REQUEST FOR QUALIFICATIONS
DESIGN-BUILD

RFQ Issue Date:	August 15, 2025
RFQ Number:	RFQ SA-2603
Commodity/Service:	Design-Build
Prince William Water:	Prince William Water
Attention:	Procurement Department, Michael Burke, Procurement Officer
Issuing Agency & Address:	4 County Complex Ct. Woodbridge, VA 22195
Project Name:	Design-Build Services for Featherstone Sewage Pumping Station, L16 and Force Main

Statement of Qualification (SOQ) Due Date and Time: **10:00 A.M. on September 22, 2025 (EST)**

Sealed Statement of Qualifications (SOQ) must be received in hand by Prince William Water Procurement Department until **10:00 A.M. on September 22, 2025 (EST)**. Offerors are responsible for ensuring that the Procurement Department receives their Statement of Qualification (SOQ) prior to the tatement of Qualification (SOQ) due date. The time a SOQ is received in hand shall be determined by the time stamped on the SOQ receipt by the time clock at the address listed above. The Offeror assumes all risk of delivery to the correct office.

SOQs received after the submission due date shall not be considered. If Prince William Water is closed for any reason on the SOQ due date, the SOQ due date will be extended to 10:00 A.M. on the next business day Prince William Water is open.

Note: Prince William Water does not discriminate against faith-based organizations in accordance with the Code of Virginia § 2.2-4343.1 or against an Offeror because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment.

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- Conceptual Design Technical Memorandum

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I. INTRODUCTION

Prince William Water is a public utility created in 1983 under the Virginia Water and Sewer Authorities Act and chartered by the Prince William Board of County Supervisors. Prince William Water is an independent body responsible for providing comprehensive water and sewer services in Prince William County ("the County"). Prince William Water has approximately 98,000 customers and owns and operates wastewater treatment facilities for the eastern portion of the county.

Wastewater service for the western portion of the county is provided by the Upper Occoquan Service Authority, a 54.0 million gallons per day (mgd) regional facility that is jointly owned by Fairfax County, Prince William County, the City of Manassas, and the City of Manassas Park. Water is supplied via wholesale water purchase agreements with Fairfax Water and the City of Manassas, as well as Prince William Water-owned wells. The water and sewer system are composed of approximately 1,240 miles of water main and 1,100 miles of sewer mains. The collection and distribution system also include 22 water storage tanks 15 water booster stations, 40,849 valves, 11,661 fire hydrants, 60 wastewater pump stations and 28,063 manholes.

Prince William Water's population is among the most rapidly growing in the region. In addition, Prince William Water's racially and ethnically diverse population makes it one of the most globally represented communities in the region. The County's work force is highly skilled and well educated, including a higher than average number of multi-lingual workers. According to one national daily newspaper, "Prince William Water is at the leading edge of a diversity explosion that is currently sweeping the USA". More than half of the County's population is either African American, Hispanic, Asian or some other racial/ethnic minority background.

Prince William Water is dedicated to excellence in providing safe, reliable water service to our customers and returning clean water to the environment, and is guided in all its actions by our vision and values below:

Vision:
Prince William Water is a trusted public steward and nationally recognized model for performance excellence. We reflect the diverse and vibrant community we serve and nurture diversity, equity and inclusion in relationships with our community, customers, businesses and industry colleagues. We create value for our community through our Areas of Excellence.

Values: Prince William Water is responsible for serving the public and maintaining their trust on a daily basis. Our success is predicated on our job performance, our actions, and our behaviors. The following core values support our vision and culture:

- Safety Always,
- Customer-First Focus,

- Ownership & Integrity,
- Respect & Inclusion, and
- Excellence

The commitment to these values by our employees and by extension, by our service providers, suppliers and contractors, helps us to achieve organizational excellence in our delivery of water, wastewater and public services.

An important part of our procurement program involves a commitment to doing business with Small (including employment service organizations), Minority-owned, Women-owned, and Service-disabled Veteran-owned Business Enterprises (SWaM). The most competitive suppliers will have SWaM utilization plans and will support Prince William Water's supplier-diversity commitment. (Reference Attachment G)

Featherstone Sewage Pumping Station (SPS) is one of sixty seven (67) pumping stations in Prince William County owned, operated, and maintained by Prince William Water. The existing Featherstone SPS is located at 15023 Farm Creek Dr, Woodbridge, VA 22191. It is a 25.6 MGD pump station that was built in 1974. The pump station includes:

- Two (2) duty pumps with 12.8 MGD capacity each and one (1) standby pump with 14.83 MGD capacity, with
  - Suction and discharge valves,
  - 13.6 MGD wetwell
  - Associated electrical, heating, ventilation, and air conditioning (HVAC), and other appurtenances.

It is a critical facility that discharges a significant sewage flow from the eastern sewer shed via a 30-inch ductile iron pipe to the H.L. Mooney Advanced Water Reclamation Facility (Mooney AWRF) that is located at 1851 Rippon Boulevard in Woodbridge, Virginia. It is one of the only two pump stations that pump wastewater in the Mooney AWRF. The existing force main (FM) runs along Florida Avenue, Illinois Road, Georgia Road, Georgia Court, Wildlife Way and crosses Rippon Boulevard to finally connect with the Mooney AWRF. Featherstone SPS is currently performing well below its design capacity, with significant head loss, obsolete electrical components, a corroded force main, and documented flood risks.

A. DEFINITIONS

1. **Addendum**: A written, or graphic instrument issued prior to the due date and time of SOQs that clarifies, corrects or changes the solicitation documents.
2. **Day(s):** Calendar Days, unless otherwise specified.
3. **Design-Builder**: The individual or entity with which Owner has contracted for performance of the Work, as designated in the Agreement.
4. **Key Person (Key Personnel):** As listed in Section B.2.c, the designated person or persons employed by the Contractor or Subcontractor, whose individual action or inaction can impact the timely accomplishment of the Work.
5. **Offeror**: The entity that submits an SOQ in response to this RFQ.
6. **Prince William Water: Prince William County Service Authority**
7. **Procurement Officer**: A delegate of the Procurement Manager
8. **Procurement Manager**: Prince William Water person that has been legally authorized and responsible to enter into, administer, terminate and otherwise manage contracts subject to any approval thresholds that may be established by Prince William Water's General Manager and Board of Directors.
9. **Request for Qualifications (RFQ):** An advertised formal competitive solicitation for letters of interest and information as to qualifications regarding services that include, but are not limited to, the practice of architecture, professional engineering, landscape architecture, or registered surveying and mapping.
10. **Shortlist:** The list of Offerors the Owner determines to be the best suited and qualified based on an evaluation of the SOQs.
11. **Statement of Qualifications (SOQ)/Proposal:** The document submitted by an Offeror in response to this RFQ, including any completed forms, attachments, and exhibits.
12. **Using Division or Department**: Project Management Office (PMO)
13. The terms "**in writing**" and "**written**" mean documents permanently inscribed or printed on paper, submitted by facsimile (fax), or submitted by e-mail, unless otherwise specified.

II. PRE-QUALIFICATIONS CONFERENCE/SITE VISIT

A. PRE-QUALIFICATIONS CONFERENCE:

A Pre-Qualifications Conference will be held for this procurement on **August 26, 2025 at 10:00 A.M. (EST**) at the following location.

Prince William Water
Procurement Department
4 County Complex Court
Woodbridge, VA 22192

Attendance at the conference is not mandatory, but highly recommended. Those Offerors planning to attend should contact Prince William Water Procurement Department, via email at procurement@pwwater.org.

B. SITE VISIT (Non-mandatory)

Prince William Water will provide a non-mandatory site visit to the potential Offerors. Potential Offerors interested in participating in the site visit should contact Prince William Water Procurement Department, via email at procurement@pwwater.org.

The email request shall include:

- Email subject line: RFQ SA 2603 Design-Build Services-Site Visit
- Number of attendees
- Name of firm
- Point of Contact

The site visit will be held on **August 26, 2025 at 11:30 A.M. (EST)** at the location below:

Featherstone Sewage Pumping Station, L16 and Force Main
15023 Farm Creek Dr
Woodbridge, Virginia 22191

III. QUESTIONS

All questions other than those posed at the Pre-Qualifications Conference, shall be submitted in writing to Prince William Water's Procurement Department via email at procurement@pwwater.org and must be received by **September 1, 2025 at 2:00 PM EST.** Prince William Water will respond to all questions and requests for information received through a Pre-Qualifications Conference and via email as an Addendum. Prince William Water will modify or change this Request for Qualifications (RFQ) only by written Addendum issued by Prince William Water Procurement Department. A copy of the RFQ and all Addenda will be posted on Prince William Water website at www.princewilliamwater.org and eVA website at www.eva.virginia.gov.

IV. SUBMITTAL

Submit SOQ by mail, hand delivery or express carrier to**:** Prince William Water Procurement Department, 4 County Complex Court, Woodbridge, Virginia 22192.

One (1) original, so marked, with all signatures in blue ink, four (4) copies marked "COPY", and one (1) copy of the entire original submission on a separate thumb drive, so marked, for a total of six (6) copies of the SOQs document are required. Offerors are responsible for ensuring the thumb drive is marked with the name of their firm. All SOQs must be submitted in a sealed package, with the RFQ number, RFQ title, SOQs due date and time, Virginia Class A contractor's license number, and its expiration date, on the outside of the package. Prince William Water will not assume responsibility for reproduction where an insufficient number of copies have been supplied. In any such case, Prince William Water shall notify the Offerors of the deficiency and request that the appropriate number of copies are delivered by no later than the end of the second (2nd) business day following receipt of the request for additional copies. Failure to comply with this or other requirements of this RFQ shall be grounds for Prince William Water to reject such SOQs. Email or facsimile submissions of SOQs are not acceptable, and any such SOQs shall not be considered. Nothing herein is intended to exclude any responsible Offeror, or in any way restrain or restrict competition. All responsible Offerors are

encouraged to submit SOQs.
Prince William Water will judge any SOQ package received in the Procurement Department after the closing date and time as **LATE** and Prince William Water will not open it nor consider it for selection.

V. PROJECT DESCRIPTION

A. PURPOSE

The objective of this Request for Qualification (RFQ) is to select a short list of qualified Offerors to receive a Request for Proposal (RFP) for a detailed proposal, which would lead to an executed Design-Build Agreement between Prince William Water and selected Design-Builder.

The work is generally described as follows:

1. Design and construct a new sewage pump station (SPS) adjacent to the existing facility at 15023 Farm Creek Dr, Woodbridge, VA. The headworks, wetwell, and drywell must allow for future capacity expansion per the Conceptual Design Technical Memorandum (Reference Document).
2. Design approximately 9,500-foot, 30-inch new parallel force main (FM) from the new SPS to the Mooney AWRF. The owner may elect to add the construction of the parallel FM to the work based on capacity needs and budget availability.

See Exhibit A, Project Description and Exhibit B, Design Build Contract Process Diagram.

The budgeted cost for this project is approximately $47,600,000.00 with a Class 5 range estimate as defined by the Association for the Advancement of Cost Engineering.

The Project duration and schedule shall be developed and proposed by Offerors during the RFP phase.

Prince William Water will require that the Design-Builder perform engineering and design services on the scope of work in Exhibit A, Project Description. The Conceptual Design Technical Memorandum (Reference document) is a concept design for the new SPS and FM. As part of this project the Design-Builder shall progress the design to 60%. Upon approval of the 60% design, the Design-Builder and Prince William Water shall negotiate a guaranteed maximum price for the completion stage of the project.

VI. SUBMISSION REQUIREMENTS

By submitting SOQ, the Offeror grants to Prince William Water the right to visit the office(s) of the Offeror to verify any claim(s) made by an Offeror regarding staff, facilities, capabilities, qualifications, and any other reasonable concerns that may arise on the part of Prince William Water. In such an event, the Offeror must make every reasonable attempt to clarify any concerns expressed by Prince William Water.

Prince William Water will not be responsible for any costs incurred by an Offeror in response to this RFQ.

In the event the Offeror discovers an error in its submission and desires to make a correction, the Offeror

shall submit in writing the requested correction, along with a written explanation and justification for the change. Prince William Water will accept the correction and give it such weight as the explanation and justification support. Provided, however, no such corrections will be permitted or accepted after two (2) business days at 4:00 p.m. (EST) from the due date set for receipt of SOQs. After this deadline, the Offeror's options are either to have its response to the RFQ considered as submitted, or to give written notice to Prince William Water that it withdraws from consideration. Additional information for clarification may be requested by Prince William Water once the review process begins.

As noted above, Offerors may contact, in writing, the designated Prince William Water's point of contact for any required clarifications on this RFQ. Offerors shall not contact Prince William Water's personnel for purposes of requesting site visits or for any other purpose relating to the Project.

Following receipt by the Offeror of notice that the Offeror has been considered short-listed, or not short-listed to move to the RFP stage, or the cancellation of this solicitation, all Offerors or potential Offerors are invited to provide to Prince William Water written comments regarding the manner in which this solicitation was conducted and any suggested modifications to that process which might make future solicitations by Prince William Water more efficient, more productive, and more attractive to potential Offerors.

VII. EVALUATION OF SOQS

Offeror's SOQs (as submitted on the attached Offeror's Statement of SOQs) will be evaluated against the criteria specified herein.

- Prince William Water's Selection Committee will thoroughly review the Offeror's SOQs Submissions using the evaluation criteria defined in this RFQ. The Committee will determine which Offeror's submissions demonstrate the greatest conformance with the requirements set forth in this RFQ; the Committee will identify a "short list" of three (3) to five (5) Offerors deemed fully qualified and best suited based on the evaluation criteria to proceed to "Step 2" of the selection process, the receipt of the Request for Proposal (RFP).

- Prince William Water will provide written notice to all Offerors which are not "shortlisted".

- Not being included in the short list deemed fully qualified and best suited does not mean that an Offeror is not qualified.

- Prince William Water will notify the short listed Offerors of their selection to move to the RFP stage and will provide them the RFP.

The Selection Committee will use the following criteria to evaluate and judge the SOQs (weighted as indicated below):

General Organization, Thoroughness, and Continuity of SOQs (Volumes 01 and 02)	15%
Proposed Design-Builder Team Experience and Performance as a single team on Projects of Similar Size and Scope (Tabs 7 and 8)	25%

Qualifications of Key Personnel and Team (Tab 3)	25%
Project Approach (Tabs 5 and 6)	25%
References / Safety / Financial (Tab 4 and Volume No. 2)	10%
TOTAL	**100%**

The remaining contents of the Offeror's SOQs not specifically listed in the evaluation criteria will be considered generally and may affect the weighting of the categories identified above. Prior Design-Build experience is not a pre-requisite for qualification but may be considered generally. Experience on comparable projects will be a consideration for selection.

A. TENTATIVE EVALUATION AND AWARD SCHEDULE

Date	Schedule of Items
August 15, 2025	Issue Request for Qualifications
August 26, 2025	Pre-Qualifications Conference (Non-Mandatory)
August 26, 2025	Site Visit (Non-Mandatory)
September 1, 2025	Question Deadline
September 22, 2025	SOQs Submission Due
TBD	Non-Qualified and Qualified Notifications
TBD	Issue Request for Proposals
TBD	Request for Proposals Due
TBD	Interviews
TBD	Competitive Negotiations
TBD	Prince William Water Approval and Contract Award
TBD	Notice to Proceed

B. QUALIFICATION CRITERIA

Offerors shall submit SOQ package in accordance with the requirements identified herein. The Procurement Manager, or assigned designee, may contact Offeror during the evaluation process seeking clarification of any SOQs received in response to this RFQ. Such clarification must be submitted to Prince William Water no later than 4:00 P.M. (EST) the second (2nd) business day following receipt of the request for clarification.

The decision to shortlist an Offeror shall not, however, constitute a determination that the Offeror is responsible; and such Offeror may be subsequently rejected as non-responsible based on subsequently discovered information.

1. **MANDATORY REQUIREMENTS:** Prince William Water **will** disqualify any Offeror if Prince

William Water determines, at its sole discretion, the Offeror is not able to satisfy one or more of the following: The term "**shall**" identifies requirements which are stated as mandatory and if not satisfied shall result in rejection of the SOQs as not responsive.

a. Bonding:

Offeror must be able to secure bonding for this project in an amount equal to or greater than the estimated construction cost from a surety company; (1) listed in the United States Department of Treasury, Federal Register, *Circular 570: Companies Holding Certificates of Prince William Water as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies*; and (2) licensed to transact surety business in the Commonwealth of Virginia. Offeror must provide a signed statement from their Surety stating that, based on present circumstances, the Surety will provide, at a minimum, a $10 million (or value of the proposal whichever is more) performance and payment bond for the Offeror in connection with the Project.

b. Judgments:

Neither the Offeror nor any officer, director, partner, project manager, procurement manager, chief financial officer or partner, thereof, shall have had judgments entered against it or him/her within the past ten (10) years for the breach of contracts for governmental or non-governmental construction, including, but not limited to, design-build or construction management.

c. Convictions:

Neither the Offeror nor any officer, director, partner, project manager, procurement manager, chief financial official, or partner thereof, shall have been convicted within the past ten (10) years of a crime related to governmental or non-governmental construction or contracting, including, but not limited to, a violation of (i) Article 6 (§ 2.2-4367 et seq.) of the Virginia Public Procurement Act, (ii) the *Virginia Governmental Frauds Act* (§ 18.2-498.1 et seq.), (iii) Chapter 4.2 (§ 59.1-68.6 et seq.) of Title 59.1, or (iv) any substantially similar law of the United States or another state, and without limitation of the foregoing shall not;

i. Have been convicted on charges relating to conflicts of interest;

ii. Have been convicted on charges relating to any criminal activity relating to contracting, construction, bidding, bid rigging or bribery;

iii. Have been convicted on charges relating to employment of illegal aliens on construction projects.

iv. Have been convicted: (i) under Va. Code Section 2.2-4367 et seq. (Ethics in Public Contracting); (ii) under Va. Code Section 18.2-498.1 et seq. (Va. Governmental Frauds Act); (iii) under Va. Code Section 59.1-68.6 et seq.

