

CORRECTIVE ACTION PLAN

City of Siloam Springs
Wastewater Treatment Facility
NPDES Permit No: AR0020273
AFIN: 04-00106

975 Anderson Avenue
Siloam Springs, AR, 72761



November 14, 2024

MCE PROJECT NO. 22-2156

Prepared By:



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CERTIFICATION

The professional license seals listed on this page represent the design responsibility for the Corrective Action Plan.

I certify that the Corrective Action Plan and associated supporting items were prepared under my direct supervision. Further, I certify that I am a duly licensed Professional Engineer under the laws of the State of Arkansas.



Andrew Stephens, PE
McClelland Consulting Engineers, Inc.
Arkansas License No. 20692



Certificate of Authorization
McClelland Consulting Engineers, Inc.
No. 24

Corrective Action Plan Background

On October 1, 2024 the City of Siloam Springs received a Notice of Non-Compliance letter from the Arkansas Division of Environmental Quality in reference to NPDES permit number AR0020273.

The Notice of Non-Compliance states that since August 2021, Siloam Springs reported seventeen (17) Sanitary Sewer Overflows (SSO) totaling 3,609,617 gallons of untreated sewage, most of which occurred at the wastewater treatment plant from the influent mechanical screening headworks channel and manual bar screen channel. Small volumes of overflow have also occurred at the Waste Activated Sludge Tank, Return Activated Sludge Tank, and digester. These SSOs are unpermitted discharges and flow into the adjacent receiving stream Sager Creek, a tributary of Flint Creek, which flows into the Illinois River in Oklahoma.

As a result of the violation noted in the Notice of Non-Compliance, DEQ requires the City of Siloam Springs to provide a Corrective Action Plan (CAP) within forty-five (45) days of receipt of the Notice of Non-Compliance letter, quarterly progress reports detailing the progress made under the CAP, and a final report submitted upon completion of the CAP.

The City of Siloam Springs has retained McClelland Consulting Engineers, Inc. (MCE) to prepare the required CAP, support the city in implementation of the plan, provide quarterly reporting, and write a final report.

WWTP Existing Infrastructure

The City of Siloam Springs owns, operates and maintains a wastewater collection system along with a wastewater treatment plant (WWTP) that serves approximately 7,713 sewer connections, including four major industrial connections. The wastewater collection system includes gravity sewers, force mains, and lift stations, all working together to transport both domestic, commercial, and industrial wastewater to the WWTP.

The City of Siloam Spring's WWTP treatment process consists of influent mechanical and manual screening, grit removal, primary clarifiers (currently not in use), biological nutrient removal (activated sludge), chemical nutrient removal, secondary clarifiers, chlorine disinfection, dechlorination, and post aeration. The solids handling system is comprised of a waste activated sludge tank, return activated sludge tank, digester, and belt press. The existing WWTP is currently designed based on the following flow parameters:

Design Parameter	Flow Rate (MGD)
Average day	5.3
Max month	7.2
Peak day	10.3
Hydraulic Max	15

Existing Headworks Facility History

In 1968 a Parshall flume, slide gate, bar rack, comminutor, and associated channel were constructed. In 1986 the channel, comminutor, slide gate and bar rack were renovated. Most recently, in 2008, the existing step screen and structure were added. In the last few years, the down time of the existing step screen has become more frequent and maintenance more expensive. Currently, the existing step screen has stopped functioning and the city sent it off for repairs in September 2024.

Sanitary Sewer Overflow History

The City of Siloam Springs has been working diligently to address the issues that resulted in the SSOs. Below is a summary table outlining the major SSOs reported at the WWTP. See Attachment A – Siloam Springs WWTP SSO Table, for additional details and the recent associated effort by the city to address the cause of each reported overflow.

Date	Location	Volume of SSO (gal)	Estimated Rainfall (in)*
8/17/2024	Headworks	65,000	1.5
5/22/2024	Headworks/Bar Screen	400,000	1.1
10/25/2023	Headworks/Bar Screen	88,542	1.1
5/4/2022	Headworks	3,000,000	7.5
TOTAL		3,553,542	

*Obtained from rain gauge at WWTP

As shown, more than 98% of the SSO volume report can be attributed to just four events, and all of these occurred at the headworks area of the WWTP including the mechanical and manual screen channels. Additionally, these SSOs all occurred during or after major rainfall events. During these events, hydraulic surges from the influent gravity line combined with screening equipment failure and excessive ragging caused the capacity of the existing influent channel to be exceeded. In addition, excessive sheet flow runoff from off-site properties was directly entering the headworks area,

further exacerbating the issue during these events. See Attachment B – WWTP Site Plan and Overflow Locations.

In addition to the SSOs that have occurred at the screen channels, SSOs have occurred at the RAS/WAS pump station and the digester. These SSOs are not related to hydraulic capacity issues, and are caused by non-organic solids material entering the WWTP.

The historical SSOs associated with the RAS/WAS pump station were caused by the existing pumps becoming clogged from non-organic materials, which resulted in overflow of the inground wet well. The historical SSOs associated with the digester were caused by excessive foaming in the digester. The foam over topped the digester and flowed onto the surrounding ground; no observed liquid overtopped the existing digester. The city sent in samples from the digester for analysis by Aquafix and the analysis determined that the digester contained high levels of yeast. To address the yeast, the city drained and cleaned the digester. Since the cleaning, the city has not had issues with foaming in the digester. See Attachment C – Aquafix Digester Report.

The excessive ragging and ongoing failures of the mechanical screen have allowed the non-organic solids materials to enter the WWTP. See Attachment D – Ragging Photos.

Interim SSO Mitigation Measures

The city has been and will continue to perform interim measures to minimize SSOs at the WWTP. These interim measures consist of the following:

- Place existing mechanical screen back into operation
 - Repairs are under way; however, the lead time for parts is currently unknown.
- Continue routine schedule of cleaning the manual bar screen
 - During non-rain days the WWTP staff is cleaning the manual bar screen at 8 PM and 2 AM every day in addition to their regular work day schedule.
 - During rain days the WWTP staff is cleaning the manual bar screen every 4 hours in addition to their regular work day schedule.
- RAS/WAS Pump Ragging Maintenance
 - The existing pump station has a Mission Control SCADA system that will alert WWTP staff if there is an issue.
 - Continue to utilize the existing pump SCADA telemetry to determine if the existing pumps are functioning properly.

- Continue to pull the pumps on a weekly basis for cleaning and maintenance.

The city will also perform the following temporary measures in an effort to minimize potential for storm water run-on from off-site properties:

- Construct a temporary berm on the uphill side of the headworks facility near the existing screen. This will reduce the amount of storm water from flowing onto the headworks area.
- Place sand bags around the existing channels at the headworks before rain events. This will reduce the potential for channel overflows and prevent storm water from entering the channel in the event that it gets past the temporary berm.

Once the headworks facility project has been constructed, the existing screen channel will be abandoned and demolished, and the other temporary measures can be removed.

MCE will also perform a hydraulic analysis of the existing WWTP facilities to identify any other areas of concern within the WWTP hydraulic design where overflow could potentially occur under normal and wet weather conditions.

Quarterly reporting will be provided detailing the progress made under the CAP and the remaining items to be completed.

Proposed Final Corrective Action Items to Resolve SSOs

New Influent Mechanical Screening Facility

In November of 2022, the city of Siloam Springs retained MCE to perform planning and preliminary design for a new influent mechanical screenings removal facility at the WWTP. MCE coordinated with the city over the course of 2023 to review different mechanical screen technologies and visit multiple existing facility installations at other municipal WWTPs. After approval of the preliminary design, the city amended the contract for engineering services by MCE to include final design, permitting and coordination for selection and work with a Construction Manager at Risk (CMAR). In February of 2024 Garney Companies, Inc. was selected and retained for CMAR services by the city for the pricing exercises and construction of the new headworks facility.

The proposed new headworks facility will include a completely new building with new channel structure, two (2) new mechanical screenings channels, and new storm water diversion grading at the headworks site. This proposed new facility will address ongoing issues with the ragging and screenings that appear to have been the primary cause of the four largest SSOs. This project is currently scheduled to begin construction in October 2025 and be completed in December 2026.

See Attachment E – Siloam Springs WWTP Screening Facility Preliminary Drawings

CAP Final Report

A final report will be submitted upon completion of the CAP, stamped by a PE licensed in the state of Arkansas, certifying that all corrective actions in the CAP have been completed.

Schedule

Milestones	Dates
Submittal of corrective action plan	November 14, 2024
Place sand bags around the existing channels at the headworks	December 20, 2024
Quarterly Report 1	January 15, 2025
Construct a berm uphill of the existing headworks	January 31, 2024
Hydraulic analysis	February 28, 2025
Quarterly Report 2	April 15, 2025
Regulatory approval of screening facility (ADH and DEQ)	July 2025
Quarterly Report 3	July 15, 2025
Begin construction on the new headworks facility	October 2025
Quarterly Report 4	October 15, 2025
Quarterly Report 5	January 15, 2026
Quarterly Report 6	April 15, 2026
Quarterly Report 7	July 15, 2026
Quarterly Report 8	October 15, 2026
Complete construction on the new headworks facility	December 2026
Final report and completion of CAP	January 2027

Attachments:

Attachment A – Siloam Springs WWTP SSO Table
Attachment B – WWTP Site Plan and Overflow Locations
Attachment C – Aquafix Digester Report
Attachment D – Ragging Photos
Attachment E – Siloam Springs WWTP Screening Facility Preliminary Design Drawings
Attachment F – Siloam Springs WWTP 1968 Expansion Grit Record Drawings
Attachment G – Siloam Springs WWTP 1986 Expansion Digester Record Drawings
Attachment H – Siloam Springs WWTP 2008 Expansion RAS/WAS Record Drawings
Attachment I – Siloam Springs WWTP 2008 Expansion Screening Record Drawings

Attachment A

Siloam Springs WWTP SSO Table

Siloam Springs Corrective Action Plan
Sanitary Sewer Overflows
Wastewater Treatment Plant

MCE Project No. 22-2156



Overflow ID	Location	Date SSO Form Received	Date Overflow Started	Date Overflow Stopped	Time Overflow Started	Time Overflow Stopped	Volume	Stream	IsSSO	IsBypass	Description	Initial Cleanup	Proposed Final Repair
1	Influent Screening Channel	5/4/2022	5/4/2022	5/5/2022	1:10 PM	2:10 PM	3,000,000	SSO Reached Receiving Water (river,stream)	TRUE	FALSE	Overflow occurred at the influent screening channel due to ragging and large amounts of rain. Overflow reached the river.	Plant staff manually raking rags, cleaning debris off of the ground, and disposing appropriately	Construct new headworks facility
2	RAS/WAS Tank	8/27/2022	8/27/2022	8/27/2022	5:50 PM	6:15 PM	500	SSO Occurred at Treatment Plant	FALSE	TRUE	Pump failure	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system and service pumps
3	RAS/WAS Tank	9/16/2022	9/16/2022	9/16/2022	12:39 AM	12:46 AM	25	SSO Occurred at Treatment Plant	FALSE	TRUE	RAS/WAS Tank overflowed into the yard of the Wastewater Plant. Approximately 25 gallons of undigested sludge overflowed before I was able to correct the problem and return the Was/Ras return pump back to operating order.	Parts are on order for the telescoping valve that automatically control the undigested sludge tank level. The Was/Ras Tank is equipped with a Mission Control Unit that will notify plant staff if there is a problem with the tank level or the associated pumping equipment. I responded to a high wet-well level alarm within 7 minutes of receiving the alarm message from the Missions alarm system.	Remove rags from system and service pumps
4	Influent Screening Channel	11/5/2022	11/4/2022	11/4/2022	6:04 PM	6:20 PM	1,000	SSO Affected Private Property (ground)	TRUE	FALSE	Failure at parshall flume	Plant staff manually raking rags, cleaning debris off of the ground, and disposing appropriately	Construct new headworks facility
5	975 Anderson Avenue	11/29/2022	11/28/2022	11/28/2022	3:00 PM	3:30 PM	200	SSO Occurred at Treatment Plant	TRUE	FALSE	Machine failure at wastewater treatment plant	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system
6	RAS/WAS Tank	1/1/2023	12/31/2022	12/31/2022	10:50 PM	11:00 PM	12,000	SSO Reached Receiving Water (river,stream)	FALSE	TRUE	Overflow went into Sage Creek due to pump failure.	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system and service pumps
7	Digester	3/8/2023	3/8/2023	3/8/2023	7:12 AM	2:29 PM	2,000	SSO Affected Private Property (ground)	FALSE	TRUE	Digester #4 had excessive foaming, and the discharge went onto the ground inside of the wastewater plant.	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system
8	Digester	3/16/2023	3/16/2023	3/16/2023	11:47 AM	2:37 PM	2,000	SSO Affected Private Property (ground)	FALSE	TRUE	Digester #4 is foaming, and about 2,000 gallons of the foam went on the ground at the wastewater plant.	Plant staff cleaning debris off of the ground and disposing appropriately. Staff used a 6-inch pump to remove digested sludge from digester #4 to digester #5. Additionally, we added anti foaming agent.	Remove rags from system
9	RAS/WAS Tank	6/4/2023	6/4/2023	6/4/2023	2:07 AM	3:10 AM	2,000	SSO Affected Private Property (ground)	FALSE	TRUE	Overflow went into the yard on private land	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system
10	Belt Filter Press	7/26/2023	7/26/2023	7/26/2023	12:15 PM	12:30 PM	400	SSO Occurred at Treatment Plant	FALSE	TRUE	There was a filtrate overflow from our belt filter press at the lift station for it. The filtrate remained within the property of the wastewater treatment plant, and was isolated to the yard.	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system
11	Influent Screening Channel	12/25/2023	12/25/2023	12/25/2023	6:15 AM	6:30 AM	88,542	SSO Reached Receiving Water (river,stream)	TRUE	FALSE	Overflow occurred at the influent screening channel and reached the river	Plant staff manually raking rags, cleaning debris off of the ground, and disposing appropriately	Construct new headworks facility
12	Digester	3/3/2024	3/3/2024	3/3/2024	7:00 AM	9:00 AM	1,000	SSO Occurred at Treatment Plant	FALSE	TRUE	Digester 4 overflowed with foam, staff immediately began mitigating the situation and were able to stop the foaming in the digester.	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system

Overflow ID	Location	Date SSO Form Received	Date Overflow Started	Date Overflow Stopped	Time Overflow Started	Time Overflow Stopped	Volume	Stream	IsSSO	IsBypass	Description	Initial Cleanup	Proposed Final Repair
13	Influent Screening Channel	5/7/2024	5/7/2024	5/7/2024	5:00 AM	6:30 AM	10,000	SSO Affected Private Property (ground)	TRUE	FALSE	Overflow went onto plant property. Overnight we received approximately 1.5 inches of rain	Plant staff manually raking rags, cleaning debris off of the ground, and disposing appropriately	Construct new headworks facility
14	Influent Screening Channel	5/22/2024	5/22/2024	5/22/2024	6:30 AM	7:10 AM	400,000	SSO Occurred at Treatment Plant	TRUE	FALSE	Our Bar-Rack was packed full of rags due to a slug load going through the plant because of the rain. The overflow mostly stayed in the plant, there was a portion of it th	Plant staff manually raking rags, cleaning debris off of the ground, and disposing appropriately	Construct new headworks facility
15	Influent Screening Channel	6/5/2024	6/5/2024	6/5/2024	6:00 AM	7:01 AM	20,000	SSO Reached Receiving Water (river,stream)	TRUE	FALSE	Overflow occurred at the influent screening channel and reached the river	Plant staff manually raking rags, cleaning debris off of the ground, and disposing appropriately	Construct new headworks facility
16	975 Anderson Avenue	7/22/2024	7/21/2024	7/21/2024	8:00 PM	8:15 PM	5,000	SSO Occurred at Treatment Plant	TRUE	FALSE	Overflow stayed with the plant	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system
17	975 Anderson Avenue	8/17/2024	8/17/2024	8/17/2024	8:00 AM	8:15 AM	65,000	SSO Affected Private Property (ground)	TRUE	FALSE	Overflow stayed within plant property	Plant staff cleaning debris off of the ground and disposing appropriately	Remove rags from system
18	Influent Screening Channel	11/4/2024	11/4/2024	11/4/2024	7:00 PM	7:15 PM	2,000	SSO Occurred at Treatment Plant	TRUE	FALSE	Overflow stayed within plant property	Plant staff manually raking rags, cleaning debris off of the ground, and disposing appropriately	Construct new headworks facility

TOTAL REPORTED GALLONS3,611,667

Attachment B

WWTP Site Plan and Overflow Locations

Attachment C

Aquafix Digester Report



AQUAFIX

Wastewater Laboratories

University of Wisconsin Research Park



Date: 04-24-23
To: Siloam Springs WWTP
Sample(s): Mixed Liquor (Digester) & Foam (Digester)
Date Received: 04-20-23
Date(s) Analyzed: 04-20-23
Sample Analyzed By: Saylor Gilbert; Hans Miller; Aquafix
Objective: Perform microscopy on the aerobic digester samples and provide recommendations to improve processes.

Overview of Findings:

- The foam does not appear to be caused by filaments.
- An overabundance of yeast appears to be the primary driver behind the foaming and dispersed solids.
- Yeast growth is driven by low pH.
- Dispersed solids in the aerobic digester appears to be a secondary driver behind the foaming.
- The dispersed solids, and lack of poor floc-formation, is likely caused by over aeration in the digester.

****Details on microscopy and treatment recommendations are available at the end of the report.****

Microscopic Observations: Mixed Liquor (Digester)

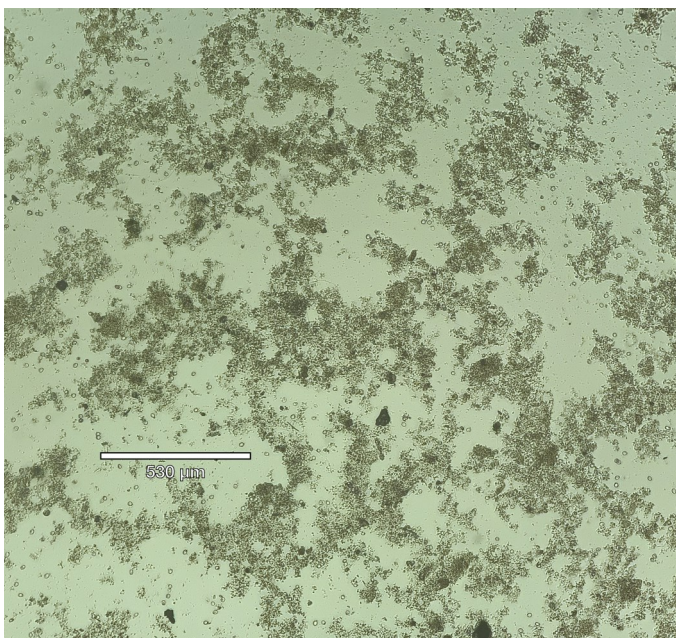


Figure 1-40x magnification (m): Observed solids in the sample were very dispersed.

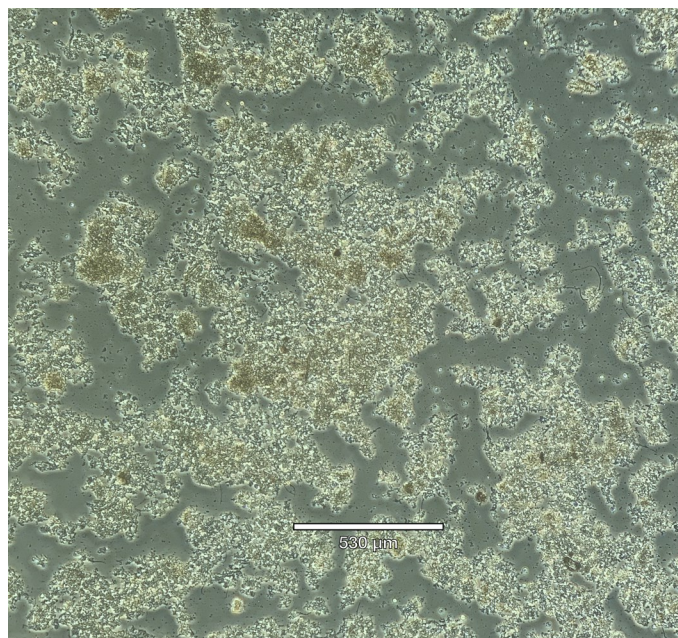


Figure 2-40x (m) Phase Contrast: A low abundance of total filaments was observed in the sample.

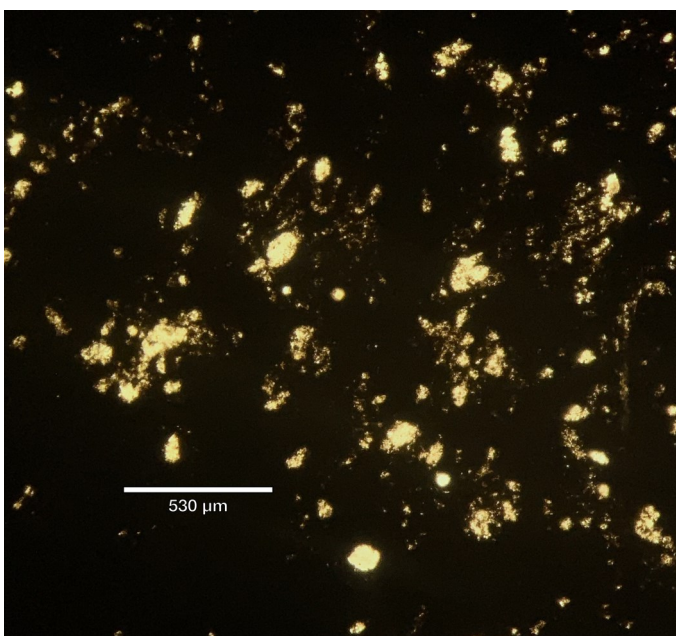


Figure 3-40x (m) India Ink Stain: A low to moderate abundance of extracellular polymeric substance (EPS) was observed in the sample.

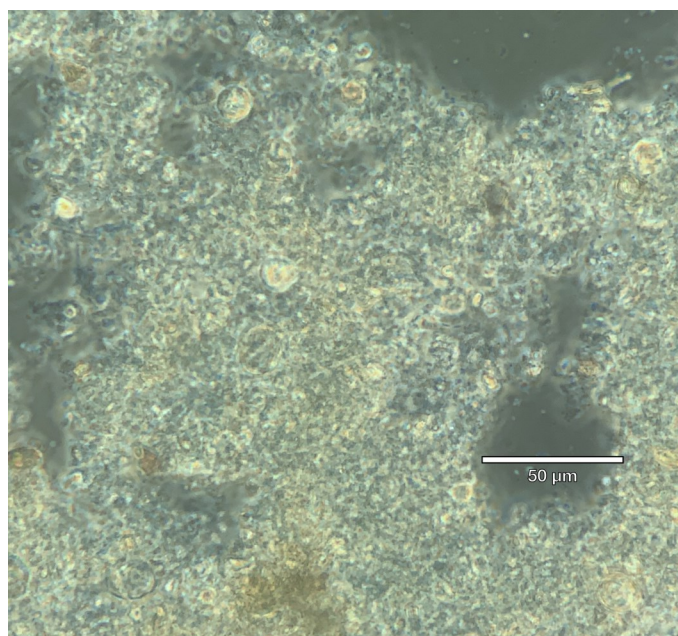


Figure 4-400x (m) Phase Contrast: On average, condensed solids were tan in color, with some spots of brown.

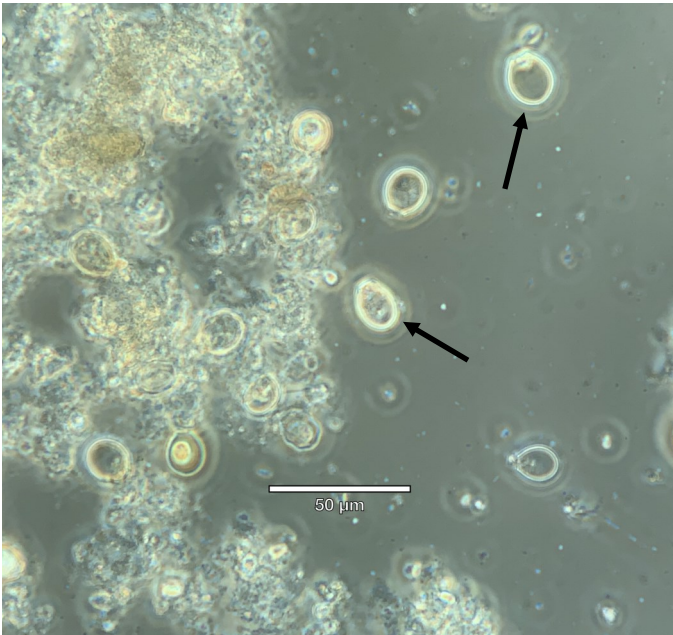


Figure 5-400x (m) Phase Contrast: A high abundance of yeast were observed in the sample.

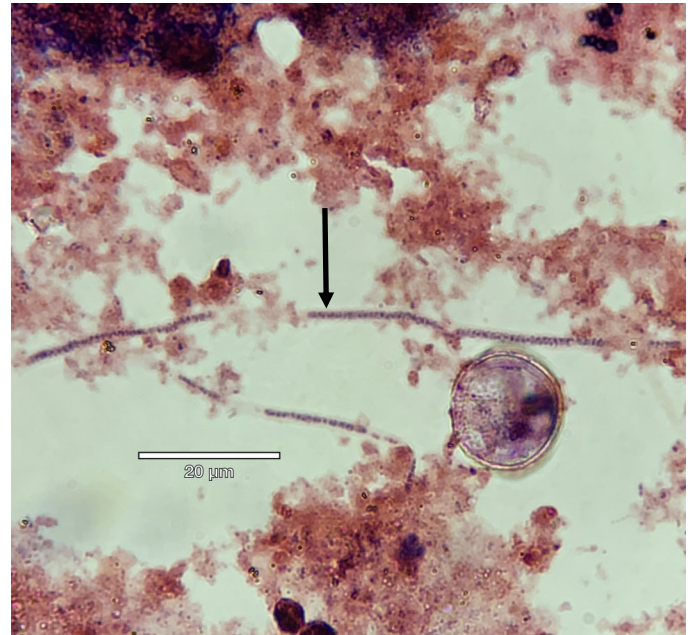


Figure 6-1000x (m) Gram Stain: A low abundance of Type 0041/0675 was observed in the sample.

Microscopic Observations: Foam (Digester)

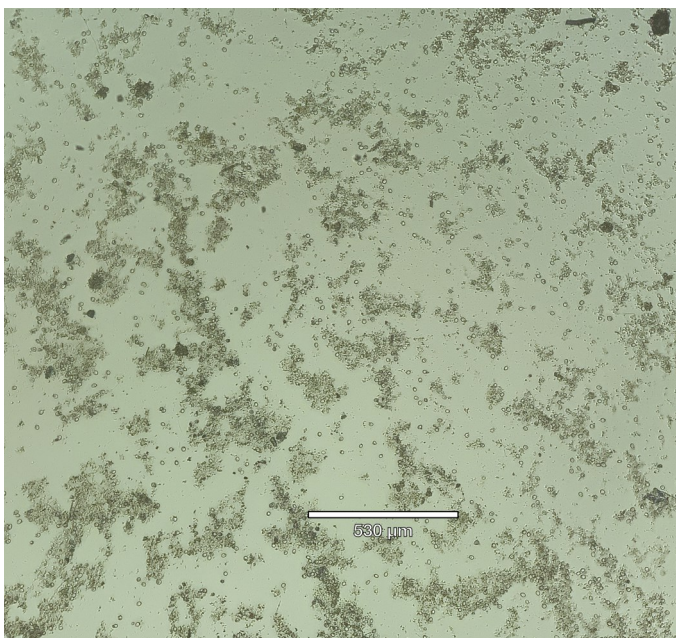


Figure 7-40x (m): A high abundance of solids observed in the foam sample.

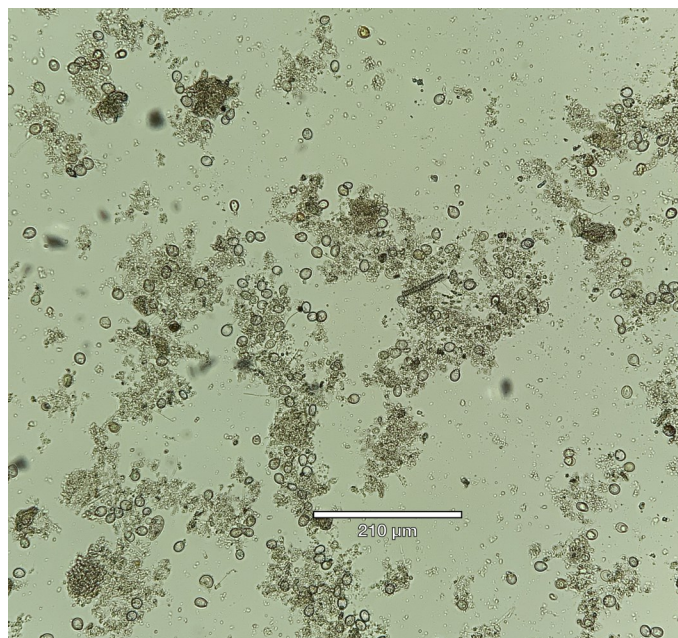


Figure 8-100x (m): A low abundance of total filaments observed in the sample.



Figure 9-400x (m): A very high abundance of yeast observed in the sample.

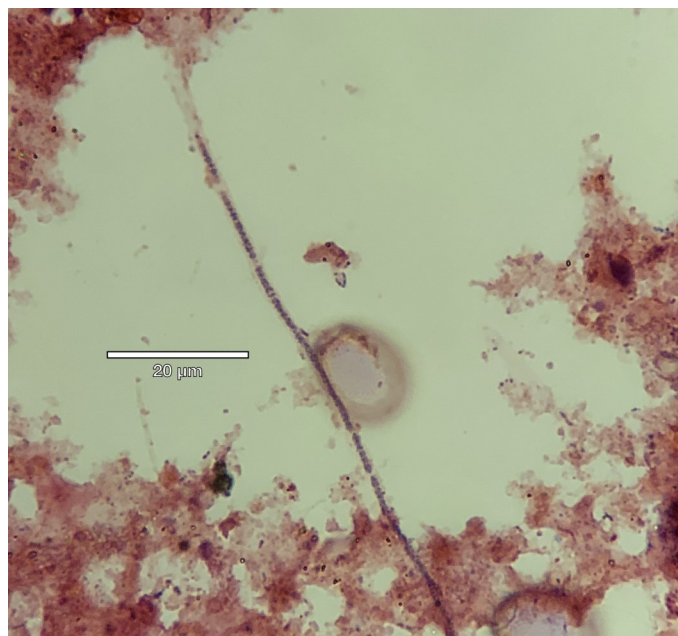


Figure 10-1000x (m) Gram Stain: A low abundance of Type 0041/0675 was observed.

