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## ADDENDUM No. THREE

Date: November 22, 2023  
Project: LAS Expansion & Sewer System Improvements, ARPA Grant No. GA-0010529, MES No. 2020-48  
Engineer: M.E. Sack Engineering  
Hinesville, Georgia

The original plans, specifications, and/or Bid Documents are amended to include the following:

### Bid Documents:

- Replace the previous Invitation for Bids (p. 1) with the enclosed of the same. Note: the bid date has changed to December 8, 2023.
- Replace the previous Instructions to Bidders (p. 2) with the enclosed of the same. Note: the bid date has changed.
- Replace the previous Bid Form (p. 6) with the enclosed of the same. Note: the quantity on line item 20 has changed.

### Specifications:

- Replace the previous Section 01150 Measurement and Payment with the enclosed of the same.
- Replace the previous Section 15215 Vertical Turbine Pumps with the enclosed of the same.
- Add the enclosed Section 15500 Sewage Screening Device.

### Plan Set:

- Replace the previous sheets C201 – C210 and C401 with the enclosed of the same.

The following clarifications are provided for questions received:

**LAS Expansion:**

1. *The pump bowl specified has been discontinued. We are told that the new bowls will require a larger motor.*
  - As a result of this finding, we are delaying the bid date to December 8th at 10 am. We will provide additional guidance on the pumps at the LAS in a subsequent addendum.

**Pump Station Improvements and Force Main Addition**

2. *To operate the dual force mains there should be additional plug valves on the force main.*
  - The plug valves were left off and have been added to sheet C201. Additionally, two were added to the bid item list (18 plug valves in total).
3. *Since the air release valve and plug valves are two line items, how should we separate the two when in the vault with the air release valve?*
  - The air release valve line item shall include the vault. Section 01150 has been updated accordingly. The plug valves shall be priced to be either stand-alone or within the vault.
4. *Will the existing valve vault at the pump station have to be removed and reinstalled to accommodate the new 15" line from the dry pit?*
  - Yes. This price shall be included in the pump station complete work. A note has been added to sheet C201. Note: Sheet C201 had notes that went off the page; these have been corrected.

-END-



## SECTION I: INVITATION FOR BIDS

Sealed proposals will be received by the City of Pembroke located at 353 N. Main Street, Pembroke, Georgia on December 8, 2023 until 10:00 a.m. local time for the LAS Expansion and Sewer System Improvements.

The work to be performed consists of furnishing all labor and materials to complete the LAS Expansion and Sewer System Improvements. More specifically, the LAS expansion will consist of approximately 11,900 LF spray field piping, sprinkler heads/supports, and a lift station pump upgrade. The pump station improvements will include pumps and a control panel, a complete screening system, and a generator. The force main extension will consist of approximately 10,300 LF force main piping, air release valves, pavement removal and replacement, and structure relocation.

Plans, Specifications, and Contract documents are open to public inspection at the Georgia Procurement Registry, ConstructConnect, Dodge Construction Network, and [www.mesack.com](http://www.mesack.com). Copies of the Plans, Specifications, and Contract Documents may be obtained by contacting M.E. Sack Engineering, [bidting@mesack.com](mailto:bidting@mesack.com), 515 North Main Street, P.O. Box 649, Hinesville, Georgia 31310, (912) 368-5212, and by depositing a non-refundable one hundred fifty dollars (\$150) for each set of plans requested.

Each Contractor must prequalify for bid by submitting a completed "Statement of Bidder Qualifications" form supplied by the Engineer. Bids will be accepted from prequalified bidders only.

Bids must be accompanied by a certified check or bid bond in an amount equal to at least five percent (5%) of total amount bid for the completed work.

No bids may be withdrawn for a period of sixty (60) days after the closing time schedule for receipt of bids.

The Owner reserves the right to accept or reject any or all bids and to waive informalities. Award of the contract, if it is awarded, will be to the lowest responsible bidder.

**A mandatory pre-bid meeting will be held at Pembroke City Hall, 353 N. Main Street, Pembroke, Georgia at 10:00 am on October 30, 2023.**

NOTE: Plans and Specifications must be obtained no later than five (5) working days before the bid date. No exceptions.

## SECTION II: INSTRUCTIONS TO BIDDERS

### A. SUBMISSION OF PROPOSALS:

1. A mandatory pre-bid meeting will be held at Pembroke City Hall, 353 N. Main Street, Pembroke, Georgia at 10:00 a.m. on October 30, 2023.
2. Sealed proposals will be received by the City of Pembroke at 353 N. Main Street, Pembroke, Georgia 31321 until 10:00 a.m. local time, on December 8, 2023, for all labor and materials required to fully complete the work identified in the plans and specifications for the LAS Expansion and Sewer System Improvements.
3. At the time and place noted above, the proposals will be publicly opened and read aloud.
4. The proposal (including Statement of Bidder's Qualifications) shall be submitted in duplicate on an exact copy of the proposal form bound herein. Both copies of the Proposal Form must be signed. All blank spaces on the forms shall be filled in and all information called for shall be provided. The terms "NO BID" may be used to fill in a blank space on the Proposal Form. All signatures shall be in ink and in longhand, and the completed forms shall be without alterations or corrections; any interlineations must be initialed by the Bidder.
5. Failure to submit a proposal in the form requested or the inclusion of any alternates, conditions, limitations, or provisions not called for, will render the bid irregular, and shall be considered sufficient cause for rejection of the bid.
6. Proposal shall be in opaque, sealed envelope and marked "LAS Expansion & Sewer System Improvements" and shall bear the name of the Bidder. Proposal is to reach the above address no later than the hour and date named above, or authorized extension thereof. No proposal will be received after that time.
7. Proposals, together with the full bid bond, may be withdrawn by Bidders prior to the time set for official opening. After time has been called, no proposal may be withdrawn for a period of sixty (60) days after the time and date of the opening.

### B. INTERPRETATIONS:

1. Neither Owner nor Engineer will be responsible for any oral instructions or interpretations of the Drawings and Specifications.

## B. BID FORM

Bid Item	Quantity	Units	Description	Unit Price	Cost
<b>A. LAS Expansion</b>					
1	11,900	LF	Spray Fields Piping	\$	\$
2	88	EA	Half Circle Sprinkler Head	\$	\$
3	162	EA	Full Circle Sprinkler Head	\$	\$
4	250	EA	Sprinkler Head Support	\$	\$
5	1,250	LF	Silt Fence Type NS	\$	\$
6	1,300	LF	Silt Fence Type S	\$	\$
7	1	LS	Grassing	-	\$
8	1	LS	Pump Station Pump Modification	-	\$
9	1	LS	Pump Inspection and Maintenance Contingency	-	\$ 25,000.00
10	1	LS	Traffic Control	-	\$
11	1	LS	Mobilization (5% Max)	-	\$
<b>SUBTOTAL</b>					\$
<b>B. Pump Station Improvements and Force Main Addition</b>					
12	1	LS	Pump Station Complete	-	\$
13	1	LS	Screen Complete	-	\$
14	1	LS	Electrical Complete	-	\$
15	1	LS	Standby Power Generator	-	\$
16	1	LS	Propane Tank and Accessories	-	\$
17	10,300	LF	8" PVC Force Main	\$	\$
18	1	EA	Force Main Connection to Existing Manhole	\$	\$
19	6	EA	Air Release Valve	\$	\$
20	18	EA	Plug Valve	\$	\$
21	1	LS	Structure Relocation	-	\$
22	165	SY	Pavement Removal & Replacement	\$	\$
23	45	SY	Concrete Driveway Removal & Replacement	\$	\$

**SECTION 01150  
MEASUREMENT AND PAYMENT**

**PART 1- GENERAL**

1.01 QUANTITIES

- A. Quantities: Quantities listed in the Proposal are approximate only and are intended to serve as a guide in comparing bids and may be increased or decreased without invalidating the unit price bid.
- B. Payment: The contractor shall be paid for actual in-place quantities as determined by the Engineer's field measurements.
- C. Discrepancies: In case of discrepancies between the figures shown in the unit prices and totals, the unit prices shall apply, and the totals shall be corrected to agree with the unit price.

**PART 2 - MEASUREMENT AND PAYMENT**

2.01 SPRAY FIELD PIPING

- A. Measurement: Measurement shall be made along the centerline of the pipe trench through fittings and specials with no deduction for such fittings and specials.
- B. Payment: Payment will be made for each linear foot of polyethylene tubing installed at the unit price stated in the bid. The unit price bid shall include all labor, materials, and equipment necessary to complete the installation including, but not limited to, trenching, excavation, shoring and sheeting, dewatering, bedding, pipe, backfill, compaction, testing, and complete surface restoration.

2.02 LAND APPLICATION SYSTEM SPRAY FIELD SPRINKLERS AND SPRINKLER HEAD SUPPORTS

- A. Measurement: Measurement shall be made on the basis of each sprinkler installed and each sprinkler head support. Each sprinkler shall be categorized as a half-circle or full-circle spray head in the design drawings.
- B. Payment: Payment will be made for each spray head unit installed and for each support installed for the sprinkler heads at the unit prices stated in the bid. The unit price bid shall include labor, materials, and equipment necessary, including, but not limited to, locating existing connection points, installation of sprinkler heads, length of polyethylene tubing installed, each unit of distribution lateral tees installed, and testing at 45 psi.

### 2.03 SILT FENCE

- A. Measurement: Measurement shall be made on the basis of each linear foot of silt fence installed in accordance with the Plans, Specifications and "The Manual for Erosion and Sediment Control in Georgia."
- B. Payment: Payment will be made in accordance with the price stated in the bid. The unit price shall include, but is not limited to, furnishing all labor, materials, and equipment necessary to prevent erosion from the site. Work shall include, but not be limited to, excavation, trenching, post and fabric installation, backfill, daily inspection, maintenance, re-installation of failed sections, sediment removal once its one-half original height of fence. Once final stabilization has occurred, removal and disposal of fence and surface restoration of remaining disturbed area. All silt fence locations shall be approved by the Engineer prior to installation. No payment will be made for silt fence installed without approval of Engineer or silt fence not properly maintained.

### 2.04 GRASSING

- A. Measurement: Measurement shall be made on the basis of the completed item in accordance with the construction plans and bid items.
- B. Payment: Payment will be made in accordance with the price stated in the bid. The unit price shall include, but is not limited to, furnishing all labor, materials, and equipment necessary for the satisfactory growth of grass on all disturbed areas in accordance with plans and specifications. Work shall include, but not be limited to, furnishing all materials, fertilizer, soil samples, grass seed, raking, leveling, watering, maintenance, and final surface restoration. Final payment will not occur until permanent grass is established.

### 2.05 LAS PUMP STATION PUMP MODIFICATION

- A. Measurement: Measurement shall be made on the basis of the percent complete of the task in accordance with approved plans and specifications.
- B. Payment: Payment will be made on the basis of the percent complete of the lump sum price stated in the bid. The price bid shall include all labor, materials, and equipment necessary to complete the task. The task shall include, but is not limited to, removal of the existing the pumps, receiving and installing the new pumps, piping, fitting, bolts, and accessories, existing pipe adjustment, upgrading control panel, electrical works, testing, operational setup, general cleanup, and surface restoration.

## 2.06 LAS PUMP INSPECTION AND MAINTENANCE CONTINGENCY

- A. Measurement: Measurement shall be made on the basis of the percent complete of the visual inspection of the pump as required in accordance with approved plans and specifications.
- B. Payment: Payment will be made on the basis of the percent complete of the lump sum price stated in the bid. The price bid shall include all labor, materials, and equipment necessary to complete the task. The task shall include, but is not limited to, visual inspection of existing conditions of mechanical seals, bearings, coupling, shaft alignment, lubrication, bolts, wiring, electrical components, and piping. This item is to cover unforeseen items that may be found during the removal and reinstallation process to ensure proper operation of the pumping station.

## 2.07 TRAFFIC CONTROL

- A. Measurement: Measurement shall be made on the basis of the percentage complete of the lump sum bid in accordance with the construction plans and bid items.
- B. Payment: Payment shall be made on the basis of the percentage complete of the lump sum price stated in the bid as determined by the project engineer. The lump sum shall include furnishing all labor, materials, and equipment necessary to complete the task. The task shall include, but is not limited to, the placing, moving, and maintenance of all signage, barricades, cones, barrels, flagging, flag men, and guide vehicles throughout the construction process to safely reroute traffic from existing traffic patterns. Traffic control shall be done in a manner to safely warn, reroute, and lead vehicles to their destination. Additional signage will be required if the engineer deems that the traffic control in place does not fully meet the required intent of the task. Changing of existing traffic patterns shall be communicated with the engineer no less than 48 hours prior to.

## 2.08 MOBILIZATION

- A. Payment: Payment will be made for the price as stated in the Contract once the Contractor has established his construction yard, and met the requirements established in the Contract Documents. Mobilization will be recognized as complete once the Contractor has provided a construction schedule and moved his equipment and a substantial amount of material to the job site. Construction must be underway and progressing. Payment for mobilization will be limited to a maximum amount not to exceed 5.0% of the bid price.



## 2.09 PUMP STATION COMPLETE

- A. Measurement: Measurement shall be made on the basis of the percentage completed item in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made on the basis of the percent completion of the lump sum price stated in the bid. The price bid shall include all labor, materials, and equipment necessary to complete this item of work. The work shall include, but is not limited to, removal of piping, fittings and other existing infrastructure that will impede the installation of the proposed system, cleaning and removal of solids from the wet well, by-pass pumping, receiving and installing the pump station equipment (pumps, pump bases, pipe, pipe supports, control panel, level control, covers, miscellaneous hardware, connection hardware, electrical, telemetering), testing, operational setup, general cleanup, and surface restoration. Also includes, coating of the dry well (where the screen will be installed) and lining of the last manhole.

## 2.10 SCREEN COMPLETE

- A. Measurement: Measurement shall be made on the completed item of work in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made at the lump sum stated in the bid. The price bid shall include furnishing all labor, materials, and equipment necessary to complete this item. Work shall include, but is not limited to, locating the manhole and wet well, excavation, connection to the existing manhole and wet well including any fittings required, manhole and wet well cored with boot (required), existing wet well modifications with necessary excavation, shoring and sheeting, dewatering, gravel bedding, castings, foundation, backfill, compaction, complete surface finish, and clean up, for the correct installation of the screen system, installing screen, bypass valve, water service, grouting, control panel, covers, miscellaneous hardware, connection hardware, electrical, testing, cleanup and surface restoration.

## 2.11 ELECTRICAL COMPLETE

- A. Measurement: Measurement shall be made on the completed item of work in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made at the lump sum stated in the bid. The price bid shall include furnishing all labor, materials and equipment necessary to complete the task. The task shall include, but is not limited to, trenching, excavation, backfill

compaction, conduit, fittings, joints, connections, pull boxes, wiring and electrical hardware, testing and start up, cleanup and surface restoration.

#### 2.12 STANDBY POWER GENERATOR

- A. Measurement: Measurement shall be made on the completed item in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made at the lump sum price stated in the bid. The lump sum price shall include furnishing and installing the new standby power generator including all labor, materials, and equipment to complete the installation. Price shall include, but is not limited to, forming, concrete, loading and unloading, controls, start-up and training, clean-up and restoration.

#### 2.13 PROPANE TANK AND ACCESSORIES

- A. Measurement: Measurement shall be made on the completed item in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made at the lump sum price stated in the bid. The lump price shall include furnishing all labor, materials, and equipment to complete the installation. Price shall include, but is not limited to, the installation of a propane tank and required accessories including connectors, fittings, valves, hoses, and pressure indicators.

#### 2.14 FORCE MAIN

- A. Measurement: Measurement shall be made along the centerline of the pipe trench through fittings and specials with no deduction for such fittings and specials in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made for each linear foot of PVC or DIP force main installed at the unit price stated in the bid. The unit price bid shall include all labor, materials, and equipment necessary to complete the installation, including, but not limited to, trenching, excavation, shoring and sheeting, dewatering, bedding, PVC or DIP pipe, connection to existing force main, backfill, compaction, testing at 150 psi and complete surface restoration.

#### 2.15 FORCE MAIN CONNECTION TO EXISTING MANHOLE

- A. Measurement: Measurement shall be made on the basis of the complete connection in accordance with the plans, specifications and bid documents.

- B. Payment: Payment will be made at the lump sum stated in the bid. Work shall include furnishing all labor, materials and equipment necessary to complete the task. The price shall include but is not limited to, locating the receiving manhole, excavation, connection to the receiving manhole including any fittings required, blocking, excavation, trenching, backfill, compaction, shoring, sheeting, fittings, grouting, dewatering, bedding and preparation of the surface for stabilization.

#### 2.16 AIR RELEASE VALVES

- A. Measurement: Measurement will be made on the basis of each unit installed in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made at the unit price bid for each complete valve installation. Work shall include trenching, excavation, necessary shoring and sheeting, dewatering, installation of valve vault, furnishing and installing air release valves, backfill, compaction, complete surface restoration, cleanup, and testing.

#### 2.17 PLUG VALVES

- A. Measurement: Measurement will be made on the basis of each unit installed in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made at the unit price bid for each complete valve installation. Work shall include trenching, excavation, necessary shoring and sheeting, dewatering, furnishing and installing valves, backfill, compaction, complete surface restoration, cleanup, and testing.

#### 2.18 STRUCTURE RELOCATION

- A. Measurement: Measurement shall be made on the basis of the lump sum of the items to be removed or relocated in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made on the basis of the lump sum bid and the completion of the project. Partial payments will not be made. The project's completion will be determined by the engineer. Work shall include, but is not limited to, relocating existing structures to include mailboxes, signage, posts, and other structures that may impede construction, and includes the provision of temporary mailboxes throughout the construction process, and the replacement of damaged mailboxes or signs and posts, cleanup, and surface restoration.

## 2.19 CONCRETE DRIVEWAY AND PAVEMENT REMOVAL & REPLACEMENT

- A. Measurement: Measurement shall be made on the basis of each square yard of concrete driveway and pavement removed in accordance with the plans, specifications and bid documents.
- B. Payment: Payment will be made on the basis of the unit price stated in the bid. the work shall include, but is not limited to marking, cutting, and removal of pavement, concrete, or other material that exist and will not be used as part of this project, excavation, disposal at an approved site, backfill, compaction and surface restoration.

## 2.20 ENCASED FORCE MAIN

- A. Measurement: Measurement will be made based on the number of linear feet of steel cased bore installed to the lines and grade shown on the plans.
- B. Payment: Payment will be made for each linear foot of PVC force main with casing pipe installed at the unit price stated in the bid. The unit price bid shall include all labor, materials, and equipment necessary to complete the installation, including, but not limited to, excavation of the bore pit, trenching, shoring and sheeting, dewatering, bedding, PVC pipe, backfill, compaction, testing at 150 psi and complete surface restoration.

## 2.21 CHECK DAM

- A. Measurement: Measurement shall be made on the basis of each hay bale check dam placed at the locations shown on the plans and in accordance with "The Manual for Erosion and Sediment Control in Georgia".
- B. Payment: Payment will be made at the unit price bid. The unit price bid shall include all material, labor and equipment necessary to accomplish the task. Work shall include, but not be limited to, excavation, grading, furnishing and placing stone, gravel filler, hay, and geotextile filter blanket as shown on the plans. All check dam locations shall be approved by the Engineer prior to installation. No payment will be made for check dam installed without approval of Engineer.

END OF SECTION

**SECTION 15215  
VERTICAL TURBINE PUMPS**

**PART 1 - GENERAL**

1.01 APPLICABLE STANDARDS

A. American Water Works Association (AWWA):

E-101 Well Pumps

1.02 SCOPE

The work of this section involves furnishing and installing submersible sewage pumps complete with controls, access covers, and accessories necessary for a complete installation. Controls shall be as specified in paragraph 2.03, below.

1.03 SUBMITTAL OF INFORMATION

A. Six (6) copies of the manufacturer's standard drawings and catalog cuts of the following items shall be submitted for approval by the Engineer:

1. Name, type, and model number of pump & motor.
2. Size and materials of bowls, discharge column, pump shaft, screens and screen openings, guide bars and brackets, cable holders, control panels, float, all other accessories, and any other size necessary for the complete evaluation of the units.
3. Shop drawing of the complete unit, including equipment installation, layout, and dimensions.
4. Characteristic curves certified by the manufacturer including capacity, total head, required horsepower, and set pump hydraulic efficiency.
5. Electric motor information.
6. Six (6) Operation and Maintenance manuals which include specific instructions for receiving and handling, disassembly, wiring, installation repair, and service troubleshooting pumps and controls, and a full parts list.

B. Failure to submit the above information will be grounds for rejection of the installation.

## PART 2 - PRODUCTS

### 2.01 PUMPS

A. The pumps shall be designed and constructed to meet all those applicable portions of AWWA E101 77.

B.

<u>Parameters</u>	<u>EFFLUENT P.S.</u>
Quantity:	2
Manufacturer:	National Pump Company or similar

#### *Operating Conditions*

1. Capacity (GPM):	1250 GPM
2. Total Dynamic Head (ft):	135 ft
3. Minimum Motor HP:	60 HP
4. Max. Speed:	1800 rpm
5. Base Elbow Size:	8 in
6. Bowl:	K12HC 2 Stg or similar
7. Liquid:	Stormwater

#### *Materials of Construction*

1. Casing:	Cast Iron
2. Impeller:	Stainless Steel
3. Shaft:	Stainless Steel, integral pump, and motor supported by upper and lower ball bearings.
4. Exposed Fasteners:	Stainless Steel

Adjustment: Provided at top of the head shaft by an adjusting nut which shall be locked in place.  
Dynamically balanced to ISO 1940 G63 or better.

C. The pump outer housing shall be suitable for containing the pump diffusers and impellers and shall serve to support the entire weight of the complete pumping assembly. It shall be constructed of high-quality seamless steel tubing capable of bearing the maximum head shut-off pressures of the pump and also include an adequate safety factor.

