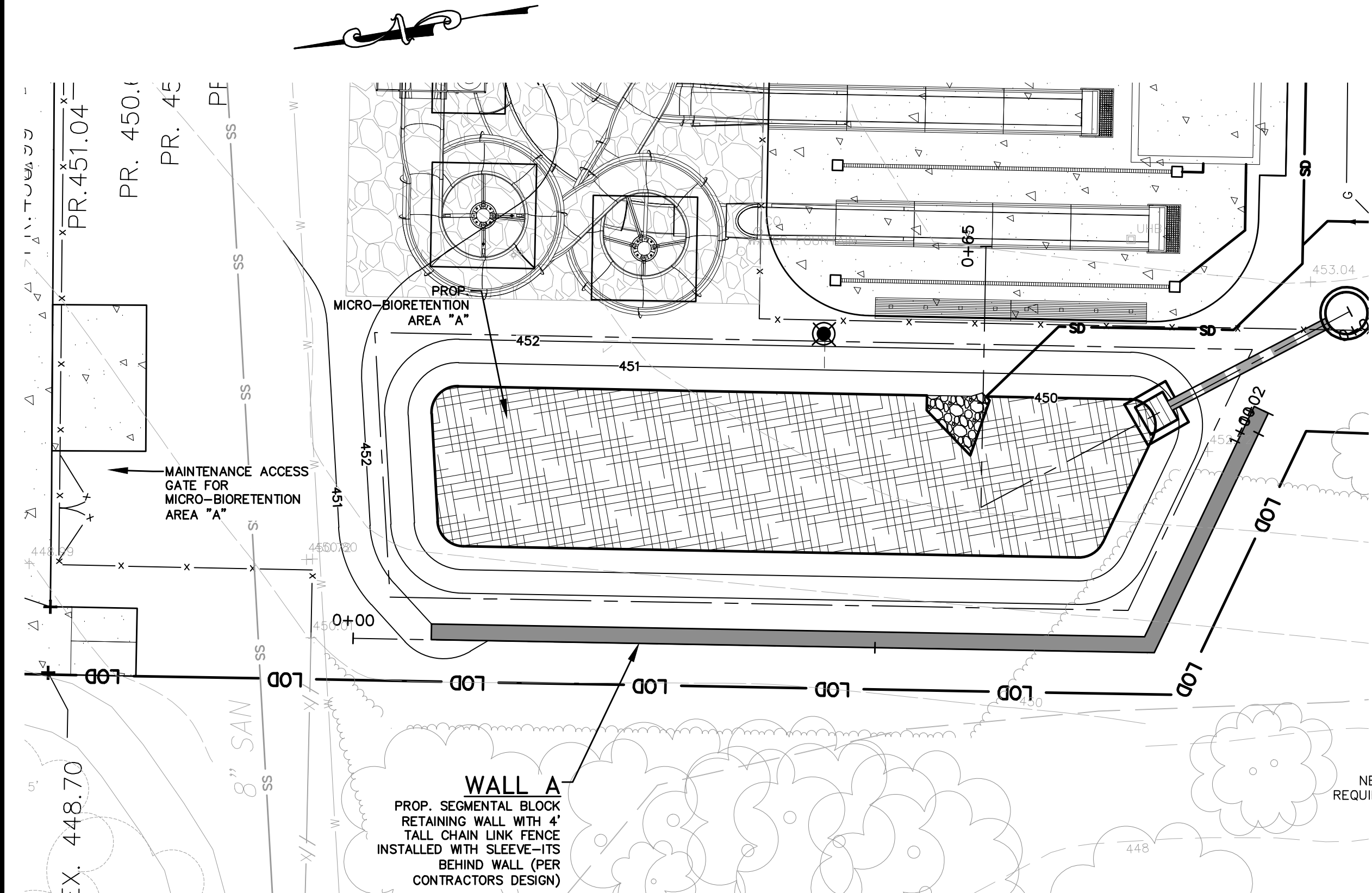
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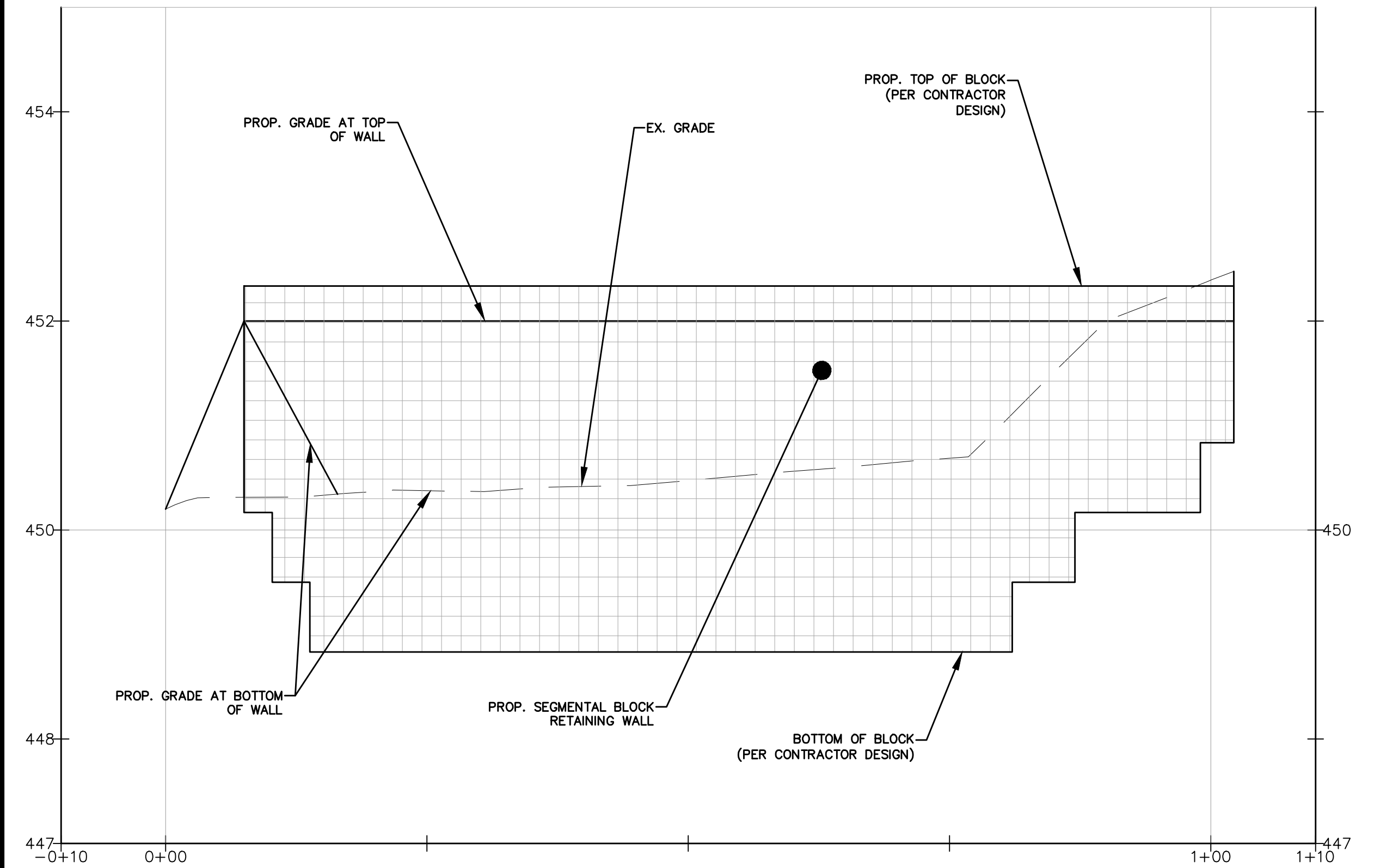
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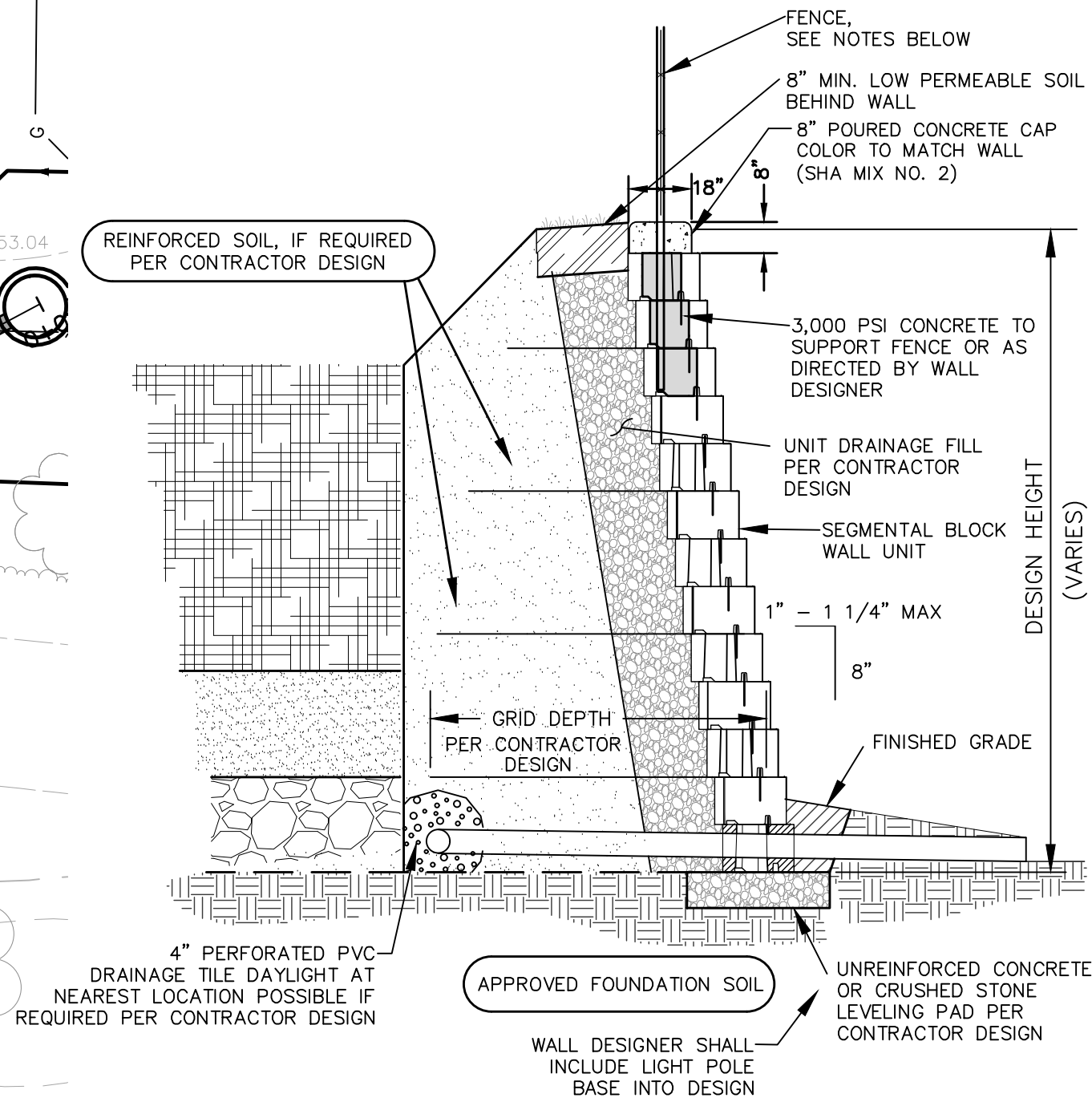




1 RETAINING WALL "A" PLAN  
SCALE: 1" = 10'



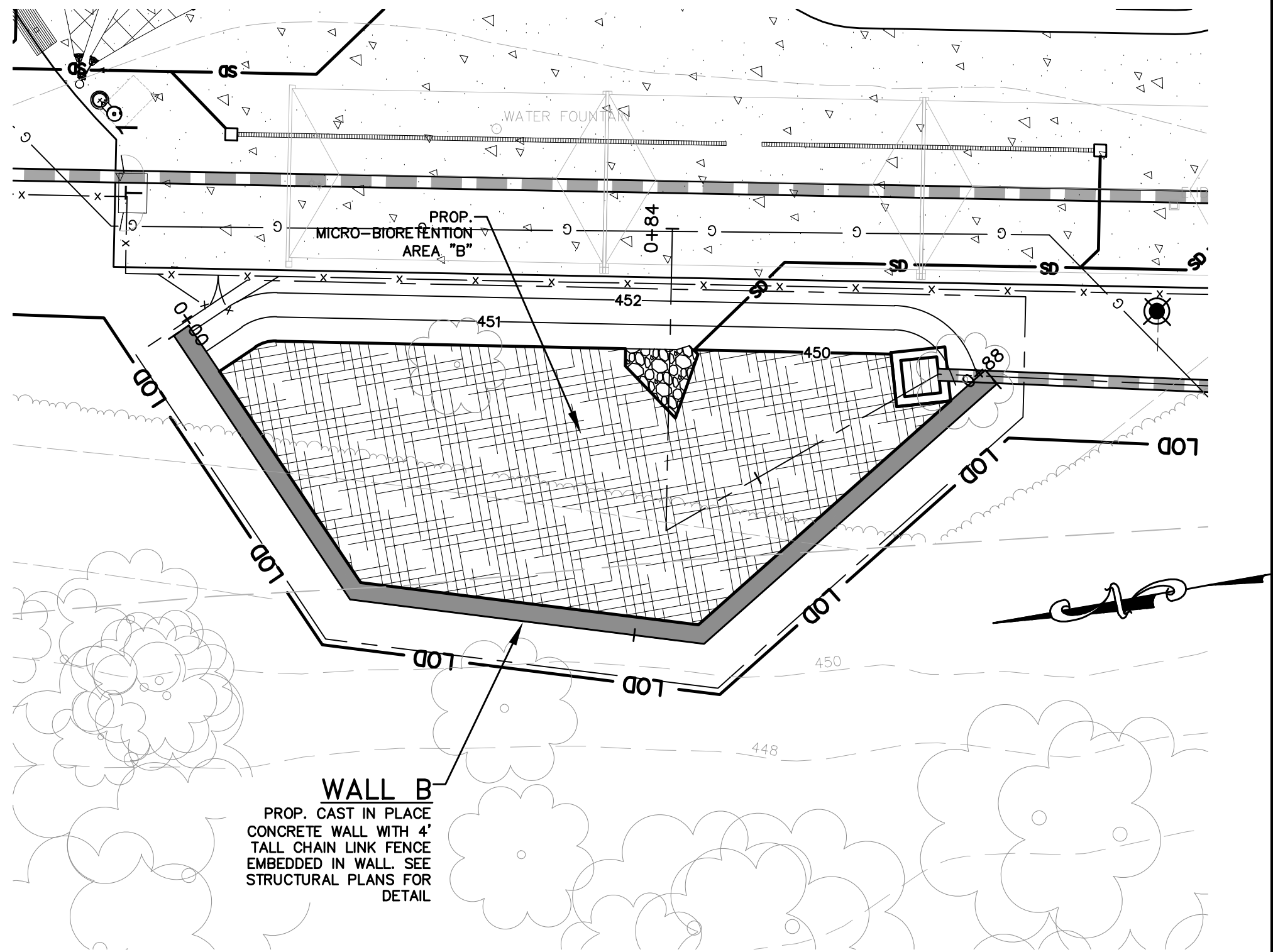
3 RETAINING WALL "A" PROFILE  
SCALE: 1"=10' (HOR) 1"=1' (VER)



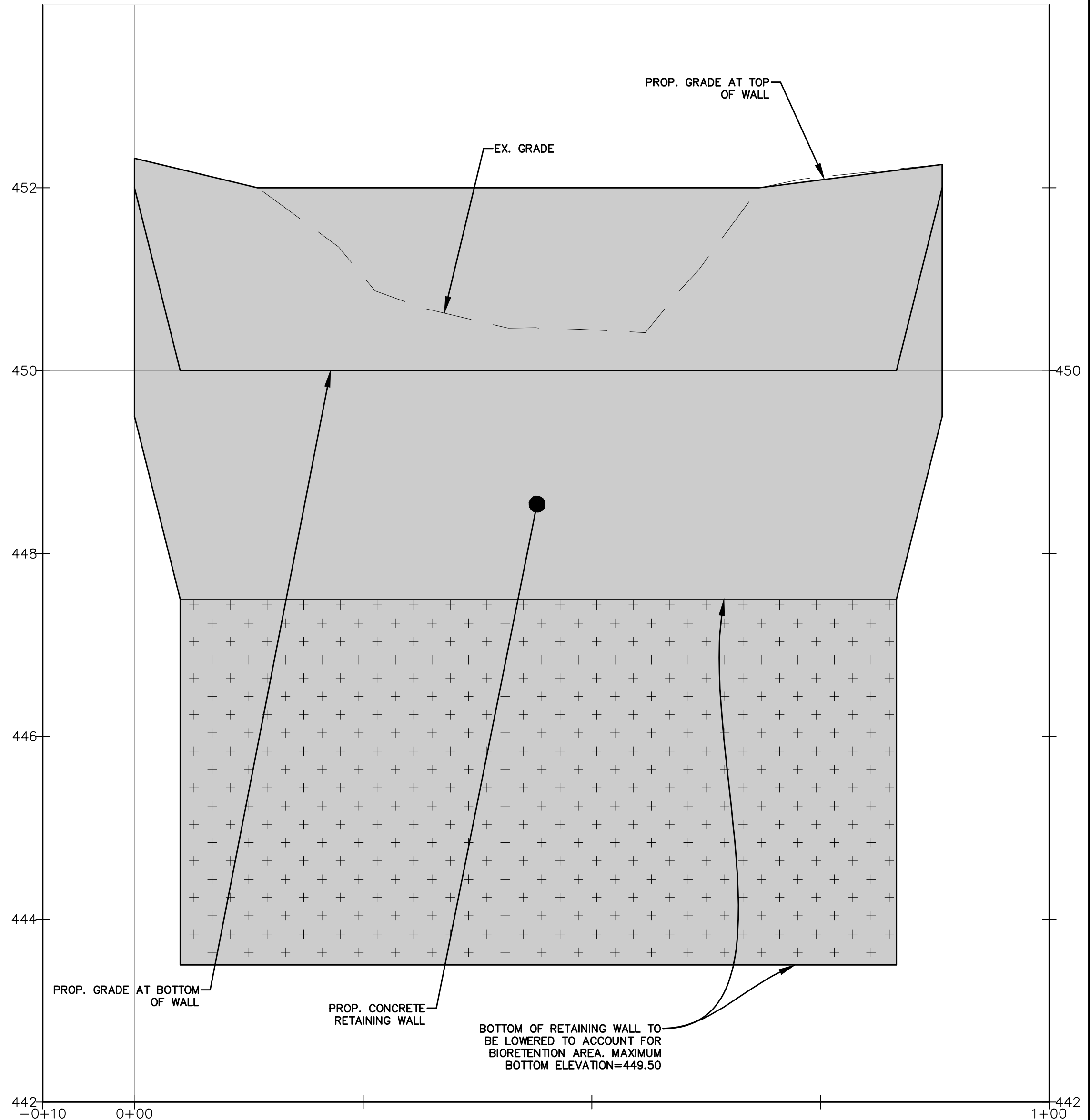
NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING REQUIRED PERMITS FOR ALL RETAINING WALLS ON THE SITE.
2. PROVIDE CERTIFIED SHOP DRAWINGS SIGNED AND SEALED BY A MARYLAND LICENSED PROFESSIONAL ENGINEER FOR THE WALL AND FOR THE FENCE TO THE OWNERS/ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE ORDERING OF MATERIALS AND PRIOR TO INSTALLATION. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL DESIGN.
3. CONTRACTORS DESIGN SHALL TAKE ACCOUNT OF MICRO-BIORETENTION MEDIA. DESIGN SHOULD ALLOW FOR MEDIA TO BE COMPLETELY EXCAVATED WITHOUT HAVING A NEGATIVE IMPACT ON THE WALL.
4. THE SEGMENTAL GRAVITY RETAINING WALL INSTALLATION SHALL BE OBSERVED BY A NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)-CERTIFIED DESIGNER OR INSTALLER (CSRW). THE INSPECTOR SHALL OBSERVE INSTALLATION OPERATIONS AND SUBMIT A WRITTEN CERTIFICATION TO THE OWNER THAT THE SRW WAS BUILT IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
5. THIS DETAIL IS FOR INFORMATION ONLY. FOLLOW MANUFACTURERS RECOMMENDED INSTALLATION PROCEDURES.
6. WHEN SITE CONDITIONS REQUIRE, WRAP DRAINAGE TILE IN 3/4" AGGREGATE AND FILTER FABRIC WITH DRAINAGE COMPOSITE OR AGGREGATE BACK DRAIN SYSTEM, AS DIRECTED BY GEOTECHNICAL ENGINEER.
7. FINISH FACE OF WALL TO BE TURNED AT ENDPOINTS TO AVOID SIDE EXPOSURE OF BLOCK UNITS.
8. CHAIN-LINK FENCE POSTS SHALL BE EMBEDDED IN THE WALL PER CONTRACTOR DESIGN
9. WHERE WALL ABUTS BIORETENTION AREA, THE WALL FOOTING SHALL EXTEND BELOW GRADE AN ADDITIONAL DEPTH, IF NECESSARY, AS DETERMINED BY THE WALL DESIGNER SO AS TO ALLOW FOR BIORETENTION MEDIA INSTALLATION AFTER WALL CONSTRUCTION.
10. CONTRACTOR TO ADJUST GEOGRID REINFORCEMENT AROUND ANY OBSTRUCTIONS.
11. FENCE SHALL BE DESIGNED TO SUPPORT AN OVERTURNING MOMENT FROM A 200 POUND POINT LOAD OR 50 PLF.
12. WALL SHALL BE KEYSTONE COMPAC WITH STRAIGHT SPLIT IN GREY (OR APPROVED EQUAL)

1 TYPICAL SEGMENTAL BLOCK WALL SECTION  
NOT TO SCALE



2 RETAINING WALL "B" PLAN  
SCALE: 1" = 10'



4 RETAINING WALL "B" PROFILE  
SCALE: 1"=10' (HOR) 1"=1' (VER)

LSG LANDSCAPE  
ARCHITECTURE

8240 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



CLARK | AZAR & ASSOCIATES

20440 Century Blvd, Suite 220  
Germantown, MD. 20874  
T(301) 528-2010  
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PREPARED OR APPROVED  
BY ME, AND THAT I AM A  
DULY LICENSED  
PROFESSIONAL  
ENGINEER UNDER THE  
LAWS OF THE STATE OF  
MARYLAND.

LICENSE NO. 31168  
EXPIRATION DATE:  
01/12/2025

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

RETAINING WALL  
PLAN

PERMIT SET

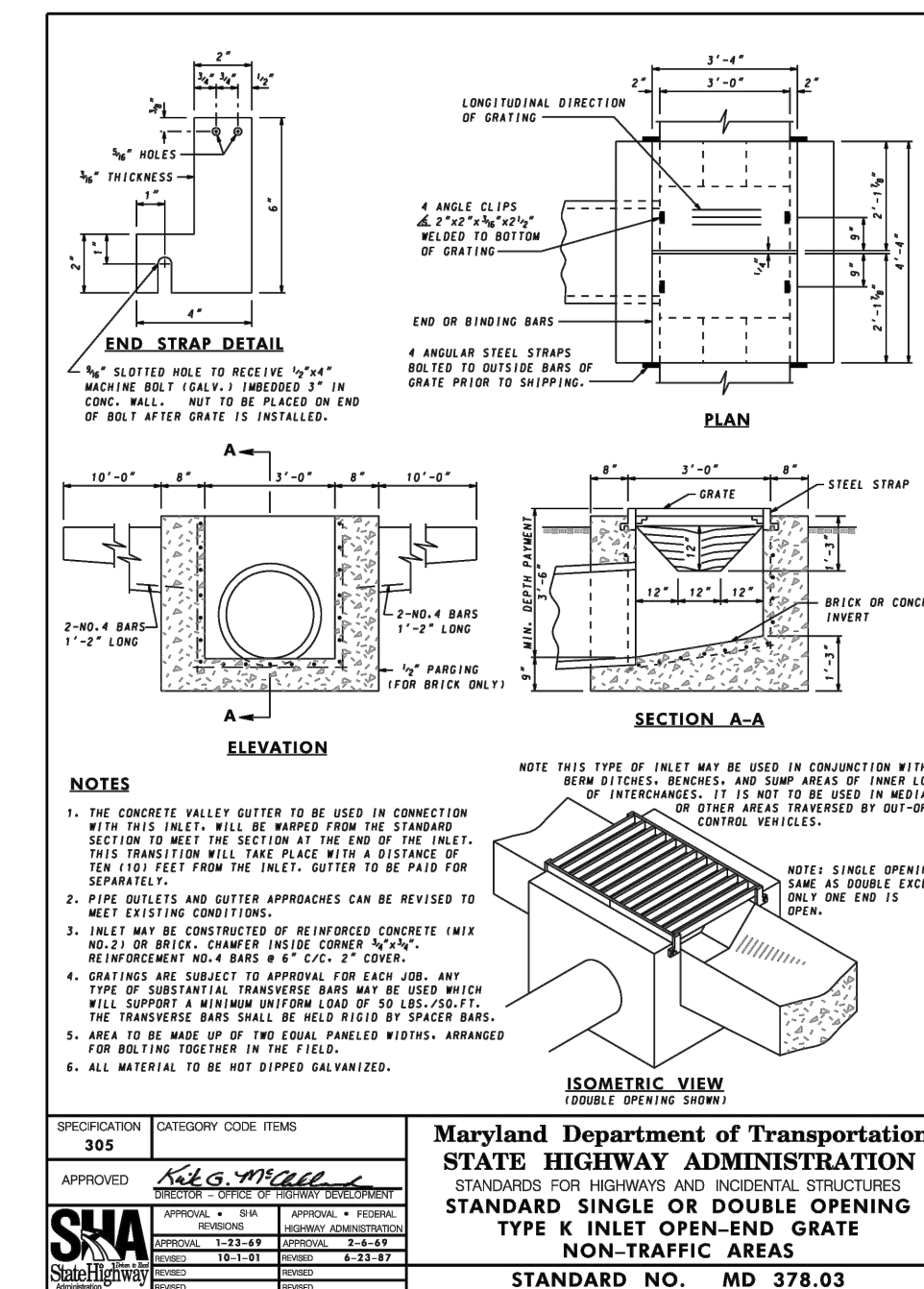
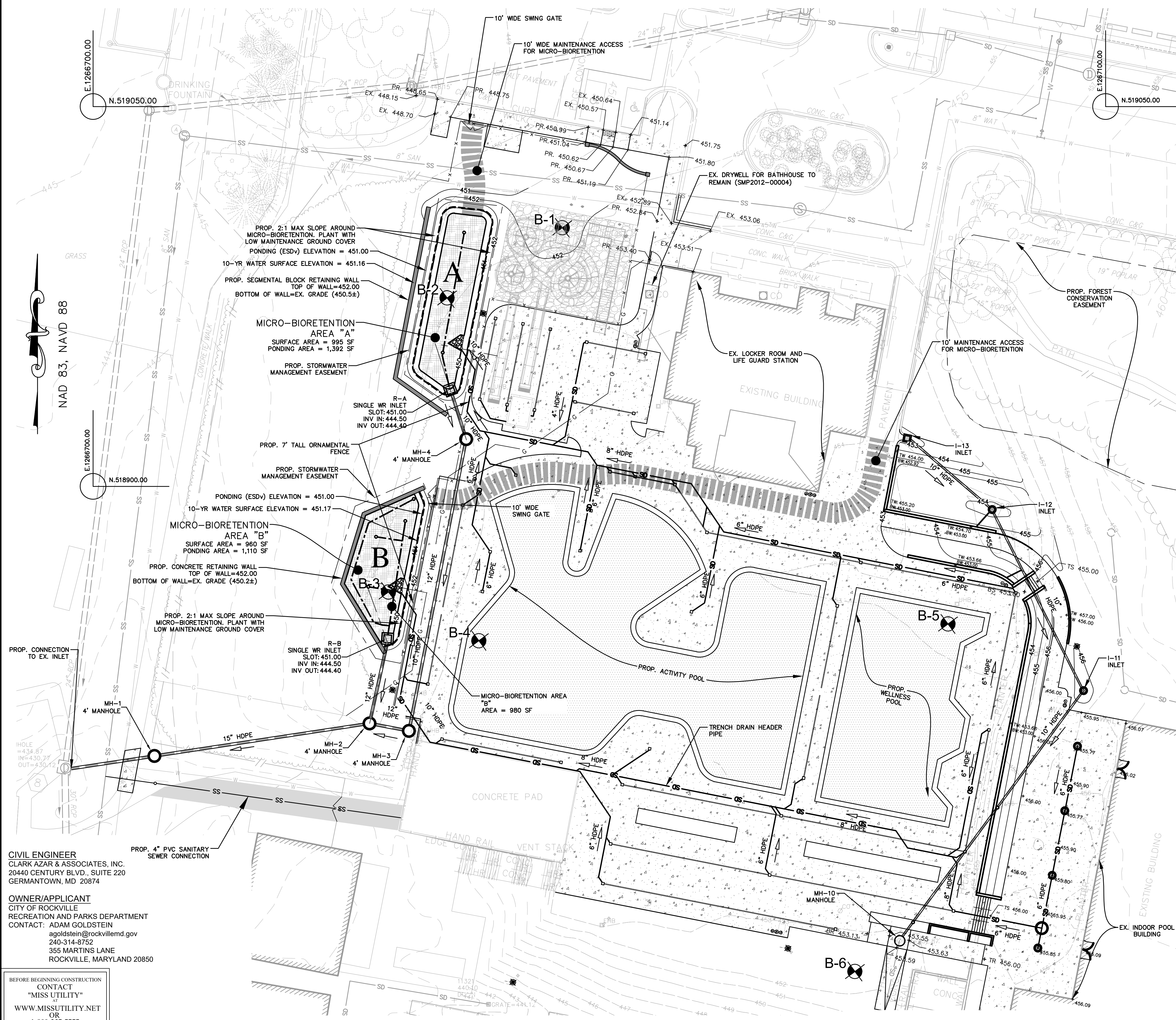
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2	80% CONSTRUCTION DOCUMENT 08/18/2023
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4	PERMIT SET 12/08/2023

No.	Description	Date
Revisions		

Project Number: 22.00036.00  
Scale: 1" = 10'  
Drawn By: SL  
Checked By: JA  
Date: 02/08/2024

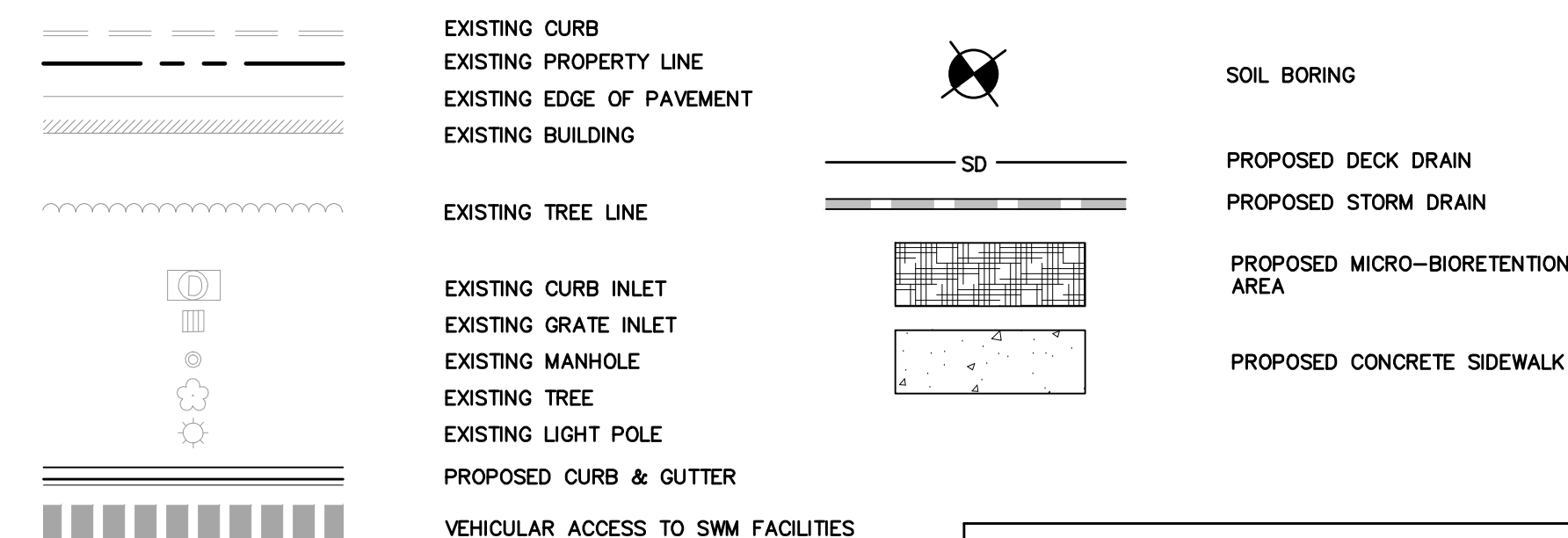
Sheet No. C-220





OVERFLOW STRUCTURE R-A  
AND R-B DETAIL  
N.T.S.

**SOIL BOUNDARY NOTE:**  
ALL SOIL WITHIN THE  
SHOWN AREA IS  
GLENELG SILT LOAM  
(HSG "B")



BENCHMARK DATA:		
NO	ELEV	DESCRIPTION
1	457.28	REBAR WITH CAP SET
2	449.17	REBAR WITH CAP SET
3	462.06	REBAR WITH CAP SET

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**OWNER/APPLICANT**  
CITY OF ROCKVILLE  
RECREATION AND PARKS DEPARTMENT  
CONTACT: ADAM GOLDSTEIN  
agoldstein@rockvillemd.gov  
240-314-8752  
355 MARTINS LANE  
ROCKVILLE, MARYLAND 20850


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"MISS UTILITY"  
AT  
WWW.MISSUTILITY.NET  
OR  
1-800-257-7777  
OR 811  
AT LEAST 48 HOURS  
PRIOR TO EXCAVATION

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Expiration Date: 1/12/2025

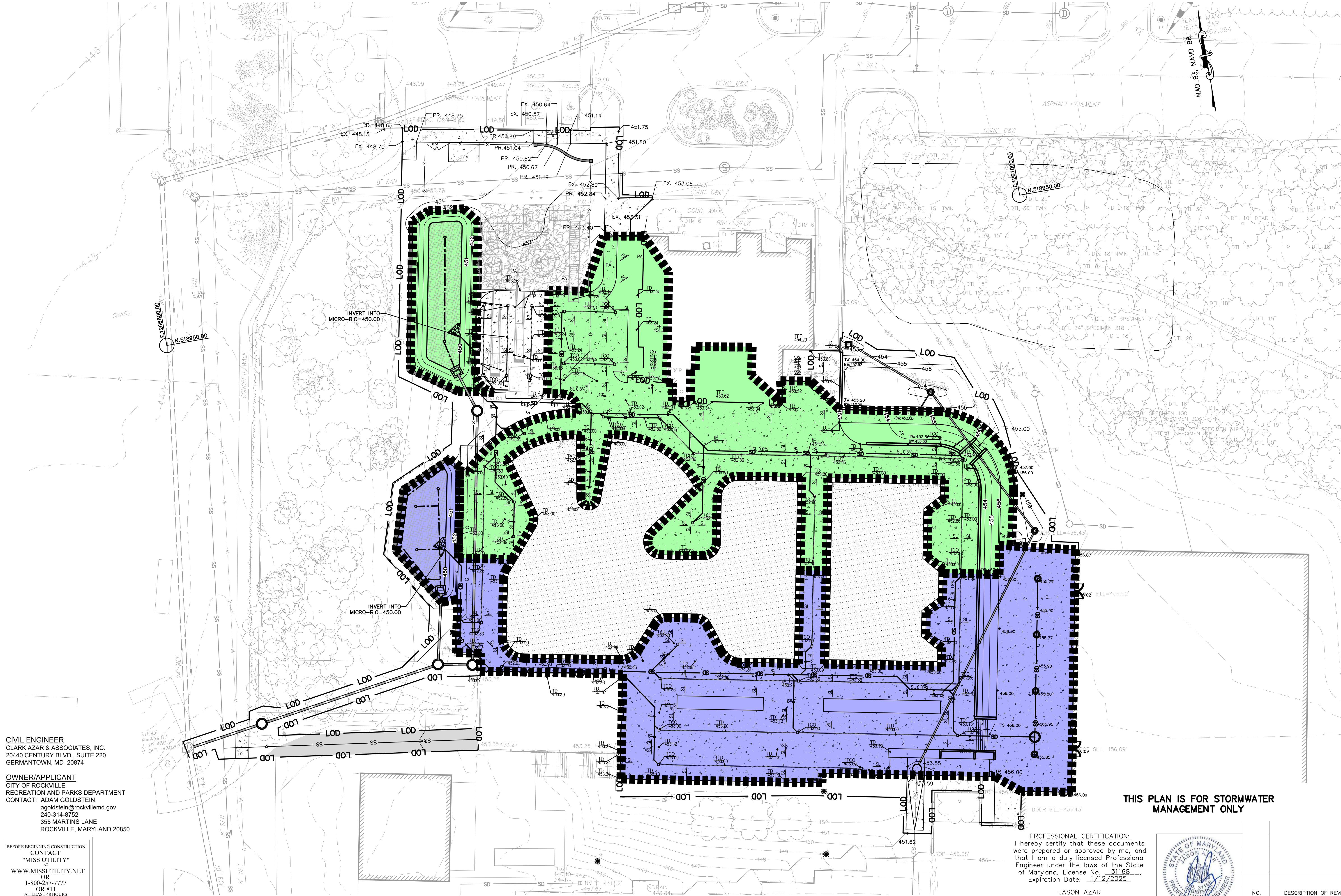


4	NO.	DESCRIPTION OF REVISION	P.E. INITIAL	DATE	DPW	DATE
	APPROVAL OF REVISIONS AFTER INITIAL PLAN APPROVAL					

**THIS PLAN IS FOR STORMWATER  
MANAGEMENT ONLY**

	DEPARTMENT OF PUBLIC WORKS CITY OF ROCKVILLE  111 MARYLAND AVE.     ROCKVILLE, MARYLAND	DESIGNED <u>SL</u>  DRAFTED <u>MS</u>  CHECKED <u>JA</u>	DESIGN PLAN APPROVAL		AS BUILT PLAN APPROVAL		SMP2024-00016  STORMWATER MANAGEMENT PLAN	ROCKVILLE SWIM & FITNESS CENTER OUTDOOR RECREATION POOL RENOVATIONS 355 MARTINS LANE PARCEL 630  Election District No. 4     City of Rockville, Maryland	DATE SUBMITTED: 2/7/2024	SCALE 1"=20'	SHEET NO. <u>2</u> OF <u>6</u>	FILE #
			<div></div> <div>PWK# _____ SCP# _____ SMP # <u>2024-00016</u>     REVIEWED BY <div></div></div> <div>DIRECTOR OF PUBLIC WORKS     APPROVAL DATE</div>									





**DRAINAGE AREA A:**  
TO MICRO-BIORETENTION AREA A  
AREA = 17,426 SF (0.400 AC)  
IMPERVIOUS AREA = 13,324 SF  
PERVIOUS AREA = 4,102 SF  
PERCENT IMPERVIOUS = 76.5%

**DRAINAGE AREA B:**  
TO MICRO-BIORETENTION AREA B  
AREA = 18,323 SF (0.421 AC)  
IMPERVIOUS AREA = 15,586 SF  
PERVIOUS AREA = 2,737 SF  
PERCENT IMPERVIOUS = 85.1%

**SPOT LEGEND**

TTD TOP TRENCH DRAIN  
TD TOP OF POOL DECK  
TCO TOP OF CLEANOUT  
IE INVERT ELEVATION  
FFE FINISHED FLOOR ELEVATION  
GRATE GRATE ELEVATION  
SL SLOPE

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JASON AZAR  
NAME



NO.	DESCRIPTION OF REVISION	P.E. INITIAL	DATE	DPW	DATE

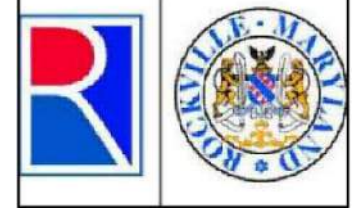
APPROVAL OF REVISIONS AFTER INTIAL PLAN APPROVAL

DATE SUBMITTED: 2/7/2024	SCALE 1"=20'	SHEET NO. 3 OF 6	FILE #
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DEPARTMENT OF PUBLIC WORKS  
CITY OF  
**ROCKVILLE**  
111 MARYLAND AVE. ROCKVILLE, MARYLAND

DESIGNED SL  
DRAFTED MS  
CHECKED JA

DESIGN PLAN APPROVAL  
PWK# \_\_\_\_\_ SCP# \_\_\_\_\_  
SMP# 2024-00016 REVIEWED BY \_\_\_\_\_  
DIRECTOR OF PUBLIC WORKS APPROVAL DATE \_\_\_\_\_

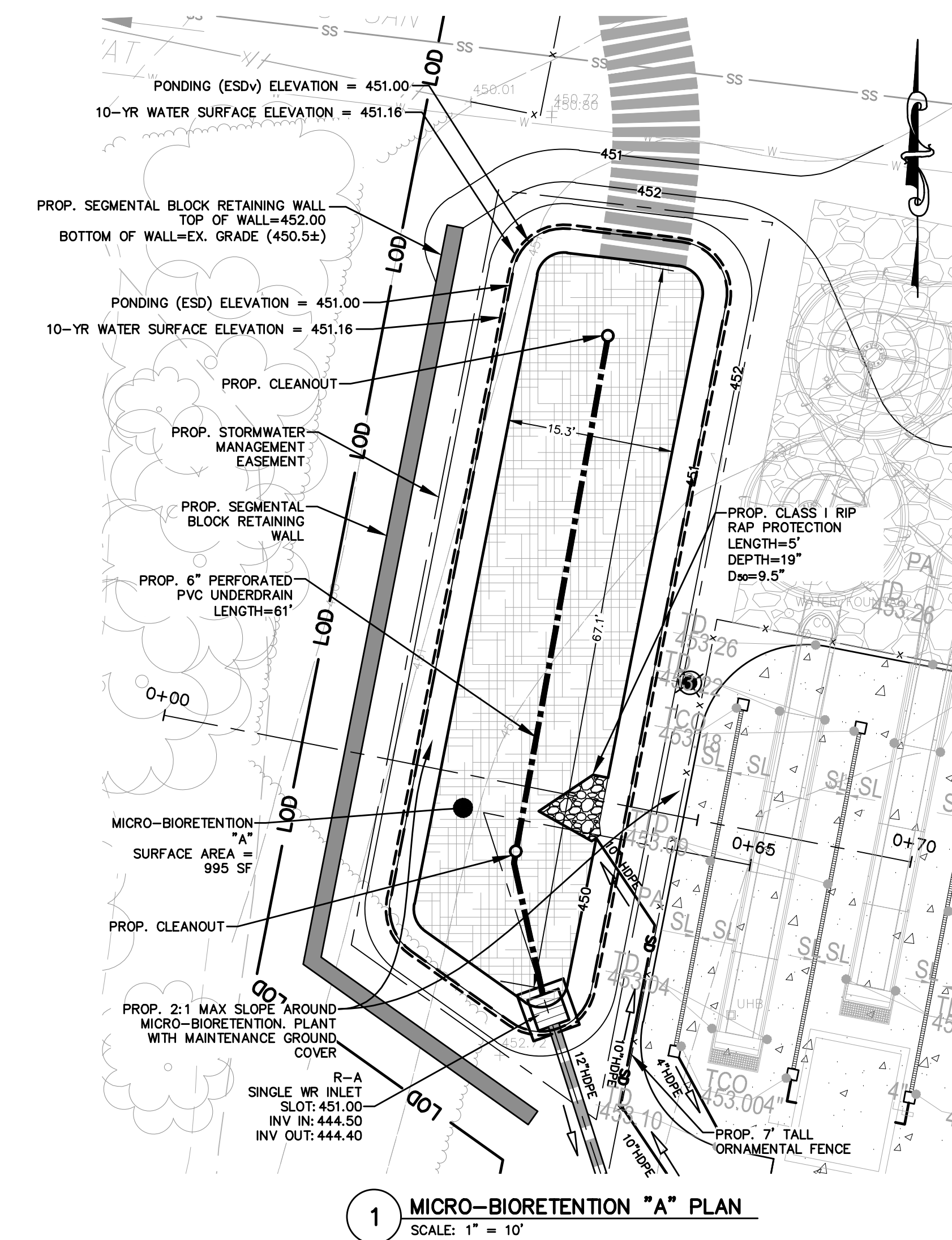
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CHIEF, CONSTRUCTION MANAGEMENT APPROVAL DATE \_\_\_\_\_

**SMP2024-00016**  
**DRAINAGE AREA MAP**

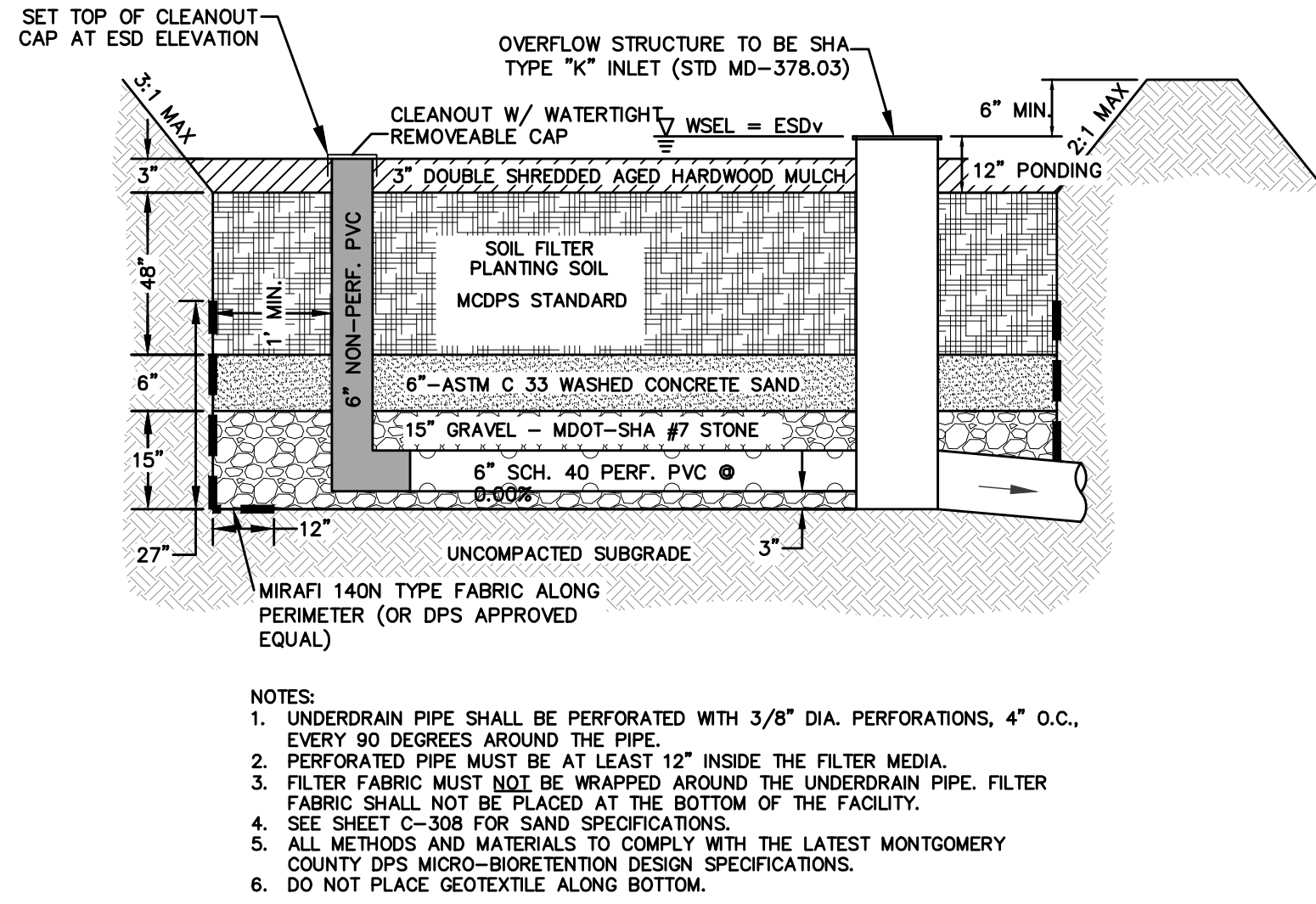
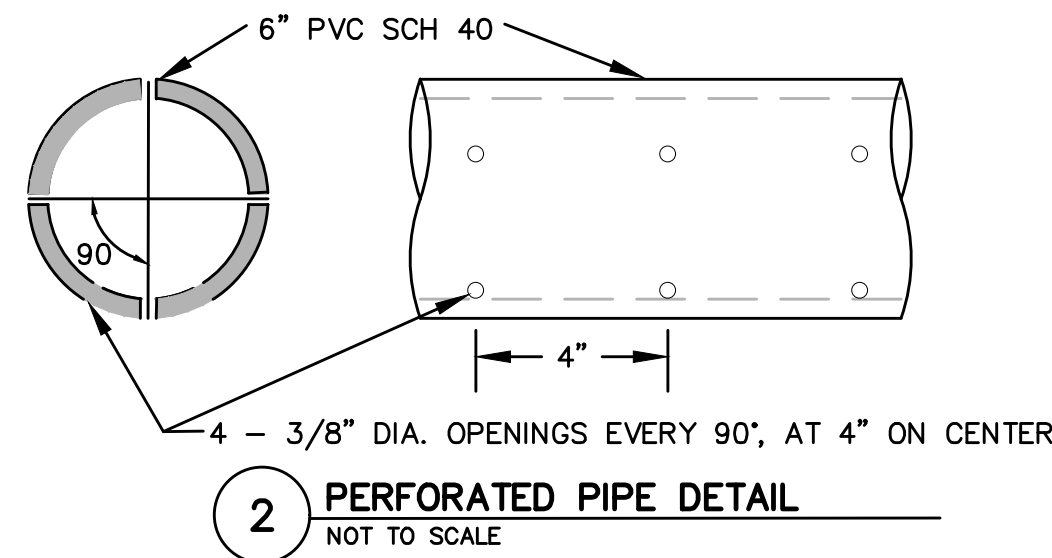
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OUTDOOR RECREATION POOL RENOVATIONS  
355 MARTINS LANE PARCEL 630

Election District No. 4 City of Rockville, Maryland

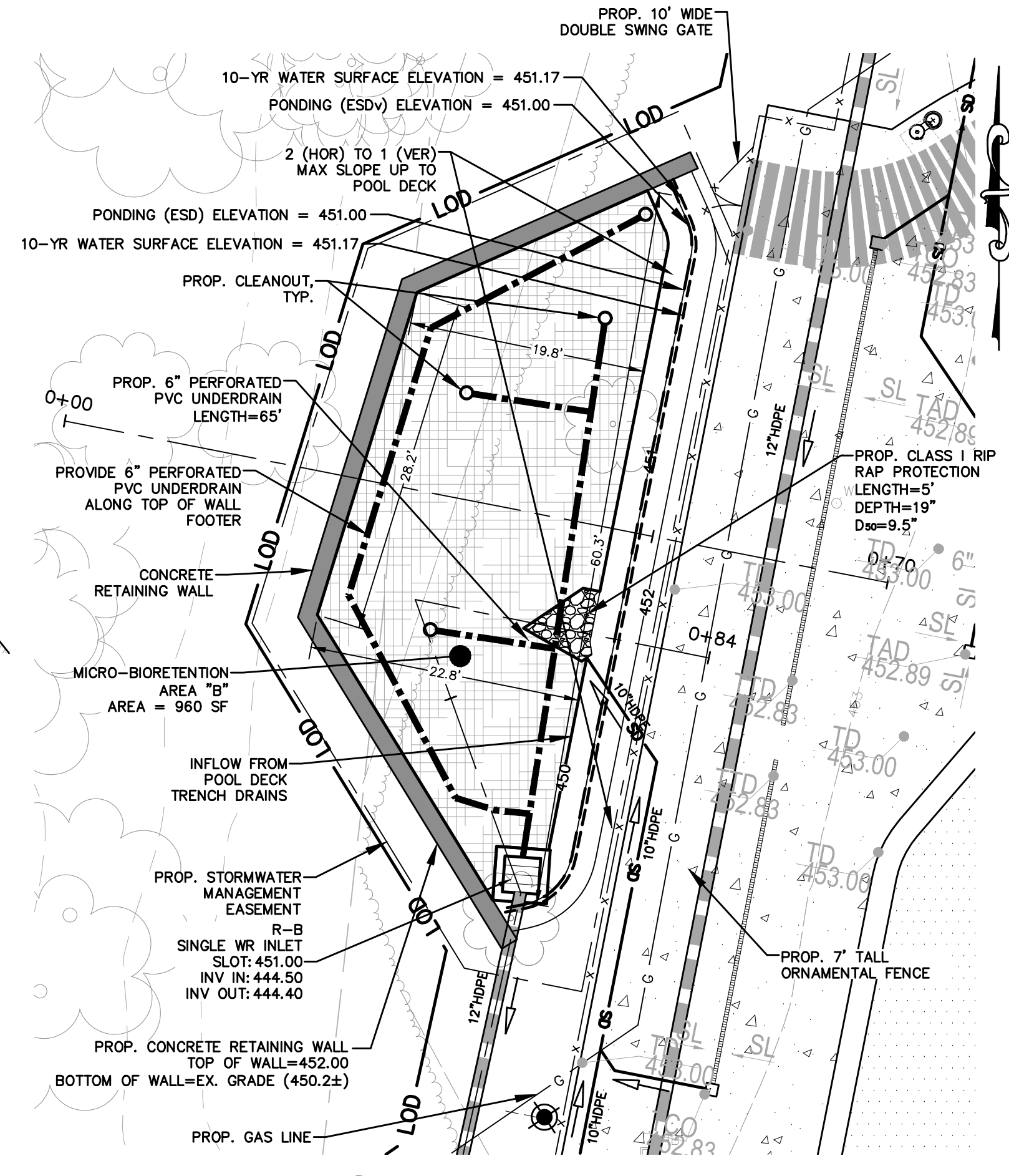




1 MICRO-BIORETENTION "A" PLAN  
SCALE: 1" = 10'



3 TYPICAL MICRO-BIORETENTION SECTION  
NOT TO SCALE



4 MICRO-BIORETENTION "B" PLAN  
SCALE: 1" = 10'

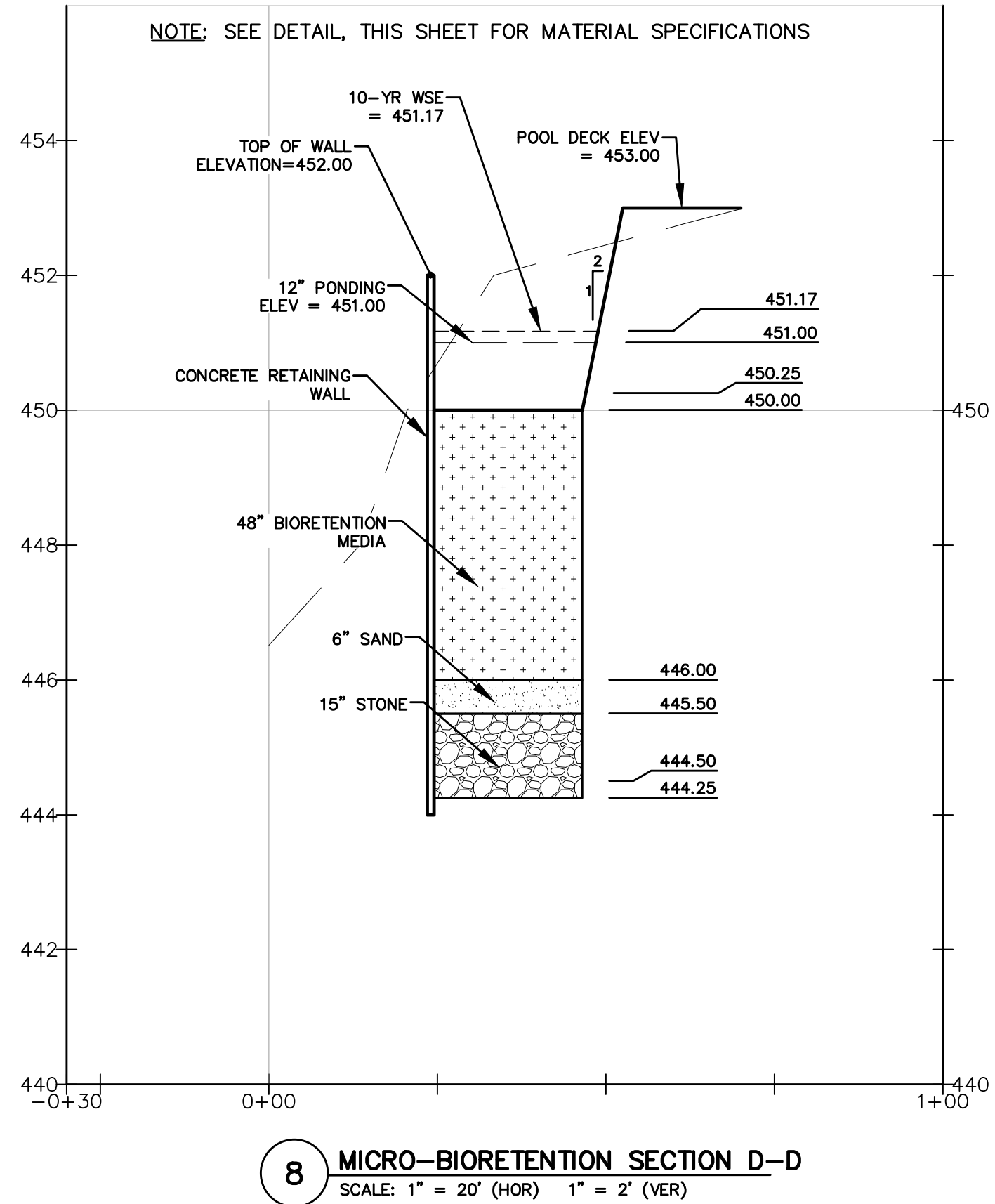
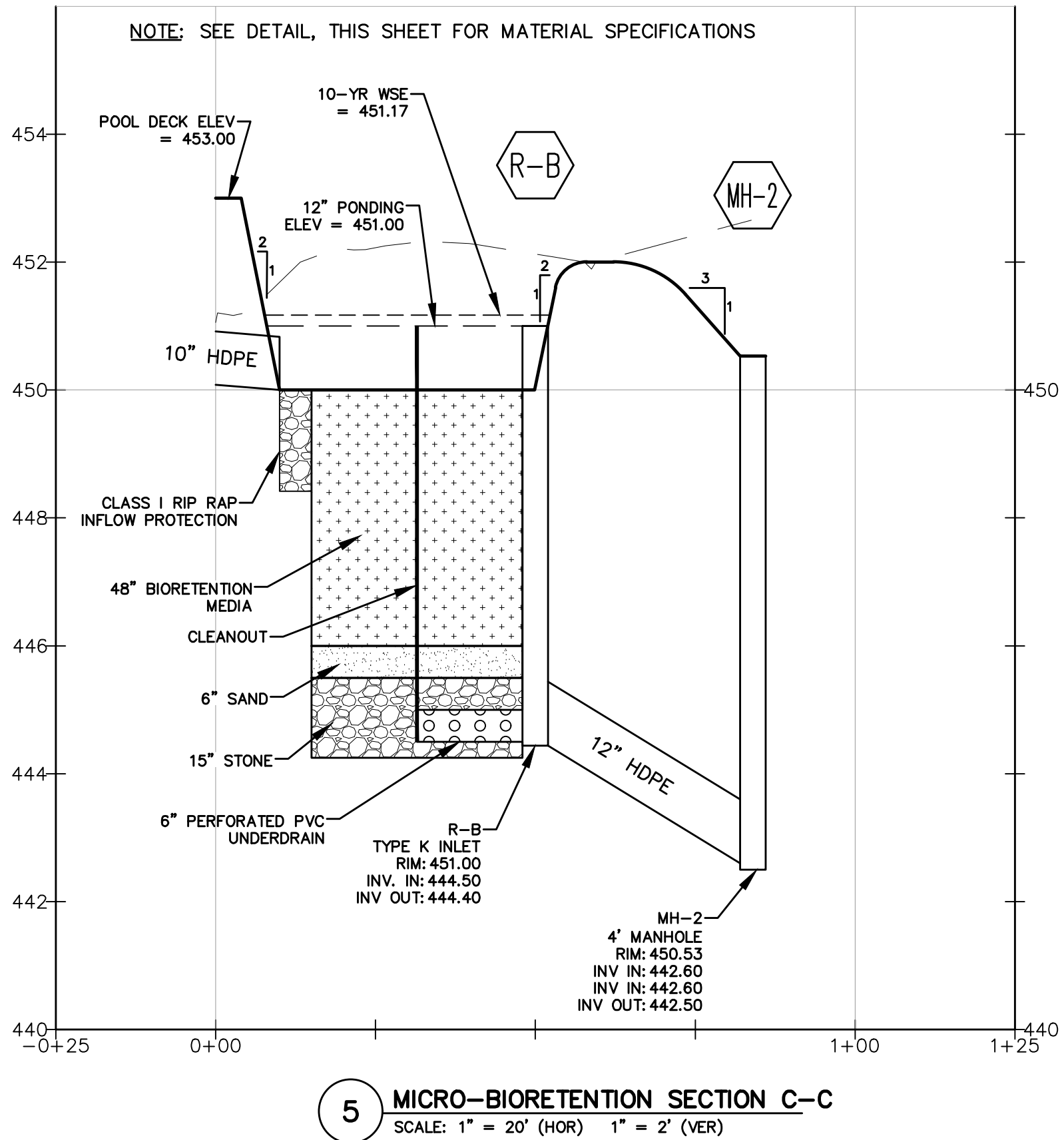
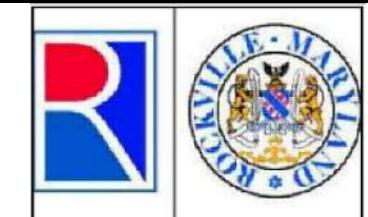


Table B.4.1 Materials Specifications for Micro-Bioretentation, Rain Gardens & Landscape Infiltration-			
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Plantings soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	n/a	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/2-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; $f_c = 3500$ psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

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DESIGNED \_SL\_  
DRAFTED \_MS\_  
CHECKED \_JA\_  
DIRECTOR OF PUBLIC WORKS

DESIGN PLAN APPROVAL  
APPROVAL DATE

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DIRECTOR OF PUBLIC WORKS

AS BUILT PLAN APPROVAL  
APPROVAL DATE

THIS PLAN IS FOR STORMWATER  
MANAGEMENT ONLY

SMP2024-00016

STORMWATER MANAGEMENT DETAILS

ROCKVILLE SWIM & FITNESS CENTER  
OUTDOOR RECREATION POOL RENOVATIONS  
355 MARTINS LANE PARCEL 630

Election District No. 4 City of Rockville, Maryland

DATE SUBMITTED:  
2/7/2024

SCALE  
1"=10'

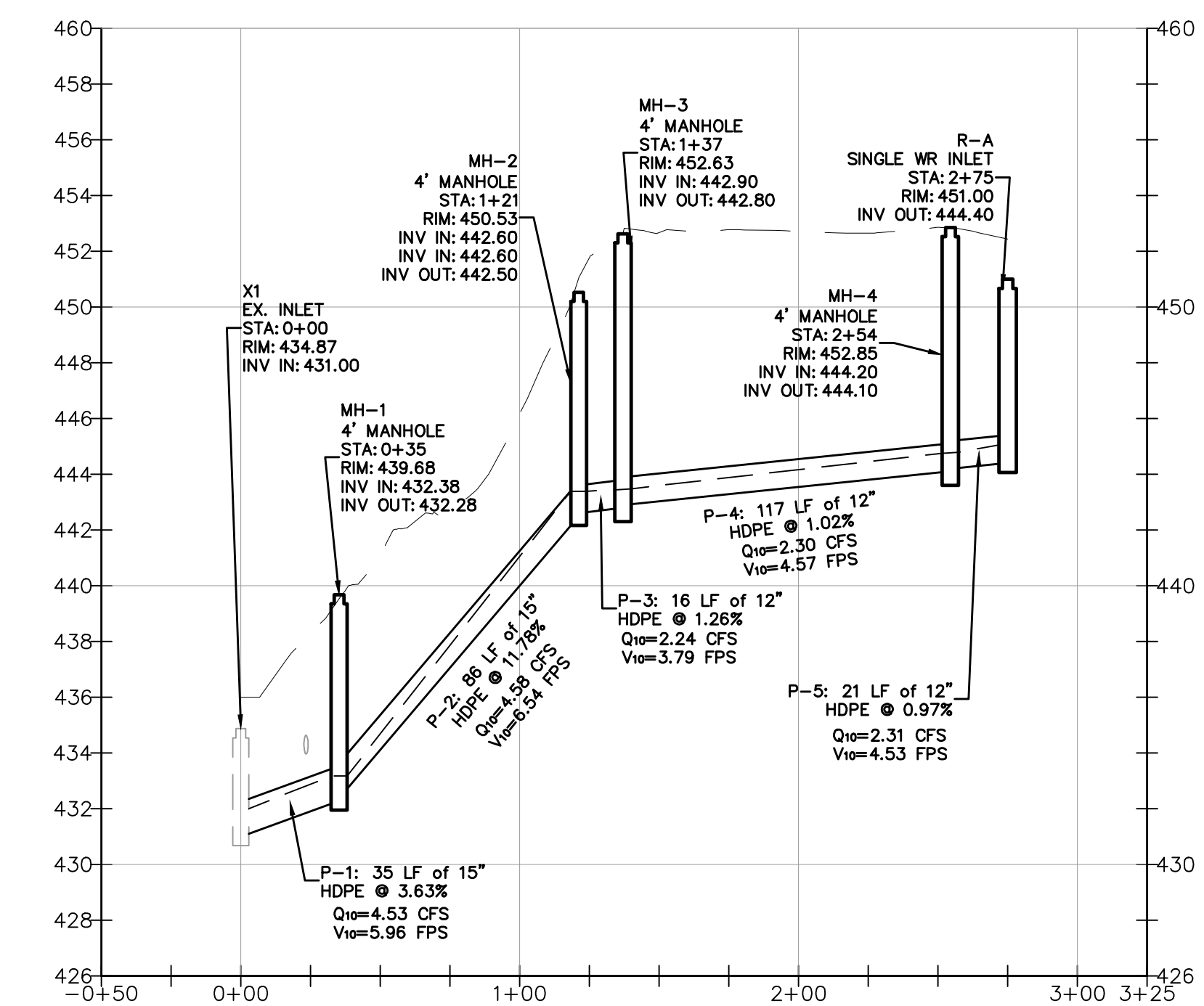
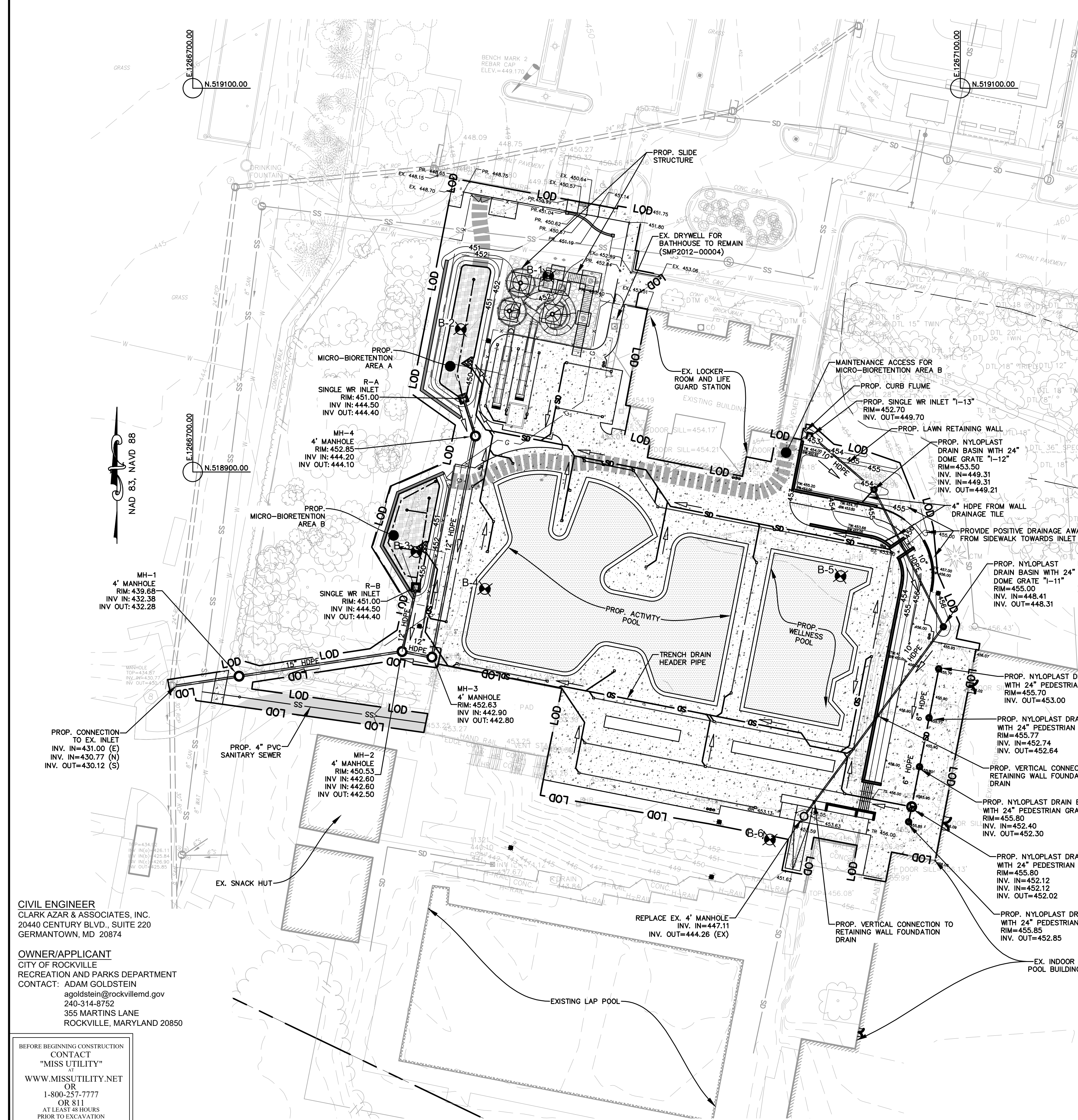
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FILE #

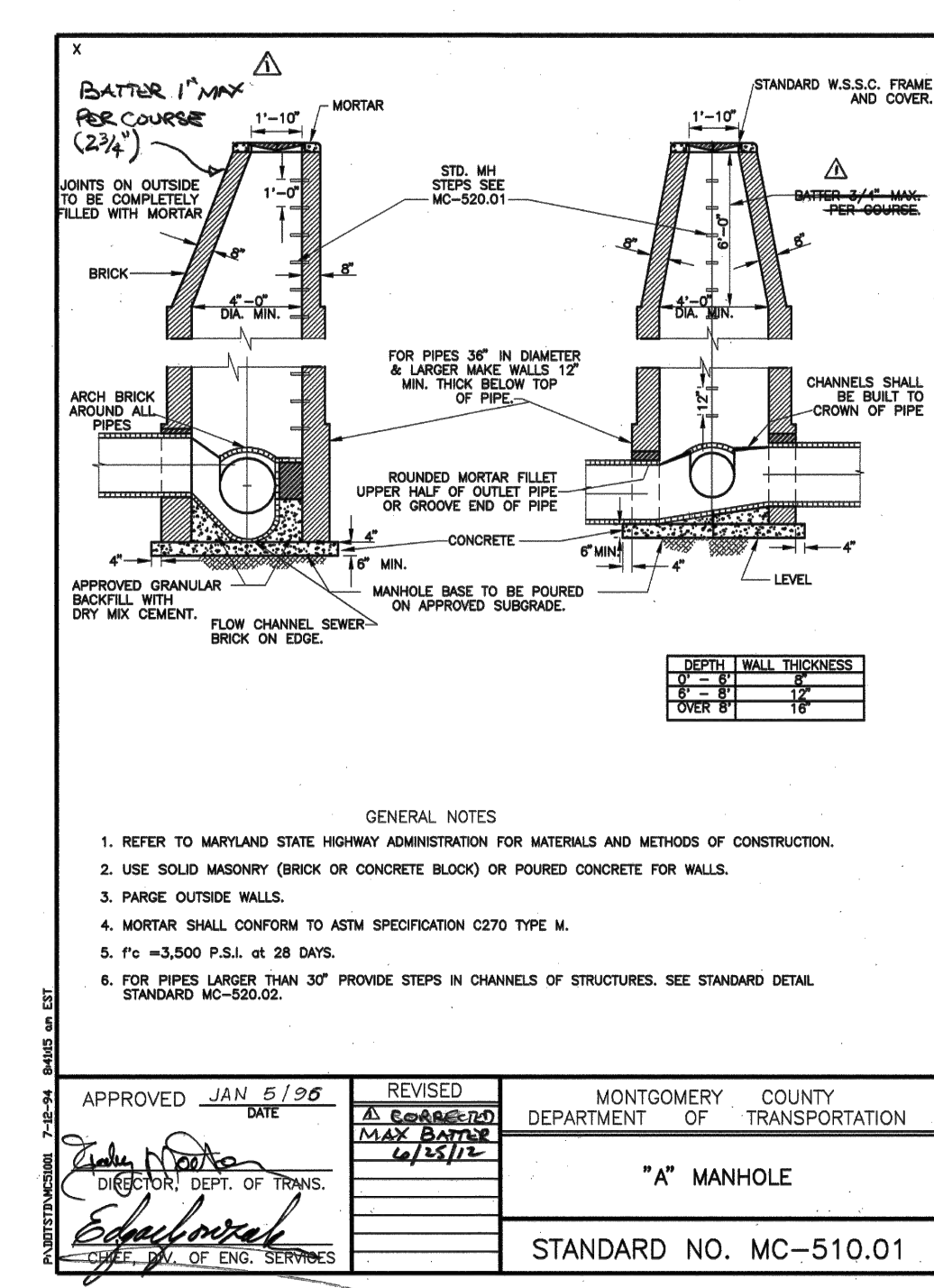
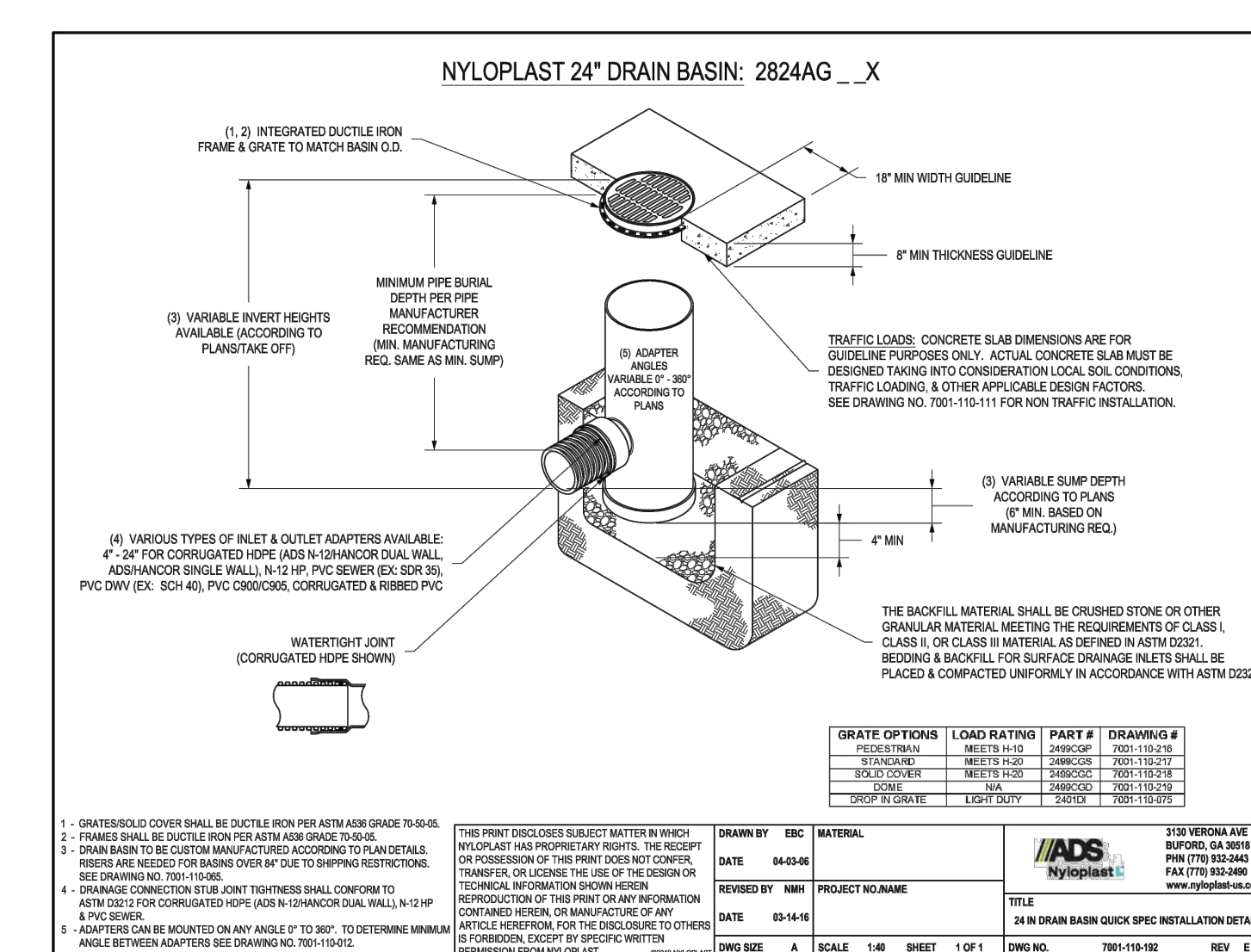
OF 6

BID SET 02/23/2024





3 STORM DRAIN PROFILE  
SCALE: 1"=50' (HOR) 1"=5' (VER)



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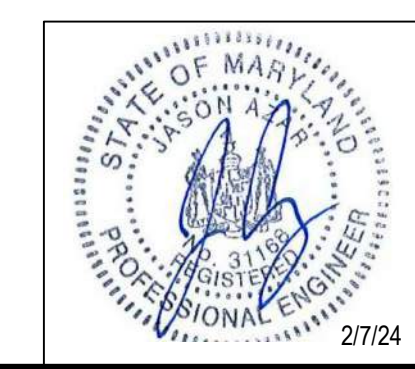
**OWNER/APPLICANT**  
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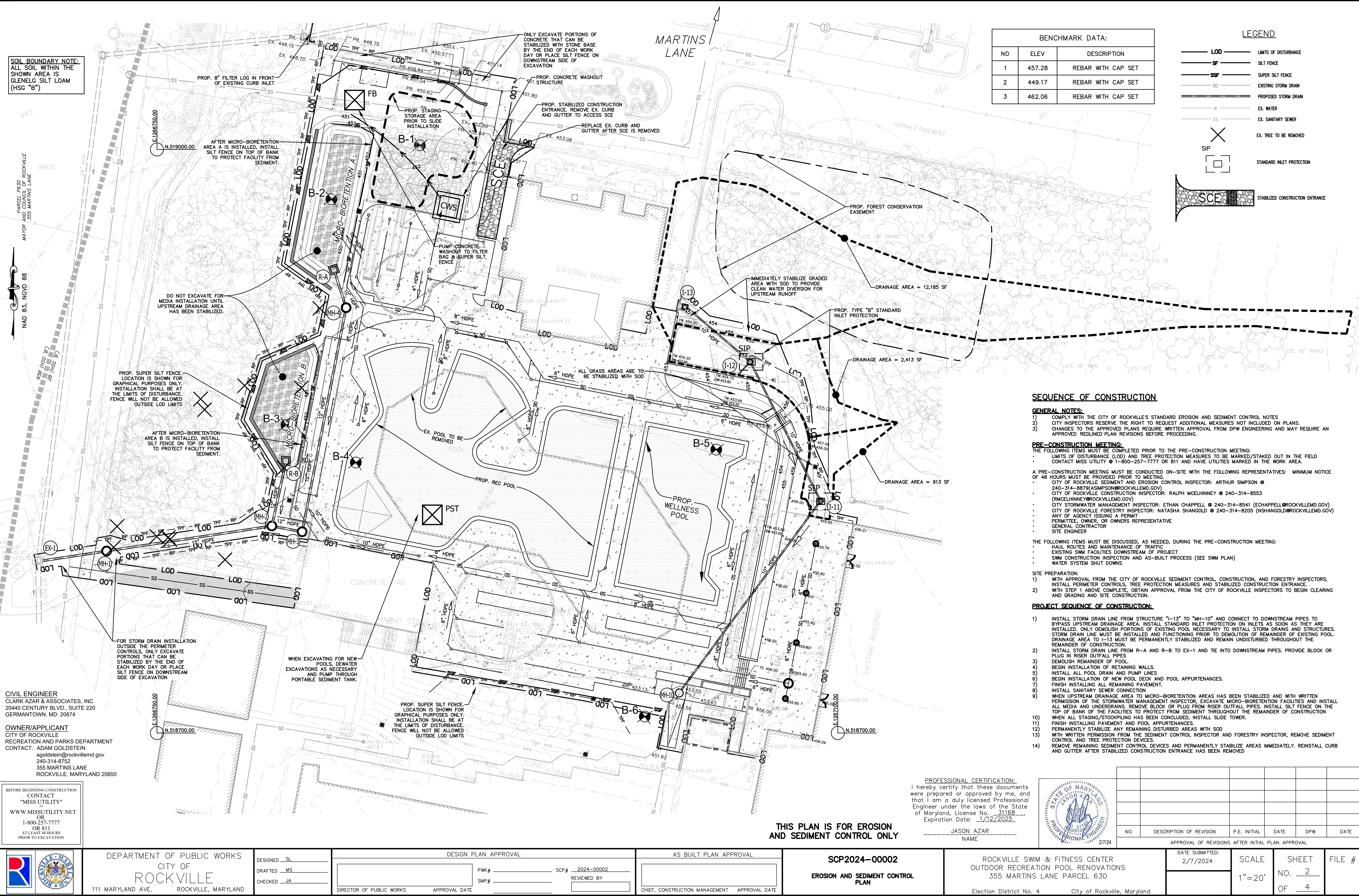
	DEPARTMENT OF PUBLIC WORKS CITY OF ROCKVILLE 111 MARYLAND AVE. ROCKVILLE, MARYLAND	DESIGNED <u>SL</u>	DESIGN PLAN APPROVAL		AS BUILT PLAN APPROVAL	PWK# _____ SCP# _____ SMP# _____ REVIEWED BY _____	CHIEF, CONSTRUCTION MANAGEMENT APPROVAL DATE _____	PWK2024-00048 STORM DRAINAGE PLAN	ROCKVILLE SWIM & FITNESS CENTER OUTDOOR RECREATION POOL RENOVATIONS 355 MARTINS LANE PARCEL 630 Election District No. 4 City of Rockville, Maryland	DATE SUBMITTED: 2/7/2024	SCALE 1"=20'	SHEET NO. <u>N/A</u> OF <u>N/A</u>	FILE # C-320
		DRAFTED <u>MS</u>	DIRECTOR OF PUBLIC WORKS APPROVAL DATE _____	APPROVAL DATE _____	APPROVAL DATE _____					APPROVAL OF REVISIONS AFTER INTIAL PLAN APPROVAL	NO.	DESCRIPTION OF REVISION	P.E. INITIAL

PROFESSIONAL CERTIFICATION:  
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JASON AZAR  
NAME







SOIL BOUNDARY NOTE:  
ALL SOIL WITHIN THE  
SHOWN AREA IS  
GLENELG SILT LOAM  
(HSG "B")

BENCHMARK DATA:		
NO	ELEV	DESCRIPTION
1	457.28	REBAR WITH CAP SET
2	449.17	REBAR WITH CAP SET
3	462.06	REBAR WITH CAP SET

**LEGEND**

- LOD — LIMITS OF DISTURBANCE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- SD — EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- W — EX. WATER
- SS — EX. SANITARY SEWER
- X — EX. TREE TO BE REMOVED
- SIP — STANDARD INLET PROTECTION
- SCE — STABILIZED CONSTRUCTION ENTRANCE

**SEQUENCE OF CONSTRUCTION**

- GENERAL NOTES:**
- COMPLY WITH THE CITY OF ROCKVILLE'S STANDARD EROSION AND SEDIMENT CONTROL NOTES
  - CITY INSPECTORS RESERVE THE RIGHT TO REQUEST ADDITIONAL MEASURES NOT INCLUDED ON PLANS.
  - CHANGES TO THE APPROVED PLANS REQUIRE WRITTEN APPROVAL FROM DPW ENGINEERING AND MAY REQUIRE AN APPROVED REDLINED PLAN REVISIONS BEFORE PROCEEDING.

- PRE-CONSTRUCTION MEETING:**
- THE FOLLOWING ITEMS MUST BE COMPLETED PRIOR TO THE PRE-CONSTRUCTION MEETING:
- LIMITS OF DISTURBANCE (LOD) AND TREE PROTECTION MEASURES TO BE MARKED/STAKED OUT IN THE FIELD
  - CONTACT MISS UTILITY @ 1-800-257-7777 OR 811 AND HAVE UTILITIES MARKED IN THE WORK AREA.
- A PRE-CONSTRUCTION MEETING MUST BE CONDUCTED ON-SITE WITH THE FOLLOWING REPRESENTATIVES: MINIMUM NOTICE OF 48 HOURS MUST BE PROVIDED PRIOR TO MEETING.
- CITY OF ROCKVILLE SEDIMENT AND EROSION CONTROL INSPECTOR: ARTHUR SIMPSON @ 240-314-8879 (ASIMPSON@ROCKVILLEMD.GOV)
  - CITY OF ROCKVILLE CONSTRUCTION INSPECTOR: RALPH MCELHINNEY @ 240-314-8553 (RMCELHINNEY@ROCKVILLEMD.GOV)
  - CITY STORMWATER MANAGEMENT INSPECTOR: ETHAN CHAPPELL @ 240-314-8541 (ECHAPPELL@ROCKVILLEMD.GOV)
  - CITY OF ROCKVILLE FORESTRY INSPECTOR: NATASHA SHANGOLD @ 240-314-8205 (NSHANGOLD@ROCKVILLEMD.GOV)
  - ANY OF AGENCY ISSUING A PERMIT
  - PERMITTEE, OWNER, OR OWNERS REPRESENTATIVE
  - GENERAL CONTRACTOR
  - SITE ENGINEER

- THE FOLLOWING ITEMS MUST BE DISCUSSED, AS NEEDED, DURING THE PRE-CONSTRUCTION MEETING:
- HAUL ROUTES AND MAINTENANCE OF TRAFFIC
  - EXISTING SWM FACILITIES DOWNSTREAM OF PROJECT
  - SWM CONSTRUCTION INSPECTION AND AS-BUILT PROCESS (SEE SWM PLAN)
  - WATER SYSTEM SHUT DOWNS

- SITE PREPARATION:**
- WITH APPROVAL FROM THE CITY OF ROCKVILLE SEDIMENT CONTROL, CONSTRUCTION, AND FORESTRY INSPECTORS, INSTALL PERIMETER CONTROLS, TREE PROTECTION MEASURES AND STABILIZED CONSTRUCTION ENTRANCE.
  - WITH STEP 1 ABOVE COMPLETE, OBTAIN APPROVAL FROM THE CITY OF ROCKVILLE INSPECTORS TO BEGIN CLEARING AND GRADING AND SITE CONSTRUCTION.

- PROJECT SEQUENCE OF CONSTRUCTION:**
- INSTALL STORM DRAIN LINE FROM STRUCTURE "I-13" TO "MH-10" AND CONNECT TO DOWNSTREAM PIPES TO BYPASS UPSTREAM DRAINAGE AREA. INSTALL STANDARD INLET PROTECTION ON INLETS AS SOON AS THEY ARE INSTALLED. ONLY DEMOLISH PORTIONS OF EXISTING POOL NECESSARY TO INSTALL STORM DRAINS AND STRUCTURES. STORM DRAIN LINE MUST BE INSTALLED AND FUNCTIONING PRIOR TO DEMOLITION OF REMAINDER OF EXISTING POOL. DRAINAGE AREA TO I-13 MUST BE PERMANENTLY STABILIZED AND REMAIN UNDISTURBED THROUGHOUT THE REMAINDER OF CONSTRUCTION.
  - INSTALL STORM DRAIN LINE FROM R-A AND R-B TO EX-1 AND TIE INTO DOWNSTREAM PIPES. PROVIDE BLOCK OR PLUG IN RISER OUTFALL PIPES
  - DEMOLISH REMAINDER OF POOL
  - BEGIN INSTALLATION OF RETAINING WALLS.
  - INSTALL ALL POOL DRAIN AND PUMP LINES
  - BEGIN INSTALLATION OF NEW POOL DECK AND POOL APPURTENANCES.
  - FINISH INSTALLING ALL REMAINING PAVEMENT.
  - INSTALL SANITARY SEWER CONNECTION
  - WHEN UPSTREAM DRAINAGE AREA TO MICRO-BIORETENTION AREAS HAS BEEN STABILIZED AND WITH WRITTEN PERMISSION OF THE STORMWATER MANAGEMENT INSPECTOR, EXCAVATE MICRO-BIORETENTION FACILITIES AND INSTALL ALL MEDIA AND UNDERDRAINS. REMOVE BLOCK OR PLUG FROM RISER OUTFALL PIPES. INSTALL SILT FENCE ON THE TOP OF BANK OF THE FACILITIES TO PROTECT FROM SEDIMENT THROUGHOUT THE REMAINDER OF CONSTRUCTION
  - WHEN ALL STAGING/STOCKPILING HAS BEEN COMPLETED, INSTALL SLIDE TOWER.
  - FINISH INSTALLING PAVEMENT AND POOL APPURTENANCES.
  - PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREAS WITH SOD
  - WITH WRITTEN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR AND FORESTRY INSPECTOR, REMOVE SEDIMENT CONTROL AND TREE PROTECTION DEVICES
  - REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE AREAS IMMEDIATELY. REINSTALL CURB AND GUTTER AFTER STABILIZED CONSTRUCTION ENTRANCE HAS BEEN REMOVED

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Expiration Date: 1/12/2025  
JASON AZAR  
NAME



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DATE SUBMITTED: 2/7/2024					
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SHEET NO. 2					
OF 4					
FILE #					

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DESIGNED SL  
DRAFTED MS  
CHECKED JA

DESIGN PLAN APPROVAL  
PWK# \_\_\_\_\_ SCP# 2024-00002  
SMP# \_\_\_\_\_ REVIEWED BY \_\_\_\_\_  
DIRECTOR OF PUBLIC WORKS APPROVAL DATE \_\_\_\_\_

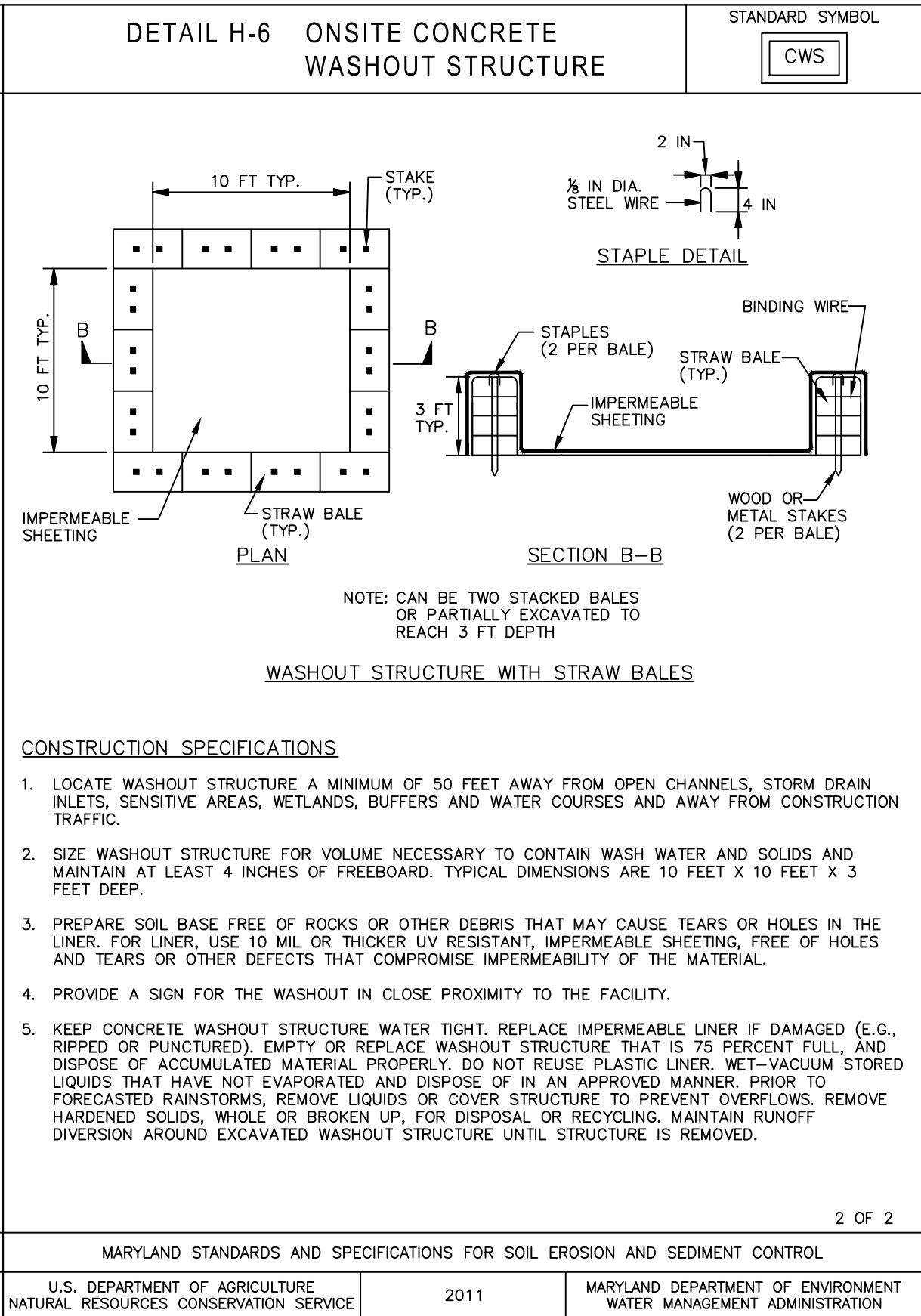
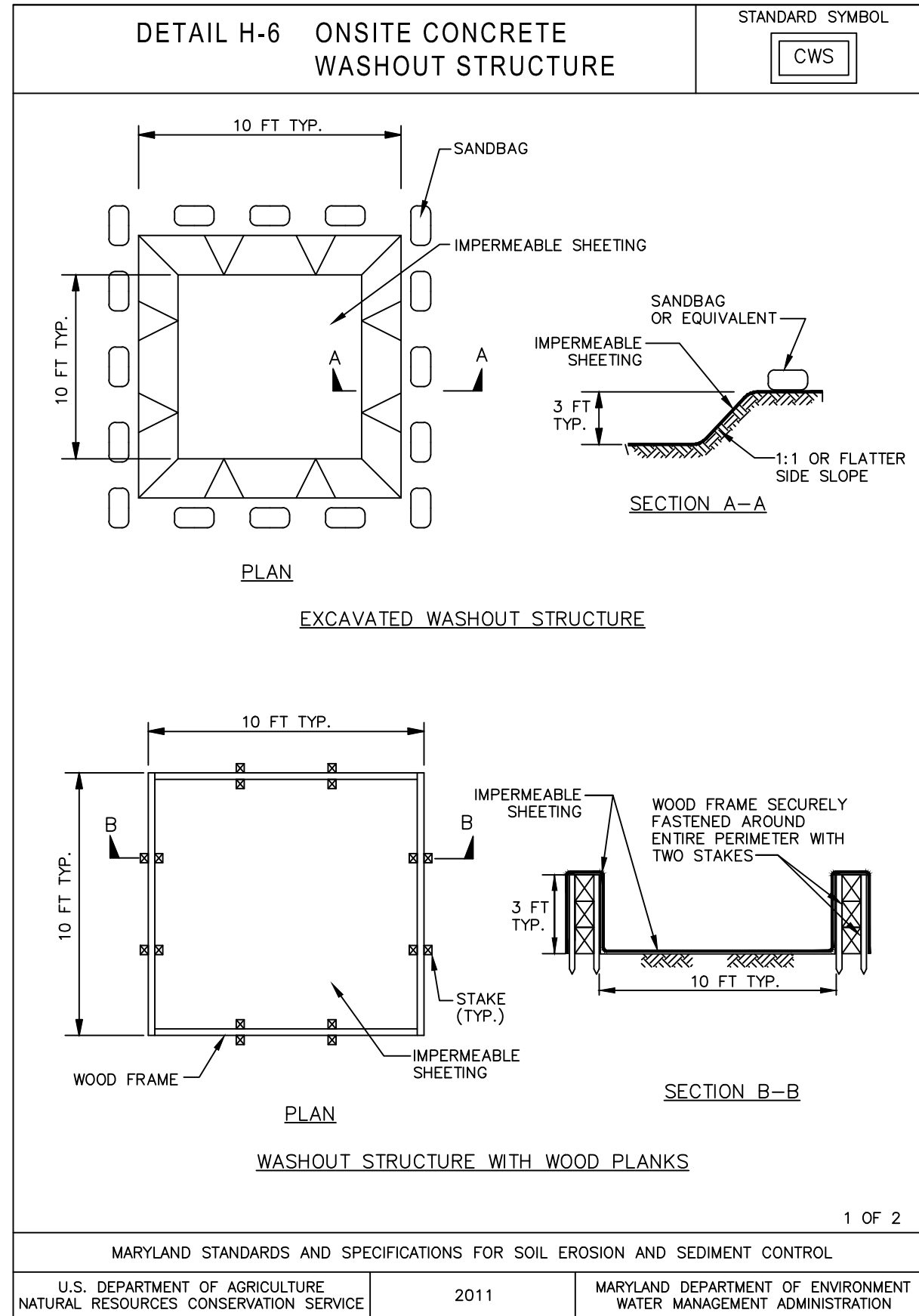
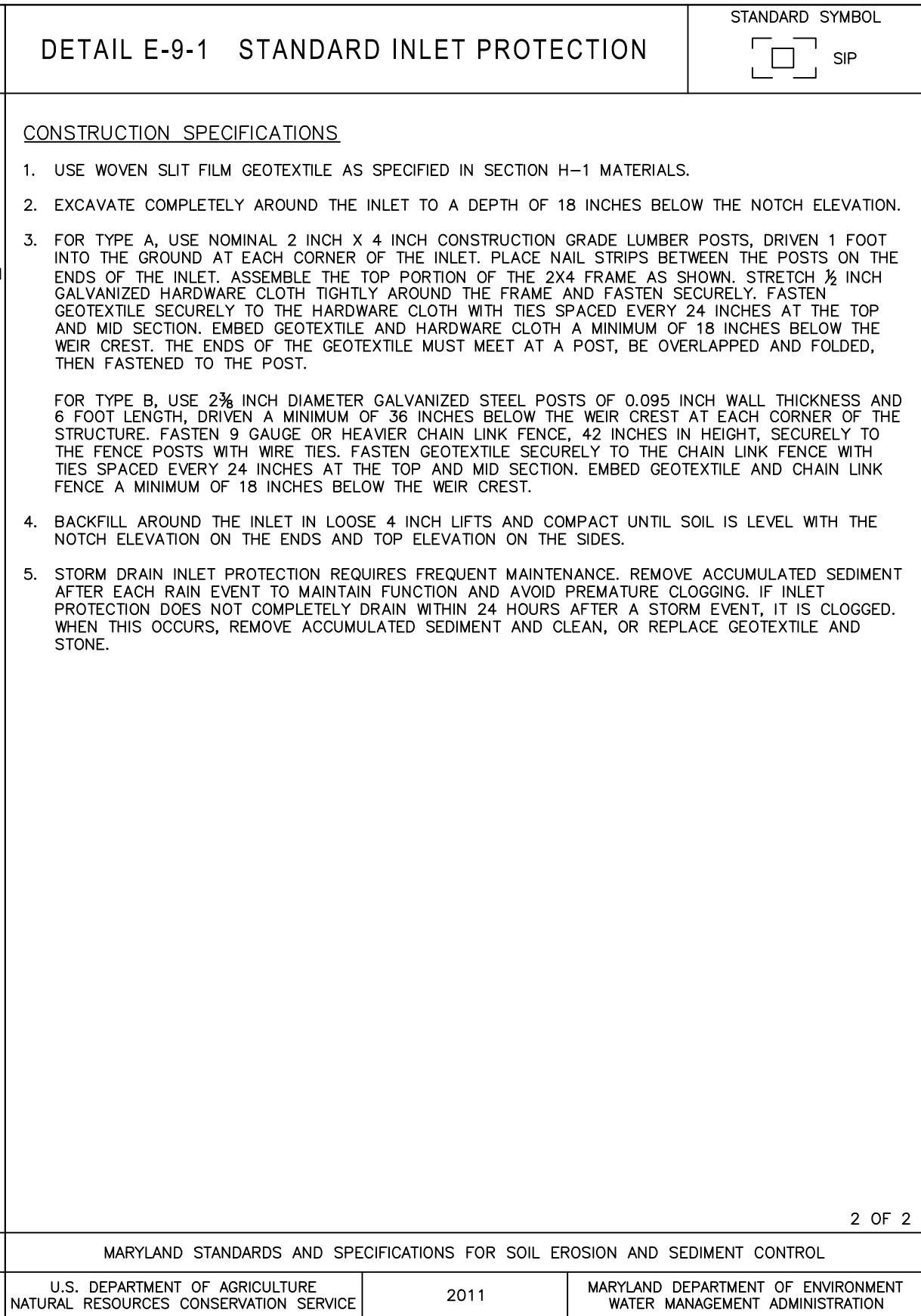
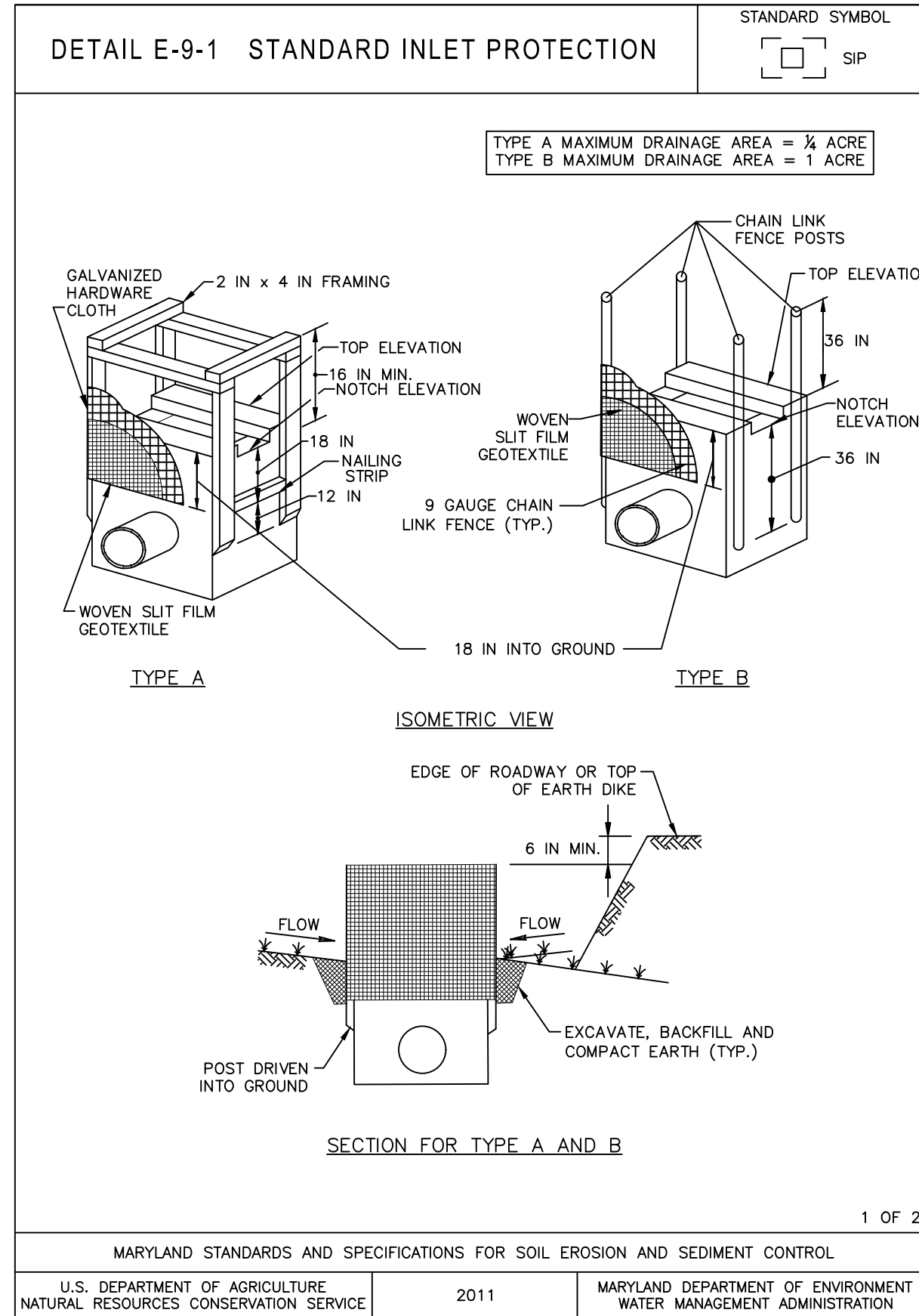
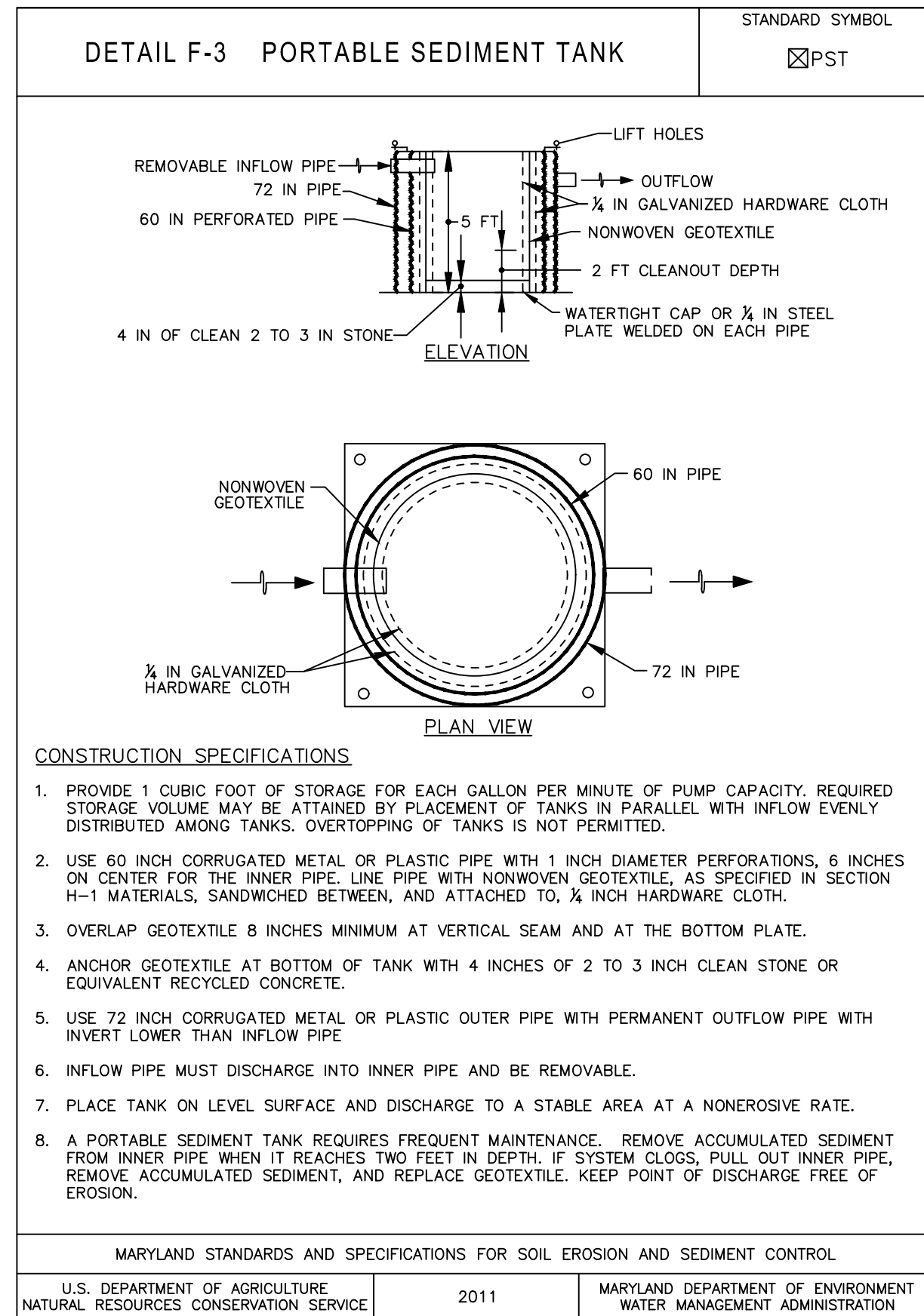
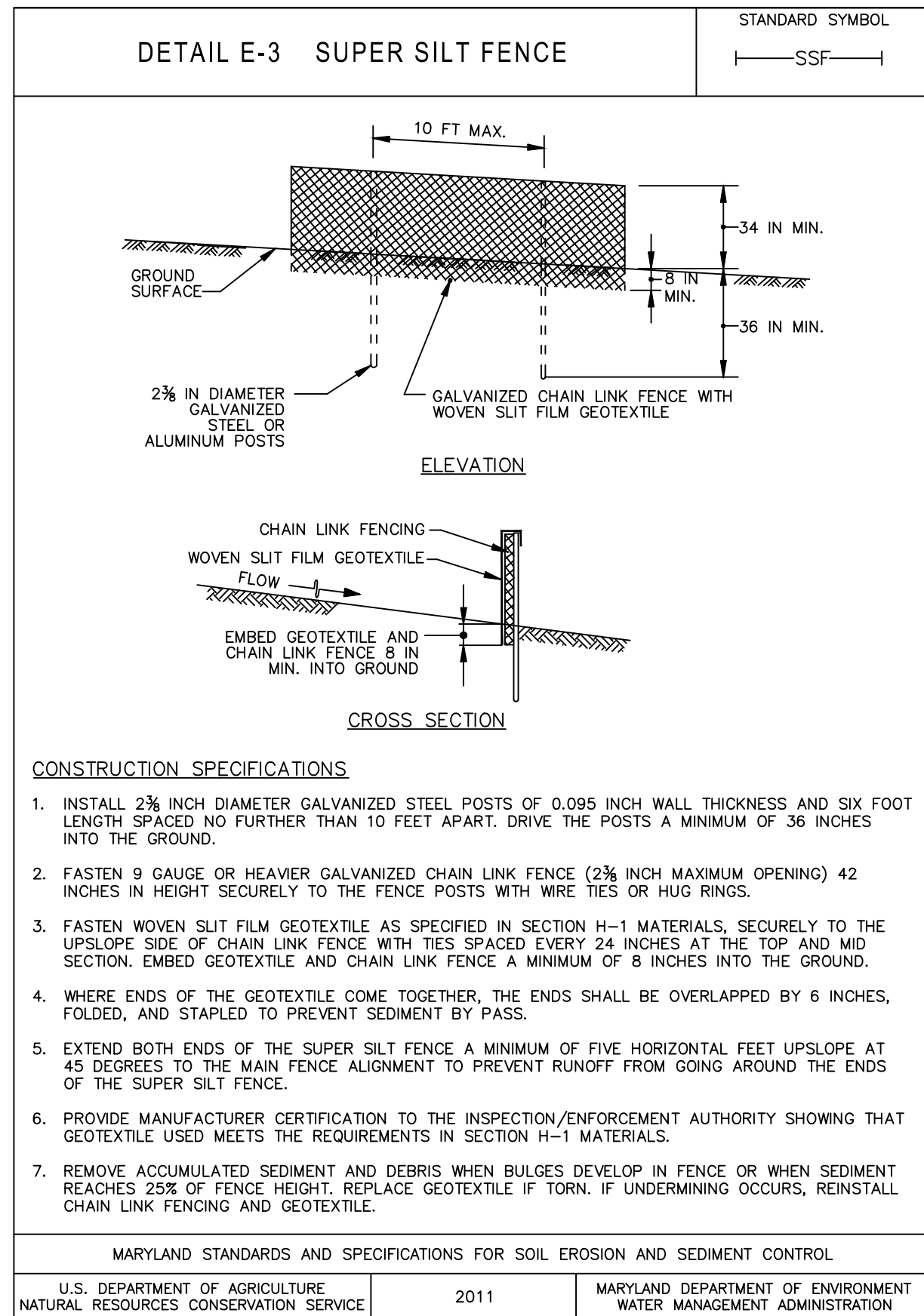
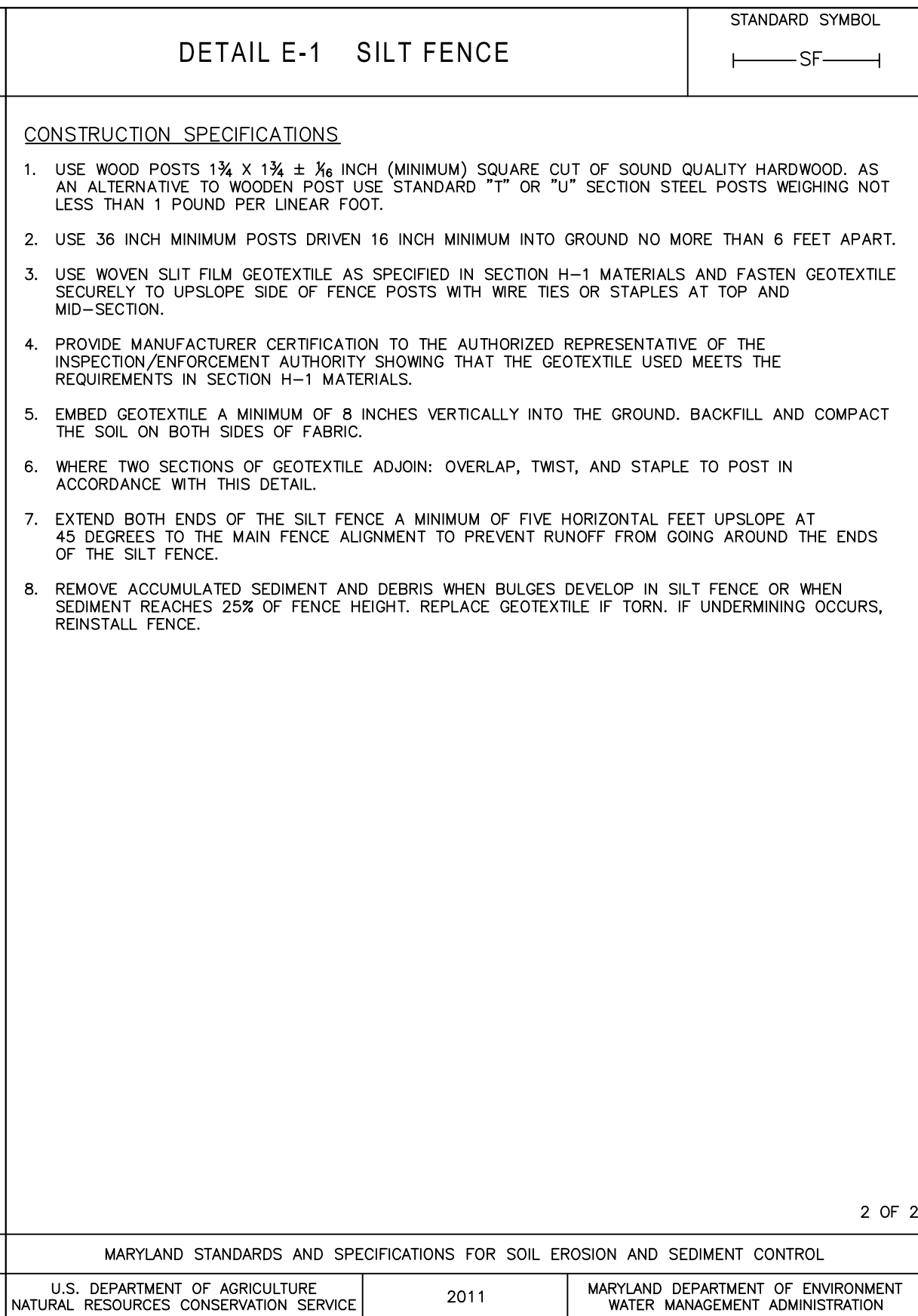
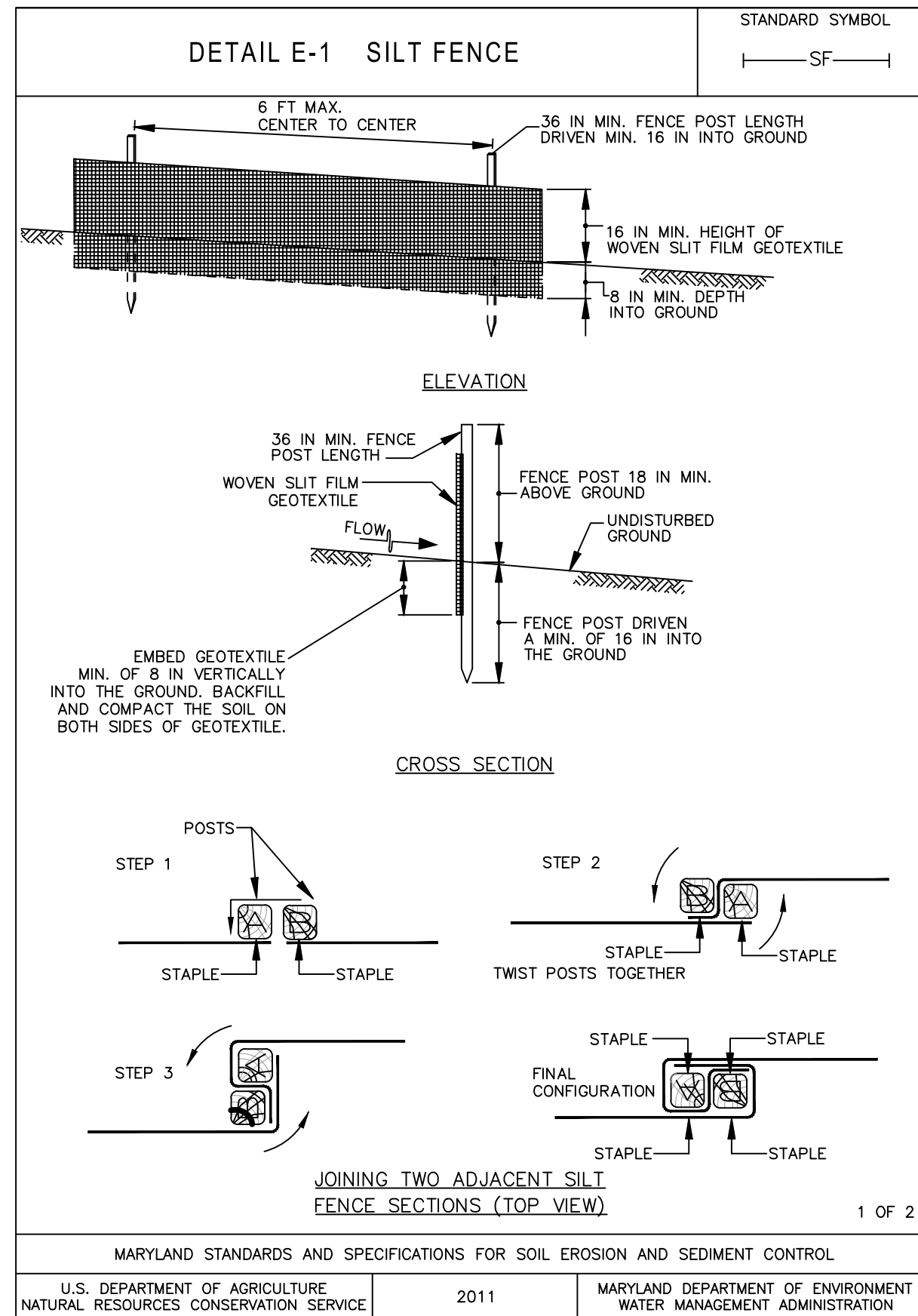
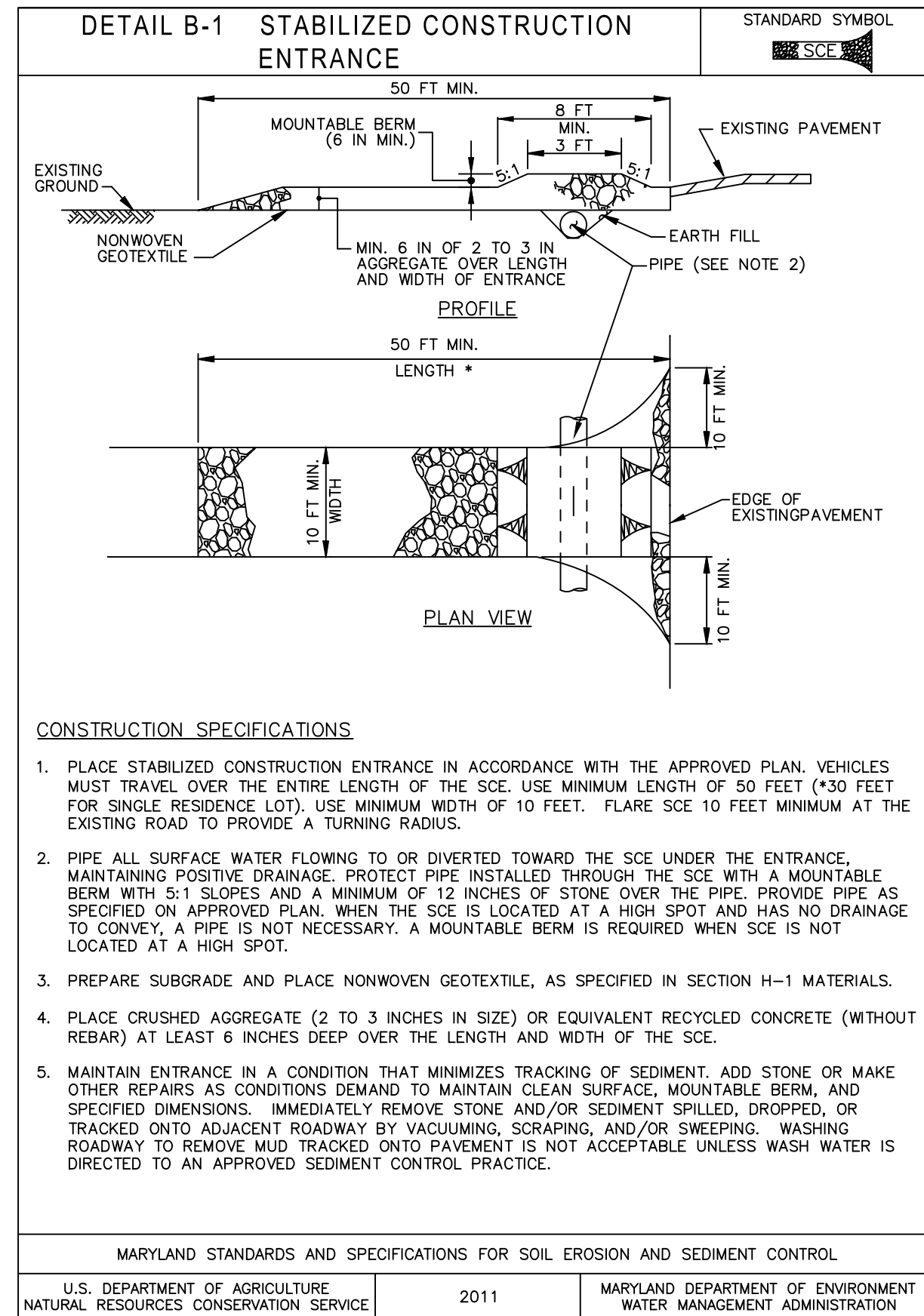
AS BUILT PLAN APPROVAL  
CHIEF, CONSTRUCTION MANAGEMENT APPROVAL DATE \_\_\_\_\_

SCP2024-00002  
EROSION AND SEDIMENT CONTROL  
PLAN

ROCKVILLE SWM & FITNESS CENTER  
OUTDOOR RECREATION POOL RENOVATIONS  
355 MARTINS LANE PARCEL 630  
Election District No. 4 City of Rockville, Maryland

DATE SUBMITTED: 2/7/2024  
SCALE 1"=20'  
SHEET NO. 2  
OF 4  
FILE #

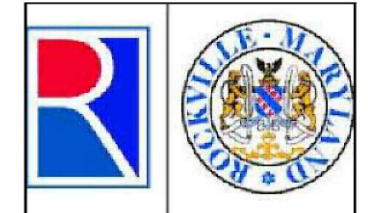




**CIVIL ENGINEER**  
CLARK AZAR & ASSOCIATES, INC.  
20440 CENTURY BLVD., SUITE 220  
GERMANTOWN, MD 20874

**OWNER/APPLICANT**  
CITY OF ROCKVILLE  
RECREATION AND PARKS DEPARTMENT  
CONTACT: ADAM GOLDSTEIN  
agoldstein@rockvillemd.gov  
240-314-8752  
355 MARTINS LANE  
ROCKVILLE, MARYLAND 20850

BEFORE BEGINNING CONSTRUCTION  
CONTACT  
"MISS UTILITY"  
AT  
WWW.MISSUTILITY.NET  
OR  
1-800-257-7777  
OR 811  
AT LEAST 48 HOURS  
PRIOR TO EXCAVATION



DEPARTMENT OF PUBLIC WORKS  
CITY OF  
ROCKVILLE  
MARYLAND AVE. ROCKVILLE, MARYLAND

DESIGNED SL  
DRAFTED MS  
CHECKED JA

DESIGN F	
<div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
DIRECTOR OF PUBLIC WORKS	APPROVAL DATE

DESIGN PLAN APPROVAL	
<div style="border: 1px solid black; width: 100px; height: 100px; margin-bottom: 5px;"></div> APPROVAL DATE	PWK# _____ SCP# <u>2024-00002</u> SMP# _____ REVIEWED BY _____

AS BUILT PLAN APPROVAL	
<div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
CHIEF, CONSTRUCTION MANAGEMENT	APPROVAL DATE

SCP2024-00002

EROSION AND SEDIMENT CONTROL  
DETAILS

PROFESSIONAL CERTIFICATION:  
I hereby certify that these documents  
were prepared or approved by me, and  
that I am a duly licensed Professional  
Engineer under the laws of the State  
of Maryland, License No. 31168,  
Expiration Date: 1/12/2025

\_\_\_\_\_  
JASON AZAR  
NAME



NO.	DESCRIPTION OF REVISION	P.E. INITIAL	DATE	DPW		DATE
APPROVAL OF REVISIONS AFTER INTIAL PLAN APPROVAL						

DATE SUBMITTED: 2/7/2024	SCALE	SHEET	FILE #
	1"=2000'	NO. <u>3</u>	C-405
		OF <u>4</u>	







LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



CLARK | AZAR &amp; ASSOCIATES

20440 Century Blvd, Suite 220  
Germantown, MD. 20874  
T(301) 528-2010  
[www.clarkazar.com](http://www.clarkazar.com)

A Woman Owned Small Business



PROFESSIONAL  
CERTIFICATION:  
I CERTIFY THAT THESE  
DOCUMENTS WERE  
PREPARED OR APPROVED  
BY ME, AND THAT I AM A  
DULY LICENSED  
PROFESSIONAL  
ENGINEER UNDER THE  
LAWS OF THE STATE OF  
MARYLAND.

LICENSE NO.

3116  
EXPIRATION DATE

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

## UTILITY PLAN

## PERMIT SET

1	65% CONSTRUCTION DOCUMENT 06/25/2022
2	80% CONSTRUCTION DOCUMENT 08/18/2022
3	95% CONSTRUCTION DOCUMENT 10/10/2022
4	PERMIT SET 12/08/2022

No.	Description	Date
Revisions		

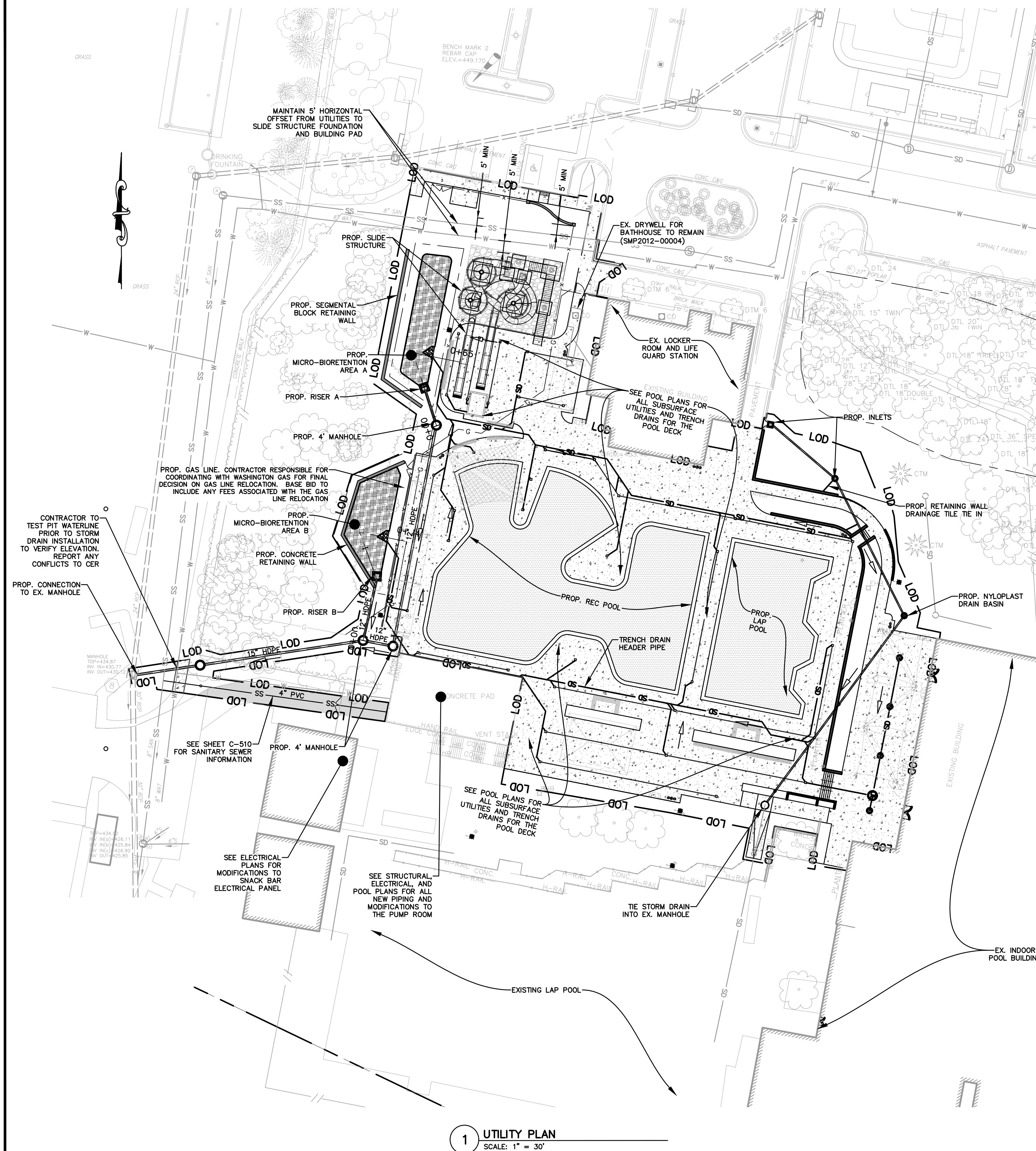
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Scale: 1" = 30'

Drawn By: \_\_\_\_\_  
Checked By: \_\_\_\_\_

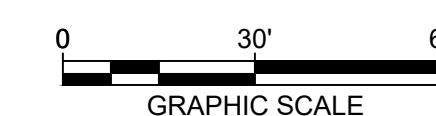
Date: 02/08/202

Sheet No. C 500

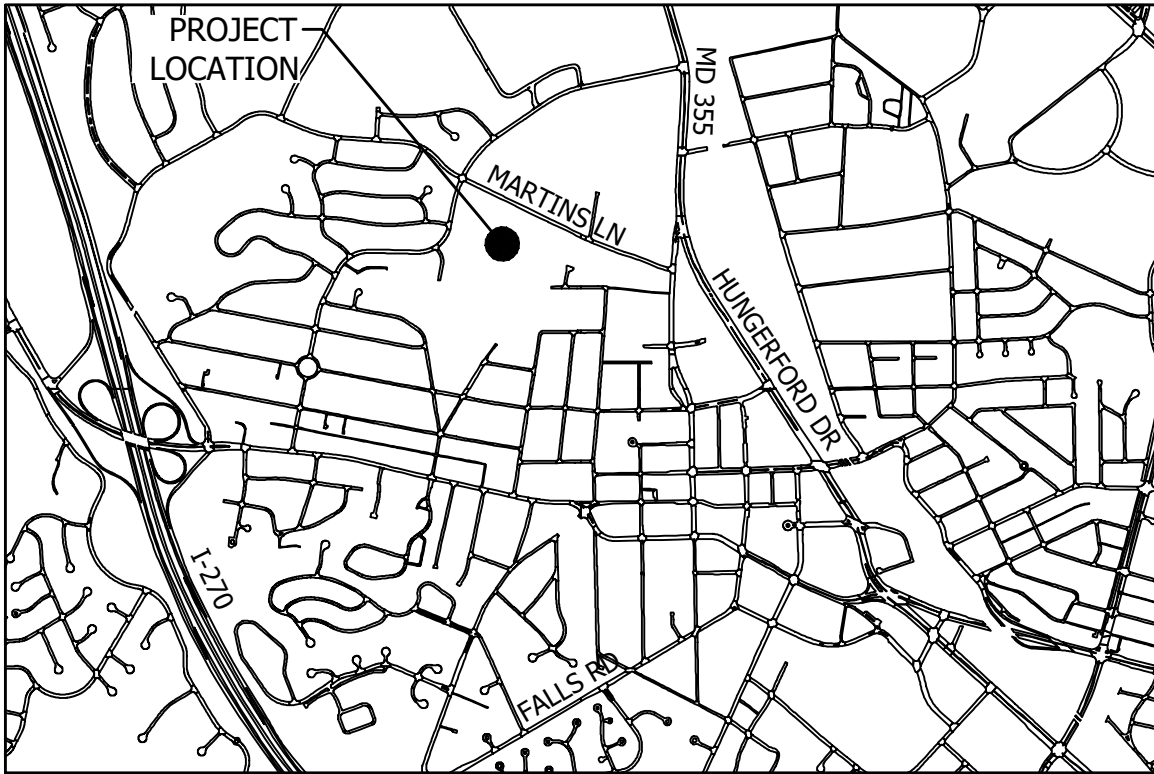
C-500



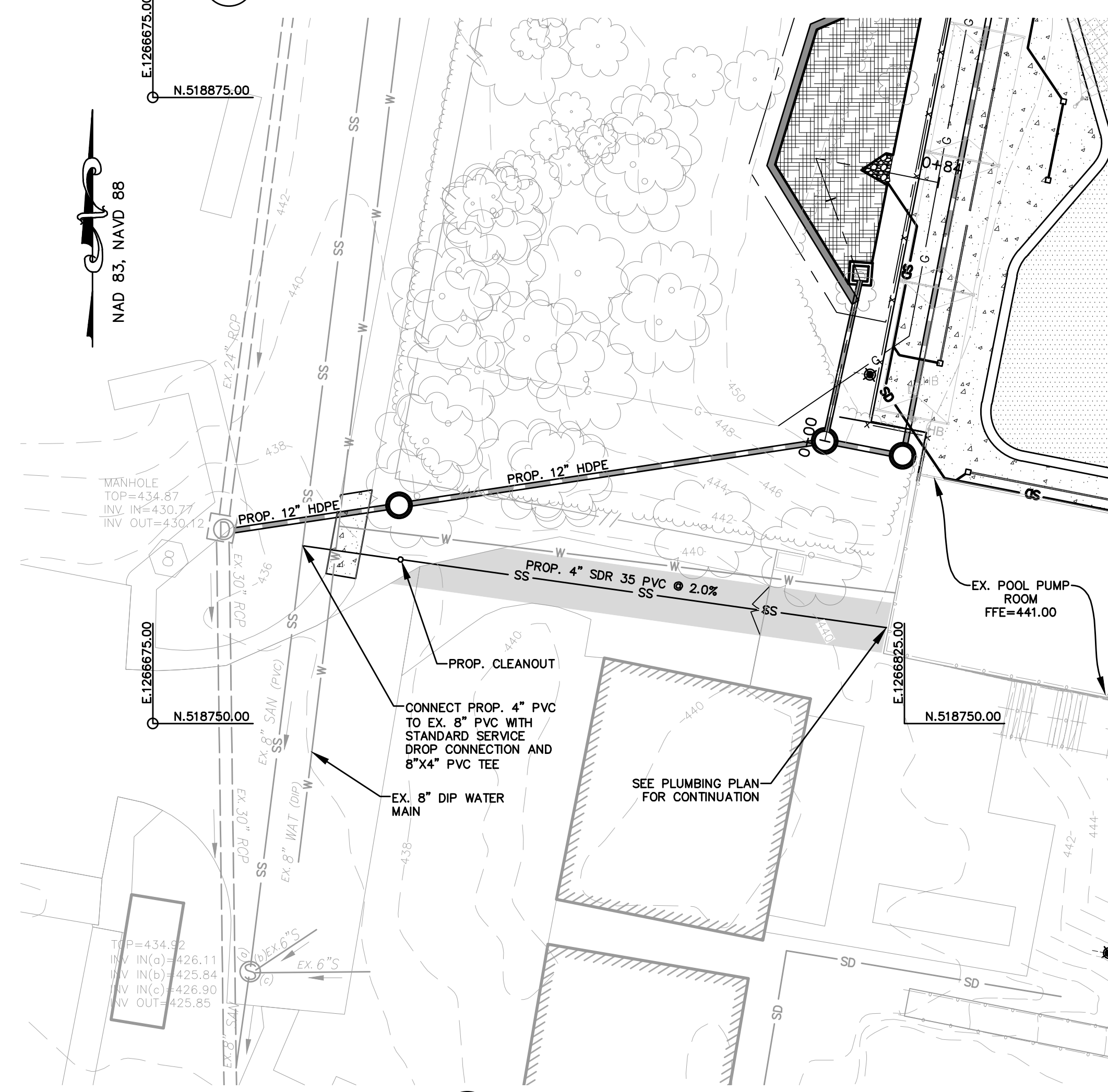
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SCALE: 1" = 30'



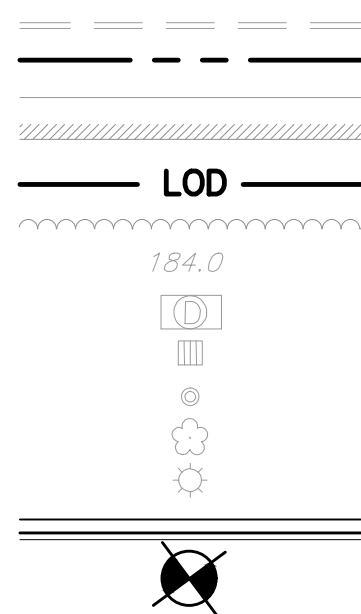




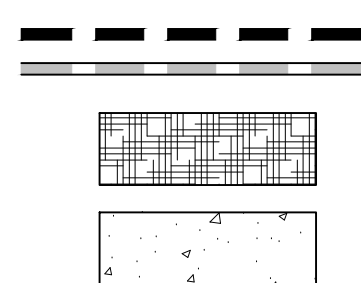
1 VICINITY MAP  
SCALE: 1" = 2000'



2 SANITARY SEWER PLAN  
SCALE: 1" = 20'



EXISTING CURB  
EXISTING PROPERTY LINE  
EXISTING EDGE OF PAVEMENT  
EXISTING BUILDING  
LIMITS OF DISTURBANCE  
EXISTING TREE LINE  
EXISTING GRADE ELEVATION  
EXISTING CURB INLET  
EXISTING GRATE INLET  
EXISTING MANHOLE  
EXISTING TREE  
EXISTING LIGHT POLE  
PROPOSED CURB & GUTTER  
SOIL BORING

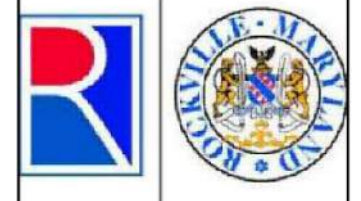


PROPOSED DRAINAGE AREA  
PROPOSED STORM DRAIN  
PROPOSED MICRO-BIORETENTION AREA  
PROPOSED CONCRETE SIDEWALK

CIVIL ENGINEER  
CLARK AZAR & ASSOCIATES, INC.  
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AT LEAST 48 HOURS  
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DEPARTMENT OF PUBLIC WORKS  
CITY OF  
ROCKVILLE  
111 MARYLAND AVE. ROCKVILLE, MARYLAND

DESIGNED \_SL\_  
DRAFTED \_MS\_  
CHECKED \_JA\_

DESIGN PLAN APPROVAL  
PWK# 2024-00048  
SMP# \_\_\_\_\_  
DIRECTOR OF PUBLIC WORKS APPROVAL DATE

SANITARY SEWER PIPE SCHEDULE		
SIZE	TYPE	LENGTH (FT)
4"	SDR 35 PVC	118

### WATER AND SEWER NOTES

September 2018

- All water and sewer construction shall be in accordance with the latest General Specifications and Standard Details of the Washington Suburban Sanitary Commission (WSSC), latest General Specifications and Standard Details of the Maryland State Highway Administration, and/or the City of Rockville Department of Public Works (DPW), unless otherwise noted.
- The Applicant must maintain all sediment control devices and ensure that all points of construction ingress and egress are protected as directed by DPW to prevent tracking of mud and dirt onto public rights-of-way (sidewalks, roads, etc.) or affecting adjacent areas.
- The Applicant shall not operate any valves located on the existing public system. Requests to operate valves must be submitted to Chief of Construction Management 48 hours in advance.
- Abandonment of water service connections and sewer service connections shall be made at the main line as directed by DPW. To abandon water service connections (two-inches or less), the tap hole is to be plugged with a brass plug and the valve and corporation must be removed at the main. All other house connections must be abandoned by cutting out the section of the water main and sleeving in a new pipe. To abandon sewer service connections, tees or saddles must be removed at the main and new pipe will be sleeved in.
- All public water and sewer mains to be placed out of service (existing and proposed) must be completely removed and disposed. Abandonment of utilities in place may be allowed as an exception, only if adequate justification is provided to the DPW - Engineering Division. If permitted, utilities abandoned in place must be completely filled with lean mix concrete or flowable fill, disconnected at the main, and capped on both ends.

**Shut downs to Existing Water System:** Any shutdown shall be made at hours determined by DPW in order to cause the least disturbance to existing customers. The Applicant shall notify the Chief of Construction Management in writing at least 18 calendar days prior to making the shutdown and submit for approval a schedule and method to complete the proposed shutdown and associated work. The Construction Management Division will notify the City Utilities Section at 240-314-8567 to arrange for valve operation. DPW must provide a minimum of two weeks of notice to affected properties. The shutdown will then be made at the designated time in accordance with the directions of the Chief of Construction Management. Test pit information on existing crossings must be provided a minimum of 48 hours prior to construction.

**Water Mains:** Materials for all water mains are to be ductile iron Pipe with Zinc Coating Pressure Class 350. All pipes are to be cement lined, minimum of 1/8-inch thick. All pipes and fittings are to be restrained, including all house connections four-inch and greater. All pipes are to be U.S. Pipe "TYTON

JOINT" or an approved equal. Water pipe shall be installed in accordance with WSSC Standard Details and Standard Specifications, Section 02510.

**Valves:** Valves shall conform to the latest AWWA Specifications and shall be a clockwise turn to close, mechanical joint. All valves shall be resilient seat gate valves. Valve box shall be the two-piece sliding type, adjustable and heavy duty domestic (Bingham & Taylor or approved equal). The covers shall say "WATER" only. Any valve cover/lid with the text "WSSC" will be rejected. Valves boxes for up to 36 inches in height shall weigh at least 75 pounds and valve lids shall weigh at least 14.5 pounds. Skirt size shall be two and a half inches.

**Fire Hydrants and Fire Hydrant Connections:** The Applicant must test pit all fire hydrant leads and valves before removing or replacing a hydrant to confirm existence or condition of strapping.

Fire hydrants shall be set two-feet behind the face of curb unless otherwise indicated on the drawing. Each hydrant shall be set exactly plumb, at the grade provided, and shall be joined to the fire hydrant connection at the foot of the barrel. Care shall be taken to place the steamer outlet normal to the street line and any hydrants placed askew shall be reset as required by the City.

Fire hydrants shall be firmly set in a bed of screened gravel, which shall extend one-foot below the bottom of the hydrant and be filled in and around it. The hydrant shall be firmly braced at the back, opposite the inlet pipe. The total amount of gravel used shall be at least 1/3 of a cubic yard. Fire hydrants shall not be blocked.

Fire hydrant connections of six-inch cement lined ductile iron pipe shall be laid at the points shown on the drawings and shall be extended either to fire hydrants to which they shall be connected or to such points as shall be designated. Fire hydrant connections shall be laid in all particulars in a similar manner to the water mains themselves.

Fire hydrants shall be Mueller or approved equal Traffic Model Types, which consists of break-away bolts, standpipes, and couplings. All fire hydrants shall be restrained to the water main using Mega-lok or approved equal. Hydrants shall be factory painted with two coats of rust-preventive paint. All hydrants barrels shall be painted Safety Yellow. The bonnet and three nozzles shall be color coded as per the National Fire Protection Association (NFPA) standards. The colors are based upon the hydrant's available fire flow and as determined by the Public Works Engineering Division:

FLOW	RUSTOLEUM ITEM #	COLOR
< 500 gpm	K776402	Safety Red
500 - 1,000 gpm	3455402	Safety Orange
1,000-1,500 gpm	3433402	Safety Green
>1,500 gpm	K7725402	Safety Blue
All barrels	245479	Safety Yellow

Fire hydrants shall be as listed in WSSC General Conditions/Standard Specifications, Section 02510. Fire hydrants shall have 5-1/4-inch, three-way (two hose nozzles and one pumper nozzle), six-inch diameter mechanical joint inlet connection clockwise turn close, National Standard operating nut.

**Polyethylene Encasement:** All ductile iron pipe, fittings, and appurtenances shall be V-Bio enhanced polyethylene encased in accordance with AWWA C 105 method 'A' and WSSC specifications; section 02510. After the pipe has been assembled in trench, Applicant shall carefully inspect polyethylene encasement for damage and repair in accordance with AWWA C 105 and manufacturer's recommendations.

**Storage:** The Applicant shall store pipe and materials on site, so as not to damage the materials, and shall maintain such storage areas in a hazard free and safe condition at all times.

**Lubricants:** Lubricants shall be potable hydrogenated vegetable oil that is insoluble in cold water and does not impart taste or odor. The lubricant shall not contain detergents, soaps or organic solvent either aliphatic or aromatic and shall be certified as nontoxic to humans or animals. The lubricant shall be of a semi-paste consistency, which will readily stick to the inside of the bell of the pipe when applied by hand. It shall remain in a usable state through the temperature in which water pipe is normally installed.

**Water Service Connections:** Water service connections shall be 1-inch or two-inch Copper, Type "K," or four-inch, six-inch, or eight-inch ductile iron pipe Pressure Class 350 as determined by the Inspection Services Division for service flow demand and fire protection requirements. Any Copper connection between main and meter shall be one continuous length. All connections must be tapped, saddles are not allowed. No taps shall be allowed in the last five-feet of a dead-end main.

- Applicants must have a WSSC tapping license.
- Compression fittings are not allowed in the City of Rockville.

**Corporation stops:** Corporation stops shall be as per ASI/AWWA C800 with working and test pressures as per WSSC Specifications. The corporations shall be bronze (ASTM B62).

**Tap, sleeve and valve (T, S & V) assemblies:** All T, S, and V assemblies are to be hydro-tested and witnessed by DPW at the time of installation.

**Cover:** All water mains shall be installed with minimum three and a half feet of cover below finished grade or three-feet of cover below existing subgrade.

**Blocking for Existing Mains:** Block all existing fittings with concrete per plans and Standard WSSC Specifications and Standard Details. Mechanical joint fittings, bolts, etc. must be protected from concrete.

**Water Main Tests:** The Applicant shall accomplish low (six hour) and high pressure (two hour) tests in accordance with WSSC Standards and Specifications. Prior to connection connecting new water mains or on-site water systems to the existing public system, the Applicant will conduct a 24-hour bacterial test. Passing test results must be provided from a lab certified by the Maryland Department of the Environment and shall be in accordance with the Standard Methods for Examination of Water and Wastewater.

- The Applicant must not use existing or new water mains or appurtenances for temporary restraint or support during pressure tests.
- Back flow prevention is required when testing a new main as per WSSC specifications.

**Water Meters:** Water meters shall be located one-foot behind the property line in a grass area. Water meters shall not be located in private driveways or aprons. Yoke angle valves should be compatible with Ford 500 series meter yokes.

**Material Requirements for Sewer:** DPW shall accept the following materials for the construction of the main line sewer, except as otherwise specified on the plans:

- Pipes four-inches through 15-inches in diameter:
  - Polyvinyl chloride pipe (PVC) meeting ASTM D3034-78, wall thickness SDR 35, joints shall be watertight.
- Pipes 18-inches and greater:
  - Ductile Iron, Pressure Class 350, cement lined minimum 1/8-inch thick with US Pipe TYTON JOINT or approved equal;
  - Polyvinyl chloride pipe (PVC) meeting ASTM F679, thickness T-1, joints shall be watertight.

Ductile Iron Pipe may be used under special conditions such as steep slopes or stream crossings.

Pipe for sewer house connections shall be four-inch polyvinyl chloride pipe and fittings as specified above, and shall be connected to the main line by the use of tees.

Flexible gaskets shall be used for connections to precast and existing manholes, and shall be A lock as manufactured by Atlantic Precast Concrete, Inc. or equal.

Mortar used in the installation of A Locks or the filling of any void in manholes walls, inside and out, shall be quick setting, non-shrink such as Octocrete, Speedcrete, Permacrete, or equal.

**Installation of Sanitary Sewer:** Sewer pipe shall be installed in accordance with WSSC Standard Details and Specifications, Section 02530. Hydro-hammers may not be used within three-feet of the top of pipe. Exercise care to ensure adequate compaction around structures and prevent damage to pipe at connections to manholes.

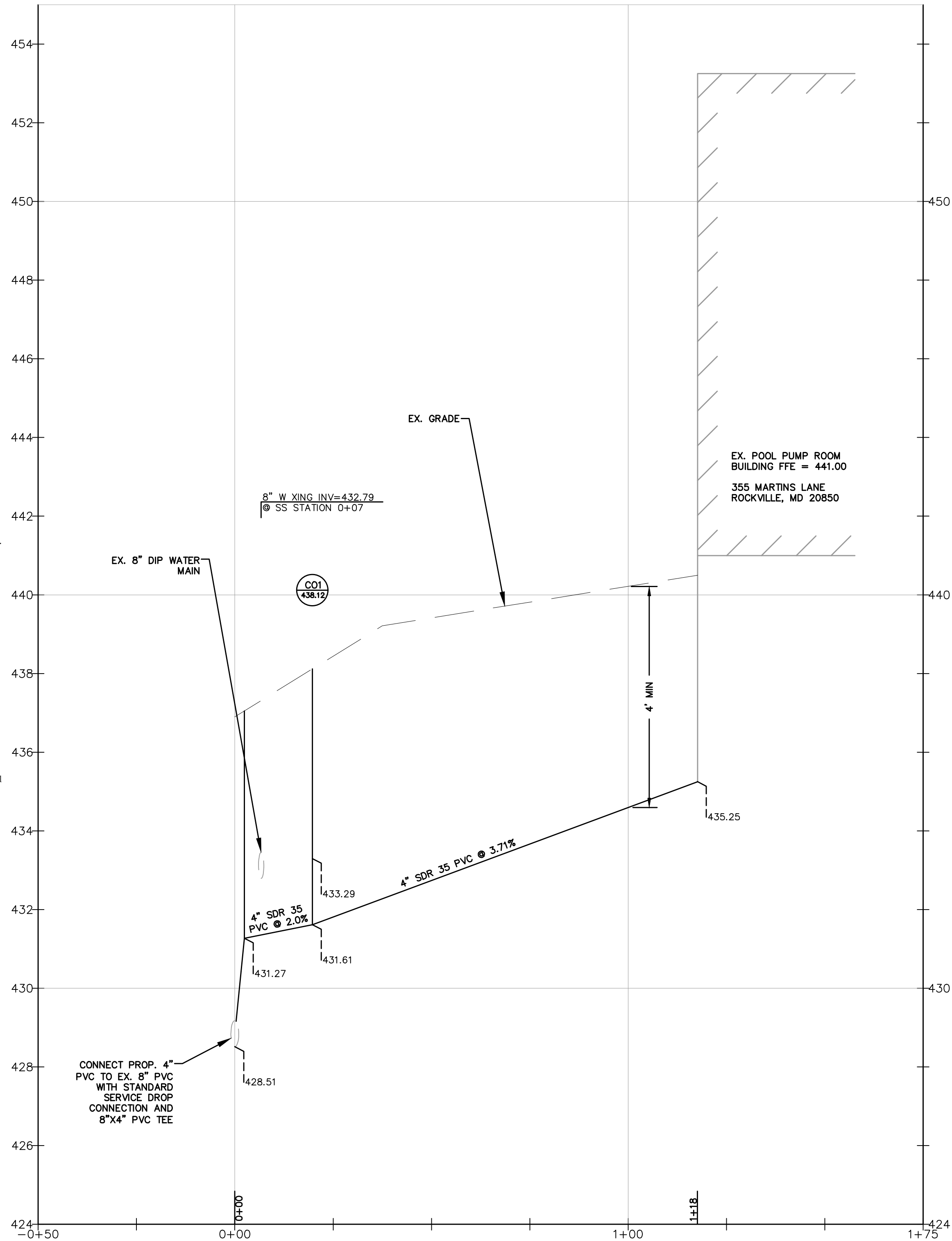
Horizontal deflection of pipe shall be accomplished in accordance with manufacturer's specifications.

**Connection to Existing Sewers and Manholes:** Connections must be as per WSSC Standard Details and Specifications, Section 02530.

**Sewer Main Pressure Tests:** The Applicant shall accomplish pressure tests in accordance with WSSC Standards and Specifications. DPW reserves the right to video the sewer main for quality control purposes.

**Cleanouts:** Cleanouts are to be installed on each sewer service connection and be located at the property line, in a grass area. Cleanout caps shall be cast iron with a brass plug. Provide concrete cleanout blocks on all sewer service connections at bottom of cleanout per WSSC Standard Details.

When drop connections from the building are to be used at the property line cleanout, the "Y" of the cleanout shall be encased per WSSC Standard Details and Standard Specifications.



3 SANITARY SEWER PROFILE  
SCALE: 1" = 20' (HOR) 1" = 2' (VER)

PROFESSIONAL CERTIFICATION:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 31168, Expiration Date: 1/12/2025.

JASON AZAR  
NAME



NO.	DESCRIPTION OF REVISION	P.E. INITIAL	DATE	DPW	DATE
APPROVAL OF REVISIONS AFTER INTIAL PLAN APPROVAL					

THIS PLAN IS FOR PUBLIC  
IMPROVEMENTS ONLY

PWK2024-00048

SANITARY SEWER PLAN AND PROFILE

ROCKVILLE SWIM & FITNESS CENTER  
OUTDOOR RECREATION POOL RENOVATIONS  
355 MARTINS LANE PARCEL 630

Election District No. 4 City of Rockville, Maryland

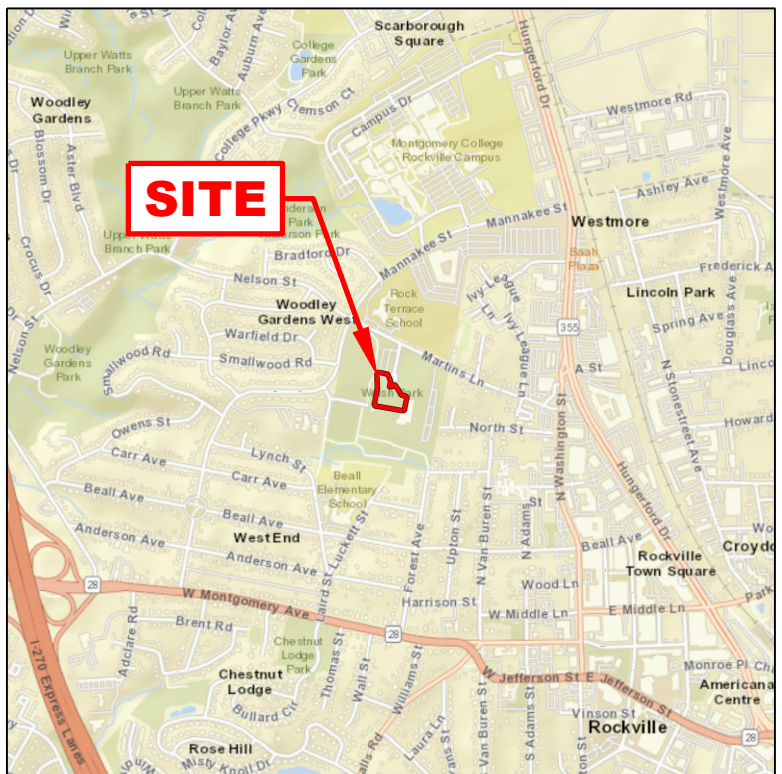
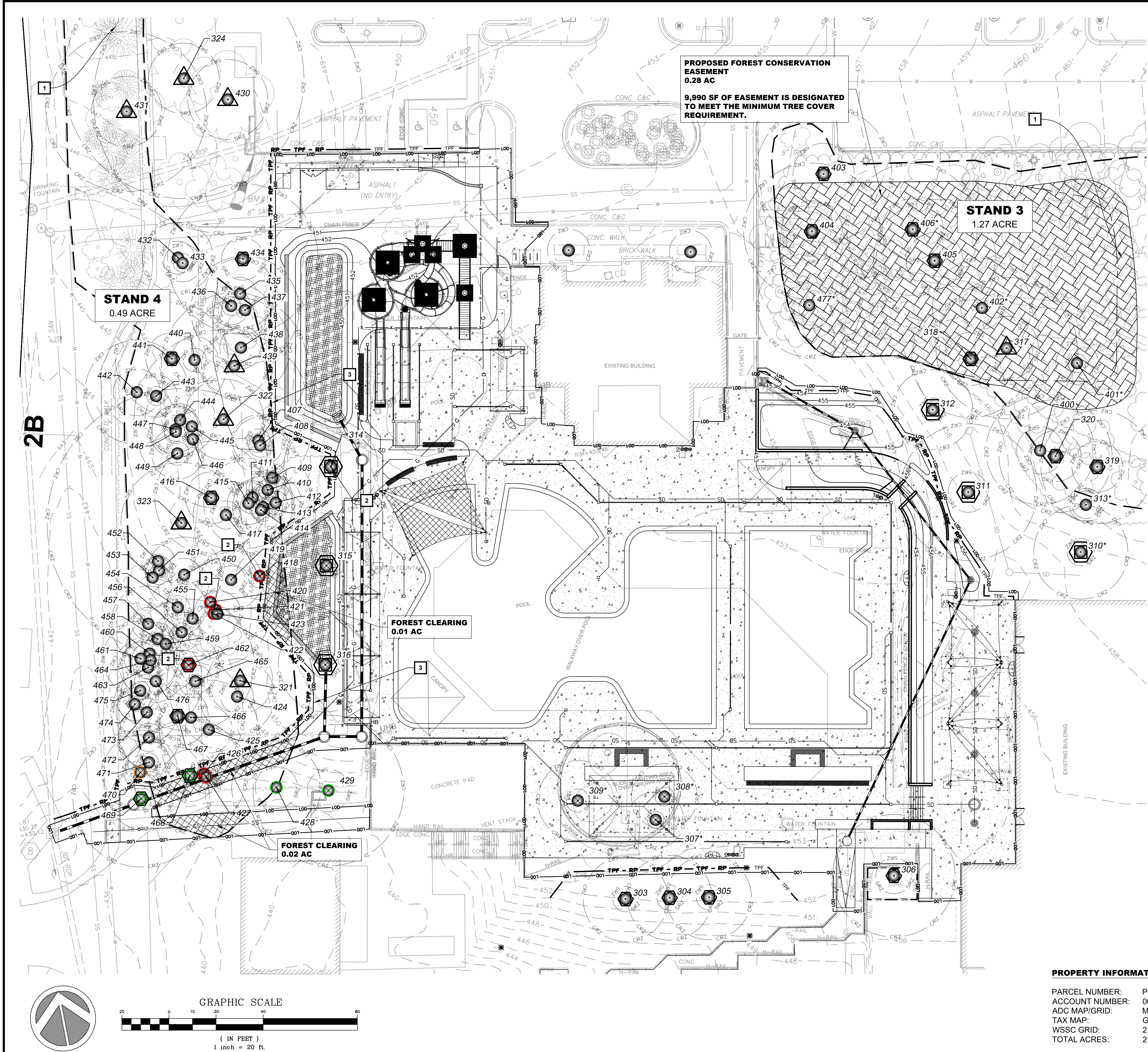
DATE SUBMITTED:  
2/7/2024

SCALE  
1"=20'

SHEET  
NO. 1  
OF 1

FILE #





VICINITY MAP

1" = 2000'

LEGEND

- EXISTING TREE WITH CRITICAL ROOT ZONE (CRZ) & STRUCTURAL ROOT ZONE (SRZ)
- SPECIMEN TREE (≥30 IN. DBH)
- SIGNIFICANT TREE (≥24 IN. DBH - FOREST; ≥12 IN. DBH - LANDSCAPE)
- REPLACEMENT TREE FROM PREVIOUSLY APPROVED FCP
- TREE TO BE REMOVED
- TREE TO BE REMOVED BY ARBORIST (SEE NOTES ON SHEET LJ-2)
- FOREST STAND BOUNDARY
- EXISTING TREELINE
- PROPOSED LOD
- PROPOSED ROOT PRUNING (SEE DETAILS & SPECIFICATIONS)
- PROPOSED TREE PROTECTION FENCE (SEE DETAILS & SPECIFICATION)
- PROPERTY LINE
- SOILS BOUNDARY
- STEEP SLOPES 15 TO 25%
- STEEP SLOPES 25% AND GREATER
- FOREST TO BE CLEARED
- BIORETENTION AREA
- PROPOSED FOREST CONSERVATION EASEMENT

KEYNOTES

- FOREST STAND CONTINUES OFF TRACT
- TREES WITHIN FOREST AREA TO BE REMOVED BY ARBORIST WITH MINIMAL DAMAGE TO ADJACENT TREES' CRZs. SEE NOTE ON SHEET LJ-2. (TYP.)
- SUPER SILT FENCE TO BE INSTALLED AT LOD AROUND FOREST STAND. REFER TO EROSION AND SEDIMENT CONTROL PLAN ON SHEET C-400. (TYP.)

QUALIFIED PROFESSIONAL CERTIFICATION  
THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS OF THE CITY OF ROCKVILLE'S CODE AND THE ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED: [Signature] DATE: 5/25/2023

CENE KETCHAM  
WETLAND STUDIES & SOLUTIONS, INC.  
1131 BENFIELD BOULEVARD, SUITE L  
MILLERSVILLE, MD 21108  
PH: 703-679-5723 FAX: 410-672-5993  
EMAIL: CKETCHAM@WETLANDS.COM

PROPERTY INFORMATION

PARCEL NUMBER: P630  
ACCOUNT NUMBER: 00151518  
ADC MAP/GRID: MAP 29, GRID A5  
TAX MAP: GR23  
WSSC GRID: 219NW08  
TOTAL ACRES: 21.8 AC

LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM & FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



OUTDOOR RECREATION POOL RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

FINAL FCP

Plan View

100% CONSTRUCTION DOCUMENT

1	Per Conditions of Approval	02/18/2024
No.	Description	Date
Revisions		
Project Number: P.WS18001830		
Scale: 1"=30'		
Drawn By: LY, CK		
Checked By: CK		
Date: 2/6/2024		
Sheet No.		LJ-1

NFC



No.	Description	Date
Revisions		
<hr/>		
Project Number:	P.WS19001830	
Scale:	N/A	
Drawn By:	LY, CK	
Checked By:	CK	
Date:	2/6/2024	



TREE PROTECTION ACTION KEY (TPAK)

Tree #	DBH	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	REGULATED STATUS	Number of Stems	SRZ	CRZ1	CRZ	Removal	Removal By Arborist	Preservation Measures														Construction Notes	Assessment Notes	Setting	CRZ Loss Calculations			PFCP/FCP		
	(Diameter at 4.5 feet above ground)								Shrubland Critical Root Zone Radius in Feet	Critical Root Zone Radius in Feet (Forest Trees)	Critical Root Zone Radius in Feet (Landscape Trees)			Root Prune	Tree Protection Fence	Mulch	Year 1 Soil Care	Year 2 Soil Care	Special Demolition	Soil Restoration/Aeration	Tree Growth Regulator	Tree Condition Inspections	Watering	Temp Root Protection Matt	Root Aeration Mats	Construction Oversight/Monitoring	Canopy Prune				Area of CRZ Loss (SqFt)	Total CRZ Area (SqFt)	% CRZ Loss	Disposition (Save/Remove)	Replacement Reqt.	FC Crest 25% of CRZ
317	30	tuliptree	Liriodendron tulipifera	50%	Fair	NO	SPECIMEN	1	14	30																		No disturbance	Large inclusion. Included Bark/Weak Union, Co-Dominant Stems, Small Deadwood (1-2")	Forest	-	2,827	0.0%	SAVE	6	707
318	25	tuliptree	Liriodendron tulipifera	70%	Good	NO	SIGNIFICANT	1	11	25																		No disturbance	One Sided, Excessive Lean, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	1,963	0.0%	SAVE	3	491
319	27	tuliptree	Liriodendron tulipifera	75%	Good	NO	SIGNIFICANT	1	12	27																		No disturbance	Poison ivy, One Sided, Large Deadwood (3"+), Small Deadwood (1-2"), Vines	Forest	-	2,290	0.0%	SAVE	3	573
320	24	tuliptree	Liriodendron tulipifera	75%	Good	NO	SIGNIFICANT	1	11	24																		No disturbance	Poison ivy, One Sided, Small Deadwood (1-2"), Vines	Forest	-	1,810	0.0%	SAVE	2	452
321	30.6	tuliptree	Liriodendron tulipifera	75%	Good	NO	SPECIMEN	1	14	31				X	X						X	X	X			X		Minor disturbance.	Poison ivy and English ivy, Small Deadwood (1-2"), Broken Limbs, Vines	Forest	141	2,942	4.8%	SAVE	6	735
322	38	tuliptree	Liriodendron tulipifera	45%	Fair	NO	SPECIMEN	1	17	38				X	X						X	X			X			Minor disturbance.	Hollow from base to high on the trunk. Basal Decay, Trunk Decay, Small Deadwood (1-2")	Forest	434	4,536	9.6%	SAVE	6	1,134
323	57	tuliptree	Liriodendron tulipifera	50%	Fair	NO	SPECIMEN	1	26	57				X	X						X	X			X			Minor disturbance.	Large, low branch heavily decayed. Sounding suggests decay in low trunk. Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"), Branch Decay	Forest	597	10,207	5.8%	SAVE	6	2,552
400	23	tuliptree	Liriodendron tulipifera	65%	Good	NO		1	10	23																		No disturbance	One Sided, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	1,662	0.0%	SAVE	2	415
401	9	dogwood, flowering	Cornus florida	55%	Fair	NO		1	4	9																		No disturbance	One Sided, Trunk Decay, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	254	0.0%	SAVE	N/A	64
402	21	tuliptree	Liriodendron tulipifera	60%	Fair	NO		1	9	21																		No disturbance	One Sided, Small Deadwood (1-2"), Fungal Fruiting Bodies, Vines	Forest	-	1,385	0.0%	SAVE	2	346
403	29	tuliptree	Liriodendron tulipifera	70%	Good	NO	SIGNIFICANT	1	13	29																		No disturbance	Small Deadwood (1-2")	Forest	-	2,642	0.0%	SAVE	3	661
404	29	tuliptree	Liriodendron tulipifera	50%	Fair	NO	SIGNIFICANT	1	13	29																		No disturbance	Trunk Decay, Included Bark/Weak Union, Co-Dominant Stems, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	2,642	0.0%	SAVE	3	661
405	16,16,12	tuliptree	Liriodendron tulipifera	40%	Poor	NO	SIGNIFICANT	3	12	26																		No disturbance	Buried Root Collar, Basal Decay, Included Bark/Weak Union, Co-Dominant Stems, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	2,061	0.0%	SAVE	3	515
406	18,22	tuliptree	Liriodendron tulipifera	50%	Fair	NO	SIGNIFICANT	2	13	28																		No disturbance	Included Bark/Weak Union, Co-Dominant Stems, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	2,538	0.0%	SAVE	3	635
407	11	locust, black	Robinia pseudoacacia	60%	Fair	NO		1	5	11				X	X													No disturbance	Excessive Lean, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2"), Branch Decay	Forest	1	380	0.3%	SAVE	N/A	95
408	12	locust, black	Robinia pseudoacacia	60%	Fair	NO		1	5	12				X	X													No disturbance	Excessive Lean, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2"), Branch Decay	Forest	2	452	0.4%	SAVE	1	113
409	6	cherry, black	Prunus serotina	65%	Good	NO		1	3	6																		No disturbance	Narrow Crown, Excessive Lean, Small Deadwood (1-2")	Forest	-	113	0.0%	SAVE	N/A	28
410	8	locust, black	Robinia pseudoacacia	65%	Good	NO		1	4	8																		No disturbance	Narrow Crown, Excessive Lean, Small Deadwood (1-2")	Forest	-	201	0.0%	SAVE	N/A	50
411	7	cherry, black	Prunus serotina	65%	Good	NO		1	3	7																		No disturbance	Excessive Lean, Included Bark/Weak Union, Small Deadwood (1-2")	Forest	-	154	0.0%	SAVE	N/A	38
412	11	cherry, black	Prunus serotina	50%	Fair	NO		1	5	11				X	X													No disturbance	Excessive Lean, Included Bark/Weak Union, Co-Dominant Stems, Small Deadwood (1-2")	Forest	-	380	0.0%	SAVE	N/A	95
413	10,8	locust, black	Robinia pseudoacacia	40%	Poor	NO		2	6	13				X	X													No disturbance	Excessive Lean, Included Bark/Weak Union, Co-Dominant Stems, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	515	0.0%	SAVE	1	129
414	9	locust, black	Robinia pseudoacacia	50%	Fair	NO		1	4	9				X	X													No disturbance	Excessive Lean, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	254	0.0%	SAVE	N/A	64
415	19	hickory, mockernut	Carya tomentosa	65%	Good	NO		1	9	19				X	X													No disturbance	Small Deadwood (1-2"), Vines	Forest	2	1,134	0.2%	SAVE	2	284
416	24	tuliptree	Liriodendron tulipifera	65%	Good	NO	SIGNIFICANT	1	11	24				X	X													No disturbance	One Sided, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	1,810	0.0%	SAVE	2	452
417	14	maple, Norway	Acer platanoides	60%	Fair	NO		1	6	14																		No disturbance	Surface Roots, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2"), Broken Limbs, Branch Decay	Forest	-	616	0.0%	SAVE	1	154
418	10	pear, Callery	Pyrus calleryana	40%	Poor	NO		1	5	10			X															SRZ disturbance. Invasive.	Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2"), Low Vigor, Vines	Forest	91	314	29.0%	REMOVE	N/A	79
419	13	cherry, black	Prunus serotina	65%	Good	NO		1	6	13				X	X													Minor disturbance.	Included Bark/Weak Union, Small Deadwood (1-2")	Forest	-	531	0.0%	SAVE	1	133
420	16	locust, black	Robinia pseudoacacia	0%	Dead	YES		1	7	16			X															Dead tree.		Forest	N/A	804	N/A	REMOVE	N/A	201
421	15	locust, black	Robinia pseudoacacia	0%	Dead	YES		1	7	15			X															Dead tree.		Forest	N/A	707	N/A	REMOVE	N/A	177
422	20	locust, black	Robinia pseudoacacia	0%	Dead	YES		1	9	20			X															Dead tree.		Forest	N/A	1,257	N/A	REMOVE	N/A	314
423	22	cherry, black	Prunus serotina	40%	Poor	NO		1	10	22				X	X													Minor disturbance.	not tagged. DBH estimated. Excessive Lean, Large Deadwood (3"+), Small Deadwood (1-2"), Vines	Forest	20	1,521	1.3%	SAVE	2	380
424	16	cherry, black	Prunus serotina	35%	Poor	NO		1	7	16																		No disturbance	2 longitudinal break on trunk. Excessive Lean, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	804	0.0%	SAVE	1	201
425	20.7	cherry, black	Prunus serotina	55%	Fair	NO		2	10	21				X	X						X							Minor disturbance.	Excessive Lean, Included Bark/Weak Union, Co-Dominant Stems, Large Deadwood (3"+), Small Deadwood (1-2"), Vines	Forest	108	1,411	7.6%	SAVE	2	353
426	6	locust, black	Robinia pseudoacacia	40%	Poor	NO		1	3	6			X															Remove for construction.	Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"), Fungal Fruiting Bodies, Vines	Forest	76	113	67.4%	REMOVE	N/A	28
427	7	mulberry, white	Morus alba	40%	Poor	NO		1	3	7			X															Remove for construction.	Basal Decay, Trunk Decay, Broken Limbs, Vines	Forest	154	154	100.0%	REMOVE	N/A	38
428	19	tuliptree	Liriodendron tulipifera	65%	Good	NO		1	9	19			X															Excavation to edge of SRZ. Remove for construction.	Insect/Disease Problem	Forest	219	1,134	19.3%	REMOVE	2	284
431	34	tuliptree	Liriodendron tulipifera	55%	Fair	NO	SPECIMEN	1	15	34																		No disturbance	Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	-	3,632	0.0%	SAVE	6	908
432	15	cherry, black	Prunus serotina	65%	Good	NO		1	7	15																		No disturbance	Narrow Crown, Small Deadwood (1-2")	Forest	-	707	0.0%	SAVE	1	177
433	8	locust, black	Robinia pseudoacacia	40%	Poor	NO		1	4	8																		No disturbance	Basal Decay, Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"), Broken Limbs, Vines	Forest	-	201	0.0%	SAVE	N/A	50
435	15	cherry, black	Prunus serotina	55%	Fair	NO		1	7	15				X	X													No disturbance	DBH estimated. no access due to locked gate. Narrow Crown, Trunk Decay	Forest	-	707	0.0%	SAVE	1	177

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
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703-821-2045



ROCKVILLE SWIM  
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355 MARTINS LANE  
ROCKVILLE, MD 20850



OUTDOOR  
RECREATION POOL  
RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

FINAL FCP

Tree Table (TPAK)

100%  
CONSTRUCTION  
DOCUMENT

QUALIFIED PROFESSIONAL CERTIFICATION  
THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS  
OF THE CITY OF ROCKVILLE'S CODE AND THE  
ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED:  DATE: 5/25/2023

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1	Per Conditions of Approval	02/16/2024
No.	Description	Date

Revisions

Project Number:	P.WS18001830
Scale:	N/A
Drawn By:	LY, CK
Checked By:	CK
Date:	2/6/2024

Sheet No.