Observation, Discussion, & Results:

The solids in the aerobic digester mixed liquor sample were heavily dispersed. Floc-like structures were not observed in the sample. Typically in aerobic digesters floc are still present. The lack of floc may be an indicator of over-aeration. The dispersed solids could also be contributing to the foaming. A moderate abundance of extracellular polymeric substance (EPS) was observed in the system. EPS is a glue-like substance produced by floc-forming bacteria. A low abundance of total filaments were observed in the mixed liquor sample, the most abundant being Type 0041/0675. These filaments are common and grow in low F:M conditions. The foam sample appeared very similar to the mixed liquor sample. The foaming at Siloam Springs does not appear to be filamentous.

A high abundance of yeast was observed in the mixed liquor sample, and a very high abundance was observed in the foam sample. At high abundances yeast can cause bulking and dispersed solids issues. Additionally, it can float to the surface where it disrupts surface tension and can cause foaming. Yeast has a hard time growing in digesters, it is likely that much of the yeast observed in the samples is flowing into the digester. A low pH is likely driving the growth of yeast in the system, which is the only indicator organism observed that can cause bulking and/or foaming. The yeast could also be entering the system via the waste stream, if there are any breweries feeding into the plant.

Filaments: Mixed Liquor

Rank	Filament	Abundance	Cause
1	Type 0041/0675	Low	Low F:M conditions

Filaments: Foam

Rank	Filament	Abundance	Cause
1	Type 0041/0675	Low	Low F:M conditions

[Type 0041-Type 0675 - Aquafix \(teamaquafix.com\)](http://teamaquafix.com)

Recommendation(s):

Overall, issues experienced at the Siloam Springs appear to be caused by abundant yeast in the system. Our recommendations are as follows:

- Yeast growth is caused by low pH. We recommend the addition of Boost N Lock. Boost N Lock is a blend of strong bases specifically chosen for their ability to improve pH. Additionally, they have a strong buffering capacity, which makes it nearly impossible to over-adjust pH using Boost N Lock. As mentioned earlier in the report, the yeast is likely growing upstream and washing into the digester. Because of this, we recommend dosing Boost N Lock upstream, in the aeration basin, if possible. It can be dosed directly into the aerobic digester if necessary.
- Typically, we would observe large, dense floc in an aerobic digester. There were no observed floc in the mixed liquor sample. This indicates that the digester may be over-aerated. We recommend reducing aeration in the digester.

Attachment D

Ragging Photos



Clog from RAS Pump



Non-organics captured at manual bar screen

Attachment E

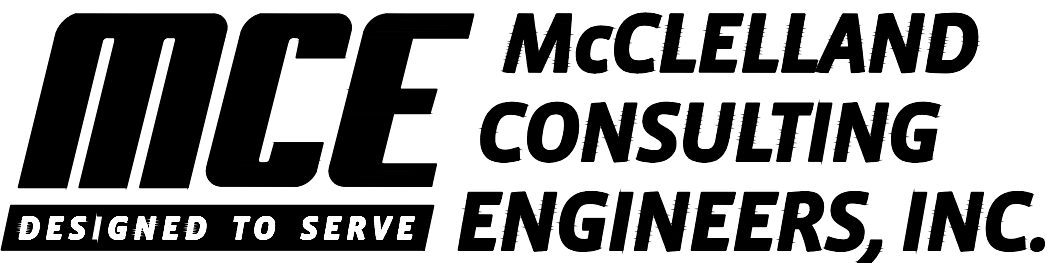
Siloam Springs WWTP Screenings Facility Preliminary Drawings

SILOAM SPRINGS WWTP HEADWORKS SCREENING FACILITY

SILOAM SPRINGS, ARKANSAS
INITIAL CMAR PRICING SET



SEPTEMBER 2024
MCE PROJECT NUMBER 22-2156



<http://www.mce.us.com>

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LITTLE ROCK, AR • FAYETTEVILLE, AR • FORT SMITH, AR



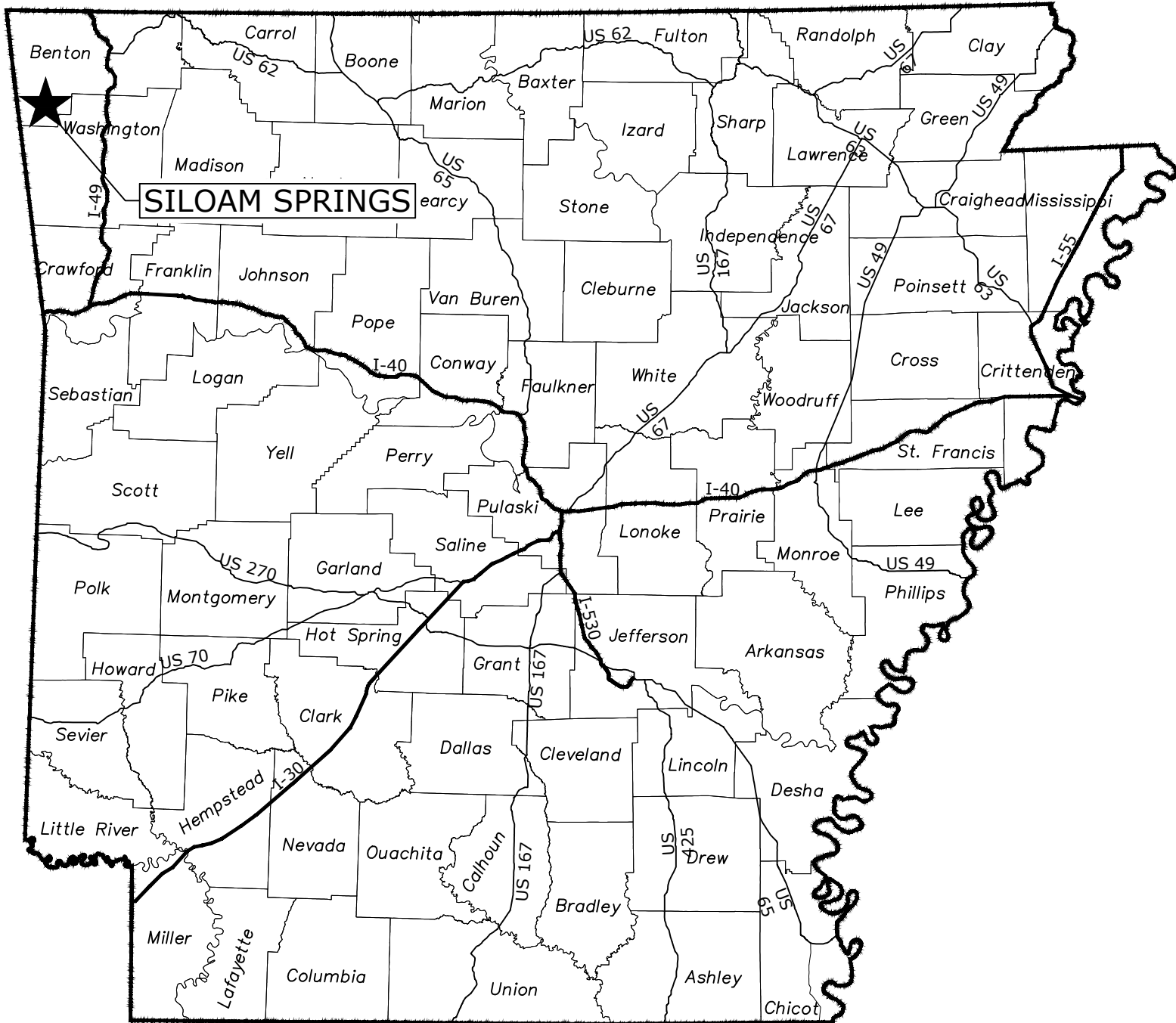
REVISIONS		
REV	DATE	DESCRIPTION



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CONSTRUCTION

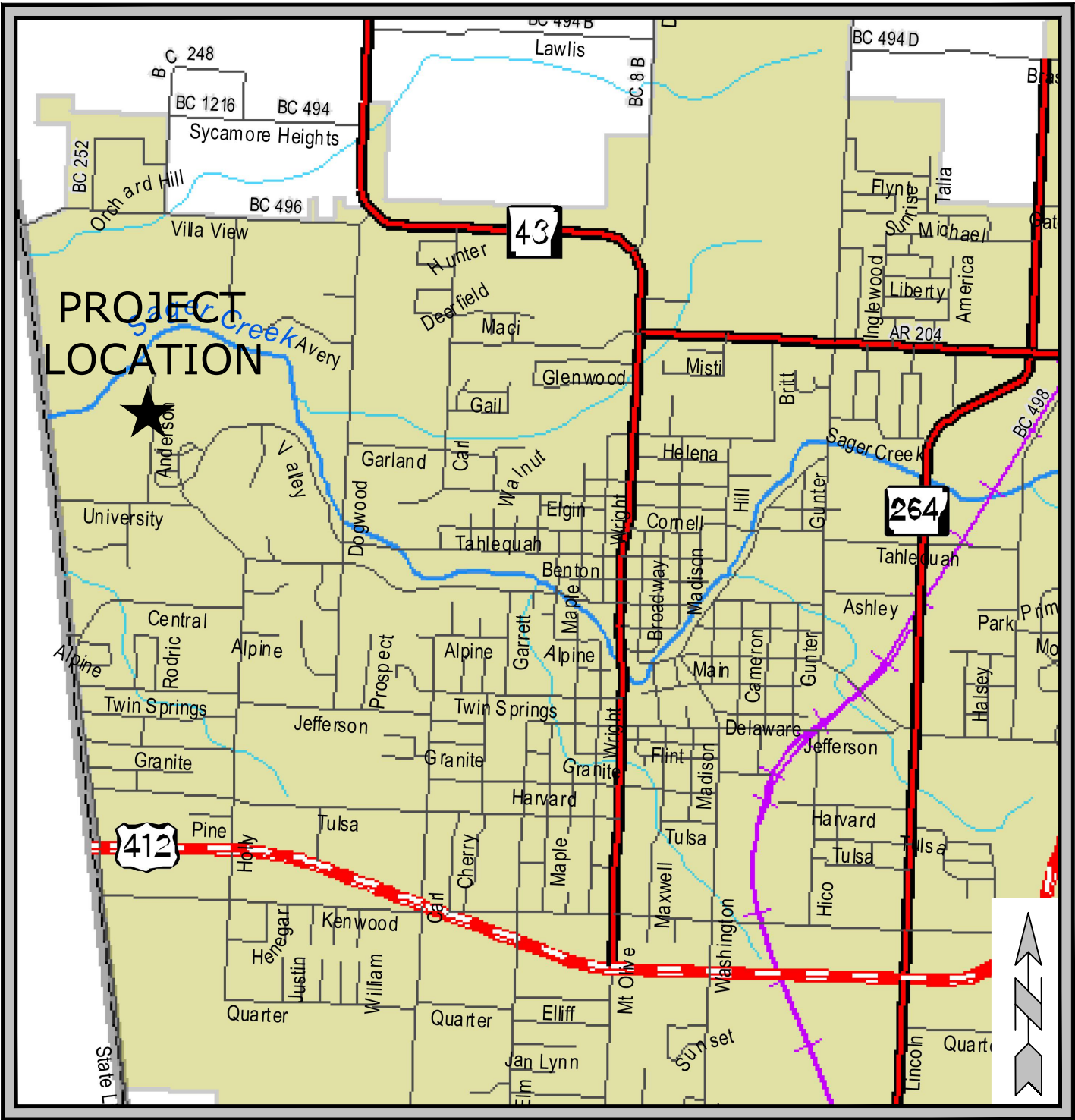
ORIGINAL SIGNATURE ON FILE

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LOCATION MAP

Sheet List Table	
Sheet Number	Sheet Title
G1	COVER
G2	VICINITY MAP & SHEET INDEX
G3	GENERAL NOTES
G4	GENERAL NOTES & LEGEND
G5	EXISTING & PROPOSED HYDRAULIC PROFILE
C1	WORK AREA MAP
C2	EXISTING SITE PLAN
C3	EXISTING YARD PIPING PLAN
C4	DEMOLITION PLAN
C5	PROPOSED SITE PLAN
C6	PROPOSED YARD PIPING PLAN
C7	PROPOSED INFLUENT P&P
C8	GRAVITY E.Q. LINE P&P
C9	DRAINAGE AREA MAP
G1	GRADING PLAN INDEX
G2	BUILDING GRADING PLAN
G3	DRAINAGE DITCH P&P 1
G4	DRAINAGE DITCH P&P 2
G5	TRAIL P&P 1
G6	TRAIL P&P 2
P1	SCREENING FACILITY PROCESS PLAN
P2	SCREENING FACILITY PROCESS SECTION A-A
P3	SCREENING FACILITY PROCESS SECTION B-B
S1	SCREENING FACILITY BASE FOOTING PLAN
S2	SCREENING FACILITY SECONDARY FOOTING PLAN
S3	SCREENING FACILITY COMBINATION CHANNEL FOOTING PLAN
S4	SCREENING FACILITY MAIN CHANNEL FOOTING PLAN
S5	SCREENING FACILITY DUMPSTER ROOM FOOTING PLAN
S6	SCREENING FACILITY BUILDING SLAB PLAN
S7	SCREENING FACILITY FLOOR PLAN
S8	SCREENING FACILITY STRUCTURAL ELEVATION 1
S9	SCREENING FACILITY STRUCTURAL ELEVATION 2
S10	GRIT TIE-IN SECTION
S11	GRIT TIE-IN PLAN
A1	SCREENING FACILITY NORTH & SOUTH ELEVATIONS
A2	SCREENING FACILITY EAST & WEST ELEVATIONS
D1	DETAILS
D2	DETAILS
D3	DETAILS
D4	DETAILS
D5	DETAILS
D6	DETAILS
E1	ELECTRICAL LEGEND AND ABBREVIATION
E2	ELECTRICAL ONE-LINE DIAGRAM
E3	ELECTRICAL SCHEDULES I
E4	ELECTRICAL BUILDING PLAN
E5	ELECTRICAL SITE PLAN



VICINITY MAP

MCE

DESIGNED TO SERVE

McCLELLAND

CONSULTING

ENGINEERS, INC.

1580 E STEARNS ST

FAYETTEVILLE, ARKANSAS 72703

(479) 443-2377

HTTP://WWW.MCE.US.COM

PRELIMINARY
NOT FOR
CONSTRUCTION

ORIGINAL SIGNATURE ON FILE

SILOAM SPRINGS WWTP
HEADWORKS SCREENING FACILITY
30% SUBMITTAL
SILOAM SPRINGS, ARKANSAS

© 2023

811

Know what's below.
Call before you dig.

REVISIONS		DESCRIPTION
REV	DATE	

VICINITY MAP &
SHEET INDEX

DESIGNED BY:	DRAWN BY:
ZSL	
DATE:	REVISION:
9/19/2024	30%
SCALE:	JOB NUMBER:
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W:\2022\22-2156 Siloam Springs, AR - WW Plant Headworks Upgrade\Design Drawings\Upgrade\Drawings\Sheets\22-2156 COVER INDEX NOTES.dwg, PRINTED ON: September 19, 2024 @ 1:14 PM