D. The pump diffusers shall be accurately machined from a single piece of a suitable metal, cast iron, or equal. The bushing surface of the diffusers shall be designed to provide maximum alignment for the impeller.

- E. With electric power the pump motor shall be of the full voltage starting, vertical hollow-shaft squirrel-cage induction type, and shall comply with ANSI C50.2. The connection to the top shaft shall be through coupling or clutch in the motor head. The motor shall be of the proper size to drive the pump continuously over the specified operating range without the load exceeding the nameplate rating on the motor. The motor shall be rated as dip-proof with class B insulation and with a 1.15 service factor. Motor thrust bearing shall be precisely aligned and shall be sized to carry all residual pump thrust and still provide an adequate safety factor. The motors shall not "drag" during the startup but shall reach full operating speed within 21 cycles after being energized.

## 2.02 DISCHARGE PIPE

- A. The discharge pipe for each pump shall be the size and material shown on the drawings.
- B. The pipes shall be 8 inches in diameter for the best connection to the existing system. The pipes shall tie into swing check valves and plug valves, which shall also be replaced as indicated by the manufacturer.

## 2.03 ELECTRICAL CONTROLS

- A. The Contractor shall furnish electrical controls compatible with the pump motor furnished.
- B. All electrical controls shall meet the requirements of the National Electrical Code.
- C. The pump shall be equipped with a combination circuit breaker magnetic starter with quick trip relays and a hand-off automatic switch in NEMA 1 enclosure suitable for manual or automatic operation.
- D. For the three-phase motor, provide three-line protection.
- E. Overload relays shall be equipped with properly sized heaters and shall be ambient compensated.
- F. A phase failure relay which operates on phase current unbalance shall be provided in the starter enclosure for protection against single phasing conditions.
- G. The relay shall have an adjustable pickup value and an adjustable time delay of 0.30 seconds in order to prevent nuisance tripping on transient disturbances.

## **PART 3 - EXECUTION**

### **3.01 PUMP**

- A. The pump shall be installed by the Contractor to the manufacturer's instructions.
- B. The pump bowl shall be set at the specified elevation. See construction plans.

### **3.02 DISCHARGE PIPING**

- A. The piping shall be handled and installed in such a manner that the pipe will not be damaged and shall be installed in accordance with the manufacturer's recommendations.
- B. All piping shall be installed as shown on the plans.

### **3.03 ELECTRICAL CONTROLS**

- A. Installation of any electrical equipment will conform to the electrical section of this specification.

END



**SECTION 15500  
SEWAGE SCREENING DEVICE**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. The screening device shall be a fine screen with vertical lifting, dewatering, and compaction of screenings with guide rails for easy and safe maintenance.
- B. The equipment shall be equipped with a vertical screen basket and a shafted auger in a vertical tube. The screen basket in the flights of the auger shall be equipped with a wear-resistant brush for effective cleaning of the screen.
- C. The unit shall have a chamber into the screen basket which serves as an emergency bypass in case of power failure or mechanical concerns.
- D. The unit shall be equipped with automatic operation based on flow through the screen.
- E. The unit shall be equipped with an all-weather electrical control panel suitable for outdoor use.
- F. Shop drawing will be submitted in accordance with the general conditions, supplemental general conditions and general requirements.
- G. The unit will be supplied with four (4) copies operation and maintenance manuals to include required lubrication and maintenance sections.

**PART 2 - PRODUCTS**

2.01 SCREENING DEVICE

- A. The unit shall be HUBER Pump Stations ScreenROTAMAT® Rok4 500/6 unit or equal. The unit will consist of a spiral assembly, screen basket, transport tube, press zone assembly, discharge section, drive system, pivot stand, and control.
- B. Screen basket will have ¼" diameter perforations fabricated of 14 gauge type 304L stainless steel.
- C. The unit will be equipped with rubber channel seals fastened to the outer edge of the screen basket to avoid solids bypass of the screen.
- D. The unit will be equipped with a shaftless spiral constructed of nominal 0.75" high strength of carbon steel with water resistant brush attached to the leading edge of spiral in the basket. The spiral shall be welded to the drive shaft.
- E. The transport tube will be designed as a fully shafted stainless-steel auger inside a vertical tube.

- F. The unit must have a drainage hose and spray wash water system enclosed by a jacket assembly.
- 1) The drainage hose shall divert the drained water back into the inlet chamber.
  - 2) Spray wash system shall be equipped with a 1" spraywater connection which will flush down the outside of the dewatering cylinder. The wash water spray system shall have an output of approximately 31 gpm @ 60 psi. Pipe and fittings shall be schedule 40s and will be protected from freezing.
  - 3) The spray system shall be equipped with a solenoid valve to control automatic operation. The solenoid valve body will be constructed of brass.
  - 4) The jacket assembly shall consist of an 304L stainless steel outer shell and will be equipped with at least 3 equally spaced wear bars to avoid spiral wear on the surface of the tube. Drainage collection box with attached drainage hose.
  - 5) All required anchor bolts shall be included M12, 316L bolts. The supports shall be of 304L Stainless Steel Construction.

## 2.02 DRIVE SYSTEM

- A. Drive system shall be minimum 2.0 H.P. motor.
- B. The shaft shall be welded directly to the spiral.
- C. The motor shall be 480/3 Phase/60 Hertz, S.F. 1.15, Class 1 Division 1.
- D. Emergency stop button will be required mounted in a NEMA 4X stainless steel enclosure.

## 2.03 CONTROLS

- A. Controls will be furnished in a NEMA 4X stainless steel enclosure.
- B. The unit shall use Allen Bradley MicroLogix PLC or equal and Allen Bradley PanelView Plus 800 HMI or equal.
- C. All controls shall be 480/3 PH/60 Hertz supply.
- D. Motor starter shall be equipped with disconnect switch and 120 volt step down transformer.
- E. Panel shall be equipped with an H-O-A and E- STOP Button.
- F. Panel shall be equipped with indicator lights.
- G. Controls shall be operated with a float switch level sensor to operate the system.

- H. The unit shall be equipped with a bagging device with replaceable magazine of continuous clear plastic bags.

### **PART 3 - EXECUTION**

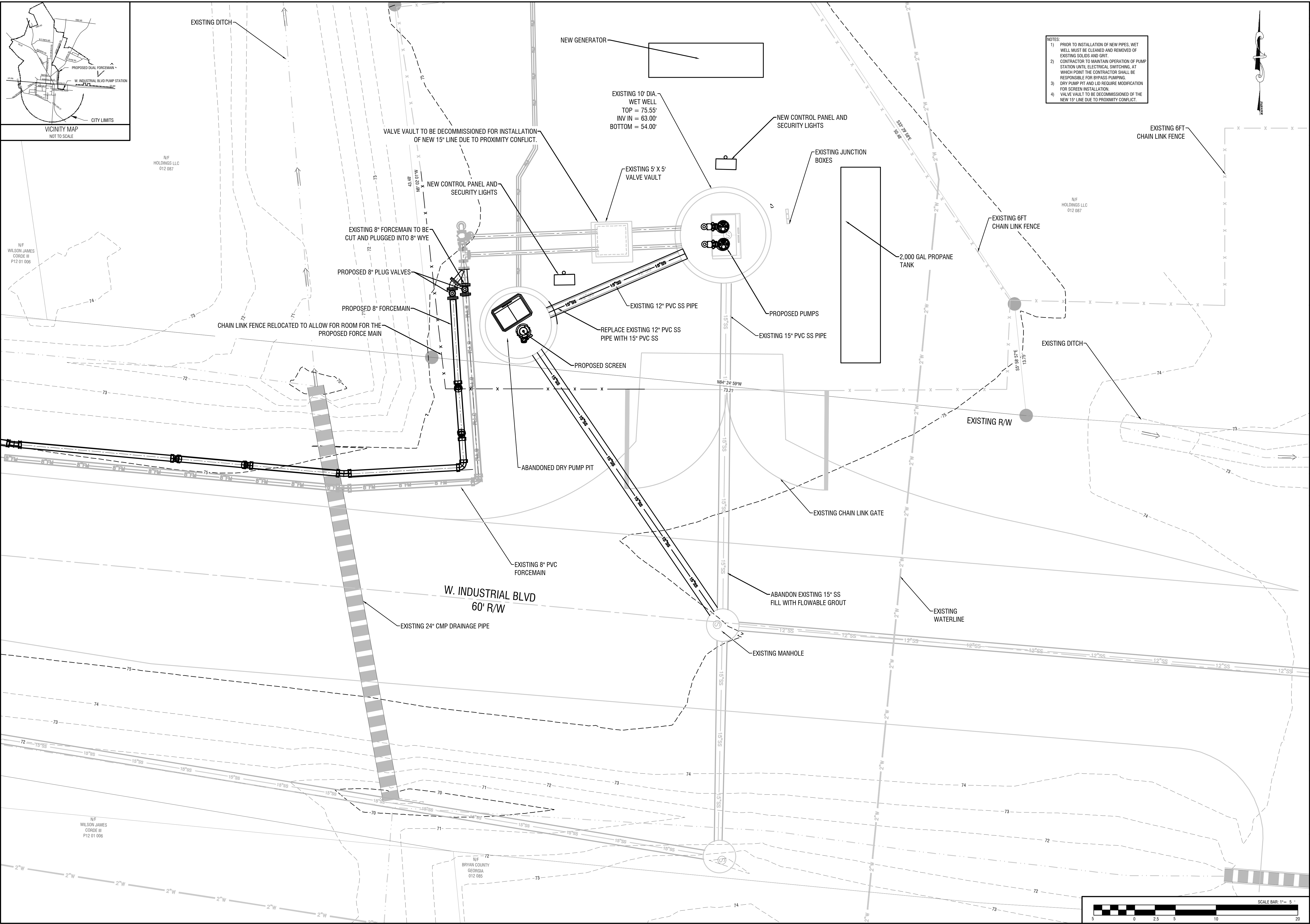
#### **3.01 INSTALLATION**

- A. The unit shall be installed in a concrete structure capable of withstand low rates and structures weights.
- B. The structure shall include a bypass with a manual bar screen capable of passing 100% of the design flow.
- C. The screen shall be installed to accommodate the automatic bagging feature or direct discharge into the disposal container determined by the City.
- D. Water service protected from cross connection will be provided for the unit. The water service shall be sized in accordance with the manufacturer recommendations.
- E. The unit and all appurtenant structures will be stored in a weather tight enclosed structure.


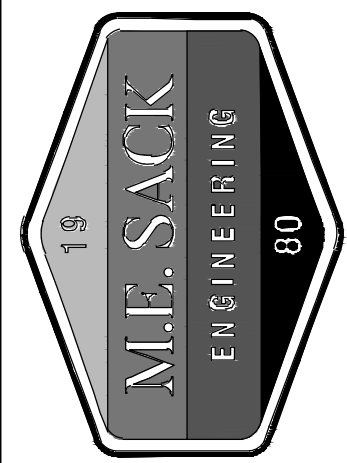
#### **3.02 WARRANTY**

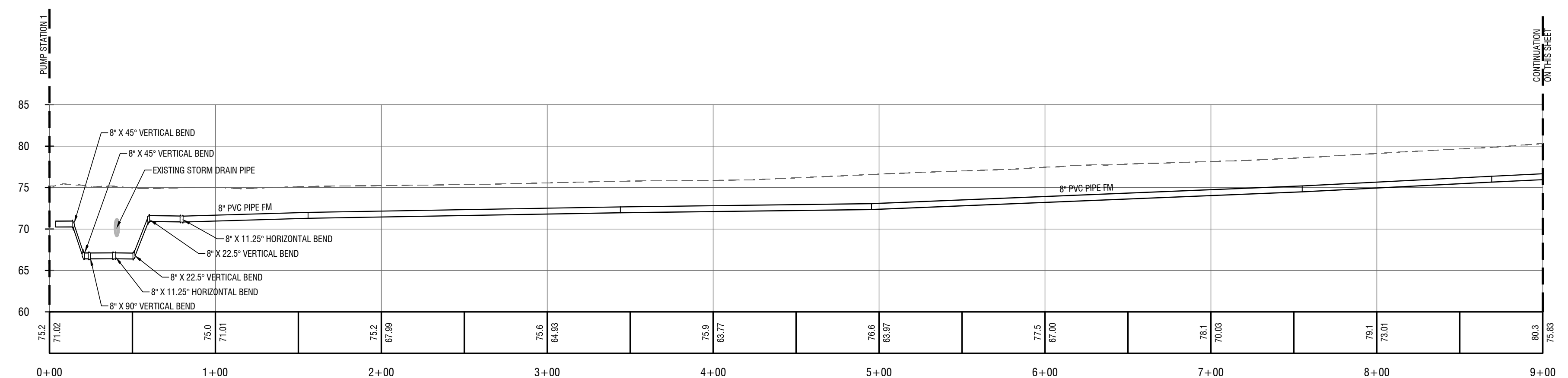
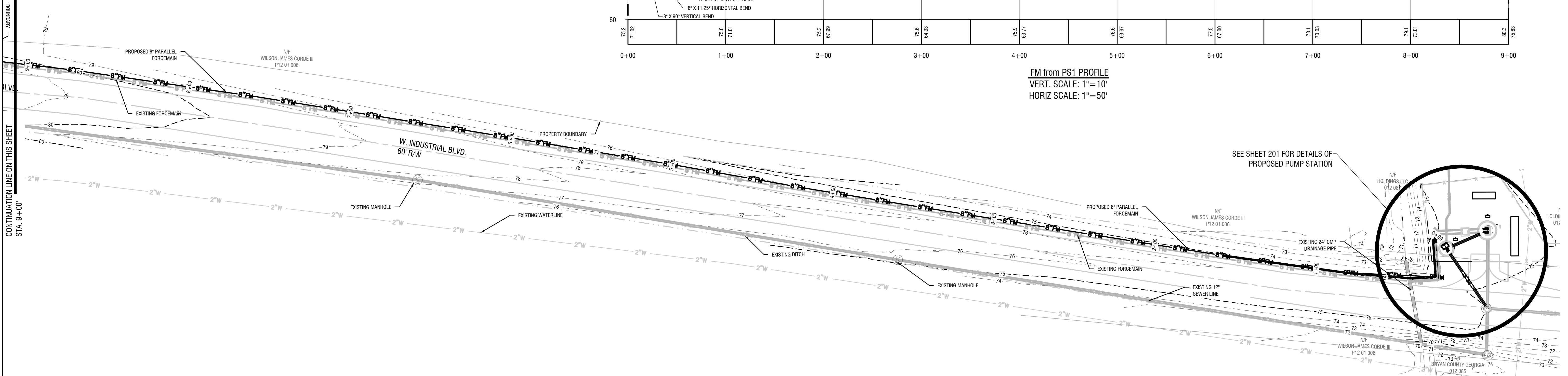
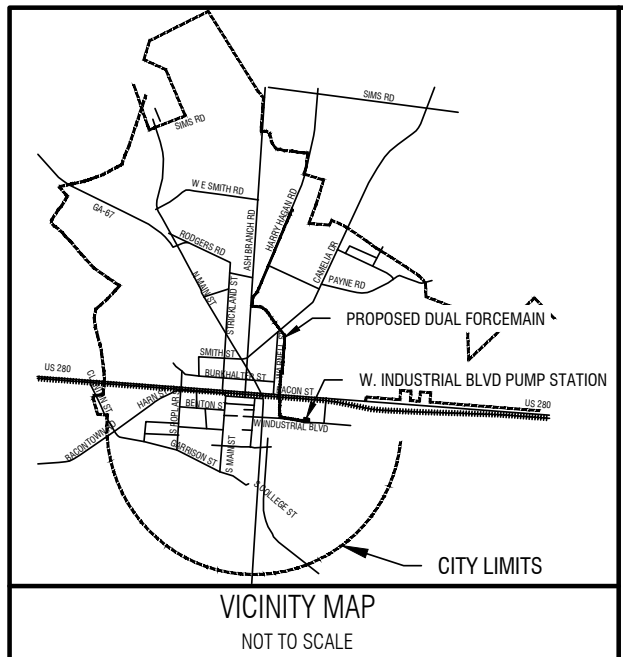
- A. The warranty period shall be 100% parts replacement and installation for a period of 12 months.
- B. The screen supplier will provide start up service to include checking for proper equipment operation and installation.

END OF SECTION



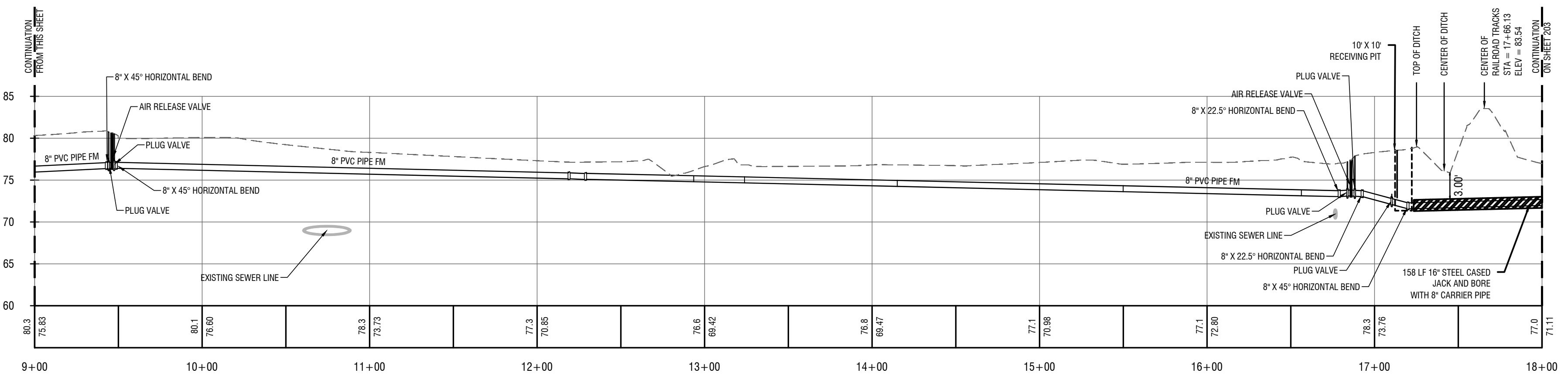
NOTES:  
 1) PRIOR TO INSTALLATION OF NEW PIPES, WET WELL MUST BE CLEANED AND REMOVED OF EXISTING SOLIDS AND GRIT.  
 2) CONTRACTOR TO MAINTAIN OPERATION OF PUMP STATION UNTIL ELECTRICAL SWITCHING, AT WHICH POINT THE CONTRACTOR SHALL BE RESPONSIBLE FOR BYPASS PUMPING.  
 3) DRY PUMP PIT AND LID REQUIRE MODIFICATION FOR SCREEN INSTALLATION.  
 4) VALVE VAULT TO BE DECOMMISSIONED OF THE NEW 15" LINE DUE TO PROXIMITY CONFLICT.

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DATE: November 21, 2023	
	
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COUNTY: BRYAN	
Owner: City of Pembroke 160 N Main St Pembroke, GA 31321 (912) 653-4413 streets@pembrokega.net	
24 HOUR CONTACT: Keith Cook 160 N Main St Pembroke, GA 31321 (912) 653-4413 streets@pembrokega.net	
<b>PUMP STATION IMPROVEMENTS</b>	
<b>SITE PLAN 1</b>	
<b>C201</b>	
FILE NO: 2020-48	
PLOT DATE: November 21, 2023	



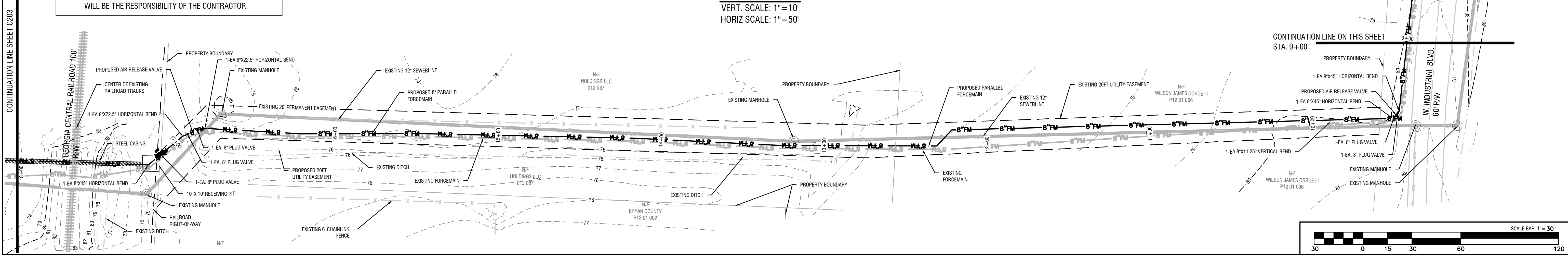
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VERT. SCALE: 1"=10'  
HORIZ SCALE: 1"=50'

NOTE:  
1. ALL TRAINING, CLASSES, AND TRAINING EXPENSES REQUIRED FOR RAILROAD RIGHT-OF-WAY ENTRY AND CONSTRUCTION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.