(Conspiracy to Rig Bids); (iv) of a criminal violation of Va. Code Section 40.1-49.4 (enforcement of occupational safety and health standards); or (v) of violating any substantially similar federal law or law of another state.

v. Have been fined or adjudicated of having failed to abate a citation for building code violations by a court or a local building code appeals board.

d. Debarment:

Neither the Offeror nor any officer, director, project manager, procurement manager, chief financial officer, or partner thereof shall currently be, nor have been, debarred pursuant to an established debarment procedure from bidding or contracting by any public body, agency of another state or agency of the federal government. If the Offeror experiences a material change in its debarment status after the Proposal is submitted and prior to the award of the Contract for the project, the Offeror shall notify Prince William Water of the change in writing at the time the change occurs or as soon thereafter as is reasonably practicable. If at any time during the evaluation process the Offeror is issued a debarment judgement, then this will be considered ground for automatic disqualification.

e. Virginia Licenses:

Offeror must provide copies of a Virginia Class A Contractor's License and Virginia Engineer's Licenses with the Proposal and a statement of a commitment to ensure that proposed subcontractors have the applicable Virginia Contractor's Licenses. Any Offeror or subcontractor, who does not possess a valid Contractor's License at the time when SOQs are received, will not be deemed to be qualified.

f. Contractor's Insurance:

Statement from Offeror confirming it has or will be able to obtain and maintain the required insurance coverage for the duration of any resulting Contract(s) from an insurance provider authorized to do business under the laws of the Commonwealth of Virginia and acceptable to Prince William Water, in Prince William Water's sole discretion.

g. Proof of Authority to Transact Business in Virginia:

The Offeror must be registered to do business in the Commonwealth of Virginia as follows:

i. A firm organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 of the Code of Virginia shall include in its Proposal the identification number issued to it by the State Corporation Commission (SCC).

ii. Any Offeror that is not required to be authorized to transact business in the

Commonwealth as a foreign business entity under Title 13.1 or Title 50 of the Code of Virginia, or as otherwise required by law, shall include in its proposal for consideration by Prince William Water, a signed statement attached, describing why the Offeror is not required to be so authorized under Title 13.1 or Title 50 of the Code of Virginia. Any Offeror described herein that fails to provide the required information, or for whom such signed exception is not considered valid or lawful by Prince William Water, shall not receive an award unless a waiver of this requirement and the administrative policies and procedures established to implement this section is granted, in writing, by Prince William Water.

iii. Complete Attachment E State Corporation Commission Form.

h. Responsiveness to RFQ:

Only responsive SOQs will be considered and evaluated. A responsive SOQ must be completed according to the instructions and include all required attachments and requested information as noted in Sections 1 and 2.

2. **DISCRETIONARY REQUIRMENTS:** Prince William Water may disqualify any Offeror if Prince William Water determines, at its sole discretion, the Offeror is not able to satisfy one or more of the following: The term "may" identifies requirements which are discretionary, not mandatory, but still may result in rejection of the SOQs as not responsive, if Prince William Water considers the failure or omission to have a significant impact upon determining whether the Offeror can be considered qualified to complete the project.

a. Experience with similar projects. During the evaluation of experience and ability to perform the work, emphasis will be placed on the Offeror's performance on recent projects of a similar size and nature to the Project listed in this RFQ; including Offeror's ability to manage the Owner's project budget, deliver a quality product, and meet scheduled completion dates. Consideration will be given to firms with the following experience:

i. **Construction Experience** including the following: Successful completion (on time, within budget, and per client's specifications) of at least (5) water or wastewater infrastructure projects - preferably sewage pumping stations - in the last ten (10) years of similar size, scope, and complexity as contained in this RFQ, by the builder. Acceptable delivery methods include Design/Bid/Build and Design-Build.

ii. **Design Experience** including the following: Successful completion of at least five (5) sewage pumping station projects, in the last five (5) years of similar size, scope, and complexity as contained in this RFQ, by the designated Design Engineer.

iii. **Project Team Experience** (firms and/or staff) including the following: Successful completion of at least three (3) comparable projects in scope to the Projects in this RFQ. Offerors may include additional projects to demonstrate teaming experience among proposed firms and key personnel. Consideration will be given to design/build teams that have completed a project together of similar size, scope, and complexity as contained in this RFQ.

b. **Demonstration of ability to perform work.** Provide details explaining how the firm or firms involved have currently available resources to perform the Project listed herein.

c. **Leadership structure / Project manager's experience / key personnel experience.** Provide resumes demonstrating that the qualifications of the persons proposed for the following positions have relevant experience on projects of similar size and scope. Consideration given to Key Personnel who have worked together on similar size, scope and complexity of projects as contained in this RFQ. Identify this experience. Provide an organizational chart identifying the proposed project team and describe the working relationship of the firms. Offeror must dedicate all Key Personnel to the project and may not make changes without written approval from Prince William Water. No substitutions of the Key Personnel represented below will be accepted without prior approval by Prince William Water. Request for substitution approval may be submitted by the Offeror only for reasons beyond the Offeror's control. Approval by Prince William Water will not be granted unless the Offeror can demonstrate that the reason for the substitution is justified and that the substituting individual has, at a minimum, an equivalent level of experience comparable to that of the individual being substituted.

Key Personnel include the following:

i. Project Executive Director – Experience on comparable projects of similar size and scope is required. Provide detailed experience.
ii. Design-Build Project Manager – Experience on comparable projects of similar size and scope is required. Provide detailed experience.
iii. Design Project Manager – Experience on comparable projects of similar size and scope is required. Provide detailed experience.
iv. Design Engineer – Experience on comparable projects of similar size and scope is required. Provide detailed experience.
v. Construction Project Manager –Experience on comparable projects of similar size and scope is required. Provide detailed experience.
vi. Construction Superintendent – Experience on comparable projects of similar size and scope is required. Provide detailed experience.

d. **Management Approach.** Provide a narrative explaining your approach to successfully manage the design and construction phases of the Project. Include a description with examples of how you will manage cost, quality, schedule, maintenance of operations during construction, and neighborhood/community issues. Provide a narrative regarding the Owner's proposed Scope of Work.

e. **Design Approach.** Provide a narrative explaining your approach to progress the project elements to a 60% design stage, design strategies for coordination of new work with existing infrastructure, maintaining operations during construction and shutdowns, and your approach to designing all the project elements in the Scope of Work to the point construction can begin.

f. **Financial Condition.** Financial data will be reviewed and compared to industry standards (See Attachment B, Section B.4).

g. **Project Ownership.** Describe the ownership of the general construction firm and engineering firm and the relationship between the two firms for the purposes of this contract.

h. **References.** Prince William Water may contact the Offeror's references listed in the submission and may contact other potential references if referred to them during this evaluation. Prince William Water reserves the right to contact any party it deems appropriate. By submitting a response to this Request for Qualifications, the Offeror releases Prince William Water and any references from all liability concerning this exchange of information.

i. **Safety Performance.** Safety data will not be required at this time.

j. **Claims/Final Resolution/Judgements.** Evaluation of claims, final resolution, and judgements will be based on the number of affirmative answers to the questions and the details provided in the explanation for each occurrence.

k. **Failure to Complete.** Evaluation of the Offeror's failure to complete projects will be based primarily on the number of failure-to-complete occurrences and the explanations for the failure-to-complete occurrences.

l. **Substantial Non-Compliance.** The Offeror shall not have been in substantial non-compliance with the terms and conditions of a prior construction contract with a public body without good cause. If Prince William Water has not contracted with the Offeror in any prior construction contracts, Prince William Water may disqualify if the Offeror has been in substantial noncompliance with the terms and conditions of comparable construction contracts with another public body without good cause. Prince William Water may not utilize this provision to disqualify unless the facts underlying such substantial noncompliance were documented in writing in the prior construction project file and such information relating thereto given to the Offeror at that time, with the opportunity to respond.

m. **Other Relevant Criteria.** Any relevant information, included or not included in the SOQ, deemed to be in the best interest of Prince William Water may be evaluated in determining whether to accept an Offeror's submission. For example, the evaluation may also consider any additional references or experience with other Prince William County projects when determining acceptability of an Offeror.

n. **Optional Information.** Information not covered above, that the Offeror deems relevant, may be provided and may be considered by Prince William Water.

o. **Offeror's Lack of Responsiveness to Requests for Clarification.** The Offeror may be deemed nonresponsive if it failed to provide to Prince William Water, within the established time frame, any information requested in this RFQ relevant to Sections 1 and 2 above.

IX. FORMAT AND CONTENT

Offerors shall submit the SOQ in accordance with the requirements identified herein. Each copy of the SOQs shall be tabbed and submitted in either a three-ring binder, binding screws, case binding or paperback binding, in two volumes as indicated below. Incomplete SOQs may be determined to be non-responsive; and as such, the Procurement Manager reserves the right to reject the incomplete SOQs.

A. TRADE SECRETS AND PROPRIETARY INFORMATION

Under the Attachment F of the RFQ, an Offeror may designate all information set forth in its SOQ and/or any supplemental information as a trade secret or as proprietary information by checking the appropriate box in the Proprietary Information Form seeking for protection under § 2.2-4342 of the Virginia Public Procurement Act (the "VPPA").

VOLUME NO. 01 - QUALIFICATIONS

TAB 1. **Executive Summary or Letter of Introduction**

TAB 2. **Table of Contents**

TAB 3. **Qualifications of Firms & Key Personnel Experience:** Narrative including Attachments A and B

TAB 4. **Resumes**

TAB 5. **Management Approach**

TAB 6. **Design Approach**

TAB 7. **Past Projects - Contractor.** Narrative including Attachment C

TAB 8. **Past Projects - Engineer**. Narrative including Attachment D

TAB 9. **Optional Information.** Information not covered above that the Offeror deems relevant.

TAB 10. **Attachment E:** State Corporation Commission (SCC) Form

TAB 11. **Attachment F:** Proprietary Information Form

TAB 12. **Attachment G:** Attachment G Prince William Water Small, Women or Minority-Owned and Service-Disabled Veteran-Owned Business Goal

VOLUME NO. 02 – FINANCIAL STATEMENT (Confidential)

Refer to Attachment B.4, "Financial Data".

Attachment A

QUALIFICATIONS AND EXPERIENCE

1. Offeror Name: _____

   Provide all names under which the Offeror does or has done business in the last ten (10) years:

   _____

   Is the Offeror related to another firm as a parent, subsidiary, or affiliate? Yes___ No___

   If yes, attach names and addresses for all affiliated, parent and/or subsidiary companies, and state the nature of each affiliation. _____

2. Address: _____

   _____

   _____

3. Tax Identification Number (EIN/SSN): _____

4. Is Offeror a corporation? Yes_____, No_____

   If yes, what is the State of incorporation? _____

   If not incorporated, specify method and date of organization: _____

   _____

   If a partnership, attach partnership details (such as partner's names and individual contact information for each partner).

5. Initial if: Minority Owned: _____, Women Owned: _____, Service -Disabled Veteran Owned: _____, or None of the Above: _____.

   If so, provide, as attachment, any governmental certifications thereof.

   Specify the portions of the Work that the Offeror expects to subcontract: _____

   _____

   _____

   Provide contact information including name, title, phone number and email address of the person who can respond authoritatively to any questions regarding this response: _____

   _____

6. List all companies in the Consortium of firms for this venture, and provide the following information for each:

   a. Contractor _____

      Years in business _____ Size of Company (# of employees) _____

   b. Design Firm _____

      Years in business _____ Size of Company (# of employees) _____

Attachment A

QUALIFICATIONS AND EXPERIENCE

c. MEP Engineer _____

Years in business _____ Size of Company (# of employees) _____

d. Civil Engineer _____

Years in business _____ Size of Company (# of employees) _____

e. Other _____

Years in business _____ Size of Company (# of employees) _____

7. List firm (s) that will provide completion guarantees and warranties:

a. Firm Name _____

Years in business _____

8. List Key Personnel as proposed for this project (attach resumes):

a. Project Executive Director _____

b. Design-Build Project Manager _____

c. Design Project Manager _____

d. Project Engineer _____

e. Construction Project Manager _____

f. Construction Superintendent _____

g. Community Outreach Coordinator _____

9. List Other Team Members as proposed for this project including the following:

a. Civil Engineer _____

b. Other_____

Attachment B

OFFEROR INFORMATION
(PROVIDE FOR EACH PRIME FIRM)

A. ELIGIBILITY CRITERIA (Minimum Qualifications)

1. **Responsiveness to Request for Qualification** – Responsiveness is defined in the Request for Qualification, Section 1, entitled Eligibility Criteria.
2. **Debarment Status** – Has the Offeror, or any affiliate, ever been the subject of any of the following actions:
   a. Debarment (state, local or federal) Yes___ No___
   b. Deletion from a Prequalified Bidders List Yes___ No___
   c. Other action which resembles debarment Yes___ No___

   If yes, provide details on a separate sheet for each instance.
3. **License** - Attach copies of the Offeror's Commonwealth of Virginia Contractor's & Engineer's Licenses.
4. **Bonding Capacity/Statement** - Attach a signed statement from Offeror's Surety stating that, based on present circumstances, the Surety will provide performance and payment bonds for the Offeror in connection with the Project.

   Total bonding capacity $ _____

   Available bonding capacity $_____
5. **Authority to Do Business in the Commonwealth of Virginia** – The Offeror shall complete Attachment E, State Corporation Commission Form.

B. EVALUATION FACTORS – QUALIFICATIONS AND EXPERIENCE

1. **Project Performance**
   a. Using a separate copy of Attachment C or D for each project, provide details of five (5) or more past water main projects and five (5) or more past pump station projects that are most similar in size and scope to the Project.
   b. Attach a list of any other relevant projects in the last five (5) years with a contract value greater than $10 million.
   c. **Preferred Construction Experience** – Provide on Attachment C.
   d. **Preferred Design Experience** – Provide on Attachments D.
   e. **Design-Build Team Experience** – Provide on Attachments C and D.
2. **Personnel Qualifications/Experience** – Attach resumes of Project Executive Director, Design-Build Project Manager, Design Project Manager, Project Engineer, Construction Project Manager, Construction Superintendent, and Community Outreach Coordinator. Emphasize years of design or construction experience, last employer, last position, and experience on similar projects. Higher consideration will be given in the evaluation if the key personnel have worked together on previous successful projects and have demonstrated experience on projects similar in type and scope to the Project.

   Attach resumes of other team members including Civil Engineer. Emphasize years and types of experience, last employer, last position, and experience on similar projects. Higher consideration will be given in the evaluation if the other team members have worked together on previous successful projects; have demonstrated experience on projects similar in type and scope to the Project and are familiar with Prince William County requirements.
3. **References** – Reference information is addressed on Attachments C and D.
4. **Financial Data**
   a. Submit the Offeror's (including each partner with an equity interest of twenty percent (20%) or greater) reviewed and audited financial statements from the past two (2) years, preferably 2023 and 2024. Complete

balance sheets and income statements must be included. The statements shall be enclosed in a separate sealed envelope and included in the application package and it should be noted if the statement is for a parent company.

Has the Offeror, or any affiliate, ever been denied bonding or had bonding revoked?

Yes___ No___

If yes, provide details on a separate sheet for each instance.

b. Provide a copy of your current credit rating.

5. **Safety Performance (Contractor)** – Is not required at this time.

6. **Claims/Final Resolution/Judgments** – Have any of the following actions occurred on, or in conjunction with, any project performed by the Offeror, any affiliate, or their officers, partners or directors in the last five (5) years?

   a Legal Action Implemented by Offeror against Owner ..... Yes___ No___

   b. Legal Action Implemented by Offeror against Subcontractor ..... Yes___ No___

   c. Legal Action Implemented by Owner ..... Yes___ No___

   d. Legal Action Implemented by Subcontractor ..... Yes___ No___

   e. Settlement or Close-Out Agreement in effect with Owner ..... Yes___ No___

   f. Judgments ..... Yes___ No___

   g. Arbitrations ..... Yes___ No___

   If the answer to any of items a. through g. above is yes, provide details on a separate sheet for each instance.

7. **Conflict of Interest** - Conflicts of interest and a real or perceived competitive advantage are described in state and federal law. Owner reserves the right, in its sole discretion, to make determinations relative to potential conflicts of interest on a project specific basis, in accordance with State and Local Government Conflict of Interests Act (2.2-3100 et seq.) and Virginia Public Procurement Act, Ethics in Public Contracting 2.2-4367 et seq. Offeror will identify any persons known to the Offeror who would be obligated to disqualify themselves from participating in any transaction arising from or in connection to the project pursuant to Virginia State and Local Government Conflict of Interest Act (VA Code 2.2- 3100 et seq). Further, Offeror will identify any employee, official, or elected officer of Prince William Water who has a proprietary interest in the company, corporation, partnership or other organization, ***and*** any Prince William Water employee, official or elected officer who has immediate family members (to include, spouses, parents, children, siblings) who have a proprietary interest in the company, corporation, partnership or other organization submitting the proposal.

8. **Termination - Offeror** – Has your organization ever been terminated for work awarded to it? This includes termination for default or for the convenience of the Owner or any other reason for failing to complete a project. Yes___ No___

   If yes, provide details on a separate sheet for each instance.

9. **Schedule Control** – Does your company normally use a CPM scheduling control system? If yes, identify the system(s): _____

10. **Bankruptcy:** Has your business filed for bankruptcy in the last seven (7)years or is your firm currently the debtor in a bankruptcy case? If yes, please explain the circumstances:

Attachment B

OFFEROR INFORMATION

(PROVIDE FOR EACH PRIME FIRM)

_____

_____

11. **Liquidated Damages Assessment**: Has your company ever been assessed liquidated damages in the past five (5) years on a construction contract? If yes, please explain the circumstances:
    _____
    _____
    _____

12. **Performance Bond Implementation:** Within the last five (5) years has your firm ever required any performance bond surety company to complete, or arrange for completion (take-over), of any contract originally awarded to your firm? If yes, please explain the circumstances: _____
    _____
    _____
    _____

13. **Contract Termination:** Within the last five (5) years, has your firm had a contract terminated for cause and/or ever had rights to proceed under a contract terminated? If yes, please explain the circumstances:
    _____
    _____
    _____

14. **Breach, Default, Debarred:** Within the last five (5) years, has your firm been disqualified, removed, or otherwise declared in material breach or default of any construction contract by a public agency, or debarred from participating in bidding for any construction contract? If yes, please explain the circumstances:
    _____
    _____
    _____

15. **Release from Construction Bid:** Has your company filed a request to be released from a bid on a construction contract within the last five (5) years? If yes, please explain the circumstances:
    _____
    _____

16. **Failure to Execute a Contract:** Has your company ever been awarded a construction contract in which you failed to execute the contract? This would include: the company not signing the contract documents; an inability of the company to obtain insurance and/or bond requirements; or failure of the company to submit required forms and attestations. If yes, please explain the circumstances:
    _____
    _____

Signed by: _____Phone No. _____
Authorized Representative

Printed/Typed Name, Title: _____

_____

Company: _____

Attachment C

PAST PROJECTS - CONTRACTOR

(For each cited project, the Offeror shall use a separate copy of this form to provide details of projects that are most similar in size and scope.)