LJ-3

NFC


BID SET 02/23/2024



TREE PROTECTION ACTION KEY (TPAK)

Tree #	DBH	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	REGULATED STATUS	Number of Stems	SRZ	CRZ1	CRZ	Removal	Removal By Arborist	Preservation Measures													Construction Notes	Assessment Notes	Setting	CRZ Loss Calculations			PFCP/FCP		
	(Diameter at 4.5 feet above grade)								Structural Critical Root Zone Radius in Feet	Critical Root Zone Radius in Feet (Forest Trees)	Critical Root Zone Radius in Feet (Landscape Trees)			Root Prune	Tree Protection Fence	Mulch	Year 1 Soil Care	Year 2 Soil Care	Special Demolition	Soil Restoration/Aeration	Tree Growth Regulator	Tree Condition Inspections	Watering	Temp Root Protection Mat	Root Aeration Matting	Construction Oversight/Monitoring				Canopy Prune	Area of CRZ Loss (SqFt)	Total CRZ Area (SqFt)	% CRZ Loss	Disposition (Save/Remove)	Replacement Reqd.
436		8 cherry, black	Prunus serotina	30%	Poor	NO		1	4	8																	No disturbance	DBH estimated. no access due to locked gate. Narrow Crown, Basal Decay, Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Vines	Forest	-	201	0.0%	SAVE	N/A	50
437		23 tuliptree	Liriodendron tulipifera	55%	Fair	NO		1	10	23				X	X						X	X					Moderate disturbance.	DBH estimated. no access due to locked gate. Large Deadwood (3"+), Small Deadwood (1-2"). Vines	Forest	271	1,662	16.3%	SAVE	2	415
438		21 tuliptree	Liriodendron tulipifera	65%	Good	NO		1	9	21				X	X												Minor disturbance.	DBH estimated. no access due to locked gate. Large Deadwood (3"+), Small Deadwood (1-2"). Vines	Forest	133	1,385	9.6%	SAVE	2	346
439		22.22 tuliptree	Liriodendron tulipifera	60%	Fair	NO	SPECIMEN	2	14	31				X	X					X	X			X			Moderate disturbance.	DBH estimated. no access due to locked gate. One Sided, Large Deadwood (3"+), Small Deadwood (1-2"). Vines	Forest	488	3,041	16.0%	SAVE	6	760
440		10 hickory, mockernut	Carya tomentosa	75%	Good	NO		1	5	10																	No disturbance	Small Deadwood (1-2"). Vines	Forest	-	314	0.0%	SAVE	N/A	79
441		24 hickory, mockernut	Carya tomentosa	40%	Poor	NO	SIGNIFICANT	1	11	24																	No disturbance	One Sided, Basal Decay, Trunk Decay, Small Deadwood (1-2"). Vines	Forest	-	1,810	0.0%	SAVE	2	452
442		22 tuliptree	Liriodendron tulipifera	60%	Fair	NO		1	10	22																	No disturbance	Included Bark/Weak Union, Small Deadwood (1-2")	Forest	-	1,521	0.0%	SAVE	2	380
443		9 hickory, mockernut	Carya tomentosa	70%	Good	NO		1	4	9																	No disturbance	Fungal Fruiting Bodies	Forest	-	254	0.0%	SAVE	N/A	64
444		15 hickory, mockernut	Carya tomentosa	70%	Good	NO		1	7	15																	No disturbance	Fungal Fruiting Bodies	Forest	-	707	0.0%	SAVE	1	177
445		12 locust, black	Robinia pseudoacacia	0%	Dead	YES		1	5	12																	Dead tree.		Forest	N/A	452	N/A	SAVE	N/A	113
446		10 locust, black	Robinia pseudoacacia	0%	Dead	YES		1	5	10																	Dead tree.		Forest	N/A	314	N/A	SAVE	N/A	79
447		10 persimmon, common	Diospyros virginiana	55%	Fair	NO		1	5	10																	No disturbance	Buried Root Collar, Large Deadwood (3"+), Small Deadwood (1-2"). Vines	Forest	-	314	0.0%	SAVE	N/A	79
448		11 cherry, black	Prunus serotina	45%	Fair	NO		1	5	11																	No disturbance	Suppressed, Small Deadwood (1-2"). Vines	Forest	-	380	0.0%	SAVE	N/A	95
449		11 cherry, black	Prunus serotina	45%	Fair	NO		1	5	11																	No disturbance	One Sided, Suppressed, Excessive Lean, Small Deadwood (1-2"). Vines	Forest	-	380	0.0%	SAVE	N/A	95
450		16 locust, black	Robinia pseudoacacia	40%	Poor	NO		1	7	16																	No disturbance	Basal Decay, Trunk Decay, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline	Forest	-	804	0.0%	SAVE	1	201
451		6 locust, black	Robinia pseudoacacia	40%	Poor	NO		1	3	6																	No disturbance	Basal Decay, Trunk Decay, Included Bark/Weak Union, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Fungal Fruiting Bodies	Forest	-	113	0.0%	SAVE	N/A	28
452		7 mulberry, white	Morus alba	45%	Fair	NO		1	3	7																	No disturbance	Suppressed, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Fungal Fruiting Bodies	Forest	-	154	0.0%	SAVE	N/A	38
453		8 locust, black	Robinia pseudoacacia	0%	Dead	YES		1	4	8																	Dead tree.		Forest	N/A	201	N/A	SAVE	N/A	50
454		12 cherry, black	Prunus serotina	65%	Good	NO		1	5	12																	No disturbance	Small Deadwood (1-2")	Forest	-	452	0.0%	SAVE	1	113
455		8.8 locust, black	Robinia pseudoacacia	0%	Dead	YES		2	5	11																	Dead tree.	Co-Dominant Stems	Forest	N/A	402	N/A	SAVE	N/A	101
456		8 cherry, black	Prunus serotina	60%	Fair	NO		1	4	8																	No disturbance	Small Deadwood (1-2"). Vines	Forest	-	201	0.0%	SAVE	N/A	50
457		16 locust, black	Robinia pseudoacacia	40%	Poor	NO		1	7	16																	No disturbance	One Sided, Suppressed, Basal Decay, Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor	Forest	-	804	0.0%	SAVE	1	201
458		7 locust, black	Robinia pseudoacacia	40%	Poor	NO		1	3	7																	No disturbance	Narrow Crown, Suppressed, Basal Decay, Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Vines	Forest	-	154	0.0%	SAVE	N/A	38
459		12 locust, black	Robinia pseudoacacia	0%	Dead	YES		1	5	12																	Dead tree.	Narrow Crown, Suppressed, Basal Decay, Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Vines	Forest	N/A	452	N/A	SAVE	N/A	113
460		14 locust, black	Robinia pseudoacacia	0%	Dead	YES		1	6	14																	Dead tree.	Narrow Crown, Suppressed, Basal Decay, Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Vines	Forest	N/A	616	N/A	SAVE	N/A	154
461		16 locust, black	Robinia pseudoacacia	30%	Poor	NO		1	7	16																	No disturbance	Narrow Crown, Suppressed, Basal Decay, Trunk Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Fungal Fruiting Bodies, Vines	Forest	-	804	0.0%	SAVE	1	201
462		28 oak, northern red	Quercus rubra	0%	Dead	YES	SIGNIFICANT	1	13	28			X														Dead tree. Remove for safety.		Forest	N/A	2,463	N/A	REMOVE	N/A	616
463		12 locust, black	Robinia pseudoacacia	30%	Poor	NO		1	5	12																	No disturbance	DBH estimated. no access due to vines. One Sided, Suppressed, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Vines	Forest	-	452	0.0%	SAVE	1	113
464		8 cherry, black	Prunus serotina	30%	Poor	NO		1	4	8																	No disturbance	DBH estimated. no access due to vines. Suppressed, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Vines	Forest	-	201	0.0%	SAVE	N/A	50
465		7 locust, black	Robinia pseudoacacia	40%	Poor	NO		1	3	7																	No disturbance	Basal Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Fungal Fruiting Bodies	Forest	-	154	0.0%	SAVE	N/A	38
466		12 locust, black	Robinia pseudoacacia	0%	Dead	YES		1	5	12																	Dead tree.	Basal Decay, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Serious Decline, Fungal Fruiting Bodies	Forest	N/A	452	N/A	SAVE	N/A	113
467		28 oak, northern red	Quercus rubra	55%	Fair	NO	SIGNIFICANT	1	13	28				X	X												Minor disturbance.	One Sided, Included Bark/Weak Union, Vines	Forest	47	2,463	1.9%	SAVE	3	616
468		24 tuliptree	Liriodendron tulipifera	65%	Good	NO	SIGNIFICANT	1	11	24			X														Remove for construction.	Large Deadwood (3"+), Small Deadwood (1-2"). Branch Decay, Vines	Forest	922	1,810	51.0%	REMOVE	2	452
469		29 pine, eastern white	Pinus strobus	55%	Fair	NO	SIGNIFICANT	1	13	29			X														Remove for construction.	DBH measured at 3'. Trunk Decay, Included Bark/Weak Union, Co-Dominant Stems, Large Deadwood (3"+), Small Deadwood (1-2")	Forest	2,642	2,642	100.0%	REMOVE	3	661
470		16 pine, eastern white	Pinus strobus	50%	Fair	NO		1	7	16			X														SRZ disturbance.	Narrow Crown, Suppressed, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor	Forest	198	804	24.6%	REMOVE	1	201
471		9 pine, eastern white	Pinus strobus	45%	Fair	NO		1	4	9																	No disturbance	Narrow Crown, Suppressed, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor	Forest	-	254	0.0%	SAVE	N/A	64
472		13 pine, eastern white	Pinus strobus	50%	Fair	NO		1	6	13																	No disturbance	Girdling root - 2"x8". Suppressed, Girdling Roots, Large Deadwood (3"+), Small Deadwood (1-2"). Low Vigor, Vines	Forest	-	531	0.0%	SAVE	1	133

**QUALIFIED PROFESSIONAL CERTIFICATION**  
 THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS OF THE CITY OF ROCKVILLE'S CODE AND THE ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED:  DATE: 5/25/2023

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OUTDOOR  
RECREATION POOL  
RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

FINAL FCP  
Tree Table (TPAK)

100%  
CONSTRUCTION  
DOCUMENT

1 Per Conditions of Approval 02/18/2024

No. Description Date

Revisions

Project Number: P.WS18001830  
Scale: N/A  
Drawn By: L.Y. CK  
Checked By: CK  
Date: 2/6/2024

Sheet No.

LJ-4



TREE PROTECTION ACTION KEY (TPAK)

Tree #	DBH <small>(Diameter at 4.5 feet above grade)</small>	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	REGULATED STATUS	Number of Stems	SRZ	CRZ1	CRZ	Removal	Removal By Arborist	Preservation Measures													Construction Notes	Assessment Notes	Setting	CRZ Loss Calculations			PFCP/FCP		
									Shrinkwall Critical Root Zone (radius) in Feet	Critical Root Zone Radius in Feet (1" = 1 inch, 1' = 1 foot) (Forest Trees)	Critical Root Zone Radius in Feet (1.5 ft radius in DBH) (Landscape Trees)			Root Prune	Tree Protection Fence	Mulch	Year 1 Soil Care	Year 2 Soil Care	Special Demolition	Soil Restoration/Aeration	Tree Growth Regulator	Tree Condition Inspections	Watering	Temp Root Protection Matt	Root Aeration Matting	Construction Oversight/Monitoring				Area of CRZ Loss (SqFt)	Total CRZ Area (SqFt)	% CRZ Loss	Disposition (Save/Remove)	Replacement Reqd.	FC Credit 25% of CRZ
473	13	pine, eastern white	Pinus strobus	50%	Fair	NO		1	6	13																	No disturbance	Suppressed, Large Deadwood (3"+), Small Deadwood (1-2"), Low Vigor, Vines	Forest	-	531	0.0%	SAVE	1	133
474	6.3	mulberry, white	Morus alba	55%	Fair	NO		2	3	7																	No disturbance	One Sided, Branch Decay, Vines	Forest	-	141	0.0%	SAVE	N/A	35
475	8	mulberry, white	Morus alba	50%	Fair	NO		1	4	8																	No disturbance	One Sided, Excessive Lean, Trunk Decay, Small Deadwood (1-2"), Branch Decay, Vines	Forest	-	201	0.0%	SAVE	N/A	50
476	20	locust, black	Robinia pseudoacacia	50%	Fair	NO		1	9	20																	No disturbance	DBH estimated due to vines, Narrow Crown, Large Deadwood (3"+), Small Deadwood (1-2"), Fungal Fruiting Bodies, Vines	Forest	-	1,257	0.0%	SAVE	2	314
477	22	tuliptree	Liriodendron tulipifera	65%	Good	NO		1	10	22																	No disturbance	One Sided, Small Deadwood (1-2")	Forest	-	1,521	0.0%	SAVE	2	380
303	12	ginkgo	Ginkgo biloba	90%	Excellent	NO	SIGNIFICANT	1	5		18		X	X	X										X		Minor disturbance.	Female - fruit on ground. Minor sapsucker damage.	Landscape	161	1,018	15.8%	SAVE	1	254
304	12	ginkgo	Ginkgo biloba	85%	Excellent	NO	SIGNIFICANT	1	5		18		X	X	X											X	Minor disturbance.	No fruit. Minor sapsucker damage.	Landscape	165	1,018	16.2%	SAVE	1	254
305	12	ginkgo	Ginkgo biloba	80%	Good	NO	SIGNIFICANT	1	5		18		X	X	X											X	Minor disturbance.	No fruit. Minor sapsucker damage. Buried Root Collar	Landscape	159	1,018	15.7%	SAVE	1	254
306	17	zelkova, Japanese	Zelkova serrata	60%	Fair	NO	SIGNIFICANT	1	8		26			X												X	Arborist oversight for demolition adjacent to planter.	Confined rooting area. Surface roots. Large (6 in.+) girdling root. Girdling Roots	Landscape	1,282	2,043	62.8%	SAVE	1	511
307	8	redcedar, eastern	Juniperus virginiana	55%	Fair	NO		1	4		12	X															Remove for construction.	Restricted rooting area. No tag. Excessive Lean, Vines	Landscape	452	452	99.9%	REMOVE	N/A	113
308	10	redcedar, eastern	Juniperus virginiana	65%	Good	NO		1	5		15	X															Remove for construction.	Restricted rooting area. No tag. Vines	Landscape	707	707	100.0%	REMOVE	N/A	177
309	11	redcedar, eastern	Juniperus virginiana	60%	Fair	NO		1	5		17	X															Remove for construction.	Restricted rooting area. Dense vegetation around trunk. No tag.	Landscape	855	855	100.0%	REMOVE	N/A	214
310	13	baldcypress, common	Taxodium distichum	75%	Good	NO	SIGNIFICANT	1	6		20																No disturbance	Buried Root Collar	Landscape	-	1,195	0.0%	SAVE	1	299
311	19	baldcypress, common	Taxodium distichum	80%	Good	NO	SIGNIFICANT	1	9		29		X	X	X							X	X		X		Root prune at LOD. Approx. 30% CRZ loss.	Low branching. Surface roots. Minor mower damage. Root Damage/Decay	Landscape	809	2,552	31.7%	SAVE	2	638
312	11	baldcypress, common	Taxodium distichum	75%	Good	NO	SIGNIFICANT	1	5		17		X	X												X	Minor disturbance.	One Sided	Landscape	51	855	6.0%	SAVE	N/A	214
313	7	crapemyrtle, common	Lagerstroemia indica	65%	Good	NO		1	3		11																No disturbance	DBH @ 2 ft. Root collar buried deeply. One Sided, Buried Root Collar, Small Deadwood (1-2")	Landscape	-	346	0.0%	SAVE	N/A	87
314	13	Japanese pagodatree	Styphnolobium japonicum	60%	Fair	NO	SIGNIFICANT	1	6		20	X															SRZ disturbance.	One Sided, Suppressed, Buried Root Collar, Included Bark/Weak Union, Co-Dominant Stems, Small Deadwood (1-2")	Landscape	722	1,195	60.4%	REMOVE	1	299
315	13	Japanese pagodatree	Styphnolobium japonicum	70%	Good	NO	SIGNIFICANT	1	6		20	X															Remove for construction.	One Sided, Small Deadwood (1-2")	Landscape	1,195	1,195	100.0%	REMOVE	1	299
316	13	Japanese pagodatree	Styphnolobium japonicum	60%	Fair	NO	SIGNIFICANT	1	6		20	X															SRZ disturbance.	One Sided, Suppressed, Co-Dominant Stems, Small Deadwood (1-2"), Vines	Landscape	883	1,195	82.3%	REMOVE	1	299
324	24.24	tuliptree	Liriodendron tulipifera	60%	Fair	NO	SPECIMEN	2	15		51																No disturbance	Heavy poison ivy. Base pressing against codominant stem. English ivy. One Sided, Included Bark/Weak Union, Co-Dominant Stems, Mechanical Damage, Large Deadwood (3"+), Small Deadwood (1-2"), Vines	Landscape	-	8,143	0.0%	SAVE	6	2,036
429	21	tuliptree	Liriodendron tulipifera	60%	Fair	NO	SIGNIFICANT	1	9		32	X															SRZ disturbance.	Buried Root Collar, Branch Decay, Insect/Disease Problem	Landscape	632	3,117	20.3%	REMOVE	2	779
430	38	tuliptree	Liriodendron tulipifera	70%	Good	NO	SPECIMEN	1	17		57		X	X													Minor disturbance.	Small Deadwood (1-2")	Landscape	604	10,207	5.9%	SAVE	6	2,552
434	21	tuliptree	Liriodendron tulipifera	55%	Fair	NO	SIGNIFICANT	1	9		32		X	X								X	X		X		Moderate disturbance.	DBH estimated, no access due to locked gate. Large Deadwood (3"+), Vines	Landscape	752	3,117	24.1%	SAVE	2	779

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



OUTDOOR  
RECREATION POOL  
RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

FINAL FCP

Tree Table (TPAK)

100%  
CONSTRUCTION  
DOCUMENT

QUALIFIED PROFESSIONAL CERTIFICATION  
THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS  
OF THE CITY OF ROCKVILLE'S CODE AND THE  
ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED: *Cene Ketcham* DATE: 5/25/2023

CENE KETCHAM  
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NFC

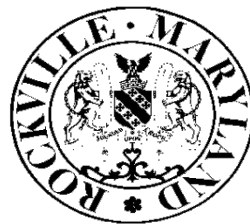
1 Per Conditions of Approval 02/18/2024  
No. Description Date

Revisions

Project Number: P.WS19001830  
Scale: N/A  
Drawn By: L.Y. CK  
Checked By: CK  
Date: 2/6/2024

Sheet No. LJ-5





# Forest and Tree Preservation Ordinance Notes

NOVEMBER 2019

## SEQUENCE OF EVENTS

The permittee is responsible for strict adherence to the sequence and details as outlined. During each stage of the project, forestry staff may provide additional direction based on site conditions, unforeseen circumstances, or approved revisions.

### PRE-CONSTRUCTION

- Permittee shall obtain a Forestry Permit (FTP) for the project and secure copies of the approved Forest Conservation Plan (FCP) for distribution to contractors. The Permittee is responsible for obtaining a Maryland Roadside Tree Permit if applicable. Contact Miss Utility at 1-800 257-7777.
- The Permittee must coordinate and schedule an onsite preconstruction meeting with the following attendees: Permittee, Construction Superintendent, Maryland LTE/ISA Certified Arborist (if required by Forestry Department), the City Forestry Inspector, City Project Inspector, and City Sediment Control Inspector. The limits of disturbance must be staked and flagged prior to the preconstruction meeting. No land disturbance shall occur prior to this meeting. This includes, but is not limited to, the installation of tree protection fencing, sediment control measures, clearing, grading and tree stress reduction measures. The limits of disturbance will be reviewed, and tree protection and tree care measures will be discussed.
- No land disturbance shall begin before stress-reduction measures as indicated on the approved FCP, or otherwise directed by the Forestry Inspector have been implemented and approved by Forestry Inspector. Measures not specified on the plan may be required as determined by the Forestry Inspector in consultation with the Permittee's MD LTE/ISA Certified Arborist. Appropriate stress-reduction measures may include, but are not limited to:
  - Root pruning
  - Crown reduction or pruning
  - Watering
  - Fertilizing
  - Surface mulching
  - Vertical mulching
  - Root aeration matting
- A professional with the dual credentials of Maryland Department of Natural Resources Licensed Tree Expert (LTE) and International Society of Arboriculture Certified Arborist (ISA CA) must perform all stress reduction measures. Documentation of these qualifications may be required. The measures must be done in accordance with *ANSI Standards for Tree Care Operations* (A300) and other industry best management practices. Implementation of the stress reduction measures must be observed by the Forestry Inspector or written documentation, including photographs must be sent via mail or email to the City Forestry Inspector.
- Temporary tree protection devices, including signage, shall be installed per the approved Forest Conservation Plan, or as otherwise directed by the Forestry Inspector, and prior to any land disturbance. Tree protection fencing locations must be staked and flagged prior to the pre-construction meeting. The Forestry Inspector, in coordination with the City Sediment Control Inspector, may make field adjustments to increase the survivability of trees and forest shown as saved on the approved plan. The Permittee must contact the Forestry Inspector to schedule a follow up construction inspection after installing all tree protection measures and performing all stress reduction measures. Upon a satisfactory inspection by the Forestry Inspector and Sediment Control Inspector, a Notice to Proceed will be issued and clearing and grading can commence. Temporary tree protection devices may include:
  - Chain link fence (four feet high)
  - Super silt fence with wire strung between the support poles (minimum 4 feet high) with high visibility flagging.
  - 14 gauge 2 inch x 4 inch welded wire fencing supported by steel T-bar posts (minimum 4 feet high) with high visibility flagging.
- The Permittee and contractor shall maintain the temporary tree protection devices for the duration of the project and the location must not be altered without prior approval of the Forestry Inspector. No equipment, trucks, materials, debris, or any other items may be stored within the tree protection fence areas during the entire construction project. No access beyond the fenced area will be permitted. Tree Protection fencing shall not be removed without prior approval of the Forestry Inspector.
- Long term tree protection devices/techniques, as shown on the FCP or as directed by the Forestry Inspector may include but are not limited to:
  - Root aeration systems
  - Retaining walls
  - Raised sidewalks
  - Tunneling of utilities
  - Pier and panel walls
  - Porous pavers

### DURING CONSTRUCTION

- Periodic inspections at the discretion of the Forestry Inspector will occur during the construction project. Corrections and repairs to all tree protection devices and other protective measures, as determined by the Forestry Inspector, must be made within the timeframe established by the Forestry Inspector.
- The Permittee must immediately notify the Forestry Inspector of any damage to trees, forests, understory, ground cover, and any other undisturbed areas shown on the plan. Remedial actions to the restore these areas will be determined by the Forestry Inspector and the corrective actions must be made within the timeframe established by the Forestry Inspector.
- Failure to comply with the approved FCP or any directive of the City Forester's office is a violation of the Forest and Tree Preservation Ordinance (FTPO). Pursuant to Section 10.5-34 of the FTPO, a fine in the amount of \$1,000 may be imposed for each violation. Each day a violation continues is a separate violation. In addition, a stop work order may be issued until the violation has been abated and the fine has been paid or an appeal has been filed pursuant to Section 10.5-35 of the FTPO. Additional punitive measures as stated under Section 10.5-34 of the FTPO may be imposed.

### POST CONSTRUCTION

- After construction is completed, the Permittee must request a final inspection in writing with the Forestry Inspector. At the final inspection, the Forestry Inspector may require additional corrective measures, which may include, but is not limited to:
  - Removal and replacement of dead and dying trees
  - Pruning of damaged, dead or declining limbs
  - Surface mulching
  - Soil aeration
  - Fertilization
  - Watering
  - Wound repair
  - Clean up of retention areas including trash removal
- After the final inspection and completion of all corrective measures the Forestry Inspector will request all temporary tree and forest protection devices be removed from the site. Removal of tree protection devices that also operate for erosion and sediment control must be coordinated with both the City Sediment Control Inspector and the Forest Conservation Inspector. No additional grading, sodding, or burial may take place after the tree protection fencing is removed.

### INSTALLATION OF PLANT MATERIAL

- The Permittee is responsible for obtaining the approved Forest Conservation Plan/Landscape Plan and providing a copy to the Landscape Contractor. The Permittee shall ensure that the Landscape Contractor can secure the plants shown the FCP/Landscape Plan. Plant substitutions are not allowed. It is strongly recommended that plant material be secured from supplier by the project start date.

- A pre-planting meeting is required before installation of landscaping, afforestation, or reforestation. The applicant must schedule an on-site pre-planting meeting with the City Forestry Inspector. Attendees must include the Permittee, landscape contractor, and Forestry Inspector. Trees and shrubs shall conform to the current edition of the American Standard for Nursery Stock (ANSI Z60.1).
- Comply with appropriate City Soil Specification:
  - Soil Specification FOR TREE PLANTING WHERE EXISTING PAVEMENT OR OTHER IMPERVIOUS SURFACES WERE PREVIOUSLY LOCATED OR WHERE EXISTING GREENSPACE HAS BEEN SEVERELY DEGRADED<sup>1</sup>
    - Site preparation
      - Demolish existing impervious surface and remove all existing asphalt, concrete, stone and construction materials to expose subsoil free of debris.
      - Excavate so that final planting bed will provide quality soil to a depth of forty-eight (48) inches, and to a radius of 10' minimum or to new hard edge of planting bed, whichever is less.
      - Loosen exposed subsoil below 48" by ripping 18" into the sub grade elevation.
      - Test to ensure that planting bed drains at a rate of at least 1 inch/per hour.
      - Install imported soil to fill excavated planting bed. Imported soil shall have a texture of LOAM, per the USDA soil classification system and a chemical composition compatible with healthy tree growth. When installing the soil, it should be installed in lifts or layers of < 12 inches (30 cm), tamping or watering (not both) between lifts to minimize potential settling.
    - Immediately prior to installation of plant material, the soil must be tested and must have a pH range between 5.5 and 7 and a nutrient content which corresponds to an adequate rating, per current industry standards. Amend soil, if necessary, to achieve the current industry standard.
    - The Forestry Inspector may require additional soil specifications, based on site conditions.
  - Soil Specification FOR PLANTING WHERE EXISTING GREEN SPACE HAS NOT BEEN PROTECTED FROM CONSTRUCTION IMPACTS BUT IS NOT SEVERELY DEGRADED.
    - Site Preparation:
      - Remove all construction debris and top four to six inches of existing soil.
      - Test remaining existing soil to verify a pH range between 5.5 and 7, and has a nutrient content which corresponds to an adequate rating, per current industry standards.
      - Apply four (4) inches of mature compost evenly over the entire planting surface. (4" = 12 Cubic Yard/1,000 s.f.). Provide compost supplier information and specifications to the City Forestry Inspector for approval prior to install
      - Till the compost into the existing soil to a minimum depth of thirty-six (36) inches using the city's soil profile rebuilding specification.
      - If soil does not meet nutrient standards, mitigate soil chemistry to meet the chemical parameters.
    - The Forestry Inspector may require additional soil specifications, based on site conditions.
  - Soil Specification FOR PLANTING WITHIN EXISTING GREEN SPACE AREAS WHICH HAVE BEEN PROTECTED FROM CONSTRUCTION IMPACTS (One of two options, as determined by Forestry Inspector) Refer to approved City of Rockville Detail A-7
    - Test existing soil to verify it has a pH range between 5.5 and 7, and a nutrient content which corresponds to an adequate rating, per current industry standards. If soil does not meet nutrient standards, one of two options will be performed to mitigate the soil:
      - Option 1- Till Method- Depth of tilling for planting must be at least twenty-four (24) inches:
        - Apply four (4) inches of mature compost evenly over the entire planting surface (4" = 12 cubic yards/1,000 s.f.). Provide compost supplier information and specifications to the City Forestry Inspector for approval prior to install.
        - Till the compost into the existing soil to a minimum depth of twenty-four (24") inches.
      - Option 2 - Aeration and Vertical Mulching
        - Using a 2- 3" Auger, drill a series of holes in the soil to a depth of twenty-four (24) inches.
        - Begin at the edge of the hole dug for the root ball and continue drilling at one-foot intervals (maximum), in concentric rings around the tree out to ten (10) feet from the tree.
        - Each hole must be refilled with mature compost.
      - The Forestry Inspector may require additional soil specifications, based on site conditions.
- Soil testing of the existing soil may be conducted with PRIOR approval from the City's Forestry Inspector to determine the number and location of the samples. The above requirements may be reduced if soil testing shows the following:
  - Soil pH is between 5.5 and 7
  - The top 24" of existing soil contains a minimum of 4-6% organic matter by weight
  - The soil is free of contaminants
  - The soil texture is sandy loam or loam
  - The soil has an infiltration rate not less than 1" per hour
  - The soil does not contain debris or stones greater than one inch
  - The soluble salt content is less than 3 dS/m
  - Consult the University of Maryland Extension website: <http://extension.umd.edu/> for a listing of commercial soil testing facilities.
- Soil preparation is required for street trees planted within the city's rights-of-way and private street trees, if they are part of the approved plan.

<sup>1</sup> See definitions section #9

- The depths and grades shown on plan drawings are final grades after settlement and shrinkage of the organic material. The contractor shall install the soil mix at a higher level to anticipate this reduction of volume. All grades are assumed to be 'as measured' to be prior to the addition of any surface compost till layer or mulch or sod.
- All details of the planting plans regarding plant quality and proper planting will be discussed including but not limited to:
  - Plant quality.
  - Proper form for species.
  - Proper ratio of caliper size/height to container size/root ball size.
  - Proper pruning cuts if applicable in accordance with current ANSI A300 pruning standards (generally there should be no recent pruning).
  - No co-dominant stems or multiple trunks (unless approved by FCP or by The Forestry Inspector).
  - Sound graft union.
  - Free of girdling roots, or the ability to remove girdling roots without damaging the tree.
  - Trees shall be healthy, vigorous, insect/disease free, and without cankers/cracks or trunk damage.
- Proper Installation
  - Root flare no higher than 3 inches from existing grade.
  - Exposed root flare (not graft): removing more than several inches of soil to expose the root flare may result in the rejection of the plant material.
  - Wire baskets/twine/burlap removed from at least the top half of root ball, or as directed by Forestry Inspector.
  - All burlap or twine removed completely.
  - No hose and wire; staking and strapping per City planting detail.
  - Planting Hole a minimum of twice the width of the root ball; could be greater. Planting detail assumes soil has been prepared per the city's specifications (Planting, #3).
  - Mulched properly, per City planting detail.
  - Wildlife protection installed, if required; type approved by the Forestry Inspector.
- Trees not complying with the above requirements may be rejected at the discretion of the City Forestry Inspector.
- Tree planting will generally not be permitted between the dates of June 1 and September 1, or when the ground is frozen.
- DEFINITIONS
  - Topsail
    - Soil can be considered topsoil if it originates from an A horizon of a natural soil or is a mineral soil with 4-6% organic matter content, and a NRCS textural class similar to pre-development conditions A horizon soils for the site, or as specified by the City Forestry Division. The city Forestry Division will specify a LOAM texture in the absence of native conditions listed above. Blended soils shall not be used unless specified by the City Forestry Division. In addition, topsoil shall:
      - Be friable and well drained
      - Have a pH between 5.5-7.

- Have an organic matter content between 4-6%.
  - Have low salinity as indicated by a soluble salt content which is less than 3 dS/m
  - Be free of debris, stone, gravel, trash, large sticks, heavy metals, and other deleterious contaminants, (if screening is used to remove debris, screen size must be ¾ inch or larger).
  - Have a nutrient profile such that it has an adequate rating, per current industry standards.
  - Be free of noxious weed seeds
- Compost
    - Compost shall be composed of leaves, yard waste, or food waste. Biosolid-based composts shall not be used. A compost sample with analysis shall be submitted for approval to the City Forestry Division before application.
    - Stability refers to the rate of biological breakdown, measured by carbon dioxide release. Maturity refers to completeness of the aerobic composting process and suitability (lack of plant toxicity) as a plant growth media, often measured by ammonia release and by plant growth tests. Compost manufacturers that subscribe to the US Composting Council's testing program may document stability as compost testing 7 or below in accordance with TMECC 05.08-8, "Carbon Dioxide Evolution Rate". Maturity (suitability for plant growth) may be documented as compost testing greater than 80% in accordance with TMECC 05.05-A, "Germination and Vigor". Compost is considered mature and stable if it tests at 6.0 or higher on the Solvita Compost Maturity Index Rating, which is a combination of Carbon Dioxide and Ammonia Maturity Tests (test information and equipment available at [www.solvita.com](http://www.solvita.com)).
    - Compost shall also be:
      - Free of weed seeds.
      - Free of heavy metals or other deleterious contaminants.
      - Have a soluble salt content which is less than 3 dS/m.
  - Severely Degraded Soil
    - Soil shall be considered severely degraded if grade was lowered or raised more than 14 inches OR soil was compacted in lifts regardless of the final grade OR was used as a staging area for construction materials, equipment or processes.
    -


### POST INSTALLATION

- The Permittee shall notify the City Forestry Inspector IN WRITING when the planting is complete and request a post planting inspection. The inspection must include the Permittee, landscape contractor and Forestry Inspector. The maintenance and warranty period will not begin until the City Forestry Inspector has accepted ALL plantings.
- Trees will be inspected for plant quality and proper planting in accordance with City specifications and nursery standards. Once the maintenance period has begun, the applicant is responsible for maintaining plant health in accordance with the signed Warranty and Maintenance Agreement.
- Routine inspections will be conducted throughout the warranty period and the applicant will be notified in writing when corrective measures are required. Failure to complete the corrective measures by the given date may result in fines being issued, permits revoked, extension of warranty period or other punitive measures.
- Such maintenance shall include when appropriate, but not necessarily be limited to:
  - Weekly watering equal to 10 gallons per caliper measure of tree diameter. (ex: 2.5" caliper tree =25 gallons/week.) Documented drenching natural rainfall may substitute for weekly watering.
  - Control of competing vegetation throughout the maintenance period as necessary.
  - Fertilizing, as required by soil analysis.
  - Pruning, mulching, tightening of strapping, resetting of plants to proper grades or upright position.
  - Furnishing and applying pesticides or other items necessary to thwart damage from insects and disease.
  - Providing protection measures such as fencing and interpretive signs as necessary, to prevent destruction or degradation of the planting site.
  - Replacement of dead and dying trees. Survival standards contained in the State Forest Conservation Manual shall be followed for the protection and satisfactory establishment of forest where applicable.
  - Eradicate, suppress and control non-native and invasive plant species during the maintenance period to the satisfaction of the City Forestry Inspector.
  - Installing and maintaining devices to protect against wildlife damage.
  - Removal of staking and strapping after six months, or as directed by the Forestry Inspector.

### NON-NATIVE INVASIVE PLANT CONTROL:

- The City of Rockville maintains a list of non-native and invasive plants for certain available on the City's website. The State of Maryland maintains a noxious weed list. The Permittee shall submit a Non-Native and Invasive Management Plan to the City Forestry Inspector for review and approval prior to the pre-planting meeting. Details to be included in the management plan are:
  - Narrative and/or plan stating the location, type and amount of non-native and invasive plants present on the site.
  - Proposed treatment measures and methods of control by plant type.
  - Timing and frequency of treatments by plant type.
  - Plan for seeding and/or re-planting following management/eradication treatment.
  - Proposed signage type and locations for installing herbicide application notification signs.
  - Copies of contractor certifications/pesticide licenses.
- Contractor is responsible for complying with MDE, EPA and other government agency regulations as well as obtaining proper permits from these agencies as applicable. The Forestry inspector must be notified 48 hours in advance prior to commencing any and all treatments.
- The Forestry Inspector will perform periodic inspections of the non-native and invasive treatments throughout the warranty and maintenance period. The applicant may be required to submit proof of treatment.

**QUALIFIED PROFESSIONAL CERTIFICATION**  
 THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS OF THE CITY OF ROCKVILLE'S CODE AND THE ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED:  DATE: 5/25/2023

CENE KETCHAM  
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NFC

## LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
 SUITE 325  
 TYSONS, VIRGINIA 22102  
 703-821-2045



ROCKVILLE SWIM  
 & FITNESS CENTER  
 355 MARTINS LANE  
 ROCKVILLE, MD 20850



## OUTDOOR RECREATION POOL RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

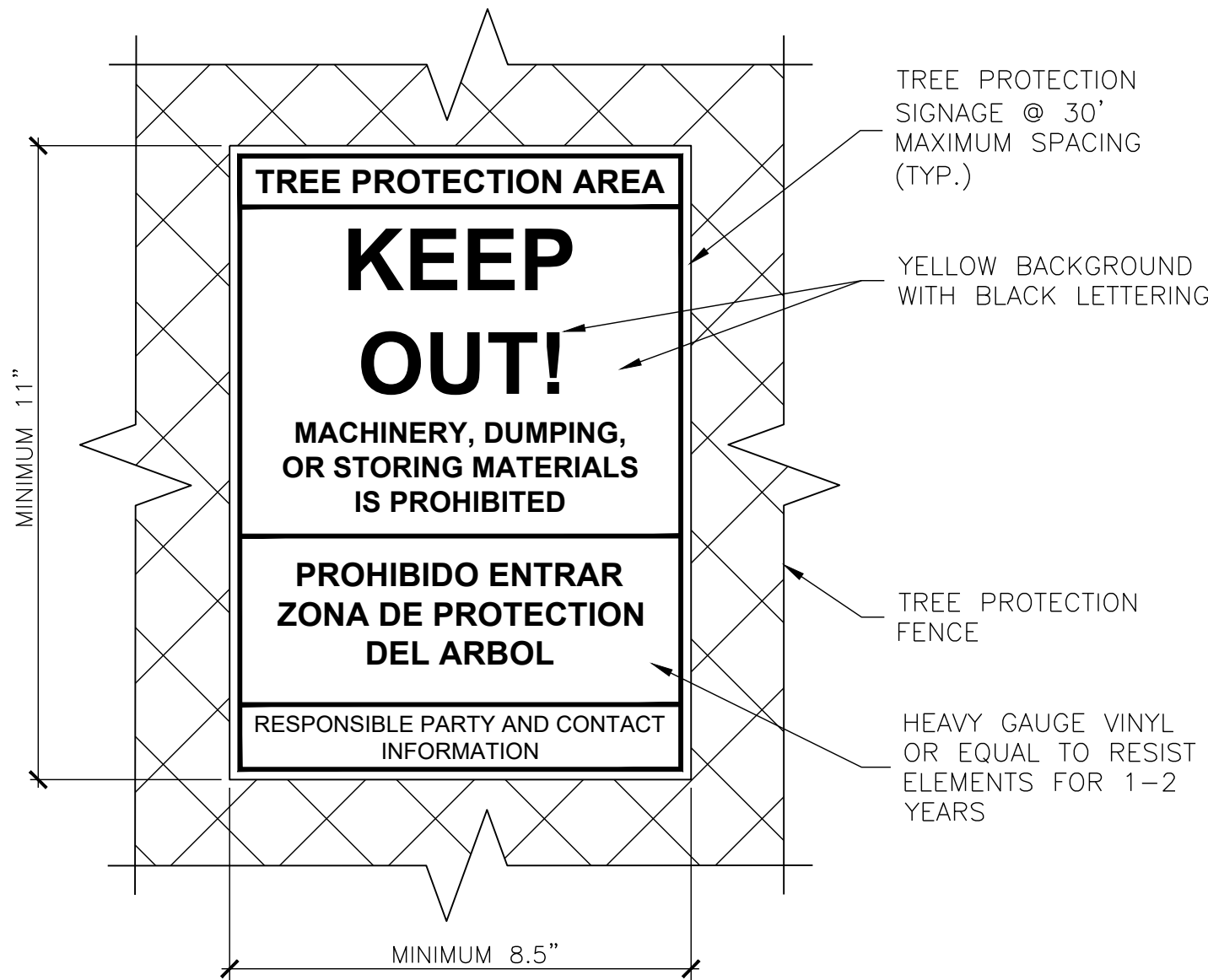
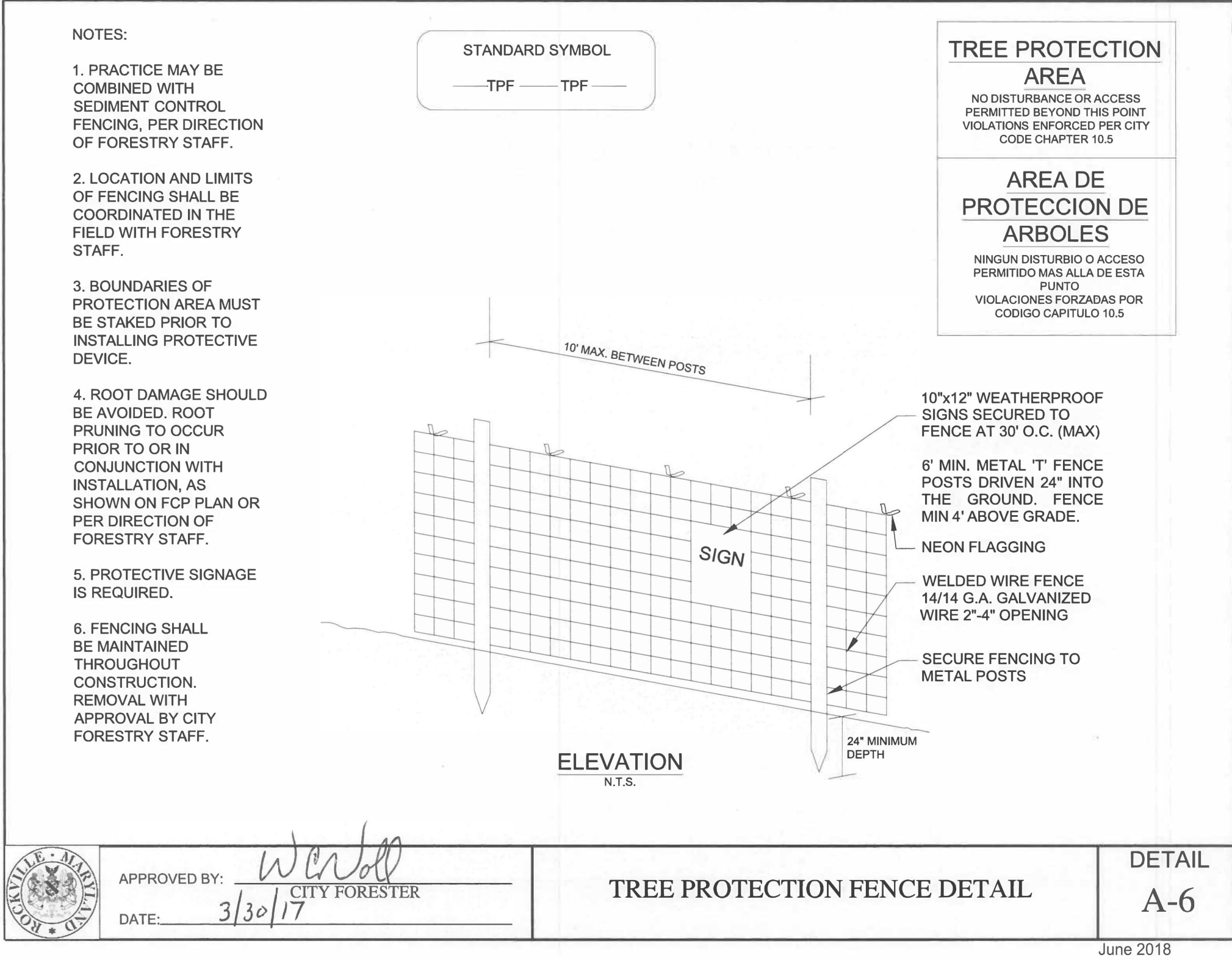
### FINAL FCP

### FTPO Notes

## 100% CONSTRUCTION DOCUMENT

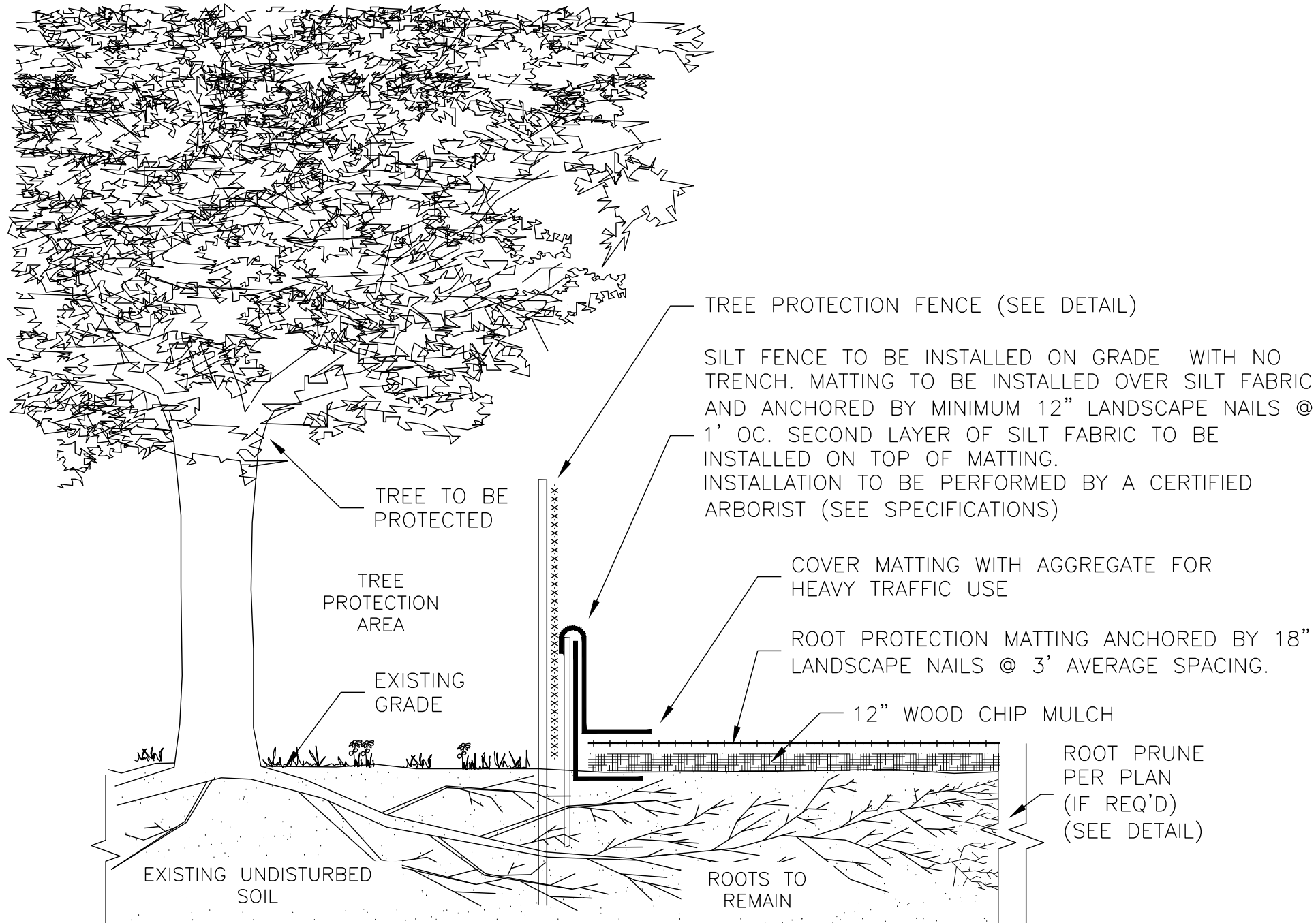
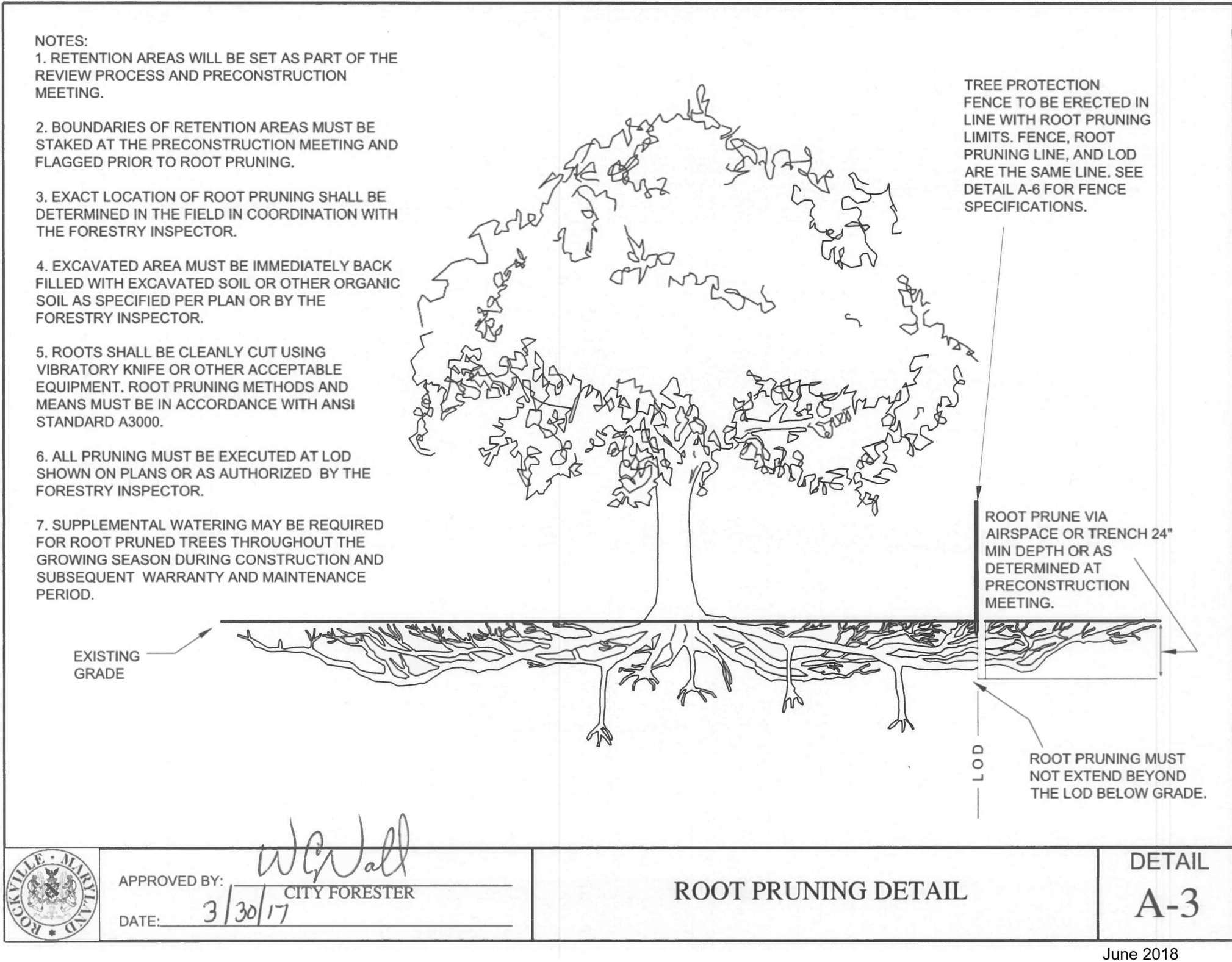
No.	Description	Date
Revisions		
Project Number:	P.WS18001830	
Scale:	1"=30'	
Drawn By:	LY, CK	
Checked By:	CK	
Date:	2/6/2024	
Sheet No.	LJ-6	





- NOTES:
1. SIGNS TO BE ATTACHED TO TREE PROTECTION FENCE OR POSTS AT READABLE LEVEL.
  2. 30' MINIMUM SPACING AVERAGE ADJUSTED FOR MAXIMUM READABILITY.
  3. MINIMUM ONE SIGN FOR SMALL TREE PROTECTION AREAS.
  4. SIGNS MAY BE REMOVED FROM RESIDENTIAL LOTS UPON ISSUANCE OF USE AND OCCUPANCY.
  5. SIGNS TO REMAIN ON NON RESIDENTIAL SITES FOR MAINTENANCE PERIOD.

1 TREE PROTECTION AREA SIGN (TYPICAL)  
LJ-7 SCALE: NTS



- NOTES:
1. MATTING MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENSAR ROADRAIN RD7) OR APPROVED EQUIVALENT.
  2. RPM SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
  3. TO BE USED FOR DESIGNATED TEMPORARY CONSTRUCTION ACCESS AND STOCKPILE AREAS.
  4. MATTING SHALL BE PLACED ON 12" WOOD CHIP MULCH UNLESS OTHERWISE DIRECTED.
  5. FOR HEAVY TRAFFIC AREAS, MATTING SHALL BE COVERED WITH 6-8" WELL GRADED CRUSHED AGGREGATE. ADDITIONAL LAYERS OF GEOTEXTILE, OR HARDENED SURFACE LAYER MAY BE NEEDED.

2 TEMPORARY ROOT PROTECTION MATTING (TYPICAL)  
LJ-7 SCALE: NTS

**QUALIFIED PROFESSIONAL CERTIFICATION**  
THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS OF THE CITY OF ROCKVILLE'S CODE AND THE ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED: *C. Ketcham* DATE: 5/25/2023

CENE KETCHAM  
WETLAND STUDIES & SOLUTIONS, INC.  
1131 BENFIELD BOULEVARD, SUITE L  
MILLERSVILLE, MD 21108  
PH: 703-679-5723 FAX: 410-672-5993  
EMAIL: CKETCHAM@WETLANDS.COM

NFC

**LSG LANDSCAPE  
ARCHITECTURE**

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



**OUTDOOR  
RECREATION POOL  
RENOVATIONS**

CITY OF ROCKVILLE, MARYLAND

**FINAL FCP**

**Details**

**100%  
CONSTRUCTION  
DOCUMENT**

No.	Description	Date
Revisions		
Project Number: P.WS18001830		
Scale:	N/A	
Drawn By:	LY, CK	
Checked By:	CK	
Date:	2/6/2024	
Sheet No.		LJ-7



LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
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ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



## OUTDOOR RECREATION POOL RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

FINAL FCP

## Details

100%  
CONSTRUCTION  
DOCUMENT

[illegible]

No.	Description	Date
Revisions		

Project Number: P.WSI90018

Scale: N

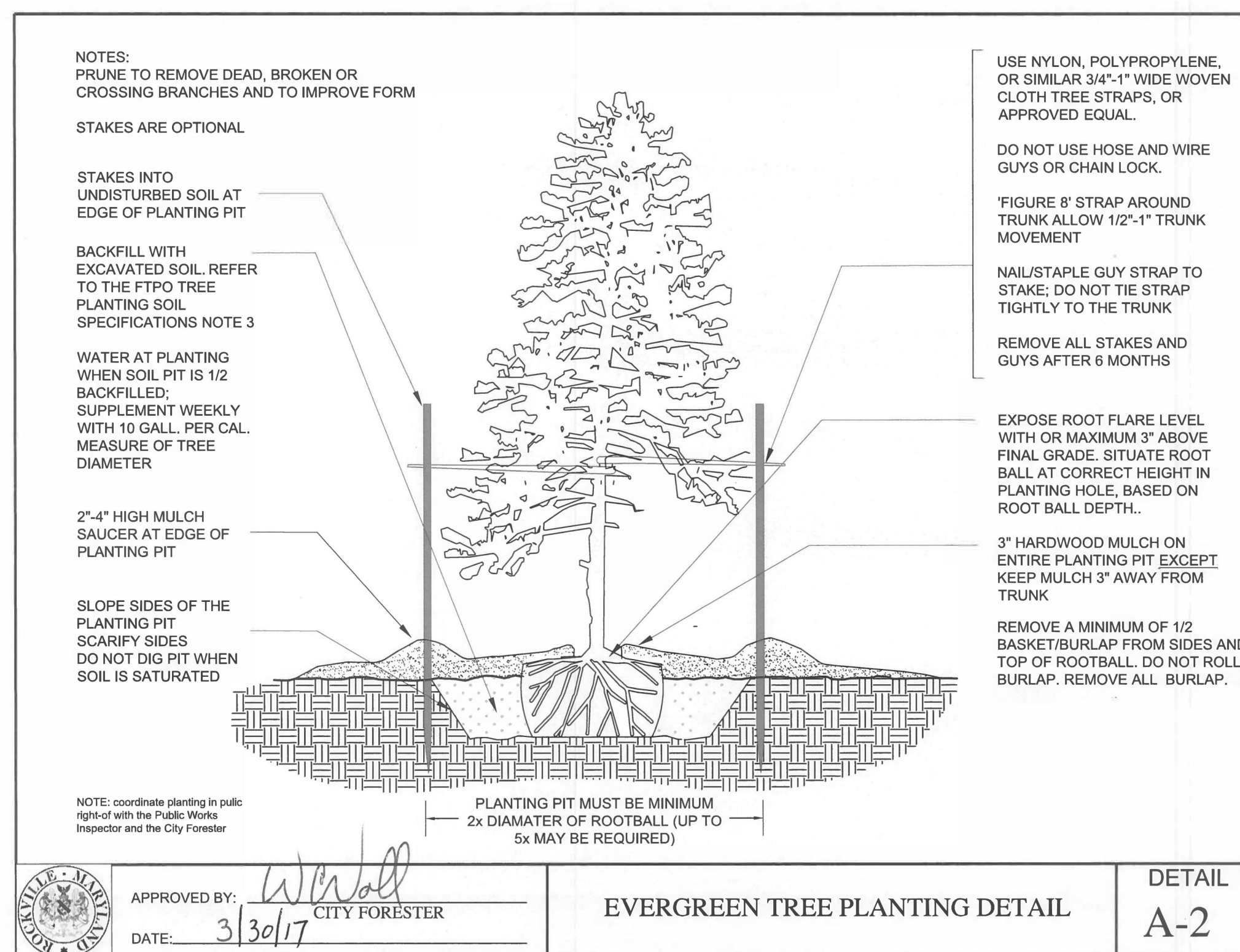
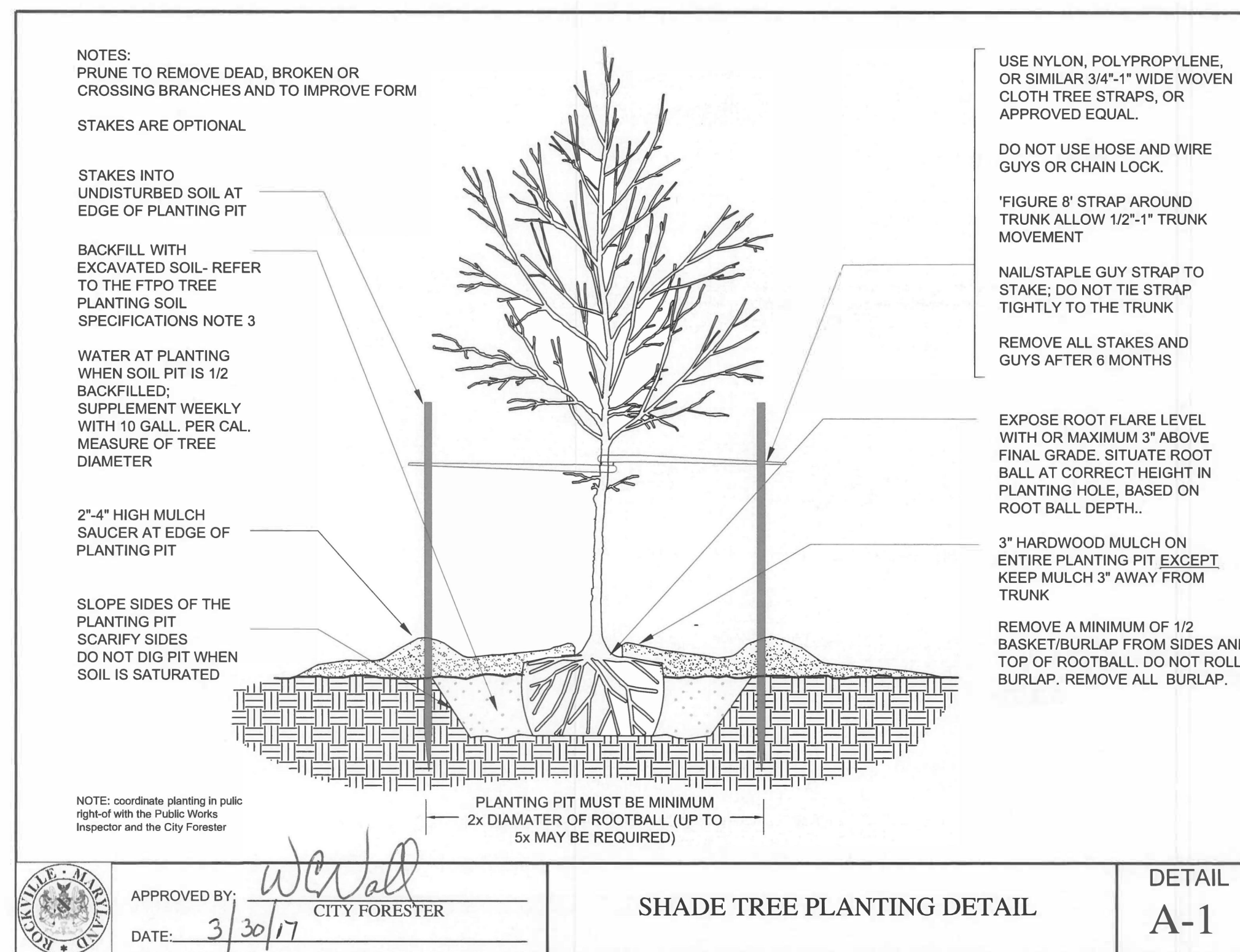
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Checked By: \_\_\_\_\_

Date: 2/6/20

Sheet No. 11

LJ-



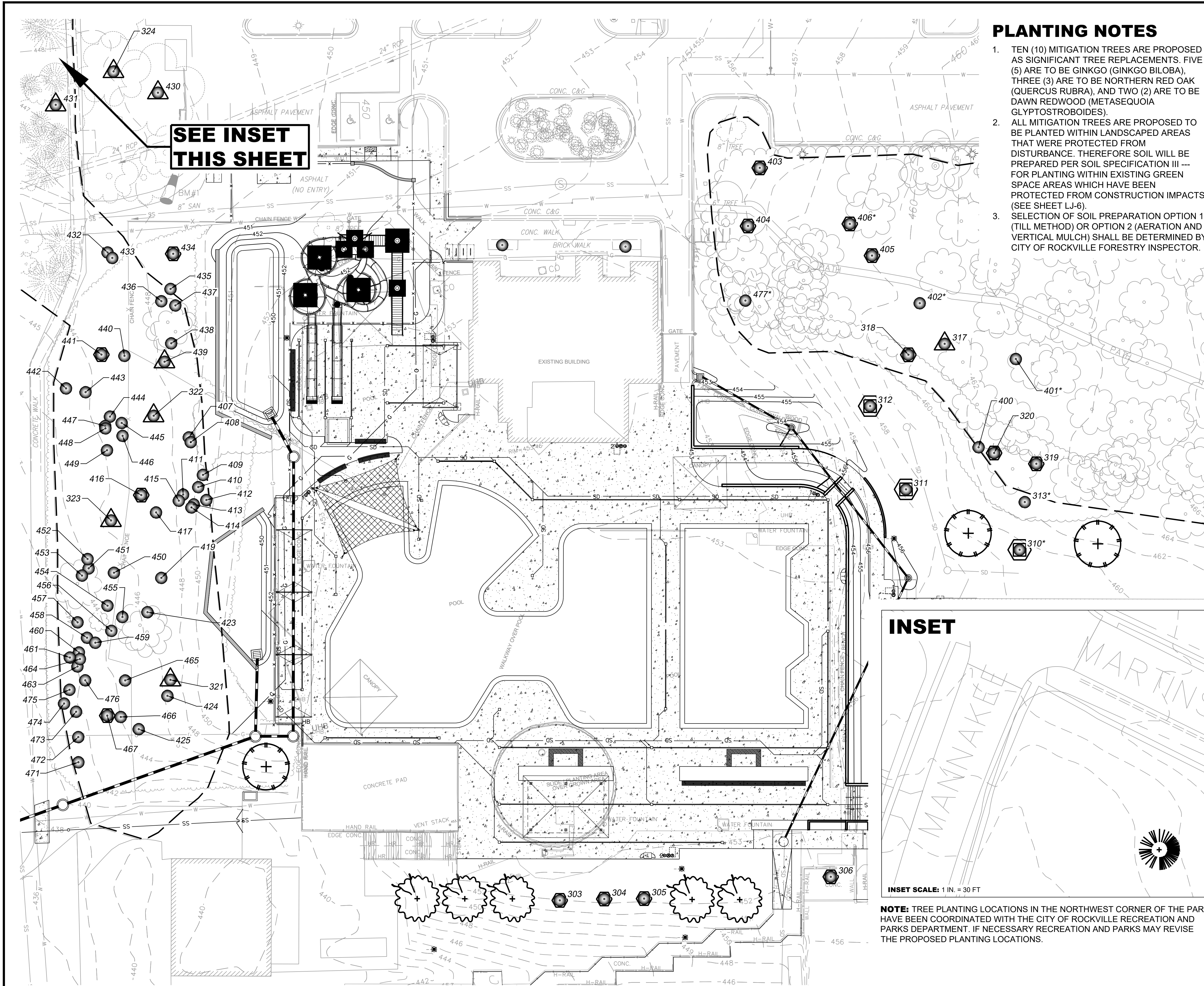
**QUALIFIED PROFESSIONAL CERTIFICATION**  
THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS  
OF THE CITY OF ROCKVILLE'S CODE AND THE  
ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED:  DATE: 5/25/2023

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PH: 703-679-5723 FAX: 410-672-5993  
EMAIL: CKETCHAM@WETLANDS.COM

# NFC





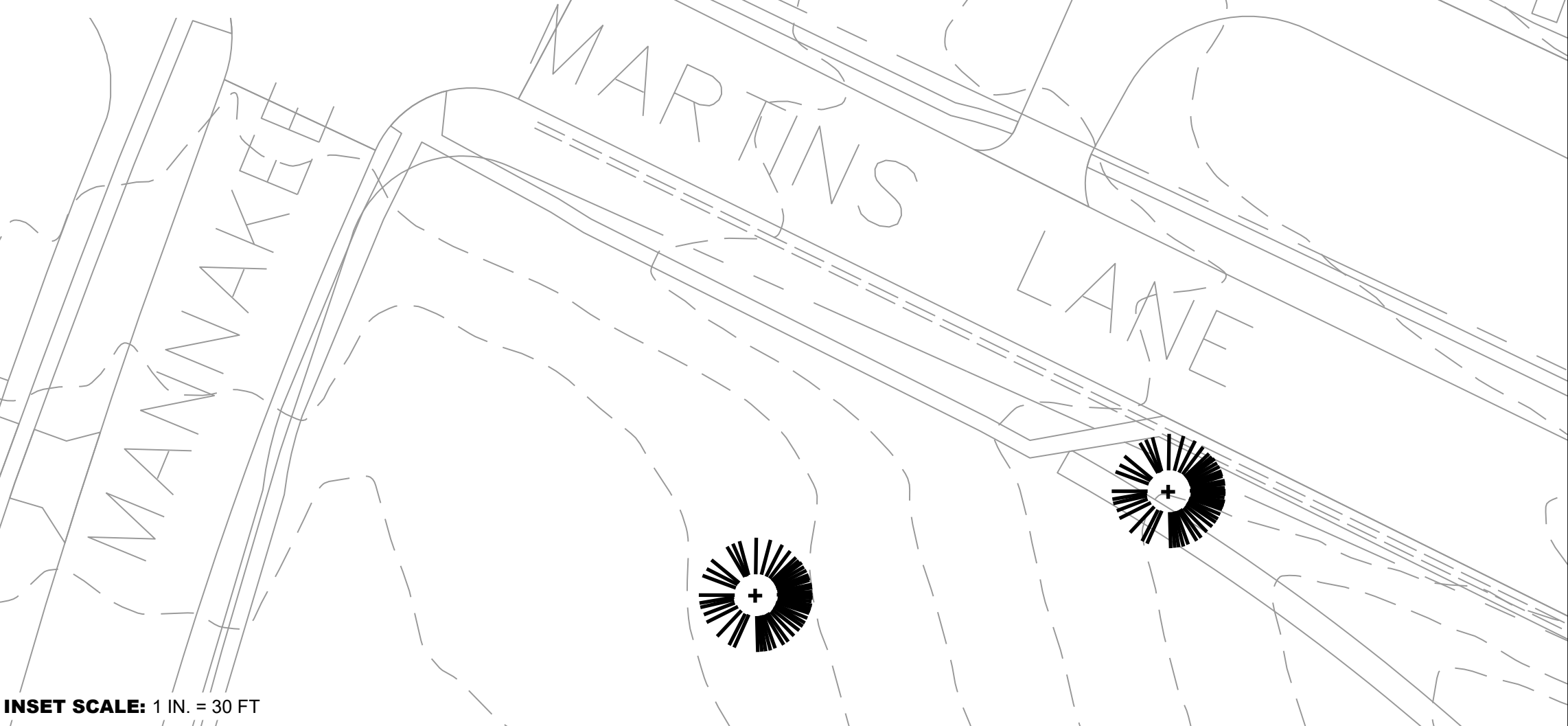
PLANTING NOTES

- TEN (10) MITIGATION TREES ARE PROPOSED AS SIGNIFICANT TREE REPLACEMENTS. FIVE (5) ARE TO BE GINKGO (GINKGO BILOBA), THREE (3) ARE TO BE NORTHERN RED OAK (QUERCUS RUBRA), AND TWO (2) ARE TO BE DAWN REDWOOD (METASEQUOIA GLYPTOSTROBILIDES).
- ALL MITIGATION TREES ARE PROPOSED TO BE PLANTED WITHIN LANDSCAPED AREAS THAT WERE PROTECTED FROM DISTURBANCE. THEREFORE SOIL WILL BE PREPARED PER SOIL SPECIFICATION III --- FOR PLANTING WITHIN EXISTING GREEN SPACE AREAS WHICH HAVE BEEN PROTECTED FROM CONSTRUCTION IMPACTS (SEE SHEET LJ-6).
- SELECTION OF SOIL PREPARATION OPTION 1 (TILL METHOD) OR OPTION 2 (AERATION AND VERTICAL MULCH) SHALL BE DETERMINED BY CITY OF ROCKVILLE FORESTRY INSPECTOR.

LEGEND

- EXISTING TREE
- SPECIMEN TREE ( ≥30 IN. DBH)
- SIGNIFICANT TREE ( ≥24 IN. DBH - FOREST ≥12 IN. DBH - LANDSCAPE)
- REPLACEMENT TREE FROM PREVIOUSLY APPROVED FCP
- TREE TO BE REMOVED
- TREE TO BE REMOVED BY ARBORIST (SEE NOTES ON SHEET LJ-2)
- FOREST STAND BOUNDARY
- EXISTING TREELINE
- PROPERTY LINE
- PROPOSED MITIGATION TREE GINKGO (GINKGO BILOBA)
- PROPOSED MITIGATION TREE NORTHERN RED OAK (QUERCUS RUBRA)
- PROPOSED MITIGATION TREE DAWN REDWOOD (METASEQUOIA GLYPTOSTROBILIDES)

INSET



**NOTE:** TREE PLANTING LOCATIONS IN THE NORTHWEST CORNER OF THE PARK HAVE BEEN COORDINATED WITH THE CITY OF ROCKVILLE RECREATION AND PARKS DEPARTMENT. IF NECESSARY RECREATION AND PARKS MAY REVISE THE PROPOSED PLANTING LOCATIONS.

**QUALIFIED PROFESSIONAL CERTIFICATION**  
THIS PLAN COMPLIES WITH THE CURRENT REQUIREMENTS OF THE CITY OF ROCKVILLE'S CODE AND THE ENVIRONMENTAL TECHNICAL MANUAL.

SIGNED: *Cene Ketcham* DATE: 5/25/2023

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NFC

LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM & FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



OUTDOOR RECREATION POOL RENOVATIONS

CITY OF ROCKVILLE, MARYLAND

FINAL FCP Mitigation Planting

100% CONSTRUCTION DOCUMENT

1 Per Conditions of Approval 02/18/2024

No. Description Date

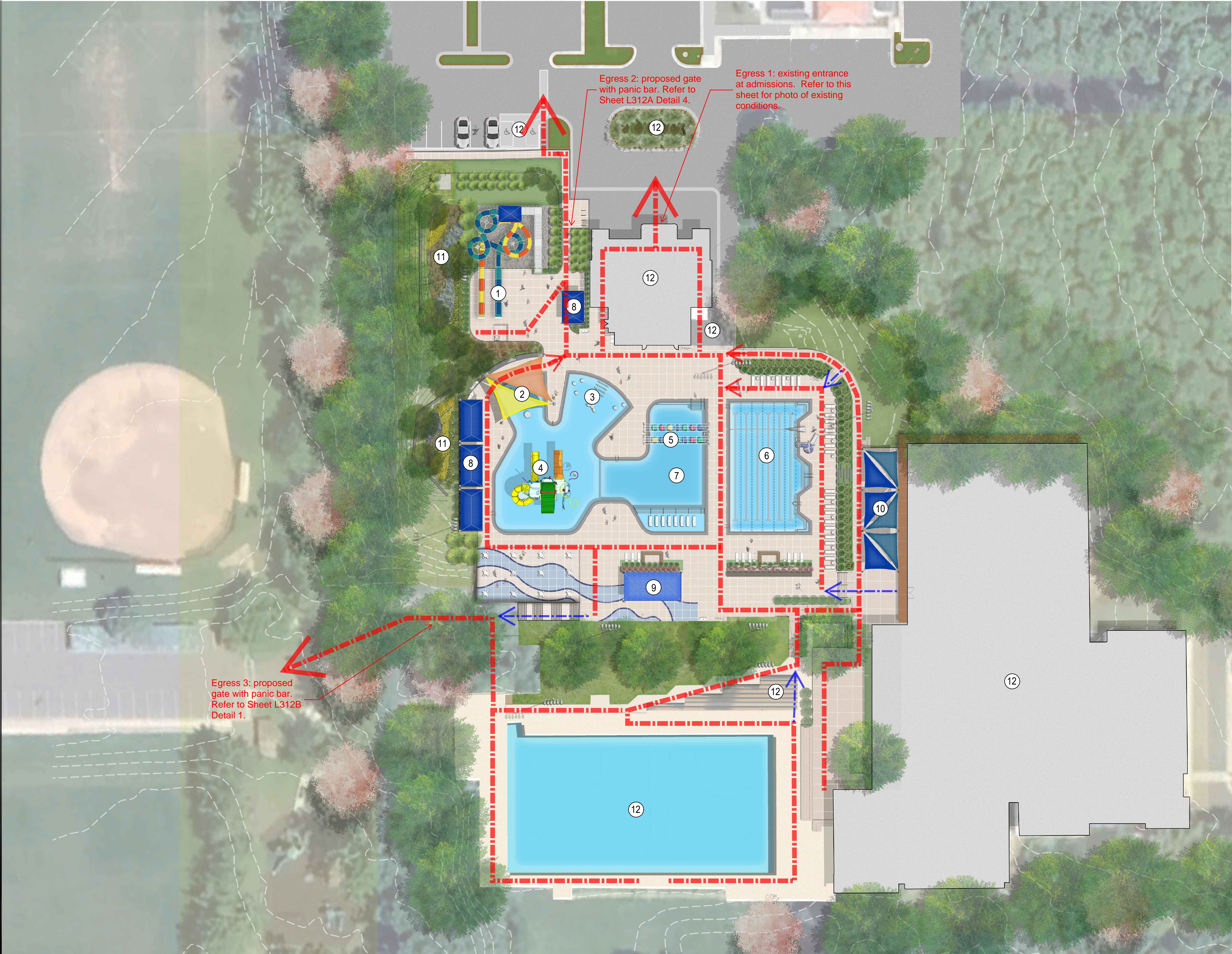
Revisions

Project Number: P.WS18001830  
Scale: 1"=30'  
Drawn By: LY, CK  
Checked By: CK  
Date: 2/6/2024

Sheet No. LJ-9

BID SET 02/23/2024



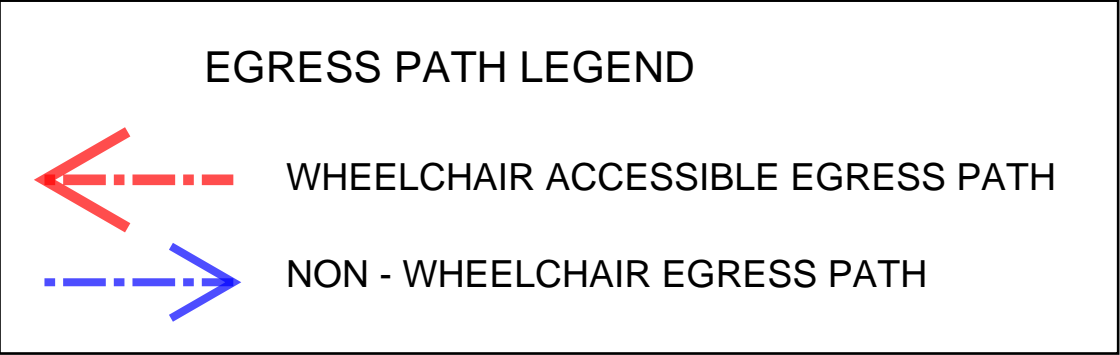


1 EGRESS 1

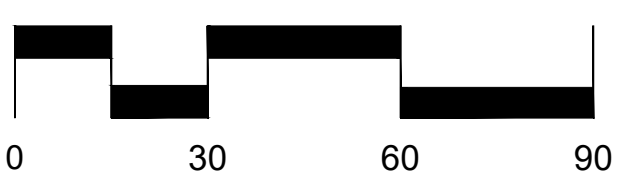
Egress 3: proposed gate with panic bar. Refer to Sheet L312B Detail 1.

Egress 2: proposed gate with panic bar. Refer to Sheet L312A Detail 4.

Egress 1: existing entrance at admissions. Refer to this sheet for photo of existing conditions.



NOTE: FOR ILLUSTRATION PURPOSE ONLY



- LEGEND**
- 1 RUN-OUT SLIDES
  - 2 TOT AREA WITH SHADE
  - 3 BEACH ENTRY WITH BUBBLERS
  - 4 IN-WATER PLAYGROUND
  - 5 LILLY PAD CROSSING
  - 6 WELLNESS POOL
  - 7 ACTIVITY POOL
  - 8 SHADE STRUCTURES/PICNIC PAVILIONS
  - 9 PICNIC PAVILION
  - 10 SHADE SAILS
  - 11 BIORETENTION
  - 12 EXISTING FACILITIES OUTSIDE LOD

**LSG LANDSCAPE ARCHITECTURE**

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
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ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

**OUTDOOR  
RECREATION POOL  
RENOVATIONS**

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

**OVERALL SITE  
PLAN AND EGRESS  
PATH DIAGRAM**

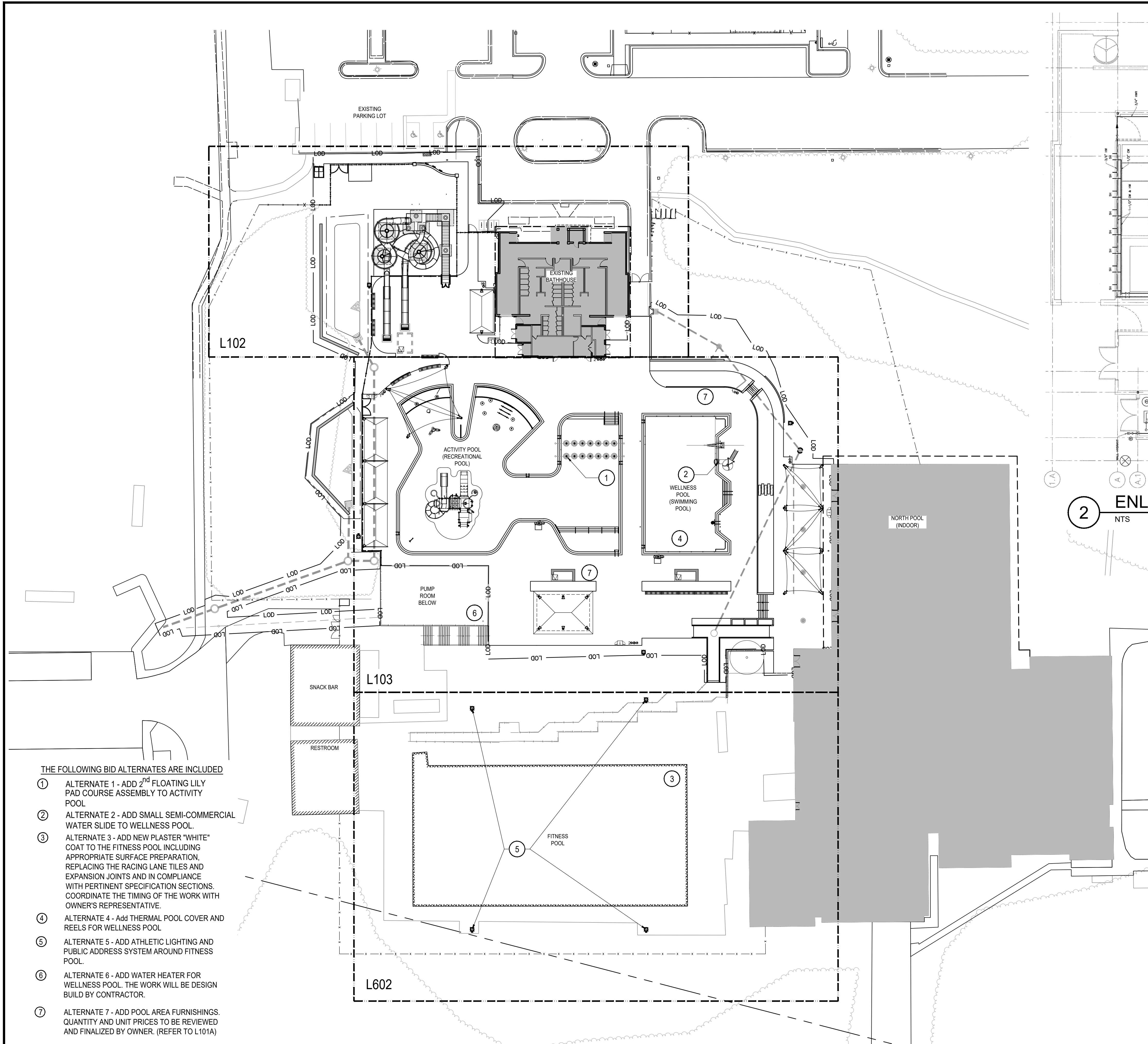
**BID SET**

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8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No.		L100

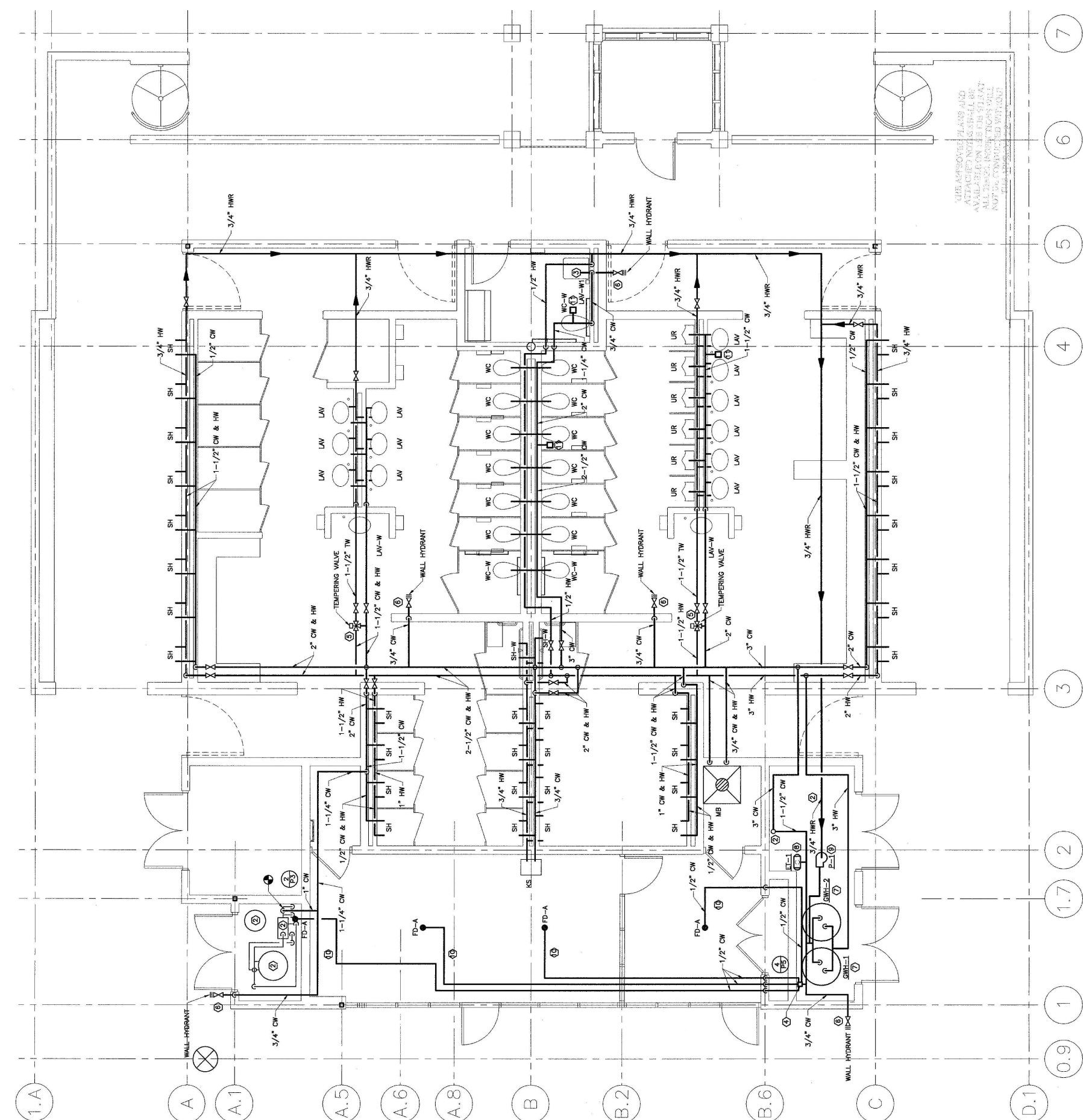
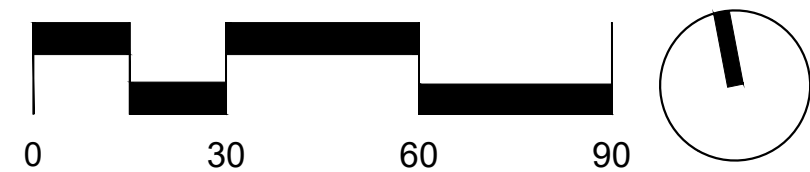
**BID SET 02/23/2024**





1 REFERENCE PLAN

1" = 30'-0"



2 ENLARGEMENT PLAN: FOR REFERENCE ONLY.  
NTS

LEGEND

- LOD LIMITS OF DISTURBANCE - TRANSITION TO EXISTING CONDITIONS
- x-x EXISTING CHAIN LINK FENCE
- - - EXISTING GUARD RAIL
- 3 7' HIGH L312A POOL FENCE
- 5 4' HIGH L312A POOL FENCE
- 6 DRINKING WATER L313 FOUNTAIN TYPE 1
- 7 DRINKING WATER L313 FOUNTAIN TYPE 2
- 1 BIKE L313 RACK
- 5 TRASH & RECYCLING L313 RECEPTACLE
- L1 POLE LIGHT WITH GFCI L317 OUTLET
- L2 SHADE STRUCTURE L317 LIGHT
- 3 ENTRY SIGN L317 FLOODLIGHT
- SS EXISTING SANITARY SEWER
- W EXISTING WATER
- G EXISTING GAS
- G PROPOSED GAS

NOTES

1. DRINKING WATER FOUNTAIN - PER MONTGOMERY COUNTY REGULATION NO. 22-12 COMCOR SECTION V.I.E. THERE IS A REQUIREMENT FOR 1 DRINKING FOUNTAIN PER 2,500 SF OF WATER SURFACE. THE WATER SURFACE IS 13,514 SF SO THE REQUIRED 6 DRINKING FOUNTAINS HAVE BEEN PROVIDED.
2. FOOT SPRAY - PER MONTGOMERY COUNTY REGULATION NO. 22-12 COMCOR SECTION V.I.E. FOOT SPRAYS HAVE BEEN PROVIDED BETWEEN LAWN AND HARDSCAPE TRANSITIONS.

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
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703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

REFERENCE  
PLAN AND ADD  
ALTERNATES

BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	BUILDING PERMIT SET 12/08/2023
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7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		

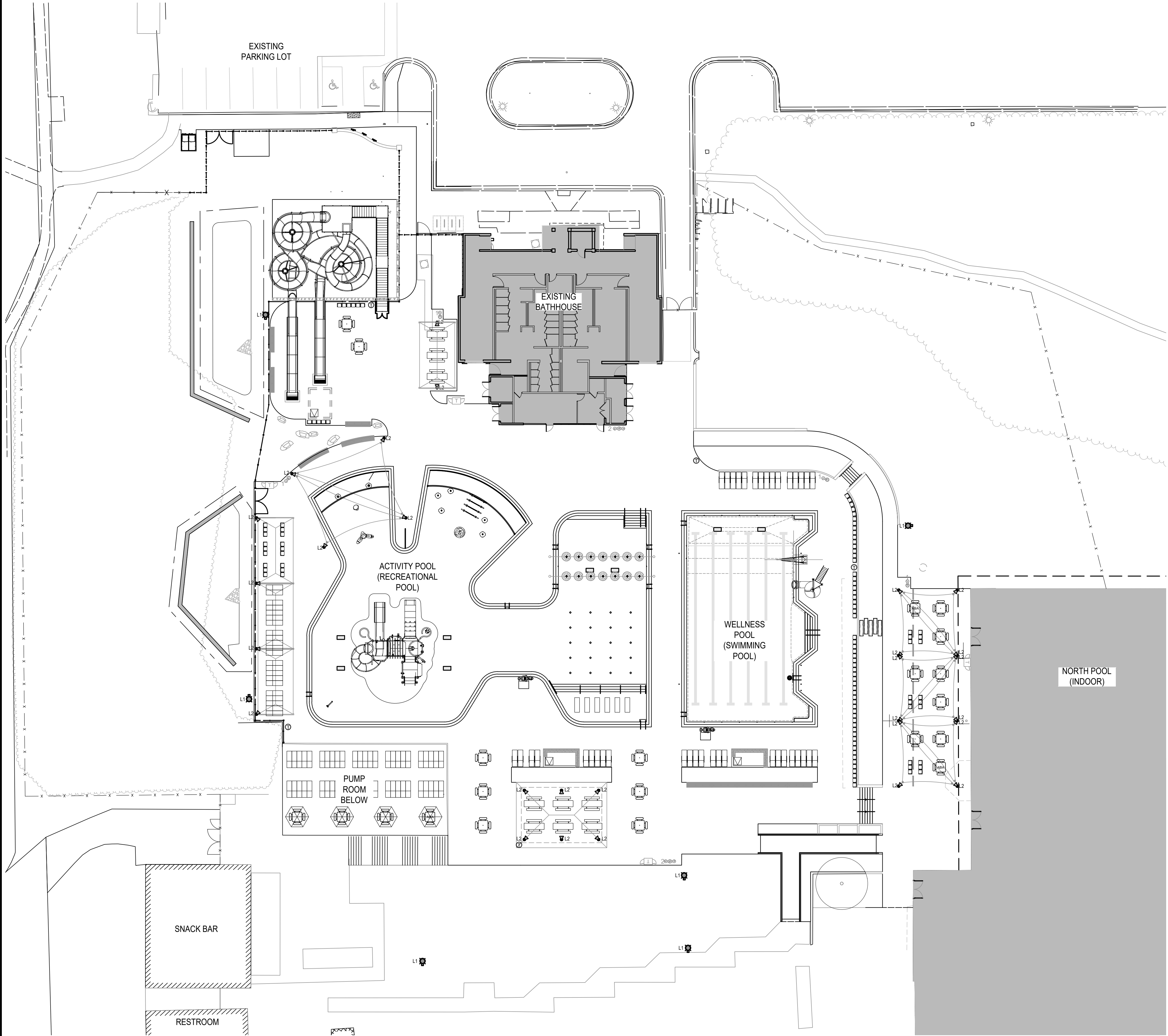
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Scale:	AS SHOWN
Drawn By:	AD, HW, BS
Checked By:	AD
Date:	01/08/2024

Sheet No. L101

NFC

BID SET 02/23/2024





1 REFERENCE PLAN  
1" = 20'-0"

LEGEND

- L&D — LIMITS OF DISTURBANCE - TRANSITION TO EXISTING CONDITIONS  
— x — x — EXISTING CHAIN LINK FENCE  
— — — EXISTING GUARD RAIL  
— — — 4" DIAMETER SCHEDULE 40 IRRIGATION SLEEVE FOR FUTURE USE  
— — — 3 7' HIGH POOL FENCE  
— — — 5 4' HIGH POOL FENCE  
1 6 DRINKING WATER FOUNTAIN TYPE 1  
2 7 DRINKING WATER FOUNTAIN TYPE 2  
— 1 BIKE RACK  
— 5 TRASH & RECYCLING RECEPTACLE

ADD ALTERNATE 6

- 6A & 6B: PICNIC TABLE SHOWN FOR REFERENCE ONLY  
6C: PICNIC TABLE WITH UMBRELLA SHOWN FOR REFERENCE ONLY  
6D: PICNIC TABLE SHOWN FOR REFERENCE ONLY  
6E: CHAISE LOUNGE SHOWN FOR REFERENCE ONLY  
6F: SAND CHAIR SHOWN FOR REFERENCE ONLY  
6G: DINING CHAIR SHOWN FOR REFERENCE ONLY  
6H: IN-WATER CHAISE LOUNGE SHOWN FOR REFERENCE ONLY  
6I: MOVABLE TRASH RECEPTACLE SHOWN FOR REFERENCE ONLY

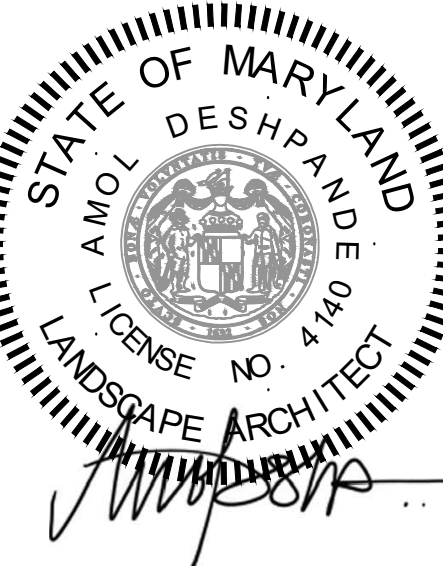
- L1 1 POLE LIGHT WITH GFCI OUTLET  
L2 2 SHADE STRUCTURE LIGHT  
L3 3 ENTRY SIGN FLOODLIGHT

NOTES

1. DRINKING WATER FOUNTAIN - PER MONTGOMERY COUNTY REGULATION NO. 22-12 COMCOR SECTION V.I.E. THERE IS A REQUIREMENT FOR 1 DRINKING FOUNTAIN PER 2,500 SF OF WATER SURFACE. THE WATER SURFACE IS 13,514 SF SO THE REQUIRED 6 DRINKING FOUNTAINS HAVE BEEN PROVIDED.
2. FOOT SPRAY - PER MONTGOMERY COUNTY REGULATION NO. 22-12 COMCOR SECTION V.I.E. FOOT SPRAYS HAVE BEEN PROVIDED BETWEEN LAWN AND HARDSCAPE TRANSITIONS.
3. THE LOCATIONS AND QUANTITIES SHOWN ARE APPROXIMATE. REFER TO SEPARATE DOCUMENT FOR THE ADD ALTERNATIVE MOVABLE FURNITURE QUANTITIES.

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

REFERENCE PLAN:  
ADD ALTERNATE:  
MOVABLE FURNITURE

BID SET

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9	BID SET 02/23/2024

No.	Description	Date
Revisions		

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Drawn By:	AD, HW, BS
Checked By:	AD
Date:	01/08/2024

Sheet No. L101A

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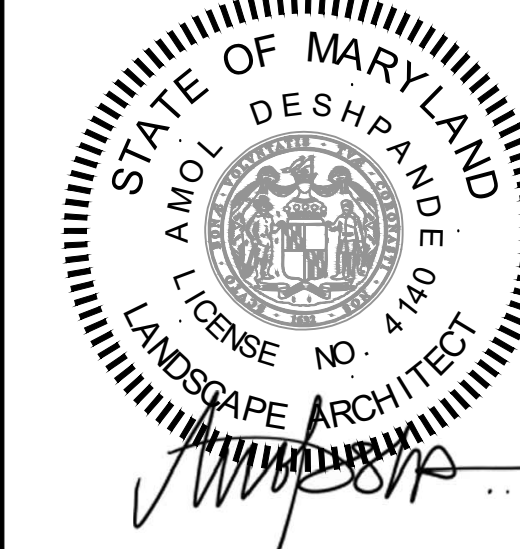






LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
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703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

# ENLARGEMENT PLAN

BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2021
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8	BUILDING PERMIT SET 02/20/2022
9	BID SET 02/23/2022

No.	Description	Date
Revisions		

Project Number: 22.00036.00

Scale: AS SHOWN

Drawn By: AD, HW, B

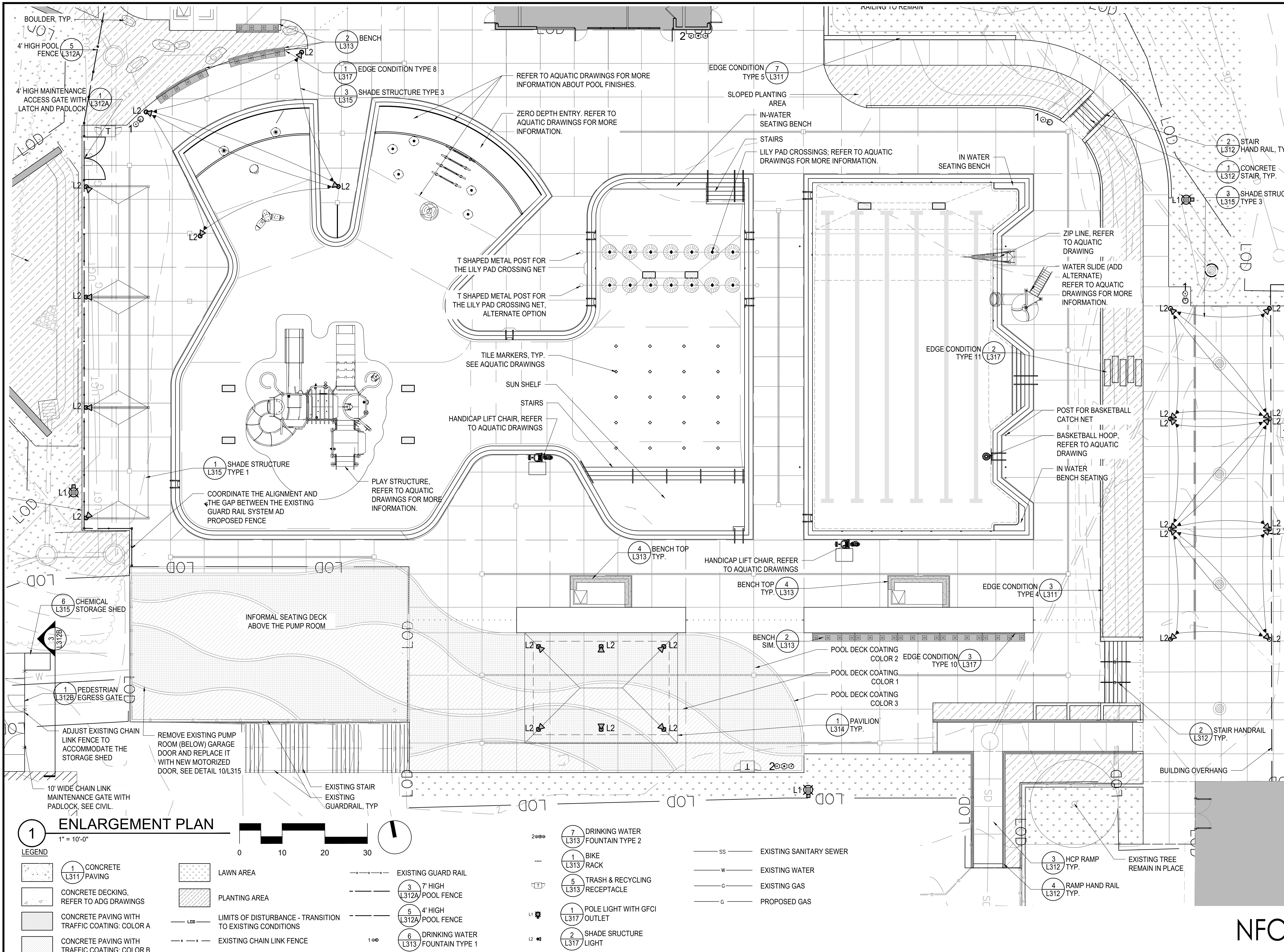
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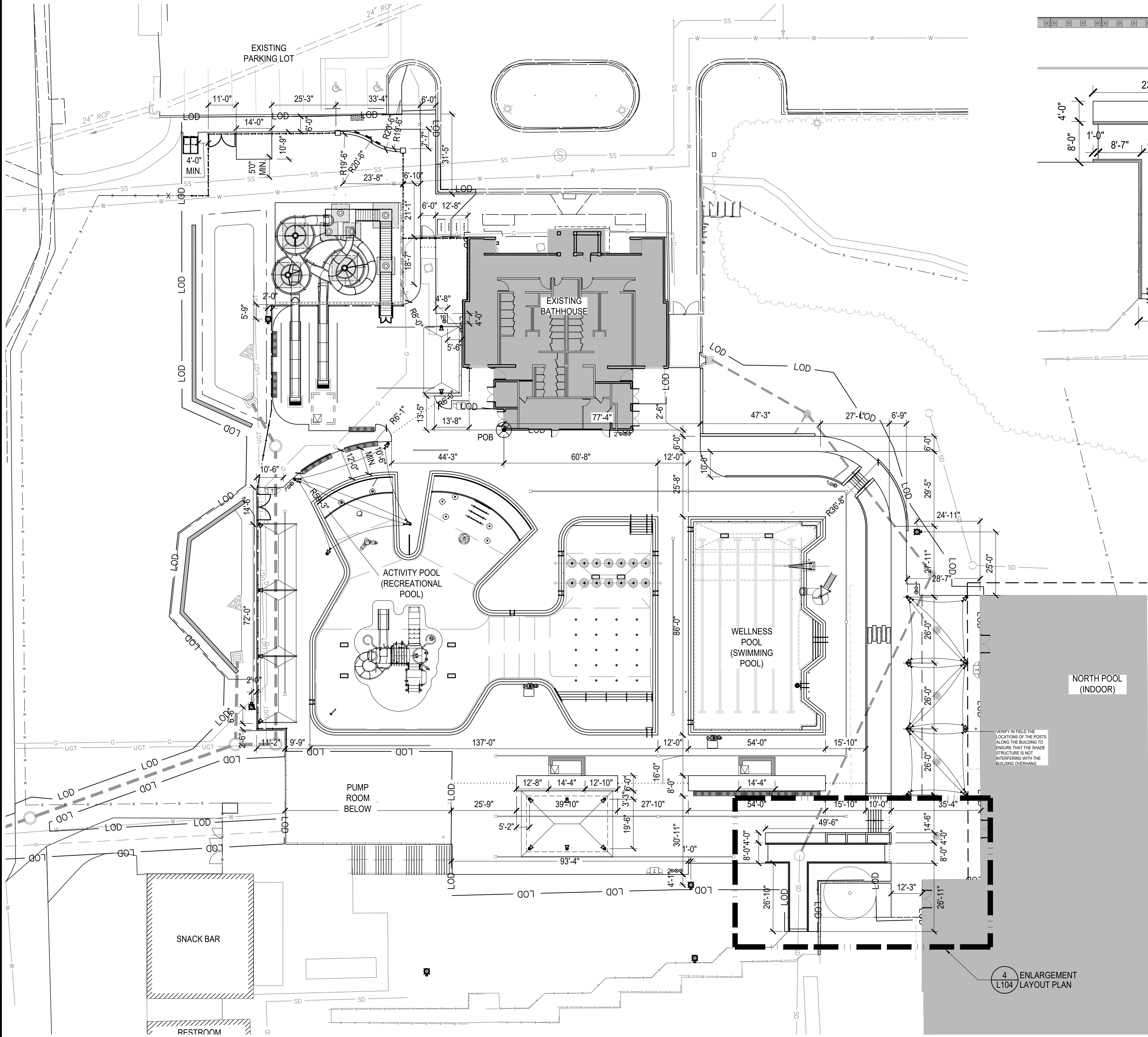
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Sheet No. L103

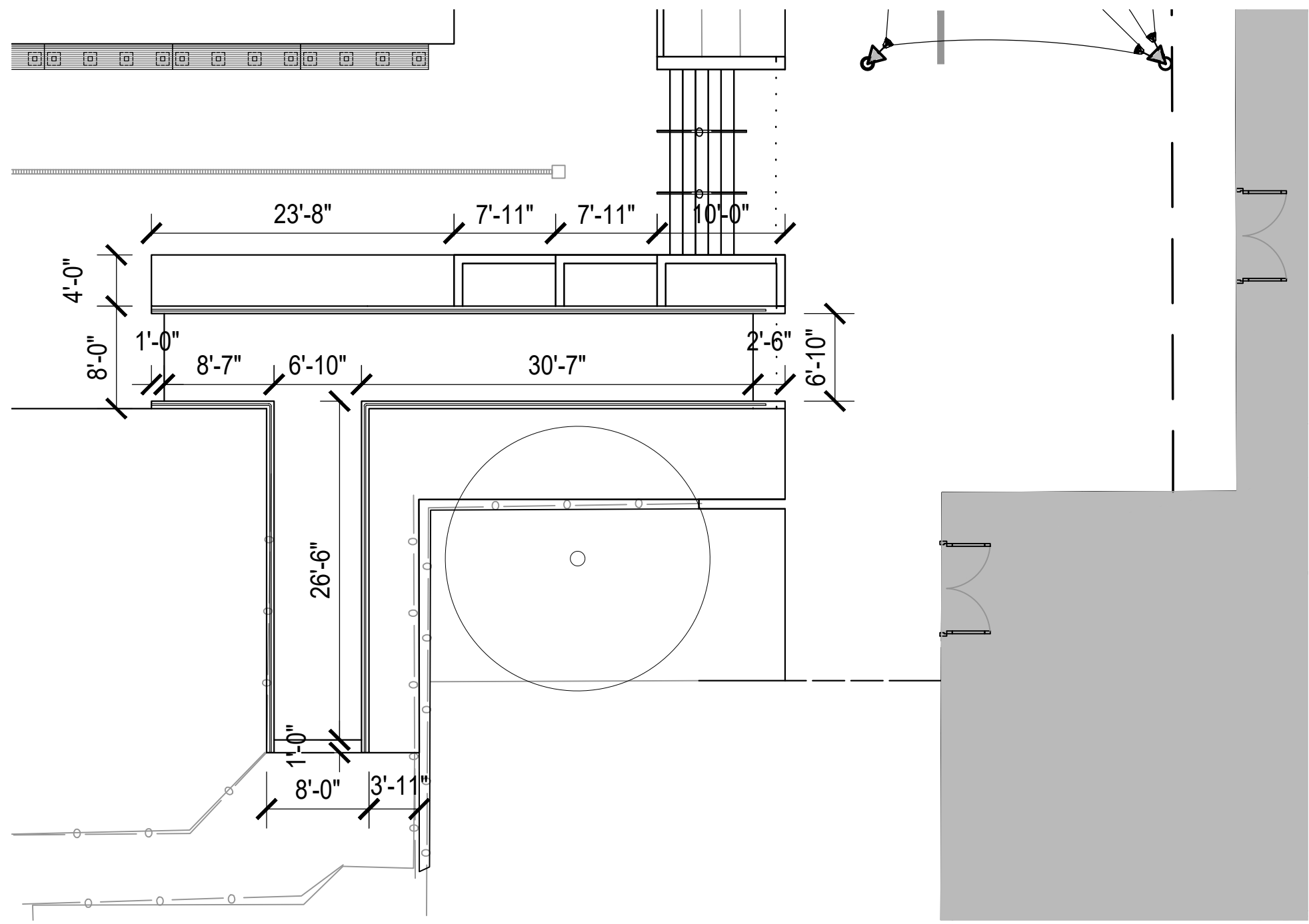
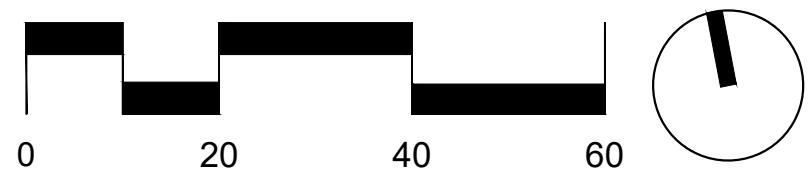
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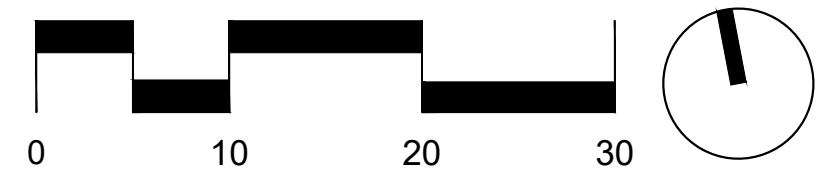




1 LAYOUT PLAN  
1" = 20'-0"



2 ENLARGEMENT LAYOUT PLAN  
1" = 10'-0"



VERIFY IN FIELD THE  
LOCATIONS OF THE POSTS  
ALONG THE BUILDING TO  
ENSURE THAT THE SHADE  
STRUCTURE IS NOT  
INTERFERING WITH THE  
BUILDING OVERHANG

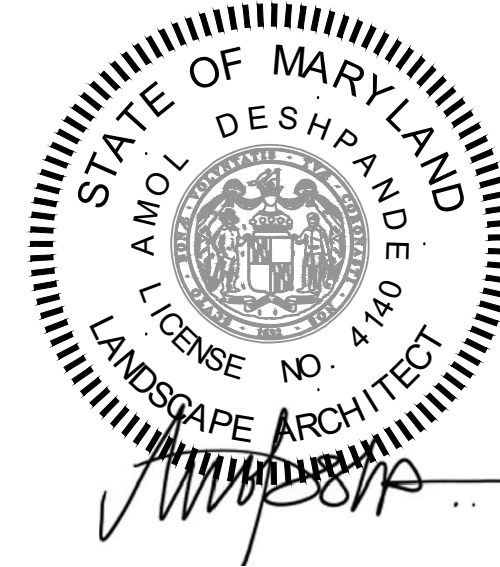
LEGEND

..... 4" DIAMETER SCHEDULE 40  
IRRIGATION SLEEVE FOR FUTURE  
USE

4 ENLARGEMENT  
L104 LAYOUT PLAN

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
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ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

LAYOUT  
PLAN

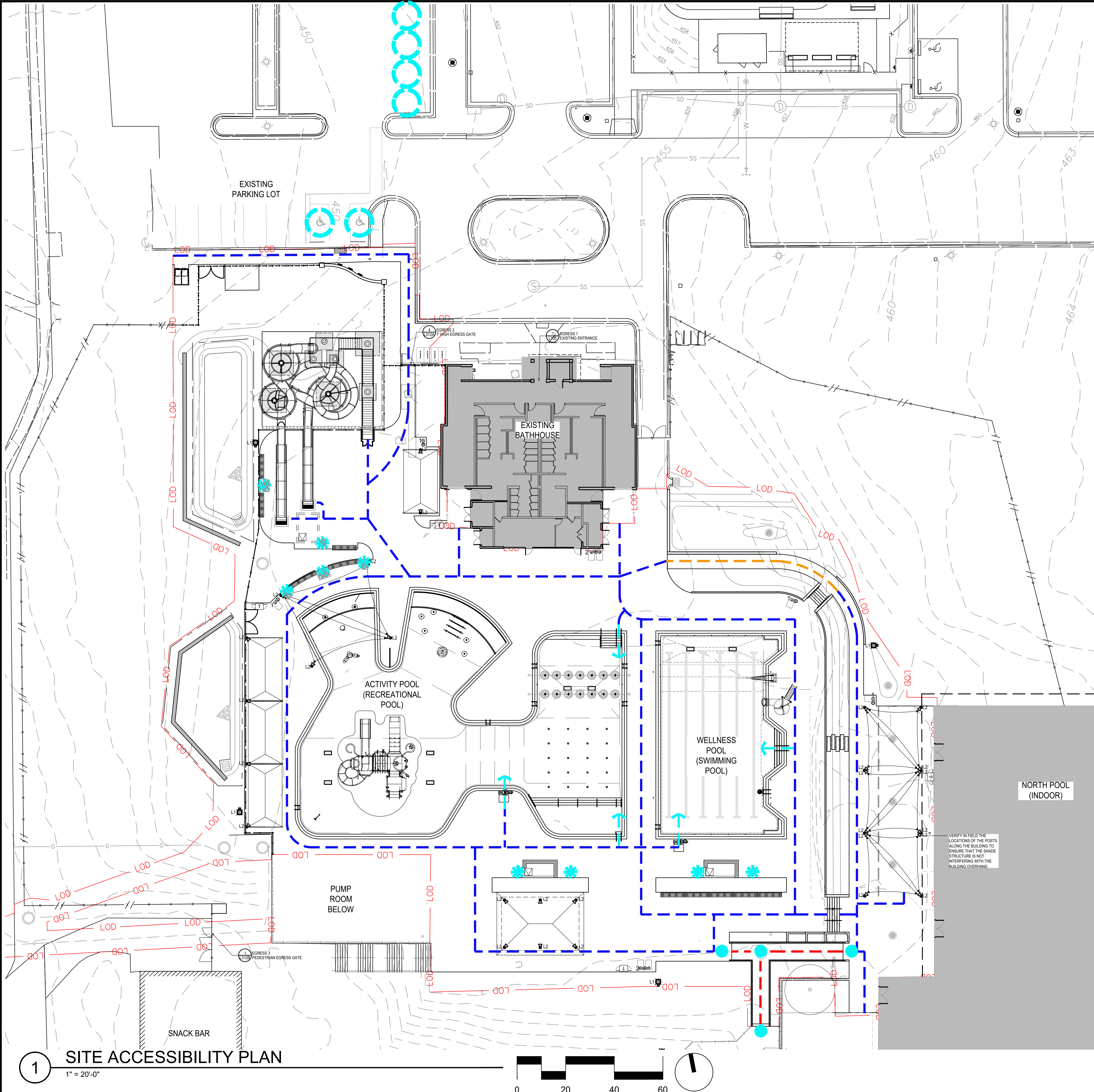
BID SET

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No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No.		L104

NFC





- ADA LEGEND**
- EXISTING ADA ACCESSIBLE PARKING
  - ADA ACCESSIBLE SEATING, SEE 2/L313
  - ACCESSIBLE POOL ENTRY
  - ADA ACCESSIBLE ROUTE - 2.0% RUNNING SLOPE OR LESS
  - ADA ACCESSIBLE ROUTE - 2.1% TO 5.0% RUNNING SLOPE
  - ADA ACCESSIBLE ROUTE - 5.1% TO 8.0% RUNNING SLOPE
  - LANDINGS

- ADA NOTES**
- THE LIMIT OF DISTURBANCE REPRESENTS THE EXTENT OF ADA REVIEW.
  - CONTRACTOR IS RESPONSIBLE FOR TRANSITIONING FROM PROPOSED CONDITIONS TO EXISTING CONDITIONS, AT LIMITS OF DISTURBANCE, THAT COMPLY WITH SECTIONS 302, 303, AND ANY APPLICABLE SECTIONS OF 2010 ADA STANDARDS.
  - ADA COMPLIANCE NOTE: THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL ELEMENTS ARE CONSTRUCTED IN ACCORDANCE WITH THE LATEST VERSION OF ADA STANDARDS FOR ACCESSIBLE DESIGN, BY THE DEPARTMENT OF JUSTICE. SHOULD ANY QUESTIONS ARISE DURING CONSTRUCTION, INSTALLATION, OR IF ANY CLARIFICATIONS ARE NEEDED, THE CONTRACTOR SHALL CONTACT THE CONSTRUCTION MANAGER AND THE ARCHITECT.
  - SEE CIVIL GRADING PLANS FOR SPOT ELEVATIONS AND GENERAL NOTES.
  - ALL ADA ROUTES TO MEET APPLICABLE ADA REQUIREMENTS.
  - ALL DRINKING FOUNTAINS AND FOOT WASH TO MEET APPLICABLE ADA REQUIREMENTS.
  - SEATING TO PROVIDE AT LEAST 10% ACCESSIBLE SEATING LOCATIONS WITH FORWARD APPROACH AND CLEAR FLOOR SPACE.
  - LEGEND SHOWS RUNNING SLOPE. ALL PATHS MUST HAVE A CROSS SLOPE OF LESS THAN 2%. ALL LANDINGS MUST HAVE SLOPE OF LESS THAN 2% IN BOTH DIRECTIONS.

- LEGEND**
- CONCRETE PAVING
  - CONCRETE DECKING, REFER TO ADG DRAWINGS
  - PLANTING AREA
  - LIMITS OF DISTURBANCE - TRANSITION TO EXISTING CONDITIONS
  - EXISTING CHAIN LINK FENCE
  - EXISTING GUARD RAIL
  - 7' HIGH POOL FENCE
  - 4' HIGH POOL FENCE
  - DRINKING WATER FOUNTAIN TYPE 1
  - DRINKING WATER FOUNTAIN TYPE 2
  - BIKE RACK
  - TRASH & RECYCLING RECEPTACLE
  - POLE LIGHT WITH GFCI OUTLET
  - SHADE STRUCTURE LIGHT

**LSG LANDSCAPE ARCHITECTURE**

8240 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
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DEPARTMENT OF  
RECREATION AND PARKS

**OUTDOOR  
RECREATION POOL  
RENOVATIONS**

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

**SITE ACCESSIBILITY  
PLAN**

BID SET

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9	BID SET 02/23/2024

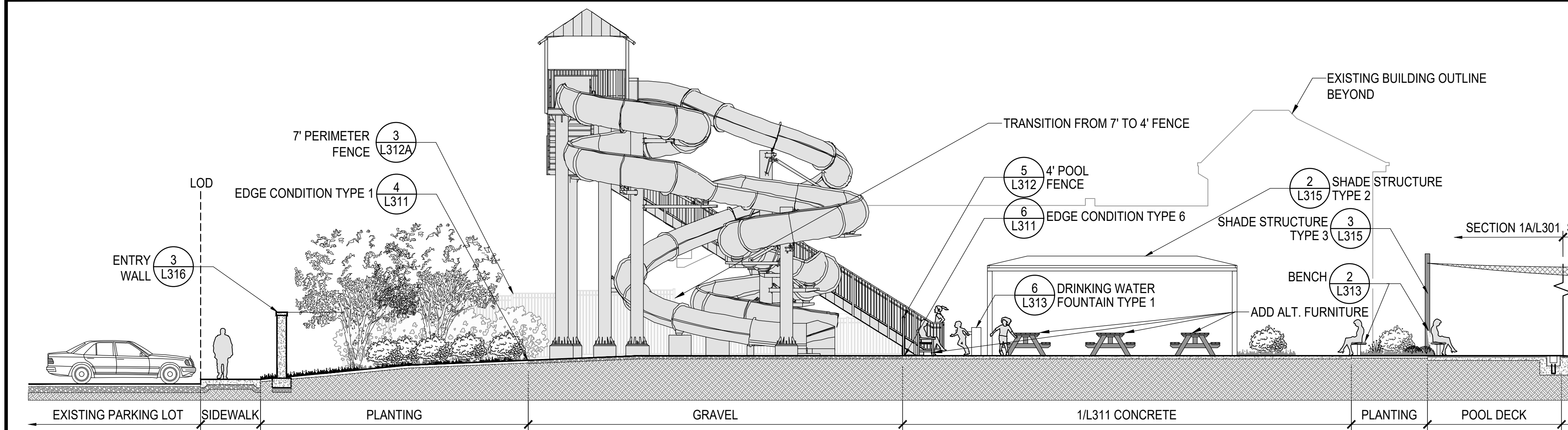
No.	Description	Date
Revisions		

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Date:	01/08/2024

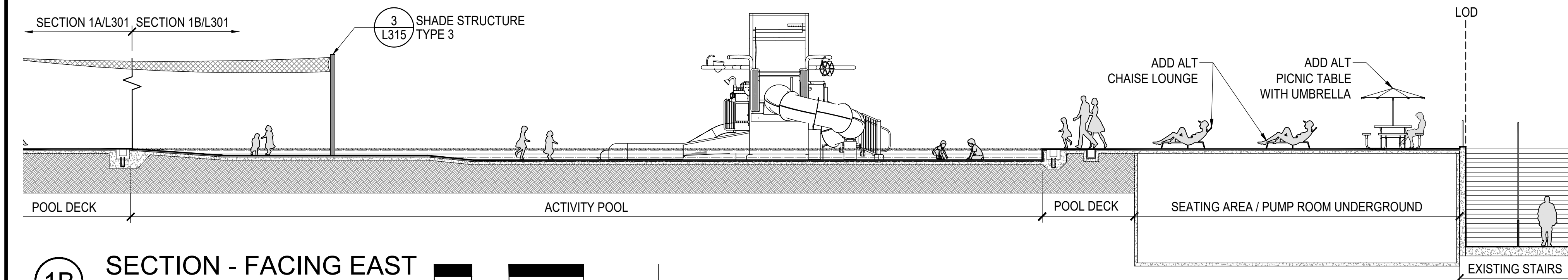
Sheet No. **L105**

**NFC**

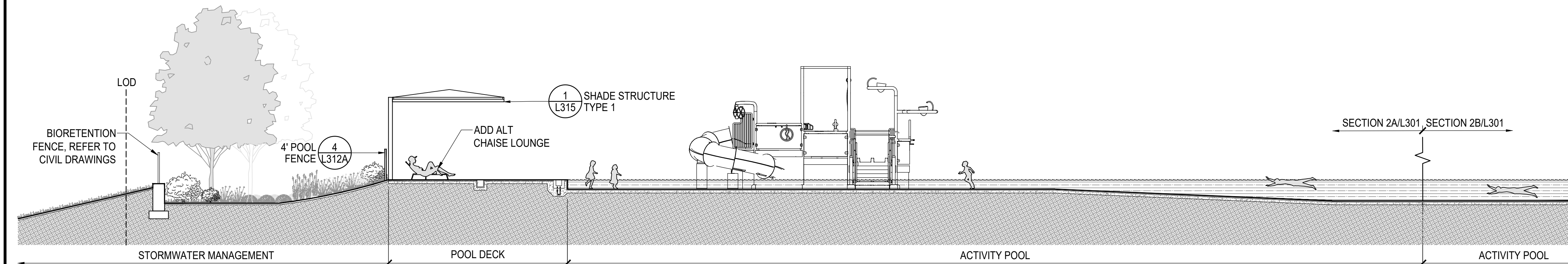




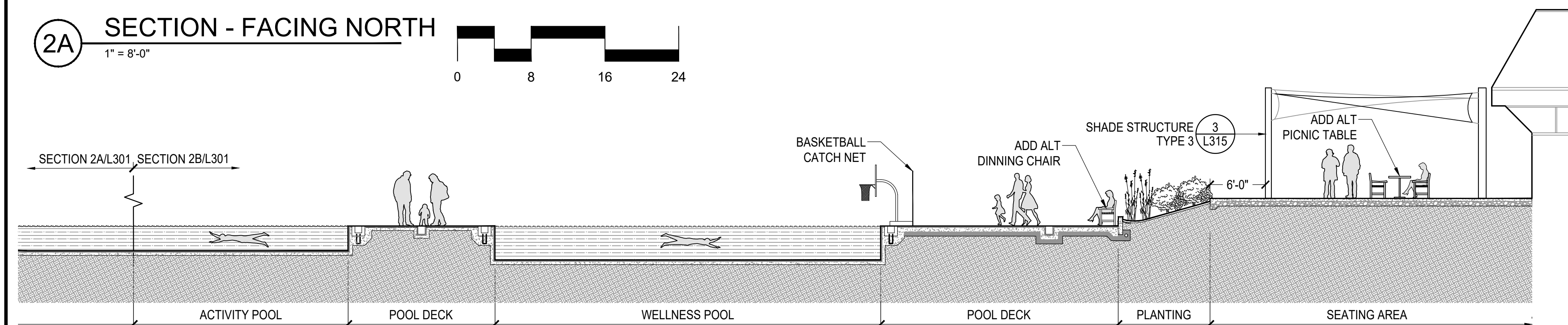
1A SECTION - FACING EAST  
1" = 8'-0"



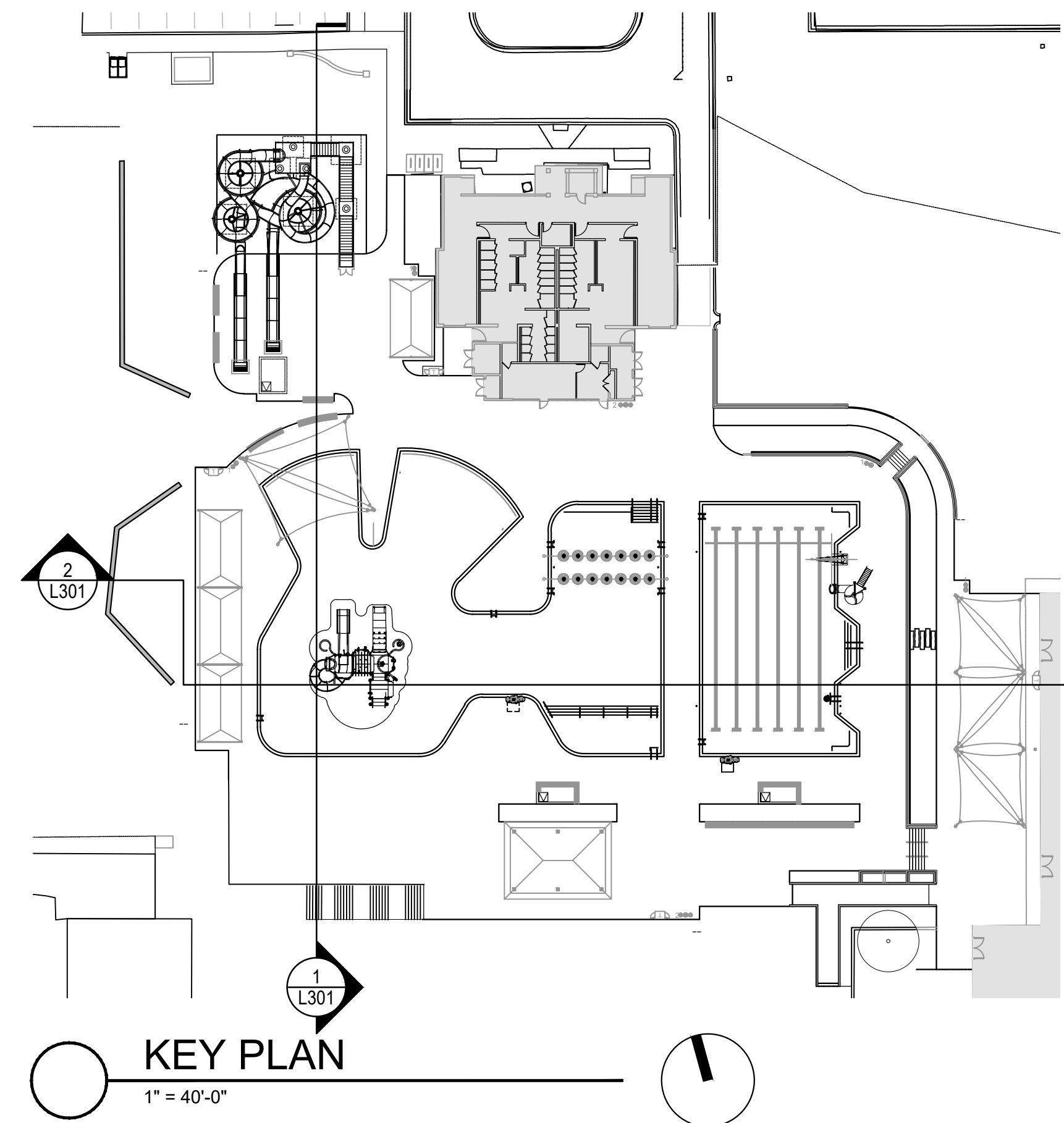
1B SECTION - FACING EAST  
1" = 8'-0"



2A SECTION - FACING NORTH  
1" = 8'-0"



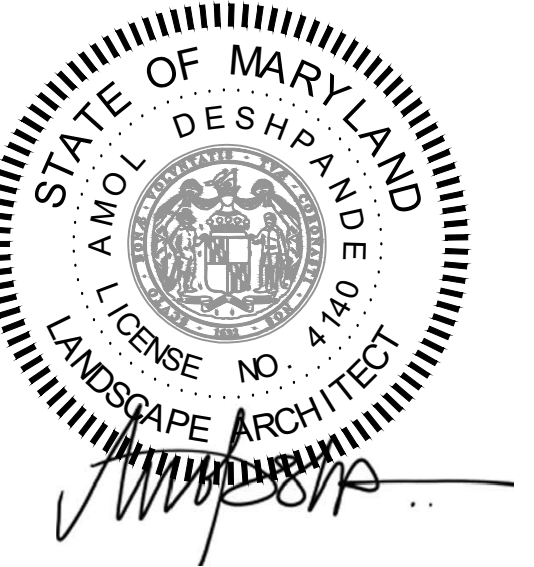
2B SECTION - FACING NORTH  
1" = 8'-0"



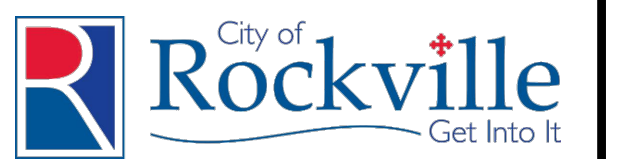
KEY PLAN  
1" = 40'-0"

LSG LANDSCAPE  
ARCHITECTURE

8240 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SECTIONS  
AND ELEVATIONS

BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	BUILDING PERMIT SET 12/08/2023
5	HD COMMENT RESPONSE 01/08/2024
6	BID SET 02/01/2024
7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		

Project Number:	22.00036.00
Scale:	AS SHOWN
Drawn By:	AD, HW, BS
Checked By:	AD
Date:	01/08/2024

Sheet No.	L301
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NFC



LSG LANDSCAPE  
ARCHITECTURE

8240 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SECTIONS  
AND ELEVATIONS

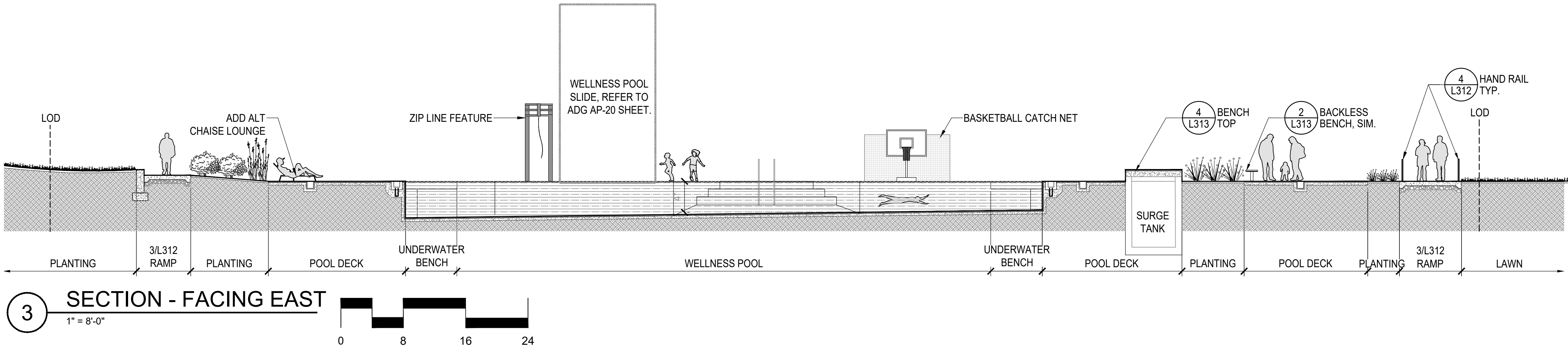
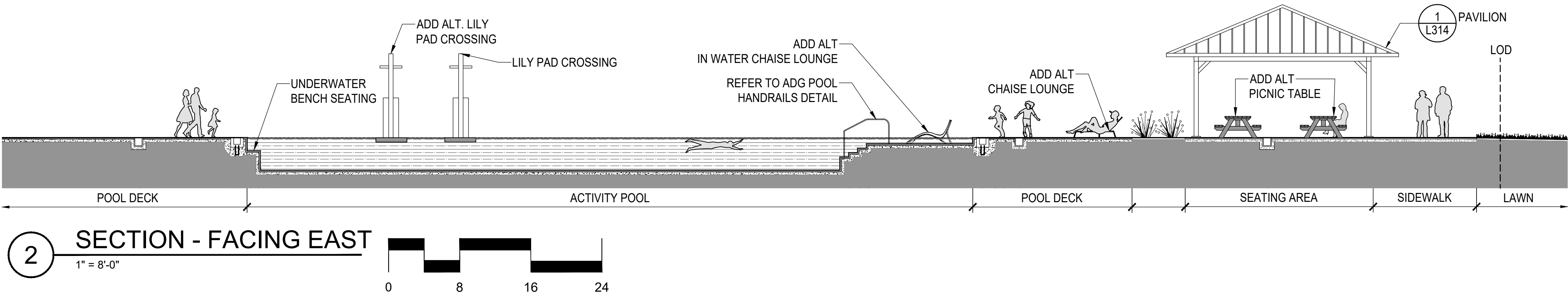
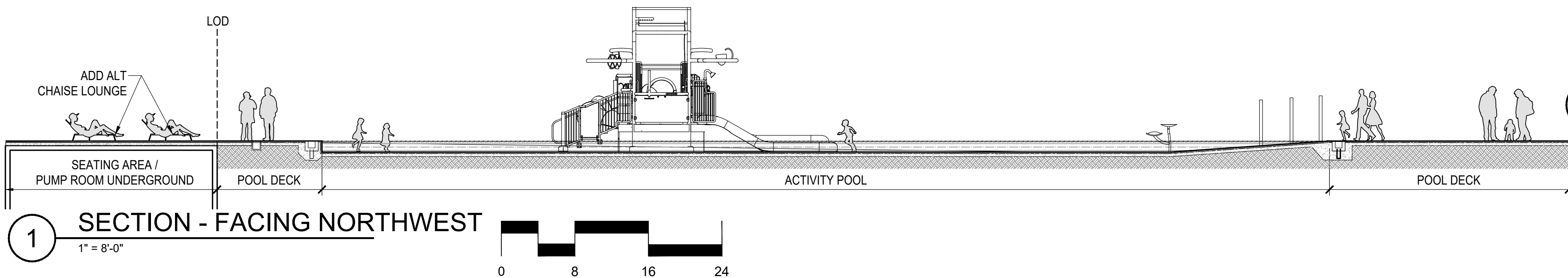
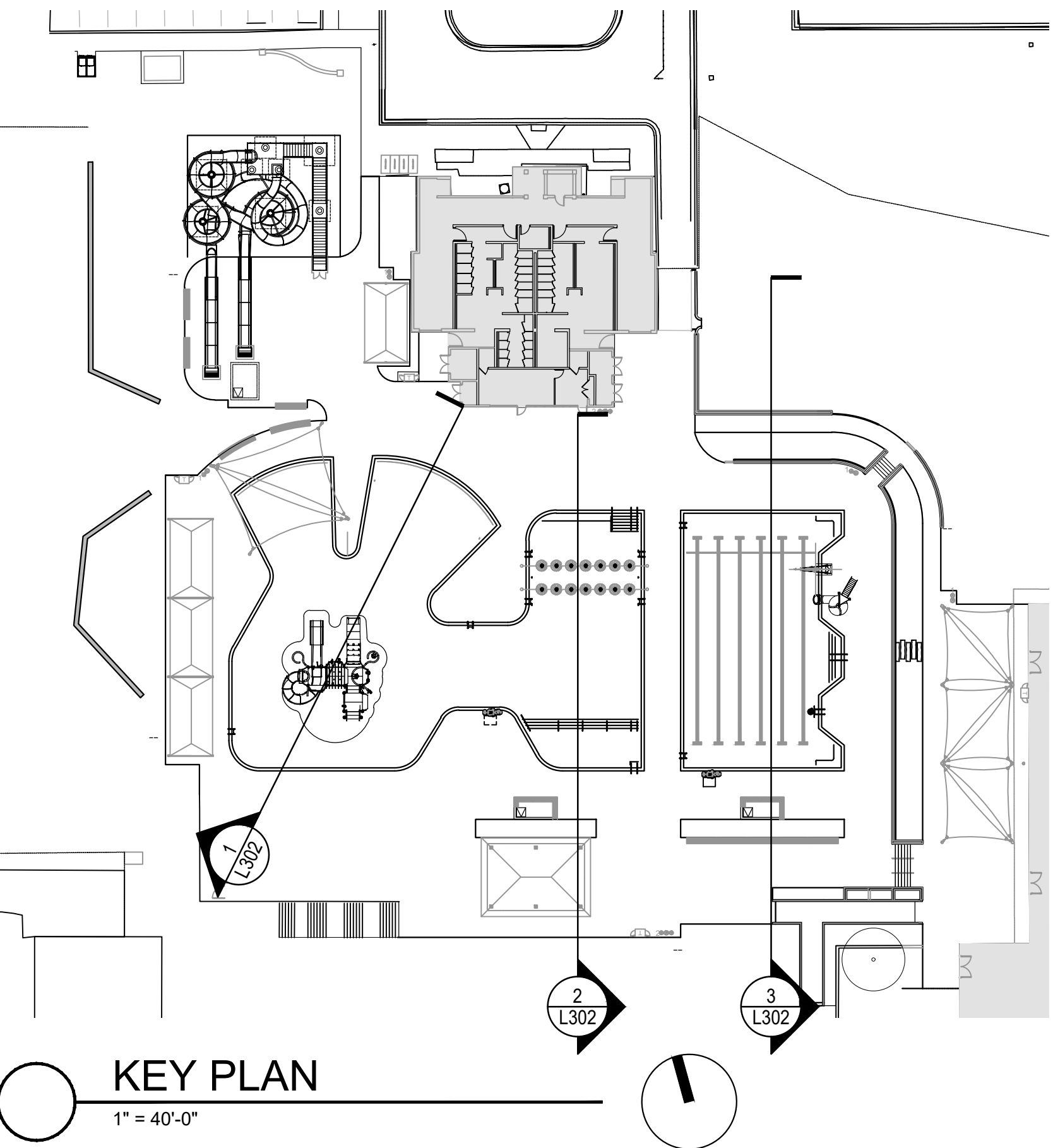
BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
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3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	BUILDING PERMIT SET 12/08/2023
5	HD COMMENT RESPONSE 01/08/2024
6	BID SET 02/01/2024
7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		

Project Number: 22.00036.00  
Scale: AS SHOWN  
Drawn By: AD, HW, BS  
Checked By: AD  
Date: 01/08/2024

Sheet No. L302



NFC



LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

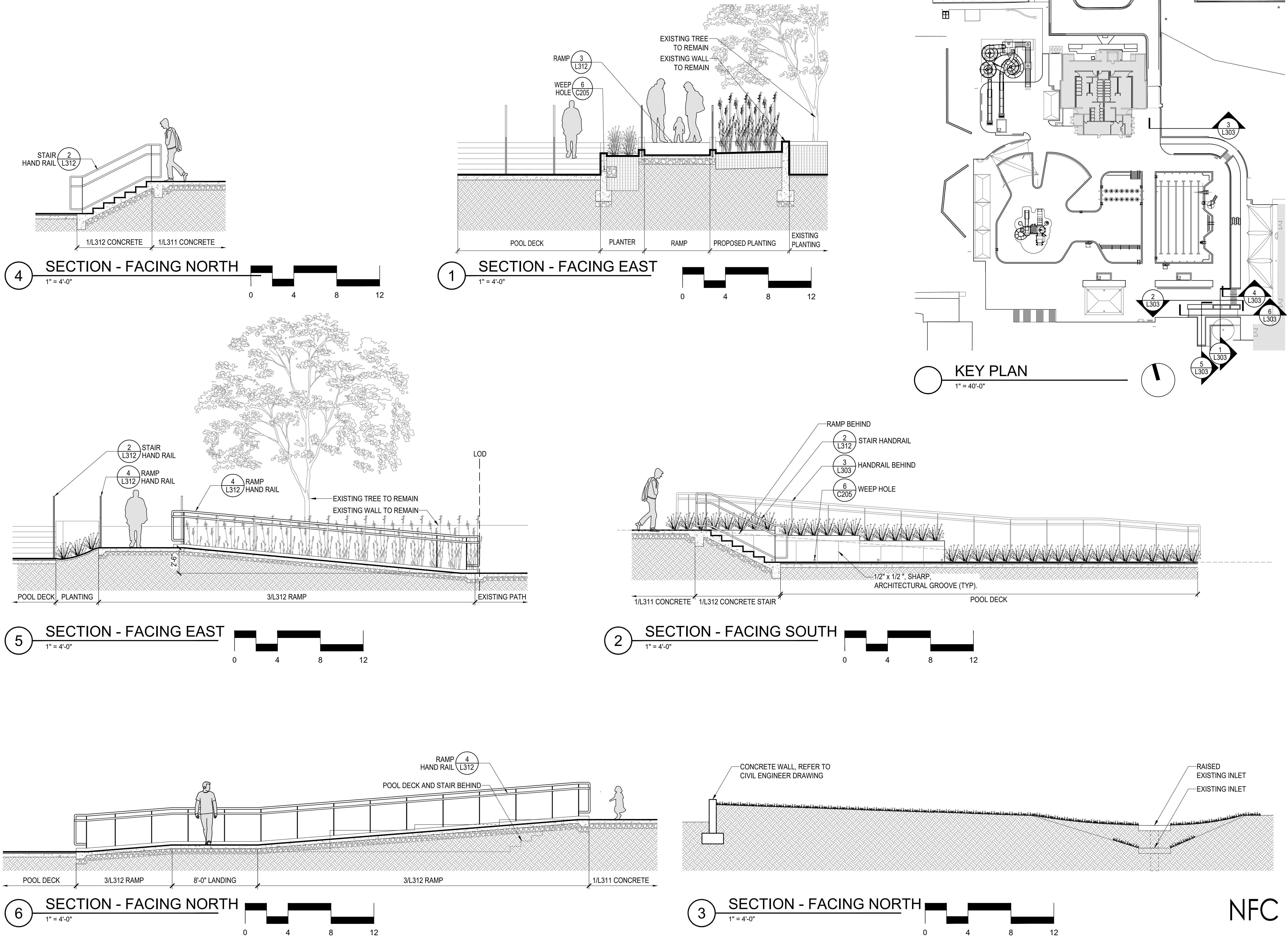
355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SECTIONS  
AND ELEVATIONS

BID SET

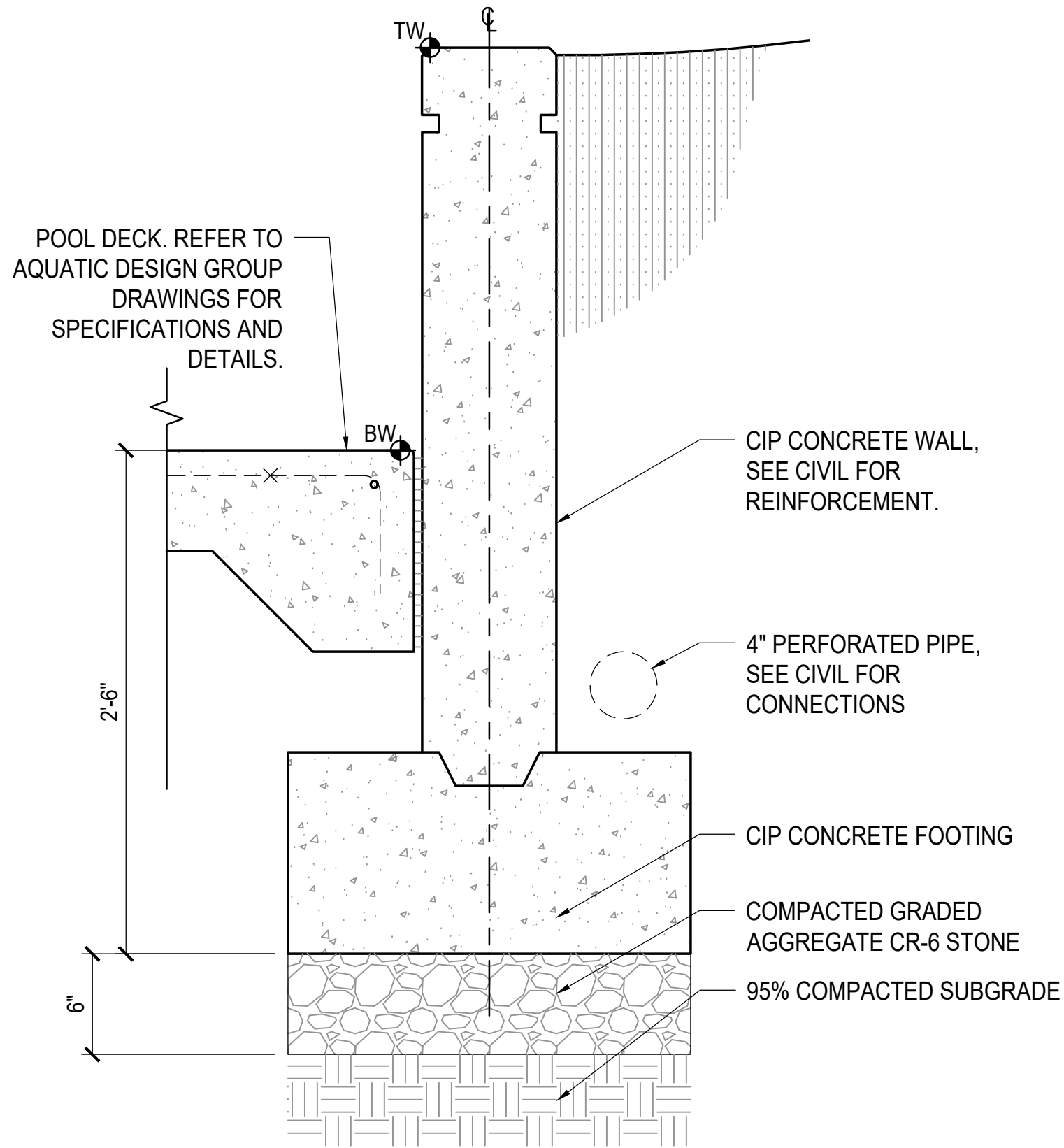
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2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	BUILDING PERMIT SET 12/08/2023
5	HD COMMENT RESPONSE 01/08/2024
6	BID SET 02/01/2024
7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No. L303		



NFC

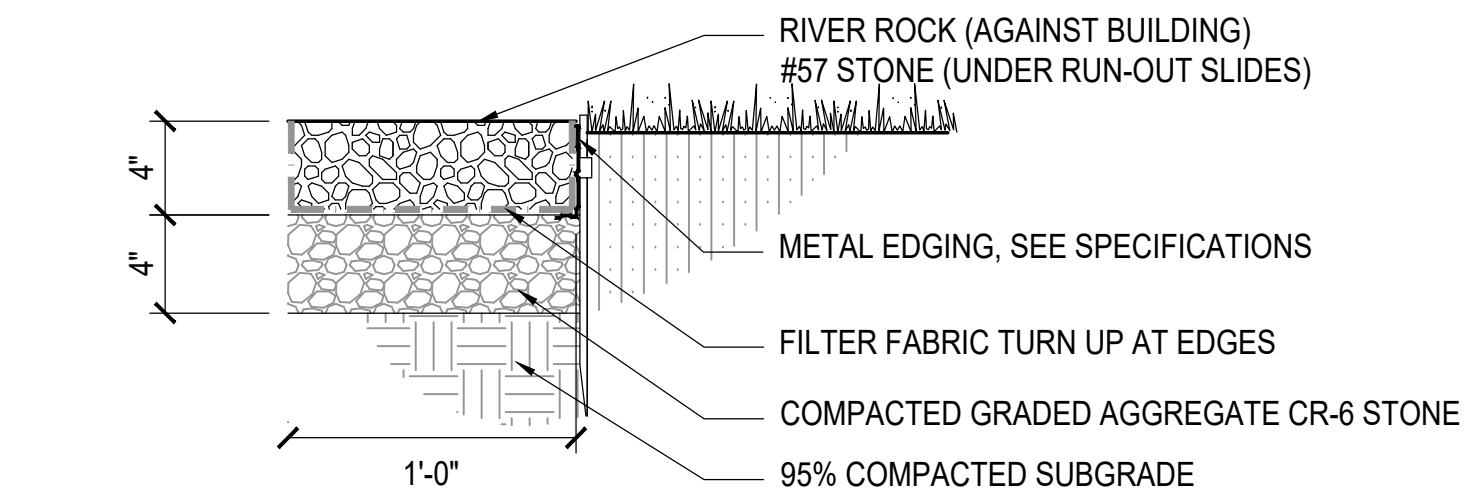




- NOTES:
1. ADJACENT CONDITIONS VARY. REFER TO PLANS.
  2. WATERPROOF WALL BELOW GRADE WHERE FG EXCEEDS THAT ON OPPOSITE SIDE.

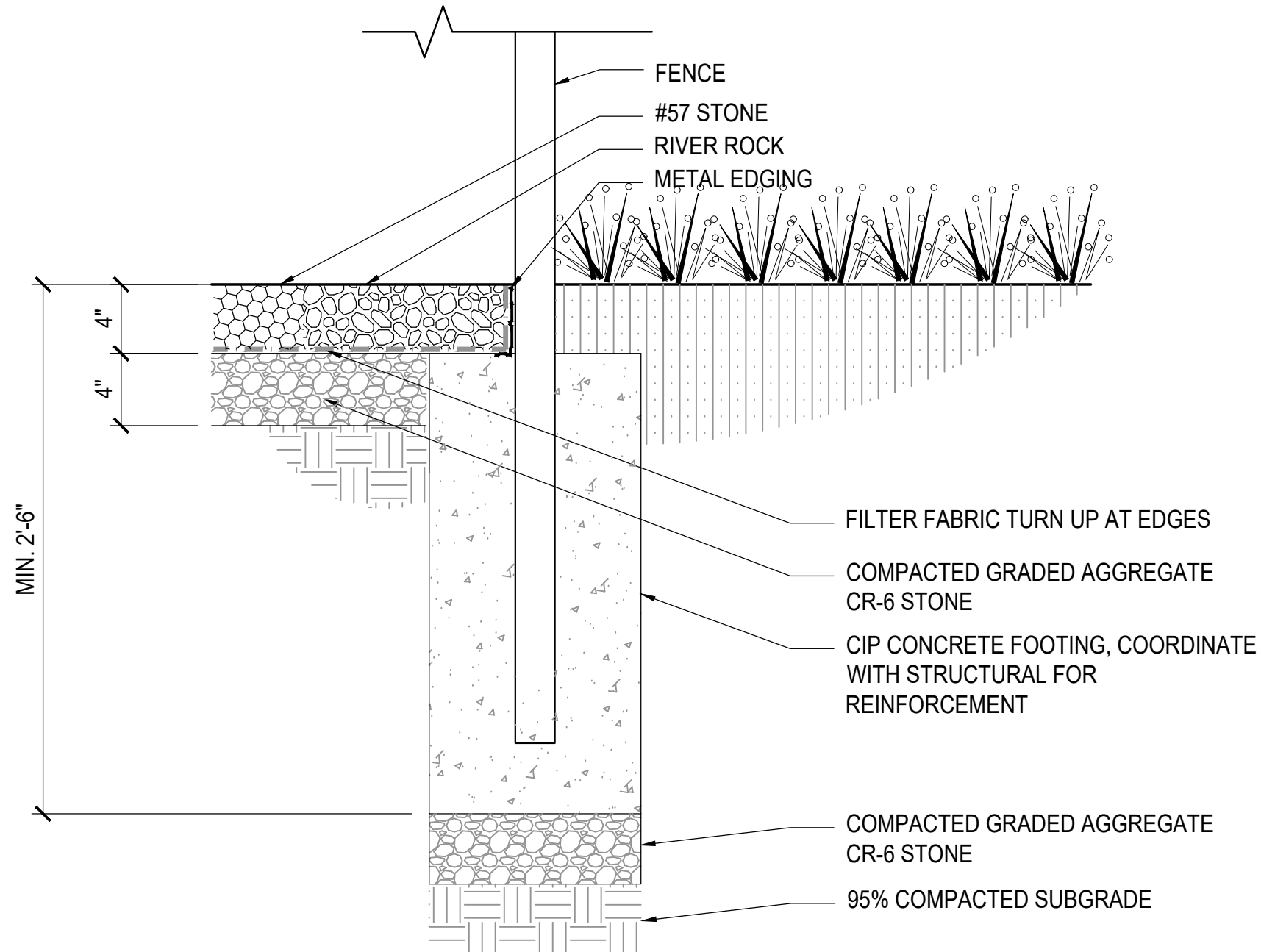
### EDGE CONDITION TYPE 5

1 1/2" = 1'-0"



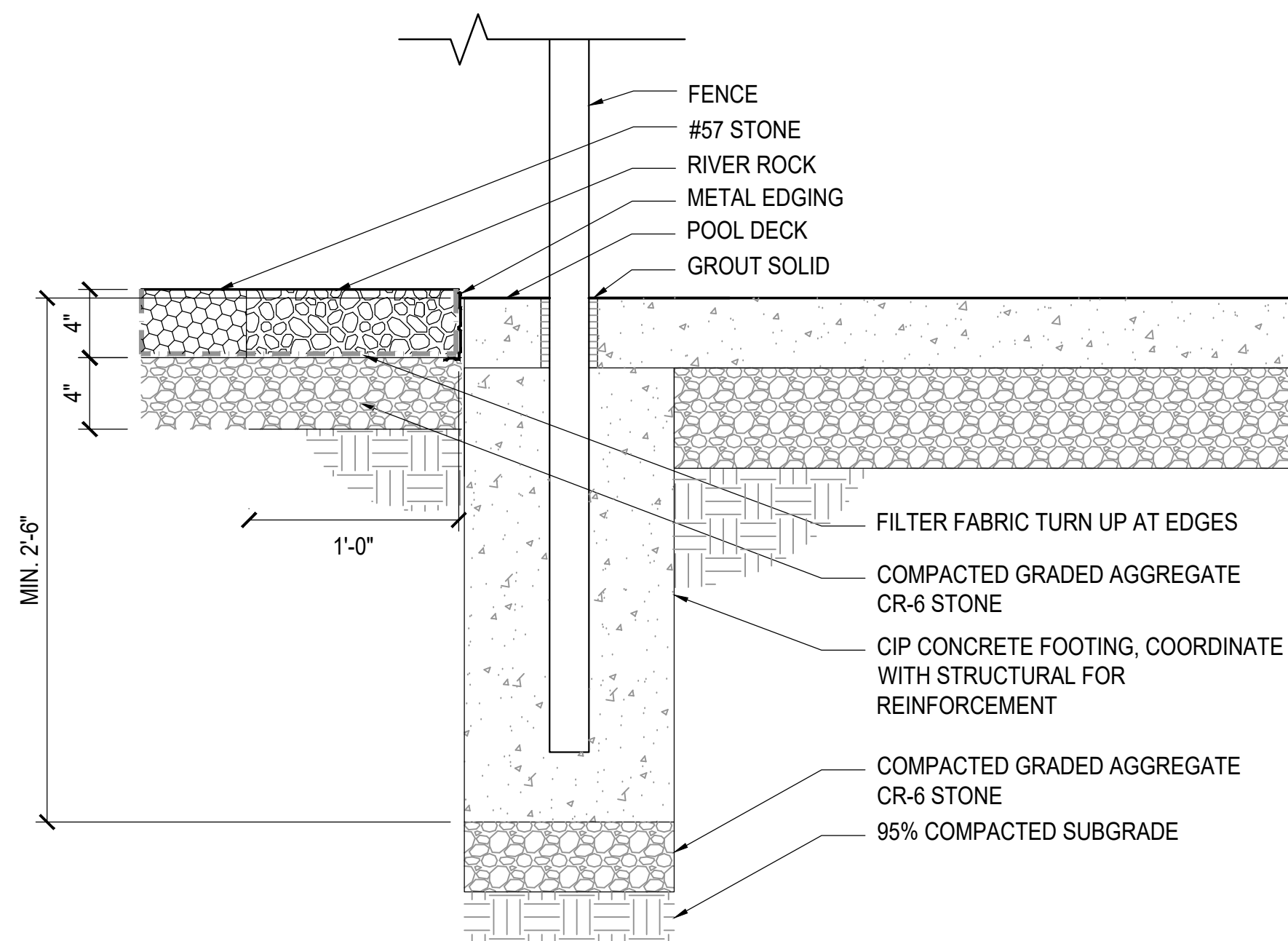
### EDGE CONDITION TYPE 1

1-1/2" = 1'-0"



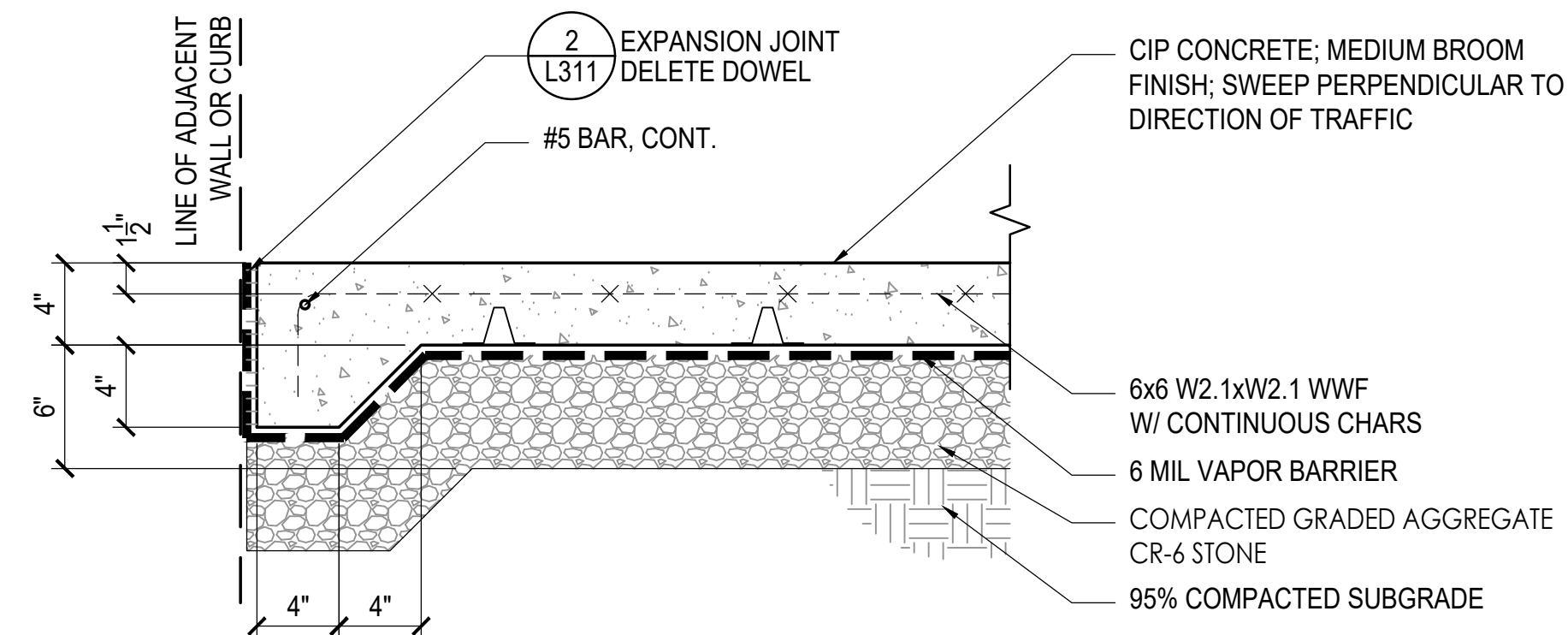
### EDGE CONDITION TYPE 2

1-1/2" = 1'-0"



### EDGE CONDITION TYPE 3

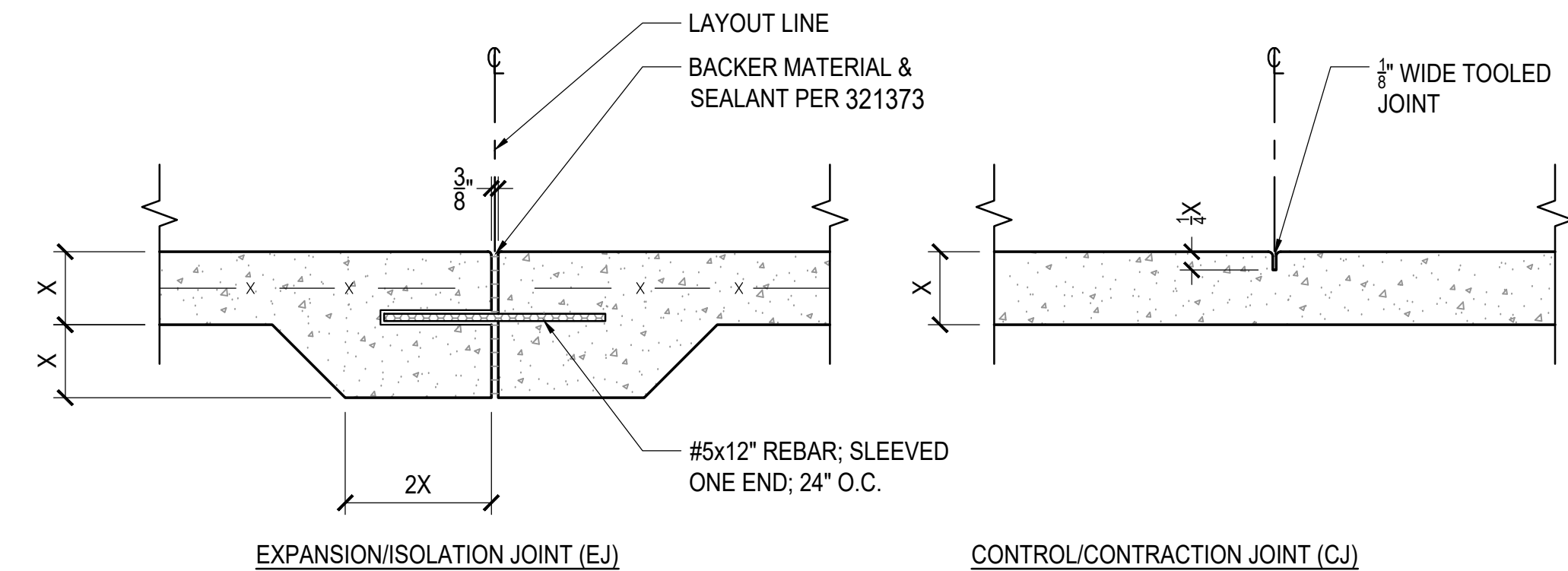
1-1/2" = 1'-0"



- NOTES:
1. REFER TO 2/L311 FOR JOINT TYPES.