GENERAL NOTES		GENERAL DEMOLITION NOTES		GENERAL GRADING/DRAINAGE NOTES						
1. WARRANTY / DISCLAIMER: THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR DESIGN FUNCTION AND USE INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR HIS PERSONNEL CAN OR DO WARRANT THESE DRAWINGS FOR ANY UNAUTHORIZED USE. MCCLELLAND CONSULTING ENGINEERS, INC. SHALL NOT BE LIABLE FOR ANY DAMAGES CAUSED BY THE MISUSE OF THE DRAWINGS AND DESIGNS OR THE USE BY ANY OTHER PARTY. 2. CONSTRUCTION METHODS AND MATERIALS NOT SPECIFIED IN THESE DRAWINGS ARE TO MEET OR EXCEED THE TECHNICAL SPECIFICATIONS PROVIDED BY MCCLELLAND CONSULTING ENGINEERS, INC. 3. THE CONTRACTOR SHALL RETAIN A FULL SET OF LATEST APPROVED CONSTRUCTION PLANS ON SITE DURING ALL CONSTRUCTION ACTIVITIES. 4. THE BOUNDARY / TOPOGRAPHIC SURVEY HAS BEEN PROVIDED BY THE FOLLOWING COMPANY: MCCLELLAND CONSULTING ENGINEERS, INC. 1580 EAST STEARNS STREET FAYETTEVILLE, AR 72703 OFFICE: (479) 443-2377 5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY TEMPORARY BENCHMARK ELEVATIONS, AND FIELD VERIFY ALL EXISTING FEATURES AS SHOWN ON THE SURVEY AND NOTIFY THE SURVEYOR AND THE ENGINEER OF RECORD OF ANY INACCURACIES FOUND ON THE SURVEY PRIOR TO COMMENCING CONSTRUCTION. 6. THE CONTRACTOR SHALL PROTECT ALL ESTABLISHED REFERENCE POINTS AND PROPERTY MONUMENTS. THE CONTRACTOR SHALL NOT MAKE ANY CHANGES OR RELOCATIONS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER OR ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR THE ACCURATE REPLACEMENT OR RELOCATION OF ANY LOST OR DAMAGED REFERENCE POINTS OR PROPERTY MONUMENTS. THIS WORK SHALL BE PERFORMED BY A LICENSED PROFESSIONAL SURVEYOR. 7. CONTRACTOR SHALL MAINTAIN A FULL SET OF LATEST APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS ONSITE. CONTRACTOR SHALL MAINTAIN ONE SET OF RECORD DRAWINGS (RED-LINE) ON SITE WHICH WILL BE SUBMITTED TO ENGINEER UPON COMPLETION OF THIS PROJECT. RECORD (RED-LINE) DRAWINGS MUST BE COMPLETE AND SUBMITTED TO ENGINEER PRIOR TO FINAL PAYMENT. 8. THE CONTRACTOR SHALL PROVIDE AT LEAST ONE (1) CHEMICALLY-TREATED PORTABLE TOILET UNIT FOR EVERY 20 WORKMEN ON JOB SITE. IN NO CASE SHALL LESS THAN ONE (1) BE PROVIDED. THE UNIT(S) SHALL REMAIN ON THE SITE DURING ALL ACTIVE PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL ENFORCE THE USE OF THE FACILITIES BY ALL PERSONNEL AT THE SITE. THE UNIT SHALL BE OBSCURED FROM PUBLIC VIEW TO THE GREATEST EXTENT PRACTICAL. 9. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME THESE PLANS WERE PRODUCED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES SHOWN OR NOT SHOWN ON THE PLANS PRIOR TO COMMENCING CONSTRUCTION. IF ANY CONFLICTS ARE IDENTIFIED THE CONTRACTOR MUST CONTACT MCCLELLAND CONSULTING ENGINEERS, INC. AT (479)-443-2377 AS SOON AS PRACTICALLY POSSIBLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATION, GRADE ADJUSTMENTS AND / OR REMOVAL (IF APPROVED BY THE UTILITY) OF EXISTING UTILITIES SHOWN OR NOT SHOWN ON THE PLANS AT NO ADDITIONAL COST TO THE OWNER. 10. THE CONTRACTOR SHALL CONTACT ARKANSAS ONE CALL CENTER FOR UTILITY LOCATES AT (800)-482-8998 OR 811 AT LEAST 48 HOURS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL OBSERVE ALL REQUIREMENTS OF THE ONE CALL SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND ANY FINES ASSOCIATED WITH NOT MEETING THE LEGAL REQUIREMENTS OF THE DAMAGE PREVENTION ACT. 11. ANY ITEM OF WORK CALLED FOR BY THE PLANS AND/OR SPECIFICATIONS AND NOT INCLUDED AS A BID ITEM SHALL BE CONSIDERED SUBSIDIARY TO CONSTRUCTION. 12. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR OBTAINING ALL PERMITS (NOT PROVIDED BY THE OWNER), INCLUDING BY NOT LIMITED TO ALL APPLICABLE LOCAL, STATE, AND FEDERAL AGENCIES PRIOR TO BEGINNING WORK. ALL REQUIRED PERMITS MUST BE MAINTAINED ON SITE AT ALL TIMES. 13. ALL STAKING SHALL BE PERFORMED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION. THIS ITEM SHALL BE SUBSIDIARY TO RELATED CONTRACT ITEMS (NO SEPARATE PAYMENT WILL BE MADE). 14. REMOVE SOD, GRASS, ROOTS, WEEDS, STICKS, STONES OVER TWO INCHES IN DIAMETER, AND OTHER FOREIGN MATERIAL FROM THE TOPSOIL. REMOVE TOPSOIL FROM AREAS WHICH WILL BE DISTURBED BY CONSTRUCTION OPERATIONS AND STOCKPILE IN EACH TEMPORARY CONSTRUCTION AREA OR A DESIGNATED AREA FOR REUSE. BACKFILL TRENCHES ACCORDING TO SPECIFICATIONS WITH THE TOP FOUR (4) INCHES MINIMUM TO BE FILLED WITH THE TOPSOIL. TOPSOIL SHALL BE PROVIDED (NO SEPARATE PAY ITEM) IF SUITABLE ON-SITE IS NOT AVAILABLE. 15. IT IS REQUIRED AND THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT RESIDENTS 48 HOURS IN ADVANCE OF PERFORMING ANY WORK ON PRIVATE PROPERTY OR IN YARDS/DRIVEWAYS ADJACENT TO STREETS OR IN STREET RIGHT-OF-WAY. 16. WHEN WORKING IN ROADWAY RIGHT-OF-WAY THE CONTRACTOR SHALL MAINTAIN A SAFE WORK ZONE THAT FOLLOWS REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). WHEN WORKING IN ARDOT RIGHT-OF-WAY THE CONTRACTOR SHALL ALSO MEET ARDOT REQUIREMENTS AND MAINTAIN ANY ASSOCIATED PERMITS. 17. NONRUBBER-TIRED VEHICLES SHALL NOT BE OPERATED ON PUBLIC OR PRIVATE ROAD WITHOUT WRITTEN CONSENT FROM THE OWNER OF SAID ROAD. ANY DAMAGES CAUSED BY OPERATING ANY CONTRACTOR OR SUBCONTRACTOR VEHICLE ON EXISTING ROADWAYS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.	18. STREET AND ROAD SIGNS (INCLUDING SUPPORTS) THAT INTERFERE WITH CONSTRUCTION SHALL BE REMOVED AND ERECTED IN TEMPORARY LOCATIONS DURING CONSTRUCTION IN A MANNER SATISFACTORY TO GOVERNING AGENCY OF SAID SIGN. ALL RELOCATED SIGNS SHALL BE REINSTALLED IN ORIGINAL LOCATION AFTER CONSTRUCTION BUT BEFORE FINAL COMPLETION. 19. MAIL BOXES THAT INTERFERE WITH CONSTRUCTION SHALL BE REMOVED AND ERECTED IN TEMPORARY LOCATIONS DURING CONSTRUCTION IN A MANNER SATISFACTORY TO THE U.S. POSTAL SERVICE. REMOVAL, TEMPORARY ERECTION AND PERMANENT ERECTION OF MAILBOXES SHALL BE IN ACCORDANCE WITH THE U.S. POSTAL SERVICE REGULATIONS. 20. THE CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE DIVERSIONS AND OTHER WATER CONVEYANCE MEASURES DURING CONSTRUCTION, THESE FACILITIES SHALL BE FREE OF SEDIMENT DURING ALL PHASES OF CONSTRUCTION. 21. CONTRACTOR SHALL NOT REMOVE OR DAMAGE ANY TREES WITHOUT WRITTEN PERMISSION OF OWNER, UNLESS SPECIFICALLY NOTED HEREIN. 22. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO DESIGNATED EASEMENTS AND RIGHTS-OF-WAY. 23. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS WITH THE EASEMENT OWNER AND RESTORE ALL SURFACE IMPROVEMENTS (INCLUDING, BUT NOT LIMITED TO, TREES <4 INCHES IN DIAMETER), SHRUBS, LANDSCAPE, PAVEMENT, SIDEWALKS, LIGHTS AND FENCES. 24. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND FAMILIARIZING HIMSELF WITH CURRENT CONSTRUCTION DRAWINGS, DETAILS, AND SPECIFICATIONS. 25. ALL EXISTING IMPROVEMENTS, INCLUDING PAVEMENT, CURBS, DRIVES, SIDEWALK, APRONS, SWALES, INLETS, PIPE, UTILITIES, TREES, BUSHES, HEDGES, PLANTERS, SHRUBS, LANDSCAPING, ETC., THAT ARE NOT INDICATED ON THE DRAWINGS TO BE REMOVED, RECONSTRUCTED, OR RELOCATED WHETHER SHOWN ON THE DRAWING OR NOT SHOWN, SHALL BE PROTECTED FROM DAMAGE. ANY SUCH IMPROVEMENT THAT IS DAMAGED, DUE TO THE CONTRACTOR'S OPERATION, SHALL BE RECONSTRUCTED OR REPLACED WITH NEW IMPROVEMENTS OF SIMILAR MATERIALS, SIZE, COLOR, AND FINISH. THE COST FOR ALL SUCH RECONSTRUCTION OR REPLACEMENT SHALL BE BORNE BY CONTRACTOR, AS PART OF CONTRACT, AND SHALL NOT BE PAID FOR SEPARATELY. 26. THE PRESENCE OR ABSENCE OF A REPRESENTATIVE OF THE OWNER OR ITS AGENT ON THE CONSTRUCTION SITE WILL NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR THE PROPER PERFORMANCE OF HIS WORK ON THE PROJECT. WHETHER A PROBLEM IS CALLED TO THE CONTRACTOR'S ATTENTION OR NOT, THE CONTRACTOR IS NOT RELIEVED FROM HIS RESPONSIBILITY TO COMPLETE ALL WORK IN ACCORDANCE WITH PLANS AND SPECIFICATIONS AND GOOD CONSTRUCTION PRACTICES. 27. NO EQUIPMENT OR MATERIAL SHALL BE STORED OR STOCKPILED IN ANY LOCATION EXCEPT AS APPROVED BY THE ENGINEER, STORED MATERIALS/CONSTRUCTION EQUIPMENT MUST BE IN DESIGNATED AREAS WITH PROPER BARRICADING AS APPROVED BY THE ENGINEER. TO STOCKPILE MATERIALS, PARK EQUIPMENT, OR VEHICLES, OR PLACE BUILDINGS ON PRIVATE PROPERTY, THE CONTRACTOR MUST ENTER INTO A WRITTEN AGREEMENT WITH THE PROPERTY OWNER AND PROVIDE A COPY TO OWNER A SIGNED RELEASE MUST BE OBTAINED PRIOR TO FINAL PAYMENT. 28. ALL OPEN TRENCHES MUST BE BACKFILLED AT THE END OF THE DAY OR PROPERLY PROTECTED BY BARRICADES OR STEEL PLATING. ANY TRENCH WITHIN A DRIVING SURFACE MUST BE COVERED WITH STEEL PLATING AS PER ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. 29. CONTRACTOR SHALL PROVIDE CONTINUOUS ACCESS TO AND FROM ALL DRIVEWAYS AND PARKING LOTS ADJACENT TO THE CONSTRUCTION AREA. WHEN A DRIVEWAY MUST BE CUT TO INSTALL PIPELINES, THE CONTRACTOR SHALL PHASE HIS DAILY WORK SCHEDULE SO THAT ALL DRIVEWAY CROSSINGS ARE COMPLETE PRIOR TO THE END OF THE DAY. NO DRIVEWAY CROSSINGS ARE TO BE LEFT OPEN OVERNIGHT. DURING INSTALLATION OF THE PIPELINES ACROSS DRIVEWAYS, THE CONTRACTOR SHALL BE PREPARED TO PROVIDE ACCESS ACROSS TRENCHED DRIVEWAYS AT ALL TIMES IN CASE OF EMERGENCY. THE CONTRACTOR SHALL NOTIFY HOMEOWNERS OR BUSINESSES 48 HOURS PRIOR TO OPENING ANY TRENCHES ACROSS THEIR DRIVEWAYS AND PROVIDE NOTIFICATION DOCUMENTATION TO THE ENGINEER. 30. DRIVEWAYS THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO AS GOOD OR BETTER CONDITION THAN THEY WERE PRIOR TO CONSTRUCTION. MATERIALS UTILIZED TO RESTORE THE DRIVEWAYS SHALL BE OF THE SAME MATERIAL AS THE EXISTING DRIVEWAY. NO TRENCH WIDE CUTS WILL BE ALLOWED. REMOVE AND REPLACE EXISTING DRIVES TO THE NEAREST EXPANSION JOINT OR AS DIRECTED BY ENGINEER. 31. CONTRACTOR SHALL SUPPORT AND PROTECT ALL POWER AND/OR LIGHT POLES IN WORK AREA. ANY CHARGES RELATED TO SUPPORTING UTILITY POLES ARE TO BE PAID FOR BY THE CONTRACTOR (NOT A SEPARATE PAY ITEM). 32. THE CONTRACTOR SHALL DISPOSE OF WASTE MATERIAL ONLY AT LOCATIONS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL NOT PLACE FILL OR WASTE MATERIAL ON ANY PRIVATE PROPERTY WITHOUT PRIOR WRITTEN PERMISSION FROM THE PROPERTY OWNER AND A COPY OF THAT AGREEMENT PROVIDED TO ROGERS WATER UTILITIES. NO EXCESS EXCAVATED MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAYS THAT WILL RESTRICT THE NATURAL FLOW OF WATER. IF THE CONTRACTOR PLACES EXCAVATED MATERIAL IN LOW AREAS THAT WILL CAUSE FLOOD DAMAGE, THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM SUCH FILL, AND HE SHALL REMOVE THE FILL AT HIS OWN EXPENSE. 33. RESTORATION OF SURFACE AREAS MUST BE COMPLETED WITHIN TEN (10) CALENDAR DAYS OF INITIAL TRENCH EXCAVATION REGARDLESS IF PIPE HAS BEEN TESTED.	34. PRIOR TO A SCHEDULED SHUTDOWN OF AN EXISTING UTILITY LINE, THE OCCUPANTS OF ALL STRUCTURE BEING PROVIDED SERVICE BY SUCH UTILITY LINE SHALL BE NOTIFIED BY THE CONTRACTOR A MINIMUM OF 48 HOURS PRIOR TO SUCH SHUTDOWN. THE NOTIFICATION SHALL INCLUDE THE HAND DELIVERY OF A WRITTEN NOTICE TO EACH OCCUPANT INDICATING THE PURPOSE, THE ESTIMATED START TIME, AND THE ESTIMATED DURATION OF SUCH SHUTDOWN. SHUTDOWNS AT ANY ONE TIME WILL BE LIMITED TO FOUR (4) HOURS UNLESS OTHERWISE APPROVED BY THE CITY. NO MORE THAN ONE SCHEDULED SHUTDOWN ON A SECTION OF MAIN WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE CITY. 35. ANY AND ALL LANE CLOSURES WILL REQUIRE A MINIMUM OF 72 HOURS PRIOR NOTIFICATION TO BOTH POLICE AND FIRE DEPARTMENTS. 36. FOR ALL TRENCHING, THE CONTRACTOR SHALL COMPLY WITH THE STANDARDS PROMULGATED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), OF ALL THE UNITED STATES GOVERNMENT, REGULATING EXCAVATIONS, TRENCHING AND SHORING. CONTRACTORS SHALL REFER TO AND ABIDE BY ALL OSHA REGULATIONS PUBLISHED IN 29 CFR 1926, ET SEQ., JULY 1989 EDITION, AND ANY REVISIONS THERETO PUBLISHED IN THE FEDERAL REGISTER WHICH MAY BECOME EFFECTIVE DURING THE PERIOD OF CONSTRUCTION. 37. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE SEPARATE BID ITEM FOR TRENCH SAFETY SYSTEMS, BASED ON LUMP SUM BID ITEM, UNDER WHICH FULL PAYMENT WILL BE MADE FOR TRENCH SAFETY SYSTEMS, INCLUDING ANY ADDITIONAL EXCAVATION AND BACKFILL REQUIRED; SHEETING, AND BRACING; FOR DEWATERING OR DIVERSION OF WATER; FOR ALL JACKING AND JACK-REMOVAL; AND FOR ALL OTHER LABOR, MATERIALS, TOOLS, EQUIPMENT, ACQUISITION OF SOILS INFORMATION AND DESIGN OF TRENCH SAFETY SYSTEM, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. CHANGES MADE IN THE TRENCH SAFETY SYSTEM AFTER THE INITIATION OF CONSTRUCTION WILL NOT BE CAUSE FOR EXTENSION OF TIME, CLAIMS FOR DELAY, OR APPROVAL OF CHANGE ORDERS. 38. IT IS THE SOLE DUTY, RESPONSIBILITY AND PREROGATIVE OF THE CONTRACTOR, NOT THE OWNER OR ENGINEER, TO PERFORM ALL TRENCHING IN A SAFE MANNER AND IN ACCORDANCE WITH OSHA REGULATIONS. ANY APPARENT UNSAFE TRENCHING CONDITIONS OBSERVED BY THE OWNER, ENGINEER, OR THEIR REPRESENTATIVES ON THE SITE, SHALL BE REPORTED TO OSHA AS WELL AS TO CONTRACTOR'S JOB SUPERINTENDENT. WORK STOPPAGES OR CORRECTIVE ACTIONS REQUIRED OF CONTRACTOR BY OSHA SHALL NOT BE CAUSE FOR EXTENSION OF TIME, CLAIMS FOR DELAY, OR APPROVAL OF CHANGE ORDERS. FURTHERMORE, THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR TRENCH PERMITS BY THE LOCAL FIRE DEPT. 39. ALL UNDERGROUND LINES SHALL BE INSPECTED BY THE OWNER OR THE OWNER'S REPRESENTATIVE PRIOR TO BACKFILLING. 40. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT PROPERTY OWNER'S ANIMALS FROM ENTERING THE CONSTRUCTION AREA. WHERE CONSTRUCTION ACTIVITIES WILL REQUIRE REMOVAL OF EXISTING FENCING, TEMPORARY FENCING SHALL BE PROVIDED AS NEEDED. TEMPORARY FENCING SHALL BE COORDINATED WITH THE PROPERTY OWNER. THESE PROVISIONS ARE CONSIDERED SUBSIDIARY TO OTHER PAY ITEMS (NO SEPARATE PAYMENT WILL BE MADE).	1. ALL AREAS WITHIN THE LIMITS OF DISTURBANCE TO BE DEMOLISHED AND REMOVED UNLESS OTHERWISE NOTED ON THIS PLAN. 2. THE CONTRACTOR IS REQUIRED TO NOTIFY THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS PRIOR TO EXCAVATING IN ORDER THAT UNDERGROUND UTILITIES IN THE AREA CAN BE LOCATED. 3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE TOPOGRAPHICAL SURVEY FOR REFERENCE. THE LOCATION OF KNOWN SUBSURFACE STRUCTURES, PIPES, POWER, GAS, PHONE, ETC. ARE SHOWN ON THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING INFORMATION AND SATISFYING HIMSELF TO AS TO THE LOCATION OF THE AFOREMENTIONED ITEMS, SHOWN AND NOT SHOWN. ALL REPAIRS OR RELOCATIONS NECESSARY SHALL BE MADE AS REQUIRED BY THE OWNER OF THE UTILITY OR STRUCTURE. THE COST OF SUCH REPAIRS OR RELOCATIONS NECESSARY SHALL BE BORNE BY THE CONTRACTOR. 4. CONTRACTOR SHALL DISPOSE OF ALL MATERIALS RESULTING FROM DEMOLITION IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS THAT GOVERN SUCH OPERATIONS. 5. ALL ABANDONED SERVICE LINES SHALL BE DISCONNECTED AND CAPPED PER UTILITY COMPANIES REQUIREMENTS. COORDINATE ALL DISCONNECTIONS WITH UTILITY COMPANIES. 6. CONTRACTOR IS TO BRING TO THE ATTENTION OF THE CIVIL ENGINEER ANY AREA OF DEMOLITION IN QUESTION BEFORE PROCEEDING WITH WORK. 7. CONTRACTOR TO REVIEW AND COORDINATE DEMOLITION LIMITS WITH PROPOSED CONSTRUCTION PLANS. 8. EXISTING CLEAN TOPSOIL TO BE STOCKPILED FOR FUTURE USE ON THIS SITE AND IS TO BE COORDINATED BY THE GENERAL CONTRACTOR. 9. ALL EXISTING WATER, GAS AND / OR ELECTRICAL METERS AS NOTED TO BE REMOVED WITHIN THE PROJECT AREA ARE TO BE RETURNED TO THE APPROPRIATE AUTHORITY.	1. CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD OF ANY EXISTING AND PROPOSED ELEVATION INACCURACIES OR DISCREPANCIES PRIOR TO PROCEEDING WITH CONSTRUCTION. 2. INFORMATION PERTAINING TO UNDER GROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS AND FIELD LOCATIONS WHEN POSSIBLE. BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS IN ADVANCE OF MACHINE TRENCHING. IF CLEARANCES ARE LESS THAN SPECIFIED ON THESE PLANS OR 18", WHICH EVER IS LESS, CONTACT THE ENGINEER AND THE OWNER / DEVELOPER PRIOR TO PROCEEDING WITH CONSTRUCTION. 3. CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATION OR REMOVAL OF EXISTING UNDERGROUND UTILITIES SHOWN OR NOT SHOWN AT NO ADDITIONAL COST TO THE OWNER. 4. ALL UTILITIES, INCLUDING STORM SEWER, SHOWN WITHIN PUBLIC EASEMENTS OR RIGHT-OF-WAYS SHALL BE CONSTRUCTED TO THE GOVERNING AGENCY'S SPECIFICATIONS. ALL OTHER UTILITIES SHALL BE CONSTRUCTED TO THE CLIENT'S OR THE GOVERNING AGENCY'S SPECIFICATIONS, WHICHEVER IS MORE STRINGENT. IF THERE IS A QUESTION AS TO WHICH SPECIFICATIONS SHOULD APPLY, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD. IF STRUCTURE(S) ARE NOT PROTOTYPICAL OR CONSTRUCTION CANNOT BE ACHIEVED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO MCCLELLAND CONSULTING ENGINEERS, INC. FOR REVIEW AND APPROVAL. 5. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES ON ADJUSTING EXISTING UTILITY LINE AS REQUIRED BY CUT AND FILL AT NO ADDITIONAL COST TO THE OWNER. 6. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF SHEETING, SHORING, BRACING, AND SPECIAL EXCAVATION MEASURES REQUIRED TO MEET ALL OSHA, FEDERAL, STATE AND LOCAL REGULATIONS PURSUANT TO THE INSTALLATION OF THE WORK INDICATED ON THESE DRAWINGS. 7. ALL STORM DRAIN PIPES ARE MEASURED FROM CENTER OF STRUCTURES AND END OF FLARED END SECTIONS. 8. WHERE THE WORD 'PIPE' IS USED, CONTRACTOR SHALL HAVE THE OPTION OF BIDDING PIPE WITH A SMOOTH INTERIOR HAVING AN 'N' VALUE OF 0.013 OR LESS (UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER OF RECORD). 9. ALL DRAINAGE STRUCTURES SHALL BE CAST-IN-PLACE (UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER OF RECORD). 10. RETAINING WALL(S) SHALL BE CONSTRUCTED TO EXTEND A MINIMUM OF 6 INCHES ABOVE THE TOP OF FINISHED GRADE. CONTRACTOR SHALL REFER TO THE RETAINING WALL PLAN(S) FOR CONSTRUCTION AND DESIGN SPECIFICATIONS. CONTRACTOR SHALL NOTIFY THE ENGINEER IF RETAINING WALL PLANS DIFFER FROM THIS. 11. ALL DISTURBED AREAS AND SLOPES SHALL BE GRADED SMOOTH AND (4") OF TOP SOIL APPLIED. THE AREA SHALL BE SEEDED AND WATERED UNTIL HARDY GRASS GROWTH HAS BEEN ESTABLISHED (SEE LANDSCAPING GENERAL NOTES FOR SEEDING MIX & SPECIFICATIONS). 12. STORM SEWER PIPE TRENCHING AND BEDDING (LOCATED OUTSIDE PUBLIC EASEMENTS & RIGHT-OF-WAY) SHALL BE INSTALLED PER DETAIL 33G. 13. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL PRACTICES IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND CONSTRUCTION SCHEDULE. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR IMPLEMENTING THE SWPPP. 14. REMOVE GOOD TOPSOIL FROM AREAS TO BE GRADED AND FILLED, AND PRESERVE IT FOR USE IN FINISHING THE GRADING OF ALL CRITICAL AREAS. 15. SCARIFY AREAS TO RECEIVE TOPSOIL TO A MINIMUM DEPTH OF 3 INCHES BEFORE PLACING TOPSOIL PER OWNER / DEVELOPER, CITY, AND / OR DOT STANDARDS AND SPECIFICATIONS. 16. CLEAR AND GRUB AREAS TO BE FILLED, REMOVE TREES, VEGETATION, ROOTS, DEBRIS, AND OTHER MATERIALS THAT WOULD AFFECT THE STABILITY OF THE FILL. 17. ENSURE THAT FILL MATERIAL IS FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER MATERIALS INAPPROPRIATE FOR CONSTRUCTING STABLE FILLS. 18. DO NOT INCORPORATE FROZEN MATERIAL OR SOFT, MUCK, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL SLOPES. 19. KEEP DIVERSIONS AND OTHER WATER CONVEYANCE MEASURES FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT. 20. PERMANENTLY STABILIZE ALL GRADED AREAS AFTER FINAL GRADING IS COMPLETED ON EACH AREA OF THE GRADING PLAN. APPLY TEMPORARY STABILIZATION MEASURES ON ALL GRADED AREAS WHEN WORK IS TO BE INTERRUPTED OR DELAYED (SEE EROSION CONTROL PLAN(S)). 21. CONTRACTOR SHALL MATCH TOP OF PROPOSED DRAINAGE STRUCTURES WITH PROPOSED GRADES. IF A DISCREPANCY OCCURS BETWEEN PROPOSED GRADES AND PROPOSED STRUCTURE TOPS, THE GRADING SHALL GOVERN. IF THE DISCREPANCY IS MORE THAN 4 INCHES, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD. 22. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED ACCORDINGLY. 23. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES HAVING UNDERGROUND UTILITIES ON SITE OR IN RIGHT-OF-WAY PRIOR TO EXCAVATION. CONTRACTOR SHALL CONTACT UTILITY LOCATING COMPANY (STATE ONE CALL SYSTEM) AND LOCATE ALL UTILITIES PRIOR TO GRADING START. 24. SITE GRADING SHALL NOT PROCEED UNTIL PERIMETER EROSION CONTROL MEASURES HAVE BEEN INSTALLED. 25. REFER TO GEOTECHNICAL REPORT FOR GENERAL DESCRIPTION OF SOIL STRATA AND INFORMATION ON EXISTING ROCK. 26. 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UNLESS OTHERWISE NOTED, ALL CURBING INDICATED SHALL BE XX" CONCRETE CURB AND GUTTER. 6. ALL DIMENSIONS, UNLESS OTHERWISE NOTED, ARE FROM THE FACE OF CURB, FACE OF BUILDING, OR CENTERLINE OF STRIPE. 7. CONTRACTOR SHALL REFER TO ARCHITECT PLANS FOR EXACT BUILDING LOCATION, DIMENSIONS, AND UTILITY ENTRANCE LOCATIONS. 8. CONTRACTOR SHALL REFER TO PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT DETAILS FOR PAVING DESIGN AND PROPER MATERIALS. 9. ALL RADII FOR CURBS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED. 10. ALL RADII ON CURBS ARE 3'-0" UNLESS OTHERWISE NOTED. 11. GENERAL CONTRACTOR SHALL COORDINATE AND COMPLY WITH ALL UTILITY COMPANIES INVOLVED IN PROJECT AND PAY ALL REQUIRED FEES AND COSTS. 12. FOR SITE UTILITIES, SEE UTILITY PLAN(S). 13. ALL WORK TO BE DONE IN STRICT ACCORDANCE WITH THE OWNER'S STANDARD SITE SPECIFICATIONS. 14. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND STAKING (UNLESS APPROVED OTHERWISE BY THE ENGINEER OF RECORD).		1. 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					GENERAL DEMOLITION NOTES		GENERAL DEMOLITION NOTES		GENERAL GRADING/DRAINAGE NOTES	
					1. ALL AREAS WITHIN THE LIMITS OF DISTURBANCE TO BE DEMOLISHED AND REMOVED UNLESS OTHERWISE NOTED ON THIS PLAN. 2. THE CONTRACTOR IS REQUIRED TO NOTIFY THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS PRIOR TO EXCAVATING IN ORDER THAT UNDERGROUND UTILITIES IN THE AREA CAN BE LOCATED. 3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE TOPOGRAPHICAL SURVEY FOR REFERENCE. THE LOCATION OF KNOWN SUBSURFACE STRUCTURES, PIPES, POWER, GAS, PHONE, ETC. ARE SHOWN ON THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING INFORMATION AND SATISFYING HIMSELF TO AS TO THE LOCATION OF THE AFOREMENTIONED ITEMS, SHOWN AND NOT SHOWN. ALL REPAIRS OR RELOCATIONS NECESSARY SHALL BE MADE AS REQUIRED BY THE OWNER OF THE UTILITY OR STRUCTURE. THE COST OF SUCH REPAIRS OR RELOCATIONS NECESSARY SHALL BE BORNE BY THE CONTRACTOR. 4. CONTRACTOR SHALL DISPOSE OF ALL MATERIALS RESULTING FROM DEMOLITION IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS THAT GOVERN SUCH OPERATIONS. 5. ALL ABANDONED SERVICE LINES SHALL BE DISCONNECTED AND CAPPED PER UTILITY COMPANIES REQUIREMENTS. COORDINATE ALL DISCONNECTIONS WITH UTILITY COMPANIES. 6. CONTRACTOR IS TO BRING TO THE ATTENTION OF THE CIVIL ENGINEER ANY AREA OF DEMOLITION IN QUESTION BEFORE PROCEEDING WITH WORK. 7. CONTRACTOR TO REVIEW AND COORDINATE DEMOLITION LIMITS WITH PROPOSED CONSTRUCTION PLANS. 8. EXISTING CLEAN TOPSOIL TO BE STOCKPILED FOR FUTURE USE ON THIS SITE AND IS TO BE COORDINATED BY THE GENERAL CONTRACTOR. 9. ALL EXISTING WATER, GAS AND / OR ELECTRICAL METERS AS NOTED TO BE REMOVED WITHIN THE PROJECT AREA ARE TO BE RETURNED TO THE APPROPRIATE AUTHORITY.	1. CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD OF ANY EXISTING AND PROPOSED ELEVATION INACCURACIES OR DISCREPANCIES PRIOR TO PROCEEDING WITH CONSTRUCTION. 2. INFORMATION PERTAINING TO UNDER GROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS AND FIELD LOCATIONS WHEN POSSIBLE. BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS IN ADVANCE OF MACHINE TRENCHING MACHINE				

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GENERAL UTILITY NOTES

- ALL WATER MAINS SHALL BE PVC (C-900; DR-14), UNLESS OTHERWISE SPECIFIED ON THE PLANS. SIZE AS NOTED ON THE PLANS AND TO MAINTAIN 36" OF COVER (MINIMUM).
ALL SEWER MAINS SHALL BE PVC (SDR-26), UNLESS OTHERWISE SPECIFIED ON THE PLANS. SIZE AS NOTED ON THE PLANS AND TO MAINTAIN 48" OF COVER (MINIMUM).
ALL FIRE / FDC LINES SHALL BE DUCTILE IRON, UNLESS OTHERWISE SPECIFIED ON THE PLANS. SIZE AS NOTED ON THE PLANS AND TO MAINTAIN 36" OF COVER (MINIMUM).
ALL DOMESTIC WATER SERVICE LINES AFTER THE METER TO BUILDINGS SHALL BE POLYETHYLENE PIPE, UNLESS OTHERWISE SPECIFIED ON THE PLANS. SIZE AS NOTED ON THE PLANS AND TO MAINTAIN 36" OF COVER (MINIMUM).
ALL DOMESTIC SANITARY SEWER SERVICE LINES SHALL BE PVC (SDR-26), OR OTHERWISE SPECIFIED ON THE PLANS. SIZE AS NOTED ON THE PLANS AND TO MAINTAIN 36" OF COVER (MINIMUM).
- EXISTING UTILITIES SHOWN ON PLANS HAVE BEEN SHOWN IN THEIR APPROXIMATE LOCATIONS PER AVAILABLE INFORMATION.
- CONSTRUCTION SHALL NOT START ON ANY PUBLIC UTILITY SYSTEM UNTIL WRITTEN APPROVAL HAS BEEN RECEIVED FROM THE APPROPRIATE UTILITY AUTHORITIES AND THE OWNER, AND THE CONTRACTOR HAS BEEN NOTIFIED BY MCCLELLAND CONSULTING ENGINEERS, INC.
- CONTRACTOR SHALL NOT OPEN, TURN OFF, INTERFERE WITH, OR ATTACH ANY PIPE OR HOSE TO OR TAP ANY WATER MAIN UNLESS DULY AUTHORIZED TO DO SO BY THE CITY. ANY ADVERSE CONSEQUENCES OF ANY SCHEDULED OR UNSCHEDULED DISRUPTIONS OF SERVICE TO THE PUBLIC ARE TO BE THE LIABILITY OF THE CONTRACTOR. MCCLELLAND CONSULTING ENGINEERS, INC. AND THE OWNER ARE TO BE HELD HARMLESS.
- ALL TRENCHING, BACKFILLING AND PIPE LAYING IS TO MEET ALL OSHA REQUIREMENTS.
- THE LOCATION, DESCRIPTION AND SIZE OF ALL ABOVE-GROUND AND UNDER-GROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN DETERMINED WITH DUE CARE AND DILIGENCE, USING CURRENT TECHNIQUES, EQUIPMENT AND PROPER ACCURACY CONTROL PROCEDURES. HOWEVER, INFORMATION SHOWN HEREON IS NOT WARRANTED TO BE CORRECT IN EVERY DETAIL BECAUSE OF INACCURACIES IN OR LACK OF EXISTING DATA OR MAPS AND THE INABILITY TO VERIFY IN THE FIELD. PERSONS USING INFORMATION CONTAINED HEREON ARE HEREBY CAUTIONED ACCORDINGLY.
- REFER TO BUILDING PLANS FOR SITE LIGHTING ELECTRICAL PLANS.
- ALL WATER & SEWER DESIGNS ARE SUBJECT TO THE CITY'S LATEST DESIGN CRITERIA (CITY WATER & SEWER SPECIFICATIONS, REVISION NUMBER/DATE, ISSUE DATE). REVIEW FOR PLAT APPROVAL IS NOT APPROVAL OF PUBLIC IMPROVEMENTS, AND ALL PROPOSITS AND IMPROVEMENTS ARE SUBJECT TO FURTHER REVIEW AT THE TIME CONSTRUCTION PLANS ARE SUBMITTED.
- ANY DAMAGE TO THE EXISTING PUBLIC STREET DUE TO CONSTRUCTION SHALL BE REPAIRED / REPLACED AT THE OWNER'S / DEVELOPER'S EXPENSE.
- WATER AND SEWER IMPACT FEES WILL APPLY FOR THE ADDITIONAL IMPACT TO THE SYSTEM (IF APPLICABLE). THE FEES WILL BE BASED ON THE PROPOSED METER SIZE AND WILL BE CHARGED AT THE TIME OF METER SET (IF APPLICABLE).
- ALL UTILITY SERVICE LINES TO BE CONNECTED TO NEW MAINS OR RELOCATED AS NEEDED FOR INSTALLATION OF STORM SEWER SYSTEM.
- ALL CONDUITS PLACED BY CONTRACTOR MUST HAVE 24" OF COVER AT FINAL GRADE AND MARKED WITH POSTS TO IDENTIFY THE ENDS OF CONDUITS. THERE MUST BE A MINIMUM SEPARATION OF 12" BETWEEN ELECTRICAL CONDUITS AND CONDUITS FOR OTHER UTILITIES.
- SERVICE TAPS ON UTILITY MAINS (PROPOSED AND / OR EXISTING) SHALL BE MADE BY THE CITY, AND FEES PAID BY CONTRACTOR.
- ALL UNDERGROUND LINES SHALL BE INSPECTED BY THE ENGINEER, OR HIS REPRESENTATIVE, PRIOR TO BACK FILLING.
- PUBLIC SANITARY SEWER MAIN LINE TRENCHING AND BEDDING SHALL BE INSTALLED PER DETAIL XX.
- PRIVATE DOMESTIC SANITARY SEWER SERVICE LINE TRENCHING AND BEDDING SHALL BE INSTALLED PER DETAIL 41N.
- PUBLIC WATER MAIN, WATER SERVICE LINE TO METER, BUILDING SPRINKLER, AND / OR FDC LINE TRENCHING AND BEDDING SHALL BE INSTALLED PER DETAIL XX.
- PRIVATE DOMESTIC WATER SERVICE LINE AFTER METER TRENCHING AND BEDDING SHALL BE INSTALLED PER DETAIL 40Q.
- ALL WATER LINE DIMENSIONS SHOWN ARE TO CENTER OF PIPE OR FITTING; ALL SEWER LINE DIMENSIONS ARE SHOWN TO CENTER OF MANHOLE OR CENTER OF PIPE.
- TESTING OF WATER AND SEWER LINES SHALL BE AT THE CONTRACTOR'S EXPENSE.
- TOPS OF EXISTING MANHOLES SHALL BE RAISED AS NECESSARY TO BE EITHER FLUSH WITH FINISHED GRADES IN PAVED AREAS, OR 4" ABOVE FINISHED GRADES IN UNPAVED AREAS.
- TOPS OF PROPOSED MANHOLES SHALL BE FLUSH WITH FINISHED GRADES IN PAVED AREAS, OR 4" ABOVE FINISHED GRADES IN UNPAVED AREAS.
- ALL UTILITIES UNDER PAVED AREAS SHALL RECEIVE CLASS 7 BASE BACKFILL FULL DEPTH.
- MAINTAIN MINIMUM HORIZONTAL SEPARATION OF 10' BETWEEN WATER AND SEWER MAINS AND 5' BETWEEN OTHER UNDERGROUND UTILITIES SUCH AS STORM SEWER, ELECTRICAL, GAS, DOMESTIC WATER / SEWER SERVICE LINES, AND CONDUITS.
- ALL EXISTING WATER, GAS AND / OR ELECTRICAL METERS AS NOTED TO BE ABANDONED AND / OR REMOVED PER THE DEMOLITION PLAN WITHIN THE PROJECT AREA ARE TO BE RETURNED TO THE APPROPRIATE AUTHORITY.
- COORDINATION OF ALL CONDUIT PLACEMENT SHALL BE MADE WITH UTILITY PROVIDERS.
- ALL WATER AND SEWER FORCE MAIN FITTINGS SHALL BE RESTRAINED THROUGH THE USE OF THRUST BLOCKING PER DETAIL XX OR APPROVED EQUAL.
- PROPOSED UTILITIES THAT ARE TO BE BURIED IN THE SAME TRENCH SHALL BE COORDINATED WITH, AND APPROVED BY, THE INVOLVED UTILITIES PRIOR TO INSTALLATION.
- CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
- ALL PROPOSED UTILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH GOVERNING AGENCY.
- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND STAKING (UNLESS APPROVED OTHERWISE BY THE ENGINEER OF RECORD).
- STAKING & LAYOUT FOR WATER & SEWER MAINS MUST BE PERFORMED BY A LICENSED PROFESSIONAL LAND SURVEYOR (SWU PROJECTS ONLY).
- CONTRACTOR SHALL MAINTAIN 4' (MINIMUM) SEPARATION DISTANCE BETWEEN SIDEWALK AND / OR BACK OF CURB AND FACE OF FIRE HYDRANT / METER BOXES AT ALL TIMES (SWU PROJECTS ONLY).
- CONTRACTOR SHALL INSTALL A TRACER WIRE PORT TO ALL BENDS THAT DO NOT HAVE A VALVE BOX OR EVERY 400' (MAXIMUM), AND AT ANY PIPE TYPE TRANSITION PER SWU STANDARD DETAIL M-1 (SWU PROJECTS ONLY).

GENERAL EROSION CONTROL NOTES

- CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AND CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DIRECTED BY PERMITTING AGENCY AND OWNER OR AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
- PERMIT FOR ANY CONSTRUCTION ACTIVITY MUST BE MAINTAINED ON SITE AT ALL TIMES.
- CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
- GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
- ALL WASH WATER SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
- SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
- DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
- RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
- DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 14 DAYS, SHALL BE TEMPORARILY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.
- IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
- ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
- SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
- CONTRACTOR SHALL DESIGNATE / IDENTIFY AREAS INSIDE THE LIMITS OF DISTURBANCE, FOR WASTE DISPOSAL AND DELIVERY AND MATERIAL STORAGE.
- ALL BMP's SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED BY A MINIMUM OF 80% GRASS COVERAGE.
- ALL DEWATERING ACTIVITIES SHALL CONFORM TO ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. DISCHARGED WATER MUST BE PROPERLY TREATED BEFORE RELEASING FROM THE SITE.

BMP MAINTENANCE

THE CONTRACTOR SHALL IMPLEMENT ALL MEASURES SHOWN ON THE EROSION CONTROL PLAN AND IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) TO THE FULLEST EXTENT PRACTICAL. THE CONTRACTOR SHALL HAVE CHECKED ALL SEDIMENT AND EROSION CONTROL MEASURES BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS OR EVERY FOURTEEN (14) DAYS AND WITHIN 24 HOURS OF THE END OF A RAINFALL EVENT EXCEEDING 0.25". ALL SITE BMPS SHALL BE MAINTAINED IN A FULLY FUNCTIONAL CONDITION UNTIL FINAL STABILIZATION OF THE SITE HAS OCCURRED. ALL SITE BMPS SHALL BE REPAIRED AND / OR CLEANED IN ACCORDANCE WITH THE FOLLOWING:

- THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION ENTRANCE(S) IN A SUCH A CONDITION THAT WILL PREVENT MUD BEING TRACKED INTO ANY PUBLIC RIGHT OF WAY(S). THIS MAY REQUIRE PERIODIC TOP DRESSING OF ALL CONSTRUCTION ENTRANCE(S) AS NECESSARY.
- THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION. THIS MAY REQUIRE PERIODIC TOP DRESSING OF ALL PARKING AND STORAGE AREA(S) AS NECESSARY.
- CONTRACTOR SHALL REPAIR ALL SILT FENCING TO THEIR ORIGINAL CONDITION IF DAMAGED; SEDIMENT SHALL BE REMOVED FROM ALONG THE FENCE WHEN SEDIMENT REACHES NO MORE THAN ONE-HALF THE HEIGHT OF THE SILT FENCE.
- INLET BMPS SHALL BE REPAIRED AND/OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING. CONTRACTOR SHALL REPLACE IF THEY SHOW SIGNS OF DETERIORATION.
- ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. CONTRACTOR SHALL FERTILIZE AND RESEED THOSE AREAS AS NECESSARY.
- IF THE GRAVEL FOUND IN ANY SEDIMENT FILTER(S) BECOME CLOGGED WITH SEDIMENT, CONTRACTOR SHALL PULL THE GRAVEL AWAY, CLEAN THE GRAVEL, AND REPLACE IN THE SEDIMENT FILTER(S).
- OUTFALL STRUCTURES IN SEDIMENT BASINS SHALL BE KEPT IN OPERATIONAL CONDITIONS AT ALL TIMES AND DURING ALL PHASES OF CONSTRUCTION. ANY SEDIMENT FOUND IN THE BASIN SHALL NOT EXCEED THE DEPTH OF THE CLEAN-OUT LEVEL (SITE SPECIFIC).
- THE EMBANKMENT OF THE SEDIMENT BASIN(S) AND/OR TEMPORARY SEDIMENT TRAPS AND THEIR OUTFALL STRUCTURES SHALL BE CHECKED REGULARLY TO ENSURE THEY ARE STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED DUE TO EROSION OR CONSTRUCTION (SITE SPECIFIC).
- ALL SEDIMENT FOUND IN THE TEMPORARY SEDIMENT TRAP SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS REACHED NO MORE THAN ONE-HALF THE DEPTH OF THE TEMPORARY SEDIMENT TRAP (SITE SPECIFIC).