1. Contractor Name: _____

   If Contractor's Name is not the same as Offeror's name, state relationship (i.e. parent company, subsidiary, etc.): _

   Project Manager: _____

   Superintendent: _____

2. Project Name: _____

   Facility Name: _____

   Project Location: _____

   Contract #_____Project #_____

   Project Delivery System _____

3. Owner: _____

   Address: _____

   _____

   _____

   Contact Person: _____

   Contact Title, Phone Number, and Email Address: _____ _____

4. Engineer: _____

   Address: _____

   _____

   _____

   Contact Person: _____

   Contact Title, Phone Number, and Email Address: _____ _____

5. Construction Manager (if any): _____

   Address: _____

   _____

   _____

   Contact Person: _____

   Contact Title, Phone Number, and Email Address: _____ _____

Attachment C

PAST PROJECTS - CONTRACTOR

6. Contract Dates (completion dates should reflect substantial completion - if not indicate)

   Notice to Proceed: _____

   Contractual Completion: _____

   Actual Completion: _____

7. Description of Project: _____

   _____

   _____

   _____

8. Original Contract Value: $_____

   Final Contract Value: $_____

   Value of Change Orders to Date: $_____

   Value of Owner Change Orders

   To Date: $_____

   Outstanding Claims to Date: $_____

9. Bonding Company: _____

   Address: _____

   Contact Person: _____

   Contact Title, Phone Number, and Email Address _____ _____

10. Additional Comments (attach if needed): _____

Attachment D

PAST PROJECTS - ENGINEER

(For **each** cited project, the Offeror shall use a separate copy of this form to provide details of projects that are most similar in size and scope)

1. Engineer Name: _____

   If Architect Name is not the same as Offeror's name, state relationship (i.e. parent company, subsidiary, etc.): ____

   Project Manager: _____

2. Project Name: _____

   Facility Name: _____

   Project Location: _____

   _____

   Contract # _____ Project # _____

   Project Delivery System: _____

3. Owner: _____

   Address: _____

   _____

   _____

   Contact Person: _____

   Contact Title, Phone Number, and Email Address _____

4. Contractor: _____

   Address: _____

   _____

   _____

   Contact Person: _____

   Contact Title, Phone Number, and Email Address _____

5. Construction Manager (if any): _____

   Address: _____

   _____

   Contact Person: _____

   Contact Title, Phone Number, and Email Address _____

Attachment D

PAST PROJECTS - ENGINEER

6. Contract Dates (completion dates should reflect substantial completion - if not indicate)

   Notice to Proceed: _____

   Contractual Completion: _____

   Actual Completion: _____

7. Description of Project: _____

   _____

   _____

8. Original Contract Value: $_____

   Final Contract Value: $_____

   Value of Change Orders to Date: $_____

   Value of Owner Change Orders

   To Date: $_____

   Outstanding Claims to Date: $_____

9. Additional Comments (Attach if needed)

Attachment E

State Corporation Commission Form

The Bidder/Offeror agrees, if this bid/proposal is accepted by the Prince William Water, for such services and/or items, that the Bidder/Offeror has met the requirements of the Virginia Public Procurement Act (VPPA) § 2.2-4311.2. Any falsification or misrepresentation contained in the statement submitted by Bidder/Offeror pursuant to Title 13.1 or Title 50 of the Code of Virginia may be cause for termination by the Prince William Water.

Bidders/Offerors shall complete the following by checking the appropriate line that applies and provide the required information. Bidders/Offerors:

☐ is a corporation or other business entity with the following SCC identification number: _____ **-OR-**

☐ is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust **-OR-**

☐ is an out-of-state business entity that does not regularly and continuously maintain as part of its ordinary and customary business any employees, agents, offices, facilities, or inventories in Virginia (not counting any employees or agents in Virginia who merely solicit orders that require acceptance outside Virginia before they become contracts, and not counting any incidental presence of the bidder in Virginia that is needed in order to assemble, maintain, and repair goods in accordance with the contracts by which such goods were sold and shipped into Virginia from bidder's out-of-state location) **-OR-**

☐ is an out-of-state business entity that is including with this bid an opinion of legal counsel which accurately and completely discloses the undersigned bidder's current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia.

☐ is pending before the SCC **an application that was submitted prior to the due date and** time **of this solicitation** for authority to transact business in the Commonwealth of Virginia and seeks consideration for a waiver to allow the submission of the SCC identification number after the due date for bids/proposals. (***Prince William Water reserves the right to determine in its sole discretion whether to allow such waiver.***)

_____
Legal Name of Company (as listed on W-9)

_____
Legal Name of Bidder /Offeror

_____
Date

_____
Authorized Signature

_____
Print or Type Name and Title

Attachment F

Proprietary Information

In accordance with Section § 2.2-4317 of the Virginia Public Procurement Act (VPPA), the Offeror may designate its Statement of Qualifications (SOQ) as trade secrets or proprietary information. To obtain protection from mandatory public disclosure laws, the Offeror must select the appropriate box below at the time of submission of the SOQ.

Is all the information in your SOQ considered a trade secret or proprietary information?

☐ Yes ☐ No

Note: If this Attachment F is left blank, the Offeror's SOQ will be deemed not to contain any trade secrets or proprietary information.

Attachment G

PRINCE WILLIAM WATER SMALL, WOMEN, MINORITY-OWNED AND SERVICE-DISABLED VETERAN-OWNED BUSINESS GOAL

It is an important business objective of Prince William Water to promote the economic enhancement of small, women- owned, minority-owned and service-disabled veteran-owned small businesses (SDV), collectively known as SWaM. The success of Prince William Water in maximizing participation in contracting or sub-contracting opportunities of SWaM firms (whether as a prime contractor or a subcontractor) is dependent upon Prince William Water bidders/offerors and contractors partnering with us in this important endeavor.

A. Obtaining Certification

Eligible firms are encouraged to obtain certification as a SWaM business by using the services and assistance of the Department of Small Business and Supplier Diversity of the Commonwealth of Virginia (SBSD) and the Small Business Administration (SBA) or other resources to obtain certification. Prince William Water recognizes several certification sources including:

Primary Certification Entity:

The Virginia Department of Supplier Diversity (SBSD): https://www.sbsd.virginia.gov/

Other Certification Entity Partners of the Prince William Water Include:

(1) Small Business Administration www.sba.gov

(2) Women's Business Enterprise National Council www.wbenc.org

(3) National Minority Supplier Development Council www.nmsdc.org

(4) Carolina-Virginia Minority Supplier Diversity www.cvmsdc.org

(5) Other U.S. State or Local Government Supplier Diversity Programs such as the North Carolina Unified Certification Program, the Maryland Office of Minority Business Enterprise and other State certification programs. Some local government programs are also accepted provided the certification process is other than self-reporting.

B. Maximizing Sub-contractor Opportunities

Bidders/Offerors and Prime Contractors should take affirmative steps prior to submission of bids/proposals and after award of a contract to facilitate participation by SWaM businesses by providing subcontractor or sub-consultant opportunities or by partnering with a SWaM firm. Such efforts may include:

(1) Establishing and maintaining a current list of small, women-owned, minority-owned and service-disabled veteran sources available to provide goods/services.

(2) Use the services and assistance of the Department of Small Business and Supplier Diversity of the Commonwealth of Virginia (SBSD) or other similar resources to identify sub-contractors or sub-consultants.

(3) Encourage existing sub-contractors or sub-consultants to seek certification from one of the certification programs identified above if they are eligible.

(4) Segment total work requirements to permit maximum SWaM participation through subcontractors or partnerships.

(5) Assure that SWaM firms are solicited whenever they are potential sources of goods or services. This step may include:

Sending letters or making other personal contact with SWaM firms and SWaM related associations. SWaM firms should be contacted when other potential subcontractors are contacted, within reasonable time prior to bid/proposal submission. Those letters or other contacts should communicate the following:

(i) Specific description of the work to be contracted;

(ii) How and where to obtain a copy of plans, specifications or other detailed information needed to prepare a detailed price quotation;

(iii) Date the information is due to the Bidder/Offeror;

(iv) Name, address, and phone number of the person in the Bidder/Offeror's firm whom the prospective SWaM subcontractor should contact for additional information.

(6) Offerors and potential subcontractors are encouraged to communicate and collaborate using the B2B Connect tab on the solicitation webpage on eVA, Virginia's e-procurement portal and to follow projects on Prince William Water's website www.princewilliamwater.org.

EXHIBIT A PROJECT DESCRIPTION

A. PURPOSE

The Design-Builder shall provide professional design, project management and construction services for the design and construction of the Project. The professional design, project management and construction services shall include all disciplines necessary to design and construct the Project.

The Design-Builder is solely responsible to assemble and lead the design-build team consisting of design professionals and all design-build construction subcontractor as required including, but not limited to: civil, structural, mechanical, electrical, plumbing, process, HVAC, geotechnical engineers, architects, and instrumentation and controls (I&C), Supervisory Control and Data Acquisition (SCADA) system equipment and programming; Programmable Logic Controllers (PLC) and programming; and, human-machine interfaces (HMI) and programming.

B. BACKGROUND/SCOPE OF WORK

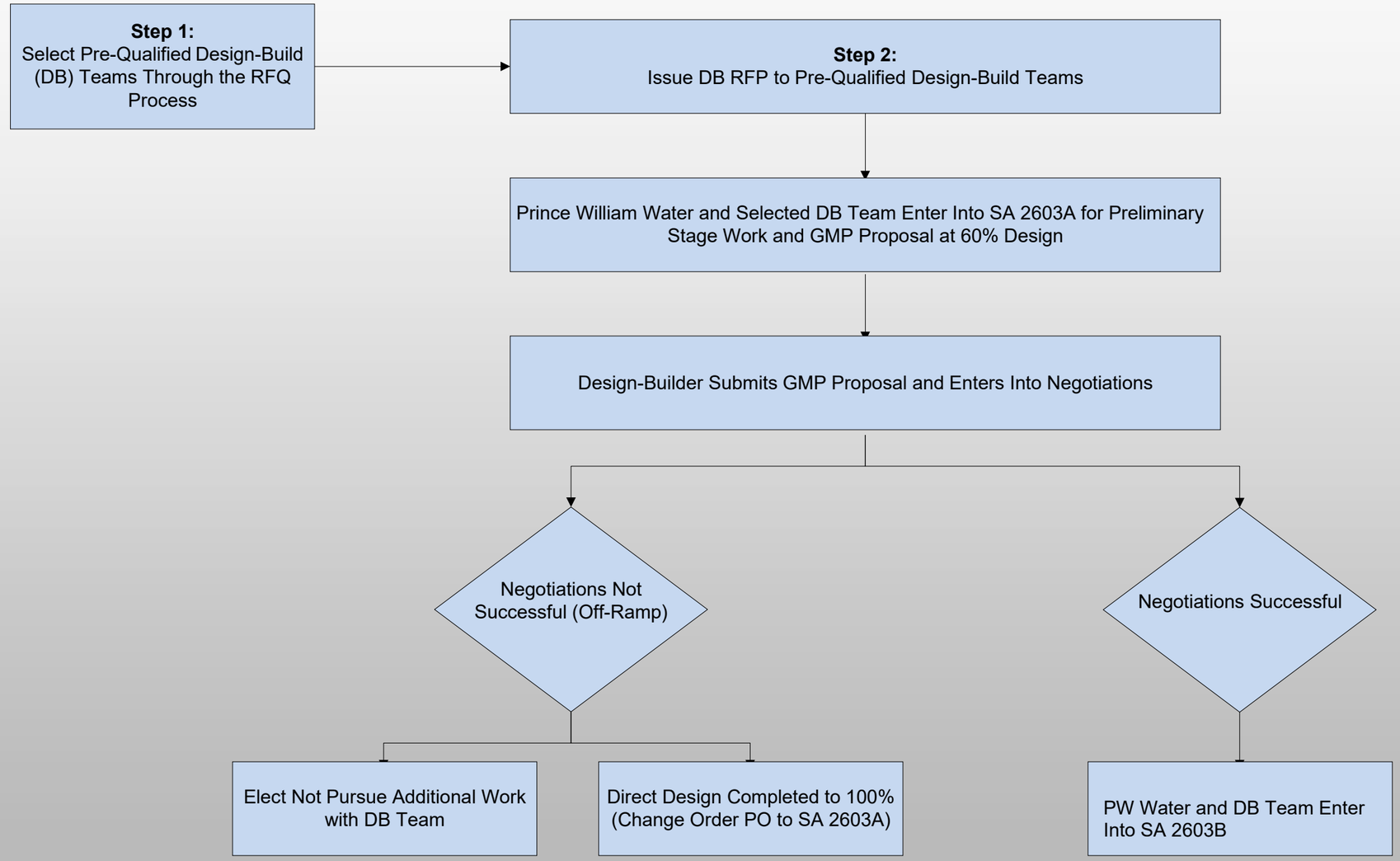
BACKGROUND:

The current 25.6 MGD SPS is 50 years old, with 2 duty pumps (12.8 MGD each), 1 standby pump (14.83 MGD), and a 13.6 MGD wetwell. Featherstone SPS, L16 is vital for managing sewage flow from the eastern sewer shed to the H.L. Mooney Advanced Water Reclamation Facility (Mooney AWRF). It is one of the only two pump stations that pumps wastewater into our treatment plant at Mooney. The new SPS will be constructed at 15015 Farm Creek Dr, Woodbridge, VA. Prince William Water is acquiring an easement for this site as well as for the potential FM alignment.

SCOPE OF WORK:

1. Design and construct a new SPS adjacent to the existing facility at 15023 Farm Creek Dr, Woodbridge, VA. The headworks, wetwell, and drywell must allow for future capacity expansion per the Conceptual Design Technical Memorandum (Reference Document).
2. Design approximately 9,500-foot, 30-inch new parallel force main (FM) from the new SPS to the Mooney AWRF. The owner may elect to add the construction of the parallel FM to the work based on capacity needs and budget availability.

EXHIBIT B
DESIGN-BUILD CONTRACT PROCESS DIAGRAM: TWO-STEP PROCESS



Conceptual Design Technical Memorandum

Dewberry

MEMORANDUM

DATE: March 20, 2025

TO: Bijay Subedi, PE, Prince William Water

FROM: Richard Kincheloe, PE and Dan Villhauer, PE, Dewberry

SUBJECT: Featherstone SPS, L16, and Force Main Conceptual Design Technical Memorandum

Message

The purpose of this technical memorandum is to summarize the design criteria and the assumptions for the conceptual building and site layout of the proposed Featherstone Sewage Pump Station (SPS), L16, and layout of the Force Main for the upcoming design-build project. The basis for the conceptual design was based information obtained from the following sources:

- L16 Featherstone SPS and Force Main Assessment Evaluation, prepared by Dewberry Engineers Inc., dated October 2023
- L16 Featherstone Force Main Evaluation, prepared by Dewberry Engineers Inc., dated June 2024
- In-Person Featherstone SPS and FCMN Workshop with Prince William Water (PW Water) and Dewberry Engineers Inc. on September 30, 2024

The design presented in this technical memorandum is conceptual in nature and changes are anticipated during the design-build process. The design-build team will have the opportunity to build upon the studies previously completed and the basis of design presented in the technical memorandum to provide the infrastructure needed to support PW Water at the Featherstone SPS today and in the future.

Capacity Basis of Design

The new Featherstone SPS will be designed in a wet-pit/dry-pit configuration and can ultimately convey a peak hour flow of 43 MGD. This will be completed in phases, as summarized below:

- Phase I
    - Headworks Firm Capacity: 43 million gallons per day (MGD)
    - Two Pumping Capacity Conditions:
        1. Firm Pumping Capacity with a Single 30-inch Force Main: 24.6 MGD
        2. Ultimate Firm Pumping Capacity with Parallel 30-inch Force Mains: 33 MGD
    - 30-inch Force Main from Featherstone to new HL Mooney Headworks

- Phase II (future)
    - Headworks Firm Capacity: Remains at 43 MGD
    - Two Pumping Capacity Upgrade Options:
        1. 1.1 MG offline equalization (EQ) basin w/ EQ pumps
        2. Expand firm pumping capacity to 43 MGD (without EQ Basin)
    - Parallel Force Main (either rehabilitation or replacement of the existing 30-inch force main)

The intent of the Phase I project is to construct the headworks, wetwell, and drywell in a way to allow for flexibility in implementing either Phase II option. It is anticipated that a future EQ basin, if needed, could be constructed on the site of the existing pump station, which will be demolished after the construction of the new Featherstone SPS.

Headworks Sizing and Configuration

The headworks will include three (3) channels with open channel grinders, each rated for a capacity of 21.5 MGD, for a firm hydraulic capacity of 43 MGD with one grinder out of service. The grinder channels will be provided with slide gates to allow for isolation of any of the grinder channels.

Hatches will be located over each grinder to facilitate removal for repair or replacement. An enclosed stairwell will allow for operator access to the top of grinder channel level to allow for routine maintenance and operation of the slide gates. The top of headworks channel walkways will be connected to the wetwell walkways to allow for easy access between the two areas.

Wetwell Sizing and Configuration

The outlet of the grinder channels will discharge into a common wetwell inlet distribution channel to divide the wastewater flow between three (3) equally sized confined style wetwell chambers. Slide gates will be located at the inlet of each wetwell chamber to allow for isolation. The divider walls between the wetwell chambers will also be provided with slide gates to allow the wetwell chambers to operate as a common wetwell or individually. Walkways will be extended along the front and divider walls of wetwell to allow for operations staff to visually inspect each wetwell chamber.

Pumping and Drywell Configuration

A below grade drywell will house dry-pit submersible pumps, piping, valves and appurtenances. A second stairway will allow operations staff access to the drywell. Each wetwell chamber will have two dedicated pumps with an ultimate of six (6) total pumps for the 43 MGD capacity. The total dynamic head of each pump for Phase I was sized based on a conceptual 30-inch or equivalent diameter force main routed from the new Featherstone SPS to the HL Mooney Advanced Water Reclamation Facility (AWRF) headworks. The Phase I project will include the following pumping units:

- Type of Pump: Dry-pit Submersible
- Number of Pumps: 4 (3 duty, 1 standby)
- Pumping Rate per Pump: 11 MGD
- Total Dynamic Head (TDH): 165 ft
- Estimated Motor Size: 500 HP

Phase II will include the installation of two (2) additional pumping units to increase the firm pump station capacity to 43 MGD. These pumps will be either sized to the pump to a new offline EQ basin or will manifold with the Phase I pumps to pump 43 MGD to the HL Mooney AWRF. The final sizing of these pumps will be determined based on whether they will pump to an EQ basin or through the force main to the HL Mooney AWRF.

Each pump will have individual suction and discharge pipes, which will connect to a common manifold. In Phase I, the manifold will discharge out of one side of the drywell and include two surge relief valves, and a magnetic flow meter located outside of the drywell in a below grade vault. Space will be provided for the two (2) future pumps to connect into the manifold with a second force main outlet on the other side of the drywell. Isolation valves will be installed on the manifold between pump discharge connections to allow for pumping in either direction. In Phase II, the second manifold discharge location will either pump to the future offline EQ basin or will connect into the force main system to the HL Mooney AWRF.

Pump Station Building

A building will be constructed over the drywell and will include electrical gear, HVAC equipment, a bathroom, and an office. Hatches will be installed in the concrete slab, centered over each pump location,

to allow for a motorized monorail hoist to remove or reinstall pumps. The monorail will extend through double doors to allow for exterior loading and unloading.

Electrical, Controls, and Instrumentation Summary

Based on the estimated electrical loads, the Featherstone SPS will require 4000A service entrance rated equipment. A service disconnecting means will be mounted on the pump station exterior next to the utility CT cabinet.

The building above the drywell will house the automatic transfer switch (ATS), main switchboard, low voltage infrastructure, pump control panels and variable frequency drives (VFDs). It is assumed that the main and future equalization pumps will be driven by 18-Pulse VFDs with reduced voltage soft starter (RVSS) bypasses.

To serve this facility, a 3,000kVA transformer and 2,750kW standby diesel generator will be recommended. The generator will be located outside with a sound attenuated enclosure and a skid mounted belly fuel tank.

The pump station will include a programmable logic controller (PLC) and backup human machine interface (HMI) with redundant power supplies, operator interface terminal (OIT), and full redundant back up controls and instrumentation complying with the latest version of Prince William Water's SCADA Design & Configuration Standards. A separate Communications Rack will also be provided and will house the UPS and 24-port, Power over Ethernet, managed ethernet switch, and cellular router. Each cellular router will be provided with two Omni-directional antennas to be mounted a minimum 12" above the highest point on the building. The site will be provided with both a WAN and VLAN network for local and remote communications. The WAN will support the PLC, access control, operation video, and system management sub-networks.