### CONCRETE PAVING

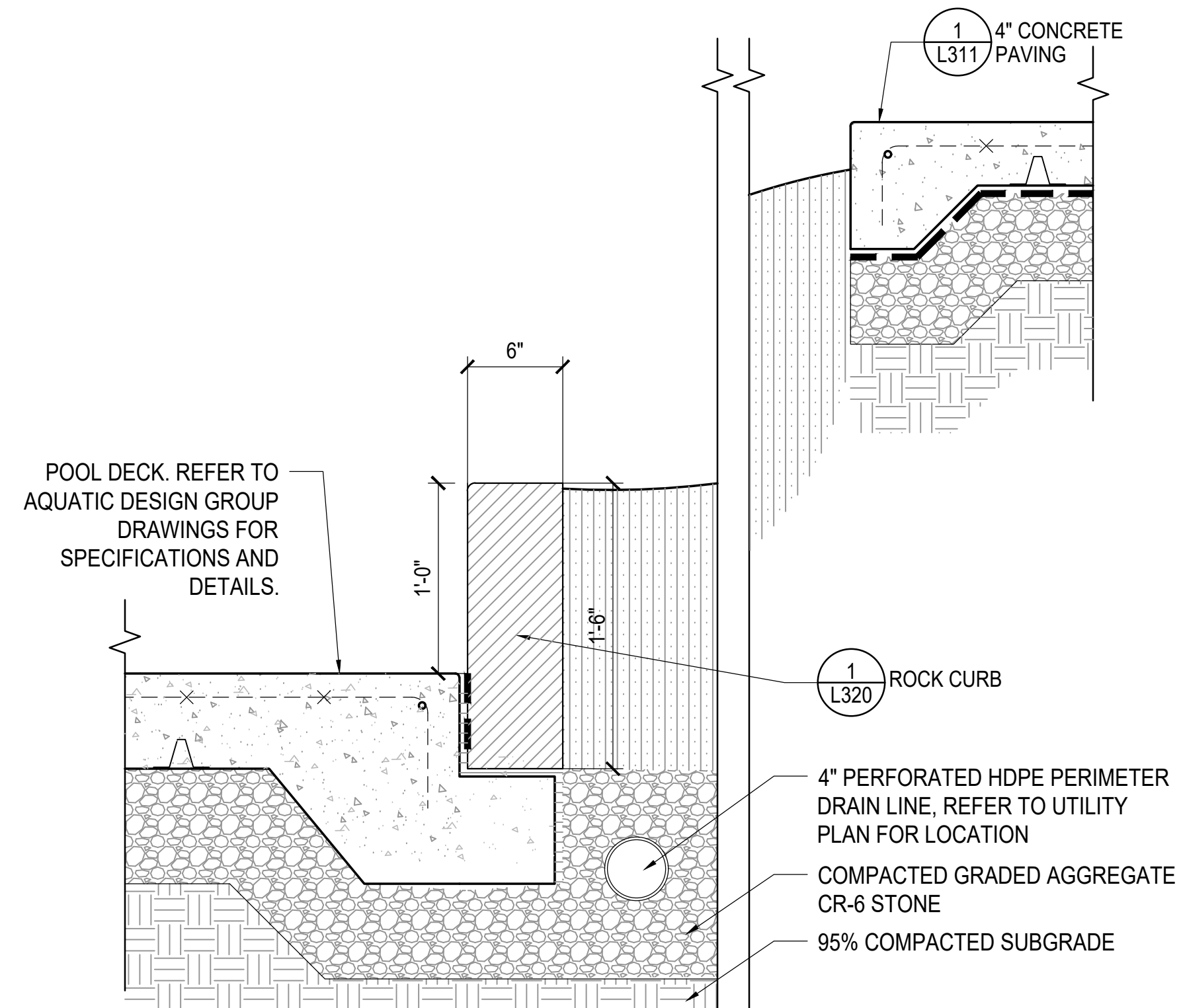
1 1/2" = 1'-0"



- NOTES:
1. INSTALL CONTROL JOINTS AT EQUAL INTERVALS OF 5'-0" EACH WAY UNLESS OTHERWISE INDICATED.
  2. INSTALL EXPANSION JOINTS WHERE SLAB MEETS ANY ADJACENT STRUCTURE.
  3. TOOL ALL EXPOSED EDGES W/ 3/8" RADIUS.
  4. INSTALL SELF-LEVELING SEALANT AT EJ'S OR TOOL PER 321373 FLUSH W/ ADJACENT FG.
  5. SAWCUT JOINTS ARE PROHIBITED.

### CONCRETE JOINTING

1 1/2" = 1'-0"



### EDGE CONDITION TYPE 4

1 1/2" = 1'-0"

## LSG LANDSCAPE ARCHITECTURE

8240 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## CONSTRUCTION DETAILS

### BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
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7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

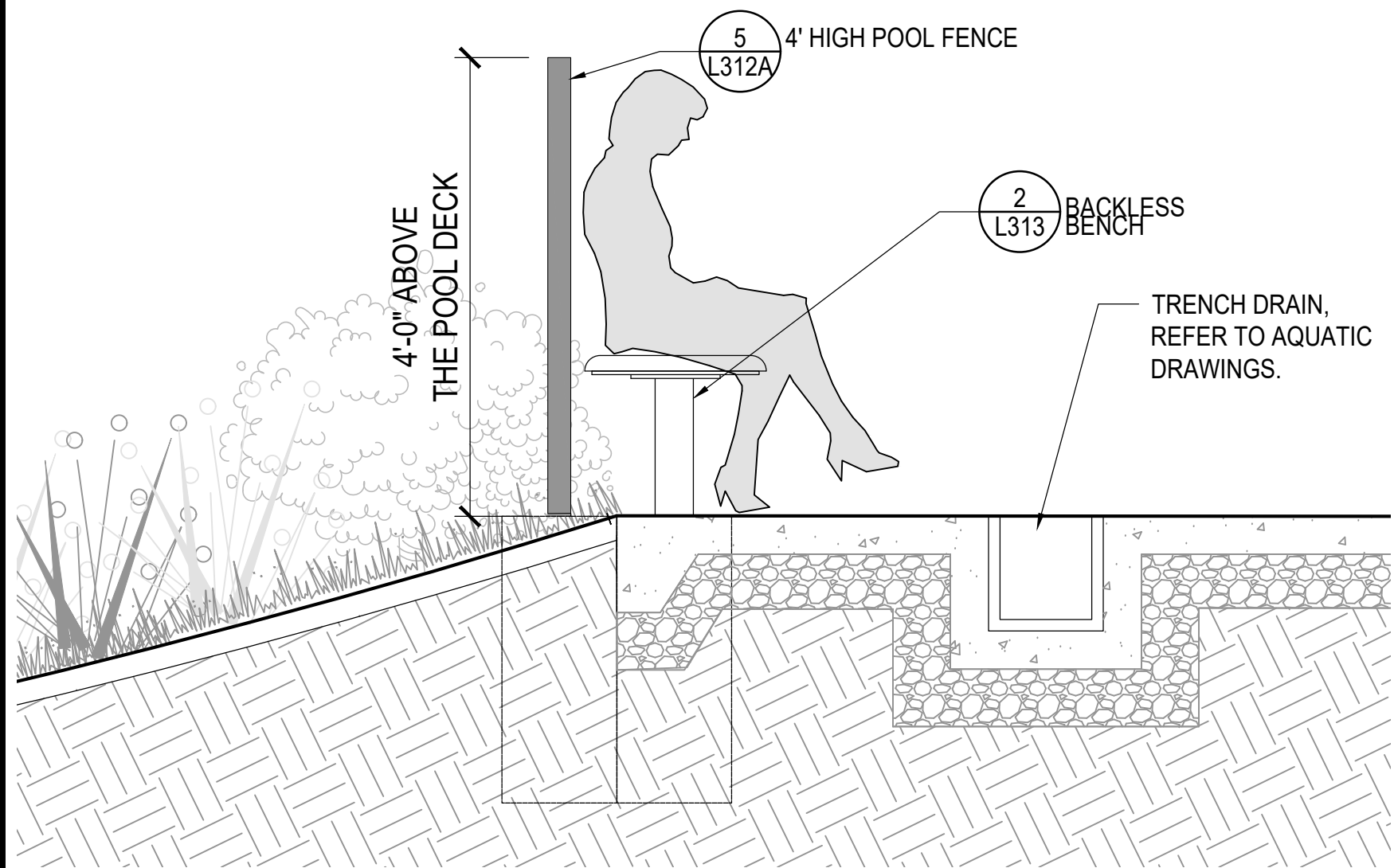
No.	Description	Date
Revisions		

Project Number: 22.00036.00  
Scale: AS SHOWN  
Drawn By: AD, HW, BS  
Checked By: AD  
Date: 01/08/2024

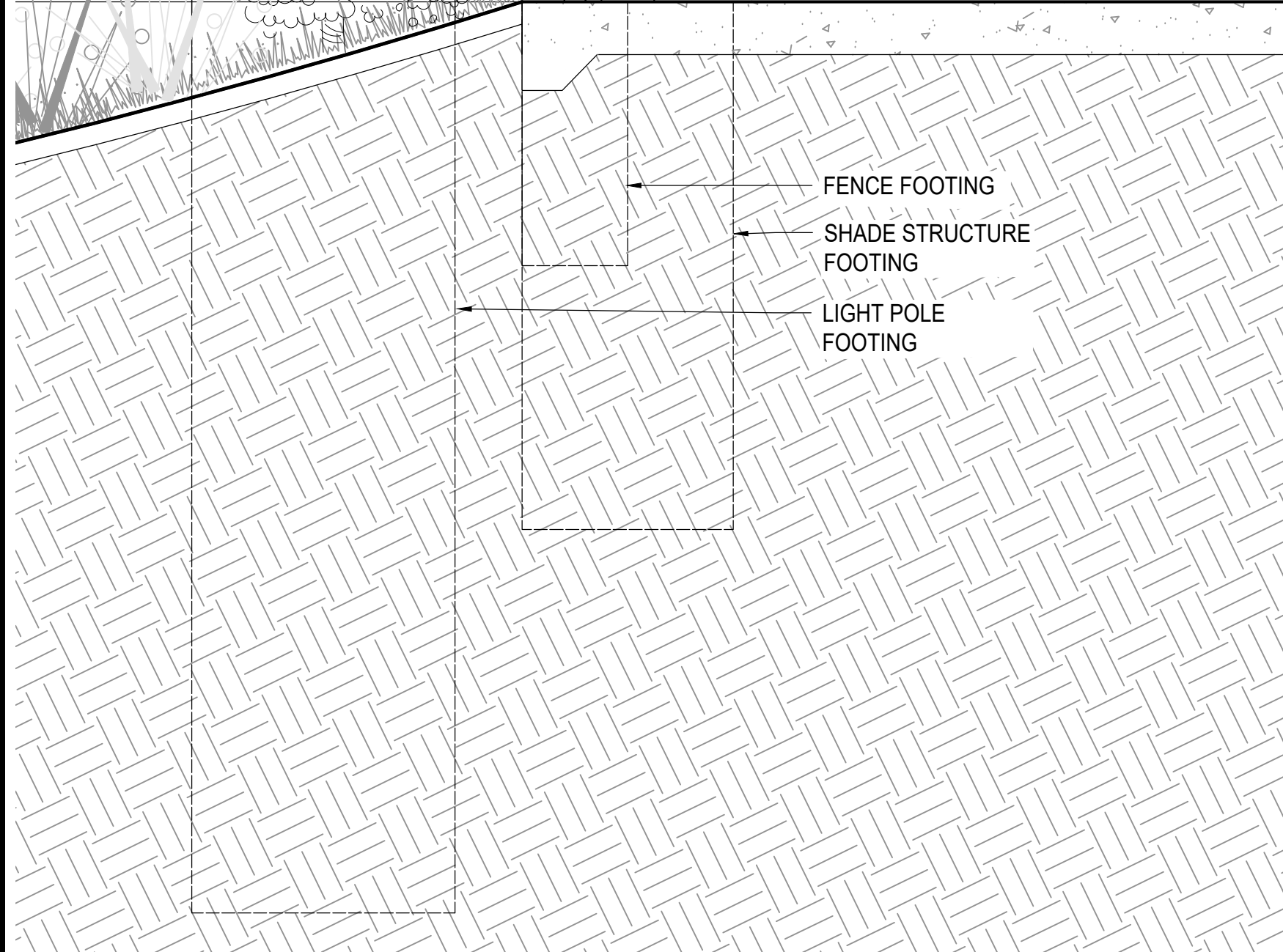
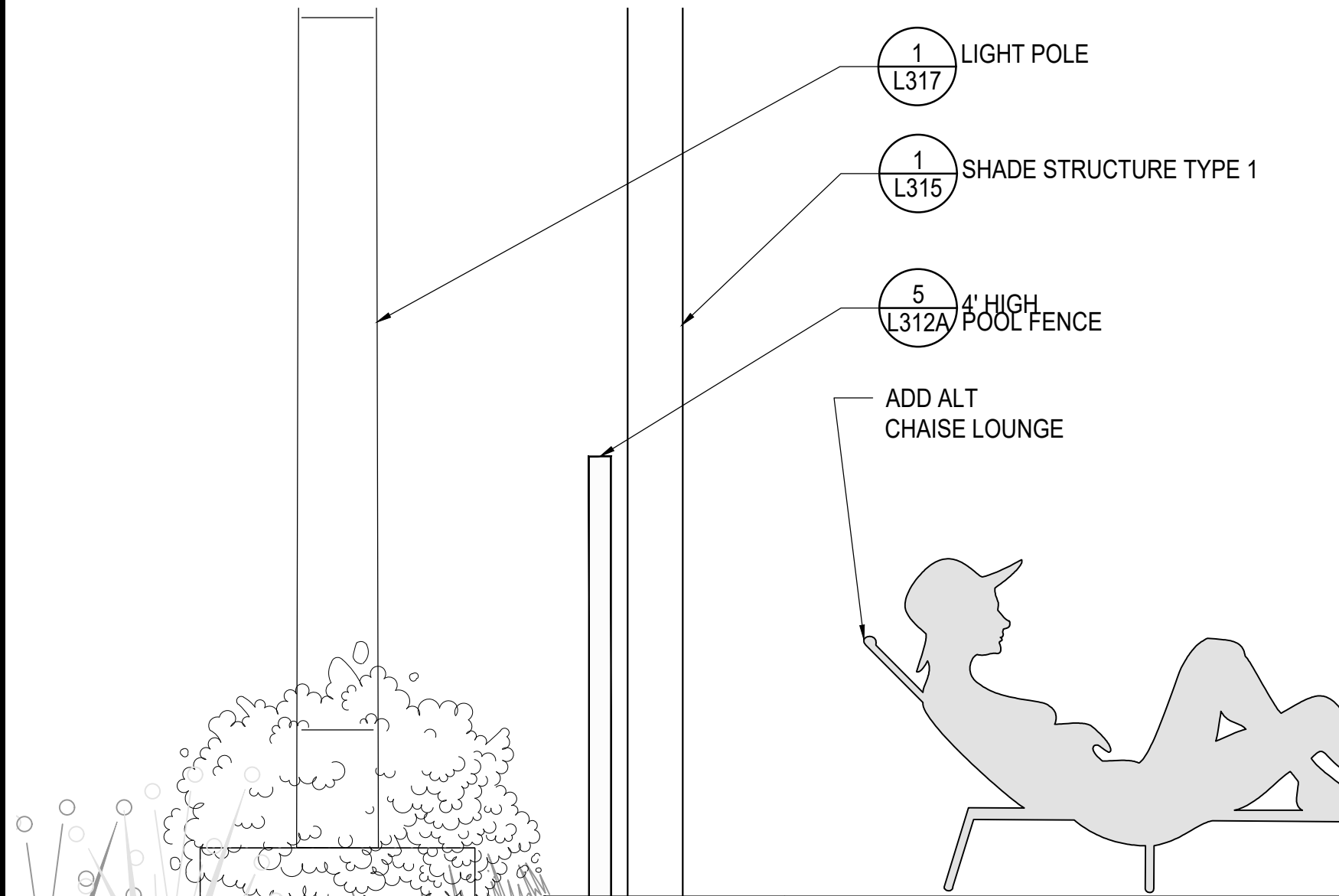
Sheet No. L311

NFC

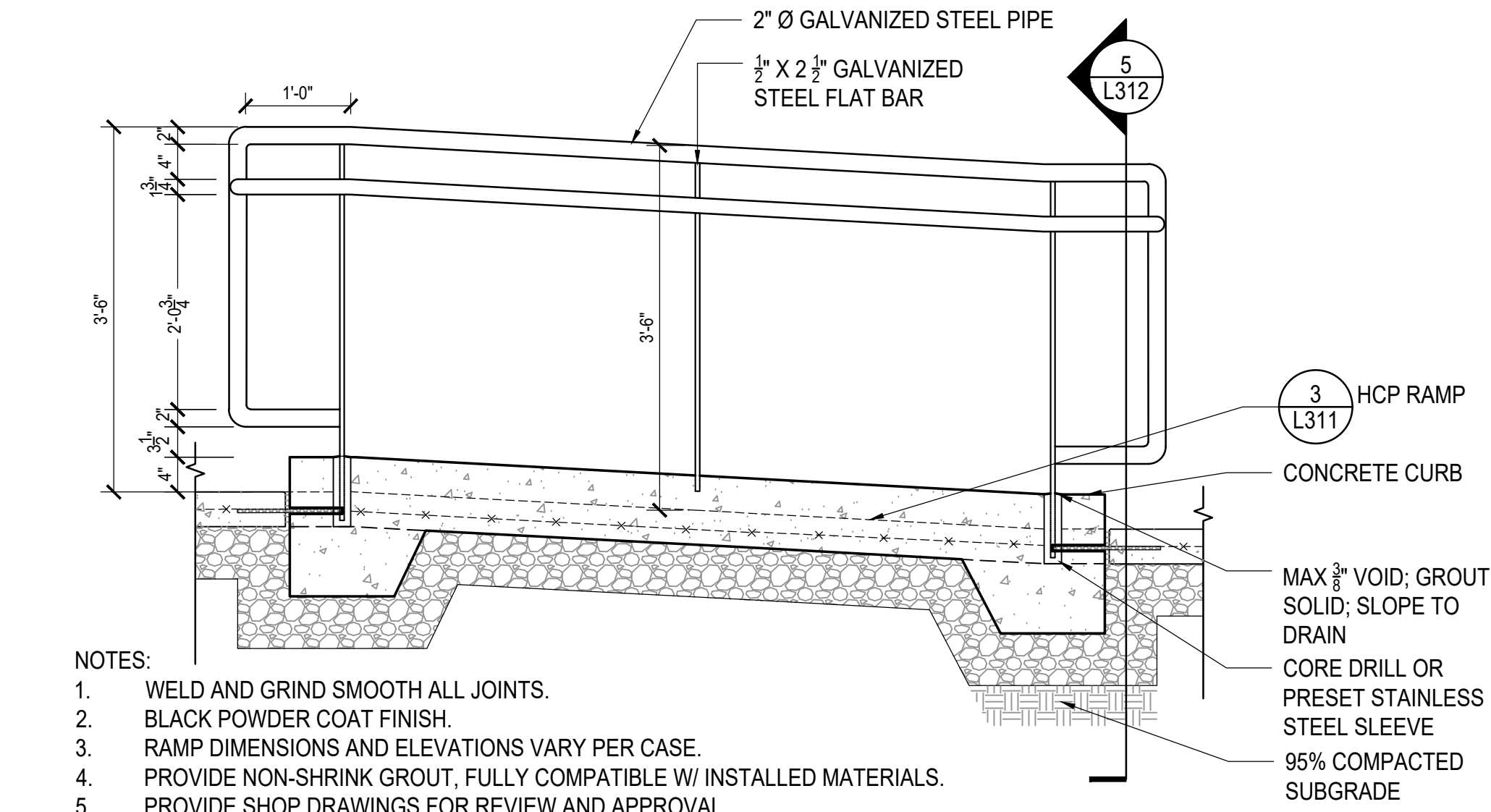




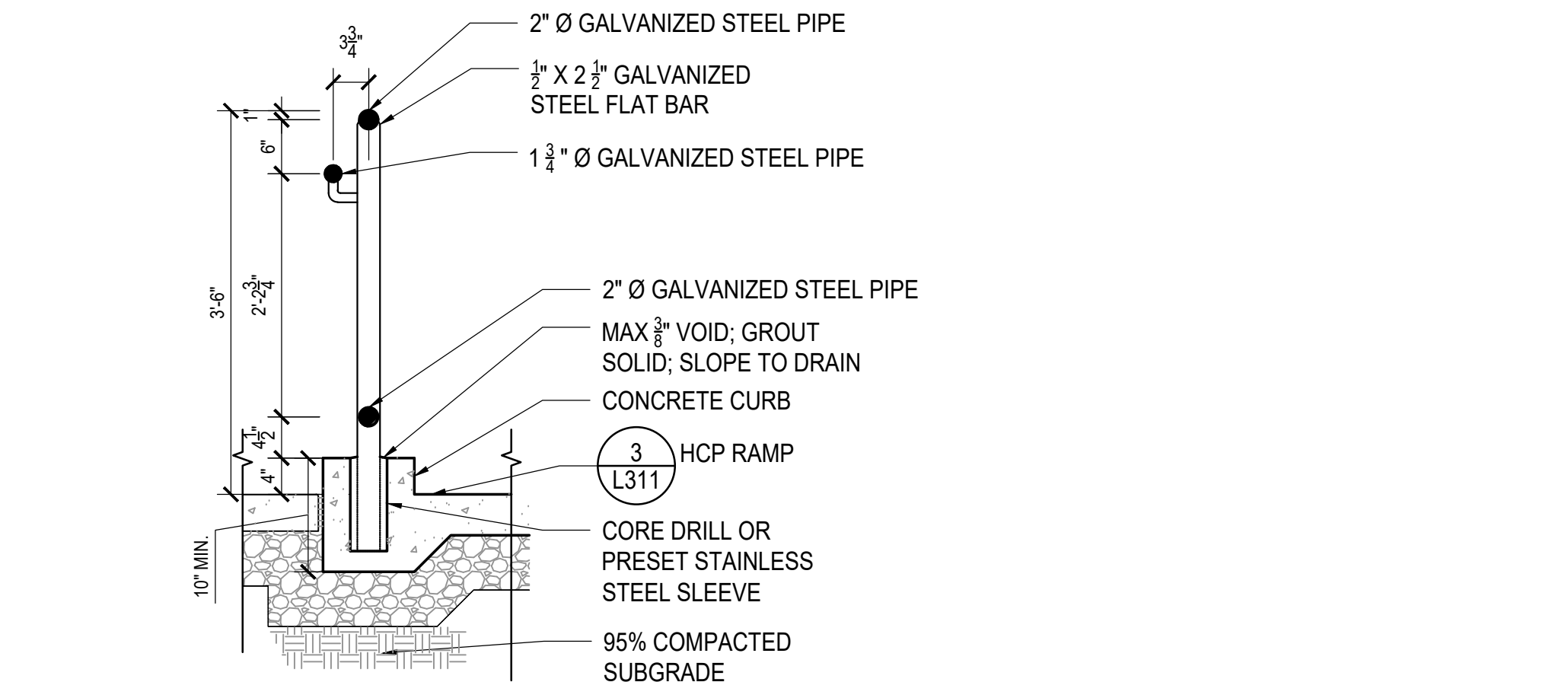
5 **EDGE CONDITION TYPE 6**  
3/4" = 1' - 0"



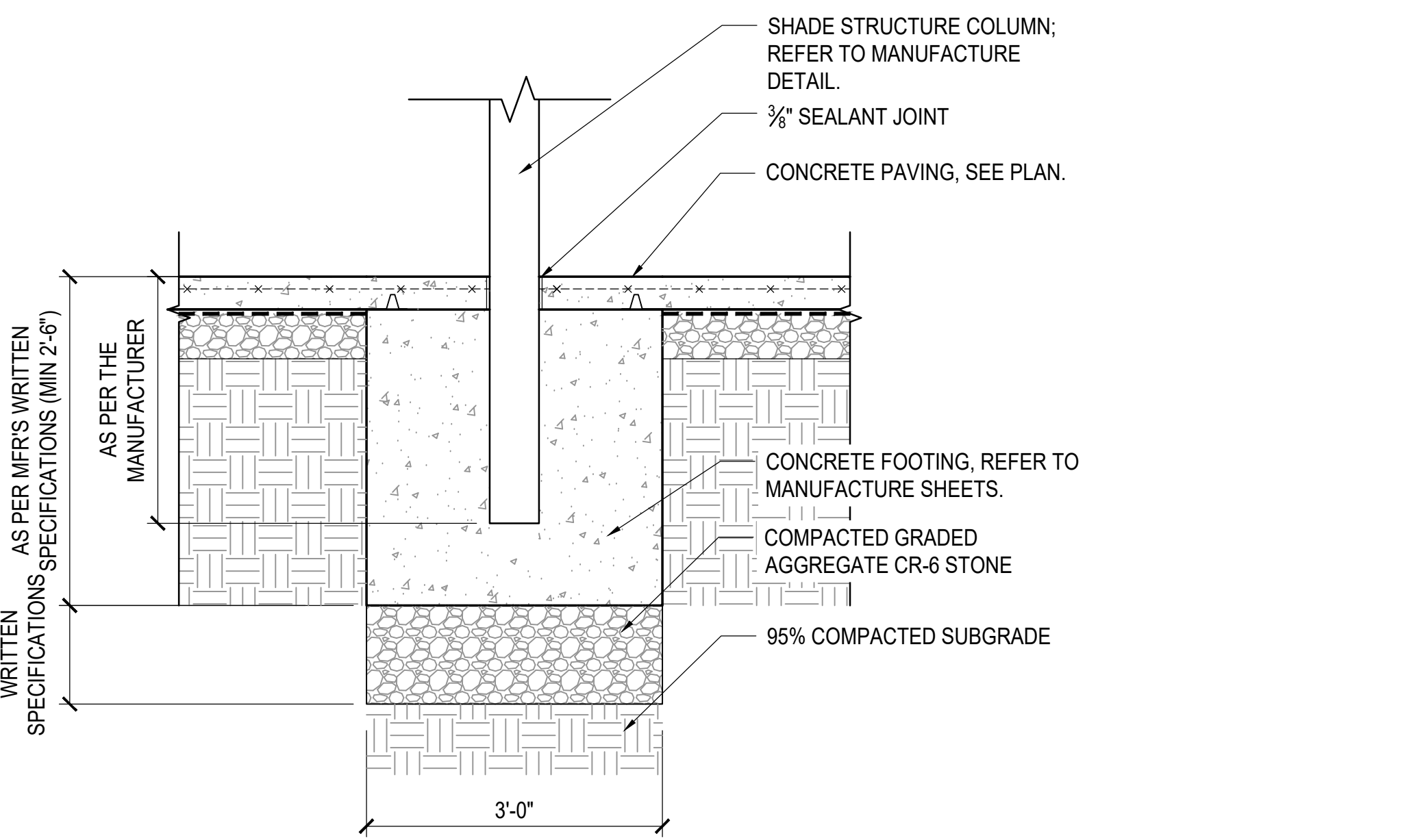
5 **EDGE CONDITION TYPE 7**  
3/4" = 1' - 0"



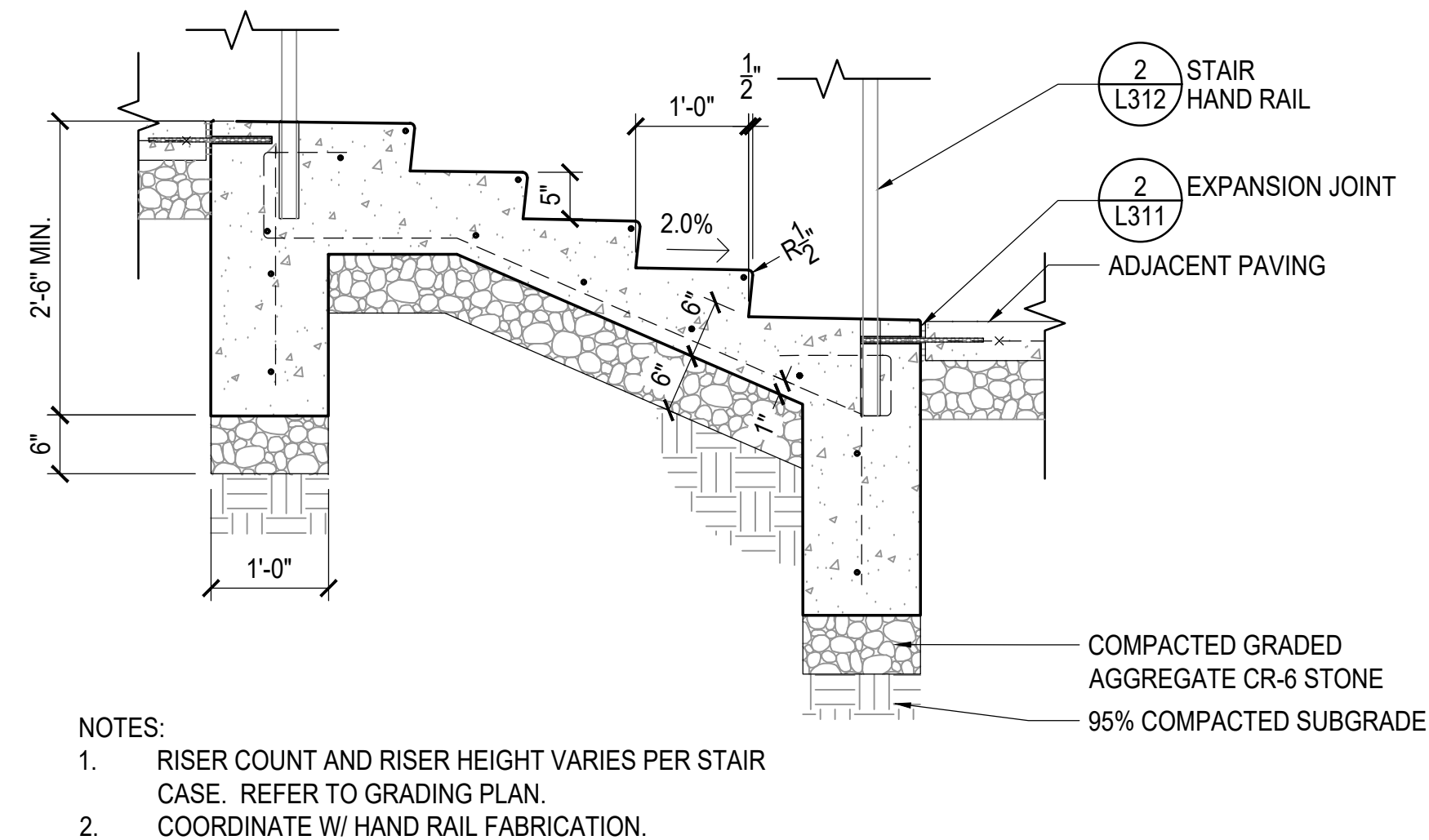
4 **RAMP HANDRAIL**  
3/4" = 1' - 0"



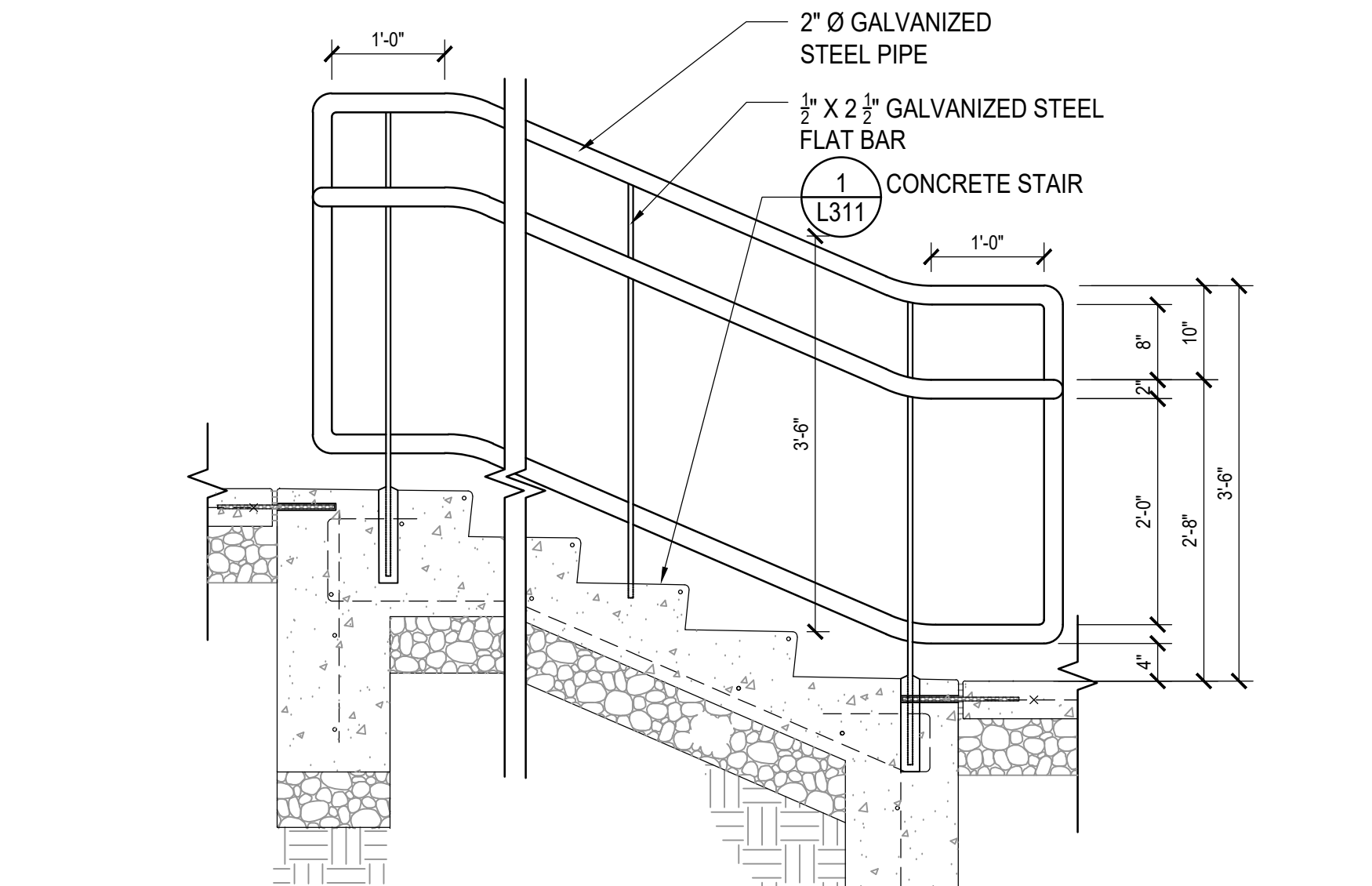
5 **RAMP HANDRAIL**  
3/4" = 1' - 0"



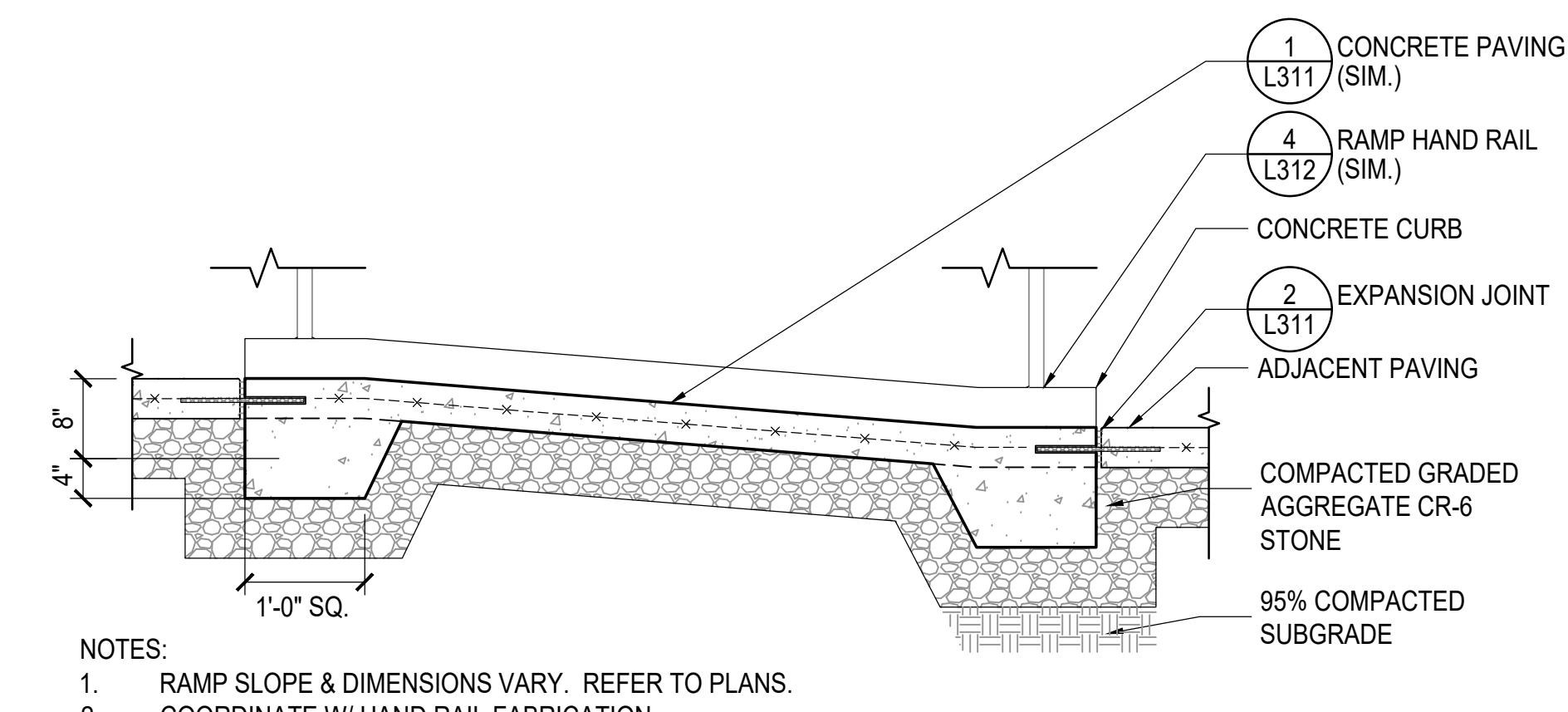
6 **SHADE STRUCTURE FOOTING DETAIL**  
3/4" = 1' - 0"



1 **CONCRETE STAIR**  
3/4" = 1'-0"



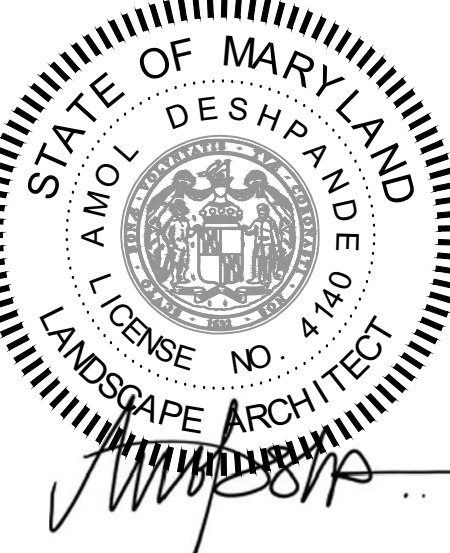
2 **STAIR HAND RAIL**  
3/4" = 1'-0"



3 **HCP RAMP**  
3/4" = 1'-0"

**LSG LANDSCAPE  
ARCHITECTURE**

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

**OUTDOOR  
RECREATION POOL  
RENOVATIONS**

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

**CONSTRUCTION  
DETAILS**

**BID SET**

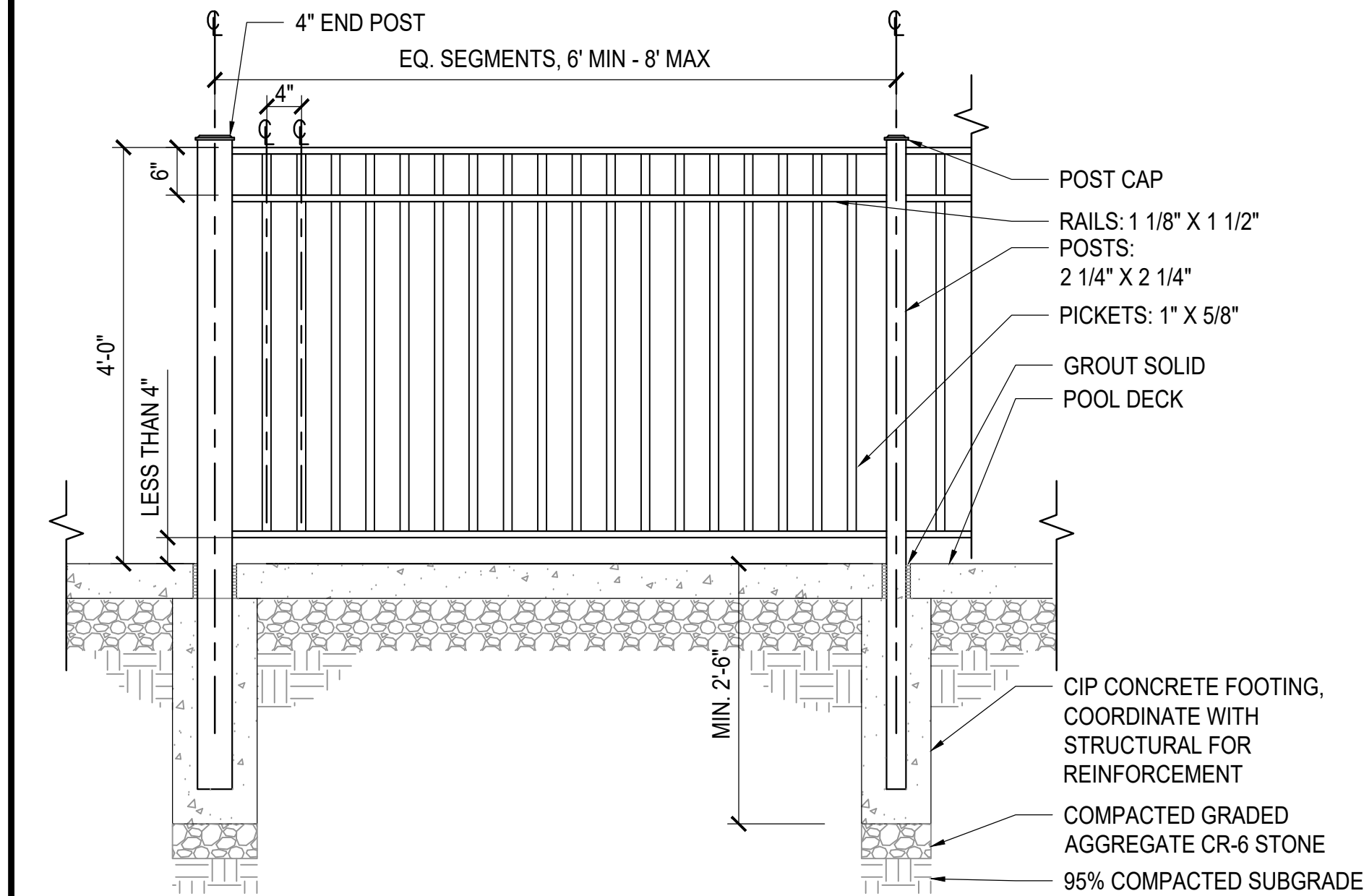
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4	BUILDING PERMIT SET 12/08/2023
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7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No. L312		

**NFC**

**BID SET 02/23/2024**

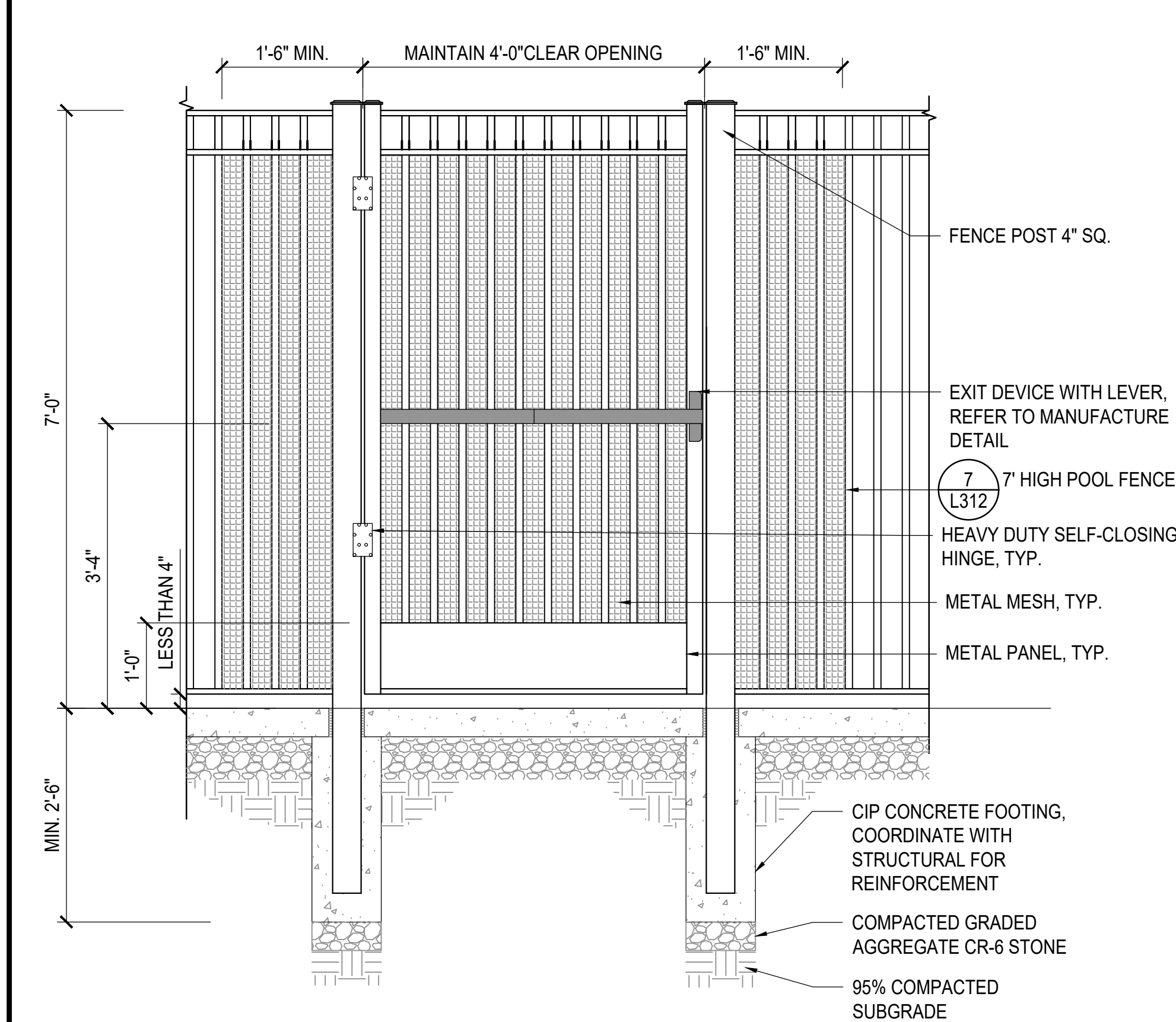




- NOTES:
1. DRAWING REPRESENTS DESIGN INTENT ONLY, PROVIDE SHOP DRAWINGS FOR REVIEW & APPROVAL.
  2. FENCE SHALL COMPLY WITH IRC APPENDIX G.
  3. BASIS OF DESIGN MONTAGE BY AMERISTAR.
  4. FINISH: POWDERCOAT, COLOR: BLACK

#### 4' HIGH POOL FENCE

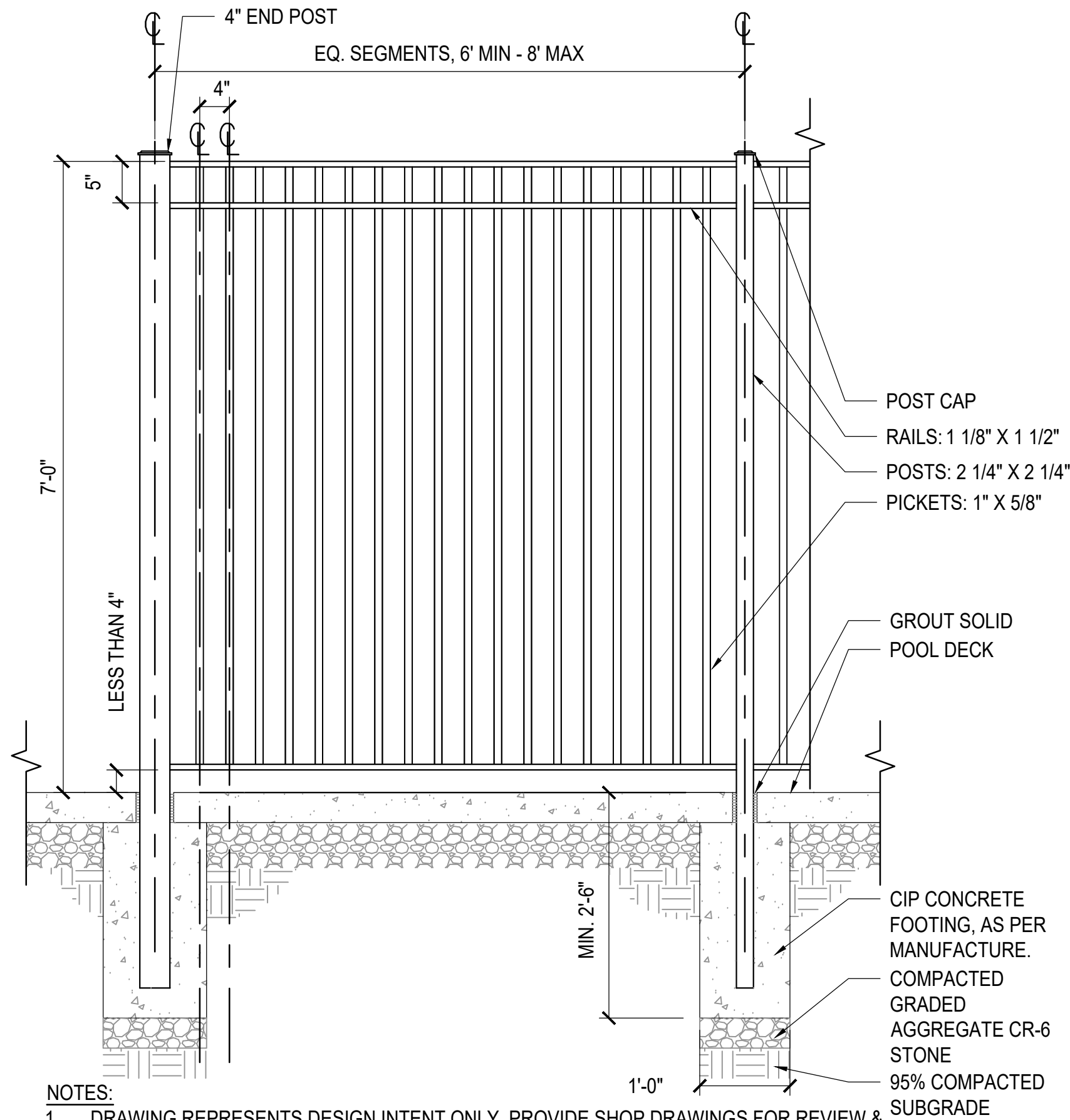
3/4" = 1'-0"



- NOTES:
1. DRAWING REPRESENTS DESIGN INTENT ONLY, PROVIDE SHOP DRAWINGS FOR REVIEW & APPROVAL.
  2. FENCE SHALL COMPLY WITH IRC APPENDIX G.
  3. BASIS OF DESIGN MONTAGE BY AMERISTAR.
  4. FINISH: POWDERCOAT, COLOR: BLACK

#### 7' HIGH EGRESS GATE

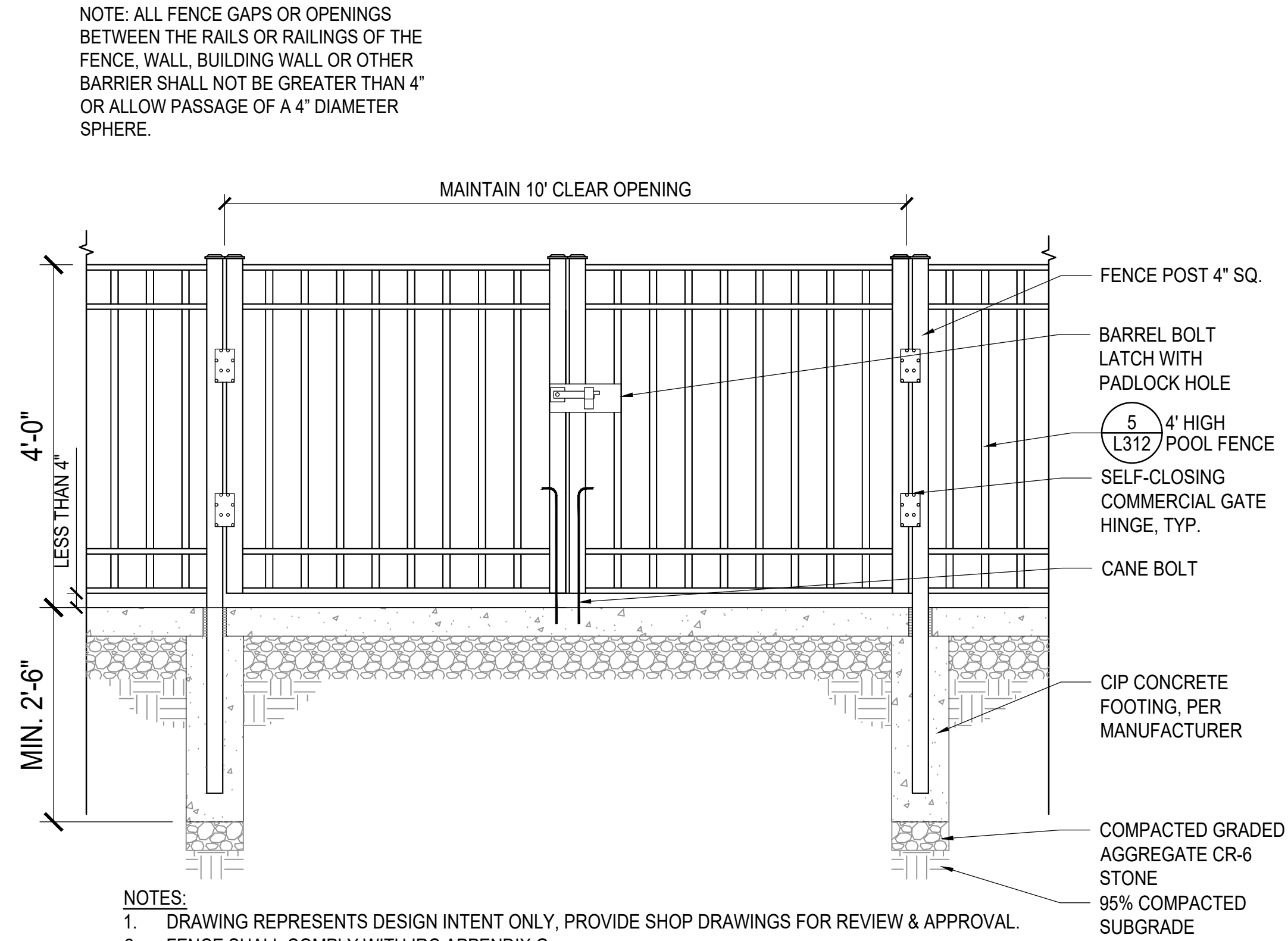
3/4" = 1'-0"



- NOTES:
1. DRAWING REPRESENTS DESIGN INTENT ONLY, PROVIDE SHOP DRAWINGS FOR REVIEW & APPROVAL.
  2. FENCE SHALL COMPLY WITH IRC APPENDIX G.
  3. BASIS OF DESIGN MONTAGE BY AMERISTAR.
  4. FINISH: POWDERCOAT, COLOR: BLACK

#### 7' HIGH PERIMETER FENCE

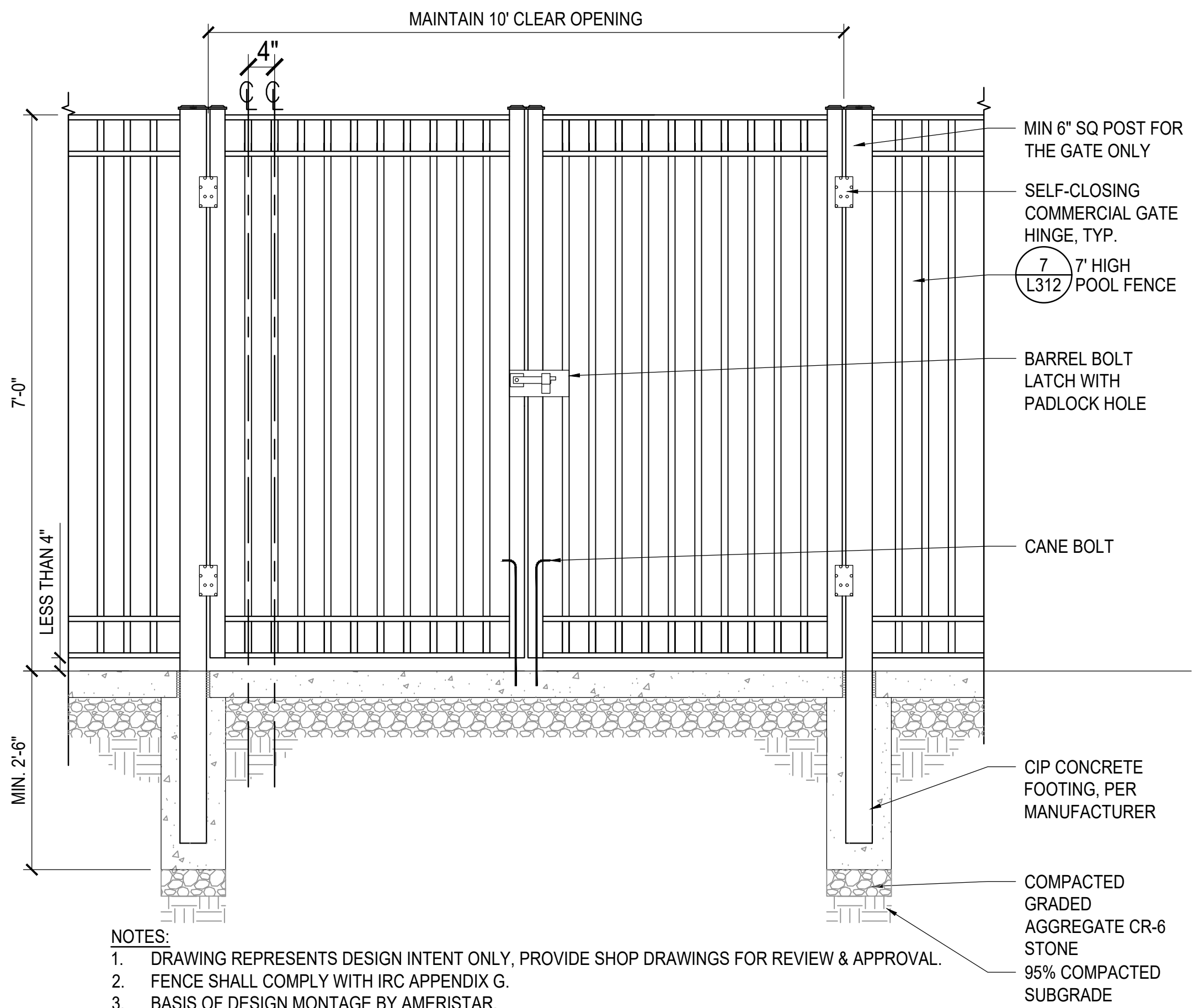
3/4" = 1'-0"



- NOTES:
1. DRAWING REPRESENTS DESIGN INTENT ONLY, PROVIDE SHOP DRAWINGS FOR REVIEW & APPROVAL.
  2. FENCE SHALL COMPLY WITH IRC APPENDIX G.
  3. BASIS OF DESIGN MONTAGE BY AMERISTAR.
  4. FINISH: POWDERCOAT, COLOR: BLACK

#### 4' HIGH MAINTENANCE ACCESS GATE

3/4" = 1'-0"



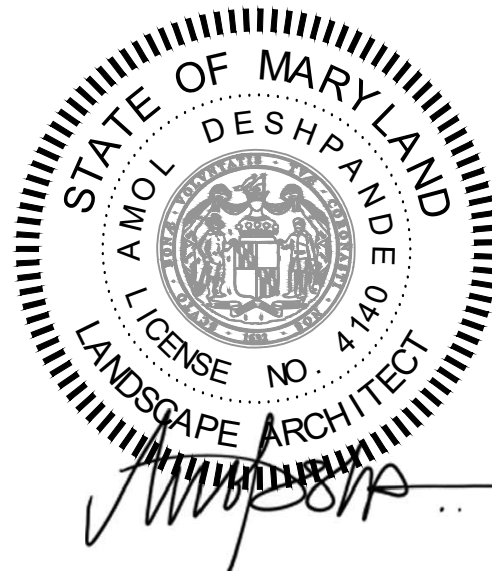
- NOTES:
1. DRAWING REPRESENTS DESIGN INTENT ONLY, PROVIDE SHOP DRAWINGS FOR REVIEW & APPROVAL.
  2. FENCE SHALL COMPLY WITH IRC APPENDIX G.
  3. BASIS OF DESIGN MONTAGE BY AMERISTAR.
  4. FINISH: POWDERCOAT, COLOR: BLACK

#### 7' HIGH MAINTENANCE ACCESS GATE

3/4" = 1'-0"

### LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

### OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

### CONSTRUCTION DETAILS

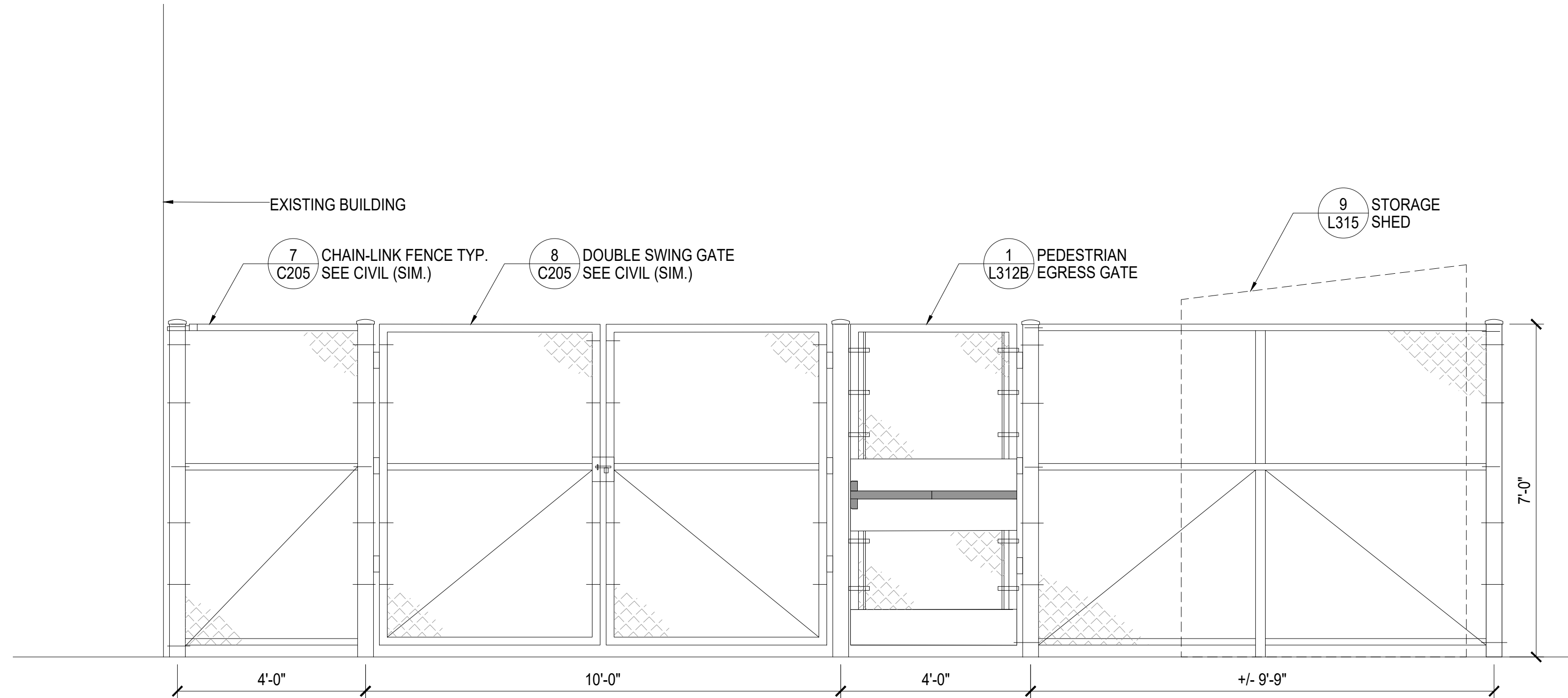
#### BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
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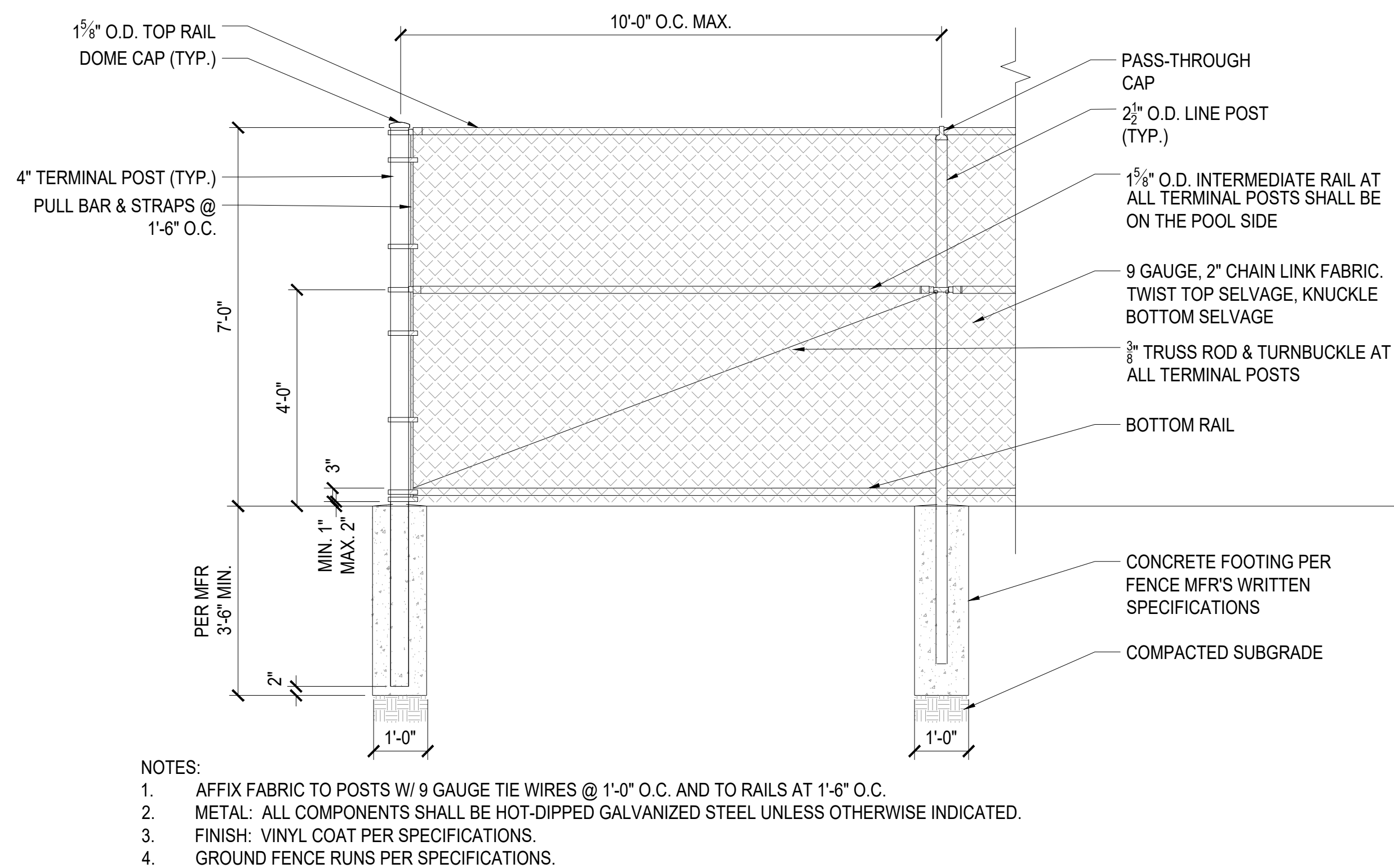
No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No. L312A		

NFC

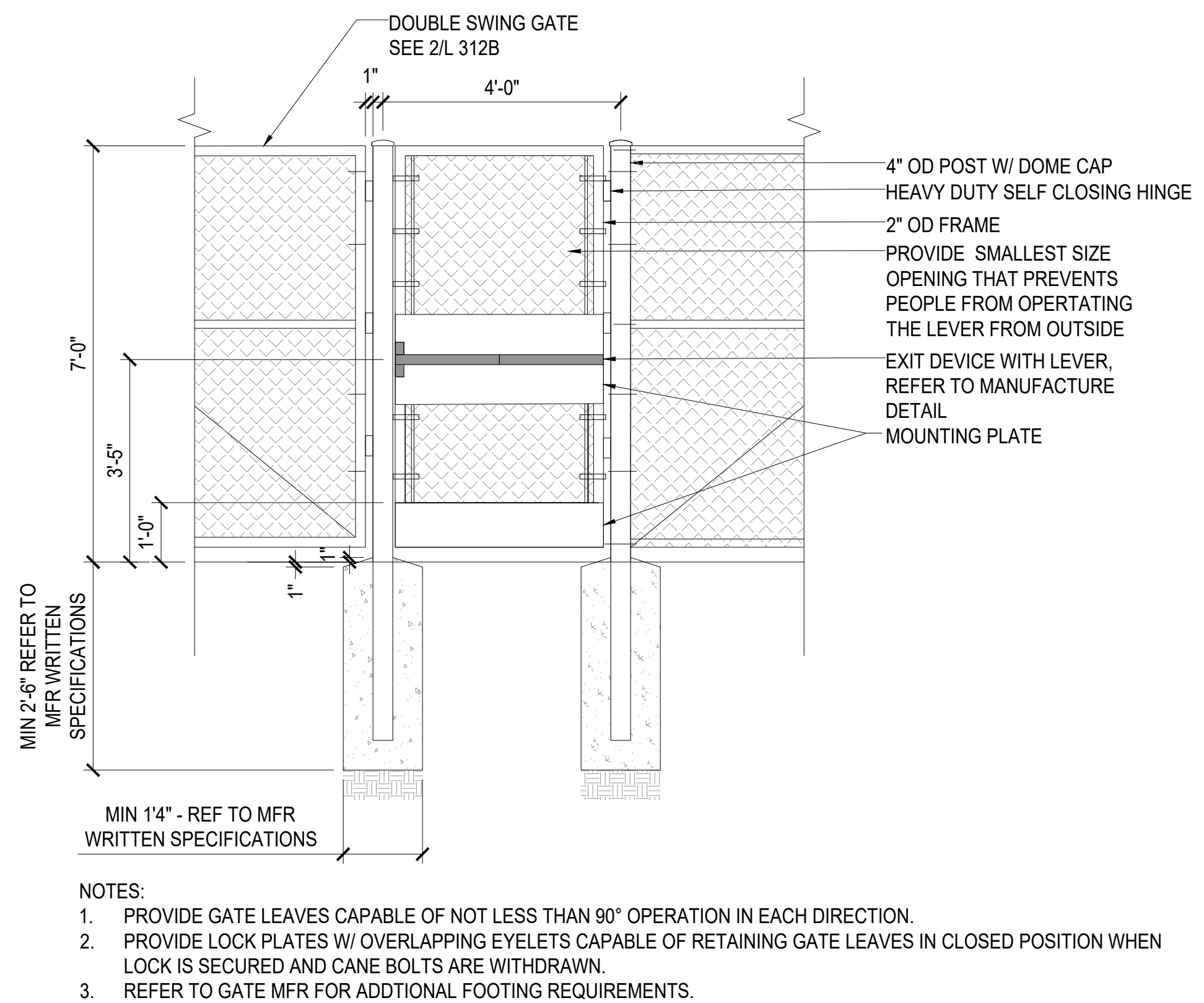




3 CHAIN LINK FENCE AND GATE ELEVATION  
1/2" = 1'-0"



2 CHAIN LINK FENCE  
1/2" = 1'-0"

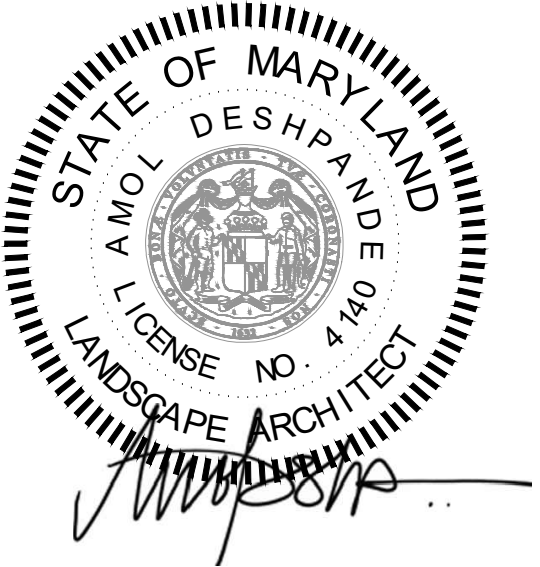


1 PEDESTRIAN EGRESS GATE  
1/2" = 1'-0"

NFC

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

CONSTRUCTION  
DETAILS

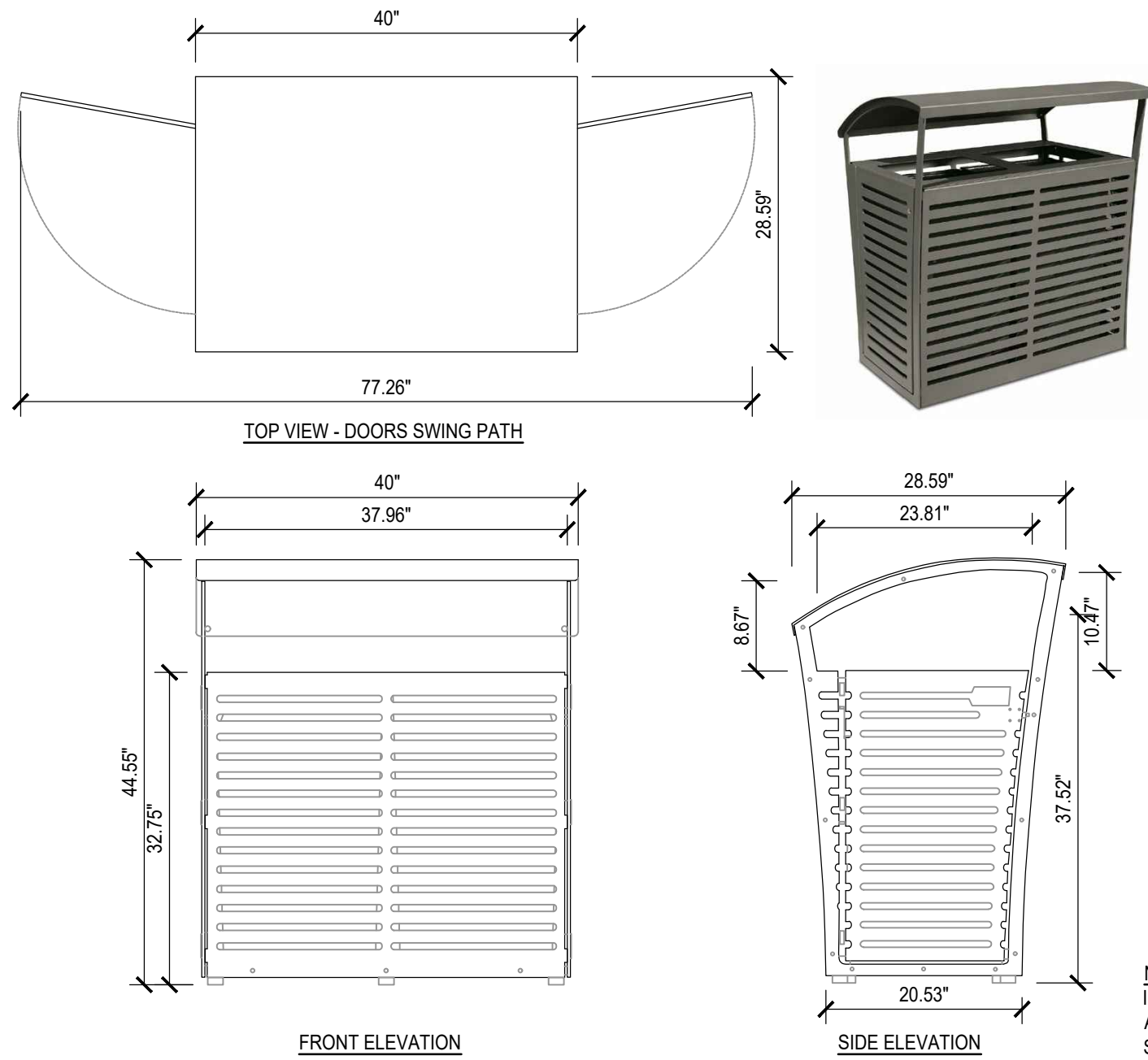
BID SET

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2	80% CONSTRUCTION DOCUMENT	08/18/2023
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7	BUILDING PERMIT SET	02/06/2024
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9	BID SET	02/23/2024

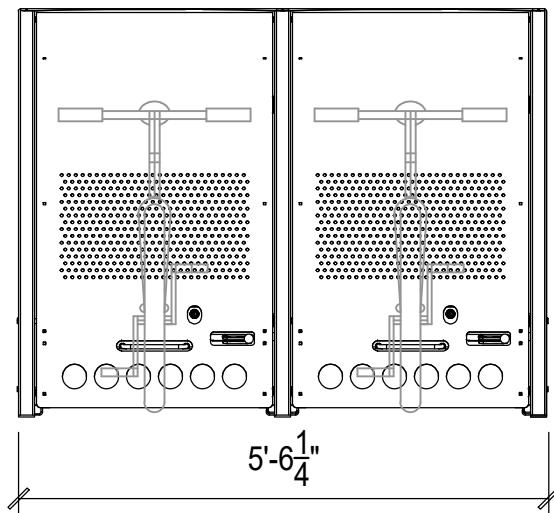
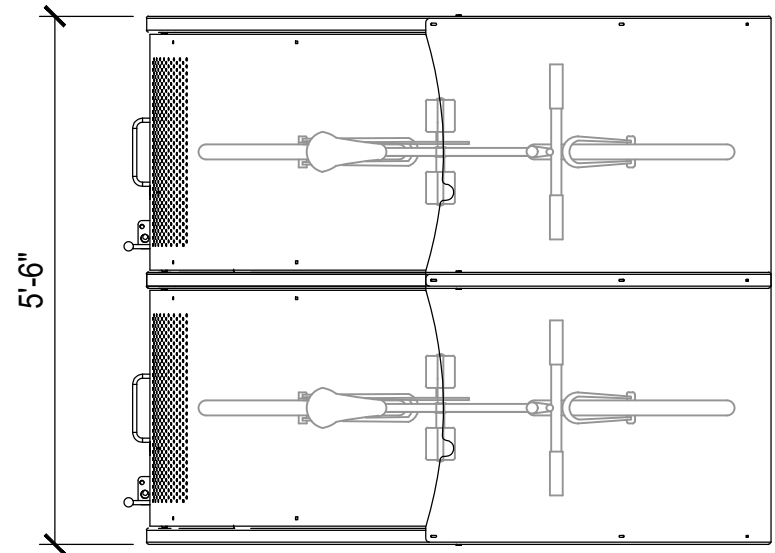
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Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No. L312B		

BID SET 02/23/2024



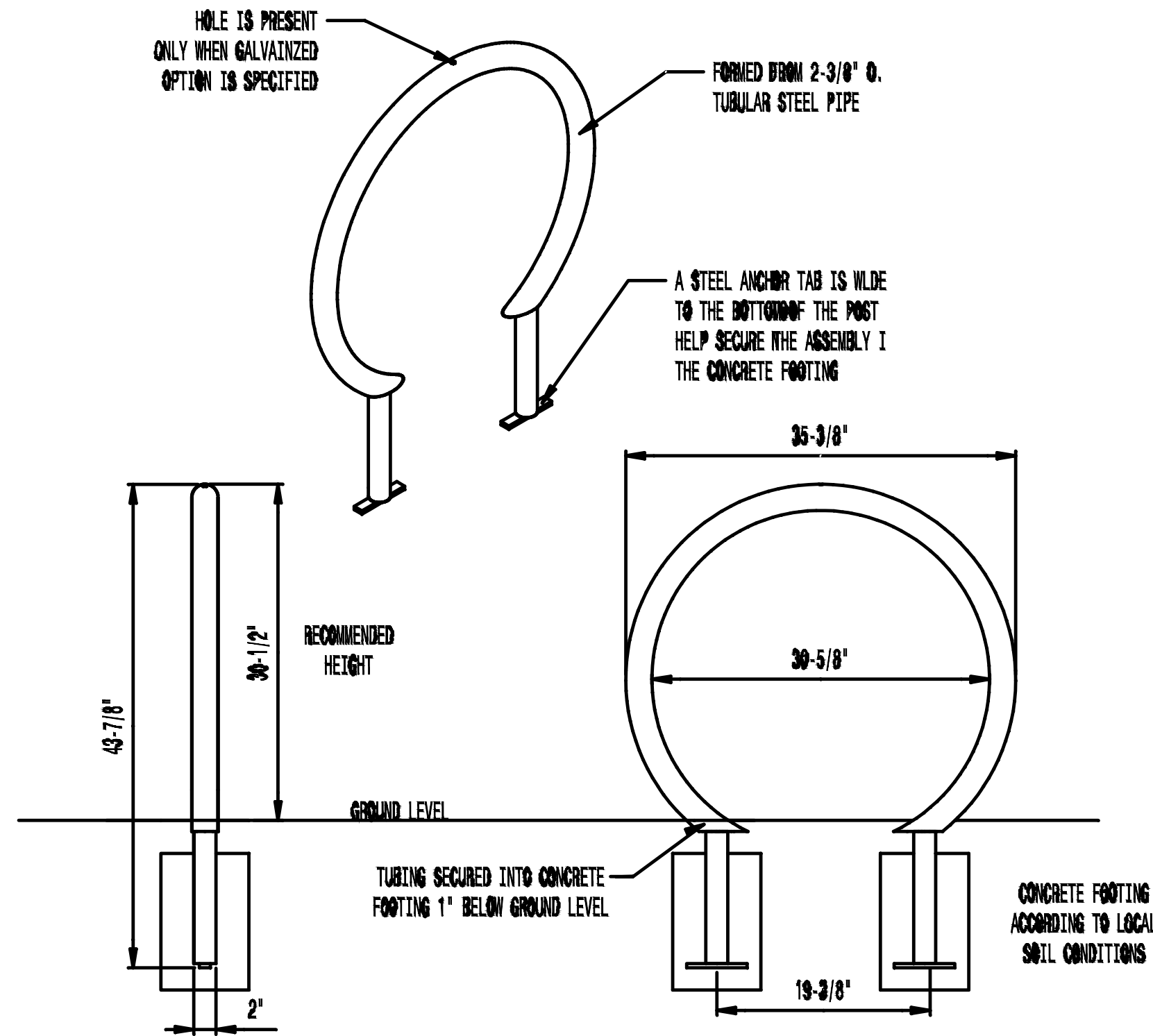


NOTES:  
INSTALLATION TO BE COMPLETED IN  
ACCORDANCE WITH MANUFACTURER'S  
SPECIFICATIONS.



### 3 BIKE LOCKER

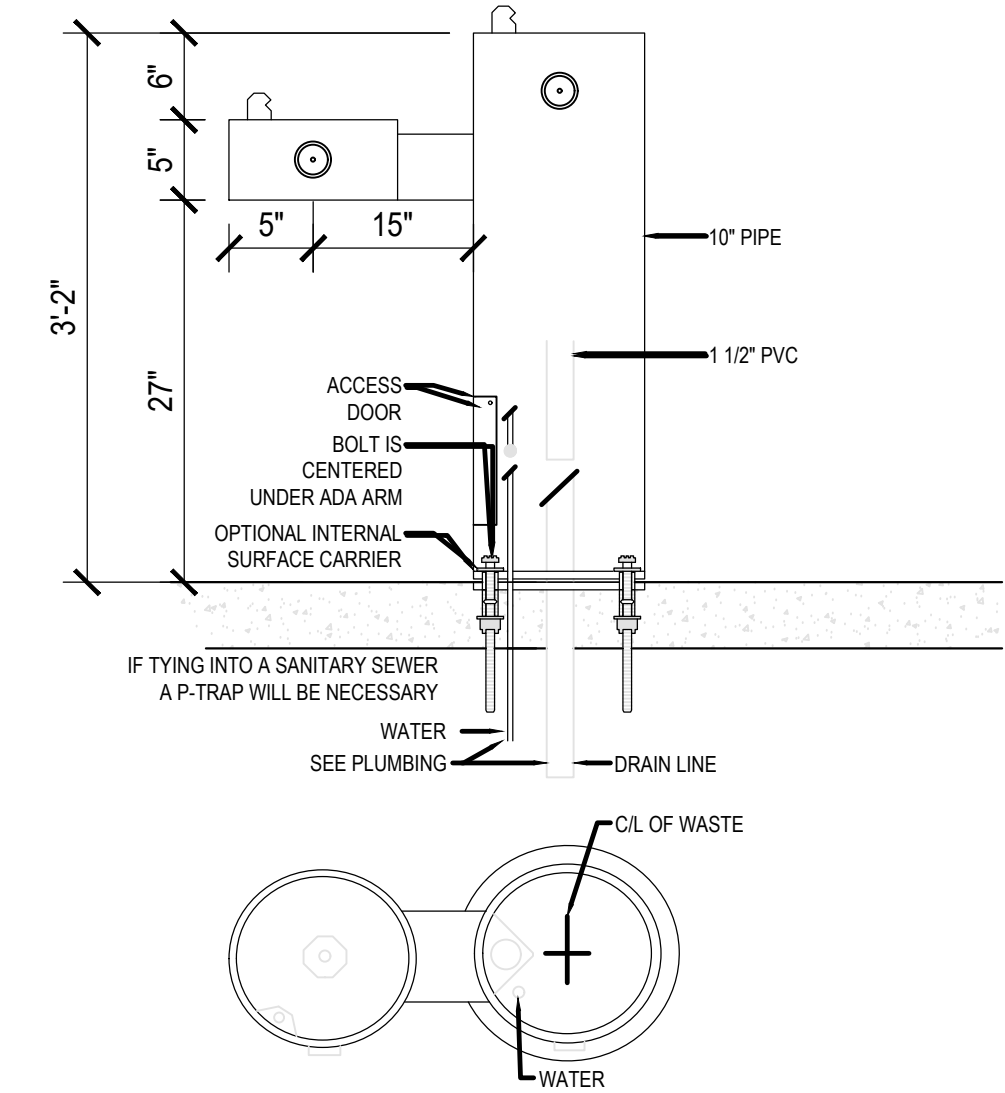
1/2" = 1'-0"



- NOTE:
1. MANUFACTURE: VICTOR STANLEY  
MODEL: BRHS-101
  2. BICYCLE RACKS TYPICALLY LOCATED IN CONCRETE PADS - SEE PLANS FOR EXTENT (VARIES)

### 1 BIKE RACK

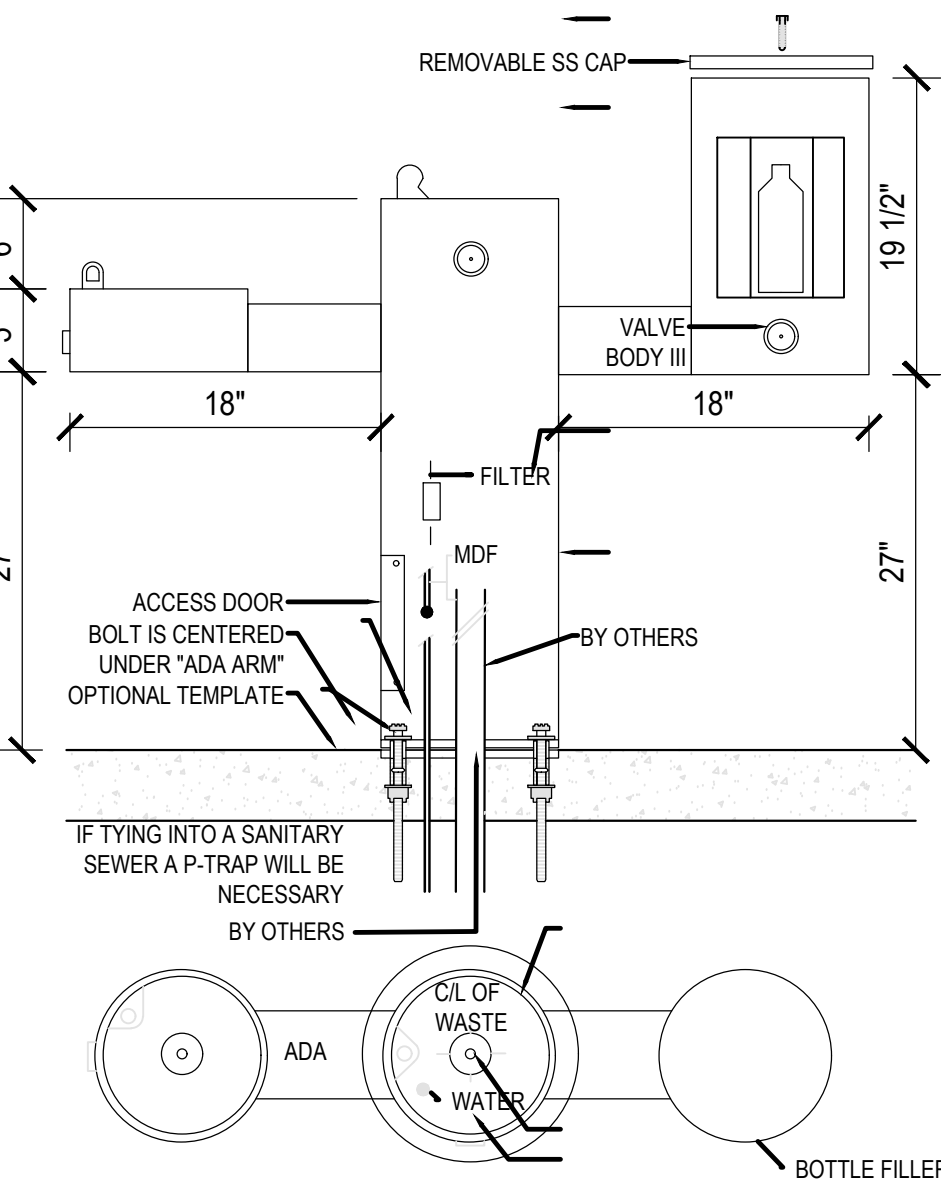
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- NOTE:
1. MANUFACTURE: MOST DEPENDABLE FOUNTAINS  
MODEL: 440 SMSSFA WITH FOOT SPRAY AND  
HOSE BIB
  2. DETAIL FOR 400 SMSS MODEL STANDARD,  
REFERENCE ONLY.
  3. NO FILTER INCLUDED.

### 6 DRINKING WATER FOUNTAIN TYPE 1

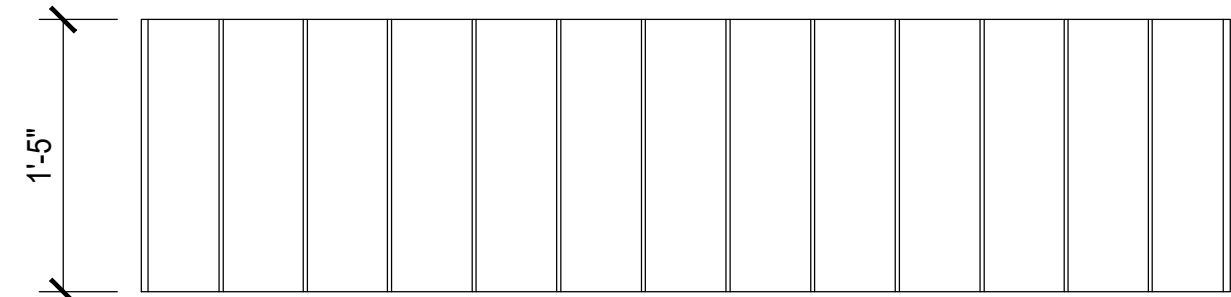
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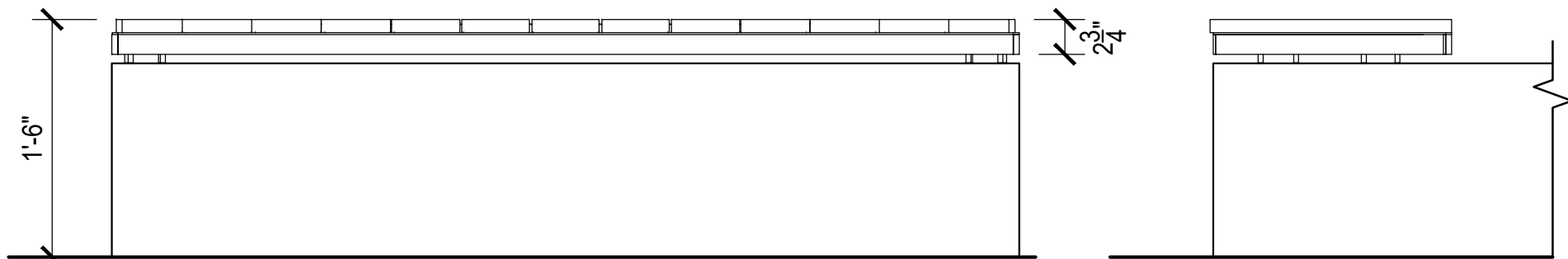
- NOTE:
1. MANUFACTURE: MOST DEPENDABLE FOUNTAINS  
MODEL: 10150 SMSS WITH FOOT SPRAY AND  
HOSE BIB
  2. DETAIL FOR 10150 SMSS MODEL STANDARD,  
REFERENCE ONLY.
  3. REMOVE FILTER FROM STANDARD MODEL.

### 7 DRINKING WATER TYPE 2

N/A

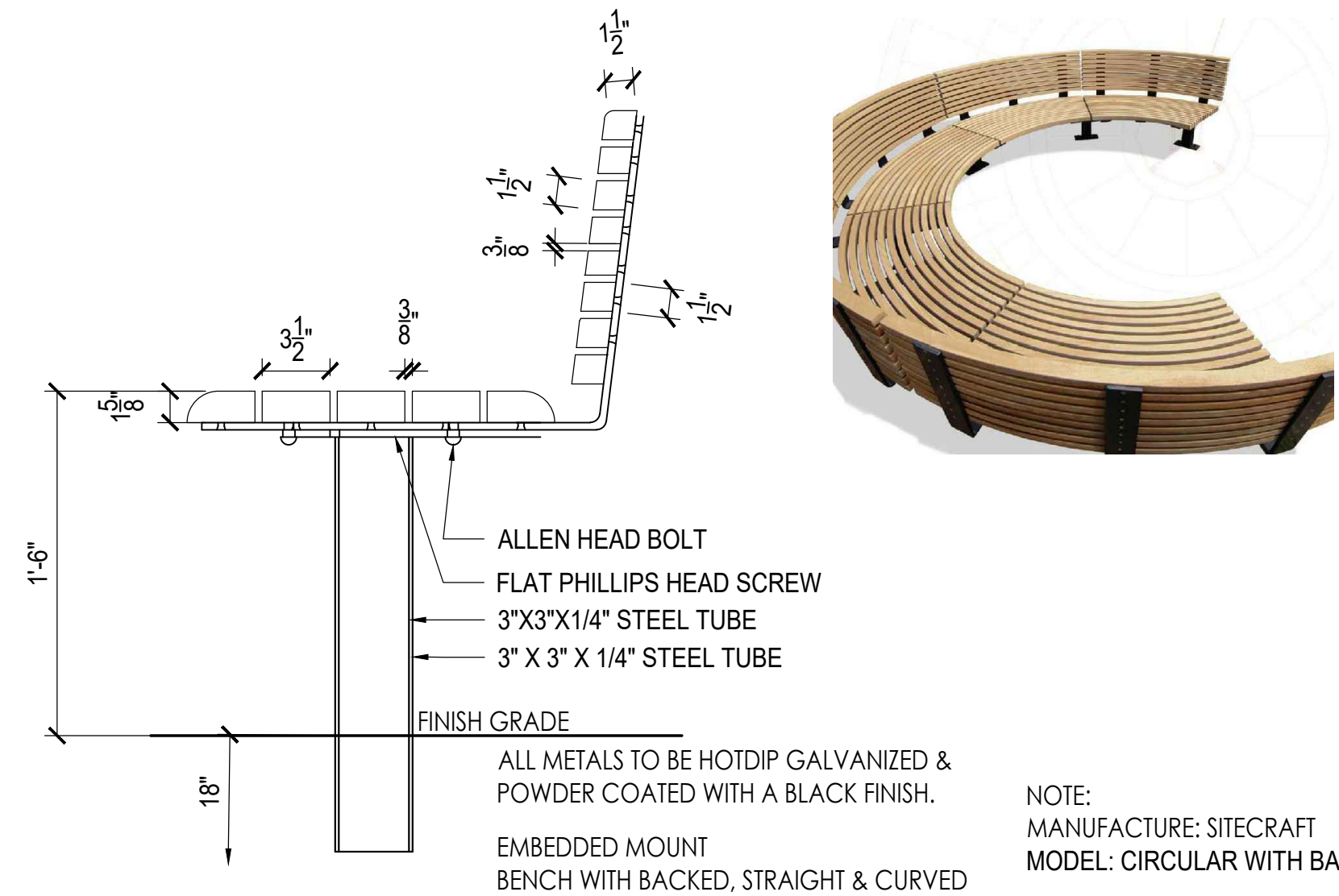
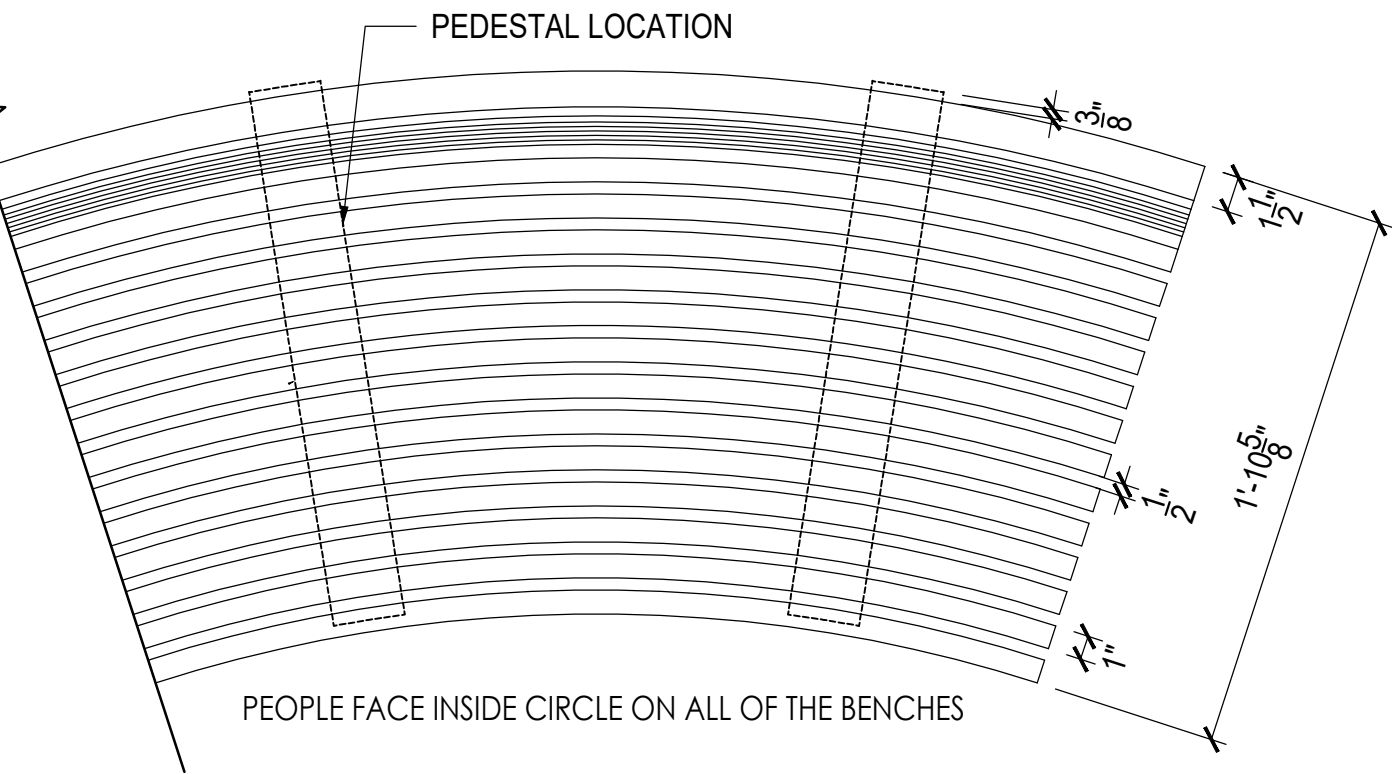


- NOTES:
1. MANUFACTURER: MAGLIN  
MODEL: OGDEN
  2. REFERENCE ONLY.
  3. PROVIDE SHOP DRAWINGS FOR  
REVIEW AND APPROVAL



### 4 BENCH TOP

N/A



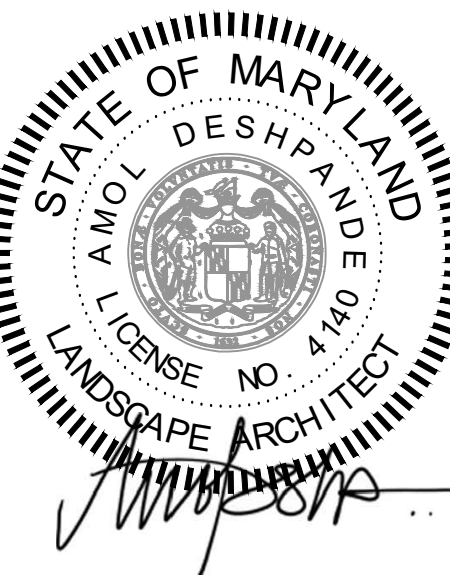
- NOTE:
1. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL.
  2. PROVIDE CONCRETE FOOTING AS PER MANUFACTURER'S RECOMMENDATIONS.

### 2 BENCH

1 1/2" = 1'-0"

## LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## CONSTRUCTION DETAILS

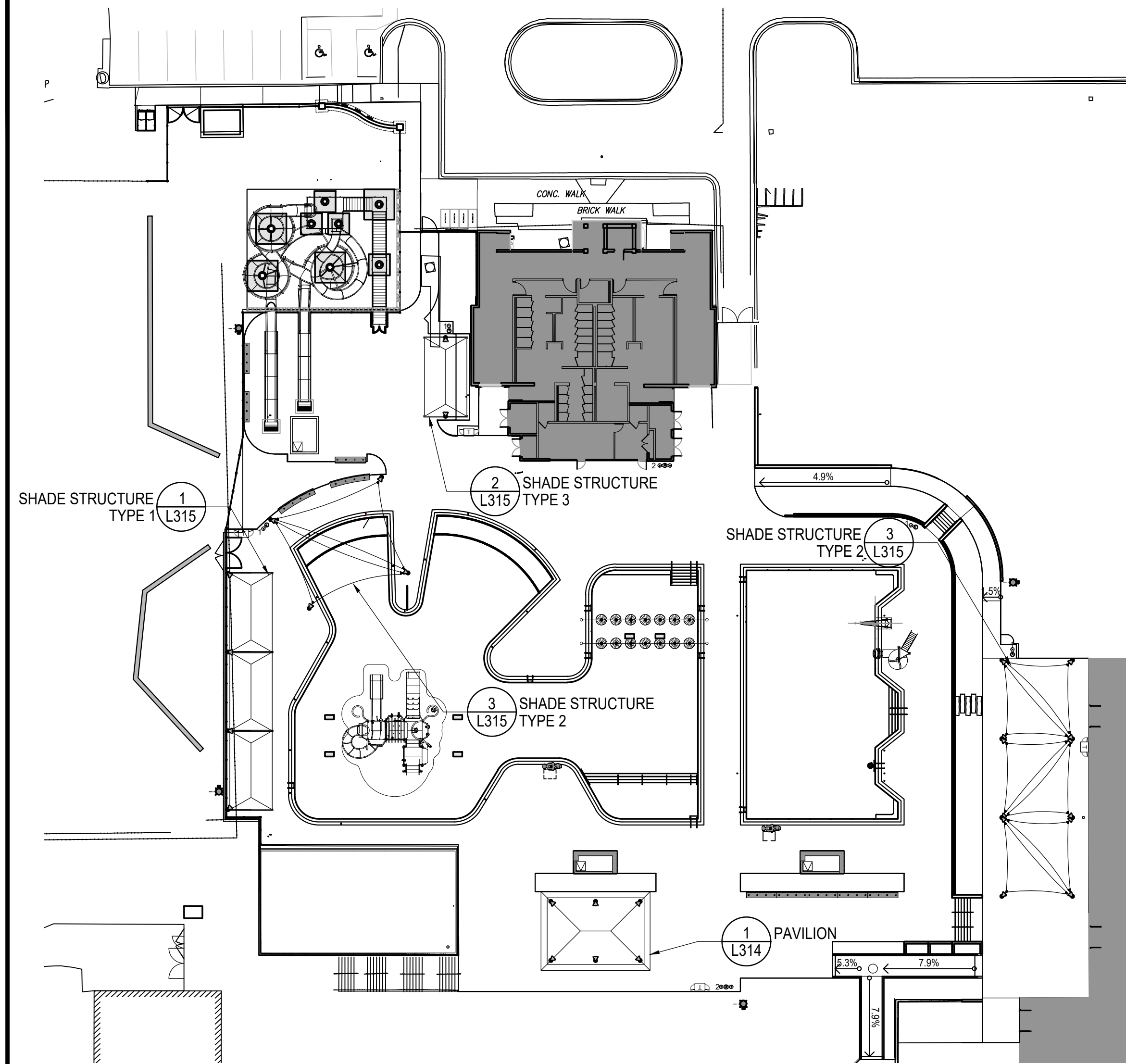
### BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	BUILDING PERMIT SET 12/08/2023
5	HD COMMENT RESPONSE 01/08/2024
6	BID SET 02/01/2024
7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

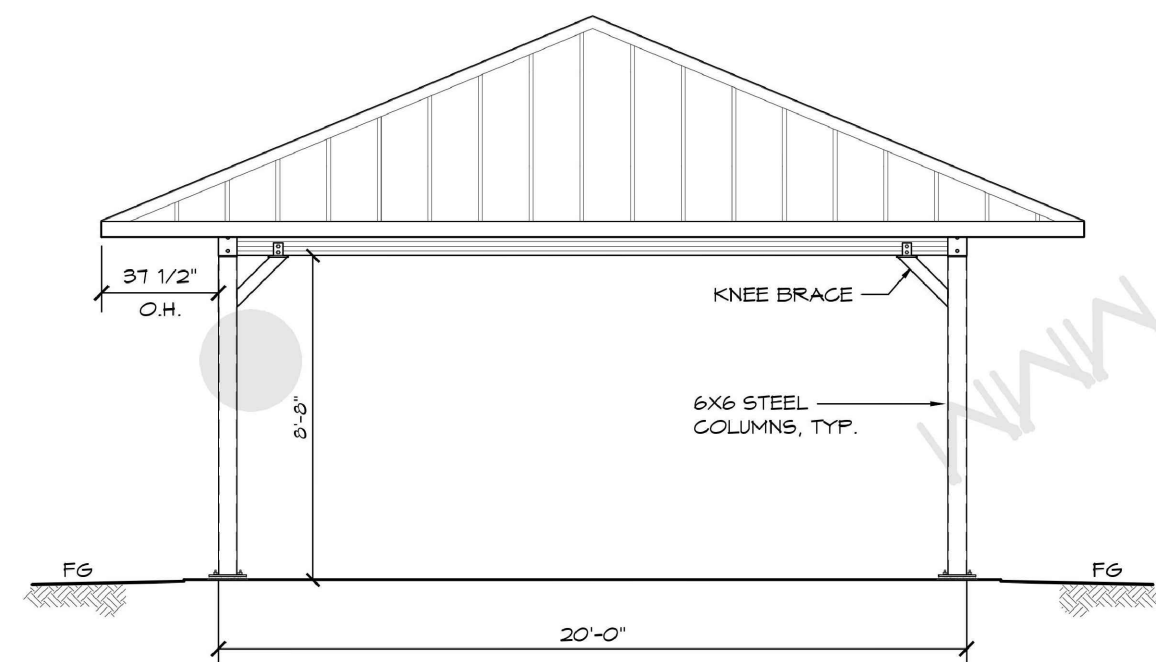
No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No. L313		

NFC



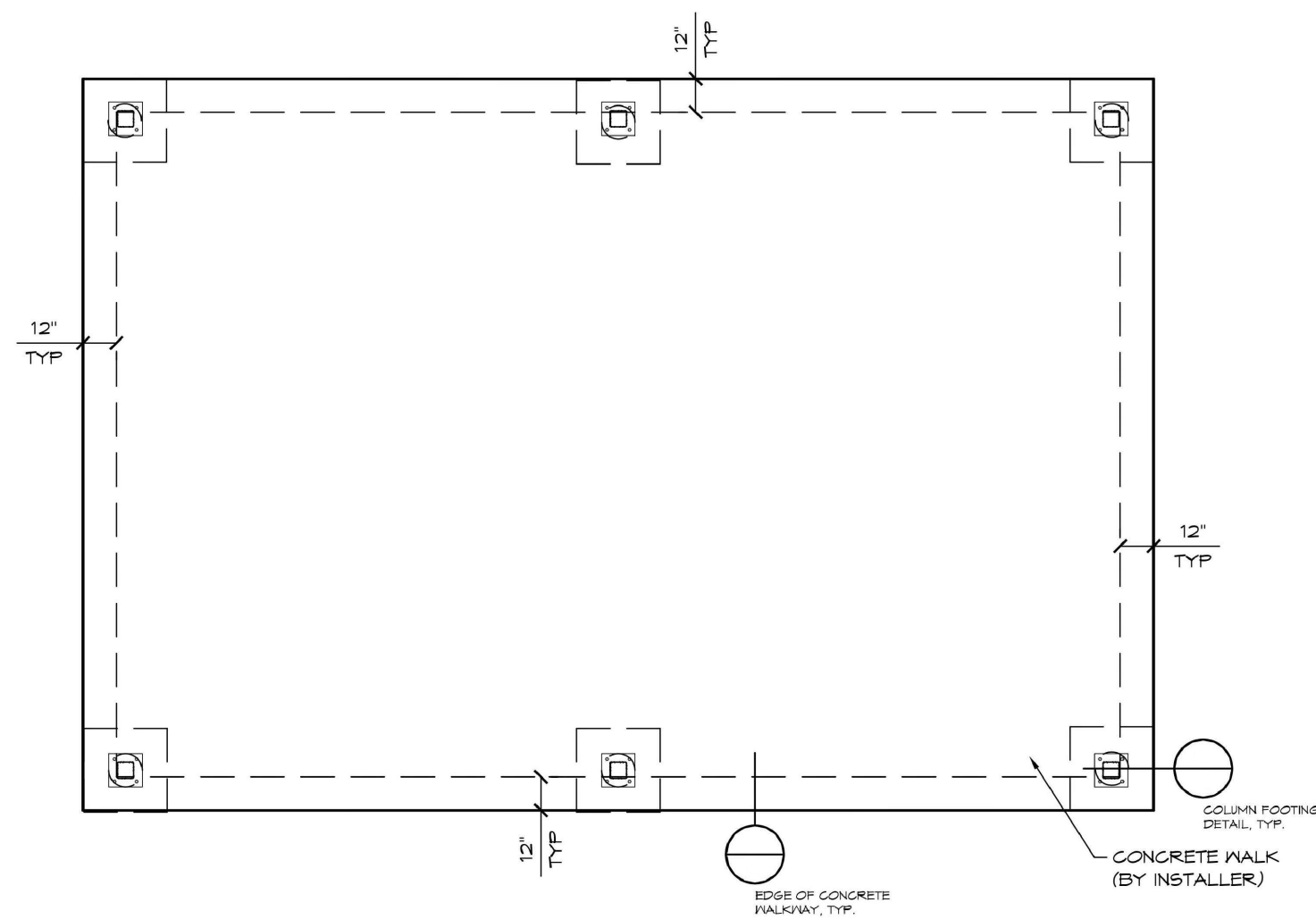


6 KEY PLAN  
N/A



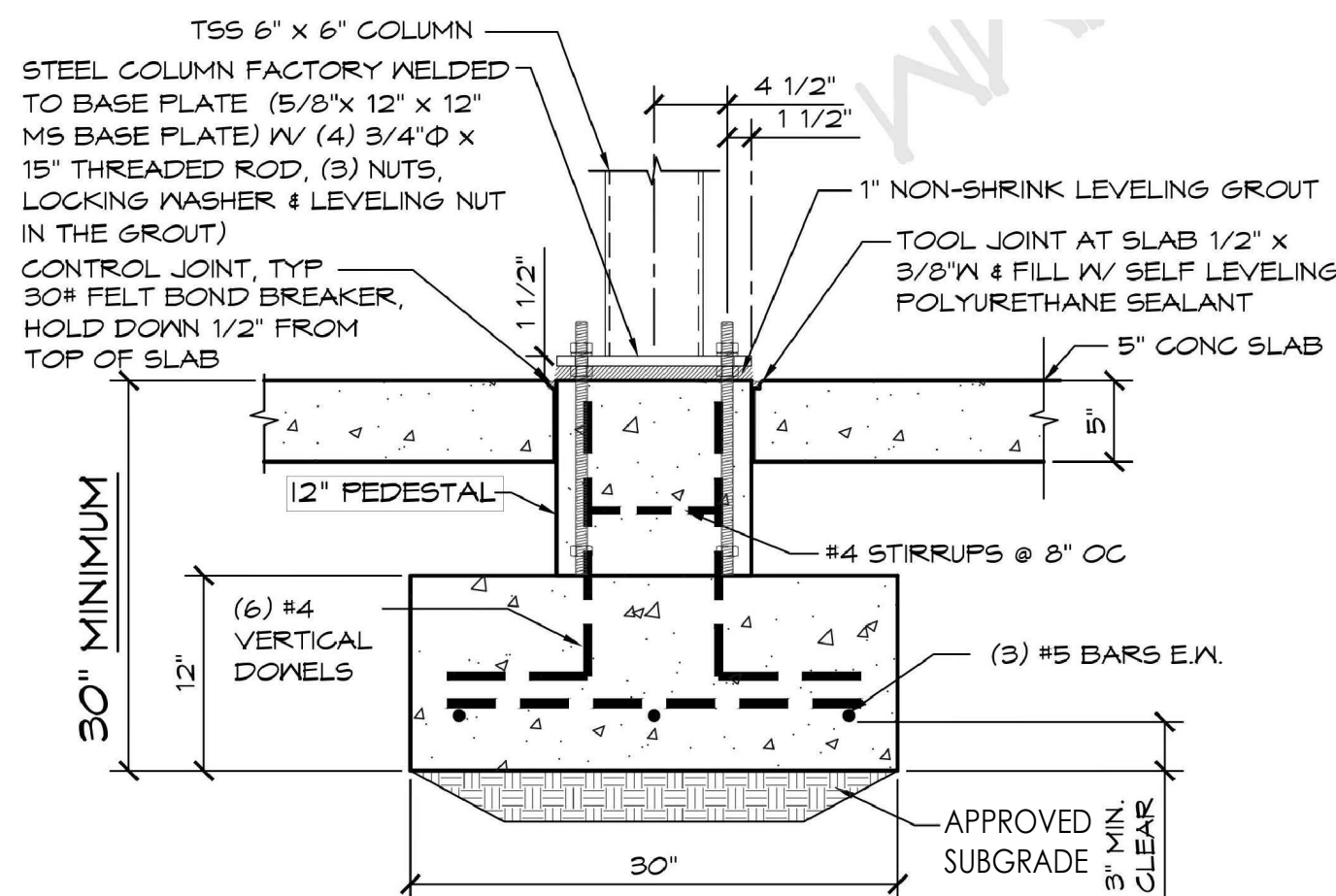
B ELEVATION VIEW

3 ELEVATION B  
N/A



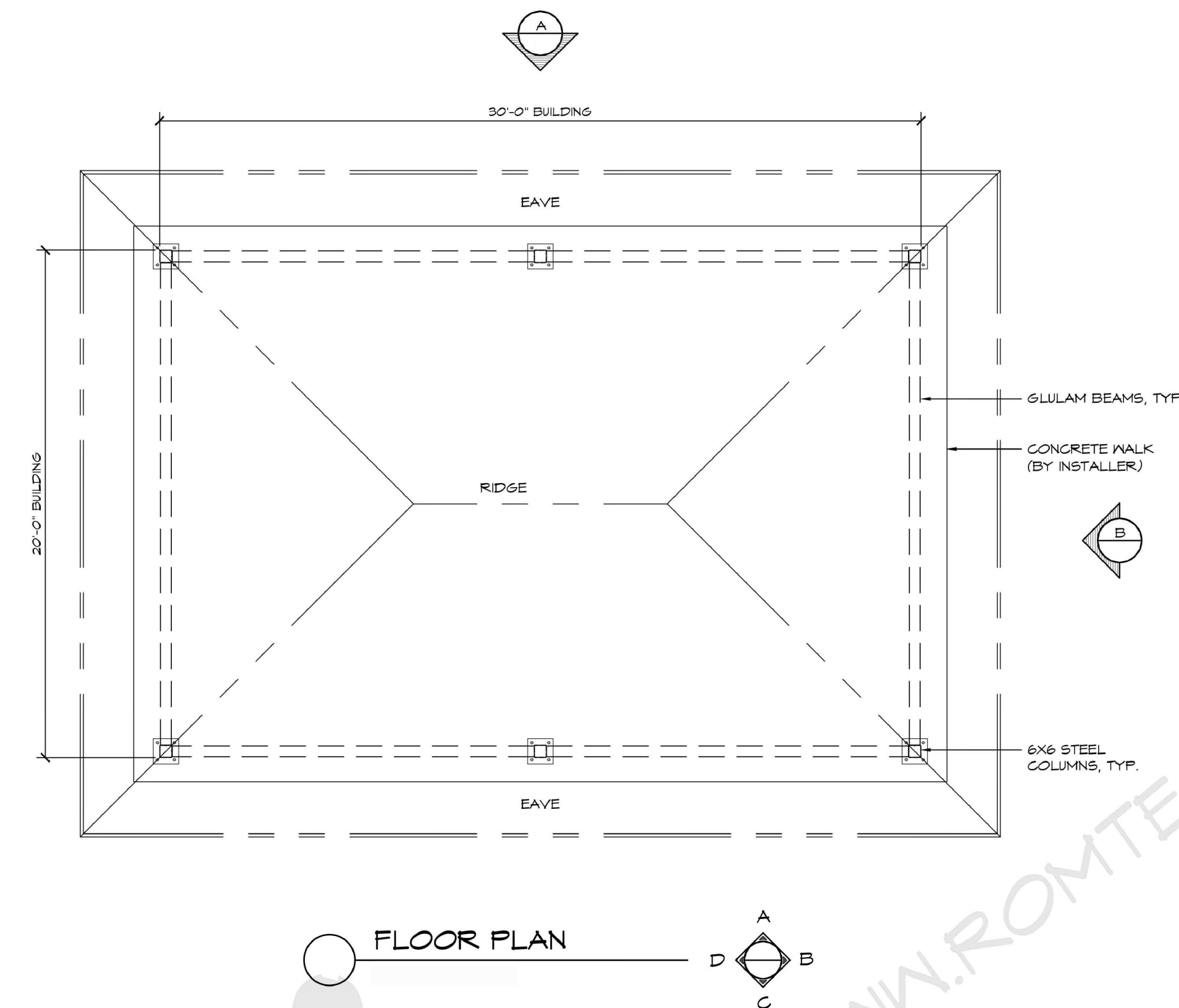
A FOUNDATION PLAN

4 FOUNDATION PLAN  
N/A



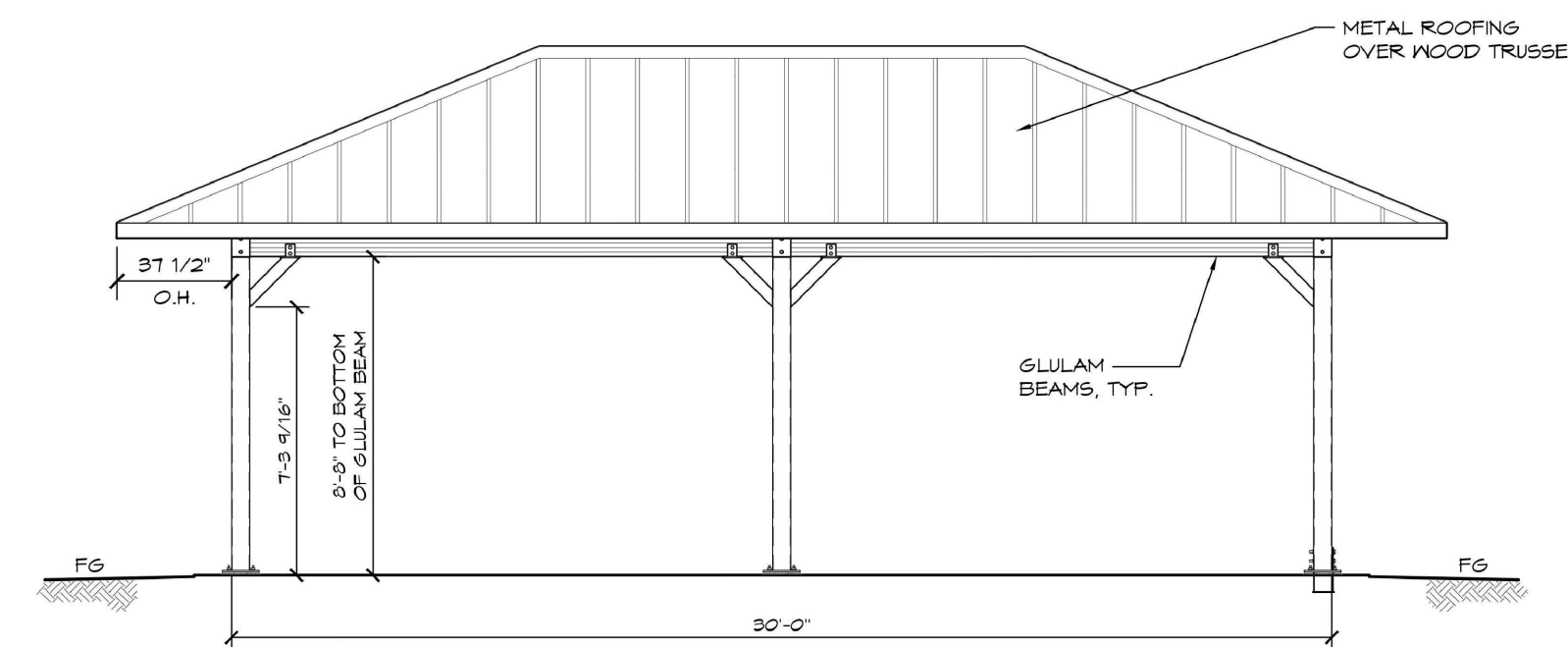
A COLUMN FOOTING DETAIL  
SCALE: 1" = 1'-0"

5 FOUNDATION DETAILS  
1"=1'-0"



FLOOR PLAN

1 PAVILION  
N/A



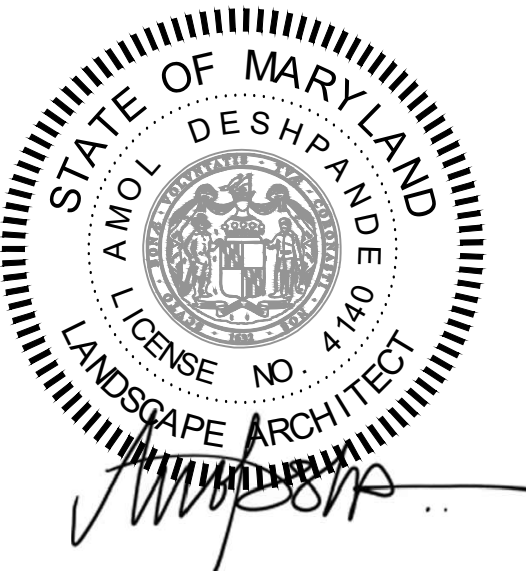
A ELEVATION VIEW

2 ELEVATION A  
N/A

- NOTES:
1. MANUFACTURER: ROMTEC  
REFERENCE ONLY. REFER TO MANUFACTURE DETAIL.
  2. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL. SHOP DRAWINGS TO BE STAMPED BY AN ENGINEER LICENSED IN THE STATE OF MARYLAND.
  3. REFER TO L320 FOR MORE INFORMATION

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

CONSTRUCTION  
DETAILS

BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
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6	BID SET 02/01/2024
7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		

Project Number:	22.00036.00
Scale:	AS SHOWN
Drawn By:	AD, HW, BS
Checked By:	AD
Date:	01/08/2024

Sheet No.	L314
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NFC

BID SET 02/23/2024



5 NOT USED  
N/A



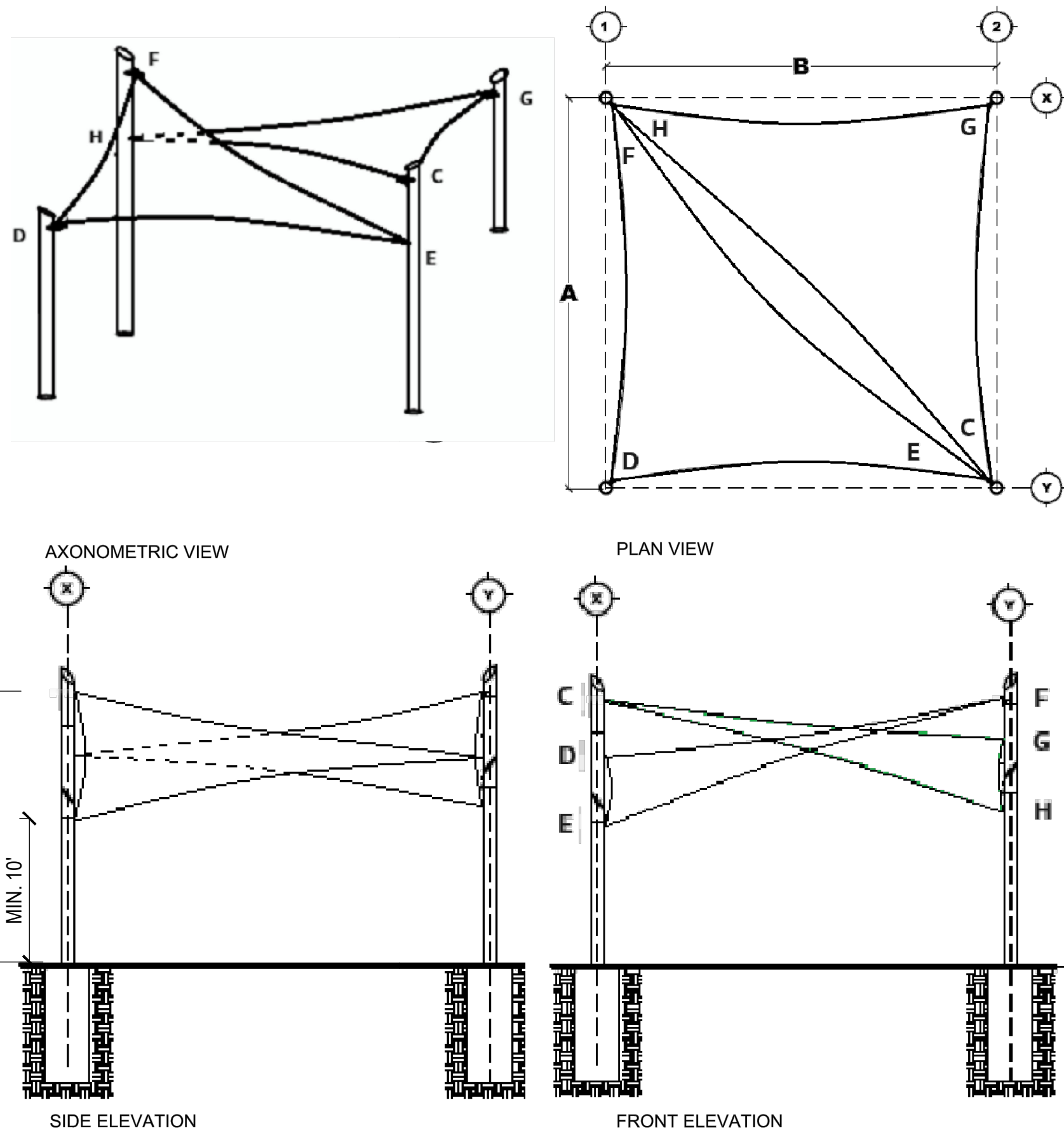
NOTE:  
1. MANUFACTURE: TUFF SHED  
MODEL: TAHOE SERIES SKYLINE INSTALLED STORAGE SHED  
SIZE: 6' X 10' X 8'-3"  
MATERIAL: WOOD  
FASTENRS: STAINLESS STEEL  
2. PROPOSED SHOP DRAWINGS AND PRODUCT DATA FOR REVIEW AND APPROVAL.

6 CHEMICAL STORAGE SHED OR APPROVED EQUAL  
N/A



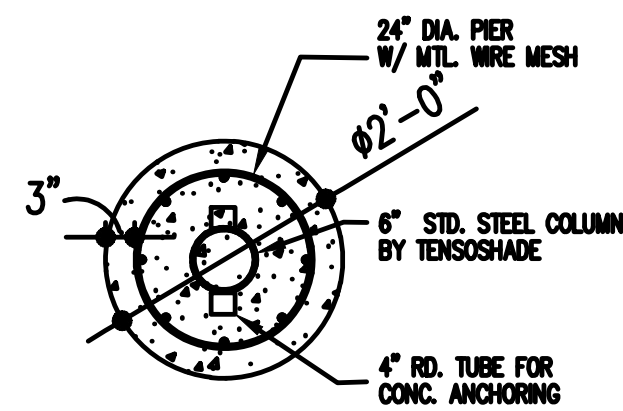
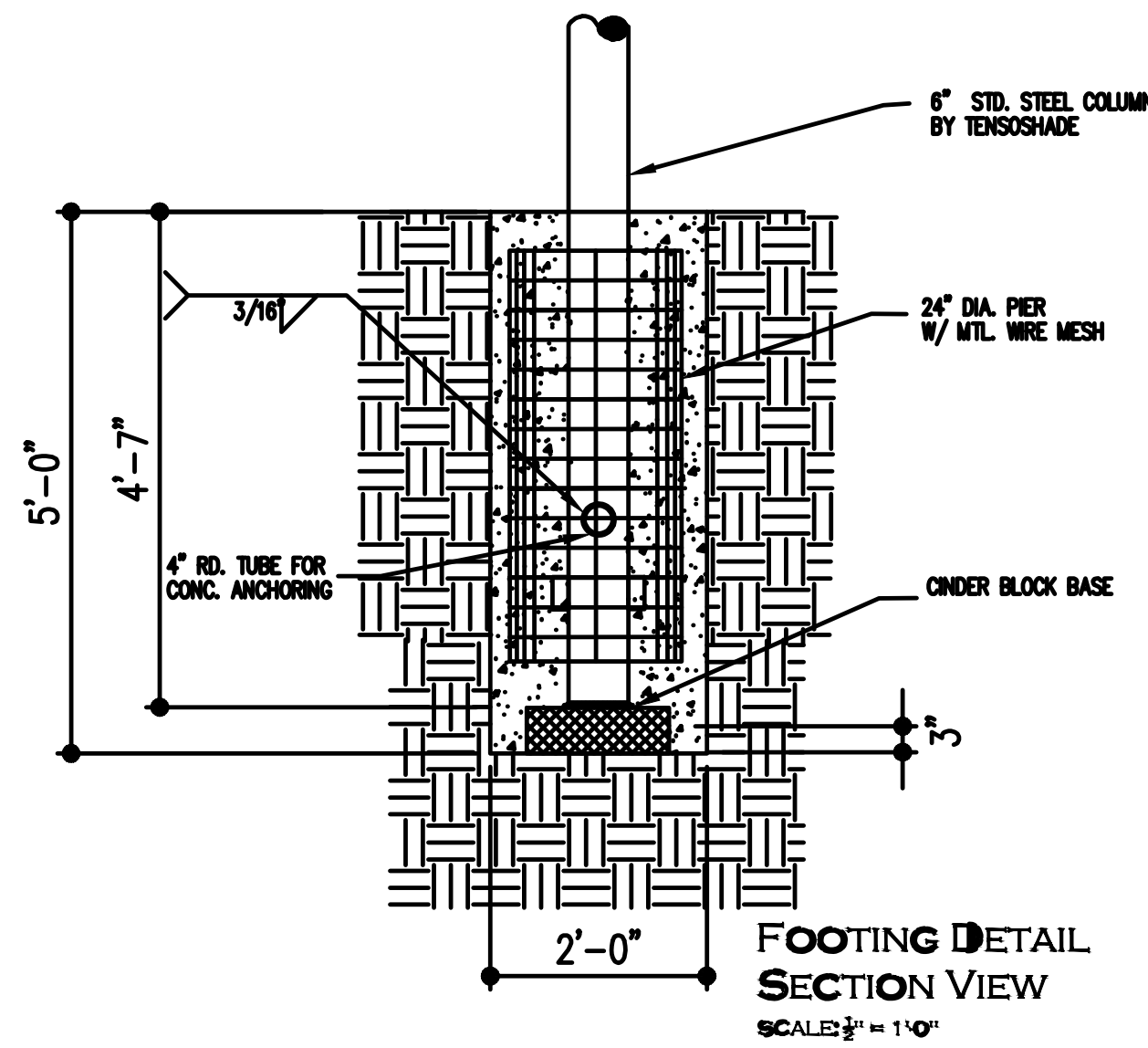
NOTE:  
1. MANUFACTURE: CORNELL COOKSON  
MODEL: ESD10 ROLLING SERVICE DOOR  
SIZE: 9'-11" X 11'-9"  
GAITHERSBURG GARAGE DOOR, ROCKVILLE, MD (301) 990-6200

7 GARAGE DOOR OR APPROVED EQUAL  
N/A



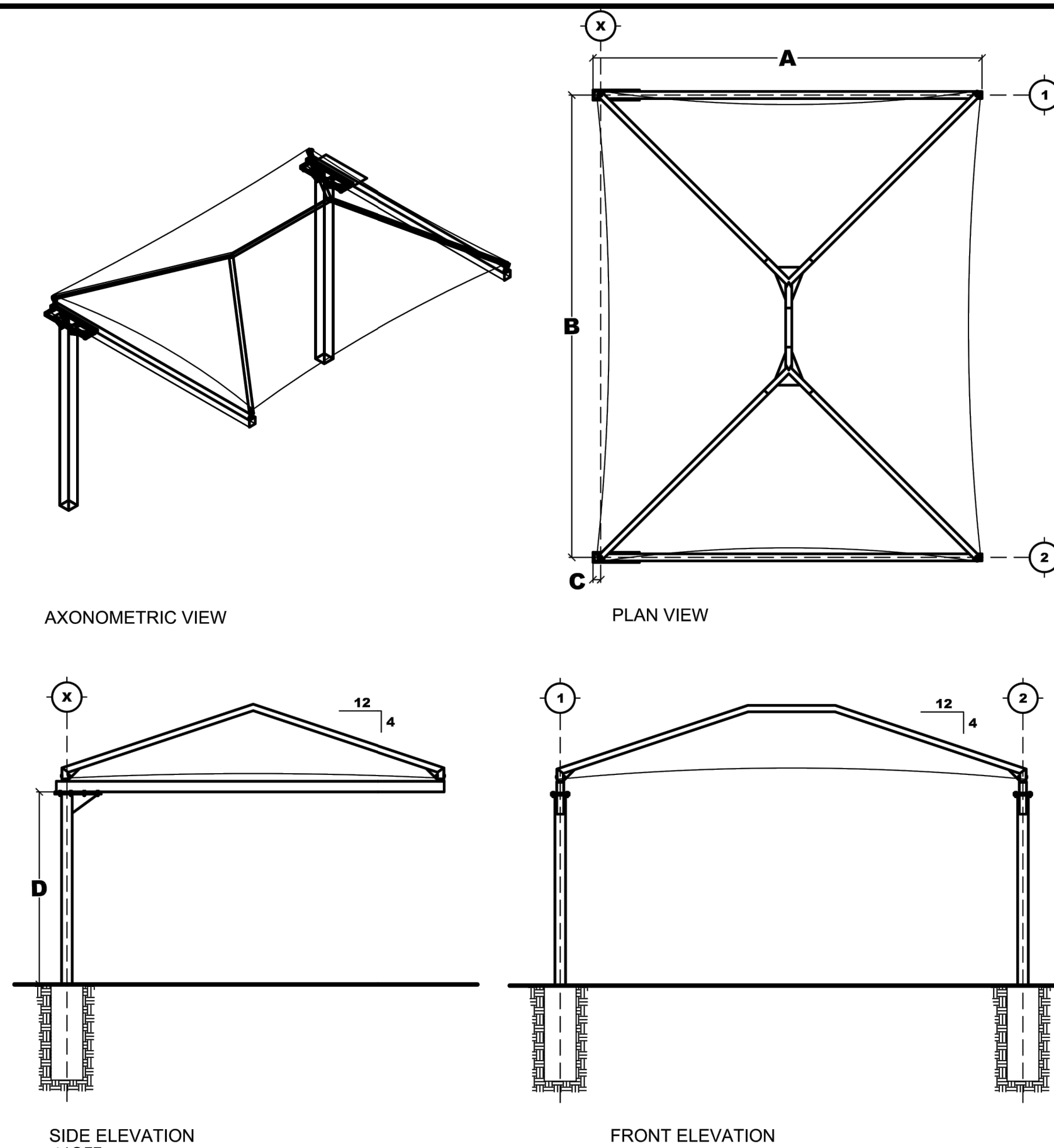
NOTE:  
1. MANUFACTURE: TENSOSHADE  
MODEL: HYPAR SHADE SAIL MANTA - REFER TO PLAN, REFER TO MANUFACTURE'S ENGINEERED DRAWINGS FOR DIMENSIONS.  
COLORS: TBD - PROVIDE STANDARD COLOR SAMPLES FOR REVIEW, SELECTION, AND APPROVAL.  
2. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL. SHOP DRAWINGS TO BE STAMPED BY AN ENGINEER LICENSED IN THE STATE OF MARYLAND.

3 SHADE STRUCTURE - TYPE 3  
N/A



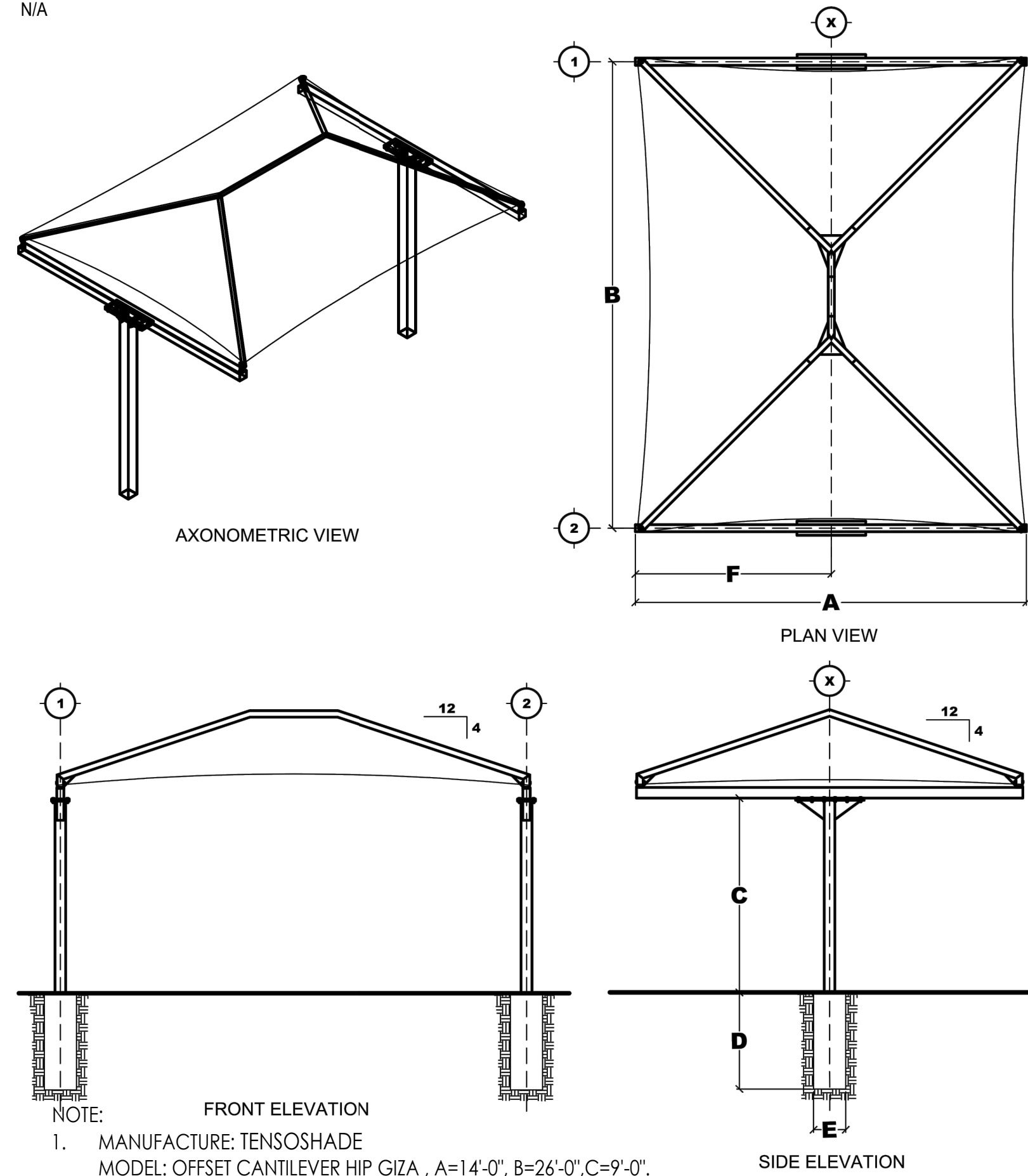
NOTE:  
1. REFERENCE ONLY. REFER TO MANUFACTURE DETAIL.

4 FOOTING DETAILS  
N/A



NOTE:  
1. MANUFACTURE: TENSOSHADE  
MODEL: FULL CANTILEVER HIP AZTEC , A=14'-0",B=26'-0",D=9'-0", REFER TO MANUFACTURE'S ENGINEERED DRAWINGS FOR DIMENSIONS.  
COLORS: TBD - PROVIDE STANDARD COLOR SAMPLES FOR REVIEW, SELECTION, AND APPROVAL.  
2. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL. SHOP DRAWINGS TO BE STAMPED BY AN ENGINEER LICENSED IN THE STATE OF MARYLAND.

1 SHADE STRUCTURE - TYPE 1  
N/A



NOTE:  
1. MANUFACTURE: TENSOSHADE  
MODEL: OFFSET CANTILEVER HIP GIZA , A=14'-0",B=26'-0",C=9'-0", REFER TO MANUFACTURE'S ENGINEERED DRAWINGS FOR DIMENSIONS.  
COLORS: TBD - PROVIDE STANDARD COLOR SAMPLES FOR REVIEW, SELECTION, AND APPROVAL.  
2. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL. SHOP DRAWINGS TO BE STAMPED BY AN ENGINEER LICENSED IN THE STATE OF MARYLAND.

2 SHADE STRUCTURE - TYPE 2  
N/A

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
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703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

CONSTRUCTION  
DETAILS

BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
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5	HD COMMENT RESPONSE 01/08/2024
6	BID SET 02/01/2024
7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

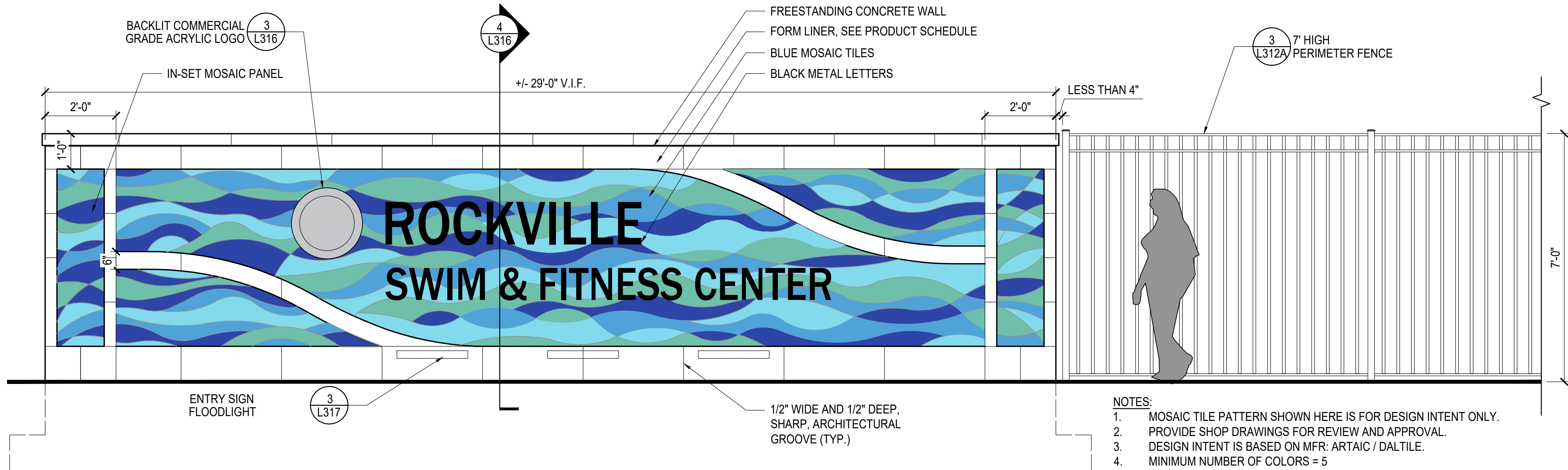
No.	Description	Date
Revisions		

Project Number:	22.00036.00
Scale:	AS SHOWN
Drawn By:	AD, HW, BS
Checked By:	AD
Date:	01/08/2024

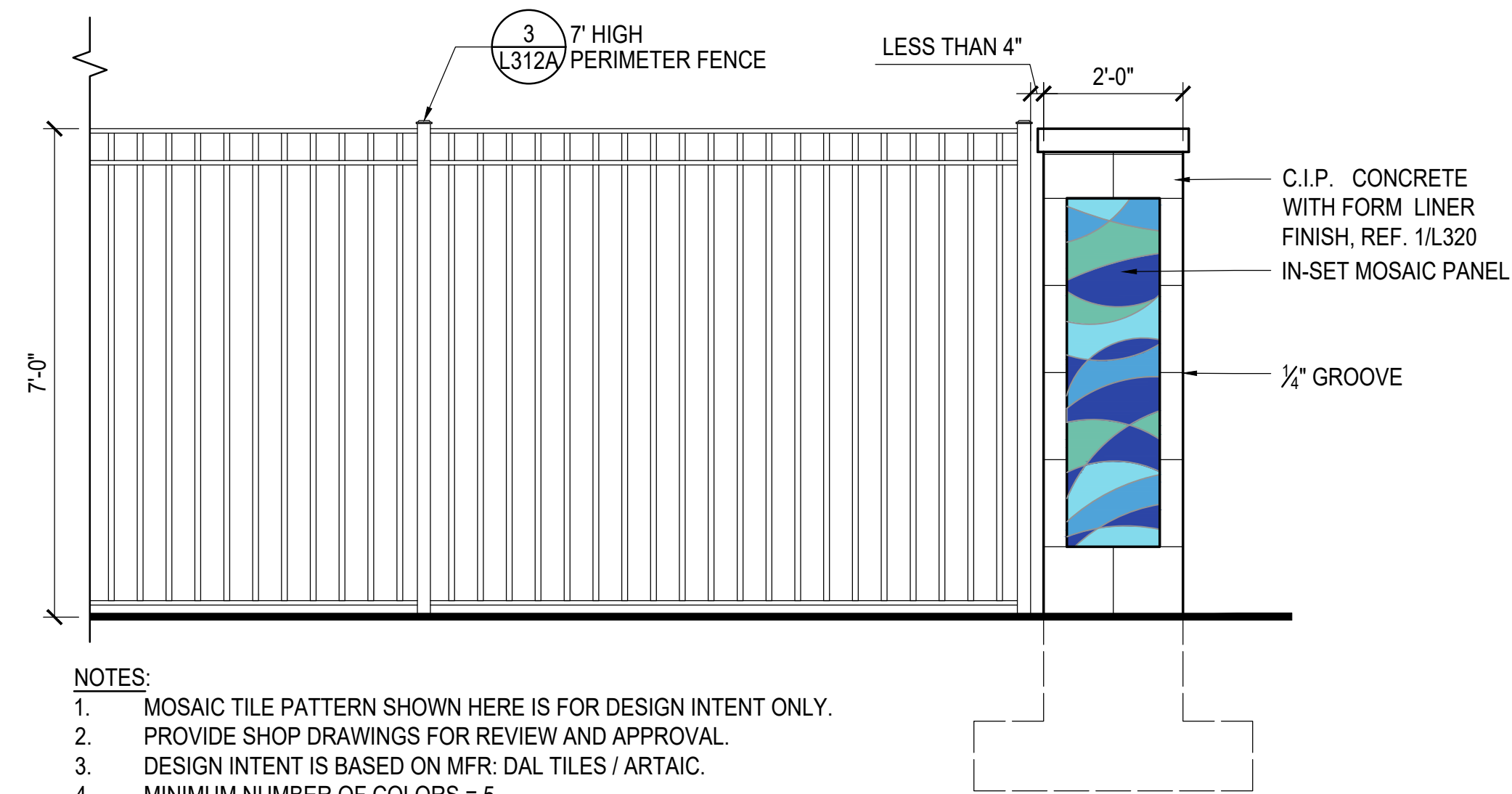
Sheet No. L315

NFC



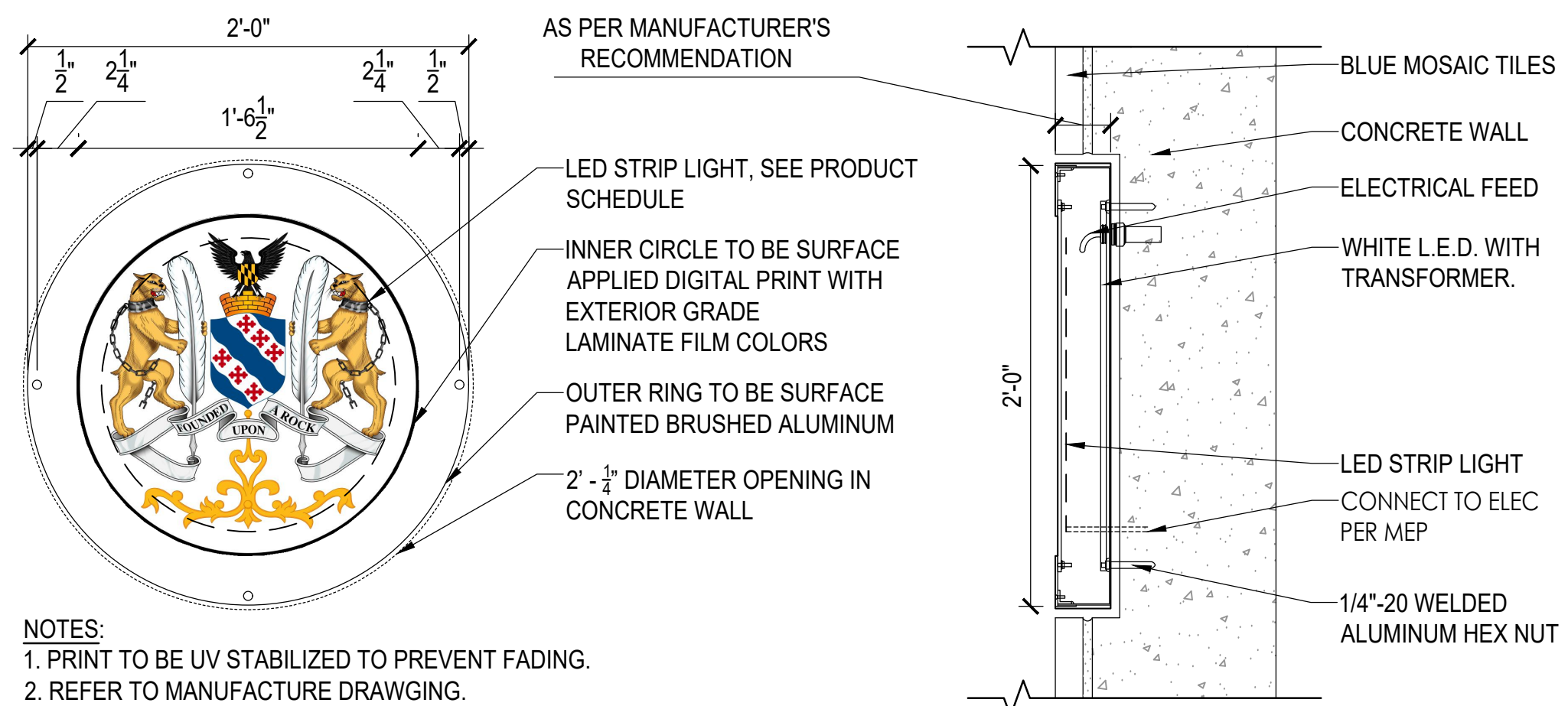


1 ENTRY WALL ELEVATION  
1/2" = 1'-0"



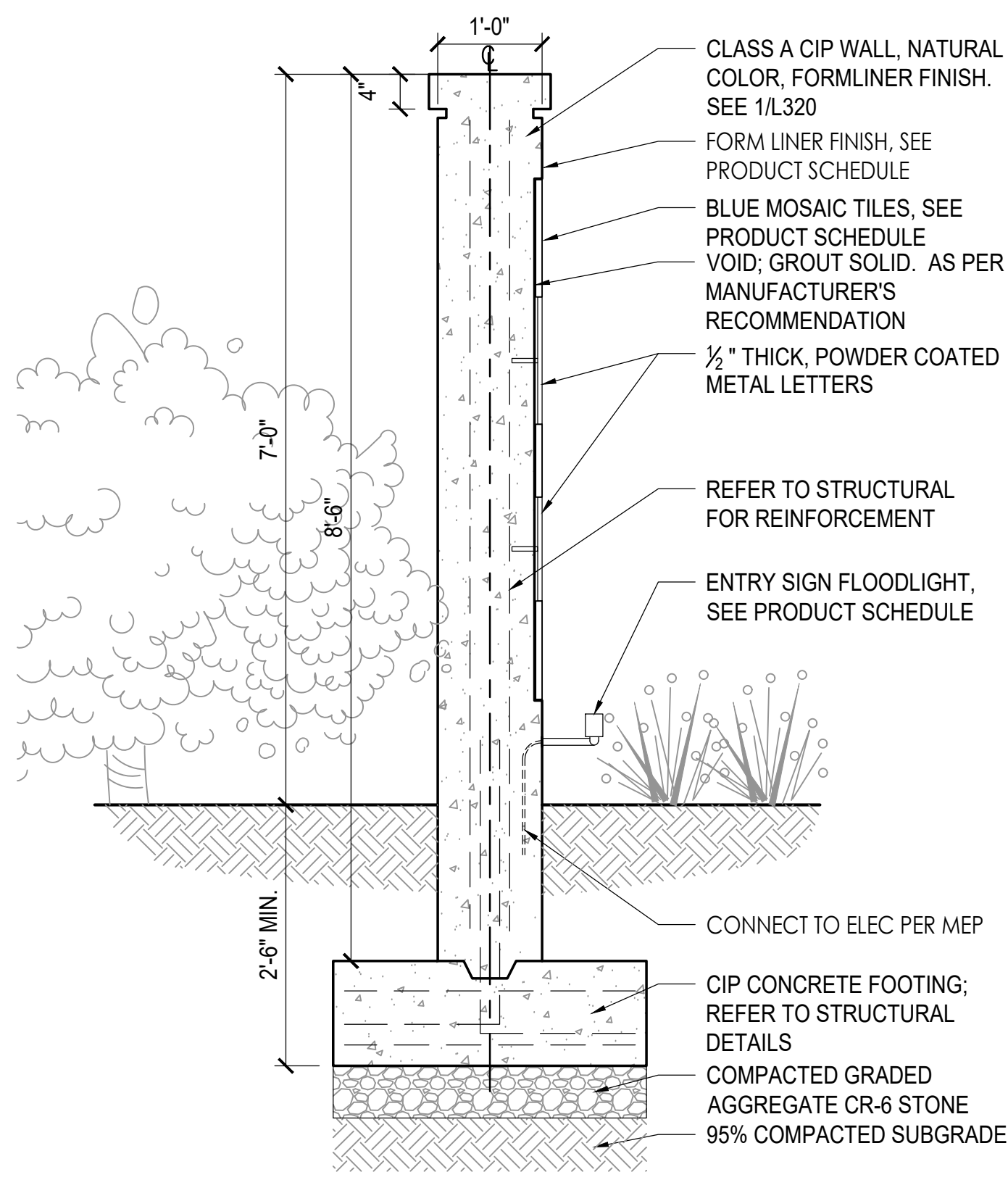
- NOTES:
1. MOSAIC TILE PATTERN SHOWN HERE IS FOR DESIGN INTENT ONLY.
  2. PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL.
  3. DESIGN INTENT IS BASED ON MFR: DAL TILES / ARTAIC.
  4. MINIMUM NUMBER OF COLORS = 5
  5. TILE SIZE = 1'0\"
  6. INSTALLATION: PER MANUFACTURER.
  7. GAP BETWEEN WALL AND FENCE SHALL BE LESS THAN 4\"

2 ENTRY WALL ELEVATION  
1/2" = 1'-0"

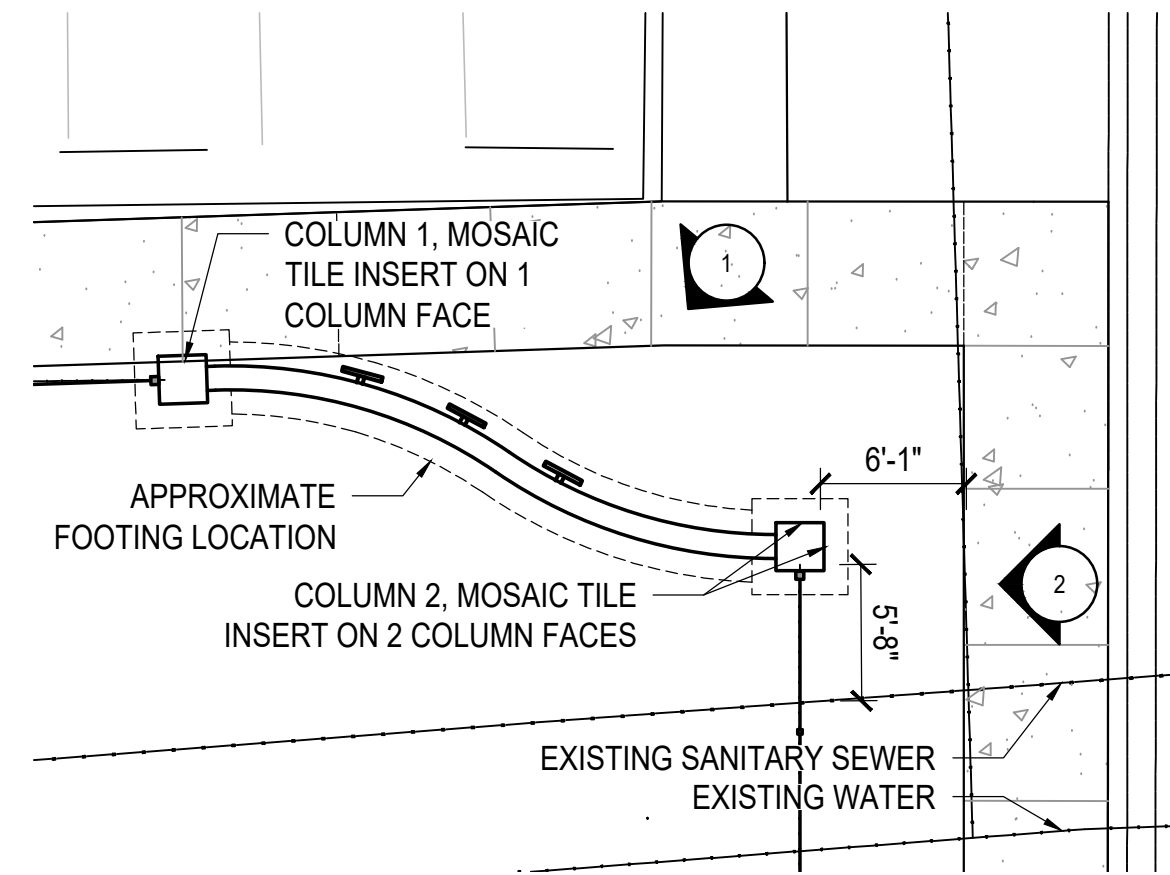


- NOTES:
1. PRINT TO BE UV STABILIZED TO PREVENT FADING.
  2. REFER TO MANUFACTURE DRAWING.

3 ENTRY WALL LOGO  
1 1/2" = 1'-0"



4 ENTRY WALL  
3/4\" = 1'-0"

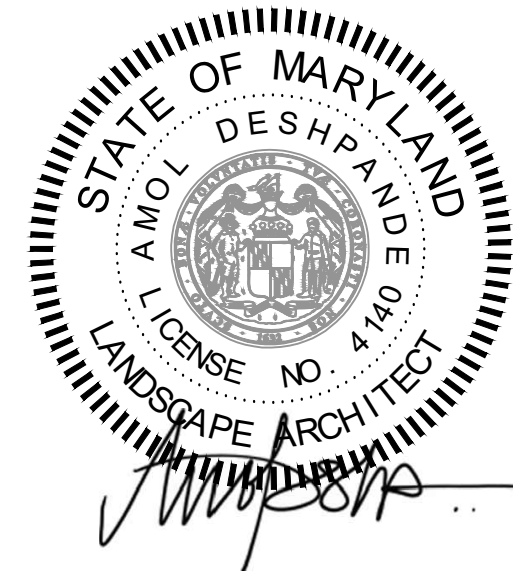


- NOTES:
1. PROVIDE A MINIMUM 5' HORIZONTAL SEPARATION BETWEEN WALL AND ALL UTILITIES.