FM from PS1 PROFILE  
VERT. SCALE: 1"=10'  
HORIZ SCALE: 1"=50'

- NOTE:
1. IN ACCORDANCE WITH GDOT GUIDELINES AND TO ENSURE THE BOREHOLE REMAINS OPEN WITH LITTLE OR NO DEFORMATION, THE PORTION OF THE FORCE MAIN BETWEEN ENTRY POINT AND EXIT POINT SHALL BE ENCASED IN 16" STEEL CASING WITH 8" PVC CARRIER PIPE.
  2. IN ACCORDANCE WITH CSX SPECIFICATIONS TEST BORINGS SHALL BE MADE IN ACCORDANCE WITH CURRENT ASTM DESIGNATION D1586 EXCEPT THAT SAMPLING MUST BE CONTINUOUS FROM THE GROUND SURFACE TO 5 FEET BELOW THE PROPOSED INVERT UNLESS ROCK IS ENCOUNTERED BEFORE THIS DEPTH. WHERE ROCK IS ENCOUNTERED, IT IS TO BE CORED USING A SERIES "M" DOUBLE TUBE CORE BARREL WITH A DIAMOND BIT, CAPABLE OF RETRIEVING A ROCK CORE AT LEAST 1 5/8" IN DIAMETER. INDIVIDUAL CORE RUNS ARE NOT TO EXCEED 5 FEET IN LENGTH.
  3. ALL BORINGS SHALL BE SEALED, FOR THEIR FULL DEPTH, WITH A 4-3-1 BENTONITE-CEMENT-SAND GROUT AFTER ACCURATE GROUND WATER READINGS HAVE BEEN TAKEN AND RECORDED.
  4. SOIL SAMPLES TAKEN FROM AUGER VANES OR RETURN WASHWATER ARE NOT ACCEPTABLE.



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BRYAN

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streets@pembrokega.net

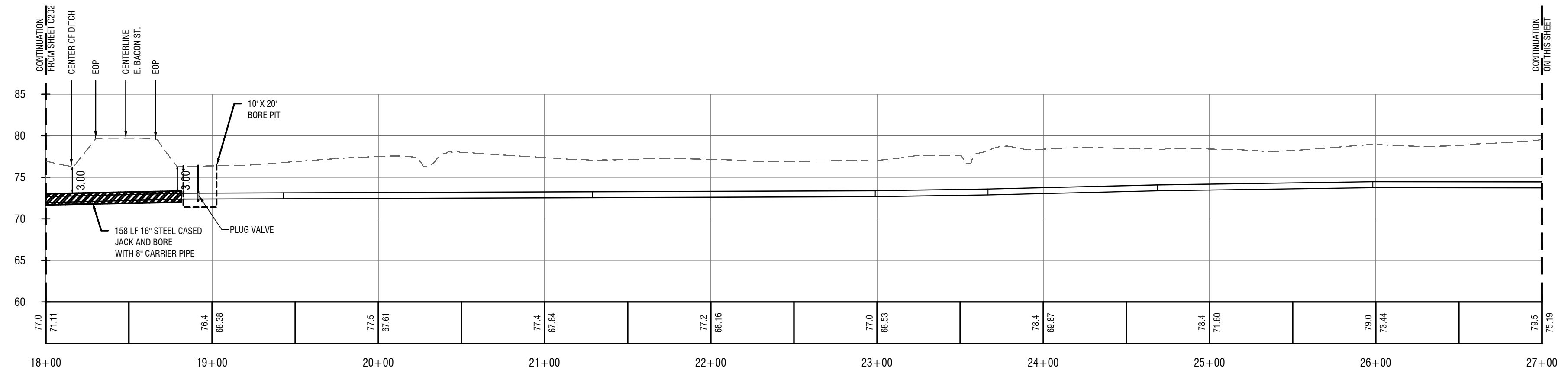
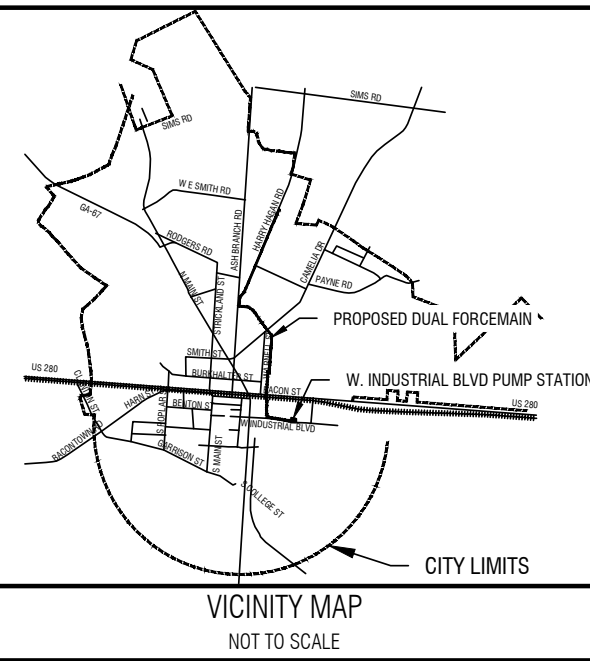
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PUMP STATION  
IMPROVEMENTS

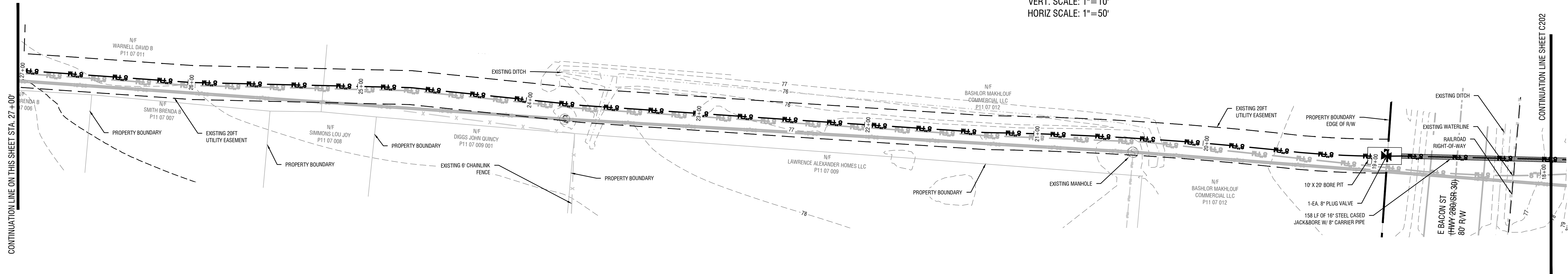
SITE PLAN 2

C202

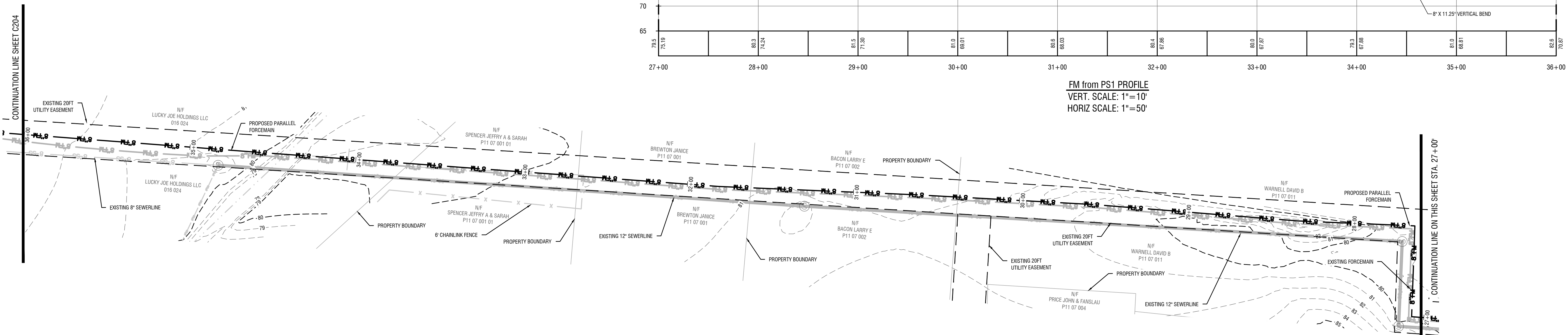
FILE NO: 2020-48  
PLOT DATE: November 21, 2023



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VERT. SCALE: 1"=10'  
HORIZ SCALE: 1"=50'



FM from PS1 PROFILE  
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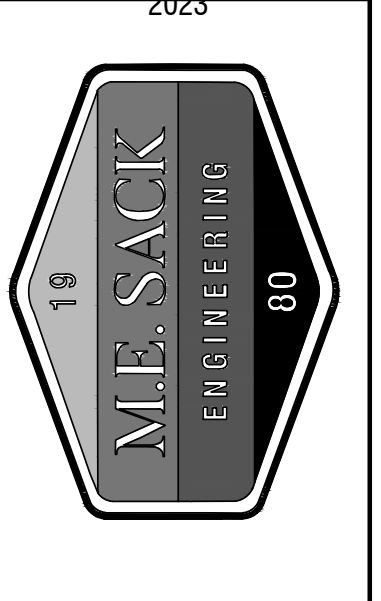


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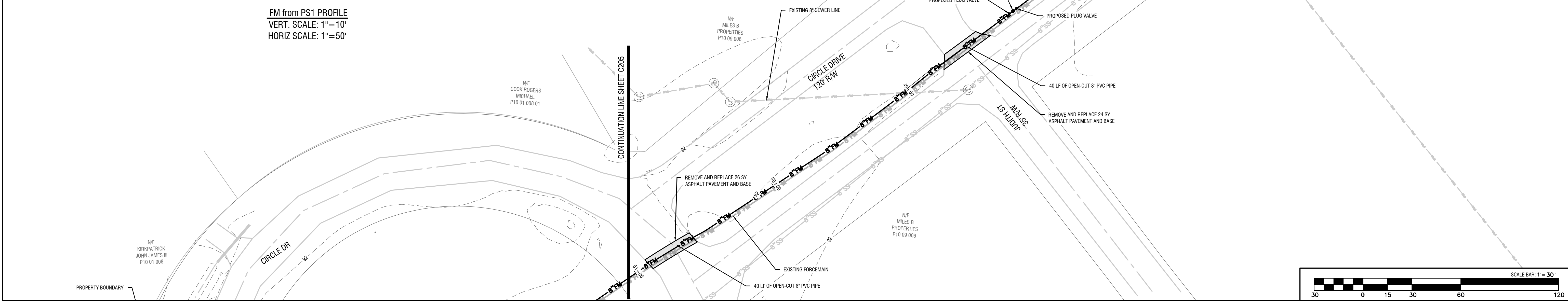
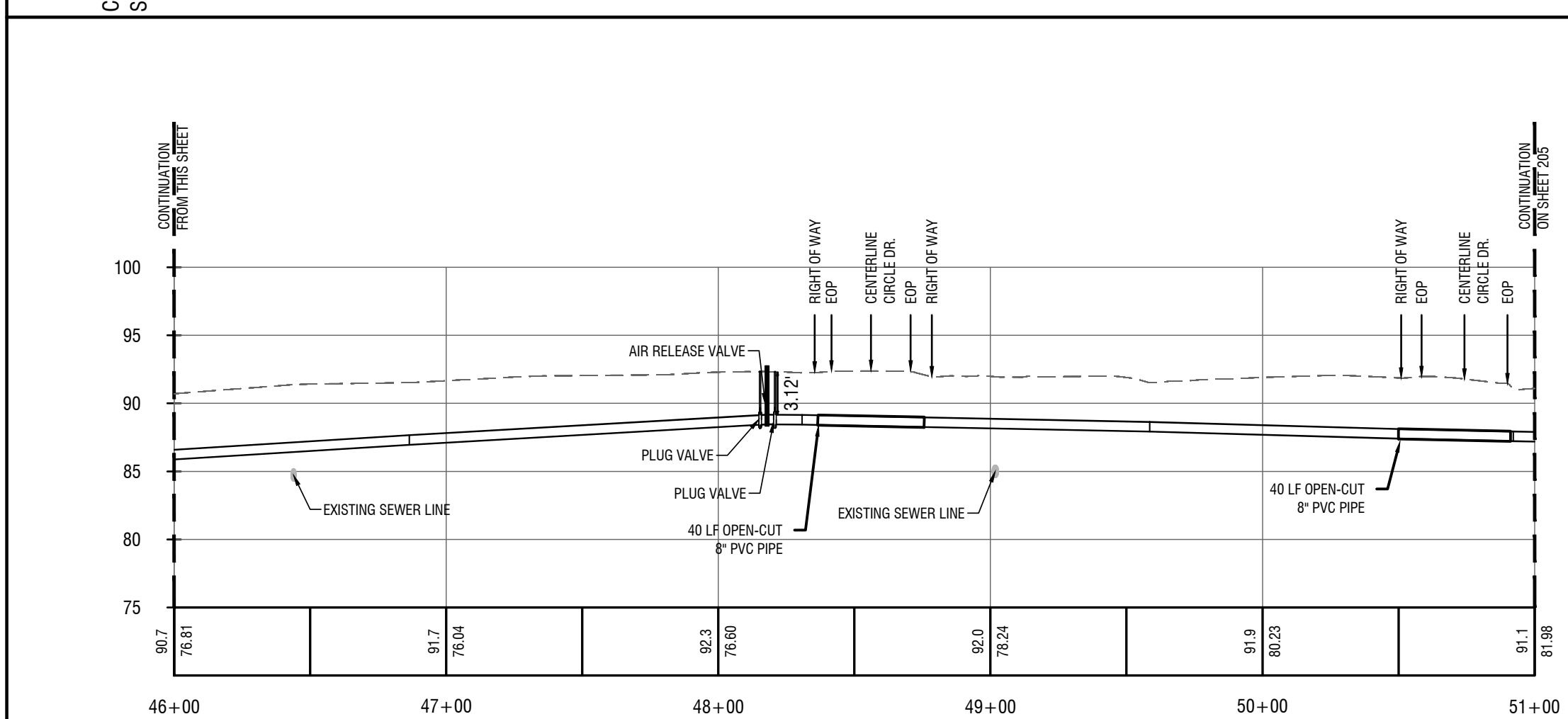
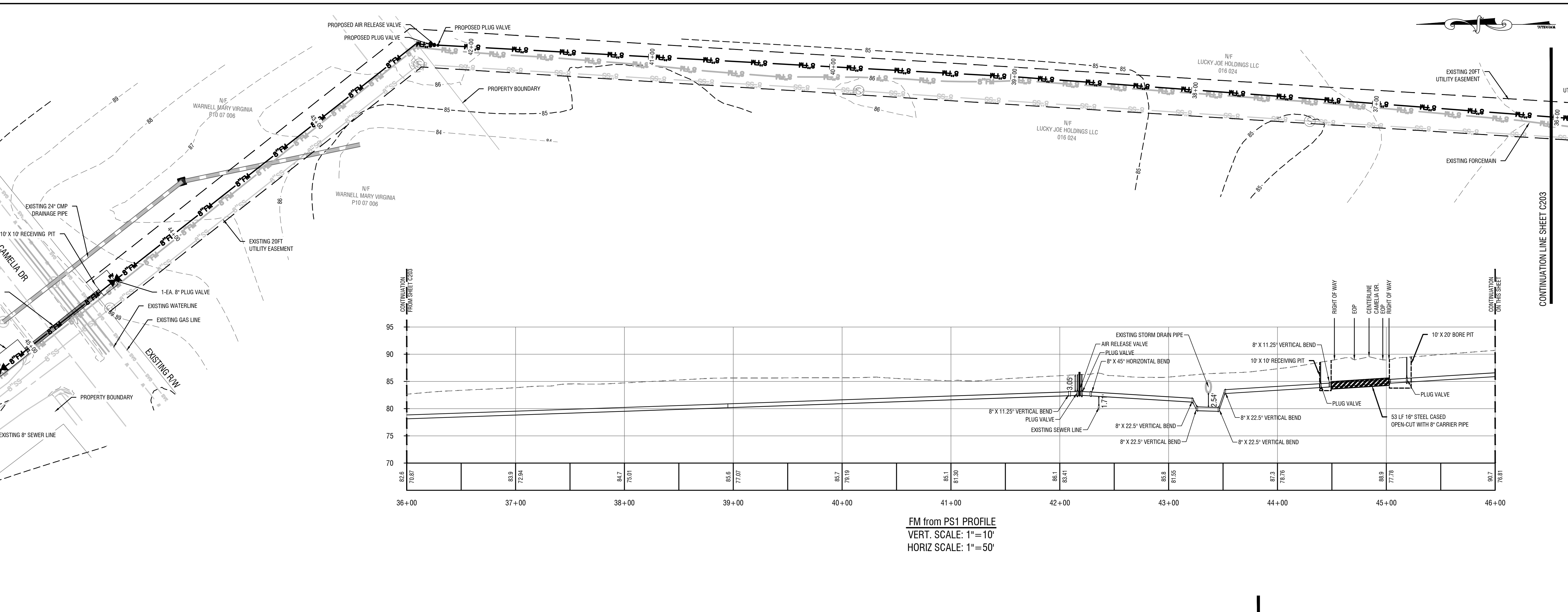
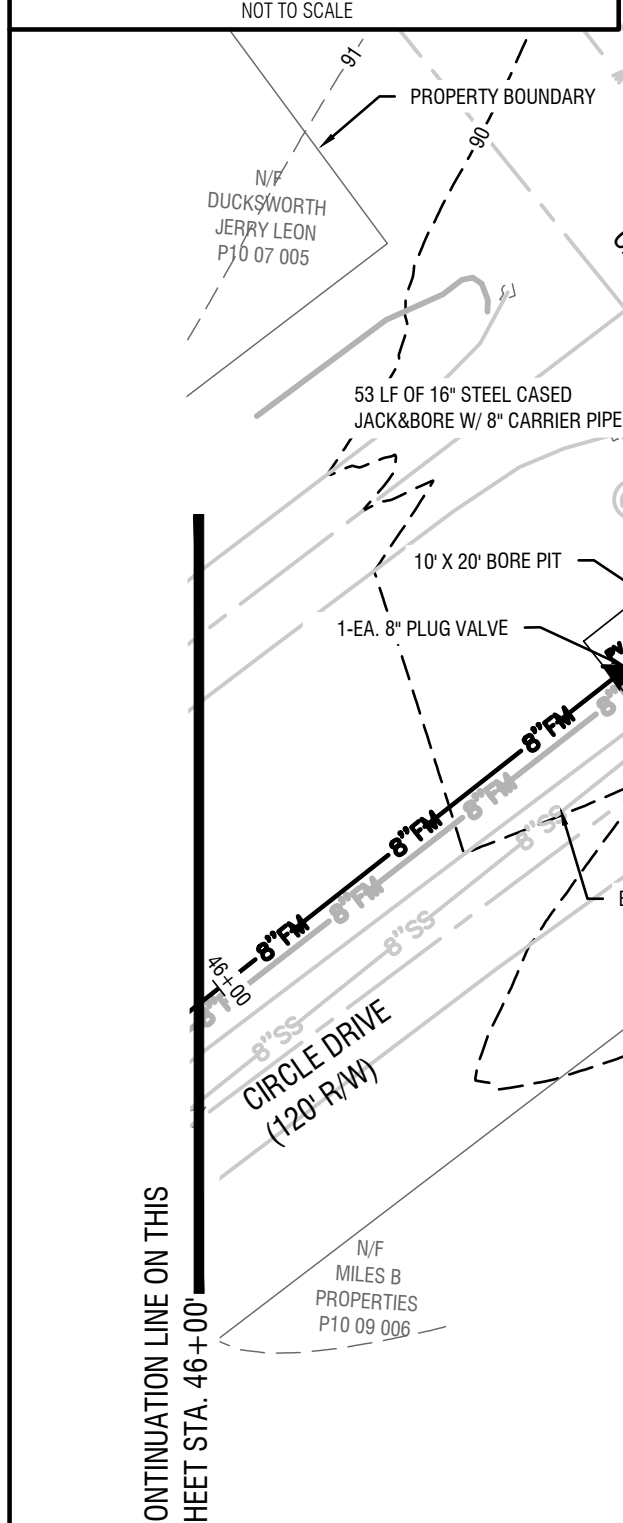
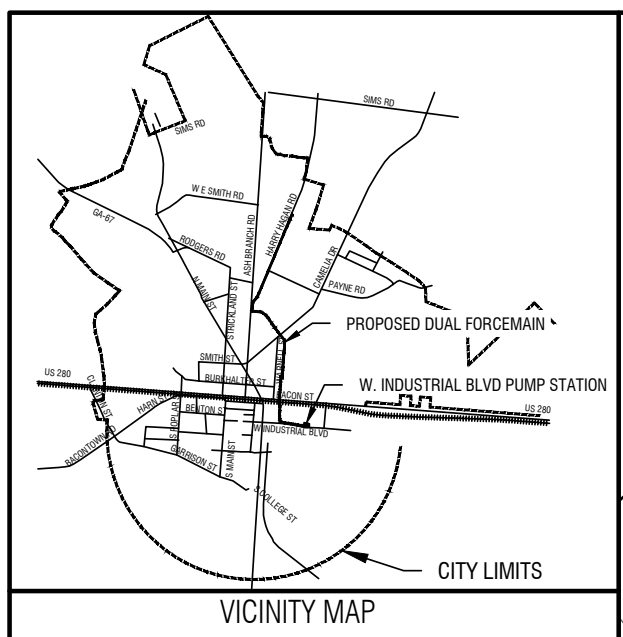
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PUMP STATION  
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SITE PLAN 3