HVAC Summary

Heating, ventilation and cooling (HVAC) requirements will vary based on the pump station area. The headworks and wet well will be ventilated to provide continuous air change to prevent the accumulation of corrosive gases and provide odor control. The air vacated from the wet well will be sent through an air phase odor control system to remove odors and prevent them from becoming a nuisance problem.

The dry well and pump station building will be declassified from Class 1, Division 2 to unclassified, which requires continuous ventilation at 6 air changes per hour and exhaust system monitoring and alarms. The dry well and building will also require unit heaters to prevent freezing.

Site Layout

The Featherstone SPS site layout will place the new SPS on the adjacent parcel north of the existing site. This will allow for the construction of the new SPS, while maintaining operation of the existing SPS throughout the duration of construction. The existing gravel road will continue to be used for pump station site access with a paved area being constructed around the proposed SPS. The existing gravity sewer mains will be re-routed to the new headworks.

For Phase II, if PW Water decides to proceed with the construction of an offline EQ basin, it is assumed that it will be constructed in the location of the existing SPS, after it is demolished. The site piping will be configured to allow for the incorporation of the offline EQ basin and a future parallel 54-inch influent gravity trunk main as needed to support the continued increase of wastewater flow into the pump station.

A significant portion of the proposed and existing SPS site is within Zone AE of the Floodplain, with a 100-year flood elevation of 10 ft, which is likely to require grading within the floodplain to put the SPS and

site access above the floodplain. It is recommended that a flood plain study be completed during the design phase to confirm the 100-year and 500-year flood plain to allow for protection of the new SPS against flooding and to ensure continuous access to the SPS and generator fuel tank during flood events. It is anticipated that this project will require a Conditional Letter of Map Revision (CLMOR) and a Letter of Map Revision (LMOR) due to the work in the floodplain.

A geotechnical report was completed for informational purposes by ECS Mid-Atlantic, LLC, and is included in the Attachments.

Force Main

The proposed 30-inch force main from the Featherstone Sewage Pump Station to the H.L. Mooney Advanced Water Reclamation Facility will alleviate the hydraulic restrictions of the existing force main. The recommended alignment as presented in Figures 3.0 through 3.4 are anticipated to have no identified wetland impacts, easier site access, less impact to established roadways, and less required easements than other alternatives considered. This project would include the installation of a proposed 30-inch force main to convey flows from the Featherstone SPS.

Figures 3.0 through 3.4 show easements required to facilitate the construction and continued operation of the proposed force main.

Conclusions and Recommendations

The construction of a new Featherstone SPS will require PW Water to acquire an easement on the adjacent parcel to the north of the existing SPS site as shown in **Figure 1.1**. This will allow PW Water to construct the new 33 MGD SPS as well provide room for the future construction of an offline EQ basin, if needed to convey the future peak hour flows of up to 43 MGD.

Based on the conceptual alignment of the proposed 30-inch force main, an easement will be required along Wildlife Way. Additional easements for temporary construction access and laydown may be required and will be the responsibility of the Design-Build team or identify and obtain.

Attachments

Figure 1.1 – Phase I Site Conceptual Layout and Site Piping Plan

Figure 1.2 – Phase I Site Conceptual Layout Aerial

Figure 1.3 – Phase II Site Conceptual Layout and Site Piping Plan

Figure 2.1 – Pump Station Conceptual Layout – Top Plan

Figure 2.2 – Pump Station Conceptual Layout – Lower-Level Plan

Figure 2.3 – Pump Station Conceptual Layout – Typical Section

Figure 3.0 – Force Main Overview

Figure 3.1 – Force Main Alignment (1 of 4)

Figure 3.2 – Force Main Alignment (2 of 4)

Figure 3.3 – Force Main Alignment (3 of 4)

Figure 3.4 – Force Main Alignment (4 of 4)

Geotechnical Feasibility Data Report, by ESC Mid-Atlantic, LLC

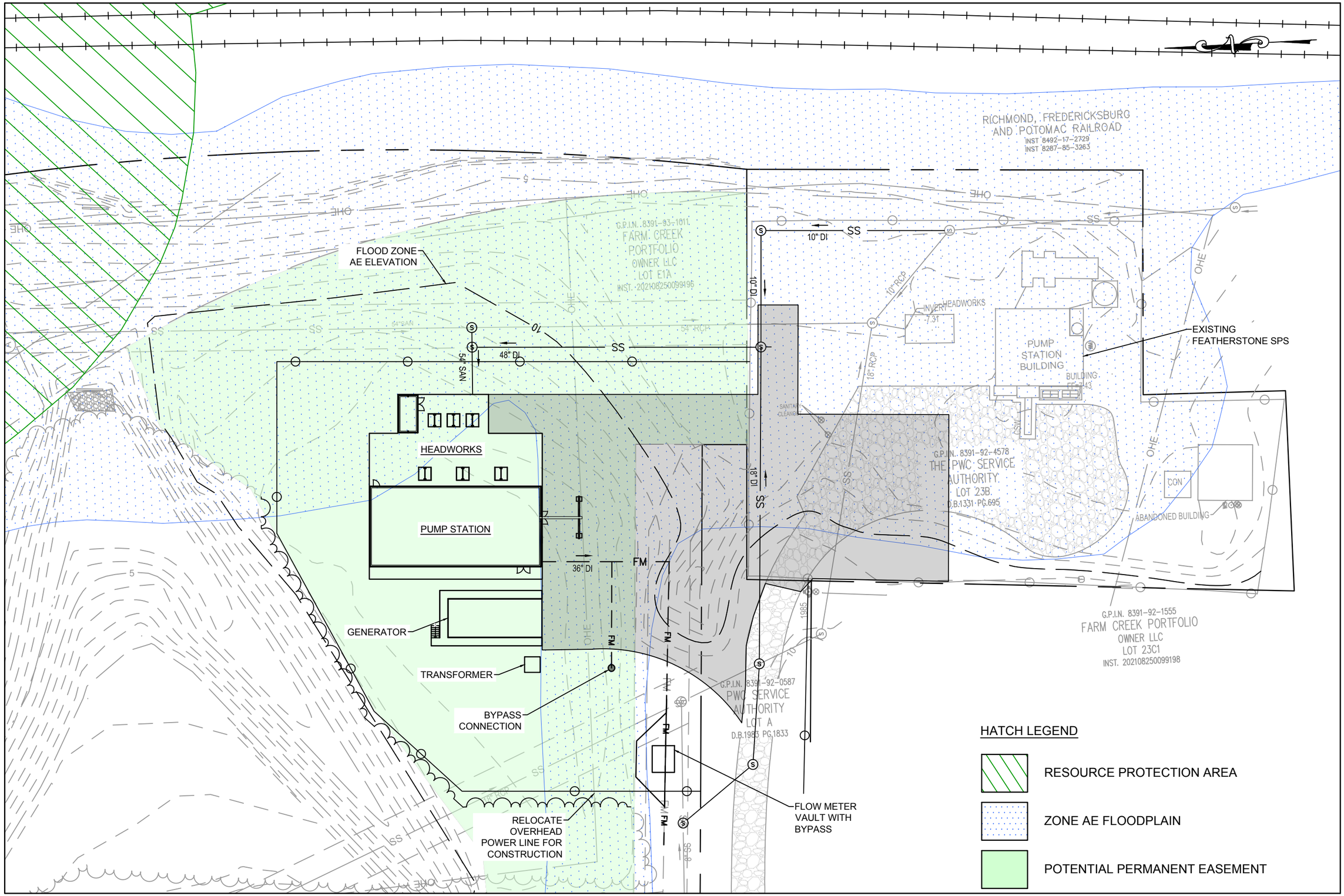


FIGURE NO. 1.1

TITLE PHASE I SITE CONCEPTUAL LAYOUT AND SITE PIPING PLAN

SCALE 1" = 40'

PROJECT FEATHERSTONE SPS EASEMENT ACQUISITION

DATE 01/2025

PROJ. NO. 50183735

Dewberry
Dewberry Engineers Inc.
8401 Arlington Boulevard
Fairfax, Virginia 22031-4666
703.849.0100
www.dewberry.com

FIGURE NO. 1.2

TITLE PHASE I SITE CONCEPTUAL LAYOUT AERIAL

SCALE 1" = 40'

PROJECT FEATHERSTONE SPS EASEMENT ACQUISITION

DATE 01/2025

PROJ. NO. 50183735

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Fairfax, Virginia 22031-4666
703.849.0100
www.dewberry.com

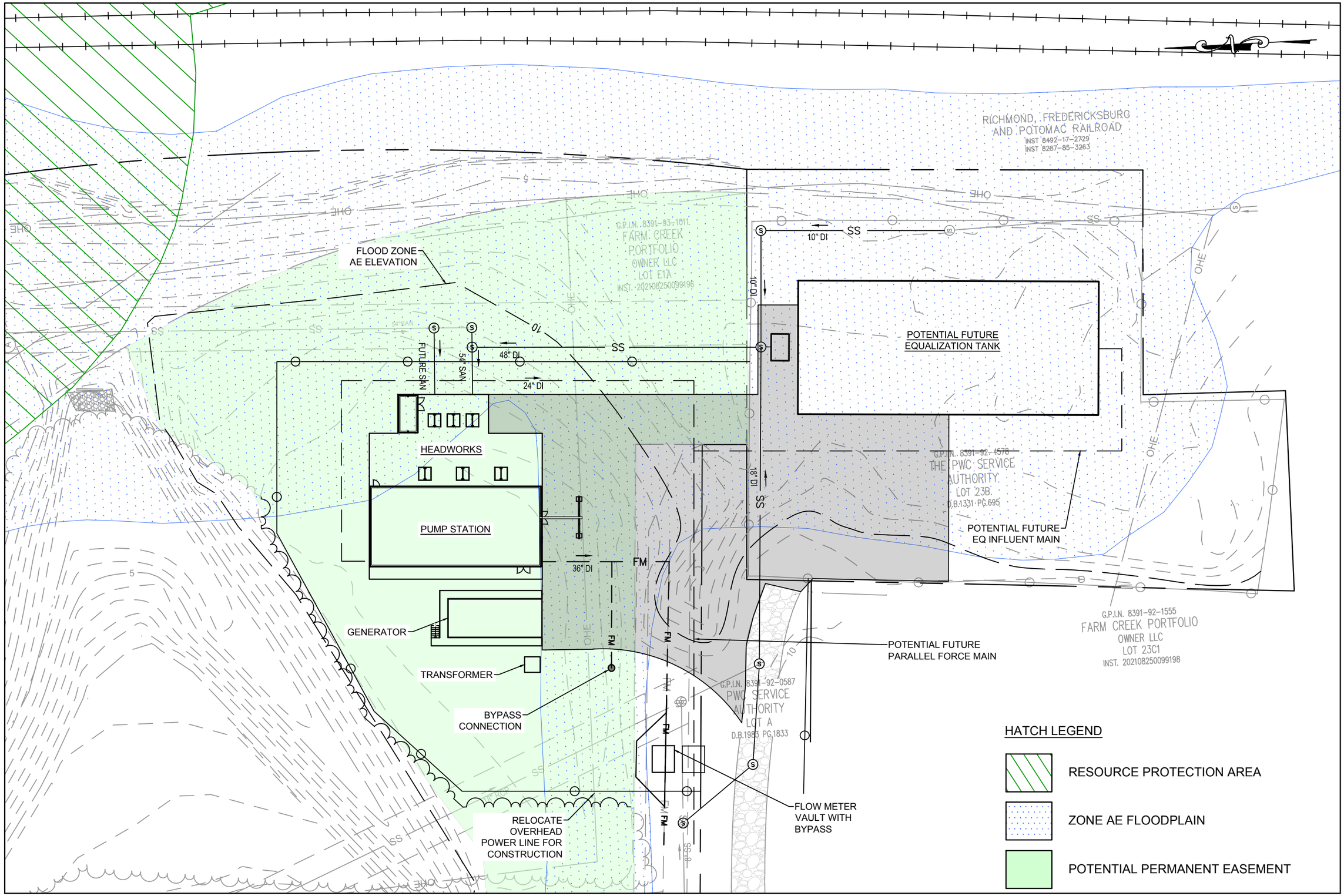

FIGURE NO. 1.3

TITLE PHASE II SITE CONCEPTUAL LAYOUT AND SITE PIPING PLAN

SCALE 1" = 40'

DATE 01/2025

PROJECT FEATHERSTONE SPS EASEMENT ACQUISITION

PROJ. NO. 50183735

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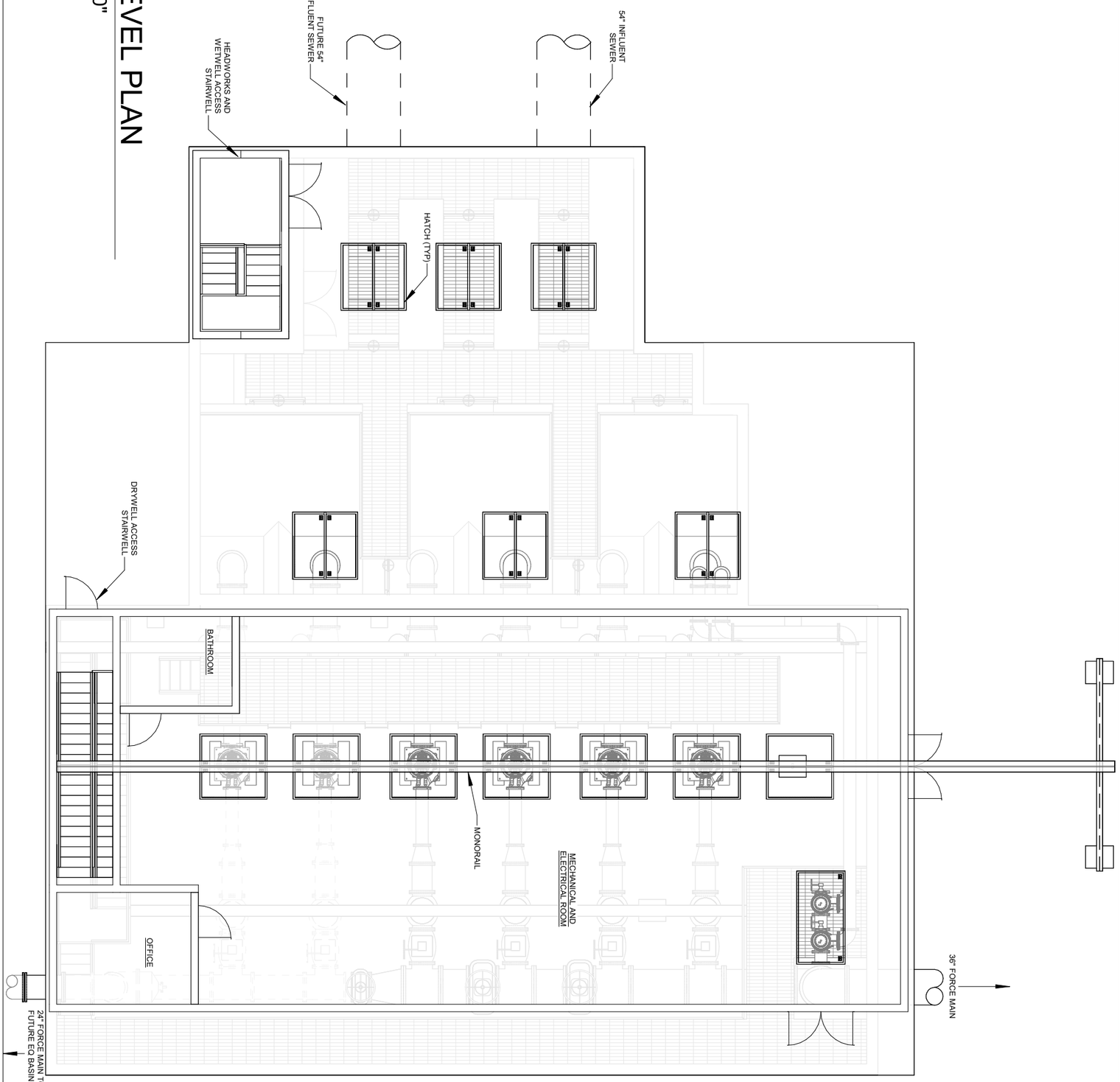
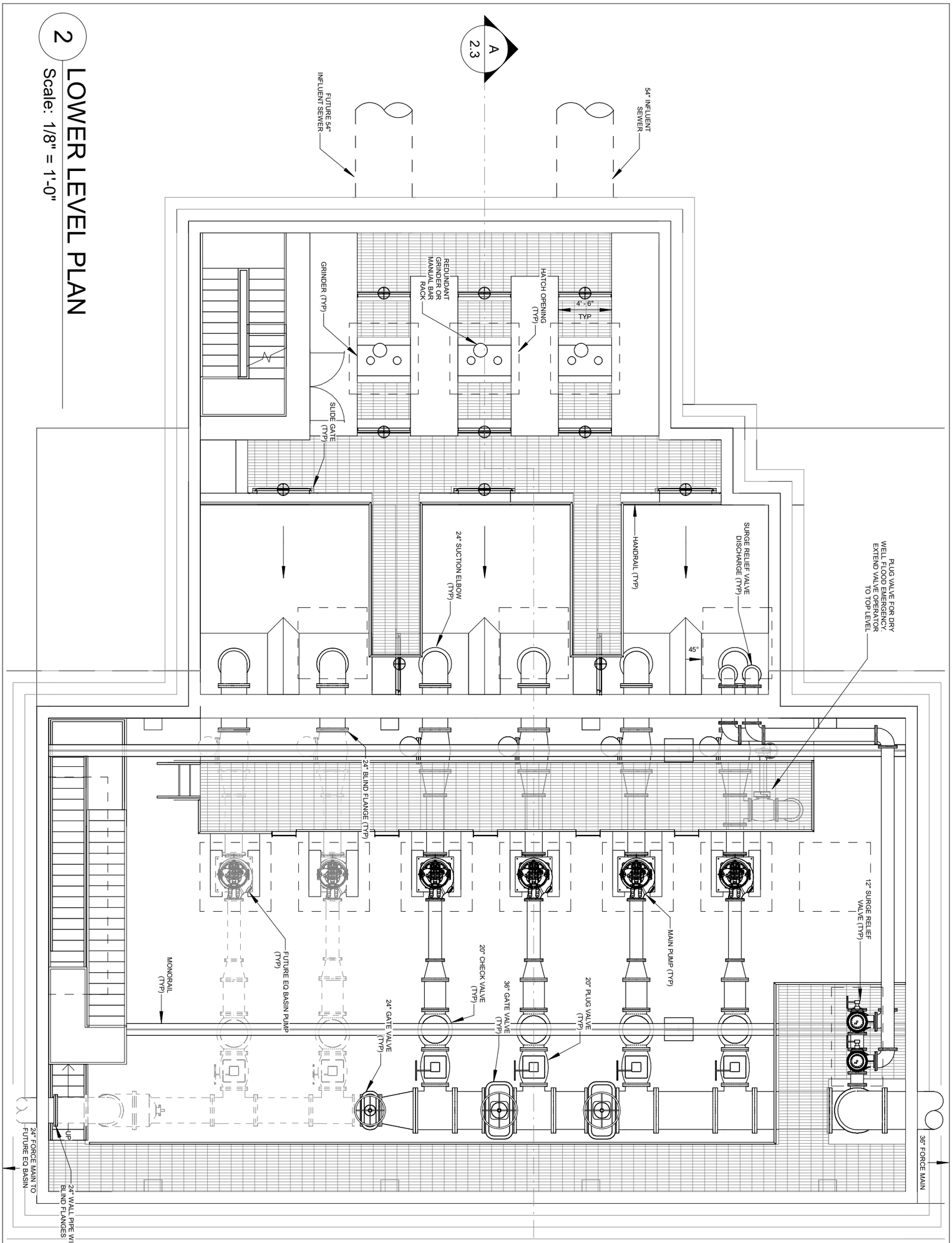
1 UPPER LEVEL PLAN