5 ENLARGEMENT PLAN  
1\" = 8'-0"

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

CONSTRUCTION  
DETAILS

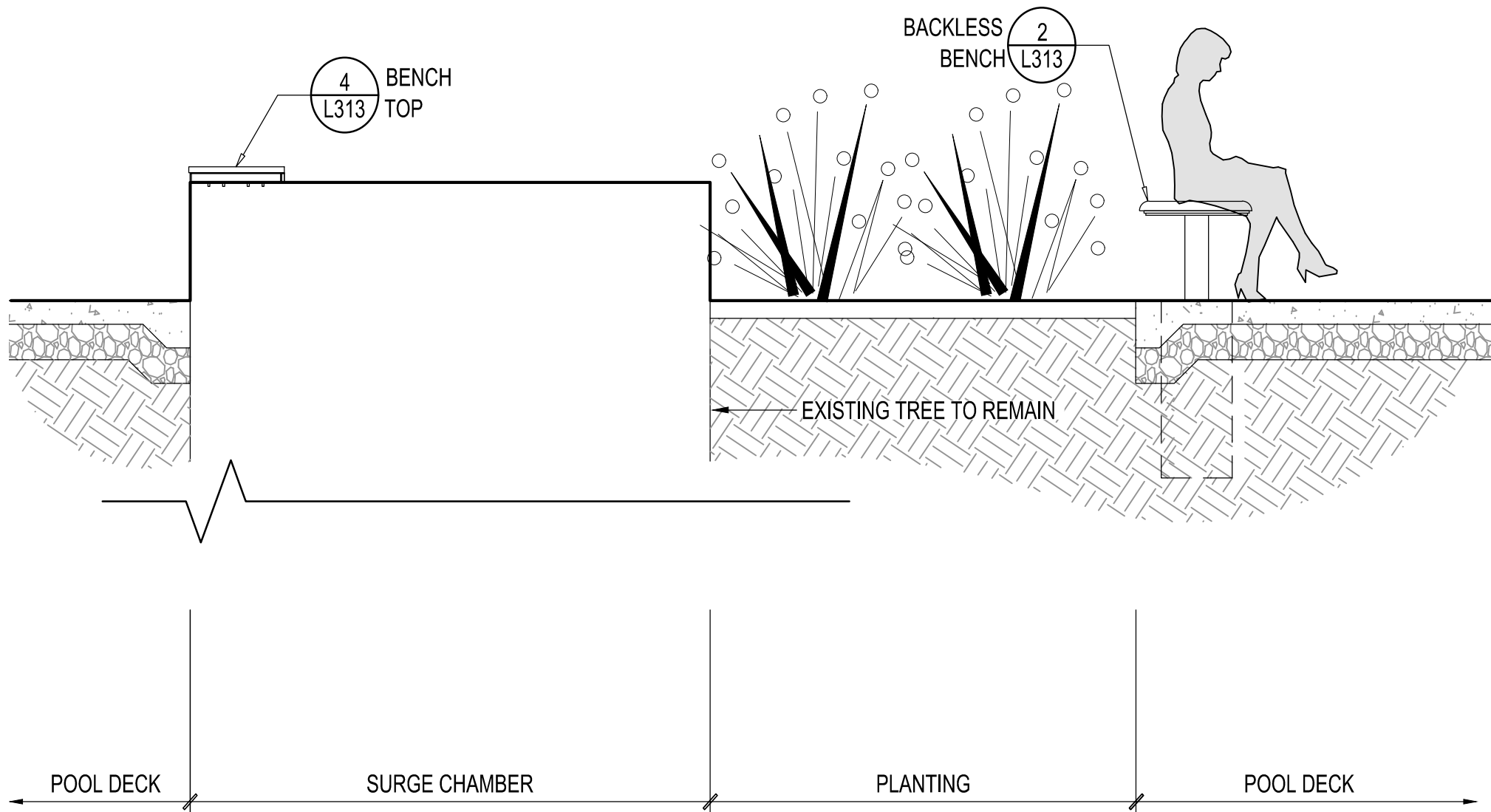
BID SET

1	65% CONSTRUCTION DOCUMENT	06/25/2023
2	80% CONSTRUCTION DOCUMENT	08/18/2023
3	95% CONSTRUCTION DOCUMENT	10/10/2023
4	BUILDING PERMIT SET	12/08/2023
5	HD COMMENT RESPONSE	01/08/2024
6	BID SET	02/01/2024
7	BUILDING PERMIT SET	02/06/2024
8	BUILDING PERMIT SET	02/20/2024
9	BID SET	02/23/2024

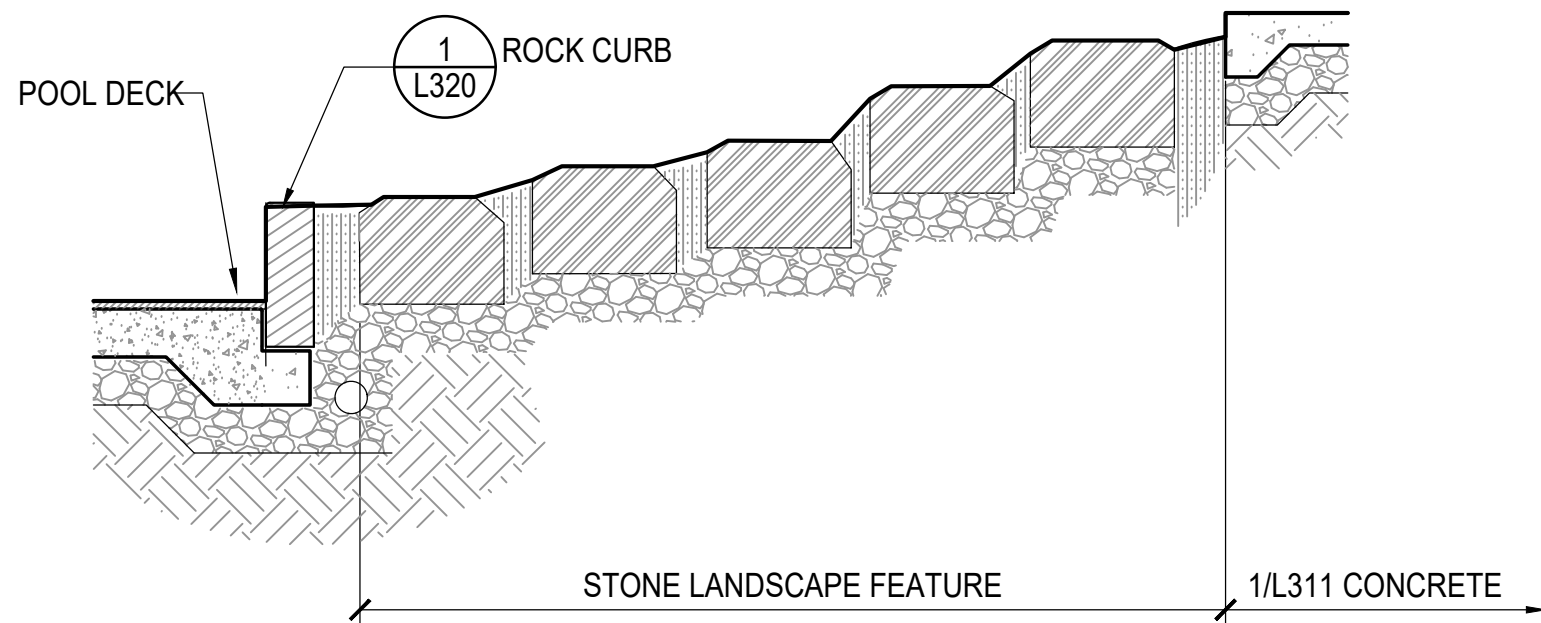
No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No.		L316

NFC

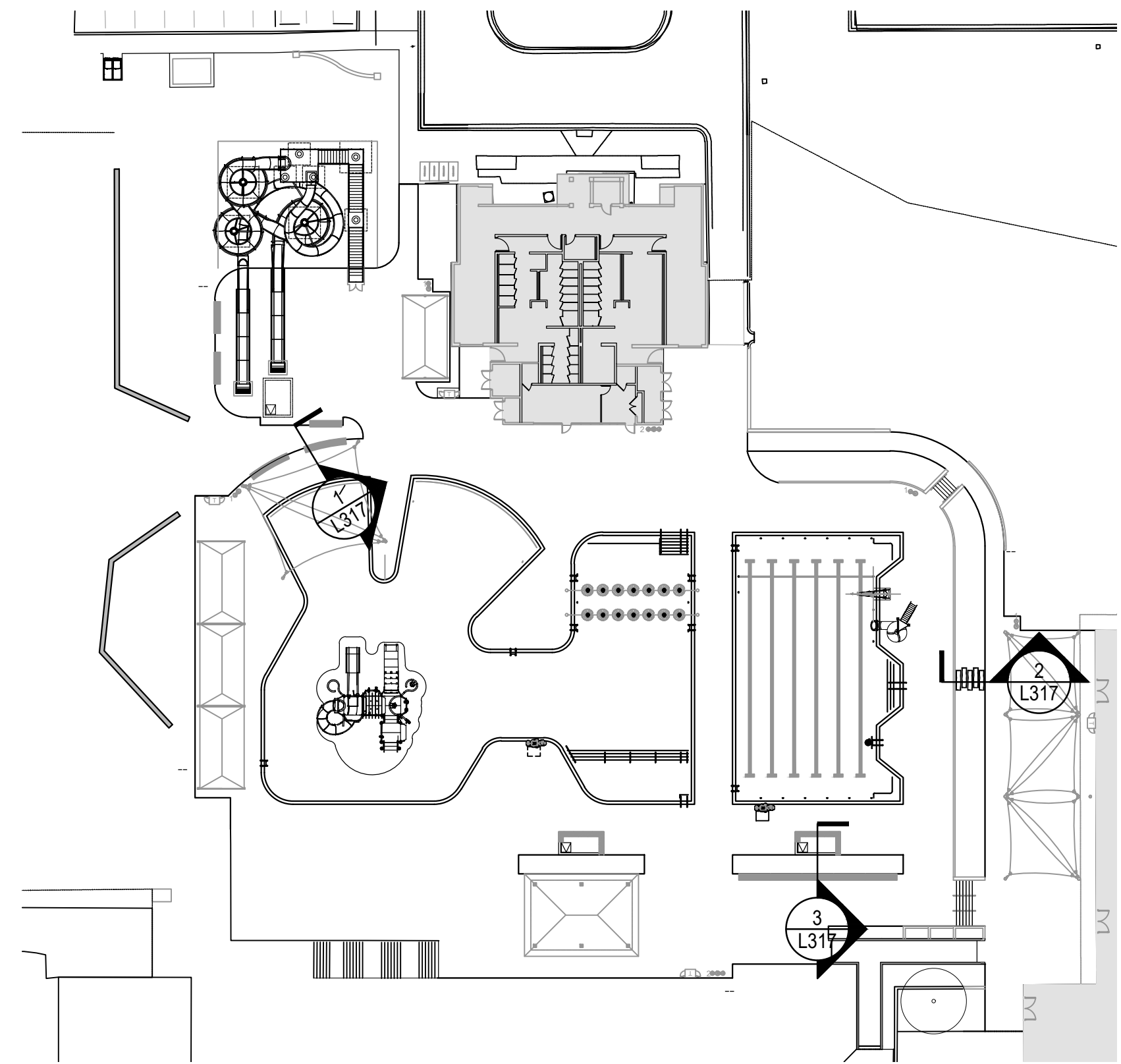




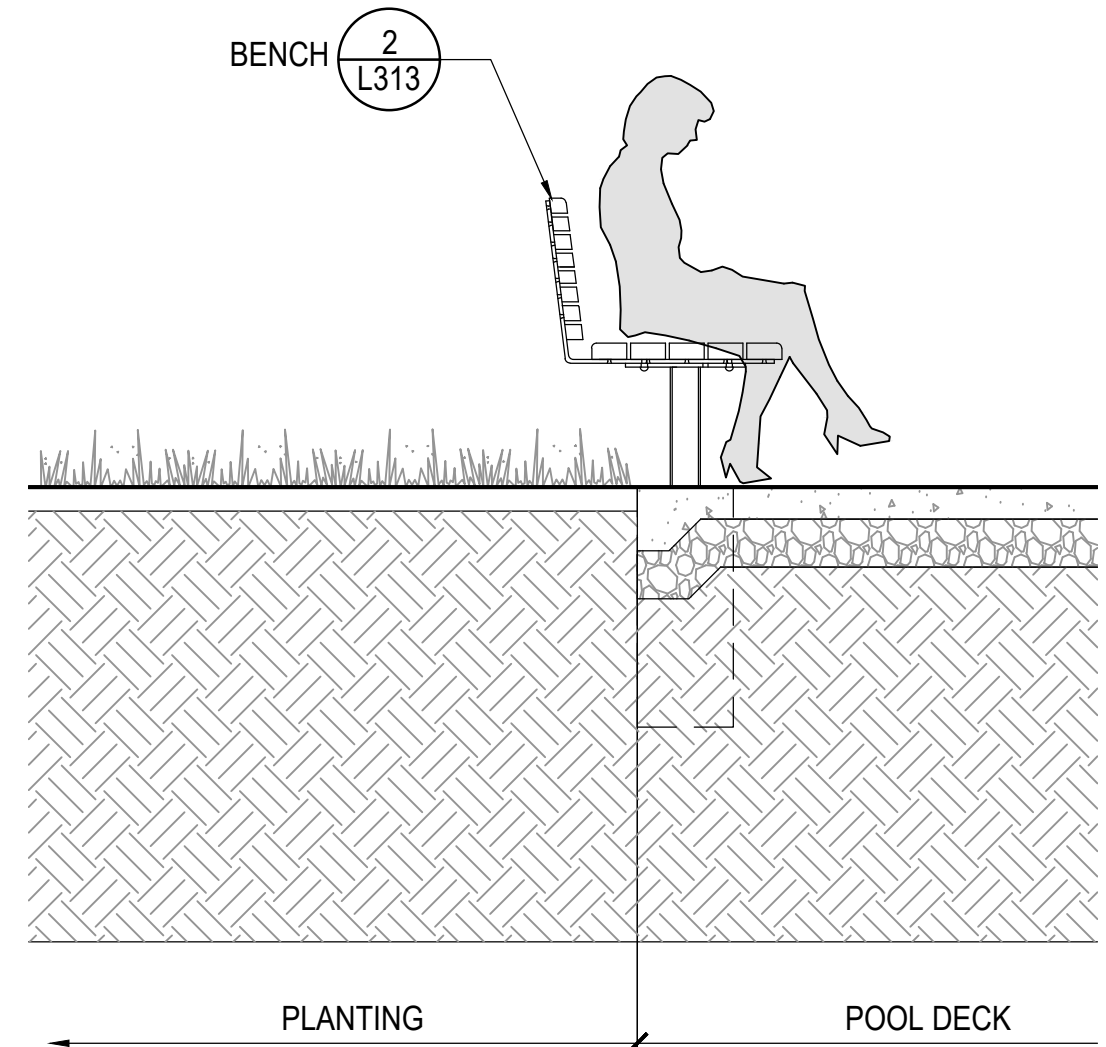
3 EDGE CONDITION 10  
1" = 2'-0"



2 EDGE CONDITION 11  
1" = 2'-0"



KEY PLAN  
1" = 40'-0"

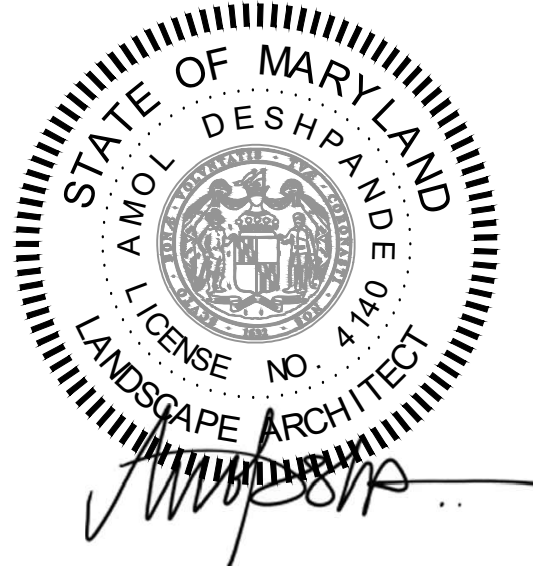


1 EDGE CONDITION 8  
1" = 2'-0"



LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

CONSTRUCTION  
DETAILS

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7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
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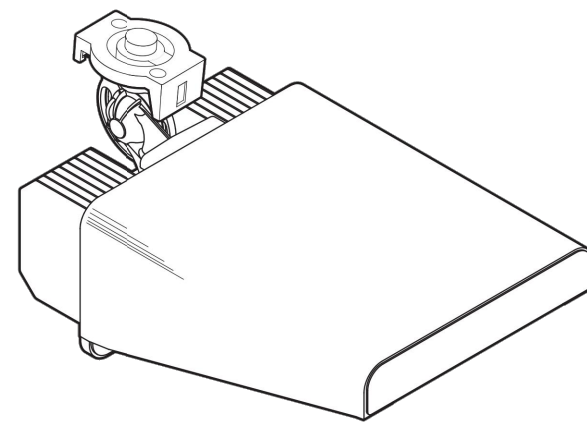
Project Number: 22.00036.00  
Scale: AS SHOWN  
Drawn By: AD, HW, BS  
Checked By: AD  
Date: 01/08/2024

Sheet No. L317

NFC



Datasheet: **TLC-LED-550 Luminaire and Driver**



**Luminaire Data**

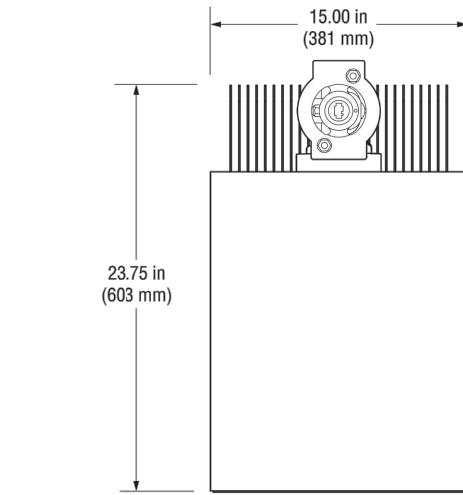
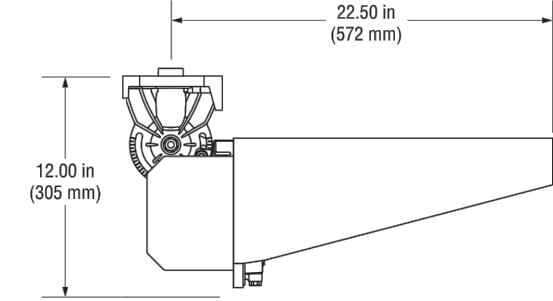
Weight (luminaire)	25 lb (11 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	(pending) IP65
Impact rating	IK07
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL IEC ambient temperature rating, luminaire	(pending) 50°C (122°F)

**Photometric Characteristics**

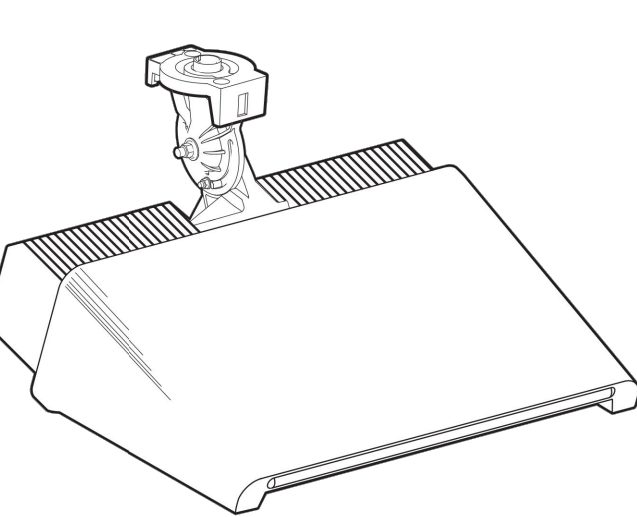
Projected lumen maintenance per IES TM-21-11	
L90 (20k)	>120,000 h
L80 (20k)	>120,000 h
L70 (20k)	>120,000 h
Lumens <sup>1</sup>	67,000
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	7-step MacAdam Ellipse

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.



Datasheet: **TLC-LED-900 Luminaire and Driver**



**Luminaire Data**

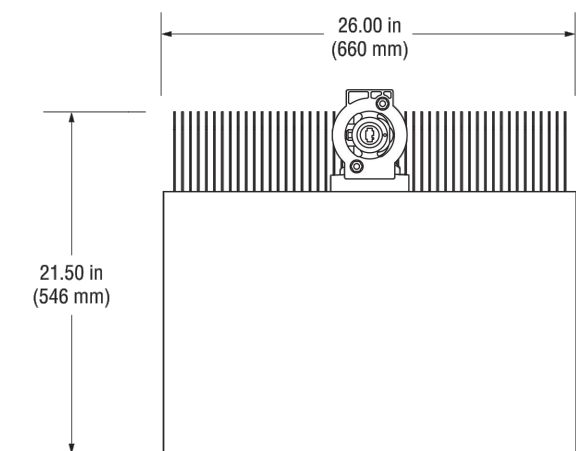
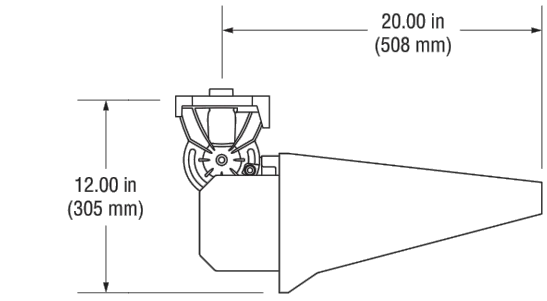
Weight (luminaire)	40 lb (18 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	IP65
Impact rating	IK07
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL IEC ambient temperature rating, luminaire	50°C (122°F)

**Photometric Characteristics**

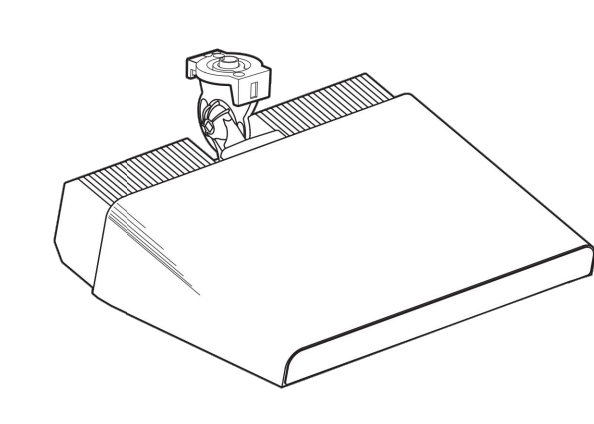
Projected lumen maintenance per IES TM-21-11	
L90 (20k)	>120,000 h
L80 (20k)	>120,000 h
L70 (20k)	>120,000 h
Lumens <sup>1</sup>	89,600
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	7-step MacAdam Ellipse

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.



Datasheet: **TLC-LED-1200 Luminaire and Driver**



**Luminaire Data**

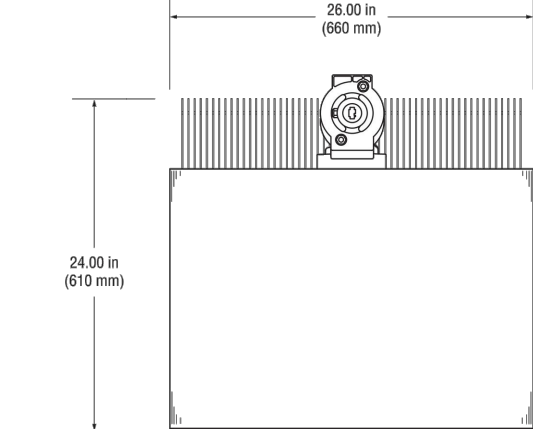
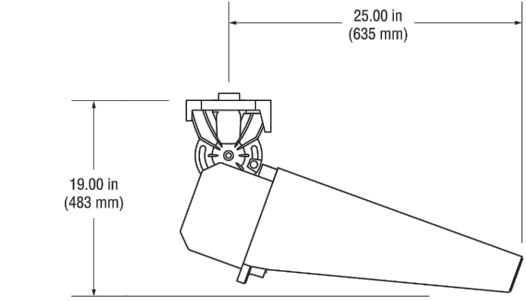
Weight (luminaire)	45 lb (20 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	IP65
Impact rating	IK07
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL IEC ambient temperature rating, luminaire	50°C (122°F)

**Photometric Characteristics**

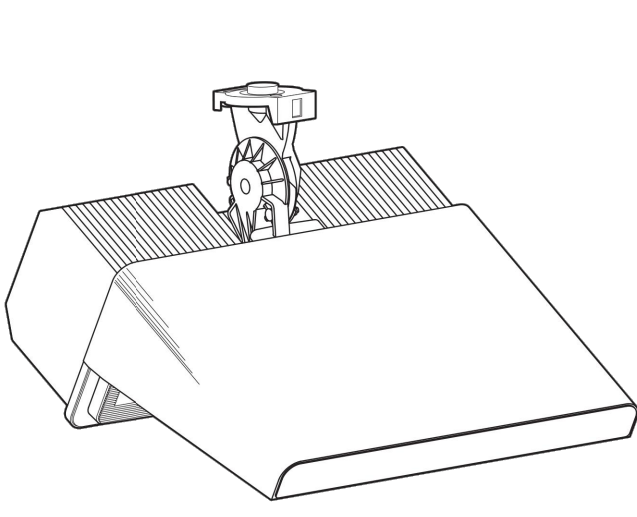
Projected lumen maintenance per IES TM-21-11	
L90 (20k)	>120,000 h
L80 (20k)	>120,000 h
L70 (20k)	>120,000 h
Lumens <sup>1</sup>	136,000
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	7-step MacAdam Ellipse

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.



Datasheet: **TLC-LED-1500 Luminaire and Driver**



**Luminaire Data**

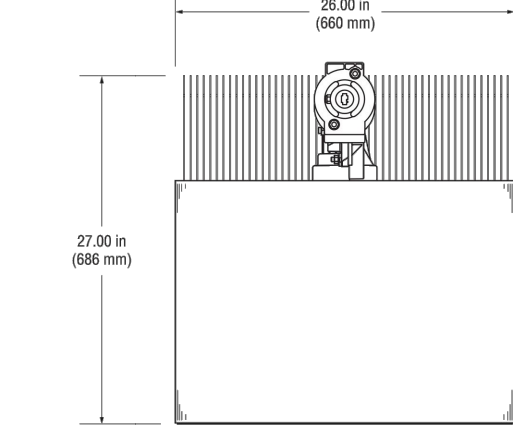
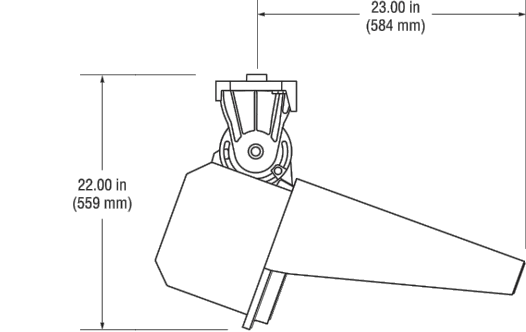
Weight (luminaire)	67 lb (30 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	IP65
Impact rating	IK07
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL IEC ambient temperature rating, luminaire	50°C (122°F)

**Photometric Characteristics**

Projected lumen maintenance per IES TM-21-11	
L90 (20k)	>120,000 h
L80 (20k)	>120,000 h
L70 (20k)	>120,000 h
Lumens <sup>1</sup>	160,000
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	7-step MacAdam Ellipse

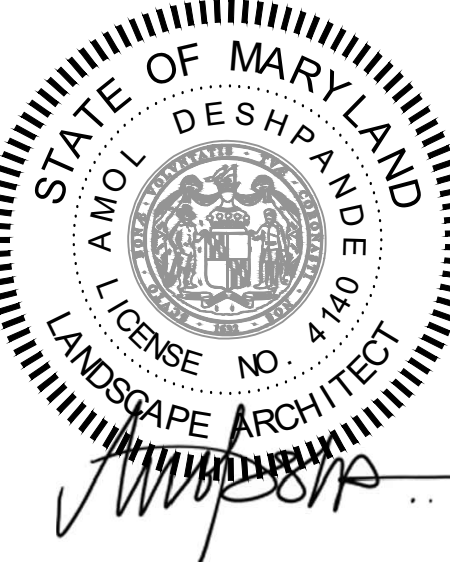
Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.



**LSG LANDSCAPE ARCHITECTURE**

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

**OUTDOOR  
RECREATION POOL  
RENOVATIONS**

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

**CONSTRUCTION  
DETAILS**

**BID SET**

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
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7	BUILDING PERMIT SET 02/06/2024
8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		

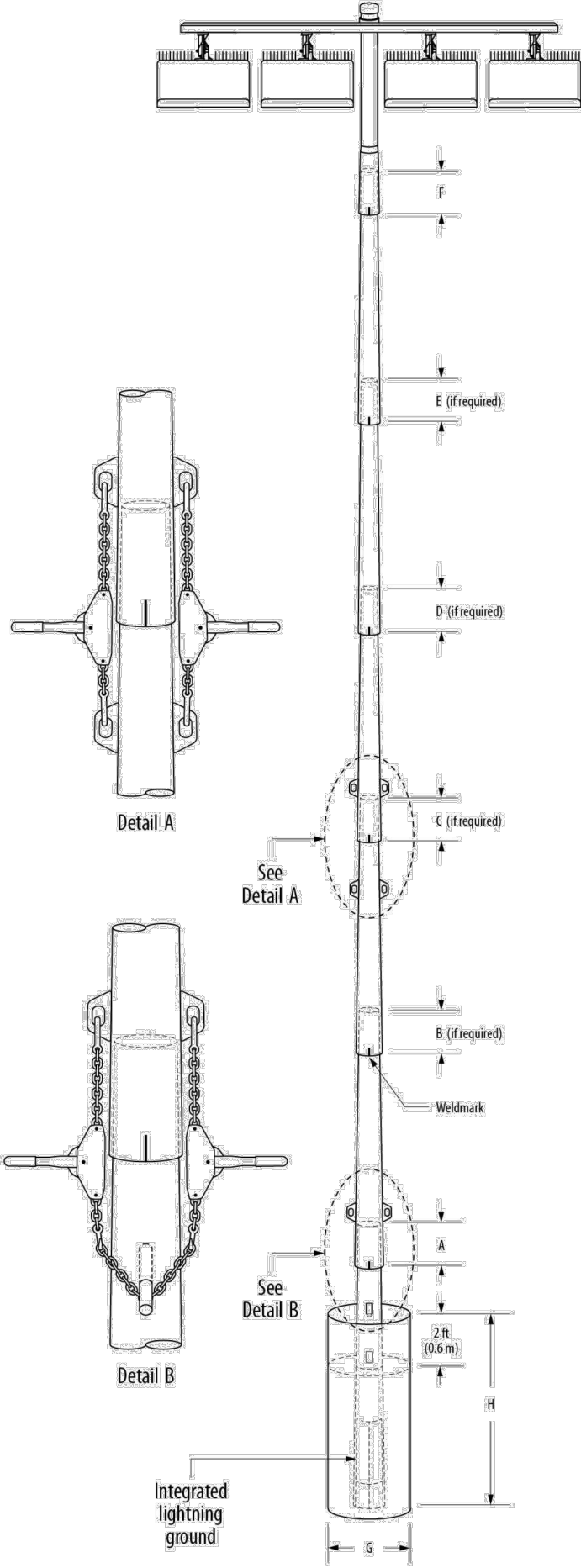
Project Number:	22.00036.00
Scale:	AS SHOWN
Drawn By:	AD, HW, BS
Checked By:	AD
Date:	01/08/2024

Sheet No.	L318
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NFC

1 POLE LIGHT

**PRELIMINARY FOUNDATION AND POLE ASSEMBLY DRAWING**



POLE ID	POLE HEIGHT ft (m)	# OF LUMINAIRES	ASSEMBLED POLE WEIGHT <sup>1</sup> lb (kg)
P1	50 (15.2)	2	828 (376)
P2	50 (15.2)	3	895 (406)
P3	50 (15.2)	4	944 (428)
P4	50 (15.2)	2	828 (376)
P5	60 (18.3)	5	1140 (517)
P6	70 (21.3)	5	1556 (706)
P7	70 (21.3)	4	1462 (663)
P8	70 (21.3)	4	1350 (612)

**Pole Assembly Notes:**

- Steel pole should overlap concrete base and be seated tight with 1 1/2 ton come-alongs (contractor provided).
- Align weldmarks on steel sections before assembling.
- Assembled pole weight includes steel sections, crossarms, luminaires, and electrical components enclosures. If pole has stamped structural design then use pole weight (listed as vertical force) on stamped structural design document.
- Section overlap must be pulled together until tight. Overlap measurement should be +/- 6 in (150 mm).
- This document is not intended for use as an assembly instruction. See *Installation Instructions: Light-Structure System™* Lighting System for complete assembly procedure.

TABLE 2: FOUNDATION DETAILS							
POLE ID	CONCRETE BASE WEIGHT (kg)	BURIAL INFORMATION <sup>3,4</sup>			CUT BASE	LIGHTNING GROUND <sup>5</sup>	
		G in (mm)	H ft (m)	CONCRETE BACKFILL <sup>1,2</sup> pcf (m³)		TYPE	SUPPLEMENTAL INSTRUCTION
P1	1860 (844)	30 (762)	10 (3.0)	1.2 (0.9)	NO	INTEGRATED <sup>6</sup>	N/A
P2	1860 (844)	30 (762)	10 (3.0)	1.2 (0.9)	NO	INTEGRATED <sup>6</sup>	N/A
P3	1860 (844)	30 (762)	10 (3.0)	1.2 (0.9)	NO	INTEGRATED <sup>6</sup>	N/A
P4	1860 (844)	30 (762)	10 (3.0)	1.2 (0.9)	NO	INTEGRATED <sup>6</sup>	N/A
P5	1870 (848)	30 (762)	10 (3.0)	1.2 (0.9)	NO	INTEGRATED <sup>6</sup>	N/A
P6	2720 (1234)	30 (762)	12 (3.7)	1.5 (1.1)	NO	INTEGRATED <sup>6</sup>	N/A
P7	2720 (1234)	30 (762)	12 (3.7)	1.5 (1.1)	NO	INTEGRATED <sup>6</sup>	N/A
P8	1880 (853)	30 (762)	10 (3.0)	1.2 (0.9)	NO	INTEGRATED <sup>6</sup>	N/A

**Foundation Notes:**

- Concrete backfill is calculated to 2 ft (0.6m) below grade (no overage included). Top 2 ft (0.6m) to be class 5 soil compacted to 95% density of surrounding undisturbed soil unless otherwise specified in stamped structural design.
- Concrete backfill required 3000 lb/cu ft (20 MPa) minimum.
- Foundation design per 2018 IBC, 115 mph, exposure category C, variation STD (Risk Category II).
- Assumes IBC class 5 soils.
- Standard bases include integrated lightning protection. If bases are cut, supplemental lightning protection is required. Contact Musco for materials and instruction.
- Lightning protection is a manufacturer installed concrete encased electrode and connector. Ground connection is made when concrete base is installed and footing is poured. No additional steps required.

Rockville Swim Club - Rockville, MD, USA

Date: 11/09/2023  
Representative: John Windsor JR  
Project: 224665

Scale: Not to Scale  
Page: 1 of 1  
PRELIMINARY

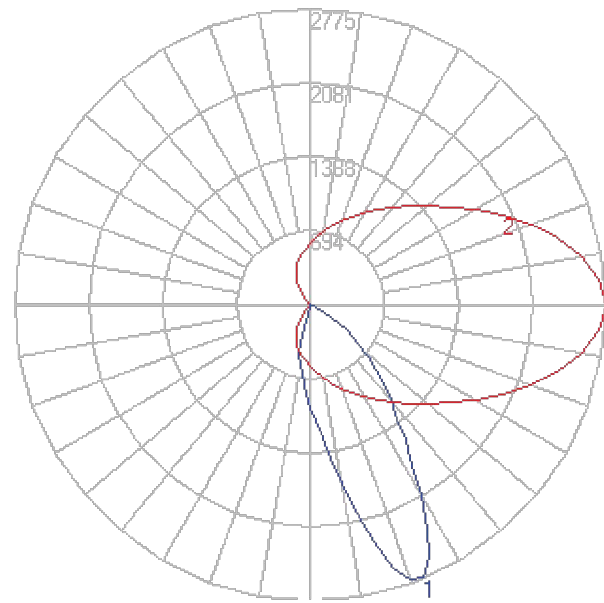




BEGA

Photometric Filename: 24502.ies

TEST: BE\_24502  
TEST LAB: BEGA  
DATE: 9/26/2016  
LUMINAIRE: 24 502  
LAMP: 14W LED



Characteristics

IES Classification	Type I
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1217
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	72
Total Luminaire Watts	17
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Max. Cd.	2775 (0H, 22.5V)
Max. Cd. (<90 Vert.)	2775 (0H, 22.5V)
Max. Cd. (At 90 Deg. Vert.)	1.8 (0.1%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	3.8 (0.3%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	582.0	N.A.	47.8
FM (30-60)	486.4	N.A.	40.0
FH (60-80)	7.0	N.A.	0.6
FVH (80-90)	0.7	N.A.	0.1
BL (0-30)	132.2	N.A.	10.9
BM (30-60)	6.8	N.A.	0.6
BH (60-80)	0.4	N.A.	0.0
BVH (80-90)	0.1	N.A.	0.0
UL (90-100)	0.4	N.A.	0.0
UH (100-180)	0.6	N.A.	0.1
Total	1216.6	N.A.	100.0

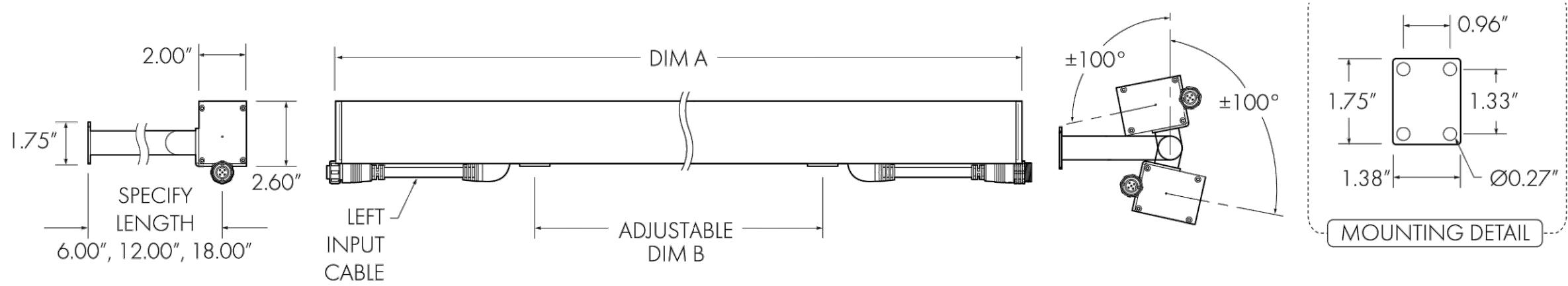
BUG Rating B1-U1-G0

PROFILE

OUTPUT	LO (3.5W/FT), MO (9.0 W/FT), HO (15.0 W/FT)
OPTICAL DISTRIBUTIONS	7° X 60°, 10° X 10°, 10° X 60°, 10° X 90°, 20° X 20°, 20° X 60°, 40° X 40°, 40° X 60°, 40° X 90°, 60° X 60°, 90° X 90° 80° X 80°, ASYMMETRIC
CRI	82 (OPTIONAL 90+)
CCT	22K, 27K, 30K, 35K, 40K, RED, GREEN, BLUE, AMBER, LFS
PERFORMANCE	UP TO 117530 PEAK CANDELA
VOLTAGE	120V OR 277V
POWER	INTEGRAL POWER SUPPLY
CONTROL	0-10V, DMX DIM, LUTRON HI-LUME 1% ECOSYSTEM
FIXTURE LENGTHS	12", 24", 36", 48" (NOMINAL LENGTHS)
WEIGHT	2.75 LB (1.25 KG) PER FOOT
HOUSING	PRECISION EXTRUDED ALUMINIUM
LENS	HIGH DENSITY TEMPERED GLASS
FINISH	HIGH DURABILITY POWDER COATING
OPERATING TEMP	-20° C TO 50° C
WARRANTY	5-YEAR LIMITED
LUMEN MAINTENANCE	75,000 HOURS
CERTIFICATION	ETL/cETL IP67, IK07, 5G/3G OPTION (Ansi C136.31 rated)



EXTENDED ARM, BACK MOUNT (EAB-X)

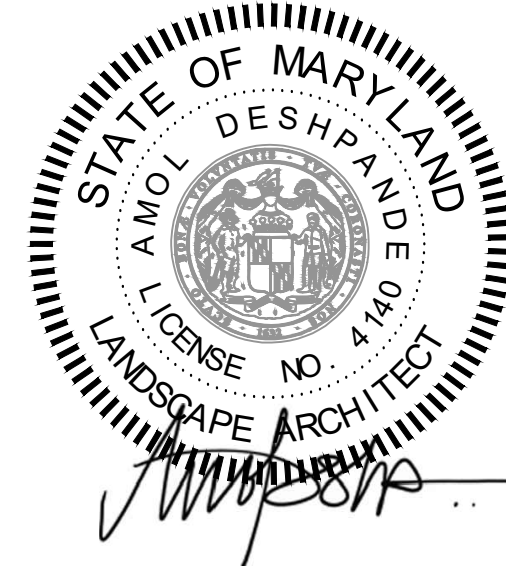


2 SHADE STRUCTURE LIGHT

3 ENTRY SIGN FLOODLIGHT

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

CONSTRUCTION  
DETAILS

BID SET

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Date: 01/08/2024		
Sheet No.		L319

NFC



DESIGNATION	MANUFACTURER	MODEL	SIZE	FINISH	COLOR	QUANTITY	OTHER
DECKING							
POOL DECK COATING COLOR 1	SUNDECK 410.610.9401	ACRYLIC SPRAY TEXTURE OVERLAY	REFER TO PLAN	CLASSIC TEXTURE	BONE WHITE	REFER TO PLAN	PROVIDE SHOP DRAWING, SAMPLE AND MOCKUP FOR REVIEW AND APPROVAL.
POOL DECK COATING COLOR 2					PEKING BLUE		
POOL DECK COATING COLOR 3					NAVY BLUE		
FURNISHINGS							
TRASH RECEPTACLE	ANOVA OUTDOOR FURNISHINGS 571.325.4944	LEX70-EXPOSITION 70 GALLON TRASH/ RECYCLER, SIDE DOORS	70 GAL 7" X 40" X 31"	POWDERCOAT	TEXTURED PEWTER	4	SUBMIT PRODUCT INFORMATION FOR REVIEW AND APPROVAL
RECYCLING RECEPTACLE						4	SUBMIT PRODUCT INFORMATION FOR REVIEW AND APPROVAL
BIKE RACK	VICTOR STANLEY, INC. 301.855.8300	BRHS-101	MFR'S STANDARD	POWDERCOAT	BLACK	4	SUBMIT PRODUCT INFORMATION FOR REVIEW AND APPROVAL
BIKE LOCKER	MADRAX 608.849.1080	ML1-1	75" X 39" X 46"	POWDERCOAT	PLATINUM	2	BIKE PERFORATED DOOR. PADLOCK HANDLE. SUBMIT PRODUCT INFORMATION FOR REVIEW AND APPROVAL
CURVED BENCH	SITECRAFT 800.937.0203	CIRCULAR WITH BACK – YB	SEE PLAN	FRAME: POWDERCOAT SLATS: GREENWOOD	FRAME: BLACK SLATS: WEATHERED WOOD	2	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL
STRAIGHT BACKLESS BENCH		STRAIGHT WITHOUT BACK	10' X 2' X 1.5'			8	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL
BENCH TOP	MAGLIN 800.716.5506	OGDEN	SEE PLAN	FRAME: POWDERCOAT SLATS: THERMALLY MODIFIED ASH	FRAME: BLACK	2	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL
DRINKING WATER FOUNTAIN TYPE 1	MOST DEPENDABLE FOUNTAINS, INC 901.867.0039	440 SMSSFA WITH FOOT SPRAY AND HOSE BIB	MFR'S STANDARD	POWDERCOAT	TEXTURED SAPPHIRE	4	SUBMIT PRODUCT INFORMATION FOR REVIEW AND APPROVAL
DRINKING WATER FOUNTAIN TYPE 2		10150 SMSS WITH FOOT SPRAY AND HOSE BIB	MFR'S STANDARD	POWDERCOAT	TEXTURED SAPPHIRE	2	SUBMIT PRODUCT INFORMATION FOR REVIEW AND APPROVAL
FENCE							
CHAINLINK FENCE AND GATE	ARMOR FENCE 703.361.1141	CHAIN LINK POOL FENCING	7' H AND 4' H, SEE PLAN	POWDERCOAT	BLACK	REFER TO LSG AND CAA PLANS	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL
DECORATIVE POOL FENCE AND GATE	AMERISTAR 800.321.8724	MODEL: MONTAGE PLUS PPP PICKET STYLE: MAJESTIC	7' H AND 4' H, SEE PLAN	POWDERCOAT	BLACK	REFER TO PLAN	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL
STRUCTURE							
SHADE STRUCTURE - TYPE 1	TENSOSHADE 210.888.0128	AZTEC	FABRIC: 14' X 26' X 9' POSTS: PER MFR	FABRIC: MFR'S STANDARD POSTS: POWDERCOAT MATTE	FABRIC: TURQUOISE AND AQUATIC BLUE POSTS: WINDOW GREY (RAL 7040)	4	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL. PROVIDE FABRIC SAMPLES FOR REVIEW AND APPROVAL.
SHADE STRUCTURE - TYPE 2		GIZA	FABRIC: 14' X 26' X 9' POSTS: PER MFR	FABRIC: MFR'S STANDARD POSTS: POWDERCOAT MATTE	FABRIC: TURQUOISE, AQUATIC BLUE POSTS: WINDOW GREY (RAL 7040)	3	
SHADE STRUCTURE - TYPE 3		MANTA	FABRIC: REFER TO PLAN POSTS: PER MFR	FABRIC: MFR'S STANDARD POSTS: POWDERCOAT MATTE	FABRIC: TURQUOISE, AQUATIC BLUE POSTS: WINDOW GREY (RAL 7040)	1	
PAVILION	ROMTEC 541.496.3541	CUSTOM	36' X 26' X 9'	SUPPORT STRUCTURE: POWDERCOAT MATTE	METAL ROOF: BLUE (RAL 5008) SUPPORT STRUCTURE: WINDOW GREY (RAL 7040)	1	
MECHANICAL ROOM GARAGE DOOR	CORNELL IRON DOORS 877.640.8825	ESD10	9'11" x 11'9" (FIELD VERIFY SIZE)	GALVANIZED STEEL WITH GALVANEX COATING SYSTEM	WHITE	1	PROVIDE MOTORIZED CONTROL. SUBMIT SHOP DRAWINGS AND PRODUCT MATERIAL FOR REVIEW AND APPROVAL.
CHEMICAL STORAGE SHED	TUFF SHED 443.470.8859	TAHOE SERIES SKYLINE	6' X 10' X 8'-3"	EXTERIOR PAINT	ROOF: GREY SHINGLES EXTERIOR: WINDOW GREY (RAL 7040)	1	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL. NO EXPOSED METAL FRAMES OR FASTENER AS THE CHEMICAL ARE CORROSIVE IN NATURE.
LIGHTING							
POLE LIGHT	MUSCO 800.825.6020	TLC-LED-550, TLC-LED-900, TLC-LED-1200, TLC-LED-1500	PER PLAN	GALVANIZED STEEL	N/A	REFER TO PLAN	REFER TO PLAN FOR CLARIFICATION ON BASE BID AND ADD ALT. SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL.
SHADE STRUCTURE LIGHT	BEGA 805.684.0533	24502	4-3/8" X 1-1/2" X 4-5/8"	POWDERCOAT MATTE	WINDOW GREY (RAL 7040)	REFER TO PLAN	SUBMIT SHOP DRAWING AND SAMPLE FOR REVIEW AND APPROVAL. MATCH SHADE STRUCTURE POLES.
ENTRY SIGN FLOODLIGHT	INSIGHT LIGHTING 505.345.0888	MEDLEY EXTERIOR	2.6" X 2" X 24"	TEXTURED SANDSTONE	TEXTURED SANDSTONE	3	PROVIDE SHOP DRAWING, SAMPLE FOR REVIEW AND APPROVAL.
ENTRY SIGN FLOODLIGHT MOUNT		EAB-X EXTENDED ARM, BACK	12"	TEXTURED SANDSTONE	TEXTURED SANDSTONE	3	PROVIDE SHOP DRAWING, SAMPLE FOR REVIEW AND APPROVAL.
ENTRY SIGN LOGO LIGHT	INTERLUX 410-381-1497	RUBBER 3D	PER PLAN	WHITE FINISH	N/A	REFER TO PLAN	SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL
SIGNAGE							
TILE - OPTION 1	DALTILE 800.449.3591		3/4" X 3/4" X 1/8"	VITREOUS GLASS	TBD	REFER TO PLAN	CONTRACTOR TO CHOOSE BETWEEN THE TWO MANUFACTURERS AND PROVIDE SHOP DRAWINGS AND SAMPLES FOR REVIEW AND APPROVAL. PROVIDE A 4'X4' MOCKUP FOR REVIEW AND APPROVAL.
TILE - OPTION 2	ARTAIC 617.418.1928	SPLASH COLLECTION	3/4" X 3/4" X 1/8"	VITREOUS GLASS	TBD	REFER TO PLAN	
LOGO	BUNTING GRAPHICS, INC. 412.820.2200	CUSTOM LOGO	CUSTOM	FRAME: LIGHT BRUSHED ALUMINUM LOGO: FROSTED ACRYLIC	TBD	REFER TO PLAN	
STONE							
ROCK CURB	HANOVER 800.426.4242	ROCKCURB STRAIGHT	3' X 1/2' X 1-1/2'	BULLNOSE PROFILE	LIMESTONE GRAY	REFER TO PLAN	SUBMIT PRODUCT INFORMATION
# 57 STONE	LUCK STONE 703.729.2800	AASHTO #57	3" DEPTH	N/A	GREY	REFER TO PLAN	SUBMIT PRODUCT INFORMATION
RIVER ROCK STONES	SAUNDERS LANDSCAPE SUPPLY 301.640.5688	RIVER ROCK	3" DEPTH, 2" TO 3" DIA. STONES	N/A	GREY	REFER TO PLAN	SUBMIT SAMPLES FOR REVIEW AND APPROVAL.
STONE LANDSCAPE FEATURE	COLDSRING 800.551.7502 OR APPROVED EQUAL	GRANITE LANDSCAPE TREADS	60" X 15" X 10"	THERMAL TOP SURFACE - SPLIT EDGES	ROCKVILLE WHITE	5	SUBMIT PRODUCT INFORMATION
MISC							
METAL EDGING	PERMALOC 616.399.9600	CLEANLINE	PER PLAN	POWDERCOAT	BLACK	REFER TO PLAN	PROVIDE PRODUCT LITERATURE AND SAMPLE FOR REVIEW AND APPROVAL.
FORMLINER	SCOTT SYSTEM 518.886.3940	URETHANE FORMLINER TEXTURES #119 SANDBLAST #1	SEE PLAN	N/A	N/A	REFER TO PLAN	PROVIDE SHOP DRAWING AND SAMPLE FOR REVIEW AND APPROVAL.

NOTES:

1.

REFER TO WRITTEN SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2.

NAMED PRODUCTS ARE BASIS-OF-DESIGN. ALTERNATE PRODUCTS DOCUMENTED TO BE MEET OR EXCEED PERFORMANCE CRITERIA ARE ACCEPTABLE UPON WRITTEN APPROVAL. REFER TO SPECIFICATIONS FOR SUBSTITUTION REQUIREMENTS.
3.

ALL IPE AND TROPICAL HARDWOOD MATERIALS TO BE FSC CERTIFIED WOOD.

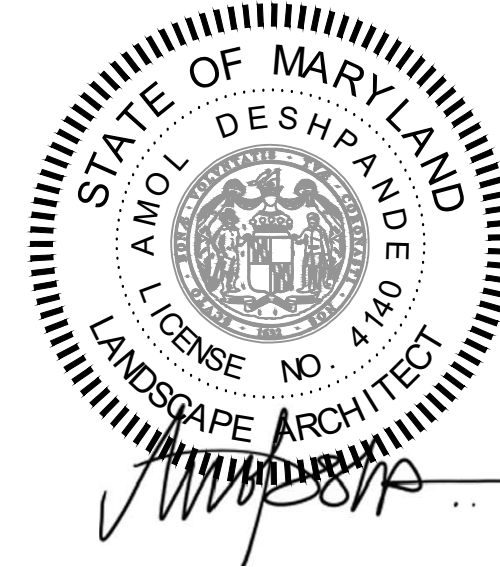
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PRODUCT SCHEDULE

NFC

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

PRODUCT  
SCHEDULE

BID SET

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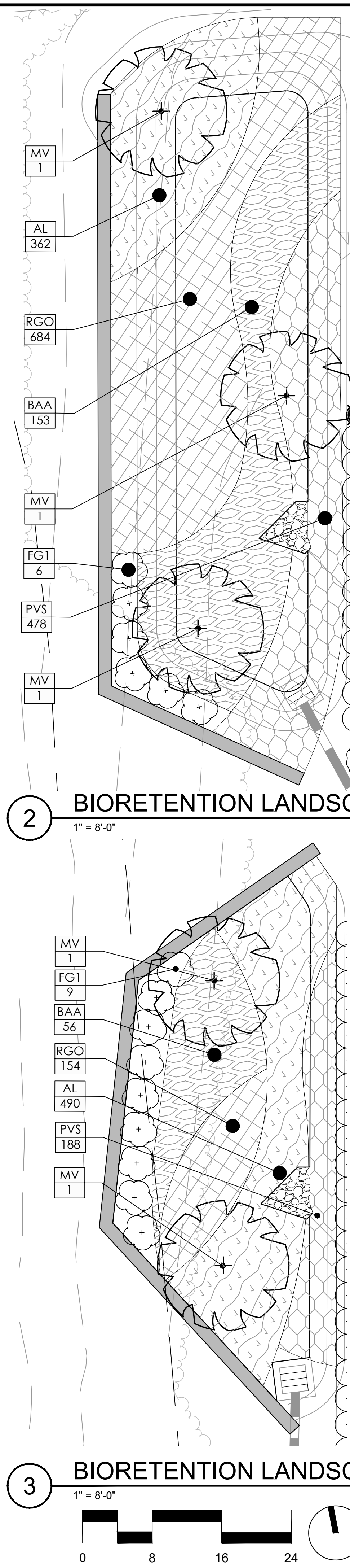
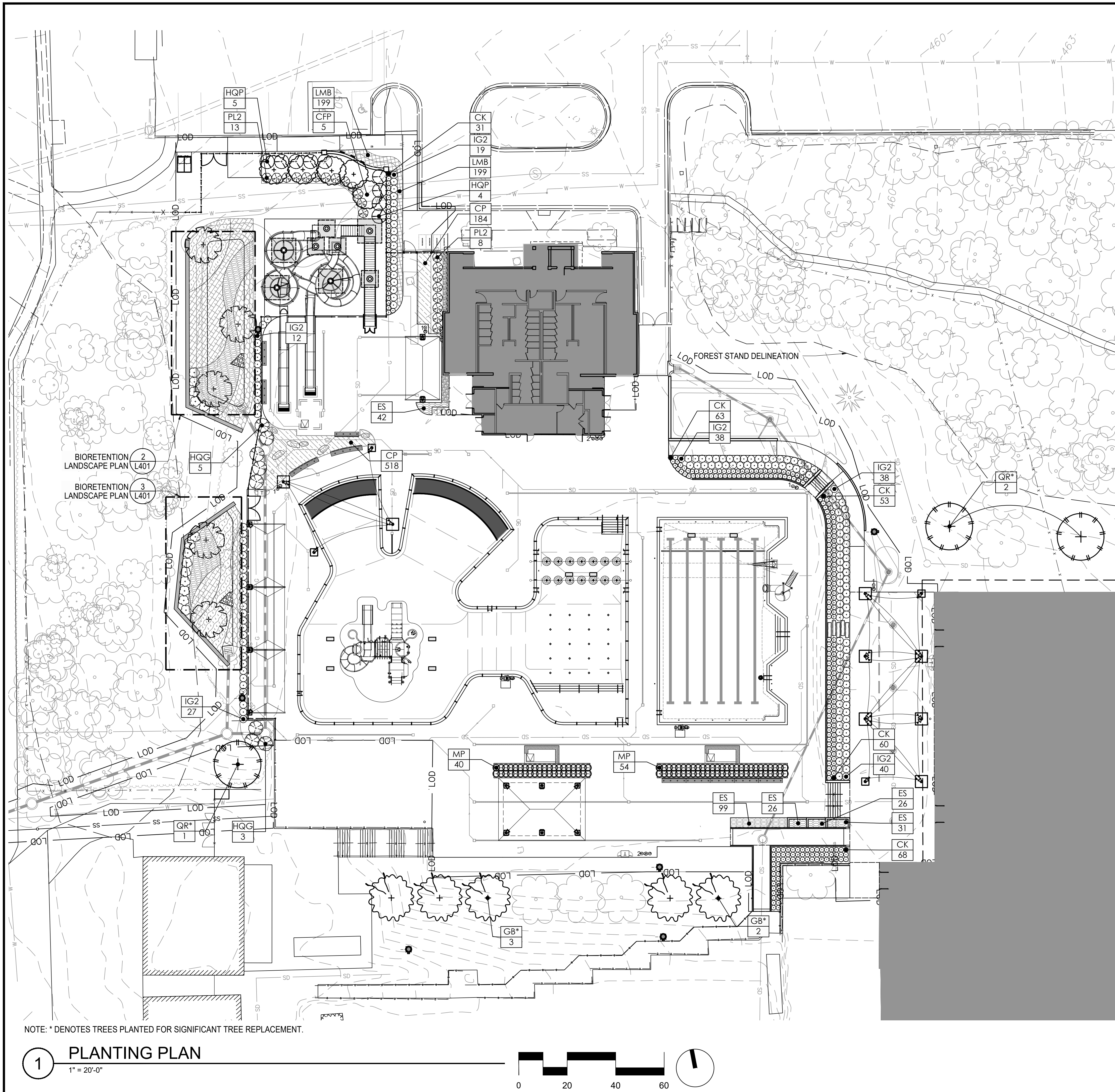
No.	Description	Date
Revisions		

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Date: 01/08/2024

Sheet No. L320

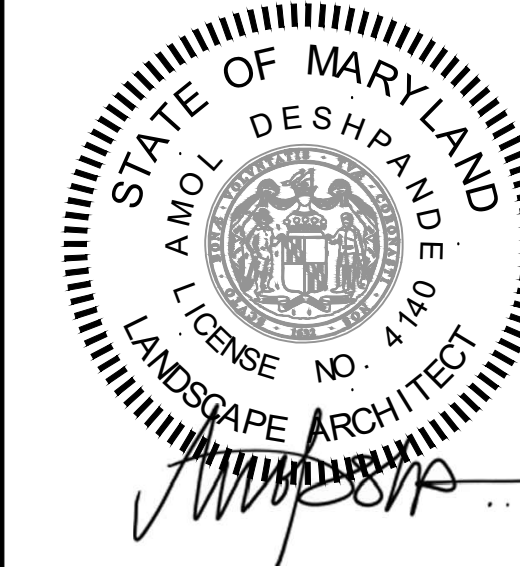
BID SET 02/23/2024





LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

PLANTING  
PLAN

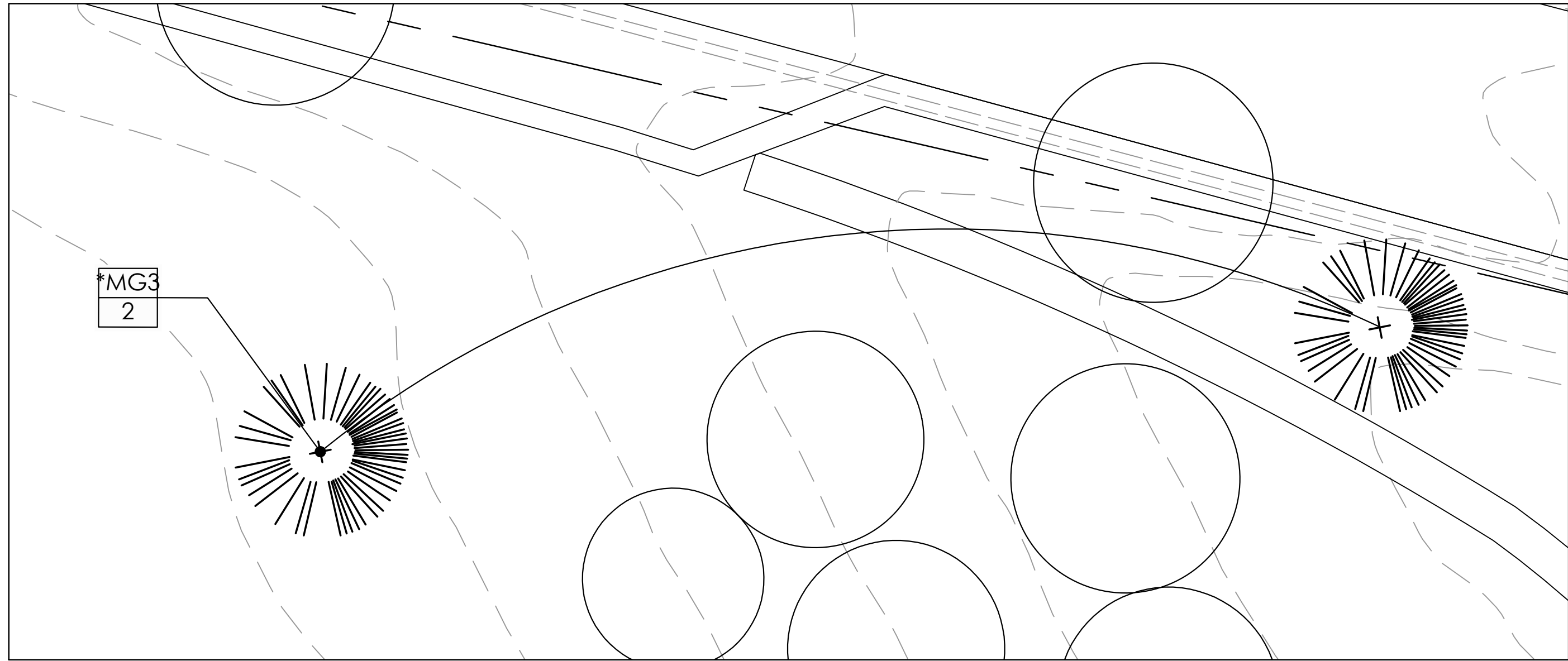
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No.	Description	Date
Revisions		
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Drawn By:	AD, HW, BS	
Checked By:	AD	
Date:	01/08/2024	
Sheet No.	L401	

BID SET 02/23/2024

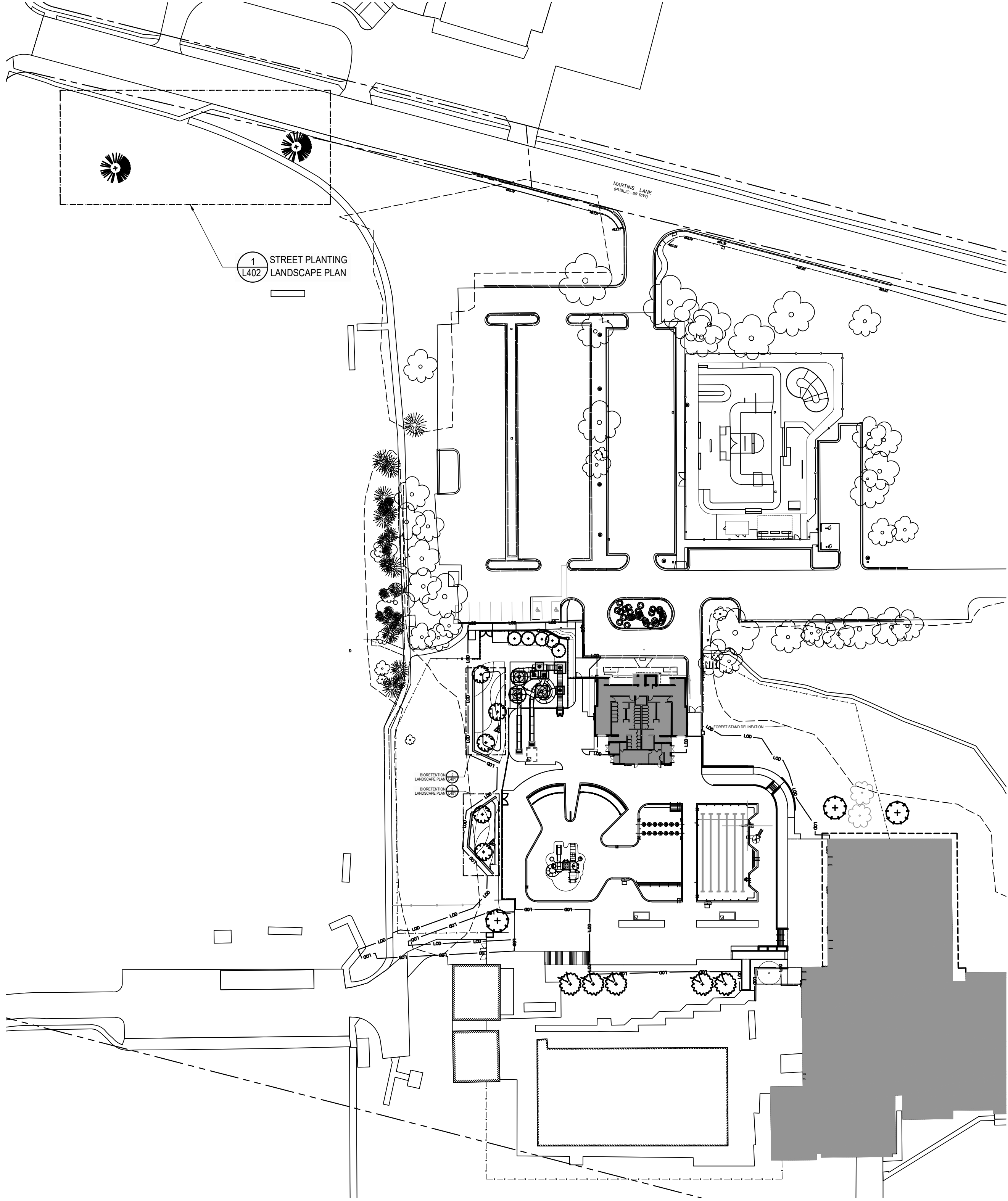




NOTE:  
FINAL TREE LOCATIONS TO BE COORDINATED IN FIELD WITH CITY ARBORIST TO AVOID EXISTING TREE ROOTS.

LEGEND  
○ EXISTING TREES

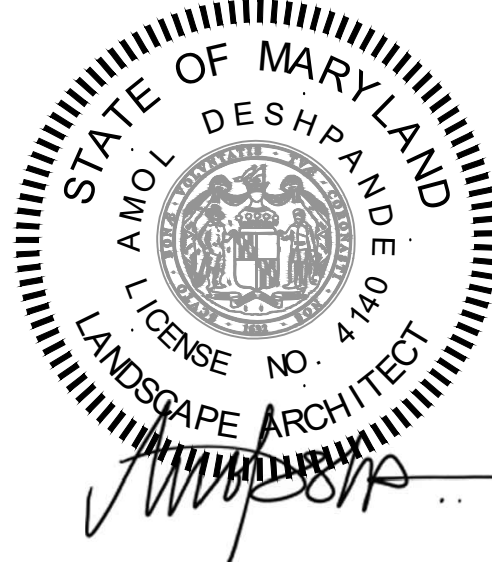
1 STREET PLANTING LANDSCAPE PLAN  
1" = 16'-0"



KEY PLAN  
3/16" = 1'-0"

LSG LANDSCAPE  
ARCHITECTURE

8240 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

PLANTING  
PLAN

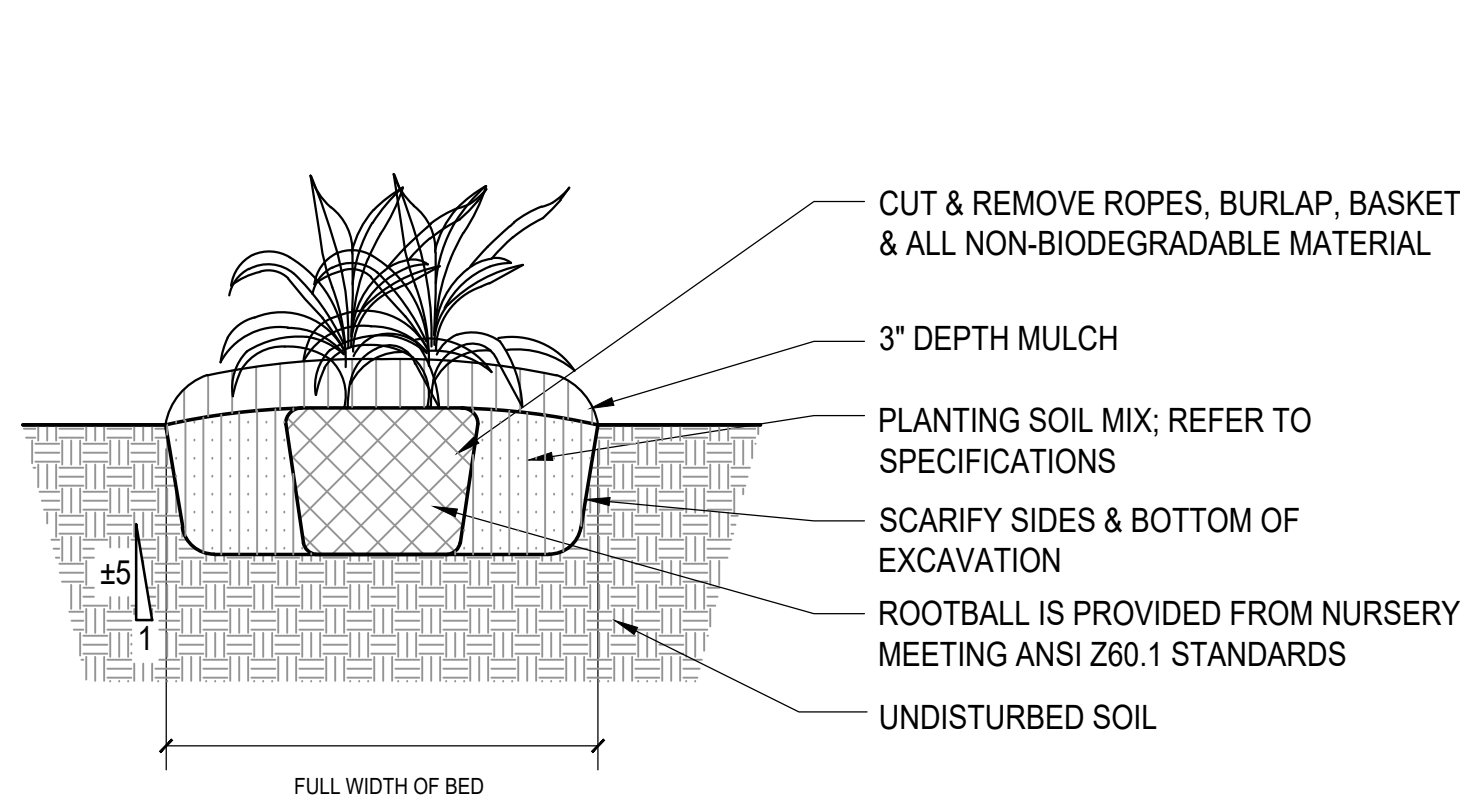
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NFC

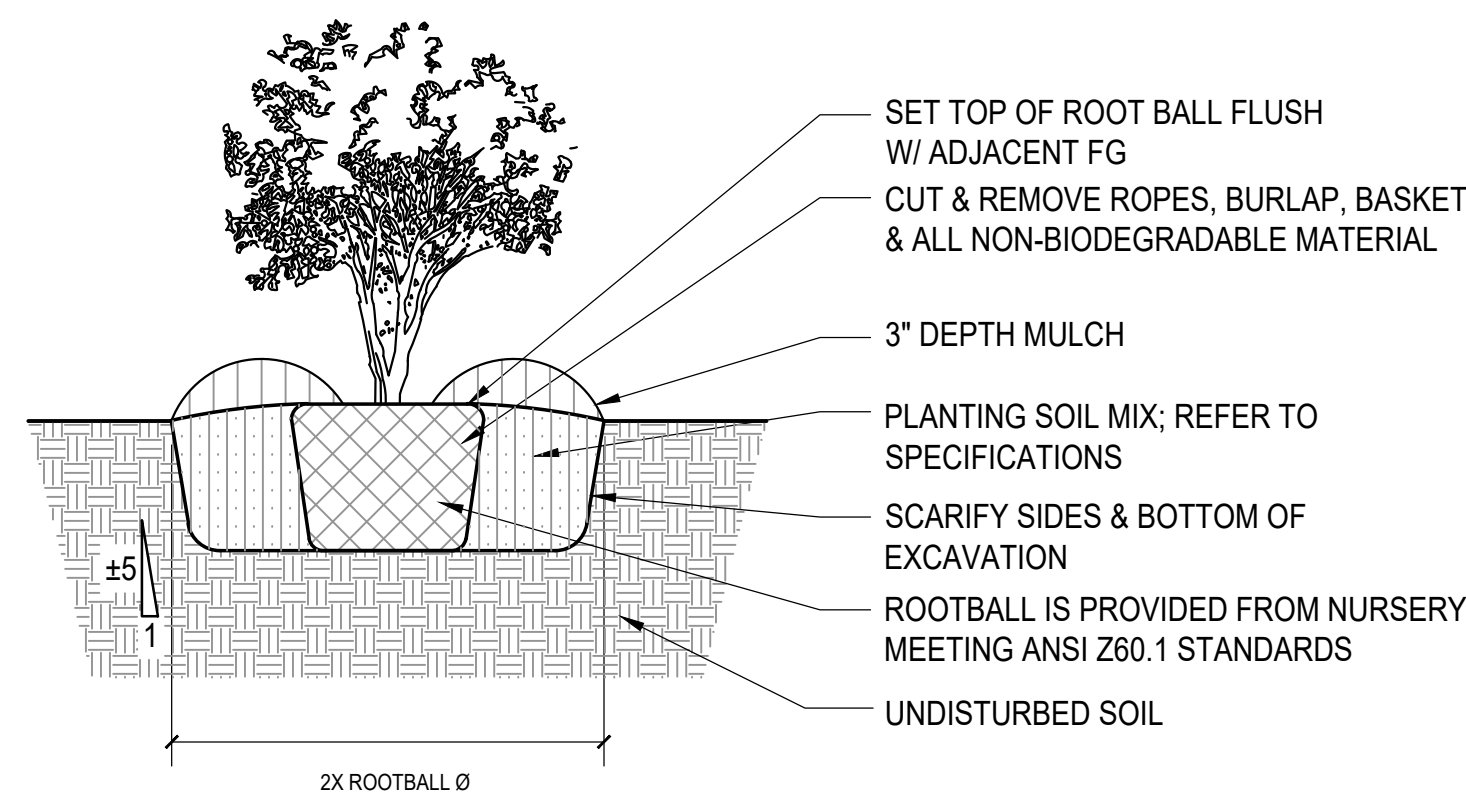




NOTES:

1. FOR CONTAINER-GROWN MATERIAL, REMOVE CONTAINER WITHOUT CRACKING ROOT BALL AND MAKE (3) 1" DEEP VERTICAL CUTS, EQUALLY SPACED ABOUT ROOT BALL.

## GROUNDCOVER PLANTING

$$1'' = 1'-0''$$


NOTES:

1. FOR CONTAINER-GROWN MATERIAL, REMOVE CONTAINER WITHOUT CRACKING ROOT BALL AND MAKE (3) 1" DEEP VERTICAL CUTS, EQUALLY SPACED ABOUT ROOT BALL.

## SHRUB PLANTING

$$1'' = 1'-0''$$

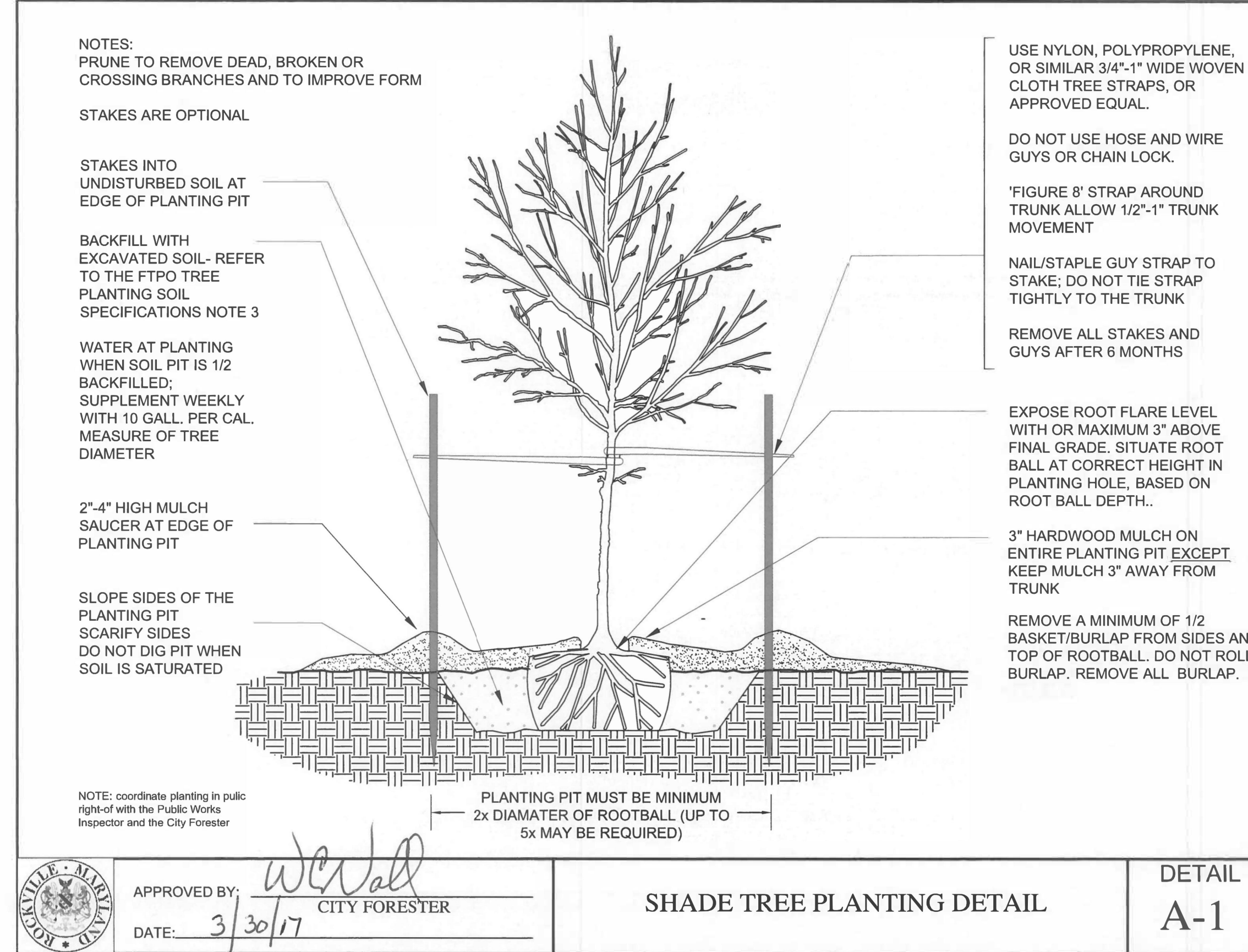
PLANT SCHEDULE							
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	SPACING	REMARKS
CANOPY TREES							
QR*	3	QUERCUS RUBRA	RED OAK	2.5" CAL	B&B	AS SHOWN	* SIGNIFICANT TREE REPLACEMENT
GB*	5	GINKGO BILOBA 'AUTUMN GOLD'	AUTUMN GOLD MAIDENHAIR TREE	2.5" CAL	B&B	AS SHOWN	* SIGNIFICANT TREE REPLACEMENT
EVERGREEN TREES							
MG3	2	METASEQUOIA GLYPTOSTROBOIDES	DAWN REDWOOD	6-8' HT	B&B	AS SHOWN	
ORNAMENTAL TREES							
CFP	5	CORNUS FLORIDA 'PINK SACHET'	PINK SACHET DOGWOOD	2.5" CAL	B&B	AS SHOWN	FULL AND WELL BRANCHED AND MATCHING
MV	5	MAGNOLIA VIRGINIANA 'MOONGLOW'	SWEETBAY MAGNOLIA	8-10' HT.	B&B	AS SHOWN	FULL, MULTI-STEM, 3 STEMS
SHRUBS							
FG1	15	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	24" - 30" HT.	CONT.	36" O.C.	HEAVY AND FULL
HQP	9	HYDRANGEA PANICULATA 'PHANTOM'	PHANTOM PANICLE HYDRANGEA	30" HT.	CONT.	72" O.C.	HEAVY AND FULL
HQG	8	HYDRANGEA QUERCIFOLIA 'GATSBY PINK'	GATSBY PINK OAKLEAF HYDRANGEA	30" HT.	CONT.	72" O.C.	HEAVY AND FULL
G2	176	ILEX GLABRA 'STRONGBOX'	INKBERRY HOLLY	24" - 30" HT.	CONT.	36" O.C.	HEAVY AND FULL
PL2	21	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKENS LAUREL	30-36"HT	CONT.	48" OC	HEAVY AND FULL
GRASSES							
CK	275	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	3 GAL	CONT.	24"OC	HEAVY AND FULL
MP	94	MUHLBERGIA CAPILLARIS	PINK MUHLY GRASS	3 GAL	CONT.	24" OC	HEAVY AND FULL
GROUND COVERS							
LMB	236 SF	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LILYTURF	1 GAL.	CONT.	12" OC	HEAVY AND FULL
SWM							
AL	819 SF	ASTER LAEVIS	SMOOTH ASTER	1 GAL.	CONT.	12" OC	HEAVY AND FULL
BAA	799 SF	BAPTISIA AUSTRALIS	FALSE INDIGO	1 GAL.	CONT.	24" O.C.	HEAVY AND FULL
PVS	641 SF	PANICUM VIRGATUM 'SHENANDOAH'	SWITCH GRASS	1 GAL	CONT.	12" OC	HEAVY AND FULL
RGO	806 SF	RUDBECKIA FULGIDA VAR. FULGIDA	BLACK EYED SUSAN	1 GAL.	CONT.	12" OC	HEAVY AND FULL
GRASSES							
CP	674 SF	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	1 GAL	CONT.	12" OC	HEAVY AND FULL
ES	212 SF	ERAGROSTIS SPECTABILIS	PURPLE LOVEGRASS	1 GAL	CONT.	12" OC	HEAVY AND FULL

NOTES:

1. REFER TO SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: SOIL ANALYSES AND AMENDMENT RECOMMENDATIONS; SOURCE LIST AND PHOTOGRAPHS FOR INITIAL SELECTION; PHOTOGRAPHS FOR VERIFICATION.
2. REFER TO SPECIFICATIONS FOR TREE TAGGING REQUIREMENTS.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4. MEET REQUIREMENTS OF ANSI Z60.1, LATEST ADDITION, FOR ALL PLANT MATERIAL.
5. QUANTITIES GIVEN ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE FOR MEETING THE DESIGN INTENT, AS INDICATED ON PLANTING PLANS.
6. ALL PLANTS ARE TO BE HEALTHY, FULL, BALANCED, AND EXCEPTIONALLY HEAVY.
7. PROVIDE TURF PER SPECIFICATIONS IN ALL DISTURBED AREAS NOT OTHERWISE PLANTED OR PAVED.
8. SIGNIFICANT TREE REPLACEMENT:
  - 2 TREES REMOVED
  - 5 TREES REQUIRED FOR REPLACEMENT
  - 5 SHADE TREES PROVIDED FOR REPLACEMENT
9. SEE SHEETS LJ1-8 FOR MORE INFORMATION ON MINIMUM TREE COVER AND FOREST CONSERVATION.

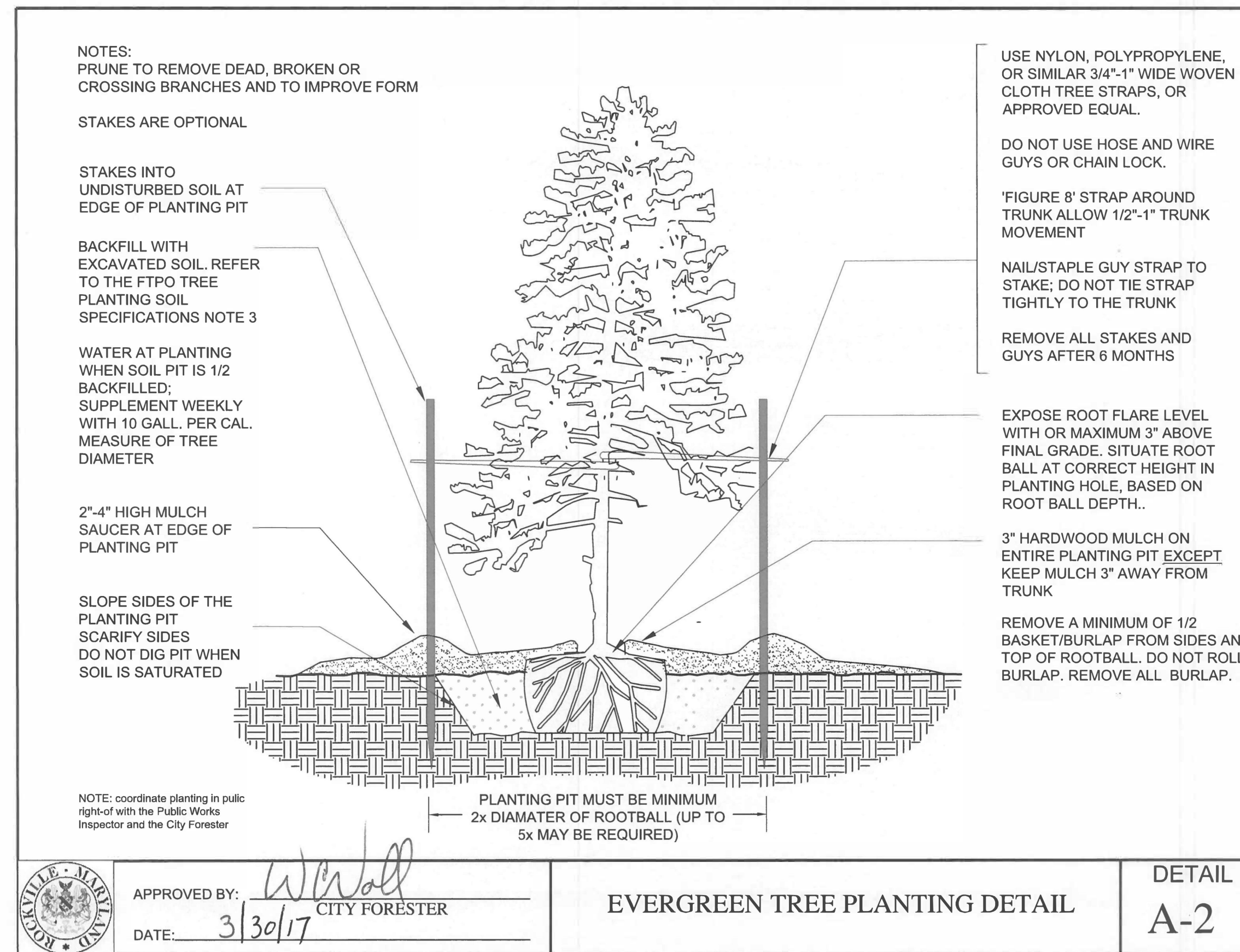
## PLANTING SCHEDULE

NTS



## SHADE TREE PLANTING

1/2" = 1'-0"



## EVERGREEN TREE PLANTING

$$1/2'' = 1'-0''$$
LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## PLANTING DETAILS

## BID SET

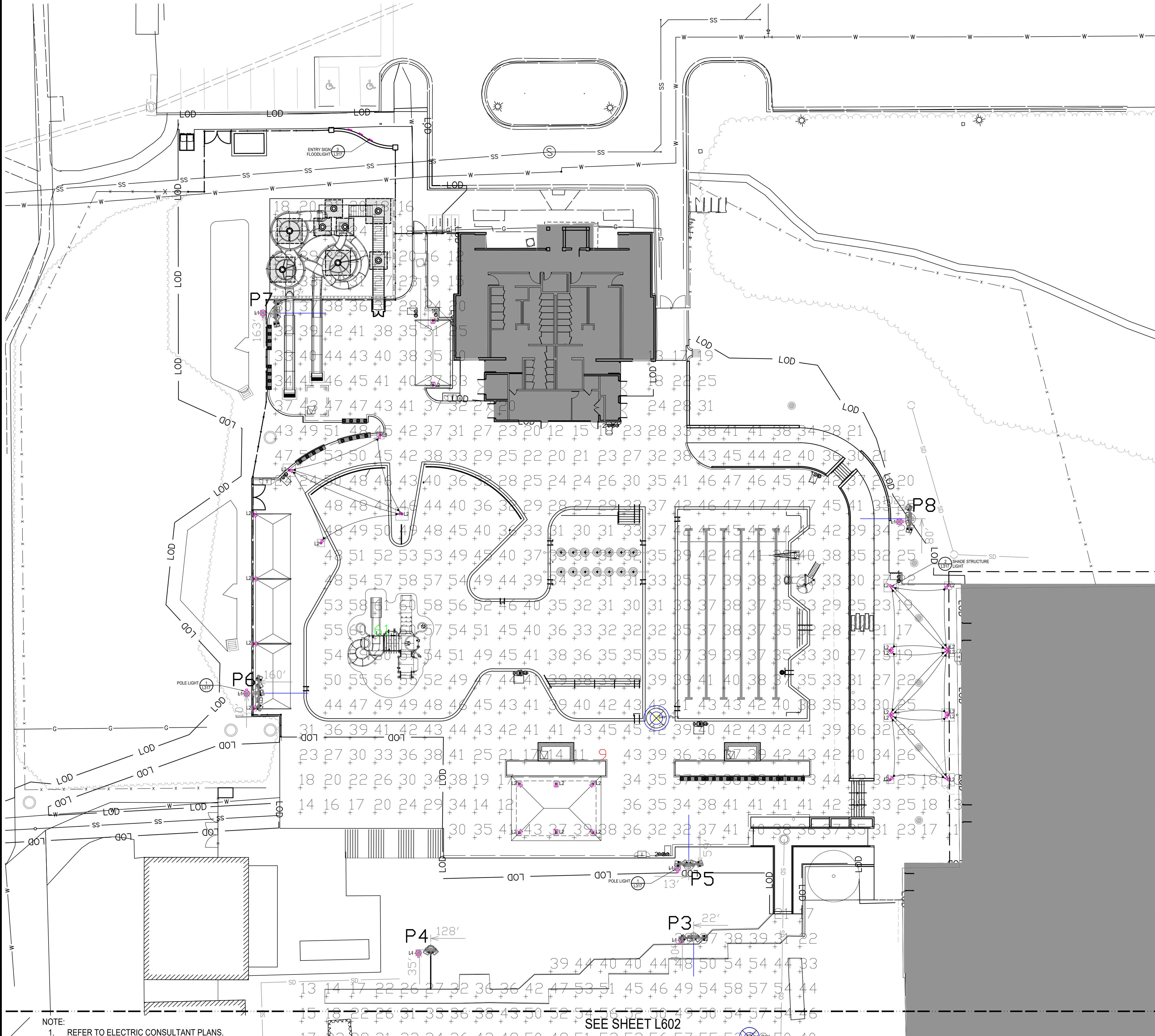
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6	BID SET 02/01/2022
7	BUILDING PERMIT SET 02/06/2022
8	BUILDING PERMIT SET 02/20/2022
9	BID SET 02/23/2022

No.	Description	Date
Revisions		
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Project Number:	22.00036.08	
Scale:	AS SHOWN	
Drawn By:	AD, HW, B	
Checked By:	AD	
Date:	01/08/2022	
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Sheet No.	1 of 1	

NFC

**BID SET 02/23/2024**





LEGEND

- L1 1 POLE LIGHT WITH GFCI OUTLET  
L2 2 SHADE STRUCTURE LIGHT  
 3 ENTRY SIGN FLOODLIGHT



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Grid Summary	
Name	Main Pool Area
Size	2' x 2'
Spacing	10.0' x 10.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	37.88
Maximum	68
Minimum	6
Avg/Min	6.78
Max/Min	12.12
UG (adjacent pts)	1.74
CU	0.73
No. of Points	455
LUMINAIRE INFORMATION	
Applied Circuits	E,F,G,H
No. of Luminaires	18
Total Load	20.22 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

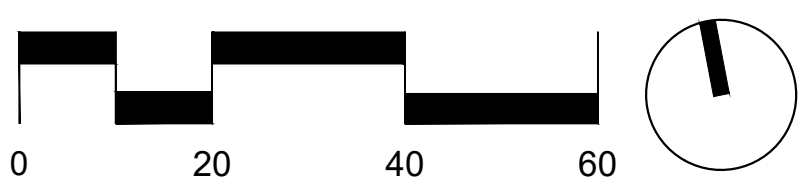
**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown	
Pole	
QTY	LOCATION
SIZE	GRADE ELEVATION
MOUNTING HEIGHT	LUMINAIRE TYPE
QTY/POLE	THIS GRID
OTHER GRIDS	
1	P5
1	P6
1	P7
1	P8
4	Totals

NOTE:  
1. REFER TO ELECTRIC CONSULTANT PLANS.

SEE SHEET L602

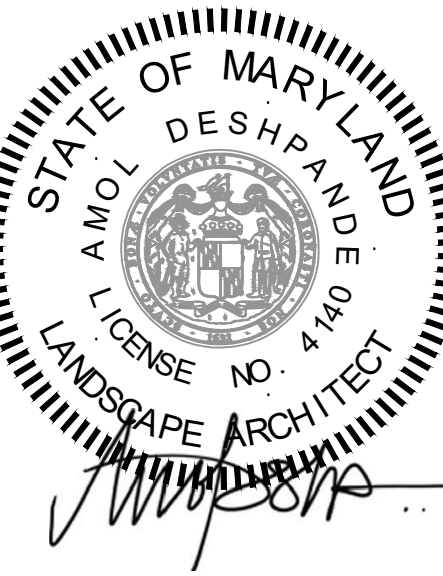
1 LIGHTING PLAN  
1" = 20'-0"



NFC

LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

LIGHTING  
PLAN

BID SET

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8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

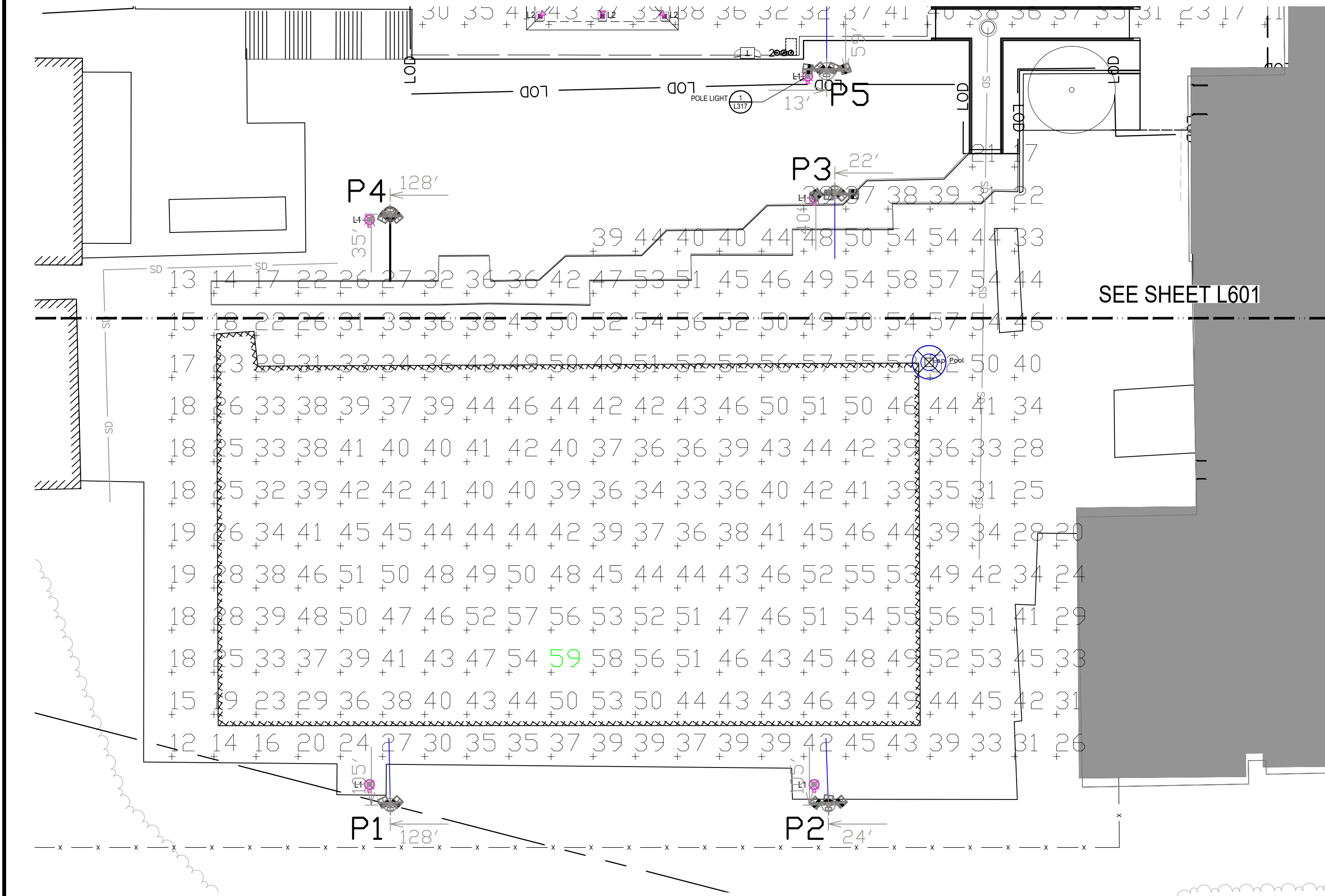
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Project Number: 22.00036.00  
Scale: AS SHOWN  
Drawn By: AD, HW, BS  
Checked By: AD  
Date: 01/08/2024

Sheet No. L601

BID SET 02/23/2024

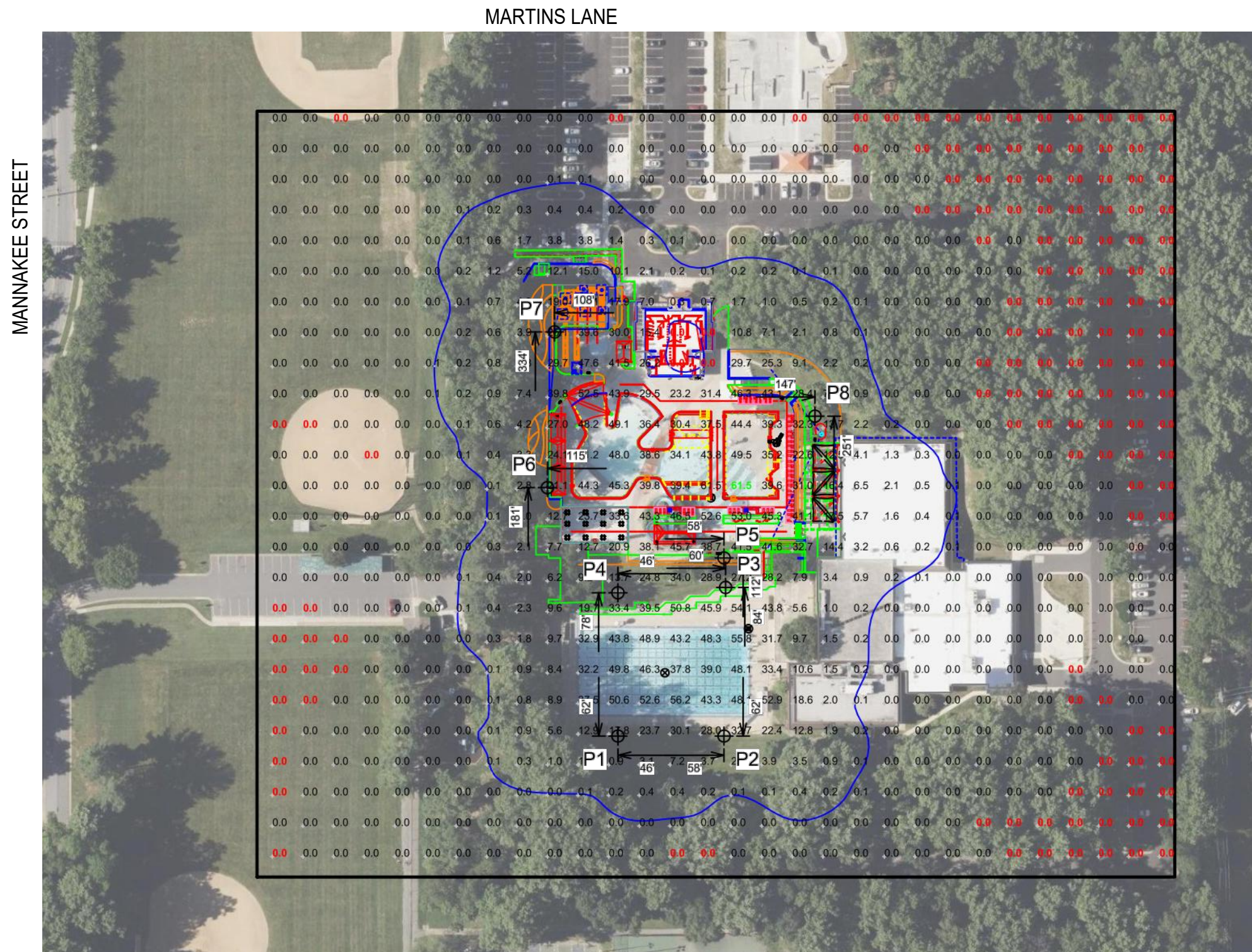




- NOTE:
1. REFER TO ELECTRIC CONSULTANT PLANS.
  2. REPLACING THE LIGHT POOLS AROUND THE EXISTING FITNESS POOL IS AN ADD ALTERNATE - FITNESS POOL LIGHTING

## 1 FITNESS POOL LIGHTING PLAN (ADD ALTERNATIVE)

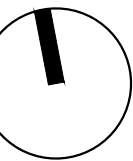
1" = 20'-0"



- NOTE:
1. REFER TO ELECTRIC CONSULTANT PLANS.

## 2 ILLUMINATION SUMMARY

NTS



Grid Summary	
Name	Blanket Grid
Size	900' x 750'
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Scan Average	5.86
Maximum	62
Minimum	0
Avg/Min	-
Max/Min	-
UG (adjacent pts)	258.07
CU	0.99
No. of Points	750
LUMINAIRE INFORMATION	
Applied Circuits	A,B,C,D,E,F,G,H
No. of Luminaires	29
Total Load	32.31 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

### LEGEND

- 1 POLE LIGHT WITH GFCI OUTLET
- 2 SHADE STRUCTURE LIGHT
- 3 ENTRY SIGN FLOODLIGHT

Grid Summary	
Name	Lap Pool Area
Size	2' x 2'
Spacing	10.0' x 10.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Scan Average	41.67
Maximum	61
Minimum	16
Avg/Min	2.65
Max/Min	3.88
UG (adjacent pts)	1.60
CU	0.78
No. of Points	278
LUMINAIRE INFORMATION	
Applied Circuits	A,B,C,D
No. of Luminaires	11
Total Load	12.09 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown							
Pole		Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY/POLE	THIS GRID
2	P1 P4	50'	-	50'	TLC-LED-1200	1	1
				50'	TLC-LED-1500	1	1
1	P2	50'	-	50'	TLC-LED-1200	3	3
1	P3	50'	-	50'	TLC-LED-1200	2	2
				50'	TLC-LED-550	2	2
4	Totals					11	11

Pole/Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
P1	50'	50'	1	TLC-LED-1200	1.17 kW	A
		50'	1	TLC-LED-1500	1.41 kW	A
P2	50'	50'	3	TLC-LED-1200	3.51 kW	B
P3	50'	50'	2	TLC-LED-1200	2.34 kW	C
		50'	2	TLC-LED-550	1.08 kW	C
P4	50'	50'	1	TLC-LED-1200	1.17 kW	D
		50'	1	TLC-LED-1500	1.41 kW	D
P5	60'	60'	5	TLC-LED-1200	5.85 kW	E
P6	70'	70'	1	TLC-LED-900	0.89 kW	F
		70'	4	TLC-LED-1200	4.68 kW	F
P7	70'	70'	2	TLC-LED-1200	2.34 kW	G
		70'	2	TLC-LED-900	1.78 kW	G
P8	70'	70'	4	TLC-LED-1200	4.68 kW	H
8			29		32.31 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	P1	2.58 kW	2
B	P2	3.51 kW	3
C	P3	3.42 kW	4
D	P4	2.58 kW	2
E	P5	5.85 kW	5
F	P6	5.57 kW	5
G	P7	4.12 kW	4
H	P8	4.68 kW	4

Fixture Type Summary						
Type	Source	Wattage	Lumens	L90	L80	L70
TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000
TLC-LED-550	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)		Line Amperage Per Luminaire (max draw)					
Single Phase Voltage		208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
TLC-LED-1200		6.9	6.5	6.0	5.2	4.2	3.8
TLC-LED-1500		8.4	7.9	7.3	6.3	5.0	4.6
TLC-LED-550		3.2	3.0	2.8	2.4	1.9	1.8
TLC-LED-900		-	-	-	-	-	-

### Light Level Summary

Calculation Grid Summary		Illumination					
Grid Name	Calculation Metric	Ave	Min	Max	Max/Min	Ave/Min	Circuits
Blanket Grid	Horizontal Illuminance	5.86	0	62	0.00		A,B,C,D,E,F,G
Lap Pool Area	Horizontal	41.7	16	61	3.88	2.60	A,B,C,D
Main Pool Area	Horizontal	37.9	6	68	12.12	6.31	E,F,G,H

## 3 OVERALL LIGHTING SYSTEM

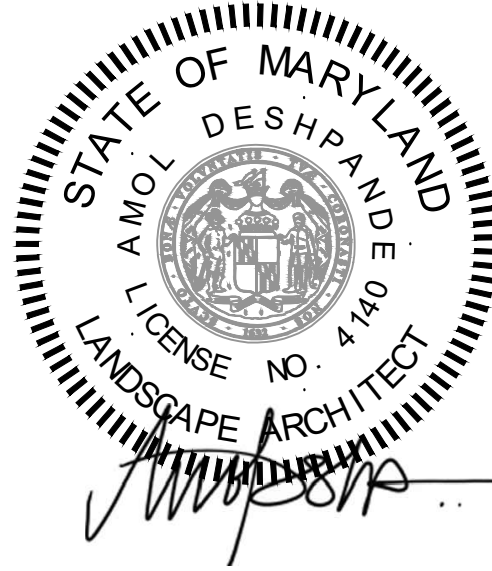
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## LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## LIGHTING PLAN

## BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
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8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

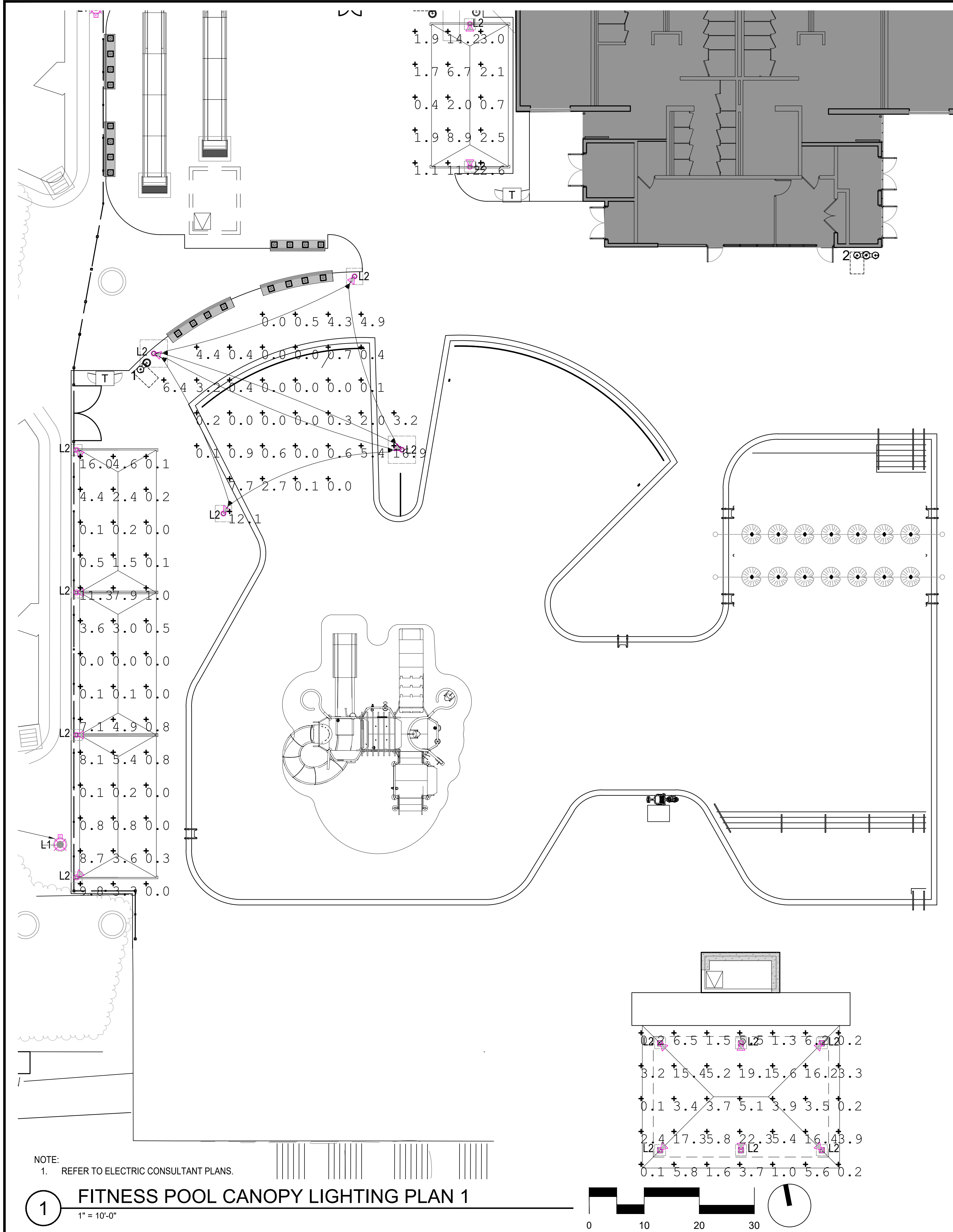
No.	Description	Date
Revisions		

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Date: 01/08/2024

Sheet No. L602

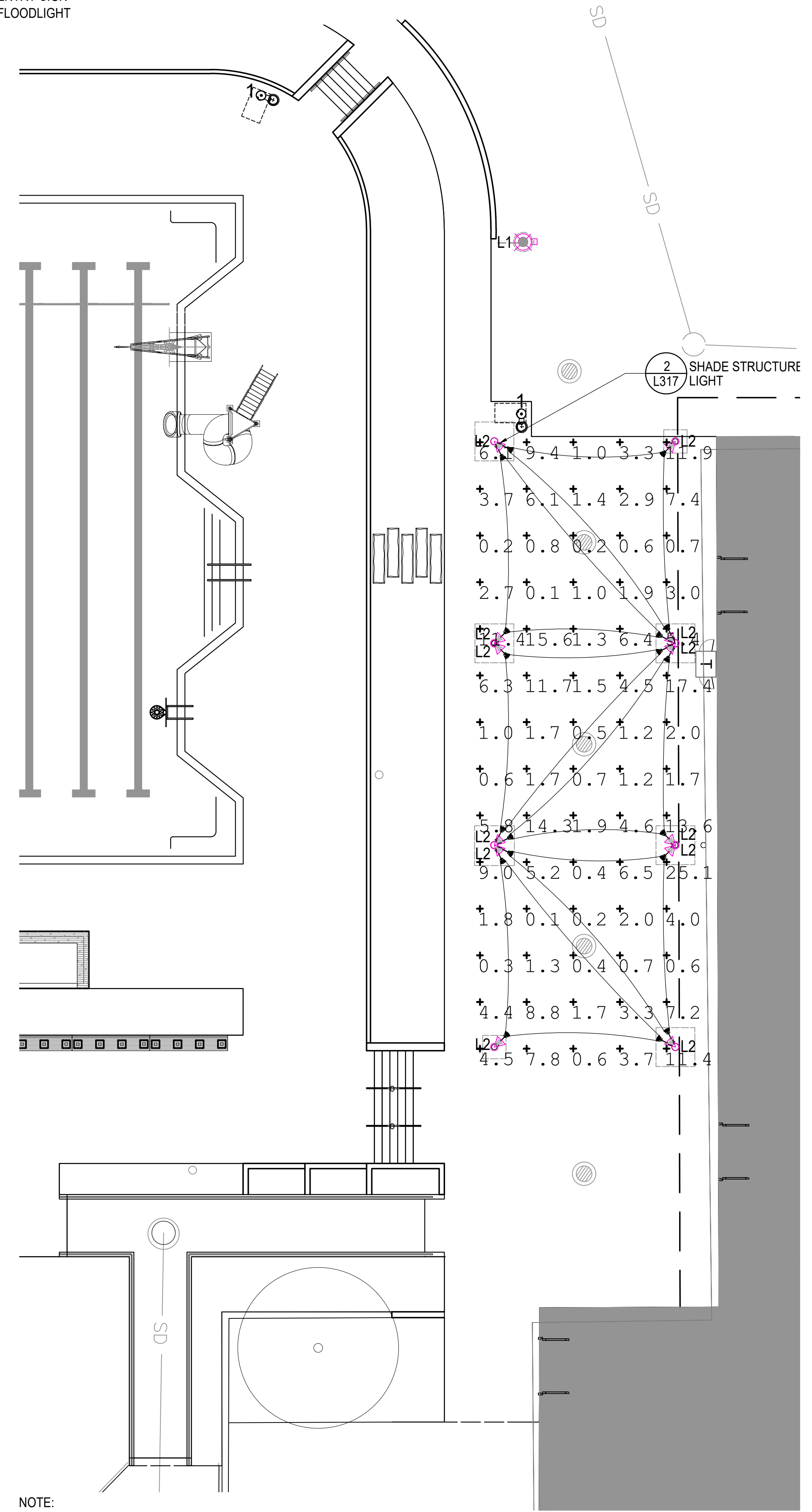
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LEGEND

- 1 POLE LIGHT WITH GFCI L317 OUTLET
- 2 SHADE STRUCTURE L317 LIGHT
- 3 ENTRY SIGN L317 FLOODLIGHT



NOTE:  
1. REFER TO ELECTRIC CONSULTANT PLANS.

2 FITNESS POOL CANOPY LIGHTING PLAN 2  
1" = 10'-0"

LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

CANOPY  
LIGHTING  
PLAN

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8	BUILDING PERMIT SET 02/20/2024
9	BID SET 02/23/2024

No.	Description	Date
Revisions		
Project Number: 22.00036.00		
Scale: AS SHOWN		
Drawn By: AD, HW, BS		
Checked By: AD		
Date: 01/08/2024		
Sheet No.		L603

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STRUCTURAL GENERAL NOTES

THESE NOTES APPLY TO CONTRACTORS, SUBCONTRACTORS, MANUFACTURERS, SUPPLIERS, FABRICATORS, ERECTORS, ETC. ENGAGED IN THE EXECUTION OF WORK INDICATED ON THESE DRAWINGS.

A. CODES AND STANDARDS

THE FOLLOWING CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS REFERENCED WITHIN, SHALL APPLY TO THE DESIGN, CONSTRUCTION, AND QUALITY CONTROL OF ALL WORK PERFORMED ON THE PROJECT. USE THE LATEST EDITION UNLESS NOTED OTHERWISE.

1. BUILDING CODES:

a. "INTERNATIONAL BUILDING CODE – 2018".

b. "INTERNATIONAL EXISTING BUILDING CODE – 2018".

c. "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" (ASCE 7-16).

2. AMERICAN CONCRETE INSTITUTE (ACI)

a. "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-14".

b. "ACI MANUAL OF CONCRETE PRACTICE – PARTS 1 THROUGH 5".

3. THE MASONRY SOCIETY (TMS)

a. "BUILDING CODE FOR MASONRY STRUCTURES", TMS 402-16.

b. "SPECIFICATION FOR MASONRY STRUCTURES", TMS 602-16.

4. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

a. "MANUAL OF STANDARD PRACTICE", CONCRETE REINFORCING STEEL INSTITUTE.

5. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

a. "STEEL CONSTRUCTION MANUAL", FIFTEENTH EDITION, 2017.

b. "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AISC 360-16.

c. "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", AISC 303-16.

B. DESIGN DATA

1. SUPERIMPOSED DEAD LOADS (IN ADDITION TO STRUCTURE SELF-WEIGHT)

AREA

PSF

a. SUNNING DECK

10

2. LIVE LOADS

LIVE LOADS ARE REDUCIBLE IN ACCORDANCE WITH IBC 2018 SECTION 1607.11, AS NOTED BELOW.

AREA

PSF

LIVE LOAD REDUCTION PERMITTED

a. SUNNING DECK

100

NO

3. LATERAL SOIL LOADS

a. LATERAL EQUIVALENT FLUID PRESSURE (AS RECOMMENDED IN GEOTECHNICAL REPORT)

1) AT REST CONDITION (BRACED WALLS)

2) ACTIVE CONDITION (CANTILEVERED RETAINING WALLS)

3) PASSIVE CONDITION

4) SLIDING RESISTANCE (FRICTION FACTOR)

60 PSF/FT OF DEPTH

40 PSF/FT OF DEPTH

360 PSF/FT OF DEPTH

0.5

b. NOTE THAT THE ABOVE NOTED LATERAL EQUIVALENT FLUID PRESSURES (PER THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT) ASSUME NO HYDROSTATIC PRESSURE ON THE WALLS, I.E., ADEQUATE SUBSURFACE DRAINAGE WILL BE PROVIDED.

C. RENOVATION / REHABILITATION / ADJACENT STRUCTURES

1. THE CONTRACTOR IS CAUTIONED THAT THE WORK INCLUDES WORK WITHIN ALTERATIONS TO, AND/OR WORK IMMEDIATELY ADJACENT TO, AN EXISTING STRUCTURE.

2. EXISTING CONDITIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. THE CONTRACTOR IS STRONGLY ENCOURAGED TO OBTAIN COPIES OF THE ORIGINAL DRAWINGS FROM THE OWNER AND TO VISIT THE SITE TO OBSERVE THE EXISTING CONDITIONS PRIOR TO DETERMINING THE SCOPE OF THEIR WORK.

3. EXISTING CONDITIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION OBTAINED DURING LIMITED SITE SURVEYS. THE CONTRACTOR IS STRONGLY ENCOURAGED TO VISIT THE SITE TO OBSERVE THE EXISTING CONDITIONS PRIOR TO DETERMINING THE SCOPE OF THEIR WORK.

4. ACTUAL FIELD CONDITIONS MAY VARY FROM THOSE INDICATED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING IN THE FIELD ALL EXISTING BUILDING INFORMATION (DIMENSIONS, ELEVATIONS, UTILITIES, ETC.), WHETHER SHOWN ON CONTRACT DOCUMENTS OR NOT, AFFECTS THE INSTALLATION OF NEW WORK. NOTIFY THE OWNER OF EXISTING CONDITIONS THAT ARE SUBSTANTIALLY DIFFERENT FROM THOSE SHOWN ON THE CONTRACT DRAWINGS.

5. GREENMAN-PEDERSEN, INC. IS NOT RESPONSIBLE FOR THE APPLICABILITY, IDENTIFICATION, CLASSIFICATION, METHODS, OR SCOPE OF ANY HAZARDOUS MATERIAL MITIGATION (IF REQUIRED).

D. FOUNDATIONS / GEOTECHNICAL REPORT

1. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS INCLUDED IN THE GEOTECHNICAL REPORT PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. DATED 8/30/2023, REPORT NO. 23270A. REFER TO THAT REPORT FOR ADDITIONAL REQUIREMENTS.

2. FOUNDATIONS PLACED ON UNDISTURBED SOIL AT ELEVATIONS INDICATED HAVE BEEN DESIGNED FOR A NET ALLOWABLE BEARING PRESSURE OF 2000 PSF.

E. MATERIALS

THE FOLLOWING ASTM STANDARDS AND DESIGN STRESSES SHALL BE USED FOR THE APPROPRIATE MATERIALS USED IN THE CONSTRUCTION OF THIS PROJECT.

1. CEMENT: ASTM C150, TYPE I OR II  
ASTM C150, TYPE II FOR CONCRETE IN CONTACT WITH AGGRESSIVE ENVIRONMENT

2. BLENDED HYDRAULIC CEMENT: ASTM C595, TYPE IS (LIMIT SLAG TO 35% MAX CONTENT BY WEIGHT)

3. AGGREGATES: ASTM C33 (NORMAL WEIGHT); ¾" NOMINAL MAXIMUM AGGREGATE SIZE.  
ASTM C330 (STRUCTURAL LIGHT WEIGHT)

4. ADMIXTURES: AIR ENTRAINING ADMIXTURES  
CHEMICAL ADMIXTURES  
ASTM C260  
ASTM C494

5. CONCRETE: AIR ENTRAIN ALL CONCRETE 6% ± 1 ½% UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS. INCLUDE 2.5 GALLONS OF CORROSION-INHIBITING ADMIXTURE PER C.Y. OF CONCRETE. NO AIR ENTRAINMENT FOR SLABS TO RECEIVE STEEL TROWEL FINISH.

APPLICATION

F'C @  
28 DAYS  
(PSI)

MIX TYPE

a. SLAB SURFACE REPAIRS

4500

LATEX-OR MICROSILICA  
MODIFIED CONCRETE

b. SLAB SURFACE REPAIRS  
AND FULL-DEPTH REPAIRS

4500

0.40 W/C RATIO CONCRETE

c. WALL, BEAM AND SLAB  
SOFFIT REPAIRS

5000

POLYMER-MODIFIED REPAIR  
MORTAR

5000

MICROSILICA-MODIFIED  
DRY-MIX SHOTCRETE

4500

FORM AND PUMP CONCRETE

6. CONCRETE: AIR ENTRAIN CONCRETE AS INDICATED BELOW, AND CONCRETE EXPOSED TO EARTH AND WEATHER, 6% ± 1½% BY VOLUME UNLESS OTHERWISE NOTED. *HARD TROWEL FINISH NOT RECOMMENDED FOR AIR-ENTRAINED SLABS. *EXTERIOR MEMBERS ARE THOSE FULLY OR PARTIALLY OUTSIDE OF THE CONDITIONED BUILDING ENVELOPE AND FULLY OR PARTIALLY ABOVE THE FROST DEPTH.					
APPLICATION	f'c @ 28 DAYS (PSI)	WT (PCF)	ACI EXP. CLASS	W/C RATIO (MAX)	AIR- ENTRAIN
a. FOOTINGS	3000	145	F0	0.55	Y
b. EXTERIOR WALLS	5000	145	F3	0.40	Y
7. REINFORCEMENT:					
a. DEFORMED REINFORCING BARS	ASTM A615, GRADE 60				
b. WELDABLE DEFORMED REINFORCING BARS	ASTM A706				
c. WELDED WIRE FABRIC (WWF)	ASTM A185				
d. EPOXY COATED REINFORCING BARS	ASTM A775				
e. ADHESIVE REINFORCING BAR DOVEL SYSTEM	HILTI HY-200, HILTI RE500-sd, OR APPROVED EQUIVALENT				
8. SEMI-RIGID JOINT FILLER FOR SLABS ON GRADE					
a. 100% SOLIDS, TWO-COMPONENT EPOXY OR POLYUREA					
b. MINIMUM SHORE A HARDNESS OF 80 PER ASTM D2240					
c. EPOXY OR POLYUREA MAY BE USED WHERE FACILITY OPERATING TEMPERATURES ARE AT AND ABOVE 35 DEGREES F. POLYUREA SHALL BE USED WHERE OPERATING TEMPERATURES ARE BELOW 35 DEGREES F.					
9. MASONRY:					
a. MASONRY COMPRESSIVE STRENGTH, f <sub>m</sub>	1500 PSI				
b. LOAD BEARING CONCRETE MASONRY UNITS	HOLLOW – ASTM C90, GRADE N, MINIMUM COMPRESSIVE STRENGTH ON NET AREA = 1900 PSI, MAXIMUM LINEAR SHRINKAGE = 0.065%				
c. CONCRETE BUILDING BRICK	BRICK – ASTM C55, MINIMUM COMPRESSIVE STRENGTH ON NET AREA = 1900 PSI				
d. MORTAR	ASTM C270 – TYPE M (BELOW GRADE) TYPE S (ABOVE GRADE)				
e. GROUT	ASTM C476, MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS = 2000 PSI. SLUMP TO BE BETWEEN 8" AND 11".				
f. HORIZONTAL JOINT REINFORCING	ASTM A82; F <sub>y</sub> =70 KSI, 9 GAGE TRUSS-TYPE GALVANIZED				
10. STEEL:					
a. WIDE FLANGE	ASTM A992				
b. OTHER STRUCTURAL SHAPES AND PLATES	ASTM A36				
c. STRUCTURAL PIPE	ASTM A53, GRADE B, F <sub>y</sub> =35 KSI				
d. HOLLOW STRUCTURAL SECTIONS (HSS)	ASTM A500, GRADE B, F <sub>y</sub> =46 KSI (RECTANGULAR), F <sub>y</sub> =42 KSI (ROUND)				
e. HIGH-STRENGTH BOLTS	ASTM A325				
f. ANCHOR RODS	ASTM F1554, GRADE 36				
g. SMOOTH AND THREADED ROD	ASTM A36				
h. HEADED SHEAR STUDS	ASTM A108				
i. HOT-DIPPED GALVANIZING	ASTM A123 / ASTM A153				
j. POST-INSTALLED MECHANICAL ANCHORS IN CONCRETE					
1) SCREW ANCHORS	HILTI KWIK HUS-EZ, HILTI KWIK CON II+, OR APPROVED EQUIVALENT				
F. CONSTRUCTION					
1. GENERAL:					
a.	DO NOT SCALE DRAWINGS.				
b.	THIS BUILDING HAS BEEN PREVIOUSLY DESIGNED BY OTHERS FOR THE WEIGHTS OF THE MATERIALS INDICATED ON THE DRAWINGS AND FOR THE SUPERIMPOSED LOADS INDICATED IN THE LOAD DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS WITH CONSIDERATION OF REDUCED STRUCTURAL CAPACITY DUE TO DEMOLITION AND EXISTING DAMAGE AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGINGS, BRACING, SHEETING AND SHORING ETC. DRAWINGS OF SUCH TEMPORARY SUPPORTS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION.				
c.	IMPLEMENTING JOB SITE SAFETY AND CONSTRUCTION PROCEDURES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.				
d.	EXISTING BUILDING INFORMATION SHOWN IS AS INDICATED ON EXISTING BUILDING DRAWINGS PROVIDED BY OTHERS. FIELD VERIFY ALL EXISTING BUILDING INFORMATION SHOWN (DIMENSIONS, ELEVATIONS, UTILITIES, ETC.) AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING WORK.				
e.	UNLESS INDICATED OTHERWISE, NEW SLABS ARE TO BE AT THE SAME ELEVATIONS AS ADJACENT EXISTING SLABS.				
f.	REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.				
g.	REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR DETAILED INFORMATION REGARDING FINISHES, FIRE RATINGS, FIREPROOFING, WATERPROOFING, ETC.				
h.	IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, DETAILS AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS GOVERN.				
i.	THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THIS WORK FROM THE PROPER GOVERNING AGENCIES.				
j.	WORK NOT INCLUDED ON SOME OF THE DRAWINGS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ON OTHER DRAWINGS SHALL BE REPEATED.				
k.	ANY DAMAGE TO EXISTING FACILITIES OR SITE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.				
l.	THE CONTRACTOR SHALL PERFORM HIS WORK IN A MANNER WHICH CAUSES THE LEAST DISRUPTION TO EXISTING BUILDING OPERATIONS OR FACILITIES. THE CONTRACTOR SHALL CONSULT WITH, AND FOLLOW THE DIRECTIVES OF, THE OWNER CONCERNING ACCEPTABLE TIME OF CONSTRUCTION ACTIVITIES, NOISE CONTROL, ACCESS, SAFETY, EMPLOYEE PARKING, USE OF BUILDING FACILITIES, ETC.				
m.	THE CONTRACTOR SHALL PROVIDE DUST AND NOISE CONTROL PARTITIONS, DAMS OR OTHER METHODS AS NOTED OR AS REQUIRED TO PREVENT DUST, WATER OR EXCESSIVE NOISE FROM ENTERING OCCUPIED AREAS OF THE BUILDING. THE CONTRACTOR SHALL CLEAN ALL AREAS IN WHICH DUST, WATER OR DEBRIS FREOM CONSTRUCTION OPERATIONS ENTERS.				
n.	STORE AND HANDLE STRUCTURAL CONSTRUCTION MATERIALS TO PREVENT ANY ADVERSE EFFECTS ON THE PHYSICAL PROPERTIES OF THE MATERIAL.				
o.	PAY ALL COSTS, INCLUDING INVESTIGATION AND/OR REDESIGN, DUE TO CONTRACTOR MISLOCATION OF STRUCTURAL ELEMENTS OR OTHER LACK OF CONFORMANCE WITH THE CONTRACT DOCUMENTS TO BRING WORK IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.				
2. SHOP DRAWINGS AND SUBMITTALS:					
a.	REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR RESUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED WITHOUT REVIEW AND RETURNED.				

b. SUBMIT SHOP DRAWINGS AT LEAST 5 BUSINESS DAYS BEFORE DATE REVIEWED SUBMITTALS WILL BE NEEDED. SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL WHICH SHALL CONSTITUTE CERTIFICATION THAT THE CONTRACTOR HAS VERIFIED ALL FIELD MEASUREMENTS, CONSTRUCTION CRITERIA, MATERIALS AND SIMILAR DATA AND HAS CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION AND COMPLIANCE WITH THE CONTRACT DOCUMENTS.			
c. SUBMIT CALCULATIONS AND DRAWINGS CONCURRENTLY FOR EACH OF THE FOLLOWING ASSEMBLIES. DESIGN EACH ASSEMBLY UNDER THE DIRECT SUPERVISION OF AN ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. ALL PORTIONS OF SUBMITTALS SHALL BEAR THIS ENGINEER'S SEAL AND SIGNATURE. UNSEALED SUBMITTALS WILL BE RETURNED AND REJECTED WITHOUT REVIEW. REVIEW SHALL BE FOR GENERAL CONFORMANCE WITH THE PROJECT PARAMETERS AS INDICATED ON THE DRAWINGS AND IN THE GENERAL NOTES AND SPECIFICATIONS, AND FOR IMPACTS ON THE SUPPORTING STRUCTURAL SYSTEM. DESIGN FOR ALL GRAVITY AND LATERAL LOADS AND OTHER EFFECTS (INCLUDING CREEP, SHRINKAGE, THERMAL, ETC.) REQUIRED BY APPLICABLE CODES AND STANDARDS AS WELL AS THOSE INDICATED ON THE DRAWINGS.			
1) FORMWORK, SHORES AND RESHORES			
a) INDICATE PLAN OF STRIPPING AND RESHORING PROCEDURES AND OPERATIONS ON SHOP DRAWINGS.			
b) DESIGN FORMWORK, SHORING, AND RESHORING SYSTEMS TO ACCOUNT FOR ADDITIONAL LOADS RESULTING FROM POST-TENSIONING STRESSING SEQUENCES INDICATED.			
c) REMOVAL OF FORMS IS NOT PERMITTED UNTIL CONCRETE HAS ACHIEVED A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH, ENABLING THE MEMBERS TO CARRY THEIR DEAD LOAD AND ANTICIPATED CONSTRUCTION LOADS.			
d) REMOVAL OF FORMS IS NOT PERMITTED UNTIL SUFFICIENT PRESTRESSING HAS BEEN APPLIED TO ENABLE THE MEMBERS TO CARRY THEIR DEAD LOAD AND ANTICIPATED CONSTRUCTION LOADS.			
2) EARTH-RETENTION SYSTEMS			
a) DESIGN EARTH RETENTION SYSTEMS SO AS TO NOT INTERFERE WITH PERMANENT BUILDING ELEMENTS			
b) SHOP DRAWINGS SHALL INDICATE SEQUENCE PLAN.			
3) TEMPORARY SHORING AND BRACING			
a) SPECIALTY CONTRACTOR AND ENGINEER SHALL BE EXPERIENCED IN WORK SIMILAR IN NATURE TO THAT REQUIRED FOR THIS PROJECT.			
b) SUBMITTAL SHALL INCLUDE THE FOLLOWING:			
i. CALCULATIONS INDICATING THE DESIGN LOADS, MATERIALS, MEMBER SIZES (INCLUDING CORRESPONDING DESIGNATION FROM PLAN), AND ANY EQUIPMENT USED.			
ii. PLAN LAYOUT INDICATING MEMBER SIZES (INCLUDING CORRESPONDING DESIGNATION FROM CALCULATIONS) AND DIMENSIONS.			
iii. INDICATE PLAN OF SHORING PROCEDURES AND OPERATIONS ON SHOP DRAWINGS.			
d. SUBMITTALS AND CERTIFICATIONS, IN ADDITION TO STANDARD INDUSTRY PRACTICE			
1) CAST-IN-PLACE CONCRETE AND SPECIALTY REPAIR MATERIALS.			
a) SHOP DRAWINGS INDICATING PROPOSED JOINT LOCATIONS AND REINFORCING STEEL TO BE PLACED IN THE SLAB FOR MILD-REINFORCED CONSTRUCTION.			
b) DIMENSIONED SHOP DRAWINGS AT ALL LEVELS LOCATING FLOOR AND ROOF EDGES FOR REVIEW BY THE ARCHITECT AND SER.			
c) DIMENSIONED COORDINATED SHOP DRAWINGS AT ALL LEVELS SHOWING THE LOCATIONS OF ALL SLEEVES AND OPENINGS REQUIRED BY ALL TRADES. ANY ADDITIONAL OPENINGS NOT SHOWN ON SHOP DRAWINGS WILL REQUIRE APPROVAL OF THE SER.			
d) MIX DESIGNS, INCLUDING DOCUMENTATION USED TO DETERMINE STANDARD DEVIATION IN ACCORDANCE WITH ACI 301.			
e) CERTIFICATIONS OF REINFORCING STEEL COMPLIANCE WITH REFERENCED STANDARDS.			
2) MASONRY			
a) MASONRY GROUT MIX DESIGN AND MASONRY UNIT CERTIFICATIONS.			
b) REINFORCING STEEL SHOP DRAWINGS IN REINFORCED MASONRY CONSTRUCTION. INDICATE PROPOSED CONTROL JOINT LOCATIONS.			
c) CERTIFICATIONS OF REINFORCING STEEL COMPLIANCE WITH REFERENCED STANDARDS.			
3) STRUCTURAL STEEL			
a) CERTIFIED COPIES OF MLL TEST REPORTS FOR RECORD PURPOSES ONLY			
3. INSPECTION AND TESTING:			
a. THE CONTRACTOR WILL ENGAGE AN APPROVED TESTING AGENCY TO PROVIDE ALL SERVICES AS INDICATED BELOW OR IN THE SPECIFICATIONS. SUBMIT REPORTS TO THE SER, CODE OFFICIAL, AND OWNER (AS APPLICABLE).			
b. CAST-IN-PLACE CONCRETE:			
1) THE AGENCY SHALL INSPECT THE FORMWORK AND POST-TENSIONING AND REINFORCING STEEL PLACEMENT FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SHOP DRAWINGS. THE AGENCY SHALL MONITOR ALL STRUCTURAL CONCRETE PLACEMENTS FOR CONFORMANCE WITH APPLICABLE ACI REQUIREMENTS.			
2) SAMPLE FRESH CONCRETE IN ACCORDANCE WITH ASTM C172. MOLD TEST CYLINDERS IN ACCORDANCE WITH ASTM C31.			
3) THE FOLLOWING NUMBER OF TEST CYLINDERS SHALL BE CAST FOR EACH DAY'S POUR OR EACH 50 CUBIC YARDS, WHICHEVER RESULTS IN MORE TEST CYLINDERS:			
FOR ELEVATED SLAB (TO INCLUDE BEAMS AND GIRDERS)	FOR FOOTINGS AND OTHER STRUCTURAL CONCRETE	FOR WALLS	
2 @ 7 DAYS, LAB CURED	2 @ 7 DAYS, LAB CURED	2 @ 7 DAYS, LAB CURED	
2 @ 7 DAYS, FIELD CURED	2 @ 28 DAYS, LAB CURED	2 @ 7 DAYS, FIELD CURED	
2 @ 28 DAYS, LAB CURED	2 @ 28 DAYS, LAB CURED		
2 @ 28 DAYS, FIELD CURED	2 @ 28 DAYS, FIELD CURED		
2 @ 56 DAYS, LAB CURED*	2 @ 56 DAYS, LAB CURED*		
* 28-DAY BREAKS ARE THE STANDARD FOR CONCRETE ACCEPTANCE IN THE FINAL STRUCTURE. RESERVE 56-DAY CYLINDERS FOR ADDITIONAL TESTING AT LOW 28-DAY BREAKS.			
4) THE AGENCY SHALL OBTAIN AND TEST FIELD-CORED SAMPLES OF IN-PLACE CONCRETE AT THE CONTRACTOR'S EXPENSE WHEN TEST RESULTS INDICATED SPECIFIED CONCRETE STRENGTHS HAVE NOT BEEN ATTAINED. CORING LOCATIONS AND QUANTITIES SHALL BE DIRECTED BY THE ENGINEER.			
5) INSPECTION BY AN APPROVED TESTING AGENCY IS REQUIRED FOR ALL POST-TENSIONED WORK.			

c. MASONRY:			
1) THE AGENCY SHALL MONITOR THE PROPORTIONING, MIXING AND CONSISTENCY OF MORTAR AND GROUT, INSTALLATION OF MASONRY UNITS, SIZE AND LOCATION OF REINFORCEMENT, ANCHORAGE OF MASONRY, AND PLACEMENT OF MORTAR AND GROUT FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.			
2) COMPRESSION TEST MASONRY PRISMS FOR EACH TYPE OF WALL CONSTRUCTION IN ACCORDANCE WITH ASTM E447, METHOD B.			
3) THE CONTRACTOR SHALL PREPARE ONE SET OF PRISMS FOR TESTING AT 7 DAYS AND ONE SET FOR TESTING AT 28 DAYS. TESTS ARE TO BE CONDUCTED BY THE AGENCY FOR EACH 5000 SQUARE FEET OF WALL INSTALLED, BUT NOT LESS THAN 2 TESTS.			
d. STRUCTURAL STEEL:			
1) THE AGENCY SHALL REVIEW PREQUALIFIED WELD PROCEDURE SPECIFICATIONS IN ACCORDANCE WITH AWS D1.1, SECTION 6.3.1.			
2) THE AGENCY SHALL VISUALLY INSPECT ALL FILLET WELDS AND BOLTED CONNECTIONS. THE AGENCY SHALL PERFORM WELDING INSPECTION AND TESTING PROCEDURES IN ACCORDANCE WITH THE AWS CODE.			
4) TEST ANY WELD FOR WHICH VISUAL EXAMINATION INDICATES AN UNUSUAL CONDITION AND/OR POOR QUALITY.			
e. POST-INSTALLED ANCHORS			
1) ALL POST-INSTALLED FASTENERS SHALL BE VISUALLY INSPECTED FOR COMPLIANCE WITH ANCHOR TYPE, EMBEDMENT, SPACING, EDGE DISTANCE, AND ALL OTHER REQUIREMENTS AS INDICATED IN THE DRAWINGS AND ICC-ES REPORTS.			
G. CAST-IN-PLACE CONCRETE			
1. COMPLY WITH REQUIREMENTS OF "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE" (ACI 301-10), EXCEPT AS MODIFIED BY THESE NOTES AND PROJECT SPECIFICATIONS. KEEP COPY OF "ACI FIELD REFERENCE MANUAL, SP-15" IN FIELD OFFICE.			
2. PROVIDE MINIMUM CLEAR COVER FOR REINFORCING AS FOLLOWS, UNLESS OTHERWISE NOTED IN THE DRAWINGS:			
a. CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND: 3"			
b. CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: 2"			
c. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: 1 ½"			
SLABS, WALLS, JOISTS			
#11 BARS AND SMALLER ¾"			
3. ANY SPECIALTY REPAIR MATERIALS SHALL BE MIXED AND PLACED AS NOTED IN THE SPECIFICATIONS OR, IF A PROPRIETARY MATERIAL, THE MANUFACTURER'S INSTRUCTIONS.			
4. ALL CONCRETE MATERIALS SHALL MEET OR EXCEED THE SPECIFICATION REQUIREMENTS.			
5. SPLICE REINFORCEMENT AS DETAILED OR AUTHORIZED BY THE SER. MAKE BARS CONTINUOUS AROUND CORNERS. SPLICES SHALL BE MADE BY CONTACT TENSION LAP SPLICES, UNLESS OTHERWISE NOTED.			
6. WELDING OF REINFORCING IS NOT PERMITTED.			
7. FIELD BENDING OF REINFORCING PARTIALLY EMBEDDED IN CONCRETE IS NOT PERMITTED UNLESS OTHERWISE SHOWN OR APPROVED BY THE SER.			
8. SUPPLY WELDED WIRE FABRIC REINFORCEMENT IN SHEETS. LAP TWO FULL MESH LENGTHS AT SPLICES AND WIRE TOGETHER.			
9. FURNISH ALL ACCESSORIES, CHAIRS, SPACE BARS, SUPPORTS, ETC. NECESSARY TO SECURE REINFORCING.			
10. PROVIDE PLASTIC TIPPED BOLSTERS AND CHAIRS AT ALL LOCATIONS WHERE THE CONCRETE SURFACE IN CONTACT WITH THE BOLSTERS OR CHAIRS IS EXPOSED.			
11. ERECT AND REMOVE FORMWORK, SHORES AND RESHORES IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS AND CALCULATIONS PREPARED, SIGNED AND SEALED BY THE ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION.			
12. CAST ALL INSERTS AND SLEEVES IN-PLACE.			
13. PLACING SLEEVES THROUGH CONCRETE ELEMENTS IS ONLY PERMITTED WHEN SHOWN ON THE STRUCTURAL DRAWINGS, APPROVED SLEEVING SHOP DRAWINGS OR SPECIFICALLY AUTHORIZED IN WRITING BY THE ENGINEER.			
14. ANY STOP IN CONCRETE WORK MUST BE MADE WITH VERTICAL BULKHEADS AND KEYS, UNLESS OTHERWISE SHOWN.			
15. LOCATE CONSTRUCTION JOINTS FOR MILD-REINFORCED CONCRETE WITHIN THE MIDDLE THIRD OF THE SPANS OF SLABS, BEAMS AND GIRDERS. INDICATE PROPOSED CONSTRUCTION JOINT LOCATIONS ON REINFORCING STEEL SHOP DRAWINGS. OFFSET JOINTS IN GIRDERS A MINIMUM DISTANCE OF TWO TIMES THE WIDTH OF INTERSECTING BEAMS. ALL REINFORCING TO BE CONTINUOUS THROUGH JOINTS. REFER TO DETAILS FOR ADDITIONAL REINFORCING AT JOINTS.			
16. HORIZONTAL JOINTS ARE NOT PERMITTED IN SLABS, BEAMS, GIRDERS AND JOISTS.			
17. FINISH CONCRETE SLABS FLAT AND LEVEL WITHIN TOLERANCE, TO THE ELEVATION INDICATED ON THE DRAWINGS. PROVIDE ADDITIONAL CONCRETE REQUIRED DUE TO FORMWORK AND FRAMING DEFLECTION TO ACHIEVE THIS FINISHED TOP-OF-SLAB ELEVATION. FOR SLABS ON STEEL DECK, ANTICIPATE A MINIMUM TEN PERCENT INCREASE IN CONCRETE VOLUME FOR UNSHORED CONSTRUCTION, UNLESS OTHERWISE NOTED.			
18. FOR CONCRETE SLABS THAT ARE PART OF COMPOSITE FLOOR FRAMING SYSTEMS, ACHIEVE 28-DAY CONCRETE COMPRESSION DESIGN STRENGTH PRIOR TO THE APPLICATION OF ANY SUPERIMPOSED LOADS, SUCH AS CURTAIN WALLS, MASONRY VENEERS, STAIRS, ETC.			
19. CORE DRILLING OF ANY CONCRETE ELEMENT IS NOT PERMITTED UNLESS AUTHORIZED IN WRITING BY THE ENGINEER.			
20. CHAMFER EXPOSED CONCRETE CORNERS, ¼" x ¼" MINIMUM, UNLESS OTHERWISE NOTED ON ARCHITECTURAL DRAWINGS.			

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Designed by  
GENERAL NOTES

STATE OF MARYLAND  
DEPARTMENT OF  
GENERAL ENGINEERING

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland  
License No: 40254  
Expiration: 5/19/25

1 65% CONSTRUCTION DOCUMENT 06/25/2023

2 80% CONSTRUCTION DOCUMENT 08/18/2023

3 95% CONSTRUCTION DOCUMENT 10/10/2023

4 PERMIT SET 12/08/2023

5 99% CONSTRUCTION DOCUMENT 01/19/2024

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Date: 10/26/2023

Sheet No. S-001

BID SET 02/23/2024

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Page 680 of 747



H. MASONRY

1. WALL SECTIONS AND PIERS LESS THAN 2.00 SQUARE FEET IN CROSS-SECTIONAL AREA TO BE FULLY GROUTED WITH VERTICAL #4 REINFORCING BAR CENTERED IN EACH GROUTED CELL.

2. IN GROUTED AND/OR REINFORCED MASONRY WALLS, USE MASONRY UNITS WITH CORES THAT ALIGN VERTICALLY TO PROVIDE CONTINUOUS UNOBSTRUCTED CELLS FOR GROUTING AND REINFORCING STEEL PLACEMENT.

3. LAP SPLICES FOR DEFORMED REINFORCING BARS USED IN MASONRY CONSTRUCTION TO BE AS FOLLOWS:

#4, #5:  
#6:  
#7 AND LARGER:

50 BAR DIAMETERS  
75 BAR DIAMETERS  
SEE DRAWINGS FOR MECHANICAL SPLICE. PROVIDE SPLICE COMPLYING WITH ACI 318-12.14.3.

4. COORDINATE GROUT PLACEMENT AND POUR/LIFT HEIGHTS IN ACCORDANCE WITH TMS 602 SECTION 3.5

5. "WET-STICKING" OF REINFORCING STEEL IS NOT PERMITTED. **USE PREFABRICATED METAL REBAR POSITIONERS TO SECURE REINFORCING STEEL PRIOR TO GROUTING.**

6. CONSOLIDATE AND RECONSOLIDATE GROUT POURS EXCEEDING 12" IN HEIGHT BY MECHANICAL VIBRATION IN ACCORDANCE WITH ACI 530.1, SECTION 3.5.E.

7. PROVIDE 9-GAGE GALVANIZED HORIZONTAL JOINT REINFORCEMENT IN ALL WALLS AND PARTITIONS AT 16" O.C., UNLESS OTHERWISE SHOWN OR NOTED. PROVIDE ONE PIECE PREFABRICATED UNITS AT 8" O.C. AT ALL WALL CORNERS AND INTERSECTIONS.

8. PROVIDE MASONRY ANCHORS AT ALL PARTITIONS AND WALLS ABUTTING BEAMS, COLUMNS, AND CONCRETE WALLS AT 16" O.C. VERTICALLY AND 24" HORIZONTALLY UNLESS NOTED OTHERWISE.

9. ANCHOR PIERS AND PARTITIONS TO ADJACENT MASONRY WALLS.

10. PROVIDE LINTELS OF LOOSE STEEL ANGLES OR PRECAST CONCRETE (CONTRACTOR'S OPTION UNLESS SHOWN OTHERWISE ON THE DRAWINGS) FOR **NON-LOAD BEARING** WALLS AND PARTITIONS AS FOLLOWS:

**PRECAST CONCRETE LINTELS:** CONCRETE f<sub>c</sub> = 3,000 PSI MIN.; REBAR ASTM A615, GRADE 60, 1½" MIN. REBAR CLEAR TOP AND BOTTOM, PROVIDE MINIMUM 8" BEARING EACH END.

OPENING ≤ 4'-0"

4'-0" < OPENING ≤ 6'-0"

6'-0" < OPENING ≤ 6'-8"

6'-8" < OPENING ≤ 10'-0"

10'-0" < OPENING

LINTEL SIZE = WALL THICKNESS x 8" DEEP WITH 1#3 BOTTOM FOR EACH 4" OF THICKNESS.

LINTEL SIZE = WALL THICKNESS x 8" DEEP WITH 1#3 BOTTOM AND 1#3 TOP FOR EACH 4" OF THICKNESS.

LINTEL SIZE = WALL THICKNESS x 8" DEEP WITH 1#4 BOTTOM AND 1#3 TOP FOR EACH 4" OF THICKNESS.

LINTEL SIZE = WALL THICKNESS x 8" DEEP WITH 1#5 BOTTOM AND 1#3 TOP FOR EACH 4" OF THICKNESS.

NOTIFY SER

11. DO NOT PLACE OPENINGS ABOVE ANY LINTEL WITHIN A HEIGHT LESS THAN OR EQUAL TO THE WIDTH OF THE CLEAR OPENING BELOW THE LINTEL, UNLESS SPECIFICALLY SHOWN OR APPROVED BY THE SER.

I. STRUCTURAL STEEL

1. POWER TOOL CLEAN AND PAINT WITH THREE COATS OF OIL BASE PAINT, IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL PAINTING SYSTEM SPECIFICATION NO. 1.09, ALL STRUCTURAL STEEL THAT IS LOCATED IN EXTERIOR UNHEATED SPACES, INCLUDING STEEL DIRECTLY EXPOSED TO WEATHER.

2. COMMERCIAL BLAST CLEAN AND PAINT WITH THREE COATS OF EPOXY PAINT, IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL PAINTING SYSTEM SPECIFICATION NO. 13.01, ALL STRUCTURAL STEEL THAT IS SUBJECT TO WETTING WITH SALT-LADEN WATER OR OTHER MILD CHEMICAL ATTACK (SUCH AS INDOOR SWIMMING POOL AREAS). PROVIDE A URETHANE TOPCOAT FOR ALL STEEL EXPOSED TO VIEW.

3. NOTIFY THE SER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.

4. REPLACE OR REINFORCE ANY STRUCTURAL STEEL DAMAGED DURING CONSTRUCTION (INCLUDING ANCHOR RODS) AS ACCEPTABLE TO THE SER.

5. FIELD CUTTING WITH GAS TORCH IS NOT PERMITTED.

6. WHEN INSTALLING POST-INSTALLED ANCHORS (EXPANSION BOLTS, ADHESIVE ANCHORS, ETC.) TAKE MEASURES TO AVOID DAMAGE TO EXISTING REINFORCING STEEL AND CONCRETE. BLOW HOLES CLEAN PRIOR TO PLACING ANCHORS.

J. SEALANT, COATINGS AND JOINT MATERIALS

1. SEE SPECIFICATIONS FOR APPROVED SEALANT MATERIALS AND APPLICATION PROCEDURES.

2. UPON COMPLETION OF SEALANT WORK, THE CONTRACTOR SHALL PAINT PARKING STRIPING AND TRAFFIC MARKINGS TO MATCH EXISTING CONDITIONS. THE CONTRACTOR SHALL PREPARE A PLAN SHOWING THE EXISTING STRIPING AND MARKINGS AND SUBMIT FOR APPROVAL PRIOR TO BEGINNING DEMOLITION WORK.

3. REPAIR OR REPLACE EXISTING EXPANSION JOINTS WITH JOINT SYSTEM AS NOTED ON THE DRAWINGS.

K. DEMOLITION

1. ALL SHORING AND DEWATERING, IF REQUIRED, SHALL BE THE TOTAL RESPONSIBILITY OF THE CONTRACTOR. SHORING SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. ALL SUBMITTALS SHALL BEAR HIS SEAL AND SIGNATURE.

2. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT ALL EXISTING OCCUPIED SPACES, STRUCTURES, CURBS, STREETS, SUBWAY SYSTEM, ETC. FROM DAMAGE BY CONSTRUCTION DEBRIS, WATER OR EQUIPMENT. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS, LIQUIDS, SLURRY, SPOILS OR CHEMICALS ON THE SITE, EXCEPT AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL RESOURCES.

3. PRIOR TO BEGINNING DEMOLITION ON SLABS OR BEAMS, THE CONTRACTOR SHALL INSTALL SHORING AND BRACING ADEQUATE TO FULLY SUPPORT THE LOADS NORMALLY SUPPORTED BY THE SLABS OR BEAMS AS NOTED IN THE REPAIR DETAILS.

4. REMOVE DELAMINATED CONCRETE TO EXPOSE SOUND CONCRETE FREE OF FRACTURES, LOOSE AGGREGATE OR EXCESSIVE CRACKING. IF SUCH REMOVAL EXPOSES CORRODED REINFORCING BARS OR MORE THAN HALF OF ANY CLEAN REINFORCING BAR, REMOVE ADDITIONAL CONCRETE TO PROVIDE A MINIMUM ¾" CLEARANCE AROUND THE BARS. IF THE ENDS OF BARS INTERSECTING THE EDGE OF THE REPAIR AREA ARE CORRODED, REMOVE CONCRETE ALONG THE BAR (¾" MINIMUM CLEAR ALL AROUND) UNTIL THE BAR IS CLEAN OF CORROSION, IF SO DIRECTED BY THE ENGINEER.

5. THE EDGES OF ALL REPAIR AREAS SHALL BE CHIPPED AT APPROXIMATELY 90° FROM THE SURFACE OF THE MEMBER TO A MINIMUM OF ¾" BEHIND THE REINFORCEMENT IF EXPOSED OR TO A MINIMUM DEPTH OF 1" FROM THE SURFACE IF NO REINFORCEMENT IS EXPOSED.

6. IF SURFACE PERIMETER OUTLINE OF REPAIR AREA IS IRREGULAR, TRIM ANY RE-ENTRANT CORNERS ≤ 100" ALONG A LINE WHICH INTERSECTS A POINT 2" BACK FROM THE CORNER ALONG EACH EDGE FORMING THE CORNER.

7. IF THE REINFORCING STEEL IS REDUCED BY CORROSION TO LESS THAN 75% OF ITS ORIGINAL CROSS-SECTIONAL AREA, ADD A NEW BAR OF THE SAME SIZE AS NOTED IN DETAIL 2/S-200. IF THERE IS INADEQUATE ROOM TO PROVIDE A LAP SPLICE FOR THE NEW BAR, CUT OFF THE EXISTING BAR AT THE UNDAMAGED SECTION ON EACH SIDE OF THE DAMAGED SECTION AND USE TENSION COUPLERS TO SPLICE IN A REPLACEMENT SECTION OF THE NEW BAR. BUILD OUT THE PATCH TO PROVIDE A MINIMUM 1½" OVER THE COUPLER.

8. IF THE DEMOLITION DOES NOT EXTEND BEHIND THE EXISTING REINFORCING STEEL, DRILL AND EPOXY-GROUT ¾" & HOOKED ALL-THREAD "PINS" MINIMUM 3" INTO THE FACE OF THE REPAIR AREA AT 6" O.C. EACH WAY.

9. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, REMOVE ANY CONDUIT UNCOVERED IN REPAIR AREAS.

10. ALL EXISTING SURFACES AGAINST WHICH A CONCRETE POUR IS TO BE PLACED SHALL BE ABRASIVE-BLAST CLEANED OR HYDRO-SCARIFIED AND THEN WASHED DOWN WITH HIGH-PRESSURE WATER.

11. PRIOR TO PLACING PATCHING MATERIAL, APPLY A PENETRATING CALCIUM-NITRATE BASED CORROSION INHIBITING MATERIAL AROUND THE PERIMETER OF THE PATCH.

L. MECHANICAL, ELECTRICAL AND PLUMBING WORK

1. THE CONTRACTOR SHALL PROTECT ALL EXISTING MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS DURING CONSTRUCTION. ANY DAMAGE TO THE SYSTEMS CAUSED BY THE WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

Designed by

GENERAL NOTES

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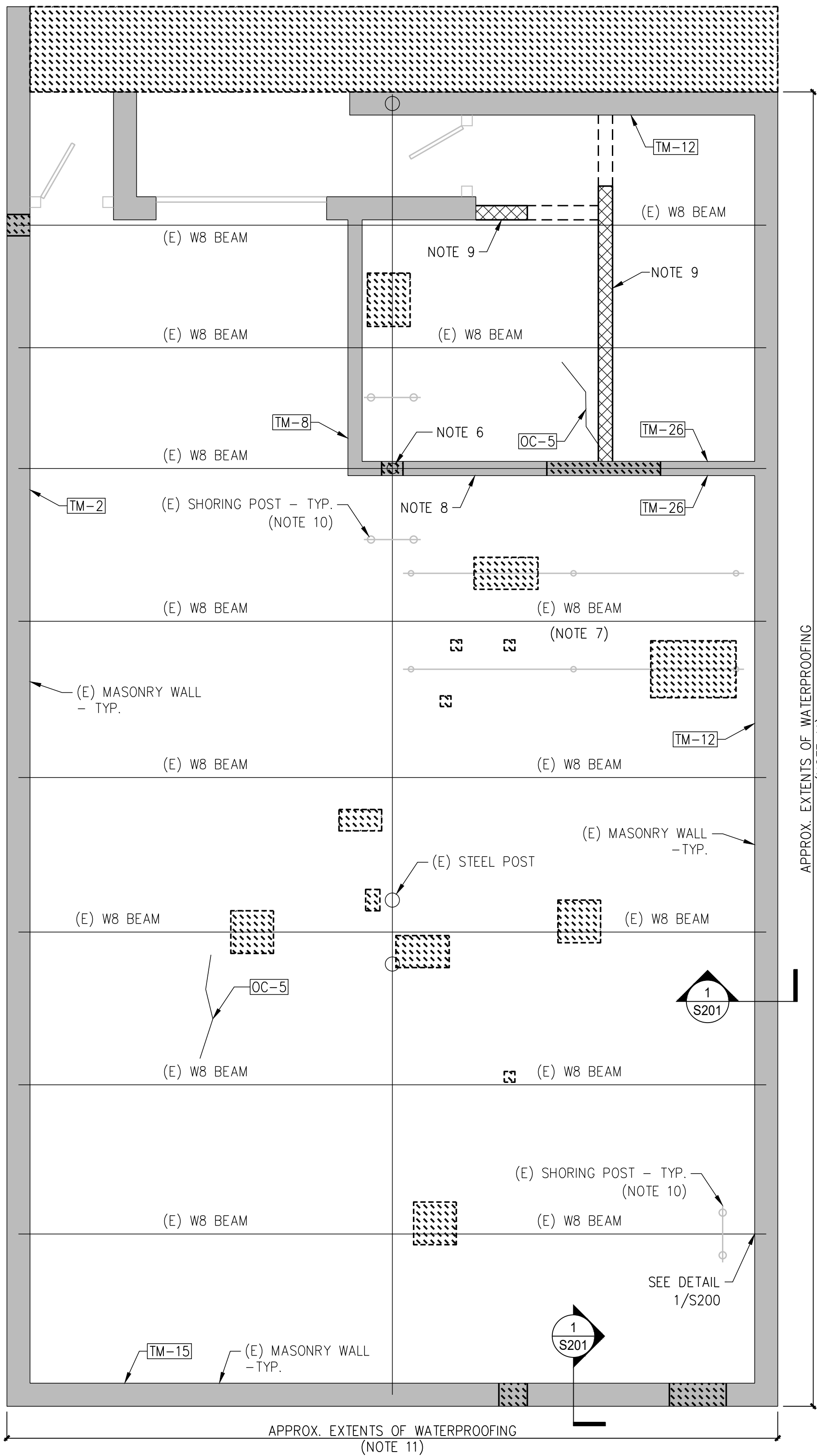
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Page 681 of 747

BID SET 02/23/2024





1 PUMP ROOM SOFFIT  
REPAIR PLAN

N.T.S.



PLAN NOTES

- 1) U.N.O. THIS LEVEL'S EXISTING STRUCTURE CONSISTS OF ONE-WAY CONCRETE SLAB SUPPORTED BY STEEL BEAMS AND LOAD BEARING MASONRY WALLS - VERIFY IN FIELD.
- 2) REBUILD OR REPOINT ALL DAMAGED CMU OR BRICK MASONRY PER 3/S-201.
- 3) CLEAN AND REMOVE ALL RUST FROM ALL CORRODED MISCELLANEOUS METALS USING WIRE BRUSHING OR ABRASIVE BLASTING. THEN REPAINT WITH GALVANIZING PAINT TO MATCH EXISTING.
- 4) CLEAN AND REMOVE ALL RUST FROM ALL CONDUIT AND DRAIN PIPES (NOT SHOWN FOR CLARITY) ON ALL LEVELS USING WIRE BRUSHING OR ABRASIVE BLASTING. THEN REPAINT WITH GALVANIZING PAINT TO MATCH EXISTING.
- 5) CLEAN AND REMOVE RUST FROM ALL STRUCTURAL STEEL. NOTIFY GPI IF EXCESSIVE SECTION LOSS ENCOUNTERED ON ANY MEMBER. REPAINT WITH GALVANIZING PAINT TO MATCH EXISTING.
- 6) REMOVE AND REPLACE EXISTING STEEL COLUMN WITHIN CMU WALL WITH NEW COLUMN AND BASE PLATE TO MATCH EXISTING. CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY SHORING AND PRELOADING COLUMN - SEE GENERAL NOTES. BUILD BACK CMU WALL TO MATCH EXISTING.
- 7) CLEAN, PRIME, AND PAINT EXISTING W8 MEMBER. NOTIFY GPI IF EXCESSIVE SECTION LOSS ENCOUNTERED ON MEMBER.
- 8) TRUNCATE TOP OF EXISTING INTERIOR CMU WALL TO PROVIDE ISOLATION FROM EXISTING W8 BEAM ABOVE. SEE 4/S201 FOR BRACING TO EXISTING BEAM.
- 9) NEW NON-LOAD BEARING CMU WALL. SEE 5/S-201 FOR TOP OF WALL BRACING.
- 10) REMOVE TEMPORARY SHORING AFTER COMPLETING ALL STEEL REPAIRS.
- 11) IMPROPERLY WATERPROOFED EXISTING MASONRY WALL. EXCAVATE TO FOOTING AND INSTALL WATERPROOFING ON EXTERIOR OF WALL PER 1/S201.
- 12) PAINT ALL EXISTING AND NEW CMU WALLS WITH WHITE, LOW VOC, ACRYLIC PAINT.

DENOTES APPROXIMATE AREA\* OF CONCRETE SLAB, CURB, OR TOPPING SURFACE SPALL/DELAMINATION. COMPLETE REPAIRS AS FOLLOWS: \*\*  
PARTIAL DEPTH SLAB REPAIRS PER 4/S-200  
FULL DEPTH REPAIRS PER 6/S-200  
SLAB EDGE REPAIRS PER 3/S-200

DENOTES APPROXIMATE AREA\* OF CONCRETE SLAB SOFFIT SPALL/DELAMINATION. COMPLETE REPAIRS AS FOLLOWS: \*\*  
PARTIAL DEPTH SLAB REPAIRS PER 5/S-200  
FULL DEPTH REPAIRS PER 6/S-200 \*\*

DENOTES APPROXIMATE AREA\* OF CMU WALL SPALL/DELAMINATION. COMPLETE REPAIRS AS FOLLOWS: \*\*  
REBUILD CMU WALL \*\* PER 3/S-201

(N)F.D. DENOTES APPROXIMATE LOCATION\* OF EXISTING FLOOR DRAINS TO BE REPLACED PER 2/S201 - CLEAN AND UNCLOG ALL EXISTING PIPING AND TRENCH DRAINS

INDICATES REPAIRS AS FOLLOWS:

SYMBOL X	SYMBOL Y	REPAIR DETAIL
OC: ROUT/SEAL OPEN CRACKS **	LENGTH OF DAMAGE (ft)*	8/S-200
TM: REPOINT CMU WALL JOINT **	LENGTH OF DAMAGE (ft)*	3/S-201

\* APPROXIMATE EXTENT OF DAMAGE DETECTED - CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL EXTENT AND LOCATIONS OF REPAIR AREAS IN ACCORDANCE WITH THE SPECIFICATIONS. AREAS SHOWN ARE ONLY FOR REFERENCE AND TO ILLUSTRATE TYPES OF REPAIRS REQUIRED. DEPTH OF REPAIRS SHALL BE ASSUMED TO BE A NOMINAL 3" UNLESS NOTED OTHERWISE. WALL, COLUMN AND PIPE DAMAGE OCCURS BETWEEN PLAN LEVEL AND LEVEL ABOVE UNLESS NOTED.

\*\* REPAIRS MUST MATCH COLOR AND APPEARANCE OF EXISTING CONCRETE IF THEY OCCUR ON EXTERIOR SURFACES OF GARAGE.

2 DRAWING SYMBOL KEY

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PUMP ROOM  
REPAIR PLAN



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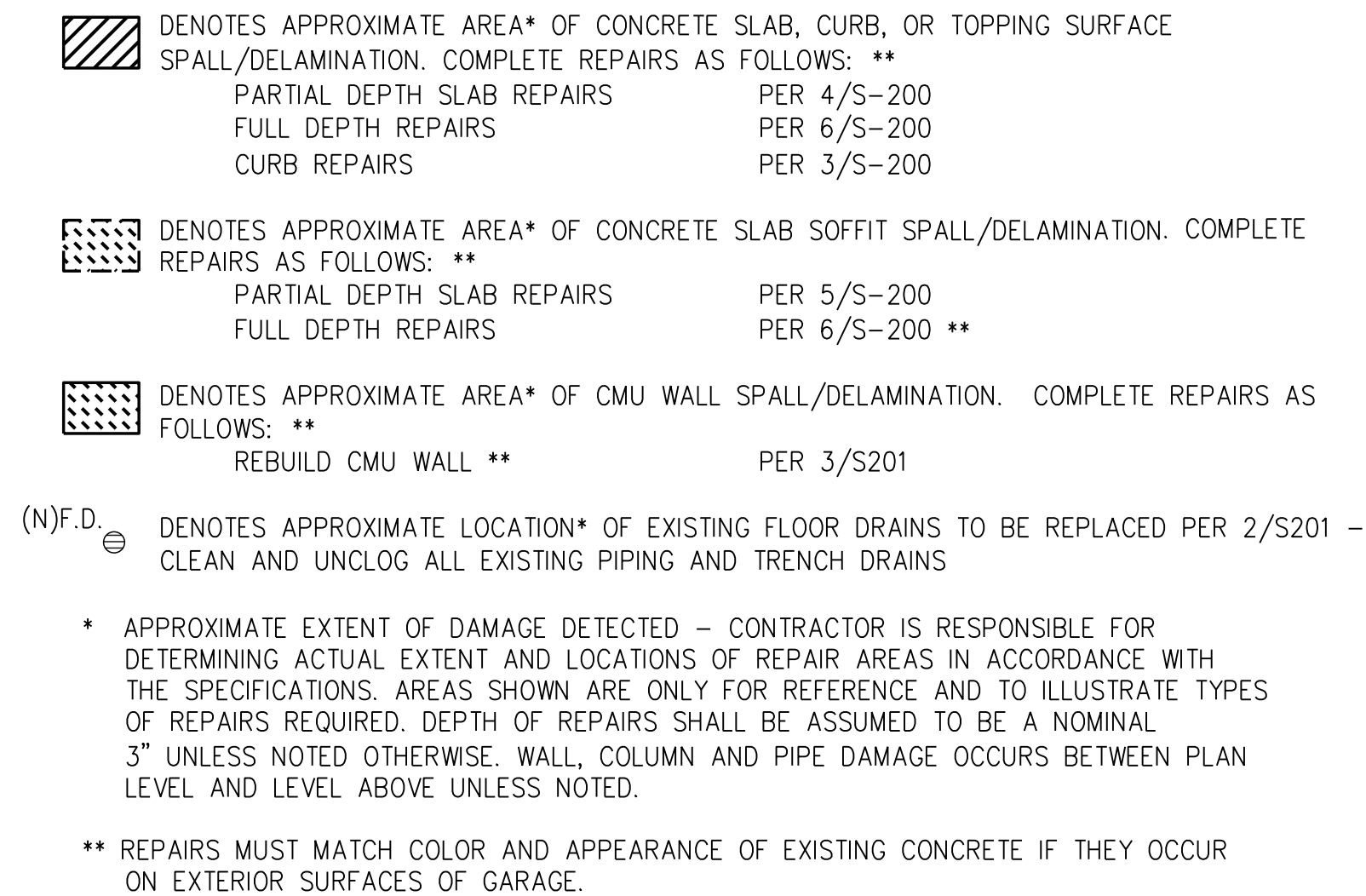
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- 1) U.N.O. THIS LEVEL'S EXISTING STRUCTURE CONSISTS OF ONE-WAY CONCRETE SLAB SUPPORTED BY STEEL BEAMS - VERIFY IN FIELD.
- 2) REBUILD OR REPOINT ALL DAMAGED CMU OR BRICK MASONRY PER MASONRY RESTORATION PER 3/S-201.
- 3) CLEAN AND REMOVE ALL RUST FROM ALL CORRODED MISCELLANEOUS METALS USING WIRE BRUSHING OR ABRASIVE BLASTING. THEN REPAINT WITH GALVANIZING PAINT TO MATCH EXISTING.
- 4) EXISTING CONCRETE SLAB. REPLACE EXISTING COATING MEMBRANE WITH NEW POOL DECK MEMBRANE AFTER COMPLETION OF CONCRETE REPAIRS. SEE LANDSCAPE DRAWINGS FOR COATING MEMBRANE INFORMATION.
- 5) EXISTING SLOPES-TO-DRAIN. CONTRACTOR TO VERIFY SLOPES PROPERLY CONVEY WATER TO DRAINS.
- 6) APPROXIMATE EXTENTS OF SUMP AREA PER DETAIL 2/S201.
- 11) IMPROPERLY WATERPROOFED EXISTING MASONRY WALL. EXCAVATE TO FOOTING AND INSTALL WATERPROOFING ON EXTERIOR OF WALL PER 1/S201.

$$\overbrace{2}$$

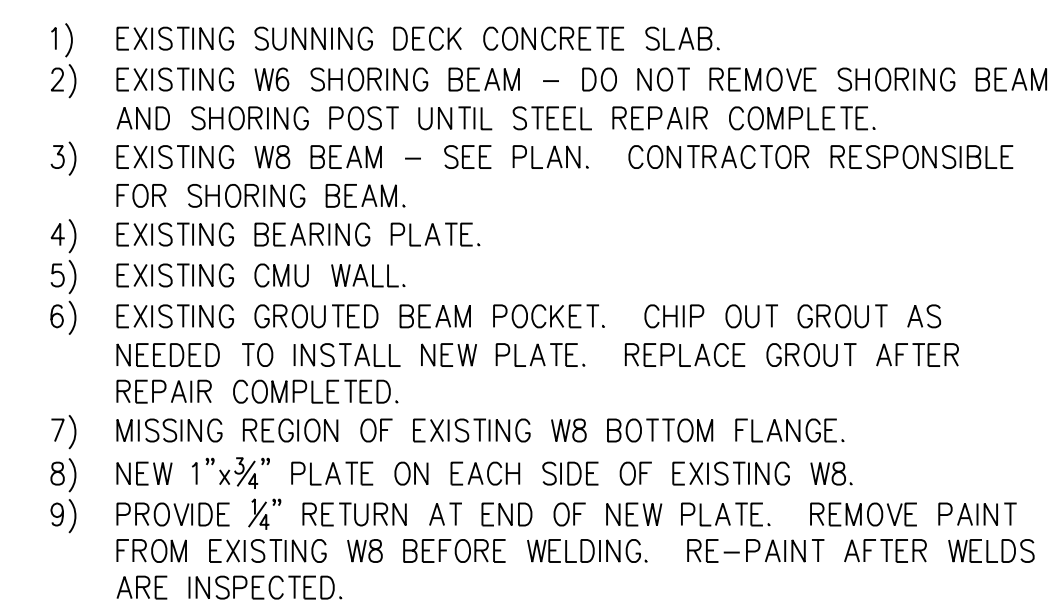
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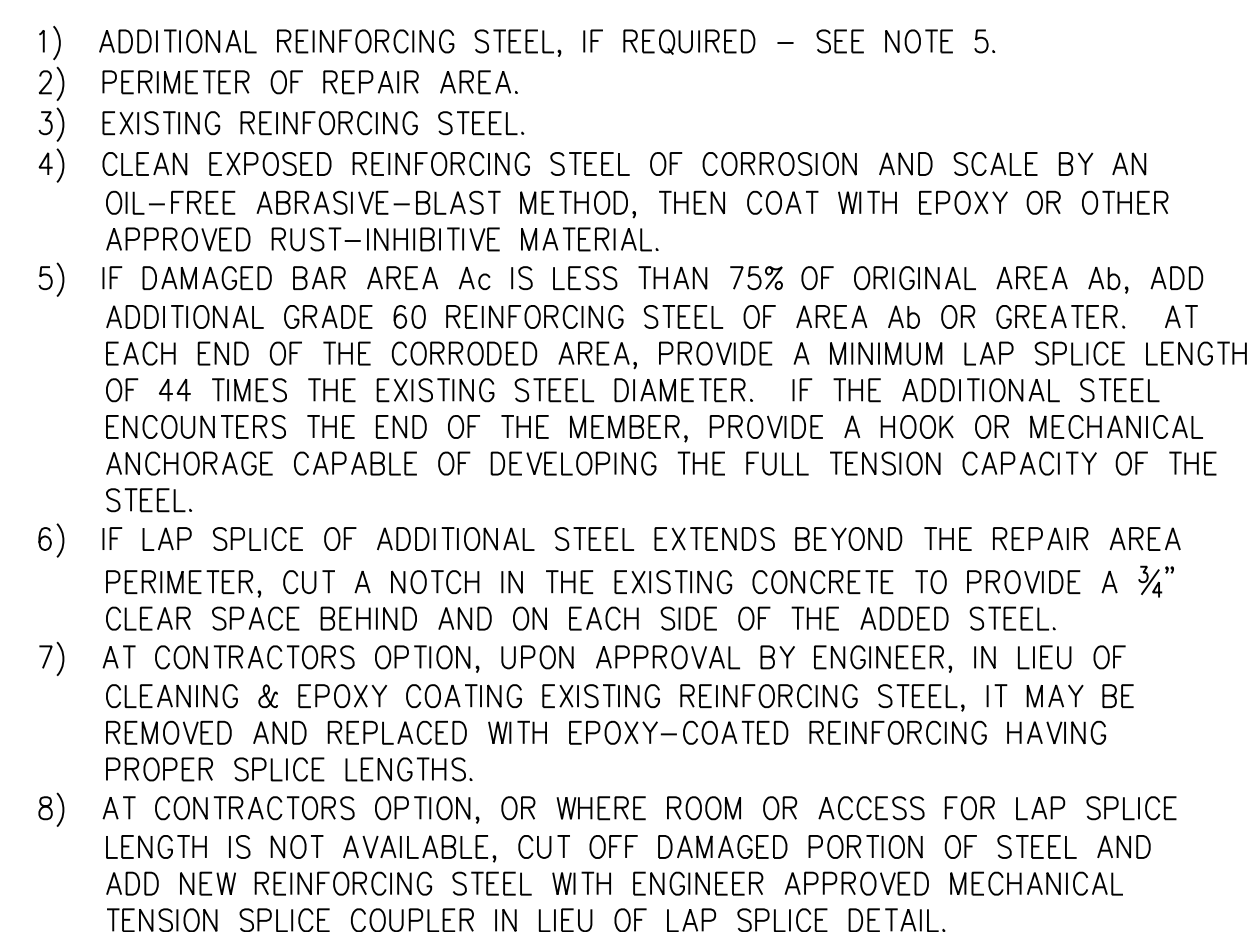
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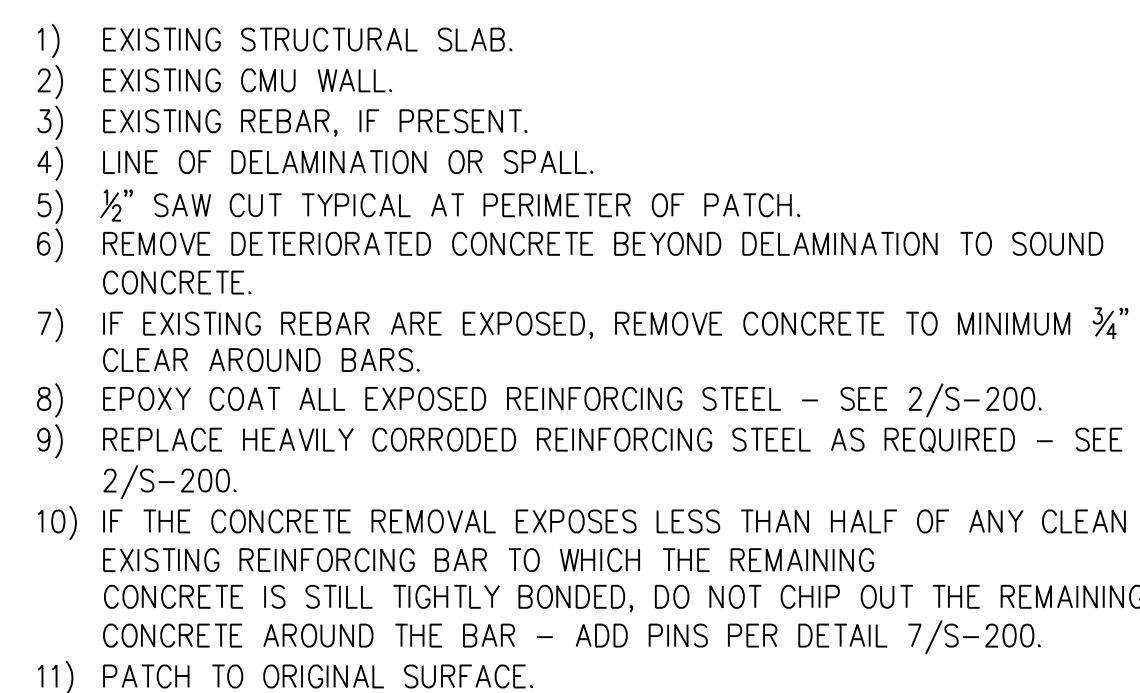




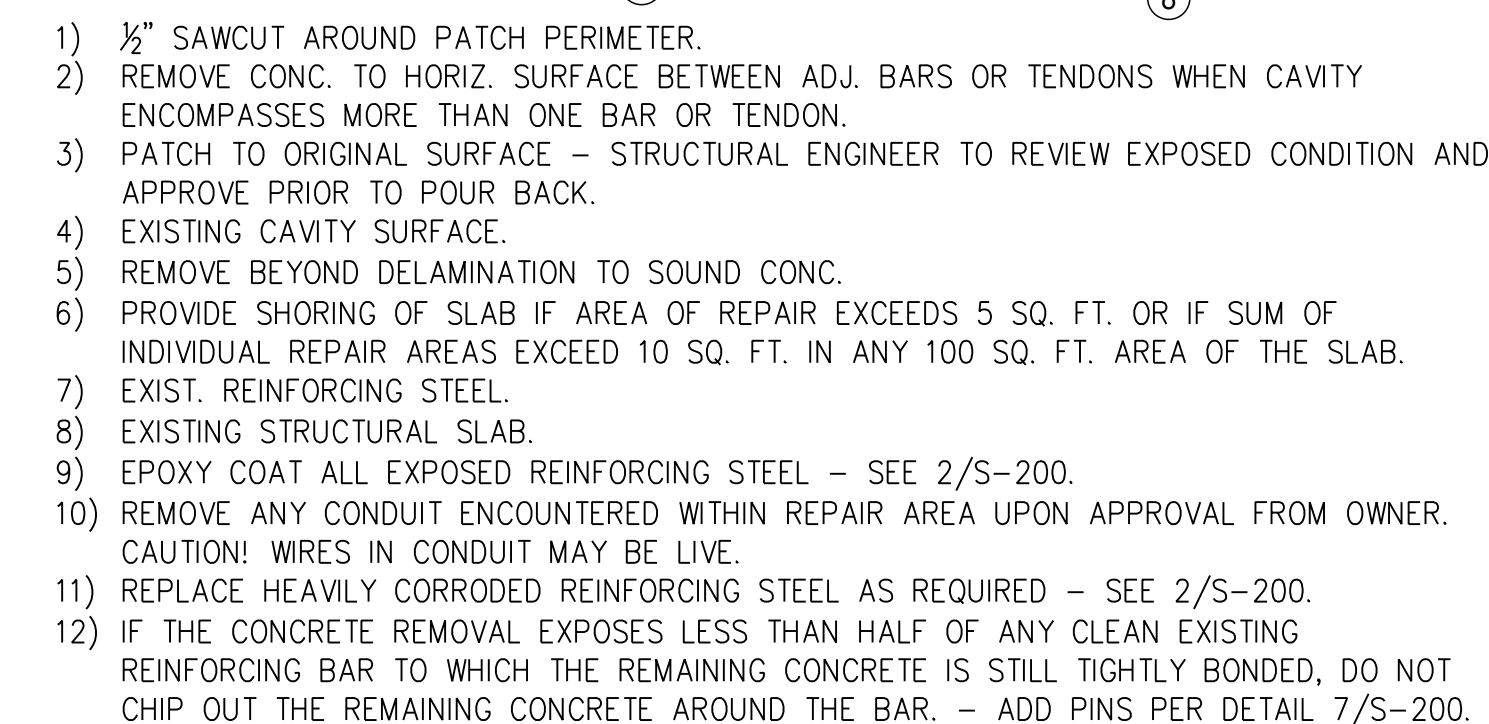
1 EXISTING STEEL BEAM  
REPAIR 1 1/2" = 1'-0"



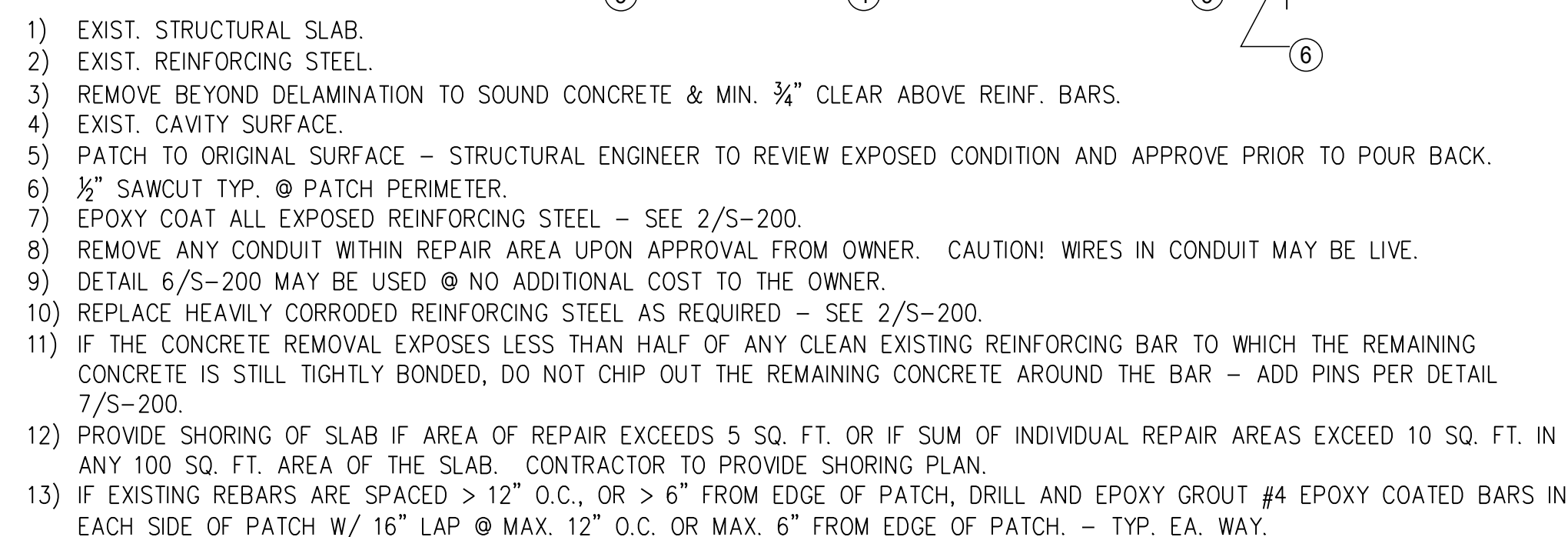
2 EXISTING REINFORCING STEEL  
PREPARATION DETAIL N.T.S.