C203

FILE NO: 2020-48  
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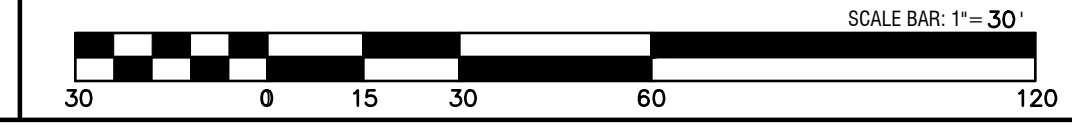
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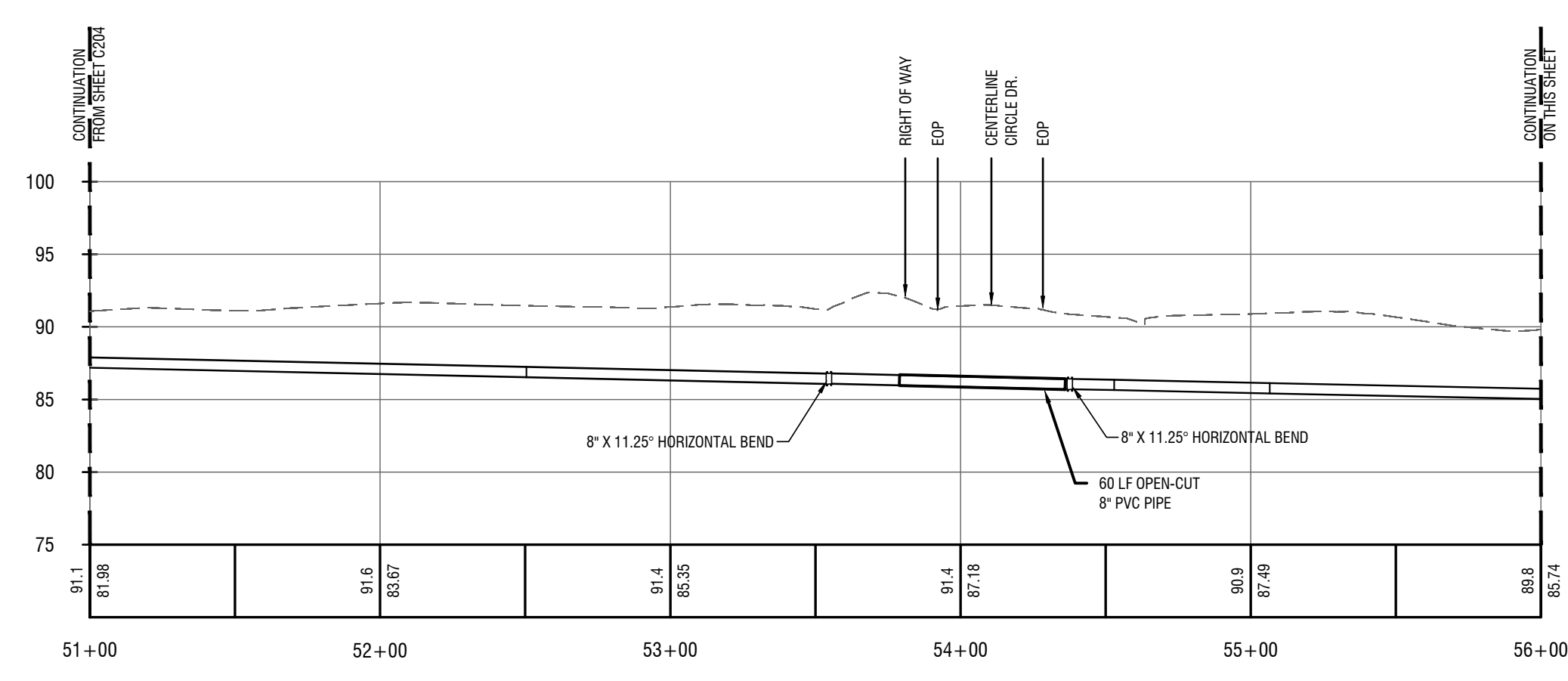
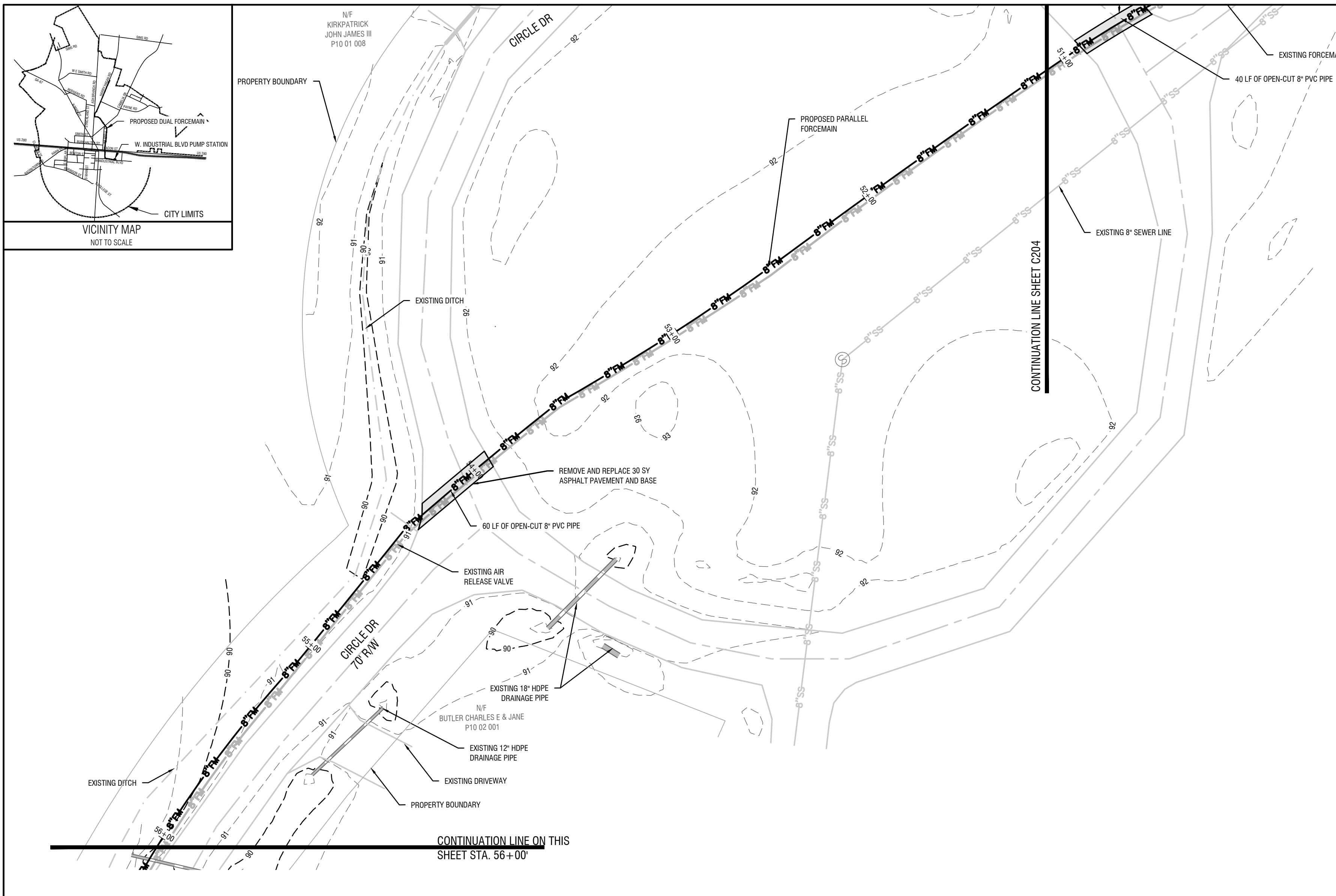
**PUMP STATION IMPROVEMENTS**

**SITE PLAN 4**

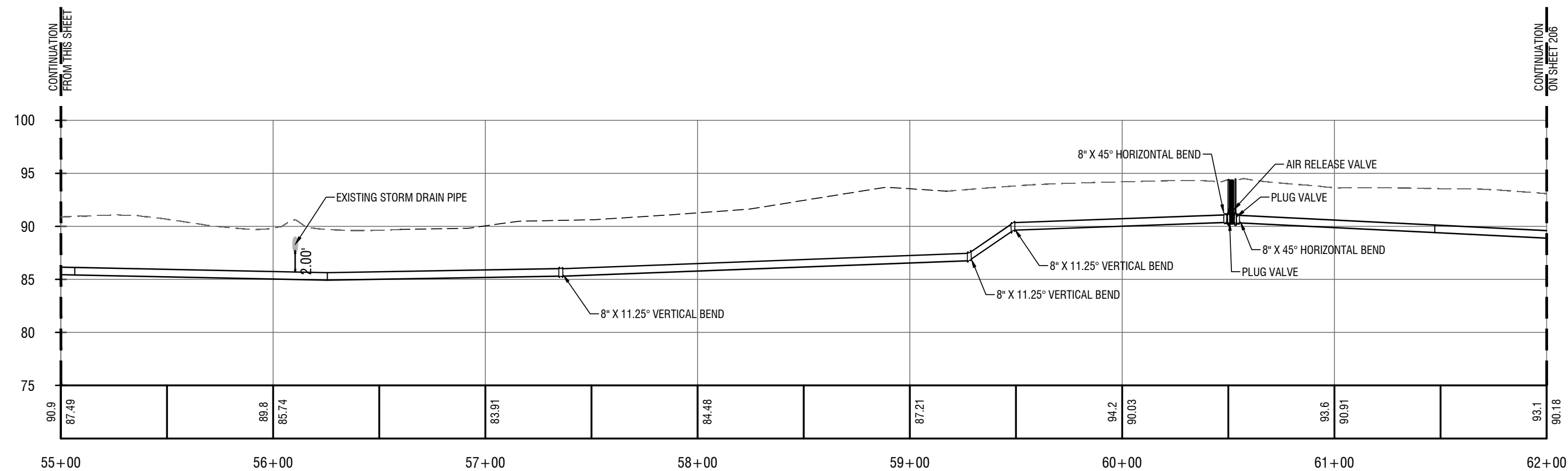
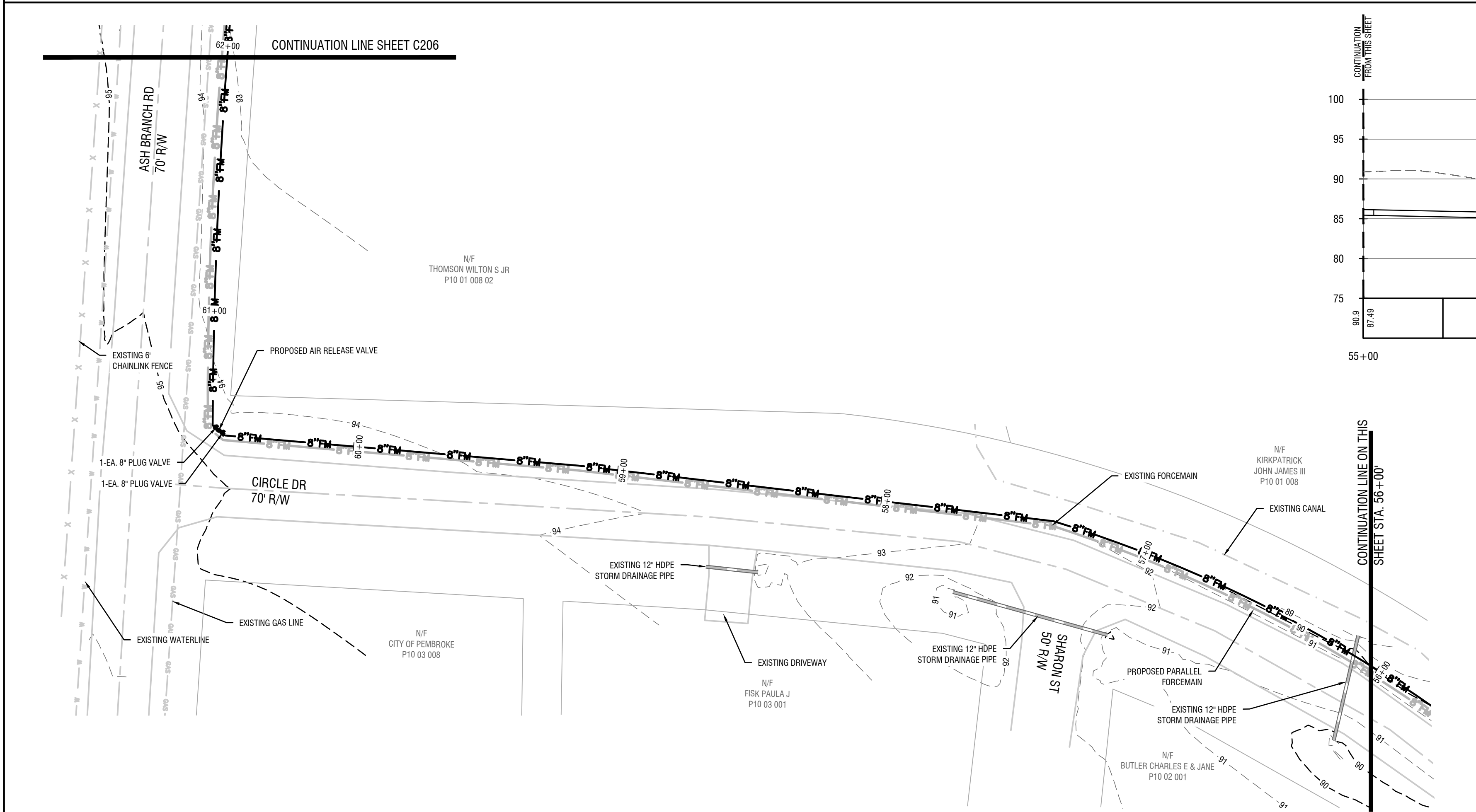
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FILE NO: 2020-48  
PLOT DATE: November 21, 2023

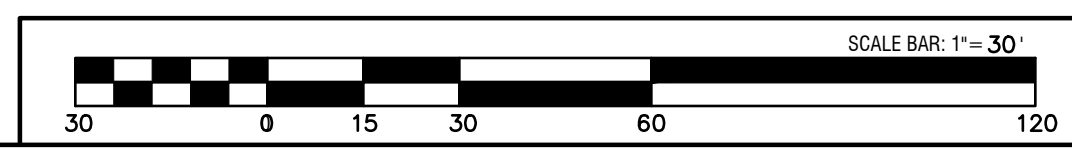




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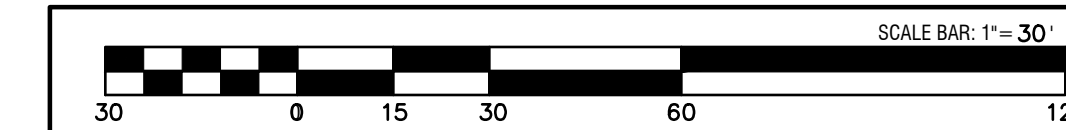
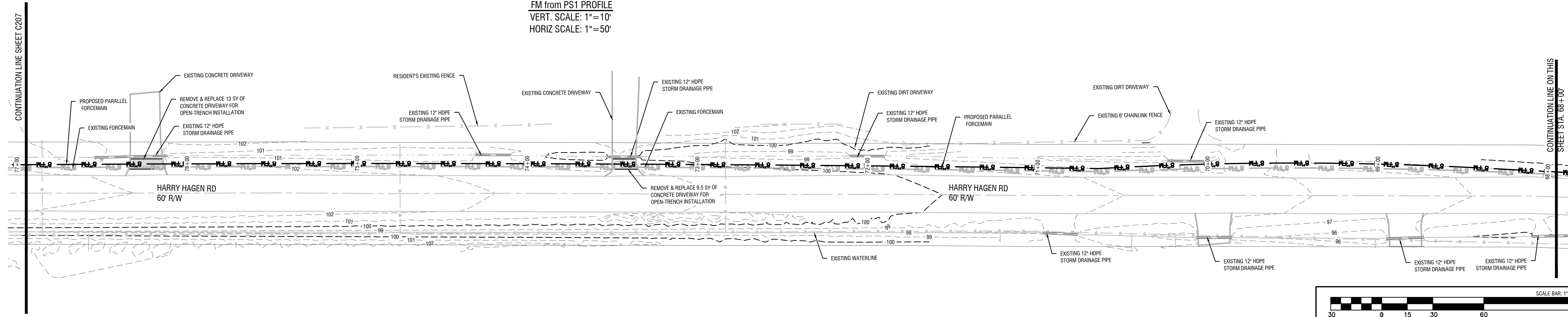
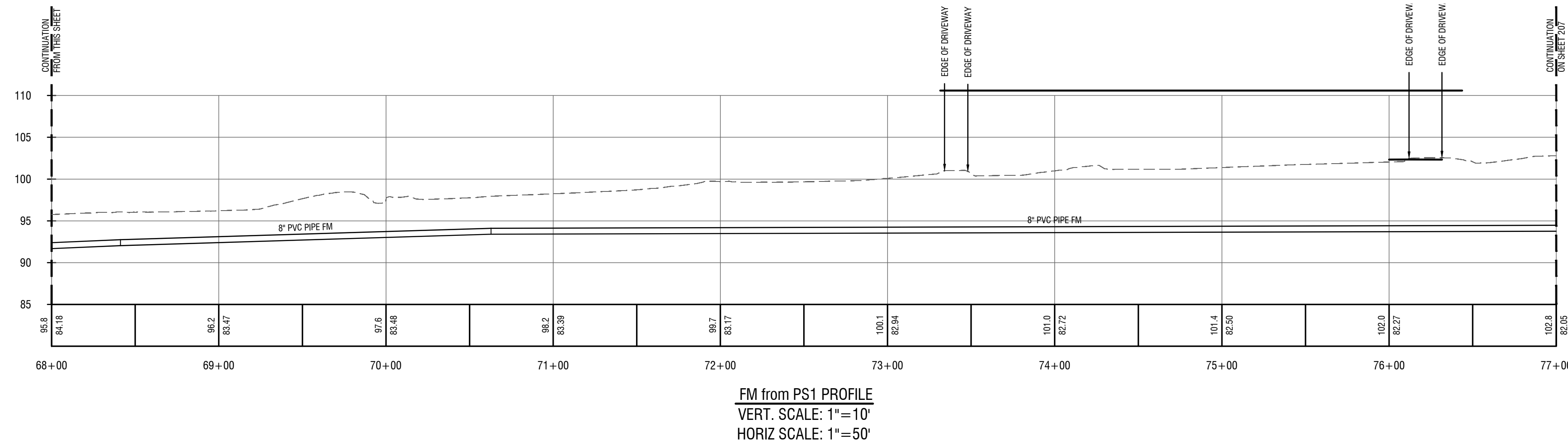
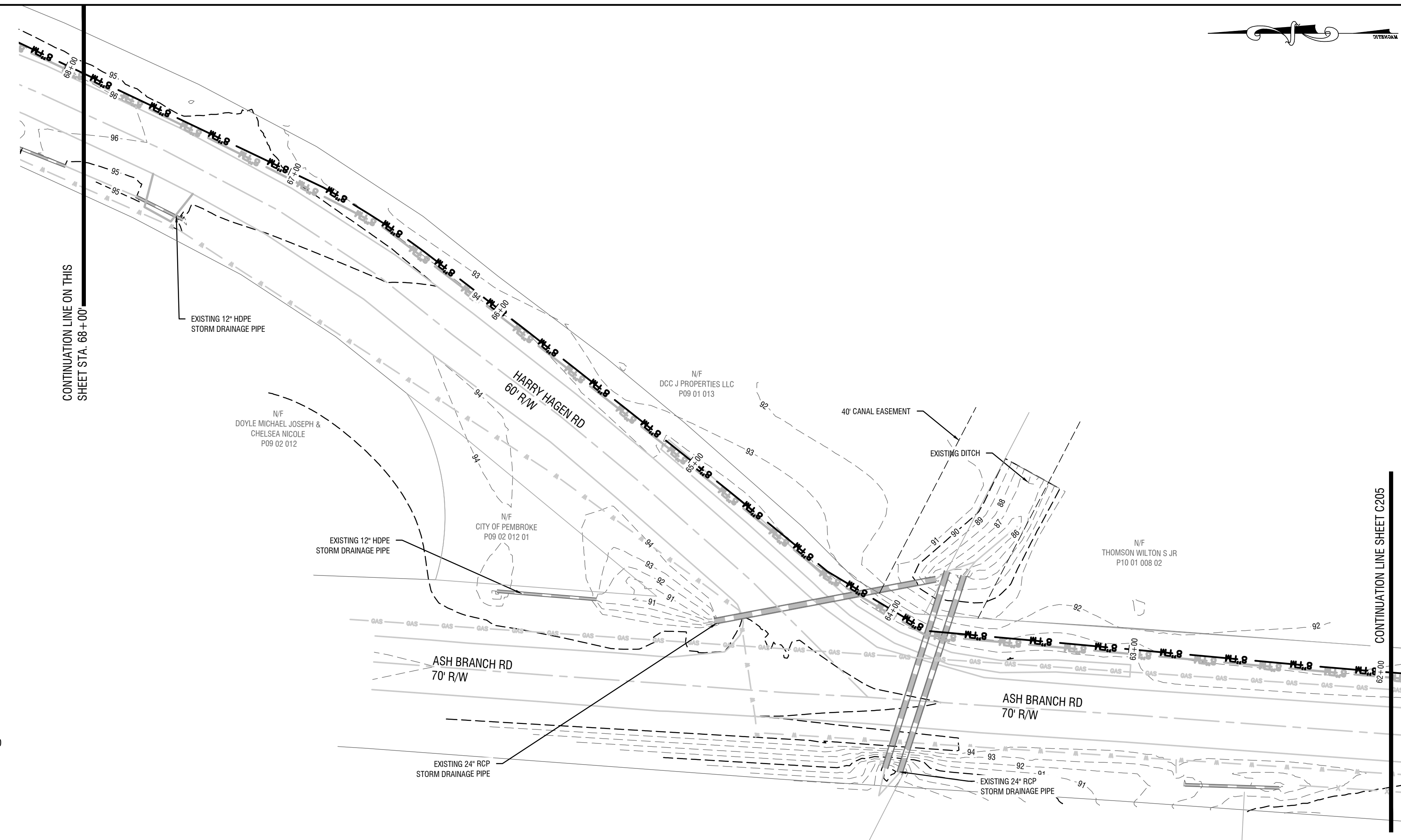
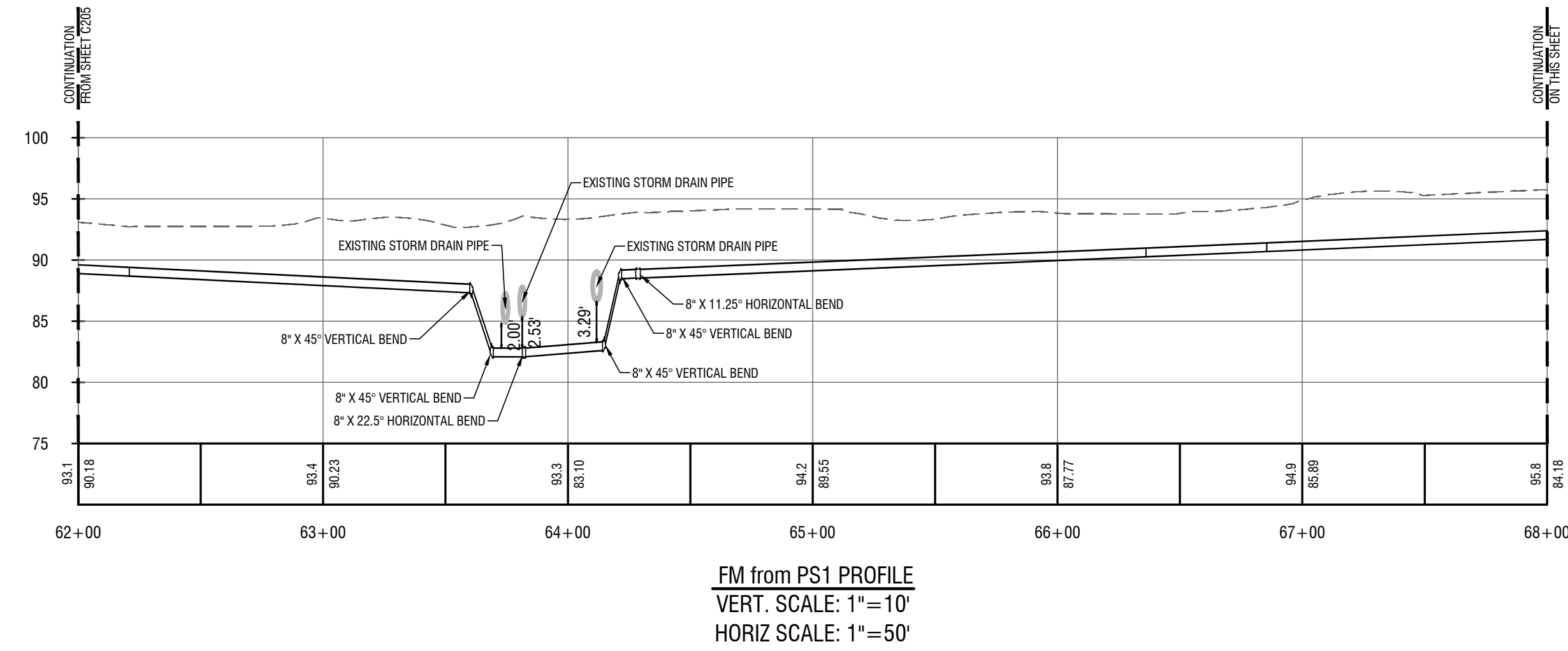
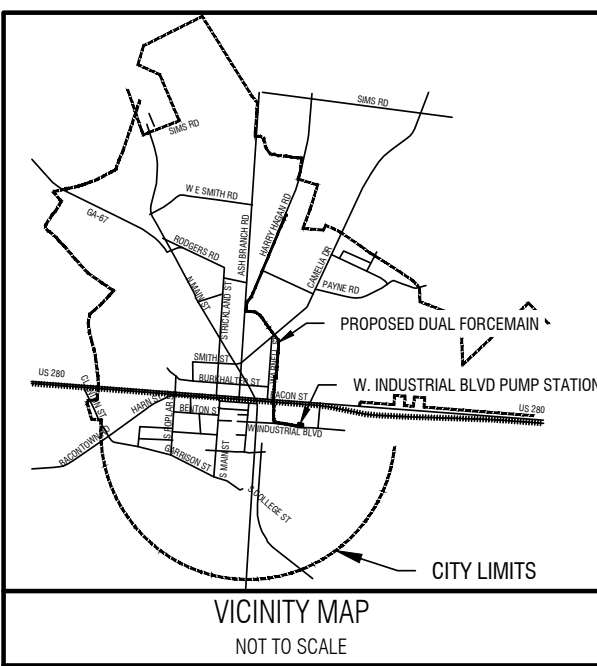