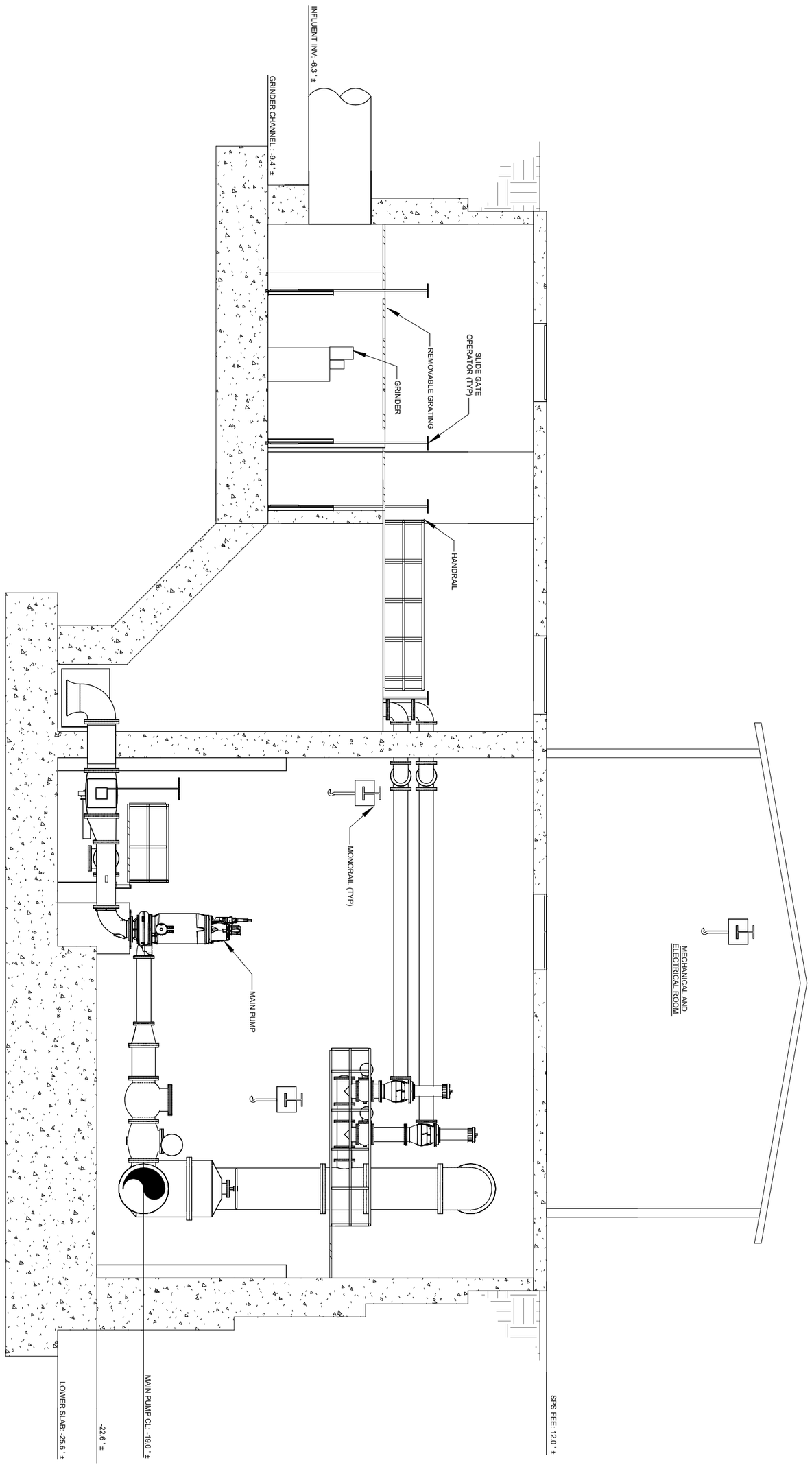
Scale: 1" = 10'-0"



Dewberry Dewberry Engineers Inc. 8401 Arlington Boulevard Fairfax, Virginia 22031-4666 703.849.0100 www.dewberry.com	DATE 01/2025	SCALE 1" = 10' - 0"	TITLE PUMP STATION CONCEPTUAL LAYOUT - TOP PLAN	FIGURE NO. 2.1
	PROJ. NO. 50183735	PROJECT FEATHERSTONE SPS EASEMENT ACQUISITION		



Dewberry Dewberry Engineers Inc. 8401 Arlington Boulevard Fairfax, Virginia 22031-4666 703.849.0100 www.dewberry.com	DATE 01/2025	SCALE 1/8" = 1' - 0"	TITLE PUMP STATION CONCEPTUAL LAYOUT - LOW LEVEL PLAN	FIGURE NO. 2.2
	PROJ. NO. 50183735	PROJECT FEATHERSTONE SPS EASEMENT ACQUISITION		



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703.849.0100
www.dewberry.com

DATE	SCALE	TITLE	FIGURE NO.
01/2025	1/8" = 1' - 0"	PUMP STATION CONCEPTUAL LAYOUT - TYPICAL SECTION	2.3
PROJ. NO. 50183735	PROJECT FEATHERSTONE SPS EASEMENT ACQUISITION		

LEGEND

- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING FORCE MAIN
- ABANDONED FORCE MAIN
- ROADWAY
- PARCELS
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- CONCEPTUAL ALIGNMENT
- MANHOLES

Dewberry

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703.849.0100 (PHONE)
703.849.0518 (FAX)

FEATHERSTONE FORCE MAIN ALIGNMENT STUDY

PRINCE WILLIAM COUNTY, VA

SEAL

KEY PLAN

SCALE
0 250 500
HORIZONTAL SCALE: 1" = 250'

No.	DATE	BY	Description

REVISIONS

DRAWN BY	JRH/RA
APPROVED BY	RNK
CHECKED BY	MRL
DATE	FEBRUARY 2025

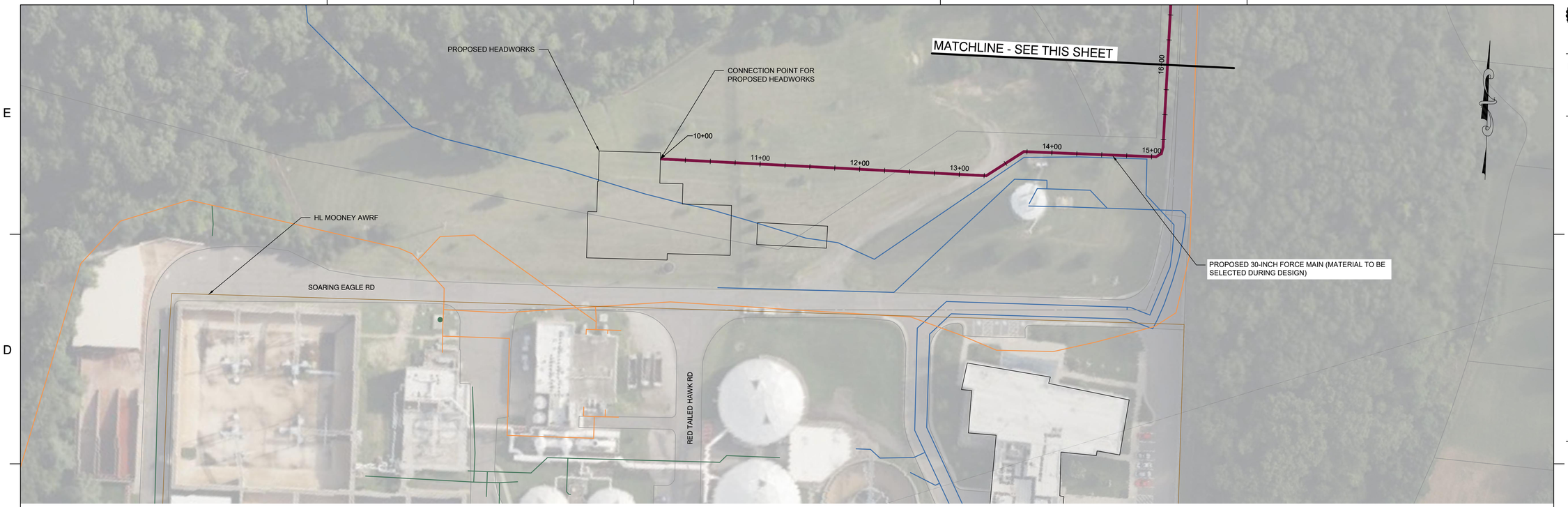
TITLE

CONCEPTUAL FORCE MAIN ALIGNMENT SHEET INDEX

PROJECT NO. 50183735

FIGURE NO.

3.0



LEGEND

- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING FORCE MAIN
- ABANDONED FORCE MAIN
- ROADWAY
- PARCELS
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- CONCEPTUAL ALIGNMENT
- MANHOLES

NOTES:
THE FORCE MAIN ALIGNMENT SHOWN IN THIS EXHIBIT IS CONCEPTUAL IN NATURE AND NOT INTENDED FOR CONSTRUCTION. THE CONCEPTUAL ALIGNMENT WAS BASED ON AVAILABLE GIS DATA AND HAS NOT BEEN VERIFIED BASED ON FIELD WORK OR DETAILED DESIGN. THE ALIGNMENT MAY CHANGE BASED ON INFORMATION OBTAINED IN FUTURE FIELD WORK INCLUDING, BUT NOT LIMITED TO, FIELD TOPOGRAPHIC AND BOUNDARY SURVEYS, UTILITY CONFLICTS BASED ON SUBSURFACE UTILITY ENGINEERING (SUE), ENVIRONMENTAL IMPACTS, AND OTHER UNKNOWN SUBSURFACE CONDITIONS OR CONFLICTS.

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703.849.0100 (PHONE)
703.849.0518 (FAX)

FEATHERSTONE FORCE MAIN ALIGNMENT STUDY

PRINCE WILLIAM COUNTY, VA

SEAL

KEY PLAN

SCALE
0 50 100
HORIZONTAL SCALE: 1" = 50'

No.	DATE	BY	Description

REVISIONS

DRAWN BY	JRH/RA
APPROVED BY	RNK
CHECKED BY	MRL
DATE	FEBRUARY 2025

TITLE

CONCEPTUAL FORCE MAIN ALIGNMENT PLAN VIEW

PROJECT NO. 50183735

FIGURE NO.

3.1

NOTES:
THE FORCE MAIN ALIGNMENT SHOWN IN THIS EXHIBIT IS CONCEPTUAL IN NATURE AND NOT INTENDED FOR CONSTRUCTION. THE CONCEPTUAL ALIGNMENT WAS BASED ON AVAILABLE GIS DATA AND HAS NOT BEEN VERIFIED BASED ON FIELD WORK OR DETAILED DESIGN. THE ALIGNMENT MAY CHANGE BASED ON INFORMATION OBTAINED IN FUTURE FIELD WORK INCLUDING, BUT NOT LIMITED TO, FIELD TOPOGRAPHIC AND BOUNDARY SURVEYS, UTILITY CONFLICTS BASED ON SUBSURFACE UTILITY ENGINEERING (SUE), ENVIRONMENTAL IMPACTS, AND OTHER UNKNOWN SUBSURFACE CONDITIONS OR CONFLICTS.

LEGEND

- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING FORCE MAIN
- ABANDONED FORCE MAIN
- ROADWAY
- PARCELS
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- CONCEPTUAL ALIGNMENT
- MANHOLES

Dewberry

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703.849.0518 (FAX)

FEATHERSTONE FORCE MAIN ALIGNMENT STUDY

PRINCE WILLIAM COUNTY, VA

SEAL

KEY PLAN

SCALE
0 50 100
HORIZONTAL SCALE: 1" = 50'

No.	DATE	BY	Description

REVISIONS

DRAWN BY	JRH/RA
APPROVED BY	RNK
CHECKED BY	MRL
DATE	FEBRUARY 2025

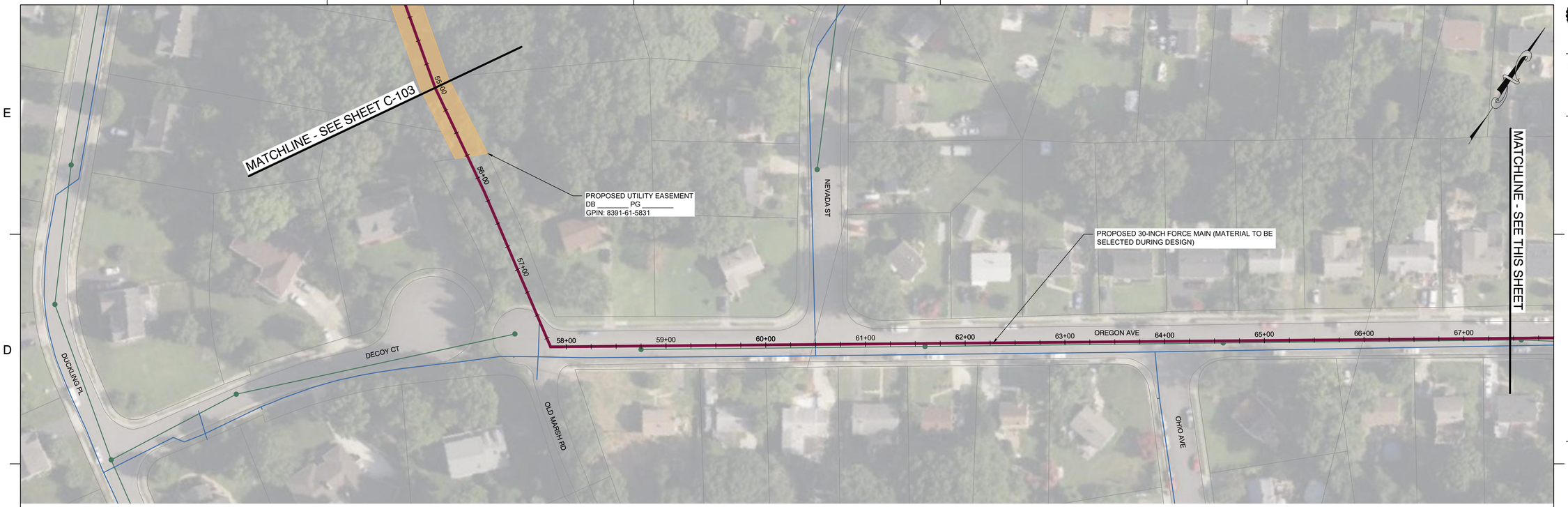
TITLE

CONCEPTUAL FORCE MAIN ALIGNMENT PLAN VIEW

PROJECT NO. 50183735

FIGURE NO.

3.2



LEGEND

- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING FORCE MAIN
- ABANDONED FORCE MAIN
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FEATHERSTONE FORCE MAIN ALIGNMENT STUDY

PRINCE WILLIAM COUNTY, VA

SEAL

KEY PLAN

SCALE
0 50 100
HORIZONTAL SCALE: 1" = 50'

No.	DATE	BY	Description

REVISIONS

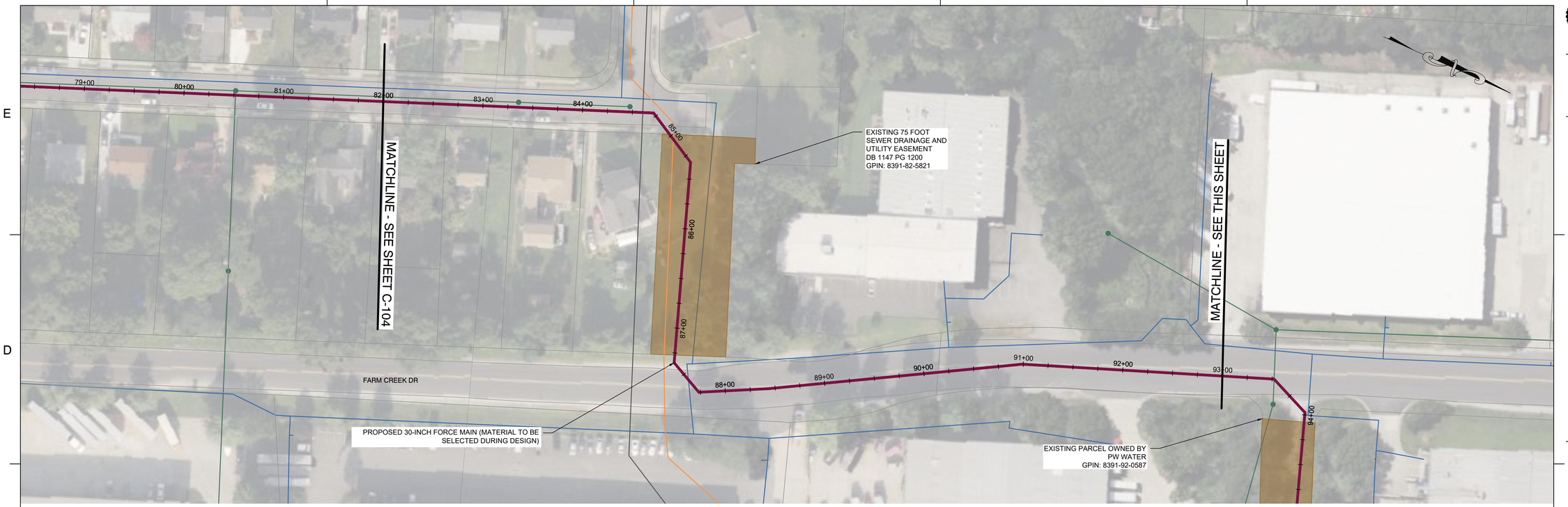
DRAWN BY	JRH/RA
APPROVED BY	RNK
CHECKED BY	MRL
DATE	FEBRUARY 2025

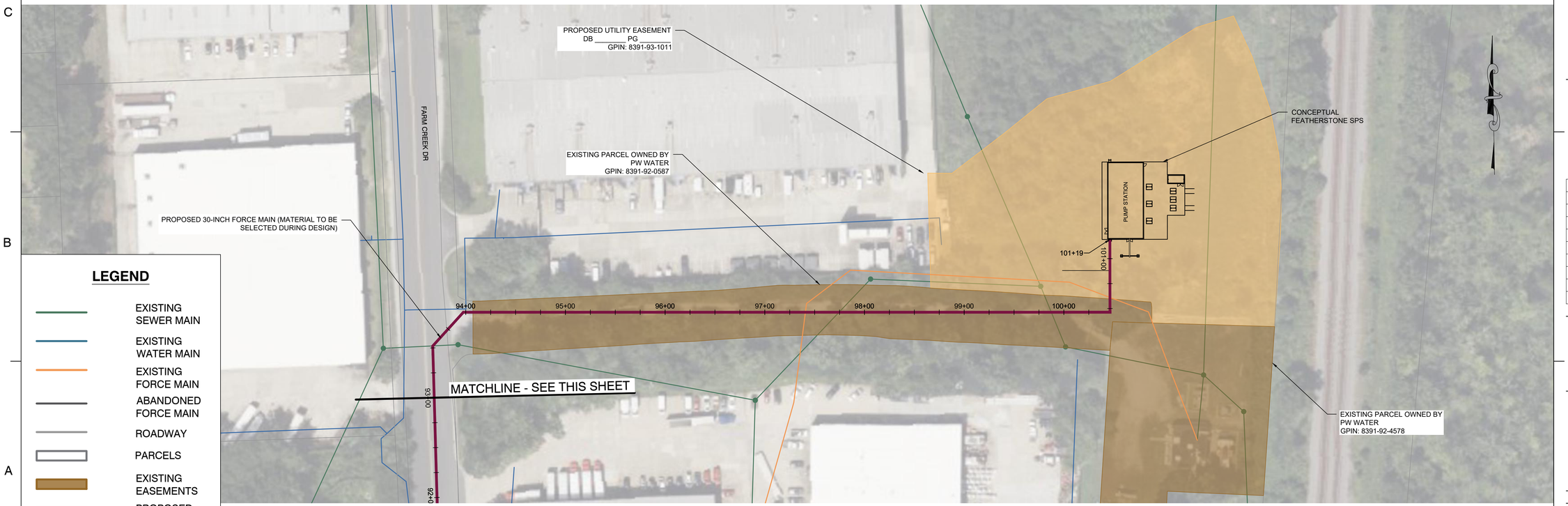
TITLE
CONCEPTUAL FORCE MAIN ALIGNMENT PLAN VIEW

PROJECT NO. 50183735

FIGURE NO.