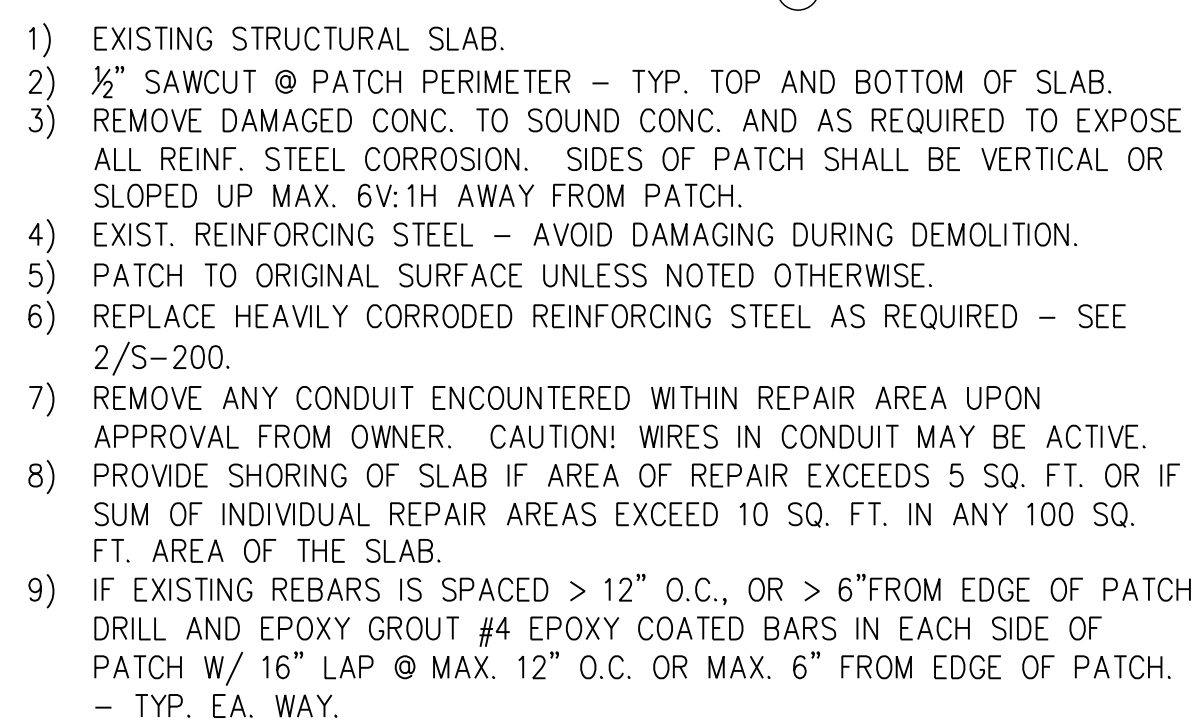
### 3 SLAB EDGE REPAIR DETAIL



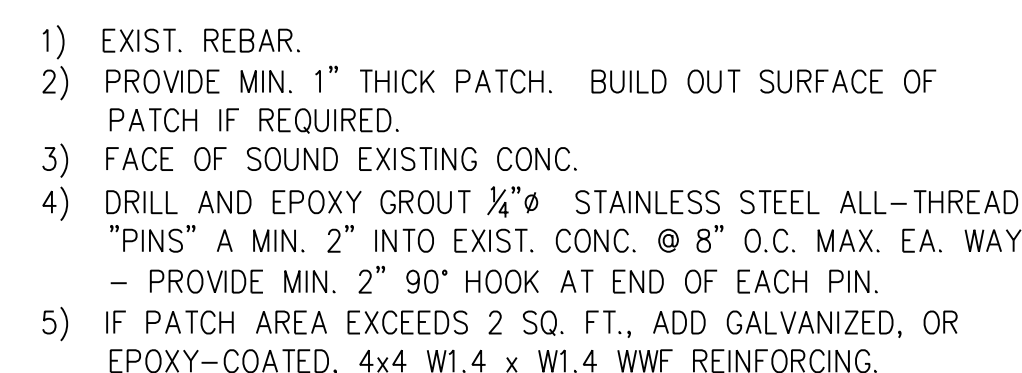
4 SLAB SURFACE  
REPAIR DETAIL



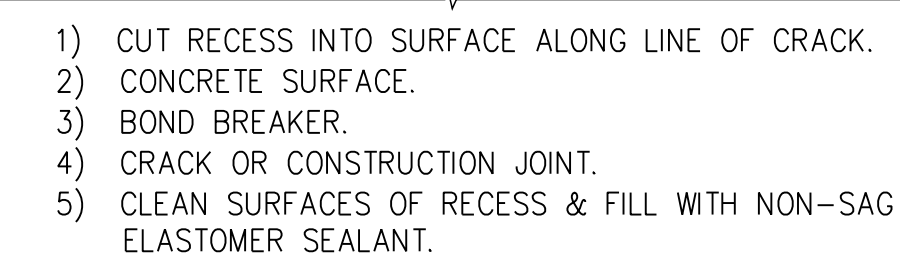
5 SLAB SOFFIT REPAIR DETAIL



6 FULL DEPTH SLAB  
REPAIR DETAIL



## 7 SHALLOW/SURFACE REPAIR DETAIL



8 ROUT AND SEAL  
DETAIL



# 9 ABANDONED BOLT REPAIR DETAIL $1 \frac{1}{2}'' = 1'-0''$

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301.570.1480 [www.orinet.com](http://www.orinet.com)

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DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

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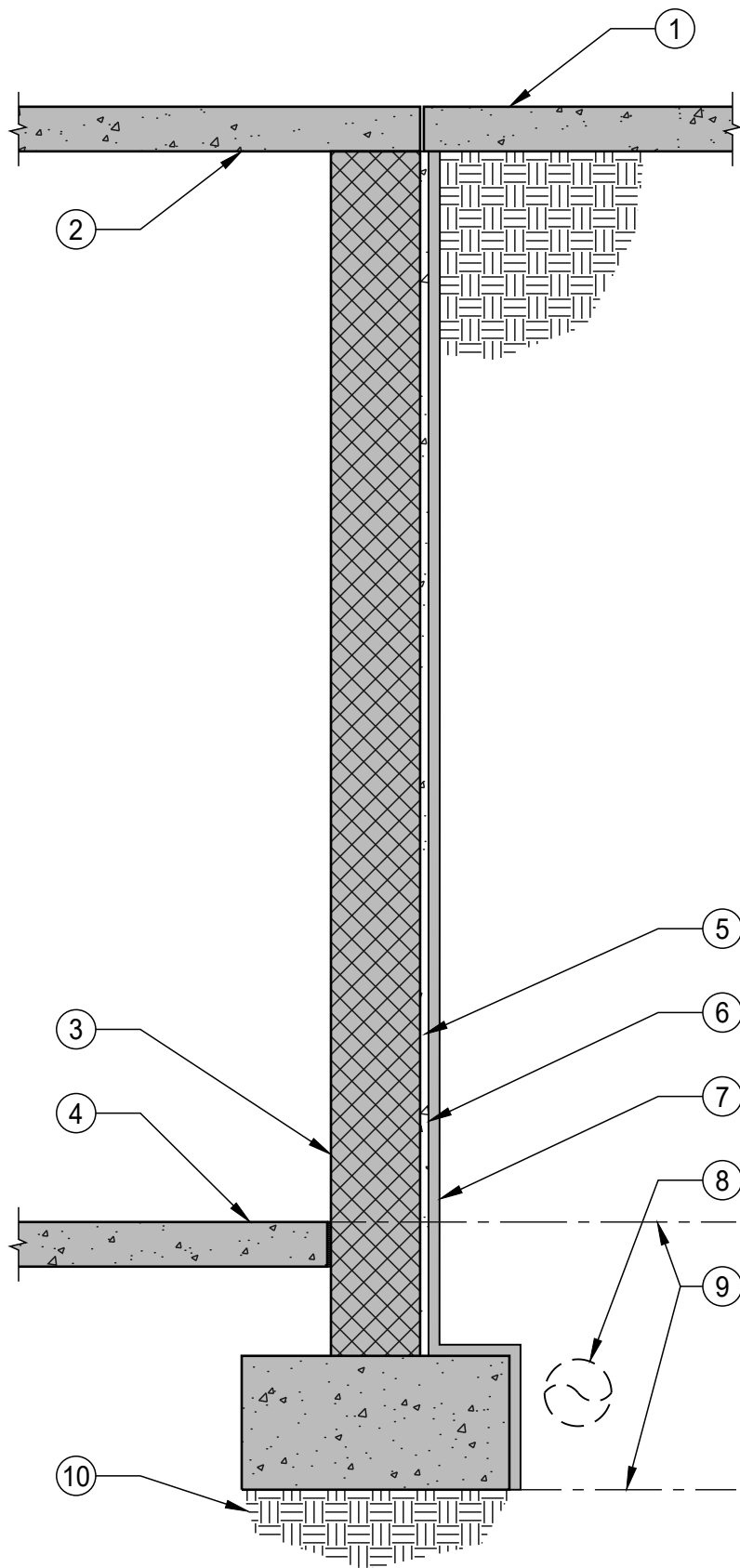
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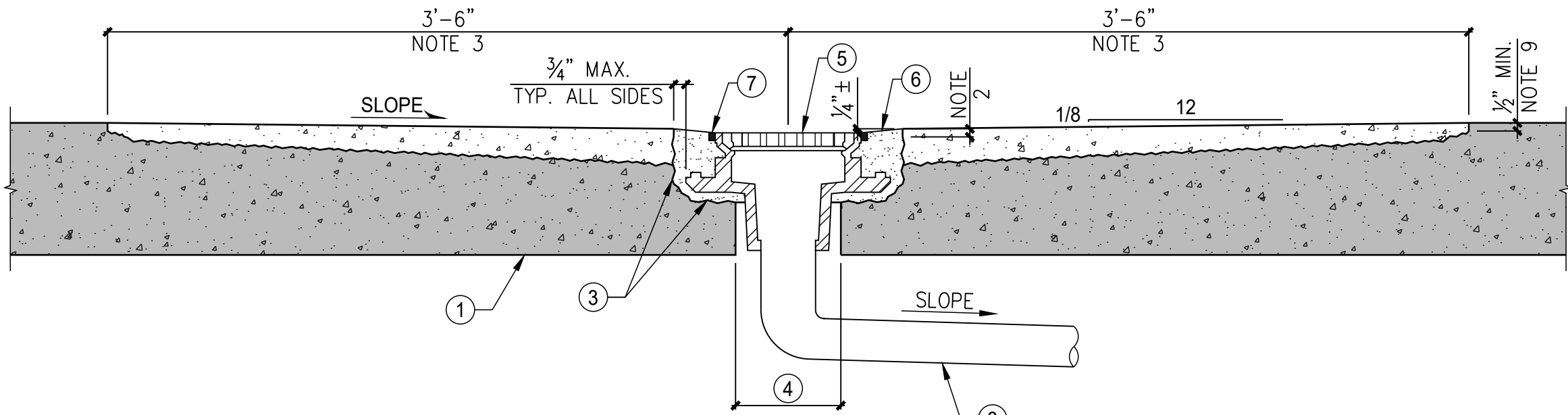
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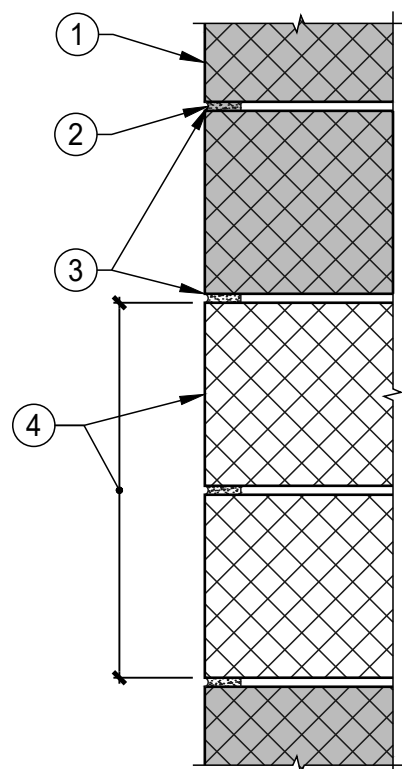




- 1) EXISTING SUNNING DECK SLAB-ON-GRADE.
- 2) EXISTING CONCRETE SLAB.
- 3) EXISTING CMU WALL. REPAIR MASONRY PRIOR TO INSTALLATION OF WATERPROOFING SYSTEM.
- 4) EXISTING PUMP ROOM SLAB-ON-GRADE.
- 5) NEW 3/8" THICK CEMENTITIOUS PARGE COAT.
- 6) NEW LIQUID APPLIED WATERPROOFING MEMBRANE. USE TREMCO TREMPROOF 250GC HIGH-BUILD SYSTEM OR APPROVED EQUIVALENT.
- 7) NEW DRAINAGE BOARD WITH FILTER FABRIC.
- 8) NEW PERFORATED DRAIN PIPE.
- 9) VERTICAL LIMITS OF FOUNDATION DRAIN LINE. 12x12 GRAVEL CAPILLARY NOT SHOWN FOR CLARITY.
- 10) UNDISTURBED FILL.



- 1) EXISTING CONCRETE SLAB. GPR MINIMUM 2 FT RADIUS AROUND ANTICIPATED NEW DRAIN LOCATION PRIOR TO CHIPPING TO AVOID DAMAGING REINFORCING STEEL.
- 2) COREDRILL, OR SAWCUT, PERIMETER OF RECESS TO RECEIVE DRAIN TO 1/2" DEPTH.
- 3) CHIP OUT CONCRETE TO RECEIVE DRAIN BODY AND SUMP SURROUNDING AREA. DO NOT CUT EXISTING REINFORCING STEEL.
- 4) CORE DRILL BOTTOM OF RECESS USING MINIMUM SIZE CORE TO RECEIVE DRAIN HUB. SEAL AROUND HUB PRIOR TO FILLING RECESS WITH CONCRETE.
- 5) JOSAM 31104 (OR EQUAL) DRAIN.
- 6) SET DRAIN IN PLACE SLIGHTLY LOWER THAN SLAB SURFACE AND FILL RECESS WITH CONCRETE. SLOPE TOP OF CONCRETE DOWN TO DRAIN.
- 7) TOOL RECESS AROUND DRAIN AND FILL WITH SEALANT.
- 8) INSTALL PIPING TO CONNECT DRAIN TO EXISTING DRAINING PIPING SYSTEM OR DAYLIGHT TO NEAREST ACCEPTABLE LOCATION AS DETERMINED BY THE ENGINEER.
- 9) SAW CUT PERIMETER OF SUMP 1/2" MIN. - TYP.

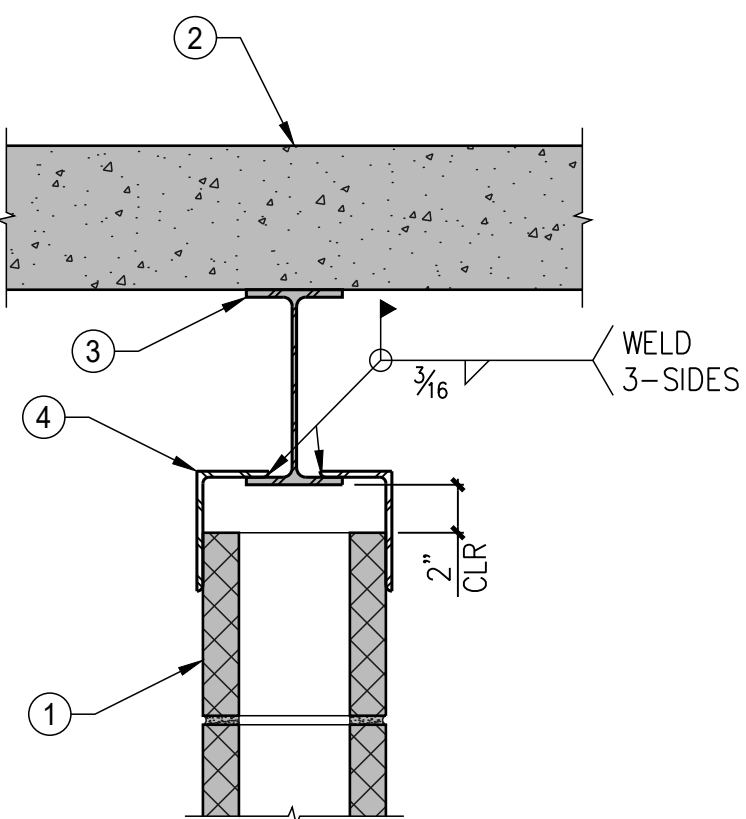


- 1) EXISTING CMU - TYPICAL.
- 2) EXISTING MORTAR JOINTS.
- 3) RAKE OUT AND REPOINT CRACKED, ERODED OR SOFT MORTAR.
- 4) RESET LOOSE CMU, OR CUT OUT AND REPLACE DAMAGED OR BUCKLED CMU WITH NEW MORTAR ALL AROUND.

1 EXISTING CMU WALL WATERPROOFING 1/2" = 1'-0"

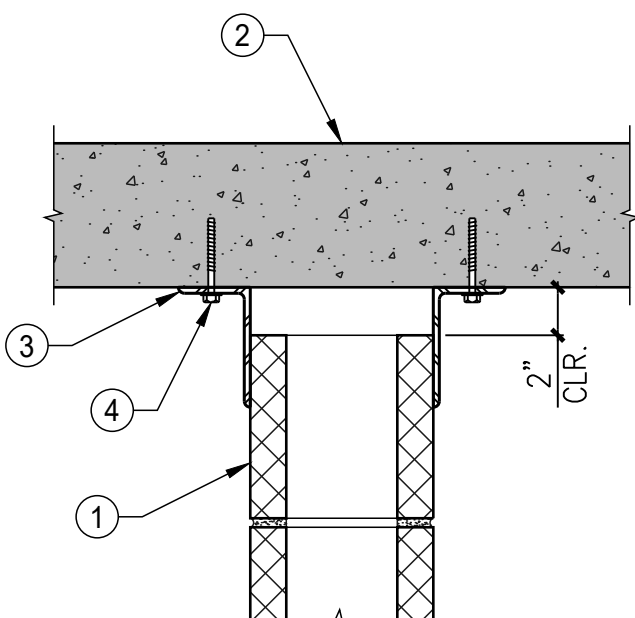
2 ADDED FLOOR DRAIN AT EXISTING SLAB N.T.S.

3 CMU MASONRY WALL REPAIR DETAIL N.T.S.



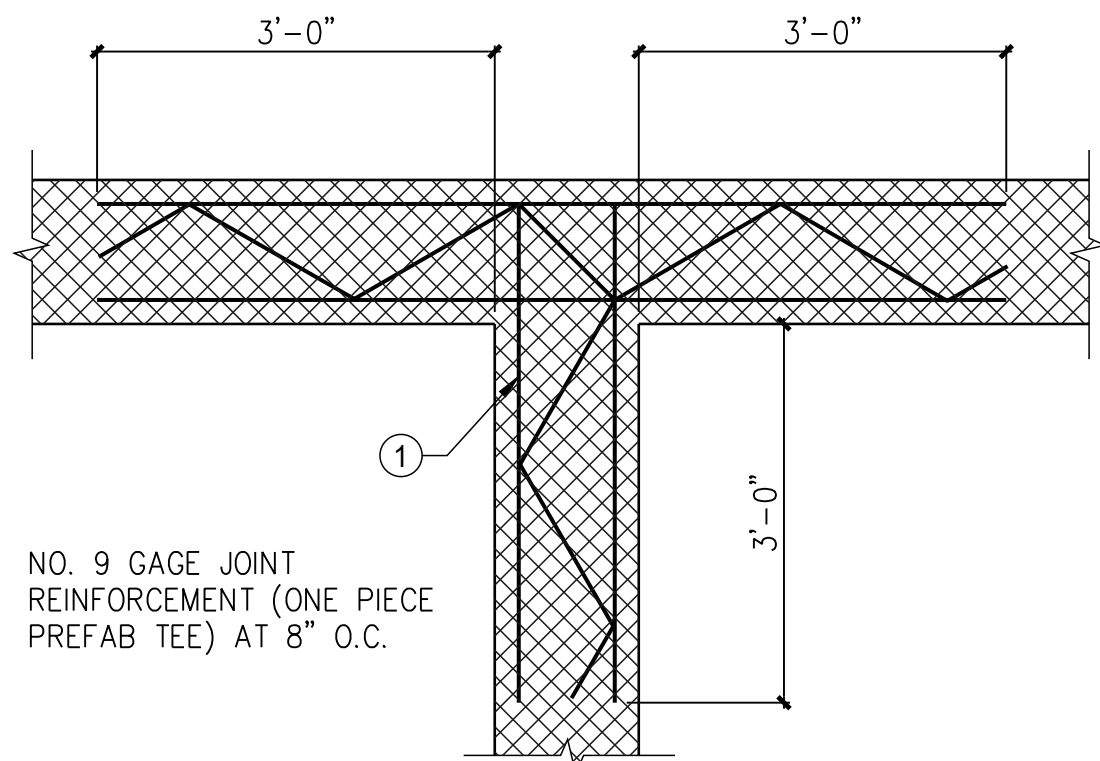
- 1) EXISTING NON-LOAD BEARING MASONRY WALL.
- 2) EXISTING CONCRETE SLAB.
- 3) EXISTING W8 BEAM.
- 4) L5x3x1/4 inch x 0'-6 inch (LLV) EACH SIDE OF WALL STAGGERED AT 4'-0" O.C.

4 EXISTING NON-LOAD BEARING WALL BRACING DETAIL 1 1/2" = 1'-0"



- 1) NON-LOAD BEARING MASONRY WALL.
- 2) EXISTING CONCRETE SLAB.
- 3) L5x3x1/4 inch x 0'-6 inch (LLV) EACH SIDE OF WALL AT 4'-0" O.C.
- 4) (4) 1/2 inch HILTI KWIK HUS-EZ ANCHORS (2 PER ANGLE). PRIOR TO DRILLING GPR EXISTING CONCRETE SLAB TO LOCATE AND AVOID EXISTING REINFORCING.

5 PROPOSED NON-LOAD BEARING WALL BRACING DETAIL 1 1/2" = 1'-0"



- 1) NO. 9 GAGE JOINT REINFORCEMENT (ONE PIECE PREFAB TEE) AT 8" O.C.

6 CORNER REINFORCING DETAIL N.T.S.

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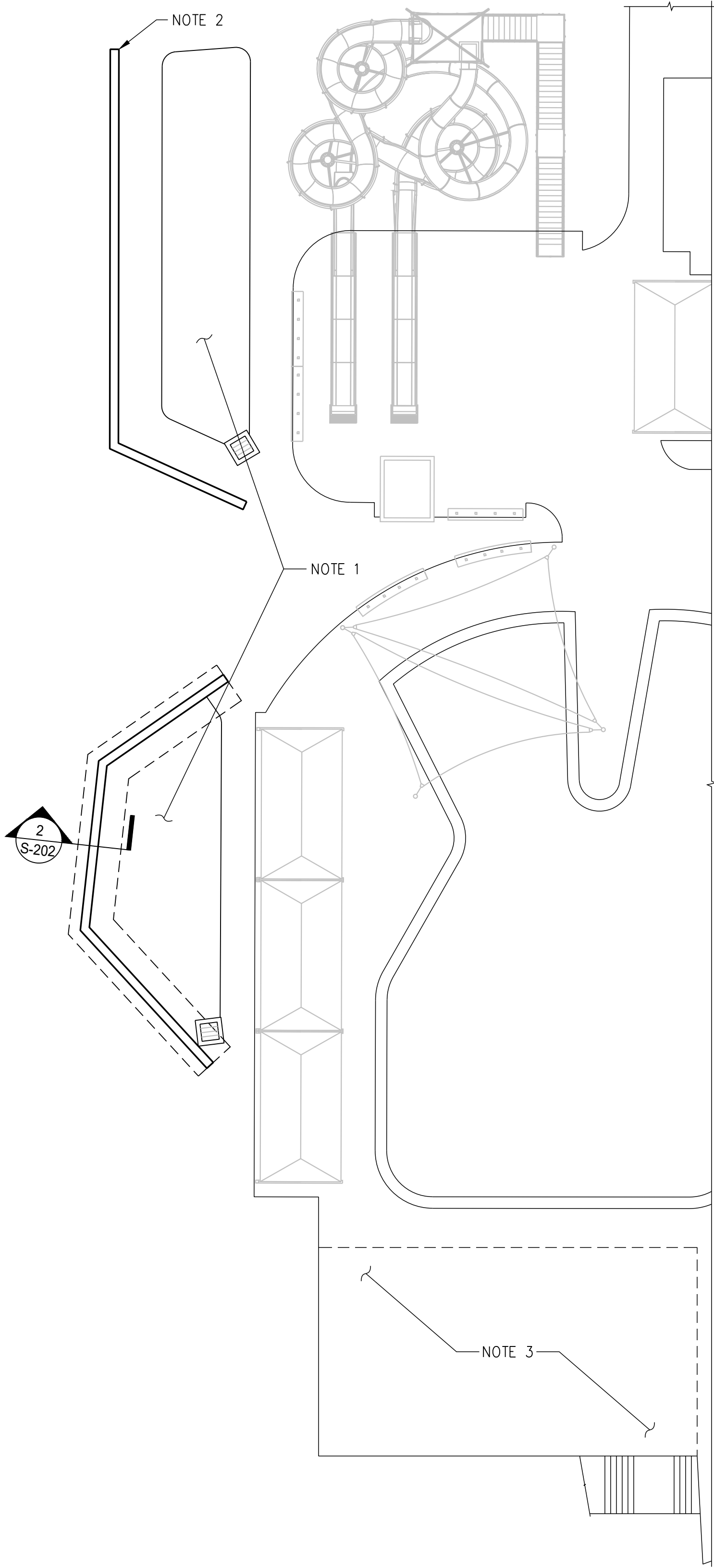
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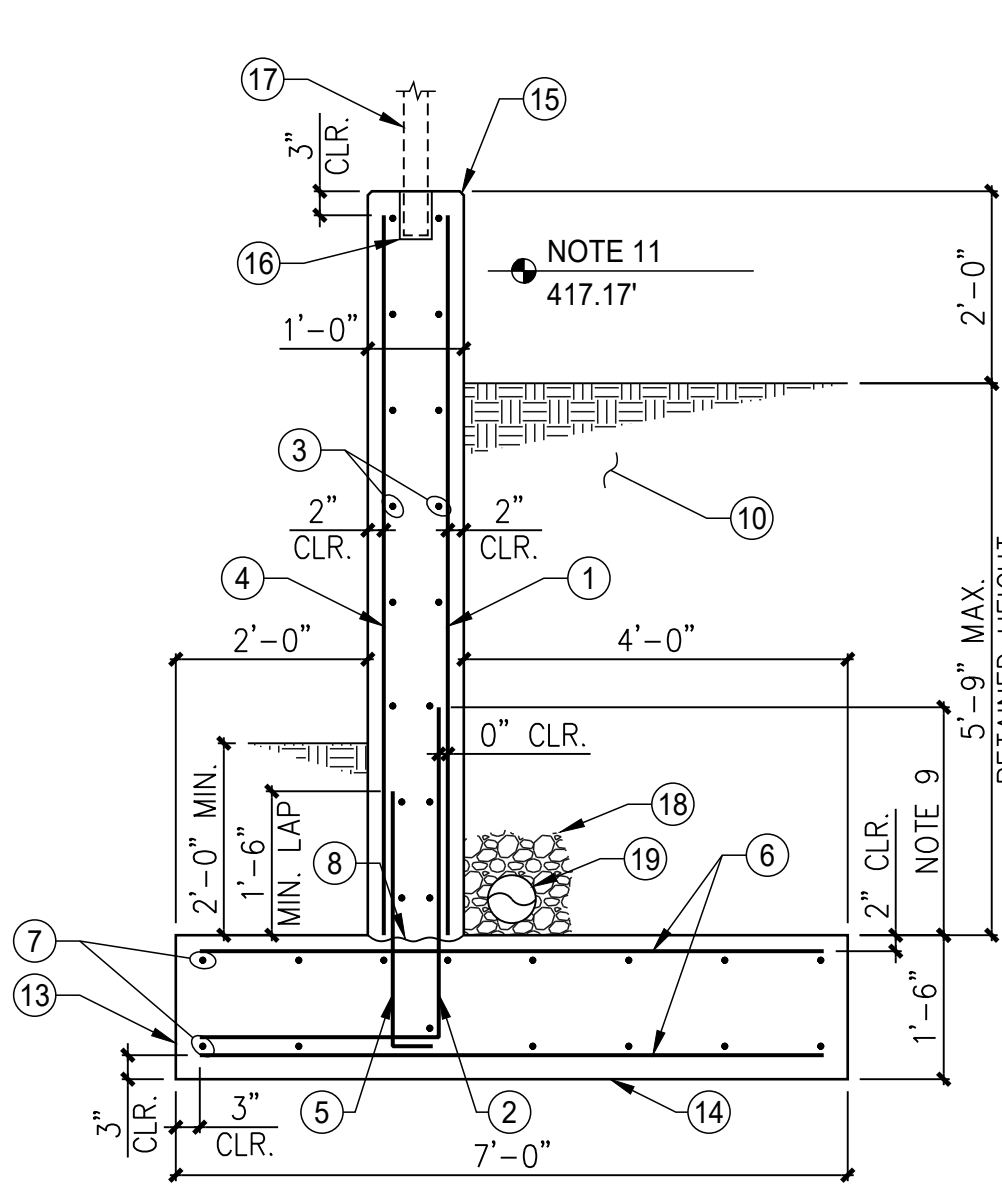




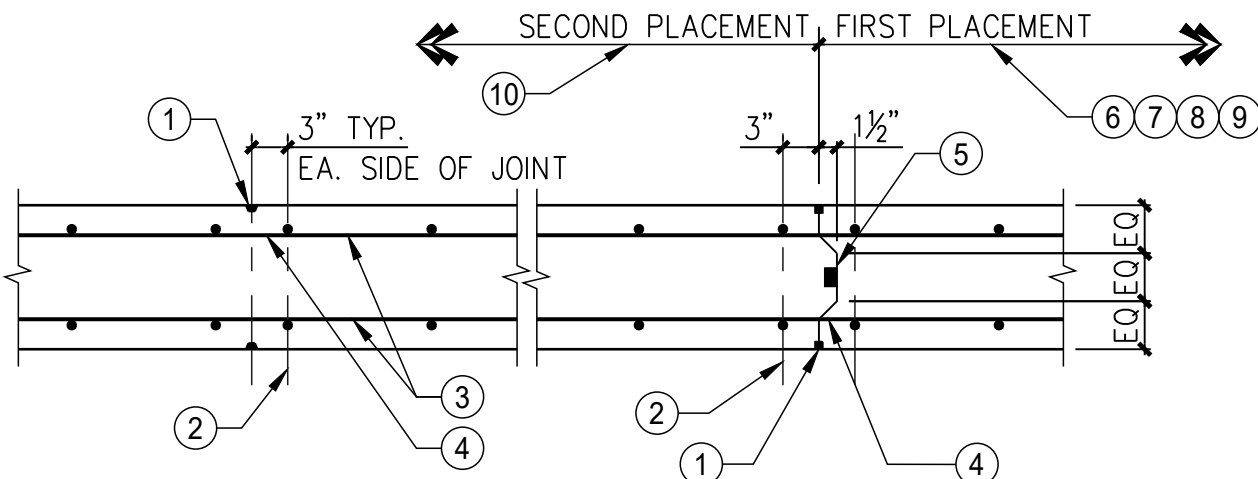
1 SITE RETAINING WALL KEY PLAN  
1/16" = 1'-0"

PLAN NOTES

- 1) NEW BIO-RETENTION AREA - SEE CIVIL.
- 2) NEW SEGMENTAL BLOCK RETAINING AREA DESIGNED BY OTHERS - SEE CIVIL.
- 3) EXISTING SUNNING DECK WITH PUMP ROOM BELOW.



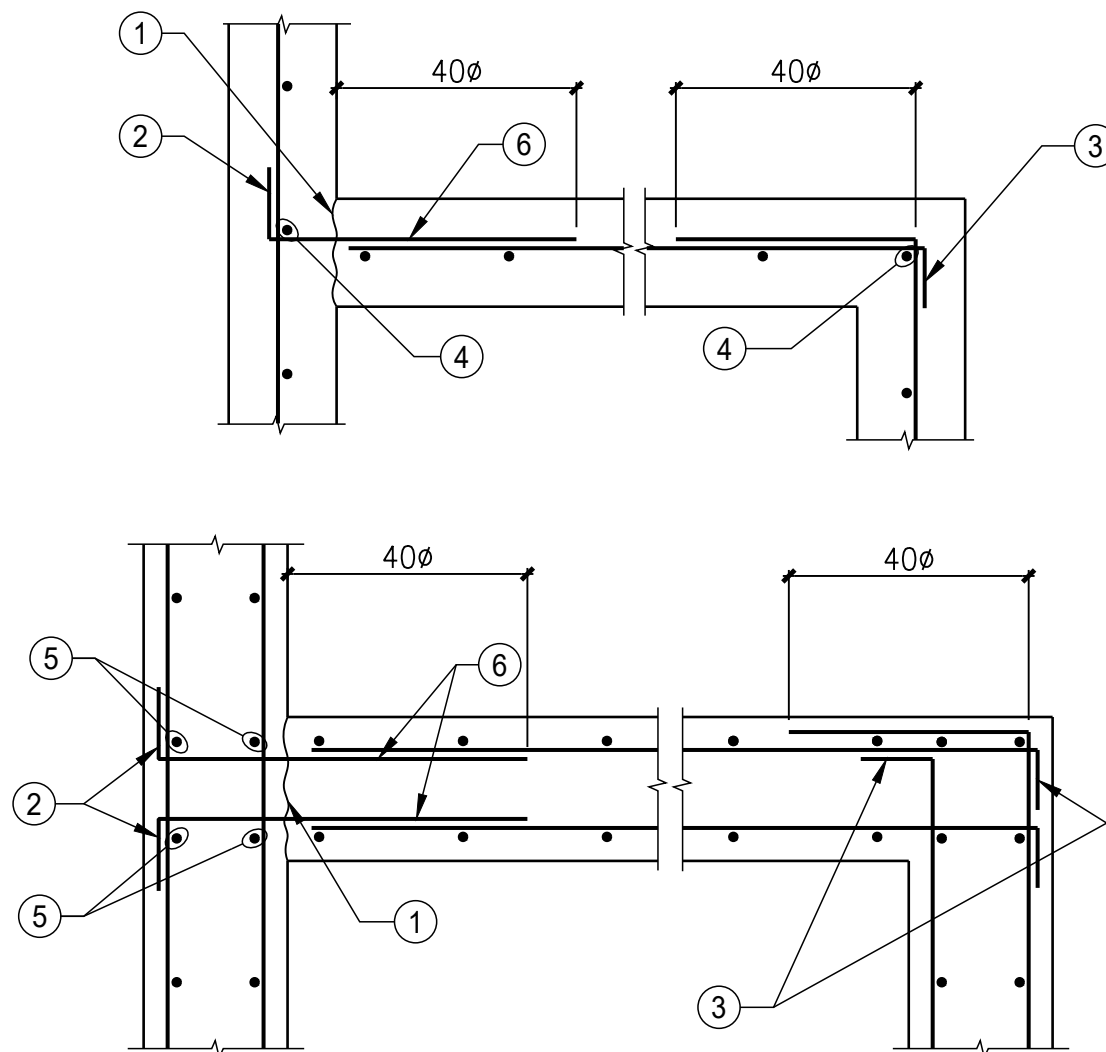
2 CANTILEVER RETAINING WALL  
1/2"=1'-0"



4 VERTICAL JOINTS CONCRETE WALL  
3/4"=1'-0"

- 1) 3/4"x 3/4" JOINT W/ SEALANT (EACH FACE).
- 2) ADDITIONAL VERTICAL REINFORCEMENT.
- 3) TYPICAL HORIZ. REINFORCEMENT.
- 4) CUT ALTERNATING HORIZ. BARS BOTH FACES AT JOINTS.
- 5) CONT. KEY W/ BENTONITE WATERSTOP.
- 6) PROVIDE CONSTRUCTION JOINT OR CONTROL JOINT AT 25'-0" MAX. SPACING.
- 7) LOCATE FIRST JOINT NO FURTHER THAN 10'-0" FROM CORNER.
- 8) JOINT LOCATIONS AND DETAILS TO BE APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.
- 9) DO NOT USE THIS DETAIL FOR SHEARWALLS OR WALLS DESIGNED TO SPAN HORIZONTALLY.
- 10) PRIOR TO SECOND PLACEMENT OF WALL AT CONSTRUCTION JOINTS, ABRASIVE BLAST OR CHIP FIRST PLACEMENT FACE OF JOINT TO REMOVE LAITANCE, HONEY COMBING, ETC. CLEAN WITH WATER AND STIFF BRUSH AND MAKE SECOND PLACEMENT WHEN CONCRETE IS DAMP.

- 1) #6@12" O.C.
- 2) #6 BAR DOWELS. (DOWELS MAY BE EXTENDED FULL HEIGHT OMITTING SEPARATE #6 WALL BARS).
- 3) #4@18" O.C.
- 4) #4@18" O.C.
- 5) #4@18" DOWELS.
- 6) #6@12" O.C.
- 7) #5@12" O.C.
- 8) ROUGHEN SURFACE AT COLD JOINT.
- 9) FOR TENSION LAP SPLICE SEE 5/S-202.
- 10) BIO-RETENTION AREA MATERIAL - SEE CIVIL.
- 11) MAX. WATER ELEVATION - SEE CIVIL.
- 12) NOT USED.
- 13) PLACE FOOTING AGAINST UNDISTURBED SOIL.
- 14) VERIFY SUBGRADE BY GEOTECH. ENGINEER.
- 15) CHAMFER CORNERS - TYPICAL.
- 16) PREFORMED OR CORE DRILLED FENCE POST HOLE. AT CONTRACTORS OPTION. EMBED FENCE POST 6" MINIMUM, PACK TIGHT WITH NON-SHRINK GROUT AND PROVIDE SEALANT AROUND POST AT TOP OF PAD.
- 17) FENCE POST - SEE CIVIL.
- 18) 1'-0"x1'-0" CONT. GRAVEL POCKET IN FILTER FABRIC.
- 19) 6" PERFORATED DRAINAGE PIPE - SEE CIVIL.



3 REINFORCING AT WALL CORNERS  
3/4"=1'-0"

TENSION LAP SPLICE					
		28 DAY CONCRETE DESIGN STRENGTH (PSI)			
		3000		5000	
REINFORCING BAR SIZE		CASE I	CASE II	CASE I	CASE II
#4	TOP BARS	3'-1"	4'-8"	2'-5"	3'-7"
	OTHER BARS	2'-5"	3'-7"	1'-10"	2'-9"
#5	TOP BARS	3'-11"	5'-10"	3'-0"	4'-6"
	OTHER BARS	3'-0"	4'-6"	2'-4"	3'-6"
#6	TOP BARS	4'-8"	7'-0"	3'-7"	5'-5"
	OTHER BARS	3'-7"	5'-4"	2'-9"	4'-2"

- 1) THIS DETAIL DOES NOT APPLY TO COLUMN VERTICAL BARS.
- 2) TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
- 3) CASE I:
  - a. BEAMS - CONCRETE COVER  $\geq d_b$ , CENTER-TO-CENTER BAR SPACING  $\geq 2 d_b$  AND WITH STIRRUPS THROUGHOUT  $l_d$  NOT LESS THAN THE CODE MINIMUM.
  - b. OTHER ELEMENTS - CONCRETE COVER  $\geq d_b$  AND CENTER-TO-CENTER BAR SPACING  $\geq 3 d_b$ .
- 4) CASE II: ALL OTHER CASES.
- 4) FOR LIGHTWEIGHT AGGREGATE, MULTIPLY ABOVE VALUES BY 1.3.

5 TENSION LAP SPLICE LENGTH  
N.T.S.

- 1) PROVIDE WEAKENED PLANE CONTROL JOINTS OR CONSTRUCTION JOINTS AT 25'-0"± ON CENTER PER DETAIL 4/S-202. LOCATE TO COINCIDE WITH JOINTS OF ADJACENT MATERIALS (FACE BRICK, SIDE WALKS, ETC.).
- 2) ALL LAP SPLICES OF TENSION FACE (UPPER GRADE SIDE) REINFORCING AND HORIZONTAL REINFORCING SHALL BE TENSION LAP SPLICES. SEE 5/S-203 FOR SCHEDULE.
- 3) TOP OF FOOTING SURFACE AT WALL SHALL BE INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF 1/4".
- 4) CHAMFER ALL EXPOSED WALL CORNERS.
- 5) DO NOT BACKFILL UNTIL CONCRETE REACHES 100% f'c AND FRONT FACE OF WALL HAS BEEN BACKFILLED.

6 CONCRETE RETAINING WALL NOTES  
N.T.S.

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8260 GREENSBORO DRIVE  
SUITE 325  
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GPI

Greenman-Pedersen, Inc.

Engineering and Construction Services  
3423 Olney-Laytonville Road, Suite 6, Olney, MD 20832  
301.570.1460  
Project # 2200393.00  
PM: TSS M: RMD E: N/A P: N/A S: TF

ROCKVILLE SWIM & FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF RECREATION AND PARKS

OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SITE RETAINING WALL KEY PLAN & DETAILS

DocuSigned by:



I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland  
License No: 40254  
Expiration: 5/19/25

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4	PERMIT SET 12/08/2023
5	99% CONSTRUCTION DOCUMENT 01/19/2024

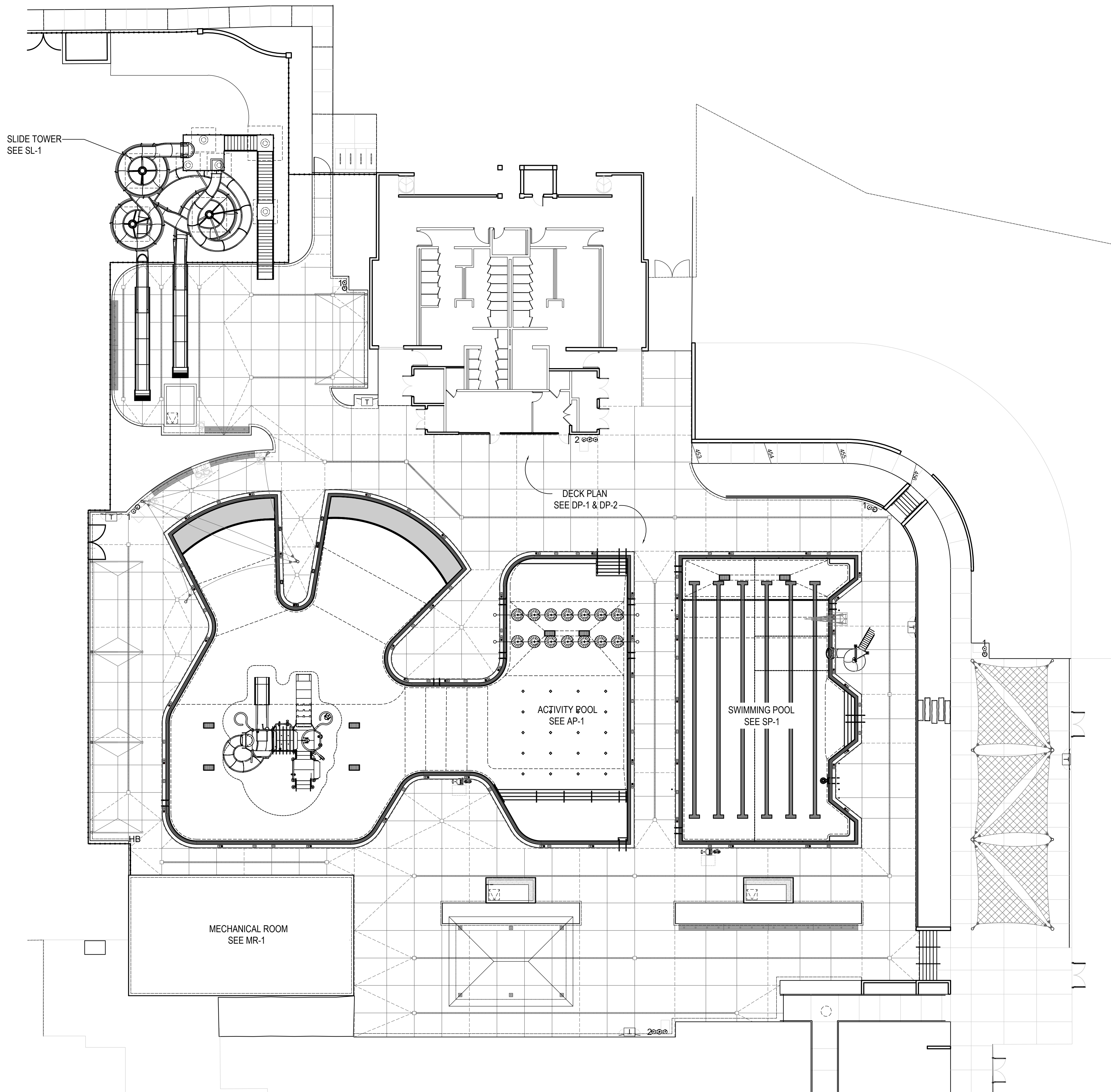
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Project Number:	22.00036.00
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Sheet No. S-202

NFC





ACTIVITY POOL DATA / CLASS D-2

SURFACE AREA	=	9,762 SQ. FT.
PERIMETER	=	617 FT.
DEPTH	=	0'-0" TO 4'-0"
VOLUME	=	131,285 GAL.
REQUIRED 2 HR TURNOVER	=	1,095 GPM
PROPOSED TURNOVER	=	1,200 GPM

SWIMMING POOL DATA / CLASS B

SURFACE AREA	=	3,752 SQ. FT.
PERIMETER	=	280 FT.
DEPTH	=	3'-6" TO 5'-2"
VOLUME	=	127,108 GAL.
REQUIRED 6 HR TURNOVER	=	354 GPM
PROPOSED TURNOVER	=	400 GPM

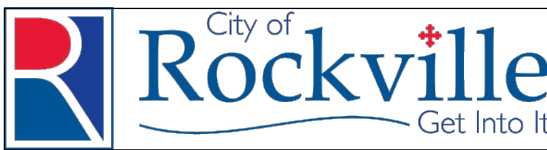
SLIDE DATA / CLASS D-3

SLIDE LENGTH:	SLIDE HEIGHT:
SLIDE A: 209.94 FT. (42" OPEN BODY SLIDE)	SLIDE A & B: 26.25 FT.
SLIDE B: 144.468 FT. (32" ENCLOSED BODY SLIDE)	SLIDE TOWER HEIGHT: TO PLATFORM: 26.25 FT.
8'-0"x 11'-0"x 11'-0" DEEP BALANCE TANK	= 5,266 GAL.
60 MIN. TURNOVER	= 88 GPM

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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

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CITY OF ROCKVILLE, MARYLAND

OVERALL  
LAYOUT PLAN

PERMIT SET  
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OVERALL LAYOUT PLAN

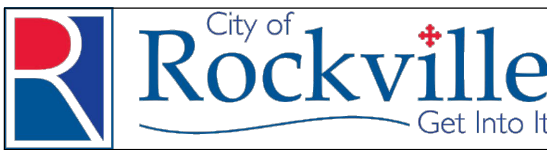
1/16"=1'-0"



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DEPARTMENT OF  
RECREATION AND PARKS

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RENOVATIONS

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DECK PLAN  
NORTH

PERMIT SET  
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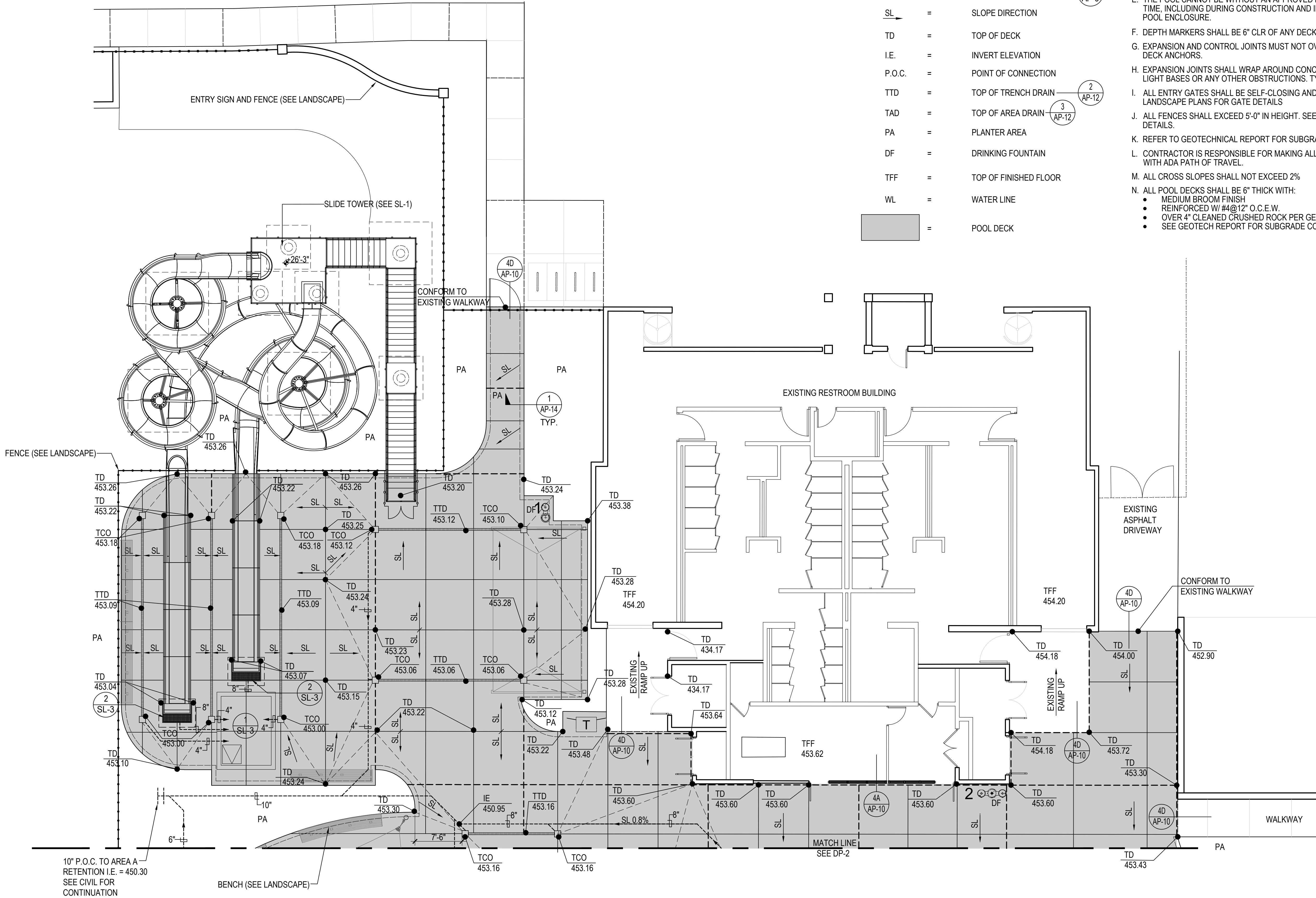
Sheet No. DP-1

LEGEND

---EJ---	=	EXPANSION JOINT	4C AP-10
—CJ—	=	CONTROL JOINT	4B AP-10
=====	=	TRENCH DRAIN	2 AP-12
TCO	=	TOP OF CLEAN-OUT	2 AP-12
AL	=	ACCESSIBLE LIFT	1 AP-9
SL	=	SLOPE DIRECTION	
TD	=	TOP OF DECK	
I.E.	=	INVERT ELEVATION	
P.O.C.	=	POINT OF CONNECTION	
TTD	=	TOP OF TRENCH DRAIN	2 AP-12
TAD	=	TOP OF AREA DRAIN	3 AP-12
PA	=	PLANTER AREA	
DF	=	DRINKING FOUNTAIN	
TFF	=	TOP OF FINISHED FLOOR	
WL	=	WATER LINE	
[Shaded Box]	=	POOL DECK	

GENERAL NOTES

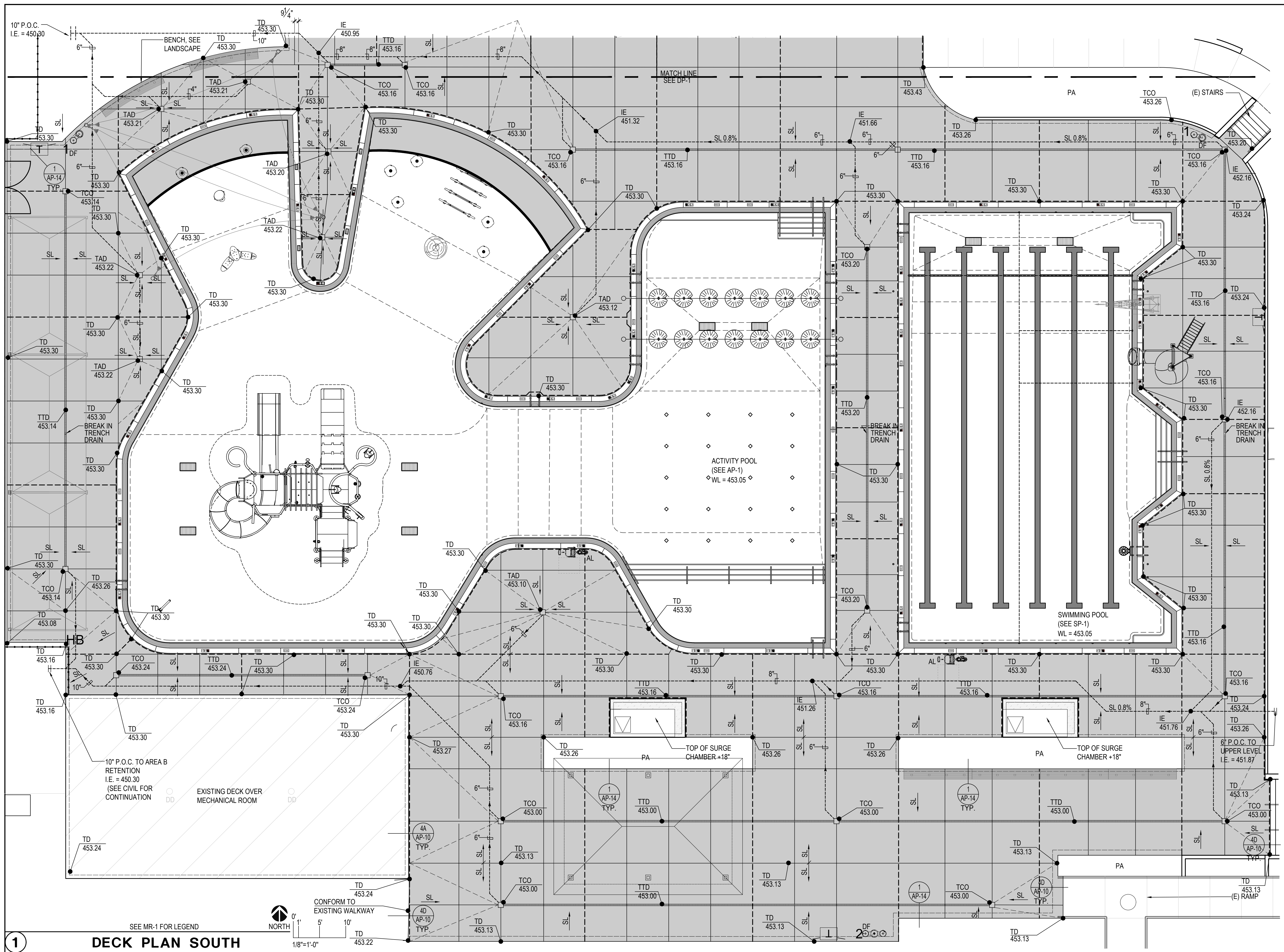
- COORDINATE SIGNAGE PLACEMENT AND COLOR SCHEME WITH OWNER PRIOR TO INSTALLATION.
- DECKS SHALL HAVE 1% MIN. SLOPE AND 2% MAX. SLOPE TO DRAINS.
- ALL POOL DECKING SHALL BE NON-SLIP WITH MEDIUM BROOM FINISH. CONTRACTOR TO PROVIDE TEST PANELS FOR SELECTION PRIOR TO DECK POUR
- REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND QUANTITY OF REQUIRED EXITS, DRINKING FOUNTAINS, AND SANITARY FIXTURES.
- THE POOL CANNOT BE WITHOUT AN APPROVED POOL ENCLOSURE AT ANY TIME, INCLUDING DURING CONSTRUCTION AND INSTALLATION OF THE NEW POOL ENCLOSURE.
- DEPTH MARKERS SHALL BE 6" CLR OF ANY DECK JOINTS
- EXPANSION AND CONTROL JOINTS MUST NOT OVERLAP TILE MARKERS OR DECK ANCHORS.
- EXPANSION JOINTS SHALL WRAP AROUND CONCRETE BENCHES, COLUMNS LIGHT BASES OR ANY OTHER OBSTRUCTIONS. TYP.
- ALL ENTRY GATES SHALL BE SELF-CLOSING AND SELF-LATCHING. SEE LANDSCAPE PLANS FOR GATE DETAILS
- ALL FENCES SHALL EXCEED 5'-0" IN HEIGHT. SEE LANDSCAPE PLANS FOR DETAILS.
- REFER TO GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION.
- CONTRACTOR IS RESPONSIBLE FOR MAKING ALL TRANSITIONS COMPLY WITH ADA PATH OF TRAVEL.
- ALL CROSS SLOPES SHALL NOT EXCEED 2%
- ALL POOL DECKS SHALL BE 6" THICK WITH:
  - MEDIUM BROOM FINISH
  - REINFORCED W/ #4@12" O.C.E.W.
  - OVER 4" CLEANED CRUSHED ROCK PER GEOTECH REPORT
  - SEE GEOTECH REPORT FOR SUBGRADE COMPACTION REQUIREMENTS



DECK PLAN NORTH

1/8"=1'-0"





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SUITE 325  
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703-821-2045

SWIMMING POOL DATA / CLASS B

SURFACE AREA	=	3,752 SQ. FT.
PERIMETER	=	280 FT.
DEPTH	=	3'-6" TO 5'-2"
VOLUME	=	127,108 GAL.
REQUIRED 6 HR TURNOVER	=	354 GPM
PROPOSED TURNOVER	=	400 GPM

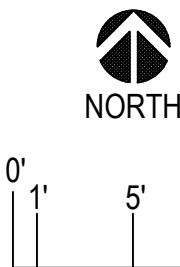
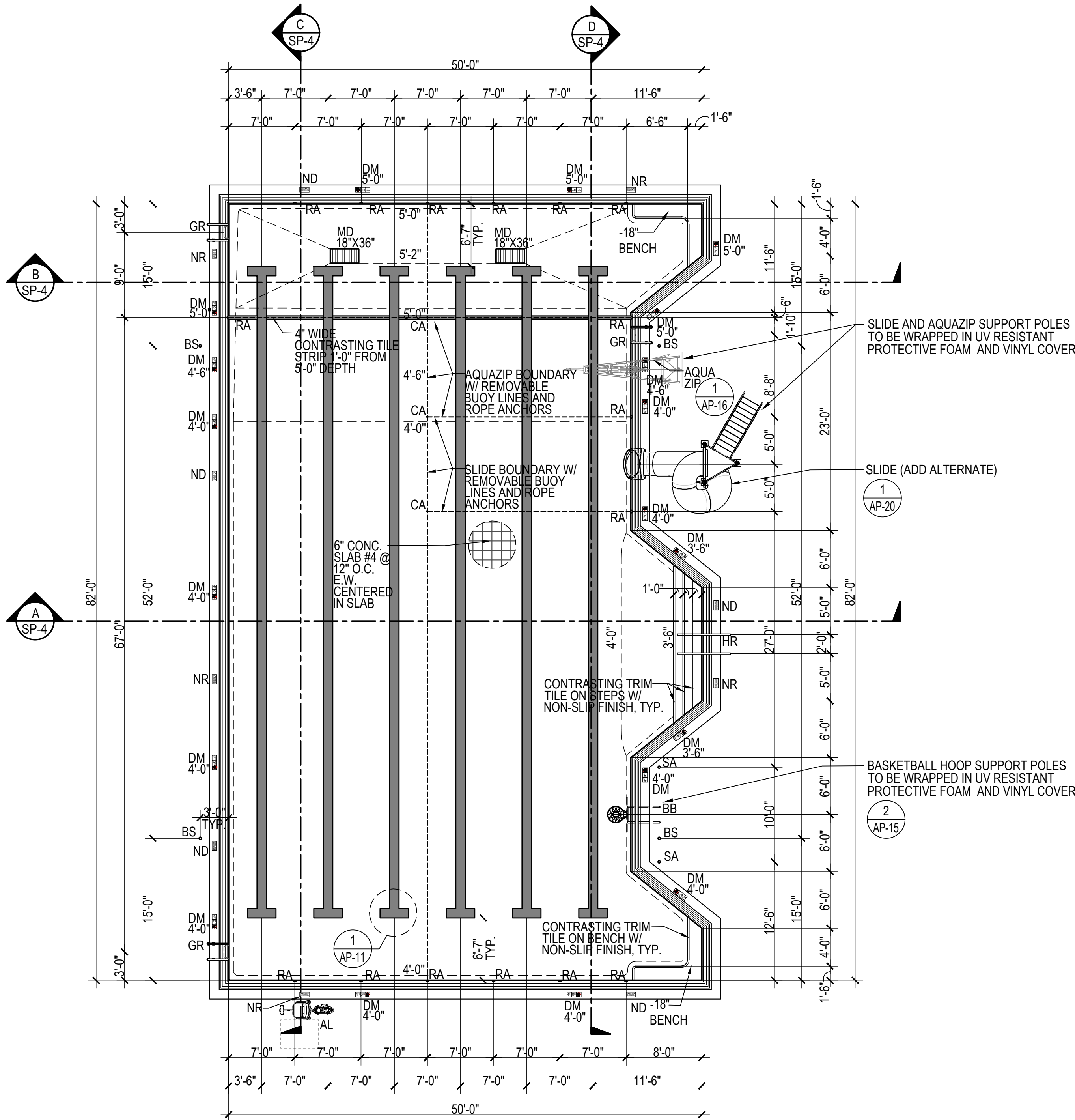
DEFERRED APPROVAL

STRUCTURAL DESIGN FOR THE FOLLOWING STRUCTURES IS A DEFERRED APPROVAL. CONTRACTOR TO PROVIDE AND SUBMIT SHOP DRAWINGS AND STRUCTURE CALCULATIONS FOR REVIEW BY ARCHITECT, BLDG. AND HEALTH DEPT. ALL STRUCTURAL COMPONENTS SHALL BE PAINTED STAINLESS STEEL W/ STAINLESS STEEL HARDWARE. COLORS TO BE CHOSEN BY ARCHITECT AND OWNER. INSTALL PER MANUFACTURES INSTALLATION INSTRUCTIONS FOR A FULLY FUNCTIONING FEATURE.

- POOL SLIDE (ADD ALTERNATE)
- AQUA ZIP
- RAYNER SAFETY MIGHTY MESH TENSION POOL COVERS (OR EQUAL)

LEGEND

DM	=	DEPTH MARKER	1	AP-11
NR	=	'NO RUNNING'	2	AP-11
RA	=	ROPE ANCHOR	3	AP-12
MD	=	MAIN DRAIN	1	AP-13
HR	=	HAND RAIL	1	AP-6
AL	=	ACCESSIBLE LIFT	1	AP-9
BS	=	BACKSTROKE STANCHION	1	AP-12
GR	=	GRABRAIL	2	AP-9
CA	=	RECESSED FLOOR CUP ANCHOR	3	AP-12
SA	=	STANCHION ANCHOR	2	AP-9
BB	=	BASKETBALL BACKBOARD	2	AP-15



SWIMMING POOL LAYOUT

1/8"=1'-0"

SWIMMING POOL  
LAYOUT

PERMIT SET  
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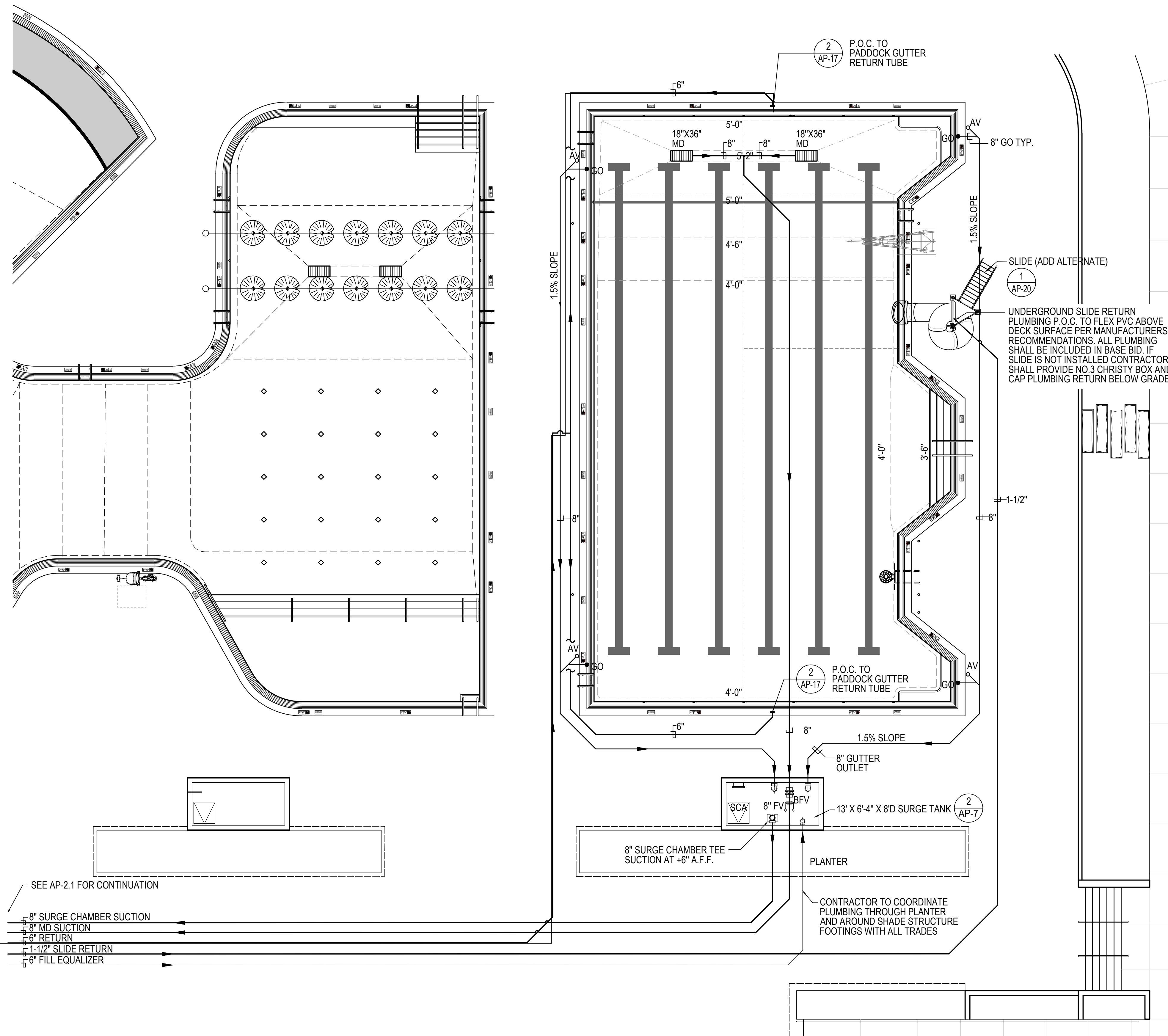
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Sheet No.

SP-1

BID SET 02/23/2024



SWIMMING POOL DATA / CLASS B

SURFACE AREA	=	3,752 SQ. FT.
PERIMETER	=	280 FT.
DEPTH	=	3'-6" TO 5'-2"
VOLUME	=	127,108 GAL.
REQUIRED 6 HR TURNOVER	=	354 GPM
PROPOSED TURNOVER	=	400 GPM

LEGEND

AV	=	AIR VENT	4 AP-13
MD	=	MAIN DRAIN	1 AP-13
GO	=	GUTTER OUTLET	3 AP-14

SWIMMING POOL SURGE DATA

REQUIRED SURGE CAPACITY (PER ISPSC 315.3 / 1 GAL PER SQ FT)	=	3,752 GAL.
SURGE IN PERIMETER GUTTER (274 SQ FT X 0.916' H X 7.48 GAL/CUBIC FT)	=	1,877 GAL.
SURGE IN SURGE CHAMBER (78 SQ FT X 5' H X 7.48 GAL/CUBIC FT)	=	2,917 GAL.
TOTAL SUPPLIED SURGE 4,794 GAL. > 3,752 GAL. (PER ISPSC 315.3 / 3,752 GAL. REQ.)	=	4,794 GAL.

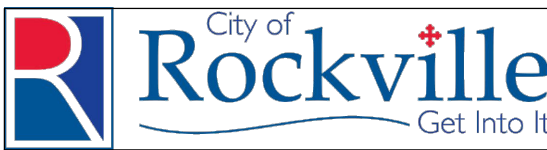
SWIMMING POOL EQUIPMENT DATA

MAIN DRAIN FLOW CAPACITY PROVIDED (PER ISPSC 704.8 - MUST BE CAPABLE OF 100% OF PUMP FLOW = 400 GPM)	=	1,040 GAL.
GUTTER DESIGN (PER ISPSC 315.4 - 50% OF POOL PERIMETER TO HAVE GUTTER)	=	100% PROVIDED
GUTTER OUTLET FLOW PROVIDED (PER ISPSC 407.3.1 - GUTTER MUST ACCOMMODATE 125% OF SYSTEM FLOW)	=	500 GAL.
8" GUTTER OUTLET FLOW CAPACITY	=	1,282 GAL.
1.428 (GAL / CUBIC FT/SEC @ 1% SLOPE) X 448.8	=	640.88 GPM
640.88 GPM / 50% SAFETY FACTOR	=	320.44 GPM PER OUTLET
(4) 8" OUTLETS PROVIDED (320.44 X 4)	=	1,282 GPM
PUMP FLOW = 400 GPM X 125%	=	500 GPM
1,282 GPM > 500 GPM		
(4) 8" GUTTER OUTLETS MEET MINIMUM REQUIRED FLOW RATE W/ 50% SAFETY FACTOR		

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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

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SWIMMING POOL  
PLUMBING

PERMIT SET  
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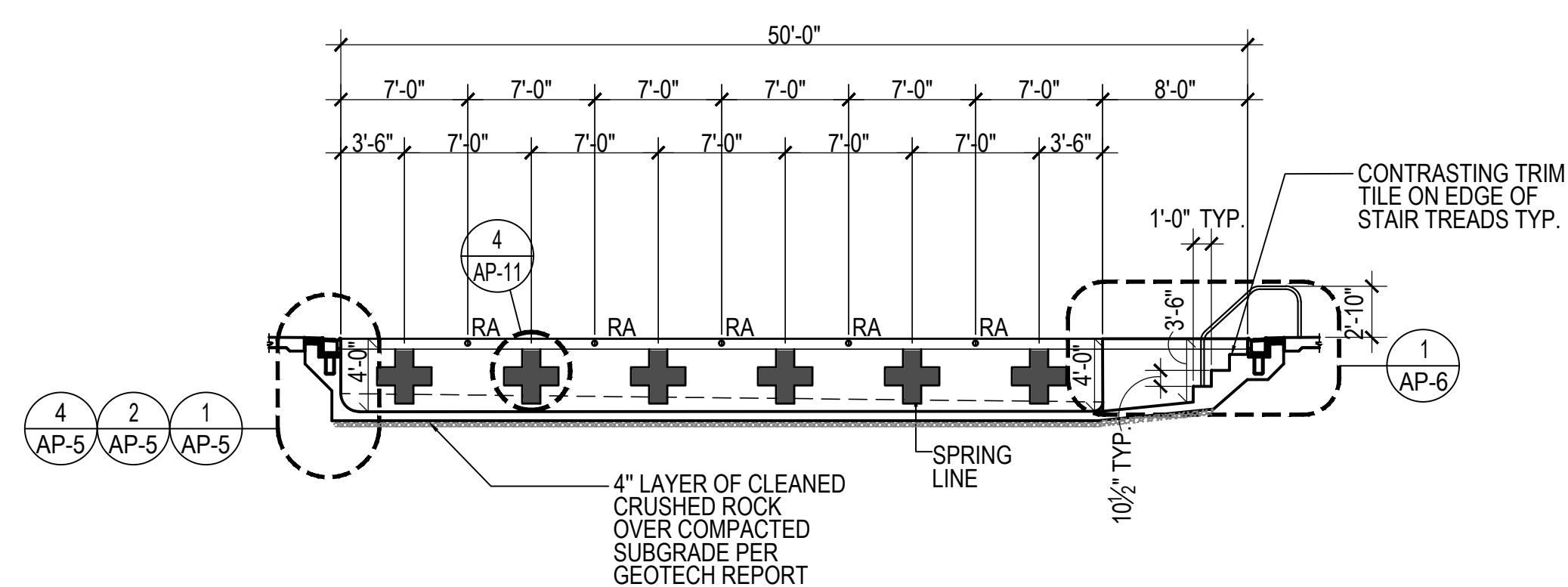
SP-2

SWIMMING POOL PLUMBING PLAN

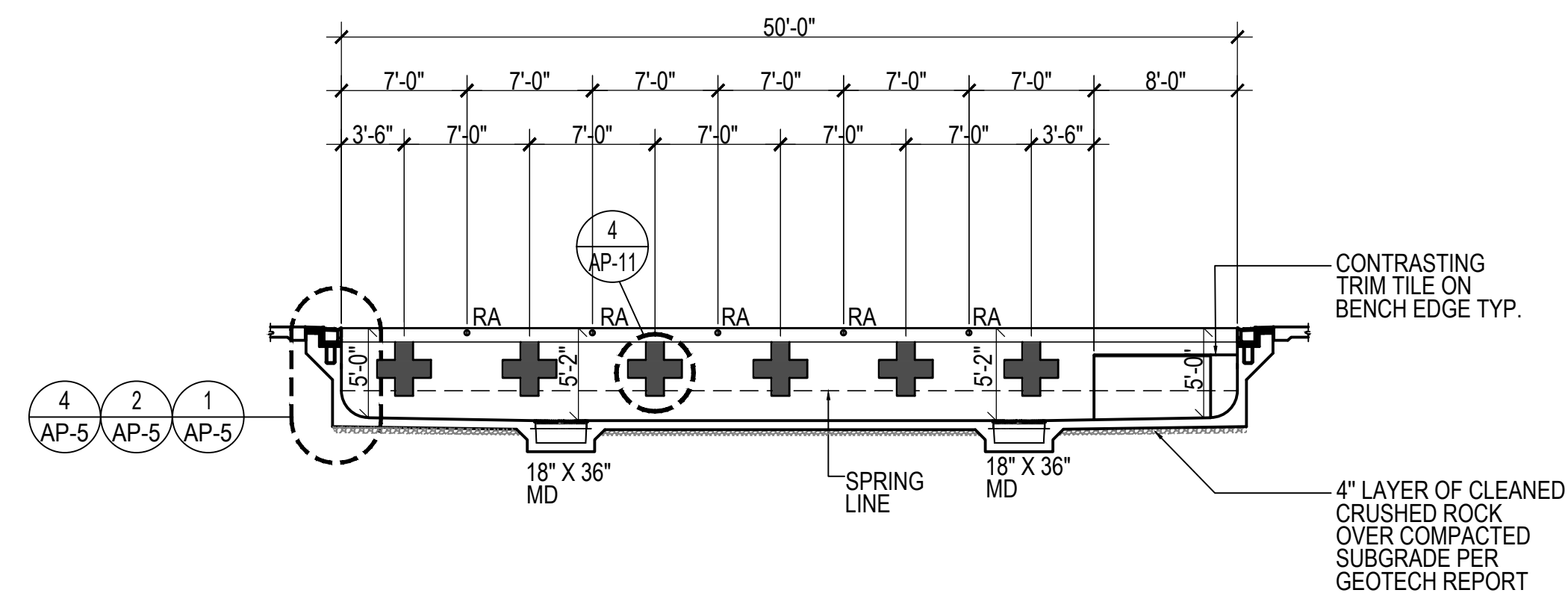
1/8"=1'-0"



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## A SWIMMING POOL SECTION

$$1/8"=1'-0"$$


**(B) SWIMMING POOL SECTION**

$$1/8"=1'-0"$$

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DEPARTMENT OF  
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## OUTDOOR RECREATION POOL RENOVATIONS

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## SWIMMING POOL SECTIONS

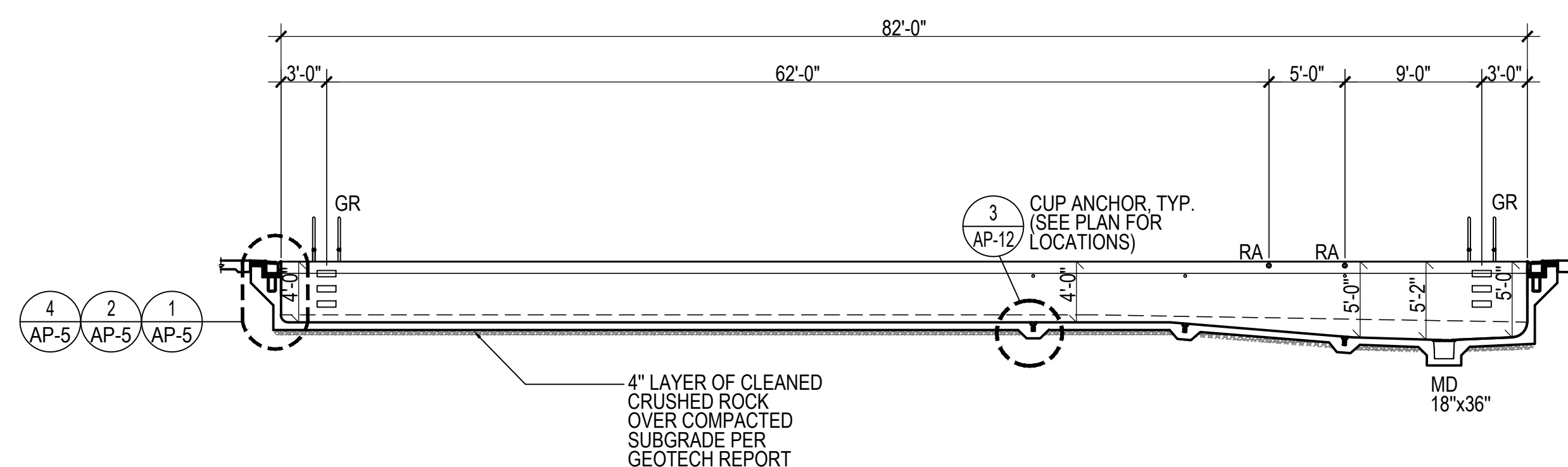
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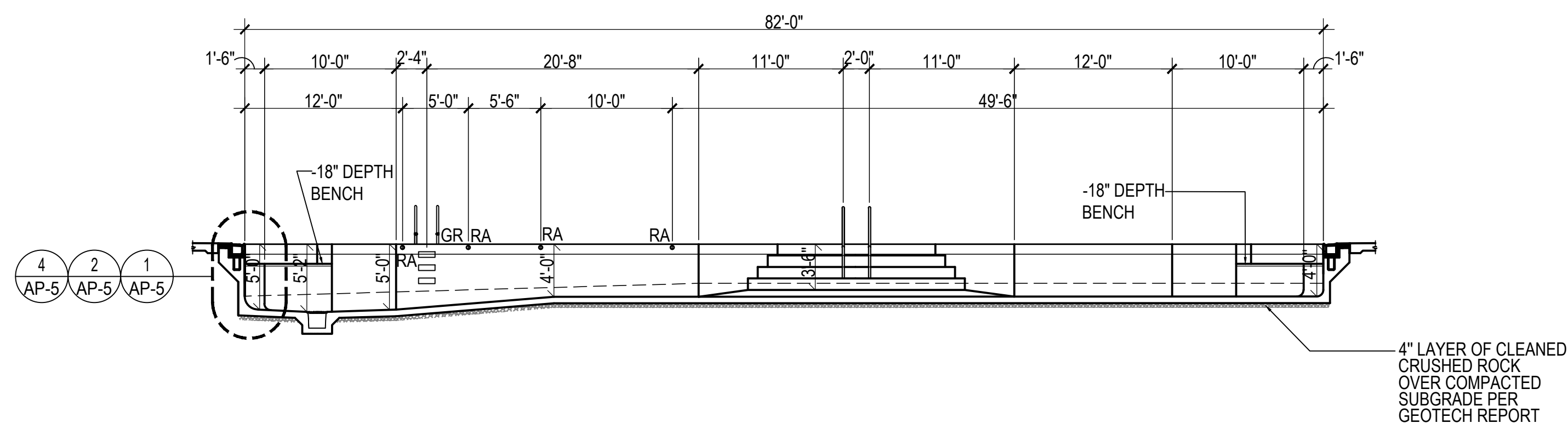
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Sheet No. SP-3



(C) SWIMMING POOL SECTION

$$1/8'' = 1' - 0''$$


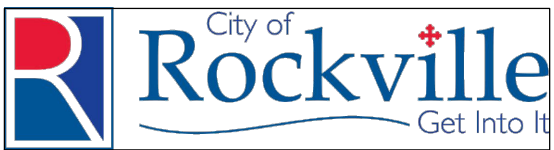
**(D) SWIMMING POOL SECTION**

$$1/8'' = 1' - 0''$$

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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

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SLIDE  
LAYOUT

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Sheet No. SL-1

SLIDE DATA

SLIDE LENGTH:	SLIDE HEIGHT:
SLIDE A: 209.94 FT. (42" OPEN BODY SLIDE)	SLIDE A & B: 26.25 FT.
SLIDE B: 144.468 FT. (32" ENCLOSED BODY SLIDE)	SLIDE TOWER HEIGHT: TO PLATFORM: 26.25 FT.

DEFERRED APPROVAL

DESIGN OF SLIDE AND SLIDE TOWER ARE BY SPASHTACULAR AND ARE DEFERRED APPROVAL ITEMS. THE CONTRACTOR SHALL SUBMIT THE SLIDE AND TOWER PLANS AND STRUCTURAL CALCULATIONS TO THE OWNER, ARCHITECT, HEALTH DEPARTMENT AND BUILDING DEPARTMENT FOR APPROVAL. ALL STEEL COMPONENTS SHALL BE GALVANIZED AND PAINTED. PROVIDE APPROVED SIGNAGE, LIFEGUARD PLAN, DETAILS OF COMMUNICATION BETWEEN GUARDS AT TOP AND BOTTOM OF SLIDES, INCLUDING EMERGENCY SHUTDOWN FOR SLIDES, AND ALL OTHER MARYLAND DIVISION OF LABOR AND INDUSTRY AMUSEMENT RIDE SAFETY INSPECTION / MONTGOMERY COUNTY REQUIRED WORK.

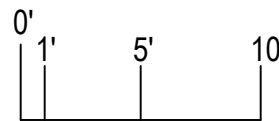
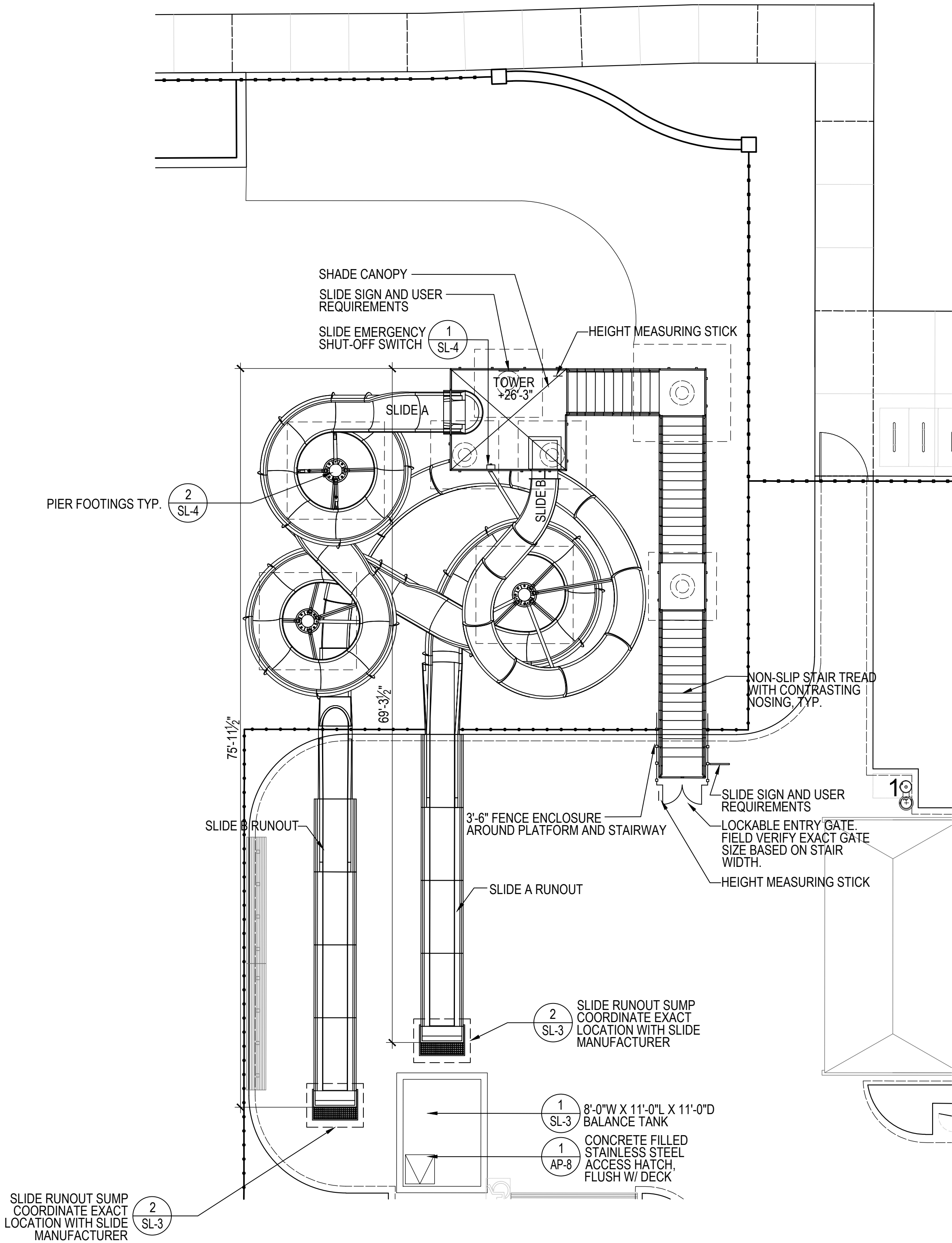
GENERAL NOTES

- ALL PIPES INTO SLIDE SUMPS SHALL EXTEND A MIN. 6" FROM SIDEWALL TO ALLOW FOR CAPPING OF PIPING FOR WINTERIZATION PROCEDURES. DURING WINTER THE PIPING TO BALANCE TANK SHALL BE CAPPED AND 4" DRAIN DOWN PIPING UNCAPPED. VISA VERSA DURING ON SEASON USAGE.
- REFER TO SPASHTACULAR PLANS FOR SLIDES, SUPPORTS AND TOWER, FOOTINGS AND REINFORCEMENT TYP.

SIGN REQUIREMENTS

A SIGN SHALL BE POSTED AT THE TOP AND BOTTOM OF THE TOWER WITH THE FOLLOWING RULES:  
(COORDINATE LOCATION WITH HEALTH DEPT AND OWNER)

- CAUTION - ONE RIDER AT A TIME. WAIT UNTIL THE LANDING AREA IS CLEAR BEFORE ENTERING THE SLIDE
- SLIDE FEET FIRST IN THE SITTING POSITION OR LYING ON YOUR BACK!
- DO NOT ATTEMPT TO STOP IN THE SLIDE
- LEAVE THE PLUNGE AREA IMMEDIATELY
- ALWAYS EXIT THE SLIDE FEET FIRST! DO NOT SOMERSAULT, TWIST OR DIVE FROM THE END OF THE SLIDE.
- WATER AND ALCOHOL DO NOT MIX. NO PERSON UNDER THE INFLUENCE OF ALCOHOL MAY USE THE SLIDE
- MINIMUM USER HEIGHT

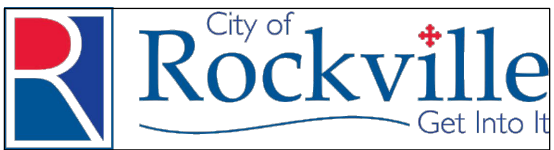




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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SLIDE  
PLUMBING

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3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023

No.	Description	Date
Revisions		

Project Number:	22.00036.00
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Drawn By:	AD, HW
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Date:	5/19/2023

Sheet No. SL-2

SLIDE DATA / CLASS D-3

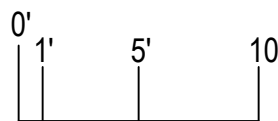
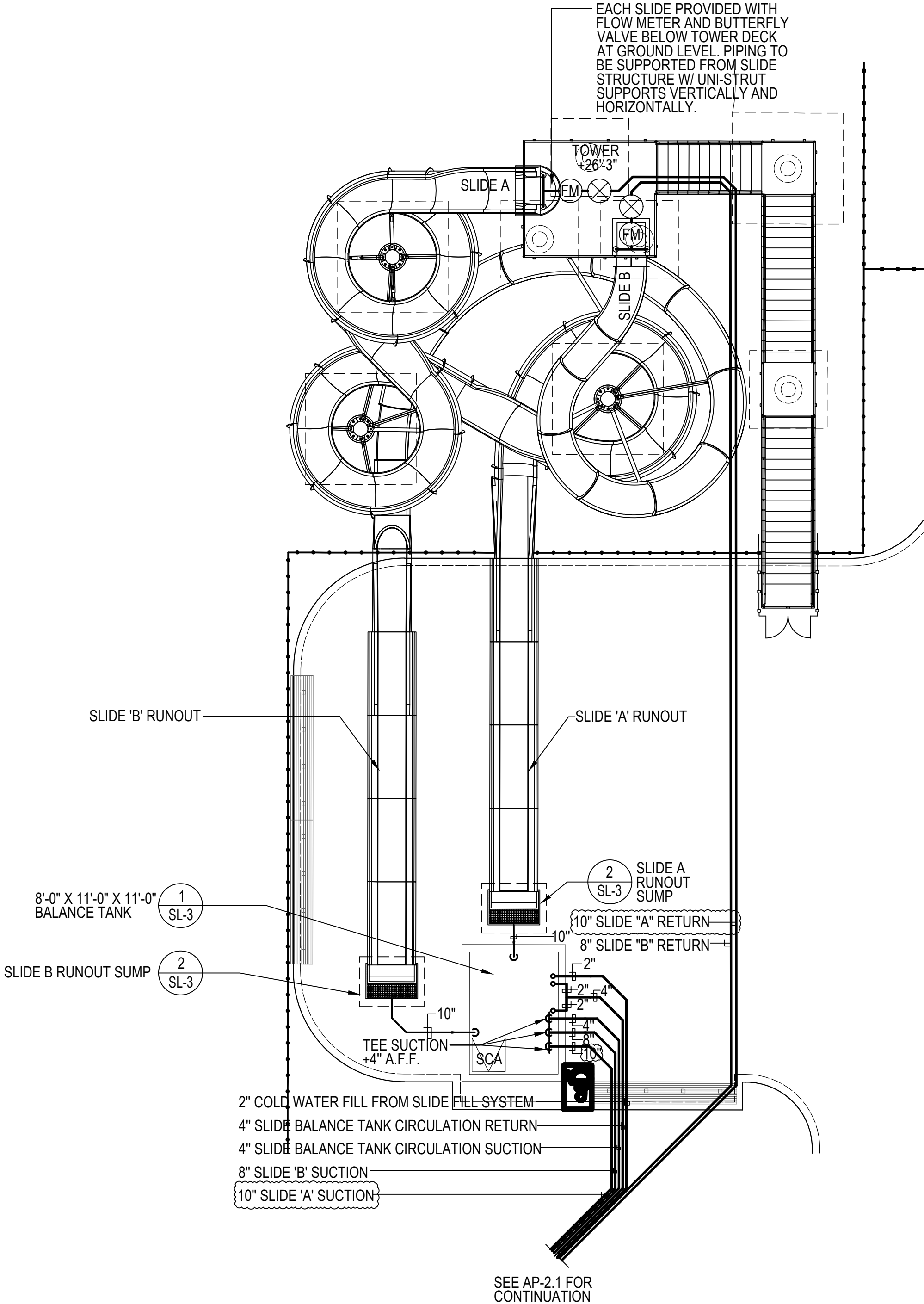
SLIDE LENGTH:	SLIDE HEIGHT:
SLIDE A: 209.94 FT. (42" OPEN BODY SLIDE)	SLIDE A & B: 26.25 FT.
SLIDE B: 144.468 FT. (32" ENCLOSED BODY SLIDE)	SLIDE TOWER HEIGHT: TO PLATFORM: 26.25 FT.

SLIDE BALANCE TANK DATA

SLIDE 'A' BOOSTER PUMP	=	1,000 GPM
SLIDE 'B' BOOSTER PUMP	=	500 GPM
CIRCULATION PUMP RATE	=	130 GPM
TOTAL WATER FLOW	=	1,630 GPM
8'-0"x 11'-0"x 11'-0" DEEP BALANCE TANK	=	5,266 GAL.
60 MIN. TURNOVER (PER ISPSC 604.2)	=	88 GPM
PROPOSED TURN OVER	=	100 GPM

GENERAL NOTES

- ALL PIPES INTO SLIDE SUMPS SHALL EXTEND A MIN. 6" FROM SIDEWALL TO ALLOW FOR CAPPING OF PIPING FOR WINTERIZATION PROCEDURES. DURING WINTER THE PIPING TO BALANCE TANK SHALL BE CAPPED AND 4" DRAIN DOWN PIPING UNCAPPED. VISA VERSA DURING ON SEASON USAGE.
- REFER TO SPLASHTACULAR PLANS FOR SLIDES, SUPPORTS AND TOWER, FOOTINGS AND REINFORCEMENT TYP.










SL-4



**ACTIVITY POOL DATA / CLASS D-2**

SURFACE AREA	=	9,762 SQ. FT.
PERIMETER	=	617 FT.
DEPTH	=	0'-0" TO 4'-0"
VOLUME	=	131,285 GAL.
REQUIRED 2 HR TURNOVER	=	1,095 GPM
PROPOSED TURNOVER	=	1,200 GPM

## LEGEND

DM	=	DEPTH MARKER	1	AP-1
NR	=	'NO RUNNING'	2	AP-11
ND	=	'NO DIVING'	2, 3	AP-11
MD	=	MAIN DRAIN	1	AP-13
HR	=	HAND RAIL	4	AP-11
AL	=	ACCESSIBLE LIFT	1	AP-9
GR	=	GRAB RAIL	2	AP-11
RA	=	ROPE ANCHOR	3	AP-12
	=	DIAMOND BRIGHT PEBBLE FINISH AT BEACH ENTRY AS SHOWN		

## DEFERRED APPROVAL

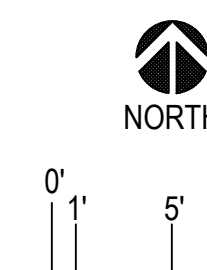
STRUCTURAL DESIGN FOR THE FOLLOWING STRUCTURES IS A DEFERRED APPROVAL. CONTRACTOR TO PROVIDE AND SUBMIT SHOP DRAWINGS AND STRUCTURE CALCULATIONS FOR REVIEW BY ARCHITECT, BLDG. AND HEALTH DEPT. ALL STRUCTURAL COMPONENTS SHALL BE PAINTED STAINLESS STEEL W/ STAINLESS STEEL HARDWARE. COLORS TO BE CHOSEN BY ARCHITECT AND OWNER. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS FOR A FULLY FUNCTIONING FEATURE.

- LILY PAD COURSE
- ACTIVITY STRUCTURE
- RAYNER SAFETY MIGHTY MESH TENSION POOL COVERS (OR EQUAL)

## PRODUCT LEGEND

	PRODUCT CODE	QTY	TOTAL FLOW (EA.)	
(A)	FOAM JET® CRYSTAL FOUNTAINS® NCB-200 (3" MIN, 5" MAX WATER DEPTH)	7	40 GPM	3 AP-20
(B)	NOT USED			
(C)	HOPPER "WATERPLAY" 0011-0839	1	10 GPM	1 AP-18
(D)	BAMBOO DOWN JET "SPLASHTACULAR"	1	40 GPM	3 AP-18
(E)	FUN-BRELLA "WATERPLAY" 0010-0485	1	14 GPM	2 AP-17
(F)	WATER TROUGH GARDEN "SPLASHTACULAR"	1	10 GPM	2 AP-18
(G)	SPIRAL TUNNEL "WATERPLAY" 0010-0377	1	40 GPM	2 AP-20
(H)	"SPLASHTACULAR" ACTIVITY STRUCTURE	1	700 GPM	1 AP-15
(ALL EQUIPMENT LISTED SHALL BE CONSIDERED OR APPROVED EQUAL)		TOTAL FLOW	1,094 GPM	

ALL EQUIPMENT LISTED IS 'OR EQUAL'



No.	Description	Date
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Sheet No. AP-1

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

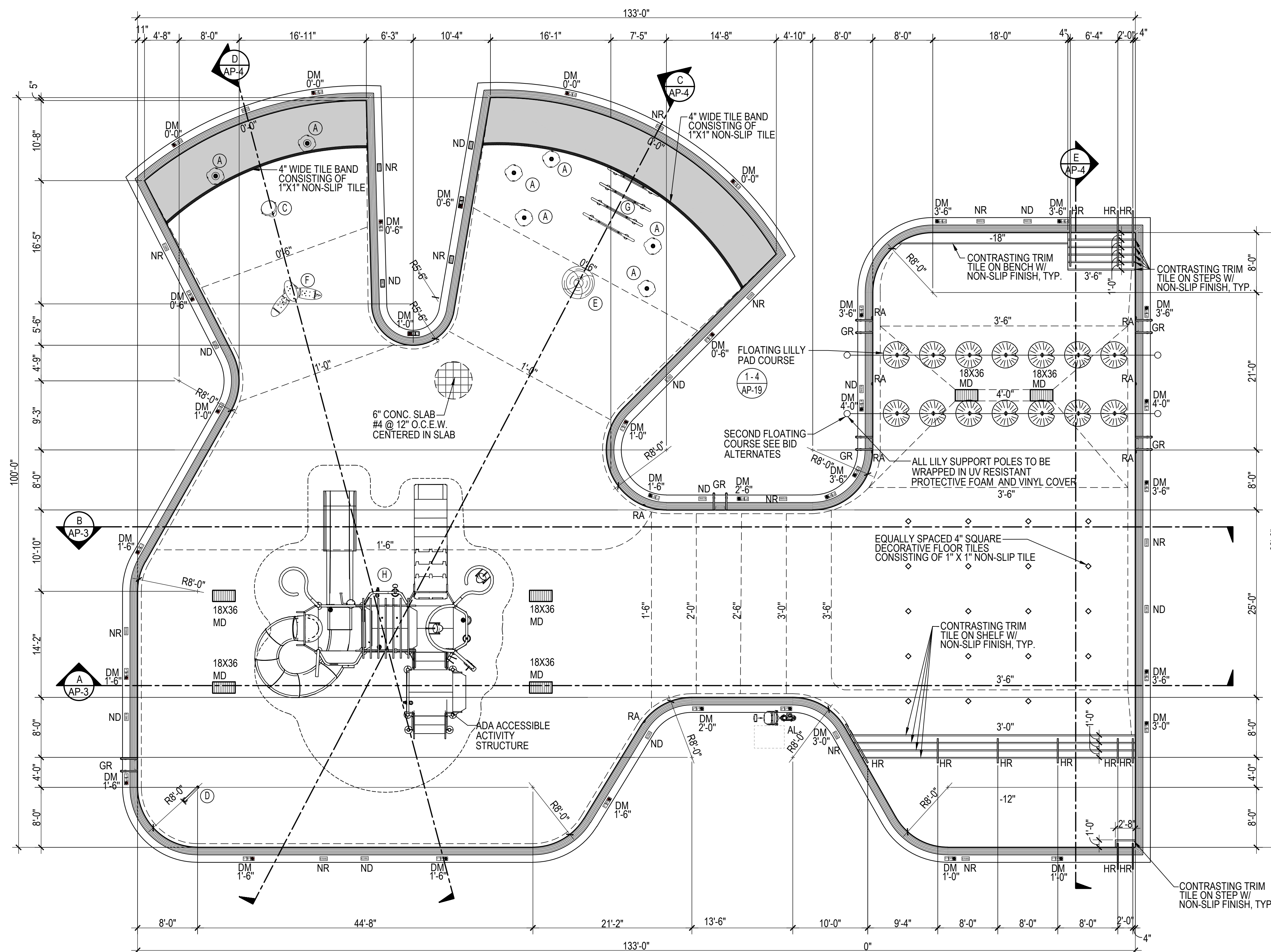
## ACTIVITY POOL LAYOUT

# PERMIT SET NFC

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023

Sheet No. AP-1

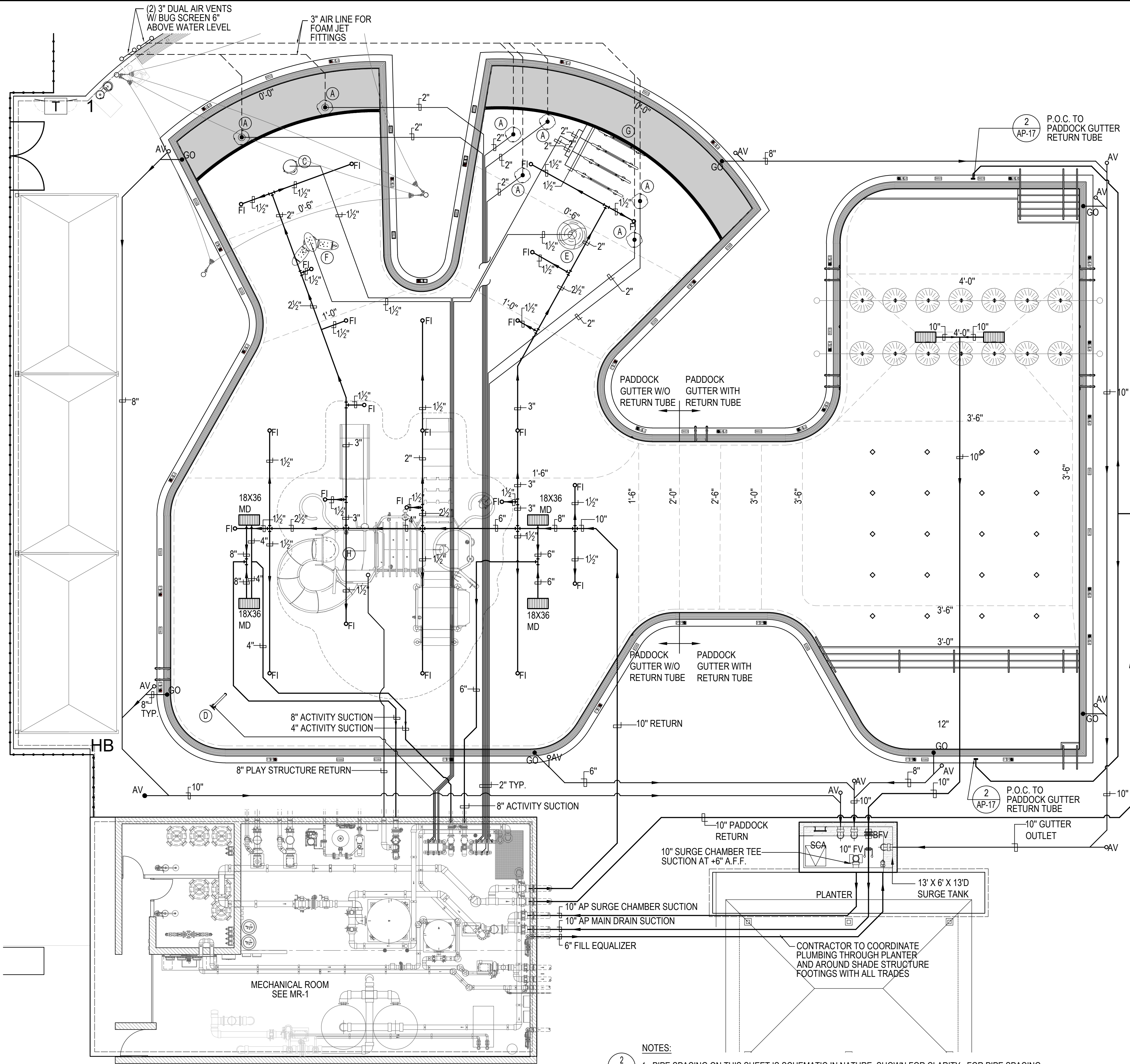
**BID SET 02/23/2024**



## ACTIVITY POOL LAYOUT

$$1/8"=1'-0"$$





- NOTES:
- PIPE SPACING ON THIS SHEET IS SCHEMATIC IN NATURE. SHOWN FOR CLARITY. FOR PIPE SPACING REQUIREMENTS, REFER TO DETAIL.
  - THIS PLAN ILLUSTRATES THE PROPOSED WATER FEATURE PIPING ROUTES FROM THE MECHANICAL ROOM TO INDIVIDUAL FITTINGS. COORDINATE ALL PIPING WITH BUILDING FOOTINGS, SITE UTILITIES INCLUDING PIPING, CONDUITS/STRUCTURES AND THE LIKE. COORDINATE ALL PIPING ELEVATIONS WITH ALL SITE UTILITIES.
  - ALL PIPING BELOW GRADE SHALL BE SCH. 40 PVC. ALL PIPING ABOVE GRADE SHALL BE SCH. 80 PVC.
  - ALL PIPING SHALL BE EQUALLY SPACED AND PIPED TO EACH MANIFOLD AT EQUAL INTERVALS TO ENSURE AN EVEN AND HYDRAULICALLY BALANCED SYSTEM.
  - COORDINATE DEPTH CHARGE AIR TUBING IN FIELD W/ MANUFACTURER.
  - ALL PIPING ABOVE GRADE SHALL BE SECURED AND SUPPORTED W/ PIPE STANDS AND/OR BRACING.

### ACTIVITY POOL DATA / CLASS D-2

SURFACE AREA	=	9,762 SQ. FT.
PERIMETER	=	617 FT.
DEPTH	=	0'-0" TO 4'-0"
VOLUME	=	131,285 GAL.
REQUIRED 2 HR TURNOVER (PER ISPSC 604.2 / 2HR MIN)	=	1,095 GPM
PROPOSED TURNOVER	=	1,200 GPM

### ACTIVITY POOL SURGE DATA

REQUIRED SURGE CAPACITY (PER ISPSC 315.3 / 1 GAL PER SQ FT)	=	9,672 GAL.
SURGE IN PERIMETER GUTTER (596 SQ FT X 0.916" H X 7.48 GAL/CUBIC FT)	=	4,272 GAL.
SURGE IN SURGE CHAMBER (78 SQ FT X 10" H X 7.48 GAL/CUBIC FT)	=	5,834 GAL.
TOTAL SUPPLIED SURGE 10,106 GAL. > 9,762 GAL. (PER ISPSC 315.3 / 9,762 GAL. REQ.)	=	10,106 GAL.

### ACTIVITY POOL EQUIPMENT DATA

FLOOR INLETS PROVIDED (PER ISPSC 407.4.2 - 20 FT MIN SPACING)	=	22
MAIN DRAIN FLOW CAPACITY PROVIDED (PER ISPSC 704.8 - MUST BE CAPABLE OF 100% OF PUMP FLOW = 832 GPM)	=	2,080 GAL.
GUTTER DESIGN (PER ISPSC 315.4 - 50% OF POOL PERIMETER TO HAVE GUTTER)	=	100% PROVIDED
GUTTER OUTLET FLOW PROVIDED (PER ISPSC 407.3.1 - GUTTER MUST ACCOMMODATE 125% OF SYSTEM FLOW)	=	2,243 GAL.
8" GUTTER OUTLET FLOW CAPACITY	=	2,243 GAL.
1,428 (GAL / CUBIC FT/SEC @ 1% SLOPE) X 448.8	=	640.88 GPM
640.88 GPM / 50% SAFETY FACTOR	=	320.44 GPM PER OUTLET
(7) 8" OUTLETS PROVIDED	=	2,243 GPM
PUMP FLOW = 1,250 GPM X 125%	=	1,562 GPM
2,243 GPM > 1,562 GPM	=	
(7) GUTTER OUTLETS MEET MINIMUM REQUIRED FLOW RATE W/ 50% SAFETY FACTOR	=	

### LEGEND

AV	=	AIR VENT	4 AP-13
MD	=	MAIN DRAIN	1 AP-13
FI	=	FLOOR INLET	2 AP-13
GO	=	GUTTER OUTLET	3 AP-14

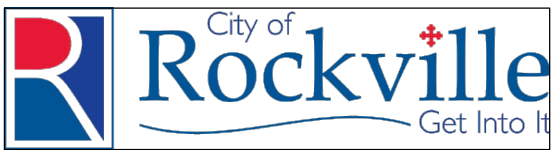
### PRODUCT LEGEND

	PRODUCT CODE	QTY	TOTAL FLOW (EA.)	
(A)	FOAM JET 'CRYSTAL FOUNTAINS' WMO-104	7	40 GPM	3 AP-20
(B)	NOT USED			
(C)	HOPPER 'WATERPLAY' 0011-0839	1	10 GPM	1 AP-18
(D)	BAMBOO DOWN JET 'SPLASHTACULAR'	1	40 GPM	3 AP-18
(E)	FUN-BRELLA 'WATERPLAY' 0010-0485	1	14 GPM	2 AP-17
(F)	WATER TROUGH GARDEN 'SPLASHTACULAR'	1	10 GPM	2 AP-18
(G)	SPIRAL TUNNEL 'WATERPLAY' 0010-0377	1	40 GPM	2 AP-20
(H)	'SPLASHTACULAR' ACTIVITY STRUCTURE	1	700 GPM	1 AP-15
(ALL EQUIPMENT LISTED SHALL BE CONSIDERED OR APPROVED EQUAL)		TOTAL FLOW	1,094 GPM	

### LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

### OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

### ACTIVITY POOL PLUMBING

### PERMIT SET NFC

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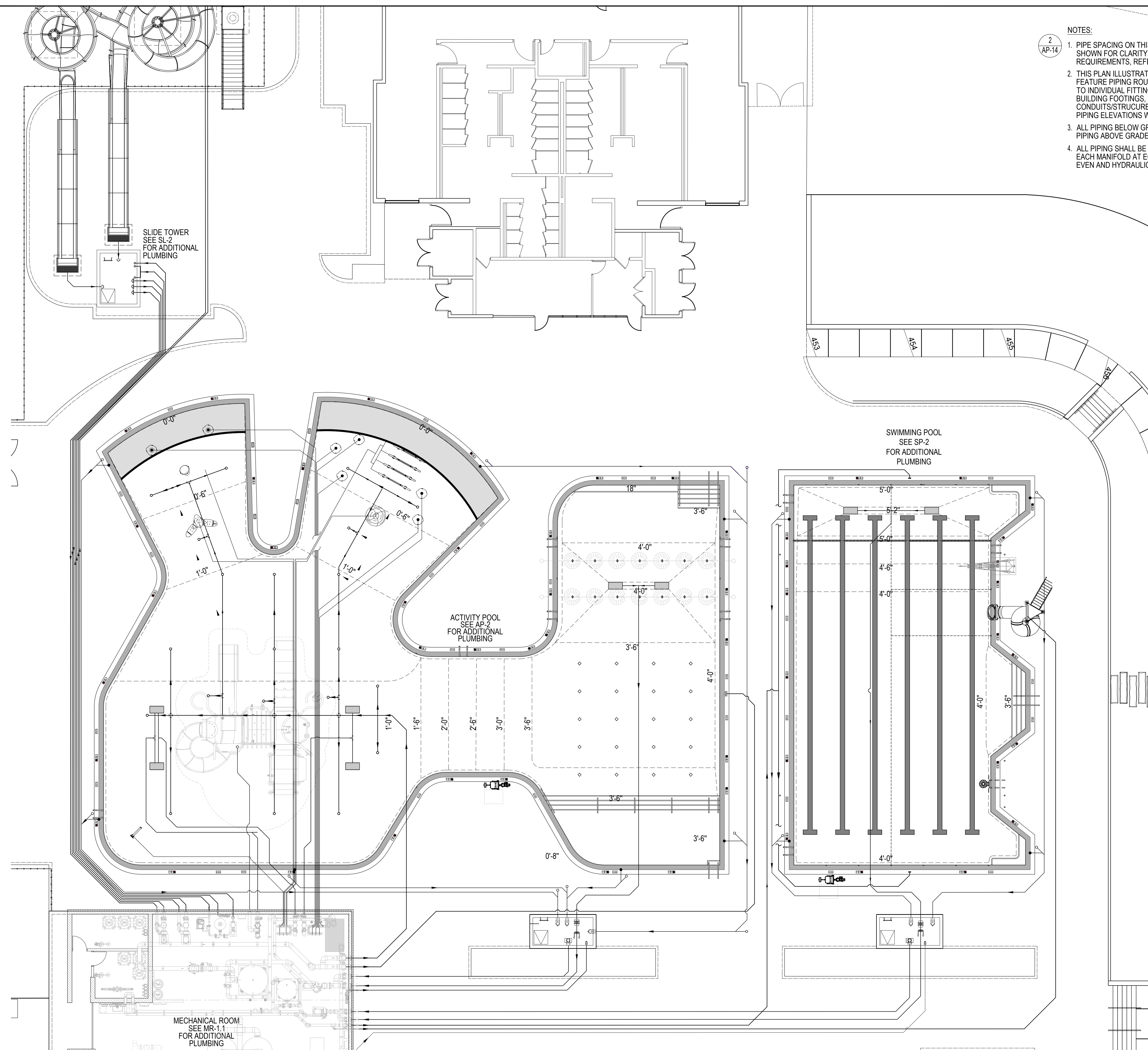
Sheet No.

AP-2

### ACTIVITY POOL PLUMBING PLAN

1/8"=1'-0"





NOTES:

1. PIPE SPACING ON THIS SHEET IS SCHEMATIC IN NATURE. SHOWN FOR CLARITY. FOR PIPE SPACING REQUIREMENTS, REFER TO DETAIL.
2. THIS PLAN ILLUSTRATES THE PROPOSED WATER FEATURE PIPING ROUTES FROM THE MECHANICAL ROOM TO INDIVIDUAL FITTINGS. COORDINATE ALL PIPING WITH BUILDING FOOTINGS, SITE UTILITIES INCLUDING PIPING, CONDUITS/STRUCTURES AND THE LIKE. COORDINATE ALL PIPING ELEVATIONS WITH ALL SITE UTILITIES.
3. ALL PIPING BELOW GRADE SHALL BE SCH. 40 PVC. ALL PIPING ABOVE GRADE SHALL BE SCH. 80 PVC.
4. ALL PIPING SHALL BE EQUALLY SPACED AND PIPED TO EACH MANIFOLD AT EQUAL INTERVALS TO ENSURE AN EVEN AND HYDRAULICALLY BALANCED SYSTEM.

LSG LANDSCAPE  
ARCHITECTURE

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DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## OVERALL PLUMBING PLAN

PERMIT SET

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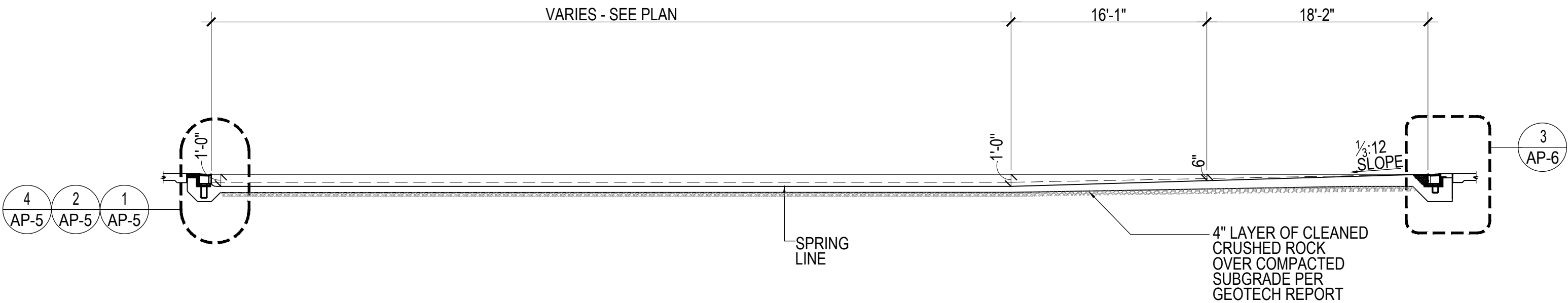
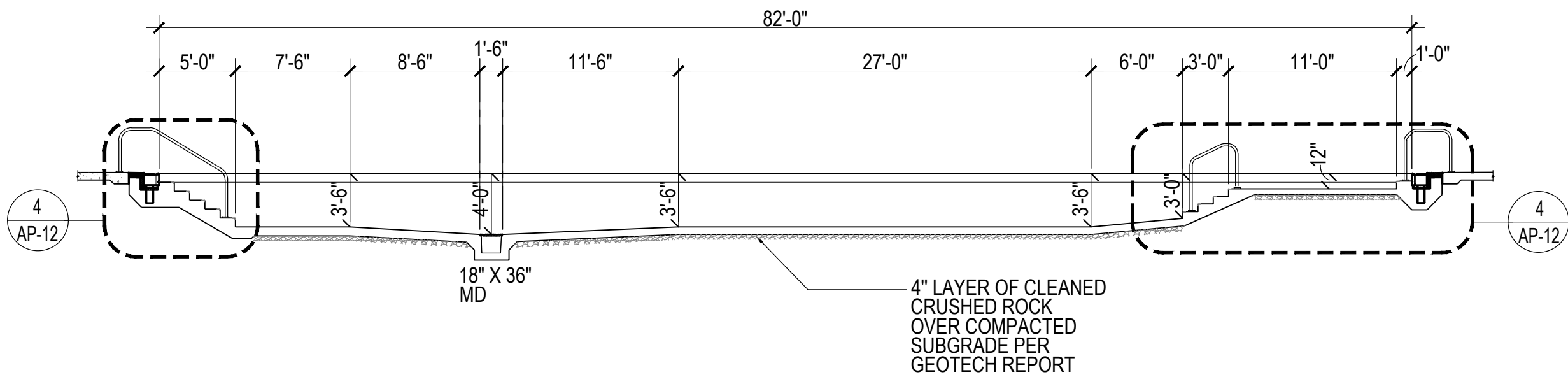
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AP-2.1

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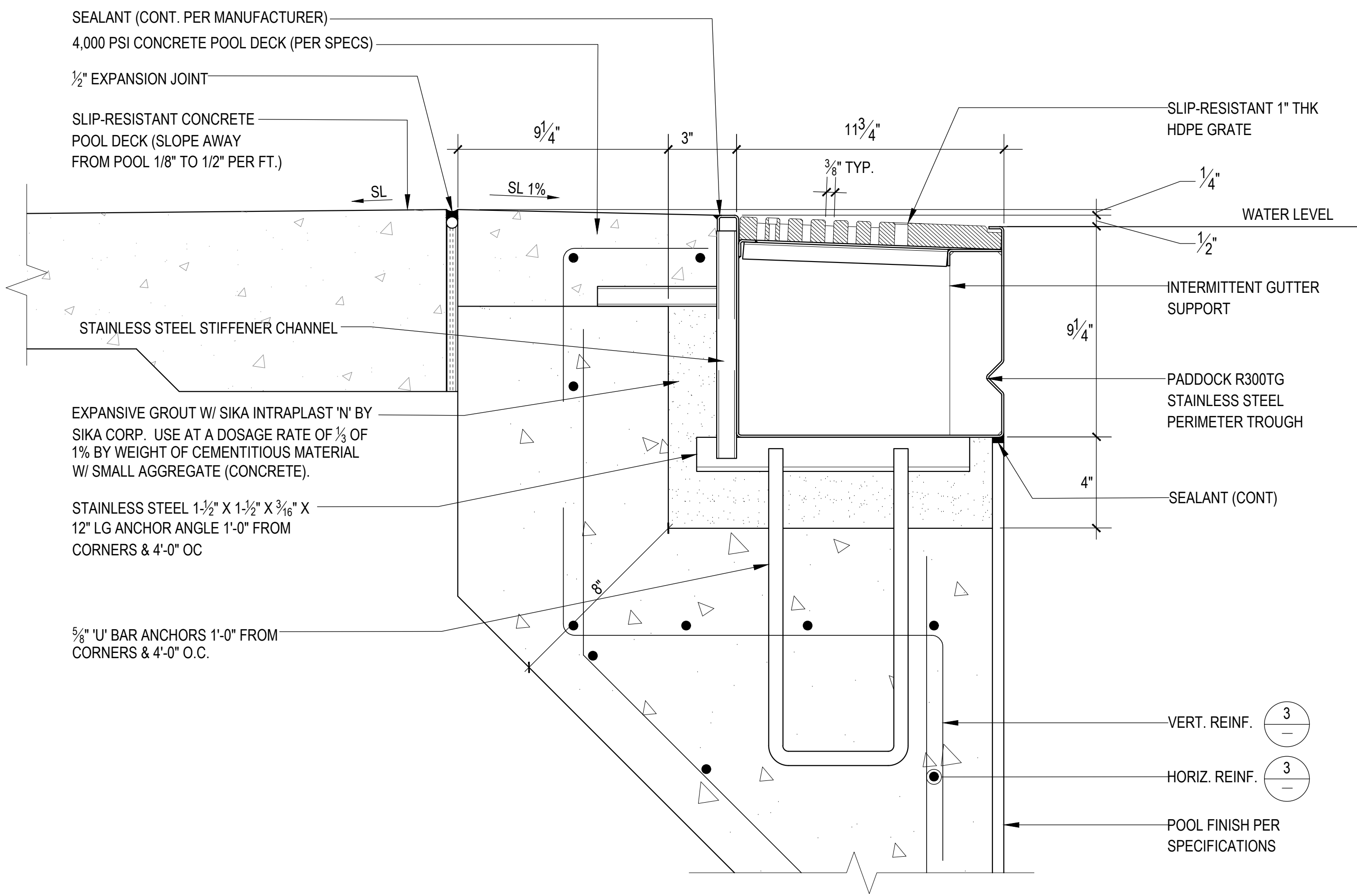
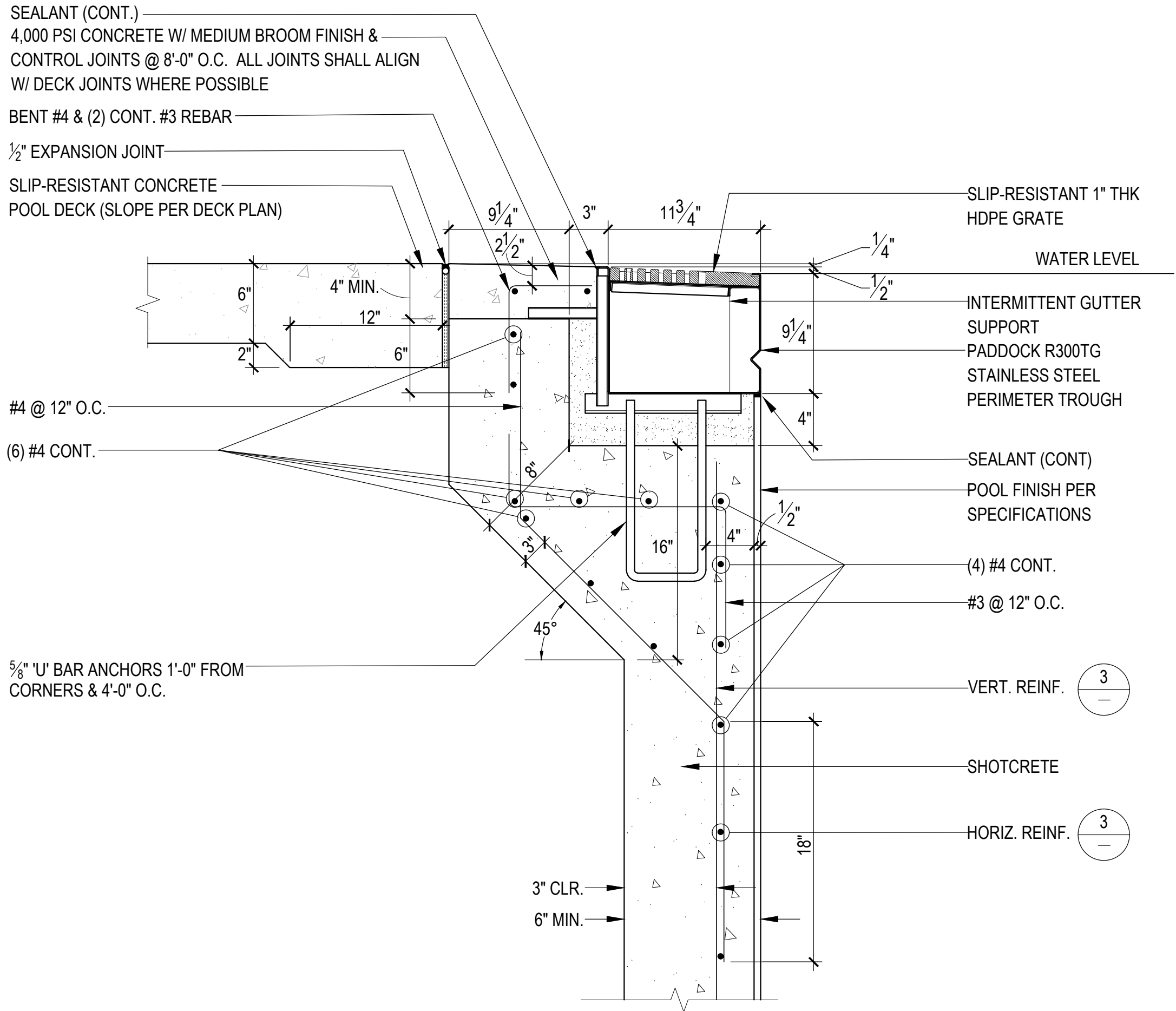




$$1/8"=1'-0"$$

$$1/8'' = 1'-0''$$

$$1/8'' = 1'-0''$$

Sheet No. AP-4





1

RIM FLOW GUTTER

1'-1/2"=1'-0"

2

RIM FLOW GUTTER/GRATE

3"=1'-0"

REINFORCEMENT TABLE

WATER DEPTH	"I"	"ds"	RADIUS	VERTICAL REINF.	HORIZONTAL REINF.	TRANSITION TO FLOOR REINF. BEYOND END RADIUS
0'-0" TO 3'-6"	6"	3"	6"	#4 @ 12" O.C.	#4 @ 12" O.C.	24"
3'-7" TO 5'-0"	7"	4"	6" TO 1'-6"	#4 @ 12" O.C.	#4 @ 12" O.C.	24"

CONCRETE NOTES: (FOR POOLS)

- THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS: POOL FLOOR, MATT SLAB AND CAISSONS = 4,000 PSI WITH MAX. WATER/CEMENT RATIO OF 0.50.
- CONTINUOUS INSPECTION BY AN APPROVED INSPECTOR IS REQUIRED FOR ALL CONCRETE PLACEMENT.
- ALL CEMENT USED SHALL CONFORM TO A.S.T.M. C-150, TYPE I OR II
- FINE AND COARSE AGGREGATE SHALL CONFORM TO A.S.T.M. C-33. MAXIMUM SIZE OF AGGREGATE TO BE 1".
- CONCRETE MIX DESIGNS SHALL BE BASED UPON ACI 318.
- CONCRETE SHALL BE TESTED AND INSPECTED PER IBC 1705.3 AND ACI 318.
- REMOVAL OF FORMS SHALL COMPLY WITH ACI 318.
- ALL REINFORCING SHALL BE ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED TO BE GRADE 40. MIN. LAPS SHALL BE 64 BAR DIA.

SHOTCRETE NOTES: (FOR POOLS)

- SHOTCRETE SHALL BE WET-MIX AND HAVE A COMPRESSIVE STRENGTH AT 28 DAYS: POOL FLOOR AND WALLS = 4,000 PSI. WITH MAX. WATER/CEMENT RATIO OF 0.40-0.50. SHOTCRETE MATERIALS, MIXTURE DESIGN, PROPORTIONING, PLACEMENT, CURING AND TESTING SHALL BE PER ACI 318.
- CONTINUOUS INSPECTION BY AN APPROVED INSPECTOR IS REQUIRED FOR ALL SHOTCRETE PLACEMENT PER ACI 318.
- ALL CEMENT USED SHALL CONFORM TO A.S.T.M. C-150, TYPE I OR II
- FINE AND COARSE AGGREGATE SHALL CONFORM TO A.S.T.M. C-33. MAXIMUM SIZE OF AGGREGATE TO BE 3/8".
- SHOTCRETE SHALL BE TESTED AND INSPECTED PER IBC 1705.3 AND ACI 318.
- REBAR SHALL BE SECURELY TIED IN PLACE PRIOR TO PLACING OF SHOTCRETE.
- ALL REINFORCEMENT WITHIN SHOTCRETE SHALL MAINTAIN THE LESSER OF 6 BAR DIA. AND 2-1/2" CLEAR NON-CONTACT SPLICES PER ACI 318.
- THE FILM OF LAITANCE WHICH FORMS ON THE SURFACE OF THE SHOTCRETE SHALL BE REMOVED WITHIN APPROXIMATELY TWO HOURS. AFTER APPLICATION BY BRUSHING WITH A STIFF BROOM. IF THIS IS NOT REMOVED WITHIN TWO HOURS, IT SHALL BE REMOVED BY THOROUGH WIRE BRUSHING OR SAND BLASTING. CONSTRUCTION JOINTS OVER EIGHT HOURS OLD SHALL BE THOROUGHLY CLEANED WITH AIR AND WATER PRIOR TO RECEIVING SHOTCRETE.
- ALL REINFORCING SHALL BE ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED TO BE GRADE 40. MIN LAPS SHALL BE 64 BAR DIA. REINFORCING SHALL CONFORM TO ACI 318.

NOTE: ALL INSPECTORS SHALL BE PROVIDED AND SCHEDULED BY CONTRACTOR. ALL REPORTS SHALL BE PROVIDED TO OWNER

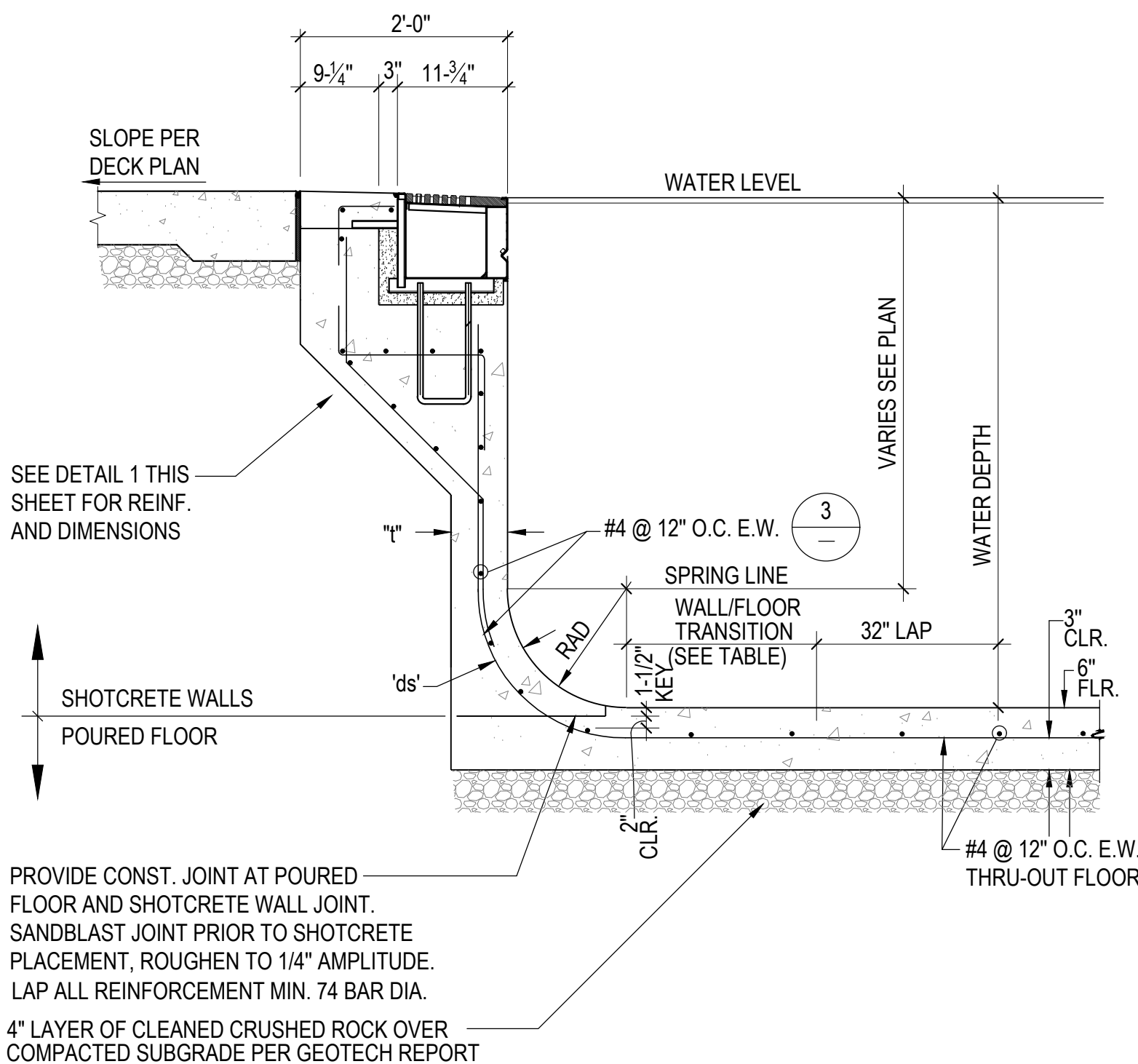
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REINFORCEMENT TABLE

4

POOL WALL 0'-0" TO 5'-0"

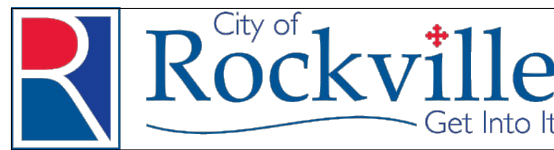
3/4" = 1'-0"



LSG LANDSCAPE  
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703-821-2045

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& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

PERMIT SET  
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Sheet No.

AP-5

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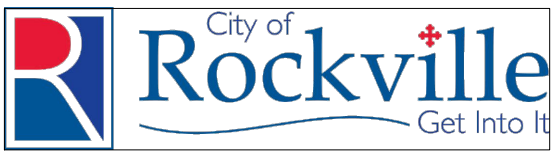




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CITY OF ROCKVILLE, MARYLAND

DETAILS

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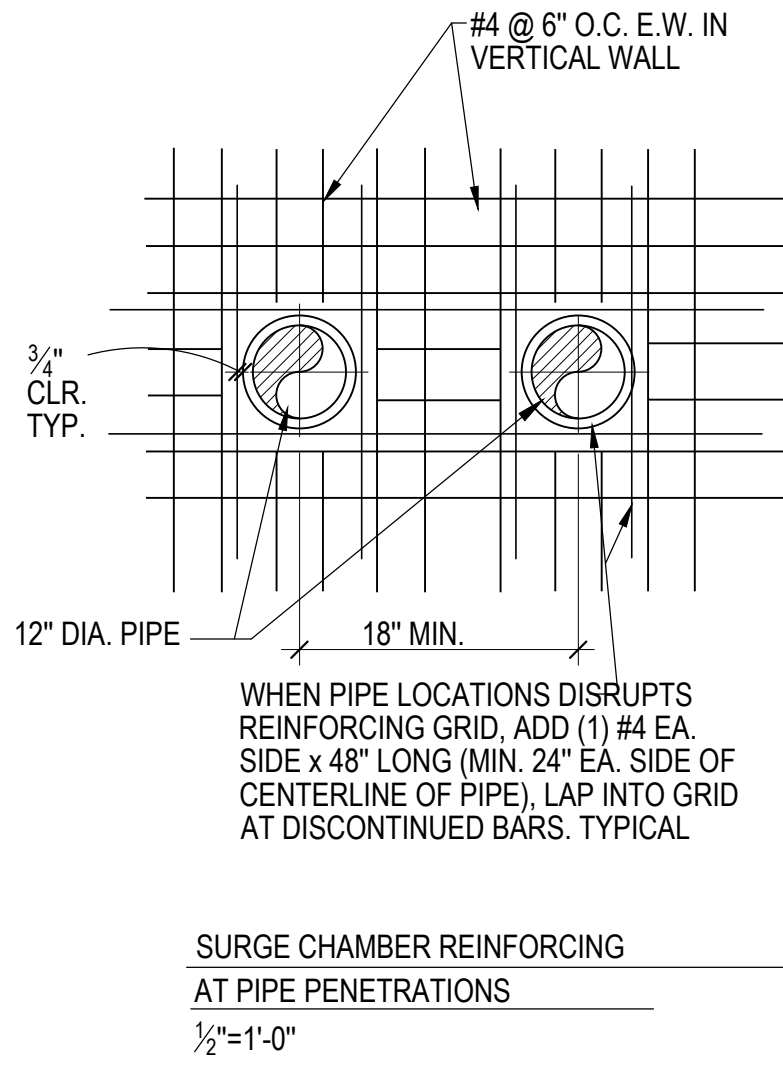
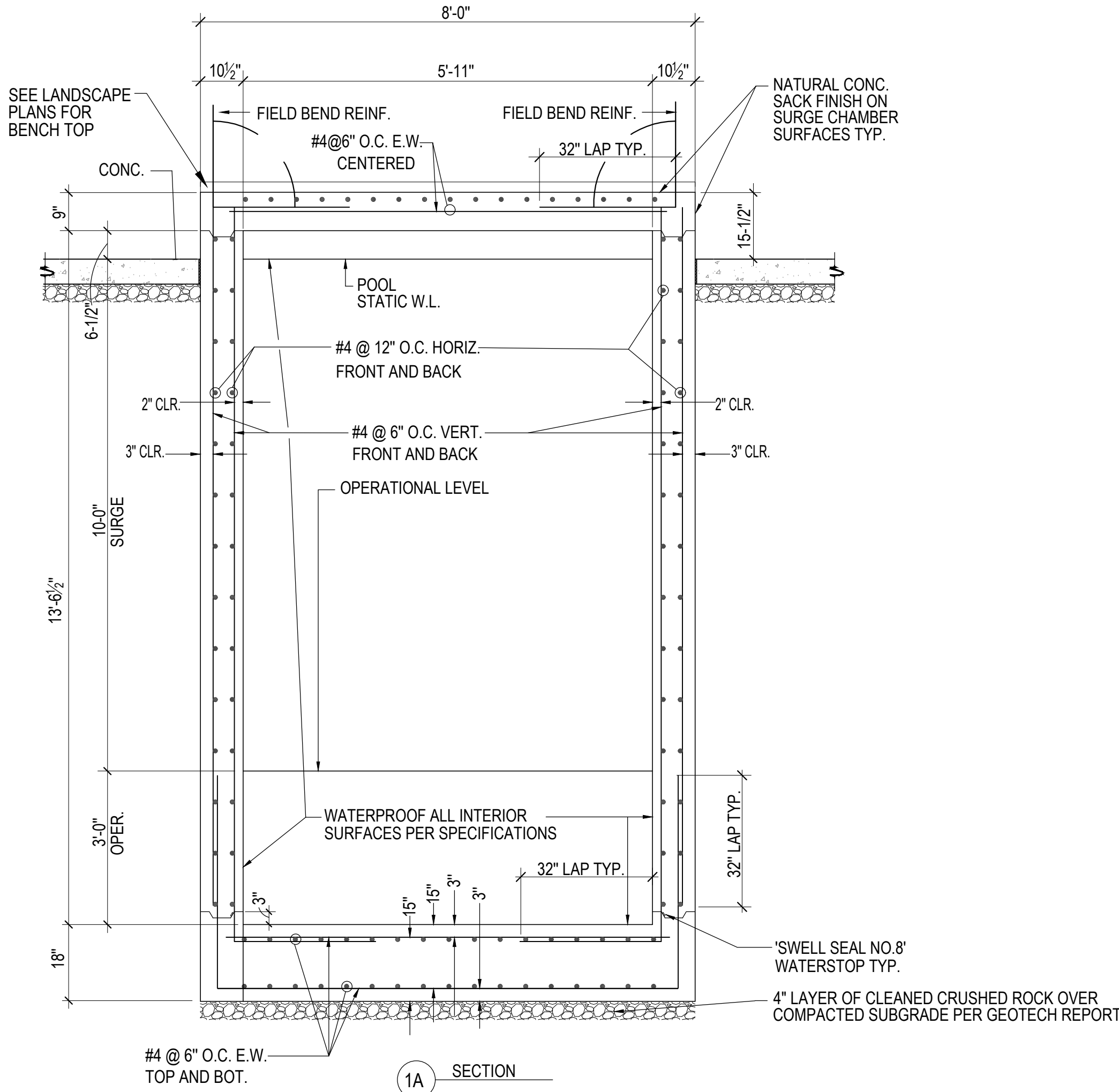
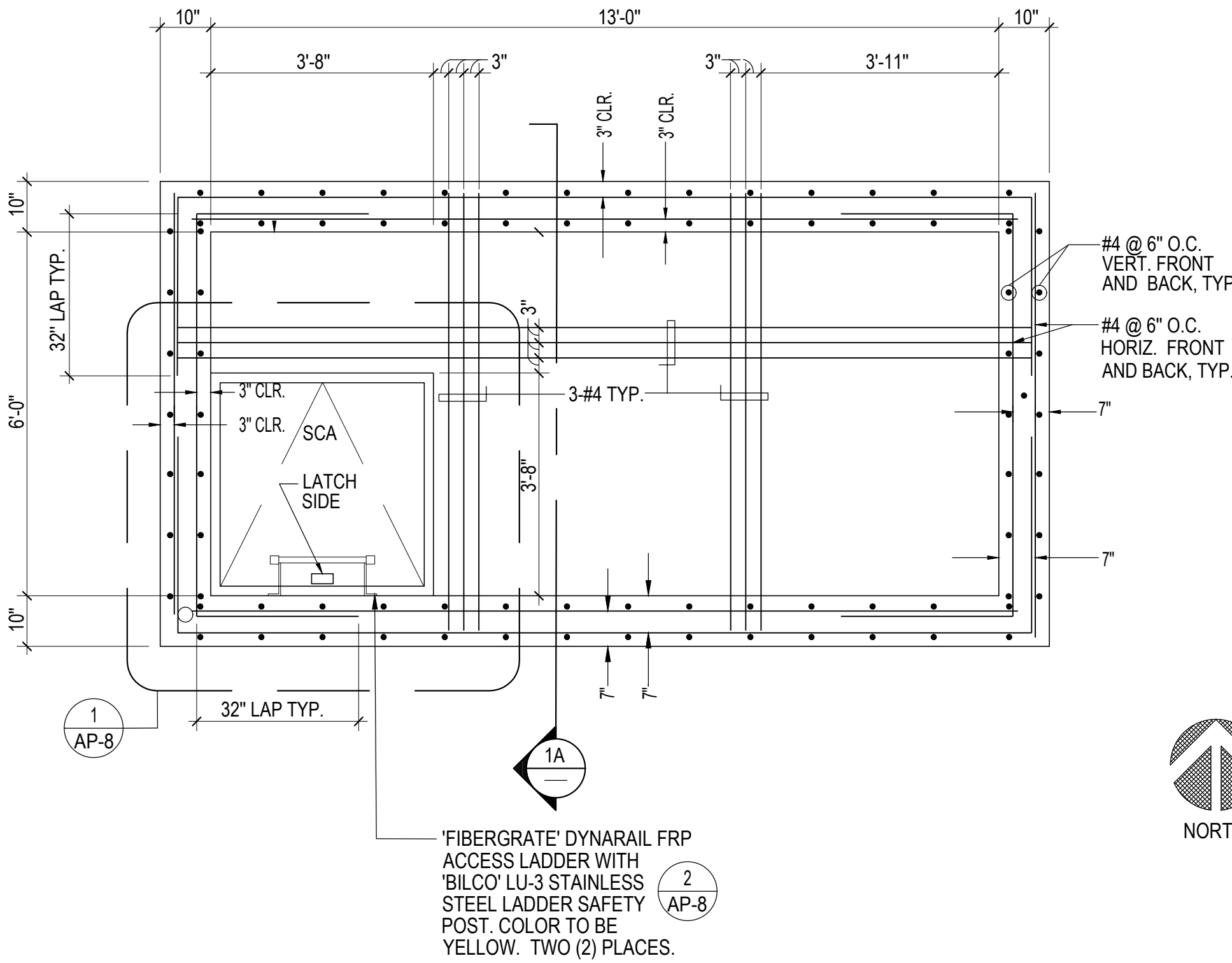
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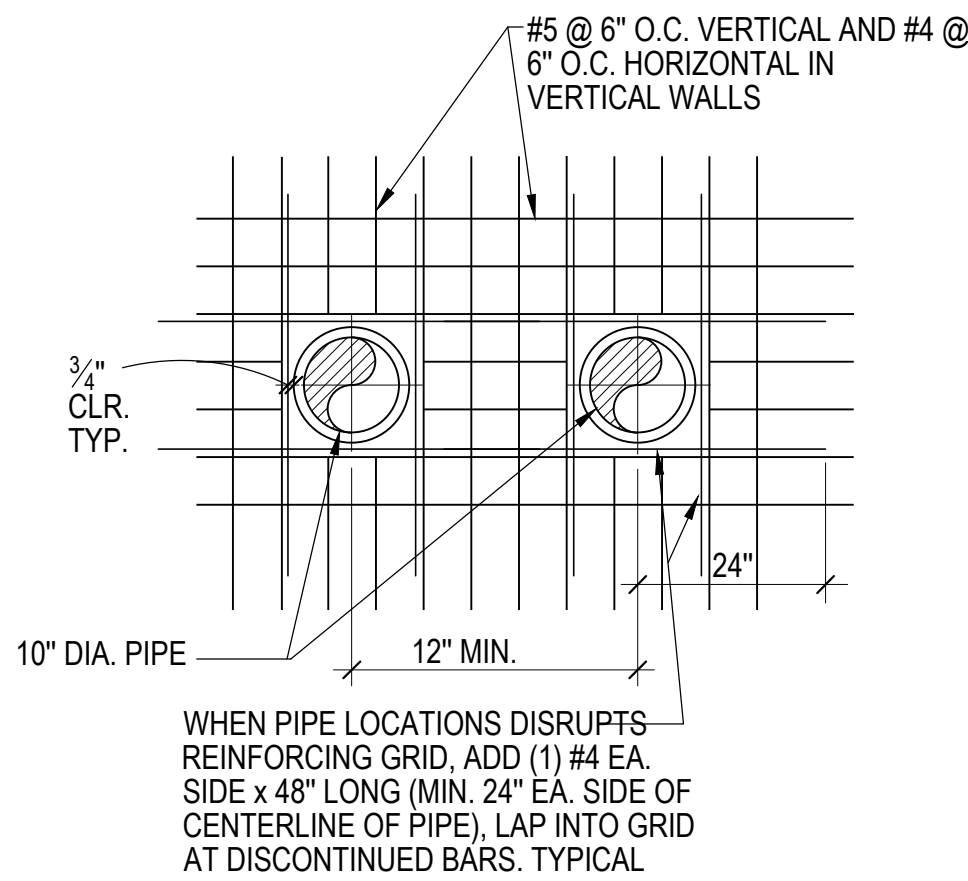
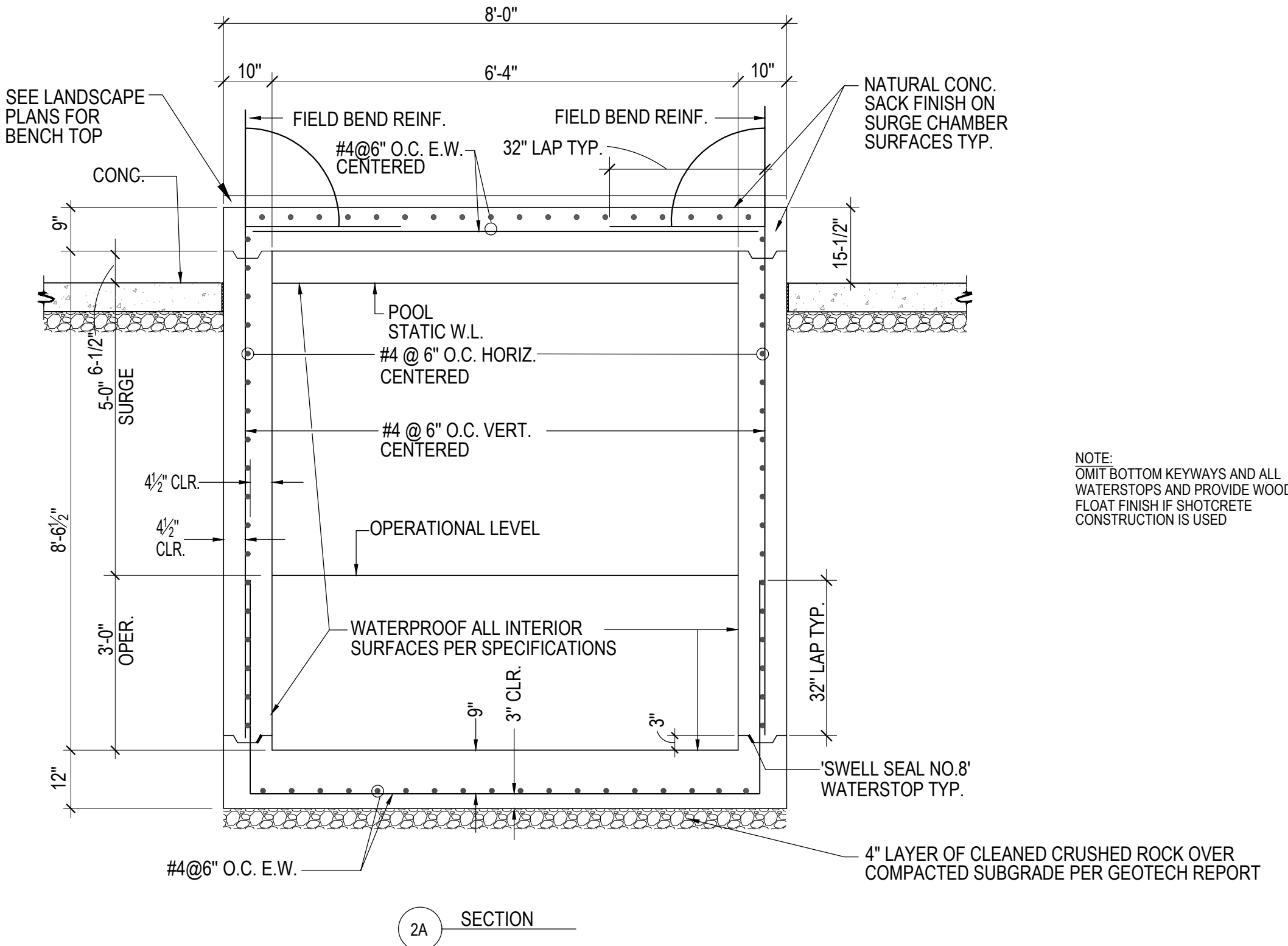
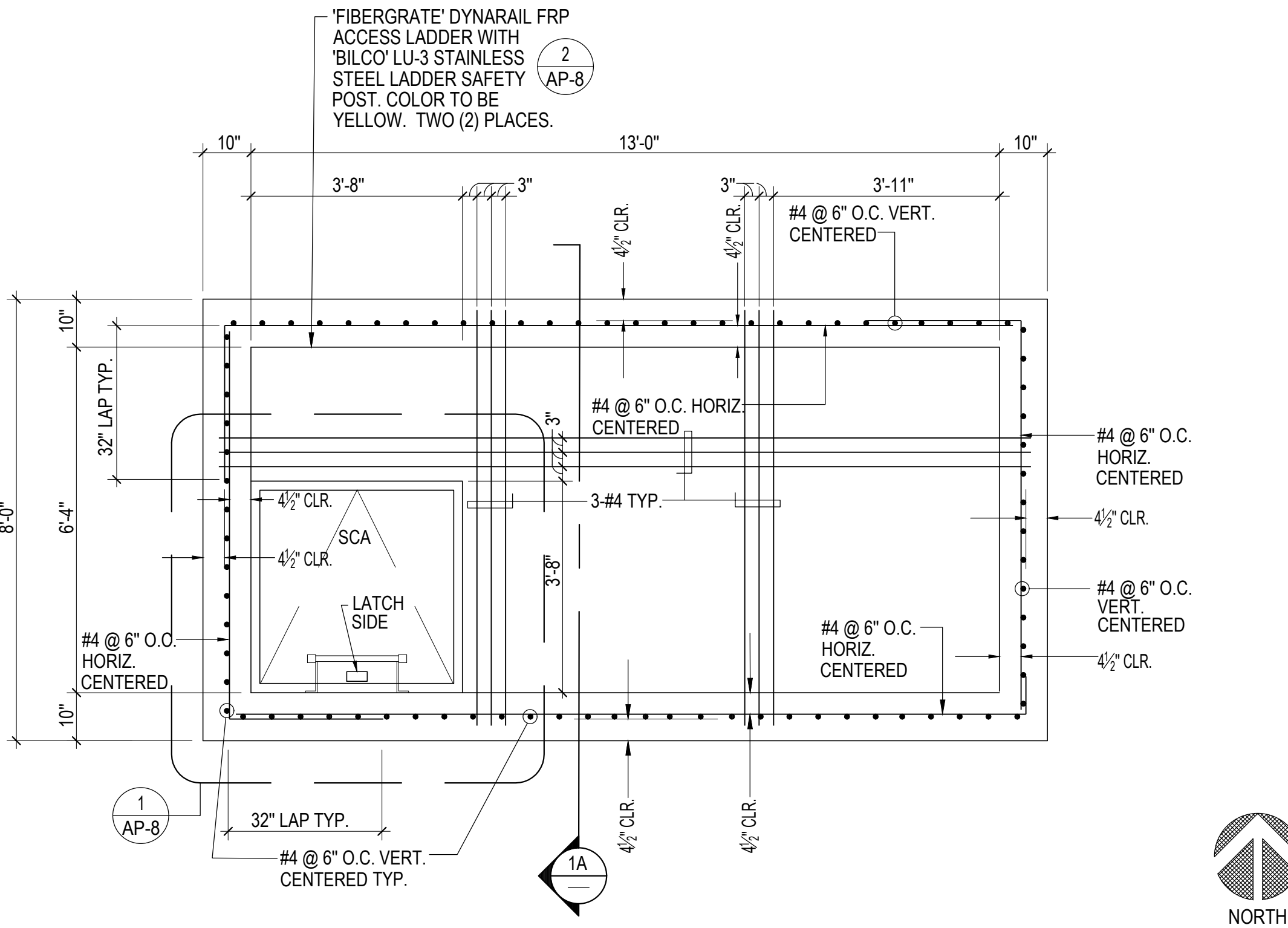
Sheet No. **AP-7**

NOTE:  
OMIT BOTTOM KEYWAYS  
AND ALL WATERSTOPS  
AND PROVIDE WOOD FLOAT  
FINISH IF SHOTCRETE  
CONSTRUCTION IS USED



ACTIVITY POOL SURGE CHAMBER

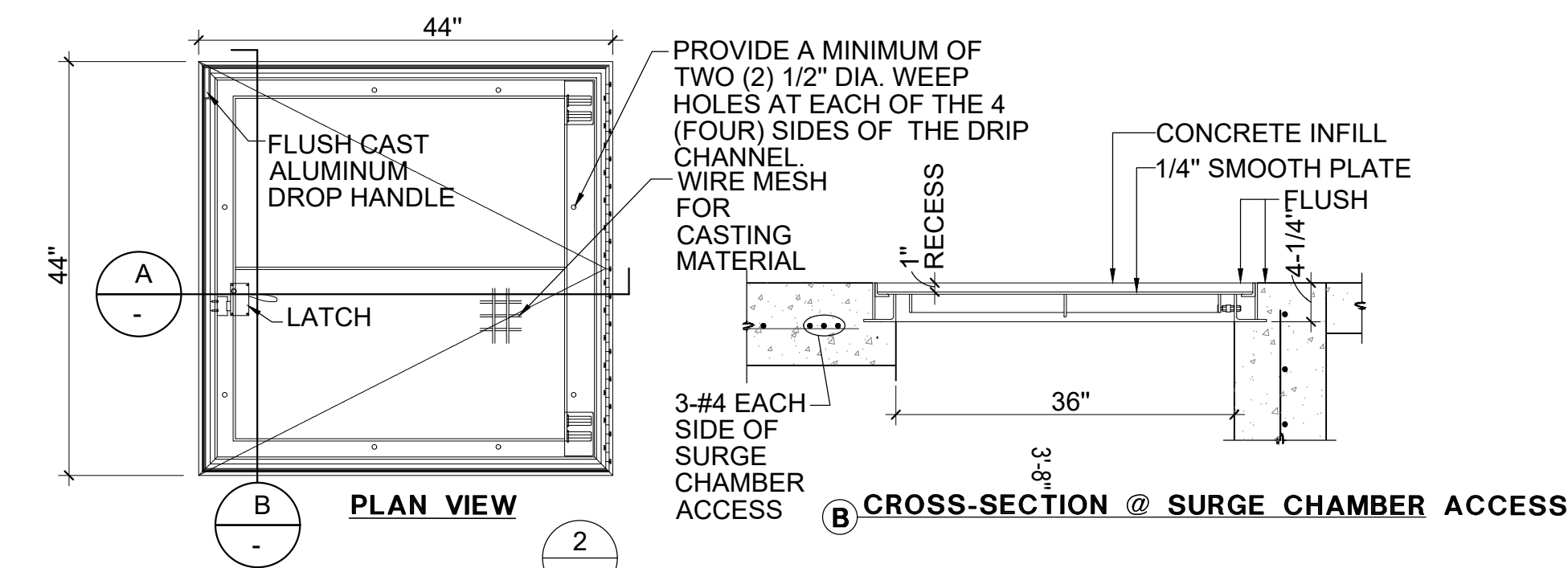
1/2" = 1'-0"



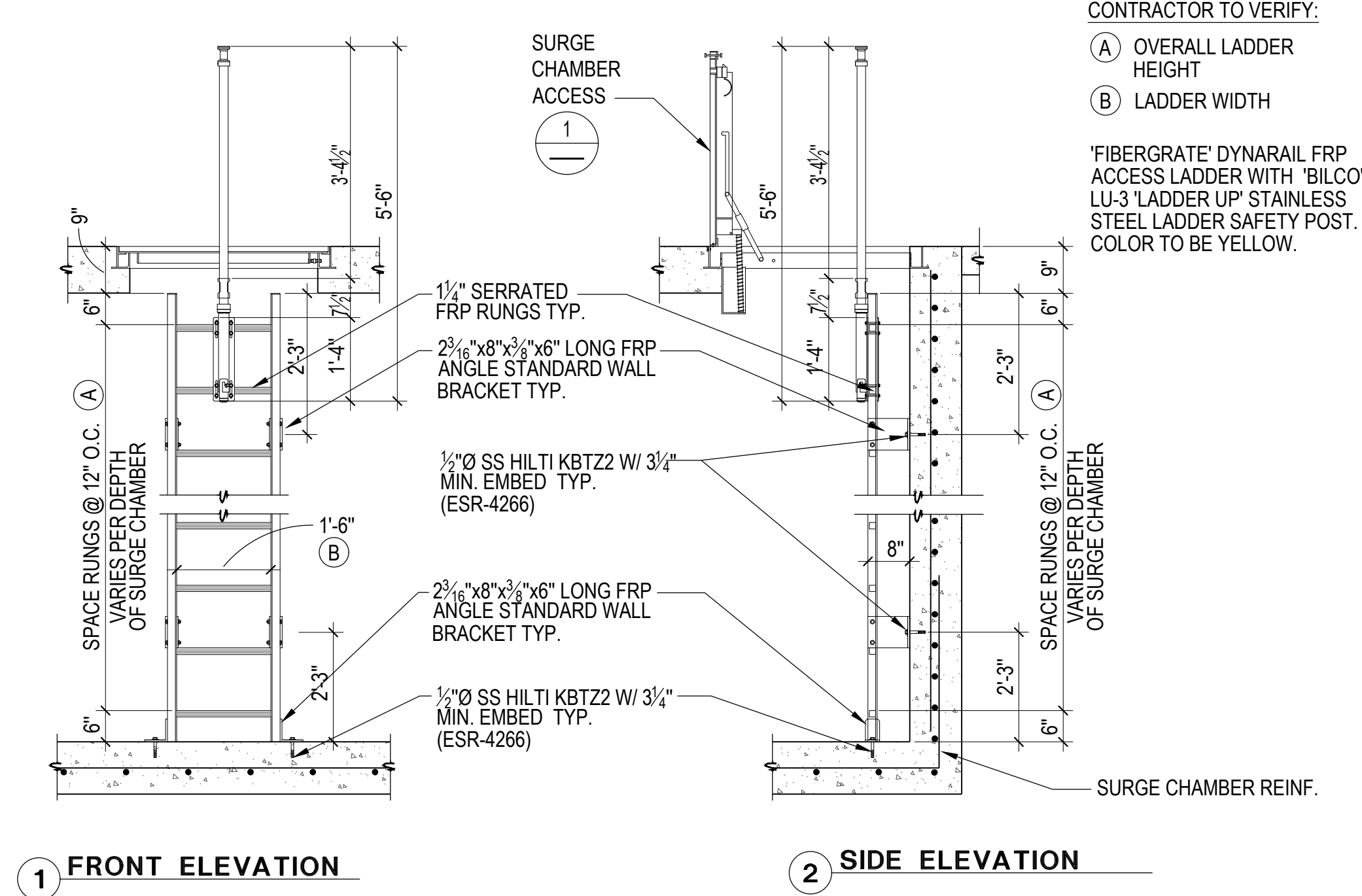
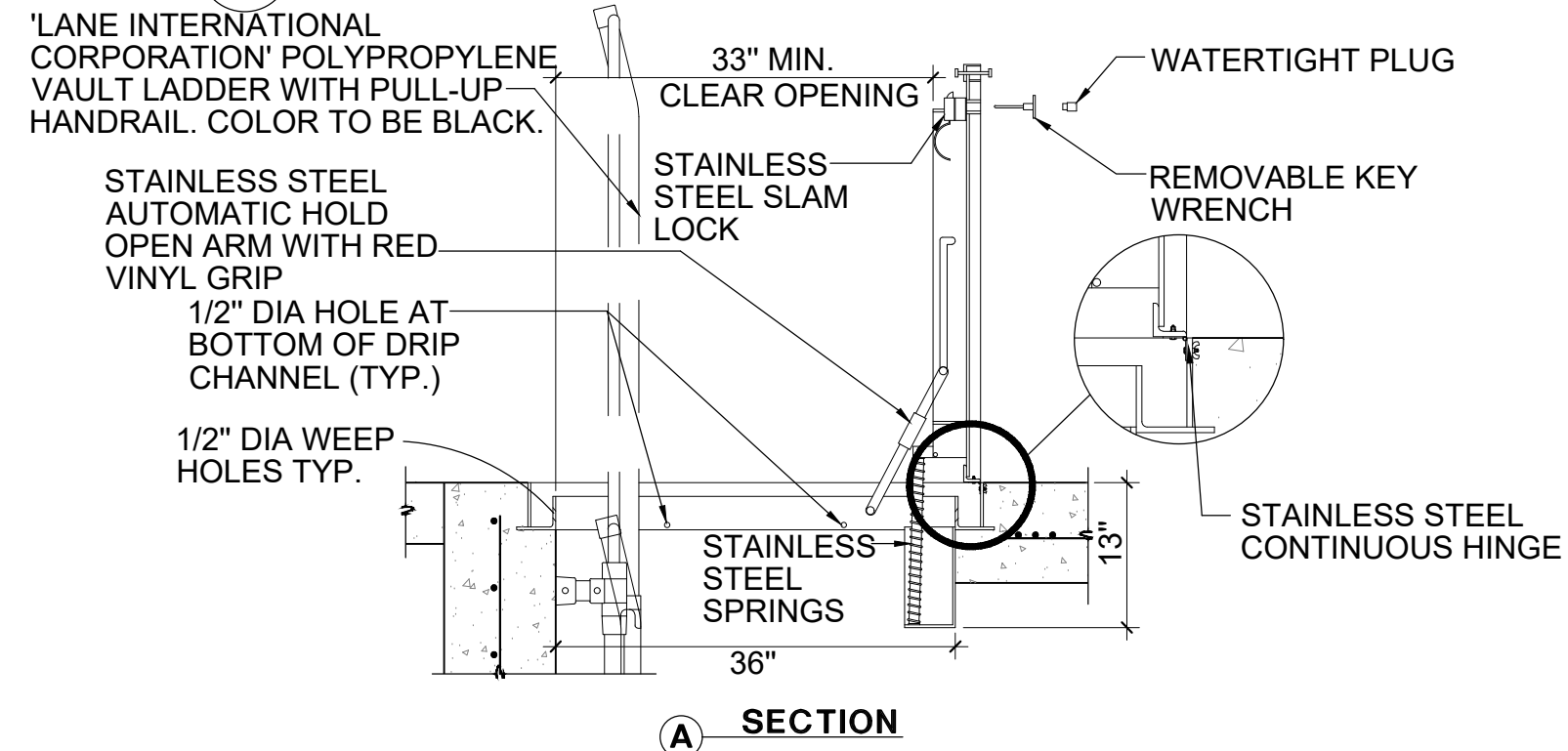
SWIMMING POOL SURGE CHAMBER

1/2" = 1'-0"





- NOTES:
1. MATERIAL: ALUMINUM WITH STAINLESS STEEL BOLTS, NUTS, SPRINGS, SLAM LOCK, HINGES & HOLD OPEN ARM.
  2. LOADING: 300 LBS. PER SQ. FOOT.
  3. BITUMINOUS COATING IS APPLIED TO AREA OF FRAME IN CONTACT WITH CONCRETE.
  4. HINGES TO BE LOCATED OPPOSITE LADDER RUNGS.
- MANHOLE SHALL BE U.S.F. FABRICATION INC. #R-TPS-300-36x36 ALUMINUM. 1(800)258-6873.