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<h1 style="text-align: center;">PUMP STATION IMPROVEMENTS</h1>	
<h2 style="text-align: center;">SITE PLAN 5</h2>	
<h1 style="text-align: center;">C205</h1>	
FILE NO: 2020-48 PLOT DATE: November 21, 2023	





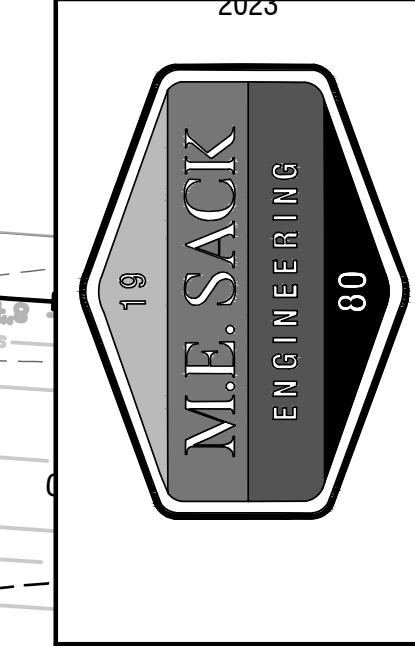
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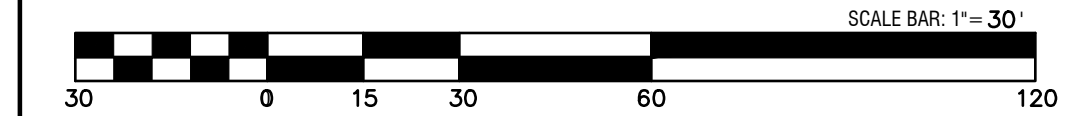
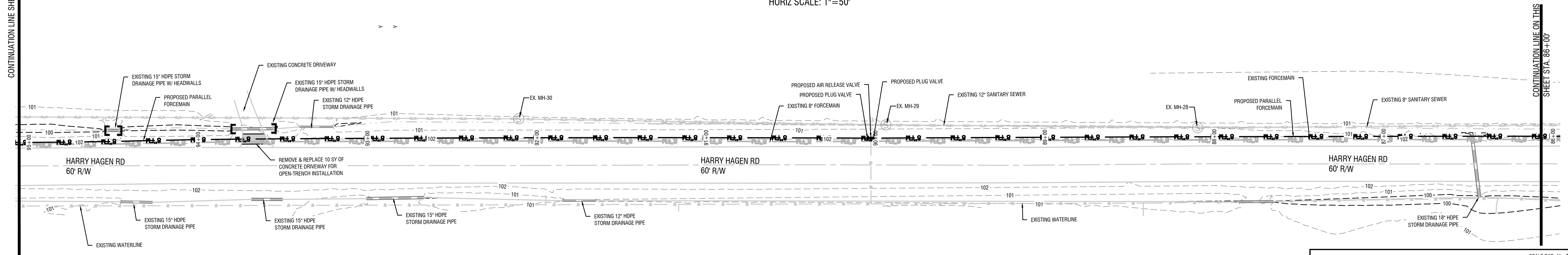
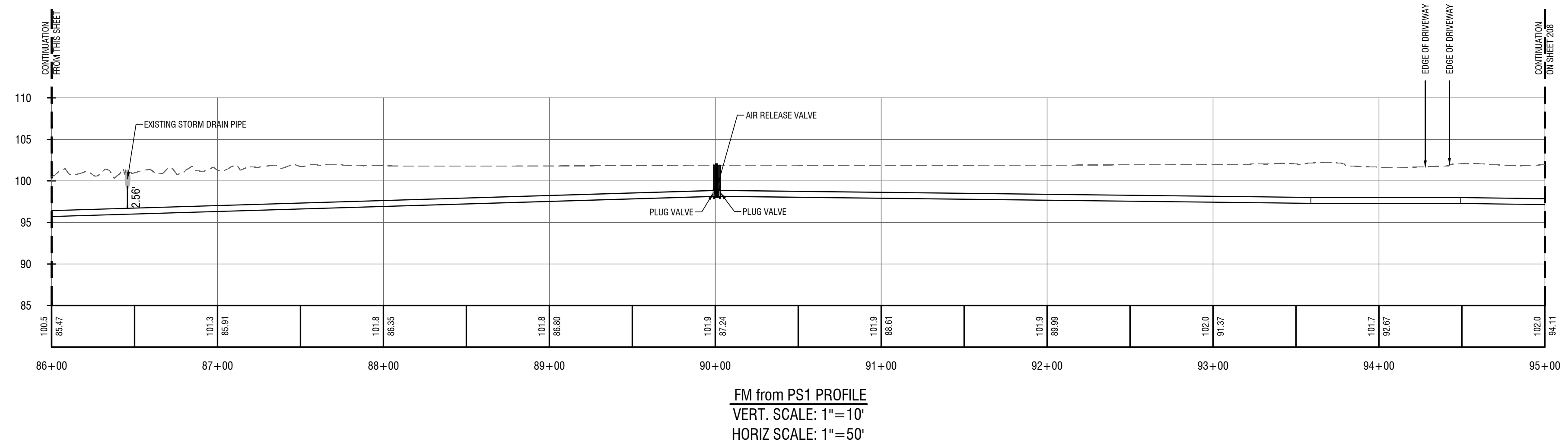
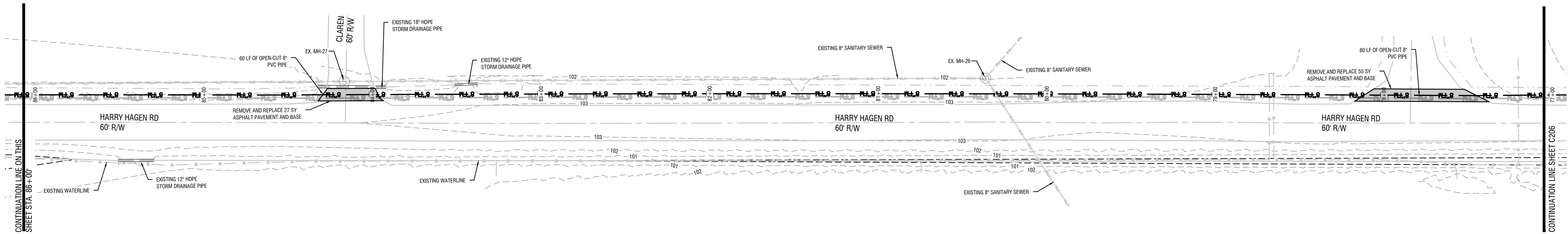
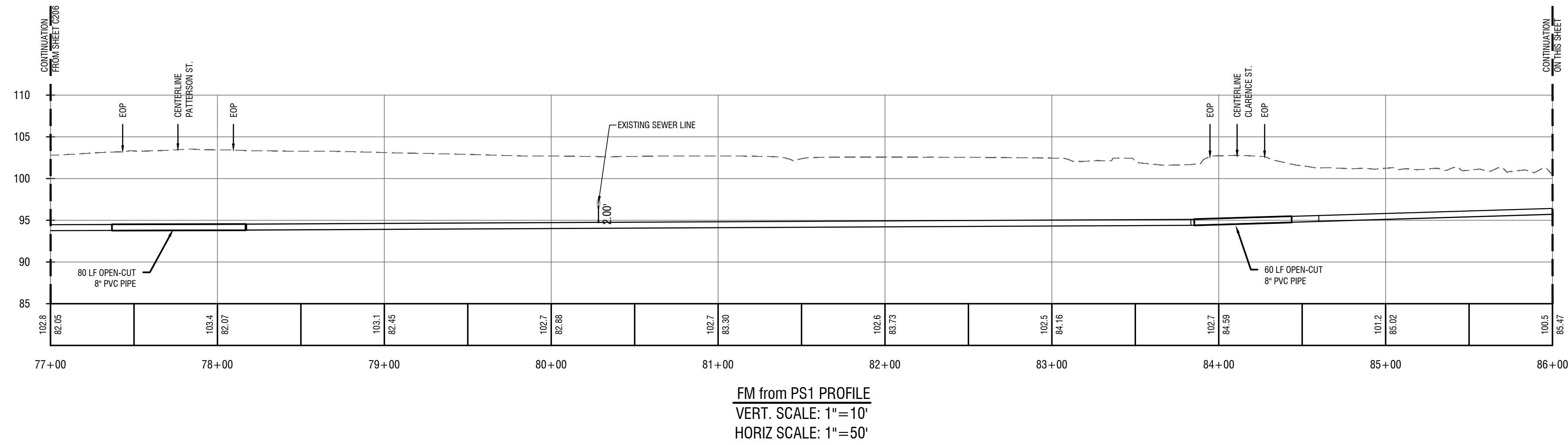
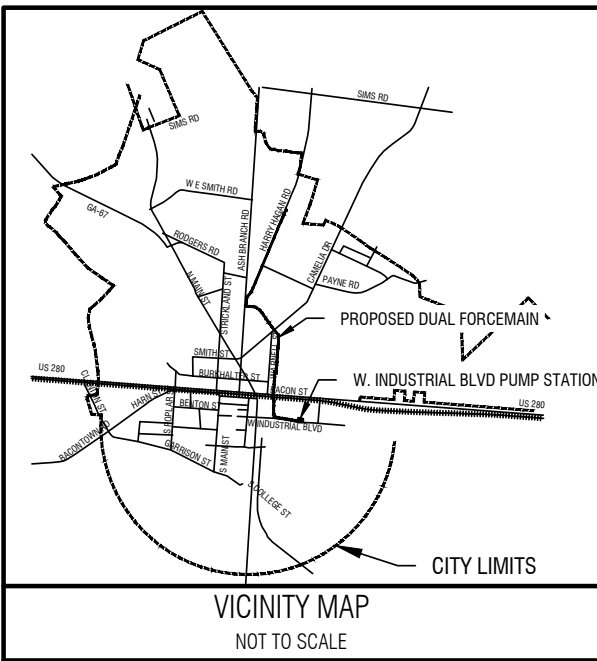
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PUMP STATION IMPROVEMENTS

SITE PLAN 6

C206

FILE NO: 2020-48  
PLOT DATE: November 21, 2023



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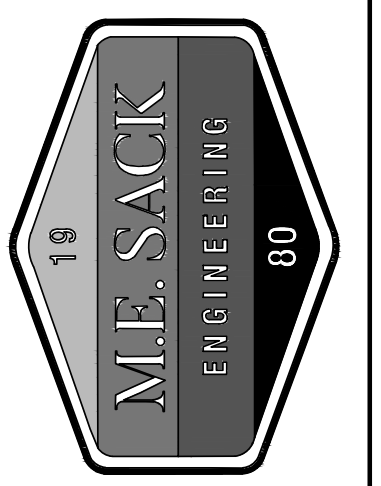
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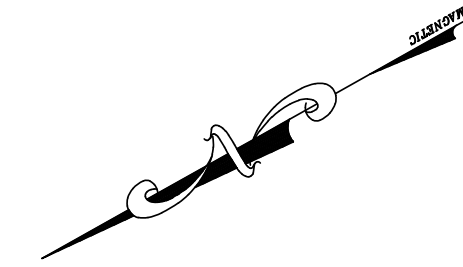
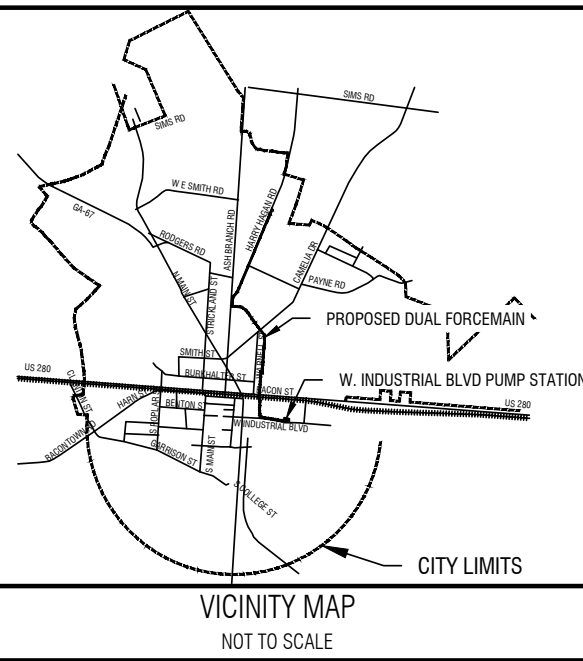
24 HOUR CONTACT:  
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PUMP STATION  
IMPROVEMENTS

SITE PLAN 7

C207

FILE NO: 2020-48  
PLOT DATE: November 21, 2023



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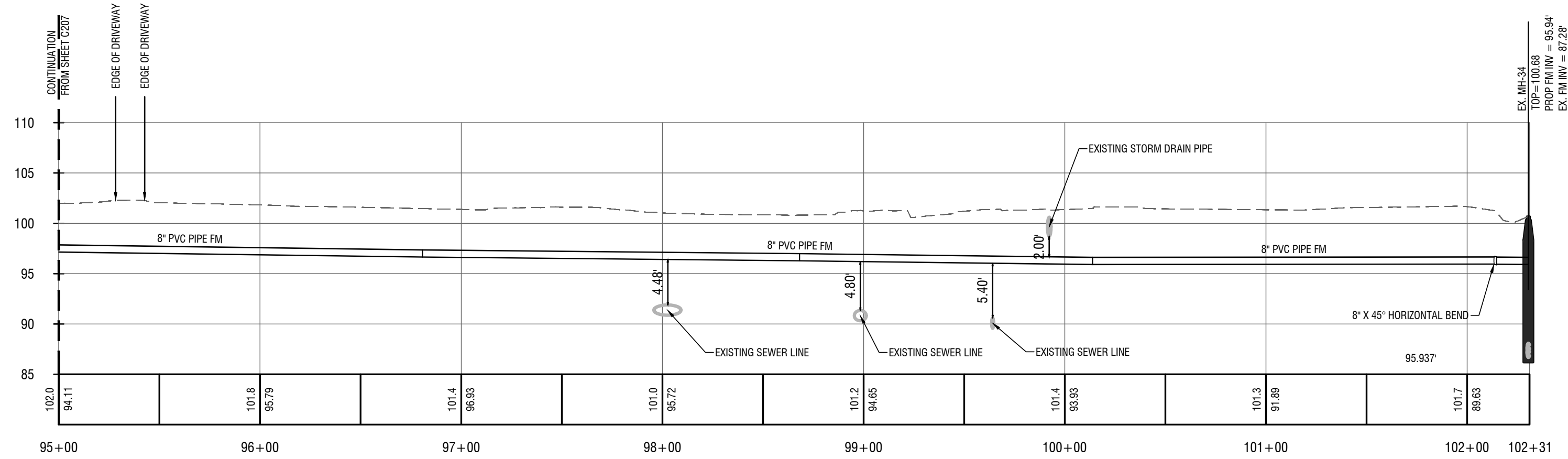
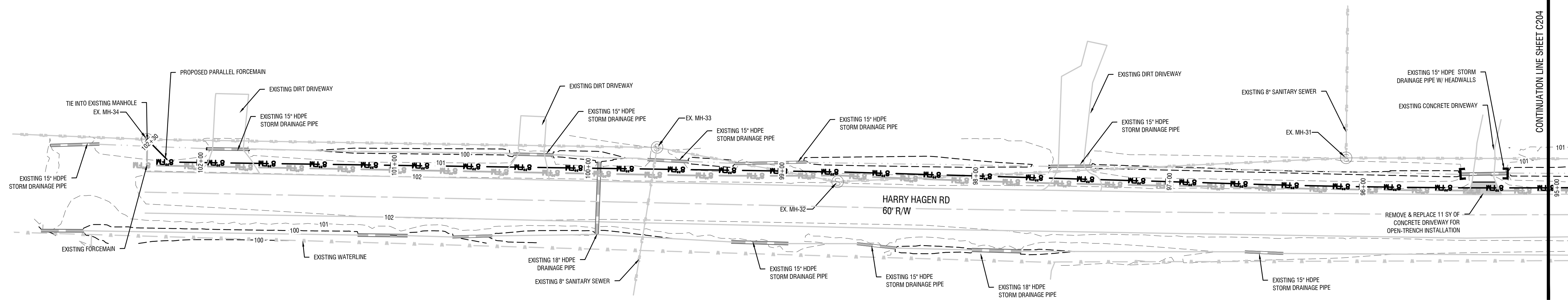
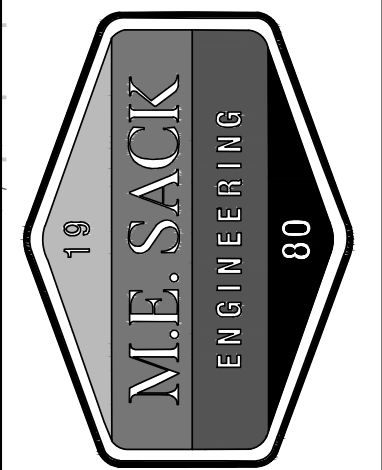
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 TEL: (912) 368-5212



DATE: November 21, 2023



FM from PS1 PROFILE  
 VERT. SCALE: 1"=10'  
 HORIZ SCALE: 1"=50'

MUNICIPALITY:  
 CITY OF PEMBROKE

COUNTY:  
 BRYAN

Owner:  
 City of Pembroke  
 160 N Main St  
 Pembroke, GA 31321  
 (912) 653-4413  
 streets@pembrokega.net

24 HOUR CONTACT:  
 Keith Cook  
 160 N Main St  
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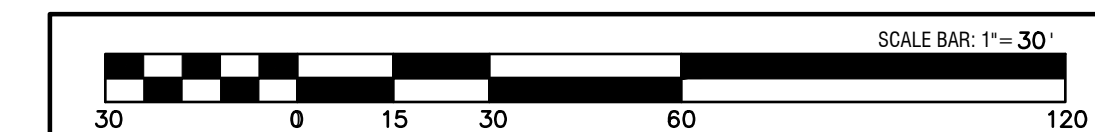
**PUMP STATION  
 IMPROVEMENTS**