3.3





LEGEND

- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING FORCE MAIN
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FEATHERSTONE FORCE MAIN ALIGNMENT STUDY

PRINCE WILLIAM COUNTY, VA

SEAL

KEY PLAN

SCALE

0 50 100

HORIZONTAL SCALE: 1" = 50'

No.	DATE	BY	Description

REVISIONS

DRAWN BY	JRH/RA
APPROVED BY	RNK
CHECKED BY	MRL
DATE	FEBRUARY 2025

TITLE

CONCEPTUAL FORCE MAIN ALIGNMENT PLAN VIEW

PROJECT NO. 50183735

FIGURE NO.

3.4

March 3, 2025

Mr. Richard Kincheloe, P.E.
Dewberry Engineers Inc.
8401 Arlington Boulevard
Fairfax, Virginia 22031

ECS Project No. 01:33927

Reference: **Geotechnical Feasibility Data Report, Featherstone Sewage Pump Station**
Farm Creek Drive, Woodbridge, Prince William County, Virginia 22191

Dear Mr. Kincheloe:

As authorized by acceptance of our proposal (No. 01:69447-GPR) via issuance of Dewberry Service Purchase Order (No. 2004218) to provide geotechnical feasibility data for the subject project, we have completed the following letter report for your use. The scope for this project was developed to gather preliminary geotechnical information for the site to be used for feasibility and due diligence purposes and use in schematic design of the Featherstone Sewage Pump Station. Additional geotechnical field exploration and analyses should be conducted once the site and building layouts and finished floor elevations have been established to develop design level recommendations. The geotechnical data in this report is not intended to be used for final design purposes or site plan submission.

Project Location/Current Site Conditions/Historic Site Use

The subject property is located within the parcel addressed as 15015 Farm Creek Drive, which lies to the north of the existing pump station operated by the Prince William County Service Authority at 15023 Farm Creek Drive, in Woodbridge, Prince William County, Virginia. While the existing pump station site is cleared and developed with a gravel access road leading to it, the parcel with the proposed development was primarily wooded at the time of our exploration. A project *Site Location Diagram* is included as an attachment to this report.

Based on our review of the publicly available, historic satellite imagery, some development, including clearing, appears to have taken place between 1954 and 1979. Further site disturbance and grading appears to have taken place between 1987 and 1991 as part of the Featherstone Industrial Park development. The site appears to have been mostly clear between 1995 and 2004. Since 2004, vegetation growth has taken place. The site is currently primarily wooded.

Project Description

In preparing this report, we were not provided any architectural, structural, or civil grading drawings for the proposed development of the site; ECS understands they are not available at this time. However, we were provided a Site Layout and Site Piping plan, prepared by Dewberry, dated January 2025, which indicate that the proposed development will include headworks facility, pump station, generator pads/room, transformer pad, flow meter vault, tank area, and associated utilities.

Regional Geology

The proposed site is located in the Atlantic Coastal Plain Physiographic Province of Virginia. This Coastal Plain Province is characterized by a series of southeasterly dipping layers of deposits of a mixture of sand gravel silt and clay, are estimated to be approximately 250 feet thick. In general, the higher elevations of the site area consist of terrace deposits of the Quaternary Age. These deposits are often underlain by the Potomac Group sediments of the Cretaceous Age. Colluvial movement of these deposits has covered the side of some slopes, and alluvial deposits can be found along streams in the area. These soils eventually transition into residual soils formed from the in place physical and chemical weathering of the underlying parent bedrock.

The Quaternary Terrace deposits consist predominantly of sands, with varying quantities of silt, clay, and gravel. Some thin, silty clay deposits with low to medium plasticity can also be encountered within the Quaternary deposits. The Cretaceous Age Potomac Group deposits generally consist of interlensed, discontinuous, sand and clay layers that generally slope to the southeast at approximately 0.5 to 0.8 degrees. The sand layers generally consist of fine to medium sand, with varying amounts of clay and silt. In isolated areas, gravel can also be encountered. The occurrences of the sand layers are discontinuous, both laterally and vertically.

Field Exploration

The field exploration was planned with the objective of characterizing the project site in general geotechnical and geological terms and to evaluate subsequent field and laboratory data. Our exploration procedures are explained in greater detail in the report attachment titled Subsurface Exploration Procedures.

The subsurface conditions have been explored by drilling three soils test borings (SB-01 through SB-03). An all-terrain vehicle (ATV)-mounted drill rig was utilized to drill the soil test borings, and the borings evaluated to the study were advanced to depths on the order of 15 feet to 50 feet below the existing ground surface. The SB-01 boring location was identified and located in the field by Dewberry Surveyors. The SB-02 and SB-03 boring locations were identified and located in the field by ECS field crews.

Standard Penetration Tests (SPTs) were conducted in borings at regular intervals in general accordance with ASTM D 1586. Representative samples were obtained during these tests and were used to classify the soils encountered. The standard penetration resistances obtained provide a general indication of soil shear strength and compressibility.

Subsurface Characterization

Existing fill should be expected at the time of construction since the site has been previously disturbed and graded. Fill was encountered to depths on the order of up to 2 to 5 feet below existing ground surface at the time of the exploration. The fill soils were classified as Firm to Stiff SANDY LEAN CLAY (CL) and FAT CLAY WITH SAND (CH). Beneath surficial soils and fill materials, natural soils consisting of Firm to Stiff SANDY LEAN CLAY (CL) and FAT CLAY (CH), and Loose to Very Dense CLAYEY SAND (SC) and SILT (ML) were encountered.

Potentially Expansive Soils

Within the proposed project limits, potentially expansive soils (CH) were encountered in all three borings. When expansive clays and silts and clay-silt mixtures are encountered, they should not be used as fill for roadway, curb, gutter, and sidewalk subgrade, within utility trenches, or within embankment slopes. If these soils are encountered at foundation bearing elevation, they should be undercut to 4 feet below finished exterior grade or to 2 feet below the bottom of footing, whichever is deeper, and replaced with engineered fill. Floor slabs placed in areas where potentially expansive soils are encountered should be underlain by at least 2 feet of engineered fill. If the earthwork is conducted during the winter or early spring months, it is expected that even the low-plasticity clay/silt soils at the surface may need to be removed or dried prior to fill placement.

For suitability of natural soils to be used in structural areas (i.e. foundations and floor slabs), soils meeting all four of the following provisions shall be considered expansive per the International Building Code (IBC), except that tests to show compliance with items 1, 2 and 3 shall not be required if the test prescribed in Item 4 is conducted:

1. Plasticity Index (PI) of 15 or greater, determined in accordance with ASTM D 4318.
2. More than 10 percent of the soil particles pass a No. 200 sieve (0.75 μm), determined in accordance with ASTM D 422.
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.
4. Expansion Index greater than 20, determined in accordance with ASTM D4829.

In accordance with the Prince William County Expansive Soils Policy, if the Plasticity Index (PI) of the soil 20 or less and the Liquid Limit (LL) is 45 or less, the Plasticity Index Corrected (PI_{cor}) or the Expansion Index Corrected (EI_{cor}) may be substituted in the definition of Expansive Soil. Where PI_{cor} and $E1_{cor}$ are determined as follows:

$$PI_{cor} = PI \times (\%\ \text{Passing No.40 sieve})/100 \text{ and } EI_{cor} = EI \times (\%\ \text{Passing No. 4 Sieve})/100$$

Existing Fill Material

We recommend further research be done in order to determine if there is documentation to indicate if existing fill soils were placed in a controlled manner as engineered fill. The documentation should include “documentation of certification” together with tests results that shows that the fill material and placement procedures meet the requirements of an engineered fill. Without the required documentation,

the existing fill material should be considered undocumented fill and in accordance with Prince William County requirements, all areas of undocumented fill should be removed in their entirety within the building footprint and within a 10-foot offset of the building footprint limits, then regraded to finish grade with engineered fill.

Construction Groundwater Control

In hollow-stem drilling operations, water is not introduced into the boreholes and the groundwater position can often be determined by observing water flowing into the boreholes. Furthermore, visual observation of the soil samples retrieved during the drilling operations can often be used in evaluating the groundwater conditions. Groundwater observations were made during drilling operations, after completion of drilling, after the auger is removed from the ground, as well as at the end of the workday, prior to backfilling the borings. Groundwater was encountered in borings SB-01 and SB-03 ranging from 11.0± feet and 25.0± feet below existing grades. Groundwater found at these depths is believed to be part of the permanent water table.

A water table aquifer is distinguished from a perched groundwater table based on the water table aquifer's recharge ability, which may be limitless but can be lowered temporarily through adequate dewatering techniques such as deep wells and well points. Perched groundwater is often alleviated in excavations by pumping from sump pits and French drains.

The highest groundwater observations are normally encountered in late winter and early spring. Variations in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, and other factors not immediately apparent at the time of this exploration.

Foundation Types and Considerations

Based on local experience and our current assumptions regarding the possible site developments, shallow foundations may be feasible, depending on the maximum anticipated loading, total allowable settlement, and planned elevations of proposed structures. If the proposed structure is to bear on the upper strata of the alluvial soils and/or compacted engineered fill, allowable bearing pressures on the order of 2,000 psf may be expected. For highly loaded structures where shallows foundations are not feasible, a deep foundation system consisting of Auger Cast-in-Place (ACIP) piles may be utilized. Additional field exploration should be anticipated for final design of foundations and structures.

Seismic Design Considerations

The Commonwealth of Virginia has adopted Virginia Construction Code 2021 (VCC). The current version of VCC incorporates ASCE 7-22, Minimum Design Loads and Associated Criteria for Building and Other Structures into the building code. This adoption supersedes sections 16 of IBC 2021, in respect to seismic site classification.

ASCE 7-22, Chapter 20 has updated the procedure for determining Site Classification. This chapter requires that site classification be conducted based on the averages shear wave velocity of the top 100 feet of the site. The shear velocity can either be measured or estimated based on established correlations. If site

classification is based on estimated values of shear wave velocity (v_s) the site class shall be derived using V_s, $V_s/1.3$ and $V_s(1.3)$. The seismic site class definitions for the weighted average shear wave velocities in the upper 100 feet of the soil profile are presented in Chapter 20 of ASCE 7-22 and in the table below.

Table1: Seismic Site Classification

Site Class	Soil Profile Name	Shear Wave Velocity, Vs, (ft./s)
A	Hard Rock	Vs > 5,000 ft./s
B	Rock	>3,000 to 5,000 ft./s
BC	Soft Rock	>2,100 to 3,000 ft./s
C	Very Dense Sand or Hard Clay	>1,450 to 2,100 ft./s
CD	Dense Sand or Very Stiff Clay	>1,000 to 1,450 ft./s
D	Medium Dense Sand or Stiff Clay	>700 to 1,000 ft./s
DE	Loose Sand or Medium Stiff Clay	>500 to 700 ft./s
E	Very Loose Sand of Soft Clay	Vs < 500 ft./s

In this project shear wave velocity of the soil profile was estimated based on the soil densities observed. Based upon our estimate and assumed proposed bearing elevations of the structures, **Site Classification of D** may be used for preliminary design of the structures. This recommendation is in accordance with the procedure outlined in ASCE 7-22.

Additional Field Exploration

In order to provide site-specific recommendations, ECS recommends performing additional subsurface exploration consisting of borings performed within the footprints of the proposed structures with additional laboratory testing. Depending on the final site layout and grading, additional engineering analysis for any site retaining walls or steep slopes, including global stability analyses may also need to be performed including borings for these features.

CLOSING COMMENTS

In closing, the site, both geographically and geologically, appears to be suitable for the proposed construction. The primary factors affecting the potential foundation design are maximum anticipated loading, total settlement tolerances, as well as the subsurface soil profile such as existing fill, and presence of highly plastic soils.

This letter has been prepared to aid in the evaluation of the project site and to assist the developer with the feasibility, planning budgeting and preliminary design of the proposed development. The report scope is limited in nature and the recommendations and discussions provided in this letter are for planning purposes and should only be used for design and construction in conjunction with a final geotechnical study. Once the final grading plan and other details are available, it will be necessary to review those plans and prepare a final geotechnical report for submission along with the plans to Prince William County Watershed Division.

Should you have any questions with regard to the information contained in this letter, please do not hesitate to contact us.

Respectfully,

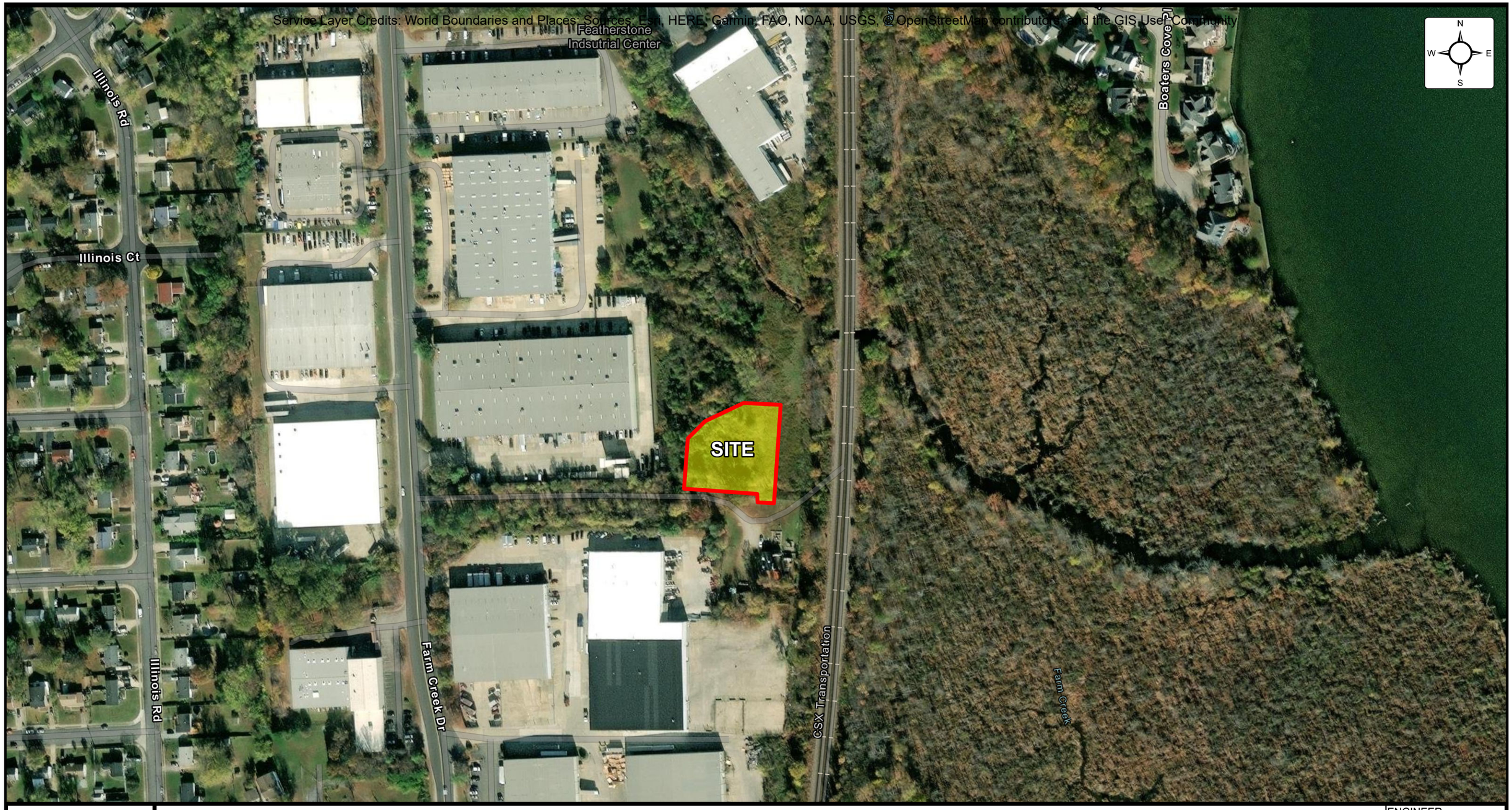
ECS MID-ATLANTIC, LLC

Amin Fazulurrahman, E.I.T.
Geotechnical Project Manager
AFazulurrahman@ecslimited.com

Matthew S, Karalus, P.E.
Geotechnical Department Manager
MKaralus@ecslimited.com

Dominic O. Agyepong, P.E.
Vice President, Principal Engineer
DAgyepong@ecslimited.com

Attachments:
Site Location Diagram
Boring Location Diagram
Generalized Subsurface Profile
Subsurface Exploration Procedure – SPT
Reference Notes for Boring Logs
Boring Logs
Laboratory Testing Summary
Plasticity Chart
Grain Size Analyses