SEQUENCE OF CONSTRUCTION

- INSTALL PERIMETER EROSION CONTROL MEASURES AND TEMPORARY CONSTRUCTION ENTRANCES/CONCRETE WASHOUT.
- EXCAVATION AND EMBANKMENT TO FORM THE PAVEMENT OR GRADED AREAS.
- INSTALL STORM SEWER (ADJUST EXISTING SEDIMENT BARRIERS AS NECESSARY TO MAINTAIN SEDIMENT CONTROL).
- INSTALL UNDERGROUND UTILITIES (ADJUST EXISTING SEDIMENT BARRIERS AS NECESSARY TO MAINTAIN SEDIMENT CONTROL); ADDITIONAL SEDIMENT BARRIERS SHALL BE UTILIZED AS REQUIRED TO BOUND THE DOWN SLOPE SIDE OF UTILITY CONSTRUCTION AND SOIL STOCKPILES.
- INSTALL BUILDING.
- FINAL GRADING (SEDIMENT BARRIERS SHALL BE MAINTAINED DOWN SLOPE FROM DISTURBED SOIL DURING THIS OPERATION).
- INSTALL PAVING.
- COMPLETION OF ONSITE STABILIZATION.
- REMOVE PERIMETER EROSION CONTROL MEASURES.

CONTACTS

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FAYETTEVILLE, AR 72703
(479) 365-2449