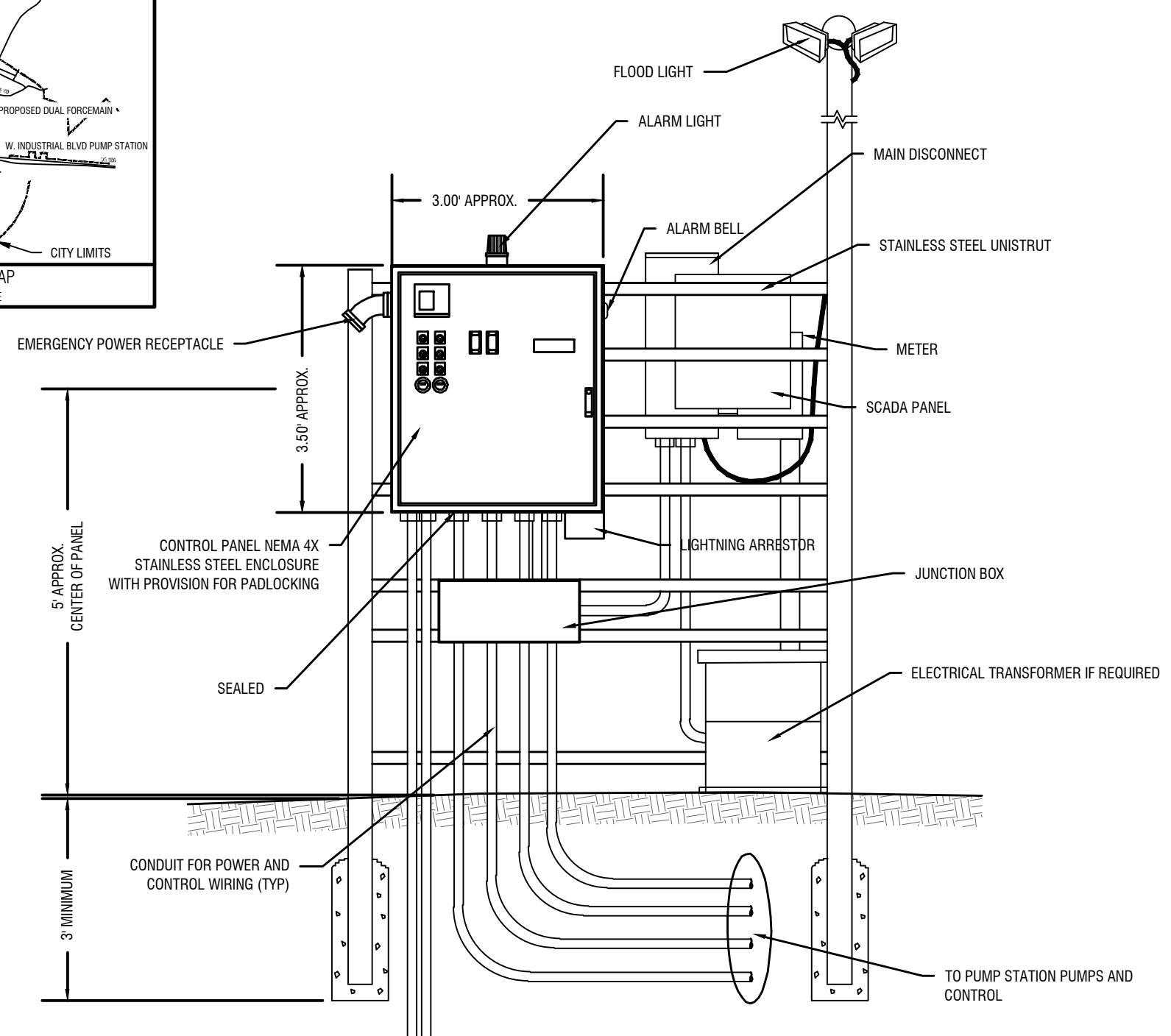
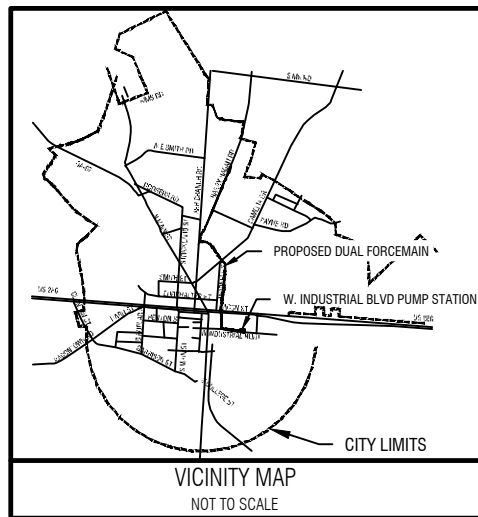
SITE PLAN 8

**C208**

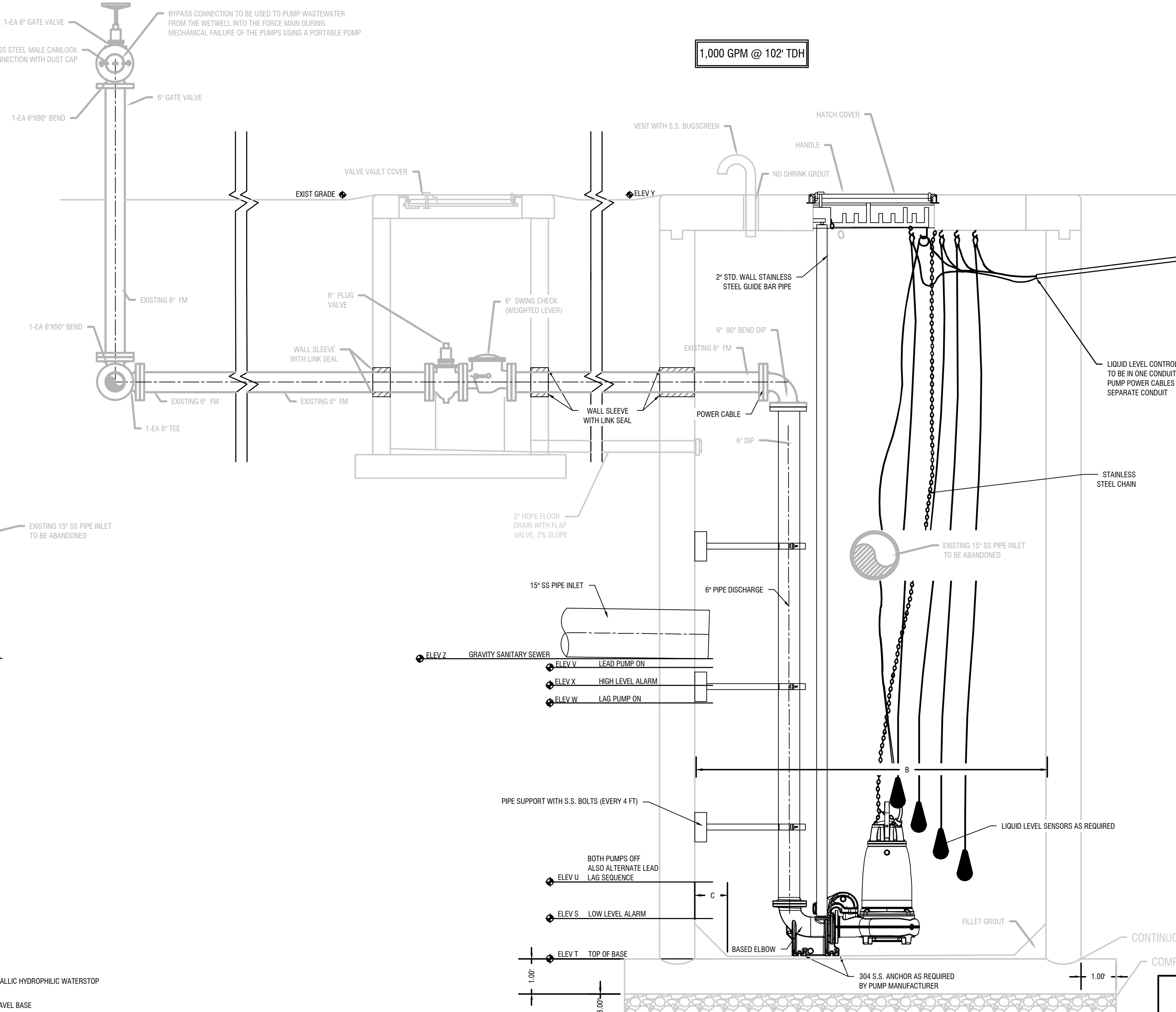
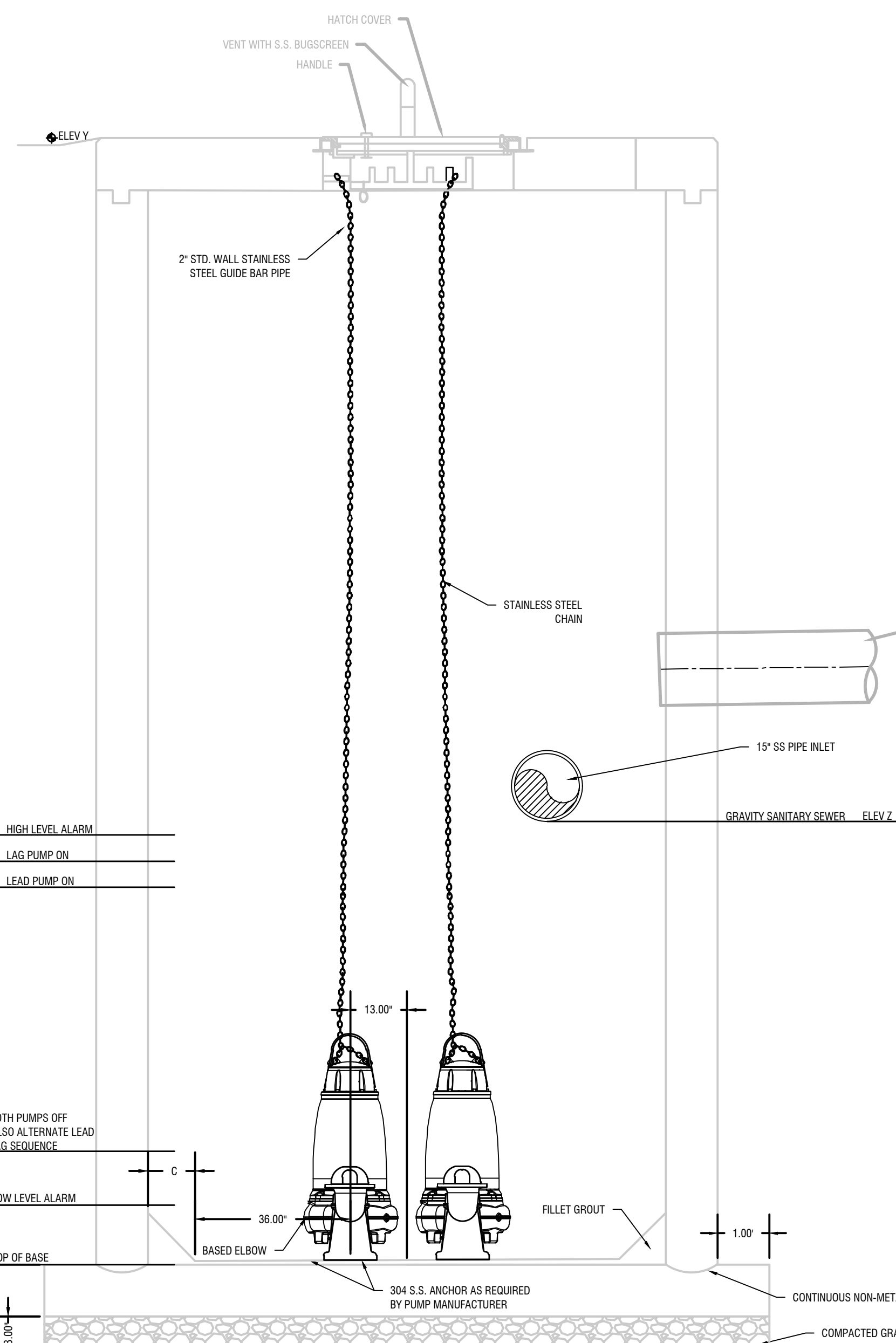
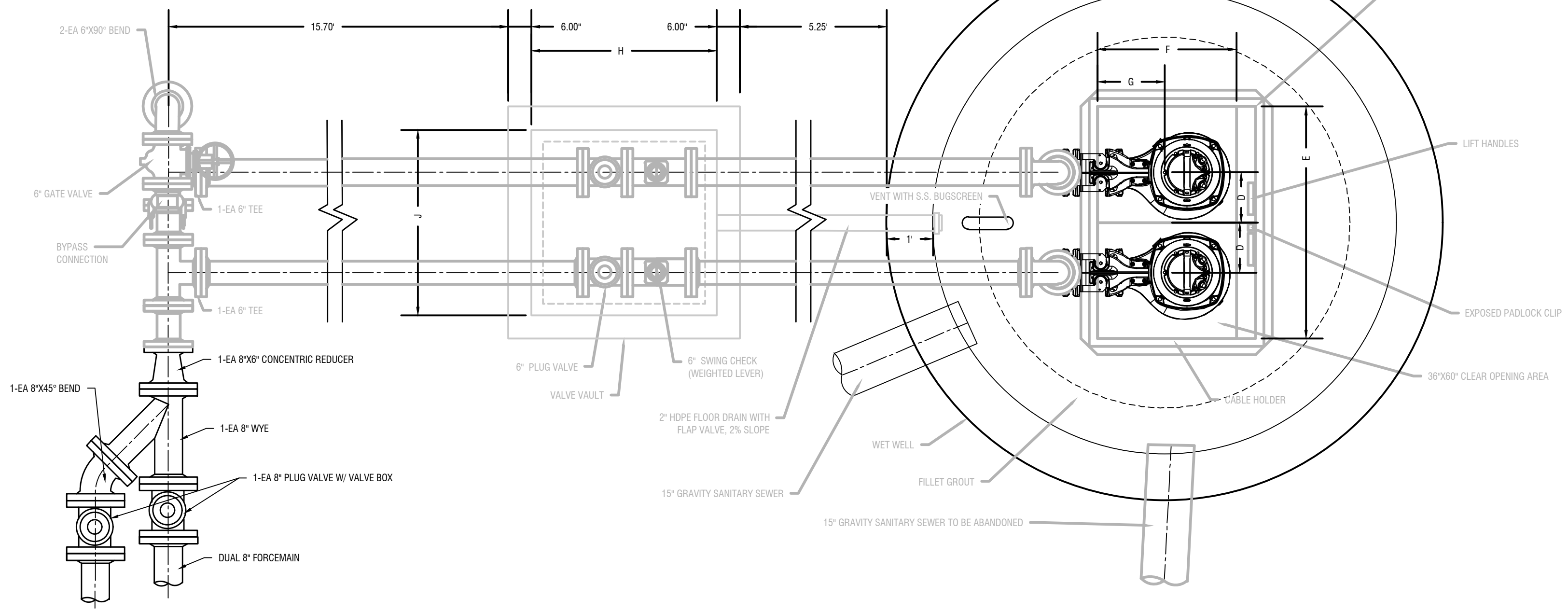
FILE NO: 2020-48

PLOT DATE: November 21, 2023





CONTROL PANEL ELEVATION VIEW  
NTS



**LIFT STATION DATA**

PUMPING STATIONS	DIMENSIONS	ELEV AT CONST
DIM A	12"	
DIM B	10"	
DIM C	12"	
DIM D	12"	
DIM E	60" CLEAR	
DIM F	36" CLEAR	
DIM G	13"	
DIM H	48"	
DIM J	48"	
ELEV S		54.80
ELEV Y		53.75
ELEV U		55.94
ELEV V		61.04
ELEV W		61.34
ELEV X		62.04
ELEV Y		75.50
ELEV Z		62.30

**FLOW VELOCITY**

FLOW RATE	VELOCITY
GPM	ft/s
600	1.9
700	2.2
800	2.6
900	2.9
1,000	3.2

**GENERAL NOTES:**  
 CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE STARTING WORK.  
 PUMPS SHALL BE FLYGT NP 3202, 185" WITH 460 IMPELLER OR APPROVED EQUAL, 45 HP, 3 PHASE, 460 VOLTS, 1750 RPM, 60 HERTZ, PUMP LIFTING DEVICE SHALL BE 304 SS CHAIN.  
 CABLE HANGERS SHALL BE STAINLESS STEEL.  
 ELECTRICAL CONDUIT SIZE SHALL BE LARGE ENOUGH TO ALLOW FOR PERIODIC REMOVAL AND REPLACEMENT OF ELECTRICAL CABLES.  
 ALL CONDUITS INTO THE CONTROL PANEL MUST BE SEALED.  
 ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE WATERTIGHT AND GAS TIGHT WITH WALL SLEEVE OR NON-SHRINK GROUT.  
 CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, PROGRAMMING, COMMISSIONING AND ENGINEERING ALL COMPONENTS OF THE PUMP CONTROLLER/SCADA SYSTEM.  
 VALVE VAULT SHALL BE SIZED TO PERMIT EASY REMOVAL OF CHECK VALVE.  
 VALVE VAULT SHALL HAVE SEALED FLOOR W/ DRAIN TO WET WELL.  
 THE CONTRACTOR SHALL PROVIDE AND INSTALL A PUMP CONTROLLER EQUIVALENT TO THE MULTISTART PUMP STATION MANAGEMENT SYSTEM MANUFACTURED BY FLYGT.

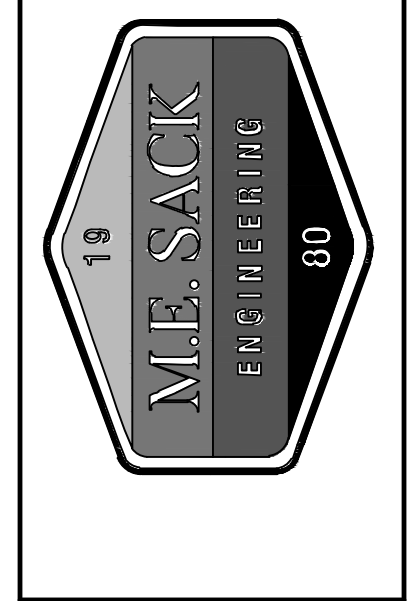
**REVISIONS:**

1.	GSWCC REVISIONS

**DESIGN PROFESSIONAL:**  
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**GEORGIA REGISTERED ENGINEER**  
 M.E. SACK  
 No. 6585  
 ENGINEER  
 MARCUS E. SACK  
 DATE: November 21, 2023



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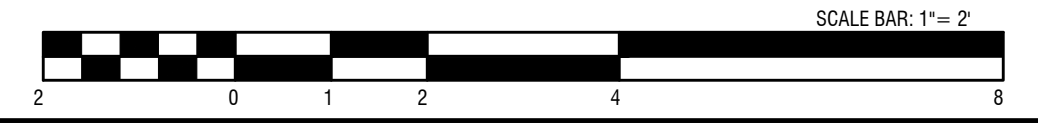
**24 HOUR CONTACT:**  
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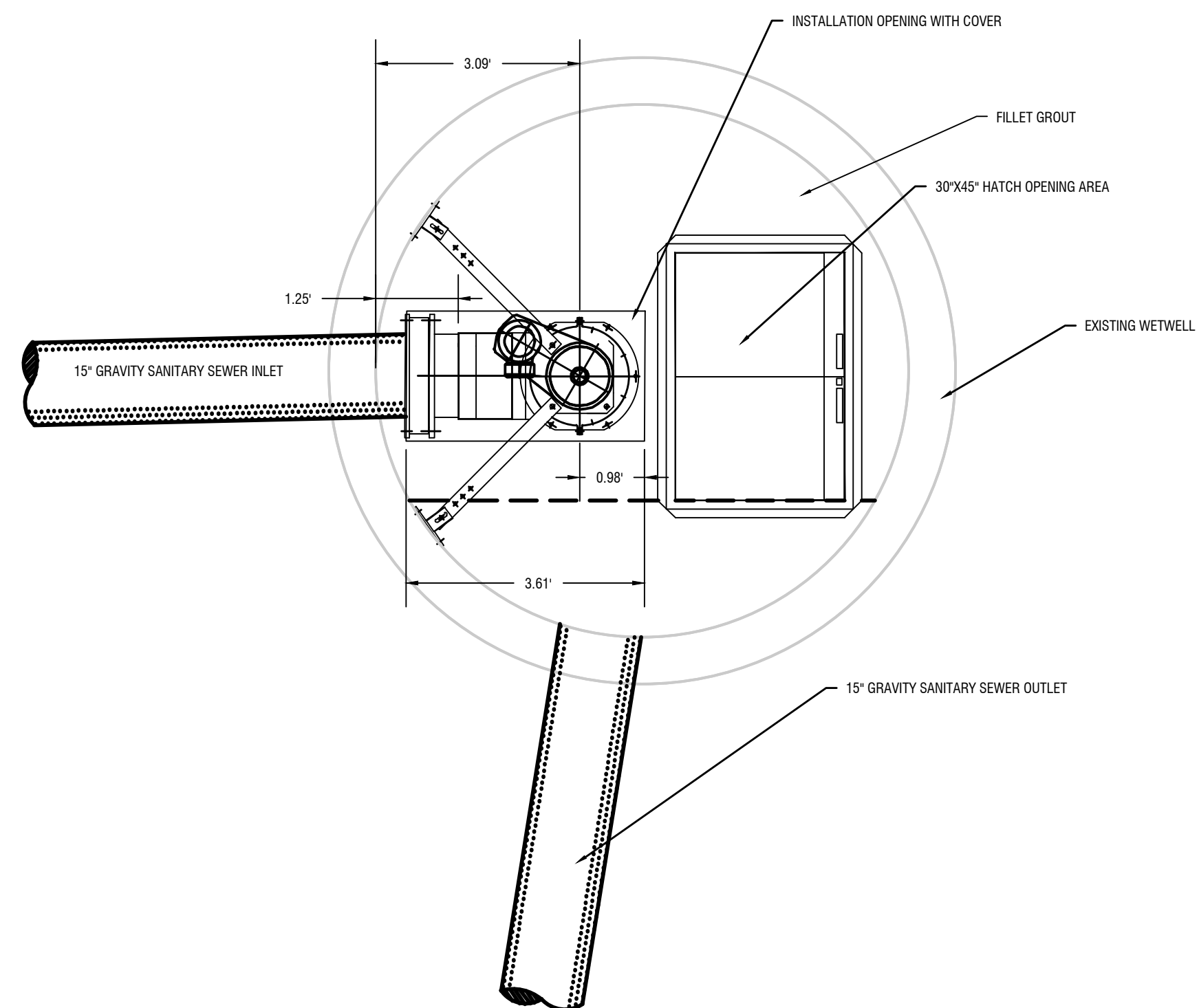
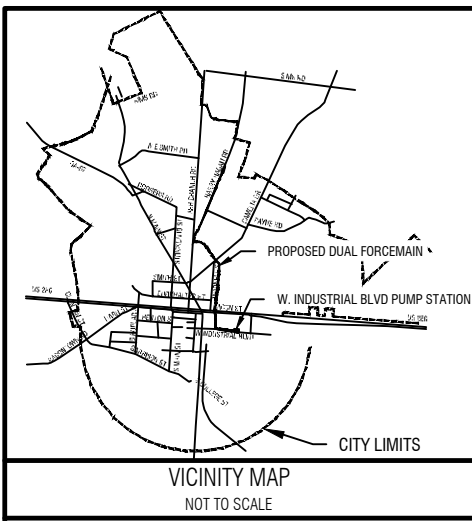
**PUMP STATION IMPROVEMENTS**