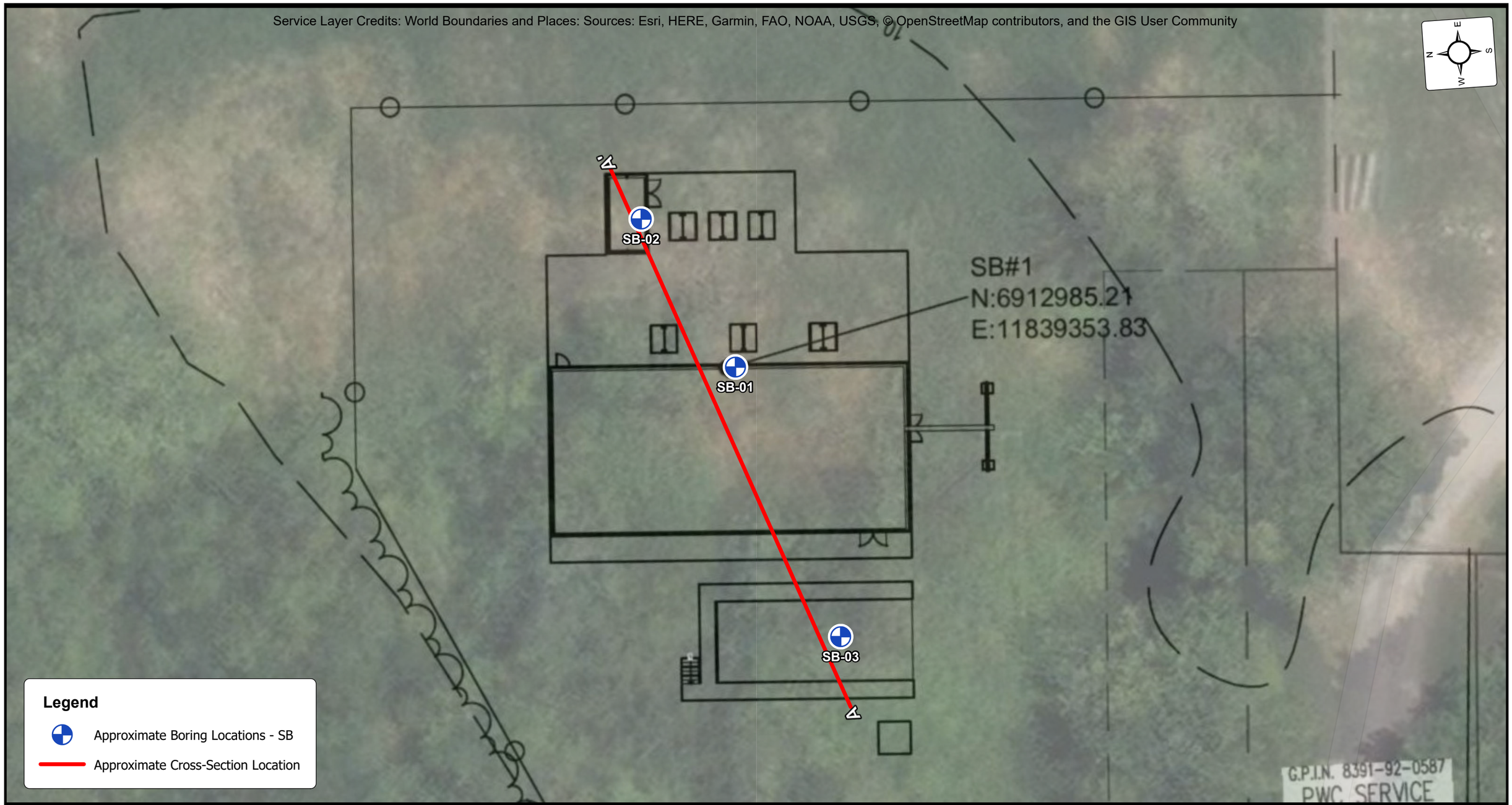


SITE LOCATION DIAGRAM

Featherstone Sewage Pump Station

15015 Farm Creek Drive, Woodbridge, Virginia
Dewberry Engineers, Inc.

ENGINEER	AF3
SCALE	1" = 200'
PROJECT NO.	01:33927
SHEET	1
DATE	3/1/2025

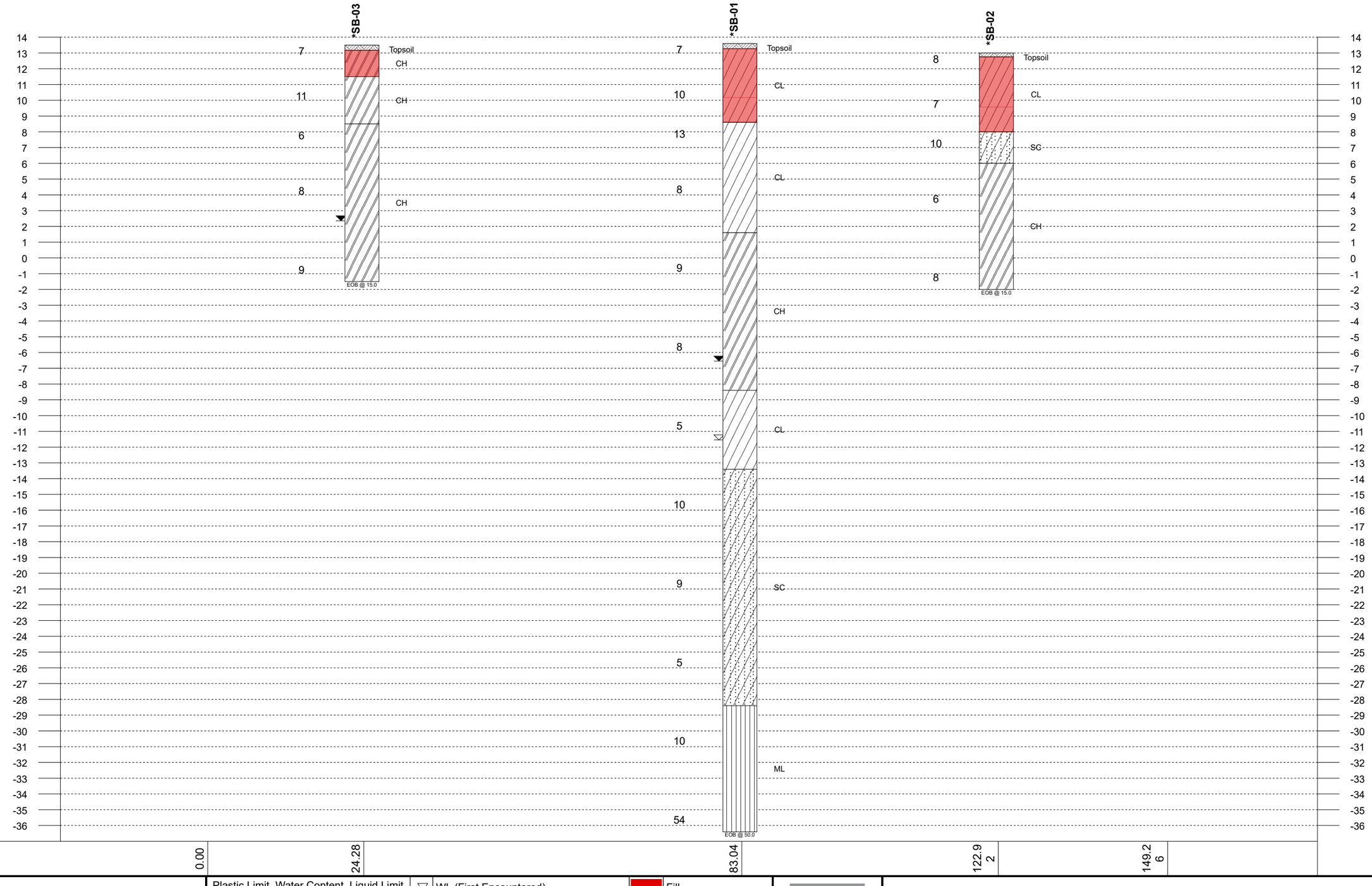


BORING LOCATION DIAGRAM

Featherstone Sewage Pump Station

15015 Farm Creek Drive, Woodbridge, Virginia
Dewberry Engineers, Inc.

ENGINEER	AF3
SCALE	1" = 20'
PROJECT NO.	01:33927
SHEET	2
DATE	3/1/2025



Legend Key

- Topsoil
- CL
- CH
- SC
- ML

-37.00

Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content Liquid Limit X—●—△ [FINES CONTENT %]	WL (First Encountered)	Fill	
	WL (Completion)	Possible Fill	
BOTTOM OF CASING	WL (Seasonal High Water)	Probable Fill	
LOSS OF CIRCULATION	WL (Stabilized)	Rock	

GENERALIZED SUBSURFACE PROFILE A-A'

Featherstone Sewage Pump Station
Dewberry Engineers, Inc.
15015 Farm Creek Drive, Woodbridge, Virginia, 22191

Project No: 01:33927 Date: 03/03/2025

SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 18-24 inches (in 3 or 4 Increments of 6 inches each)

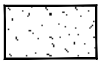
- Auger is advanced* and an additional SPT is performed
- One SPT typically performed for every two to five feet. An approximate 1.5 inch diameter soil sample is recovered.

**Drilling Methods May Vary*— The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]


ASPHALT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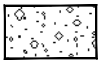
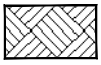
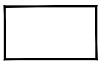
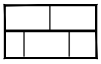

GRAVEL

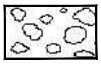

TOPSOIL

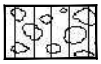

VOID


BRICK

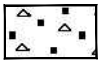

AGGREGATE BASE COURSE

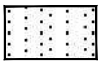

GW **WELL-GRADED GRAVEL**
gravel-sand mixtures, little or no fines

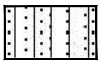

GP **POORLY-GRADED GRAVEL**
gravel-sand mixtures, little or no fines


GM **SILTY GRAVEL**
gravel-sand-silt mixtures

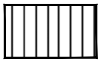

GC **CLAYEY GRAVEL**
gravel-sand-clay mixtures

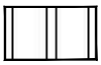

SW **WELL-GRADED SAND**
gravelly sand, little or no fines

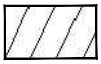

SP **POORLY-GRADED SAND**
gravelly sand, little or no fines


SM **SILTY SAND**
sand-silt mixtures

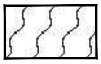

SC **CLAYEY SAND**
sand-clay mixtures

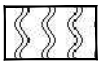

ML **SILT**
non-plastic to medium plasticity

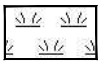

MH **ELASTIC SILT**
high plasticity


CL **LEAN CLAY**
low to medium plasticity


CH **FAT CLAY**
high plasticity


OL **ORGANIC SILT or CLAY**
non-plastic to low plasticity


OH **ORGANIC SILT or CLAY**
high plasticity


PT **PEAT**
highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

WATER LEVELS[6]

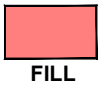

WL (First Encountered)


WL (Completion)


WL (Seasonal High Water)


WL (Stabilized)

FILL AND ROCK


FILL


POSSIBLE FILL


PROBABLE FILL


ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Dewberry Engineers, Inc.	**01:33927**	**SB-01**	**1 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Featherstone Sewage Pump Station	**All American Geotech, Inc.**		
SITE LOCATION: **15015 Farm Creek Drive, Woodbridge, Virginia, 22191**			LOSS OF CIRCULATION
LATITUDE: **38.624731**	LONGITUDE: **-77.252314**	STATION:	SURFACE ELEVATION: **13.6**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
	S-1	SS	18	15	Topsoil Thickness [4"] (CL FILL) SANDY LEAN CLAY, brown, moist, firm to stiff			2-2-5 (7)
	S-2	SS	18	18				3-4-6 (10)
5	S-3	SS	18	18	(CL) SANDY LEAN CLAY, grayish brown to yellowish brown, moist, stiff to firm		9	4-5-8 (13)
	S-4	SS	18	12				4-5-3 (8)
10							4	
	S-5	SS	18	12	(CH) FAT CLAY, brownish gray, moist, stiff to firm			3-4-5 (9)
15							-1	
	S-6	SS	18	18		▼		4-4-4 (8)
20							-6	
	S-7	SS	18	18	(CL) LEAN CLAY WITH SAND, brown, moist, firm	▽		4-2-3 (5)
25							-11	
	S-8	SS	18	18	(SC) CLAYEY SAND, brown, wet, loose			3-5-5 (10)
30							-16	

CONT'D ON NEXT PAGE

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)

15 18.9 41 [58.9%]
22.2
17 27.7 39 [61.2%]

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	**25.0**	BORING STARTED:	**Feb 18 2025**	CAVE IN DEPTH:	**28.0**
▼ WL (Completion)	**20.0**	BORING COMPLETED:	**Feb 18 2025**	HAMMER TYPE:	**Auto**
▽ WL (Seasonal High Water)	**Not Evaluated**	EQUIPMENT: **CME 55**	LOGGED BY: **AF3**	DRILLING METHOD:	**Hollow Stem Auger**
▽ WL (Stabilized)	**Not Determined**				

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Dewberry Engineers, Inc.	**01:33927**	**SB-01**	**2 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Featherstone Sewage Pump Station	**All American Geotech, Inc.**		
SITE LOCATION: **15015 Farm Creek Drive, Woodbridge, Virginia, 22191**			LOSS OF CIRCULATION
LATITUDE: **38.624731**	LONGITUDE: **-77.252314**	STATION:	SURFACE ELEVATION: **13.6**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					(SC) CLAYEY SAND, brown, wet, loose			
35	S-9	SS	18	18			-21	2-4-5 (9)
40	S-10	SS	18	12			-26	1-2-3 (5)
					(ML) SILT, greenish gray, moist, loose to very dense			
45	S-11	SS	18	18			-31	3-4-6 (10)
50	S-12	SS	18	18			-36	11-22-32 (54)
					END OF BORING AT 50.0 FT			
55							-41	
60							-46	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50 | 20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50

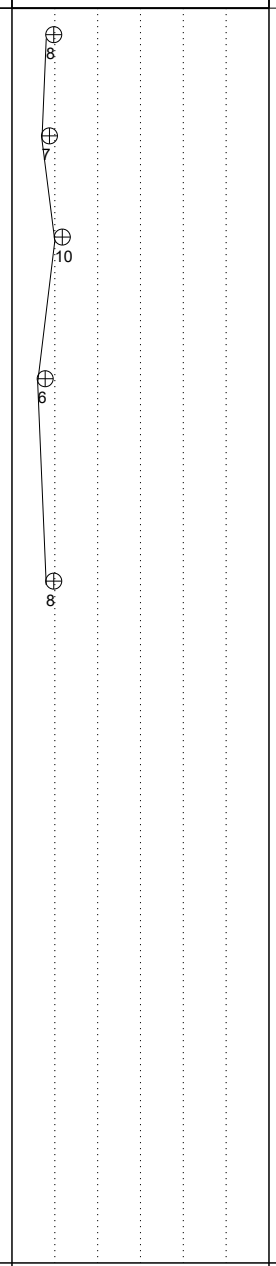
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

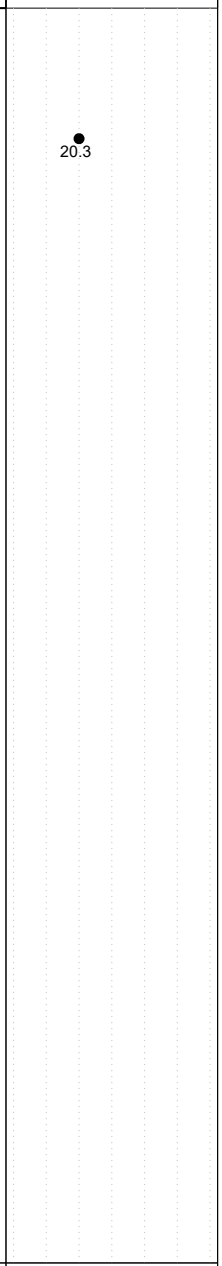
WL (First Encountered)	**25.0**	BORING STARTED:	**Feb 18 2025**	CAVE IN DEPTH:	**28.0**
WL (Completion)	**20.0**	BORING COMPLETED:	**Feb 18 2025**	HAMMER TYPE:	**Auto**
WL (Seasonal High Water)	**Not Evaluated**	EQUIPMENT: **CME 55**	LOGGED BY: **AF3**	DRILLING METHOD:	**Hollow Stem Auger**
WL (Stabilized)	**Not Determined**				

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Dewberry Engineers, Inc.	**01:33927**	**SB-02**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Featherstone Sewage Pump Station	**All American Geotech, Inc.**		
SITE LOCATION:			LOSS OF CIRCULATION
15015 Farm Creek Drive, Woodbridge, Virginia, 22191			
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
38.624781	**-77.252190**		**13**

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	18	10	Topsoil Thickness [3"] (CL FILL) SANDY LEAN CLAY, dark brown, moist, firm, trace gravel at 3 ft		13	1-4-4 (8)
	S-2	SS	18	18				4-3-4 (7)
5	S-3	SS	18	18	(SC) CLAYEY SAND, grayish brown, moist, loose		8	4-4-6 (10)
					(CH) FAT CLAY, gray to brownish gray, moist, firm			
10	S-4	SS	18	18			3	2-3-3 (6)
	S-5	SS	18	18				3-4-4 (8)
15					**END OF BORING AT 15.0 FT**		-2	
20							-7	
25							-12	
30							-17	





THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered)	**Dry**	BORING STARTED:	**Feb 19 2025**	CAVE IN DEPTH:	**11.0**
WL (Completion)	**Dry**	BORING COMPLETED:	**Feb 19 2025**	HAMMER TYPE:	**Auto**
WL (Seasonal High Water)	**Not Evaluated**	EQUIPMENT:	LOGGED BY:	DRILLING METHOD:	**Hollow Stem Auger**
WL (Stabilized)	**Not Determined**	**CME 55**	**AF3**		

GEOTECHNICAL BOREHOLE LOG

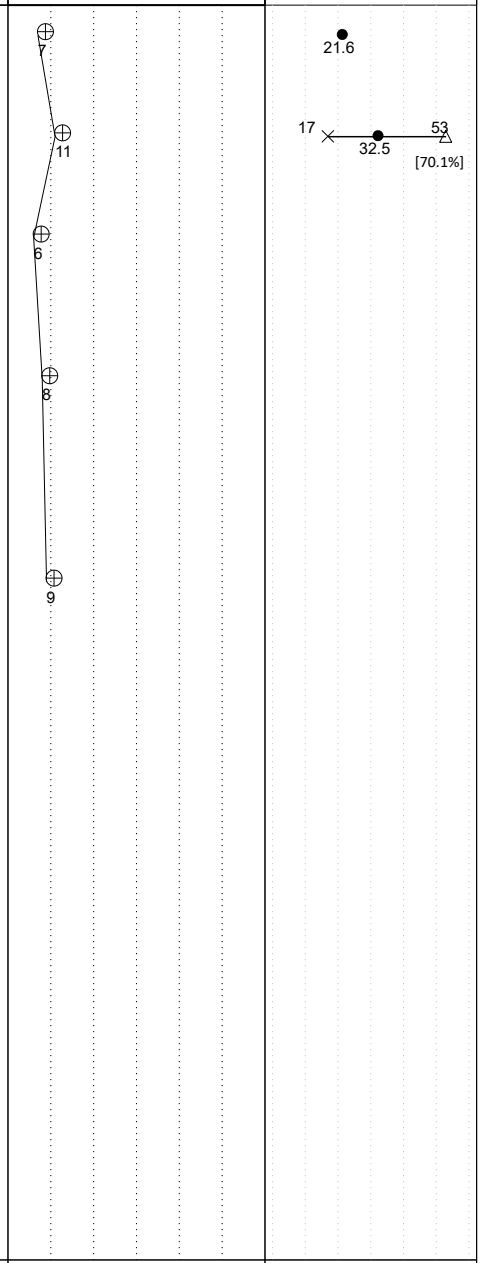
CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Dewberry Engineers, Inc.	**01:33927**	**SB-03**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Featherstone Sewage Pump Station	**All American Geotech, Inc.**		
SITE LOCATION:			LOSS OF CIRCULATION
15015 Farm Creek Drive, Woodbridge, Virginia, 22191			
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
38.624685	**-77.252513**		**13.5**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
	S-1	SS	18	18	Topsoil Thickness [4"] (CH FILL) FAT CLAY WITH SAND, dark brown, moist, firm			3-3-4 (7)
	S-2	SS	18	18	(CH) FAT CLAY WITH SAND, light olive brown, moist, stiff		9	3-4-7 (11)
5	S-3	SS	18	16	(CH) FAT CLAY, dark gray to light gray, moist, firm			2-2-4 (6)
	S-4	SS	18	18		▼	4	4-3-5 (8)
10								
	S-5	SS	18	18			-1	3-4-5 (9)
15					**END OF BORING AT 15.0 FT**			
20							-6	
25							-11	
30							-16	