EXISTING LEGEND

— — — — — PROPERTY LINE
- - - - -SS- - - - -SS- - - - -SS- SANITARY SEWER LINE
- - - - -W- - - - -W- - - - -W- WATER LINE
- - - - -G- - - - -G- - - - -G- GAS LINE
-UT- -UFO- -UTV- -UE- UNDERGROUND CABLE
-OHD- -OHD- -OHD- OVERHEAD ELECTRIC
- - - - - FENCE
- - - - - ROAD CENTERLINE
- - - - - DITCH FLOWLINE
- - - - - FEMA FLOOD LINE
~~~~~ TREE LINE

FIRE HYDRANT  
 WATER METER  
 WATER VALVE  
 SANITARY SEWER MH  
 CLEAN-OUT  
 DRAINAGE MH  
 GAS METER  
 STREET LIGHT POLE  
 TELEPHONE PEDESTAL  
 CABLE TV PEDESTAL  
 SIGN (AS NOTED)  
 POST (AS NOTED)  
 CONC MH STRUCTURE TOP  
 FOUND IRON PIN (AS NOTED)  
 CONTROL POINT  
 RR SPIKE  
 BUSH  
 TREE

PROPOSED SEWER LEGEND

----- ABANDON EXISTING SEWER LINE  
- - - - -SS- NEW SANITARY SEWER LINE  
- - - - - SEWER SERVICE LINE  
 CAP/PLUG  
 NEW SEWER MANHOLE

**MCE MCCLELLAND**  
**DESIGNED TO SERVE**  
**CONSULTING ENGINEERS, INC.**  
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HTTP://WWW.MCE.US.COM

PRELIMINARY  
NOT FOR  
CONSTRUCTION

ORIGINAL SIGNATURE ON FILE

SILOAM SPRINGS WWTP  
HEADWORKS SCREENING FACILITY  
30% SUBMITTAL  
SILOAM SPRINGS, ARKANSAS

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Know what's below.  
Call before you dig.

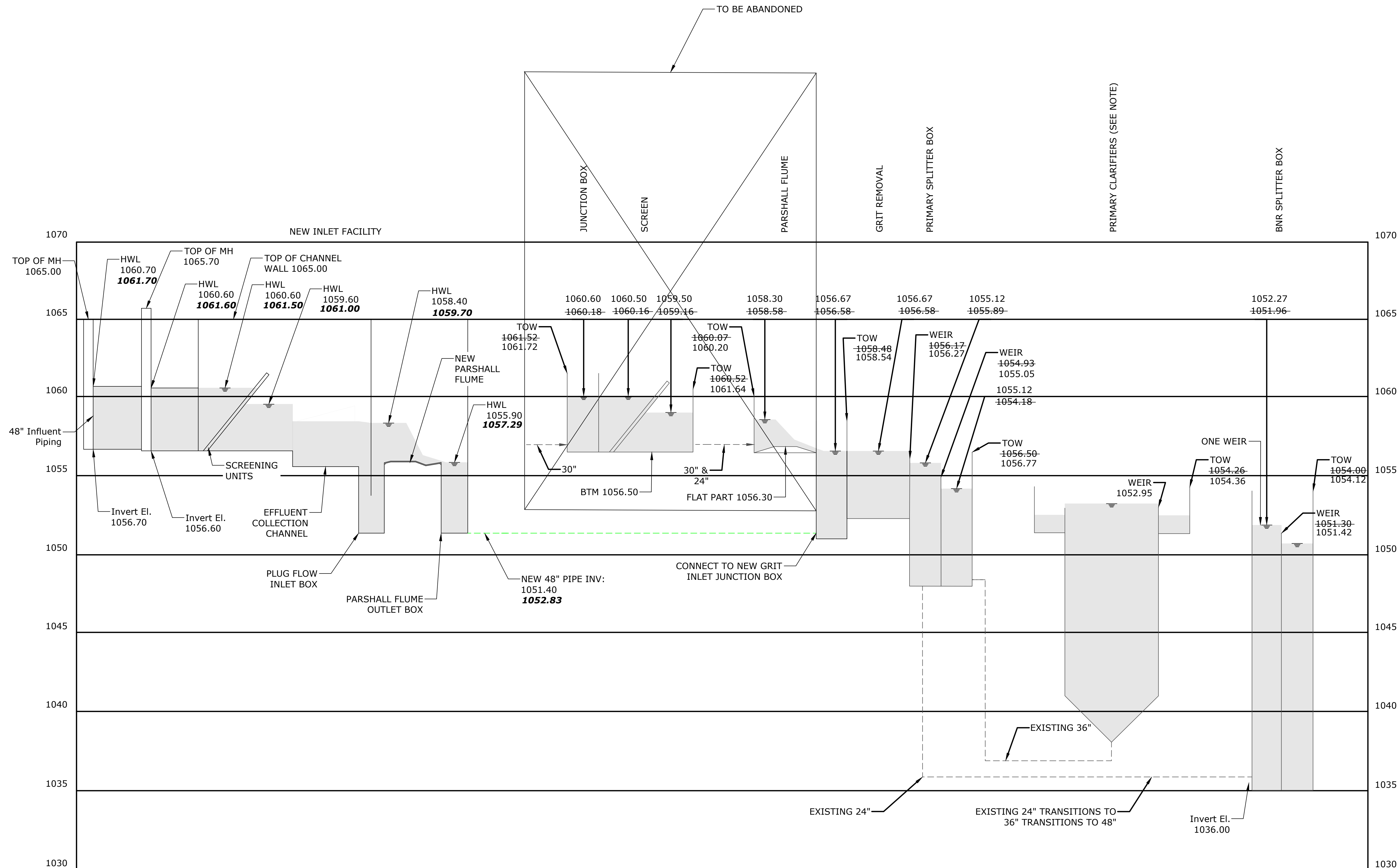
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GENERAL  
NOTES &  
LEGEND

|              |             |
|--------------|-------------|
| DESIGNED BY: | DRAWN BY:   |
| ZSL          | BRK         |
| DATE:        | REVISION:   |
| 9/19/2024    | 30%         |
| SCALE:       | JOB NUMBER: |
| ----         | 22-2156     |

G4





**\*NOTE: THE *ITALICIZED AND BOLD* VALUES REPRESENT THE HWL FOR THE SYSTEM ACHIEVED THROUGH TYING INTO THE EXISTING GRIT\***

| <u>LEGEND</u>                                                                                            |                                      |
|----------------------------------------------------------------------------------------------------------|--------------------------------------|
| WEIR                                                                                                     | DESCRIPTION                          |
|  <del>1054.93</del> | AS BUILT HWL 2008 PLANT EXPANSION    |
| 1055.05                                                                                                  | REVISED HWL BNR 1-10' WEIR AT 15 MGD |
| <b>1056.83</b>                                                                                           | PROPOSED NEW HWL                     |

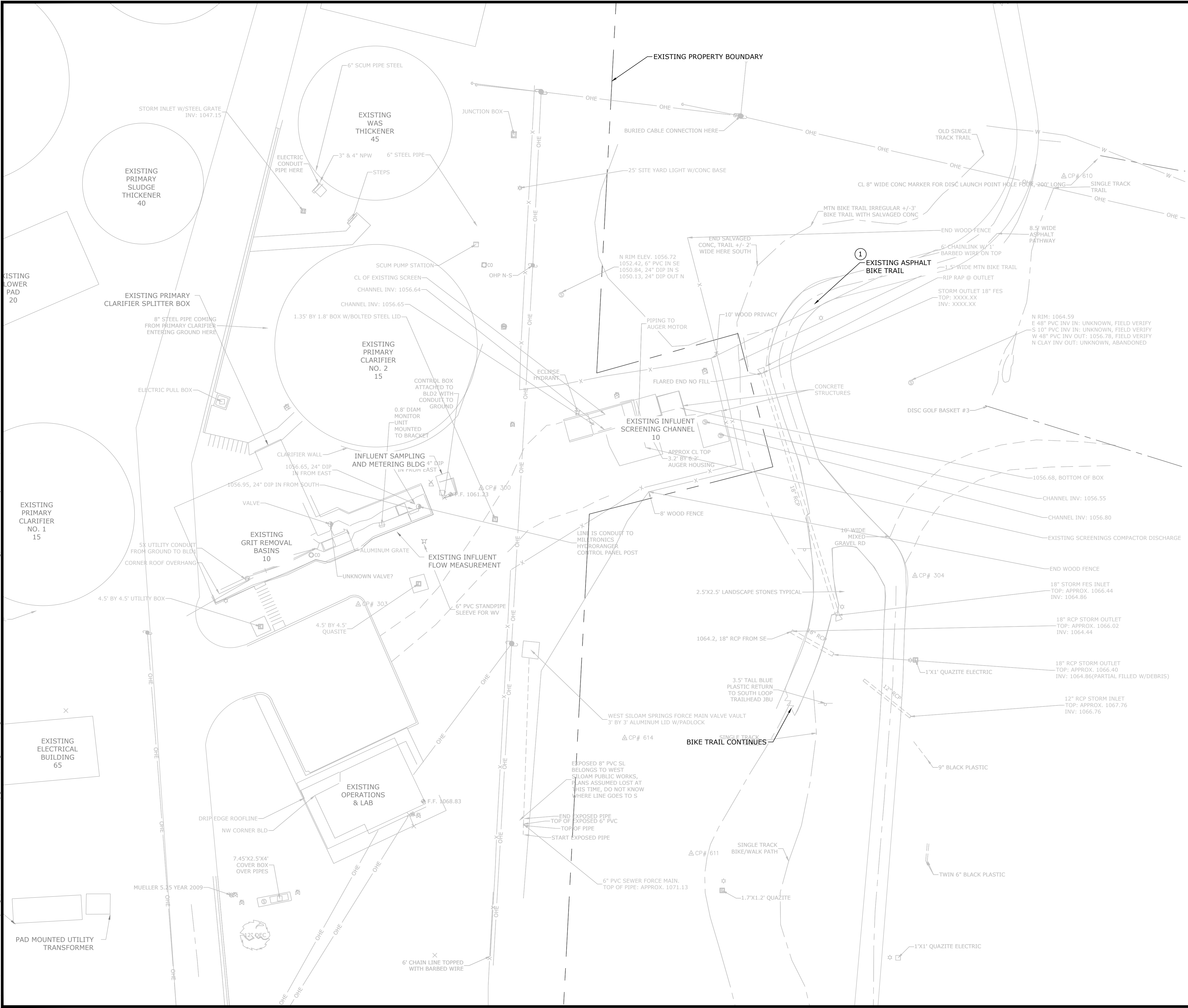
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LEGEND

EXISTING STRUCTURE

NOTES

- ADDITIONAL PROPERTY ADJACENT TO THE EXISTING FACILITY BOUNDARY WILL NEED TO BE PURCHASED FROM JOHN BROWN UNIVERSITY FOR A NEW HEADWORKS FACILITY.

GENERAL SITE NOTES

- CONTRACTOR SHALL RETAIN A FULL SET OF LATEST APPROVED CONSTRUCTION PLANS ON SITE DURING CONSTRUCTION ACTIVITIES.
- CONSTRUCTION METHODS AND MATERIALS NOT SPECIFIED IN THESE PLANS ARE TO MEET OR EXCEED THE SITE WORK SPECIFICATIONS PROVIDED BY MCCLELLAND CONSULTING ENGINEERS, INC. OR AS SPECIFIED BY THE OWNER'S RESIDENT REPRESENTATIVE.
- ALL CONSTRUCTION WORK AND UTILITY WORK OUTSIDE OF PROPERTY BOUNDARIES SHALL BE PERFORMED IN COOPERATION WITH AND IN ACCORDANCE WITH REGULATIONS OF THE AUTHORITIES CONCERNED.
- PUBLIC CONVENIENCE AND SAFETY: THE CONTRACTOR SHALL CONDUCT THE WORK IN A MANNER THAT WILL INSURE, AS FAR AS PRACTICABLE, THE LEAST OBSTRUCTION TO TRAFFIC AND SHALL PROVIDE FOR THE CONVENIENCE AND SAFETY OF THE GENERAL PUBLIC AND RESIDENTS ALONG AND ADJACENT TO HIGHWAYS IN THE CONSTRUCTION AREA IN AN ADEQUATE AND SATISFACTORY MANNER IN ACCORDANCE WITH THE [STATE] DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- UNLESS OTHERWISE NOTED, ALL CURBING INDICATED SHALL BE "X" CONCRETE CURB AND GUTTER.
- ALL DIMENSIONS, UNLESS OTHERWISE NOTED, ARE FROM THE FACE OF CURB, FACE OF BUILDING, OR CENTERLINE OF STRIPE.
- CONTRACTOR SHALL REFER TO ARCHITECT PLANS FOR EXACT BUILDING LOCATION, DIMENSIONS, AND UTILITY ENTRANCE LOCATIONS.
- CONTRACTOR SHALL REFER TO PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT DETAILS FOR PAVING DESIGN AND PROPER MATERIALS.
- ALL RADII FOR CURBS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- ALL RADII ON CURBS ARE 3'-0" UNLESS OTHERWISE NOTED.
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- FOR SITE UTILITIES, SEE UTILITY PLAN(S).
- ALL WORK TO BE DONE IN STRICT ACCORDANCE WITH THE OWNER'S STANDARD SITE SPECIFICATIONS.
- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND STAKING (UNLESS APPROVED OTHERWISE BY THE ENGINEER OF RECORD).

KEYNOTES

- ASPHALT BIKE TRAIL SHALL BE TEMPORARILY REROUTED DURING CONSTRUCTION.

PLAN SCALE

20 0 10 20 40

( IN FEET )  
1 inch = 20ft.

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EXISTING SITE PLAN

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DRAWN BY:  
SCB

DATE:  
9/19/2024

REVISION:  
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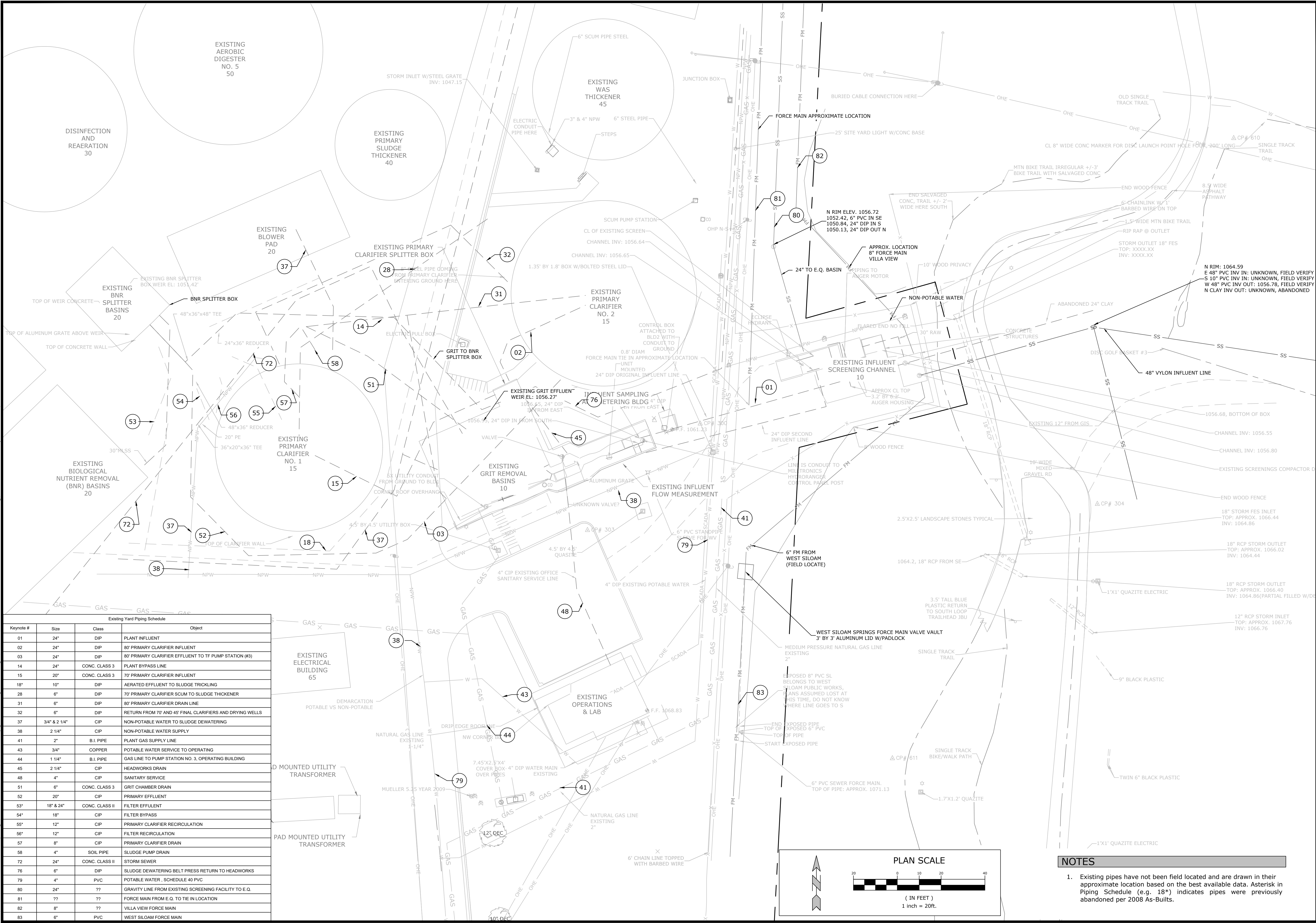
SCALE:  
1" = 20'

JOB NUMBER:  
22-2156

C2



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EXISTING  
YARD PIPING  
PLAN

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C3

NOTES

1.

Existing pipes have not been field located and are drawn in their approximate location based on the best available data. Asterisk in Piping Schedule (e.g. 18\*) indicates pipes were previously abandoned per 2008 As-Builts.



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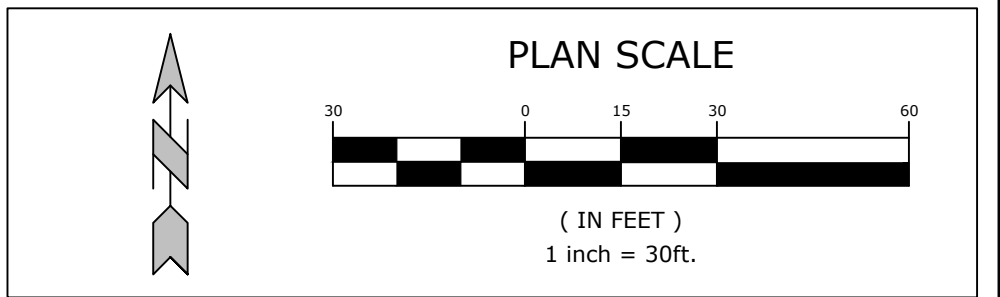