**PUMP STATION DETAILS**

**C209**

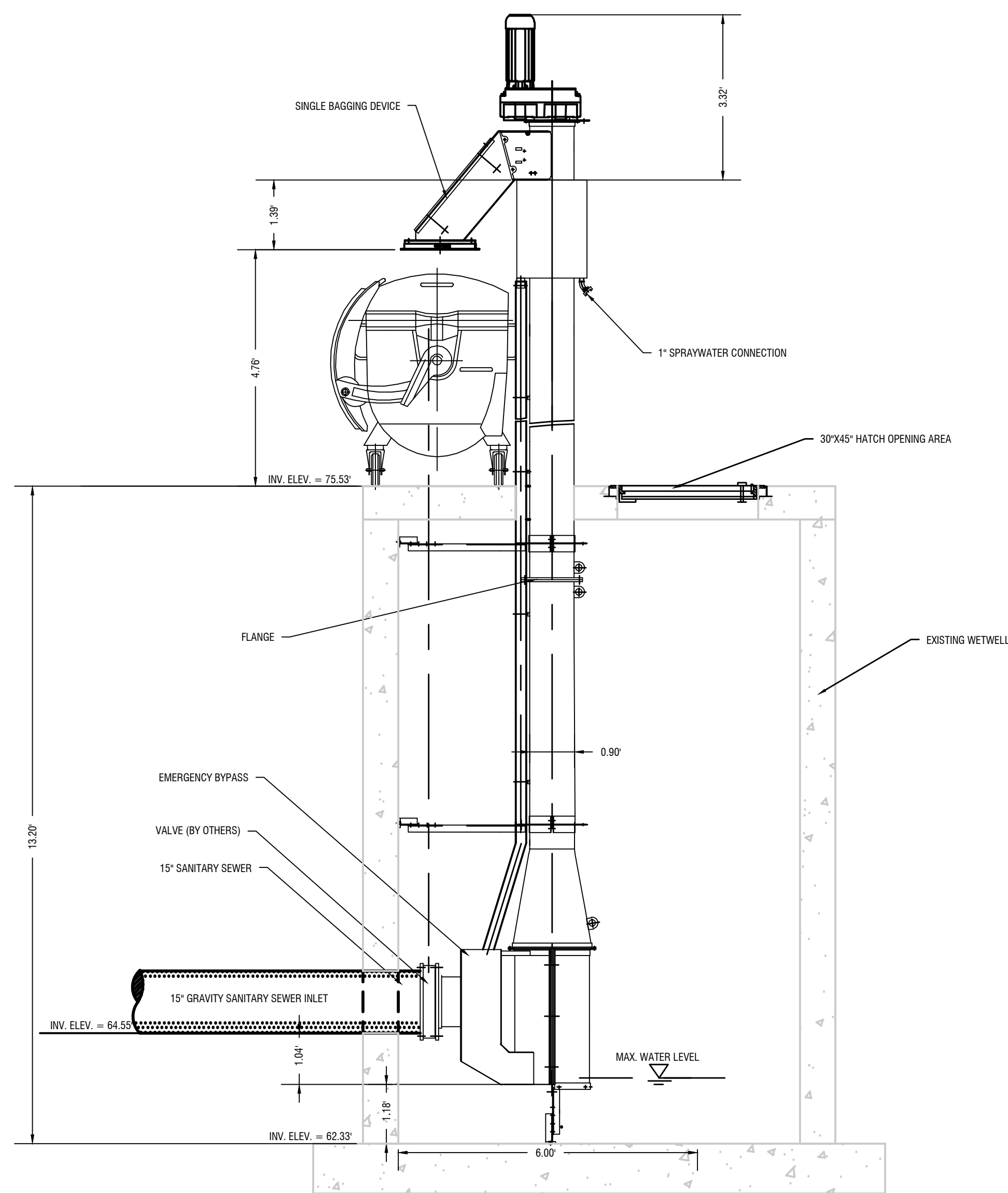
FILE NO: 2020-48  
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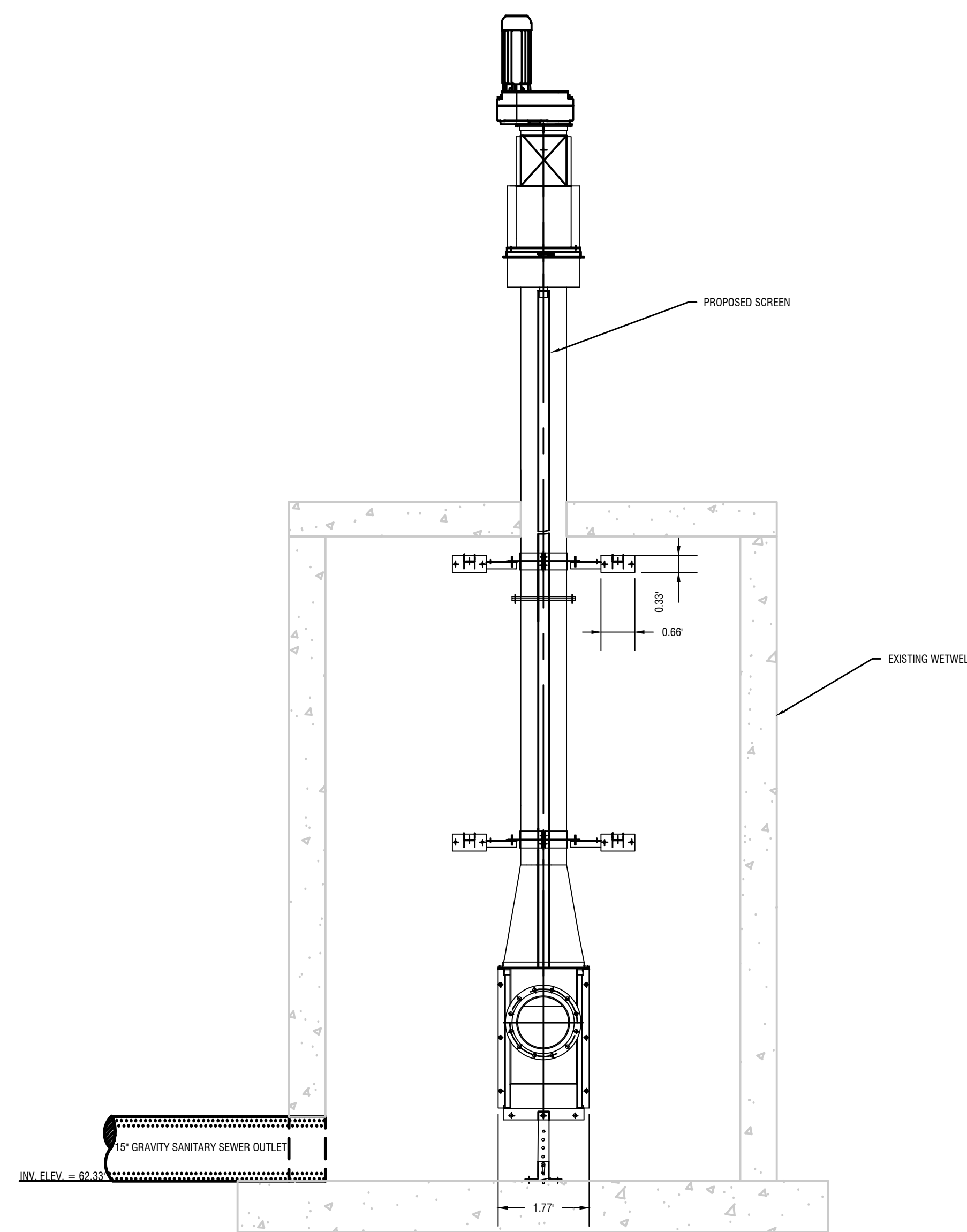


SEWAGE SCREEN PLAN VIEW  
NTS

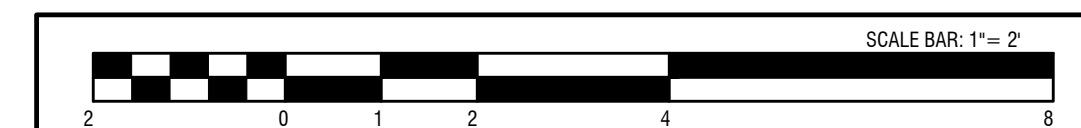
**GENERAL NOTES:**  
 CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE STARTING WORK.  
 SCREEN SHALL BE HUBER PUMP STATIONS SCREEN ROTAMAT ROK4 500/6 UNIT OR EQUAL.  
 SCREEN SHALL BE EQUIPPED WITH A SHAFTLESS SPIRAL CONSTRUCTED OF NOMINAL 0.75" HIGH STRENGTH OF CARBON STEEL WITH WATER RESISTANT BRUSH ATTACHED TO THE LEADING EDGE OF SPIRAL IN THE BASKET.  
 ELECTRICAL CONDUIT SIZE SHALL BE LARGE ENOUGH TO ALLOW FOR PERIODIC REMOVAL AND REPLACEMENT OF ELECTRICAL CABLES.  
 ALL CONDUITS INTO THE CONTROL PANEL MUST BE SEALED.  
 ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE DRY WELL SHALL BE WATERTIGHT AND GAS TIGHT WITH WALL SLEEVE OR NON-SHRINK GROUT.  
 CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, PROGRAMMING, COMMISSIONING AND ENGINEERING ALL COMPONENTS OF THE SCREEN CONTROLLER/SCADA SYSTEM.



SCREEN ELEVATION VIEW  
NTS

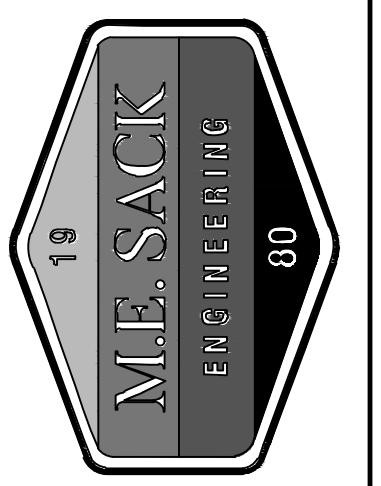
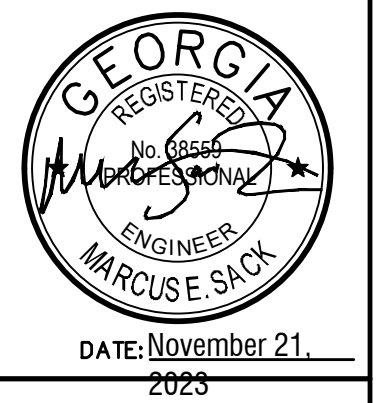


SCREEN SIDE VIEW  
NTS



REVISIONS:	
1.	GSWCC REVISIONS

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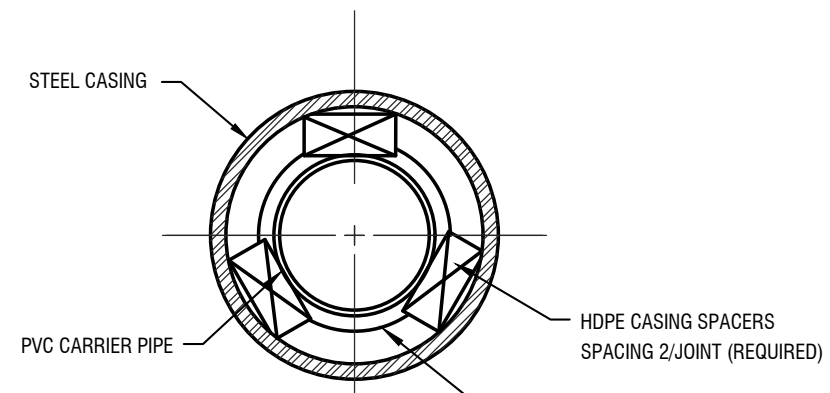
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**PUMP STATION  
IMPROVEMENTS**

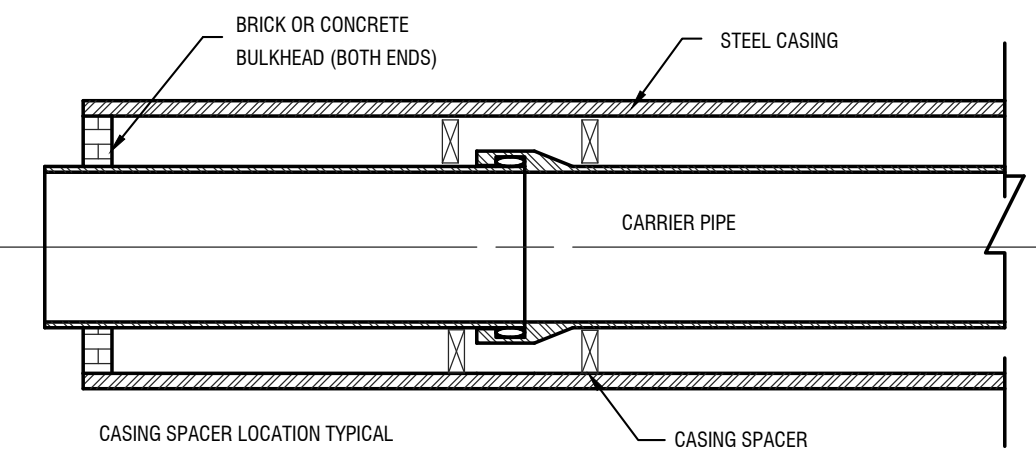
**PUMP STATION  
DETAILS**

**C210**

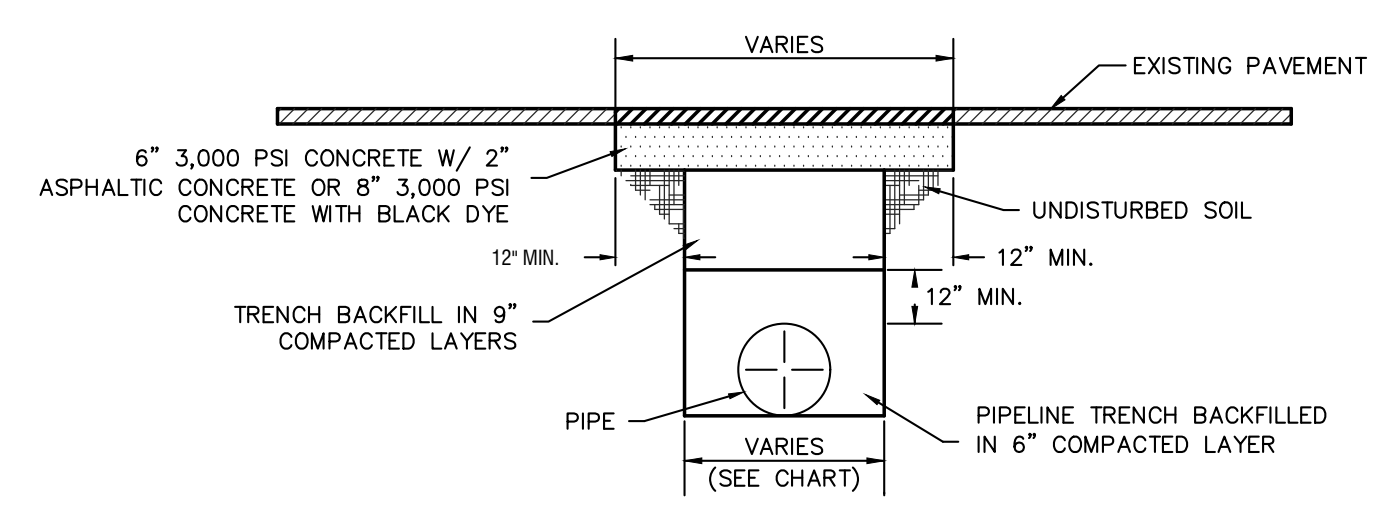
FILE NO: 2020-48  
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SECTION



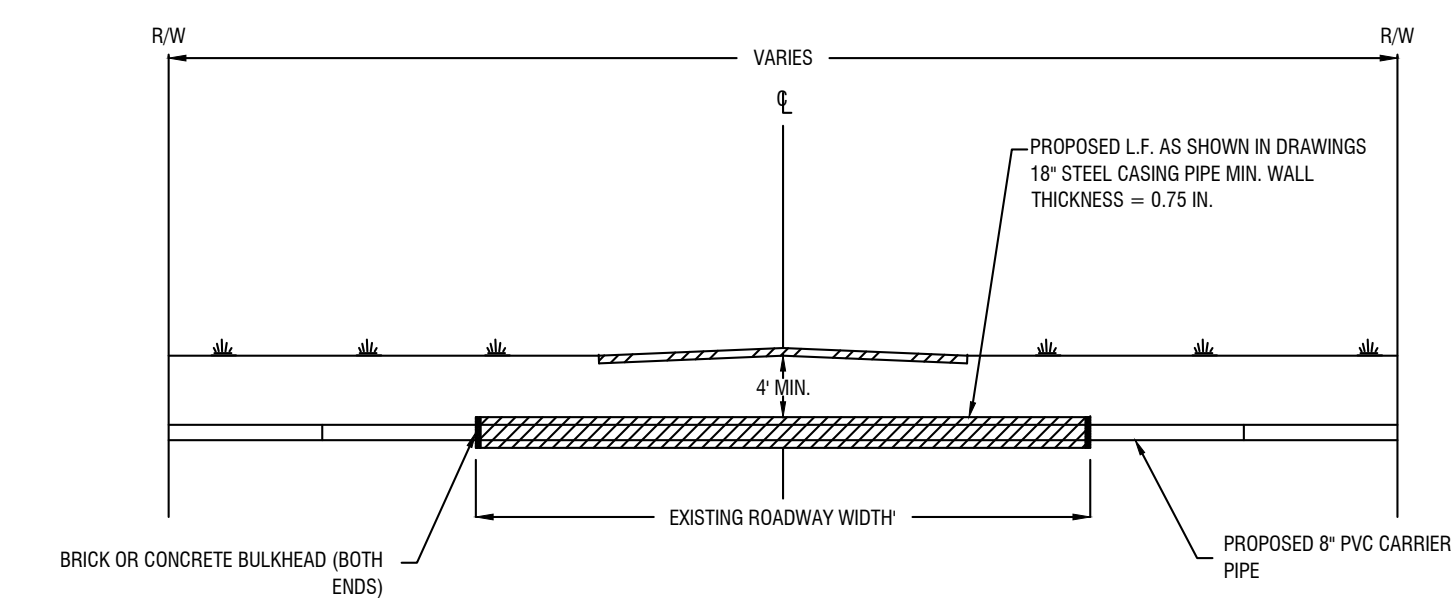
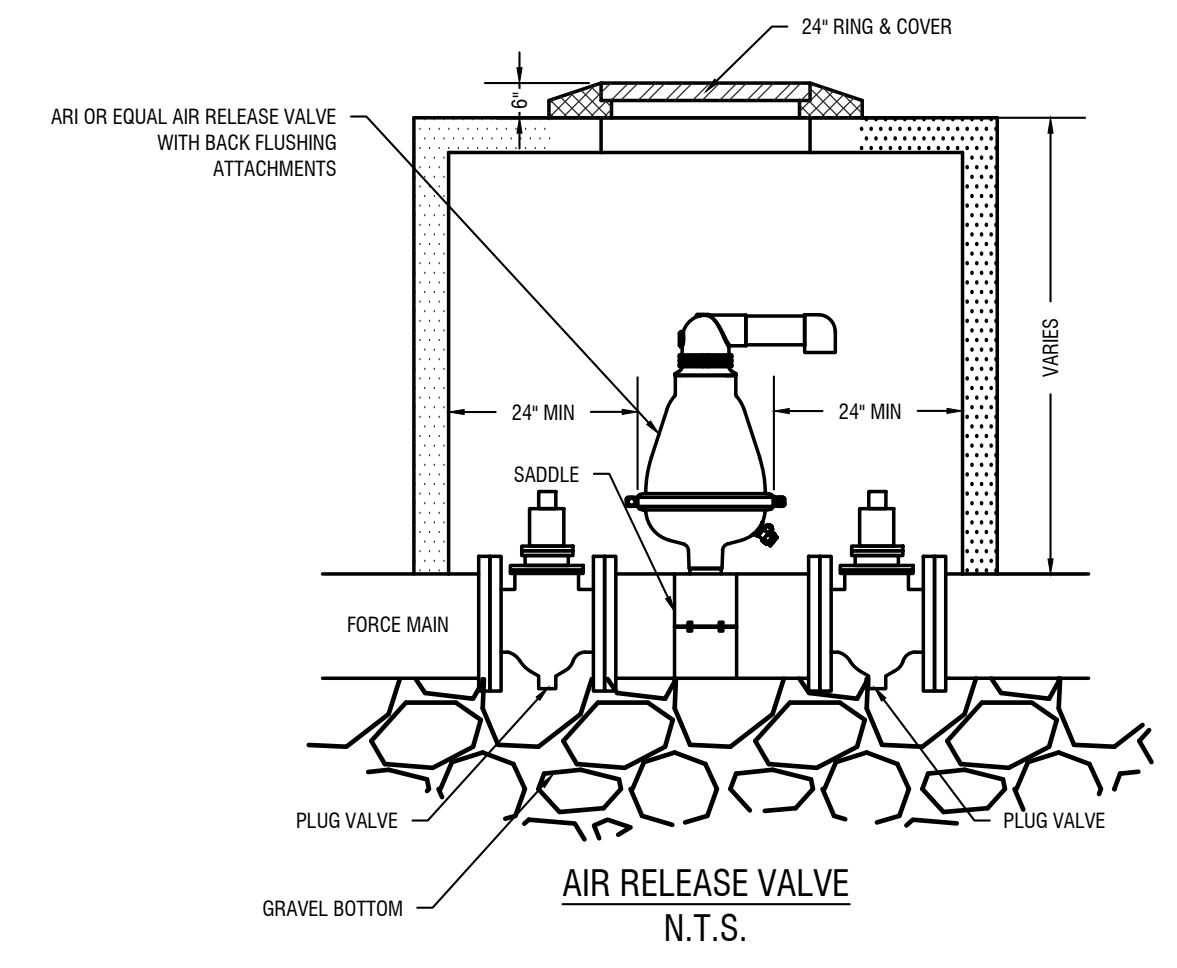
ELEVATION CASING DETAILS  
N.T.S.