STANDARD PENETRATION BLOWS/FT
10 20 30 40 50
20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT
10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF
1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %
10 20 30 40 50



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	**Dry**	BORING STARTED:	**Feb 18 2025**	CAVE IN DEPTH:	**11.7**
▼ WL (Completion)	**11.0**	BORING COMPLETED:	**Feb 18 2025**	HAMMER TYPE:	**Auto**
▼ WL (Seasonal High Water)	**Not Evaluated**	EQUIPMENT:	LOGGED BY:	DRILLING METHOD:	**Hollow Stem Auger**
▽ WL (Stabilized)	**Not Determined**	**CME 55**	**AF3**		

GEOTECHNICAL BOREHOLE LOG

Laboratory Testing Summary

Sample Location	Sample Number	Depth (ft)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
SB-01	S-1	0.0-1.5	18.9	CL	41	15	26	58.9					
SB-01	S-2	2.5-4.0	22.2										
SB-01	S-4	8.5-10.0	27.7	CL	39	17	22	61.2					
SB-02	S-2	2.5-4.0	20.3										
SB-03	S-1	0.0-1.5	21.6										
SB-03	S-2	2.5-4.0	32.5	CH	53	17	36	70.1					

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

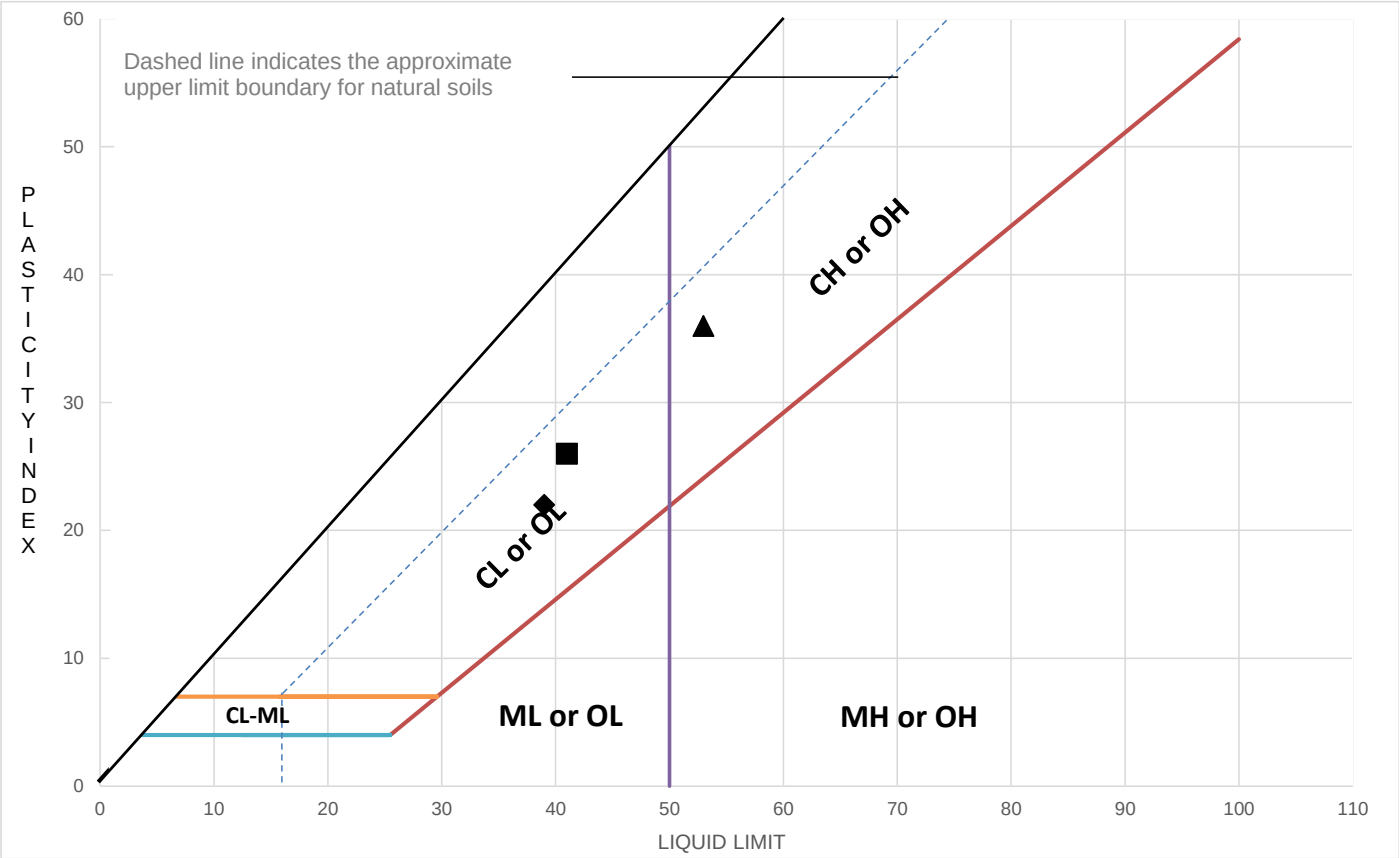
Project: Featherstone Sewage Pump Station
Client: Dewberry Engineers, Inc.

Project No.: 01:33927
Date Reported: 2/26/2025

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - Chantilly	14026 Thunderbolt Place Suite 100 Chantilly, VA 20151-3232	(703)471-8400 (703)834-5527

Tested by	Checked by	Approved by	Date Received
jvong	Htran	MUzun	2/24/2025

LIQUID AND PLASTIC LIMITS TEST REPORT



TEST RESULTS (ASTM D4318-10 (MULTIPOINT TEST))

	Sample Location	Sample Number	Sample Depth (ft)	LL	PL	PI	%<#40	%<#200	AASHTO	USCS	Material Description
■	SB-01	S-1	0.00-1.50	41	15	26	80.4	58.9	A-7-6	CL	Sandy Lean Clay Brown
◆	SB-01	S-4	8.50-10.00	39	17	22	82.4	61.2	A-6	CL	Sandy Lean Clay Yellow Brown
▲	SB-03	S-2	2.50-4.00	53	17	36	96.3	70.1	A-7-6	CH	Fat Clay with Sand Light Olive Brown

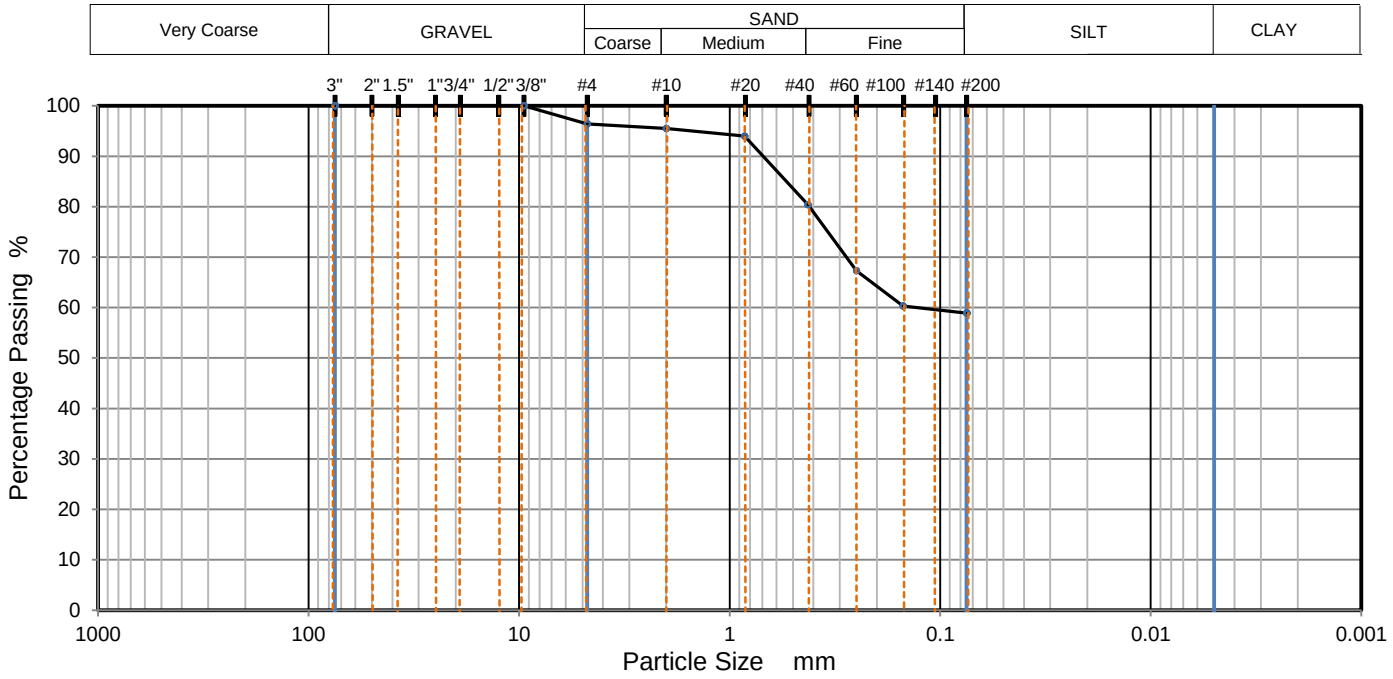
Project: Featherstone Sewage Pump Station
Client: Dewberry Engineers, Inc.

Project No.: 01:33927
Date Reported: 2/26/2025

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - Chantilly	14026 Thunderbolt Place Suite 100 Chantilly, VA 20151-3232	(703)471-8400 (703)834-5527

Tested by	Checked by	Approved by	Date Received
jvong	Htran	MUzun	2/24/2025

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D422-63(2007))

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
3/8"	100.0		
#4	96.4		
#10	95.5		
#20	94.0		
#40	80.4		
#60	67.3		
#100	60.3		
#200	58.9		

Dry Mass of sample, g	196.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	3.6
Coarse Sand, #4 to #10 sieve	0.9
Medium Sand, #10 to #40	15.1
Fine Sand, #40 to #200	21.5
Fines <#200	58.9

USCS	CL	Liquid Limit	41	D90	0.693	D50		D10	
AASHTO	A-7-6	Plastic Limit	15	D85	0.537	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	26	D60	0.129	D15		Cc	

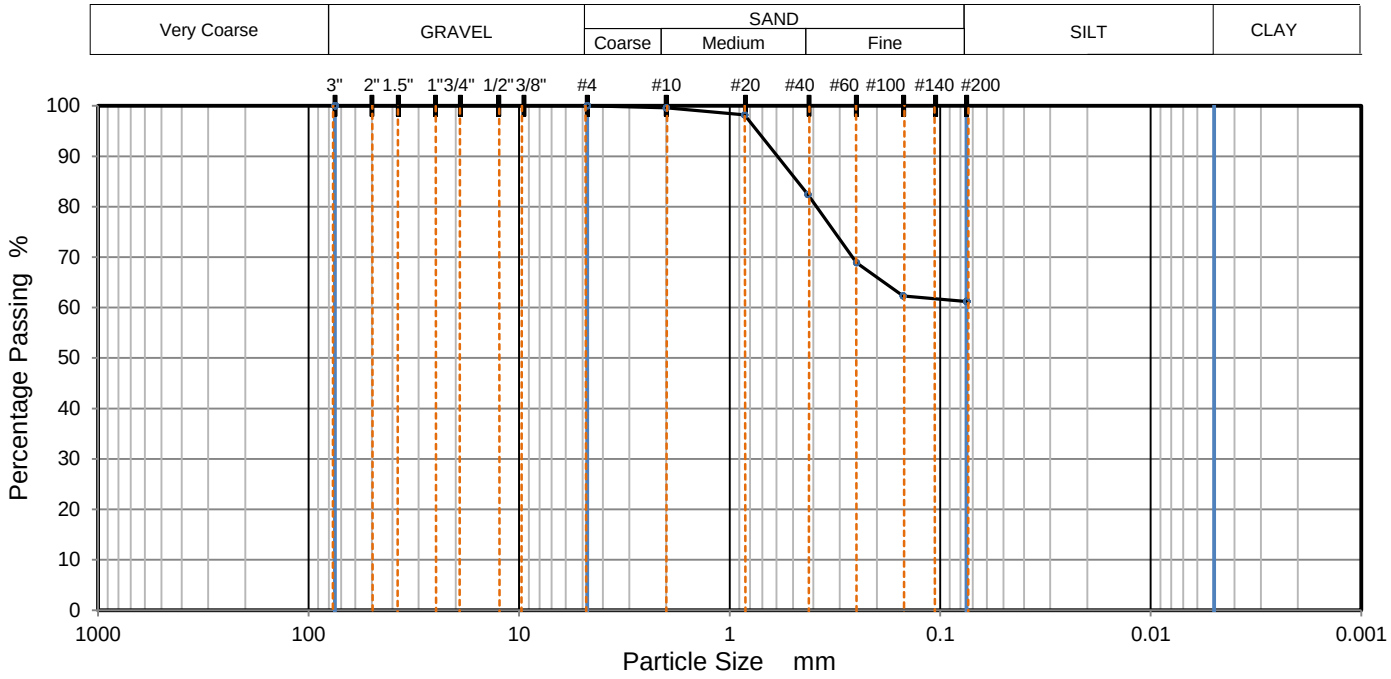
Project: Featherstone Sewage Pump Station
Client: Dewberry Engineers, Inc.
Sample Description: Sandy Lean Clay Brown
Sample Source: SB-01

Project No.: 01:33927
Depth (ft): 0.0 - 1.5
Sample No.: S-1
Date Reported: 2/26/2025

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - Chantilly	14026 Thunderbolt Place Suite 100 Chantilly, VA 20151-3232	(703)471-8400 (703)834-5527

Tested by	Checked by	Approved by	Date Received	Remarks
jvong	Htran	MUzun	2/24/2025	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D422-63(2007))

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
#4	100.0		
#10	99.6		
#20	98.2		
#40	82.4		
#60	68.9		
#100	62.3		
#200	61.2		

Dry Mass of sample, g	41.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.4
Medium Sand, #10 to #40	17.2
Fine Sand, #40 to #200	21.2
Fines <#200	61.2

USCS	CL	Liquid Limit	39	D90	0.593	D50		D10	
AASHTO	A-6	Plastic Limit	17	D85	0.476	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	22	D60		D15		Cc	

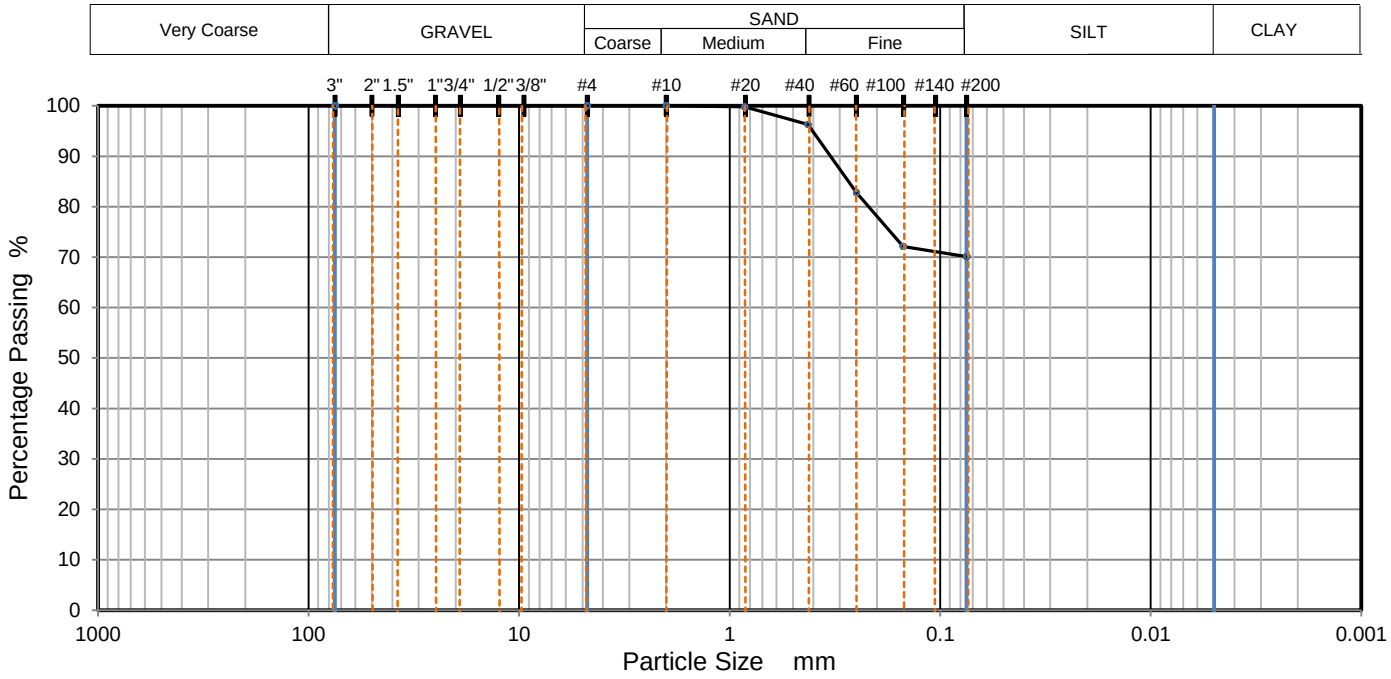
Project: Featherstone Sewage Pump Station
Client: Dewberry Engineers, Inc.
Sample Description: Sandy Lean Clay Yellow Brown
Sample Source: SB-01

Project No.: 01:33927
Depth (ft): 8.5 - 10.0
Sample No.: S-4
Date Reported: 2/26/2025

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - Chantilly	14026 Thunderbolt Place Suite 100 Chantilly, VA 20151-3232	(703)471-8400 (703)834-5527

Tested by	Checked by	Approved by	Date Received	Remarks
jvong	Htran	MUzun	2/24/2025	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D422-63(2007))

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	96.3		
#60	82.8		
#100	72.1		
#200	70.1		

Dry Mass of sample, g	41.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.0
Medium Sand, #10 to #40	3.7
Fine Sand, #40 to #200	26.2
Fines <#200	70.1

USCS	CH	Liquid Limit	53	D90	0.332	D50		D10	
AASHTO	A-7-6	Plastic Limit	17	D85	0.273	D30		Cu	
USCS Group Name	Fat clay with sand	Plasticity Index	36	D60		D15		Cc	

Project: Featherstone Sewage Pump Station
Client: Dewberry Engineers, Inc.
Sample Description: Fat Clay with Sand Light Olive Brown
Sample Source: SB-03

Project No.: 01:33927
Depth (ft): 2.5 - 4.0
Sample No.: S-2
Date Reported: 2/26/2025

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - Chantilly	14026 Thunderbolt Place Suite 100 Chantilly, VA 20151-3232	(703)471-8400 (703)834-5527

Tested by	Checked by	Approved by	Date Received	Remarks
jvong	Htran	MUzun	2/24/2025	