**LEGEND**

- EXISTING STRUCTURE
- DEMOLISH AND DISPOSE OF EXISTING STRUCTURE. COORDINATE WITH OWNER FOR SHUT DOWN
- CLEAR & GRUB AREA
- DEMOLISH PAVEMENTS
- EXISTING PIPE

- NOTES**
- DEMOLITION OF EXISTING FACILITY INFRASTRUCTURE SHALL OCCUR ONLY AFTER THE MODIFIED FACILITY HAS BEEN ACCEPTED AND APPROVED FOR OPERATION
  - ALL AREAS WITHIN THE LIMITS OF DISTURBANCE TO BE DEMOLISHED AND REMOVED UNLESS OTHERWISE NOTED ON THIS PLAN.
  - THE CONTRACTOR IS REQUIRED TO NOTIFY THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS PRIOR TO EXCAVATING IN ORDER THAT UNDERGROUND UTILITIES IN THE AREA CAN BE LOCATED.
  - THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE TOPOGRAPHICAL SURVEY FOR REFERENCE. THE LOCATION OF KNOWN SUBSURFACE STRUCTURES, PIPES, POWER, GAS PHONE, ETC. ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING INFORMATION AND SATISFYING HIMSELF AS TO THE LOCATION OF THE AFOREMENTIONED ITEMS, SHOWN AND NOT SHOWN. ALL REPAIRS OR RELOCATIONS NECESSARY SHALL BE MADE AS REQUIRED BY THE OWNER OF THE UTILITY OR STRUCTURE. THE COST OF SUCH REPAIRS OR RELOCATIONS NECESSARY SHALL BE BORNE BY THE CONTRACTOR.
  - CONTRACTOR SHALL DISPOSE OF ALL MATERIALS RESULTING FROM DEMOLITION IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS THAT GOVERN SUCH OPERATIONS.
  - ALL ABANDONED SERVICE LINES SHALL BE DISCONNECTED AND CAPPED PER UTILITY COMPANIES REQUIREMENTS, COORDINATE ALL DISCONNECTIONS WITH UTILITY COMPANIES.
  - CONTRACTOR IS TO BRING TO THE ATTENTION OF THE ENGINEER OF RECORD ANY AREA OF DEMOLITION IN QUESTION BEFORE PROCEEDING WITH WORK.
  - CONTRACTOR TO REVIEW AND COORDINATE DEMOLITION LIMITS WITH PROPOSED CONSTRUCTION PLANS.
  - EXISTING CLEAN TOPSOIL TO BE STOCKPILED FOR FUTURE USE ON THIS SITE AND IS TO BE COORDINATED BY THE GENERAL CONTRACTOR.
  - ALL EXISTING WATER, GAS AND / OR ELECTRICAL METERS AS NOTED TO BE ABANDONED AND / OR REMOVED WITHIN THE PROJECT AREA ARE TO BE RETURNED TO THE OWNER

- KEYNOTES**
- ASPHALT BIKE TRAIL SHALL BE TEMPORARILY REROUTED DURING CONSTRUCTION.



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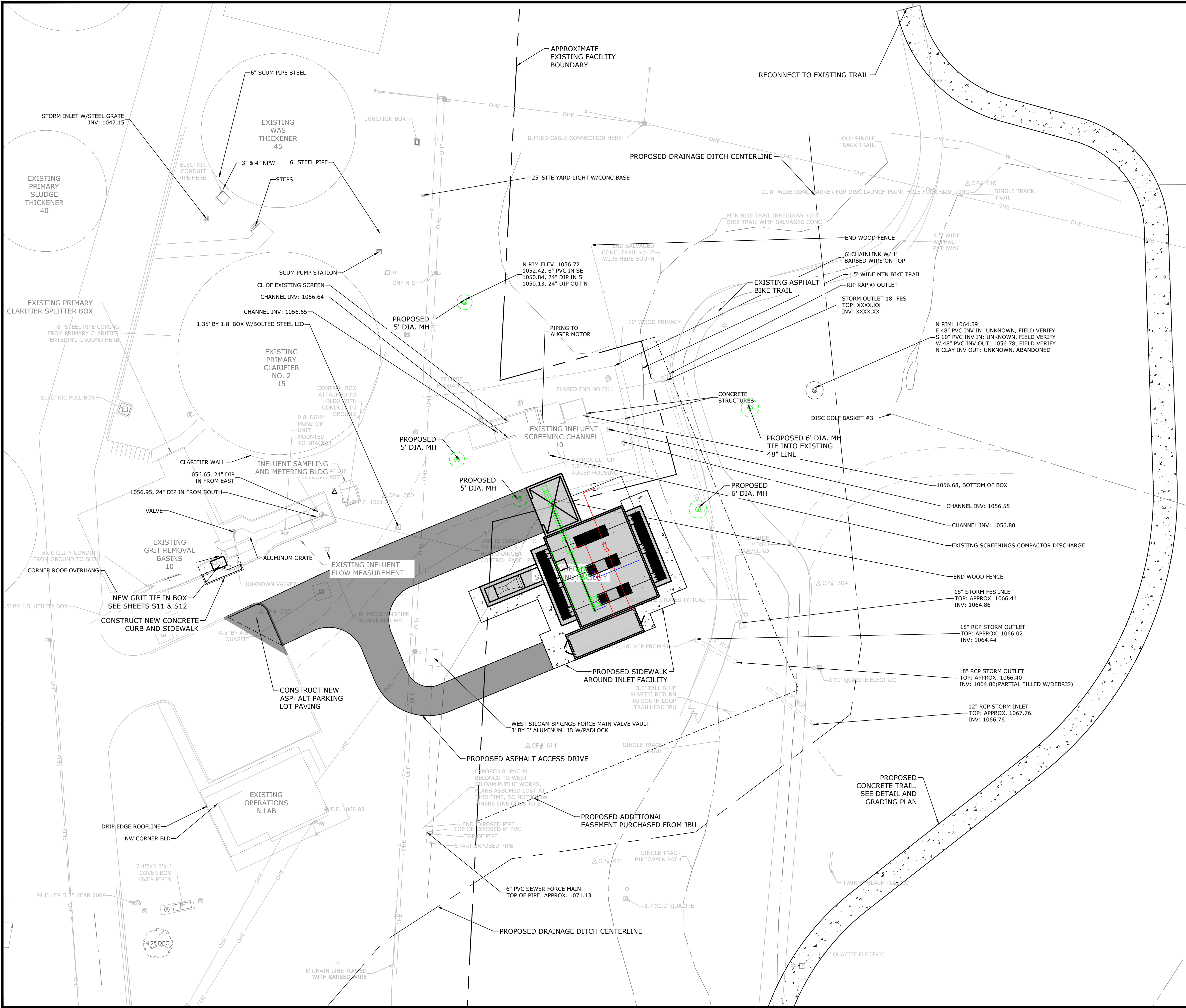
DEMOLITION  
PLAN

|                     |                        |
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C4



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LEGEND

EXISTING STRUCTURE

PROPOSED STRUCTURE

NEW CONCRETE PAVEMENT

NEW ASPHALT PAVEMENT

NOTES

1. ADDITIONAL PROPERTY ADJACENT TO THE EXISTING FACILITY BOUNDARY WILL NEED TO BE PURCHASED FROM JOHN BROWN UNIVERSITY FOR A NEW HEADWORKS FACILITY.

2. CONTRACTOR SHALL RETAIN A FULL SET OF LATEST APPROVED CONSTRUCTION PLANS ON SITE DURING CONSTRUCTION ACTIVITIES.

3. CONSTRUCTION METHODS AND MATERIALS NOT SPECIFIED IN THESE PLANS ARE TO MEET OR EXCEED THE SITE WORK SPECIFICATIONS PROVIDED BY MCLELLAND CONSULTING ENGINEERS, INC. OR AS SPECIFIED BY THE OWNER'S RESIDENT REPRESENTATIVE.

4. ALL CONSTRUCTION WORK AND UTILITY WORK OUTSIDE OF PROPERTY BOUNDARIES SHALL BE PERFORMED IN COOPERATION WITH AND IN ACCORDANCE WITH REGULATIONS OF THE AUTHORITIES CONCERNED.

5. PUBLIC CONVENIENCE AND SAFETY: THE CONTRACTOR SHALL CONDUCT THE WORK IN A MANNER THAT WILL INSURE, AS FAR AS PRACTICABLE, THE LEAST OBSTRUCTION TO TRAFFIC AND SHALL PROVIDE FOR THE CONVENIENCE AND SAFETY OF THE GENERAL PUBLIC AND RESIDENTS ALONG AND ADJACENT TO HIGHWAYS IN THE CONSTRUCTION AREA IN AN ADEQUATE AND SATISFACTORY MANNER IN ACCORDANCE WITH THE [STATE] DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

6. UNLESS OTHERWISE NOTED, ALL CURBING INDICATED SHALL BE XX" CONCRETE CURB AND GUTTER.

7. ALL DIMENSIONS, UNLESS OTHERWISE NOTED, ARE FROM THE FACE OF CURB, FACE OF BUILDING, OR CENTERLINE OF STRIPE.

8. CONTRACTOR SHALL REFER TO ARCHITECT PLANS FOR EXACT BUILDING LOCATION, DIMENSIONS, AND UTILITY ENTRANCE LOCATIONS.

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13. FOR SITE UTILITIES, SEE UTILITY PLAN(S).

14. ALL WORK TO BE DONE IN STRICT ACCORDANCE WITH THE OWNER'S STANDARD SITE SPECIFICATIONS.

15. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND STAKING (UNLESS APPROVED OTHERWISE BY THE ENGINEER OF RECORD).

GENERAL SITE NOTES

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PROPOSED  
SITE PLAN

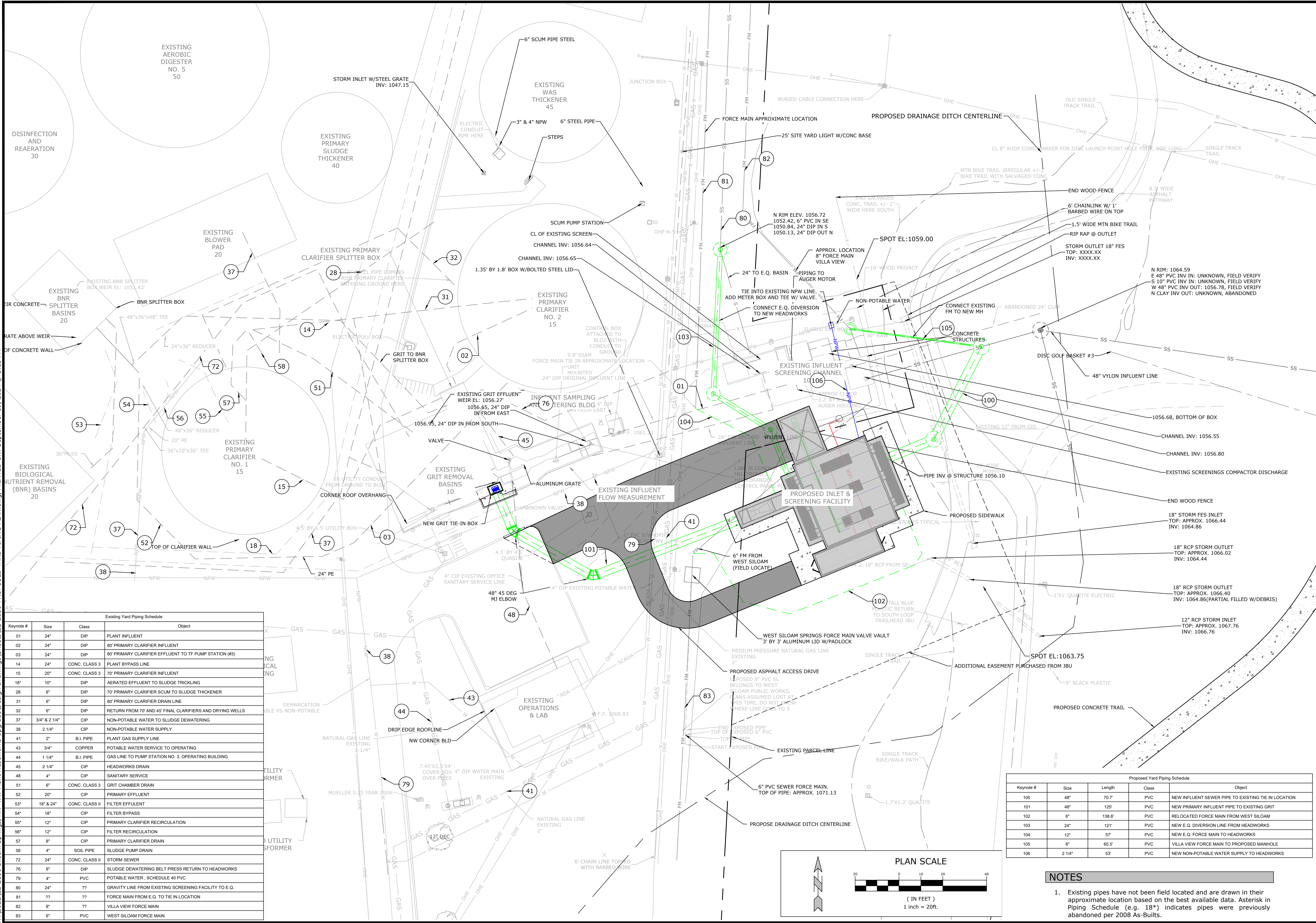
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| Existing Yard Piping Schedule |               |                |                                                           |  |
|-------------------------------|---------------|----------------|-----------------------------------------------------------|--|
| Keynote #                     | Size          | Class          | Object                                                    |  |
| 01                            | 24"           | DIP            | PLANT INFLUENT                                            |  |
| 02                            | 24"           | DIP            | 80" PRIMARY CLARIFIER INFLUENT                            |  |
| 03                            | 24"           | DIP            | 80" PRIMARY CLARIFIER EFFLUENT TO TF PUMP STATION (#3)    |  |
| 14                            | 24"           | CONC. CLASS 3  | PLANT BYPASS LINE                                         |  |
| 15                            | 20"           | CONC. CLASS 3  | 70" PRIMARY CLARIFIER INFLUENT                            |  |
| 18*                           | 10"           | DIP            | AERATED EFFLUENT TO SLUDGE TRICKLING                      |  |
| 28                            | 6"            | DIP            | 70" PRIMARY CLARIFIER SCUM TO SLUDGE THICKENER            |  |