- CONTRACTOR TO VERIFY:
- A OVERALL LADDER HEIGHT
  - B LADDER WIDTH
- 'FIBERGRATE' DYNARAIL FRP ACCESS LADDER WITH 'BILCO' LU-3 'LADDER UP' STAINLESS STEEL LADDER SAFETY POST. COLOR TO BE YELLOW.

## LSG LANDSCAPE ARCHITECTURE

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DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

### DETAILS

## PERMIT SET NFC

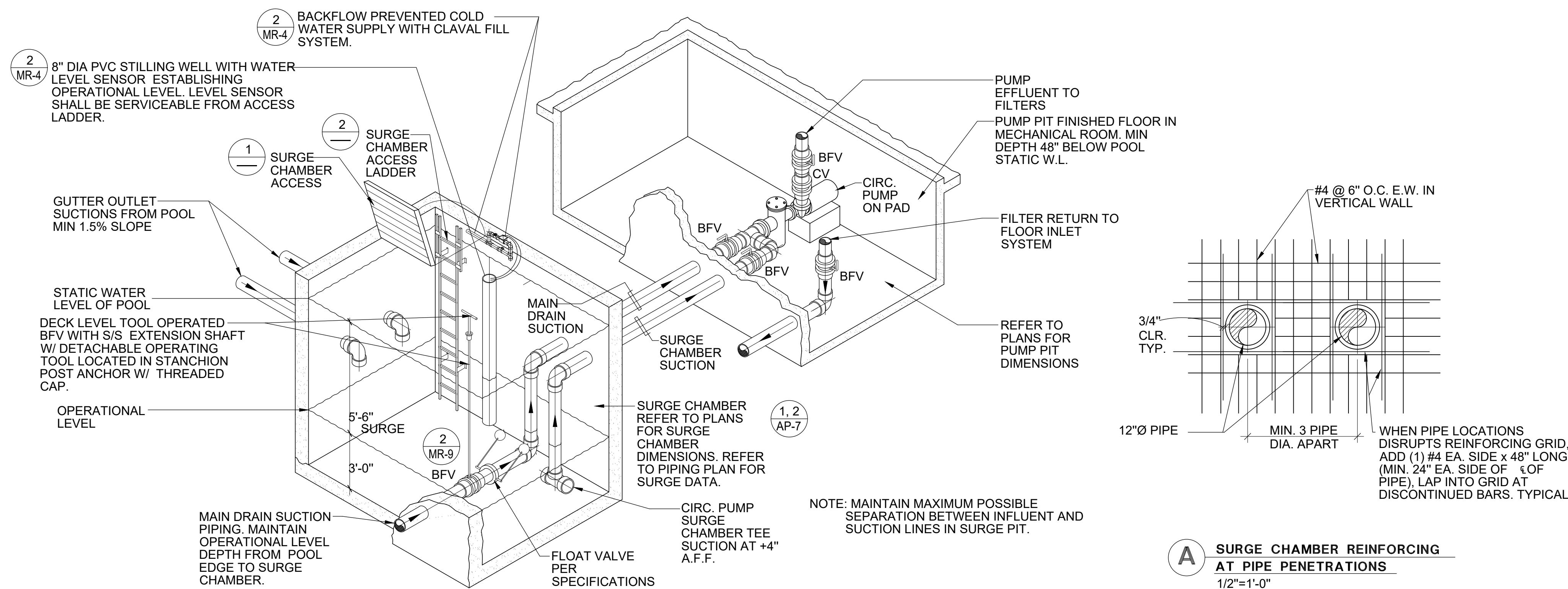
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Drawn By: AD, HW		
Checked By: AD		
Date: 5/19/2023		

Sheet No. AP-8

1 SURGE CHAMBER ACCESS COVER 3/4"=1'-0"

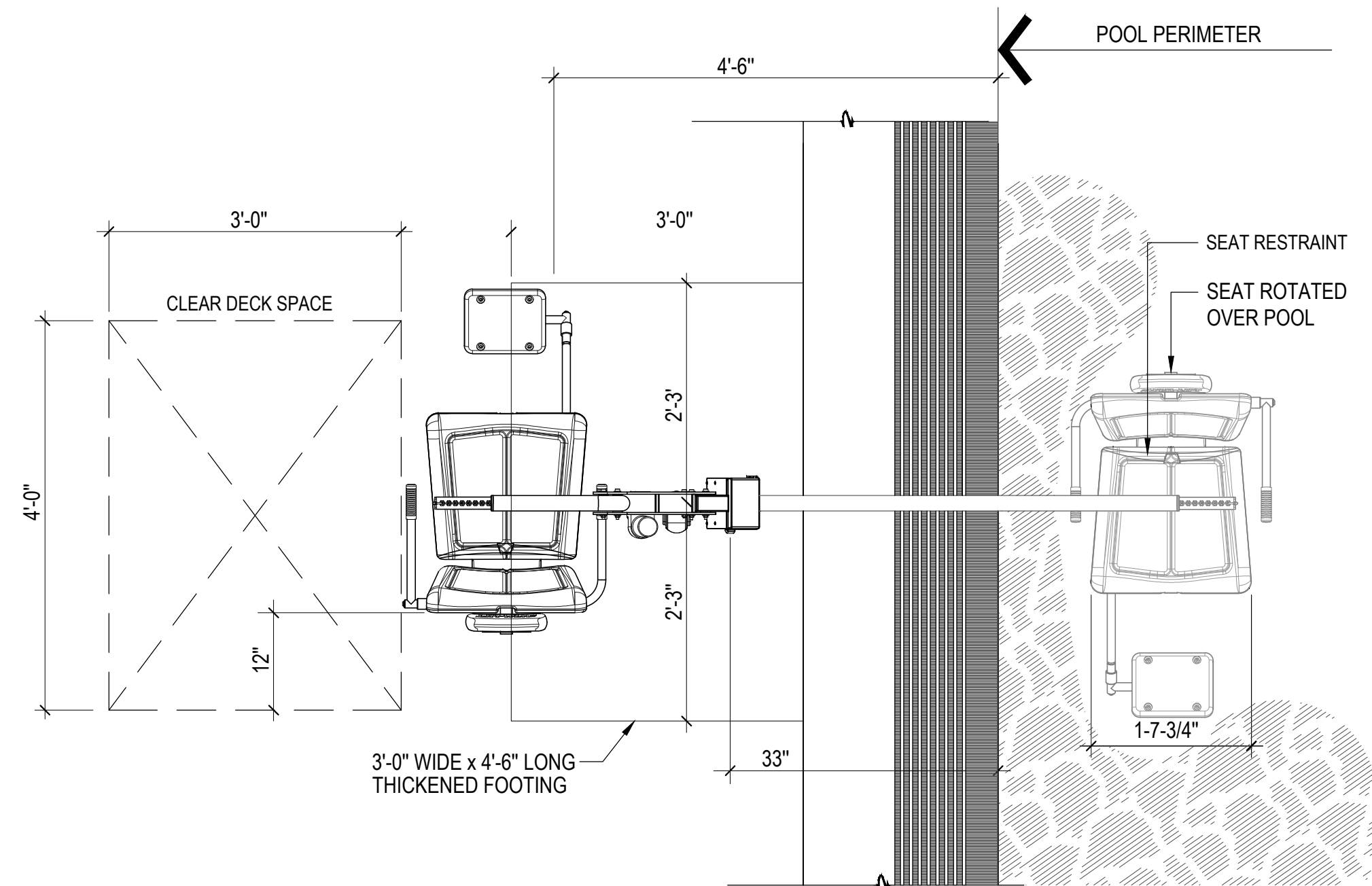
2 SURGE CHAMBER ACCESS LADDER 1/2"=1'-0"



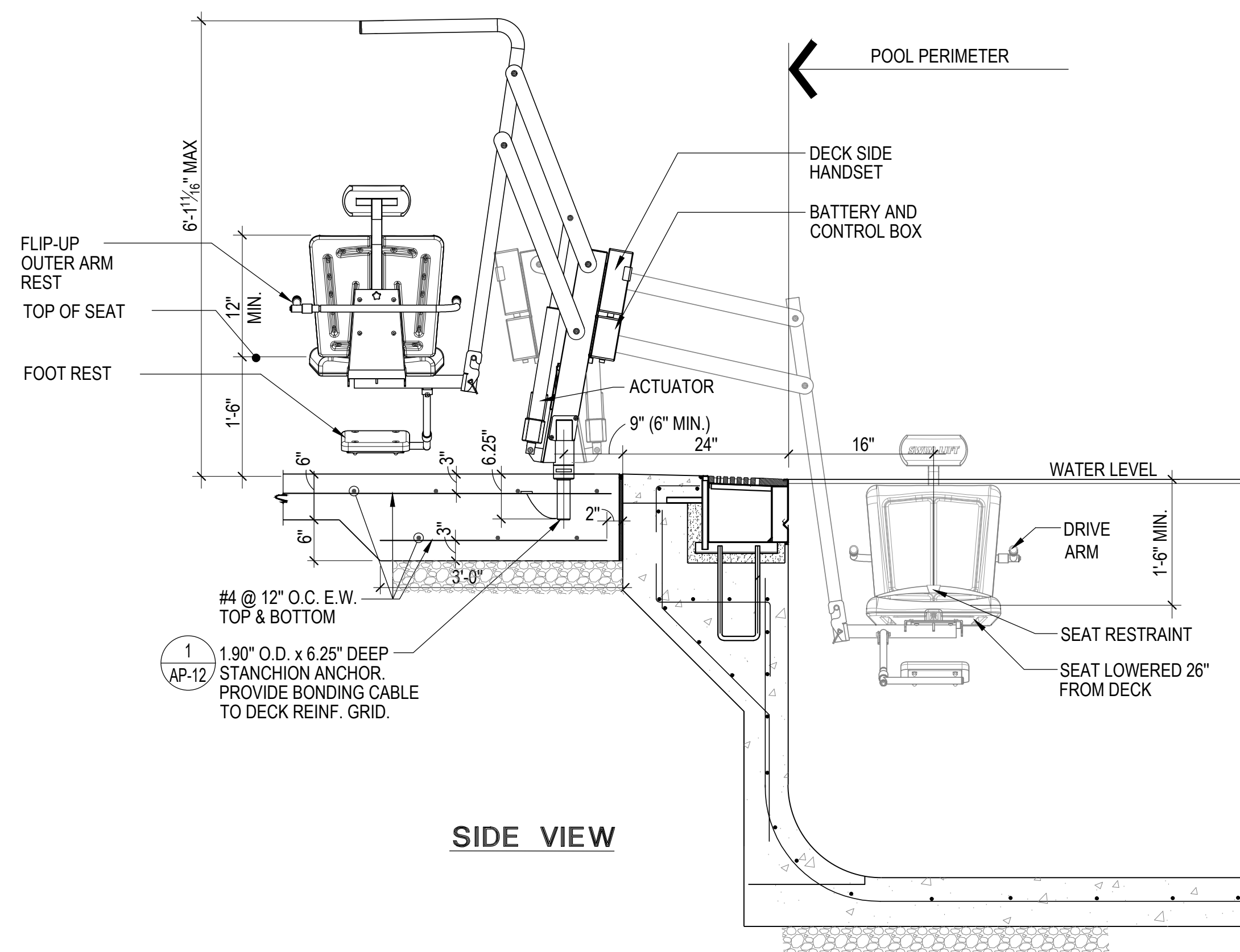
A SURGE CHAMBER REINFORCING AT PIPE PENETRATIONS 1/2"=1'-0"

3 SURGE CHAMBER PIPING SCHEMATIC NO SCALE





TOP VIEW



**SIDE VIEW**

NOTES:

1. 'PENTAIR' AQUATRAM 360 SWIMMING POOL ACCESS LIFT (350 lb. MIN. AND 400 lb. MAX. LIFTING CAPACITY)
2. GUSSET COVER PLATE TO BE ATTACHED REQUIRING A TOOL FOR REMOVAL.
3. CONTRACTOR SHALL PROVIDE COVER FOR LIFT 'PENTAIR' #11257, EXTRA BATTERY PACK 'PENTAIR' #11212, AND TRANSPORTER CART 'PENTAIR' #11253.
4. UTILIZE OUTLET IN LIFE GUARD OFFICE FOR DISABLED LIFT BATTERY CHARGE STATION.
5. POOL LIFT SHALL BE LOCATED WHERE THE WATER LEVEL IS AT LEAST 36" AND DOES NOT EXCEED 48" DEEP, UNLESS ENTIRE POOL IS GREATER THAN 48" DEEP. (IBC SECTION 11B-1009.2.1)
6. ON THE RAISED POSITION, THE CENTERLINE OF THE SEAT SHALL BE LOCATED OVER THE DECK AND 16" MINIMUM FROM THE EDGE OF THE POOL. THE DECK SURFACE BETWEEN THE CENTERLINE OF THE SEAT AND THE POOL EDGE SHALL HAVE A 2% MAX. SLOPE. (IBC SECTION 11B-1009.2.2)
7. CLEAR DECK SPACE SHALL BE PROVIDED ON SIDE OF SEAT OPPOSITE THE WATER PARALLEL TO THE WATER 36" wide x 48" MINIMUM FROM A LINE LOCATED 12" BEHIND THE REAR EDGE OF THE SEAT. THE CLEAR SPACE SHALL HAVE A 2% MAX. SLOPE. (IBC SECTION 11B-1009.2.3)
8. THE HEIGHT OF THE LIFT SEAT SHALL BE DESIGNED TO ALLOW A STOP AT 17" MIN. TO 19" MAX. MEASURED FROM THE DECK TO THE TOP OF THE SEAT SURFACE WHEN IN THE RAISED POSITION. (IBC SECTION 11B-1009.2.4)
9. THE SEAT SHALL BE RIGID AND 17" MIN. TO 19" MAX. WIDE. THE LIFT SEAT SHALL HAVE A BACK SUPPORT 12" MIN. TALL. (IBC SECTION 11B-1009.2.4)
10. FOOTRESTS SHALL BE PROVIDED, EXCEPT FOR SPA LIFTS, AND SHALL MOVE WITH THE SEAT. LIFT SHALL HAVE TWO ARMRESTS. THE ARMREST POSITIONED OPPOSITE THE WATER SHALL BE REMOVABLE OR SHALL FOLD CLEAR OF THE SEAT WHEN THE SEAT IS IN THE RAISED POSITION. (IBC SECTION 11B-1009.2.6)
11. THE LIFT SHALL BE CAPABLE OF UNASSISTED OPERATION FROM BOTH THE DECK AND WATER LEVELS. CONTROLS AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL BE UNOBSTRUCTED WHEN THE LIFT IS IN USE (IBC SECTION 11B-309.4). LIFT MUST BE STABLE AND NOT PERMIT UNINTENDED MOVEMENT WHEN A PERSON IS GETTING INTO OR OUT OF THE SEAT. (IBC SECTION 11B-1009.2.7)
12. THE LIFT SHALL BE DESIGNED SO THAT THE SEAT WILL SUBMERGE TO A WATER DEPTH OF 18" MIN. BELOW THE STATIONARY WATER LEVEL. (IBC SECTION 11B-1009.2.8)
13. LIFT SEAT MUST HAVE AN OCCUPANT RESTRAINT FOR USE BY THE OCCUPANT OF THE SEAT AND THE RESTRAINT MUST MEET THE STANDARDS FOR OPERABLE CONTROLS IN COMPLIANCE WITH IBC SECTION 11B-1009.2.4 AND SECTION 11B-309.
14. MUST COMPLY WITH US ACCESS BOARD REQUIREMENTS FOR POOL LIFT.
15. NO COMPLIANT.

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DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## DETAILS

# PERMIT SET

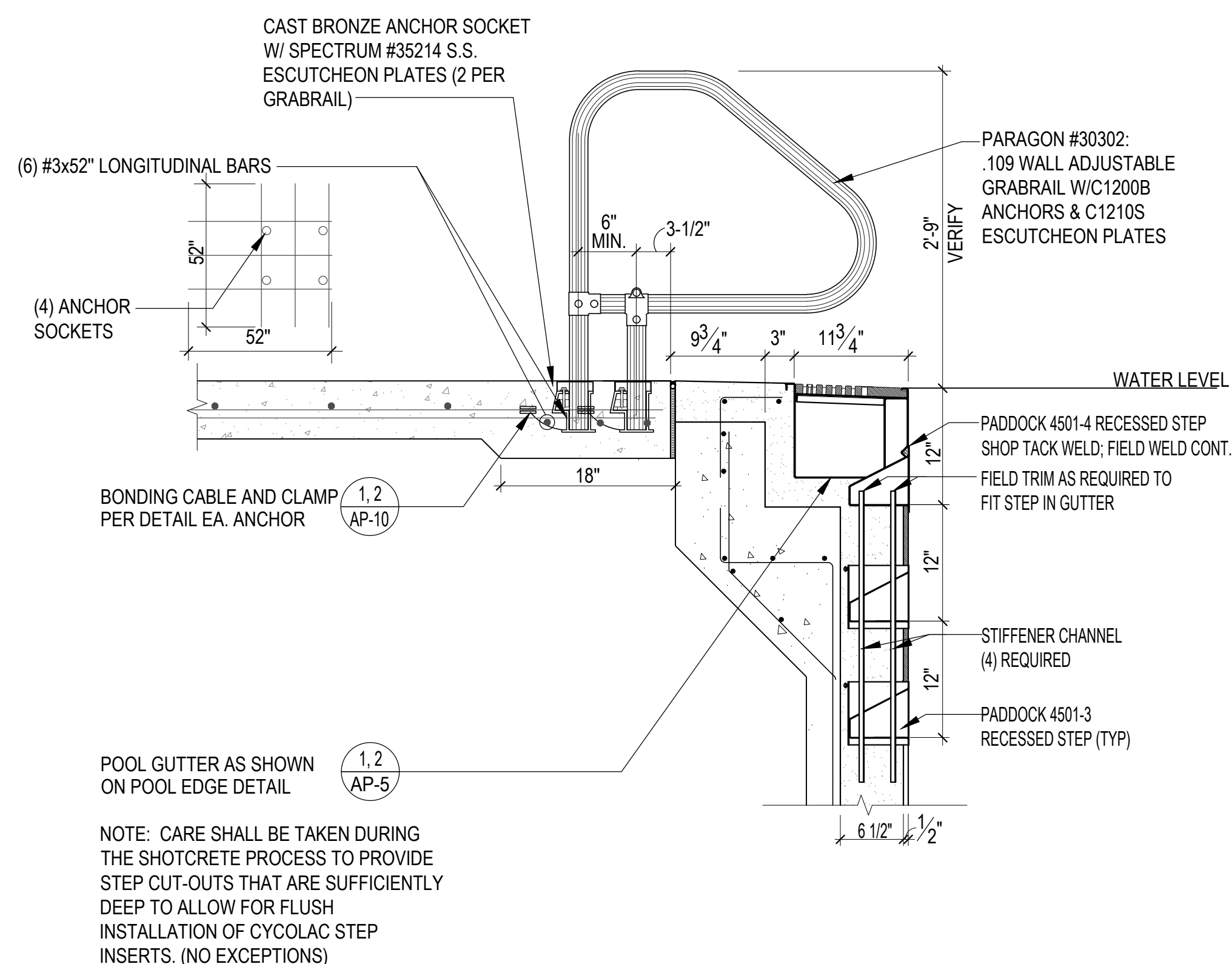
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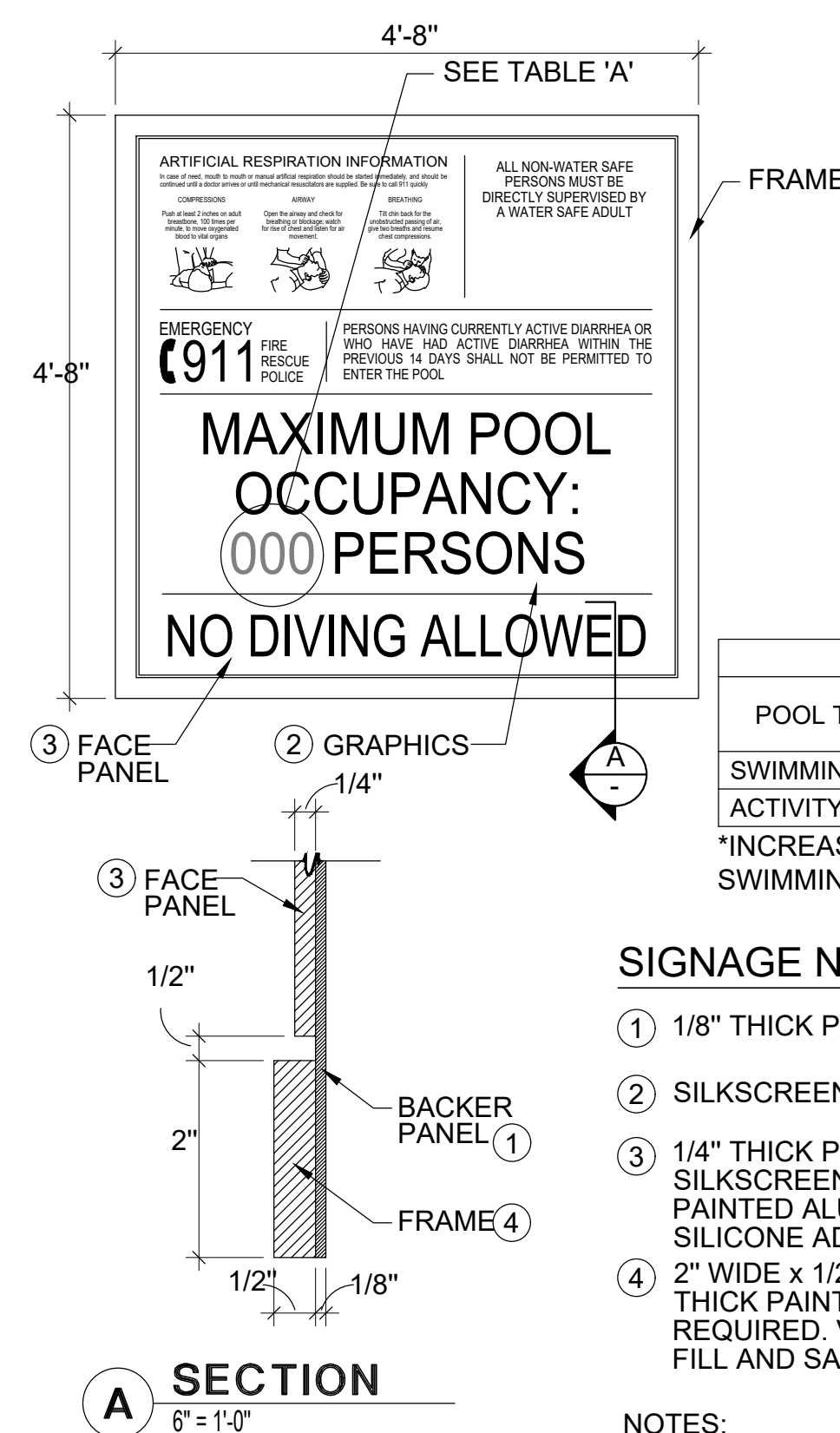
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Date:	5/19/2023	

Sheet No. AP-9

## ACCESSIBLE LIFT

$$3/4'' = 1'-0''$$


## GRAB RAIL DETAIL

$$1'' = 1' - 0''$$


REQUIRED POOL SIGNAGE:

1. ARTIFICIAL RESPIRATION DIAGRAMS (POSTED WITHIN ENCLOSURE AND CLEARLY VISIBLE).
2. EMERGENCY PHONE NUMBERS (POSTED CLEARLY VISIBLE TO PATRONS).
3. OCCUPANCY LOAD SIGN FOR: SWIMMING POOL (LETTERS 4" HIGH PLACED IN PLAIN VIEW NEAR ENTRANCE)
4. "NO DIVING ALLOWED" FOR POOLS OF MAX. DEPTH LESS THAN 6'-0" (LETTERS 4" HIGH PLACED IN PLAIN VIEW NEAR ENTRANCE)

TABLE 'A'					
POOL TYPE	POOL AREA	SHALLOW AREA	DEEP AREA	OCCUPANCY	CRITERIA
SWIMMING POOL	3,752	3,174 / 8 = 396	578 / 10 = 58	454*	TABLE 403.
ACTIVITY POOL	9,762	9,762 / 8 = 1,220	-	1,220	TABLE 608.

SIGNAGE NOTES AND SPECIFICATIONS:

- ① 1/8" THICK PAINTED ALUMINUM BACKER PANEL.
- ② SILKSCREENED COPY/GRAPHICS WITH SATIN CLEAR COAT.
- ③ 1/4" THICK PAINTED ALUMINUM FACE PANEL WITH SILKSCREENED COPY/GRAPHICS. ATTACH TO 1/8" THICK PAINTED ALUMINUM BACKER PANEL USING 'VHB' TAPE AND SILICONE ADHESIVE.
- ④ 2" WIDE x 1/2" THICK PAINTED ALUMINUM SIGN FRAME ADHERED TO 1/8" THICK PAINTED ALUMINUM BACKER USING LORDS' ADHESIVE AS REQUIRED. VERTICAL SECTIONS OF FRAME TO BE RECTANGULAR TUBE FILL AND SAND SEAM ALONG EDGE AND FACE PRIOR TO PAINTING.

NOTES:

1. COORDINATE SIGNAGE PLACEMENT AND COLOR SCHEME WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF PROPOSED SIGNAGE FOR REVIEW.

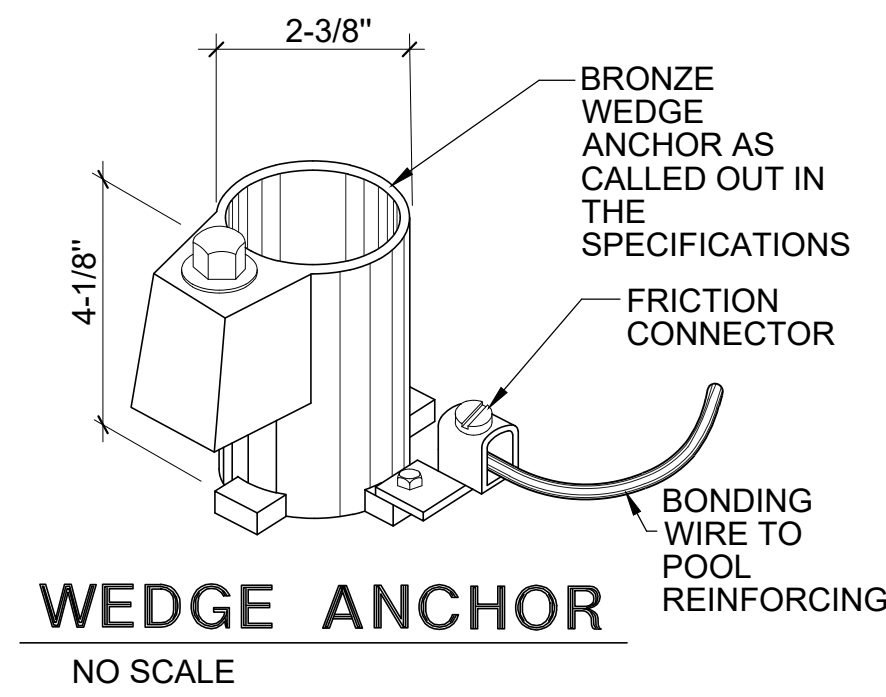
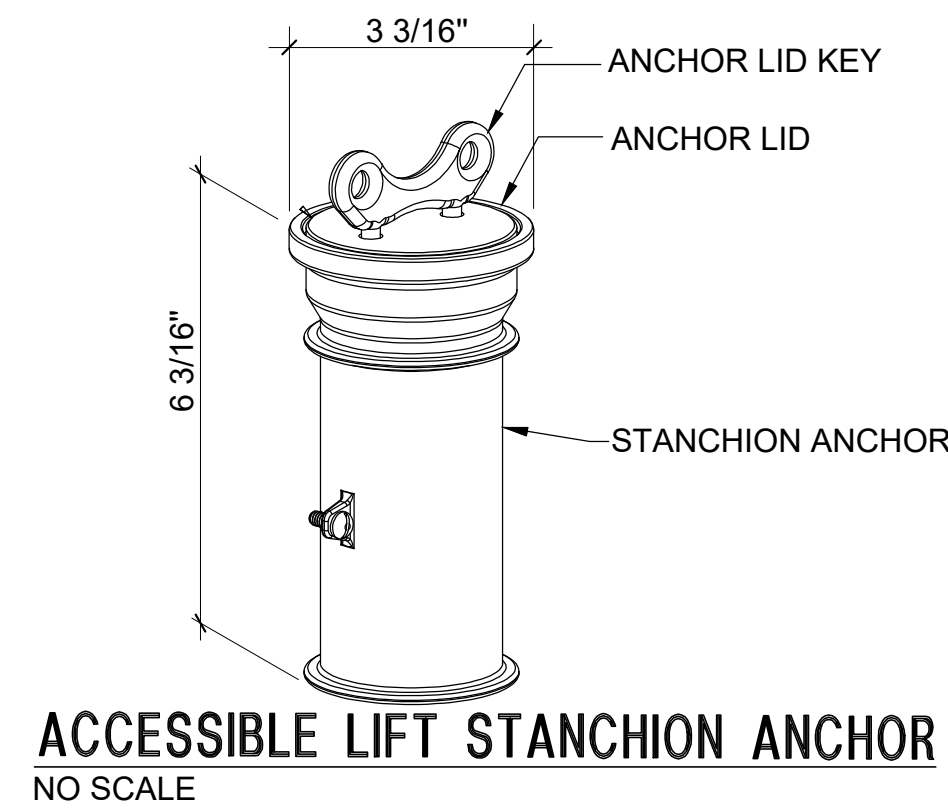
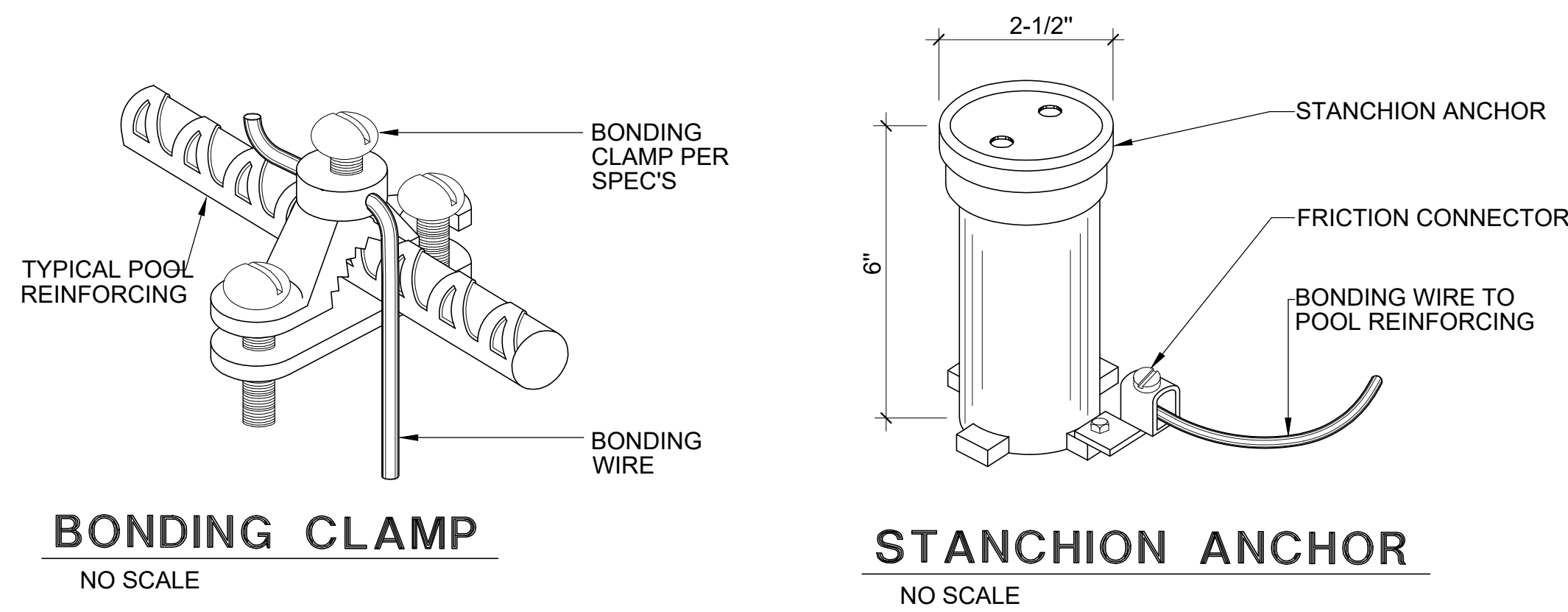
## POOL SIGNAGE DETAIL

$$3/4" = 1' - 0"$$

REQUIRED SIGNAGE:

1. ALL SIGNS SHALL HAVE CLEARLY LEGIBLE LETTERS OR NUMBERS NOT LESS THAN 4 INCHES HIGH, UNLESS OTHERWISE NOTED; AFFIXED TO A WALL, POLE, GATE, OR SIMILAR PERMANENT STRUCTURE IN A LOCATION VISIBLE TO ALL POOL USERS.
    - A. POOL USER CAPACITY SIGN: A SIGN SHALL INDICATE THE MAXIMUM NUMBER OF POOL USERS PERMITTED FOR EACH POOL.
    - B. NO DIVING SIGN: SIGNS SHALL BE POSTED IN CONSPICUOUS PLACES AND SHALL STATE 'NO DIVING' AT POOLS WITH A MAXIMUM WATER DEPTH OF 6 FEET OR LESS.
    - C. ARTIFICIAL RESPIRATION AND CPR SIGN: AN ILLUSTRATED DIAGRAM WITH TEXT AT LEAST 1/4 INCH HIGH OF ARTIFICIAL RESPIRATION AND CPR PROCEDURES SHALL BE POSTED.
    - D. EMERGENCY SIGN: THE EMERGENCY TELEPHONE NUMBER 911, THE NUMBER OF THE NEAREST EMERGENCY SERVICES AND THE NAME AND STREET ADDRESS OF THE POOL FACILITY SHALL BE POSTED.
    - E. KEEP CLOSED: A SIGN SHALL BE POSTED ON THE EXTERIOR SIDE OF GATES AND DOORS LEADING INTO THE POOL ENCLOSURE AREA STATING, "KEEP CLOSED."
    - F. DIARRHEA: A SIGN IN LETTERS AT LEAST 1 INCH HIGH AND IN A LANGUAGE OR DIAGRAM THAT IS CLEARLY STATED SHALL BE POSTED AT THE ENTRANCE AREA OF A PUBLIC POOL WHICH STATES THAT PERSONS HAVING CURRENTLY ACTIVE DIARRHEA OR WHO HAVE HAD ACTIVE DIARRHEA WITHIN THE PREVIOUS 14 DAYS SHALL NOT BE ALLOWED TO ENTER THE POOL WATER.
  2. DIRECTION OF FLOW SIGNAGE AND LABELS.
    - A. THE DIRECTION OF FLOW FOR THE RECIRCULATION EQUIPMENT SHALL BE LABELED CLEARLY WITH DIRECTIONAL SYMBOLS SUCH AS ARROWS ON ALL PIPING IN THE EQUIPMENT AREA.
    - B. WHERE THE RECIRCULATION EQUIPMENT FOR MORE THAN ONE POOL IS LOCATED ON SITE, THE EQUIPMENT SHALL BE MARKED AS TO WHICH POOL THE SYSTEM SERVES.
    - C. VALVES AND PLUMBING LINES SHALL BE LABELED CLEARLY WITH THE SOURCE OR DESTINATION DESCRIPTIONS.
  3. OWNER TO APPROVE ALL SIGNAGE TEXT AND DESIGN PRIOR TO INSTALLATION.

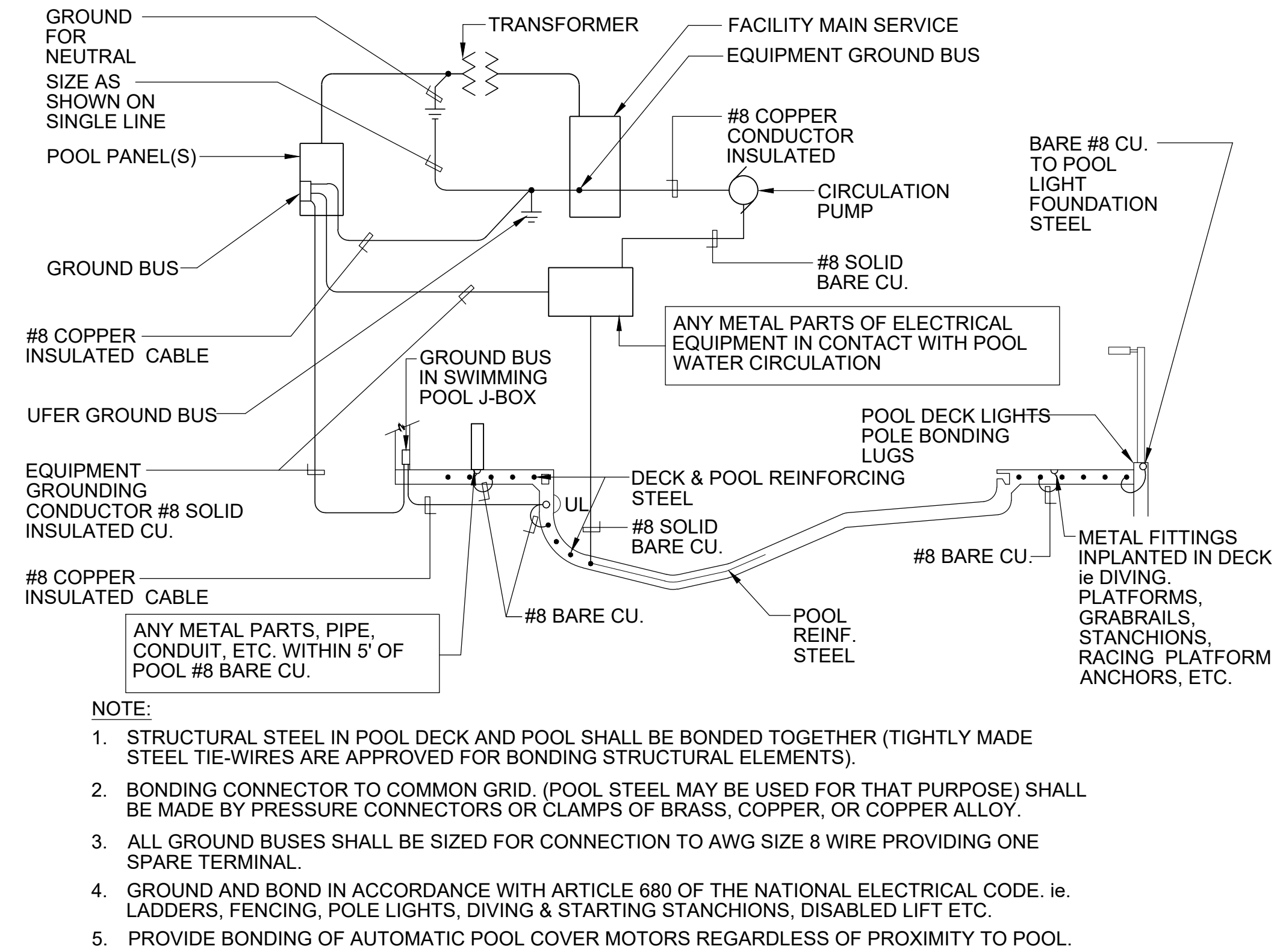




1

BONDING DETAILS

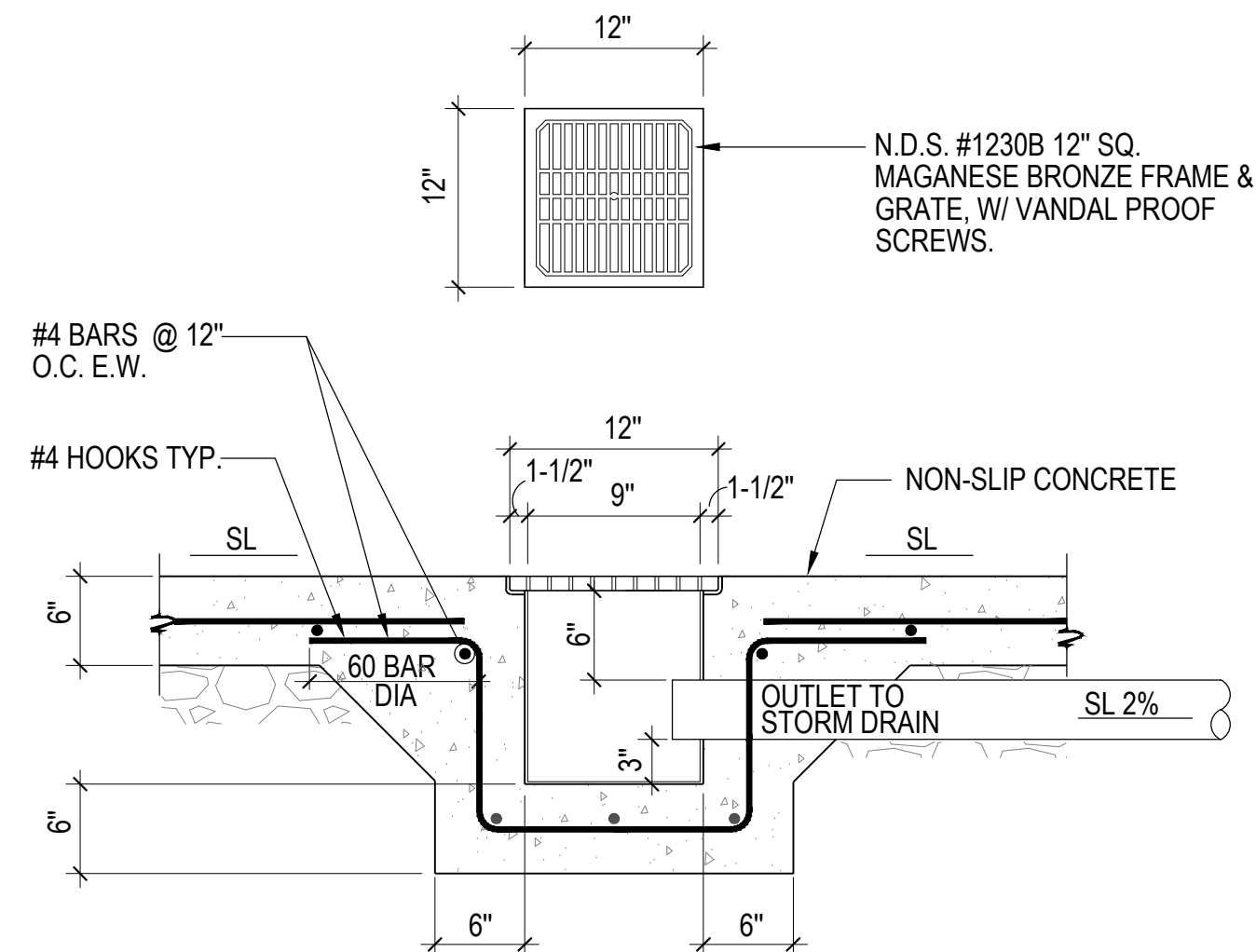
NO SCALE



2

TYPICAL POOL BONDING AND GROUND DETAIL

NO SCALE



3

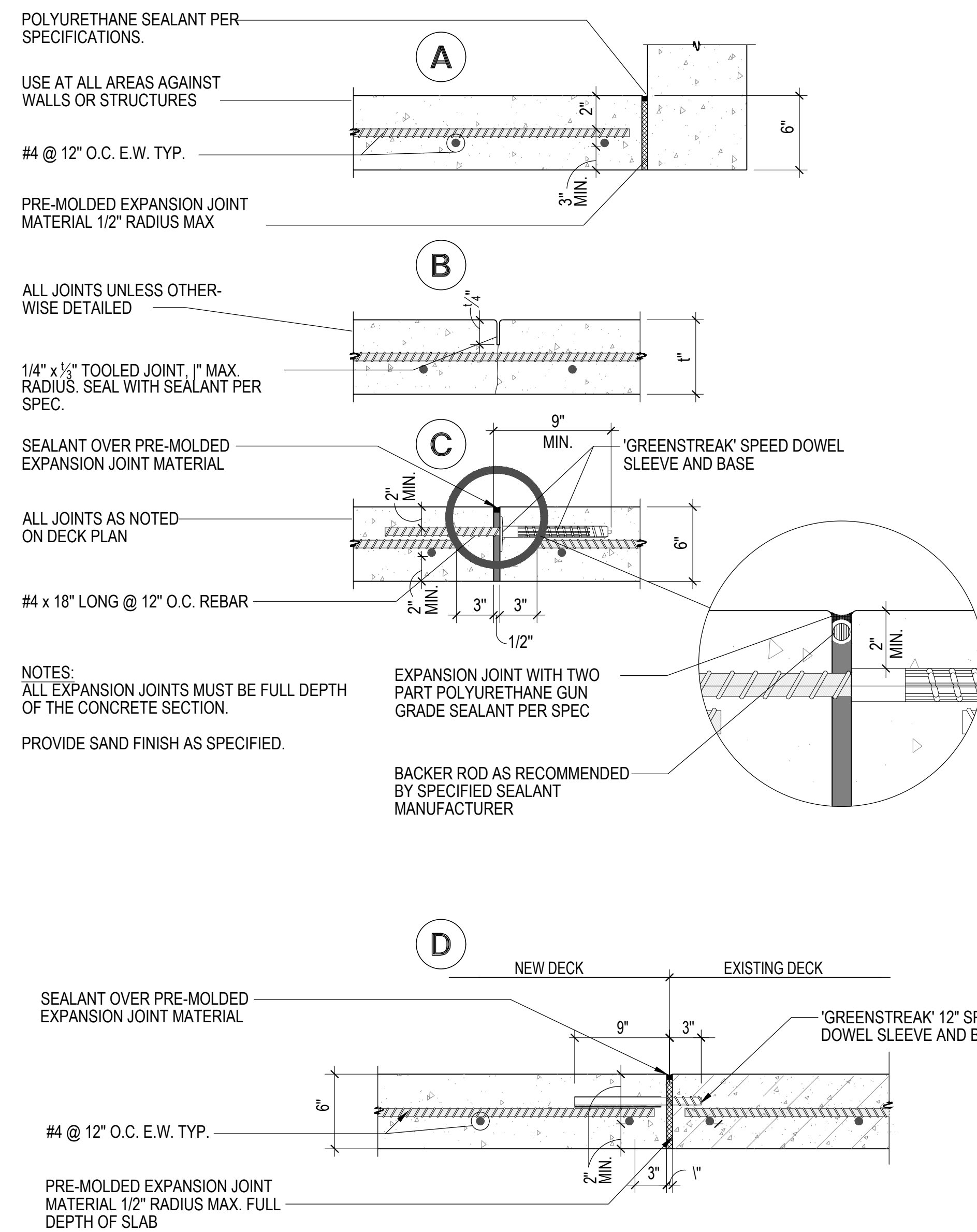
DECK/AREA DRAIN

1"=1'-0"

4

DECK DETAILS

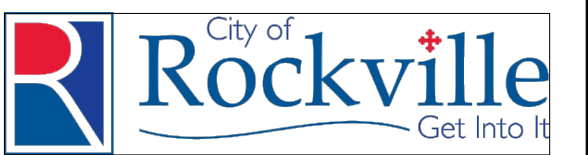
1-1/2" = 1'-0"



LSG LANDSCAPE  
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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

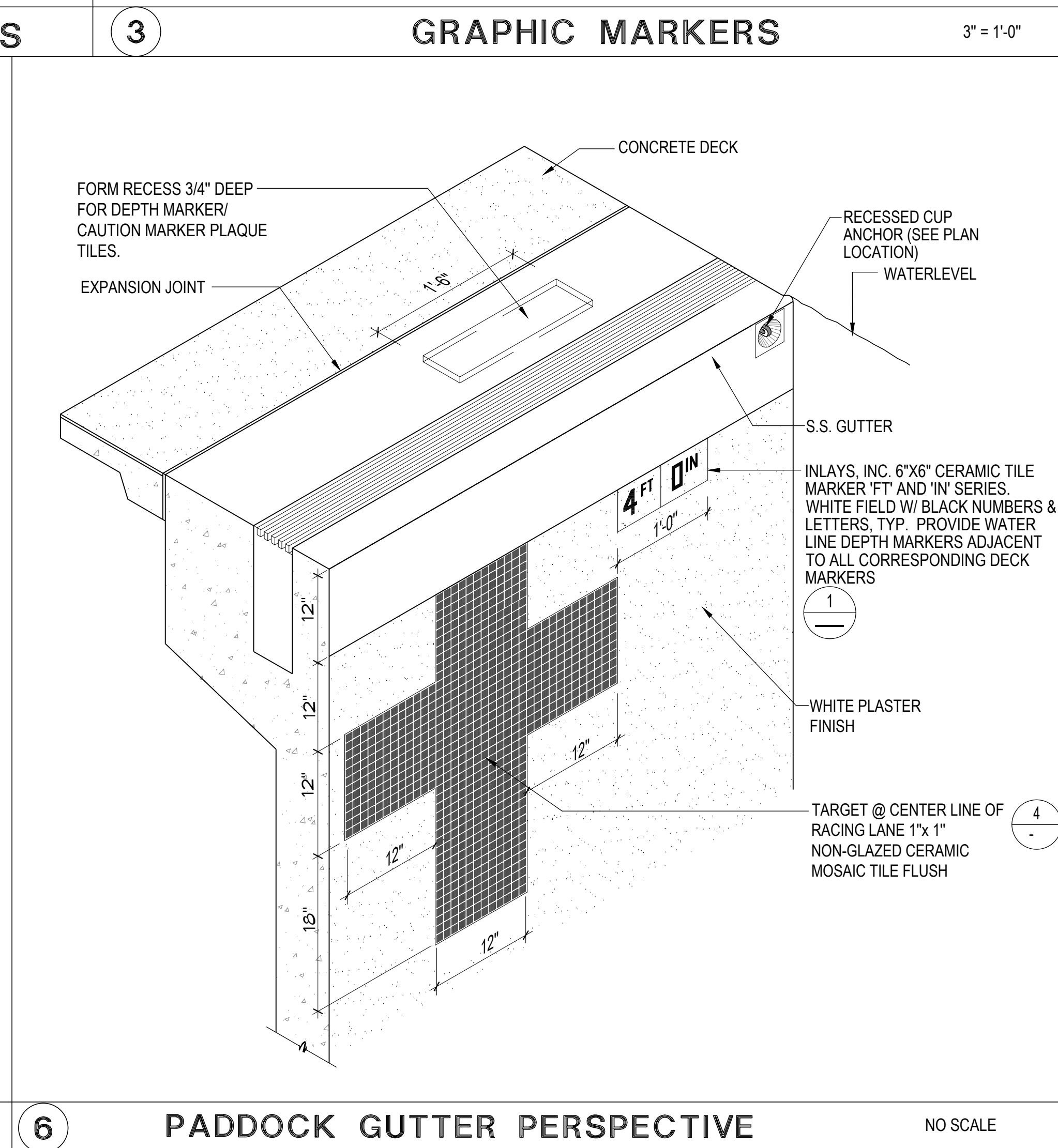
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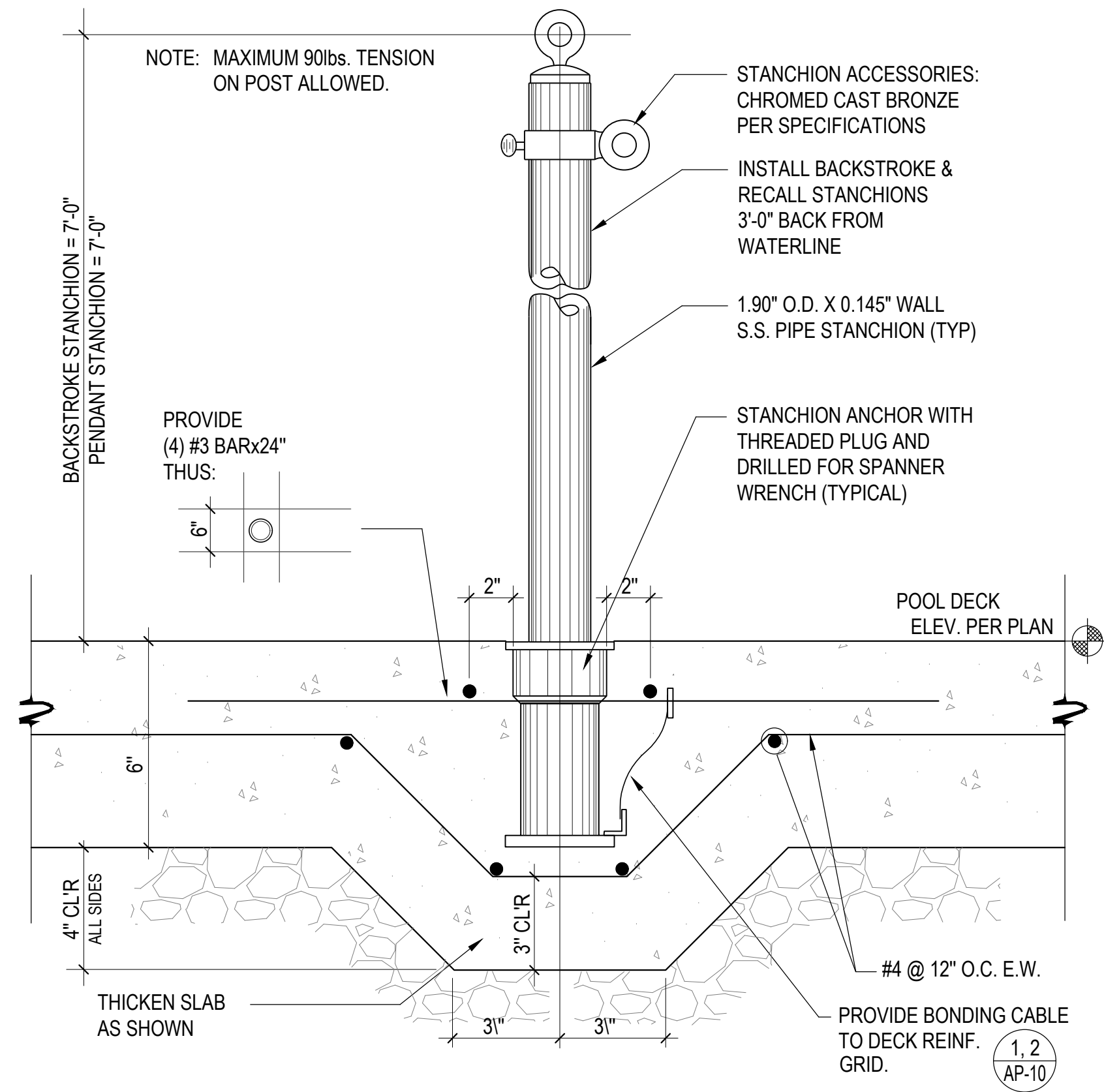
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Sheet No. AP-10





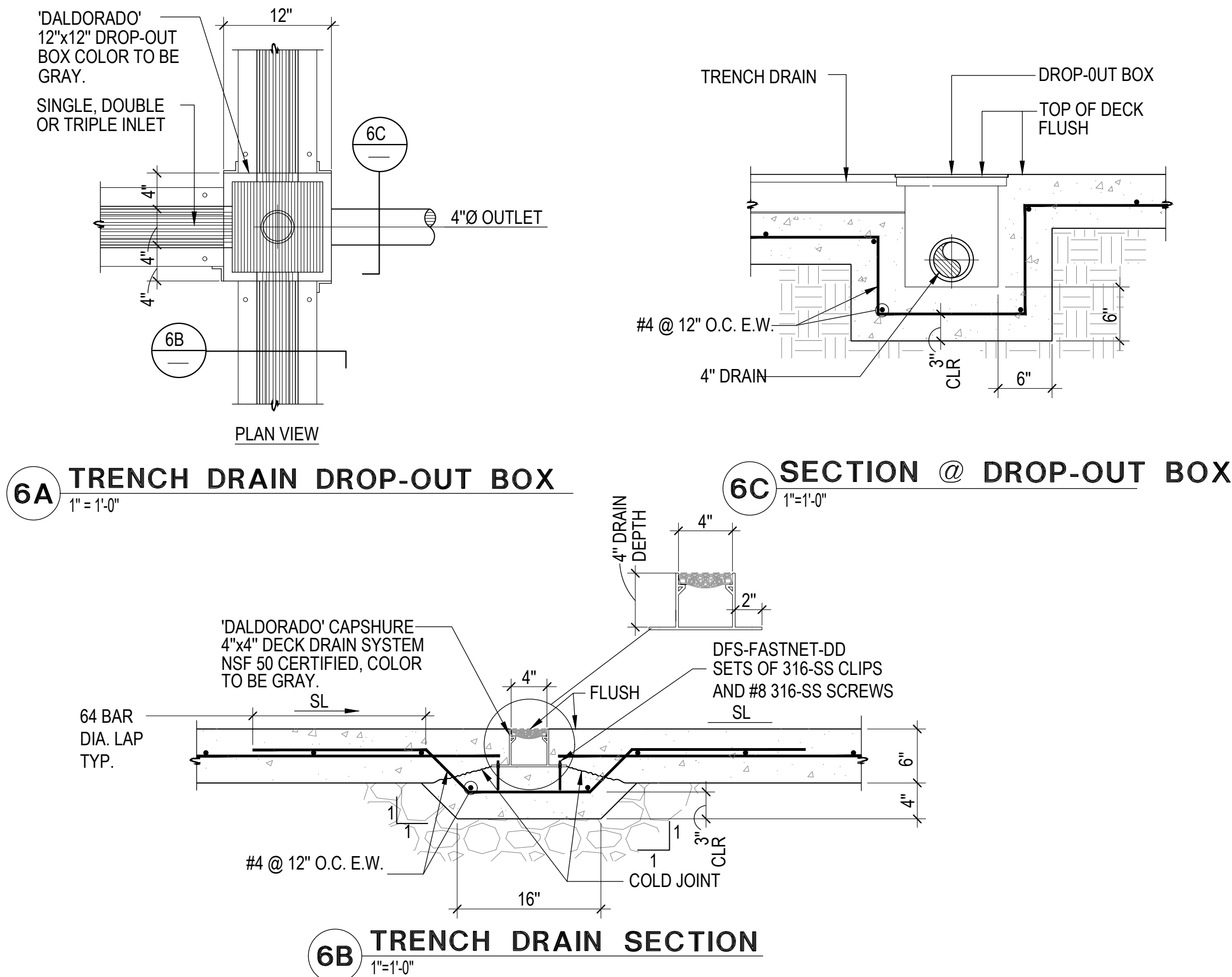




1

STANCHION POST/ANCHOR

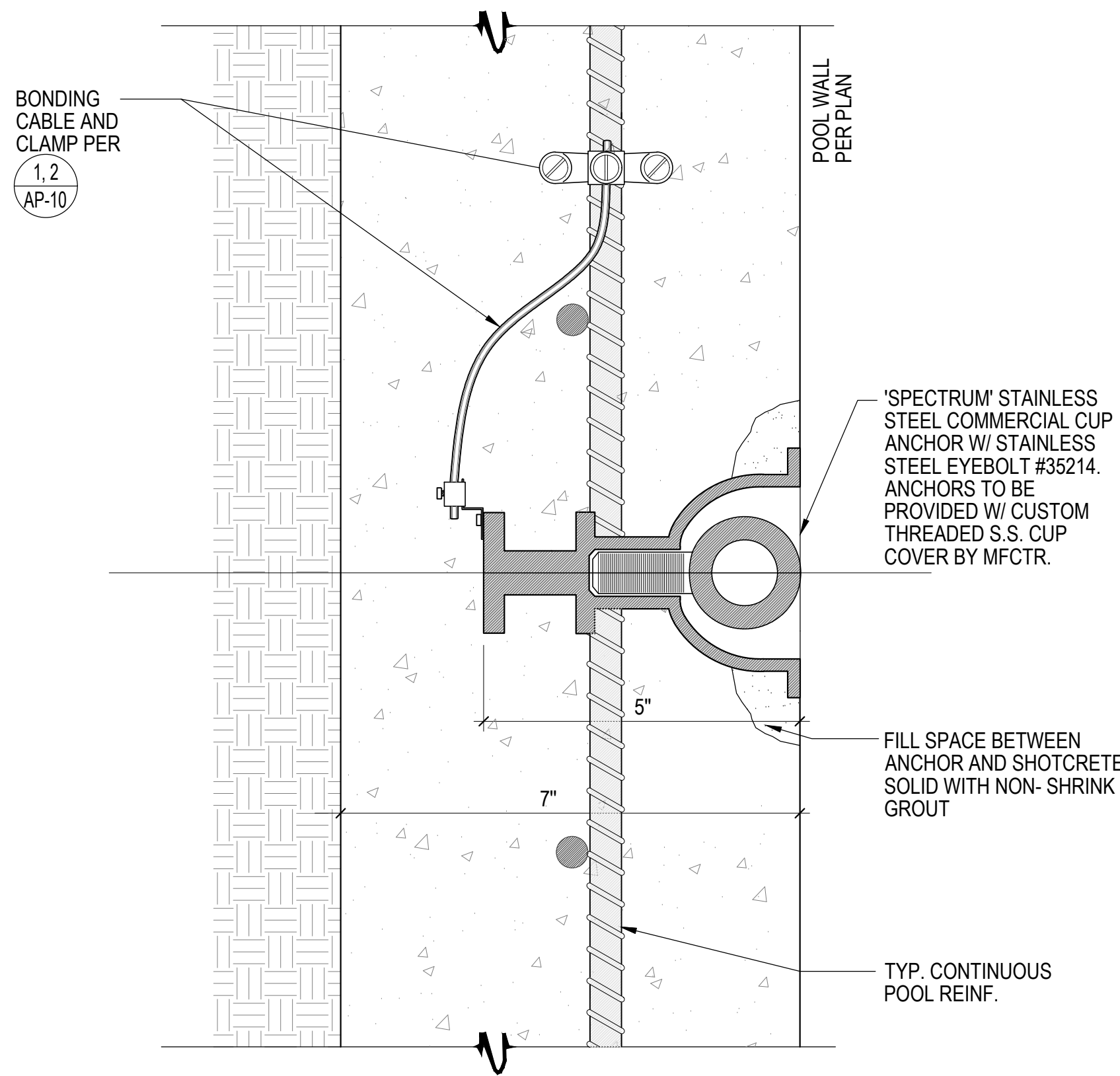
3\"=1'-0"



2

TRENCH DRAIN

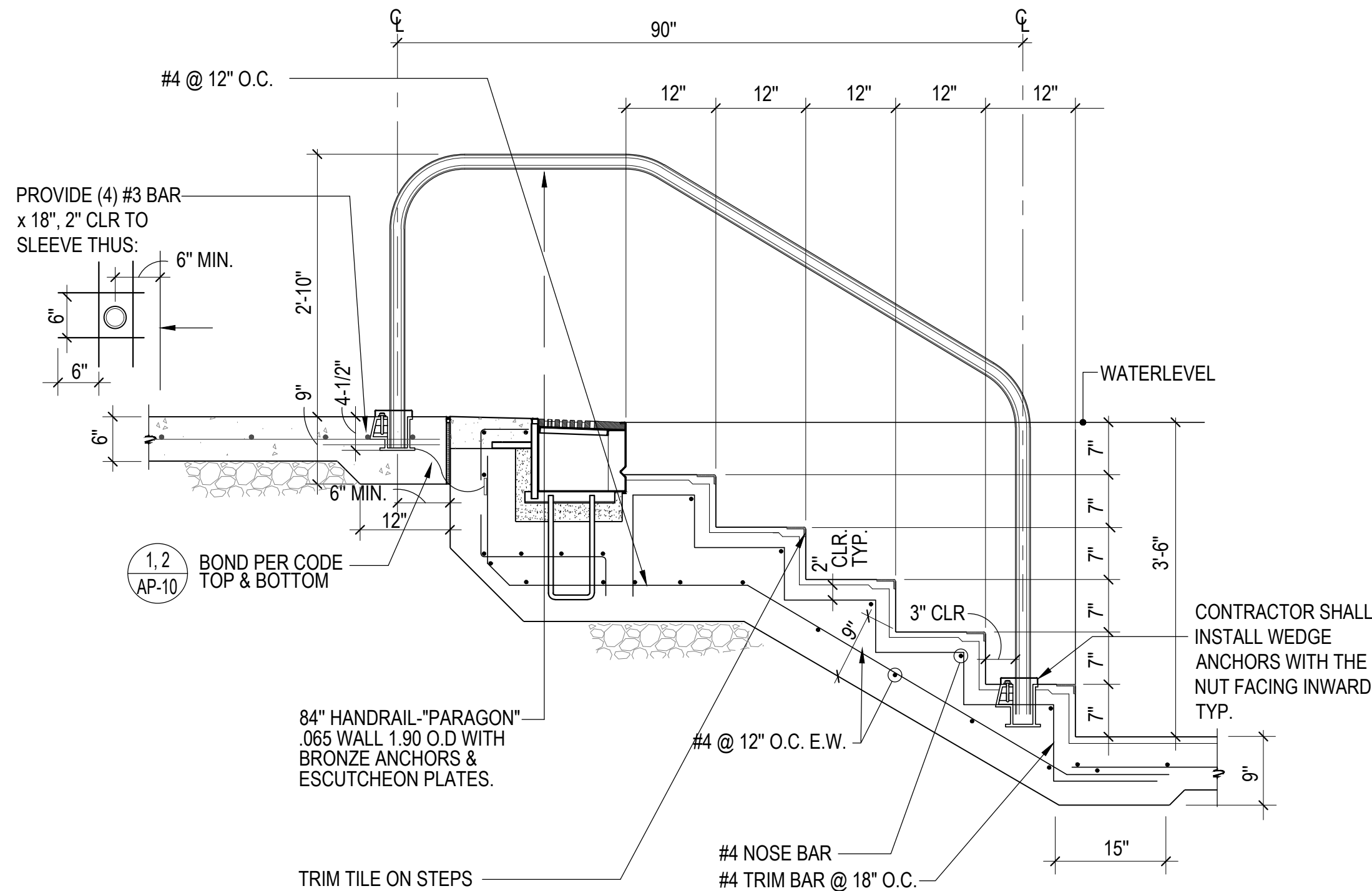
AS NOTED



3

CUP ANCHOR

1/2\"=1"



4

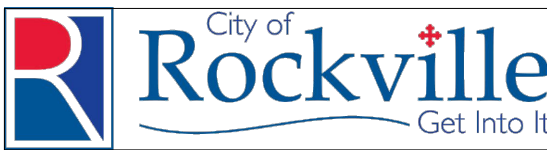
ACTIVITY POOL HANDRAILS

3/4\"=1'-0"

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OUTDOOR  
RECREATION POOL  
RENOVATIONS

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CITY OF ROCKVILLE, MARYLAND

DETAILS

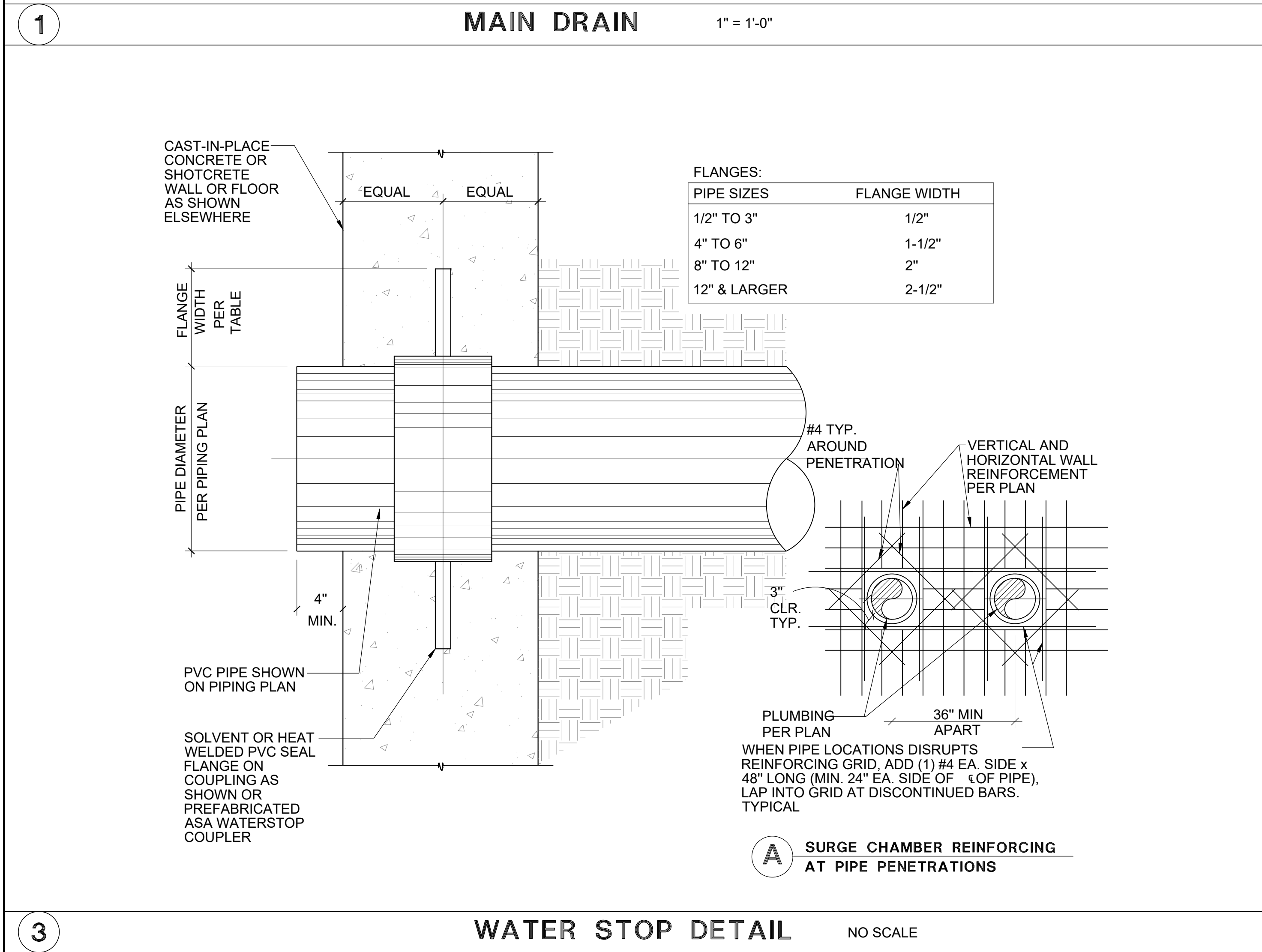
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Sheet No. AP-12



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City of  
**Rockville**  
Get Into It

DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

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CITY OF ROCKVILLE, MARYLAND

DETAILS

PERMIT SET  
NFC

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Description

Date

Revisions

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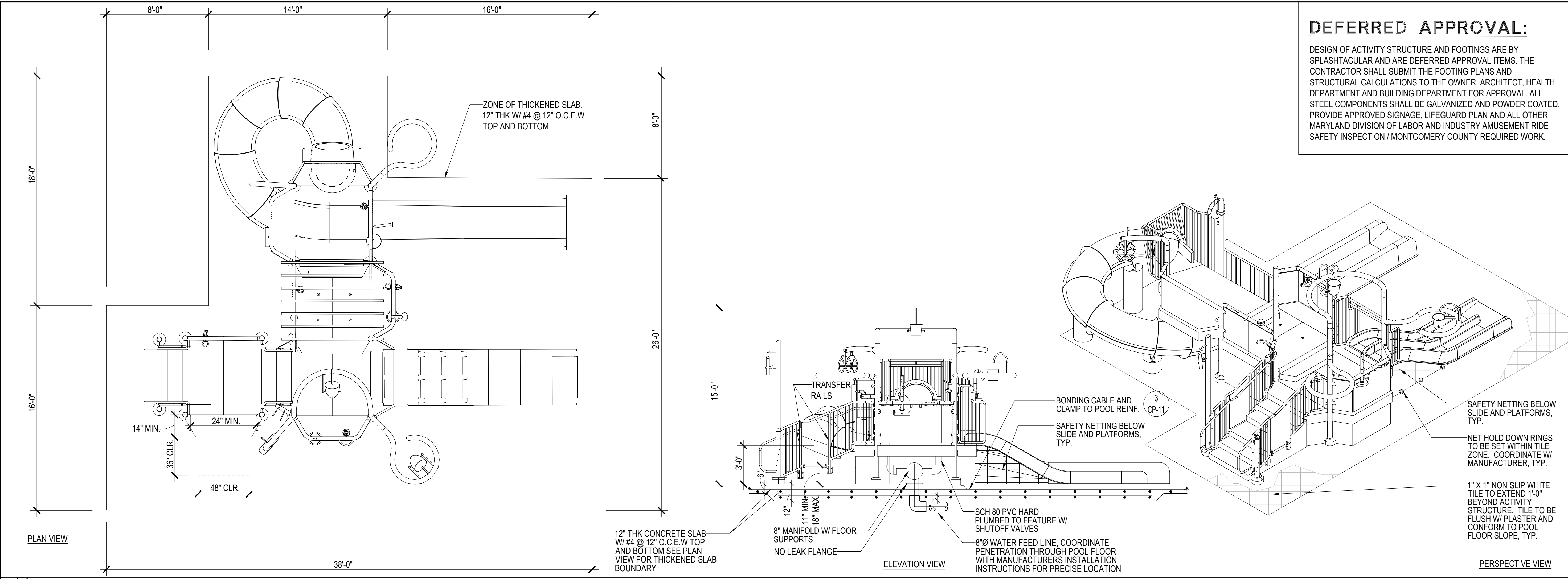
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AP-13









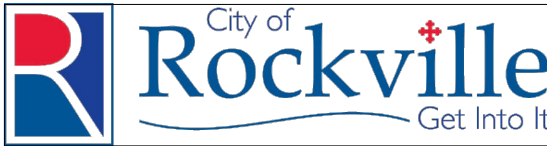
**DEFERRED APPROVAL:**

DESIGN OF ACTIVITY STRUCTURE AND FOOTINGS ARE BY SPLASHTACULAR AND ARE DEFERRED APPROVAL ITEMS. THE CONTRACTOR SHALL SUBMIT THE FOOTING PLANS AND STRUCTURAL CALCULATIONS TO THE OWNER, ARCHITECT, HEALTH DEPARTMENT AND BUILDING DEPARTMENT FOR APPROVAL. ALL STEEL COMPONENTS SHALL BE GALVANIZED AND POWDER COATED. PROVIDE APPROVED SIGNAGE, LIFEGUARD PLAN AND ALL OTHER MARYLAND DIVISION OF LABOR AND INDUSTRY AMUSEMENT RIDE SAFETY INSPECTION / MONTGOMERY COUNTY REQUIRED WORK.

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ARCHITECTURE**

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DEPARTMENT OF  
RECREATION AND PARKS

**OUTDOOR  
RECREATION POOL  
RENOVATIONS**

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

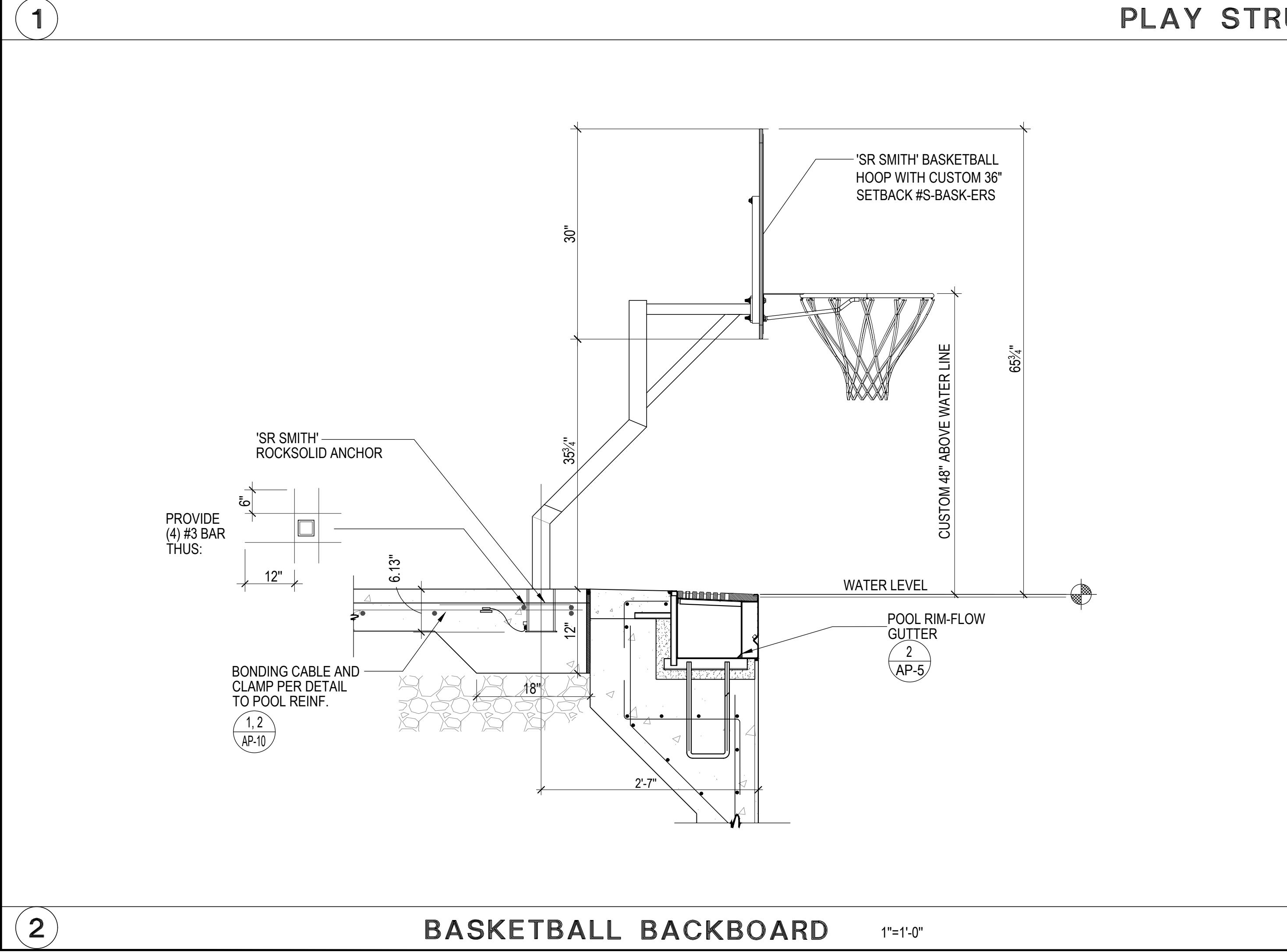
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**PERMIT SET  
NFC**

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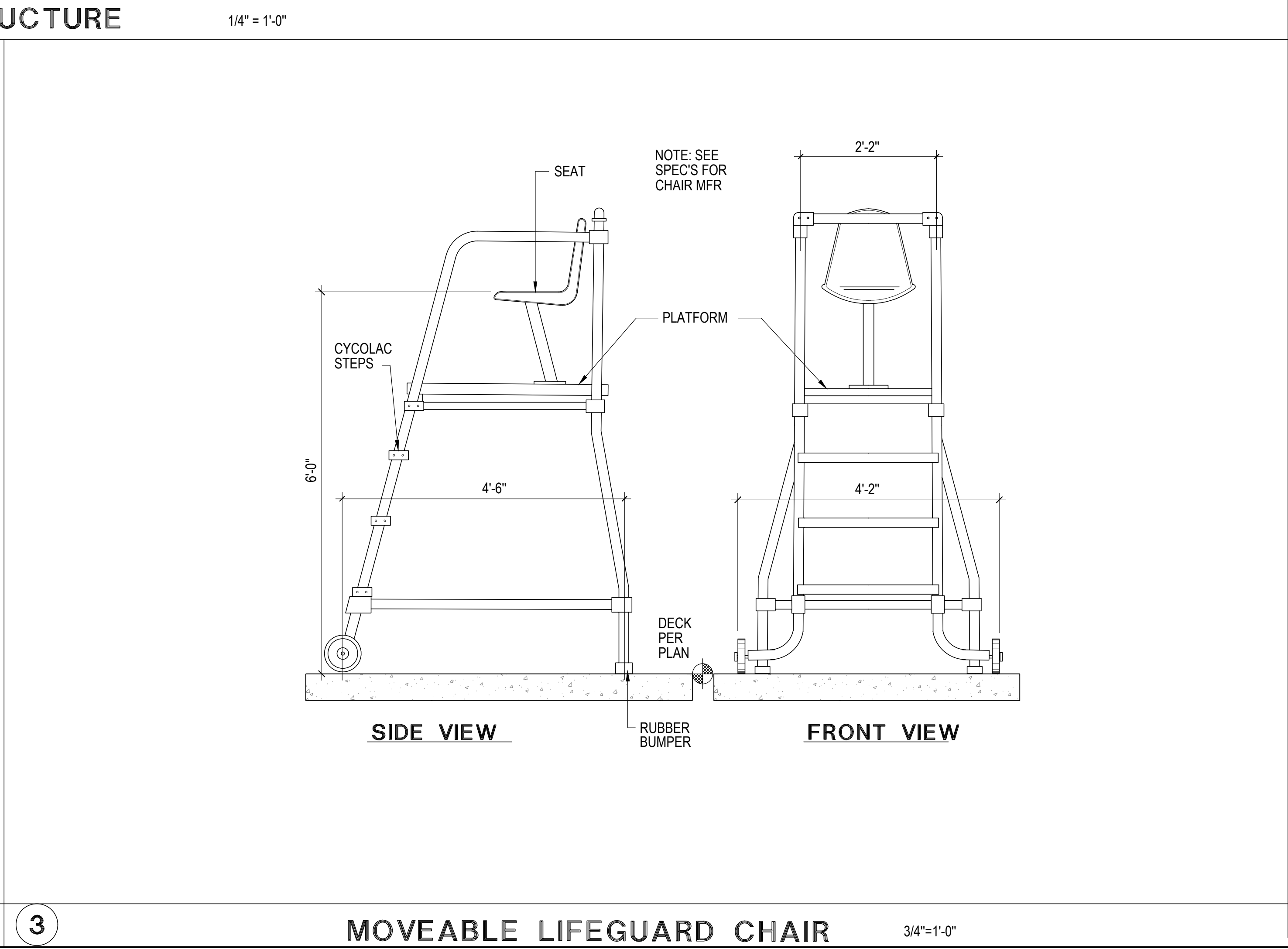
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Sheet No. **AP-15**



**BASKETBALL BACKBOARD**

1"=1'-0"



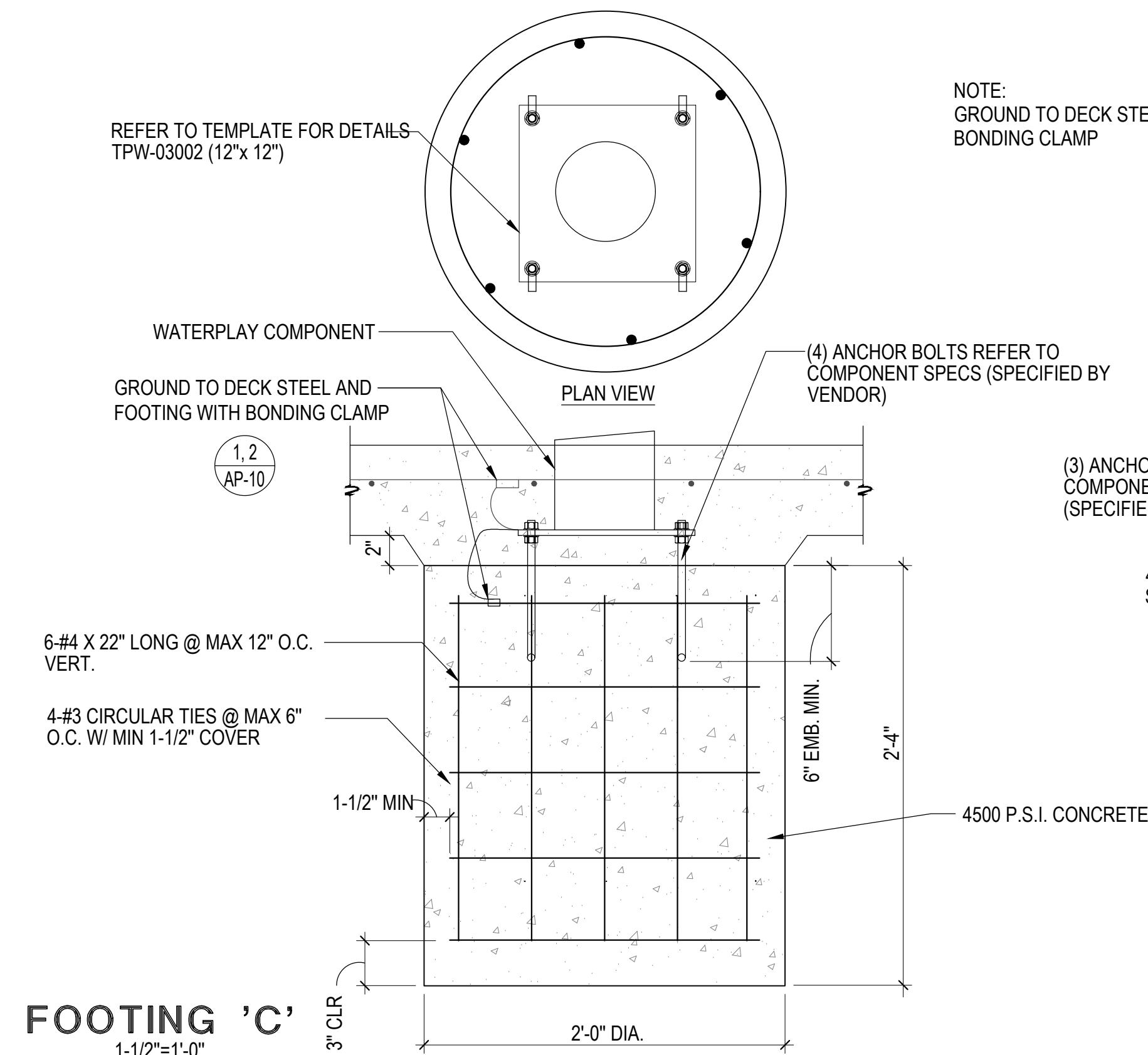
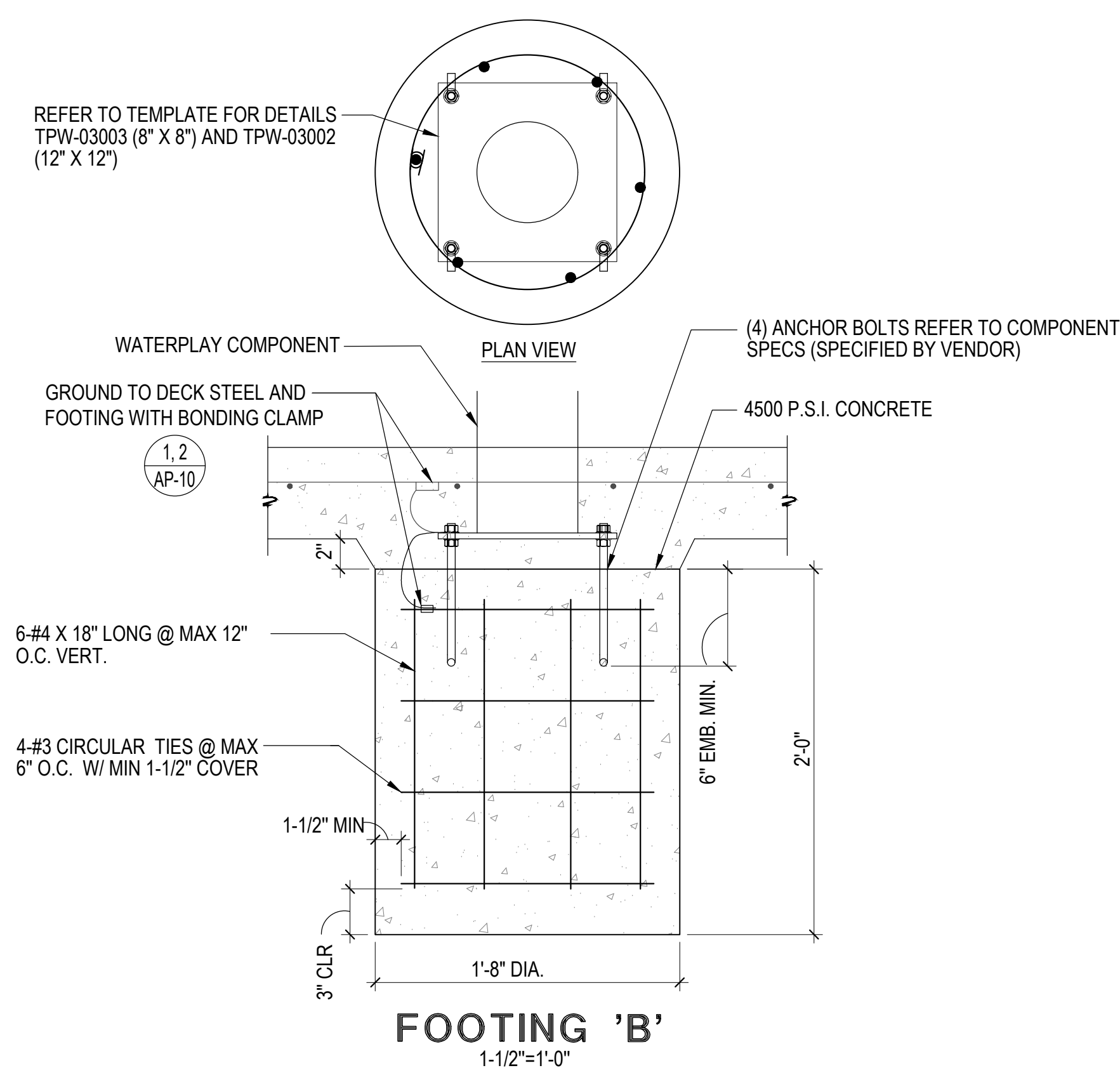
**MOVEABLE LIFEGUARD CHAIR**

3/4"=1'-0"

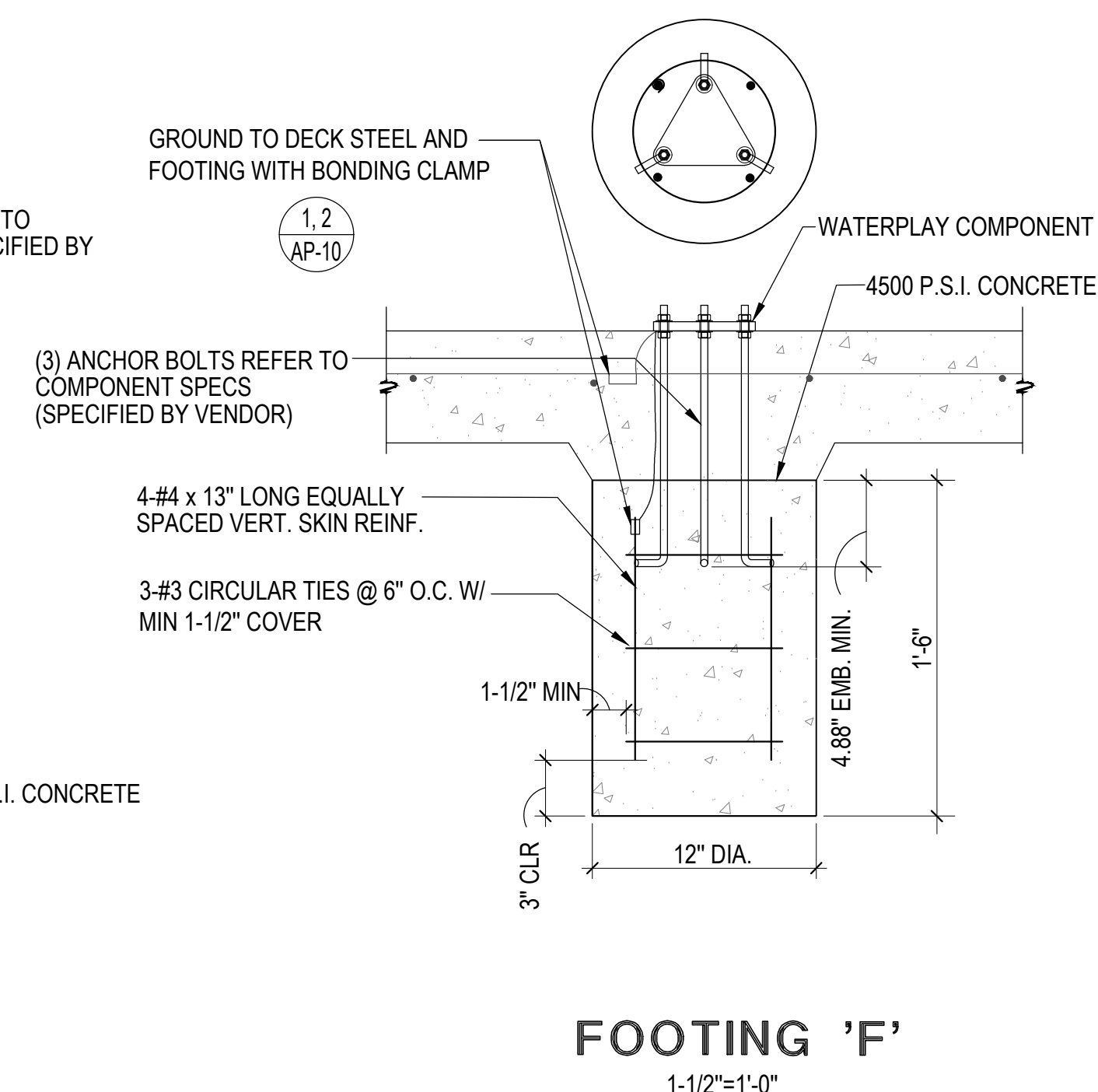








NOTE:  
GROUND TO DECK STEEL WITH  
BONDING CLAMP



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DEPARTMENT OF  
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## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## DETAILS

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NFC

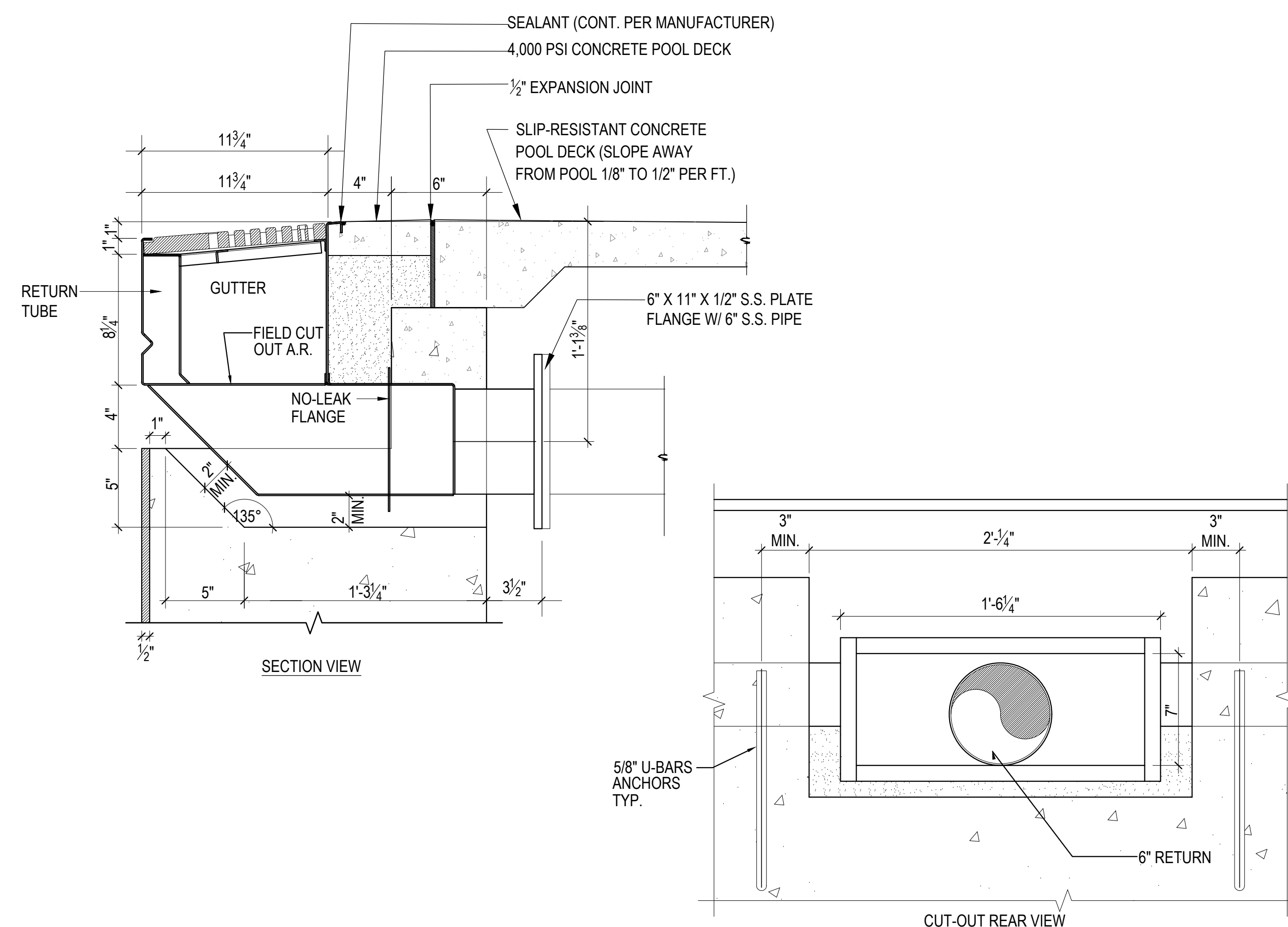
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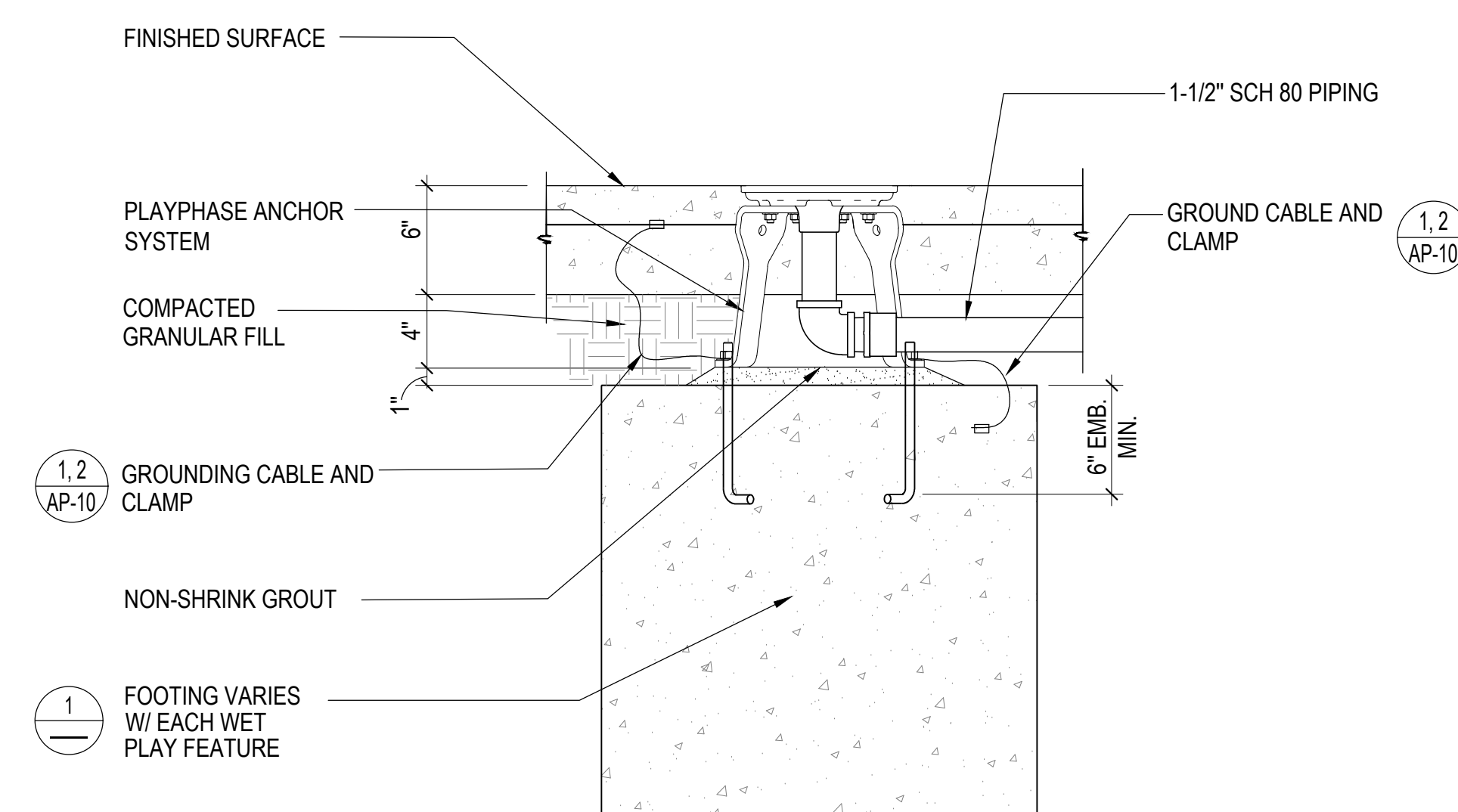
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AP-17

## WATER ELEMENT FOOTINGS

$$1-1/2''=1'-0''$$


## INTEGRATED RETURN TUBE

$$1'' = 1'-0''$$


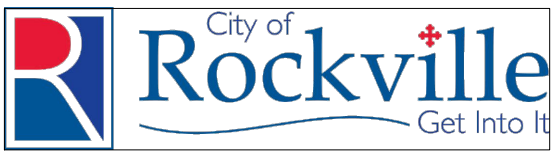
## PLAYPHASE ANCHOR SYSTEM

$$1\frac{1}{2}" = 1'-0"$$

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ARCHITECTURE

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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

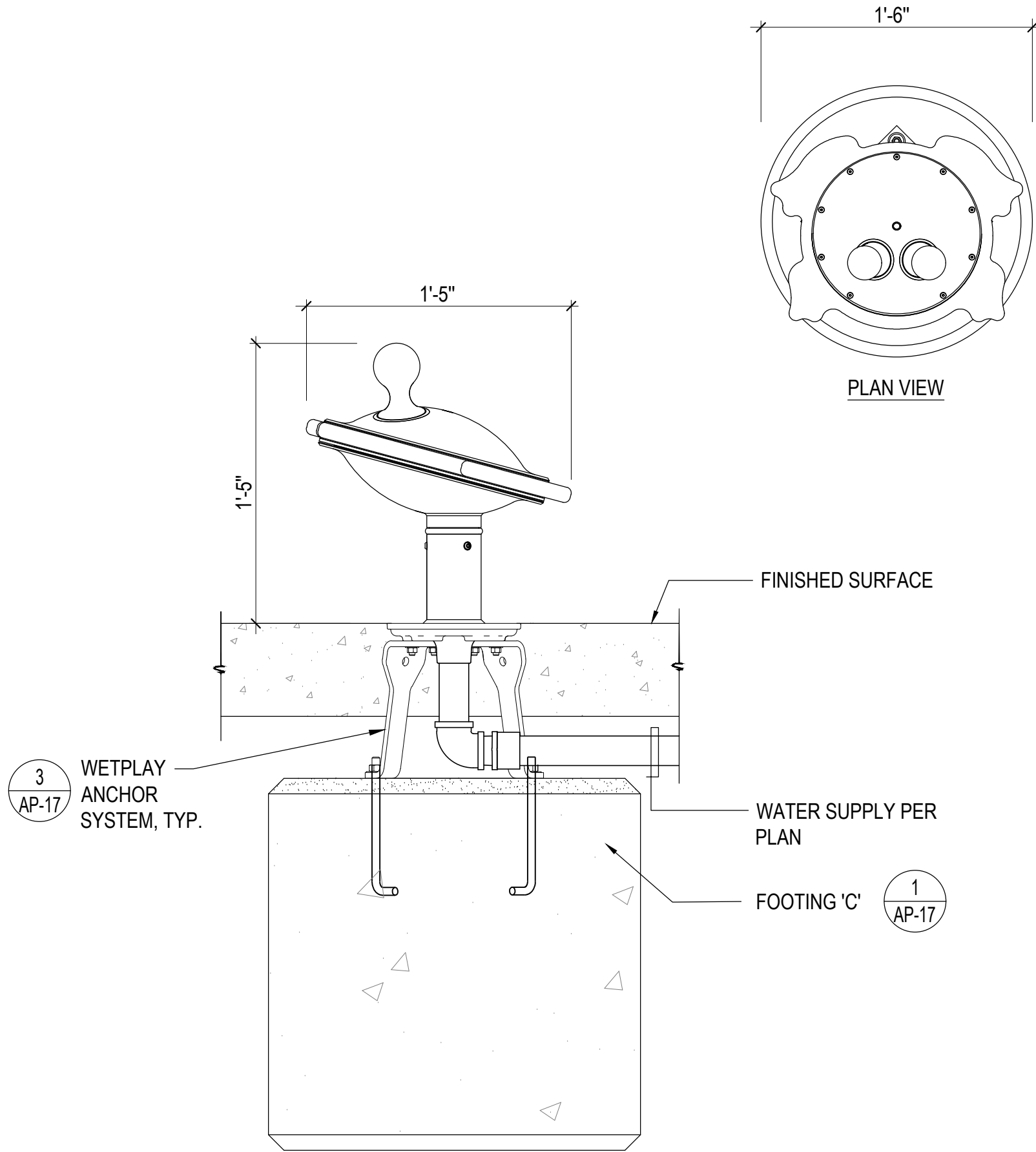
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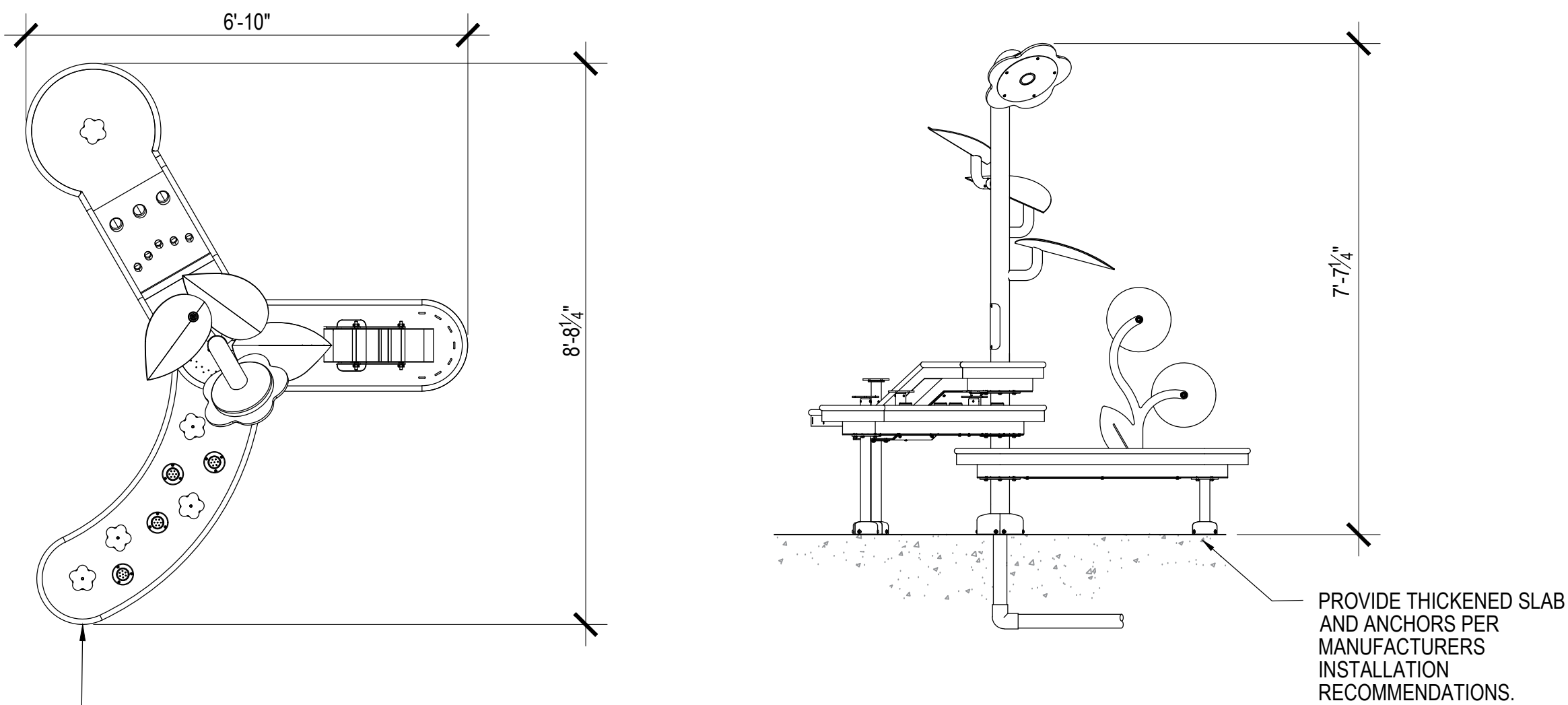
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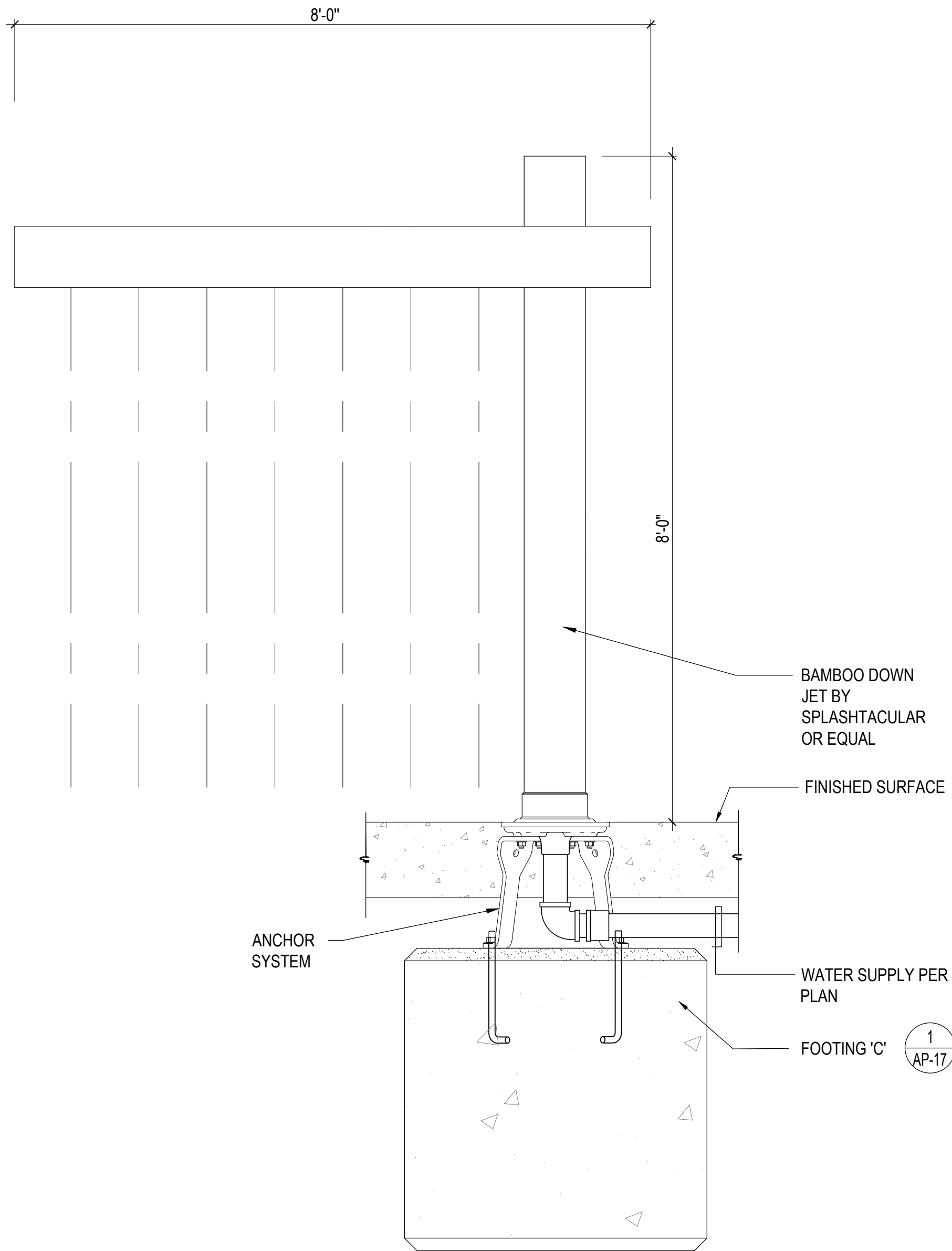
HOPPER

1"=1'-0"



2

WATER TROUGH GARDEN



3

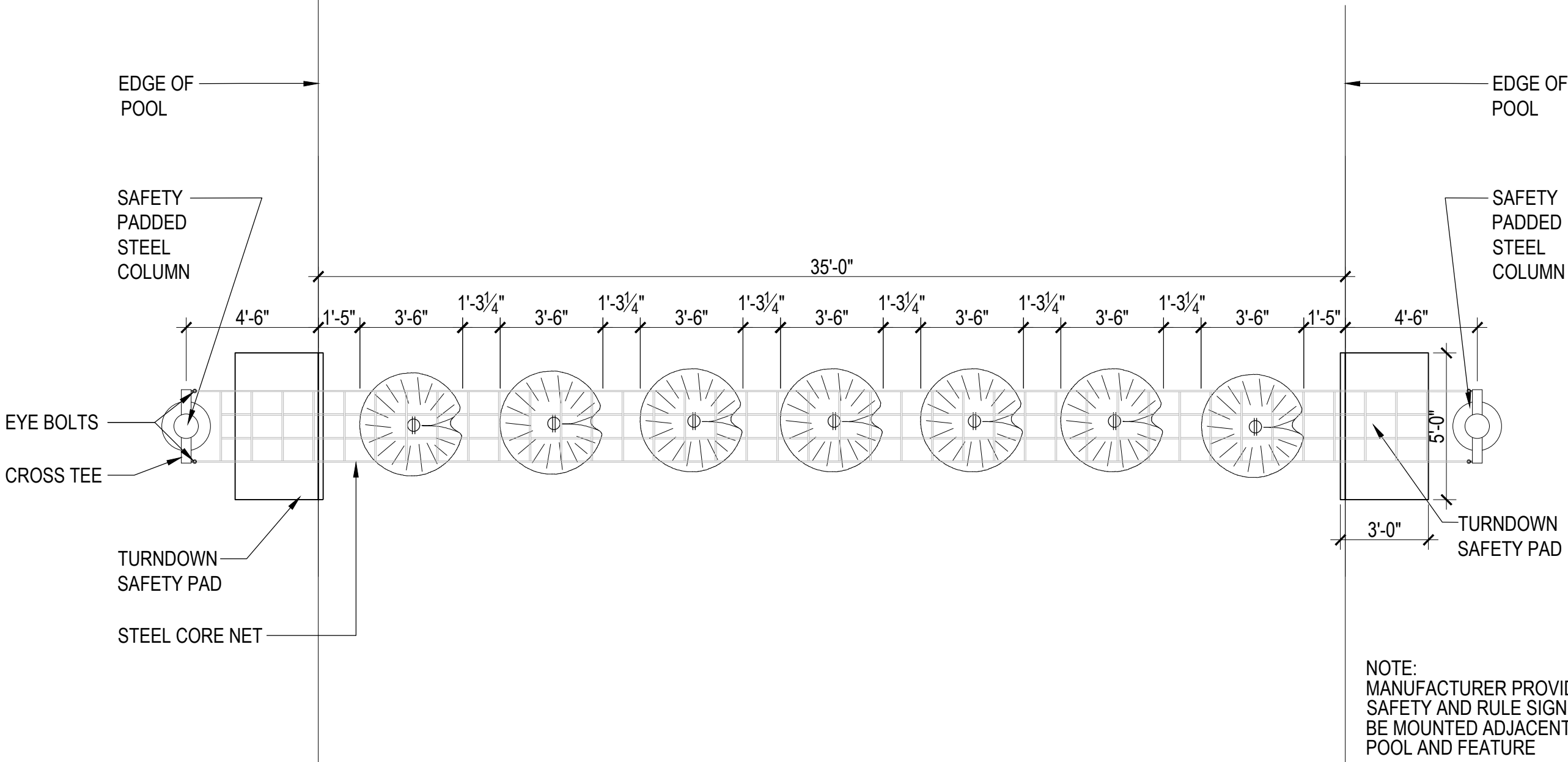
BAMBOO DOWN JET

NO SCALE



DEFERRED APPROVAL:

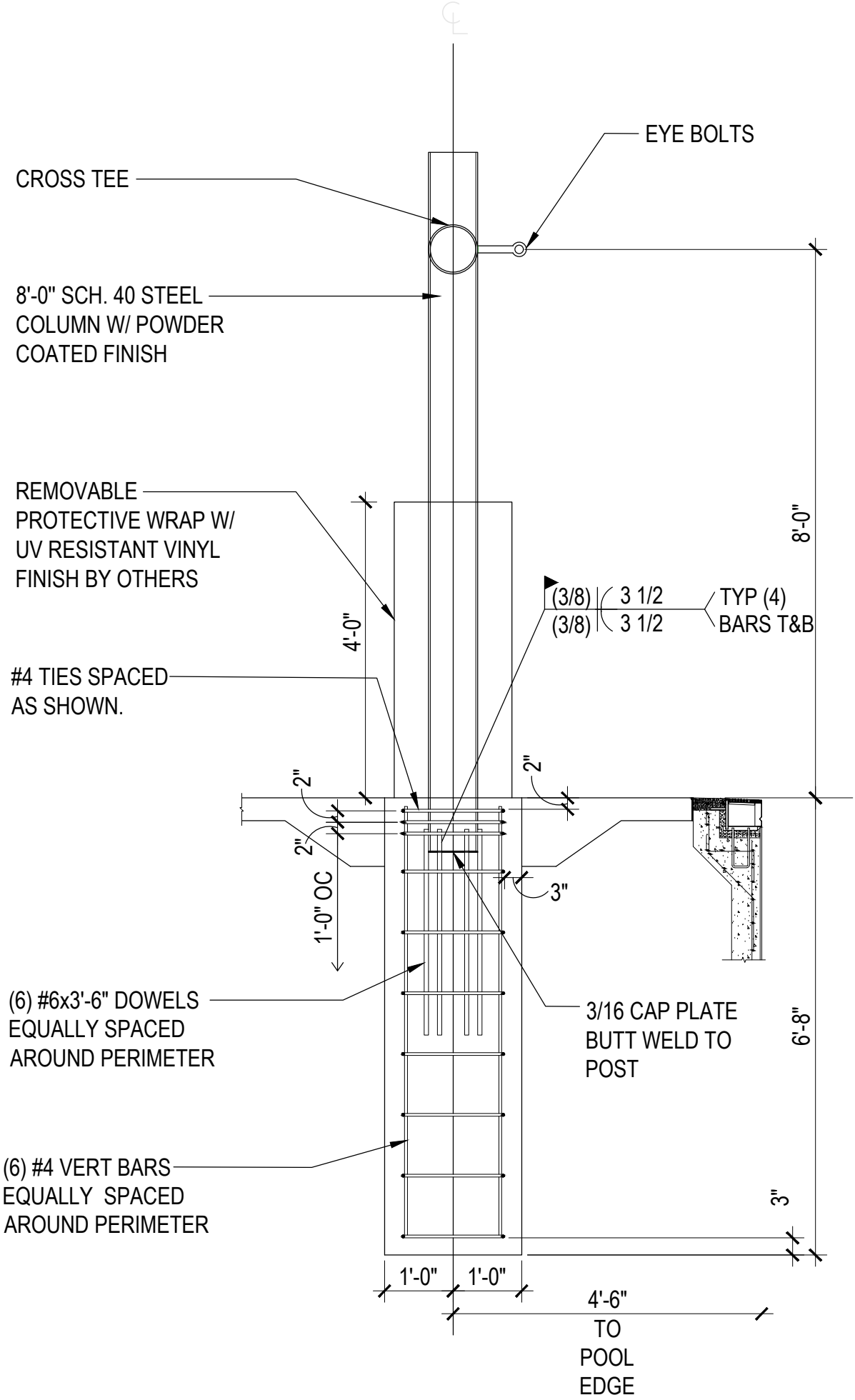
DESIGN OF LILY PADS AND POSTS ARE BY PLAYTIME AND ARE DEFERRED APPROVAL ITEMS. THE CONTRACTOR SHALL SUBMIT THE LILY PAD AND POST FOOTING PLANS AND STRUCTURAL CALCULATIONS TO THE OWNER, ARCHITECT, HEALTH DEPARTMENT AND BUILDING DEPARTMENT FOR APPROVAL. ALL STEEL COMPONENTS SHALL BE GALVANIZED AND POWDER COATED. PROVIDE APPROVED SIGNAGE, LIFE GUARD PLAN AND ALL OTHER MARYLAND DIVISION OF LABOR AND INDUSTRY AMUSEMENT RIDE SAFETY INSPECTION / MONTGOMERY COUNTY REQUIRED WORK.



1

LILY PAD PLAN DETAIL

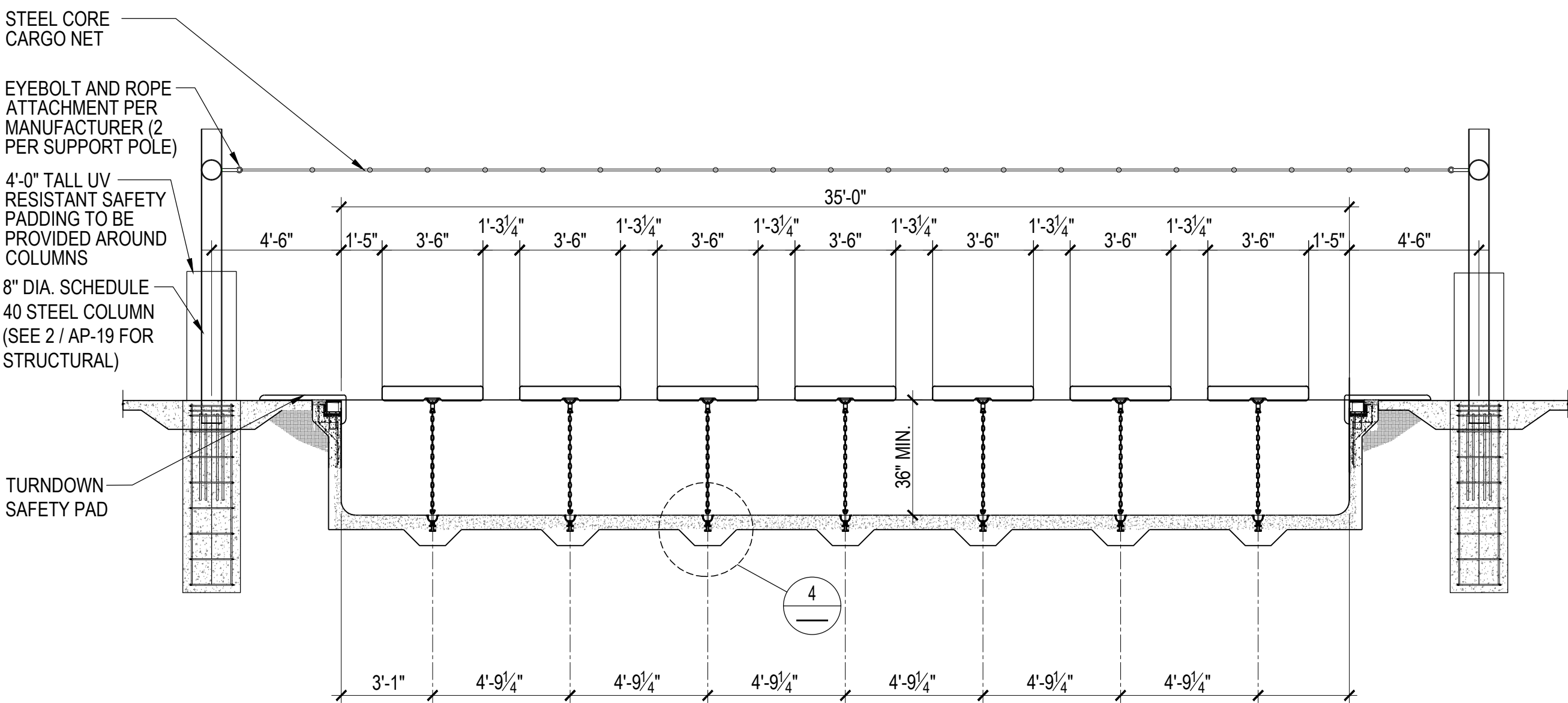
1/4" = 1'-0"



2

PLAYTIME WATER WALK POST DETAIL

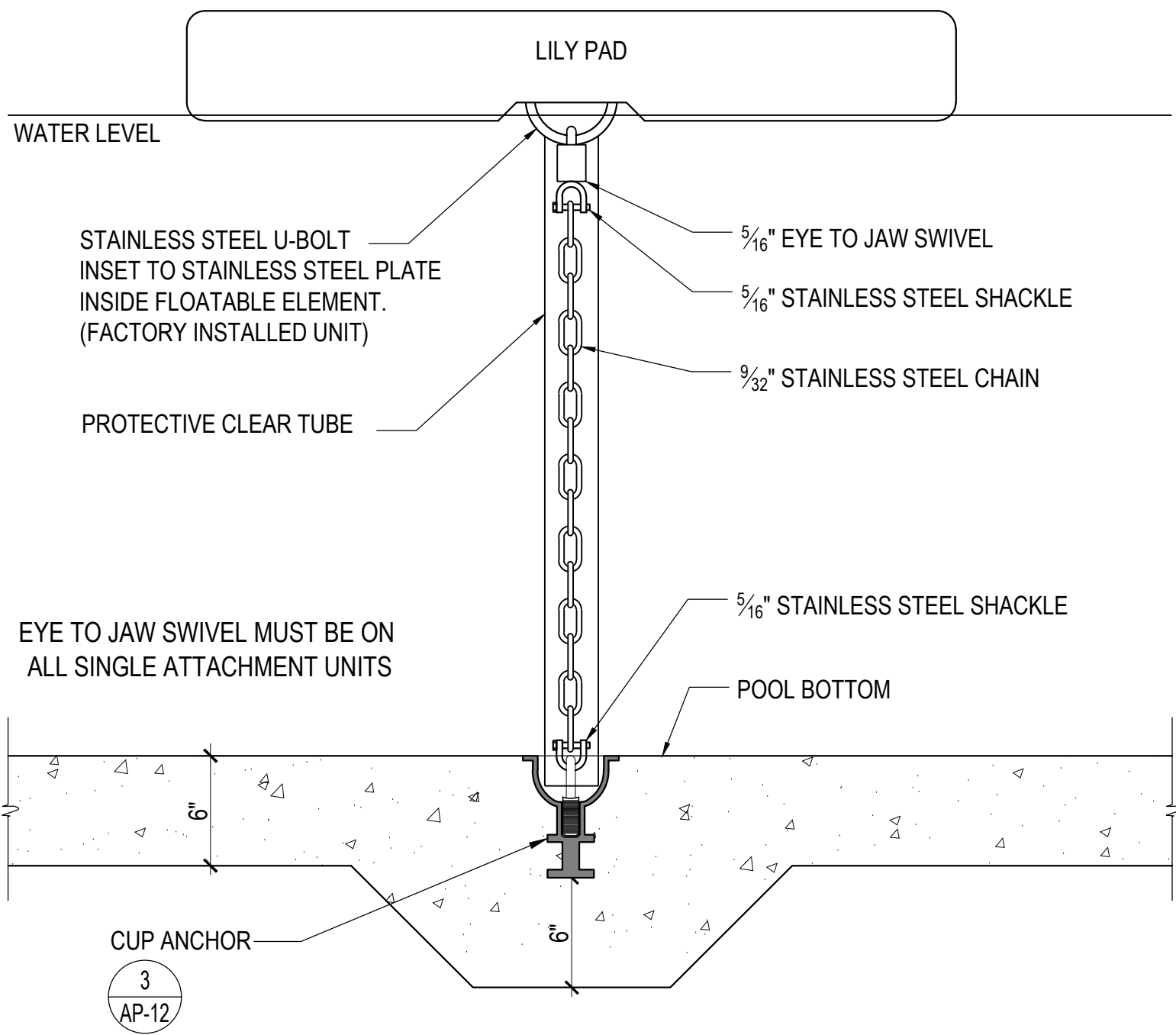
1/2" = 1'-0"



3

LILY PAD SECTION DETAIL

1/4" = 1'-0"



4

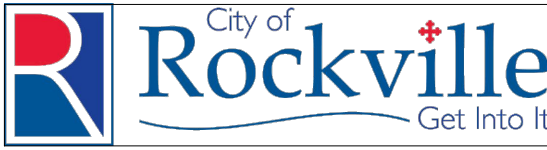
LILY PAD ANCHOR DETAIL

1-1/2" = 1'-0"

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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

PERMIT SET  
NFC

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023

No.	Description	Date
Revisions		
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Drawn By: AD, HW		
Checked By: AD		
Date: 5/19/2023		

Sheet No.

AP-19

**DEFERRED APPROVAL:**

DESIGN OF SLIDE BY SR SMITH AND IS A DEFERRED APPROVAL ITEM. THE CONTRACTOR SHALL SUBMIT THE SLIDE FOOTING PLANS AND STRUCTURAL CALCULATIONS TO THE OWNER, ARCHITECT, HEALTH DEPARTMENT AND BUILDING DEPARTMENT FOR APPROVAL. ALL STEEL COMPONENTS SHALL BE GALVANIZED AND POWDER COATED. PROVIDE APPROVED SIGNAGE, LIFEGUARD PLAN AND ALL OTHER MARYLAND DIVISION OF LABOR AND INDUSTRY AMUSEMENT RIDE SAFETY INSPECTION / MONTGOMERY COUNTY REQUIRED WORK.

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

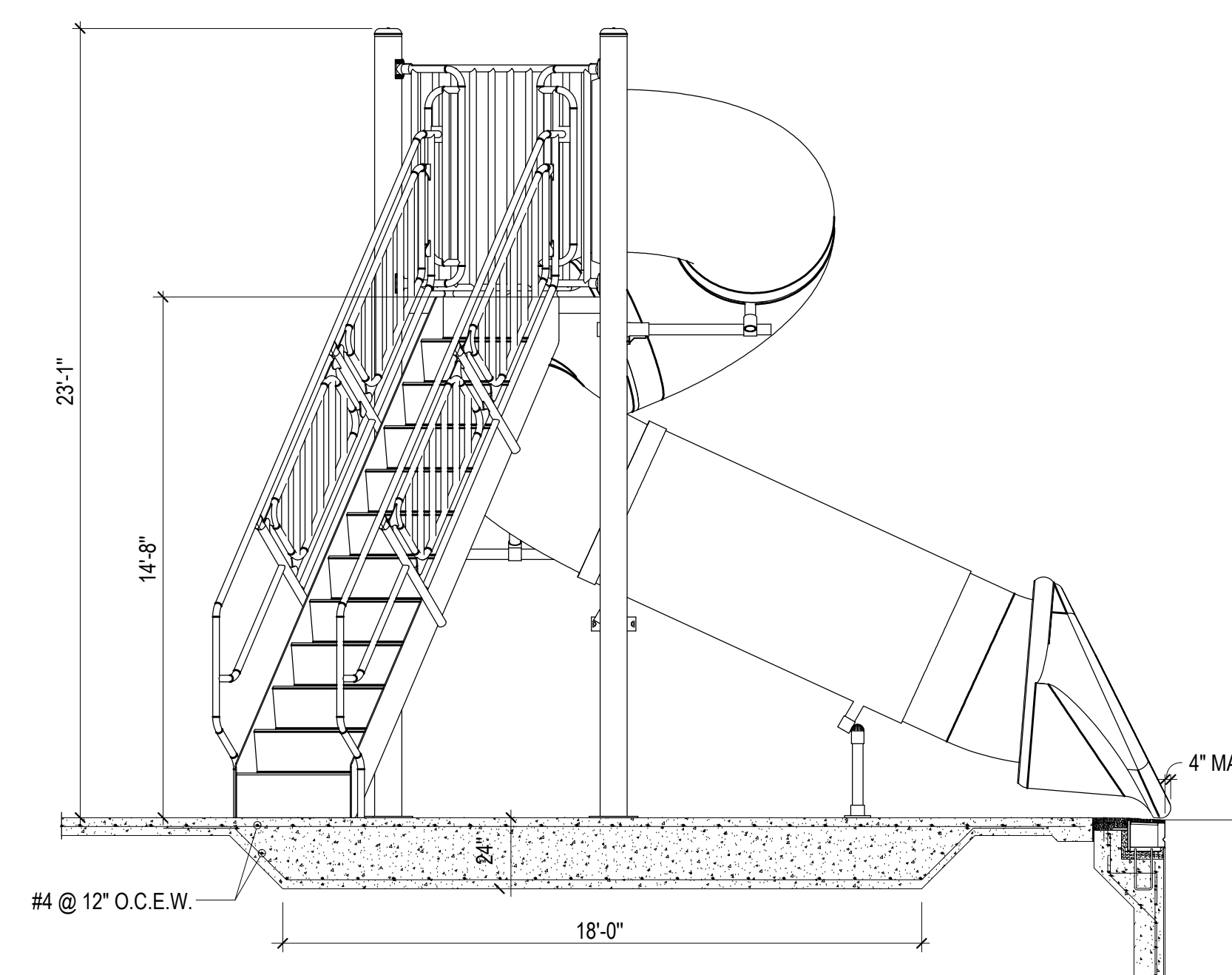
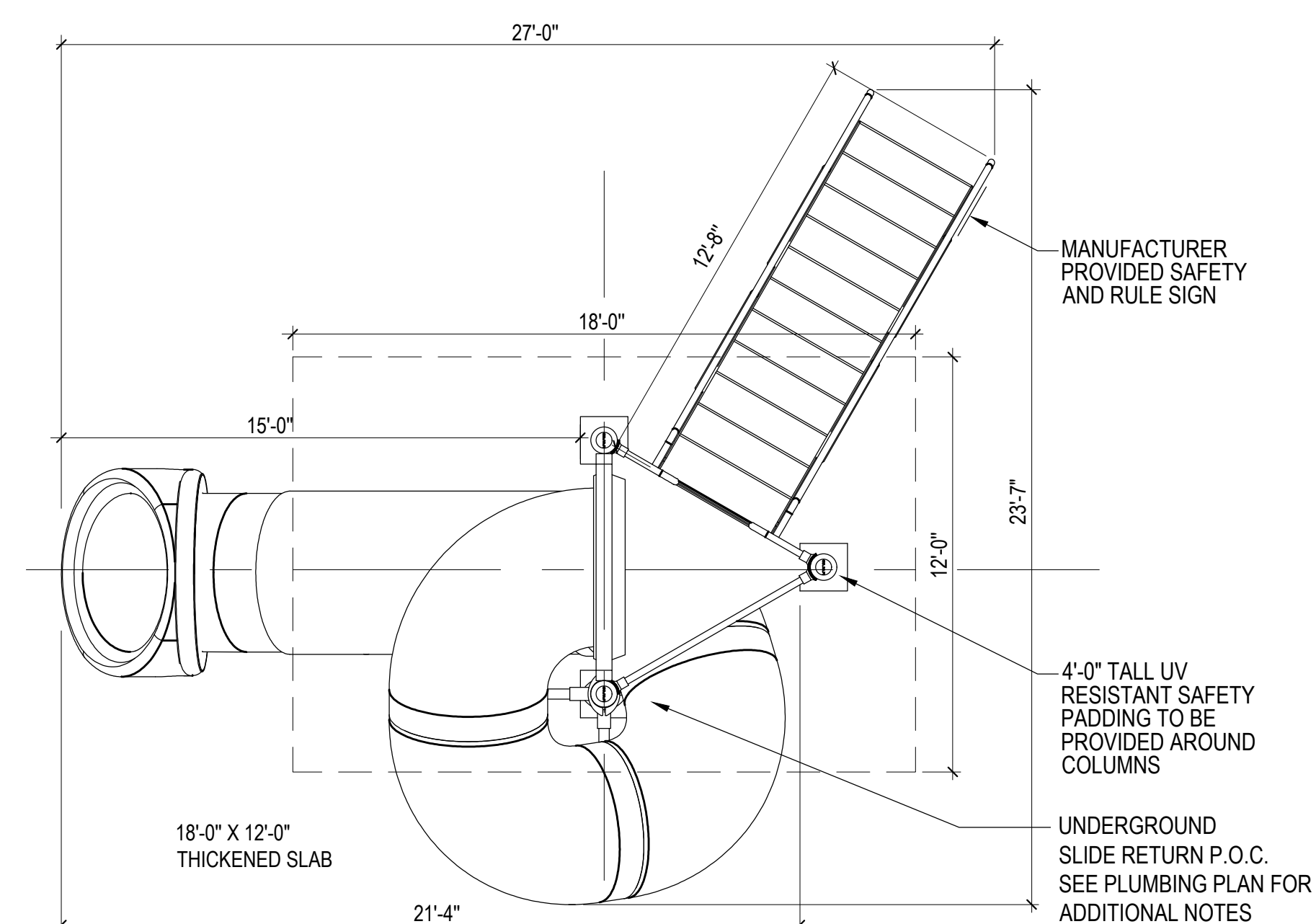
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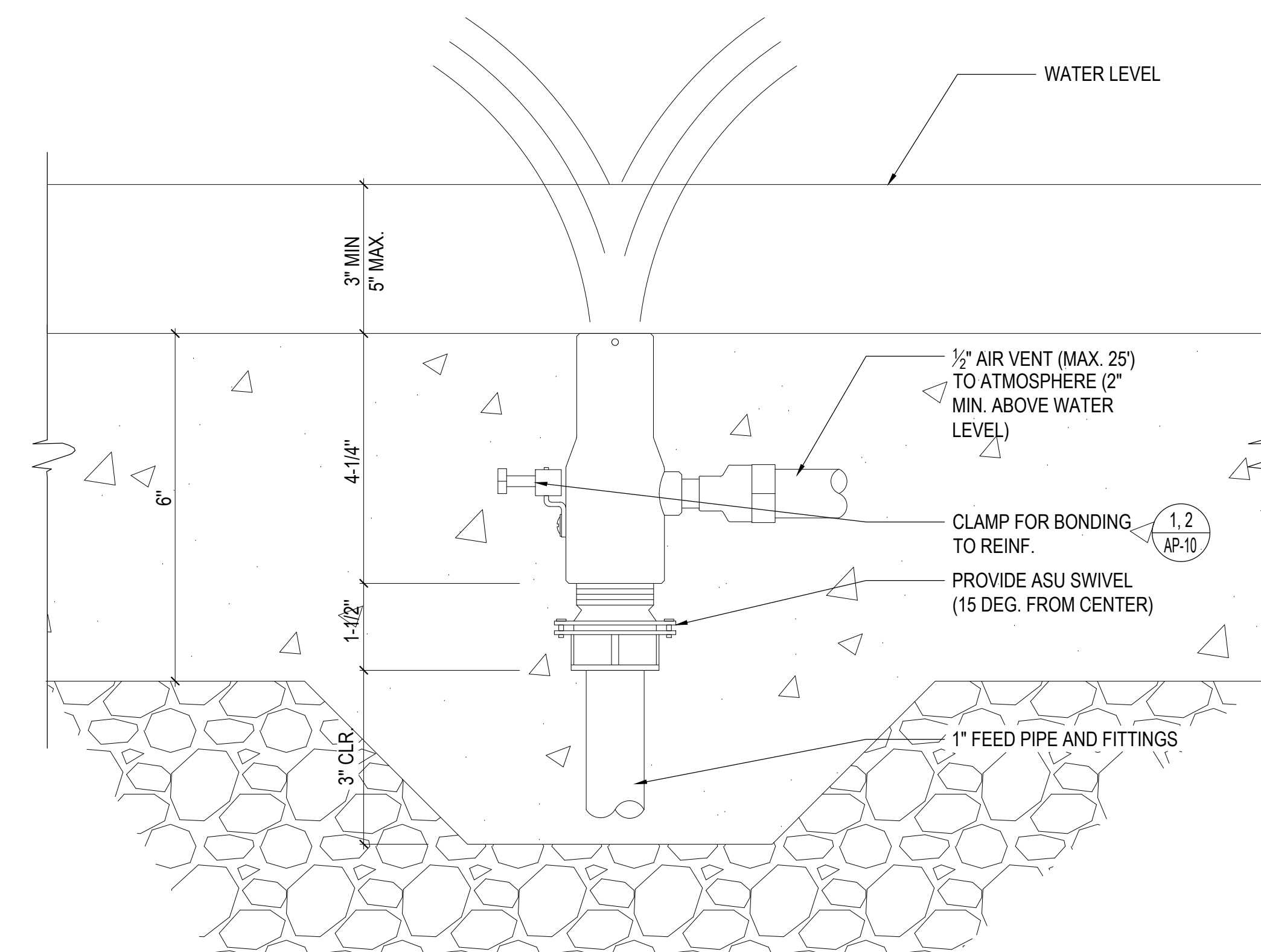
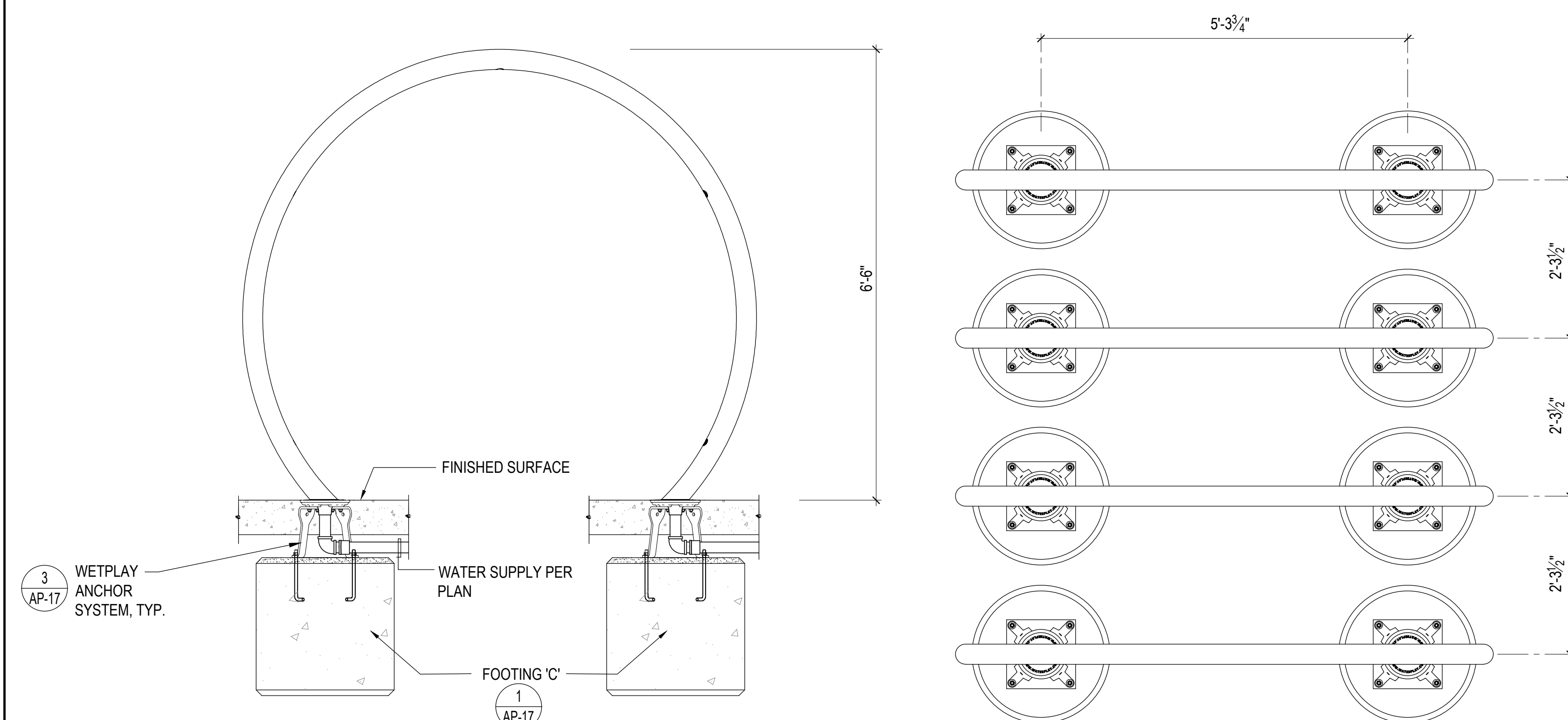
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NOTE: SLIDE IS AN  
ADD ALTERNATE

## SWIMMING POOL SLIDE (ADD ALTERNATE)

$$1/4"=1'-0"$$


## SPIRAL TUNNEL

$$1\text{-}1/2''=1'\text{-}0''$$

## FOAM JET

 $1-1/2"=1'-0"$



MECHANICAL ANCHORAGE

1. EXPANSION OR WEDGE ANCHORS INTO CONCRETE: HILTI KB TZ2 (ICC ESR-4266) TO BE INSTALLED IN ACCORDANCE WITH ICC REPORT AND MANUFACTURER'S RECOMMENDATIONS.

2. EXPANSION OR WEDGE ANCHORS INTO MASONRY: HILTI KB 3 (ICC ESR-1385) TO BE INSTALLED IN ACCORDANCE WITH ICC REPORT AND MANUFACTURER'S RECOMMENDATIONS.

3. FASTENERS SHALL BE STAINLESS STEEL FOR EXTERIOR USE OR WHEN EXPOSED TO WEATHER. PROVIDE GALVANIZED CARBON STEEL ANCHORS AT OTHER LOCATIONS, UNLESS OTHERWISE NOTED.

4. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE STRUCTURAL ENGINEER WILL DETERMINE A NEW LOCATION.

5. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.

6. ANCHORS SHALL BE PROOF-TESTED BY OWNER'S TESTING AND INSPECTION AGENCY.
7. TEST ANCHORS NO SOONER THAN 24 HOURS AFTER INSTALLATION.

8. APPLY TEST LOAD BY ANY METHOD THAT WILL EFFECTIVELY MEASURE THE TENSION OF THE ANCHOR SUCH AS DIRECT PULL WITH A HYDRAULIC JACK, TORQUE WRENCH, OR CALIBRATED SPRING LOADING DEVICES, ETC.

9. REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY A BASE PLATE OR OTHER FIXTURE. IF RESTRAINT IS FOUND, LOOSEN AND SHIM OR REMOVE THE FIXTURE PRIOR TO TESTING.

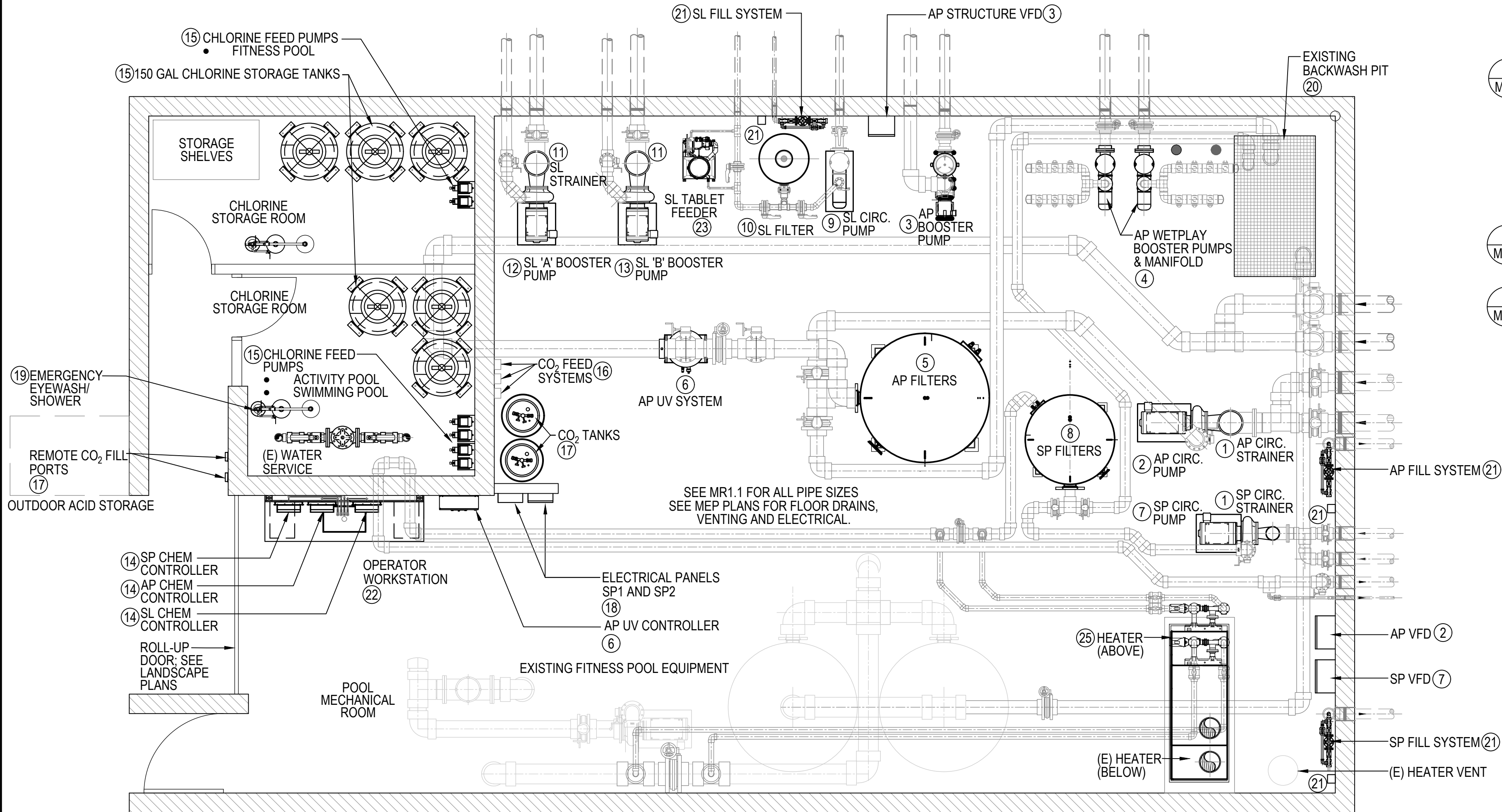
10. UNLESS OTHERWISE NOTED, PROVIDE MINIMUM EMBEDMENT OF ANCHORS AS SHOWN IN TABLES BELOW.

11. TEST 50% OF ANCHORS PER ONE OF THE FOLLOWING METHODS AND IN ACCORDANCE WITH THE VALUES SHOWN IN THE TABLE.

A. HYDRAULIC RAM METHOD: APPLY PROOF TEST LOAD WITHOUT REMOVING THE NUT. IF IT IS NOT POSSIBLE TO TEST WITH THE NUT INSTALLED, REPLACE THE NUT WITH A THREADED COUPLER TO THE LOAD. ANCHOR IS ACCEPTABLE IF NO MOVEMENT IS OBSERVED AT THE TEST LOAD. MOVEMENT MAY BE DETERMINED WHEN THE WASHER UNDER THE NUT BECOMES LOOSE.

B. TORQUE WRENCH METHOD: TEST ANCHORS TO THE TORQUE LOAD INDICATED IN THE TABLE WITH ONE-HALF TURN OF THE NUT.

12. IF ANY ANCHOR FAILS TESTING, REPLACE ANCHOR AND TEST ADDITIONAL ANCHORS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE TESTS PASS, THEN RESUME INITIAL TESTING FREQUENCY.



GENERAL NOTES

1. THE PIPING SYSTEM SHALL HAVE DIRECTION OF FLOW ARROWS INDICATED ON THE PIPES, VALVE TAGS AND COLOR CODED PIPE PER MONTGOMERY COUNTY DEPT. OF HEALTH AND HUMAN SERVICES.
2. PUBLIC POOLS SHALL HAVE A FLOW DIAGRAM OF THE POOL'S PIPING SYSTEM WITH OPERATION INSTRUCTIONS.
3. THE FLOW DIAGRAM AND INSTRUCTIONS SHALL BE AVAILABLE ON THE PREMISES AT ALL TIME.
4. ALL PIPING WITHIN THE MECHANICAL ROOM SHALL BE MOUNTED 80" AFF FLOOR. CONTRACTOR TO COORDINATE WITH ALL EQUIPMENT AND UTILITIES.
5. POOL CONTRACTOR TO PROVIDE COMPLETE PIPE HANGER SUPPORT SYSTEM FOR ALL POOL PLUMBING WITHIN MECHANICAL ROOM. PIPE HANGER SYSTEM SHALL BE SUSPENDED FROM ROOF STRUCTURE OR ENGINEERED SUB FRAME. CONTRACTOR TO PROVIDE ENGINEER SEALED SHOP DRAWINGS FOR ARCHITECT AND LOCAL AUTHORITY REVIEW.
6. ALL PLUMBING LINES SHALL BE PROVIDED WITH DRAIN DOWN PORTS AND VALVES AT THE LOWEST POINT OF ALL PLUMBING RETURNS FOR DRAINING AND BLOW DOWN OF PLUMBING DURING WINTERIZATION PROCESS.

EQUIPMENT LIST

- ① CIRCULATION PUMP STRAINERS: 'MER-MADE' F.O. SERIES FRP REDUCING BASKET STRAINER: ONE (1) 10"x8" STANDARD, (1) 6"x5" STANDARD, EACH WITH ACRYLIC LIDS AND TWO (2) STAINLESS STEEL STRAINERS EA. (150lbs.)

② ACTIVITY POOL CIRCULATION PUMP: 'PACO' #60123, 6"x8"x9-1/2" TYPE 'LC' END SUCTION CENTRIFUGAL PUMP, 1,750 RPM, 208V, 3PH, 30HP, RATED AT 1,250 GPM @ 60 FT. TDH; 80% EFFICIENT; PREMIUM EFFICIENCY TEFC MOTOR; EPOXY COAT ALL WET SURFACES. 'PACO', 'AURORA' OR APPROVED EQUAL. (425 lbs.) PROVIDE WITH ACUDRIVE #AD300X-2303-N4X VARIABLE SPEED DRIVE 30HP 208V WITH BYPASS AND FUSED DISCONNECT. COORDINATE MOUNTING LOCATION TO MAINTAIN DESIRED CLEARANCES.

③ ACTIVITY POOL PLAY STRUCTURE BOOSTER PUMP: 'JANDY' #JCP15-3AT-S JCP SERIES; 15HP; 208V 3PH; RATED AT 708 GPM AT 60 FT TDH WITH INTEGRAL STRAINER. ONE (1) TOTAL. (249 lbs.) PROVIDE WITH ACUDRIVE #AD150X-2303-N4X VARIABLE SPEED DRIVE 15HP 208V WITH BYPASS AND FUSED DISCONNECT. ONE (1) TOTAL. COORDINATE MOUNTING LOCATION TO MAINTAIN DESIRED CLEARANCES.

④ ACTIVITY POOL WET PLAY BOOSTER PUMPS AND MANIFOLDS: 'JANDY' #JCP05-3AT-S JCP SERIES; 5HP; 208V 3PH; RATED AT 268 GPM AT 60 FT TDH WITH INTEGRAL STRAINER. TWO (2) TOTAL. (72 lbs.) PROVIDE WITH ACUDRIVE #AD050X-2303-N4X VARIABLE SPEED DRIVE 5HP 208V WITH BYPASS AND FUSED DISCONNECT. TWO (2) TOTAL. PROVIDE BOOSTER PUMP WITH 4" MANIFOLD. TO WET PLAY FEATURES AS SHOWN PER PLUMBING PLAN. MANIFOLD TO BE PROVIDED W/ INDIVIDUAL ISOLATION BALL VALVES PER FEED LINE, PRESSURE GAUGE AND DRAIN DOWN PORTS FOR WINTERIZATION. ALL FEED LINES TO BE ROUTED AWAY FROM EXISTING FOOTINGS AS NECESSARY.

⑤ ACTIVITY POOL FILTERS: 'PADDOCK' #6730-V-3C VERTICAL 3 CELL STAINLESS STEEL FILTER WITH MANUAL FILTER CONTROL HI-RATE PERMANENT MEDIA FILTER WITH 99.6 SQ. FT. OF FILTER AREA RATED AT 1,494 GPM AT 15 GPM/SQ. FT. COMPLETE WITH 10" FACE PIPING, 6" BACKWASH, AND ANCHORAGE. PROVIDE ALL UTILITIES, PIPING, VALVING ETC. (7,400 lbs EACH TANK) PADDOCK, NO KNOWN EQUAL. PROVIDE SIGNET MK-515 FLOSENSOR WITH DIGITAL READ-OUT. ONE (1) SYSTEM TOTAL.

⑥ ACTIVITY POOL ULTRA VIOLET TREATMENT SYSTEM: 'EVOQUA' WAFER UV MODEL WF-225-8-N, VALIDATED AT 1,540 GPM, 8" FLANGED CONNECTION IN-LINE UV WITH TWO (2) LAMPS @ 1,500 WATTS, 208V 1PH. CONTROL UNIT: 208V 1PH, 23"x31"x12" DEEP. (121 lbs.). PROVIDE PIPING BYPASS, VALVING, ETS EZ VALVE STRAINER AND INSTALLATION AND PIPING PER MANUFACTURER'S RECOMMENDATIONS. ONE (1) SYSTEM TOTAL.

⑦ SWIMMING POOL CIRCULATION PUMP: 'PACO' #40129, 4"x5"x12" TYPE 'LC' END SUCTION CENTRIFUGAL PUMP, 1,750 RPM, 208V, 3PH; 15HP, RATED AT 400 GPM @ 60 FT. TDH; 74.55% EFFICIENT; PREMIUM EFFICIENCY TEFC MOTOR; EPOXY COAT ALL WET SURFACES. 'PACO', 'AURORA' OR APPROVED EQUAL. (425 lbs.) PROVIDE WITH ACUDRIVE #AD150X-2303-N4X VARIABLE SPEED DRIVE 15HP 208V WITH BYPASS AND FUSED DISCONNECT. COORDINATE MOUNTING LOCATION TO MAINTAIN DESIRED CLEARANCES.

⑧ SWIMMING POOL FILTERS: 'PADDOCK' #6726-V-2C VERTICAL 2 CELL STAINLESS STEEL FILTER WITH MANUAL FILTER CONTROL HI-RATE PERMANENT MEDIA FILTER WITH 31.8 SQ. FT. OF FILTER AREA RATED AT 477 GPM AT 15 GPM/SQ. FT. COMPLETE WITH 6" FACE PIPING, 4" BACKWASH AND ANCHORAGE. PROVIDE ALL UTILITIES, PIPING, VALVING ETC. (7,400 lbs EACH TANK) PADDOCK NO KNOWN EQUAL. PROVIDE SIGNET MK-515 FLOSENSOR WITH DIGITAL READ-OUT. ONE (1) SYSTEM TOTAL.

⑨ SLIDE BALANCE TANK CIRCULATION PUMP: 'JANDY' #SHPF-2.0-3PH SH SERIES; 2HP; 208V 3PH; RATED AT 125 GPM AT 60 FT TDH WITH INTEGRAL STRAINER. ONE (1) TOTAL. PROVIDE WITH DANFOSS VARIABLE SPEED DRIVE 2HP 208V WITH BYPASS AND FUSED DISCONNECT. VARIABLE SPEED DRIVE SHALL BE PROVIDED WITH USER LOCKOUT. VFD TO BE PROGRAMMED WITH NORMAL CIRCULATION FLOW RATE OF 100 GPM. BACKWASH AND NIGHT TIME FLOW RATES SHALL BE SET TO NON-OPERATIONAL HOURS ONLY. 208V 3PH. ONE (1) TOTAL. (58 lbs.)

⑩ SLIDE BALANCE TANK FILTER: 'PENTAIR' TRITON #TR-140C-3 HI-RATE PERMANENT MEDIA FILTERS WITH 7.06 SQ. FT. OF FILTER AREA RATED AT 105 GPM AT 15 GPM/SQ. FT. COMPLETE WITH 3" MANIFOLD, 3" FLANGES AND VALVED TOGETHER, 3" BACKWASH, SEISMIC ANCHORAGE. PROVIDE ALL UTILITIES, PIPING, VALVING, ETC. ONE (1) TANK TOTAL. (1,007LBS.)

⑪ SLIDE BOOSTER PUMP STRAINERS: 'MER-MADE' F.O. SERIES FRP REDUCING BASKET STRAINER: ONE (1) 8"x5" STANDARD AND ONE (1) 10"x6" STANDARD, EACH PROVIDED WITH ACRYLIC LID AND TWO (2) STAINLESS STEEL STRAINERS EA. (150lbs.)

⑫ SLIDE 'A' BOOSTER PUMP: 'PACO' #50123, 6"x5" TYPE 'LC' END SUCTION CENTRIFUGAL PUMP, 1,187 RPM, 208V, 3PH, 15HP, RATED AT 1,000 GPM @ 45 FT. TDH; 80.24% EFFICIENT; PREMIUM EFFICIENCY TEFC MOTOR; EPOXY COAT ALL WET SURFACES. 'PACO', 'AURORA' OR APPROVED EQUAL. (600 lbs.) INTERCONNECT WITH CIRCULATION PUMP SO IT CAN ONLY OPERATE WHEN CIRCULATION PUMP IS ON.

⑬ SLIDE 'B' BOOSTER PUMP: 'PACO' #4012A, 4"x5"x12" TYPE 'LC' END SUCTION CENTRIFUGAL PUMP, 1,187 RPM, 208V, 3PH, 7.5HP, RATED AT 500 GPM @ 45 FT. TDH; 80.76% EFFICIENT; PREMIUM EFFICIENCY TEFC MOTOR; EPOXY COAT ALL WET SURFACES. 'PACO', 'AURORA' OR APPROVED EQUAL. (600 lbs.) INTERCONNECT WITH CIRCULATION PUMP SO IT CAN ONLY OPERATE WHEN CIRCULATION PUMP IS ON.

⑭ WATER CHEMISTRY CONTROLLER(S): (NO KNOWN EQUAL) POOL CONTRACTOR TO PROVIDE INTERLOCKS WITH ALL POOL EQUIPMENT AS SHOWN WITHIN THE DETAIL. CONTRACTOR TO COORDINATE WITH CHEMICAL CONTROLLER MANUFACTURER AND PROVIDE ADDITIONAL RELAYS AS NECESSARY.
  - ACTIVITY POOL: CAT 4000 COMPLETE SYSTEM CONTROL PACKAGE.
  - SWIMMING POOL: CAT 4000 W/ COMPLETE SYSTEM CONTROL PACKAGE.
  - SLIDE BALANCE TANK: CAT 4000 W/ COMPLETE SYSTEM CONTROL PACKAGE.

⑮ CHLORINE STORAGE/FEED SYSTEM: PROVIDE 'CHEM-TAINER' 150 GALLON #TC3448C; DUAL STORAGE/CONTAINMENT TANKS WITH LIDS, OPERATING WEIGHT = (1,250lbs). COMPLIES WITH FED. REG #40CFR-264-193. SIX (6) TOTAL. FEED PUMP(S) SHALL BE AS LISTED BELOW, ALL FEED PUMPS SHALL BE PROVIDED WITH FRP SHELF BRACKETS AND HARD PIPED TO POINT OF INJECTION.
  - ACTIVITY POOL: 'BLUE AND WHITE' A1N20X-7T 91GPD @ 100PSI, TWO (2) TOTAL.
  - SWIMMING POOL: 'BLUE AND WHITE' A1N10X-7T 52GPD @ 100PSI, TWO (2) TOTAL.
  - FITNESS POOL METERING PUMPS: (EXISTING) TO BE RELOCATED TO NEW STORAGE ROOM AND PLUMBED TO EXISTING INJECTION POINT

⑯ CARBON DIOXIDE FEED SYSTEMS: CO2 FLOW CONTROL UNITS WITH FLOW ADJUSTMENTS FROM 0-200 SCFH WITH PRESSURE REGULATOR AND GAUGES FOR UP TO 850 PSI NOMINAL CYLINDER PRESSURE AND 40 PSI OUTPUT TO CO2 FEED UNIT FEED FROM STORAGE TANKS. THREE (3) FEED SYSTEMS FURNISHED BY GAS SERVICE PROVIDER. CONTRACTOR TO CONNECT TO EACH POOL SYSTEM PER MANUFACTURER'S REQUIREMENTS. PROVIDE WITHIN MECHANICAL ROOM HARD WIRED 'ANALOX' #API KIT CO2 DETECTOR WITH AUDIBLE AND VISUAL ALARMS, UL 1971 STANDARD LISTED, ONE (1) TOTAL.

⑰ CARBON DIOXIDE STORAGE SYSTEM: TWO (2) 750lb. STORAGE TANKS WITH REMOTE FILL PORTS (OPERATING WEIGHT = 680 LIQUID lbs. EA.) TANKS TO BE FURNISHED BY GAS SERVICE PROVIDER.

⑱ EYEWASH/SHOWER: HAWS MODEL #8309WC BARRIER FREE COMBINATION SHOWER AND EYE/FACE WASH WITH CORROSION RESISTANT PROTECTION. SEE MEP SHEETS FOR SUPPLY PIPING. TWO (2) TOTAL.

⑳ BACKWASH SUMP: EXISTING BACKWASH PIT WITH P-TRAP OUTLET TO STORM.

㉑ AUTO FILL SYSTEM(S): AQUATIC CONTROLLER TECHNOLOGIES' ELS-810 FILL SYSTEM TO INCLUDE 2" BRONZE BODY SOLENOID CONTROL VALVE, BRONZE TRIM, FLANGED GLOBE PATTERN, 24V SOLENOID WIRING SHALL BE WIRED TO WATER LEVEL CONTROLLER. PROVIDE 6" AIR GAP AT FILL POINT. THREE (3) TOTAL. CONNECTED TO SOURCE DOWN STREAM OF REDUCED PRESSURE BACKFLOW PREVENTOR (BY OTHERS).