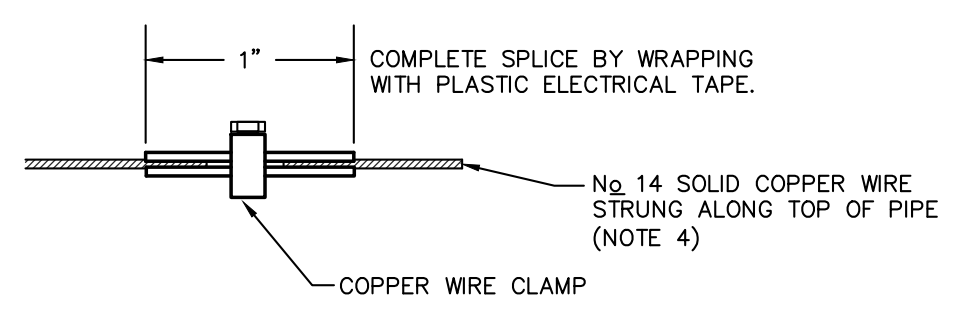
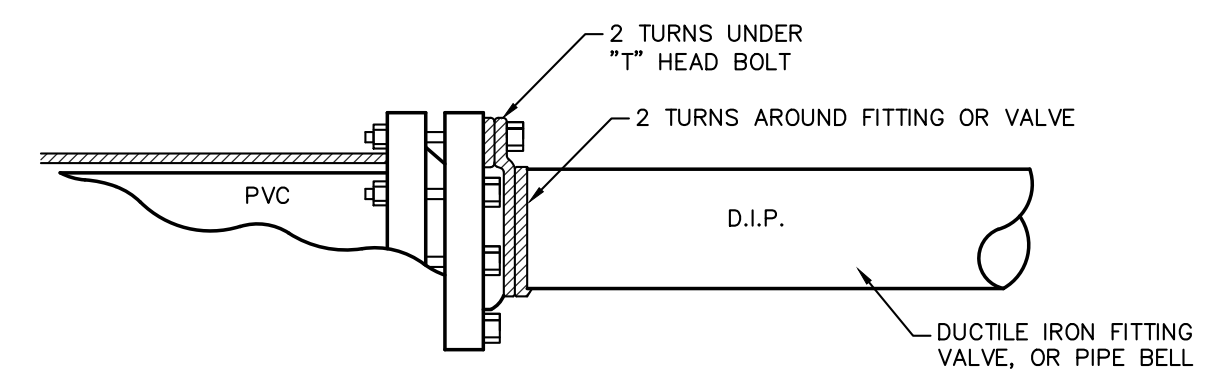
PIPE DIAMETER	MAXIMUM TRENCH WIDTH 0 - 6' CUT DEPTH	MAXIMUM PAYMENT WIDTH 0 - 6' CUT DEPTH
6" TO 15"	16" + DIA.	40" + DIA.
18" TO 21"	20" + DIA.	44" + DIA.
24" TO 30"	24" + DIA.	48" + DIA.
33" TO 42"	36" + DIA.	60" + DIA.
48"+	36" + DIA.	60" + DIA.

NOTE  
MAXIMUM PAYMENT WIDTH FOR CUT DEPTH OVER 6 FEET  
SHALL BE 8 FEET UNLESS NOTED OTHERWISE ON PLANS.

PAVEMENT REMOVAL & REPLACEMENT  
N.T.S.



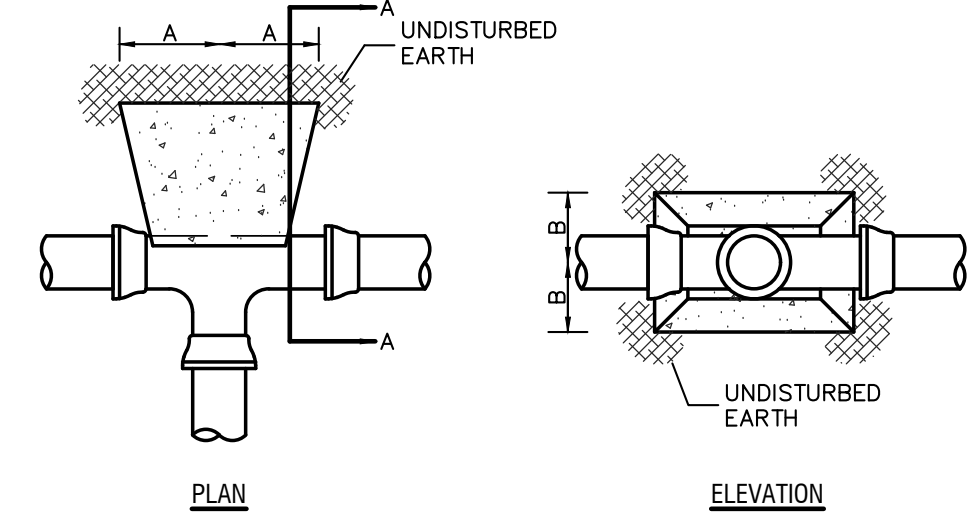
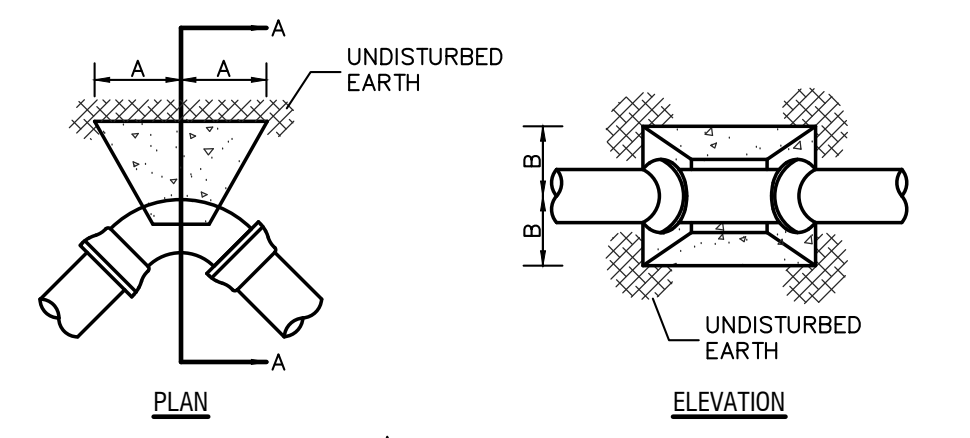
TYPICAL ROADWAY SERVICE BORE DEPTH  
N.T.S.



NOTES

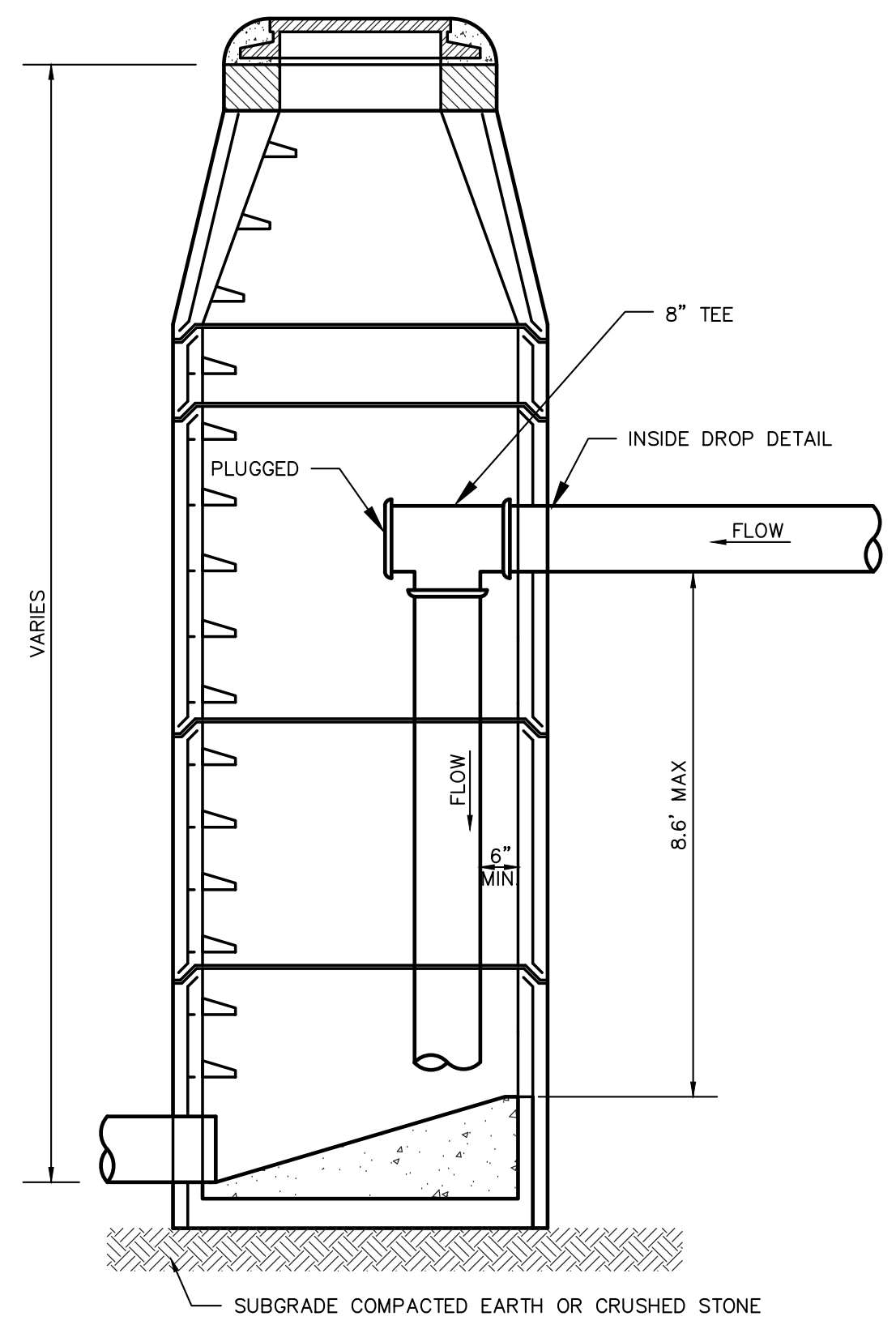
- USE No. 14 AWG SOLID PLASTIC COATED COPPER WIRE.
- STRIP 2" OF COATING AND WRAP WIRE 2 TURNS UNDER "1" HEAD BOLT ON TOP OF DUCTILE IRON FITTING (VALVE). NEXT WRAP WIRE 2 TURNS AROUND BELL OF FITTING (VALVE) AND WIND WITH A CONTINUOUS LENGTH WITH AT LEAST 4 WRAPS PER LENGTH OF PVC PIPE TO NEXT DUCTILE IRON FITTING. TERMINATE AT FITTING IN SIMILAR MANNER AS NOTED ABOVE.
- ALL SPLICES MUST BE MADE BY USING COPPER WIRE SPLICE "U" BOLT ASSEMBLIES AND THEN WRAPPING WITH ELECTRICAL TAPE.
- IN LIEU OF "WRAPPING" TRACER WIRE AROUND PVC PIPE, WIRE MAY BE STRUNG ALONG TOP OF PIPE PROVIDED IT IS TAPED TO THE PIPE EVERY 5 FEET TO INSURE POSITION USING BACKFILL.

TRACER WIRE INSTALLATION DETAIL FOR PVC PIPE  
N.T.S.

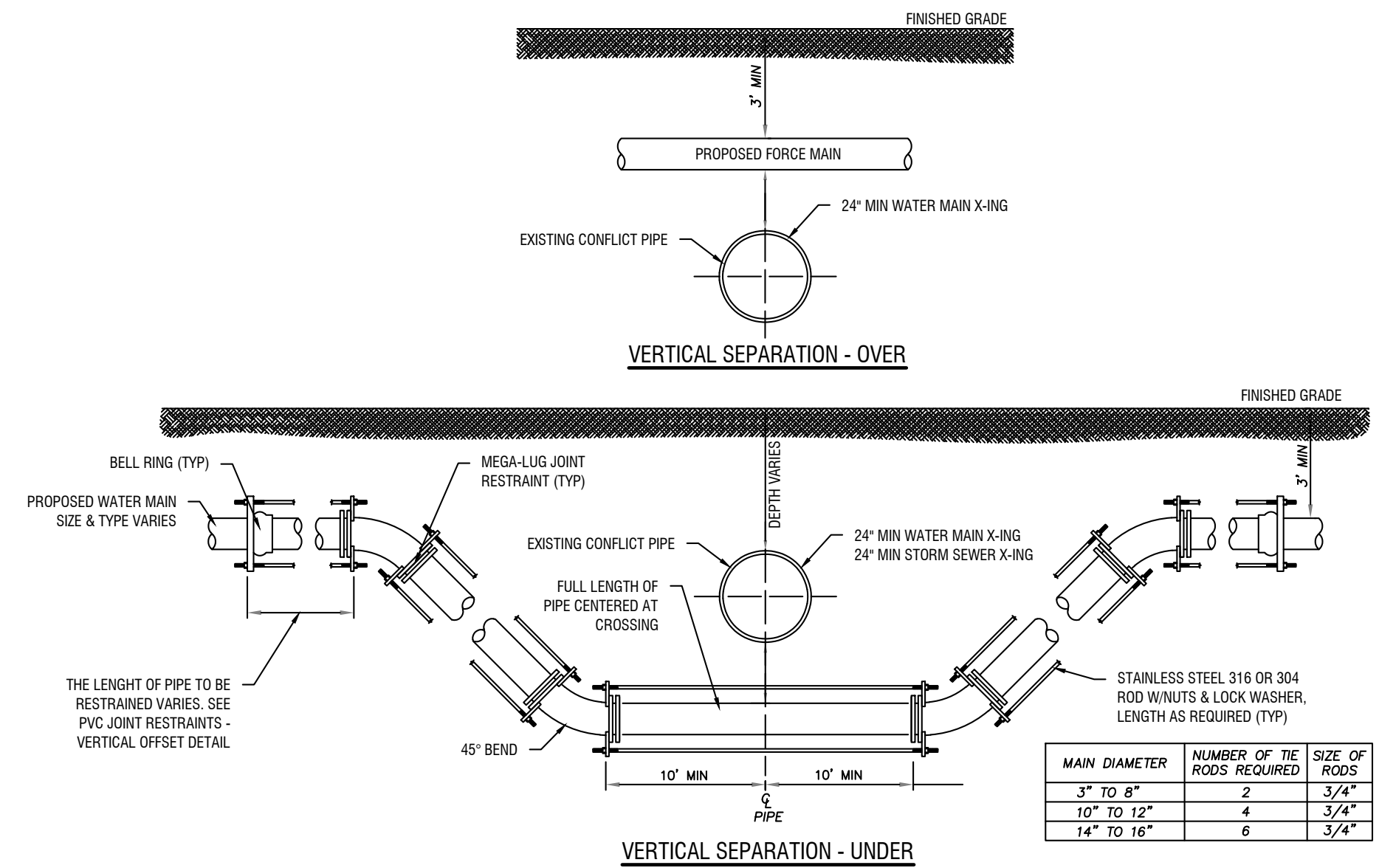


TYPE	SIZE	1/4 BENDS		1/8 BENDS		1/16 BENDS		TEES				PLUGS
		A	B	A	B	A	B	A	B	C	D	
TYPE 1 4,000 PSF SOIL	6"	8"	10"	6"	8"	3"	8"	8"	8"	10"	15"	
	8"	12"	12"	8"	10"	5"	9"	9"	12"	12"	20"	
TYPE 1 2,000 PSF SOIL	6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"	
	8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"	

STANDARD THRUST BLOCKS FOR WATER MAIN AND FORCE MAINS  
TO BE USED IN CONJUNCTION WITH JOINT RESTRAINT  
N.T.S.

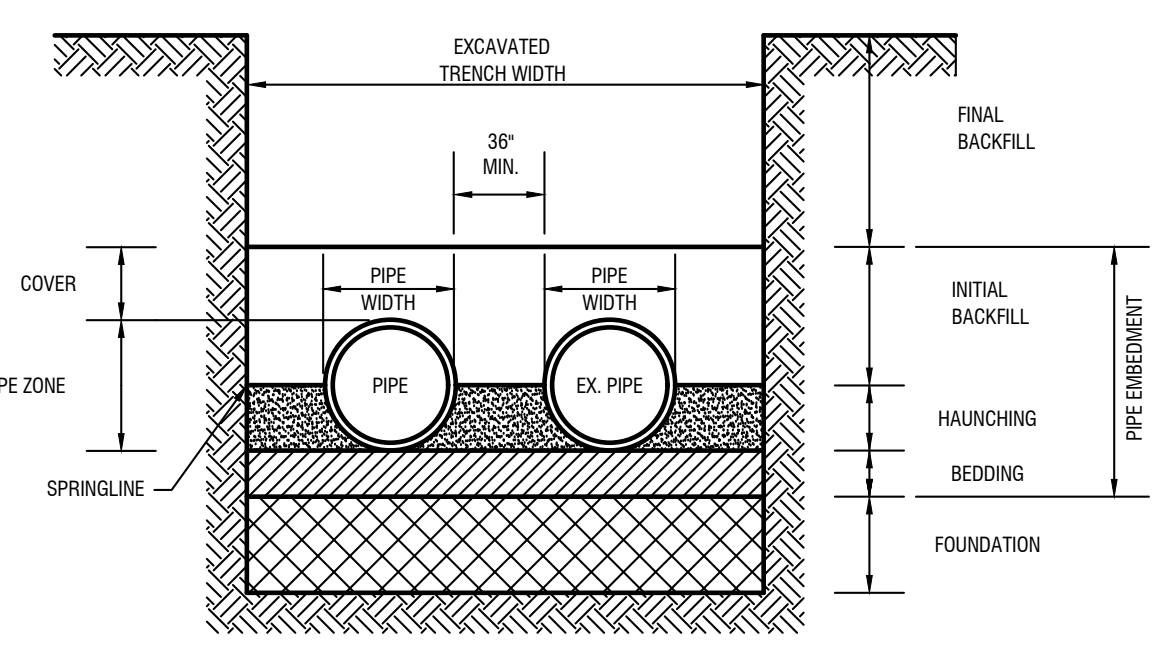


FORCEMAIN TIE INTO EXISTING MANHOLE  
N.T.S.



MAIN DIAMETER	NUMBER OF THE SIZE OF RODS REQUIRED	SIZE OF RODS
3" TO 8"	2	3/4"
10" TO 12"	4	3/4"
14" TO 16"	6	3/4"

UTILITY SEPARATION DETAIL  
N.T.S.



PARALLEL FORCEMAIN PIPE BEDDING DETAIL  
N.T.S.

REVISIONS:

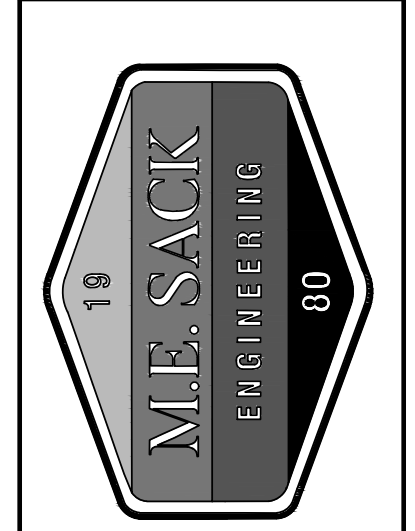
T.	GSWCC REVISIONS

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DATE: October 17, 2023



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PUMP STATION  
IMPROVEMENTS

GENERAL  
DETAILS

C401

FILE NO: 2020-48  
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