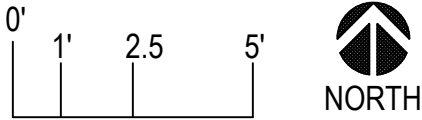
㉒ POOL OPERATOR WORKSTATION DESK: 'TOTAL LAB SOLUTIONS' EPOXY COUNTERTOP WITH DROP-IN SINK AND TWO (2) END CABINETS. FURNISH WITH WALL MOUNTED FIVE (5) FAUCETS 'BROEN BOSS' OR APPROVED EQUAL. SEE MEP PLANS FOR WATER SUPPLY PIPING.

㉓ SLIDE BALANCE TANK TABLET CHLORINE FEEDER / STORAGE: 'PPG' ACCU-TAB POWERBASE CHLORINATION UNIT MODEL 1030 WITH 67.2lbs/DAY OUTPUT, 30 lb. STORAGE. COMPLETE WITH PIPING, VALVING, VENTURI INJECTION AND 3/4 HP BOOSTER PUMP. NSF 50 CERTIFIED. ONE (1) TOTAL.

㉔ SWIMMING POOL HEATER: ADD ALTERNATE, 'LOCHINVAR' #CPN1442, 1,440,000 BTU INPUT, 2" GAS CONNECTION, 2-1/2" FLANGED WATER INFLUENT/EFFLUENT CONNECTIONS AND 12" INTAKE & EXHAUST WITH CATEGORY IV DOUBLE WALL VENTING WITH DRAIN TEES. ONE (1) TOTAL (1,042lbs.) AS PART OF THE ADD ALTERNATE THE CONTRACTOR SHALL PROVIDE ENGINEERED SHOP DRAWINGS FOR THE PERMITTING AND INSTALLATION OF THE NEW HEATER AND MODIFICATION OF THE EXISTING GAS AND VENTING SYSTEM WHICH SHALL INCLUDE:
  - LOCHINVAR STACKING SUPPORT RACK SYSTEM, 4" REINFORCED CONCRETE EQUIPMENT PAD AND ANCHORS. RACK TO BE POSITIONED OVER EXISTING POOL HEATER. CONTRACTOR MAY REPOSITION HEATERS AS NECESSARY.
  - ALL NEW NECESSARY PLUMBING FITTINGS VALVES, TEMPERATURE SENSORS, THERMOMETERS, PIPE HANGERS, ETC. FOR CONNECTION OF THE NEW POOL HEATER TO THE NEW SWIMMING POOL CIRCULATION PLUMBING.
  - THE MODIFICATIONS REQUIRED TO TIE THE NEW HEATER EXHAUST VENTING TO THE EXISTING ROOF VENT SYSTEM.
  - THE MODIFICATIONS REQUIRED TO TIE THE NEW HEATER INTAKE VENTING TO THE EXISTING ROOF INTAKE SYSTEM OR PROPOSE ALTERNATE INTAKE SYSTEM.
  - THE MODIFICATIONS REQUIRED TO THE EXISTING GAS SUPPLY PLUMBING AND REGULATOR SYSTEM WITHIN THE MECHANICAL ROOM TO PROVIDE THE NECESSARY GAS VOLUME TO EACH HEATER. THE GAS LINE MODIFICATIONS WILL NOT BE REQUIRED TO ALLOW BOTH HEATERS TO BE USED SIMULTANEOUSLY.
  - CONDUIT, FEEDER LINES, DISCONNECTS AND INTERLOCK CONNECTIONS TO THE CHEMICAL CONTROLLER AND ELECTRICAL PANEL PER THE MANUFACTURERS INSTALLATION REQUIREMENTS.
  - PIPE HANGERS AND SUPPORT SYSTEMS FOR RELATED POOL PLUMBING AND ALL UTILITIES
  - ALL MODIFICATIONS REQUIRED BY THE MANUFACTURER FOR A FULLY FUNCTIONING HEATING SYSTEM WITH START-UP AND TRAINING PER THE MANUFACTURERS GUIDELINES.

WEDGE OR EXPANSION ANCHOR EMBEDMENT DEPTH AND TEST LOAD

SIZE	HILTI KB TZ 2 (SS) ANCHORS IN CONCRETE (ESR-4266)		KB TZ 2 (SS) ANCHORS IN CMU (ESR-4561)	
	MIN. EMBED (heff)	TORQUE LOAD (FT-LBS)	MIN. EMBED (heff)	TORQUE LOAD (FT-LBS)
1/4" DIA.	1-1/2"	6	1-1/2"	6
3/8" DIA.	2-1/2"	30	2-1/2"	15
1/2" DIA.	3-1/4"	40	3-1/4"	25
7/8" DIA.	4"	60	4"	35
3/4" DIA.	4-3/4"	125	4-3/4"	50

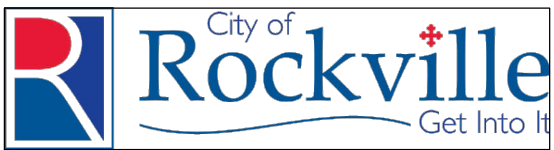


MECHANICAL ROOM LAYOUT 1/4" = 1'-0"

LSG LANDSCAPE ARCHITECTURE

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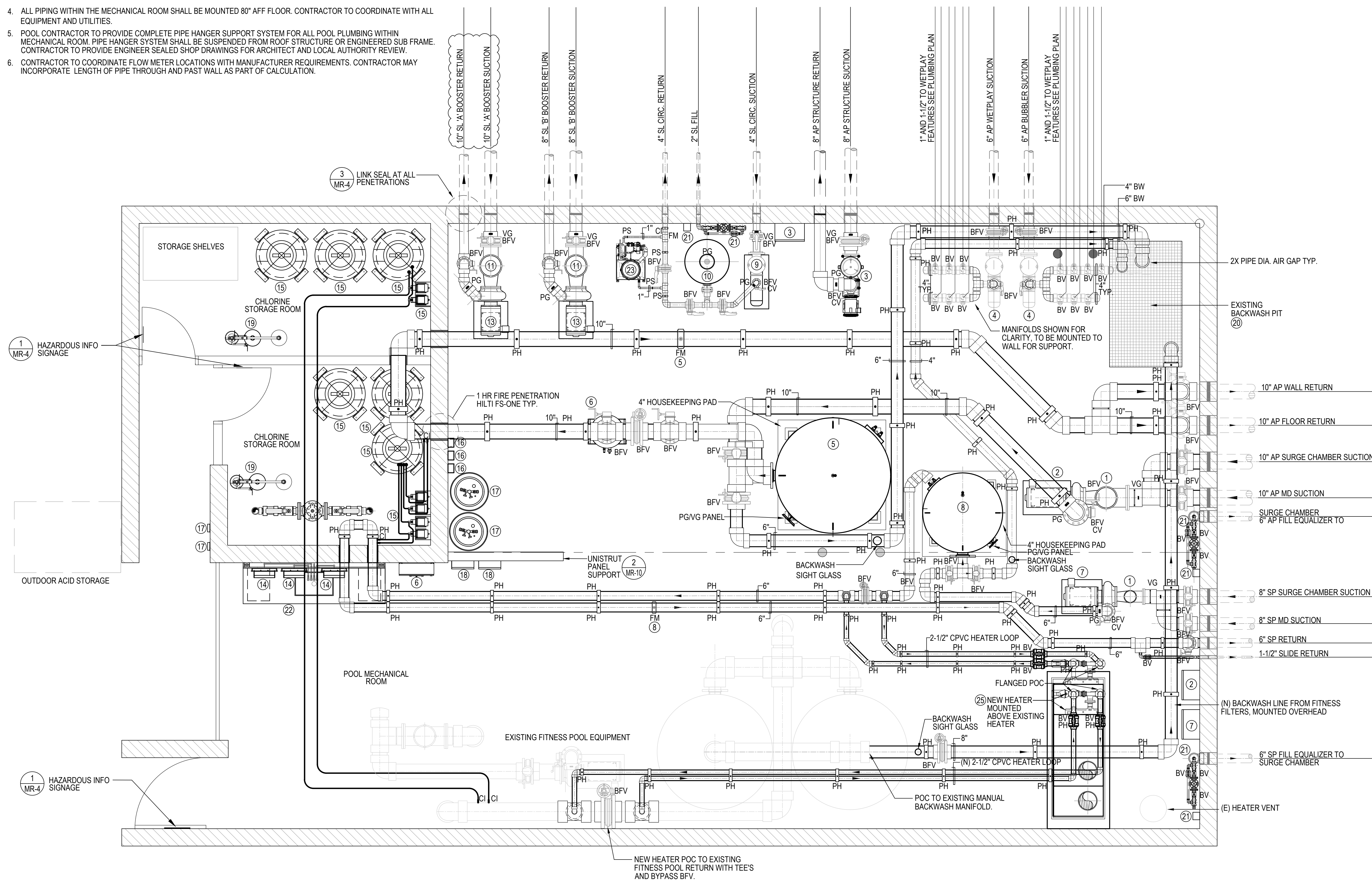
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BID SET 02/23/2024



## GENERAL NOTES

1. THE PIPING SYSTEM SHALL HAVE DIRECTION OF FLOW ARROWS INDICATED ON THE PIPES AND COLOR CODED PER HEALTH DEPT. GUIDELINES.
2. PUBLIC POOLS SHALL HAVE A FLOW DIAGRAM OF THE POOL'S PIPING SYSTEM WITH OPERATION INSTRUCTIONS.
3. THE FLOW DIAGRAM AND INSTRUCTIONS SHALL BE AVAILABLE ON THE PREMISES AT ALL TIME
4. ALL PIPING WITHIN THE MECHANICAL ROOM SHALL BE MOUNTED 80" AFF FLOOR. CONTRACTOR TO COORDINATE WITH ALL EQUIPMENT AND UTILITIES.
5. POOL CONTRACTOR TO PROVIDE COMPLETE PIPE HANGER SUPPORT SYSTEM FOR ALL POOL PLUMBING WITHIN MECHANICAL ROOM. PIPE HANGER SYSTEM SHALL BE SUSPENDED FROM ROOF STRUCTURE OR ENGINEERED SUB FRAME. CONTRACTOR TO PROVIDE ENGINEER SEALED SHOP DRAWINGS FOR ARCHITECT AND LOCAL AUTHORITY REVIEW.
6. CONTRACTOR TO COORDINATE FLOW METER LOCATIONS WITH MANUFACTURER REQUIREMENTS. CONTRACTOR MAY INCORPORATE LENGTH OF PIPE THROUGH-AND PAST WALL AS PART OF CALCULATION.

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## MECHANICAL ROOM PLUMBING LAYOUT

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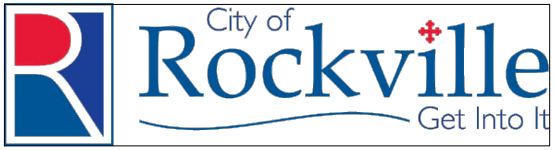
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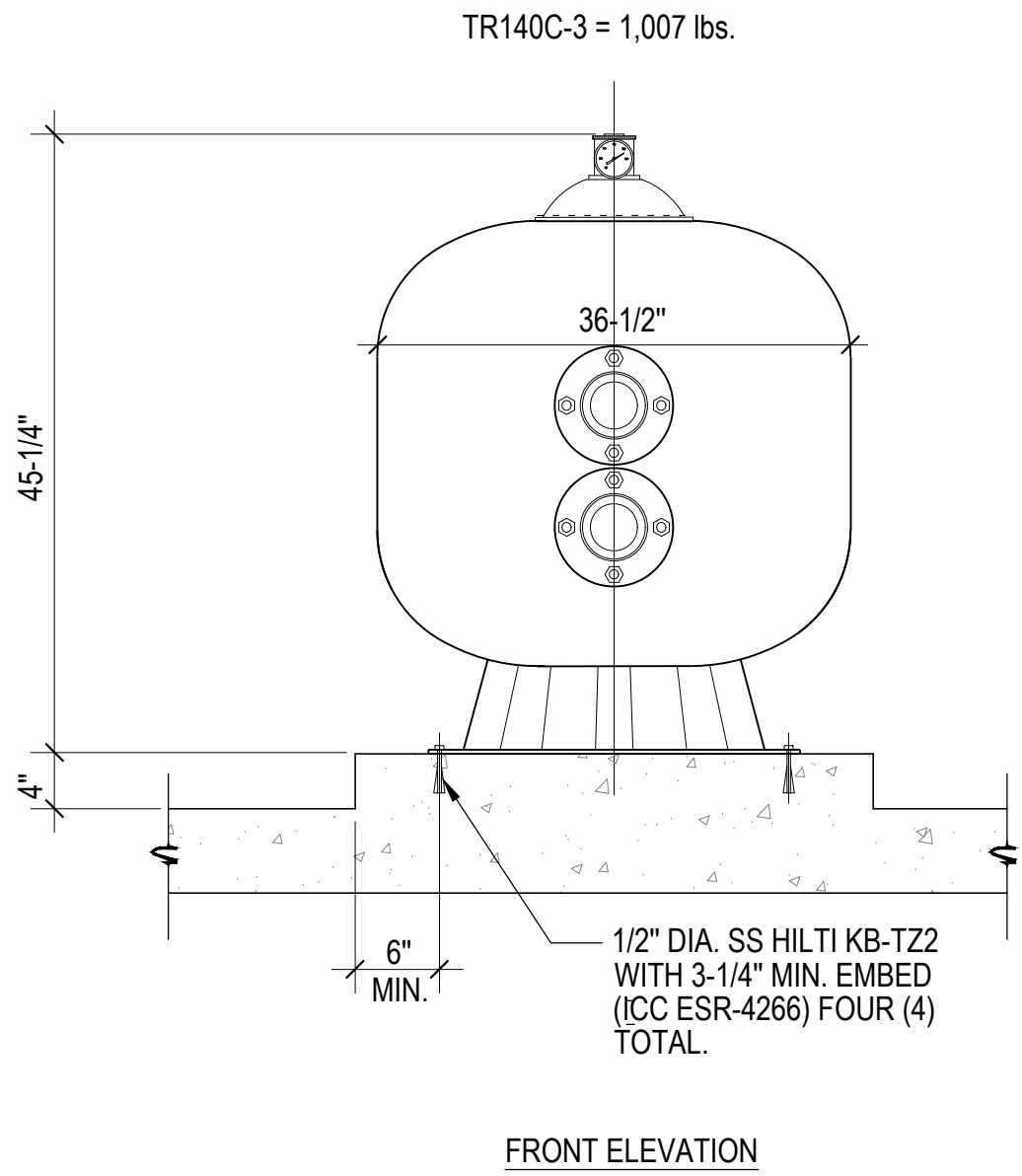
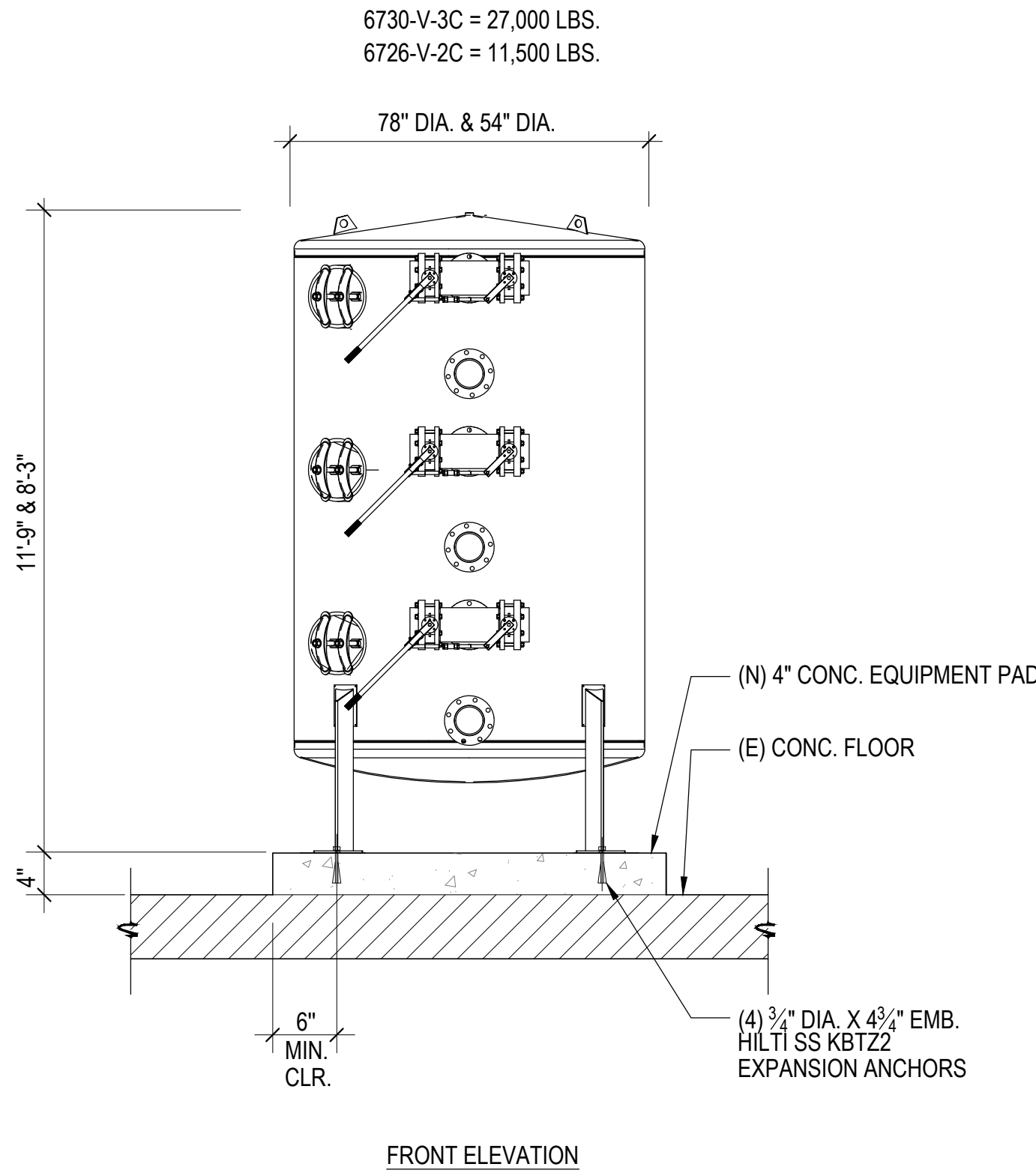
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4	PERMIT SET 12/08/2023

No.	Description	Date
Revisions		

Project Number: 22.00036.00  
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Sheet No. MR-2



1

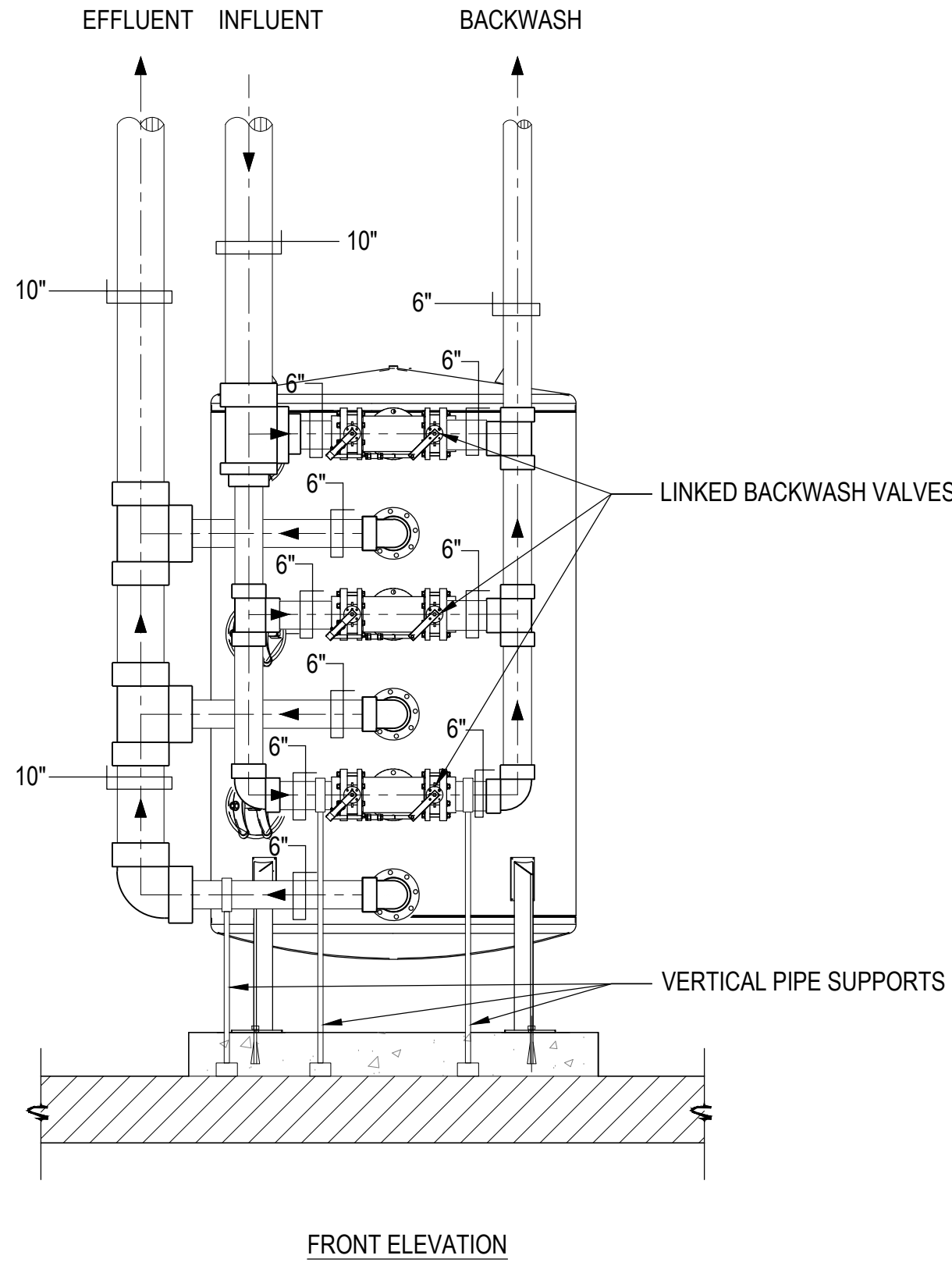
FILTER ANCHORAGE

NO SCALE

2

FILTER ANCHORAGE

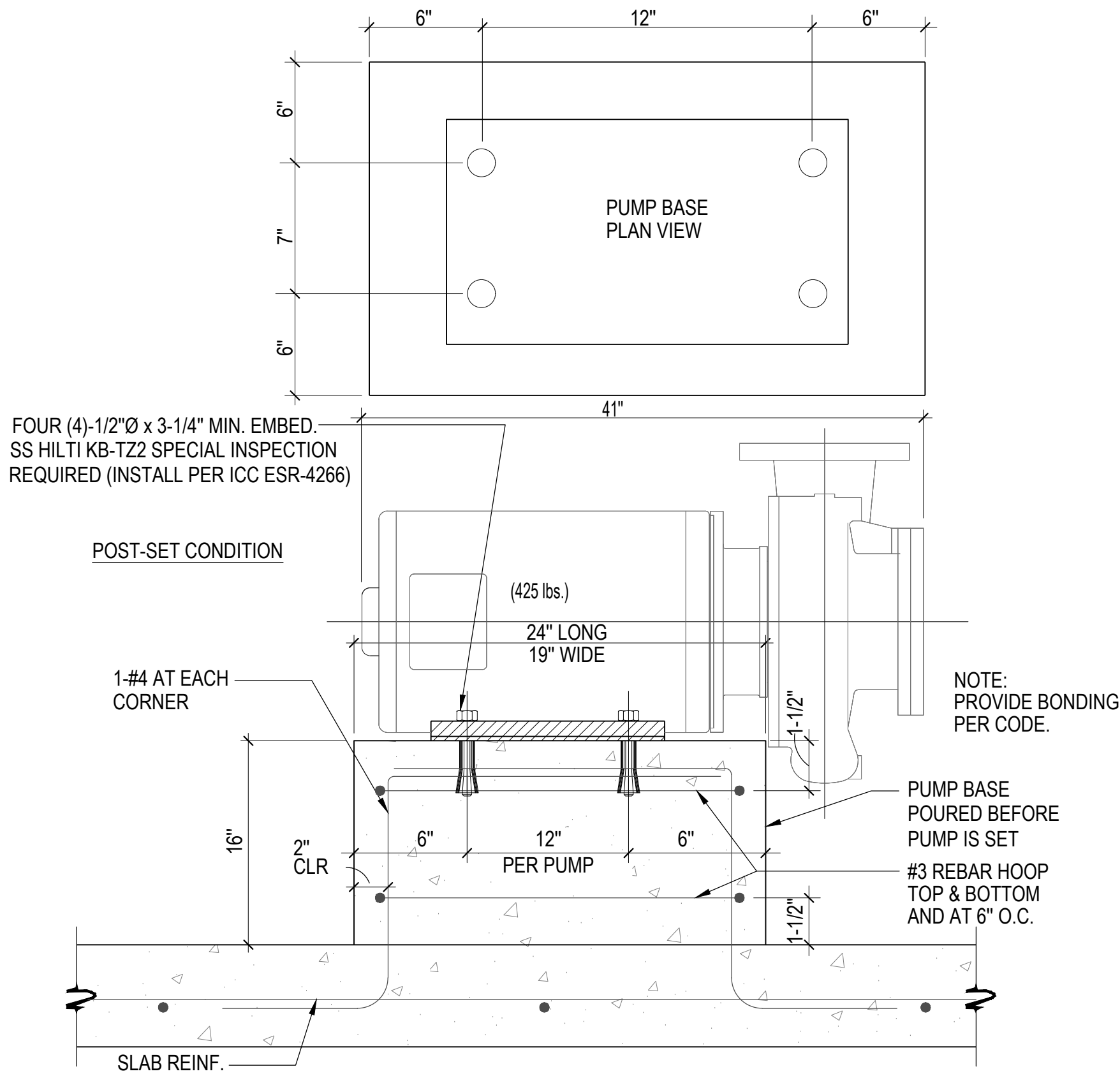
NO SCALE



3

3 CELL FACE PIPE SCHEMATIC

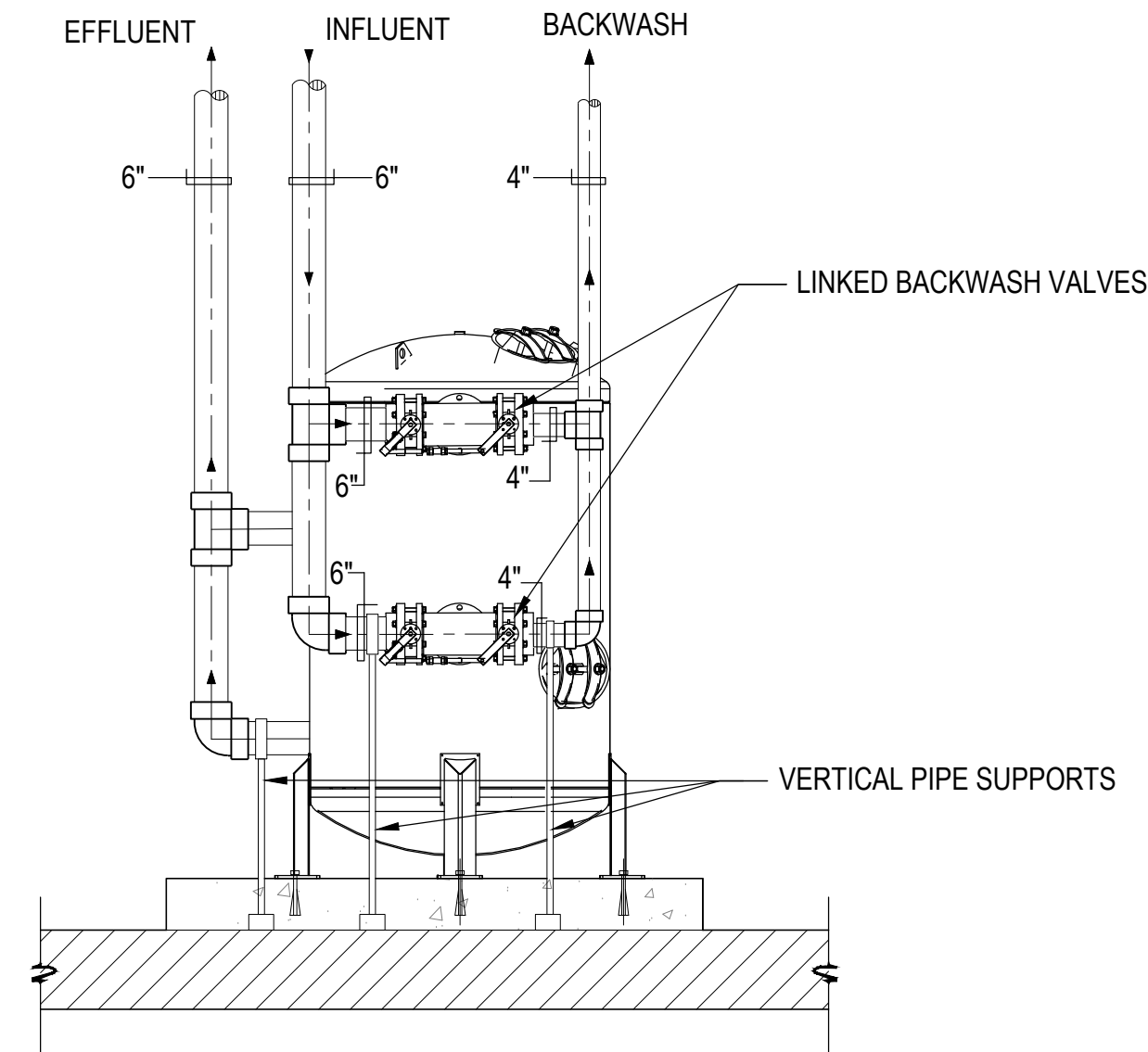
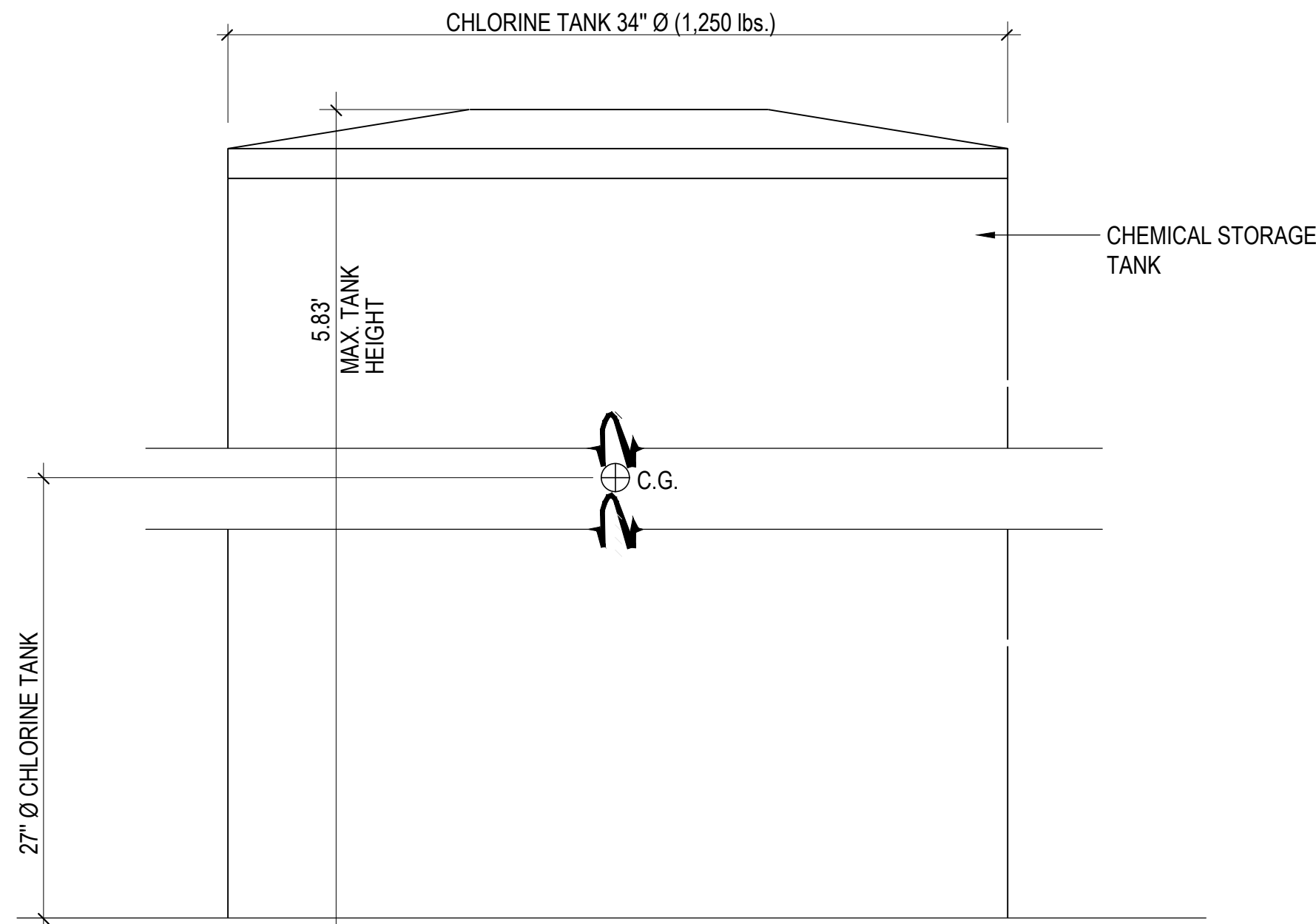
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4

PUMP ANCHORAGE

NO SCALE

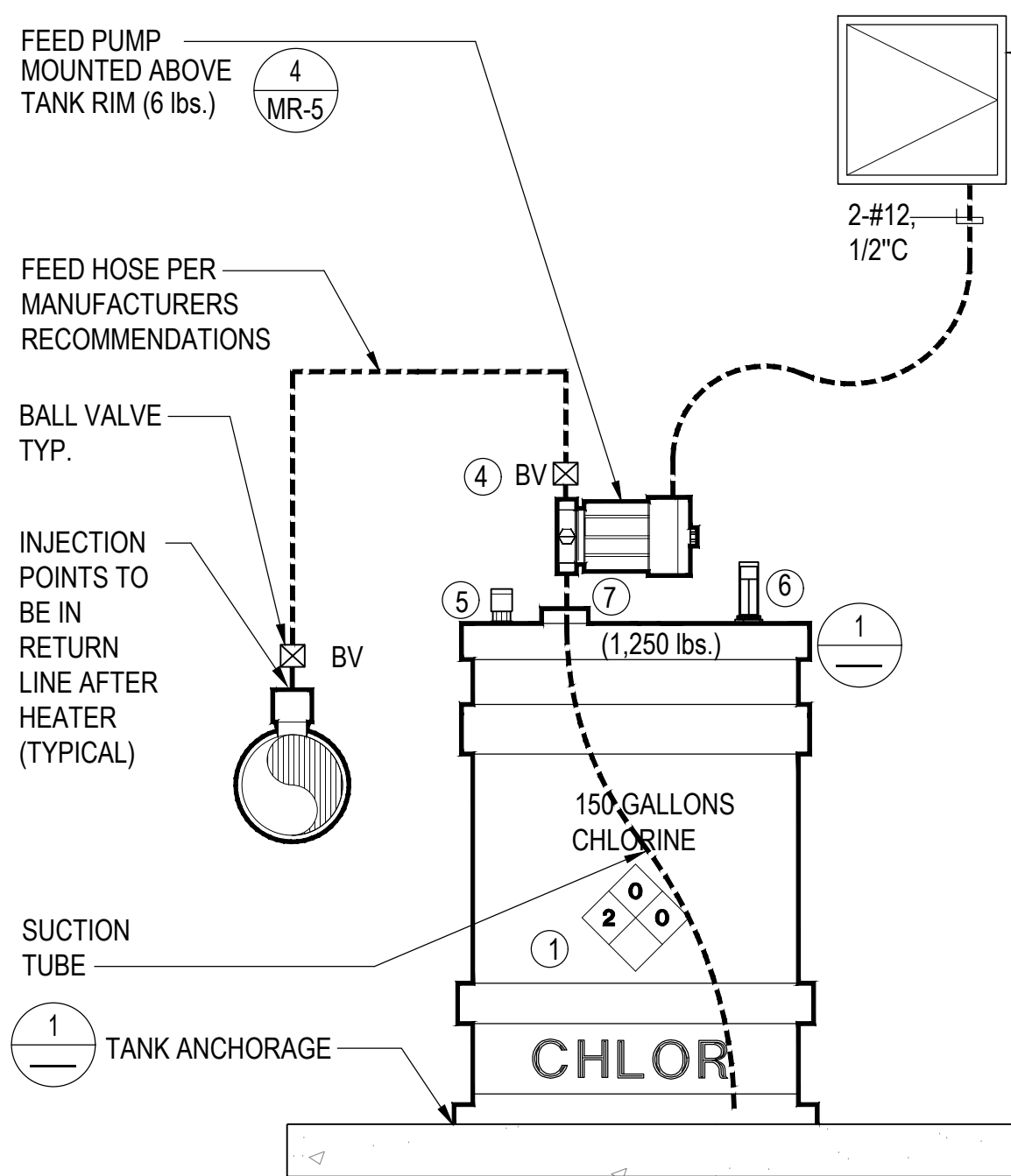


1 CHEMICAL TANK ANCHOR (TYP. 3 TANKS)

NO SCALE

2 2 CELL FACE PIPE SCHEMATIC

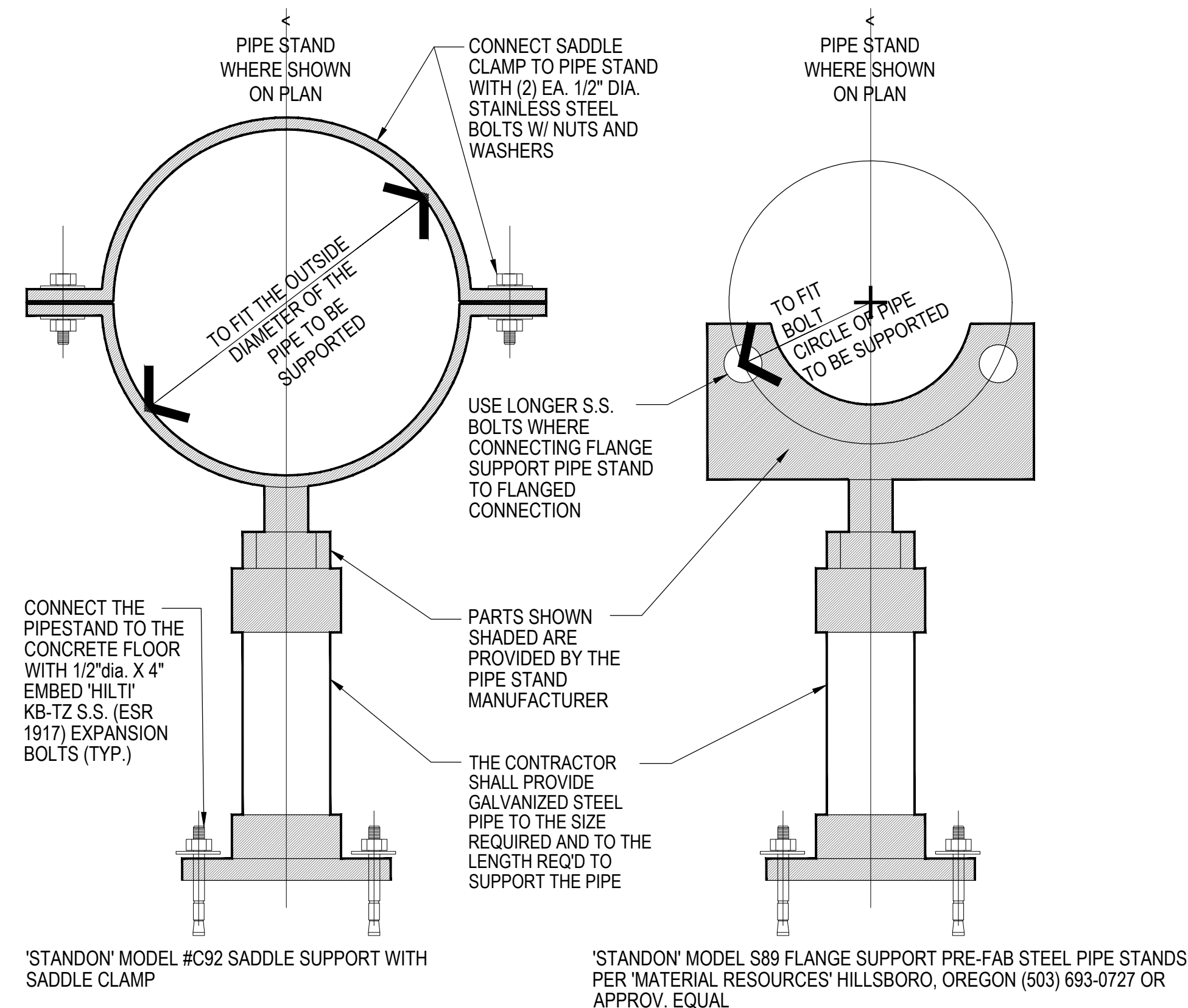
NO SCALE



- NOTES:
- 1 ABOVEGROUND STATIONARY TANKS USED FOR THE STORAGE OF HAZARDOUS MATERIALS SHALL BE PLACARDED WITH HAZARD IDENTIFICATION SIGNS AS SPECIFIED IN C.F.C. 5003.5 AND NFPA 704 FOR THE SPECIFIC MATERIAL CONTAINED. SIGNS SHALL BE DURABLE. THE SIZE, COLOR AND LETTERING SHALL BE IN ACCORDANCE WITH NATIONALLY RECOGNIZED STANDARDS.
  - 2 PIPING, TUBING, VALVES AND RELATED COMPONENTS SHALL BE BRACED.
  - 3 PIPING AND TUBING SHALL BE IDENTIFIED TO INDICATE THE MATERIAL CONVEYED.
  - 4 EMERGENCY SHUTOFF VALVES SHALL BE IDENTIFIED AND THE LOCATION SHALL BE CLEARLY VISIBLE AND INDICATED BY MEANS OF A SIGN.
  - 5 PROVIDE 2" 'CAMLOCK' FILL PORT PER VENDOR'S REQUIREMENTS.
  - 6 'AT-A-GLANCE' CHEMICAL GAUGE BY KRUEGER SENTRY GAUGE CO. INC.
  - 7 PROVIDE VAPORLOC CAP @ TUBING ENTRANCE
  - 8 PIPING, VALVING AND FITTINGS SHALL COMPLY WITH CFC 2703.2.2

3 SODIUM HYPOCHLORITE FEED SCHEMATIC

NO SCALE



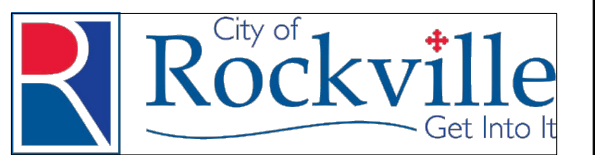
4 PIPE FLOOR STAND SUPPORT

NO SCALE

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ARCHITECTURE

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703-821-2045

ROCKVILLE SWIM  
& FITNESS CENTER  
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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

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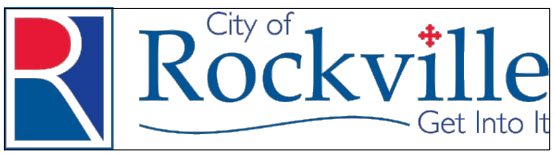
Sheet No. MR-3



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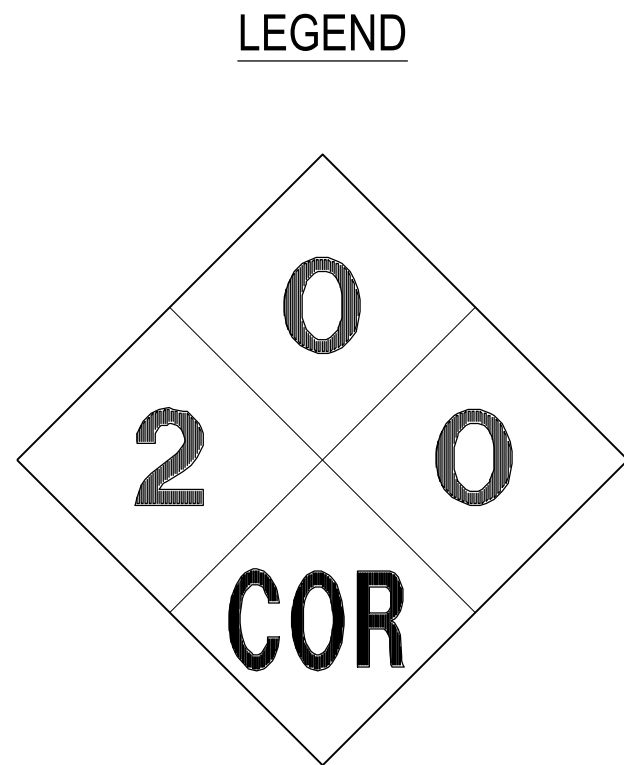
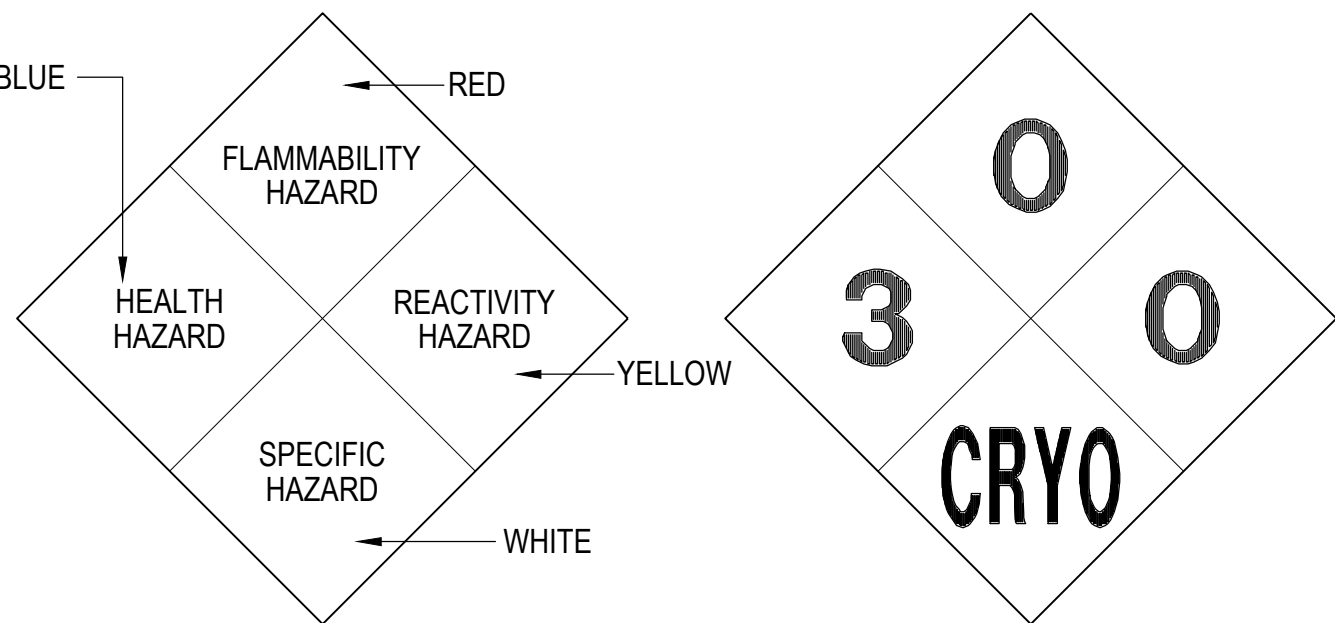
Sheet No. MR-4

CHEMICAL CLASSIFICATION TABLE										
COMMON NAME	CHEMICAL NAME	% COMP.	CAS #	FORM	QUANT. STORED (NOT USED)	QUANT. IN USE (USE-CLOSED) (PER CONTROL AREA)	MAXIMUM ALLOWABLE QUANTITY (PER CONTROL AREA)	LOCATION (STORAGE & USE)	HAZ. CLASSES	JUSTIFICATION
SODIUM HYPOCHLORITE	SODIUM HYPOCHLORITE	12.5%	7681-52-9	LIQUID	0 GAL.	500 GAL.	500 GAL.	CHEM. ROOM	CORROSIVE LIQUID	MSDS
CARBON DIOXIDE	CARBON DIOXIDE	100%	124-39-9	LIQUID	0 lbs.	600 lbs.	686 lbs.	CHEM. ROOM	CRYOGENIC	MSDS

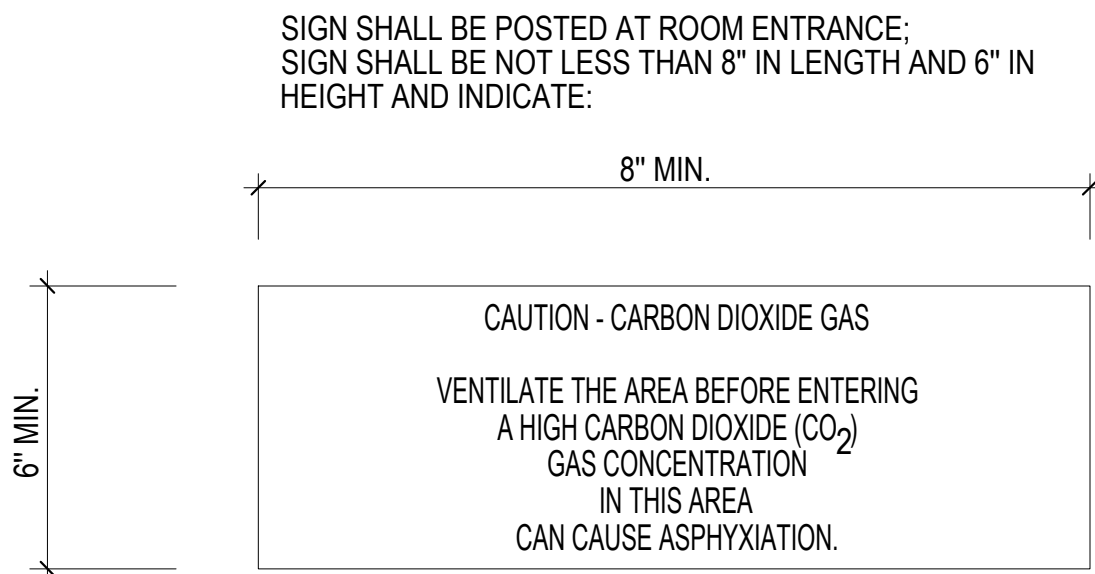
QUANTITIES OF CHEMICALS DO NOT EXCEED THE QUANTITIES LISTED IN IBC TABLES 307.1 (1) AND 307.1 (2).  
FOR CARBON DIOXIDE GAS SEE TABLE 1.12.8(b) OF THE NFPA-1, 6,000 FT<sup>3</sup> ALLOWABLE OR 686 lbs. STORAGE PER CONTAINED AREA  
PROVIDE HARD WIRED CO<sub>2</sub> DETECTOR 'ANALOX SENSOR TECHNOLOGY' MODEL #AP1 KIT SENSOR AND STROBE UNITS 120V HARD WIRED W/ STROBE LIGHT AND AUDIBLE ALARM. SENSOR MOUNTED 18 INCHES A.F.F. AND ALARM LEVEL BETWEEN 70-76 INCHES AND WITHIN VISIBLE EYESIGHT OF DOOR. TO BE SET TO DETECT CO<sub>2</sub> GAS IN LEVELS IN EXCESS OF THE PEL. PROVIDE IN EACH ROOM CONTAINING CO<sub>2</sub>.

RATING EXPLANATION GUIDE					
RATING	HEALTH HAZARD	FLAMMABILITY HAZARD	REACTIVITY HAZARD	SPECIFIC HAZARD	
4	CAN BE LETHAL	EXTREMELY FLAMMABLE. IGNITES AT BELOW 73° F.	MAY EXPLODE AT NORMAL TEMPERATURES AND PRESSURES	OXIDIZER:	OX
3	CAN CAUSE SERIOUS OR PERMANENT INJURY	IGNITES AT ABOVE 73° F. BELOW 100° F.	MAY EXPLODE AT HIGH TEMPERATURES OR SHOCK	ACID:	ACID
2	CAN CAUSE TEMPORARY INCAPACITATION OR RESIDUAL INJURY	IGNITES AT ABOVE 100° F. BELOW 200° F.	VIOLENT CHEMICAL CHANGE AT HIGH TEMPS OR PRESSURES	CORROSIVE:	COR
1	CAN CAUSE SIGNIFICANT IRRITATION	IGNITES AT ABOVE 200° F.	NORMALLY STABLE. HIGH TEMPERATURES MAKE UNSTABLE	ALKALI:	ALK
0	NO HAZARD	WILL NOT BURN	STABLE	USE NO WATER:	-W-
				RADIATION HAZARDS:	
				POLYMERIZES:	P

- NOTES:
- CONFIRM SIGNAGE WITH LOCAL FIRE MARSHALL AND/OR BUILDING CODES PRIOR TO INSTALLATION. SIGNS SHALL CONFORM TO NFPA 704.
  - SIGNS SHALL BE SIZES AND COLORS PER CODE MOUNTED AT +60" A.F.F. ON DOORS AT CHEMICAL ROOMS.

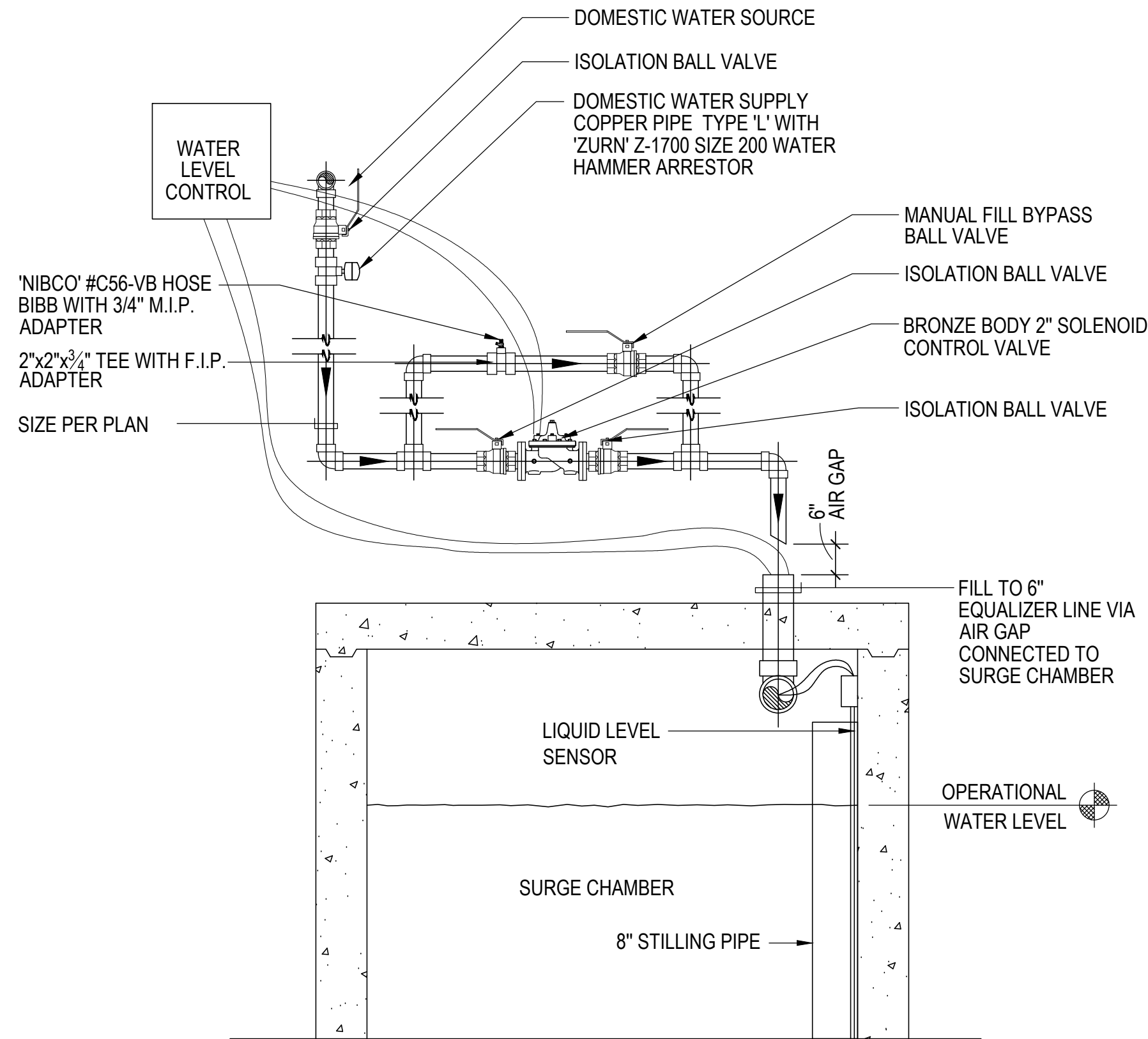


SODIUM HYPOCHLORITE



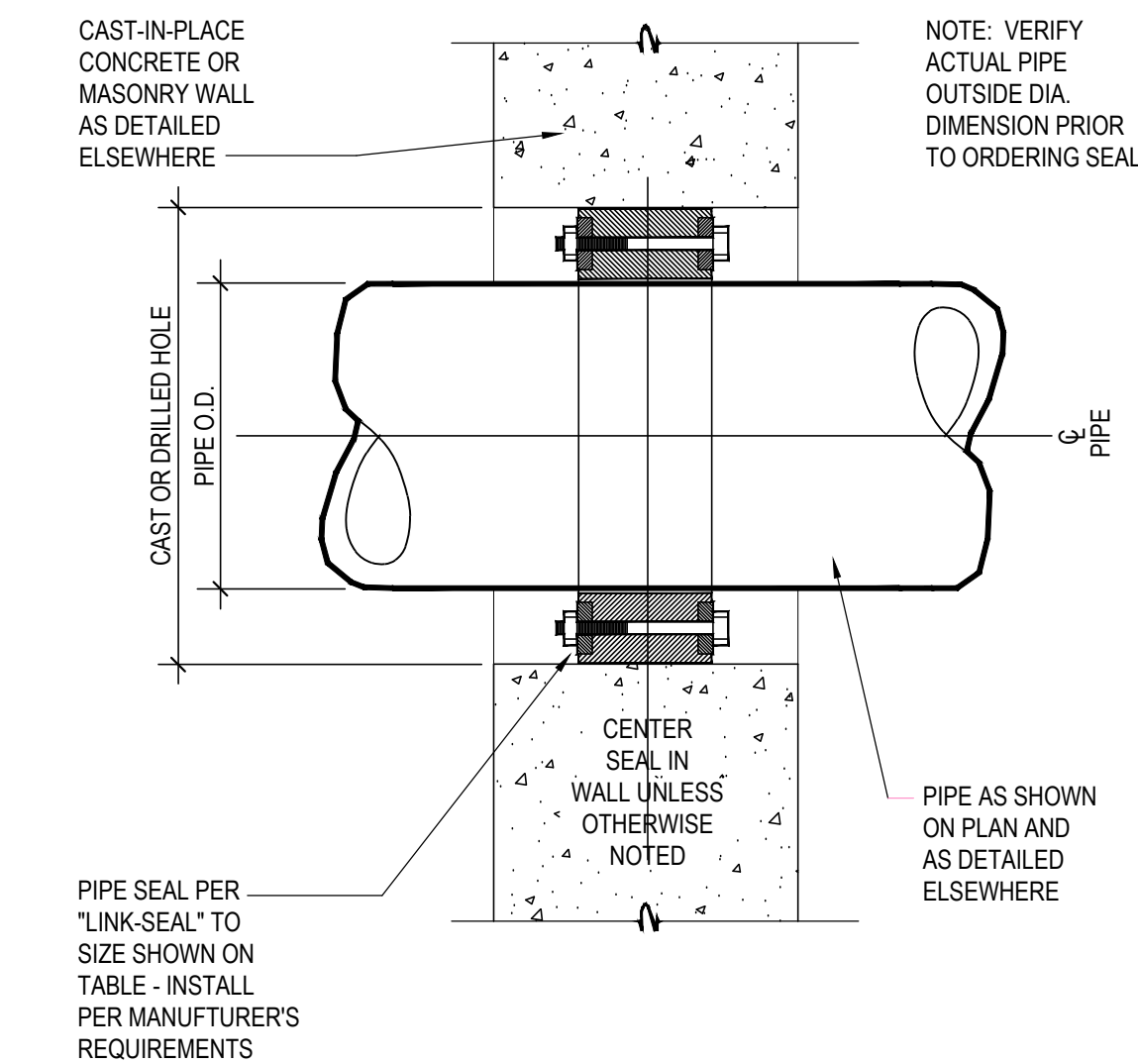
1 HAZARDOUS INFORMATION SIGNAGE

NO SCALE



2 AUTO/MANUAL WATER MAKE-UP SCHEMATIC

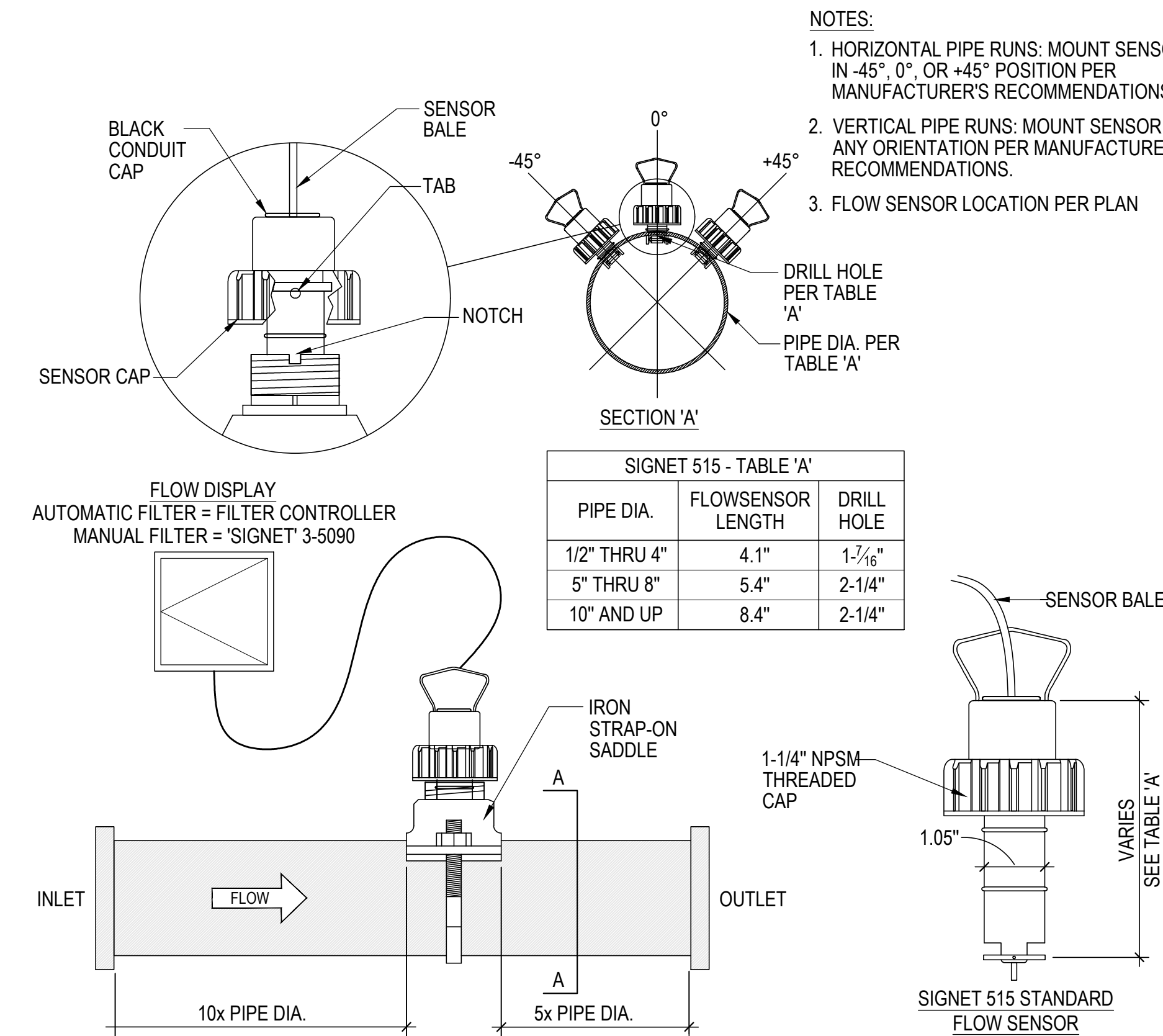
NO SCALE



3 PIPE SEAL TO WALL / FLOOR

NO SCALE

PIPE SIZE (NOMINAL)	OUTSIDE DIAMETER (PIPE O.D.)	CAST OR DRILLED CONCRETE HOLE INSIDE DIA. (I.D.)	LINK SEAL SIZE NO.	NO. OF LINKS PER SEAL
1/2"	0.840	2.0	LS-200	4
3/4"	1.050	2.5	LS-275	5
1"	1.315	3.0	LS-300	4
1-1/4"	1.660	3.0	LS-275	7
1-1/2"	1.900	3.5	LS-300	5
2"	2.375	4.0	LS-300	6
2-1/2"	2.875	4.0	LS-200	9
3"	3.50	5.0	LS-300	8
3-1/2"	4.00	6.0	LS-325	5
4"	4.50	6.0	LS-300	10
5"	5.563	8.0	LS-425	6
6"	6.625	10.0	LS-475	10
8"	8.625	12.0	LS-475	12
10"	10.75	14.0	LS-400	10
12"	12.75	16.0	LS-400	12
14"	14.00	16.0	LS-325	15
16"	16.00	18.0	LS-325	17
18"	18.00	23.0	LS-500	16
20"	20.00	25.0	LS-500	18
22"	22.00	27.0	LS-500	19
24"	24.00	29.0	LS-500	21
26"	26.00	31.0	LS-500	23
28"	28.00	33.0	LS-500	24
30"	30.00	35.0	LS-500	26
32"	32.00	37.0	LS-500	28
34"	34.00	39.0	LS-500	29
36"	36.00	41.0	LS-500	30



4 SIGNET FLOWSENSOR

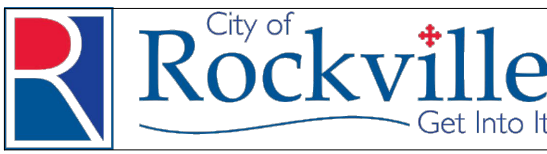
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LSG LANDSCAPE  
ARCHITECTURE

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DEPARTMENT OF  
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OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

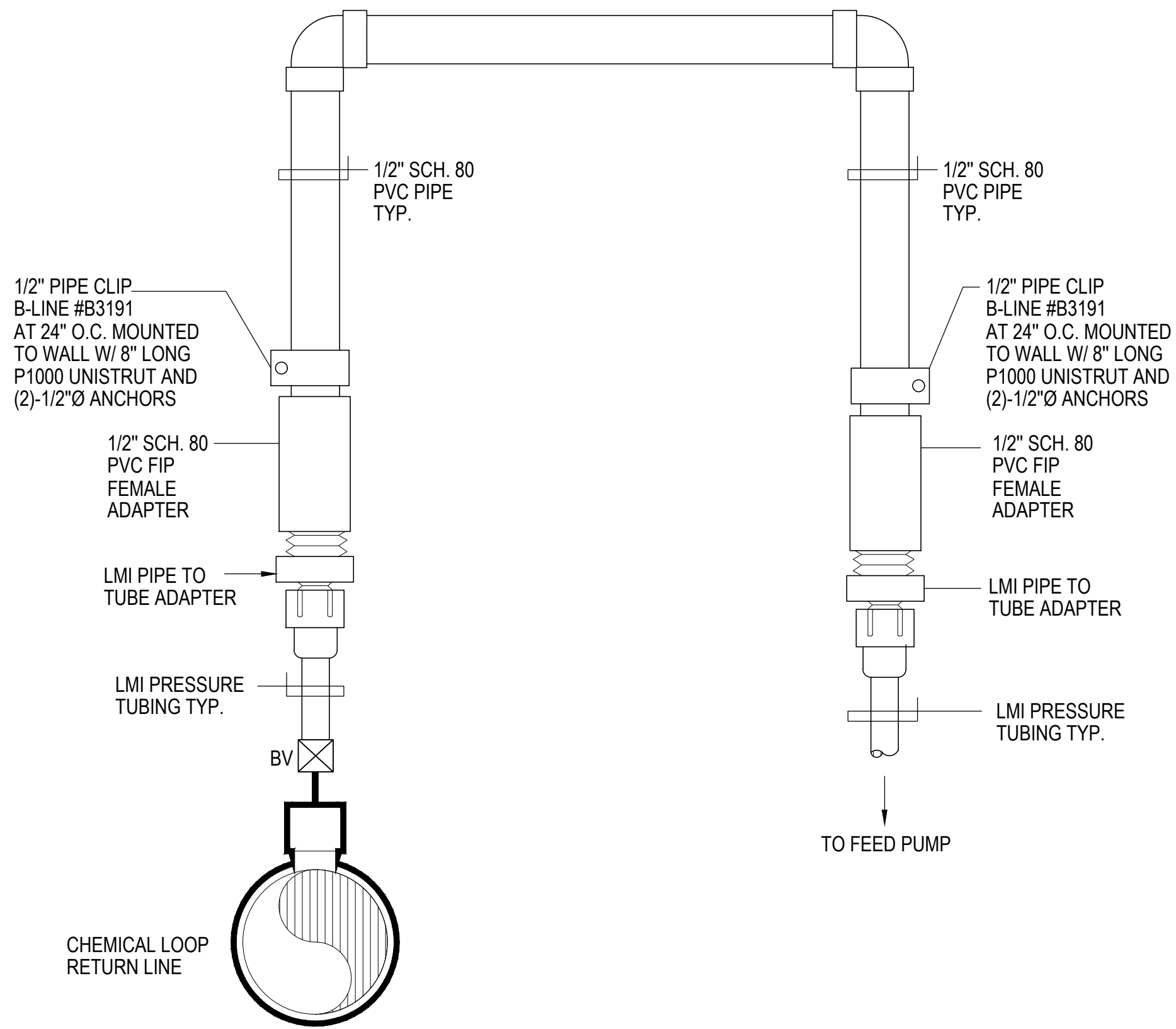
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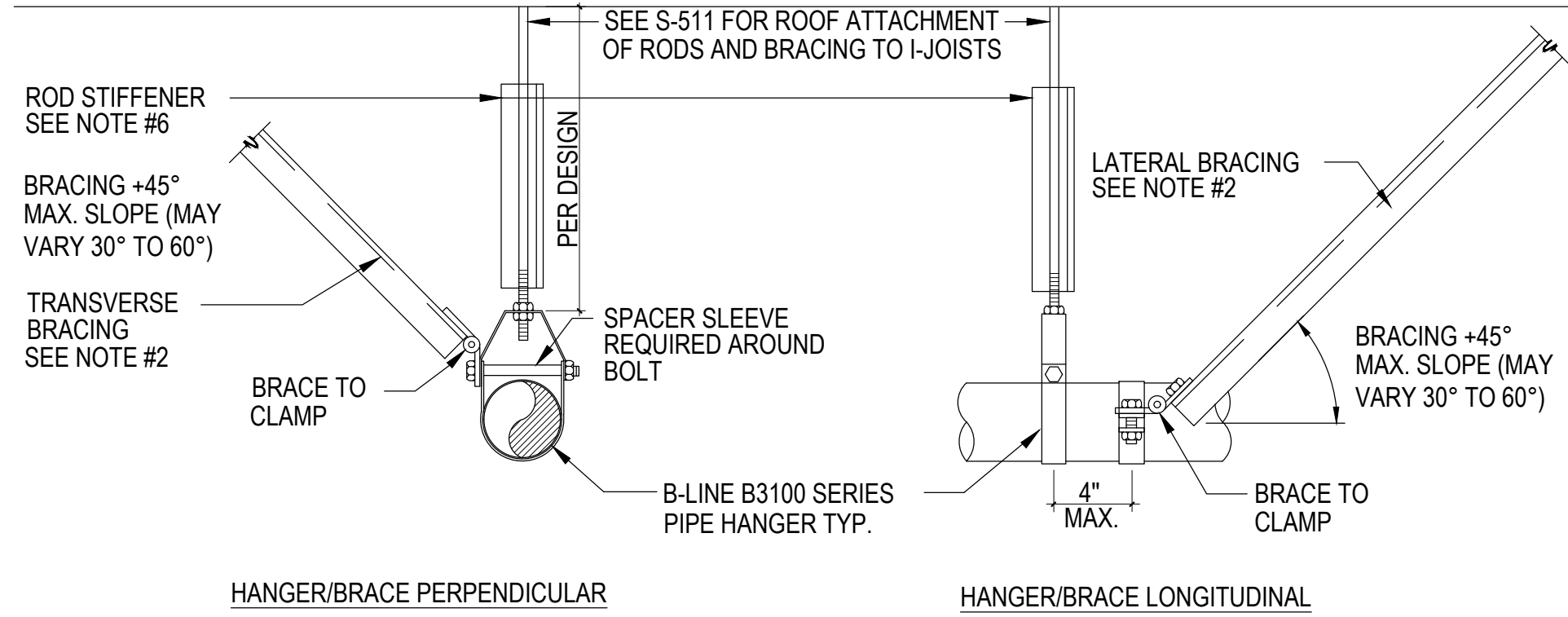
Sheet No. MR-5



1

CHEMICAL FEED PIPING DETAIL

NO SCALE



HANGER ROD SIZES/TABLE

1/2"Ø AT 3" PIPING MAX. ROD LENGTH  
5/8"Ø AT 4" PIPING MAX. ROD LENGTH  
3/4"Ø AT 6" PIPING MAX. ROD LENGTH  
3/4"Ø AT 8" PIPING MAX. ROD LENGTH  
3/4"Ø AT 12" PIPING MAX. ROD LENGTH

MAX. PIPE HANGER SPACING FOR A SINGLE CLEVIS HANGER ONLY

4" PIPING OR SMALLER = 6'-0" O.C.  
6" PIPING = 6'-0" O.C.  
8" PIPING = 6'-0" O.C.  
10" PIPING = 6'-0" O.C.  
12" PIPING = 6'-0" O.C.  
14" PIPING = 4'-0" O.C.

MAX. TRAPEZE SPACING FOR MULTI-PIPE SUPPORT

8" PIPING AND SMALLER = 6'-0" O.C.  
14" PIPING AND SMALLER = 4'-0" O.C.  
COORDINATE WITH STRUCTURAL ENGINEER AND ARCHITECT

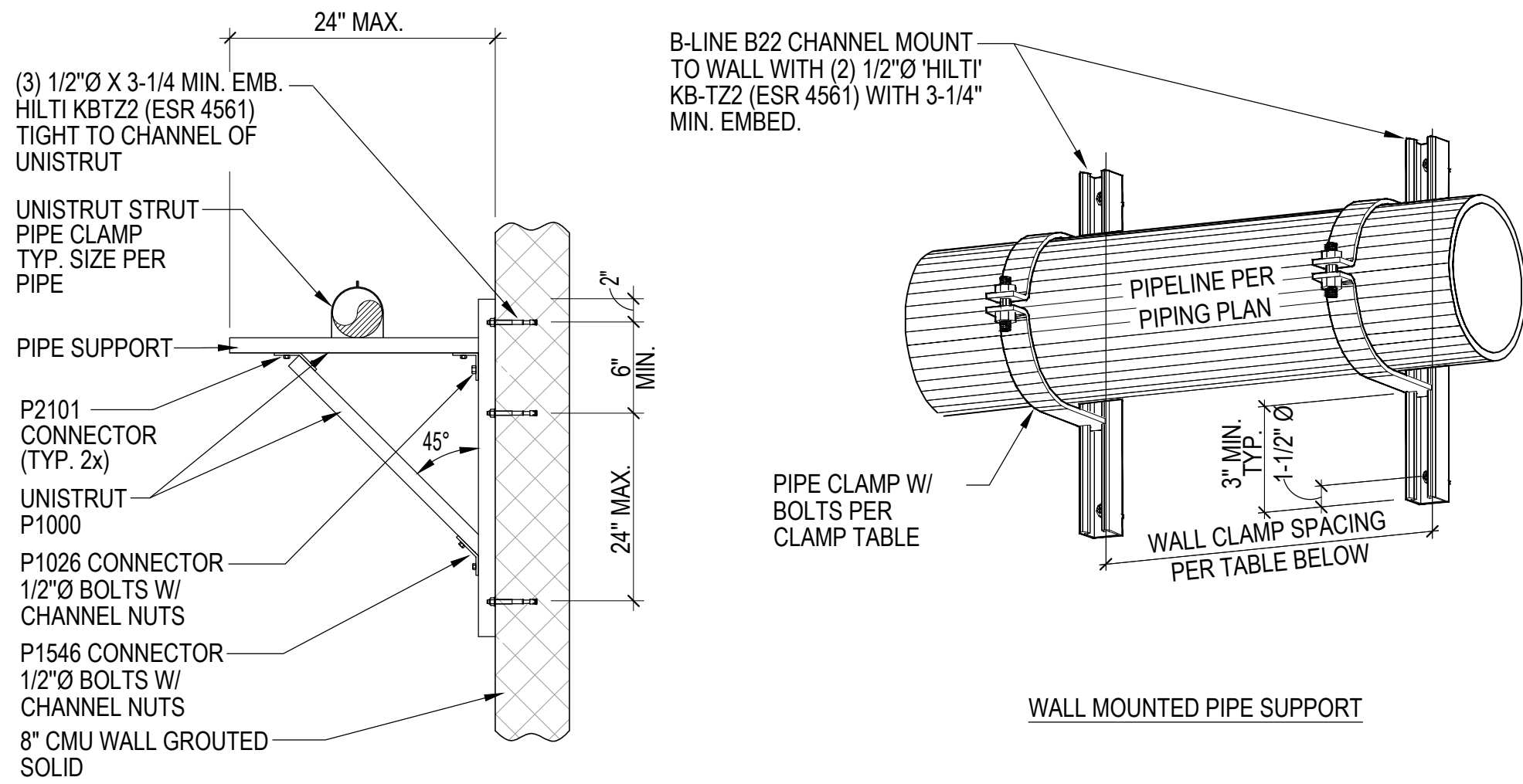
NOTES:

- REFER TO S-511 FOR PIPE HANGER HARDWARE & INSTALLATION. INSTALLATION SHALL SATISFY ANCHORAGE REQUIREMENTS OF ACI 318 CHAPTER 17.
- PROVIDE BRACING FOR EACH PIPE HANGER IN TWO DIRECTIONS AT THE FOLLOWING CONDITIONS:
  - AT EACH CHANGE IN PIPE RUN DIRECTION
  - MID LENGTH OF PIPE RUN
  - SPACING NOT TO EXCEED 12'-0" O.C.
  - P1000 BRACE (9'-6" LENGTH MAX)
- ALL HARDWARE SHALL BE STAINLESS STEEL OR GALVANIZED SEE SPECIFICATION FOR ADDITIONAL INFORMATION.
- FOR COPPER TUBING USE COPPER PLATED OR PAINTED B3104CT, FELT LINED B3100F, OR PLASTIC COATED B3100C.
- REFER TO MR. 1 FOR PIPE HANGER LOCATIONS.
- PROVIDE ROD STIFFENER @ EACH HANGER.

2

'UNISTRUT' PIPING HANGER / SUPPORT DETAILS

NO SCALE



WALL MOUNTED PIPE SUPPORT

CLAMP SIZES		
PIPE SIZE	MAX. SPAC'G	CLAMP MODEL
1-1/2"	6'-0"	B2012
2"	6'-0"	B2013
2-1/2"	6'-0"	B2014
3"	6'-0"	B2015
4"	6'-0"	B2017
6"	6'-0"	B2020
8"	6'-0"	B2022
10"	4'-0"	B2022
12"	4'-0"	B2022
14"	4'-0"	B2022

EXTENDED WALL MOUNTED PIPE SUPPORT

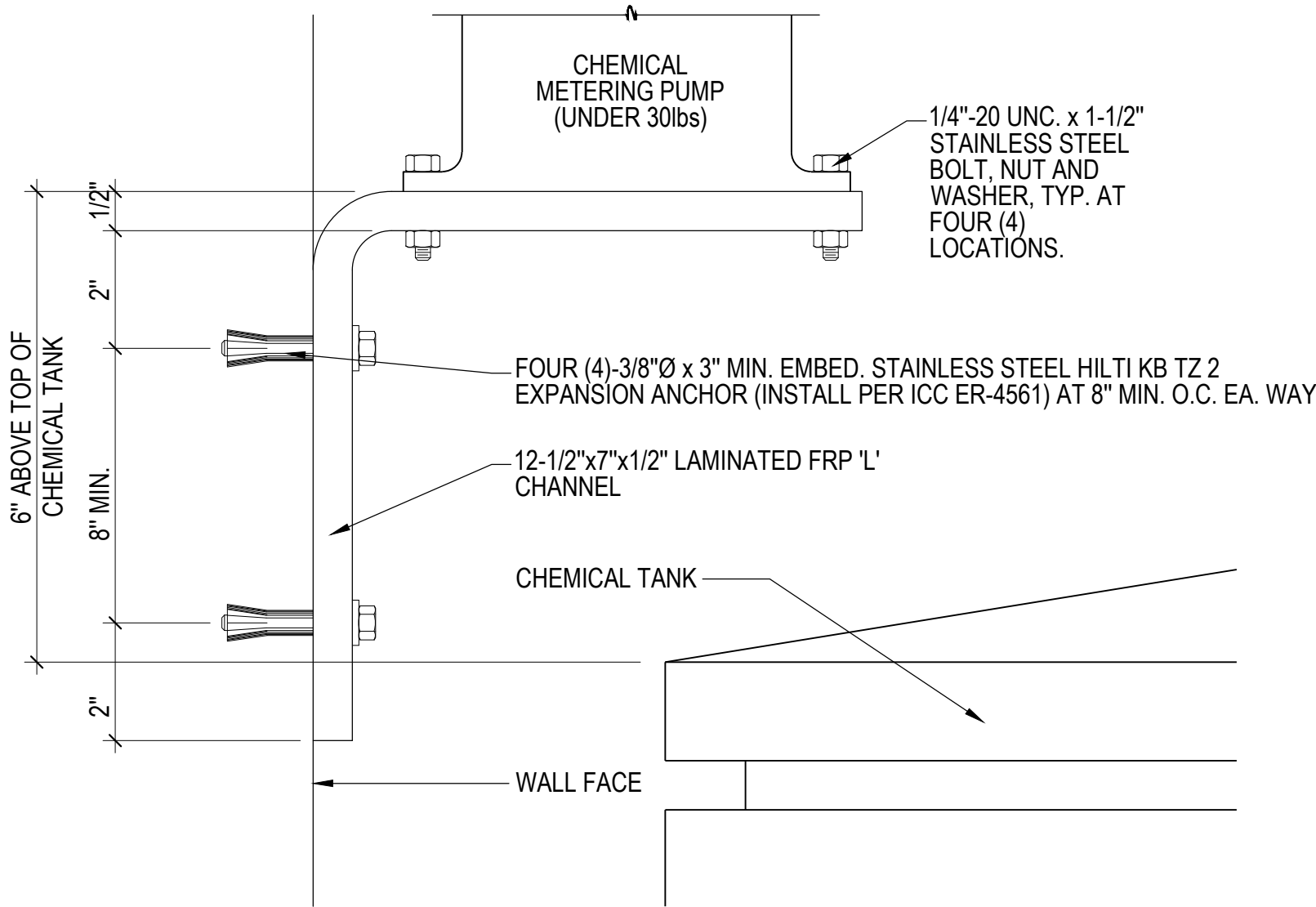
MAX. PIPE HANGER SPACING

4" PIPING OR SMALLER = 6'-0" O.C.  
6" PIPING = 6'-0" O.C.  
8" PIPING = 6'-0" O.C.  
12" PIPING = 6'-0" O.C.  
14" PIPING = 6'-0" O.C.

3

WALL MOUNTED PIPE SUPPORT

NO SCALE

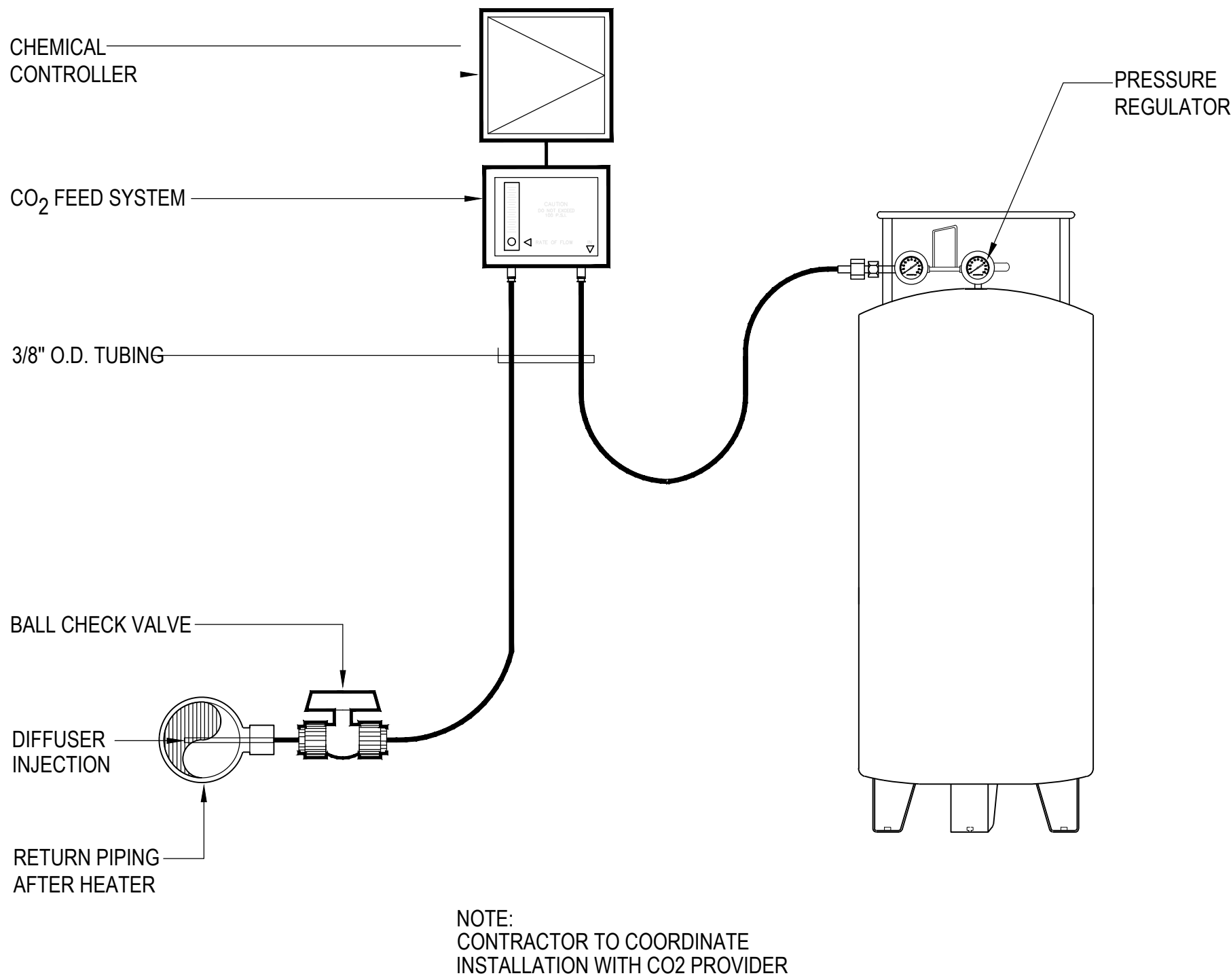


4

CHEMICAL PUMP SHELF

6"=1'-0"

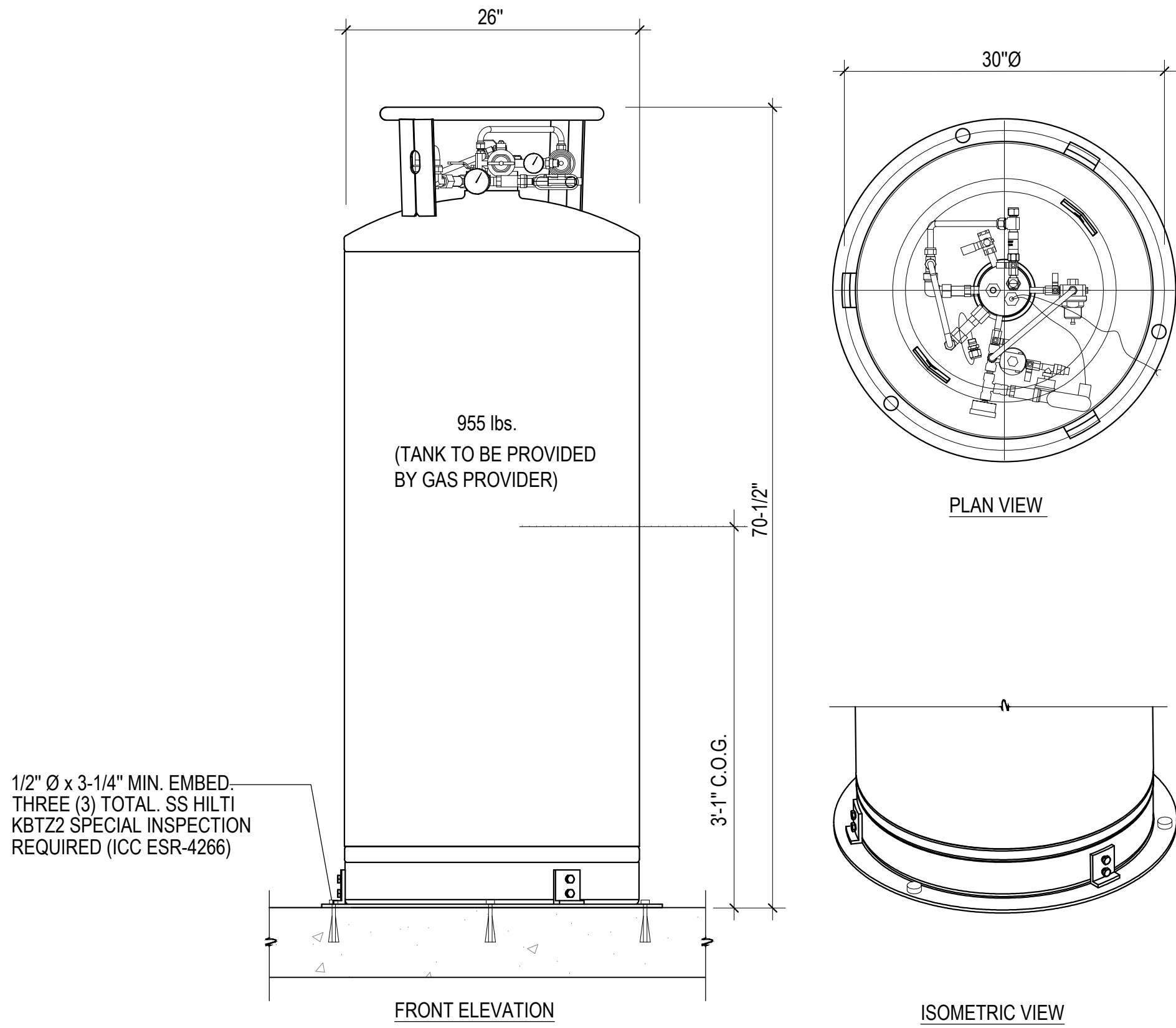




1

CARBON DIOXIDE FEED SCHEMATIC

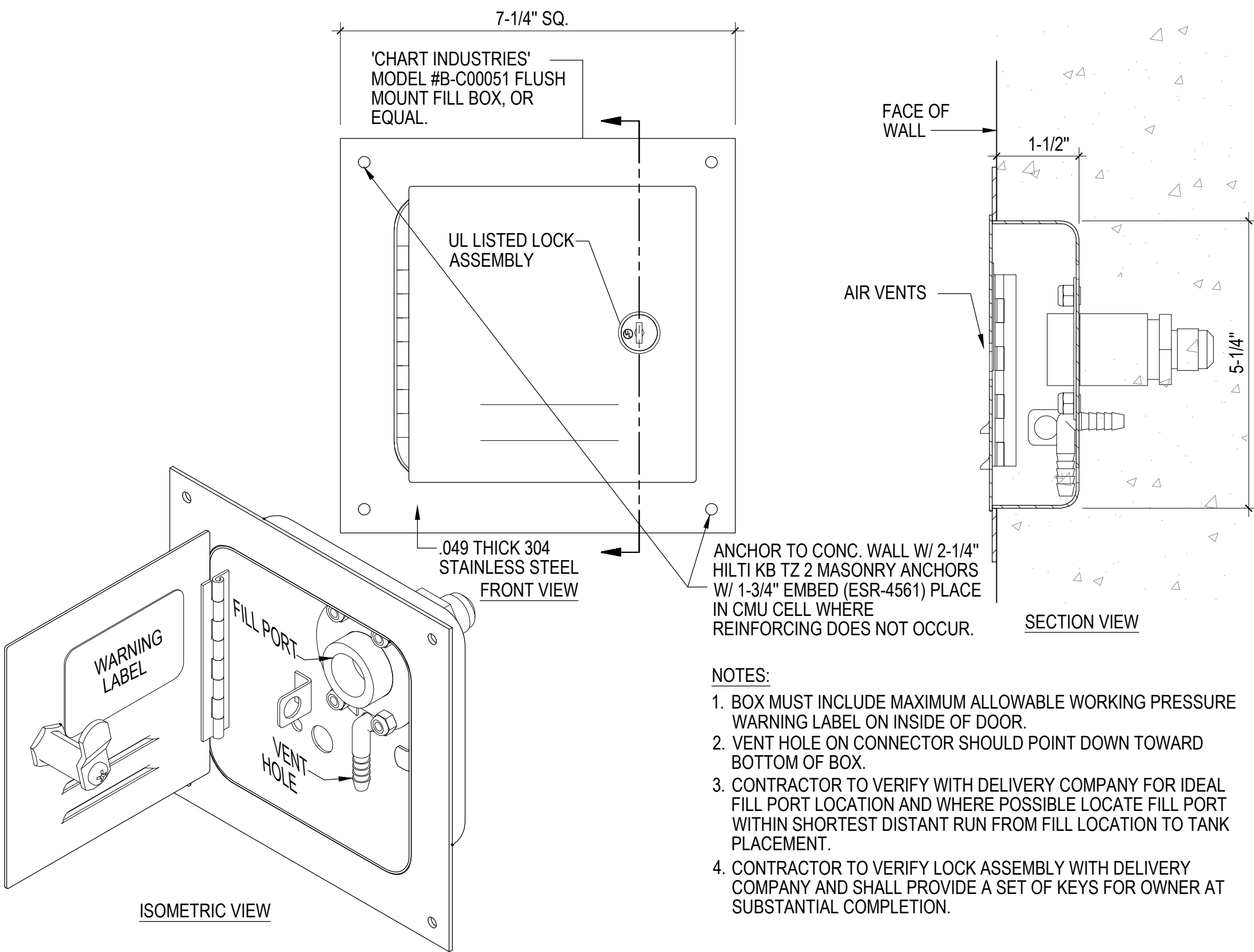
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2

C02 TANK ANCHORAGE DETAIL

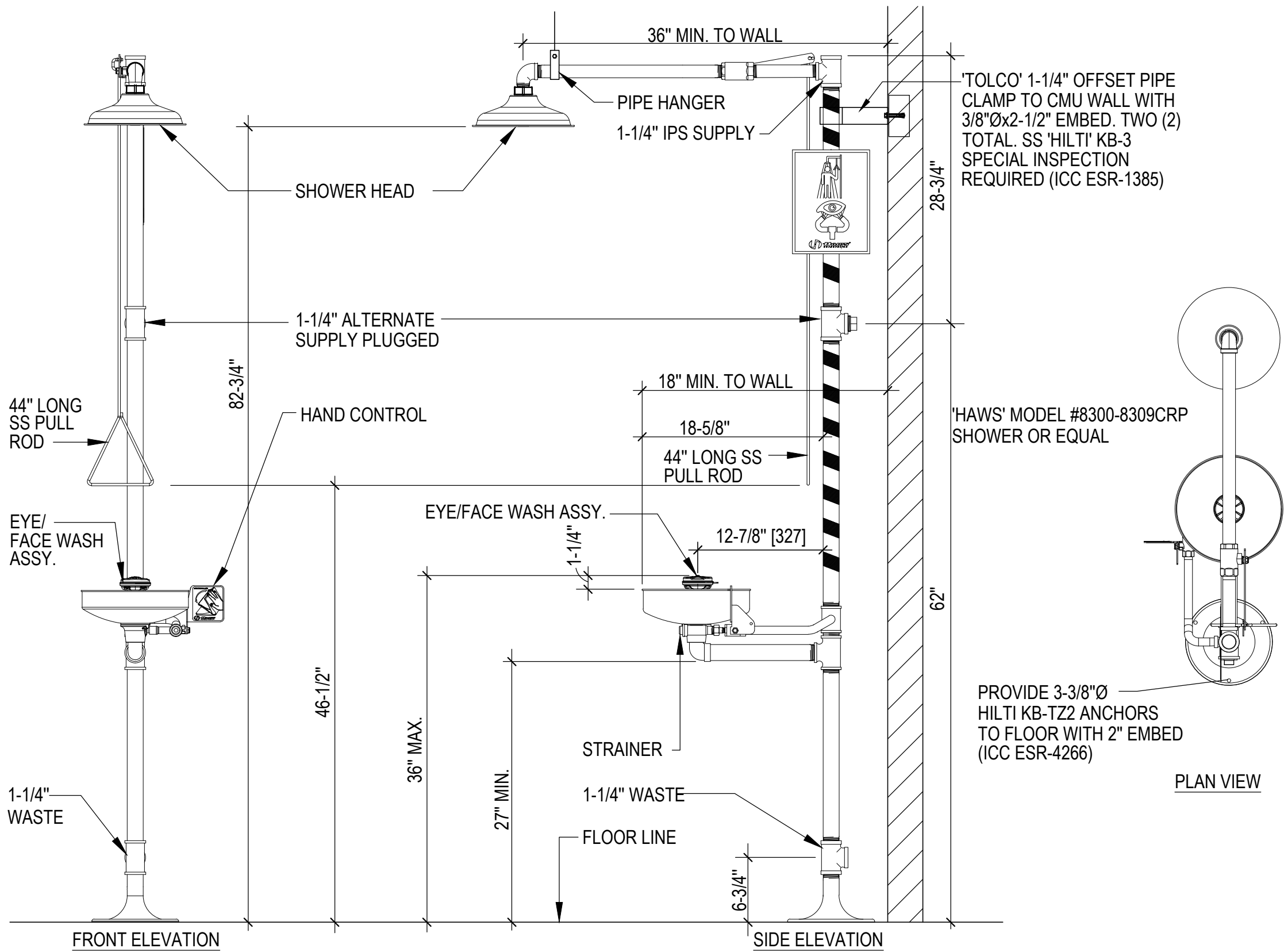
NO SCALE



3

C02 FLUSH MOUNT FILL BOX

NO SCALE



4

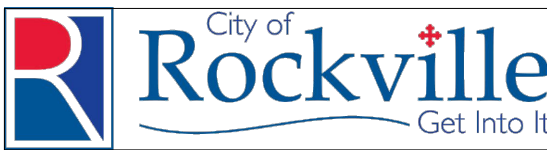
TYPICAL EYEWASH/SHOWER DETAIL

NO SCALE

LSG LANDSCAPE  
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RECREATION POOL  
RENOVATIONS

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CITY OF ROCKVILLE, MARYLAND

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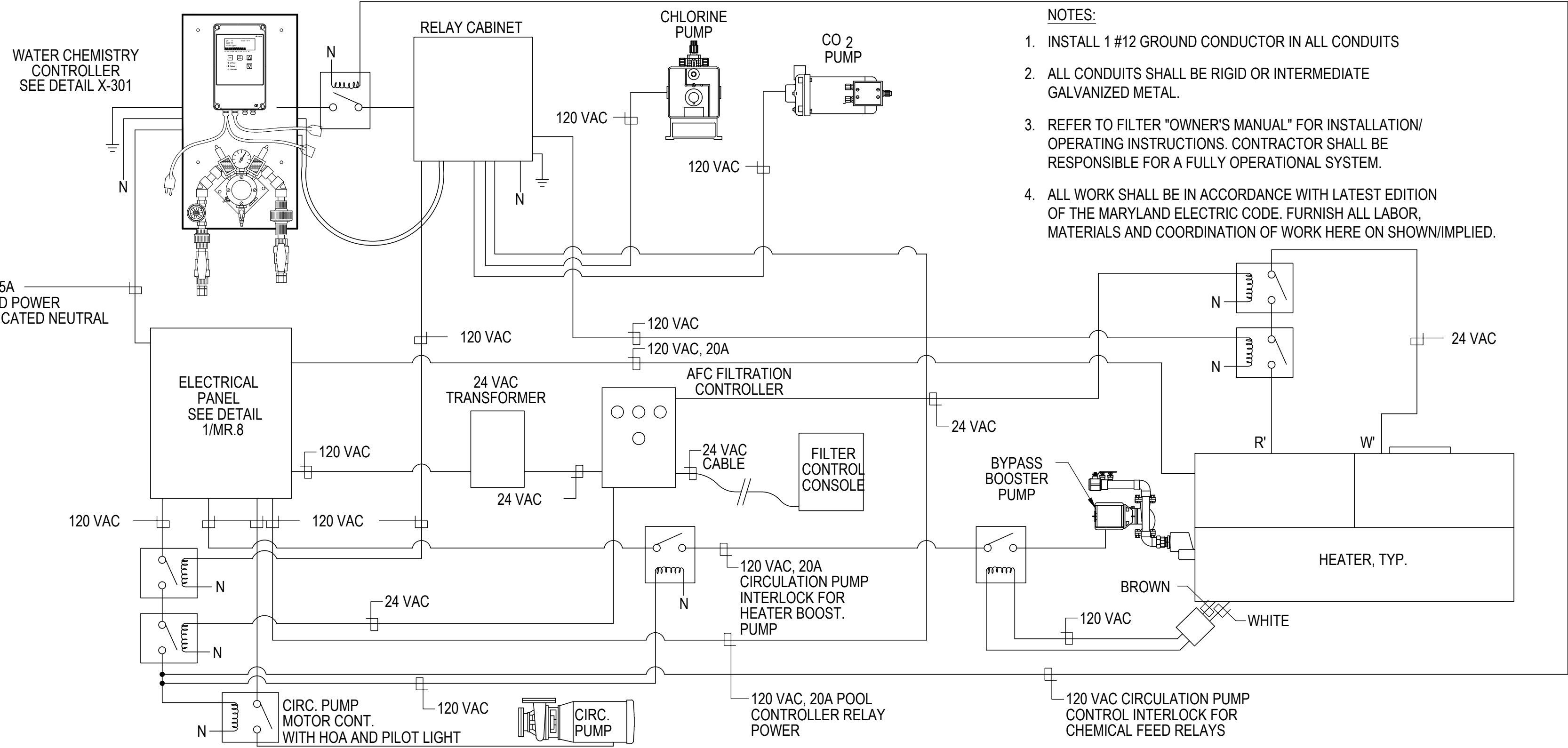
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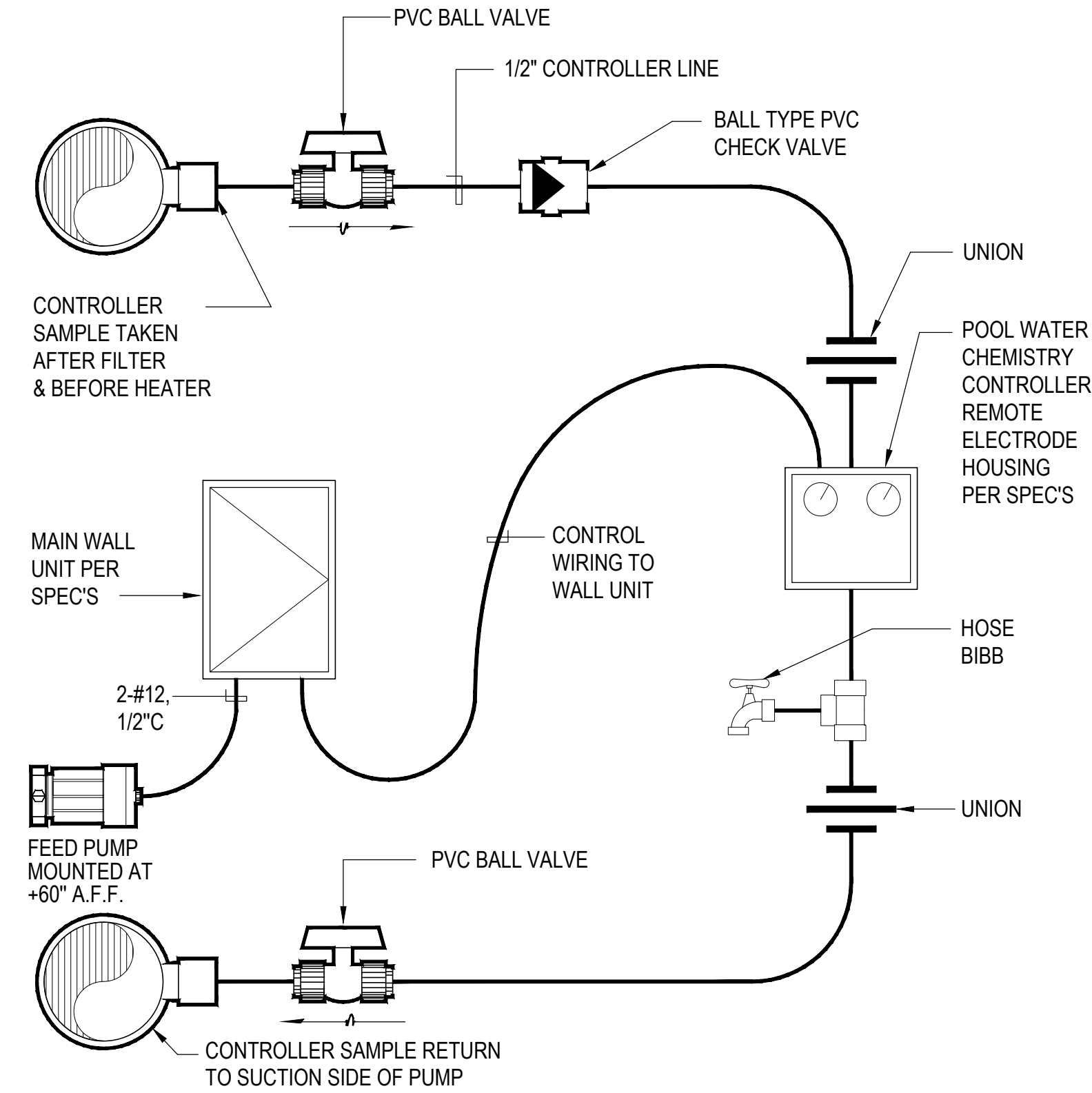
No.	Description	Date
Revisions		

Project Number:	22.00036.00
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Date:	5/19/2023

Sheet No. MR-6



- NOTES:
1. INSTALL 1 #12 GROUND CONDUCTOR IN ALL CONDUITS
  2. ALL CONDUITS SHALL BE RIGID OR INTERMEDIATE GALVANIZED METAL.
  3. REFER TO FILTER "OWNER'S MANUAL" FOR INSTALLATION/ OPERATING INSTRUCTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR A FULLY OPERATIONAL SYSTEM.
  4. ALL WORK SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE MARYLAND ELECTRIC CODE. FURNISH ALL LABOR, MATERIALS AND COORDINATION OF WORK HERE ON SHOWN/IMPLIED.

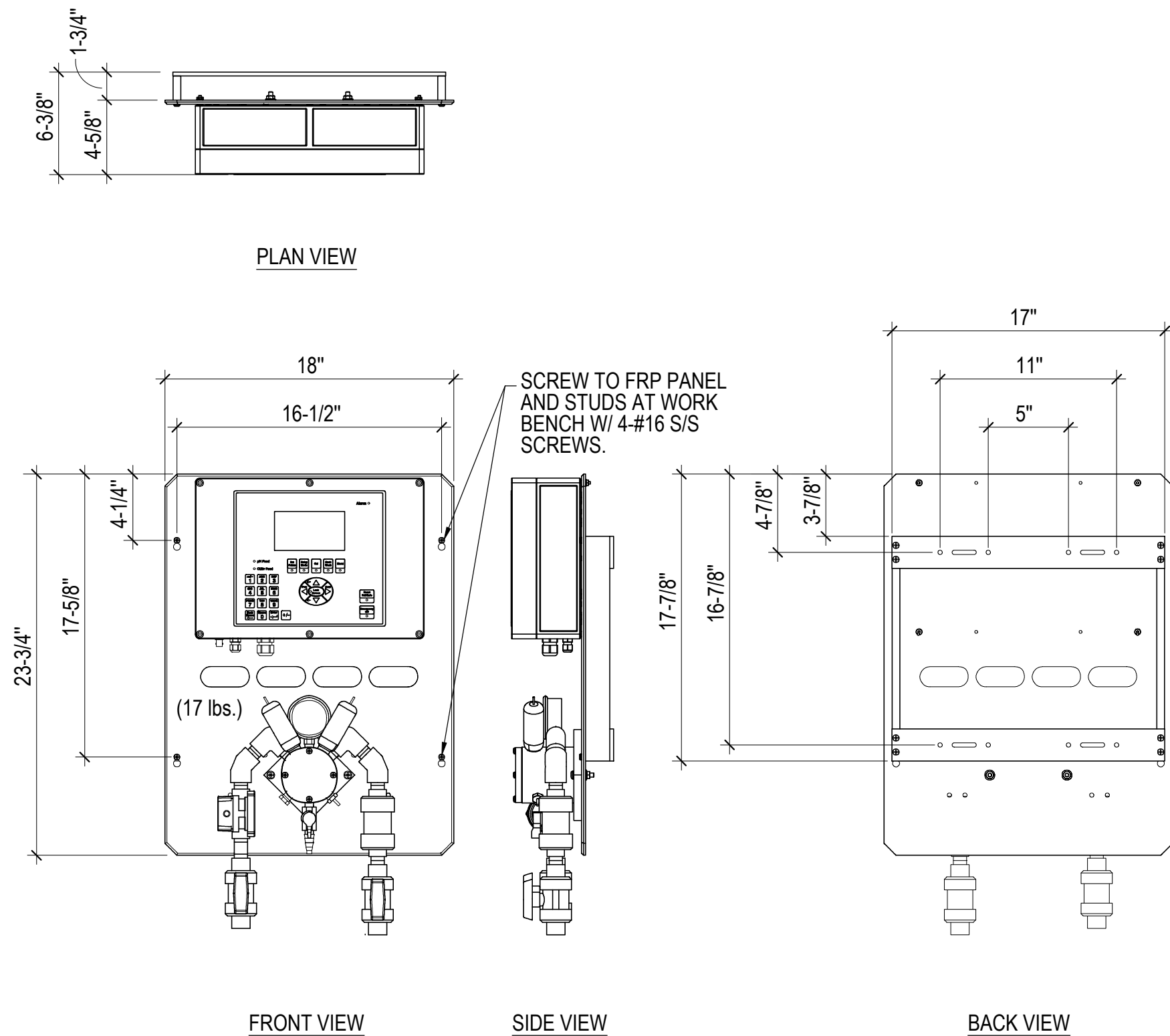


1 POOL MECHANICAL ELECTRICAL INTERCONNECTION DIAGRAM

NO SCALE

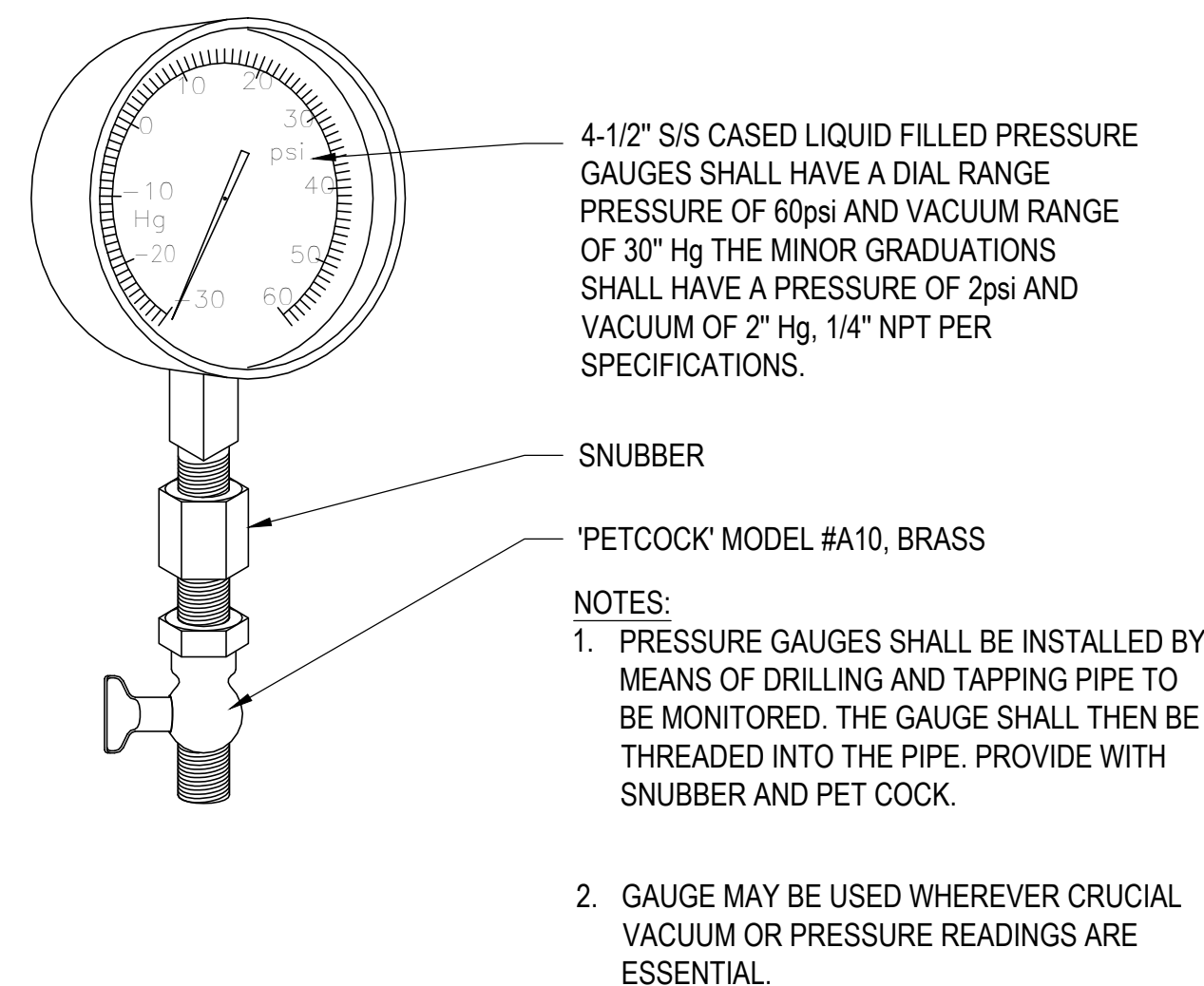
2 WATER CHEMISTRY CONTROLLER SCHEMATIC

NO SCALE



3 WATER CHEMISTRY CONTROLLER

1-1/2"=1'-0"



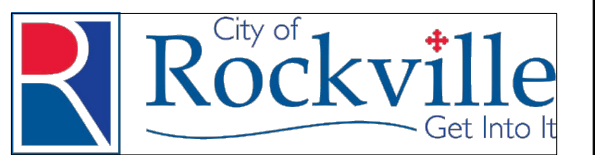
4 PRESSURE/VACUUM GAUGE

NO SCALE

LSG LANDSCAPE  
ARCHITECTURE

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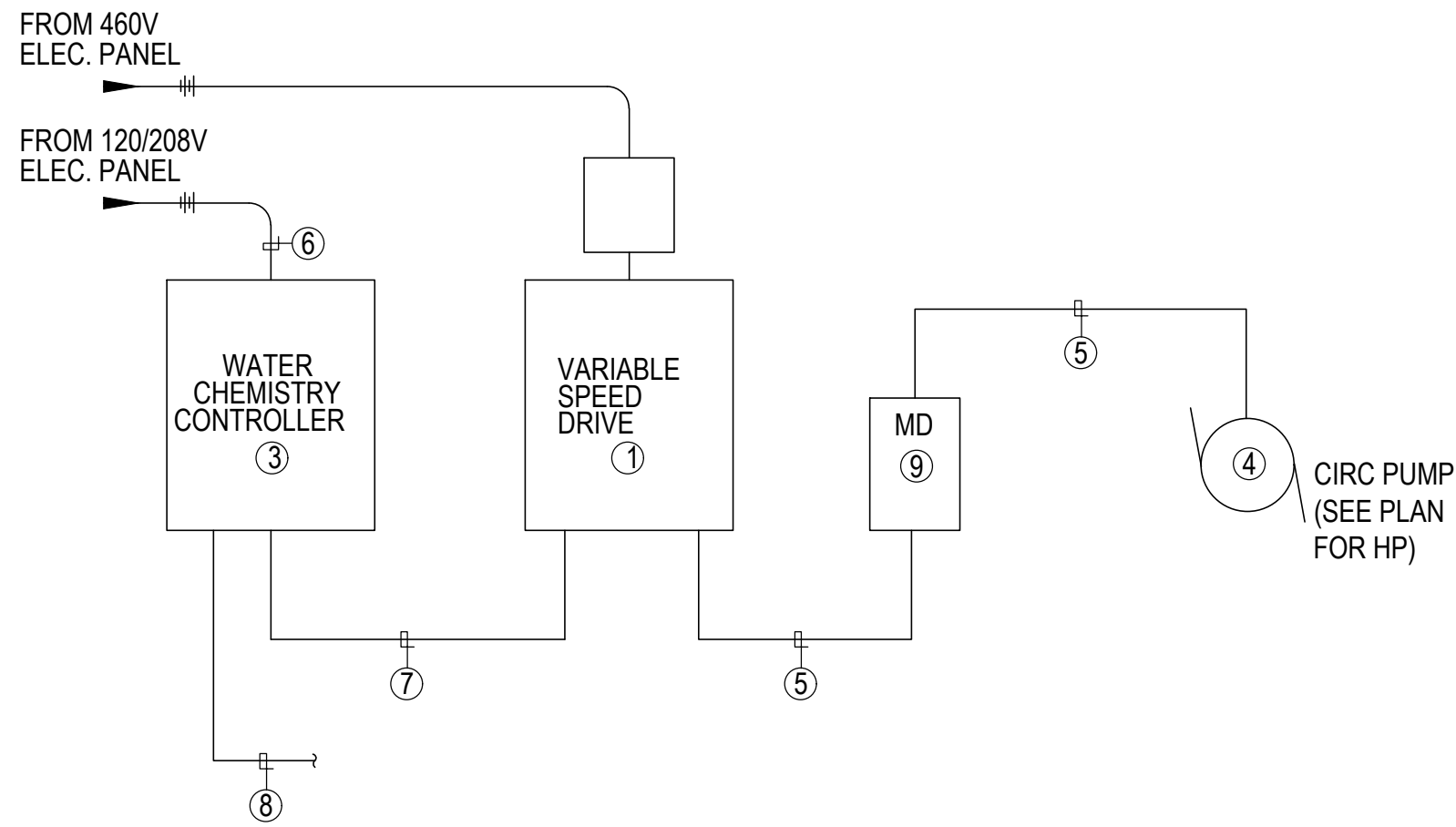
No.	Description	Date
Revisions		

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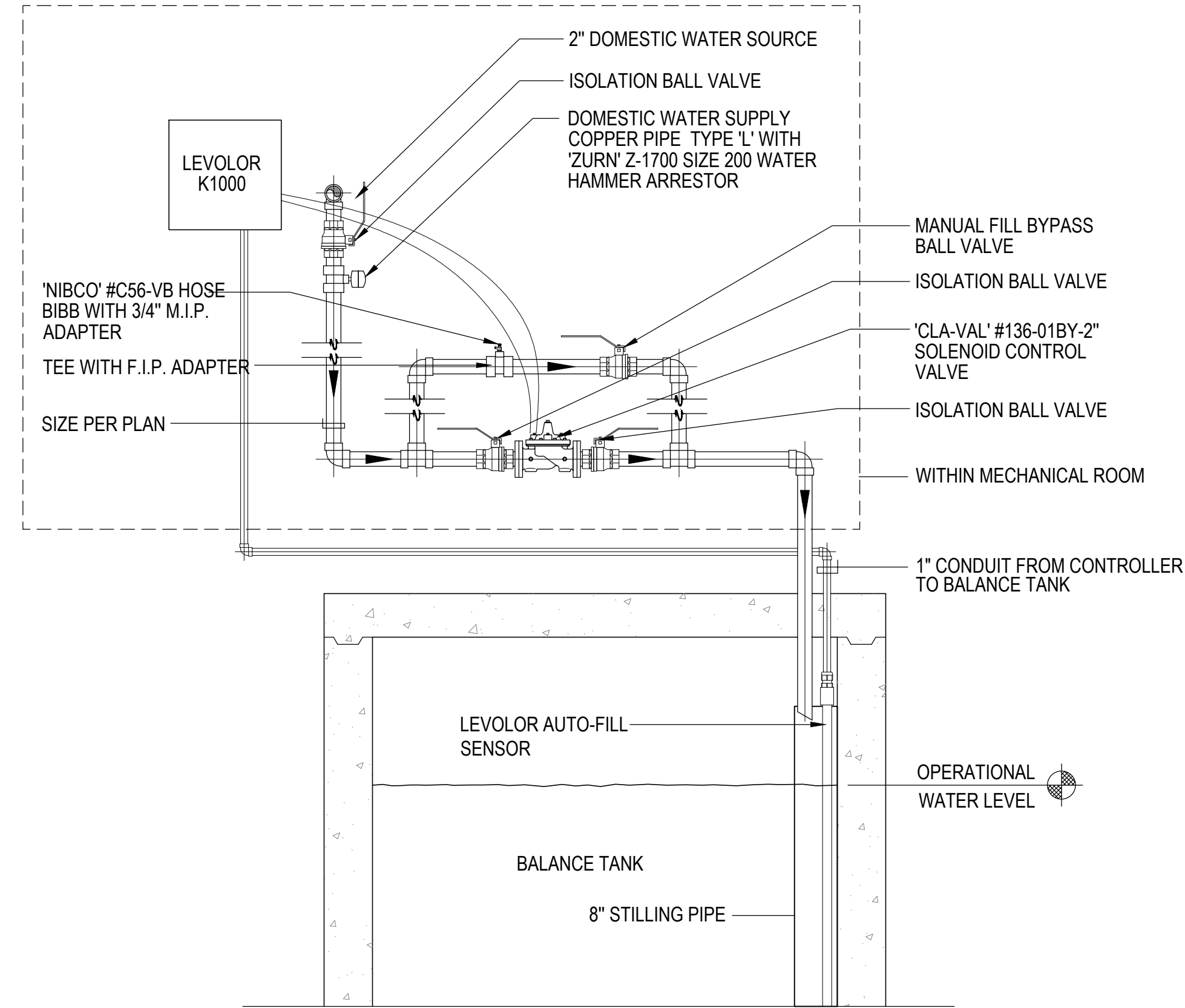
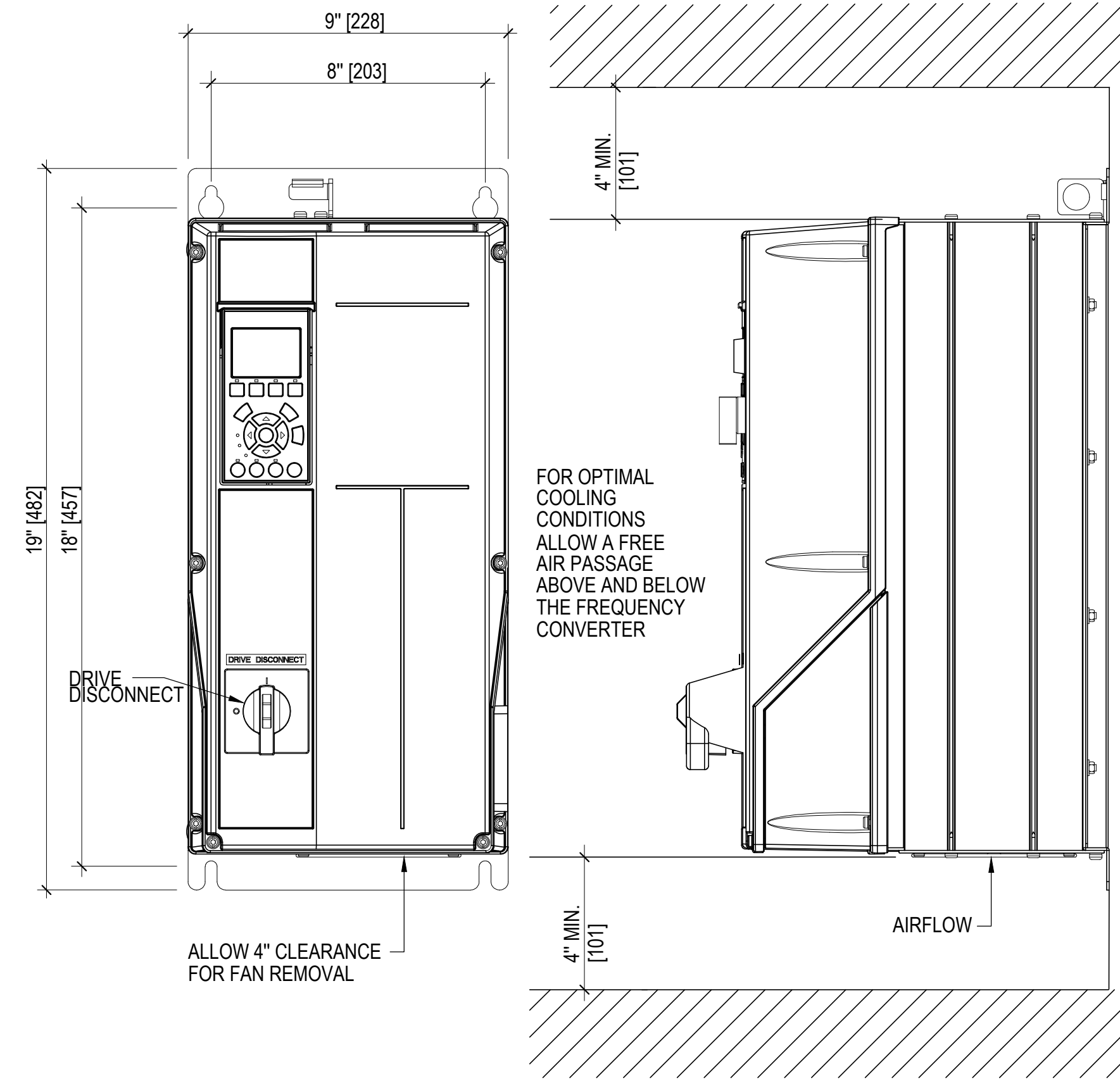
Sheet No. MR-7

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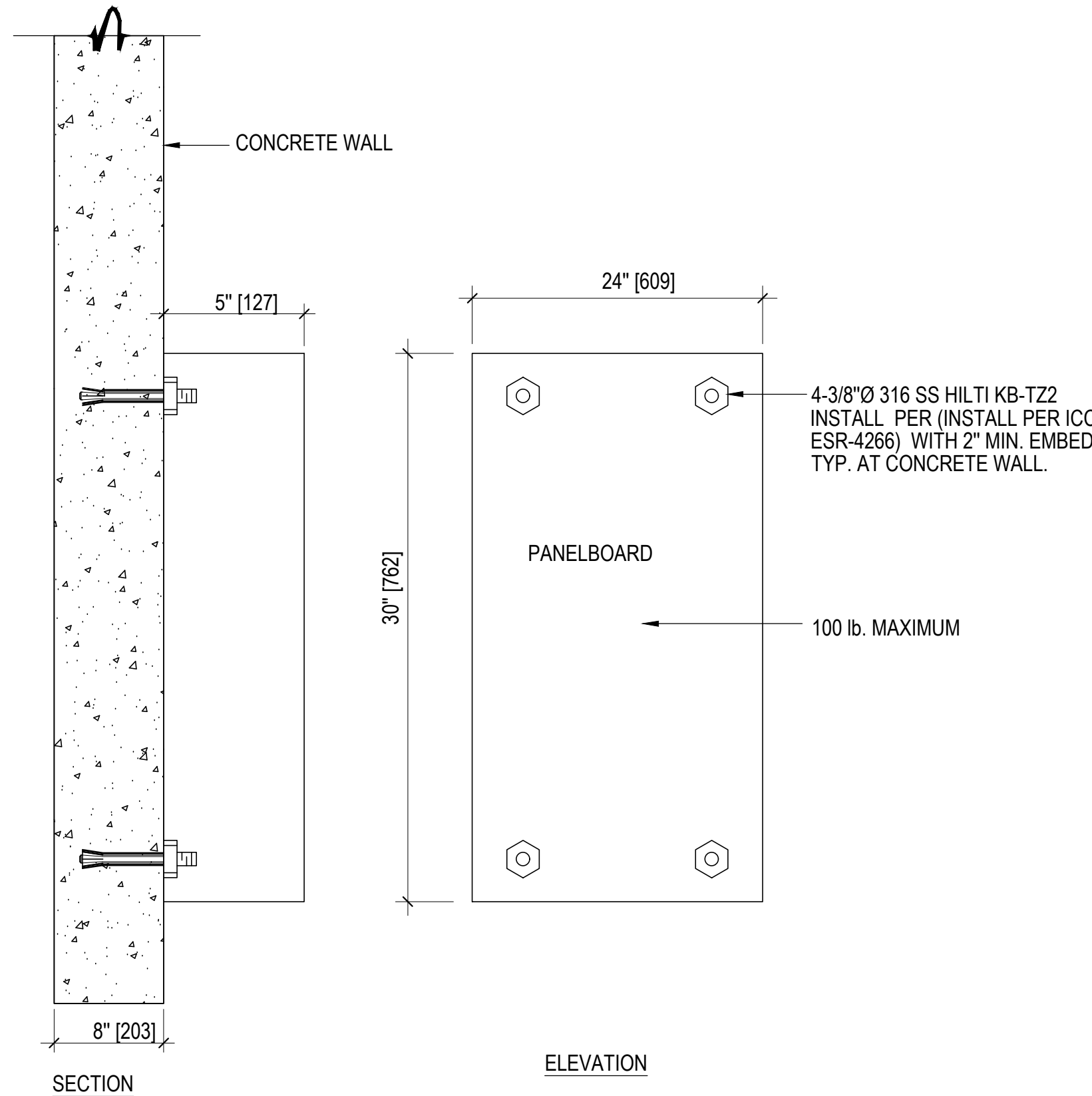
- NOTES:
- 1 VARIABLE SPEED DRIVE MOTOR CONTROL CABINET, SEE PLANS AND SPECIFICATIONS.
  - 2 N/A
  - 3 WATER CHEMISTRY/FILTER CONTROL UNIT, SEE PLANS.
  - 4 CONNECT TO CIRCULATION PUMP MOTOR, SEE PLANS.
  - 5 MOTOR FEEDERS, SEE SINGLE LINE DIAGRAM.
  - 6 120 VOLT BRANCH CIRCUITS, SEE PLANS.
  - 7 3/4\"C, (4) #12, (1) #12 GND. (120 VOLT CONTROL WIRING)
  - 8 24 VOLT SIGNAL AND SENSOR CABLING, SEE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR ADDITIONAL REQUIREMENTS.
  - 9 MOTOR DISCONNECT, SEE PLANS.



1 TYPICAL WIRING SCHEMATIC AT VFD UNIT NO SCALE

2 VARIABLE FREQUENCY DRIVE PANEL NO SCALE

3 AUTOMATIC/MANUAL WATER MAKE-UP SCHEMATIC NO SCALE



DESIGNATION: 'SP1'				VOLTAGE: 120/208V 3PH 4W				LOCATION: MECHANICAL EQUIP. RM.			
400 AMP <input checked="" type="checkbox"/> MAIN BREAKER <input type="checkbox"/> MAIN LUG				<input type="checkbox"/> RECESSED <input checked="" type="checkbox"/> SURFACE				MINIMUM DEVICE <input checked="" type="checkbox"/> 10,000 <input type="checkbox"/> 14,000			
				A.I.C. RATING				PANELBOARD KEY NOTES			
								1 0 0 0			
DESCRIPTION:				C/B				DESCRIPTION:			
AP WATER LEVEL CONTROLLER (1)				1	10560	2	100	AP CIRC PUMP			
SP WATER LEVEL CONTROLLER				3	720	4	10560	30HP			
SL WATER LEVEL CONTROLLER				5		6	1	AP PLAY STRUCT BSTR PUMP			
AP WATER CHEM. CONT.				7	1200	8	50	15HP			
SP WATER CHEM. CONT.				9	5544	10	1200	AP WET PLAY BSTR PUMP #1			
SL WATER CHEM. CONT.				11		12	1	5HP			
AP CO2 FEED				13	720	14	20	AP WET PLAY BSTR PUMP #2			
SP CO2 FEED				15	2004	16	720	5HP			
SL CO2 FEED				17		18	1	AP CIRC PUMP MTR CONTR.			
CHLOR FEED				19	720	20	20	AP BSTR PUMP MTR CONTR.			
CHLOR FEED				21	2004	22	720	AP WET PLAY MTR CONTR. #1			
CHLOR FEED				23		24	1	AP WET PLAY MTR CONTR. #1			
AP UV SYSTEM				25	2500	26	20	CHLOR FEED			
2.5kW				27	360	28	1	CHLOR FEED			
SLIDE CHLOR TABLET FEEDER				29		30	1056	CHLOR FEED			
1HP				31	1056	32	720	CHLOR FEED			
CO2 SENSOR				33	720	34	720	CHLOR FEED			
SPARE				35		36	720	CHLOR FEED			
				37		38		CHLOR FEED			
				39		40		CHLOR FEED			
				41		42		CHLOR FEED			
TOTAL PER PHASE				28,108	27,772	26,288		34,421 ÷ 120V = 286 AMPS			
+ 25% L.C.L.				6,313	6,403	5,688					
TOTAL				34,421	34,175	31,976					

- 1 GFI CIRCUIT
- AP = ACTIVITY POOL  
SP = SWIMMING POOL  
SL = SLIDE

DESIGNATION: 'SP2'				VOLTAGE: 120/208V 3PH 4W				LOCATION: MECHANICAL EQUIP. RM.			
250 AMP <input checked="" type="checkbox"/> MAIN BREAKER <input type="checkbox"/> MAIN LUG				<input type="checkbox"/> RECESSED <input checked="" type="checkbox"/> SURFACE				MINIMUM DEVICE <input checked="" type="checkbox"/> 10,000 <input type="checkbox"/> 14,000			
				A.I.C. RATING				PANELBOARD KEY NOTES			
								1 0 0 0			
DESCRIPTION:				C/B				DESCRIPTION:			
SP CIRC PUMP				50	1	5544	2	SLIDE BOOSTER PUMP 'A'			
15HP				3	5034	4	5544	7.5HP			
				5	5034	6	5544	SLIDE BOOSTER PUMP 'B'			
SLIDE CIRC PUMP				7	800	8	30	7.5HP			
2HP				9	5034	10	900	SLIDE 'A' MTR CONTR.			
SP CIRC MTR CONTR.				11	5034	12	900	SLIDE 'B' MTR CONTR.			
SL CIRC MTR CONTR.				13	360	14	360	SPARE			
				15	360	16	360				
				17		18	720				
				19		20					
				21		22					
				23		24					
				25		26					
				27		28					
				29		30					
				31		32					
				33		34					
				35		36					
				37		38					
				39		40					
				41		42					
TOTAL PER PHASE				17,232	17,232	17,232		21,360 ÷ 120V = 178 AMPS			
+ 25% L.C.L.				4,128	4,128	4,128					
TOTAL				21,360	21,360	21,360					

- 1 GFI CIRCUIT
- AP = ACTIVITY POOL  
SP = SWIMMING POOL  
SL = SLIDE

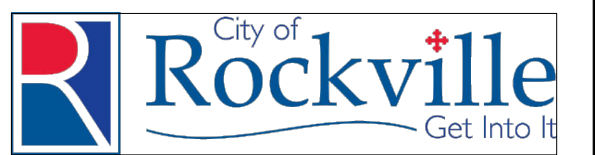
4 PANELBOARD MOUNTING DETAIL NO SCALE

5 PANEL SCHEDULES

## LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## DETAILS

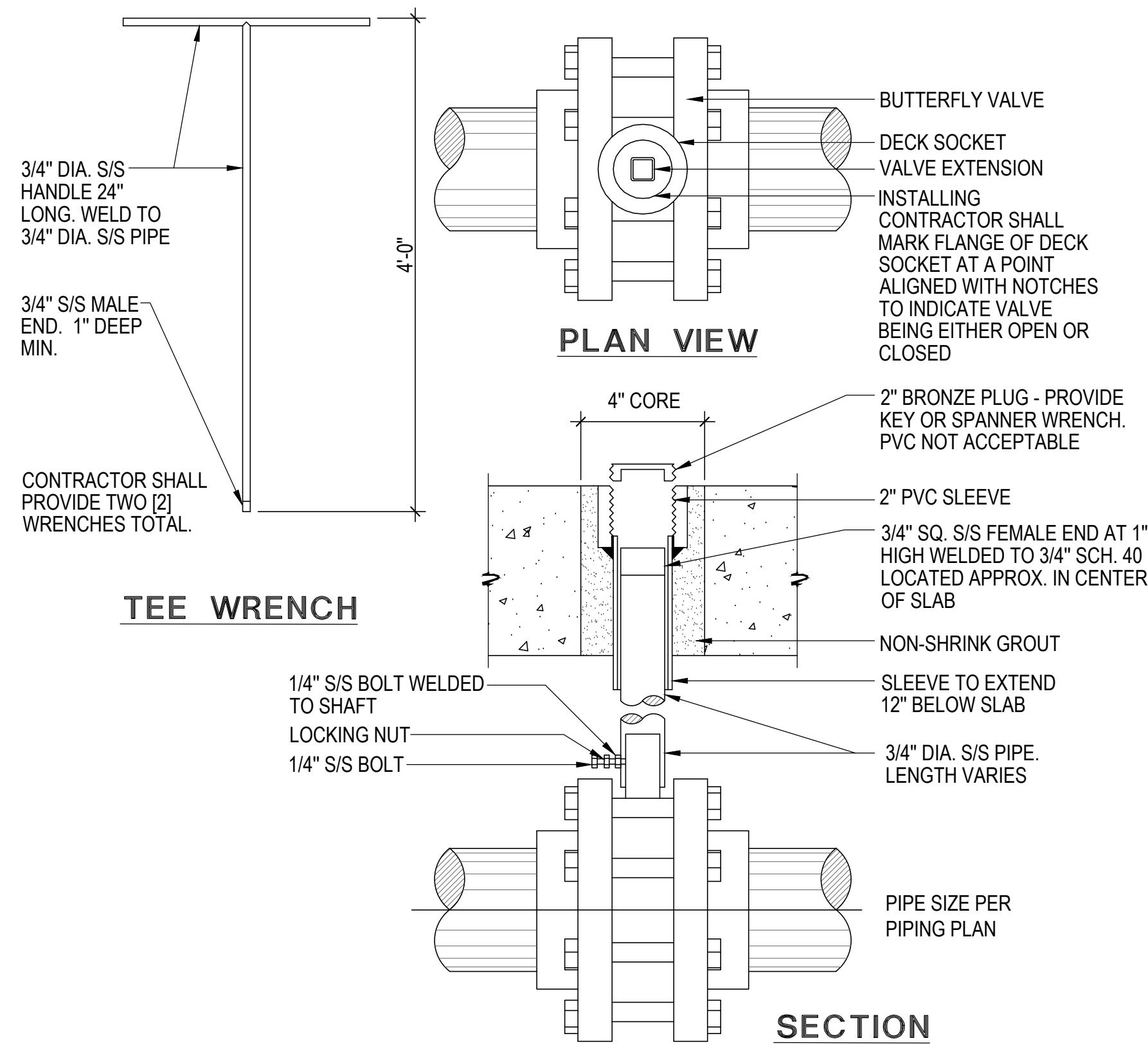
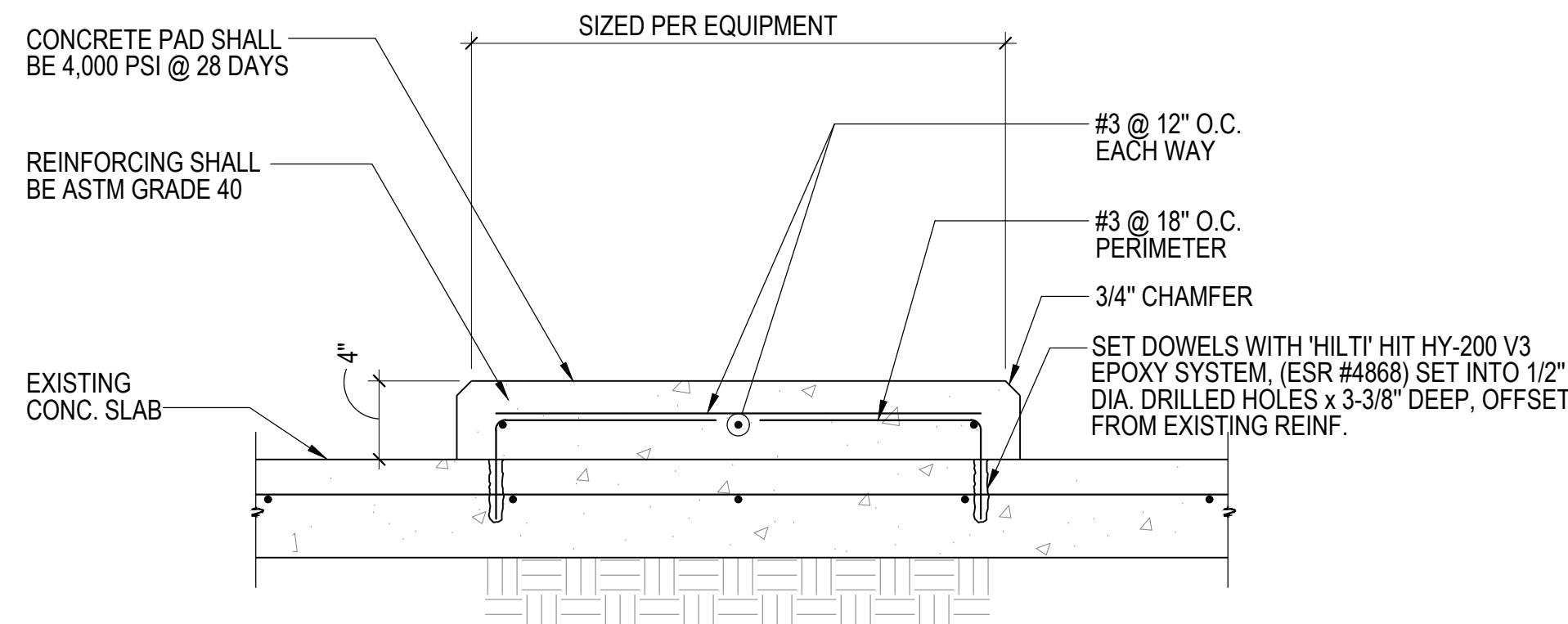
## PERMIT SET NFC

1	65% CONSTRUCTION DOCUMENT 06/25/2023
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3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023

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Sheet No. MR-8





1

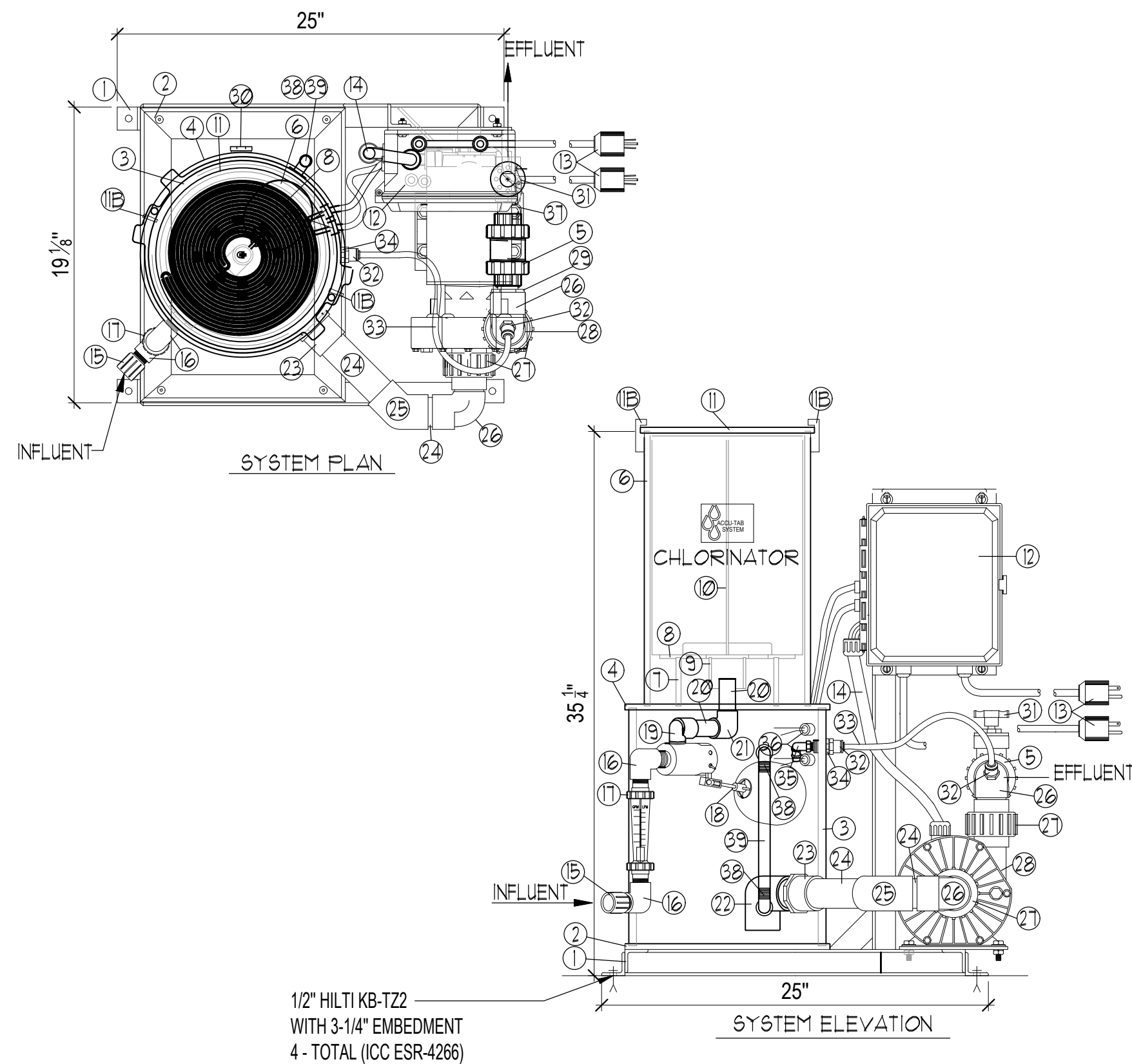
RETROFIT MECHANICAL PAD

1-1/2" = 1'-0"

2

BUTTERFLY VALVE / EXTENSION DETAIL

NO SCALE



POWER BASE 1030					
ITEM	QUAN.	DESCRIPTION	ITEM	QUAN.	DESCRIPTION
1	1	19 1/2" X 22" ALUMINUM 1 1/2" ANGLE FRAME WITH ELECTRICAL PANEL & MOTOR BRACKETS & ANCHOR ANGLES	20	2 PCS	3/4" SCH. 40 PVC PIPE
2	1	13 1/4"X19"X3/8" PVC TANK BASE W/ 4 FASTENERS	21	1	SPEARS SCH. 40 PVC 3/4" SLIP X SLIP 90° ELBOW
3	1	12" SCH.40 PVC PIPE SOLUTION TK. BODY X ;15"LG.			BOOSTER PUMP PIPING
4	1	13 1/4" DIA. X 3/8" PVC DIVIDER PLATE	22	1	SPEARS SCH. 40 PVC 1 1/2" SLIP X THREAD 90 ELBOW
5	1	1" SPEARS FLAP CHECK VALVE	23	1	SPEARS SCH. 40 PVC 1 1/2" MALE ADAPTOR
6	1	10" SCH.40 PVC PIPE CHLORINATOR TK. BODY X ;17 1/2"LG.	24	AR	1 1/2" SCH. 40 PVC PIPE (-10' TOTAL)
7	1	6" SCH.40 PVC PIPE SIEVE PLATE SUPPORT X ;3 1/8"LG.	25	1	SPEARS SCH 40 PVC 1 1/2" SLIP X SLIP 45° ELBOW
8	1	3/4" SPIRAL SIEVE PLATE	26	2	SPEARS SCH. 40 PVC 1 1/2" SLIP X MALE SLIP STREET ELBOW
9	1	2" SCH.40 PVC PIPE DIVERTER X ;2"LG.	27	2	SPA-RITE PVC PUMP UNION HALF
10	1	STACKING CARTRIDGE	28	1	HAYWARD 1 H.P., PAPP100, CHLORINE BOOSTER PUMP
11	1	11 1/4"DIA. X 3/8" PVC CHLORINATOR LID PLATE	29	1	SPEARS SCH. 40 PVC 1 1/2" X 1" REDUCING BUSHING
11B	2	LOCKING TABS	30	1	1" SCH. 40 PVC THD OVERFLOW DRAIN PLUG
12	1	ELECTRICAL CONTROL PANEL W/ 4 BOLTS, WASHERS & NUTS	31*	1	1" KBI PVC GATE VALVE
13	2	±8FT ELECTRICAL CORD WITH 3-PRONG PLUG	32	2	1/4" NPT. X 3/8" COMPRESSION SPEED FITTING
14	1	ELECTRICAL CONDUIT WITH (2) CONNECTORS	33	1	3/8" X 1/4" AIR VENT TUBING (-16" LG.)
		CHLORINATOR/TANK INFLUENT PIPING	34	1	1/2" X 1/4" THD. X THD. PVC BUSHING
15*	1	SPEARS SCH. 40 PVC 1" X 3/4" MALE ADAPTOR	35	1	1/4" NPT. X 1/2" BARB 90° ELBOW
16*	2	SPEARS SCH. 40 PVC 3/4" THD. X TRD. 90; ELBOW	36	2	LEVEL SWITCHES
17*	1	3/4" BLUE & WHITE FLOWMETER MODEL F-44750LH-12	37	AR	1" PVC SCH. 40 PIPE
18	1	3/4" MILLER TANK MOUNT FLOAT VALVE W/ 4" BALL FLOAT	38	2	3/4" THREAD x BARB PVC ELBOWS
19	1	SPEARS SCH. 40 PVC 3/4" STREET ELBOW	39	AR	3/4" CLEAR TUBING

NOTE \* = SHIPS LOOSE

3

CHLORINE TABLET FEEDER

1 1/2" = 1'-0"

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
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703-821-2045

ROCKVILLE SWIM  
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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

PERMIT SET  
NFC

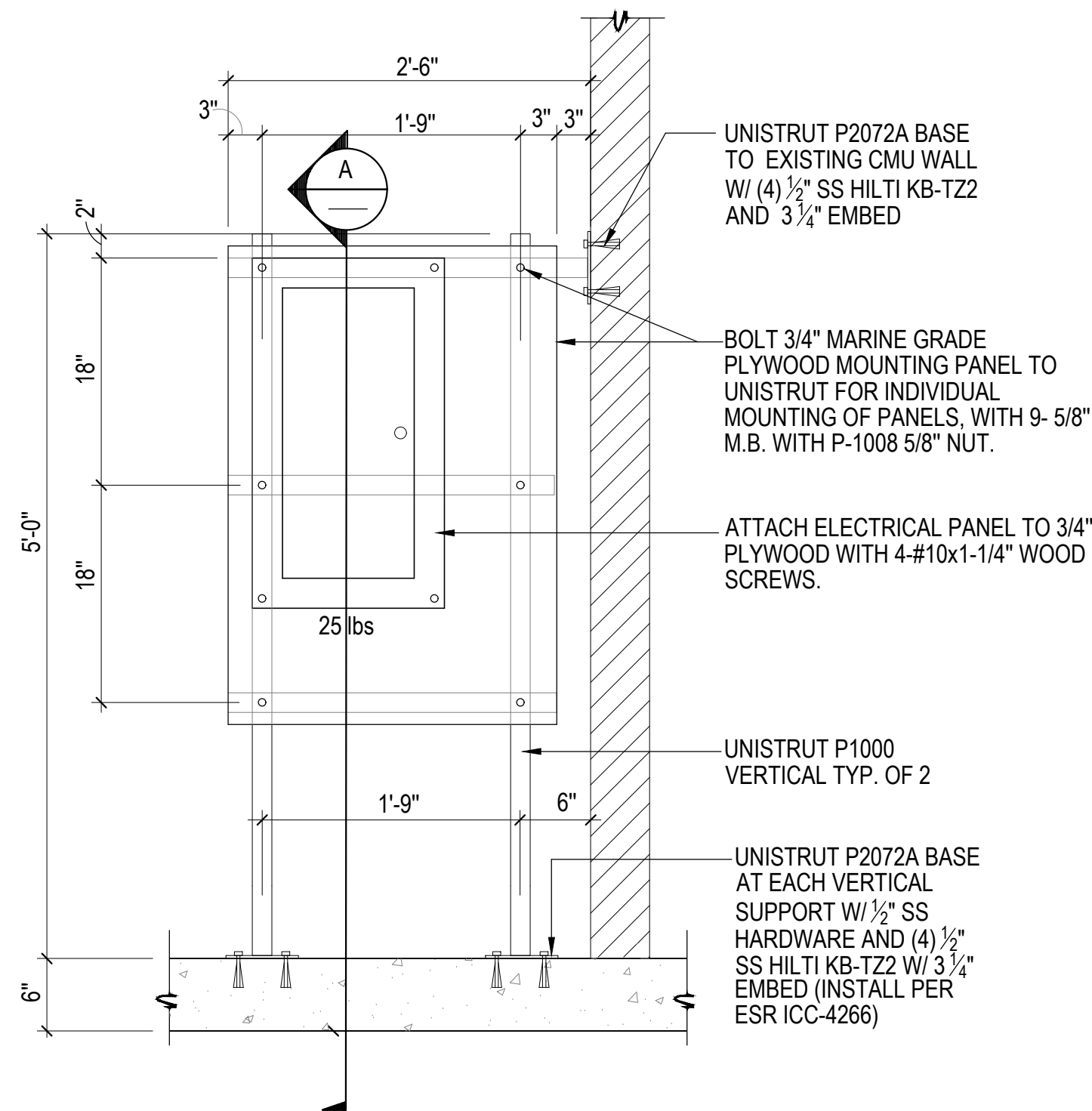
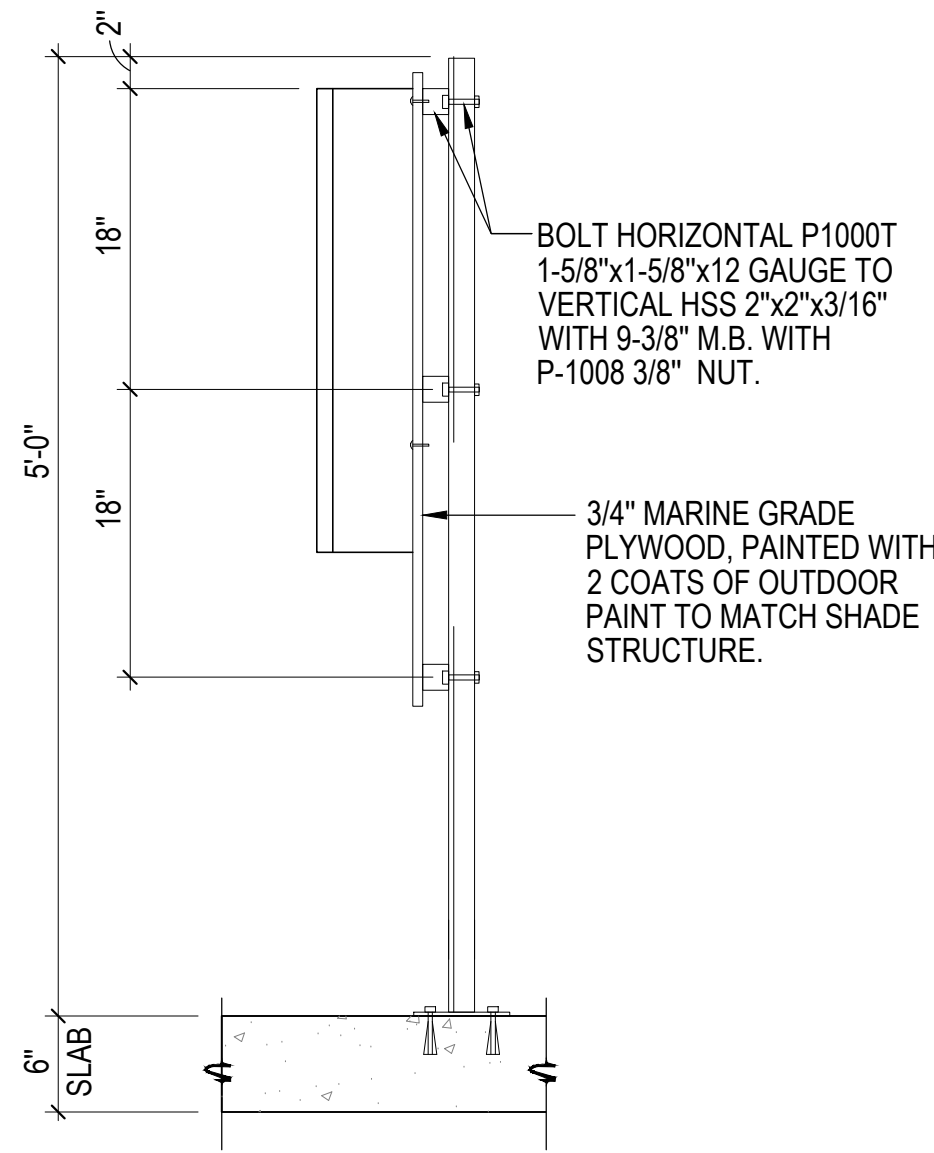
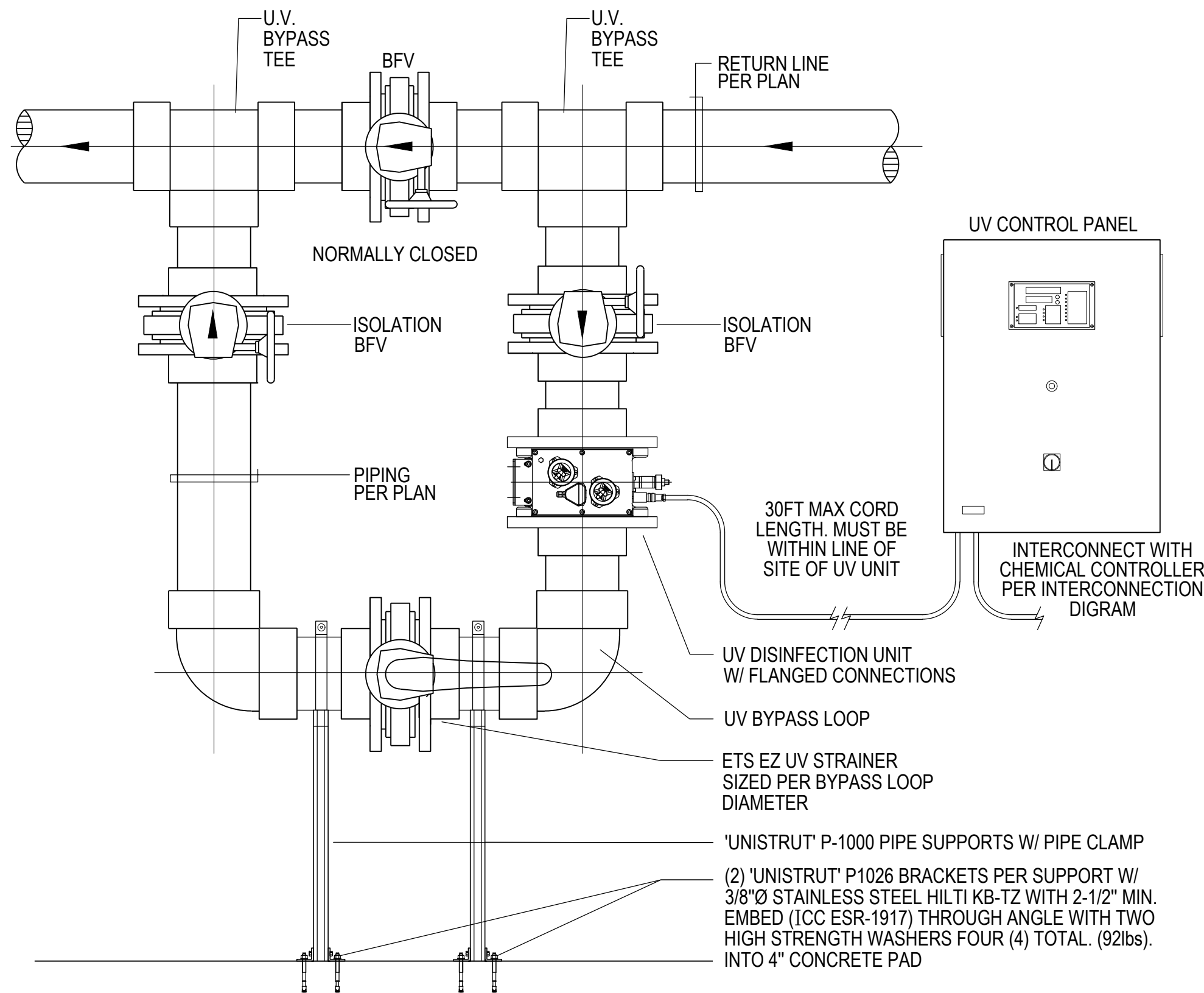
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Sheet No. MR-9

BID SET 02/23/2024



SECTION-A

FRONT ELEVATION

1

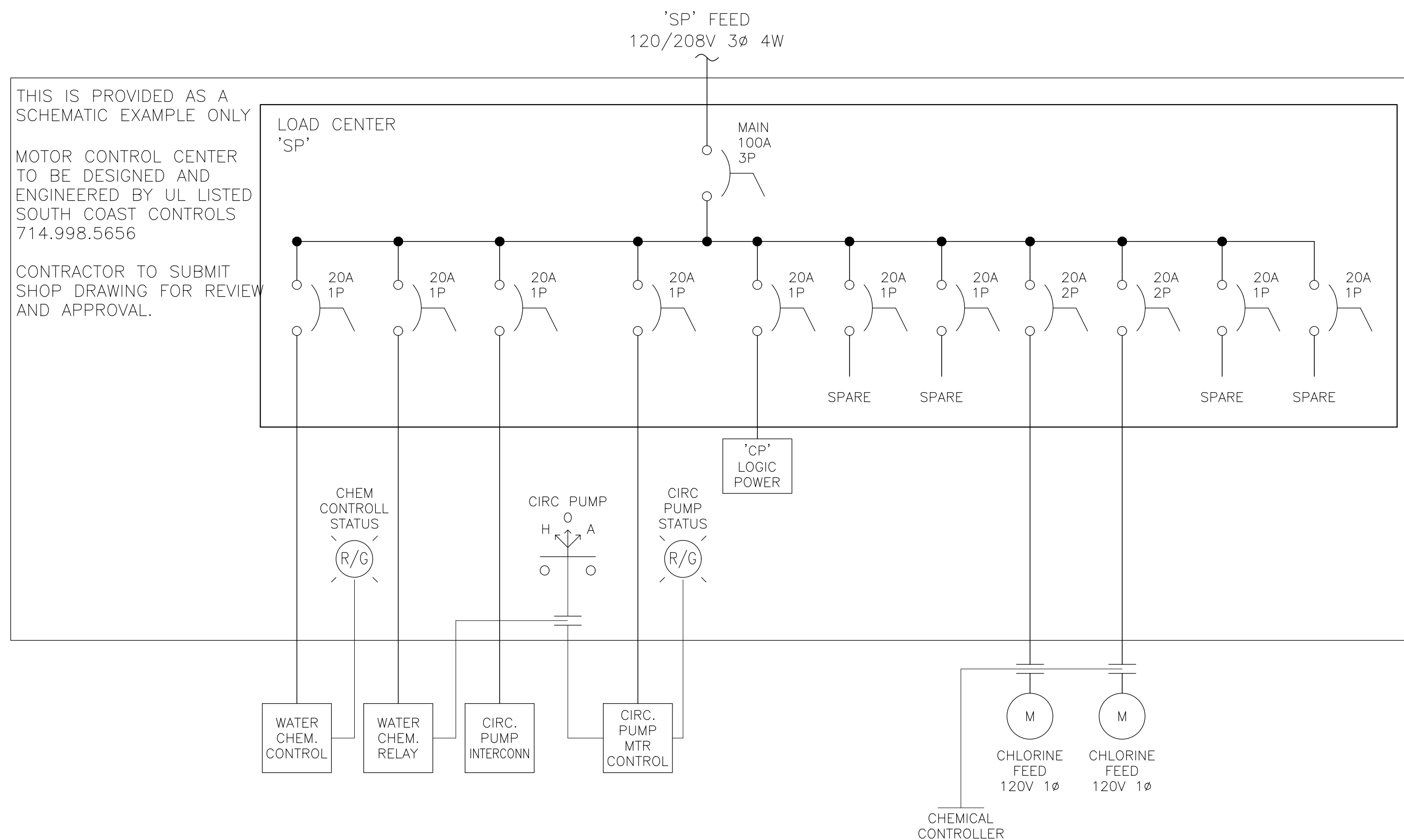
U.V. DISINFECTION UNIT INSTALLATION DETAIL

NO SCALE

2

UNISTRUT PANEL SUPPORT SYSTEM

1"=1'-0"



NOTES: UNLESS OTHERWISE SPECIFIED.

1. CONTRACTOR SHALL PROVIDE SHOP DRAWING SUBMITTAL FOR REVIEW OF MOTOR CONTROL CENTER CONTAINING ALL ELECTRICAL RELAYS, TIMERS, LIGHTING CONTACTORS, INTERCONNECTIONS, DISCONNECTS AND ALL NECESSARY APPURTENANCES FOR A FULLY FUNCTIONAL ELECTRICAL SYSTEM. DETAIL DIAGRAM IS PROVIDED AS TEMPLATE EXAMPLE ONLY. SHOP DRAWINGS SHALL BE BASED ON PANEL SCHEDULE DESIGNS PROVIDED.
2. CONTROL WIRES TO BE 16 AWG 600 VOLT, -25 °C TO 90 °C RATED STRANDED MTW.
3. POWER AND MOTOR WIRING GAUGES REFER TO NEC OR APPLICABLE CHARTS USING 600 VOLT, -25 °C TO 90 °C RATED STRANDED MTW.
4. FERRULE AND OR PROTECT ALL CONDUCTORS ACCORDINGLY.
5. TAG ALL WIRE ENDS WITH APPROPRIATE IDENTIFICATION AND ORIENT FOR EASE OF CLARITY.

WIRE COLORS: UNLESS OTHERWISE SPECIFIED

1. BLACK (blk) – ALL UNGROUNDED CONTROL CIRCUIT CONDUCTORS OPERATING AT THE SUPPLY VOLTAGE.
2. RED (red) – UNGROUNDED AC CONTROL CIRCUITS OPERATING AT A VOLTAGE LESS THAN THE SUPPLY VOLTAGE.
3. BLUE (blu) – UNGROUNDED DC CONTROL CIRCUITS.
4. YELLOW (yel) OR ORANGE (org) – UNGROUNDED CONTROL CIRCUITS OR OTHER WIRING, SUCH AS FOR CABINET LIGHTING, THAT REMAIN ENERGIZED WHEN THE MAIN DISCONNECT IS IN THE "OFF"
5. WHITE (wht) OR NATURAL GRAY (gry) – GROUNDED AC CURRENT CARRYING CONTROL CIRCUIT CONDUCTOR REGARDLESS OF VOLTAGE.
6. WHITE WITH BLUE STRIPE (wht/blu) – GROUNDED DC CURRENT CARRYING CONTROL CIRCUIT CONDUCTOR.
7. WHITE WITH YELLOW STRIPE (wht/yel)– GROUNDED AC CONTROL CIRCUIT CURRENT CARRYING CONDUCTOR THAT REMAINS ENERGIZED WHEN THE MAIN DISCONNECT SWITCH IS IN THE "OFF" POSITION.
8. GREEN (grn) OR GREEN/YELLOW (grn/yel) – GROUND, PROTECTIVE EARTH.

3

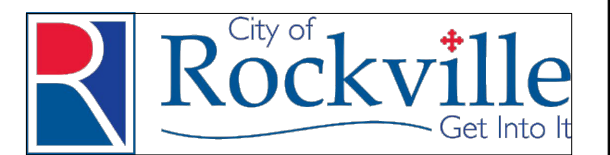
MOTOR CONTROL CENTER LINE DIAGRAM

NO SCALE

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

DETAILS

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NFC

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Sheet No. MR-10

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## ELECTRICAL SPECIFICATIONS

### GENERAL CONDITIONS

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CITY OF ROCKVILLE PERMITS NECESSARY TO COMPLETE THIS PROJECT.

ELECTRICAL SITE PLANS ARE DIAGRAMMATIC AND INDICATE GENERAL LOCATIONS OF ELECTRICAL EQUIPMENT. PROVIDE ALL EQUIPMENT SUCH AS CONNECTORS AND SUPPORTS WHICH ARE NOT SHOWN ON THE PLANS BUT ARE REQUIRED FOR A COMPLETE ELECTRICAL INSTALLATION. REFER TO CIVIL DRAWINGS FOR EQUIPMENT LOCATION AND INSTALLATION DETAILS.

CONCEAL ELECTRICAL WORK INSIDE FINISHED SPACES TO THE MAXIMUM EXTENT POSSIBLE. INSTALL ALL ELECTRICAL WORK PARALLEL TO BUILDING LINES.

COORDINATE WITH SHOP DRAWINGS OF OTHER TRADES REQUIRING ELECTRICAL CONNECTION TO DETERMINE LOCATIONS FOR ALL ELECTRICAL ROUGH-INS AND VERIFY THE ELECTRICAL CHARACTERISTICS. CONTACT THE CIVIL ENGINEER OF NOTED DISCREPANCIES BETWEEN THE SHOP DRAWING REQUIREMENTS AND THE ELECTRICAL DRAWINGS.

WHERE EXISTING EQUIPMENT, PIPING, CONDUIT, DUCTWORK, AND SIMILAR MATERIALS REQUIRE MOVING FOR INSTALLATION OF NEW WORK, REMOVE THESE ITEMS AS REQUIRED, AND RESTORE THEM TO ORIGINAL CONDITION.

REMOVE AND/OR RELOCATE EXISTING EQUIPMENT AS REQUIRED BY RENOVATIONS. RECONNECT DISTURBED FACILITIES AND PLACE IN OPERATING CONDITION. WHERE NEW CONSTRUCTION INTERFERES WITH EXISTING OUTLETS, REMOVE OUTLETS AND REPLACE WITH NEW. EXTEND EXISTING WIRING AS REQUIRED. REMOVE EXISTING CEILING MATERIALS WHERE REQUIRED FOR INSTALLATION OF ELECTRICAL WORK. REPLACE UPON COMPLETION. REPLACE EXISTING MATERIAL DAMAGED AS A RESULT OF THESE ALTERATIONS, USING MATCHING MATERIAL. IN GENERAL, EXISTING SUSPENSION SYSTEM AND ACoustICAL PANELS WILL REMAIN IN PLACE DURING CONSTRUCTION. REMOVE MATERIALS WHERE NECESSARY FOR EXECUTION OF WORK, AND REINSTALL UPON COMPLETION. REPLACE MATERIALS DAMAGED IN THE PROCESS.

PROVIDE ALL DEVICES, ANCHORS, AND FASTENERS TO SUPPORT EQUIPMENT AND ELECTRICAL RACEWAY LOADS. SUPPORT ALL MATERIAL FROM BUILDING STRUCTURAL SYSTEM. DO NOT SUPPORT MATERIAL FROM DUCTWORK, PIPING, OR CONDUIT. DO NOT SUPPORT ELECTRICAL EQUIPMENT FROM CEILING SUSPENSION SYSTEM WIRES. PROVIDE DEDICATED SUPPORT MEMBERS.

### GROUNDING AND BONDING

PROVIDE RELIABLE, LOW IMPEDANCE, METALLIC, PATH FOR SHORT CIRCUIT AND GROUND CURRENTS SO THAT CIRCUIT PROTECTIVE DEVICES CAN OPERATE QUICKLY AND EFFECTIVELY. VERIFY THAT METALLIC BONDING IS CONTINUOUS FROM SERVICE ENTRANCE EQUIPMENT, THROUGH DISTRIBUTION SYSTEM, TO EACH OUTLET. PROVIDE A DEDICATED EQUIPMENT GROUNDING CONDUCTOR FOR ALL FEEDERS AND BRANCH CIRCUITS.

### WIRING METHODS

- CONDUCTORS
- STANDARDS: NEC ARTICLE 310
- SPECIFICATION: COPPER #14 AWG SMALLEST SIZE FOR POWER WIRING, SINGLE STRAND FOR #12 AND #10 AWG AND MULTIPLE STRANDS FOR #8 AWG OR LARGER
- INSULATION: 600V, XHHN/XHHW-2
- AMPACITY: SIZES #14 AWG TO #1 AWG BASED UPON NEC TABLE 310.16, CU CONDUCTORS, 60 DEG INSULATION AND SIZES #10 AND LARGER BASED UPON NEC TABLE 310.16, CU CONDUCTORS, 75 DEG INSULATION
- METHODS: FOR ALL 120V CIRCUITS THAT EXCEED 100 FEET, INCREASE TO THE NEXT WIRE SIZE TO REDUCE VOLTAGE DROP
- INSTALL BRANCH CIRCUITS IN RACEWAY. DO NOT INSTALL MORE THAN THREE SINGLE PHASE CIRCUITS IN ONE RACEWAY. PROVIDE A GROUNDED CONDUCTOR FOR EACH CIRCUIT. PROVIDE AT LEAST ONE EQUIPMENT GROUNDING CONDUCTOR FOR EACH RACEWAY. PULL ALL CONDUCTORS INTO A RACEWAY AT ONE TIME USING LISTED WIRE PULLING LUBRICANT.

### PVC CONDUIT

### REFERENCES

- UL 651 SAFETY STANDARD- SCHEDULE 40, 80, TYPE EB AND A RIGID PVC CONDUIT AND FITTINGS
- NEMA TC-2 ELECTRICAL POLYVINYL CHLORIDE (PVC) CONDUIT
- NEMA TC-3 POLYVINYL CHLORIDE (PVC) FITTINGS FOR USE WITH RIGID PVC CONDUIT AND TUBING
- NFPA 70 - NATIONAL ELECTRICAL CODE
- NECA NEIS 111 - NATIONAL ELECTRICAL INSTALLATION STANDARD FOR INSTALLING NONMETALLIC RACEWAYS

### QUALITY ASSURANCE

- SCHEDULE 40 AND SCHEDULE 80 PVC CONDUIT AND FITTINGS SHALL BE LISTED TO UL 651 AND MANUFACTURED IN ACCORDANCE WITH NEMA TC-2 (CONDUIT) AND NEMA TC-3 (FITTINGS).
- ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE NEW AND WITHIN ONE YEAR OF MANUFACTURE, COMPLYING WITH THE LATEST CODES AND STANDARDS, NO USED, RE-BUILT, REFURBISHED AND/OR RE-MANUFACTURED ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE FURNISHED ON THIS PROJECT.
- TESTING AGENCY QUALIFICATIONS: TESTING/LISTING AGENCY SHALL BE ONE OF THE FOLLOWING NATIONALLY RECOGNIZED TESTING LABORATORIES:
  - UNDERWRITERS LABORATORIES (UL)
  - INTERTEK TESTING SERVICES (ETL)
  - NSF INTERNATIONAL
- STORAGE: WHENEVER POSSIBLE, STORE THE CONDUIT INDOORS TO PREVENT POSSIBLE DISCOLORATION, THE ACCUMULATION OF DIRT AND TO EXTEND THE LIFE OF THE PRODUCT. IF CONDUIT IS STORED OUTDOORS, IT SHALL BE STORED IN SUCH A WAY AS TO ALLOW AIR CIRCULATION AND WATER DRAIN-OFF AND SHALL NOT BE DIRECTLY COVERED WITH PLASTIC.
- SCHEDULE 40 AND SCHEDULE 80 PVC CONDUIT SHALL BE LISTED TO UL 651 FOR USE OUTDOORS AND WHERE EXPOSED TO DIRECT SUNLIGHT.

### PRODUCTS

- MANUFACTURERS
- ALLIED TUBE & CONDUIT, 16100 S. LATHROP AVE, HARVEY, IL 60426, WWW.ALLIEDEG.COM
- HERITAGE PLASTICS
- RIDGELINE PLASTICS
- SCHEDULE 40 AND SCHEDULE 80 PVC CONDUIT
- PVC CONDUIT SHALL BE AVAILABLE IN TRADE SIZES 1/2" TO 6".
- PVC CONDUIT SHALL BE LISTED TO UL 651 AND MANUFACTURED IN ACCORDANCE WITH NEMA TC-2.
- PVC CONDUIT SHALL BE LABELED OR MARKED SHOWING EVIDENCE OF THIRD-PARTY LISTING TO PRODUCT STANDARD.
- PVC CONDUIT SHALL BE LISTED AS SUNLIGHT RESISTANT.
- PVC CONDUIT SHALL BE LISTED FOR USE WITH 90 DEG C CONDUCTORS.
- INTEGRAL COUPLINGS
- INTEGRAL COUPLINGS SHALL BE LISTED TO UL 651 AND MANUFACTURED IN ACCORDANCE WITH NEMA TC-2.
- ELBOWS
- ELBOWS SHALL BE LISTED TO UL 651 AND MANUFACTURED IN ACCORDANCE WITH NEMA TC-3.
- FITTINGS, INCLUDING FABRICATED FITTINGS, JUNCTION-BOX ADAPTERS, EXPANSION JOINTS, THREADED ADAPTERS AND SERVICE ENTRANCE HEADS SHALL BE LISTED TO UL 651 AND MANUFACTURED IN ACCORDANCE WITH NEMA TC-3. B. FITTINGS FOR USE IN WET LOCATIONS SHALL BE LISTED FOR USE IN WET-LOCATIONS.
- INSTALLATION
- SCHEDULE 40 AND SCHEDULE 80 PVC CONDUIT, ELBOWS AND FITTINGS SHALL BE INSTALLED IN COMPLIANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND OTHER APPLICABLE

### CODES AND STANDARDS AS INDICATED ELSEWHERE IN THESE SPECIFICATIONS.

- SCHEDULE 40 AND SCHEDULE 80 PVC CONDUIT, ELBOWS AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH NECA NATIONAL ELECTRICAL INSTALLATION STANDARD (NEIS) 111, STANDARD FOR INSTALLING NONMETALLIC RACEWAYS.
- SCHEDULE 40 PVC CONDUIT SHALL BE ACCEPTABLE WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
- SCHEDULE 80 PVC CONDUIT SHALL BE ACCEPTABLE WHERE SUBJECT TO PHYSICAL DAMAGE.

### WIRING DEVICES

- CONVENIENCE RECEPTACLES
- MANUFACTURER: PASS&SEYMOUR, 20 AMP, 125V HEAVY-DUTY, NEMA 5-20R, CONVENIENCE RECEPTACLE OR EQUIVALENT
- STANDARDS: NEC ARTICLE 406; FSUL WCS96; UL498; NEMA WD-1 AND WD-6
- COLOR: WHITE OR BY ARCHITECT.

- GROUND FAULT CIRCUIT INTERRUPTER (GFCI) RECEPTACLES
- MANUFACTURER: PASS&SEYMOUR, SPECIFICATION GRADE, NEMA 5-20R, GROUND FAULT CIRCUIT INTERRUPTER, CONVENIENCE RECEPTACLE OR EQUIVALENT
- STANDARDS: NEC ARTICLE 406; FSUL WCS96; UL498 C22.2 NO. 42; NEMA WD-1 AND WD-6
- COLOR: WHITE OR BY ARCHITECT.

### DEVICE PLATES

- MANUFACTURER: SAME AS WIRING DEVICE MANUFACTURER
- MATERIAL: STAINLESS STEEL OR HIGH ABUSE REINFORCED NYLON. COLOR BY OWNER
- GANGING: AS INDICATED BY NUMBER OF DEVICES
- WEATHERPROOF: GASKETTED, CAST ALUMINUM, SPRING-LOADED LIFT COVER PLATE. IN-USE COVER PLATE AS REQUIRED.

### WIRING DEVICE METHODS

- PROVIDE A 4 INCH SQUARE OUTLET BOX FOR EACH OUTLET SHOWN IN THE WIRING SYSTEM.
- PROVIDE INTERIOR PARTITIONS WHERE REQUIRED. USE CAST IRON, CORROSION-RESISTANT BOX WITH THREADED HUBS FOR EXTERIOR OUTLETS; WET AND DAMP AREAS. PROVIDE OTHER BOXES AS REQUIRED. INSTALL BOXES SQUARE WITH BUILDING LINES AND FASTEN SECURELY IN PLACE. GROUT OR PATCH PLASTER IF MASONRY OR GYPSUM BOARD DOES NOT FIT SNUGLY ON ALL SIDES OF BOXES.

- USE SECTIONAL BOXES WITH APPROPRIATE CABLE CLAMPS FOR CABLE WIRING. PROVIDE GREEN GROUNDING SCREW FOR CONNECTION TO GROUND WIRES
- SUPPORT BOXES FROM BUILDING CONSTRUCTION INDEPENDENTLY OF CONDUIT
- INSTALL WALL SWITCHES AND OCCUPANCY SENSOR WALL SWITCHES 48 INCHES ABOVE FLOOR, OFF POSITION DOWN, UNLESS INDICATED OTHERWISE.
- INSTALL CONVENIENCE RECEPTACLES 18 INCHES ABOVE FLOOR AND 4 INCHES ABOVE COUNTERS; GROUNDING POLE ON TOP.

## AUDIO VISUAL CONSULTANT - PUBLIC ADDRESS SYSTEM

CONTRACTOR TO COORDINATE AND PROVIDE A COMPLETE TURNKEY EMERGENCY COMMUNICATION, SPEECH REINFORCEMENT PUBLIC ADDRESS SYSTEM.

### BASIS OF DESIGN:

BROOKS WHITEFORD  
WHITEFORD SYSTEMS  
PO BOX 381  
ST. LEONARD, MD 20685  
PHONE: (410) 999-6441 x201

### CABLE REQUIREMENTS

EACH MUSCO POLE WILL HAVE TWO SPEAKERS MOUNTED TO IT, WITH A SINGLE HOME-RUN SPEAKER CABLE FEEDING EACH POLE. A TOTAL OF 8 SPEAKER CABLES WILL LAND AT THE BATH HOUSE BUILDING, ONE FROM EACH POLE. THE SYSTEM WILL REQUIRE 12/2 SPEAKER CABLE TO LAND AT EACH POLE.

### EQUIPMENT RECOMMENDATION

FOR THIS APPLICATION, A COMMUNITY R5 SERIES WITH TRANSFORMERS INSTALLED AND APPROPRIATE BEAMWIDTHS SELECTED. THE SYSTEM WILL OPERATE AT 100V AS CONFIGURED BY AMPLIFIERS THAT WILL BE LOCATED IN AN EQUIPMENT RACK INSIDE THE BATH HOUSE OFFICES. REVIEW RACK LOCATION WITH CITY OF ROCKVILLE POOL PERSONNEL. THE SYSTEM WILL REQUIRE APPROPRIATE AMPLIFIERS, DIGITAL SIGNAL PROCESSING AND INTEGRATION WITH APPROPRIATE MEANS FOR TRIGGERING EMERGENCY NOTIFICATIONS (TELEPHONE, MICROPHONE SYSTEMS, ETC.).

### PROVIDE THE FOLLOWING BIDS -

BASE CONTRACT - PROVIDE PUBLIC ADDRESS FOR THE UPPER AND LOWER DECKS INCLUDING COMMUNITY R5 SERIES AND ASSOCIATED EQUIPMENT. SPEAKERS AND WIRING FOR MUSCO LIGHT POLES P5, P6,P7, P8. POLES P5 AND P6 TO PROVIDE AUDIO FOR LOW DECK FITNESS POOL.

ADD ALTERNATE 5 - PROVIDE SPEAKERS AND WIRING FOR MUSCO LIGHT POLES P1, P2, P3, AND P4. PROVIDE ADDITIONAL AMPLIFIERS AND ASSOCIATED EQUIPMENT FOR THE FOUR ADDITIONAL POLES.

## POOL BONDING INSPECTIONS AND CERTIFICATIONS

PROVIDE BONDING INSPECTIONS AND CERTIFICATIONS FOR THE SLIDE TOWER (SL-1), SWIMMING POOL (SP-1), ACTIVITY POOL (AP-1), AND ALL OTHER ASSOCIATED EQUIPMENT. REVIEW AQUATIC DESIGN GROUP DRAWINGS TO IDENTIFY ALL BONDING INSPECTION LOCATIONS. BONDING AND INSPECTIONS TO BE CONDUCTED BY LICENSED ELECTRICAL CONTRACTOR AND/OR LICENSED ENGINEER. INSPECTIONS AND CERTIFICATIONS TO BE CONDUCTED PRIOR TO EACH AHJ PERMIT INSPECTION. PROVIDE NOTICE WITHIN 24 HOURS AFTER INSPECTIONS OF CERTIFICATION FAILURE WITH RECOMMENDATIONS TO CORRECT BONDING FAILURE(S). PROVIDE FINAL REPORTS WITHIN SEVEN DAYS AFTER EACH INSPECTION TO OWNER AND ARCHITECT.

## OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT

INSTALL AND PROVIDE START-UP FOR THE FOLLOWING EQUIPMENT.

- MAIN DISTRIBUTION PANEL SNACK BAR MDP
- DISTRIBUTION PANEL PE
- PANELBOARD PE1
- SURGE PROTECTION DEVICE (SPD) FOR BATHOUSE MAIN DISTRIBUTION PANEL

## LIGHTING SYMBOLS

	LIGHT FIXTURE KEY - SEE ARCHITECTS DRAWINGS FOR TYPE AND MOUNTING HEIGHTS. LOWERCASE LETTER INDICATES SWITCHING. PE-20 INDICATES CIRCUITING. PROVIDE INDEPENDENT MOUNTING TO STRUCTURE FOR EACH LUMINAIRE. SEE DETAIL THIS DRAWING. EM - EMERGENCY BATTERY BACKUP
	EMERGENCY LIGHT UNIT (ELU) WITH BATTERY BALLAST. SEE LIGHTING FIXTURE SCHEDULE. 1-20 INDICATES PANEL CIRCUIT NUMBER.
	EXISTING 1X4 SURFACE MOUNTED FLUORESCENT FIXTURE WITH TWO LED T8 LAMPS
	MUSCO LIGHT POLE WITH LED LIGHT FIXTURES
	SWITCH - SINGLE POLE UNLESS NOTED OTHERWISE. MOUNTED 48" ABOVE FINISHED FLOOR TO THE CENTERLINE OF THE DEVICE UNLESS NOTED OTHERWISE.
	a - LOWER CASE LETTER INDICATES SWITCHING AND 0-10V DIMMING DESIGNATION
	THREE WAY SWITCH, FOUR WAY SWITCH
	LINE VOLTAGE WALL MOUNTED PROGRAMMABLE TIMER SWITCH, ON/OFF SWITCH. AUTOMATICALLY TURNS OFF LIGHTS AFTER A PRESET TIME. LEGRAND WATTSTOPPER TS-400 OR EQUIVALENT

## ABBREVIATIONS

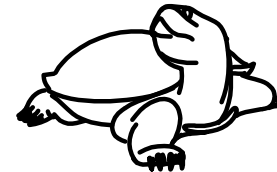
EM - EMERGENCY  
EX - EXISTING TO REMAIN  
GFI/GFCI - GROUND FAULT INTERRUPTER / GROUND FAULT CIRCUIT INTERRUPTER  
LV - LOW VOLTAGE  
REF - REFRIGERATOR  
REX - RELOCATE EXISTING/RELOCATED EXISTING  
TR - TAMPER RESISTANT  
UC - UNDERCOUNTER LIGHTS  
WP - WEATHERPROOF  
X - EXISTING TO BE REMOVED

## ELECTRICAL SYMBOLS

	208Y/120V, 3-PHASE, 4-WIRE PANELBOARD OR DISTRIBUTION BOARD. 3HA DESIGNATES PANEL NAME.
	MAIN DISTRIBUTION PANEL. 208Y/120V, SERVICE ENTRANCE RATED. SEE RISER DIAGRAMS FOR MORE INFORMATION OWNER FURNISHED, CONTRACTOR INSTALLED - SNACK BAR MDP OWNER FURNISHED, CONTRACTOR INSTALLED - DISTRIBUTION PANEL PE OWNER FURNISHED, CONTRACTOR INSTALLED - BATH HOUSE SURGE PROTECTION DEVICE (SPD)
	PANELBOARD SURGE PROTECTION DEVICE
	UNDERGROUND PVC SCHEDULE 40 CONDUIT. INSTALL PER NEC 300.5 REQUIREMENTS. P1 - LIGHT POLE 3 #10 - QUANTITY AND SIZE OF PHASE CONDUCTORS 1 #10 N - QUANTITY AND SIZE OF NEUTRAL CONDUCTORS 1 #10 EGC - QUANTITY AND SIZE OF EQUIPMENT GROUNDING CONDUCTORS 1-1/4" C - INDICATES SIZE OF CONDUIT
	UNDERGROUND PVC SCHEDULE 40 CONDUIT FOR LOUDSPEAKER WIRING. INSTALL PER NEC 300.5 REQUIREMENTS.
	HUBBELL QUAZITE POLYMER CONCRETE ENCLOSURES MEET OR EXCEED TEST PROVISIONS OF ANSI/SCTE 77 2017. PG STYLE, TIER 15, 18 INCHES DEEP, OPEN BOTTOM HH1118 - HUBBELL QUAZITE PG1118BA18 OR EQUIVALENT
	EXISTING UNDERGROUND CONDUIT SHOWN FOR REFERENCE ONLY. PREVIOUS ENGINEERING DRAWINGS INDICATED UNDERGROUND CONDUIT AT THESE LOCATIONS. COORDINATE LOCATIONS WITH DEMOLITION OF SITE LIGHTING. EXISTING CONDUIT MAY BE REUSED.
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER CONVENIENCE RECEPTACLE. 125V, 15 OR 20 AMP, GROUNDING TYPE, TAMPER RESISTANT. NEMA 5-15R OR 5-20R. MOUNTED 18" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. PE-14 INDICATES PANEL CIRCUITING.
	JUNCTION BOX
	SAFETY SWITCH DISCONNECT - HEAVY DUTY 600V OR 250V, HORSE POWER RATED FOR MOTOR LOADS. AA/C - AA DISCONNECT AMPACITY / C POLES NEMA TYPE 4X, IP67, NON-METALLIC ENCLOSURE HUBBELL CIRCUIT-LOCK DISCONNECT OR APPROVED EQUAL
	FUSED SAFETY SWITCH DISCONNECT - HEAVY DUTY 600V OR 250V, HORSE POWER RATED FOR MOTOR LOADS. AA/BB/C - AA DISCONNECT AMPACITY / BB FUSE SIZE / C POLES NEMA TYPE 4X, IP67, NON-METALLIC ENCLOSURE HUBBELL CIRCUIT-LOCK DISCONNECT OR APPROVED EQUAL
	MOTOR CONNECTION EF - EXHAUST FAN, 120V, 1 PHASE, LESS THAN 100W

## LSG LANDSCAPE ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
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DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## SPECIFICATIONS AND SYMBOLS

## BID SET

1	65% CONSTRUCTION DOCUMENT 04/25/2023
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No.	Description	Date
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### Revisions

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Scale:	
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Checked By:	AD
Date:	5/19/2023

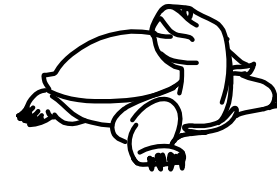
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RENOVATIONS

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DEMOLITION SITE  
PLAN

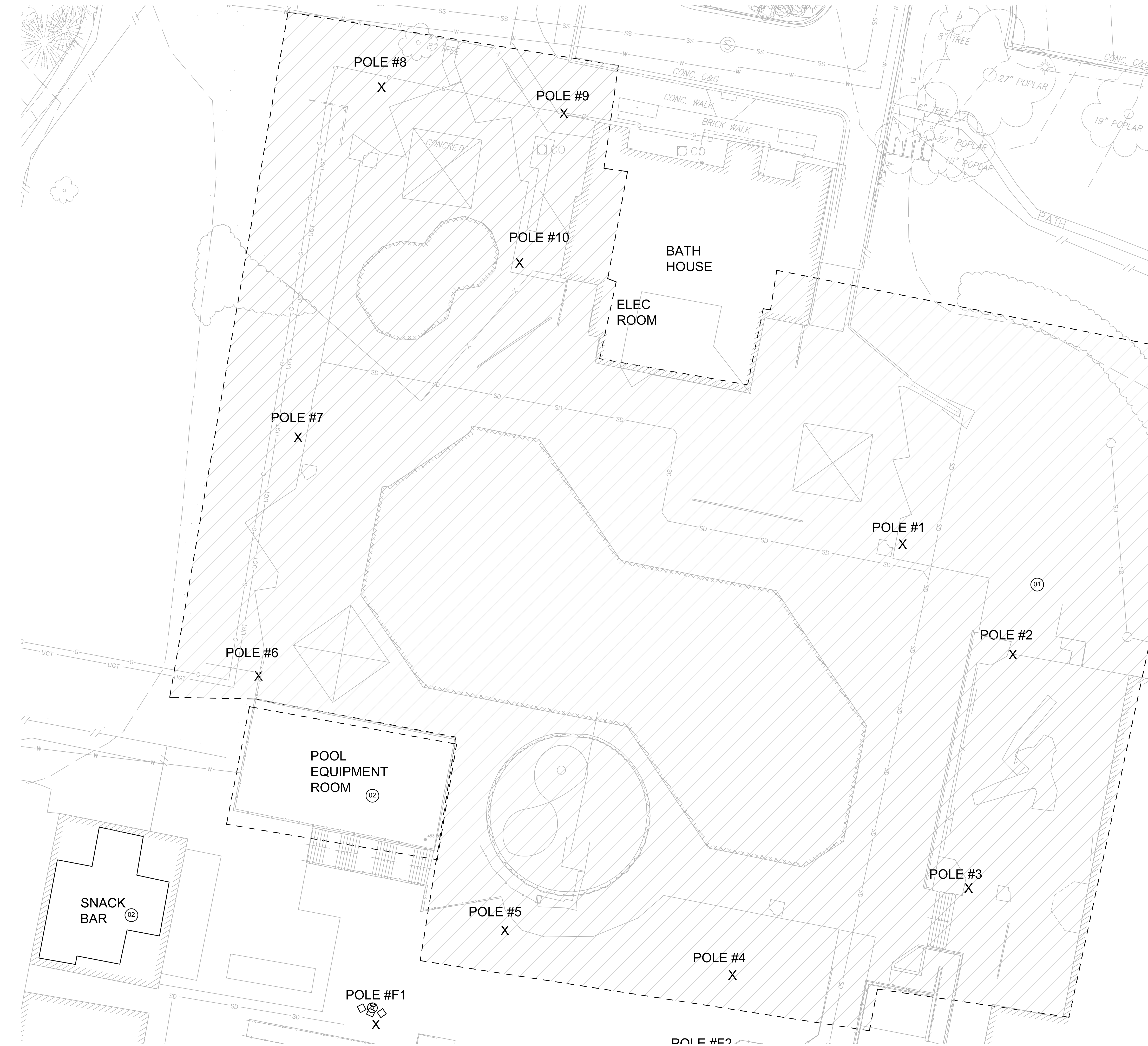
BID SET

GENERAL NOTES:

- A. DEMOLITION INCLUDES THE REMOVAL OF LIGHT POLES, RECEPTACLES, ELECTRIC DEVICES, JUNCTION BOXES, TEL / DATA / TV OUTLETS AND THEIR ASSOCIATED CONDUIT, UNDERGROUND CONDUIT, WIRING, AND CABLING BACK TO THEIR SOURCE PANEL.  
X - DEMOLISH LIGHT FIXTURE  
EX - EXISTING TO REMAIN  
REX - RELOCATE / RELOCATED EXISTING
- B. BACKGROUNDS ARE FROM 1990 ENGINEERING DRAWINGS THAT INSTALLED UPPER DECK LIGHTING, POOLS, AND SLIDE. HATCHED AREA REPRESENTS THE AREA OF DEMOLITION. ALL ELECTRICAL EQUIPMENT WITHIN THE HATCHED AREA IS WIRED BACK TO THE BATHHOUSE ELECTRIC ROOM PANELS A, B, C, AND D. TRACE ALL BRANCH CIRCUITS PRIOR TO DEMOLITION.
- C. DEMOLISH POLE LIGHTS AND ASSOCIATED RECEPTACLES. DEMOLISH PA SYSTEM FROM SPEAKER HORNS BACK TO THE BATHHOUSE.
- D. UPDATE PANEL A, B, C, AND D, PANEL DIRECTORIES AFTER COMPLETION OF ALL WORK.
- E. SEE DWGS L601, L602, L603 FOR LIGHTING SYSTEM DETAILS AND ASSOCIATED POLE DETAILS.

SHEET NOTES:

- 01 DEMOLISH ALL BRANCH CIRCUITS SERVING SHED.
- 02 POOL EQUIPMENT ROOM POWERED FROM SNACK BAR PANELS MDP, PG, P, AND SB. TRACE, IDENTIFY, AND DEMOLISH ALL BRANCH CIRCUITS SERVING THE POOL EQUIPMENT ROOM.

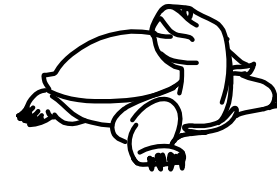


1 ELECTRICAL DEMOLITION SITE PLAN  
1/16" = 1'-0"



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DEPARTMENT OF  
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OUTDOOR  
RECREATION POOL  
RENOVATIONS

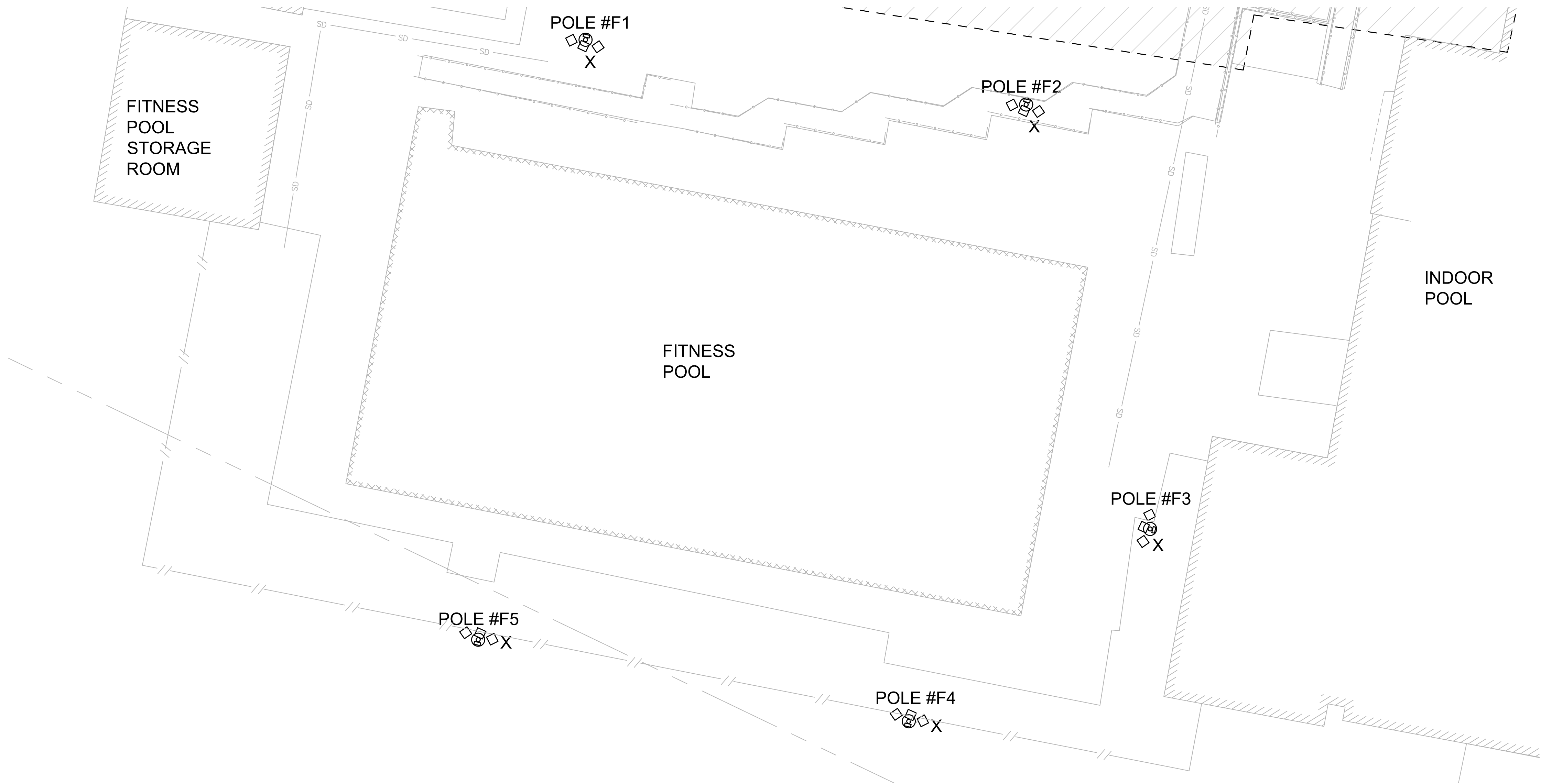
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DEMOLITION SITE  
PLAN

BID SET

GENERAL NOTES:

- A. DEMOLITION INCLUDES THE REMOVAL OF LIGHT POLES, RECEPTACLES, ELECTRIC DEVICES, JUNCTION BOXES, TEL / DATA / TV OUTLETS AND THEIR ASSOCIATED CONDUIT, UNDERGROUND CONDUIT, WIRING, AND CABLING BACK TO THEIR SOURCE PANEL.  
X - DEMOLISH LIGHT FIXTURE  
EX - EXISTING TO REMAIN  
REX - RELOCATE / RELOCATED EXISTING
- B. FITNESS POOL POLE LIGHTS ARE WIRED BACK TO THE CONTROL PANEL IN THE FITNESS POOL EQUIPMENT ROOM. DEMOLISH POLE LIGHTS AND ASSOCIATED RECEPTACLES AND PA SYSTEM.

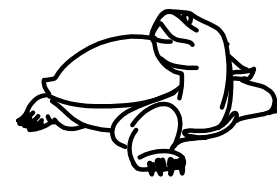


1 ELECTRICAL DEMOLITION SITE PLAN - ADD ALTERNATE 5 DEMOLITION OF FIVE FITNESS POOL LIGHT POLES  
1/16" = 1'-0"



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SITE PLAN

BID SET

GENERAL NOTES:

- PROVIDE PVC SCHEDULE 40 FOR ALL UNDERGROUND CONDUITS.
- TRANSITION TO RIGID METAL CONDUIT FOR UNDERGROUND CONDUIT TURNING UP ABOVE GROUND AND RUNNING EXPOSED, SURFACE MOUNTED.
- PROVIDE CONDUIT SEALS FOR ALL CONDUIT ENTERING INSIDE BUILDINGS.
- SEE DWGS L601, L602, L603 FOR LIGHTING SYSTEM DETAILS AND ASSOCIATED POLE DETAILS.

SHEET NOTES:

- POLES AND BASES FURNISHED AND INSTALLED BY MUSCO. PROVIDE CONDUIT AND WIRING INDICATED TO 3-POLE, 30-AMP CONTACTOR IN MUSCO CONTROL PANEL IN BATH HOUSE ELECTRIC ROOM.
- FURNISH AND INSTALL GFCI RECEPTACLES IN LIGHTING POLE JUNCTION BOX.
- FOR BASE CONTRACT, PROVIDE 2" PVC SCHEDULE 40 AUDIO CONDUIT TO HAND HOLE. PROVIDE PULL STRING FROM HAND HOLE TO LIGHT POLE P5.
- TYPE L2 - WALL MOUNTED LED FIXTURE. SEE LANDSCAPE DRAWINGS L320 AND L603 FOR MORE INFORMATION. WIRE LIGHTS FIXTURES TO BATH HOUSE PANEL B THROUGH NORTH SHORE SAFETY 30 AMP PERMANENT GFCI AND TIME CLOCK.

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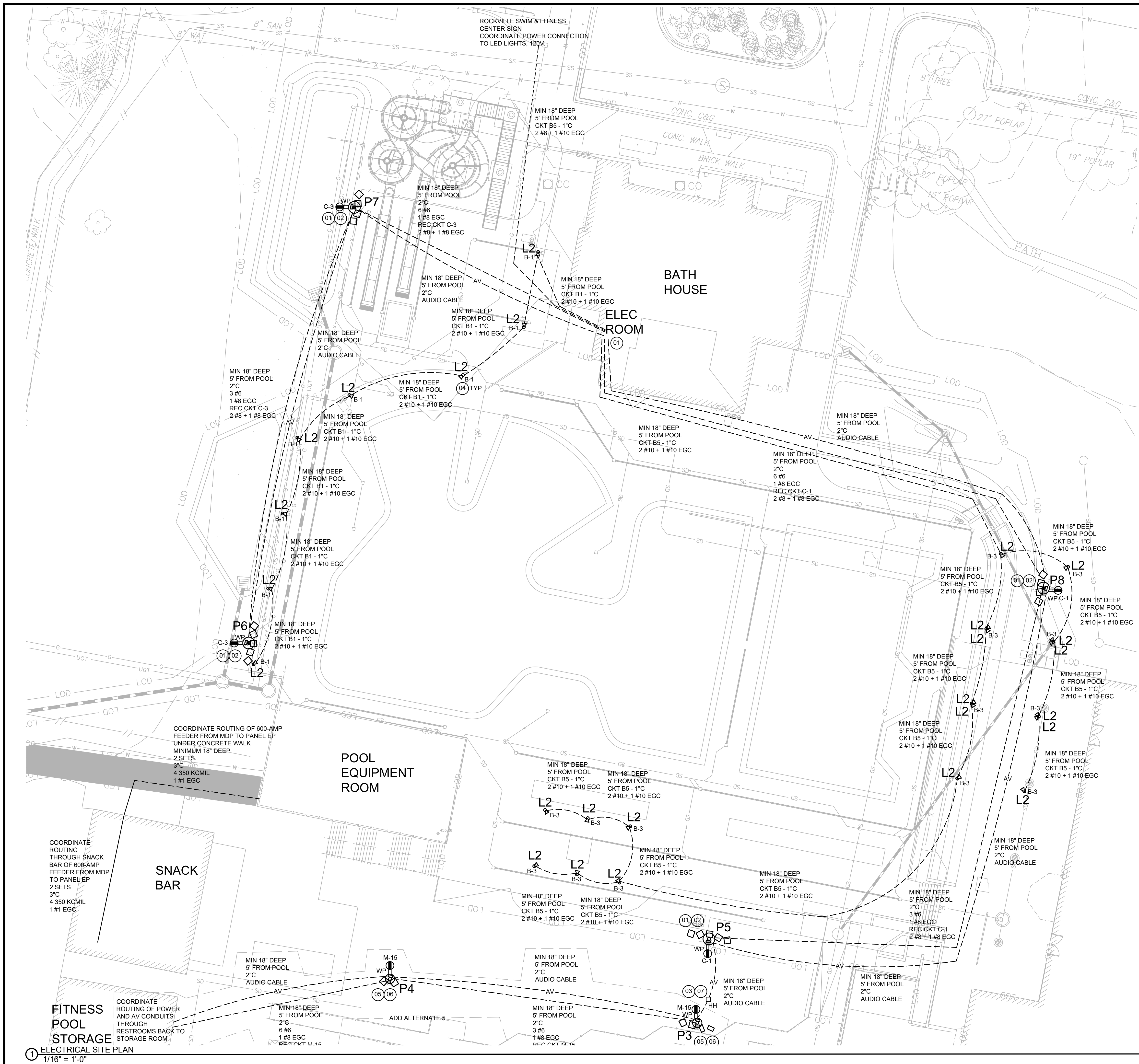
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Revisions		

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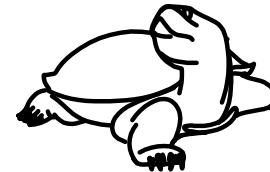
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SITE PLAN

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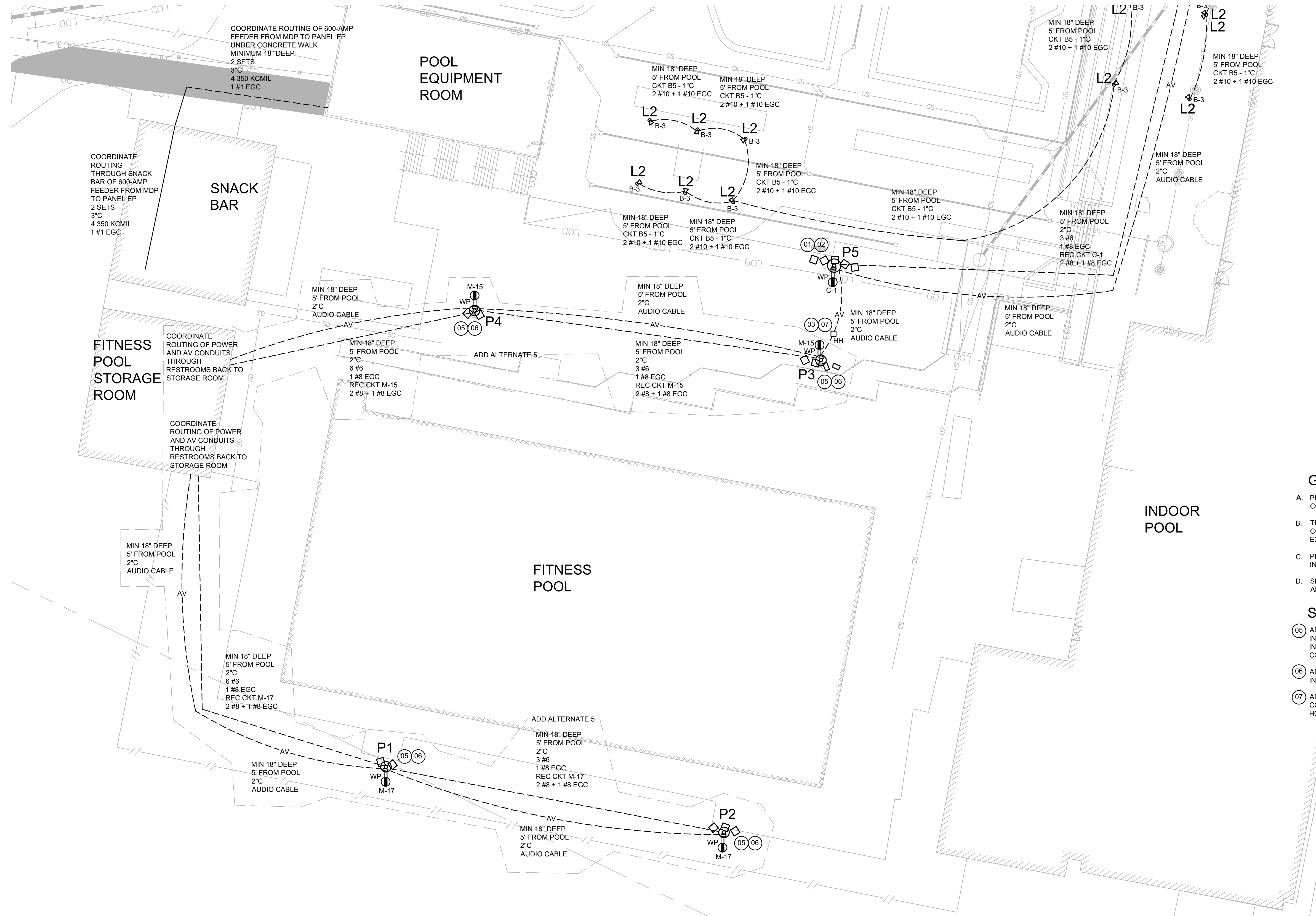
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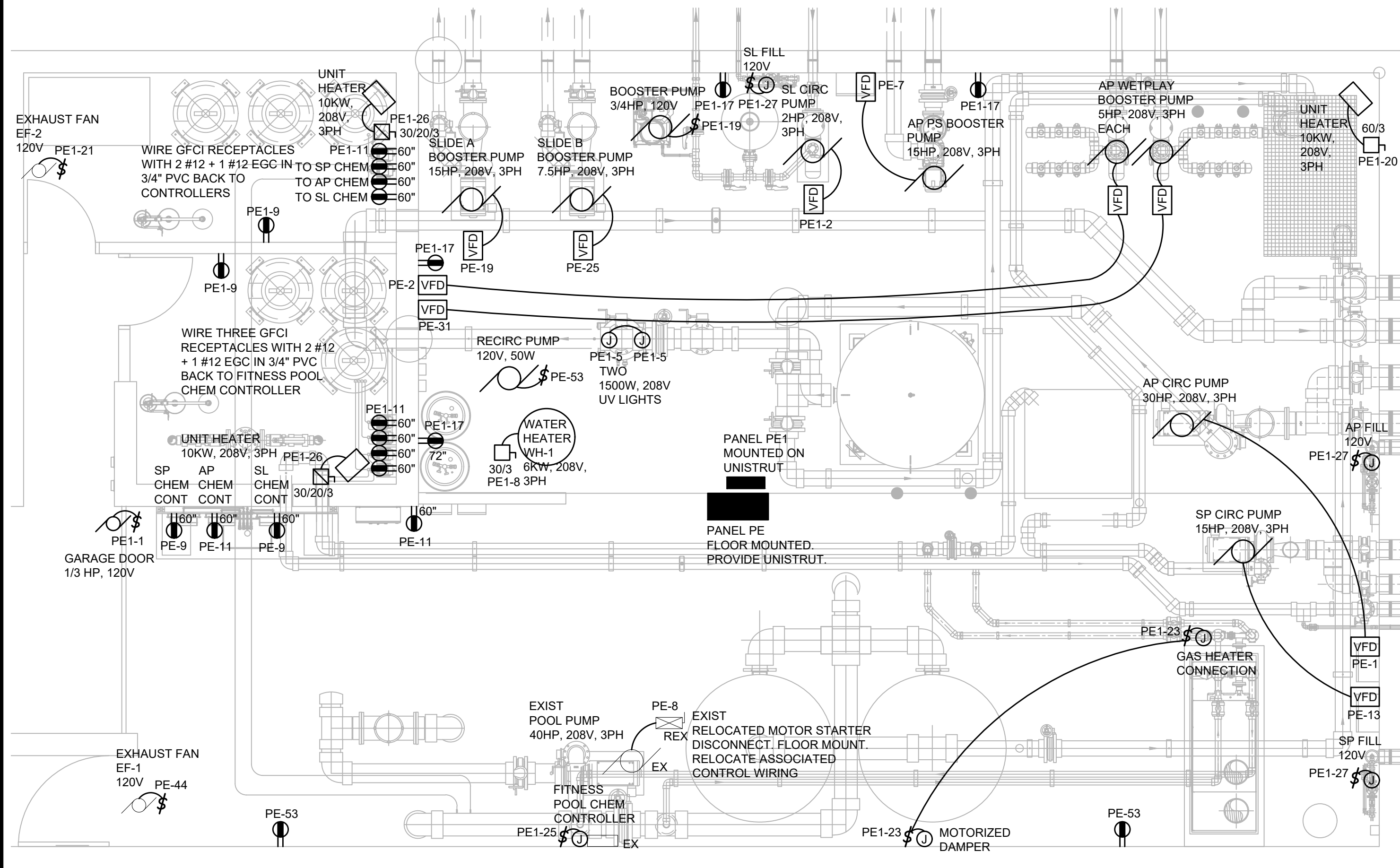
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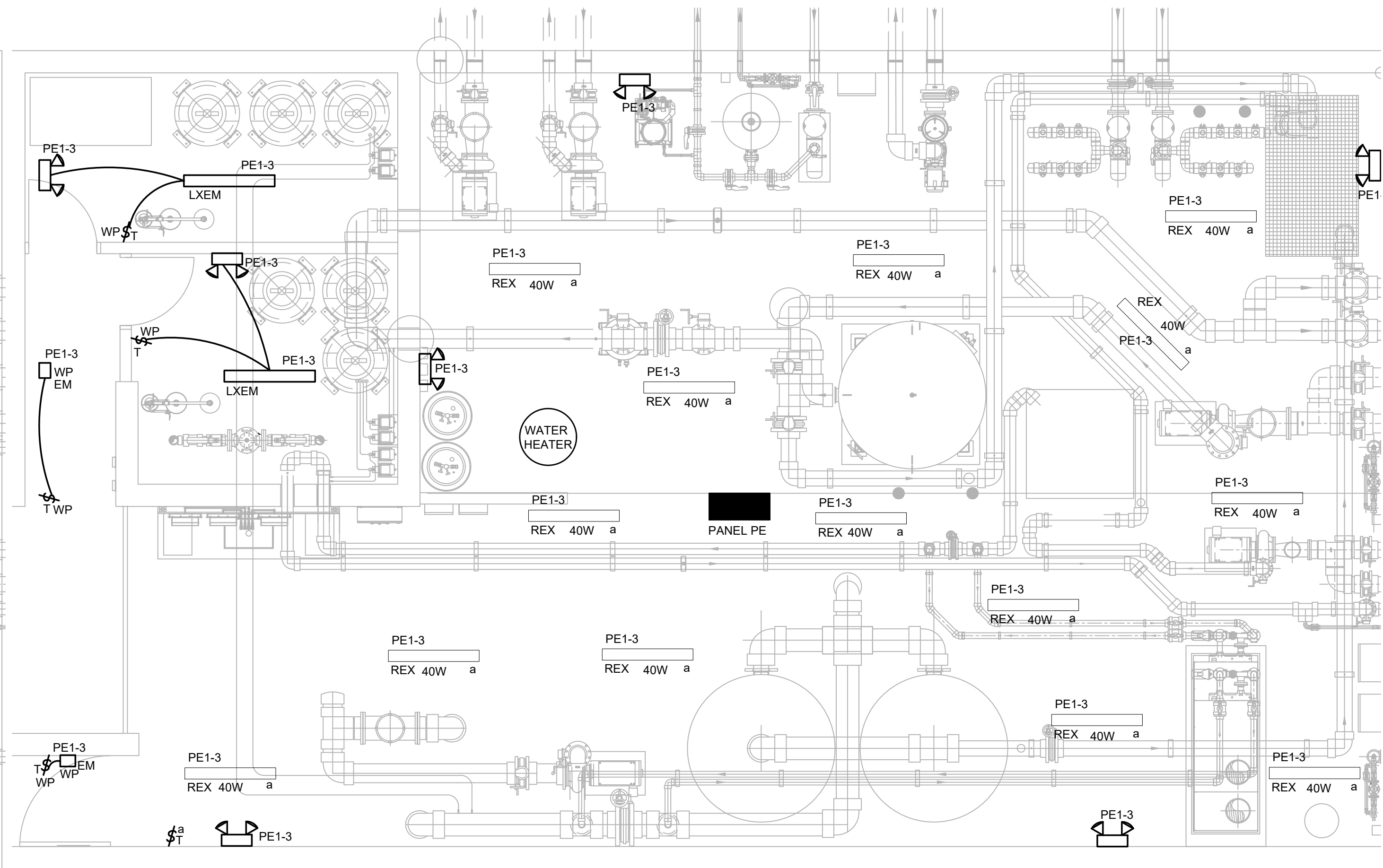


1 ELECTRICAL SITE PLAN  
1/16" = 1'-0"

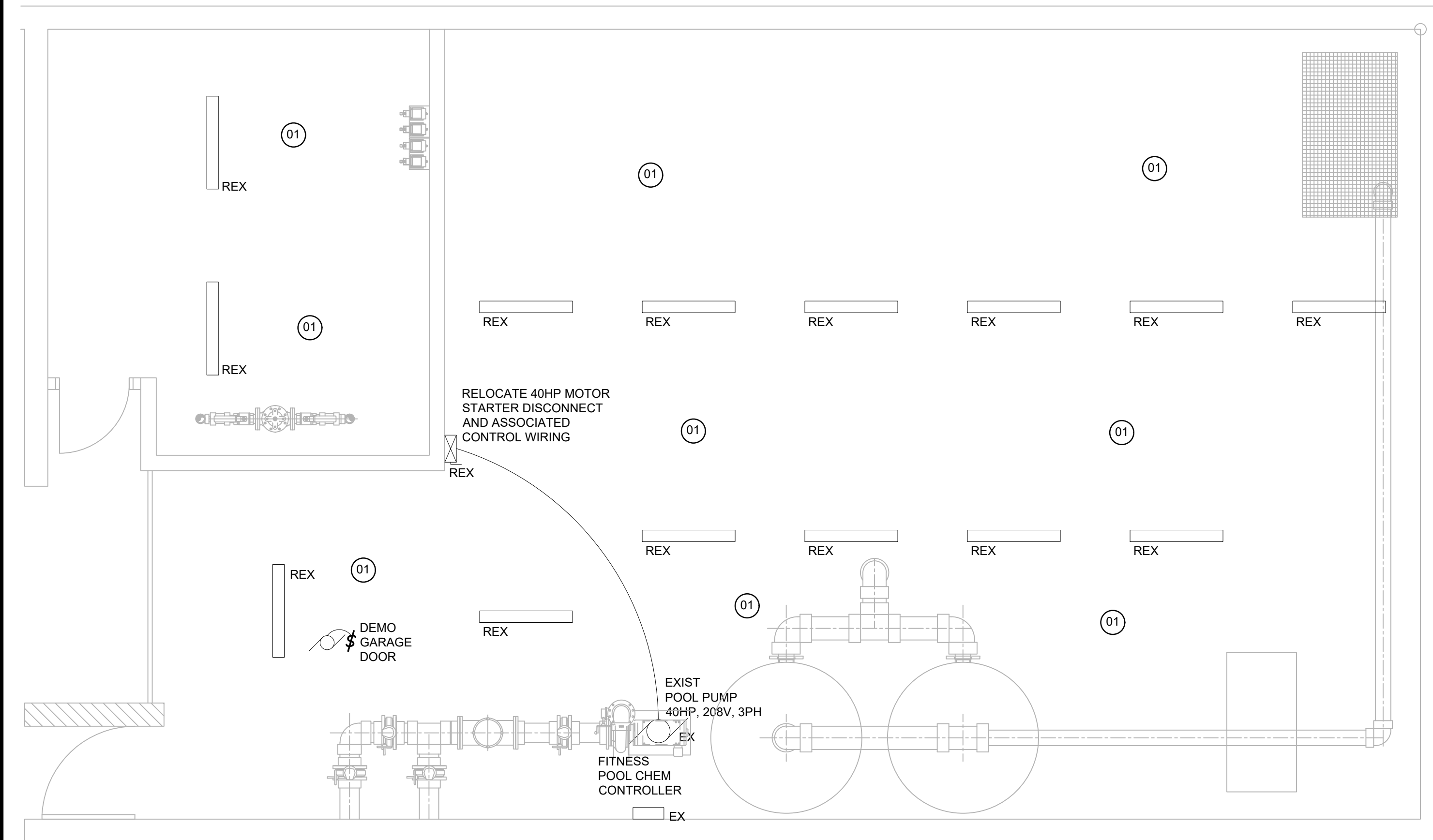




2 POOL EQUIPMENT ROOM POWER PLAN  
1/4" = 1'-0"



3 POOL EQUIPMENT ROOM LIGHTING PLAN  
1/4" = 1'-0"



1 POOL EQUIPMENT ROOM DEMOLITION PLAN  
1/4" = 1'-0"

#### GENERAL NOTES:

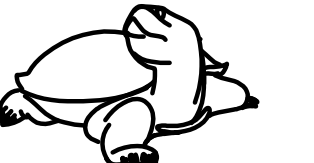
- DEMOLITION INCLUDES THE REMOVAL OF THE LIGHT FIXTURE, RECEPTACLE, ELECTRIC DEVICE, JUNCTION BOX, AND ITS ASSOCIATED CONDUIT AND WIRING BACK TO THEIR SOURCE PANEL. THE FOLLOWING LETTER NEXT TO A DEVICE INDICATES ACTION TO BE TAKEN.  
X - DEMOLISH  
EX - EXISTING TO REMAIN  
REX - RELOCATE / RELOCATED EXISTING
- WHERE AN EXISTING TO REMAIN BRANCH CIRCUIT IS INTERRUPTED BY DEMOLITION, PROVIDE AND MATCH ALL CONDUIT, WIRING, AND/OR CABLING TO MAKE THE CIRCUIT CONTINUOUS.
- TRACE, IDENTIFY, AND DEMOLISH ALL POOL EQUIPMENT ROOM BRANCH CIRCUITS BACK TO SNACK BAR PANELS MDP, PG. P, AND SB. REMOVE ALL CONDUCTORS FOR UNDERGROUND CONDUITS. LABEL CONDUITS AS ABANDONED SPARE. UPDATE PANEL DIRECTORIES AFTER THE COMPLETION OF ALL WORK.
- NOT ALL RECEPTACLES, DEVICES, JUNCTION BOXES, AND LIGHT FIXTURES MAY BE INDICATED ON PLANS. VERIFY WITH OWNER PRIOR TO DEMOLITION.
- FOR ABANDONED DEVICE AND OUTLET BOXES, PROVIDE COVER PLATE FOR COMPLETE INSTALLATION.
- CONNECT ALL EMERGENCY LIGHTING UNITS (ELUS) AHEAD OF ALL LOCAL SWITCHING CONTROLS.
- FOR CHLORINE STORAGE ROOMS - PROVIDE SCHEDULE 40 PVC CONDUIT AND PLASTIC OUTLET BOXES. PROVIDE WITH RECEPTACLE CLAM SHELL COVER.
- FOR POOL EQUIPMENT ROOM - PROVIDE EMT CONDUIT AND PLASTIC OUTLET BOXES.

#### SHEET NOTES:

- TRACE, IDENTIFY, AND DEMOLISH ALL POOL EQUIPMENT ROOM BRANCH CIRCUITS BACK TO SNACK BAR PANELS MDP, PG. P, AND SB. REMOVE ALL CONDUCTORS FOR UNDERGROUND CONDUITS. LABEL CONDUITS AS ABANDONED SPARE. UPDATE PANEL DIRECTORIES AFTER THE COMPLETION OF ALL WORK.

#### LSG LANDSCAPE ARCHITECTURE

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DEPARTMENT OF  
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#### OUTDOOR RECREATION POOL RENOVATIONS

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#### POOL EQUIPMENT ROOM DEMOLITION, POWER, AND LIGHTING PLANS

#### BID SET

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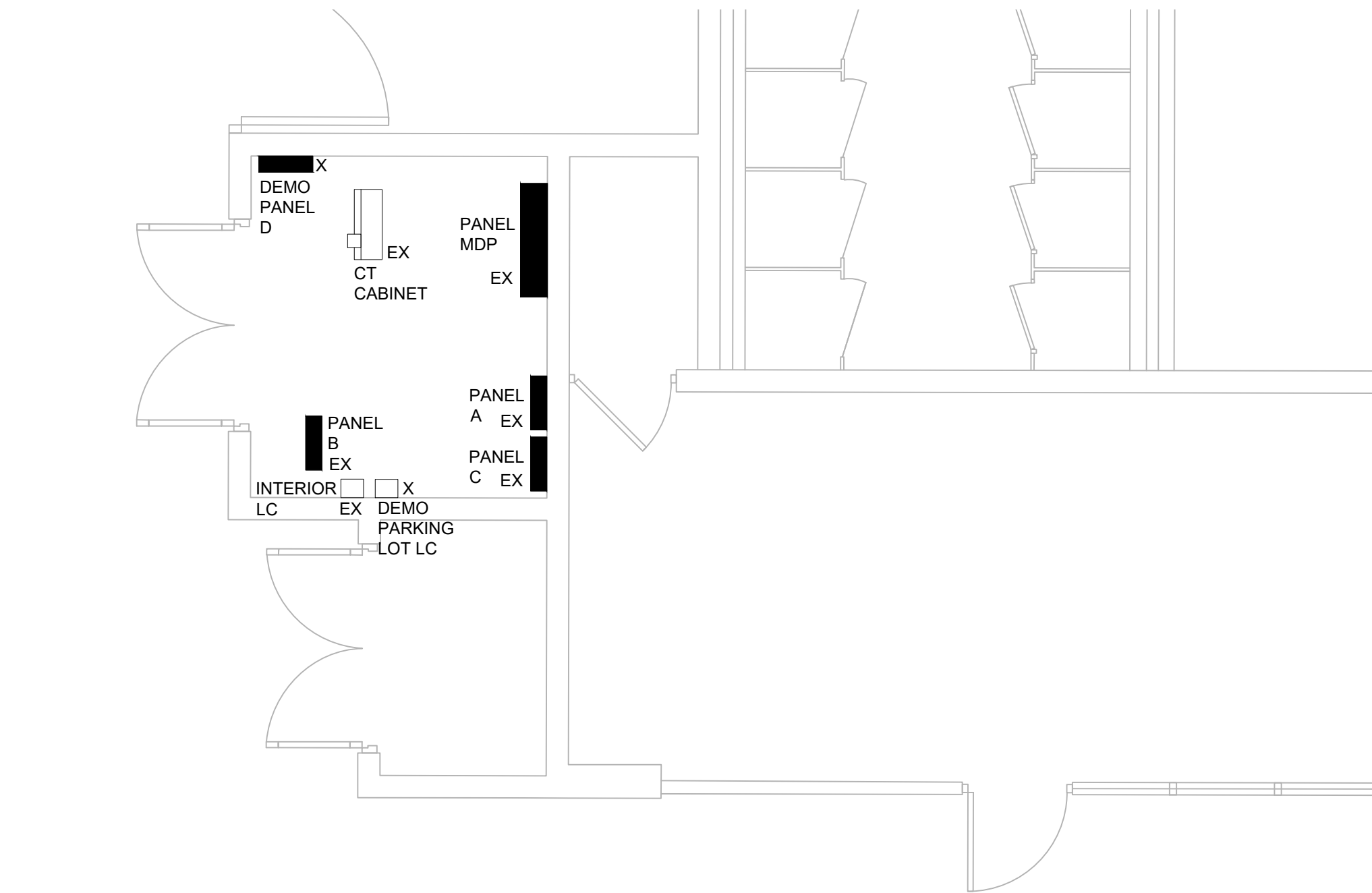
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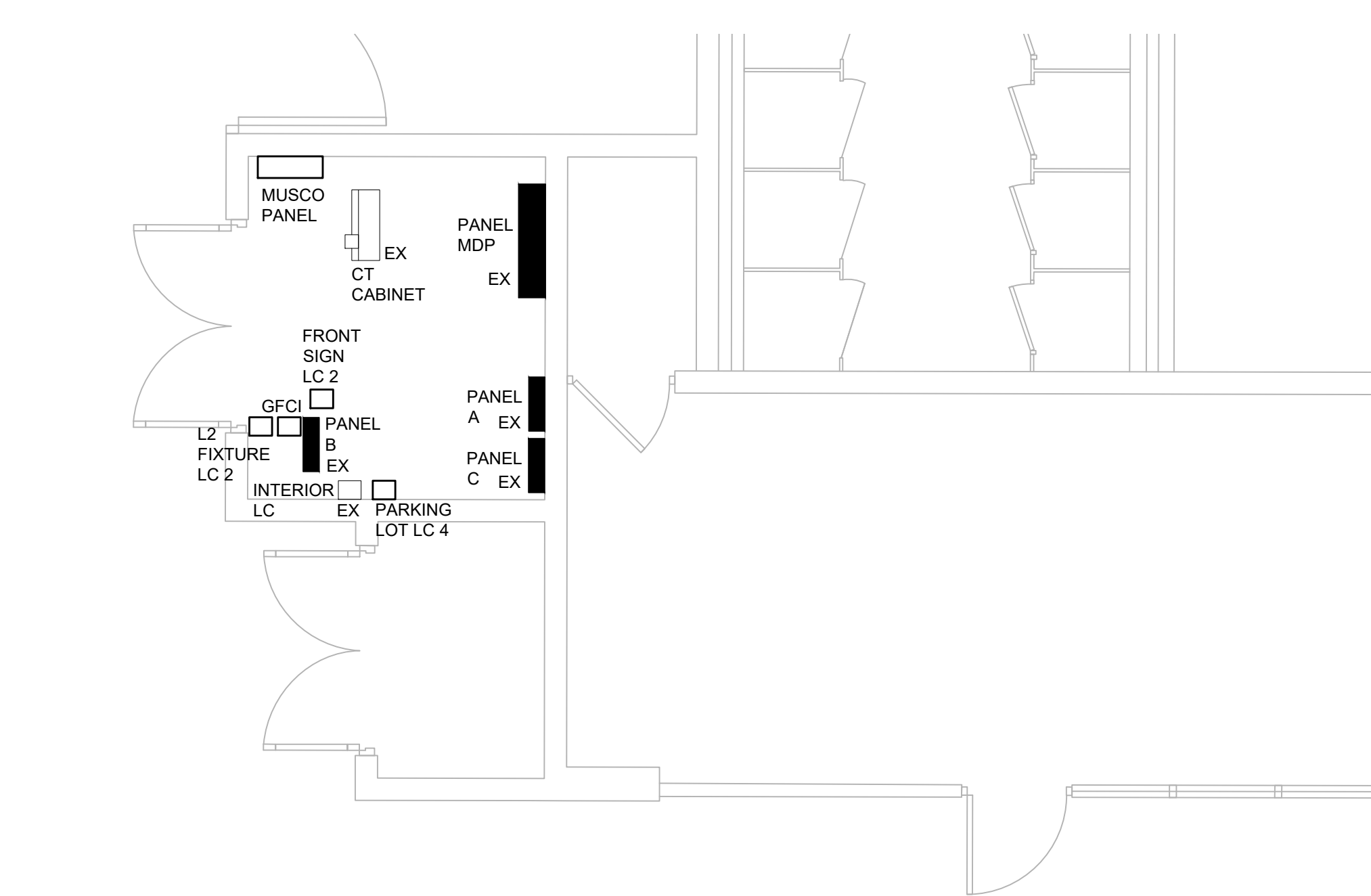
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**BID SET 02/23/2024**

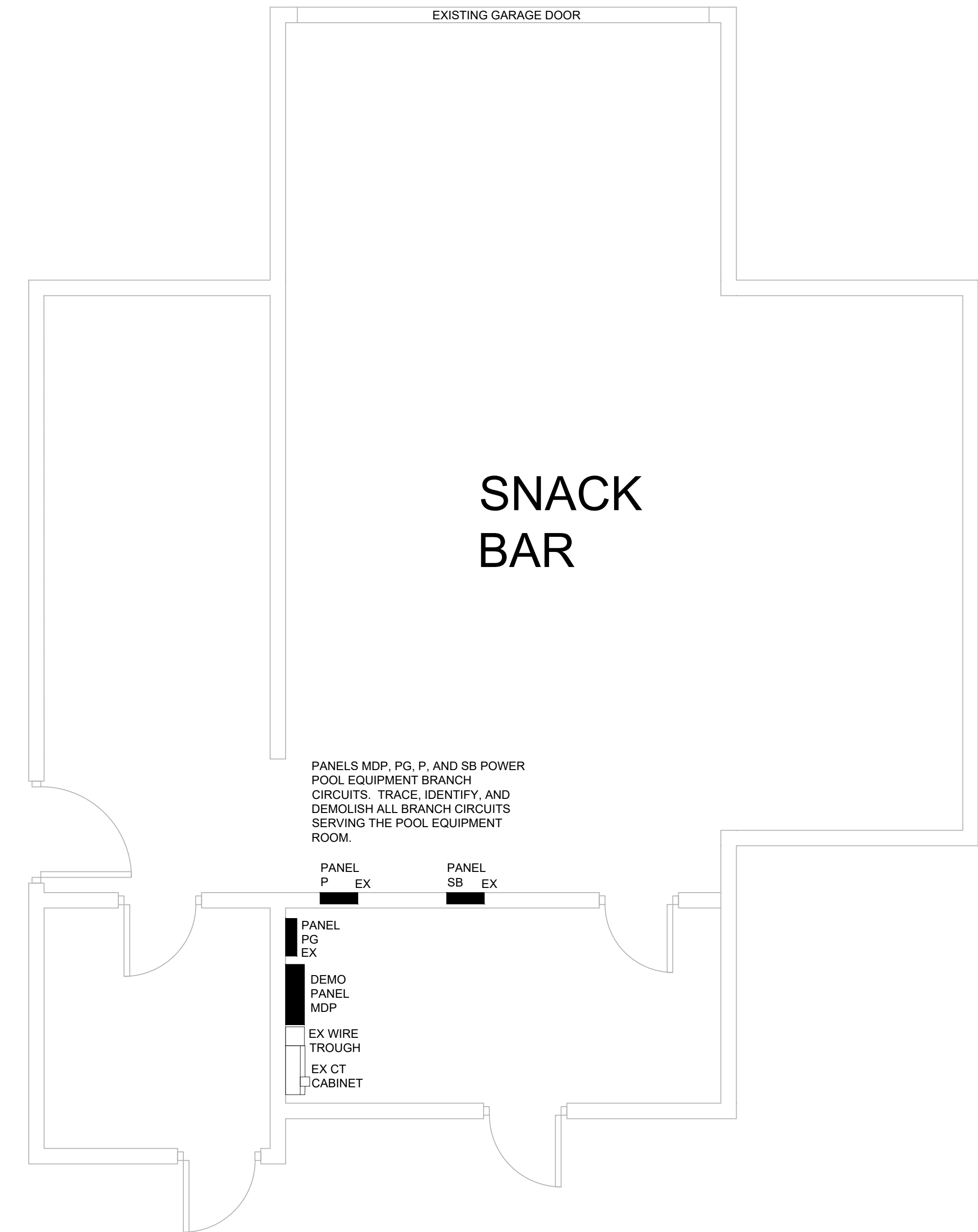




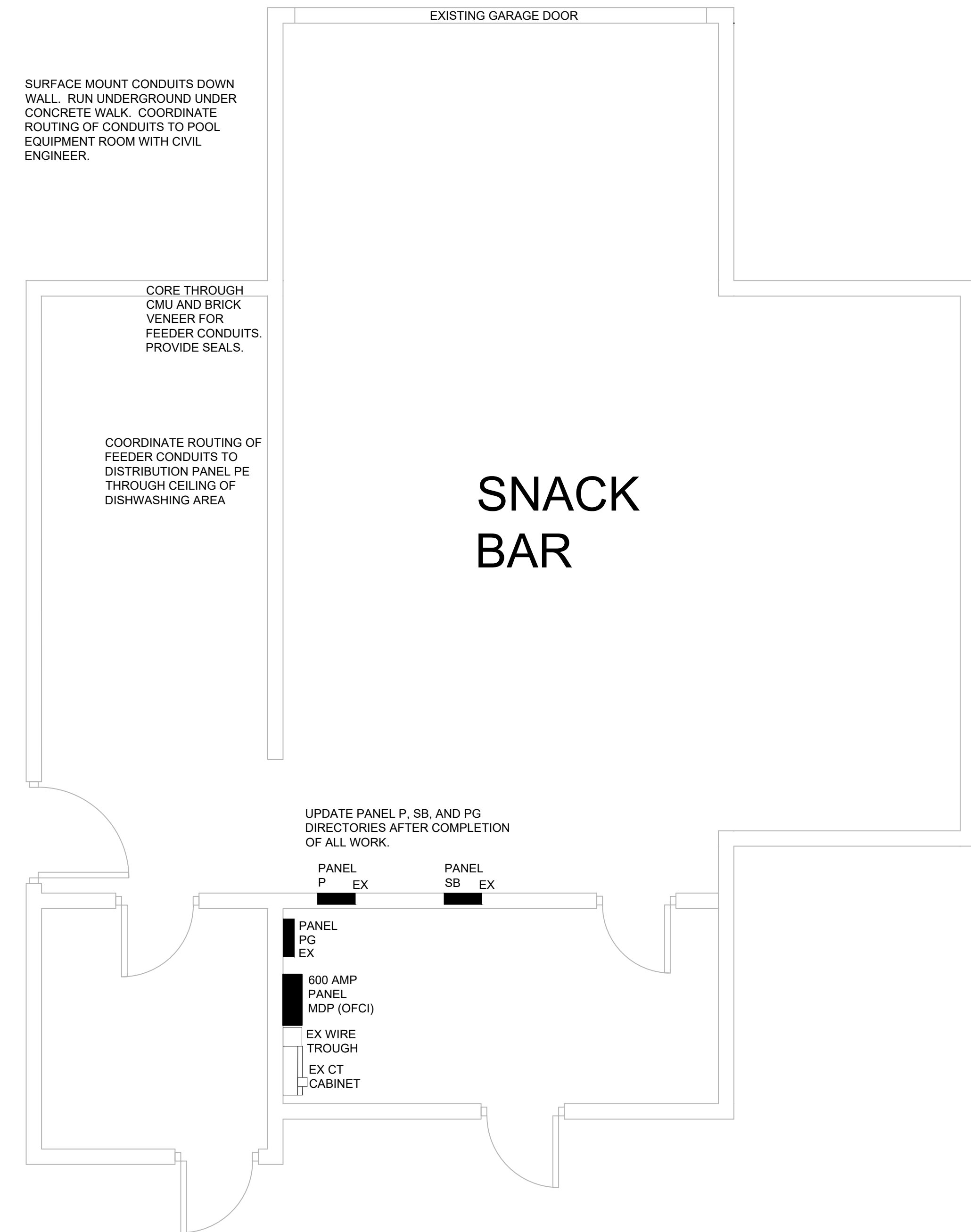
3 BATH HOUSE MAIN ELECTRIC ROOM DEMOLITION PLAN  
1/4" = 1'-0"



4 BATH HOUSE MAIN ELECTRIC ROOM PLAN  
1/4" = 1'-0"



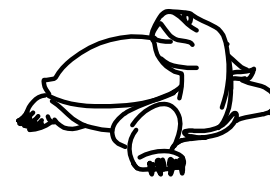
1 SNACK BAR MAIN ELECTRIC ROOM DEMOLITION PLAN  
1/4" = 1'-0"



2 SNACK BAR MAIN ELECTRIC ROOM PLAN  
1/4" = 1'-0"

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## OUTDOOR RECREATION POOL RENOVATIONS

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## BATH HOUSE AND SNACK BAR DEMOLITION AND NEW WORK PLANS

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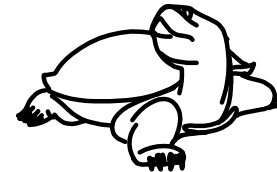
Sheet No.

**E007**

**BID SET 02/23/2024**

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
TYSONS, VIRGINIA 22102  
703-821-2045



DIAMONDBACK  
ENGINEERING LLC

9501 Foxlair Place  
Gaithersburg, MD 20882  
T: 301.717.1353



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ENGINEER UNDER THE  
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MARYLAND.

LICENSE NO. 27084  
EXPIRATION DATE: 01/30/2026

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

FITNESS POOL  
STORAGE ROOM  
DEMOLITION AND  
NEW WORK PLANS

BID SET

1	65% CONSTRUCTION DOCUMENT 04/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023
5	REVIEW SET 01/22/2024
6	BID SET 02/22/2024

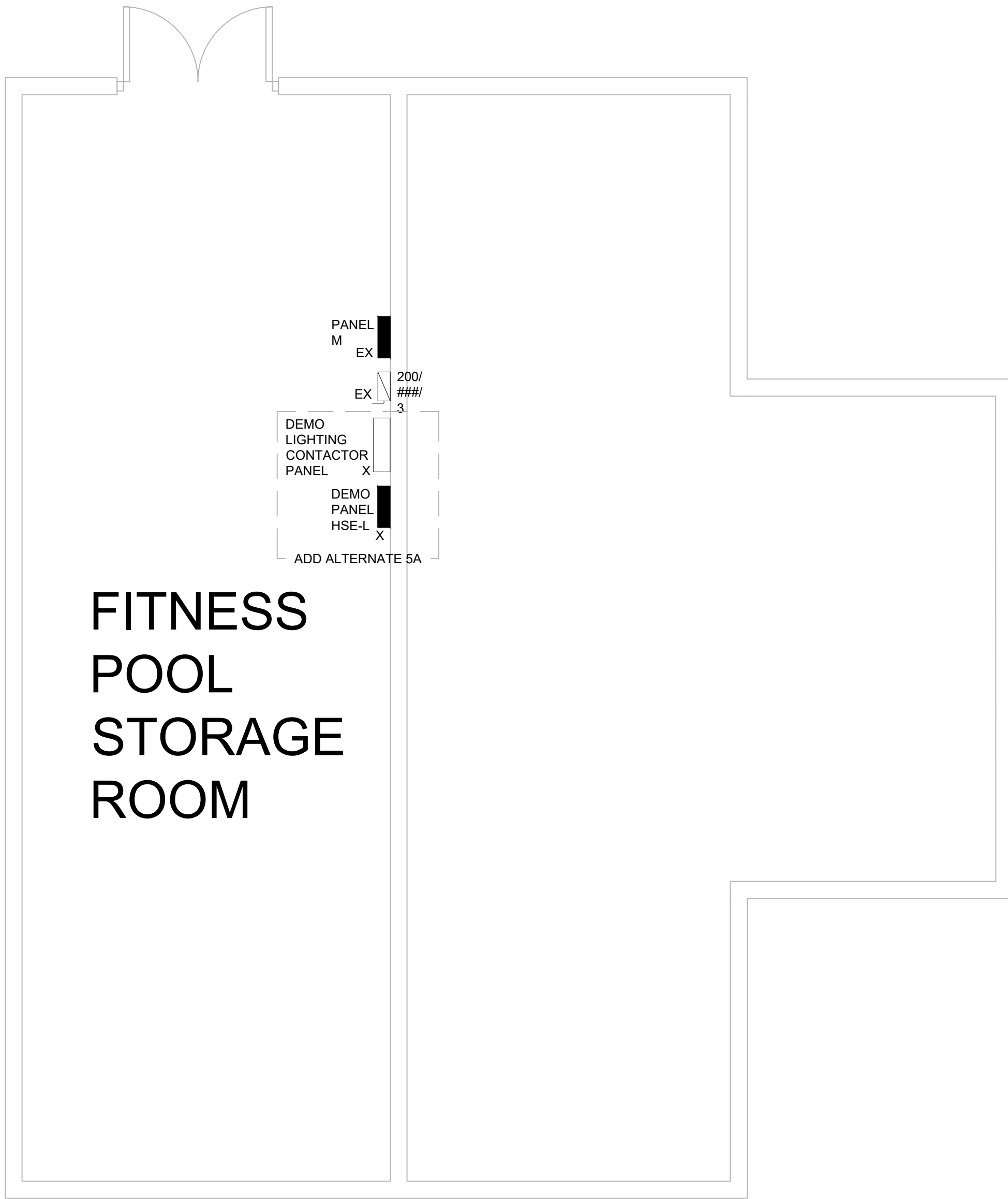
No.	Description	Date
Revisions		

Project Number: 22.00036.00  
Scale:  
Drawn By: AD, HW  
Checked By: AD  
Date: 5/19/2023

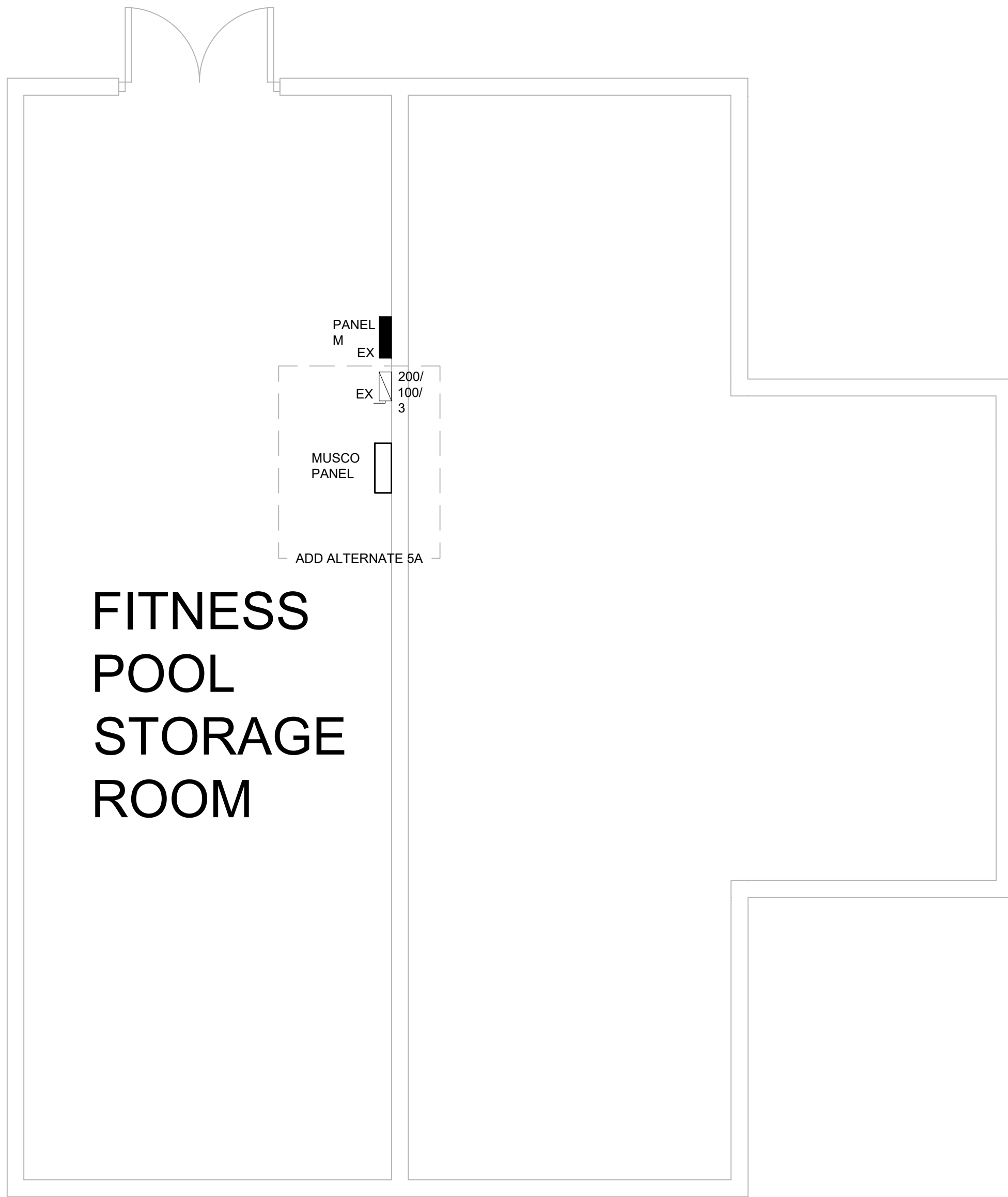
Sheet No.

**E008**

**BID SET 02/23/2024**



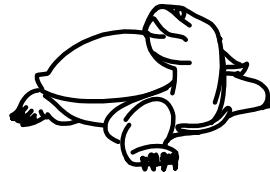
① FITNESS POOL STORAGE ROOM ELECTRIC ROOM DEMOLITION PLAN ADD ALTERNATE 5A  
1/4" = 1'-0"



② FITNESS POOL STORAGE ROOM ELECTRIC ROOM PLAN ADD ALTERNATE 5A  
1/4" = 1'-0"

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
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DEPARTMENT OF  
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OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

BATH HOUSE RISER  
DIAGRAMS

BID SET

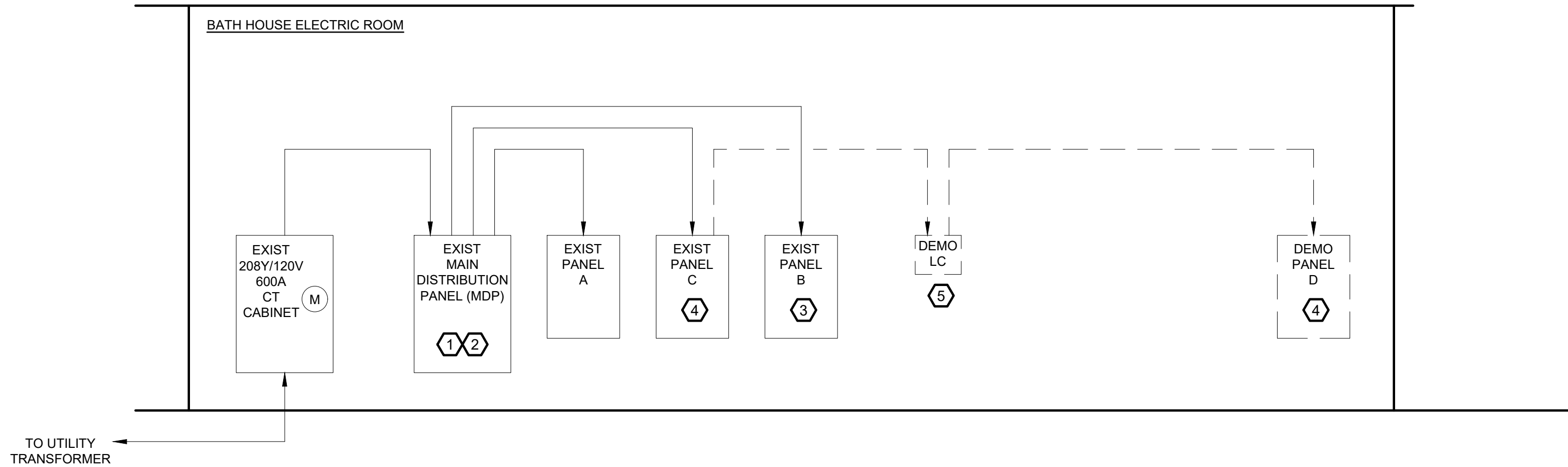
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4	PERMIT SET	12/08/2023
5	REVIEW SET	01/22/2024
6	BID SET	02/22/2024

No.	Description	Date
Revisions		

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Date: 5/19/2023

Sheet No.

E009

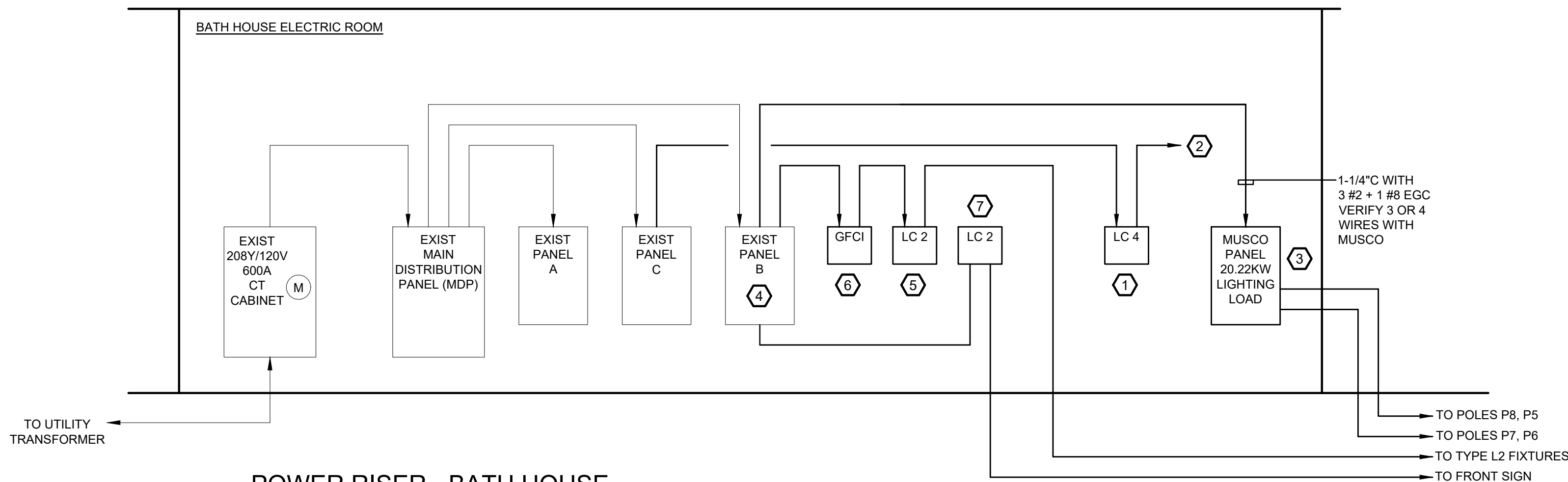


DEMOLITION POWER RISER - BATH HOUSE

NO SCALE

DEMOLITION POWER RISER - BATH HOUSE - NOTES

- INSTALL OWNER PROVIDED, CONTRACTOR INSTALLED, SURGE PROTECTION DEVICE. SEE BATH HOUSE MDP PANEL SCHEDULE.
- CONDUCT 30 DAY MEASUREMENT OF EQUIPMENT GROUNDING CONDUCTOR AT MAIN BONDING JUMPER. MEASUREMENT TO DETERMINE OBJECTIONABLE CURRENT (EQUIPMENT GROUNDS CARRYING NEUTRAL CURRENT) FOR POOL SAFETY.
- PRIOR TO DEMOLITION OF POOL AND SLIDE, REVIEW AND IDENTIFY ALL EXISTING PANEL B BRANCH CIRCUITS SERVING THESE AREAS. DEMOLITION INCLUDES REMOVING ALL DEVICES, CONDUIT, AND CONDUCTORS SERVING THE UPPER POOL DECK, POOL, AND SLIDE TO BE DEMOLISHED.
- RELOCATE FOUR PARKING LOT LIGHTING CIRCUITS FROM PANEL D TO PANEL B. CIRCUITS ARE 208V, SINGLE-PHASE, 20-AMPS. SEE PANEL B AND PANEL D SCHEDULES.
- DEMOLISH 100-AMP PARKING LOT LIGHTING CONTACTOR (LC). LC TO BE REPLACED WITH FOUR INDIVIDUAL CONTACTORS (208V, 2-POLE, 20-AMP EACH).



POWER RISER - BATH HOUSE

NO SCALE

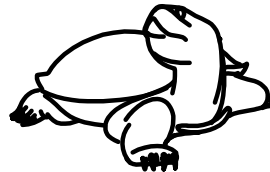
POWER RISER - BATH HOUSE - NOTES

- LIGHTING CONTACTOR PANEL WITH FOUR, 20-AMP, 2-POLE, NORMALLY OPEN, RELAYS TO CONTROL PARKING LOT LIGHTING. PROVIDE 365 DAY ASTRONOMICAL TIME CLOCK TO TURN RELAYS ON AND OFF. COORDINATE TIME CLOCK WITH POOL MANAGEMENT. MATCH ON/OFF TIME OF EXISTING PARKING LOT LIGHTING.
- INTERCEPT FOUR EXISTING PARKING LOT LIGHTING BRANCH CIRCUITS. MATCH BRANCH CIRCUIT CONDUCTOR SIZE AND INSULATION TYPE.
- MUSCO PANEL IS OWNER FURNISHED, OWNER INSTALLED. MUSCO PANEL CONTAINS FOUR 3-POLE, 30-AMP RELAY CONTACTORS. ONE CONTACTOR FOR EACH POLE.
- PROVIDE TWO 120V, 1-POLE, 20-AMP BRANCH CIRCUITS FOR POLE MOUNTED RECEPTACLES.
- LIGHTING CONTACTOR PANEL WITH TWO, 20-AMP, 2-POLE, NORMALLY OPEN, RELAYS TO CONTROL TYPE L2 FIXTURES. PROVIDE 365 DAY ASTRONOMICAL TIME CLOCK TO TURN RELAYS ON AND OFF. COORDINATE TIME CLOCK WITH POOL MANAGEMENT.
- NORTH SHORE SAFETY - 30-AMP PERMANENT GFCI. WIRE M-1 BRANCH CIRCUIT THROUGH 30 AMP PERMANENT GFCI DEVICE. DEVICE PROVIDES GFCI PROTECTION FOR TYPE L2 LIGHT FIXTURES.
- LIGHTING CONTACTOR PANEL WITH TWO, 20-AMP, 2-POLE, NORMALLY OPEN, RELAYS TO CONTROL FRONT ROCKVILLE POOL SIGN. PROVIDE 365 DAY ASTRONOMICAL TIME CLOCK TO TURN RELAYS ON AND OFF. COORDINATE TIME CLOCK WITH POOL MANAGEMENT.



LSG LANDSCAPE  
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DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SNACK BAR AND  
POOL EQUIPMENT  
ROOM RISER  
DIAGRAMS

BID SET

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2	80% CONSTRUCTION DOCUMENT 08/18/2023
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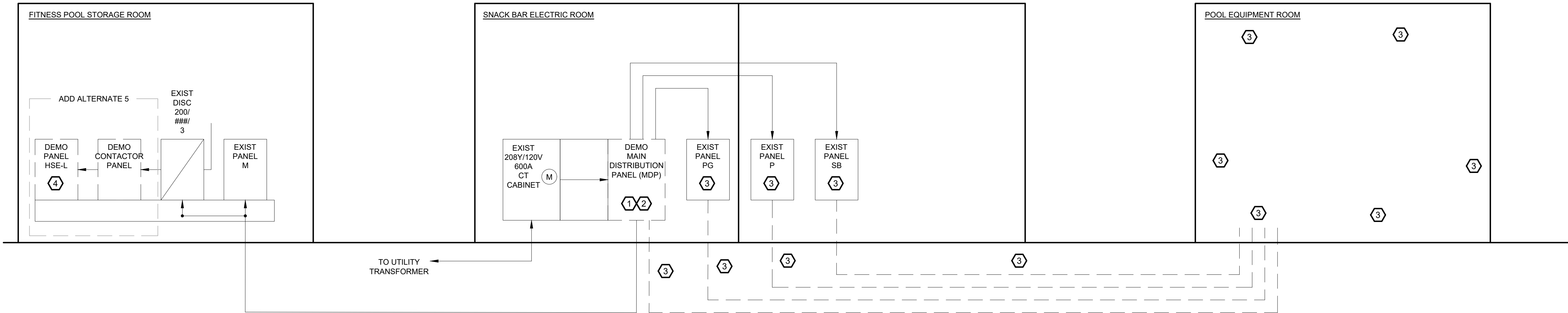
No.	Description	Date
Revisions		

Project Number: 22.00036.00  
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Drawn By: AD, HW  
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Sheet No.

E010

BID SET 02/23/2024



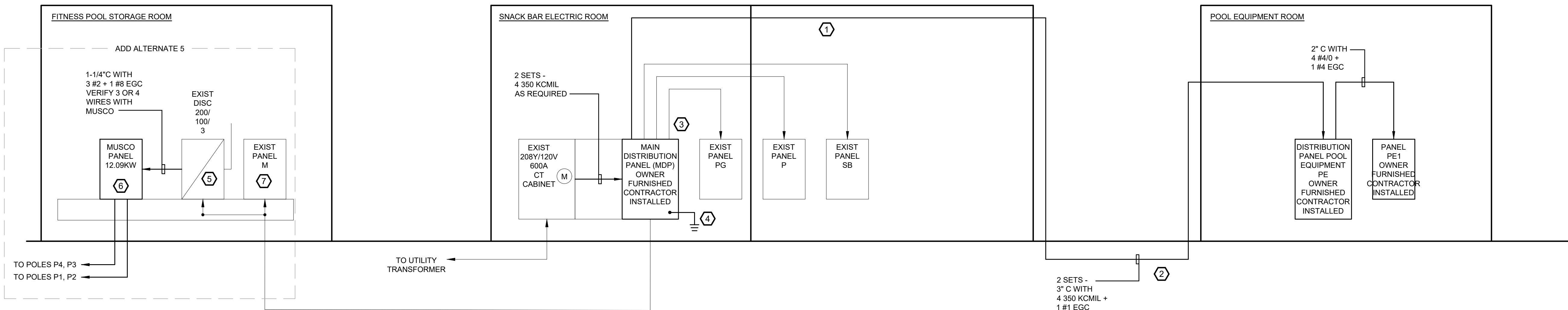
DEMOLITION POWER RISER - SNACK BAR AND POOL EQUIPMENT ROOM

NO SCALE

DEMOLITION POWER RISER - SNACK BAR AND POOL EQUIPMENT ROOM - NOTES

- CONDUCT 30 DAY MEASUREMENT OF EQUIPMENT GROUNDING CONDUCTOR AT MAIN BONDING JUMPER. MEASUREMENT TO DETERMINE OBJECTIONABLE CURRENT (EQUIPMENT GROUNDS CARRYING NEUTRAL CURRENT) FOR POOL SAFETY.
- DISTRIBUTION PANEL MDP TO BE REPLACED IN KIND WITH OWNER FURNISHED, CONTRACTOR INSTALLED, 600-AMP DISTRIBUTION PANEL.
- POOL EQUIPMENT ROOM - ALL EXISTING BRANCH CIRCUITS ARE POWERED FROM SNACK BAR PANELS MDP, PG, P, AND SB. TRACE AND IDENTIFY ALL BRANCH CIRCUITS PRIOR TO DEMOLITION. DEMOLISH ALL HOMERUNS. REMOVE CONDUCTORS AND LABEL UNDERGROUND CONDUITS AS ABANDONED IN PLACE / SPARE. POOL EQUIPMENT ROOM BRANCH CIRCUITS TO BE POWERED FROM DEDICATED PANEL PE.
- ADD ALTERNATE 5 - PRIOR TO DEMOLITION OF LOWER DECK POOL LIGHTING, REVIEW AND IDENTIFY ALL EXISTING PANEL HSE-L AND PANEL M BRANCH CIRCUITS SERVING THESE AREAS. DEMOLITION INCLUDES REMOVING ALL DEVICES, CONDUIT, AND CONDUCTORS SERVING THE LOWER POOL DECK TO BE DEMOLISHED.

ADD ALTERNATE 5



POWER RISER - SNACK BAR AND POOL EQUIPMENT ROOM

NO SCALE

POWER RISER - SNACK BAR AND POOL EQUIPMENT ROOM - NOTES

- COORDINATE ROUTING OF CONDUITS THROUGH SNACK BAR. PROVIDE EMT THROUGH SNACK BAR CEILING AND TRANSITION TO SCHEDULE 40 PVC. PROVIDE SEALS THROUGH ALL EXTERIOR WALLS / FLOORS.
- COORDINATE ROUTING OF PVC CONDUIT UNDERGROUND INTO POOL EQUIPMENT ROOM. CUT CONCRETE AND TRENCH DOWN TO A MINIMUM DEPTH OF 24 INCHES. PROVIDE SEALS THROUGH ALL EXTERIOR WALLS / FLOORS.
- RECONNECT ALL EXISTING TO REMAIN FEEDERS. SEE PANEL SCHEDULE MDP FOR SIZES.
- MDP IS SERVICE RATED WITH MAIN BONDING JUMPER BONDING NEUTRAL AND EQUIPMENT GROUND. REVIEW ALL EXISTING CONNECTIONS TO GROUND RODS, INCOMING WATER SERVICE, REBAR, AND ALL AVAILABLE GROUNDING ELECTRODES. PROVIDE GROUND RODS UNTIL EARTH RESISTANCE IS 25 OHMS OR LESS. BOND #6 AWG CU GROUNDING ELECTRODE CONDUCTOR (GEC) FROM ALL GROUND RODS AND CONNECT TO EQUIPMENT GROUND BUS. PROVIDE #4 AWG CU GEC BOND TO REBAR. BOND #2/0 AWG CU CONDUCTOR TO INCOMING WATER SERVICE.
- PROVIDE 100-AMP FUSES.
- MUSCO PANEL IS OWNER FURNISHED, OWNER INSTALLED. MUSCO PANEL CONTAINS FOUR 3-POLE, 30-AMP RELAY CONTACTORS. ONE CONTACTOR FOR EACH POLE.
- PROVIDE TWO 120V, 1-POLE, 20-AMP BRANCH CIRCUITS FOR POLE MOUNTED RECEPTACLES.

ADD ALTERNATE 5





EXISTING FITNESS STORAGE PANELBOARD M															225 AMP MAIN CIRCUIT BREAKER			
208Y/120V, 3 PHASE, 4 WIRE															10,000 AIC			
MANUFACTURER: SQUARE D NQOD															SURFACE MOUNTED			
OPTIONS:																		
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#		
1	EXISTING				20	1	EX	A	EX	1	20					2		
3	EXISTING				20	1	EX	B	EX	1	20					4		
5	EXISTING				20	1	EX	C	EX	1	20					6		
7	EXISTING				20	1	EX	A	EX	1	20					8		
9	EXISTING				20	1	EX	B	EX	1	20					10		
11	EXISTING				20	1	EX	C	EX	1	20					12		
13	EXISTING				20	1	G,EX	A	G,EX	1	20					14		
15	REC POLES P3 AND P4	2#8	1#8	2"	20	1	N	360	B	G,EX	1	20				16		
17	REC POLES P1 AND P2	2#8	1#8	2"	20	1	N	360	C							18		
19	BUSS SPACE							A		1					BUSS SPACE	20		
21	BUSS SPACE							B		1					BUSS SPACE	22		
23	BUSS SPACE							C		1					BUSS SPACE	24		
25	BUSS SPACE							A		1					BUSS SPACE	26		
27	BUSS SPACE							B		1					BUSS SPACE	28		
29	BUSS SPACE							C		1					BUSS SPACE	30		
31	BUSS SPACE							A		1					BUSS SPACE	32		
33	BUSS SPACE							B		1					BUSS SPACE	34		
35	BUSS SPACE							C		1					BUSS SPACE	36		
37	BUSS SPACE							A		1					BUSS SPACE	38		
39	EXISTING				20	2		B	EX	2	30					40		
41								C								42		

TYPE KEY  
A - ARC FAULT CIRCUIT INTERRUPTER  
G - GROUND FAULT CIRCUIT INTERRUPTER  
ST - SHUNT TRIP  
L - LOCKING BAR  
H - HACR RATED  
S - SWITCH DUTY RATED  
HL - HANDLE LOCKOFF  
MC - METAL-CLAD CABLE

EXISTING PANELBOARD P															225 AMP MAIN LUG ONLY		
208Y/120V, 3 PHASE, 4 WIRE															10,000 AIC		
MANUFACTURER: SQUARE D NAIB															SURFACE MOUNTED		
OPTIONS:																	
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#	
1	EXISTING				15	2	EX	A	EX	1	20					2	
3								B	EX	1	20					4	
5	EXISTING				15	2	EX	C	EX	2	15					6	
7								A								8	
9	EXISTING				20	1	EX	B	EX	2	30					10	
11	EXISTING				20	1	EX	C								12	
13	EXISTING				20	2	EX	A	EX	3	##					14	
15								B								16	
17	EXISTING				40	3	EX	C								18	
19								A		1					BUSS SPACE	20	
21								B	EX	2	20					22	
23	EXISTING				40	2	EX	C								24	
25								A	EX	3	50					26	
27	EXISTING				20	1	EX	B								28	
29	BUSS SPACE					1		C								30	

TYPE KEY  
A - ARC FAULT CIRCUIT INTERRUPTER  
G - GROUND FAULT CIRCUIT INTERRUPTER  
ST - SHUNT TRIP  
L - LOCKING BAR  
H - HACR RATED  
S - SWITCH DUTY RATED  
HL - HANDLE LOCKOFF  
MC - METAL-CLAD CABLE

EXISTING PANELBOARD PG															100 AMP MAIN LUG ONLY		
208Y/120V, 3 PHASE, 4 WIRE															10,000 AIC		
MANUFACTURER: SQUARE D NQOD															SURFACE MOUNTED		
OPTIONS:																	
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#	
1	EXISTING				20	1	EX	A	EX	1	20				EXISTING	2	
3	EXISTING				20	1	EX	B	EX	1	20				EXISTING	4	
5	EXISTING				20	1	EX	C			1				BUSS SPACE	6	
7	EXISTING				30	3	EX	A			1				BUSS SPACE	8	
9								B			1				BUSS SPACE	10	
11								C			1				BUSS SPACE	12	
13	BUSS SPACE					1		A	EX	3	20				EXISTING	14	
15	BUSS SPACE					1		B								16	
17	BUSS SPACE					1		C								18	
19	BUSS SPACE					1		A		1					BUSS SPACE	20	

TYPE KEY  
A - ARC FAULT CIRCUIT INTERRUPTER  
G - GROUND FAULT CIRCUIT INTERRUPTER  
ST - SHUNT TRIP  
L - LOCKING BAR  
H - HACR RATED  
S - SWITCH DUTY RATED  
HL - HANDLE LOCKOFF  
MC - METAL-CLAD CABLE

0.0 KVA PHASE A  
0.0 KVA PHASE B  
0.0 KVA PHASE C  
0.0 KVA TOTAL 0.0 AMPS TOTAL

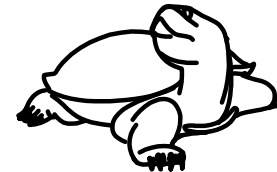
EXISTING PANELBOARD SB															225 AMP MAIN LUG ONLY		
208Y/120V, 3 PHASE, 4 WIRE															10,000 AIC		
MANUFACTURER: SQUARE D NAIB															SURFACE MOUNTED		
OPTIONS:																	
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#	
1	EXISTING				20	1	EX	A		EX	1	20				2	
3	EXISTING				20	1	EX	B		EX	1	20				4	
5	EXISTING				20	1	EX	C		EX	1	20				6	
7	EXISTING				20	1	EX	A		EX	1	20				8	
9	EXISTING				20	1	EX	B		EX	1	20				10	
11	EXISTING				20	1	EX	C		EX	1	20				12	
13	EXISTING				20	1	EX	A		EX	1	20				14	
15	EXISTING				20	1	EX	B		EX	1	20				16	
17	EXISTING				20	1	EX	C		EX	1	20				18	
19	EXISTING				20	1	EX	A		EX	1	20				20	
21	EXISTING				20	1	EX	B		EX	1	20				22	
23	EXISTING				20	1	EX	C		EX	1	20				24	
25	EXISTING				40	2	EX	A		EX	2	30				26	
27								B								28	
29	EXISTING				20	1	EX	C		EX	2	30				30	
31	EXISTING				20	1	EX	A								32	
33	EXISTING				20	1	EX	B		EX	1	20				34	
35	BUSS SPACE						1	C		EX	1	20				36	
37	EXISTING				##	3	EX	A		EX	1	20				38	
39								B		EX	1	20				40	
41								C		EX	1	20				42	

TYPE KEY  
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G - GROUND FAULT CIRCUIT INTERRUPTER  
ST - SHUNT TRIP  
L - LOCKING BAR  
H - HACR RATED  
S - SWITCH DUTY RATED  
HL - HANDLE LOCKOFF  
MC - METAL-CLAD CABLE

0.0 KVA PHASE A  
0.0 KVA PHASE B  
0.0 KVA PHASE C  
0.0 KVA TOTAL 0.0 AMPS TOTAL

LSG LANDSCAPE  
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RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

PANEL SCHEDULES

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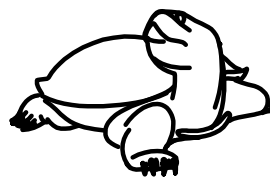
Sheet No.

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LSG LANDSCAPE  
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Sheet No.

E013

BID SET 02/23/2024

EXISTING BATHHOUSE PANELBOARD MDP															600A MAIN CIRCUIT BREAKER 65,000 AIC SURFACE MOUNTED		
208Y/120V, 3 PHASE, 4 WIRE MANUFACTURER: SQUARE D I-LINE HCP NOTES - INSTALL OWNER PROVIDED INTERNAL SURGE PROTECTION DEVICE (SPD)																	
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#	
1	PANEL B	3#1/0	1#6	1-1/4"	225	3	EX	A	EX	3	600				MAIN CIRCUIT BREAKER	2	
3								B								4	
5								C								6	
7	PANEL C				225	3	EX	A								8	
9								B								10	
11								C								12	
13	PANEL A				225	3	EX	A		1					BUSS SPACE	14	
15								B		1					BUSS SPACE	16	
17								C		1					BUSS SPACE	18	
19	PANEL D SKATEPARK				200	3	EX	A		N					SURGE PROTECTION DEVICE (SPD)	20	
21								B							OWNER PROVIDED CONTRACTOR INSTALLED	22	
23								C								24	
25	BUSS SPACE					1		A								26	
27	BUSS SPACE					1		B								28	
29	BUSS SPACE					1		C								30	
TYPE KEY									0.0 KVA PHASE A								
A - ARC FAULT CIRCUIT INTERRUPTER									0.0 KVA PHASE B								
G - GROUND FAULT CIRCUIT INTERRUPTER									0.0 KVA PHASE C								
									0.0 KVA TOTAL                      0.0 AMPS TOTAL								

TYPE KEY  
A - ARC FAULT CIRCUIT INTERRUPTER  
G - GROUND FAULT CIRCUIT INTERRUPTER  
ST - SHUNT TRIP  
L - LOCKING BAR  
H - HACR RATED  
S - SWITCH DUTY RATED  
HL - HANDLE LOCKOFF  
MC - METAL-CLAD CABLE

EXISTING PANELBOARD C															225 AMP MAIN LUG ONLY 10,000 AIC SURFACE MOUNTED		
208Y/120V, 3 PHASE, 4 WIRE MANUFACTURER: SQUARE D NQOD OPTIONS:																	
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#	
1	REC POLES P6 AND P8	2#8	1#8	2"	20	1	N	360 A	EX	3	100				SPARE	2	
3	REC POLES P6 AND P7	2#8	1#8	2"	20	1	N	360 B							(SUB PANEL D DEMOLISHED)	4	
5	SPARE				20	1	N	C								6	
7	EX HEATER				20	2	EX	A	EX	2	20				EX HEATER	8	
9								B								10	
11	EX HEATER				20	2	EX	C	EX	2	20				EX HEATER	12	
13								A								14	
15	EX HEATER				20	2	EX	B	EX	2	20				EX HEATER	16	
17								C								18	
19	EX HEATER				20	2	EX	A	EX	2	20				EX HEATER	20	
21								B								22	
23	EX HEATER				20	2	EX	C	EX	2	20				EX HEATER	24	
25								A								26	
27	EX REC GFCI				20	1	EX	B	1000	N	2	20	2#12	1#12	3/4"	PARKING LOT LIGHTS	28
29	EX REC GFCI				20	1	EX	C	1000								30
31	EX REC GFCI				20	1	EX	A	1000	N	2	20	2#12	1#12	3/4"	PARKING LOT LIGHTS	32
33	PARKING LOT LIGHTS	2#12	1#12	3/4"	20	2	N	1000 B	1000							34	
35								1000 C	1000	N	2	20	2#12	1#12	3/4"	PARKING LOT LIGHTS	36
37	BUSS SPACE					1		A	1000							38	
39	EX AC-1				20	2	EX	B		EX	2	20			EX AC-2	40	
41								C								42	
TYPE KEY																	
A - ARC FAULT CIRCUIT INTERRUPTER																	
G - GROUND FAULT CIRCUIT INTERRUPTER																	
2.4 KVA PHASE A																	
3.4 KVA PHASE B																	
3.0 KVA PHASE C																	
8.7 KVA TOTAL 24.2 AMPS TOTAL																	

TYPE KEY  
A - ARC FAULT CIRCUIT INTERRUPTER  
G - GROUND FAULT CIRCUIT INTERRUPTER  
ST - SHUNT TRIP  
L - LOCKING BAR  
H - HACR RATED  
S - SWITCH DUTY RATED  
HL - HANDLE LOCKOFF  
MC - METAL-CLAD CABLE

EXISTING PANELBOARD B															225 AMP MAIN LUG ONLY	
208Y/120V, 3 PHASE, 4 WIRE MANUFACTURER: SQUARE D NQOD OPTIONS:															10,000 AIC SURFACE MOUNTED	
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#
1	WALL LIGHTS SHADE AREA				20	2	EX	235 A	EX	2	20				SPARE	2
3								235 B								4
5	FRONT ROCKVILLE SIGN	2#8	1#10	1"	20	1	N	C	EX	2	20				SPARE	6
7	SPARE				20	1	N	A								8
9	SPARE				20	2	EX	B	EX	2	20				SPARE	10
11								C								12
13	SPARE				20	2	EX	A	EX	2	20				SPARE	14
15								B								16
17	SPARE				20	2	EX	C	EX	2	20				SPARE	18
19								A								20
21	MUSCO PANEL	3#2	1#6	1-1/4"	100	3	N	6740 B	EX	2	20				SPARE	22
23								6740 C								24
25								6740 A	EX	1	20				EX ELECTRIC RM LIGHTS	26
27	EX GWH-1 & GWH-2				20	1	EX	B	EX	1	20				EX EMERGENCY LIGHTS	28
29	EX P-1				20	1	EX	C	EX	1	20				EX EMERGENCY LIGHTS	30
31	EX EMERGENCY CIRCUIT				20	1	EX	A	EX	1	20				EX EMERGENCY LIGHTS	32
33	EX EMERGENCY CIRCUIT				20	1	EX	B	EX	1	20				EX TIMECLOCK-INTERIOR LTS	34
35	EX EMERGENCY CIRCUIT				20	2	EX	C	EX	1	20				EX GFCI	36
37								A	EX	3	30				EX LIGHTING CONTACTOR	38
39	EX BABY POOL				20	1	EX	B								40
41	EX GFCI BY WALL				20	1	EX	C								42
TYPE KEY									7.0 KVA PHASE A							
A - ARC FAULT CIRCUIT INTERRUPTER									7.0 KVA PHASE B							
G - GROUND FAULT CIRCUIT INTERRUPTER									6.7 KVA PHASE C							
									20.7 KVA TOTAL							
									67.5 AMPS TOTAL							

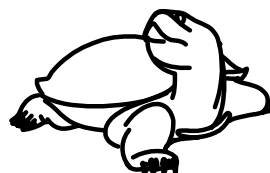
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MC - METAL-CLAD CABLE

DEMOLISH PANELBOARD D															225 AMP MAIN LUG ONLY 10,000 AIC SURFACE MOUNTED	
208Y/120V, 3 PHASE, 4 WIRE MANUFACTURER: SQUARE D NQOD OPTIONS:																
#	DESCRIPTION	WIRE	EGC	COND	TRIP AMPS	P	TYPE	CONNECTED LOADS IN VA	TYPE	P	TRIP AMPS	WIRE	EGC	COND	DESCRIPTION	#
1	EX PARKING LOT LIGHTS				20	2	EX	A	EX	2	20				EX PARKING LOT LIGHTS	2
3								B								4
5	EX PARKING LOT LIGHTS				20	2	EX	C	EX	2	20				EX PARKING LOT LIGHTS	6
7								A								8
9	SPARE				20	2	EX	B	EX	2	20				SPARE	10
11								C								12
13	SPARE				20	2	EX	A	EX	2	20				SPARE	14
15								B								16
17	SPARE				20	2	EX	C	EX	2	20				SPARE	18
19								A								20
21	SPARE				20	2	EX	B	EX	2	20				SPARE	22
23								C								24
25	BUSS SPACE					1		A		1					BUSS SPACE	26
27	BUSS SPACE					1		B		1					BUSS SPACE	28
29	BUSS SPACE					1		C		1					BUSS SPACE	30
TYPE KEY									0.0 KVA PHASE A							
A - ARC FAULT CIRCUIT INTERRUPTER									0.0 KVA PHASE B							
G - GROUND FAULT CIRCUIT INTERRUPTER									0.0 KVA PHASE C							
ST - SHUNT TRIP									0.0 KVA TOTAL                      0.0 AMPS TOTAL							
L - LOCKING BAR																
H - HACR RATED																
S - SWITCH DUTY RATED																
HL - HANDLE LOCKOFF																
MC - METAL-CLAD CABLE																



LSG LANDSCAPE  
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PROFESSIONAL  
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LICENSE NO. 27084

EXPIRATION DATE: 01/30/2026

ROCKVILLE SWIM  
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355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SPECIFICATIONS AND  
SYMBOLS

BID SET

1	65% CONSTRUCTION DOCUMENT 04/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023
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No.	Description	Date
Revisions		

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Scale:  
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Checked By: AD  
Date: 5/19/2023

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P001

BID SET 02/23/2024

SECTION 100 - GENERAL SPECIFICATIONS

1.01 CODE COMPLIANCE: THE CONTRACTOR SHALL COMPLY WITH THE LAWS, ORDINANCES, RULES, AND REGULATIONS OF ALL GOVERNMENTAL AUTHORITIES HAVING JURISDICTION, OF THE NATIONAL FIRE PROTECTION ASSOCIATION, OF THE NATIONAL ELECTRIC CODE, AND OF THE PUBLIC UTILITIES HAVING JURISDICTION OVER ANY OF THE SYSTEMS HEREIN SPECIFIED.

1.02 PERMIT FEES: THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, AND APPROVALS TO COMPLETE THE PROJECT WORK. ALL CERTIFICATES SHALL BE IN DUPLICATE AND BE DELIVERED TO THE OWNER'S REPRESENTATIVE.

1.03 DEFINITIONS:

A. "PROVIDE" UNDER THIS CONTRACT IS DEFINED AS FURNISH AND INSTALL.

B. "CONCEALED" UNDER THIS CONTRACT IS DEFINED AS HIDDEN BY ARCHITECTURAL WALLS AND CEILINGS.

C. "EXPOSED" UNDER THIS CONTRACT IS DEFINED AS VISIBLE TO VIEW.

D. "INDICATED" UNDER THIS CONTRACT IS DEFINED AS SHOWN IN THE CONTRACTED DOCUMENTS.

1.04 SCOPE OF WORK: PROVIDE ALL WORK INDICATED IN THE CONTRACT DOCUMENTS.

1.05 EXISTING CONDITIONS: THE SITE, LOCATION AND ROUTING OF SYSTEMS INDICATED TO HAVE NEW CONNECTIONS MADE TO THEM ARE SHOWN ACCURATELY AS FIELD CONDITIONS WOULD PERMIT. BIDDING CONTRACTORS SHALL VISIT THE SITE AND THOROUGHLY EXAMINE THE CONTRACT DRAWINGS. CONTRACTORS WHO DO NOT VISIT THE SITE MAY BE UNILATERALLY NOT PERMITTED TO SUBMIT A BID IF THE OWNER SO DECIDES. ALL EXISTING CONDITIONS SHALL BE EXAMINED AND THEIR EXACT LOCATIONS VERIFIED. THE CONTRACTORS SHALL REPORT TO THE OWNER, BEFORE SUBMITTING A BID, ANY CONDITIONS WHICH MIGHT MAKE THE INSTALLATION OF THE REQUIRED EQUIPMENT A PROBLEM. NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR FAILURE TO INVESTIGATE EXISTING CONDITIONS OR MISUNDERSTANDINGS OF THE CONTRACT DOCUMENTS.

1.06 CONTRACT DOCUMENTS: THE CONTRACT DOCUMENTS SHALL BE CONSIDERED AS DIAGRAMMATIC AND FOR BIDDING PURPOSES ONLY. ATTENTION IS CALLED TO THE FACT THAT WHILE THE DOCUMENTS ARE GENERALLY TO SCALE AND ARE AS ACCURATE AS THE SCALE WILL PERMIT, ALL IMPORTANT DIMENSIONS SHALL BE DETERMINED IN THE FIELD. THE DRAWINGS ARE NOT TO BE CONSIDERED AS CONSTRUCTION SHOP DRAWINGS. THE DRAWINGS DO NOT INDICATE EVERY FITTING, ELBOW, OFFSET, VALVE, PULL BOX OR SIMILAR COMPONENTS WHICH ARE REQUIRED TO COMPLETE THE PROJECT WORK. PREPARE FIELD CONSTRUCTION DRAWINGS IF NECESSARY FOR, OR AS REQUIRED TO, INSURE PROPER INSTALLATION. PROVIDE ALL NECESSARY OFFSETS AND FITTINGS TO INSTALL THE SYSTEMS AS DIAGRAMMED AT NO ADDITIONAL COST.

1.07 DEMOLITION: THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT NOT INDICATED TO BE REUSED TO A DESIGNATED LOCATION AT THE PROJECT SITE. AFTER THE EQUIPMENT HAS BEEN ASSEMBLED FOR INSPECTION BY THE OWNER AND POSSIBLE RETENTION, ALL EQUIPMENT NOT TO BE RETAINED BY THE OWNER SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

1.09 EQUIPMENT AND MATERIALS:

A. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, UNLESS INDICATED OTHERWISE, AND THE CURRENT MODEL FOR WHICH REPLACEMENT PARTS ARE AVAILABLE. SUBSTITUTIONS SHALL ONLY BE ACCEPTED AT THE DISCRETION OF THE OWNER'S REPRESENTATIVE OR THE ENGINEER.

B. THE CONTRACTOR SHALL INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. THE CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS, UNLESS INDICATED

C. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED AUXILIARY ITEMS FOR A COMPLETE SYSTEM.

D. ALL EQUIPMENT SHALL BE MOUNTED VIBRATION FREE.

1.08 SHOP DRAWINGS: PROJECT EQUIPMENT AND MATERIALS SHOP DRAWINGS ARE TO BE SUBMITTED FOR REVIEW BEFORE INSTALLATION. SUBMIT SIX (6) COPIES OF SHOP DRAWINGS TO THE ENGINEER FOR REVIEW.

1.11 COORDINATION: THE CONTRACTOR SHALL INSTALL ALL PIPING, AS HIGH AS POSSIBLE TO MAXIMIZE HEADROOM. RUN PARALLEL OR PERPENDICULAR TO THE BUILDING WALLS IN A NEAT WORKMANLIKE MANNER. AVOID CONFLICT WITH EXISTING EQUIPMENT, LIGHTS, CABLE TRAYS, ETC. IF CONFLICT WITH EXISTING DOES OCCUR, THE CONTRACTOR SHALL REROUTE CONFLICTING PROJECT WORK AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.

1.09 SITE CLEANUP: UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE CONTRACT AREA AND ALL OTHER AREAS USED FOR STORAGE, STAGING, ETC. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO WASHING AND/OR REPAIRING GLASS, REMOVING SPOTS AND STAINS, CLEANING ALL FIXTURES AND WASHING ALL FLOORS, WALLS AND CEILINGS IF APPROPRIATE.

1.10 GUARANTEES: ALL EQUIPMENT, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED IN FULL FROM DEFECT FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THIS WORK BY THE OWNER'S REPRESENTATIVE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

1.11 TESTS AND DEMONSTRATIONS: THE CONTRACTOR SHALL TEST ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT AND DEMONSTRATE TO THE OWNER'S REPRESENTATIVE ITS PROPER OPERATION(S).

SECTION 200 - PLUMBING SPECIFICATIONS

2.01 GENERAL:

A. SEE SECTION 100 – GENERAL SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

B. THE CONTRACTOR SHALL SUBMIT THREE (3) COPIES OF SHOP DRAWINGS FOR THE FOLLOWING EQUIPMENT AND MATERIALS TO THE ENGINEER FOR REVIEW.

- PIPE MATERIALS AND JOINING METHODS
- INSULATION
- VALVES
- O&M MANUALS (TO OWNER ONLY)
- PLUMBING FIXTURES

2.02 PRODUCTS:

A. PIPING:

1. DOMESTIC HOT AND COLD WATER PIPING: (ABOVE GROUND) COPPER TUBING, ASTM B88 TYPE L, ASTM B813, WATER FLUSHABLE, LEAD FREE FLUX, ASTM B32 LEAD-FREE ALLOY SOLDER (HOT WATER PIPING SHALL BE INSULATED WITH R-VALUE 3 OR GREATER AS PER IECC 403.4.2) (BELOW GROUND) CPVC ASTM D 2846 WITH MECHANICAL COUPLING JOINTS.

2. SANITARY AND VENT PIPING: (BELOW GROUND) HUB AND SPIGOT, CAST IRON ASTM A74, ASTM C564 RUBBER GASKETED JOINTS.

(ABOVE GROUND) NO-HUB CAST IRON ASTM A888 WITH ASTM C1540 HEAVY DUTY 304 STAINLESS STEEL CLAMPS.

3. STORM WATER PIPING: (BELOW GROUND) HUB AND SPIGOT, CAST IRON ASTM A74, ASTM C564 RUBBER GASKETED JOINTS.

(ABOVE GROUND) NO-HUB CAST IRON ASTM A888 WITH ASTM C1540 HEAVY DUTY 304 STAINLESS STEEL CLAMPS.

B. PIPE INSULATION

1. MINERAL FIBER WITH ASJ JACKET.

INSULATION (INCLUDING JACKET, FACING AND ADHESIVE) SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURES LISTED IN ASTM E-84, NFPA 255 AND UL 273; NOT EXCEEDING A FLAME SPREAD OF 25 AND A SMOKE DEVELOPED OF 50.

2. "CW" PIPING: PROVIDE 1/2 IN. THICK FIBERGLASS SECTION PIPE COVERING WITH VAPOR BARRIER JACKET.

3. "HW" AND HWR PIPING: PROVIDE 1 IN. THICK FIBERGLASS SECTIONAL PIPE COVERING.

C. VALVES:

1. BALL VALVES:  
TWO-PIECE, BRONZE WITH FULL PORT AND BRONZE TRIM.

PLUMBING PIPING SYSTEMS LEGEND

-----	CW	DOMESTIC COLD WATER PIPING
-----	HW	DOMESTIC HOT WATER PIPING
-----	HWR	DOMESTIC HOT WATER RETURN PIPING
-----	TW	TEMPERED WATER PIPING
-----	(E)	EXISTING PIPING TO REMAIN
-----		EXISTING PIPING TO BE REMOVED
-----	S	SANITARY PIPING
-----	ST	STORM PIPING
-----	G	NATURAL GAS PIPING
-----		DEMOLITION

PLUMBING DRAWING ANNOTATIONS

①	PLAN KEY NOTE
⊕	CONNECT NEW TO EXISTING
△	REVISION SYMBOL
⊗ 1	RISER DESIGNATION

PLUMBING SYMBOLS LEGEND

┌─┐	BALL VALVE
┌─┐	CHECK VALVE
┌─┐	GAS SHUTOFF VALVE
┌─┐	BACKFLOW PREVENTER
┌─┐	STRAINER
┌─┐	UNION
┌─┐	PIPE CAP
┌─┐	PIPE CLEANOUT
┌─┐	PLUGGED OUTLET
┌─┐	WASTE AND TRAP
┌─┐	PIPE UP OR PIPE RISE
┌─┐	PIPE DN OR PIPE DROP
┌─┐	PIPE BOTTOM CONNECTION
┌─┐	PIPE TOP CONNECTION
┌─┐	PIPE BREAK OR CONTINUATION

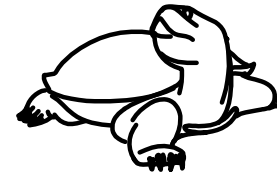
PLUMBING ABBREVIATIONS

AAV	AUTOMATIC AIR VENT	IW	INDIRECT WASTE
AD	AREA DRAIN	JC	JANITOR'S CLOSET
AP	ACCESS PANEL	KW	KILOWATTS
BTUH	BRITISH THERMAL UNIT PER HOUR	LAV	LAVATORY
BFP	BACKFLOW PREVENTER	LWT	LEAVING WATER TEMPERATURE
CFH	CUBIC FEET PER HOUR	MAX	MAXIMUM
CI	CAST IRON	MIN	MINIMUM
CLG	CEILING	NFWH	NON FREEZE WALL HYDRANT
CM	COFFEE MAKER	NO	NUMBER
CO	CLEANOUT	NPW	NON-POTABLE WATER
CSFU	COLD SUPPLY FIXTURE UNIT	NTS	NOT TO SCALE
CW	COLD WATER	NIC	NOT IN CONTRACT
DEG	DEGREE	OSD	OPEN SITE DRAIN
DIA	DIAMETER	PLBG	PLUMBING
DF	DRINKING FOUNTAIN	PSI	POUNDS PER SQUARE INCH
DFU	DRAINAGE FIXTURE UNIT	REV	REVISE, REVISION
DN	DOWN	RM	ROOM
DW	DOMESTIC WATER	RPM	REVOLUTIONS PER MINUTE
DWG	DRAWING	SA	SHOCK ABSORBER
DWV	DRAINAGE WASTE AND VENT	SAN	SANITARY
ENT	ENTERING	SD	STORM DRAIN LINE
ES/EW	EMERGENCY SHOWER / EYEWASH	SK	SINK
EX	EXISTING	SA	SURGE ARRESTOR
EWT	ENTERING WATER TEMPERATURE	SPEC	SPECIFICATION
FD	FLOOR DRAIN	SQ IN	SQUARE INCHES
FCO	FLOOR CLEANOUT	SS	SERVICE SINK
FP	FIRE PROTECTION	TMV	THERMOSTATIC MIXING VALVE
	FLOOR SINK	TP	TRAP PRIMER
FV	FLUSH VALVE	TW	TEMPERED WATER
FT	FOOT, FEET	TYP	TYPICAL
GAL	GALLON	UL	UNDERWRITERS LABORATORY
EPF	GALLON PER FLUSH	UNO	UNLESS NOTED OTHERWISE
GPH	GALLONS PER HOUR	V	VENT
GPM	GALLON PER MINUTE	VTR	VENT THRU ROOF
GC	GENERAL CONTRACTOR	W	WASHER
HB	HOSE BIBB	WC	WATER CLOSET
HC	HANDICAPPED	WCO	WALL CLEANOUT
HP	HORSEPOWER	WF	WATER FILTER
HSFU	HOT SUPPLY FIXTURE UNIT	WH	WATER HEATER
HW	HOT WATER	W/	WITH
HWR	HOT WATER RETURN		
HZ	HERTZ		
IE	INVERT ELEVATION		
IM	ICE MAKER		
INV	INVERT		
IN WG	INCHES WATER COLUMN		



LSG LANDSCAPE  
ARCHITECTURE

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EXPIRATION DATE: 01/30/2026

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ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

SITE PLAN

BID SET

1	65% CONSTRUCTION DOCUMENT 06/25/2023
2	80% CONSTRUCTION DOCUMENT 08/18/2023
3	95% CONSTRUCTION DOCUMENT 10/10/2023
4	PERMIT SET 12/08/2023
5	REVIEW SET 01/22/2024
6	BID SET 02/22/2024

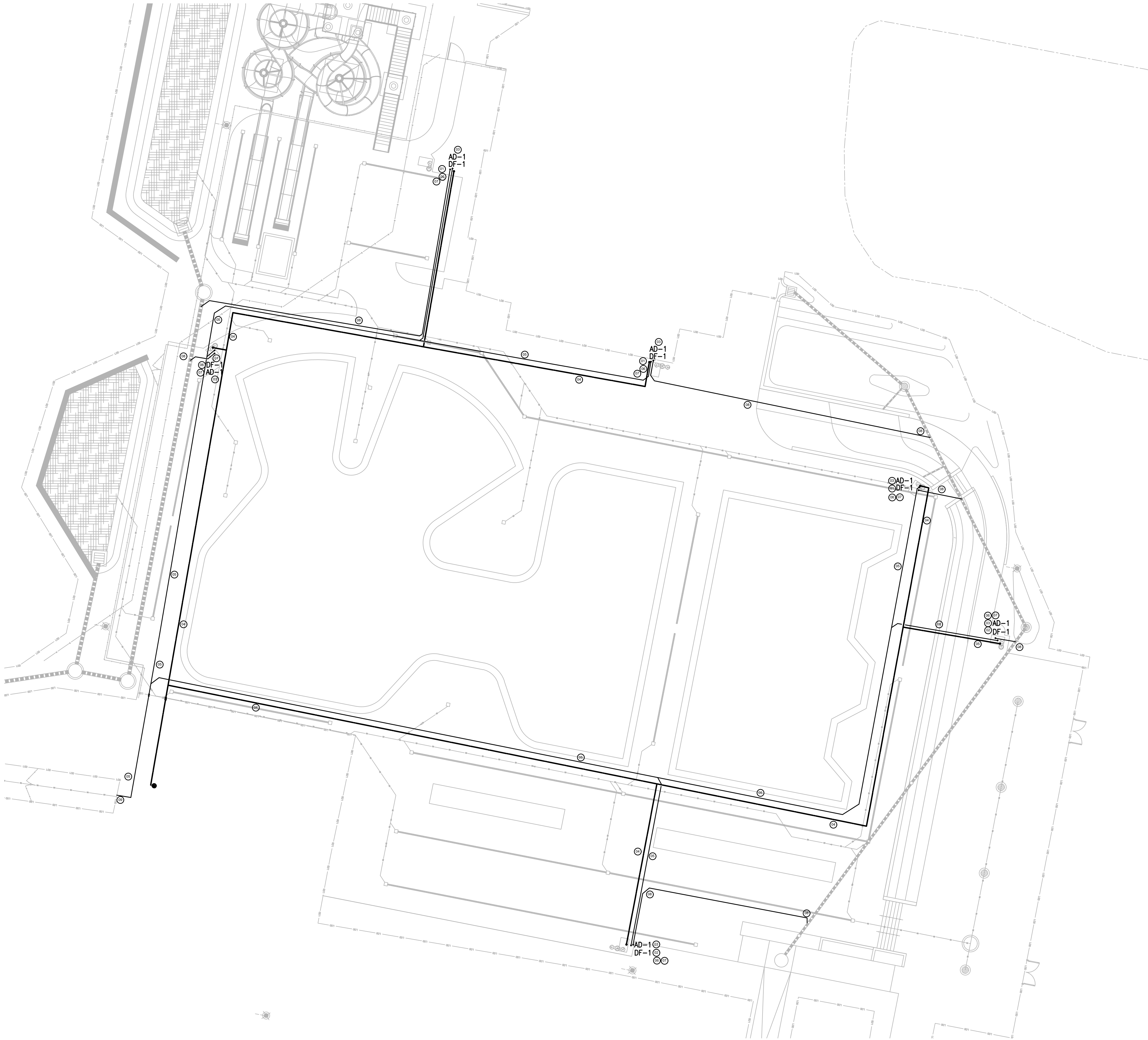
No.	Description	Date
Revisions		

Project Number: 22.00036.00  
Scale:  
Drawn By: AD, HW  
Checked By: AD  
Date: 5/19/2023

Sheet No.

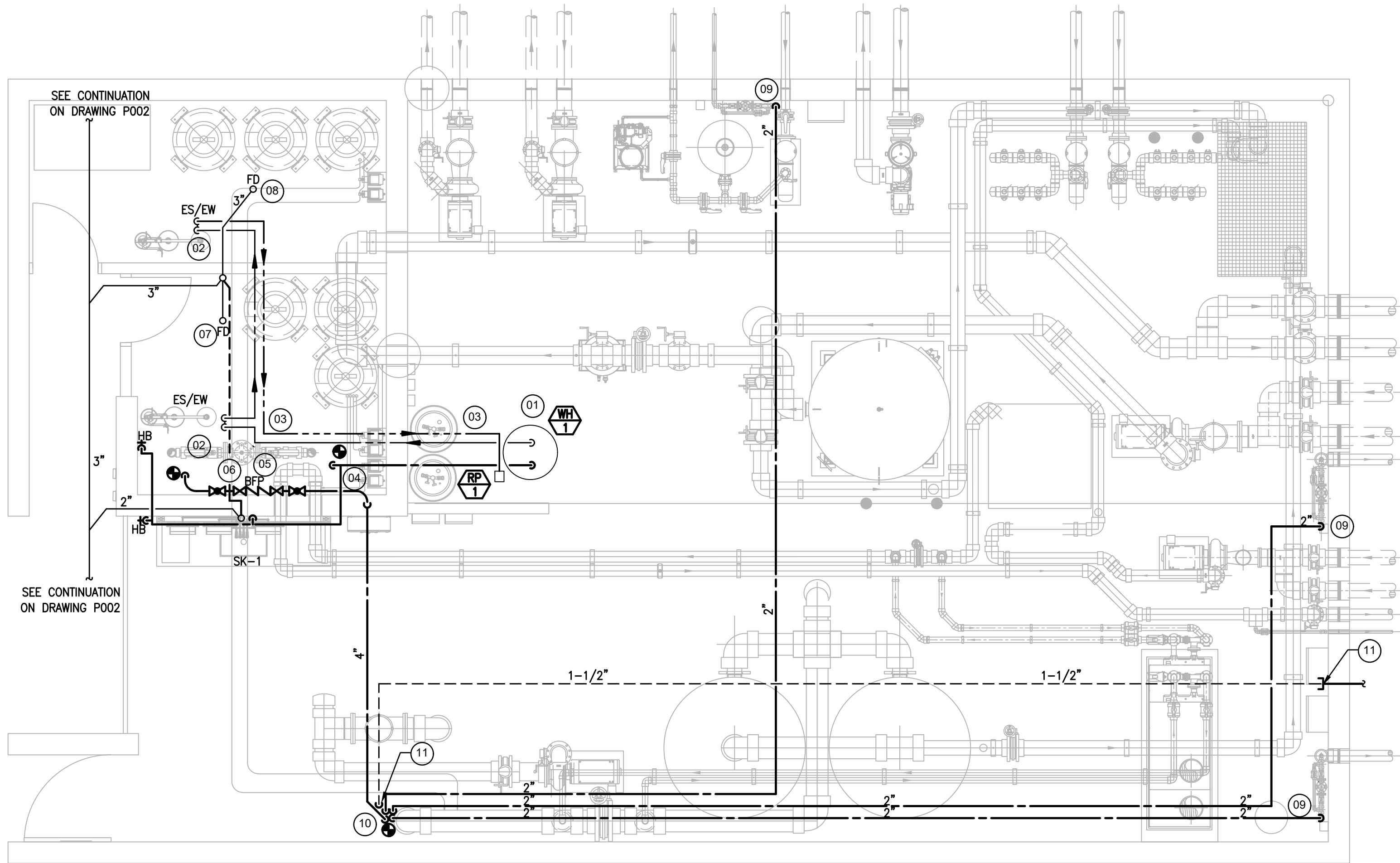
**P002**

**BID SET 02/23/2024**



1 PLUMBING SITE PLAN  
1/16" = 1'-0"





① PLUMBING PUMP ROOM  
1/14" = 1'-0"

GENERAL NOTES:

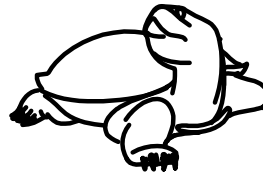
- A. EXISTING CONDITIONS, SIZES, AND INVERTS MUST BE FIELD VERIFIED BY CONTRACTOR. CONTRACTOR SHALL NOTIFY ARCHITECT & ENGINEER IMMEDIATELY OF ANY CONDITIONS WHICH REQUIRE DEVIATION FROM THE PLANS BEFORE PROCEEDING. INACCESSIBLE AREAS COULD NOT BE FIELD SURVEYED.
- B. SEE RISER DIAGRAMS FOR DOMESTIC CW, HW, TW, SANITARY, AND VENT PIPING SIZES.

SHEET NOTES:

- ① SKID ASSEMBLY WITH WATER HEATER, EXPANSION TANK, PIPING AND 3 WAY THERMOSTATIC MIXING VALVE.
- ② TEMPERED WATER DOWN.
- ③ TEMPERED WATER PIPING RUN AS HIGH AS POSSIBLE.
- ④ DOMESTIC CW CONNECT TO EXISTING WATER SUPPLY, ROUTE PIPING AS HIGH AS POSSIBLE.
- ⑤ EXISTING DOMESTIC WATER SUPPLY AND BACKFLOW PREVENTER.
- ⑥ CONNECT TO EXISTING INCOMING WATER SERVICE AND INSTALL BACKFLOW PREVENTER FOR IRRIGATION SYSTEM.
- ⑦ REPLACE EXISTING FLOOR DRAIN AND REROUTE TO DRAIN TO EXISTING SANITARY LINE. INSTALL SANITARY WASTE TRAP AND VENT. PATCH CONCRETE FLOOR TO MATCH EXISTING.
- ⑧ INSTALL NEW FLOOR DRAIN .
- ⑨ 2" DOMESTIC WATER WITH BALL VALVE.
- ⑩ CONNECT 2" DOMESTIC WATER WITH BALL VALVE TO EXISTING 4" DOMESTIC WATER (TYP. OF 3).
- ⑪ DISCONNECT AND REMOVE EXISTING 1-1/2" DOMESTIC WATER LINE AND CAP PIPING AS INDICATED.

LSG LANDSCAPE  
ARCHITECTURE

8260 GREENSBORO DRIVE  
SUITE 325  
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703-821-2045



DIAMONDBACK  
ENGINEERING LLC

9501 Foxlair Place  
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T: 301.717.1353



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I CERTIFY THAT THESE  
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PROFESSIONAL  
ENGINEER UNDER THE  
LAWS OF THE STATE OF  
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LICENSE NO. 27084

EXPIRATION DATE:  
01/30/2026

ROCKVILLE SWIM  
& FITNESS CENTER  
355 MARTINS LANE  
ROCKVILLE, MD 20850



DEPARTMENT OF  
RECREATION AND PARKS

OUTDOOR  
RECREATION POOL  
RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

FLOOR PLAN

BID SET

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4	PERMIT SET 12/08/2023
5	REVIEW SET 01/22/2024
6	BID SET 02/22/2024

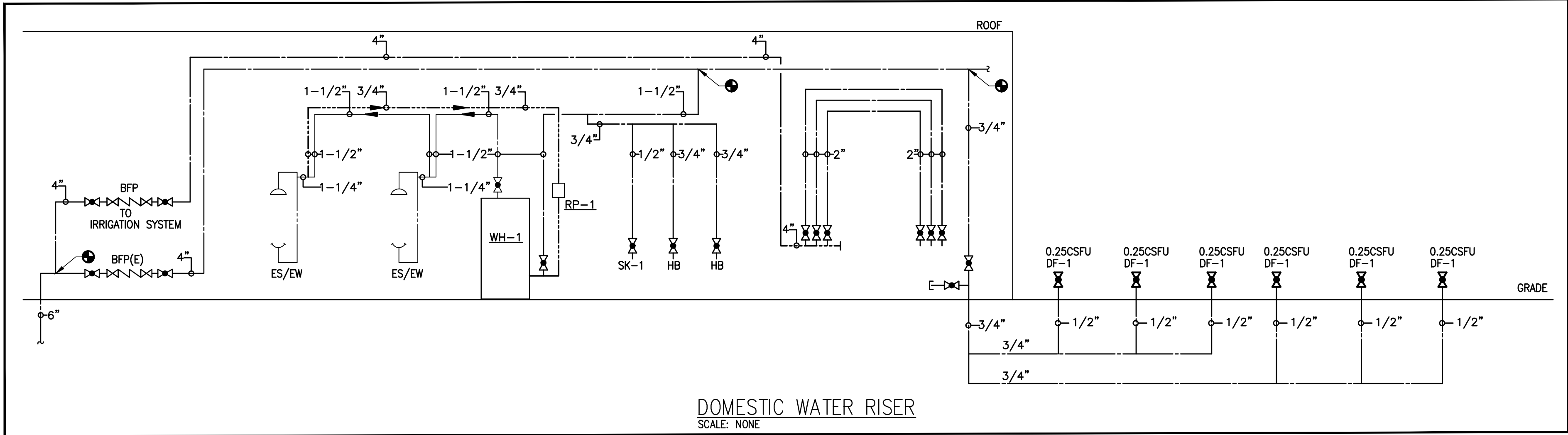
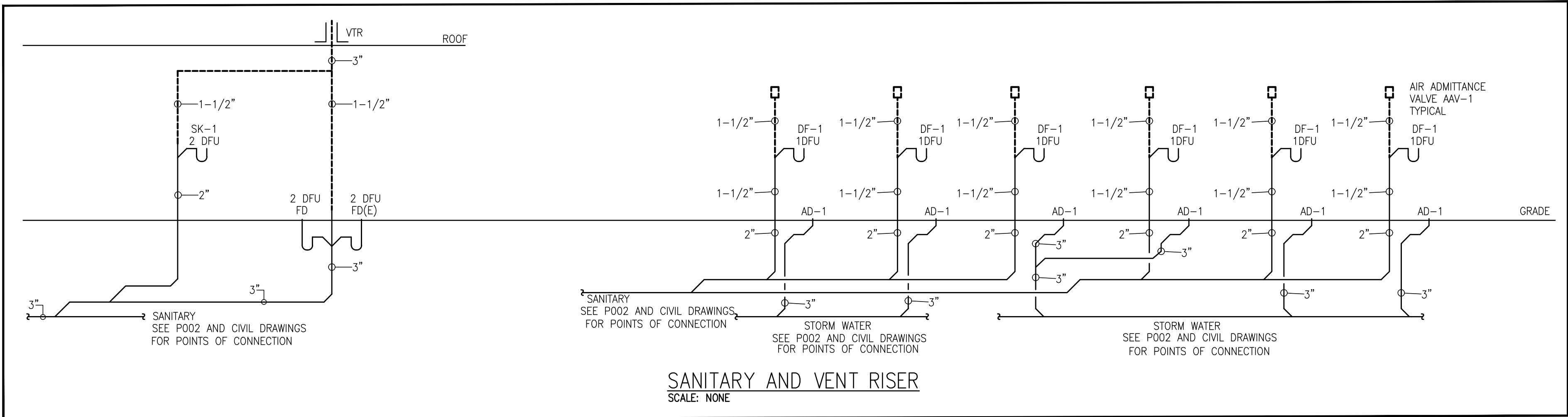
No.	Description	Date
Revisions		

Project Number: 22.00036.00  
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Drawn By: AD, HW  
Checked By: AD  
Date: 5/19/2023

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**P003**

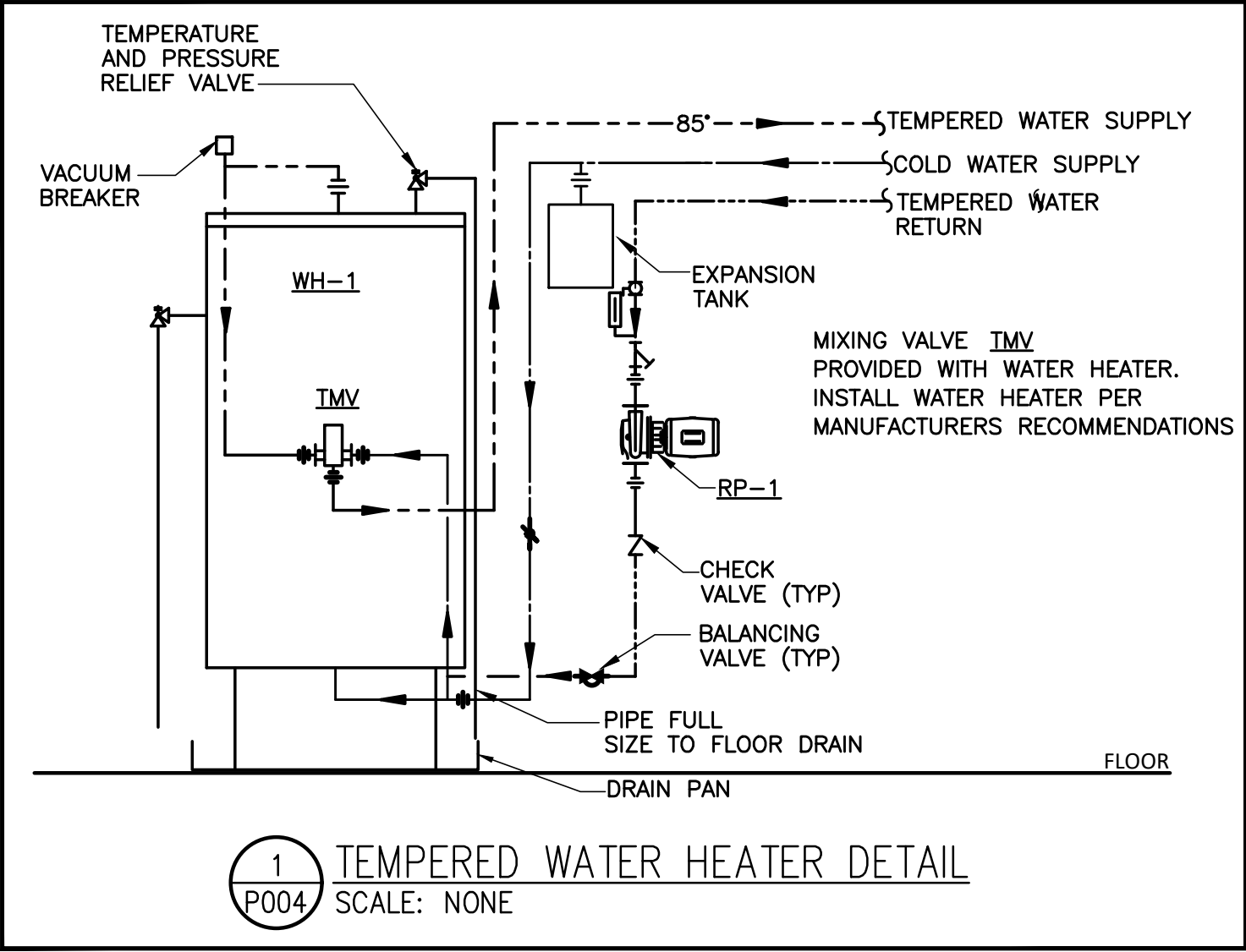
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ELECTRIC WATER HEATER SCHEDULE										
DESIGNATION	DESCRIPTION	CAPACITY (GALLONS)	RECOVERY GPM	EWI (°F)	LWT (°F)	KW STAGES	V/PH/Hz	BASIS OF DESIGN	MODEL	NOTES
WH-1	ELECTRIC WATER HEATER	119	23	50	170	1 @ 6.0	208/3/60	HUBBELL	EMV-120	1,3,4
NOTES: 1. PROVIDE 5 GALLON EXPANSION TANK. 2. WATER HEATER MEETS STANDBY LOSS REQUIREMENTS OF THE US DEPARTMENT OF ENERGY AND CURRENT EDITION OF ASHRAE/IES 90.1 3. ANSI Z358.1 COMPLIANCE.										

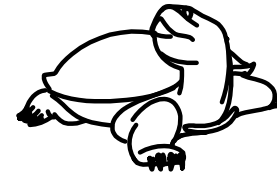
PUMP SCHEDULE								
DESIGNATION	DESCRIPTION	GPM	FT. HD.	HP	V/PH/Hz	BASIS OF DESIGN	MODEL	NOTES
RP-1	HOT WATER RECIRCULATION PUMP	0.5	5	28 WATTS	120/1/60	BELL & GOSSETT	ECOCIRC E3-4F/BSXRZ	1
NOTES: 1. PROVIDE BALANCING VALVE DOWNSTREAM OF PUMP. BALANCE TO FLOW OF 0.5 GPM.								

PLUMBING FIXTURE CONNECTION SCHEDULE										
MARK	DESCRIPTION	WASTE	VENT	CW	HW	TW	MODEL NUMBER	REMARKS		
DF-1	DRINKING FOUNTAIN	1-1/2"	1-1/2"	1/2"	-	-	SEE ARCHITECTURAL	PROVIDE DRAIN VALVE AND REMOVABLE TRAP FOR WINTERIZING		
SK-1	SERVICE SINK	2"	1-1/2"	1/2"	1/2"	-	SEE ARCHITECTURAL			
AD-1	AREA DRAIN - STORM	3"	-	-	-	-				
ES/EW	EMERGENCY SHOWER/EYEWASH	-	-	-	-	1-1/4"	GUARDIAN MODEL G1902P			
FD	FLOOR DRAIN	3"	1-1/2"	-	-	-	ZURN MODEL Z415B	PROVIDE TRAP PRIMER		
AAV-1	AIR ADMITTANCE VALVE	-	-	-	-	-	QATEY CHROME 1-1/2"			
HB	HOSE BIBB	-	-	3/4"	-	-				



## LSG LANDSCAPE ARCHITECTURE

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DEPARTMENT OF  
RECREATION AND PARKS

## OUTDOOR RECREATION POOL RENOVATIONS

355 MARTINS LANE  
CITY OF ROCKVILLE, MARYLAND

## RISERS, SCHEDULES, AND DETAILS

## BID SET

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**P004**

**BID SET 02/23/2024**



AIR DEVICE SCHEDULE											
DESIGNATION	TYPE	CFM RANGE	NECK SIZE (IN)	FACE SIZE (IN X IN)	# OF SLOTS/ SLOT WIDTH (IN)	THROW (FT)	MAX APD (IN WG)	MAX N.C.	MATERIAL	BASIS OF DESIGN	NOTES
E1	35" DEFLECTION SIDEWALL EXHAUST GRILLE	0-2250	24x24	26x26	N/A	N/A	0.05	30	ALUMINIUM	TITUS 350RL	1.2
NOTES:  1. PROVIDE FRAME, FINISH, FOR IN DUCT INSTALLATION.  2. PROVIDE WITH OPPOSED BLADE DAMPER.											

THE EXHAUST FAN SHALL BE CONTROLLED BY A WALL MOUNTED LINE VOLTAGE THERMOSTAT. WHEN THE TEMPERATURE EXCEEDS 55 DEG F, THE FAN SHALL START AND THE MAKEUP AIR INTAKE DAMPER SHALL OPEN. UPON A FALL IN SPACE TEMPERATURE BELOW 55°F, THE REVERSE SHALL OCCUR.

- 2.1. AMCA 511, CLASS 1 LEAKAGE RATING, WITH LINKAGE OUTSIDE AIRSTREAM, AND BEARING AMCA'S CERTIFIED RATINGS SEAL FOR BOTH AIR PERFORMANCE AND AIR LEAKAGE.
- 2.2. THE CURTAIN SHALL BE HAT SHAPED, MINIMUM 0.094 INCH THICK, GALVANIZED STEEL SHEET WITH MITERED AND WELDED CORNERS.
- 2.3. BLADES SHALL GALVANIZED-STEEL, MINIMUM 0.064 INCH THICK SINGLE SKIN OR 0.0747-INCH THICK DOUBLE SKIN, MAXIMUM BLADE WIDTH OF 6 INCHES AND OPPOSED DESIGN.
- 2.4. OIL-IMPREGATED BRONZE BEARINGS AT BOTH ENDS OF OPERATING SHAFT AND THRUST BEARINGS AT EACH END OF EVERY BLADE.
- 2.5. ACTUATOR SHALL BE INTERLOCKED WITH ASSOCIATE EXHAUST FAN COORDINATE WITH ELECTRICAL ENGINEER FOR THE NEW PUMP ROOM LAYOUT. SEE "011000 - SUMMURY" 1.2 FOR MORE INFORMATION.

23313 - DUCTWORK

1. ALL DUCTWORK CONSTRUCTION AND INSTALLATION SHALL BE IN ACCORDANCE WITH:

1.1 "THE HVAC DUCT CONSTRUCTION STANDARDS", 2005 EDITION BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA)

1.2 "NFPA-90A, AIR CONDITIONING AND VENTILATING STANDARDS", BY THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

1.3 ALL DUCTWORK SHALL HAVE A GRI GALVANIZED COATING COMPLYING WITH ASTM A 653A S538

1.4 ALUMINUM SIZES: COMPLY WITH ASTM B209 (ASTM B209M) ALLOY 3003, 14 GA. THICKNESS, WITH MILL FINISH FOR CONCEALED DUCTS, AND STANDARD, ONE-SIDE BRIGH FINISH FOR DUCT SURFACES EXPOSED TO VIEW.

2. DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING PERFORMANCE AND SEAL CLASSES:

4.1 ALL DUCTWORK OPERATING AT STATIC PRESSURES EQUAL TO OR GREATER THAN 5" WATER GAUGE SHALL BE LEAK TESTED IN ACCORDANCE WITH SMACNA HVAC LEAK TEST MANUAL AND SHOWN TO HAVE AN AIR LEAKAGE RATE (CL) LESS THAN OR EQUAL TO 4.1

4.1 "HVAC AIR DUCT LEAKAGE TEST MANUAL" BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA)

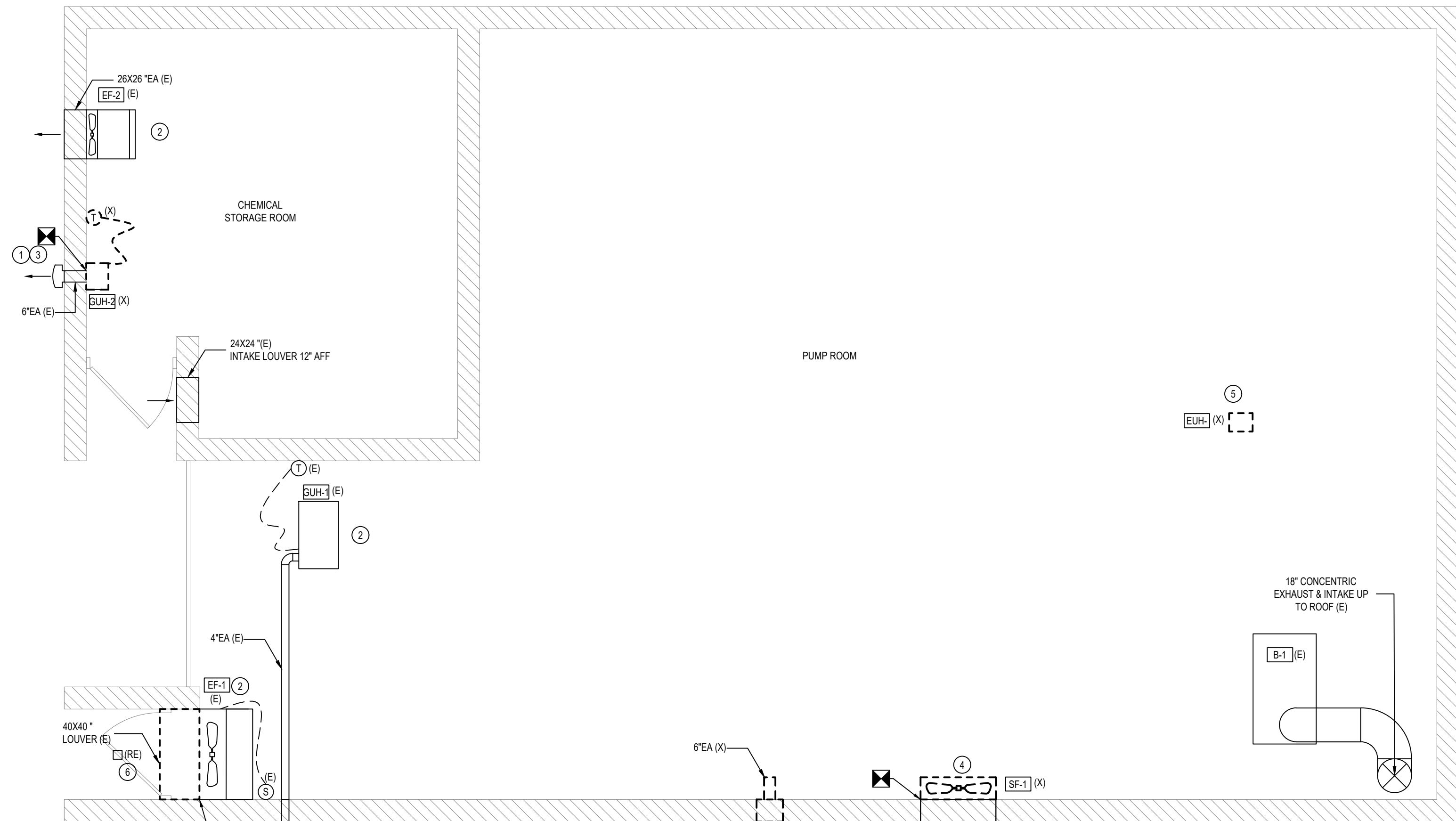
5. DUCTWORK DIMENSIONS ARE GIVEN: CLEAR INSIDE DUCT DIMENSIONS AND SHALL BE INCREASED TO COMPENSATE FOR THE THICKNESS OF DUCT LINING.

## Sheet No.

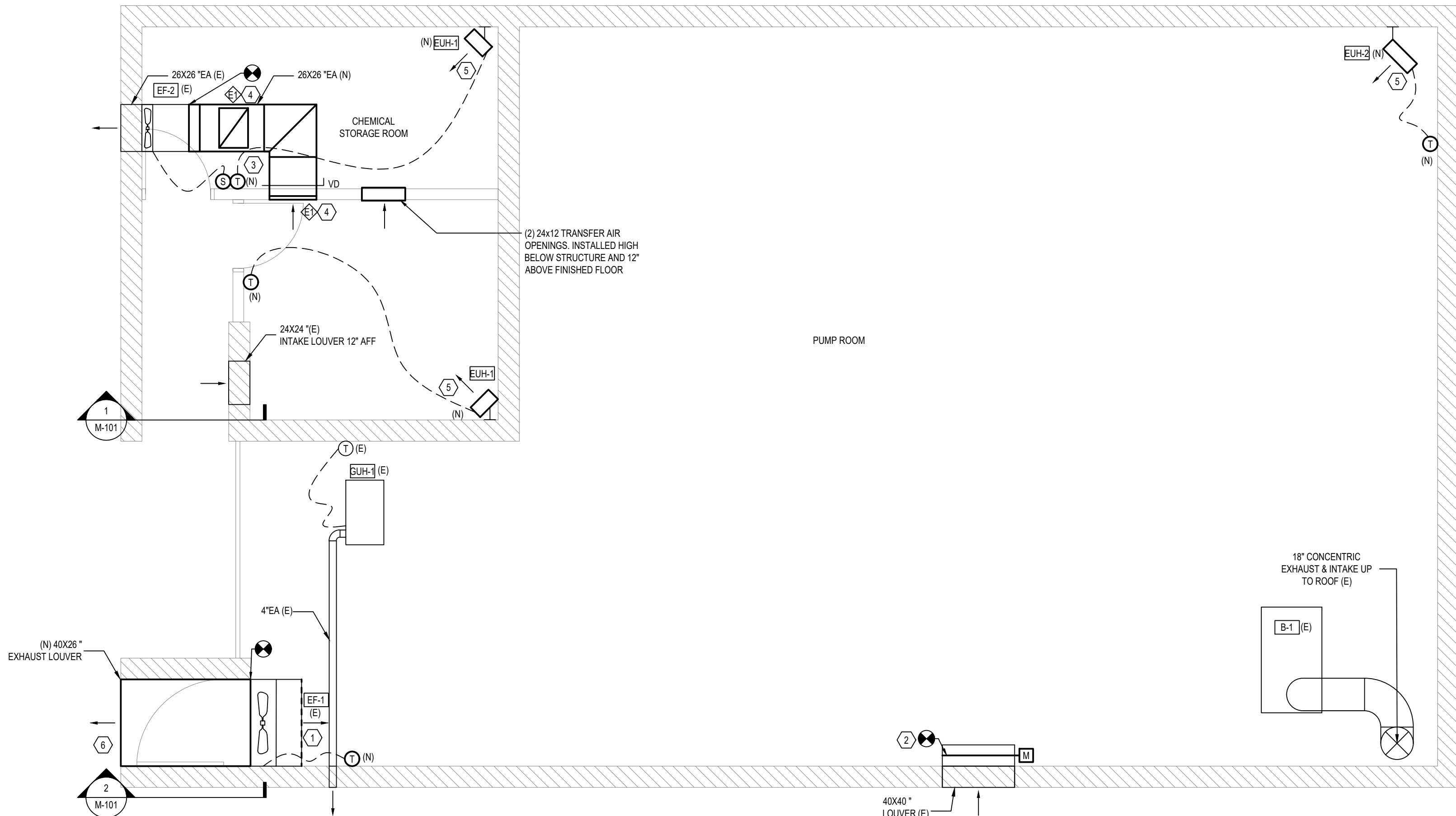
M-001

**BID SET 02/23/2024**





MECHANICAL ROOM - DEMOLITION PLAN  
SCALE: 1/4" = 1'-0"



MECHANICAL ROOM - NEW WORK PLAN  
SCALE: 1/4" = 1'-0"

DEMOLITION GENERAL NOTES

- A. FIELD VERIFY THE EXACT SIZES AND LOCATIONS OF ALL EXISTING EQUIPMENT PRIOR TO DEMOLITION OF ANY EXISTING WORK. THE DEMOLITION WORK SHALL BE COORDINATED WITH THE NEW WORK TO ASSURE PROPER LIMITS OF DEMOLITION.
- B. CONTRACTOR SHALL CONFIRM THAT ALL EXISTING EQUIPMENT IS OPERATIONAL PRIOR TO PERFORMING NEW WORK. IN THE EVENT THAT ANY EXISTING EQUIPMENT IS FOUND TO BE FAULTY, REPORT DEFICIENCIES TO BUILDING ENGINEER IN WRITING IMMEDIATELY.
- C. REMOVE ALL EXISTING EQUIPMENT AND ASSOCIATED PIPING AND DUCTWORK, WHETHER SPECIFICALLY INDICATED OR NOT, THAT IS NO LONGER REQUIRED.

NEW WORK GENERAL NOTES

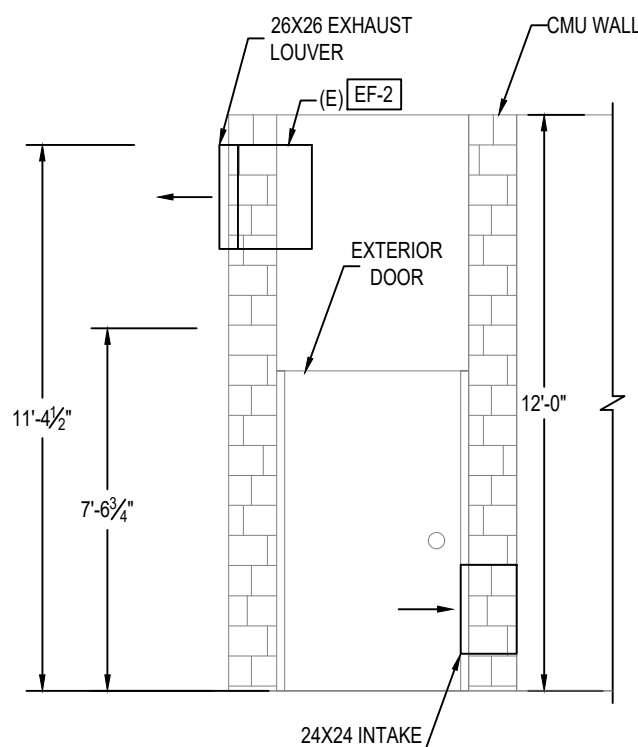
- A. CONTRACTOR SHALL CONFIRM THAT ALL EXISTING EQUIPMENT IS OPERATIONAL PRIOR TO PERFORMING NEW WORK. IN THE EVENT THAT ANY EXISTING EQUIPMENT IS FOUND TO BE FAULTY, REPORT DEFICIENCIES TO BUILDING ENGINEER IN WRITING IMMEDIATELY.
- B. SEE MECHANICAL SPECIFICATIONS SECTION "230923 - CONTROLS" FOR ADDITIONAL INFORMATION.
- C. COORDINATE WITH AQUATICS DRAWINGS FOR POOL HEATER EXHAUST AND FRESH AIR MODIFICATIONS.

KEYED NOTES - DEMOLITION

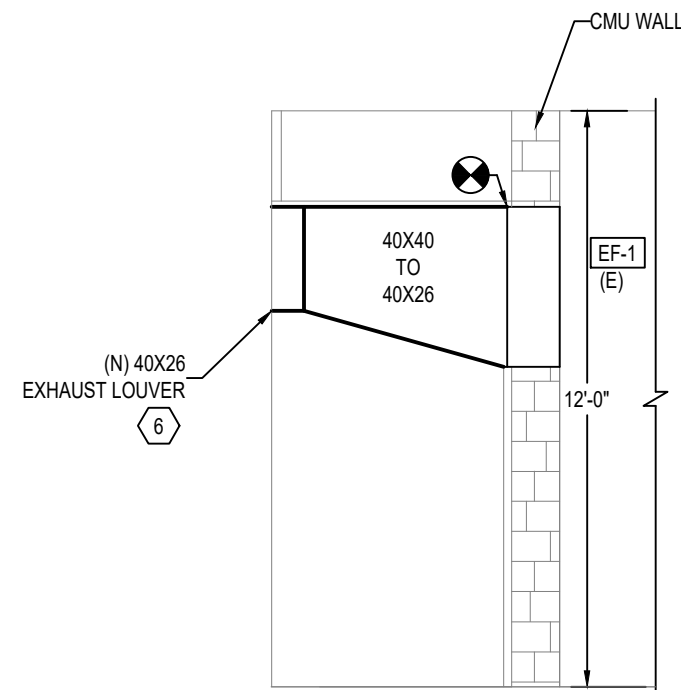
1. CONTRACTOR TO PATCH AND SEAL THE EXISTING VENT PIPE OPENING; TO MATCH THE EXISTING FINISHES.
2. CLEAN EXISTING EQUIPMENT TO REMAIN. VERIFY EQUIPMENT IS FULLY FUNCTIONAL. REPLACE ANY FAULTY PARTS.
3. REMOVE EXISTING GAS UNIT HEATER & ASSOCIATE CONTROL, NATURAL GAS PIPING AND VENT (PATCH WALL TO MATCH EXISTING).
4. REMOVE EXISTING SIDE WALL FAN & ASSOCIATE CONTROL. CLEAN THE LOUVER.
5. REMOVE EXISTING ELECTRIC UNIT HEATER, ASSOCIATE SUPPORT POWER TO THE SOURCE, AND CONTROLS IN ITS ENTIRETY.
6. CONTRACTOR TO RELOCATE HANGING LIGHT. FOR NEW LOCATION, MODEL & CONTROL. REFER TO THE ELECTRICAL DRAWINGS.

KEYED NOTES - NEW WORK

1. INSTALL NEW SIDEWALL EF-1 FAN UP TO THE EXISTING LOUVER. REUSE EXISTING POWER SUPPLY. INSTALL NEW LINE VOLTAGE THERMOSTAT. INTERLOCK CONTROL WITH NEW INTAKE MOTORIZED DAMPER.
2. INSTALL NEW MOTORIZED CONTROL DAMPER. PRIOR TO ORDERING THE NEW DAMPER CONTRACTOR MUST VISIT THE SITE, MEASURE EXISTING LOUVER SIZE AND SELECT PROPER DIMENSION. NEW DAMPER MUST BE FULLY ATTACHED AND SEALED TO EXISTING LOUVER.
3. INSTALL SWITCH ON THE WALL. INSTALL NEW SWITCH FOR EF-2.
4. BALANCE AIR EQUALLY IN EACH STORAGE ROOM TO THE MAXIMUM (E) EF-2 CAN ACHIEVE.
5. INSTALL NEW ELECTRIC UNIT HEATER FOR POWER SEE ELECTRICAL DRAWINGS.
6. LOUVER SHALL BE WEATHER PROOF, WATER DRAINABLE W/ MINIMUM 50% FREE AREA, FOR COLOR & FINISHES COORDINATE WITH ARCHITECT.



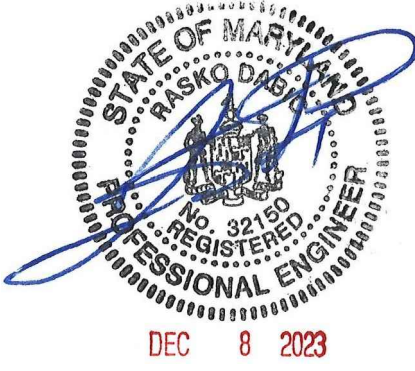
SECTION PLAN  
SCALE: 1/4" = 1'-0"



SECTION PLAN  
SCALE: 1/4" = 1'-0"

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MECHANICAL ROOM  
DEMOLITION &  
NEW WORK PLANS

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