| 31                            | 6"            | DIP            | 80" PRIMARY CLARIFIER DRAIN LINE                          |  |
| 32                            | 6"            | DIP            | RETURN FROM 70" AND 45" FINAL CLARIFIERS AND DRYING WELLS |  |
| 37                            | 3/4" & 2 1/4" | CIP            | NON-POTABLE WATER TO SLUDGE DEWATERING                    |  |
| 38                            | 2 1/4"        | CIP            | NON-POTABLE WATER SUPPLY                                  |  |
| 41                            | 2"            | B.I. PIPE      | PLANT GAS SUPPLY LINE                                     |  |
| 43                            | 3/4"          | COPPER         | POTABLE WATER SERVICE TO OPERATING                        |  |
| 44                            | 1 1/4"        | B.I. PIPE      | GAS LINE TO PUMP STATION NO. 3, OPERATING BUILDING        |  |
| 45                            | 2 1/4"        | CIP            | HEADWORKS DRAIN                                           |  |
| 48                            | 4"            | CIP            | SANITARY SERVICE                                          |  |
| 51                            | 6"            | CONC. CLASS 3  | GRIT CHAMBER DRAIN                                        |  |
| 52                            | 20"           | CIP            | PRIMARY EFFLUENT                                          |  |
| 53*                           | 18" & 24"     | CONC. CLASS II | FILTER EFFLUENT                                           |  |
| 54*                           | 18"           | CIP            | FILTER BYPASS                                             |  |
| 55*                           | 12"           | CIP            | PRIMARY CLARIFIER RECIRCULATION                           |  |
| 56*                           | 12"           | CIP            | FILTER RECIRCULATION                                      |  |
| 57                            | 8"            | CIP            | PRIMARY CLARIFIER DRAIN                                   |  |
| 58                            | 4"            | SOIL PIPE      | SLUDGE PUMP DRAIN                                         |  |
| 72                            | 24"           | CONC. CLASS II | STORM SEWER                                               |  |
| 76                            | 6"            | DIP            | SLUDGE DEWATERING BELT PRESS RETURN TO HEADWORKS          |  |
| 79                            | 4"            | PVC            | POTABLE WATER - SCHEDULE 40 PVC                           |  |
| 80                            | 24"           | ??             | GRAVITY LINE FROM EXISTING SCREENING FACILITY TO E.Q.     |  |
| 81                            | ??            | ??             | FORCE MAIN FROM E.Q. TO TIE IN LOCATION                   |  |
| 82                            | 8"            | ??             | VILLA VIEW FORCE MAIN                                     |  |
| 83                            | 6"            | PVC            | WEST SILOAM FORCE MAIN                                    |  |

| Proposed Yard Piping Schedule |        |        |       |                                                     |
|-------------------------------|--------|--------|-------|-----------------------------------------------------|
| Keynote #                     | Size   | Length | Class | Object                                              |
| 100                           | 48"    | 70.7'  | PVC   | NEW INFLUENT SEWER PIPE TO EXISTING TIE IN LOCATION |
| 101                           | 48"    | 125'   | PVC   | NEW PRIMARY INFLUENT PIPE TO EXISTING GRIT          |
| 102                           | 6"     | 138.6' | PVC   | RELOCATED FORCE MAIN FROM WEST SILOAM               |
| 103                           | 24"    | 121'   | PVC   | NEW E.Q. DIVERSION LINE FROM HEADWORKS              |
| 104                           | 12"    | 57'    | PVC   | NEW E.Q. FORCE MAIN TO HEADWORKS                    |
| 105                           | 8"     | 80.5'  | PVC   | VILLA VIEW FORCE MAIN TO PROPOSED MANHOLE           |
| 106                           | 2 1/4" | 53'    | PVC   | NEW NON-POTABLE WATER SUPPLY TO HEADWORKS           |

NOTES

- Existing pipes have not been field located and are drawn in their approximate location based on the best available data. Asterisk in Piping Schedule (e.g. 18\*) indicates pipes were previously abandoned per 2008 AS-Builts.

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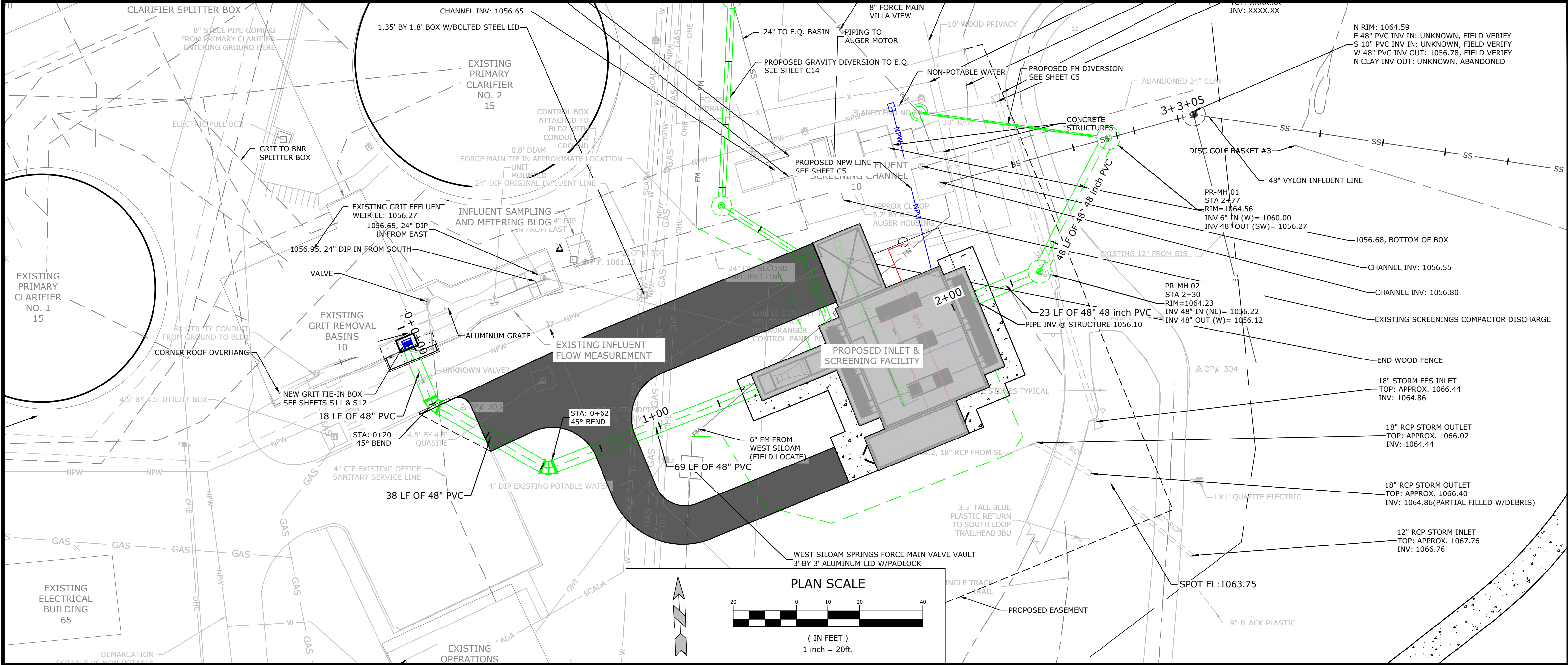
**PROPOSED  
YARD PIPING  
PLAN**

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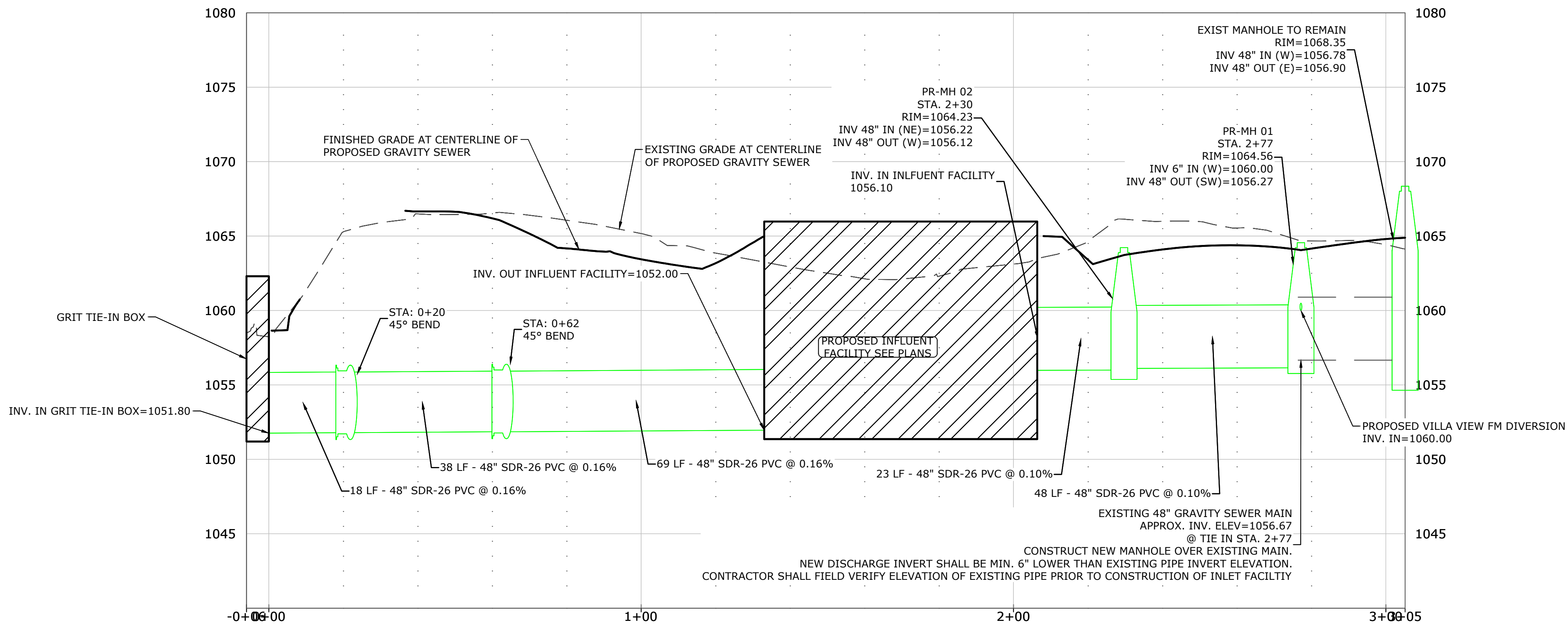
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PROFILE SCALE - HORIZONTAL: 1"=20', VERTICAL: 1"=5'



- NOTES**
1. ALL EXISTING INFRASTRUCTURE PROPOSED FOR ABANDONMENT, MODIFICATION, OR TIE-IN SHALL BE FIELD LOCATED TO VERIFY DEPTH, LOCATION, AND MATERIAL PRIOR TO CONSTRUCTION.

**KEYNOTES**

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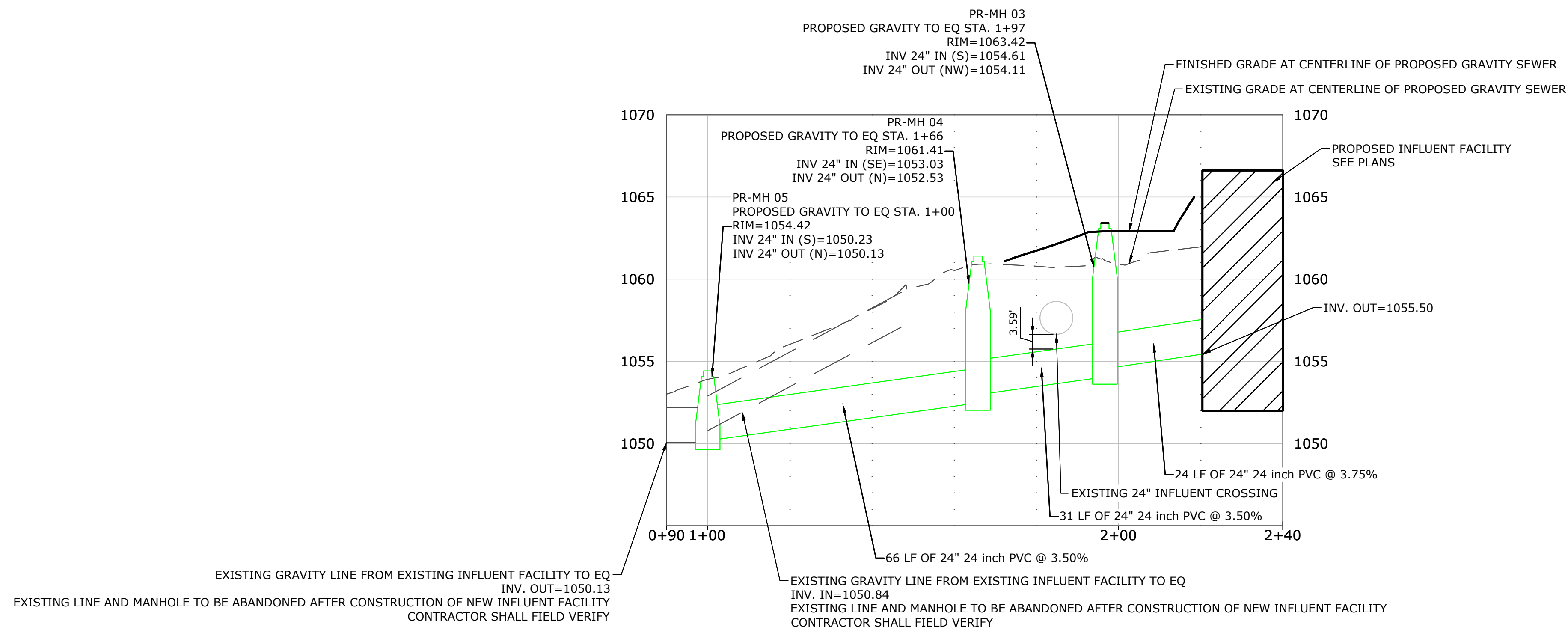
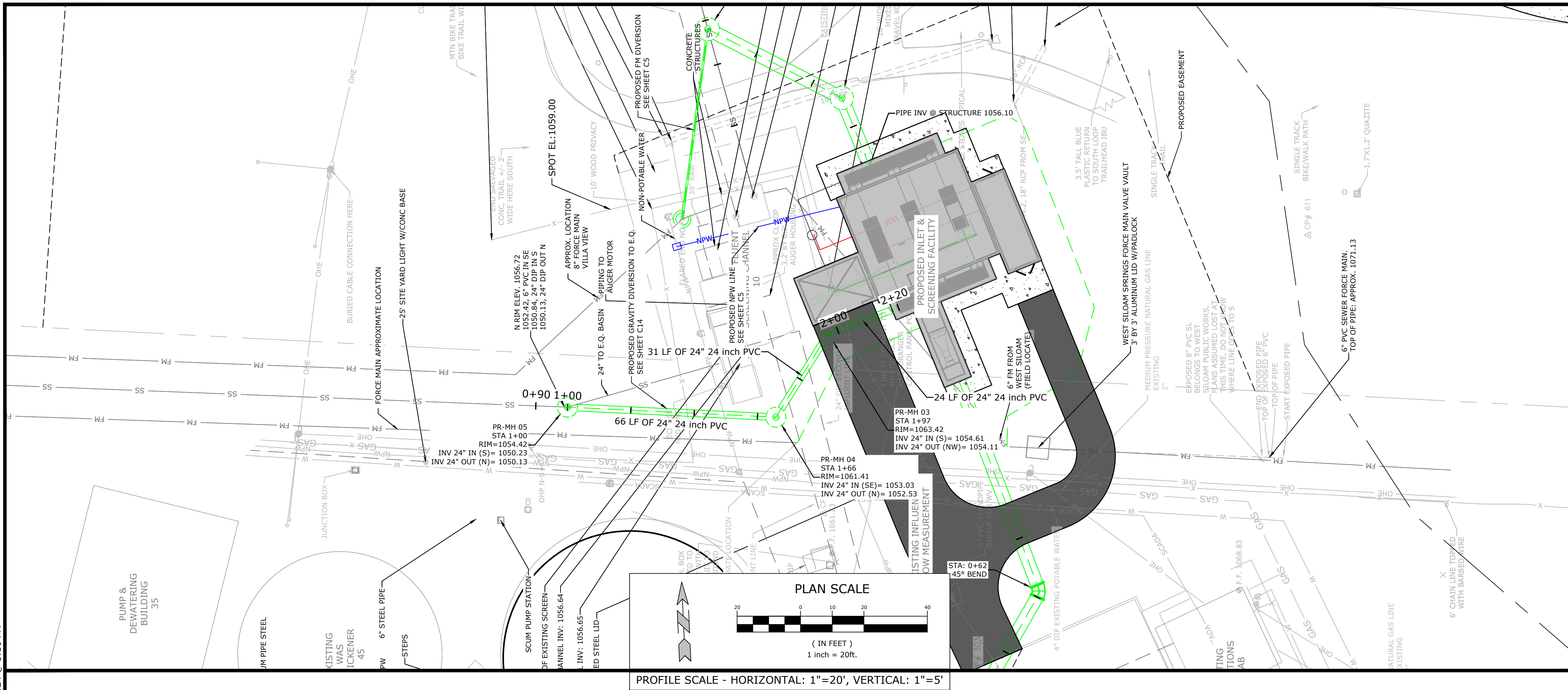
PROPOSED  
INFLUENT P&P

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SCALE:  
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REVISION:  
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NOTES

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**KEYNOTES**

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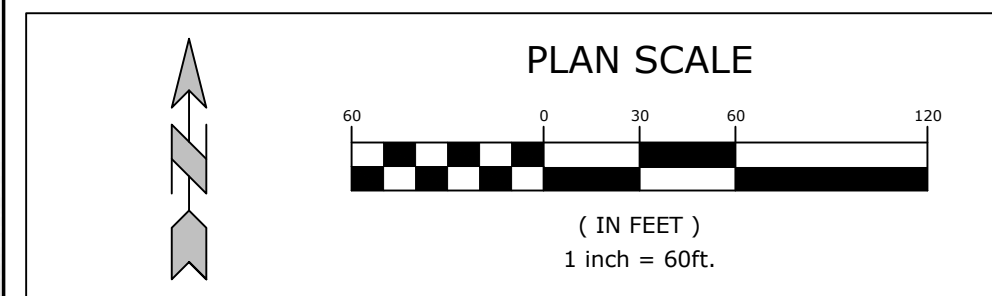
GRAVITY E.Q.  
LINE P&P

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C8



1. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL UTILITIES AND UNDERGROUND ASSETS PRIOR TO STARTING WORK. NOTIFY ENGINEER IMMEDIATELY IF DESIGN CANNOT BE ACHIEVED.



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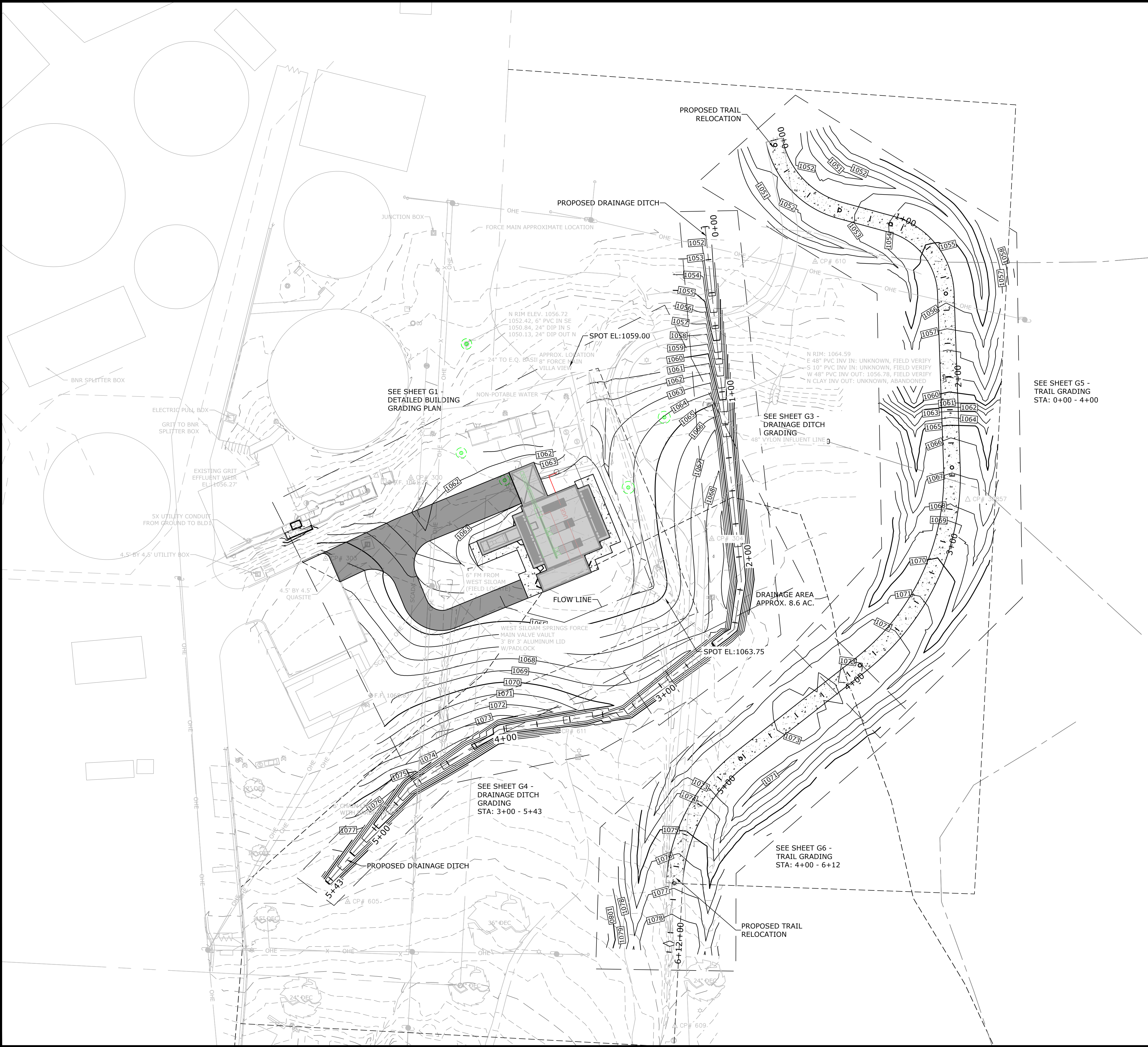
SILOAM SPRINGS WWTP  
HEADWORKS SCREENING FACILITY  
30% SUBMITTAL  
SILOAM SPRINGS, ARKANSAS

[illegible]DRAINAGE  
AREA MAP

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| DESIGNED BY:<br>ZSL | DRAWN BY:<br>BRK       |
| DATE:<br>9/19/2024  | REVISION:<br>30%       |
| SCALE:<br>----      | JOB NUMBER:<br>22-2156 |



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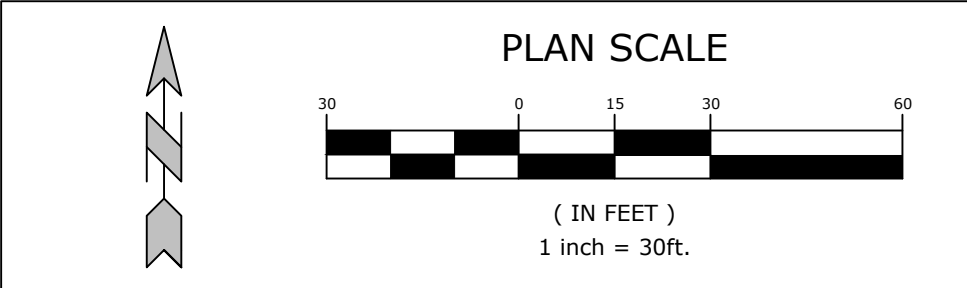
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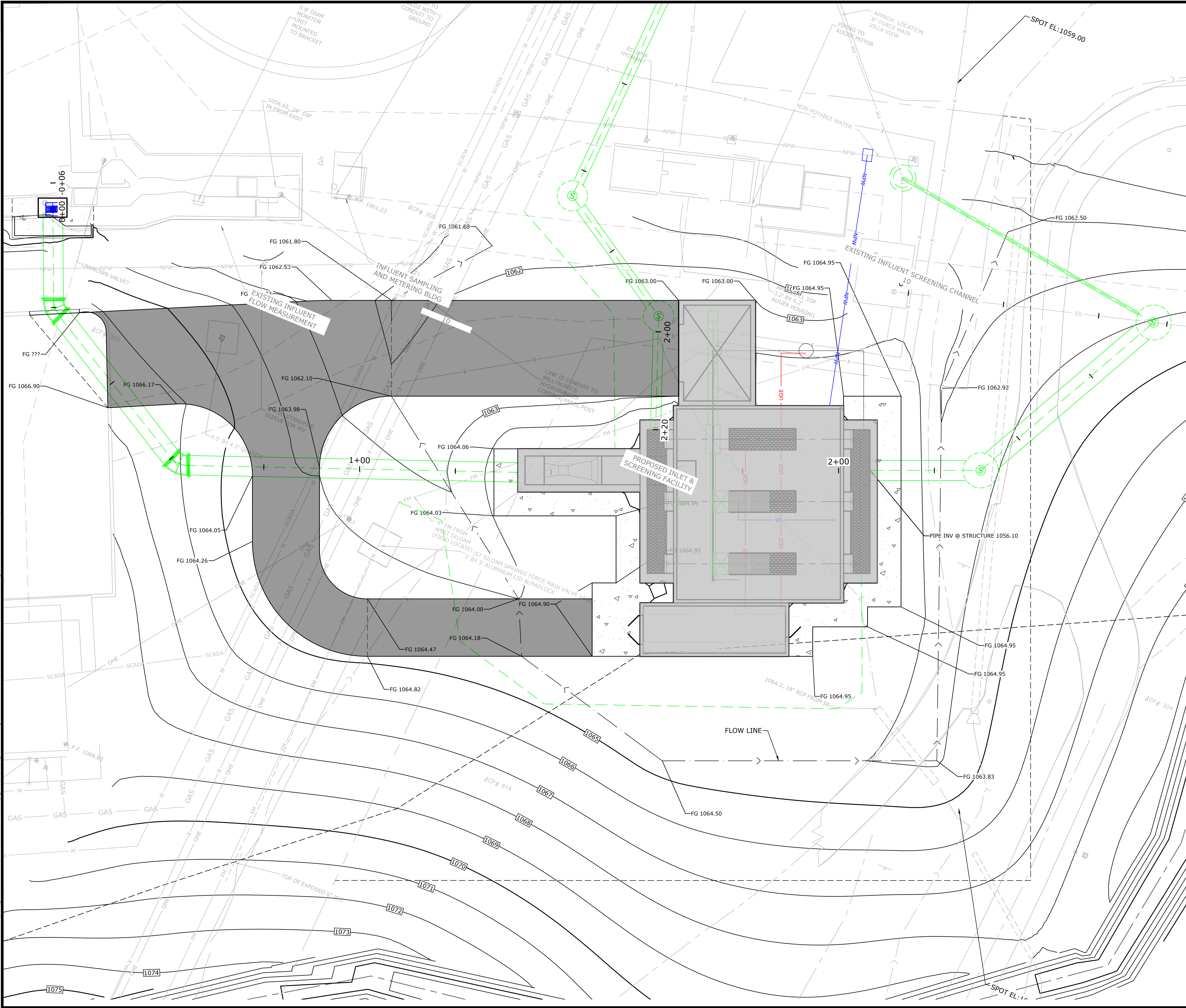
GRADING PLAN  
INDEX

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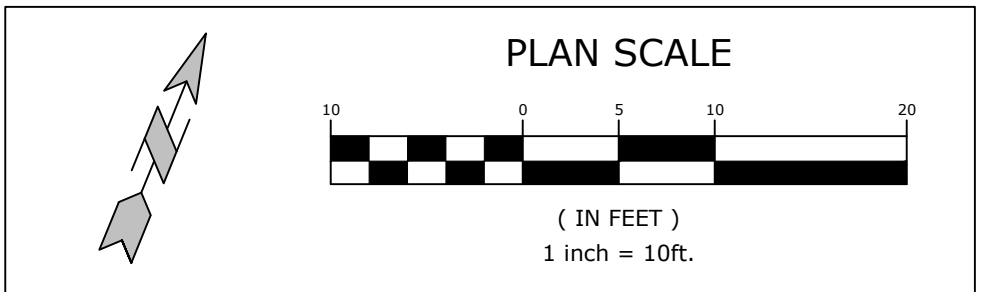


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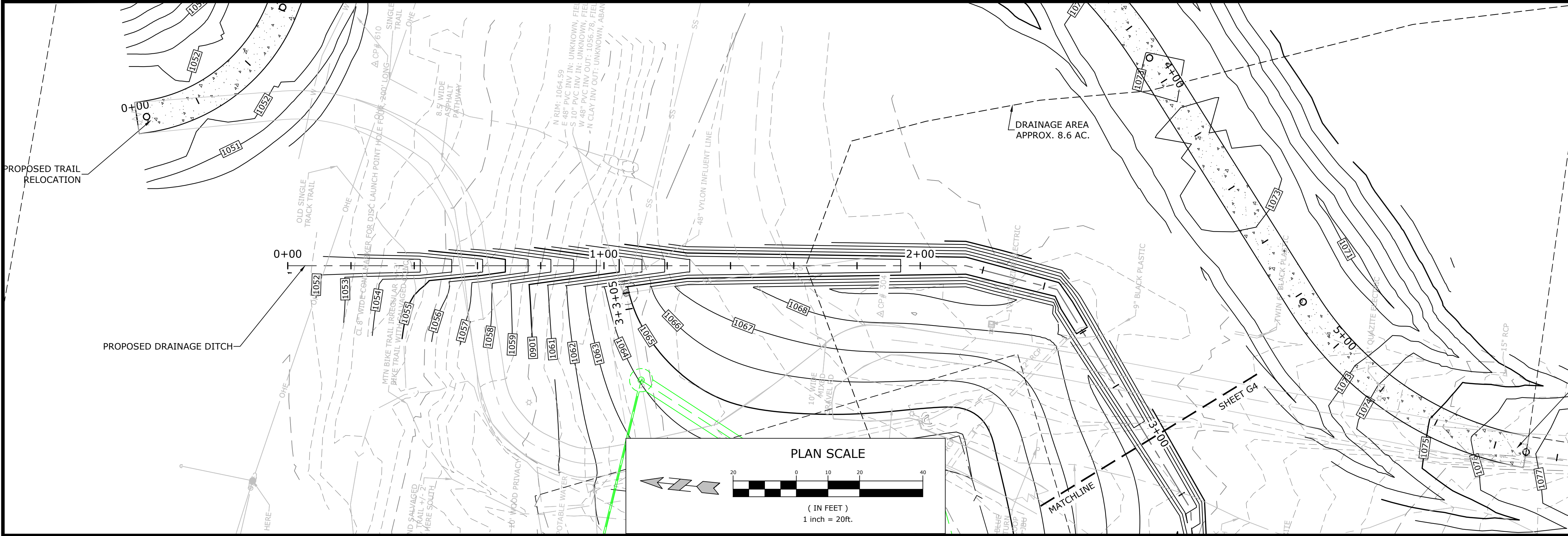
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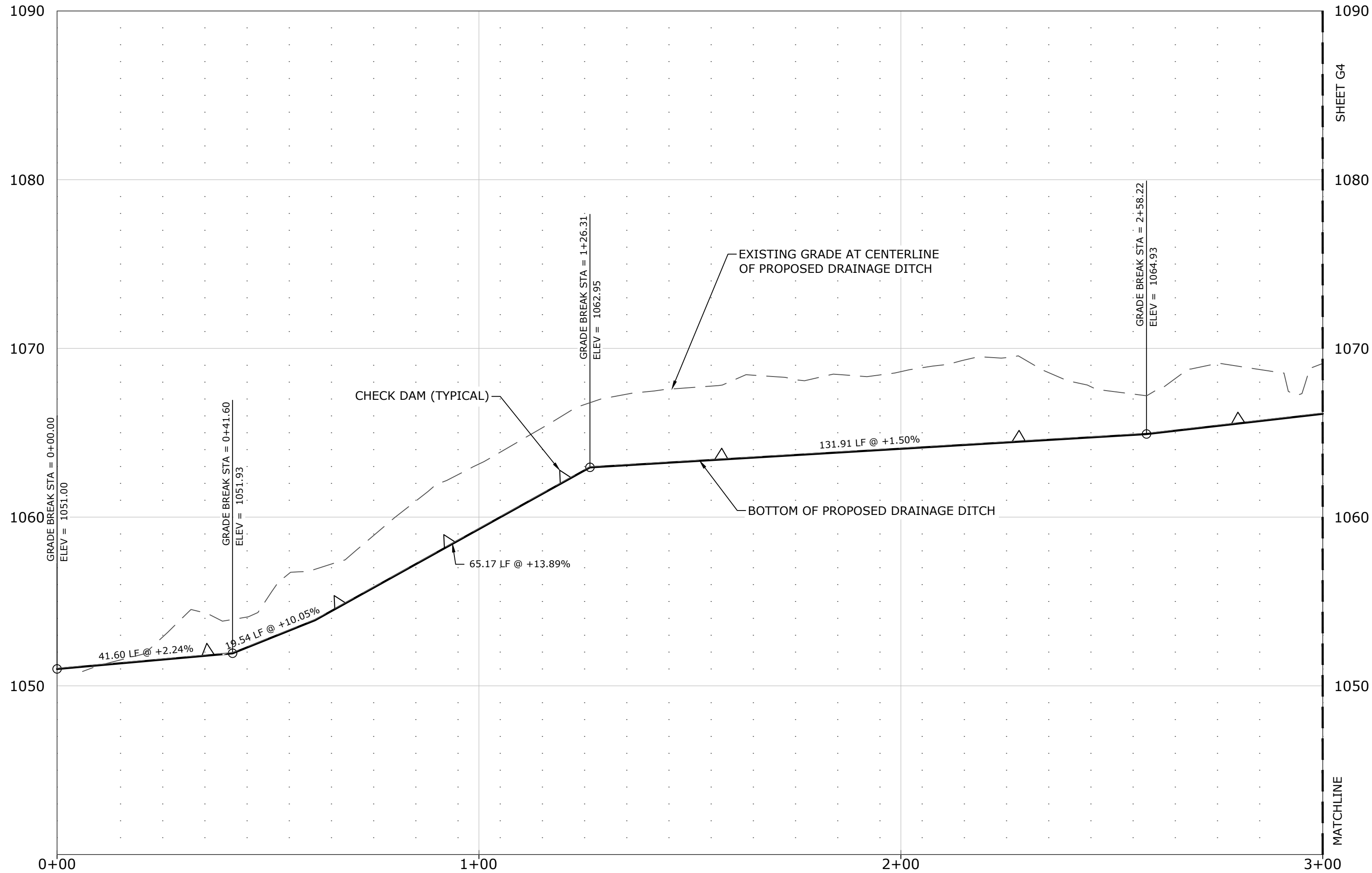
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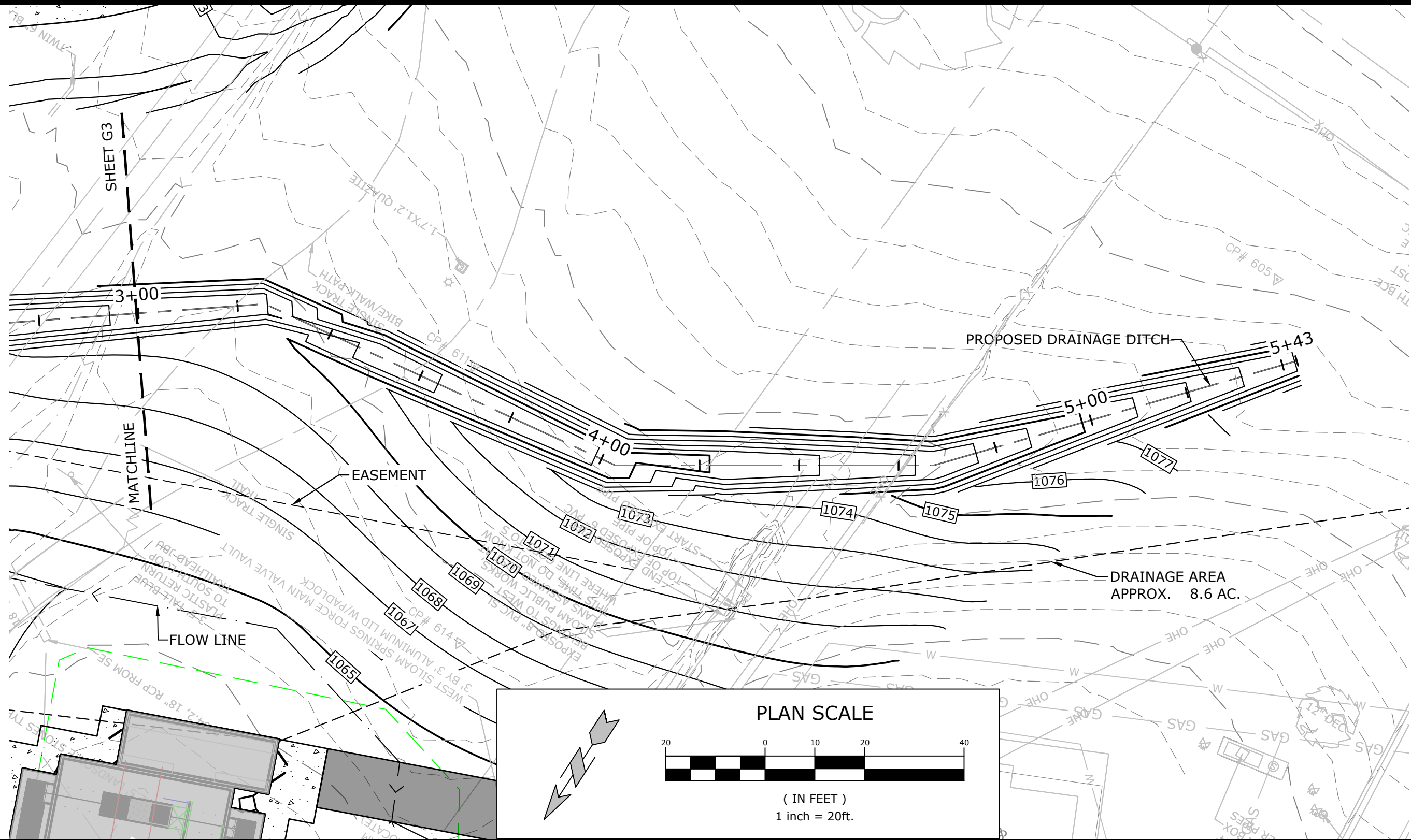
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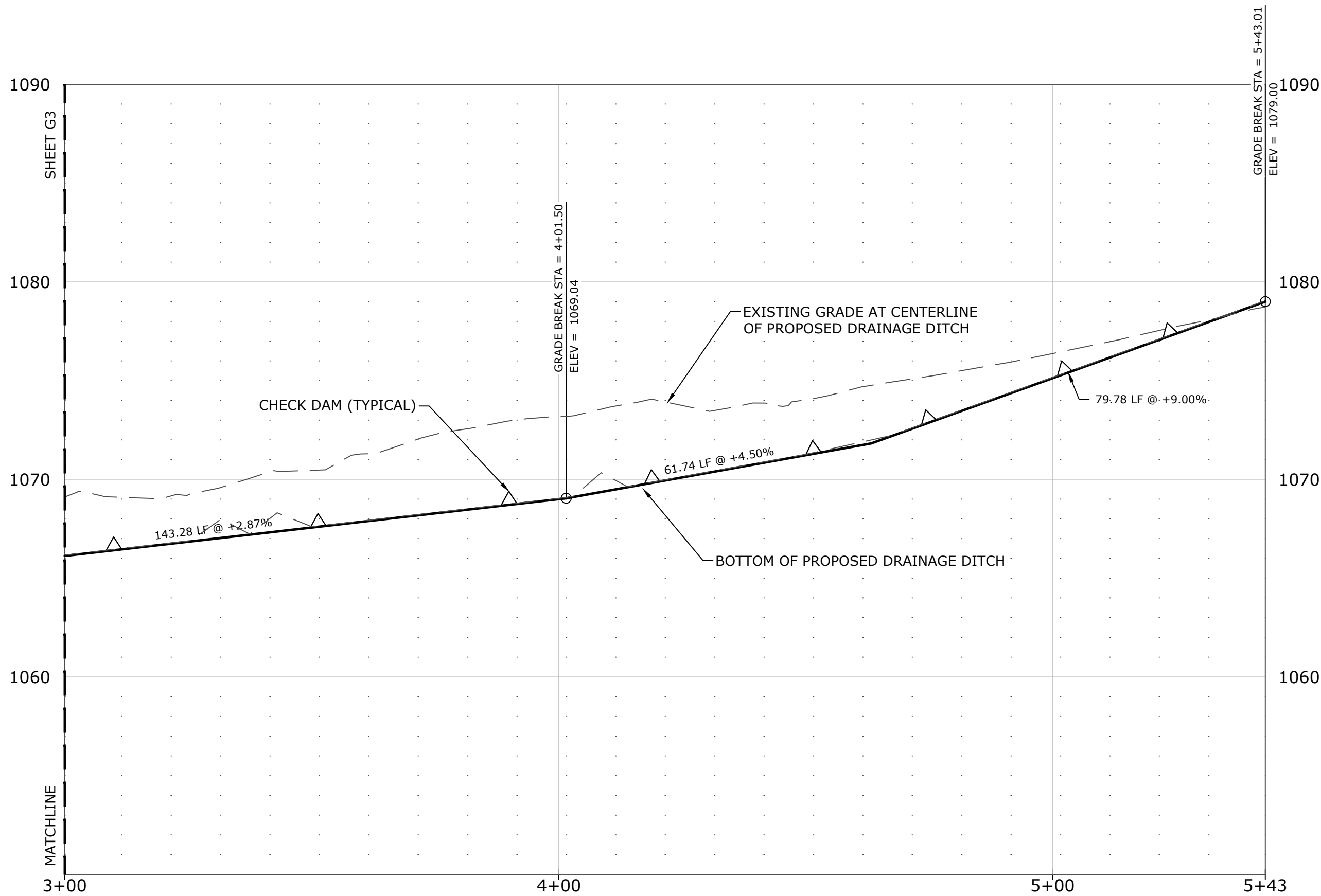
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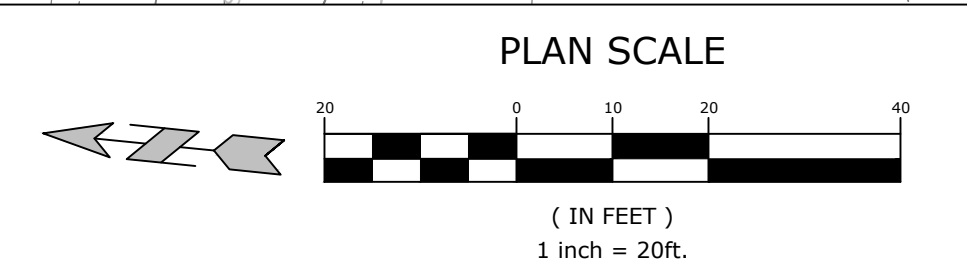
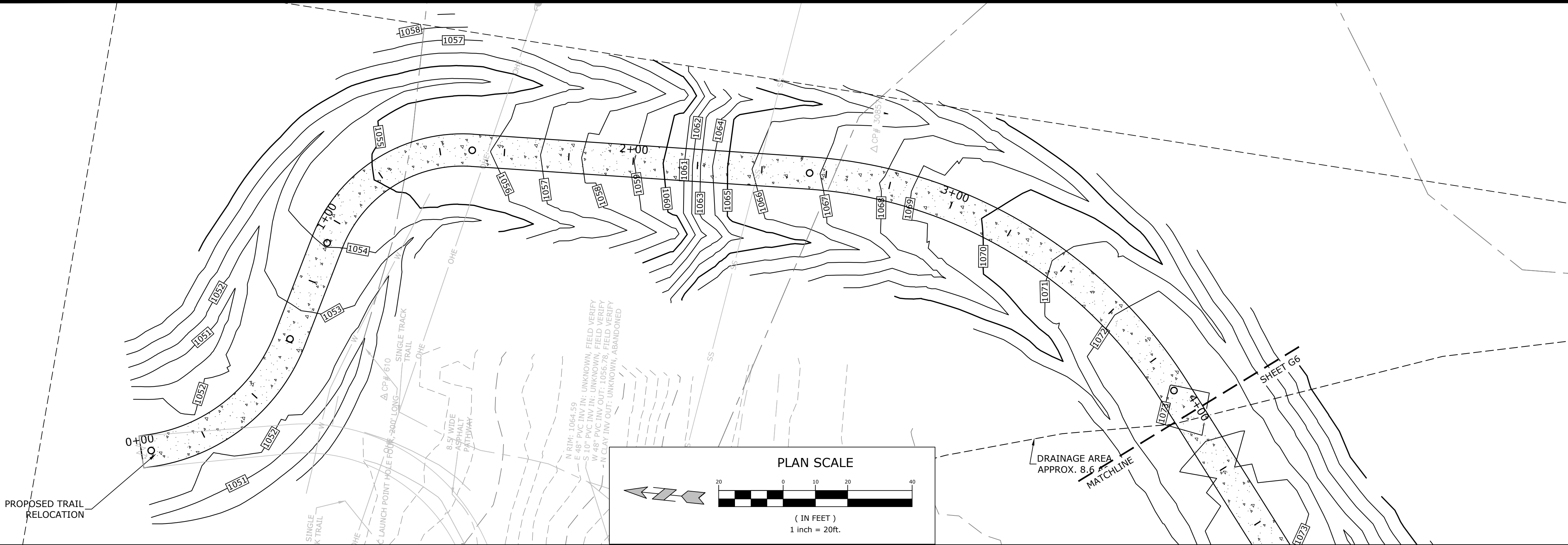
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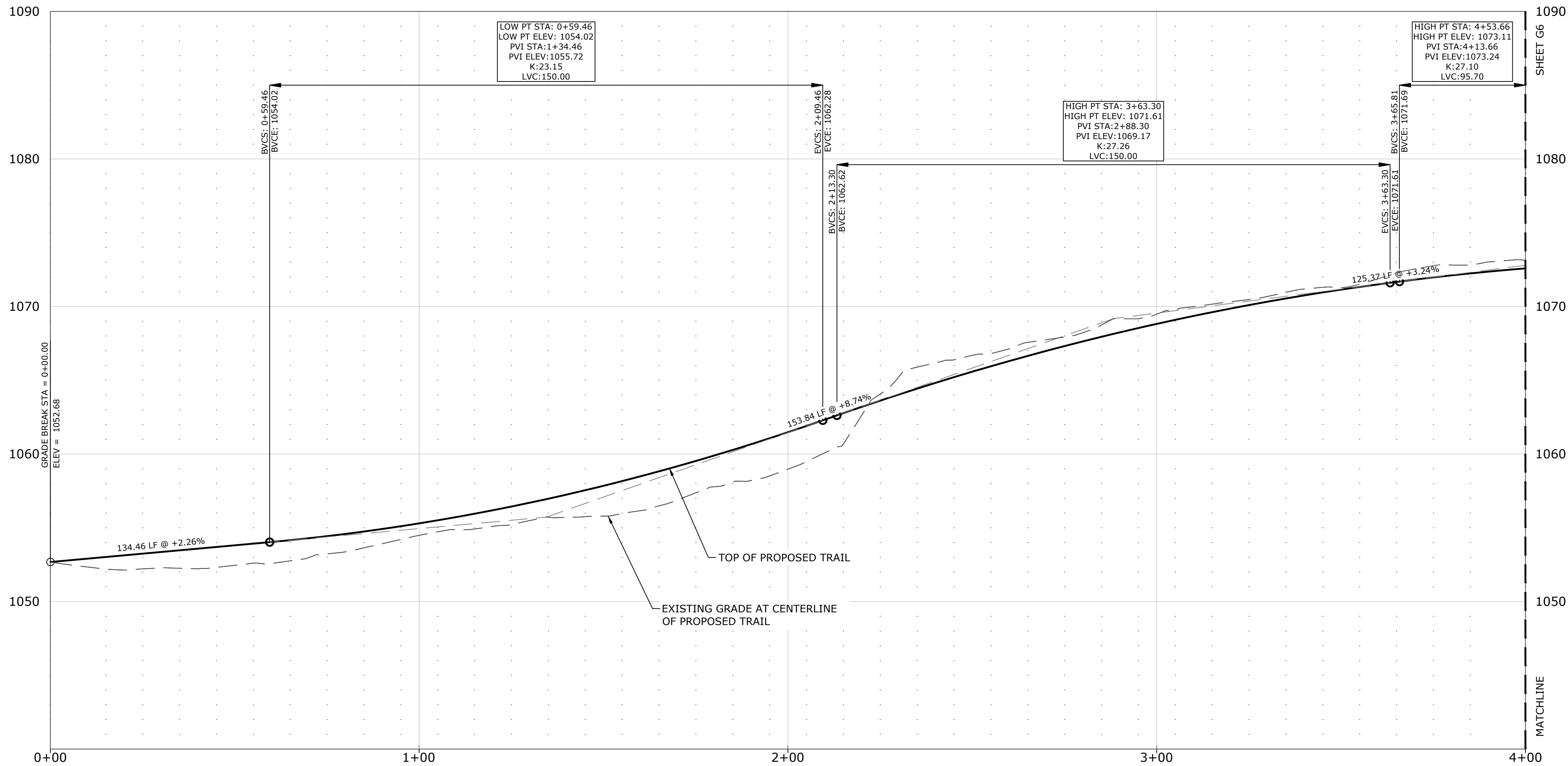
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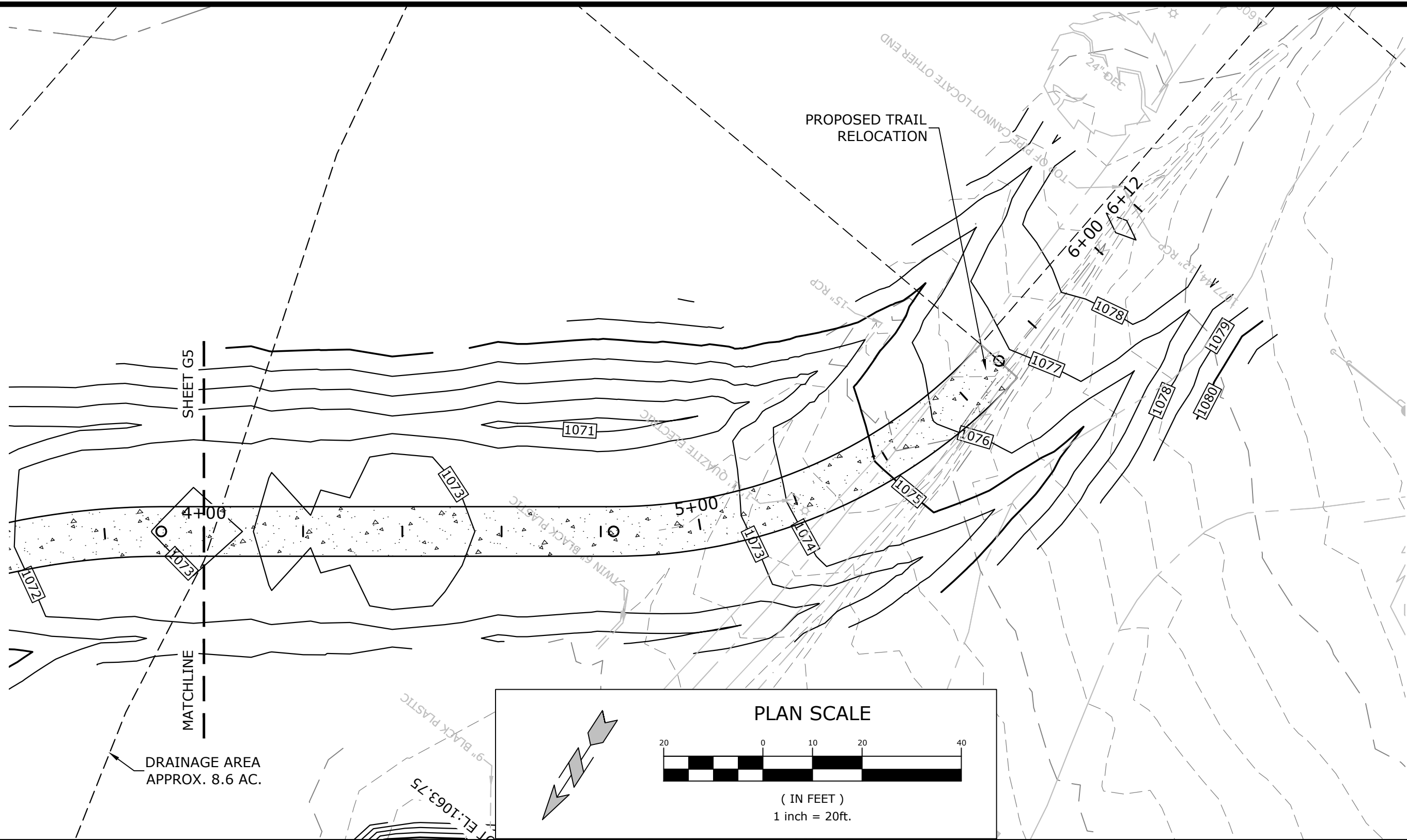
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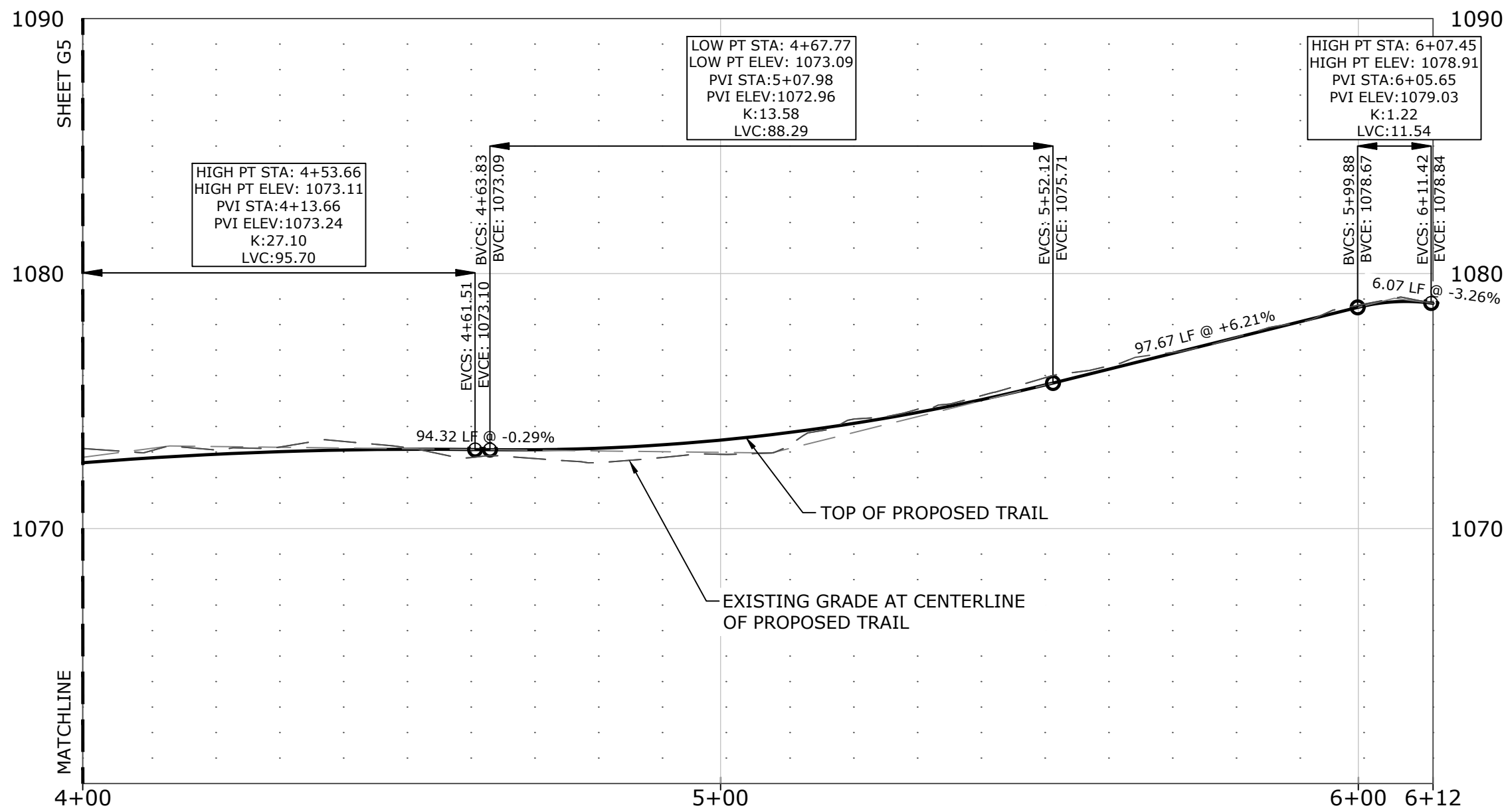
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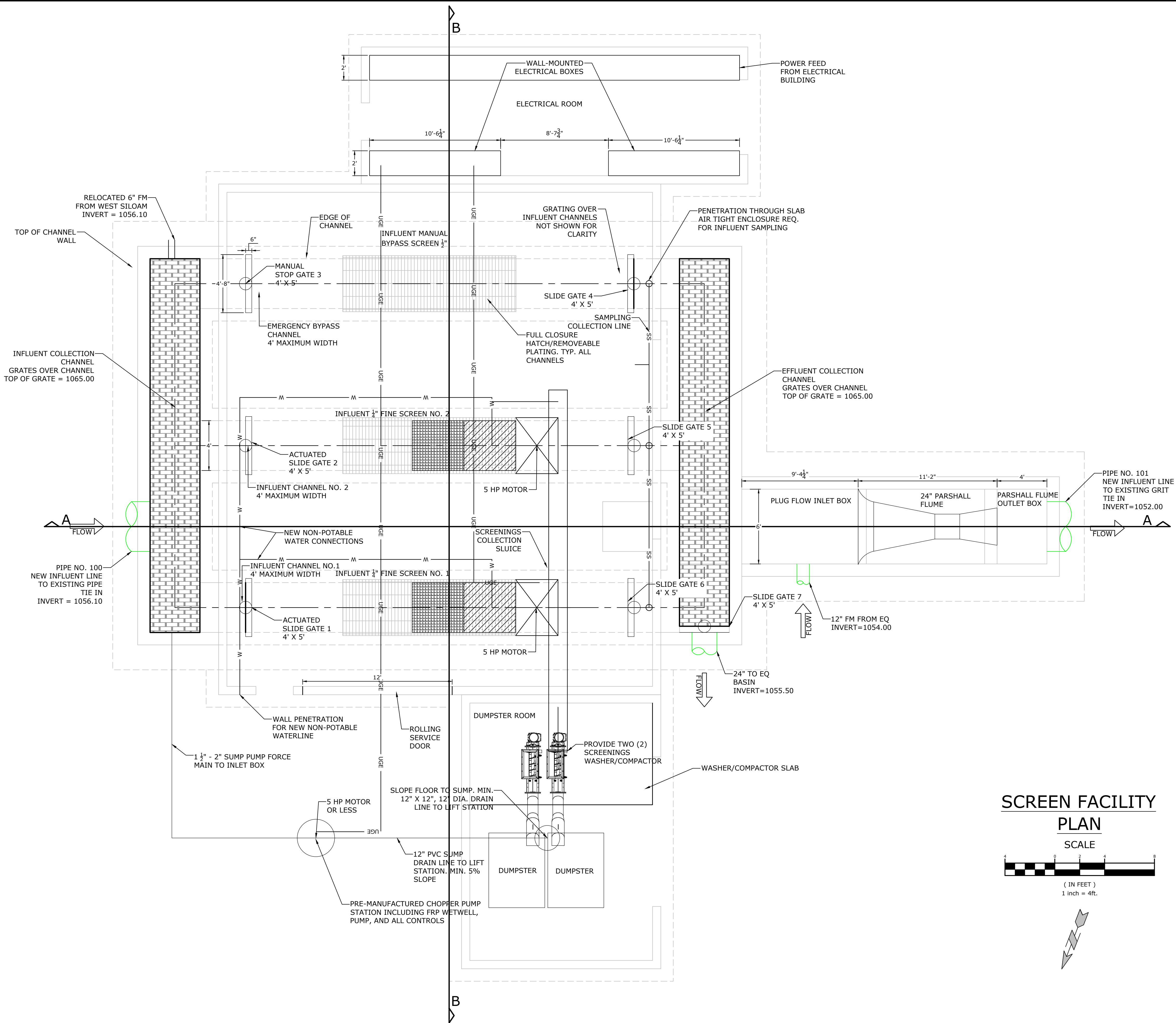
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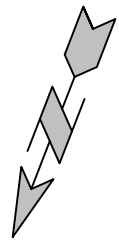
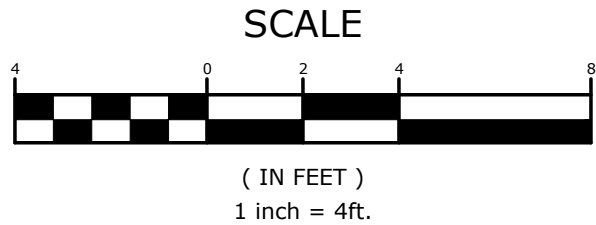
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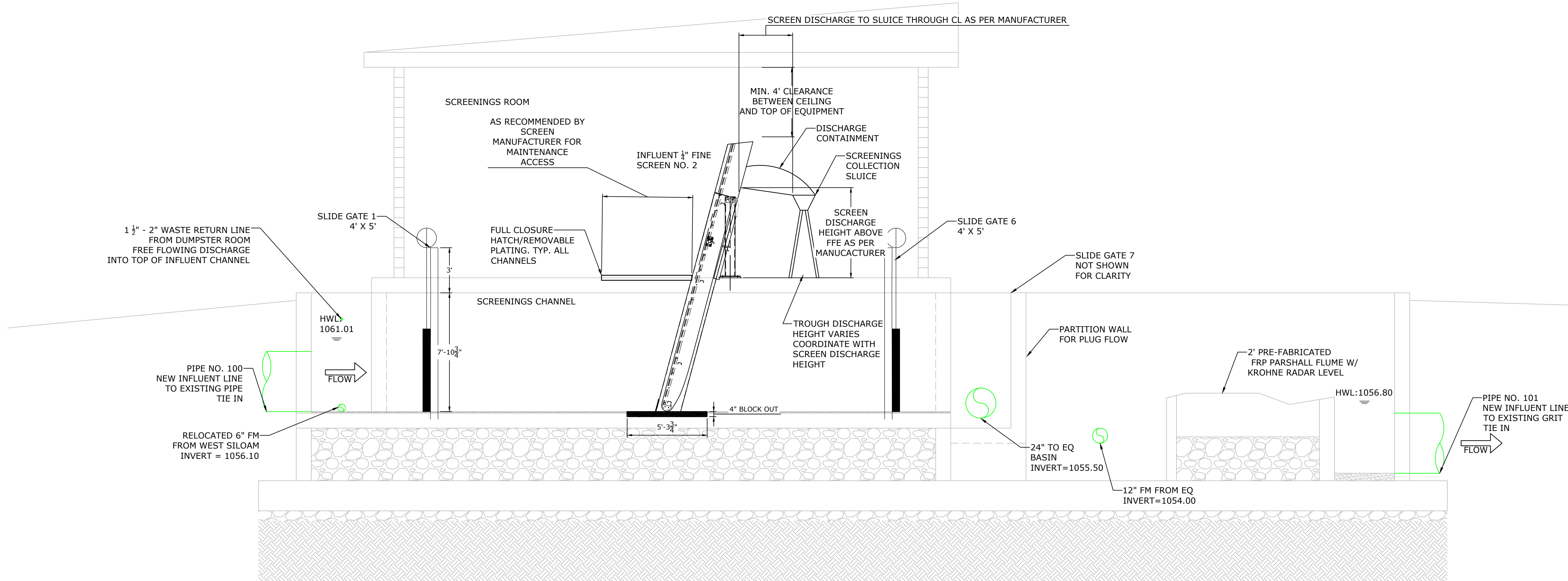
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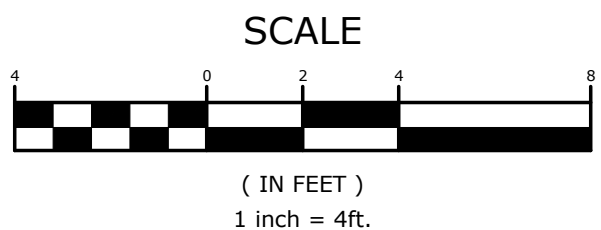
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SECTION 2



ELEVATION 1

## SCREEN FACILITY SECTION A-A



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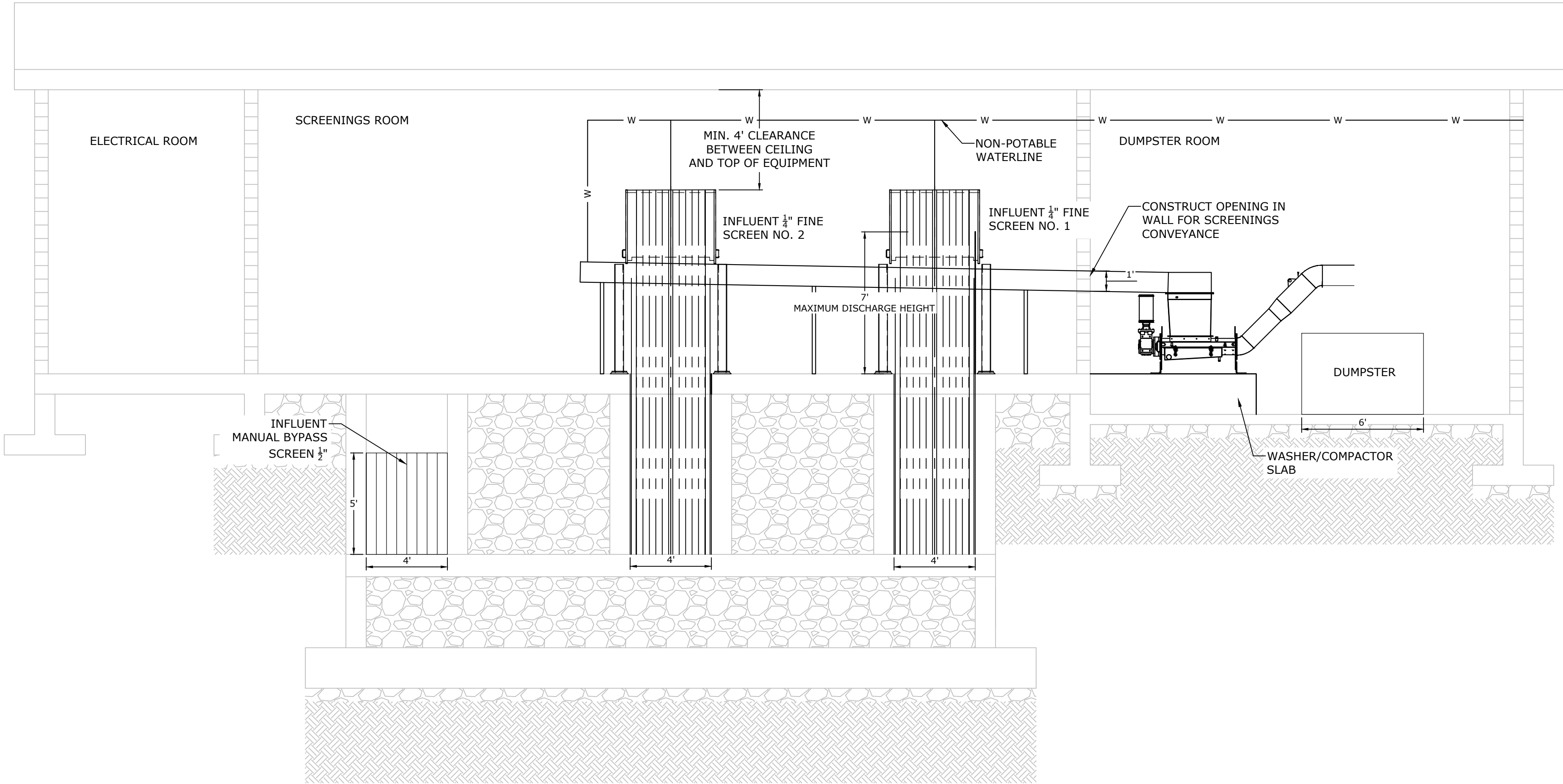
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SCREENING  
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SECTION A-A

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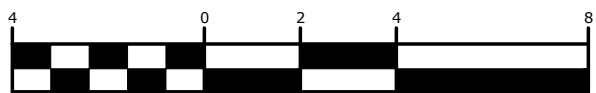


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SCREEN FACILITY  
SECTION B-B

SCALE



( IN FEET )

1 inch = 4ft.

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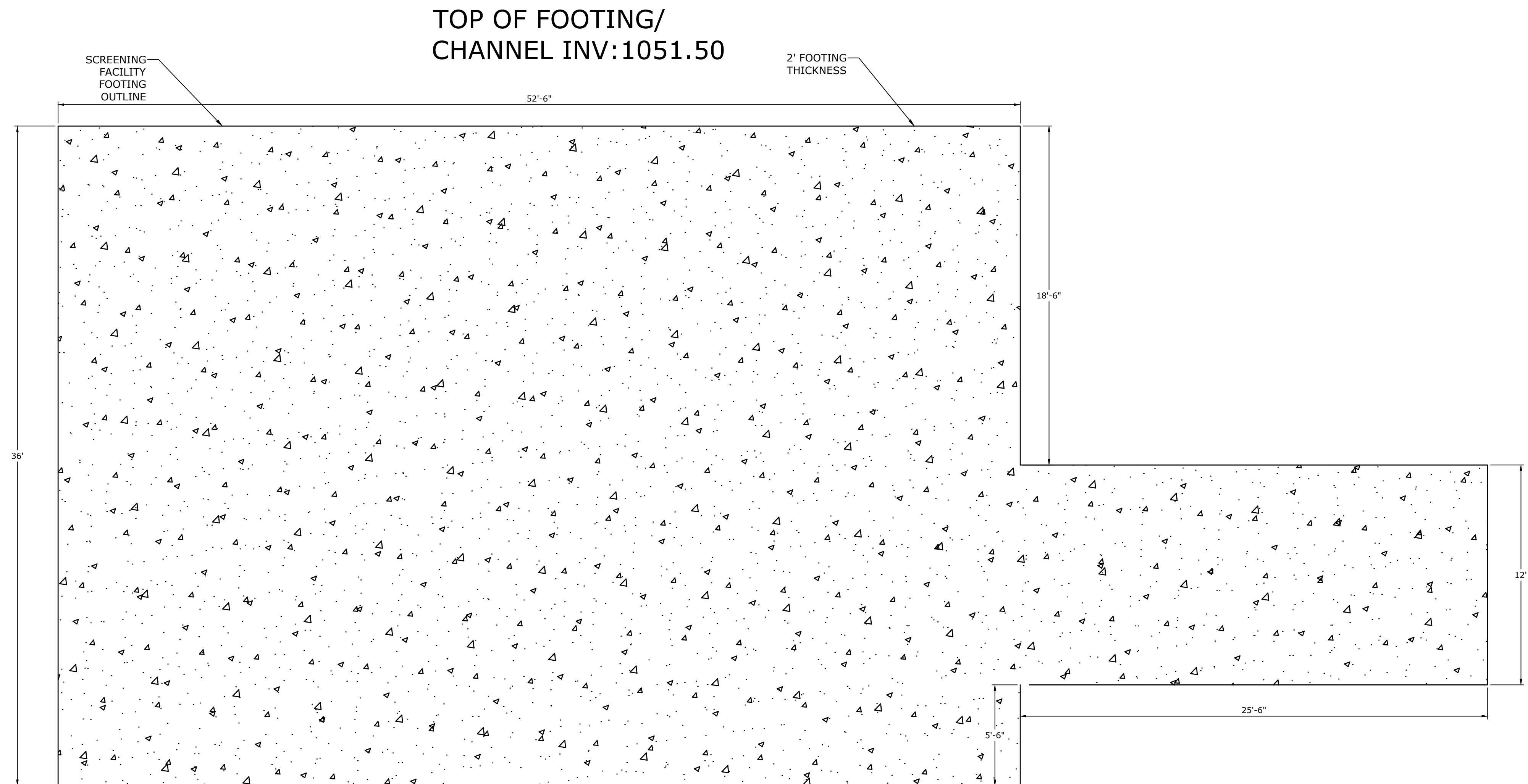
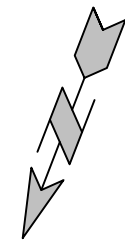
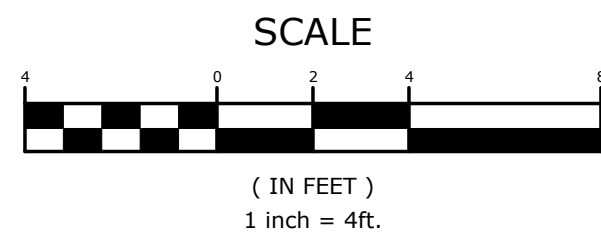
SCREENING  
FACILITY  
PROCESS  
SECTION B-B

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P3



## SCREEN FACILITY FOOTING PLAN



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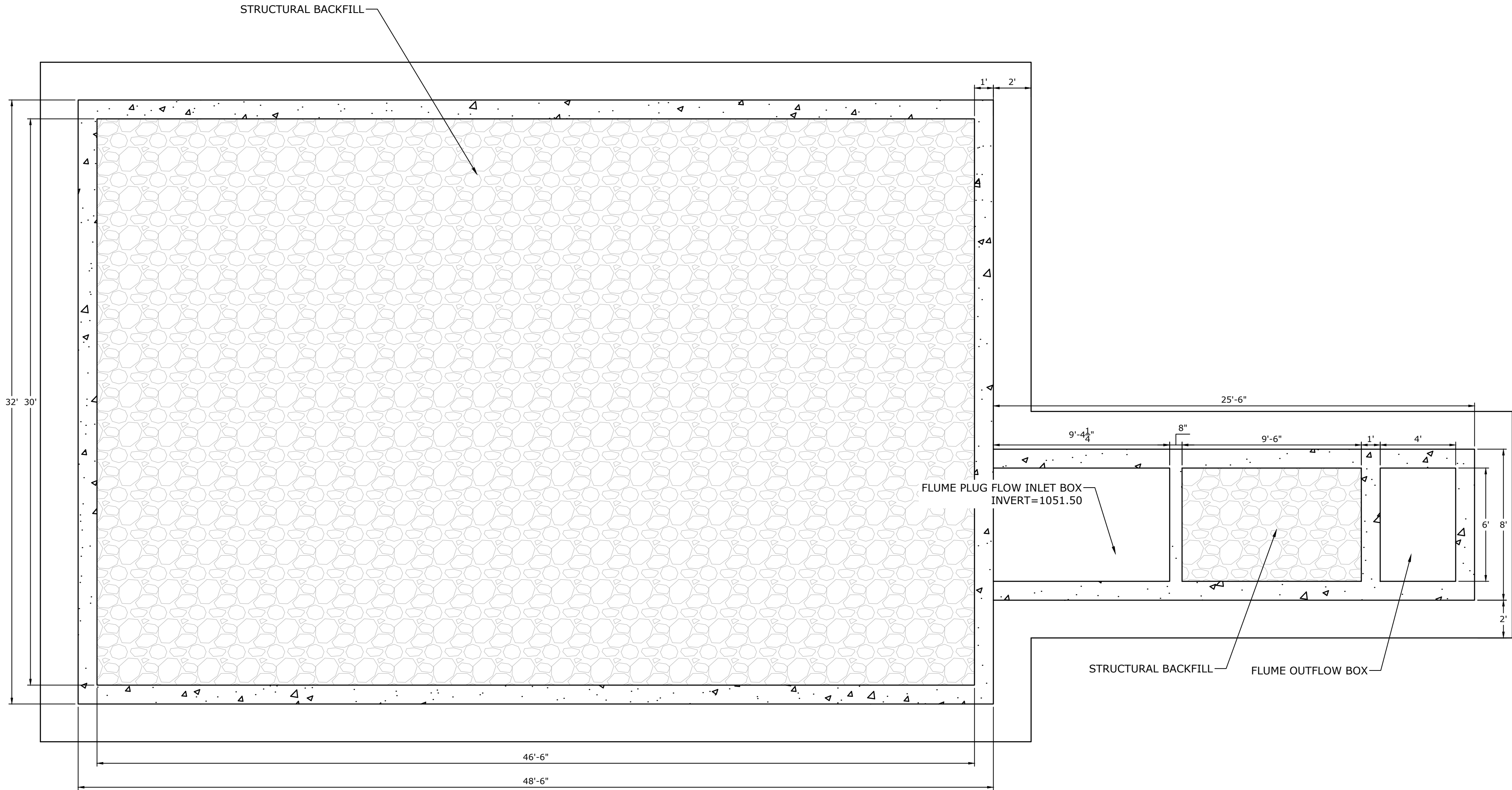
SCREENING  
FACILITY BASE  
FOOTING PLAN

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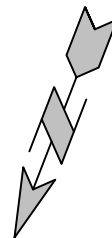
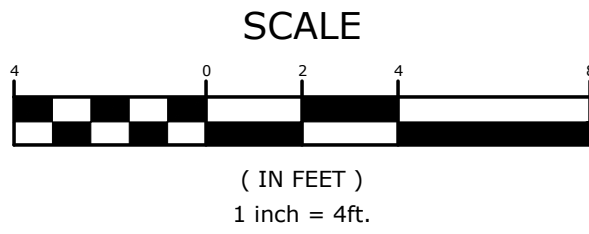
S1



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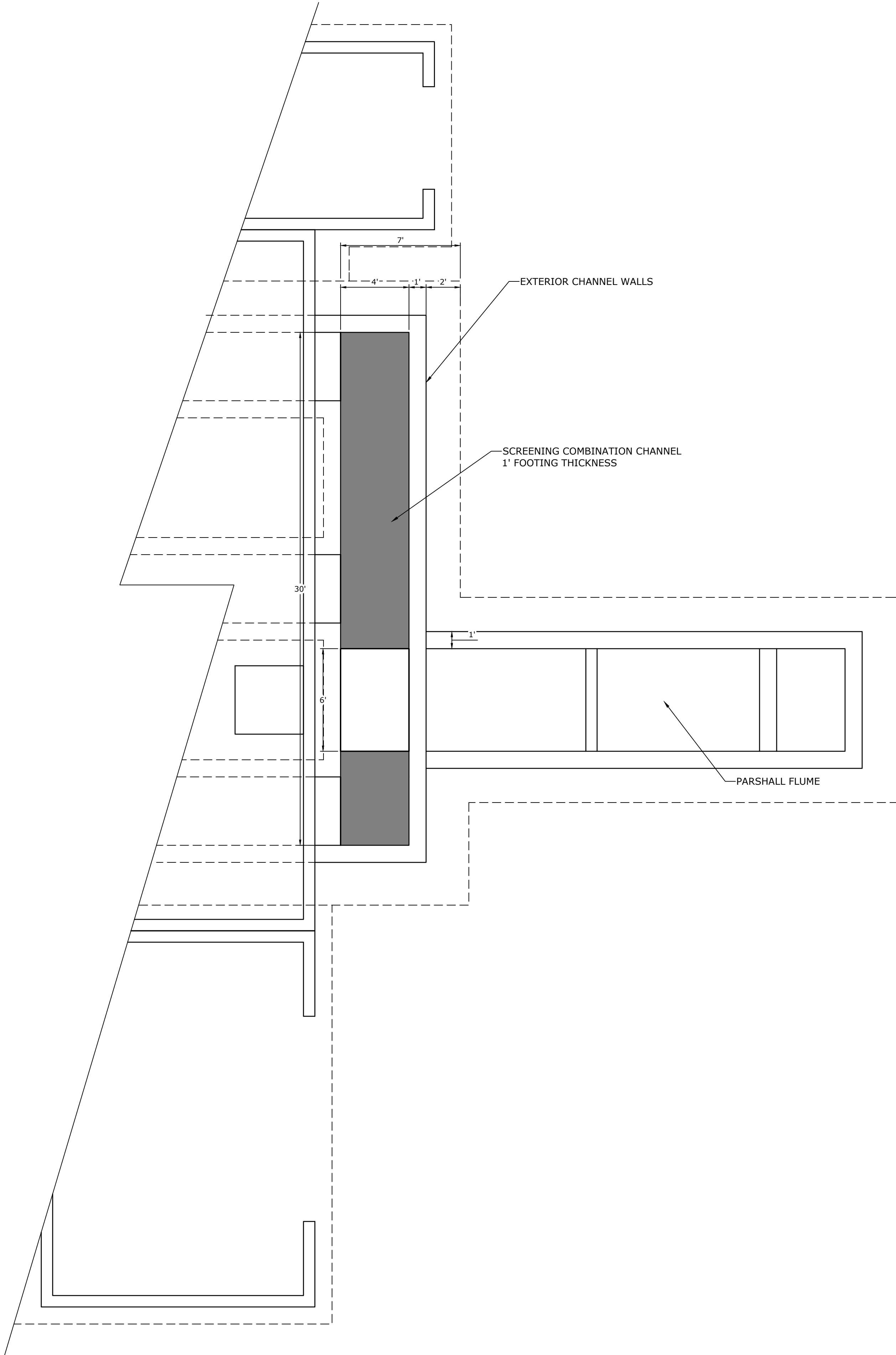
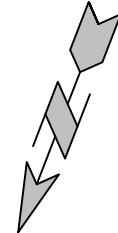
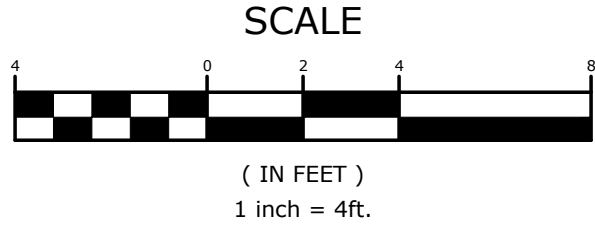
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FACILITY  
SECONDARY  
FOOTING PLAN

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S2



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FACILITY  
COMBINATION  
CHANNEL  
FOOTING PLAN

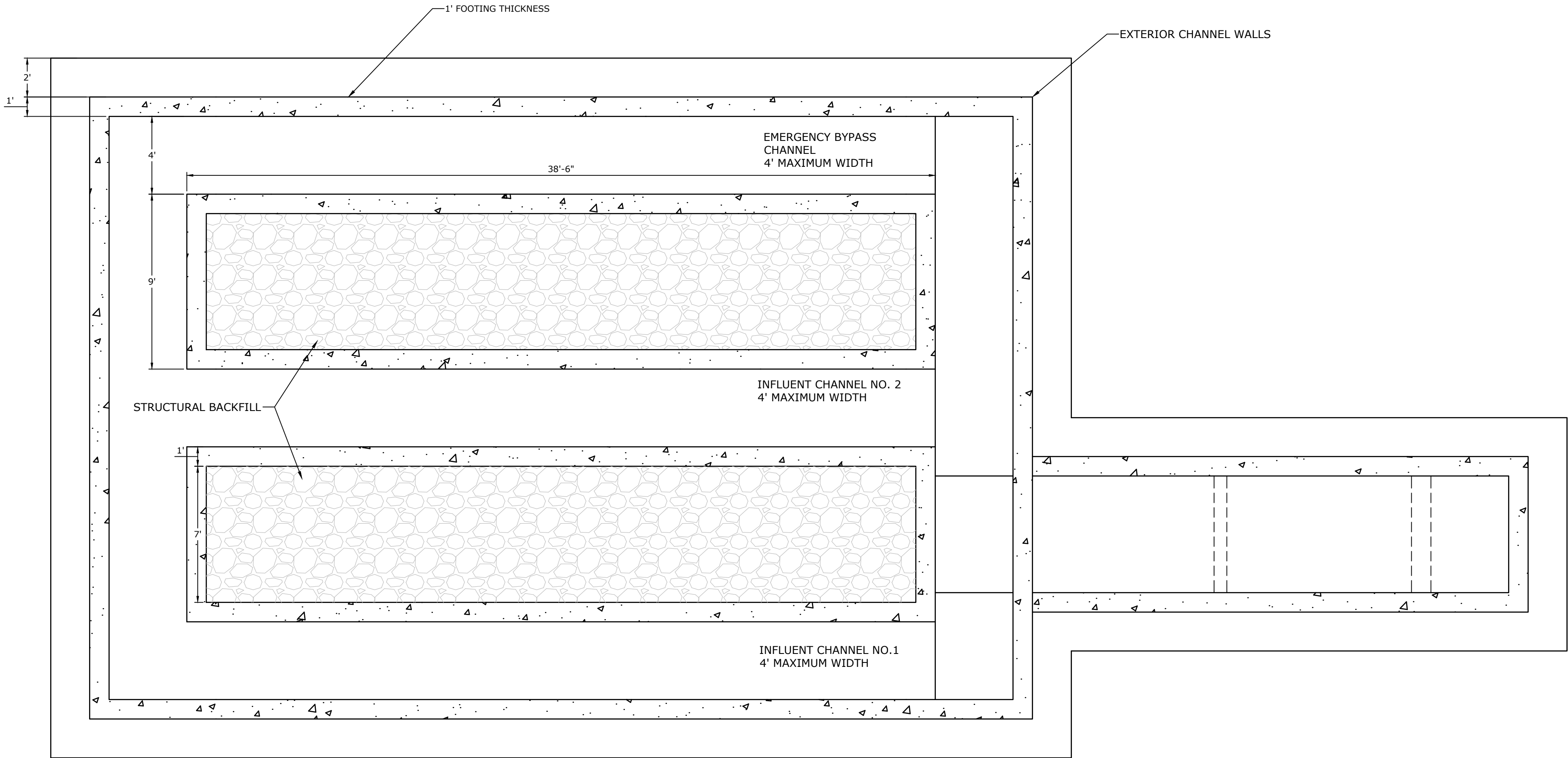
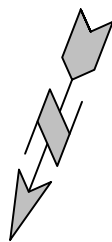
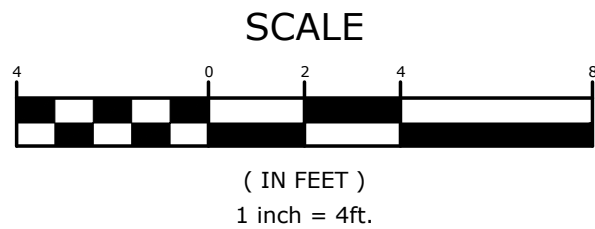
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SCREENING  
FACILITY MAIN  
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FOOTING PLAN

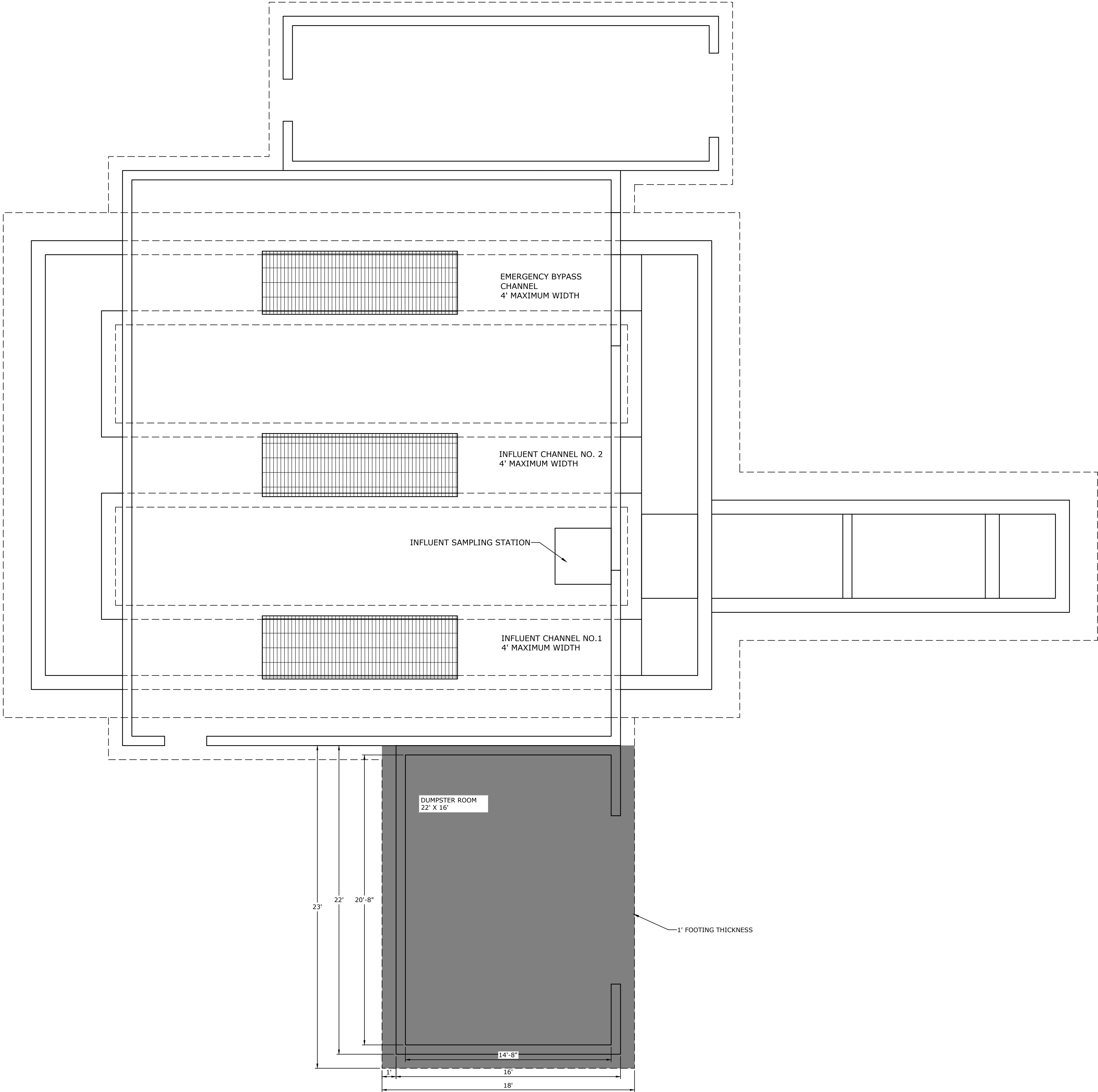
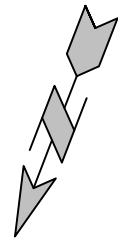
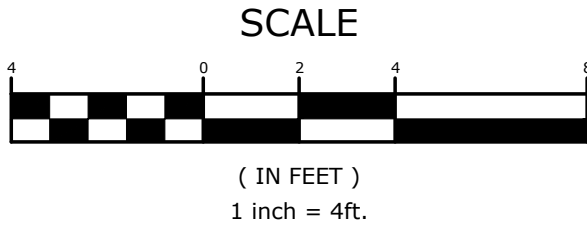
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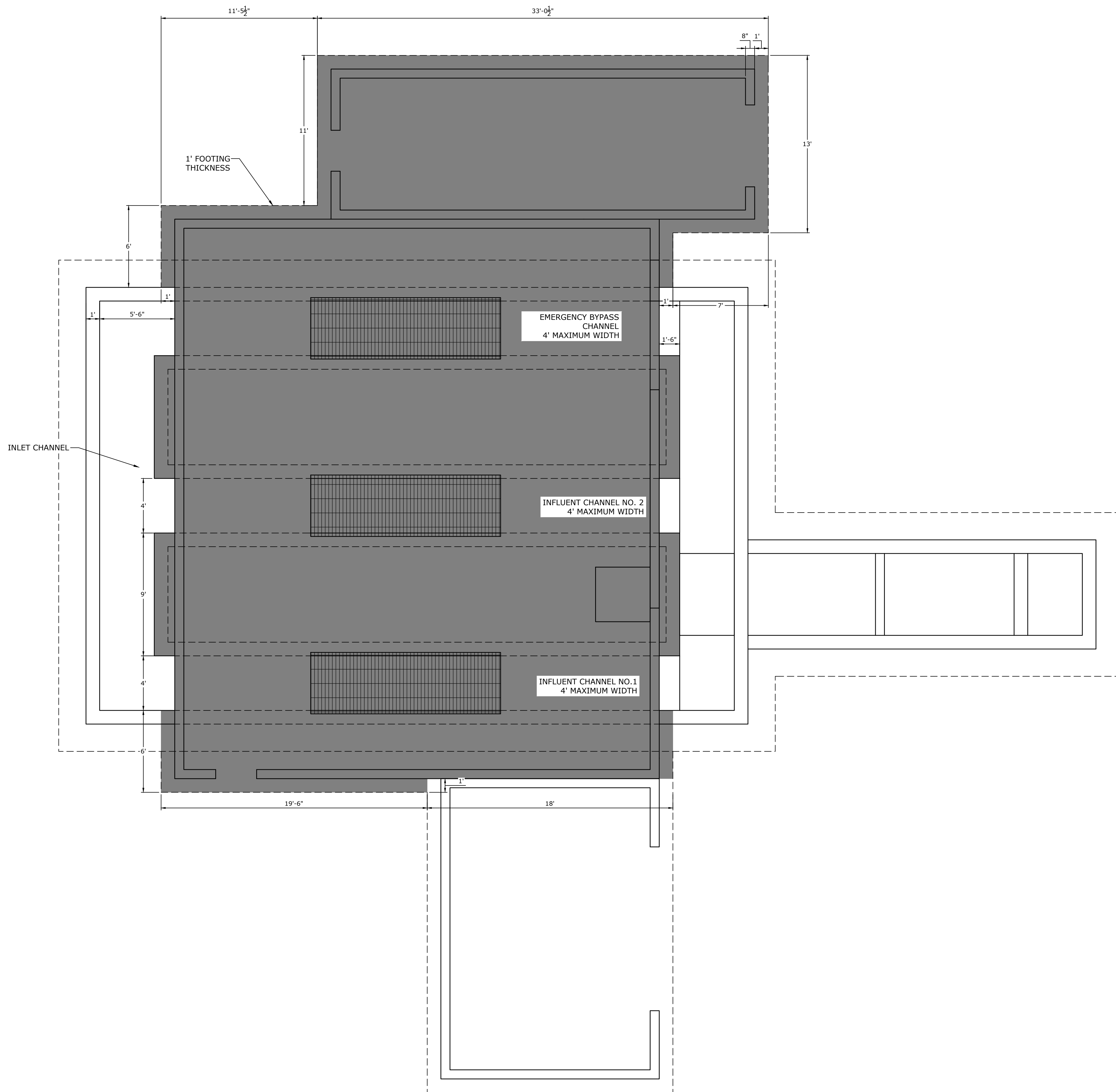
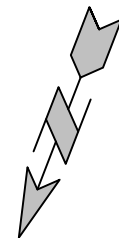
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FACILITY  
DUMPSTER  
ROOM FOOTING  
PLAN

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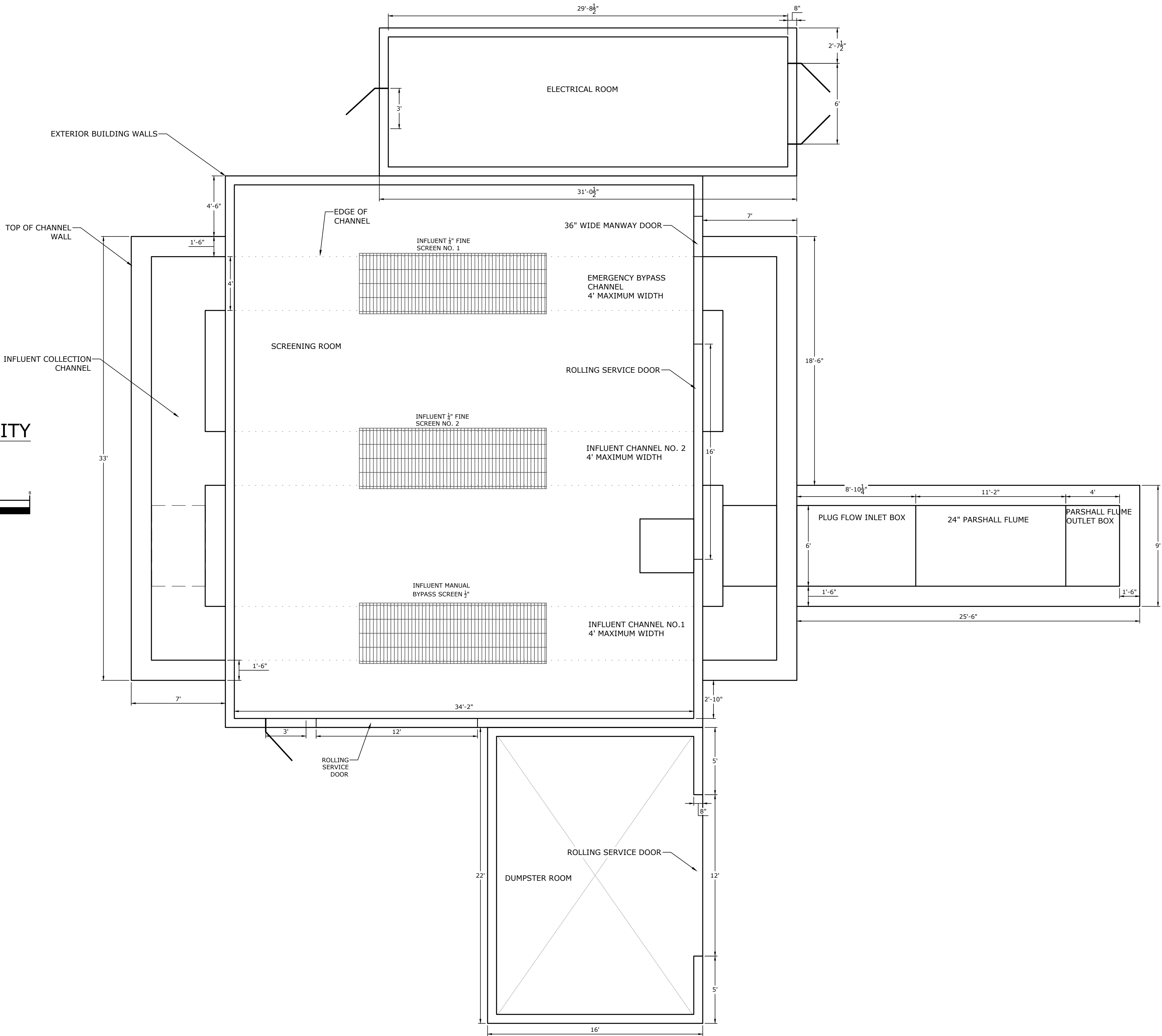
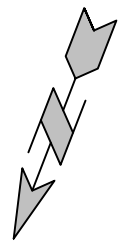
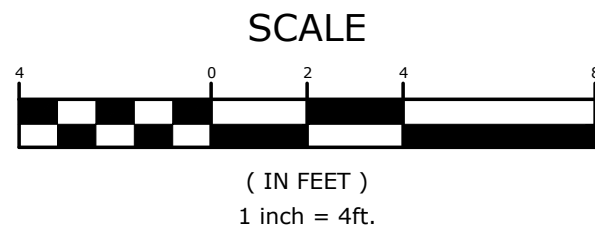






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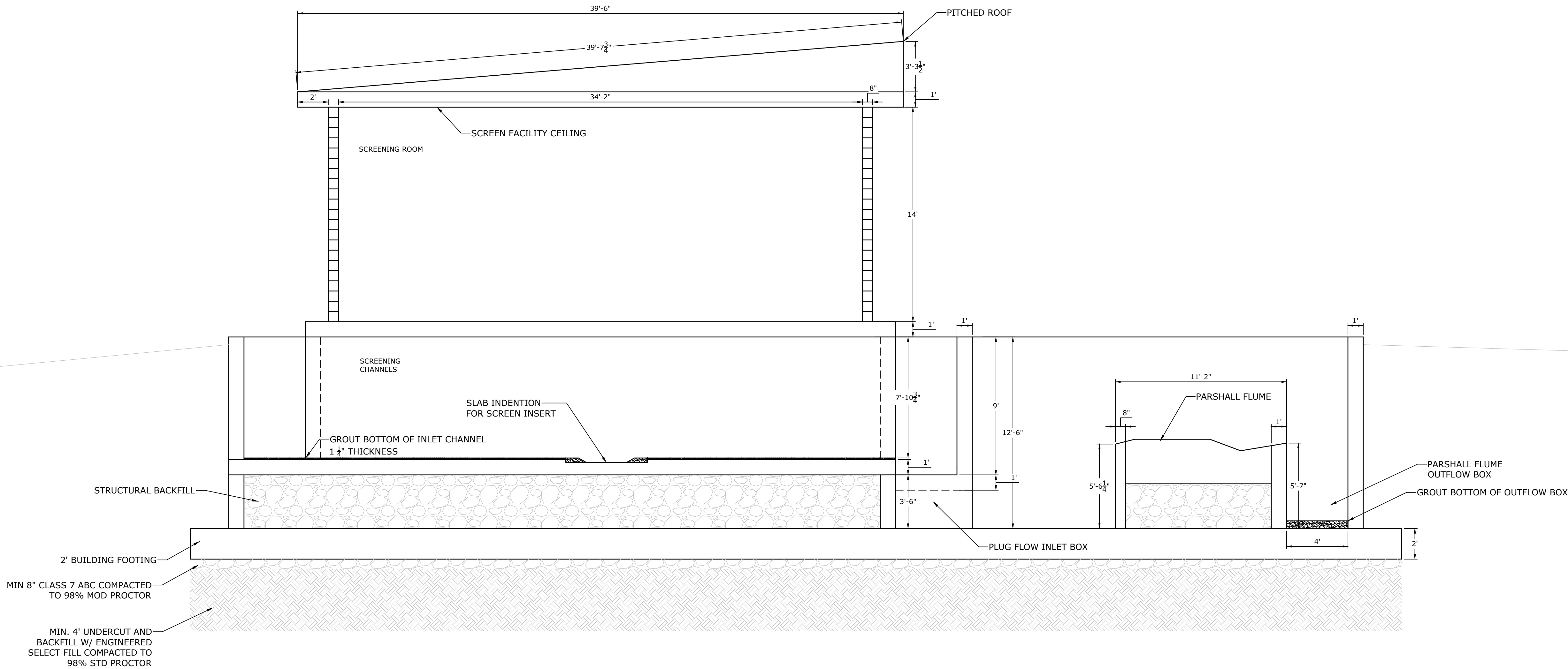
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FACILITY  
FLOOR PLAN

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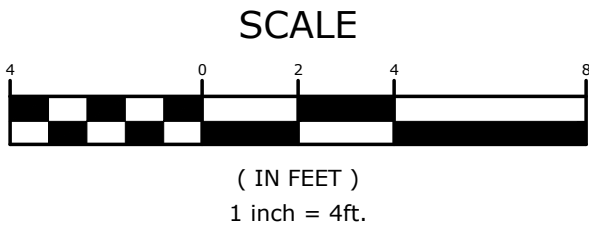
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SCREEN FACILITY  
ELEVATION 1

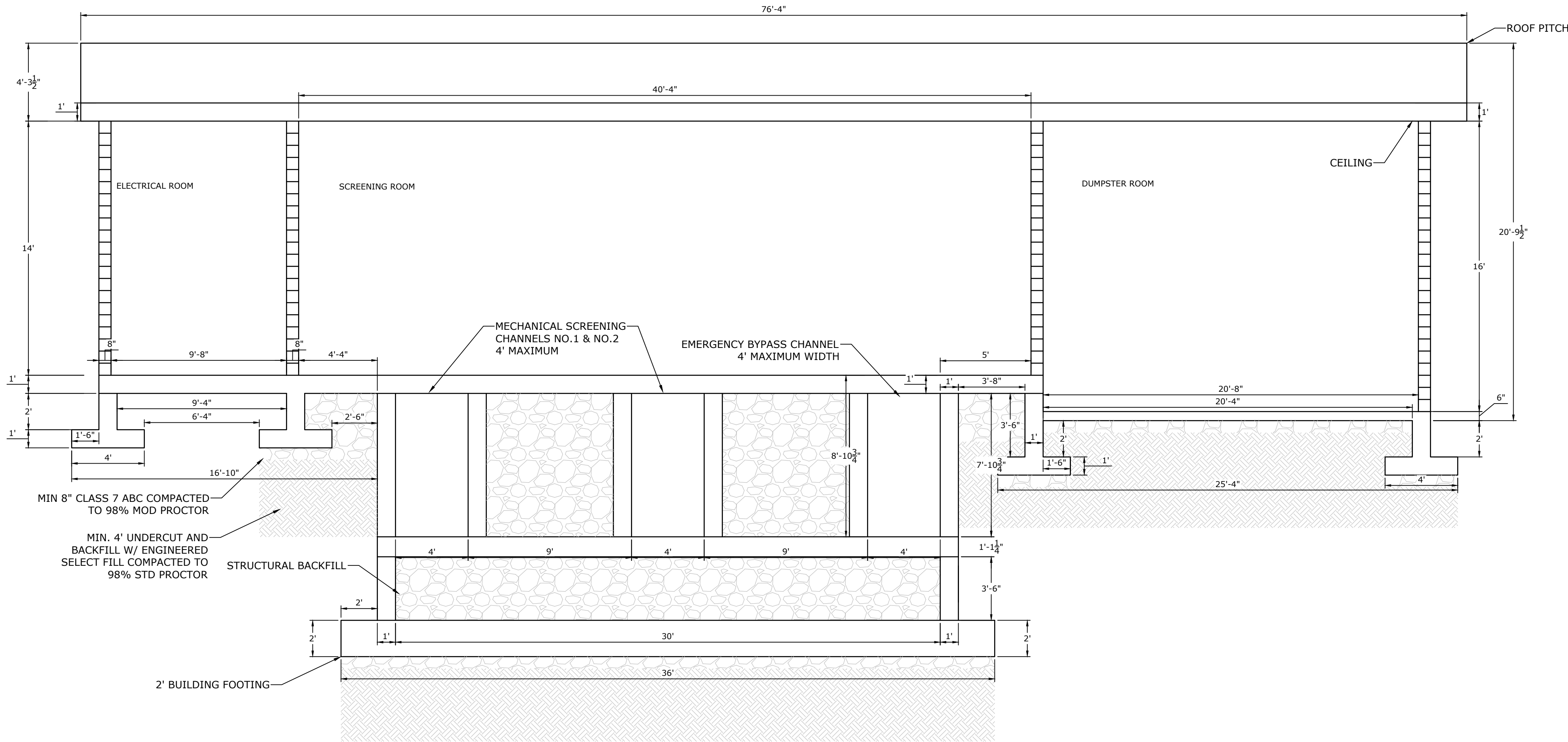


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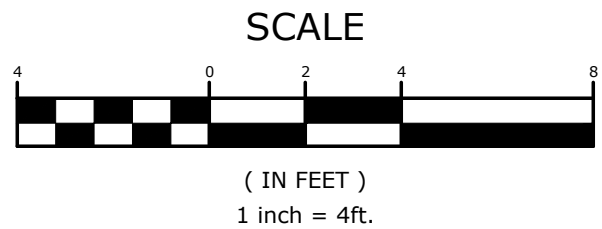
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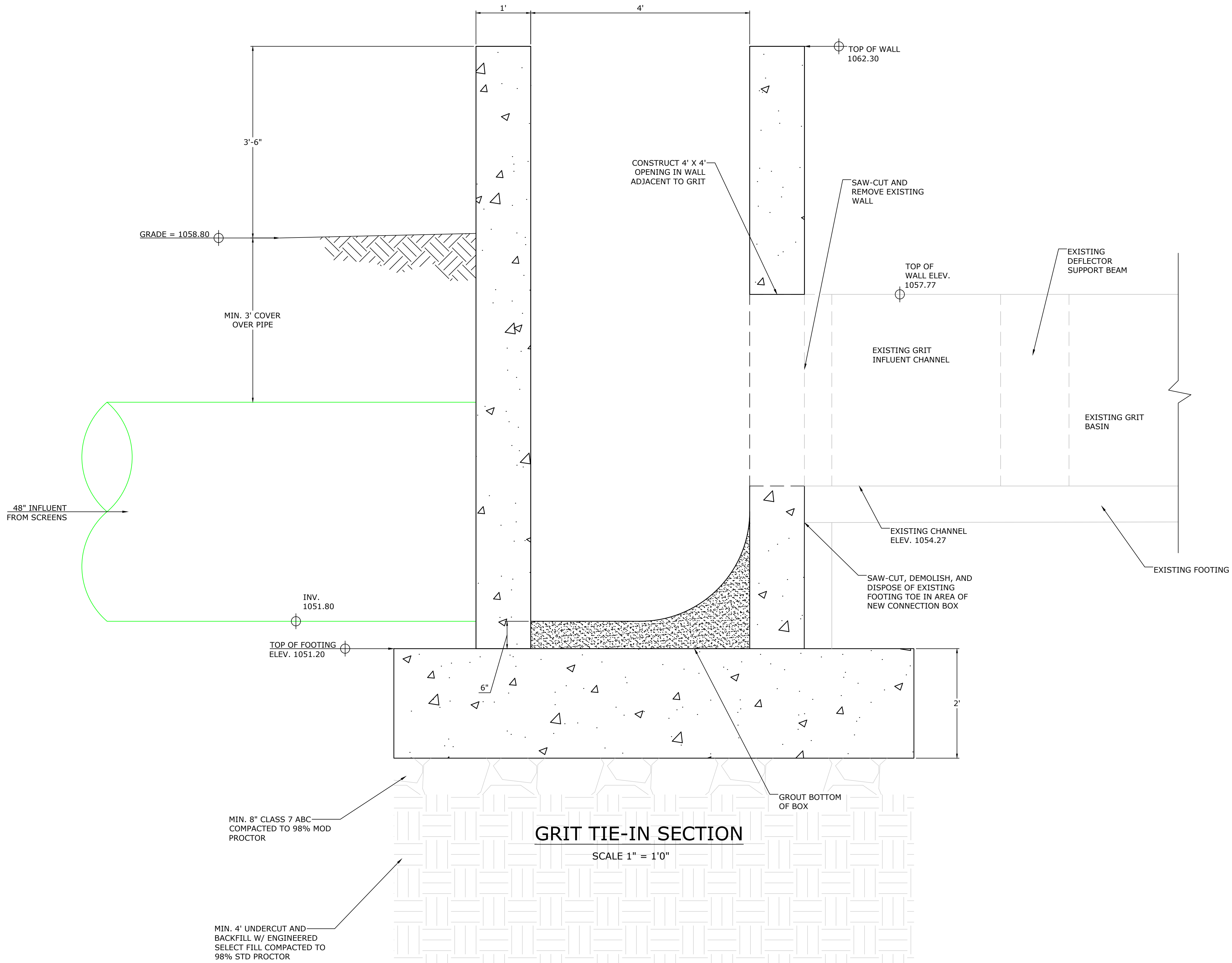
SCREEN FACILITY  
ELEVATION 2



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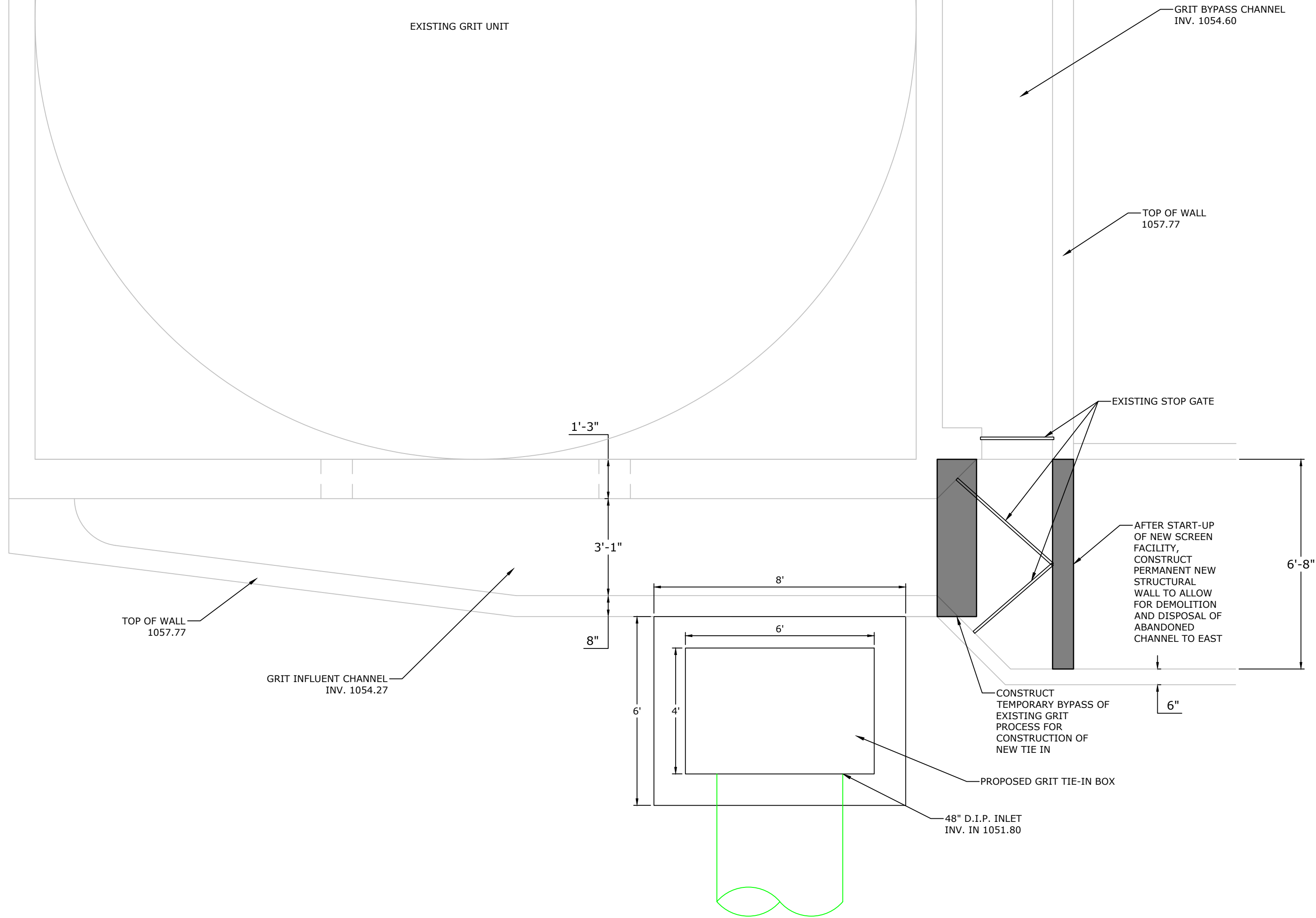
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## GRIT TIE-IN PLAN

SCALE 3/8" = 1'0"

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## GRIT TIE-IN PLAN

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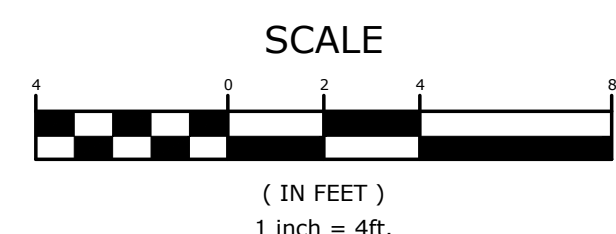
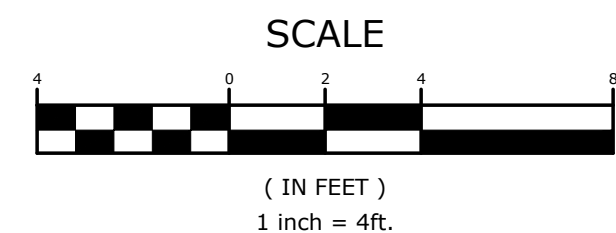
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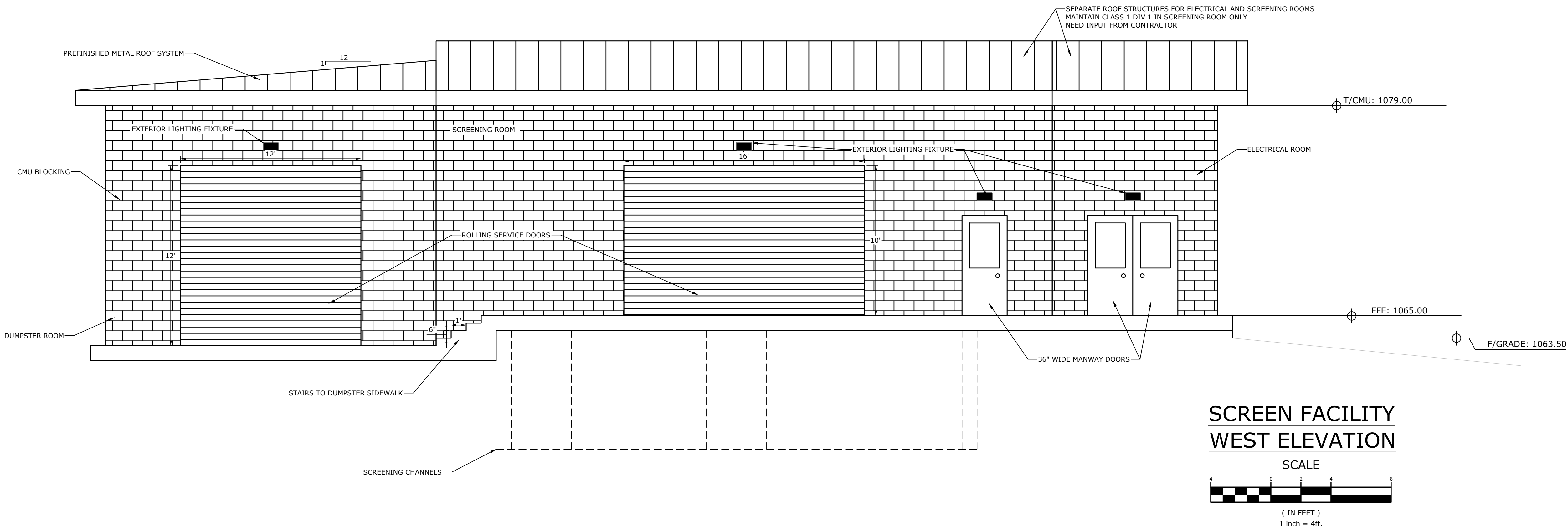
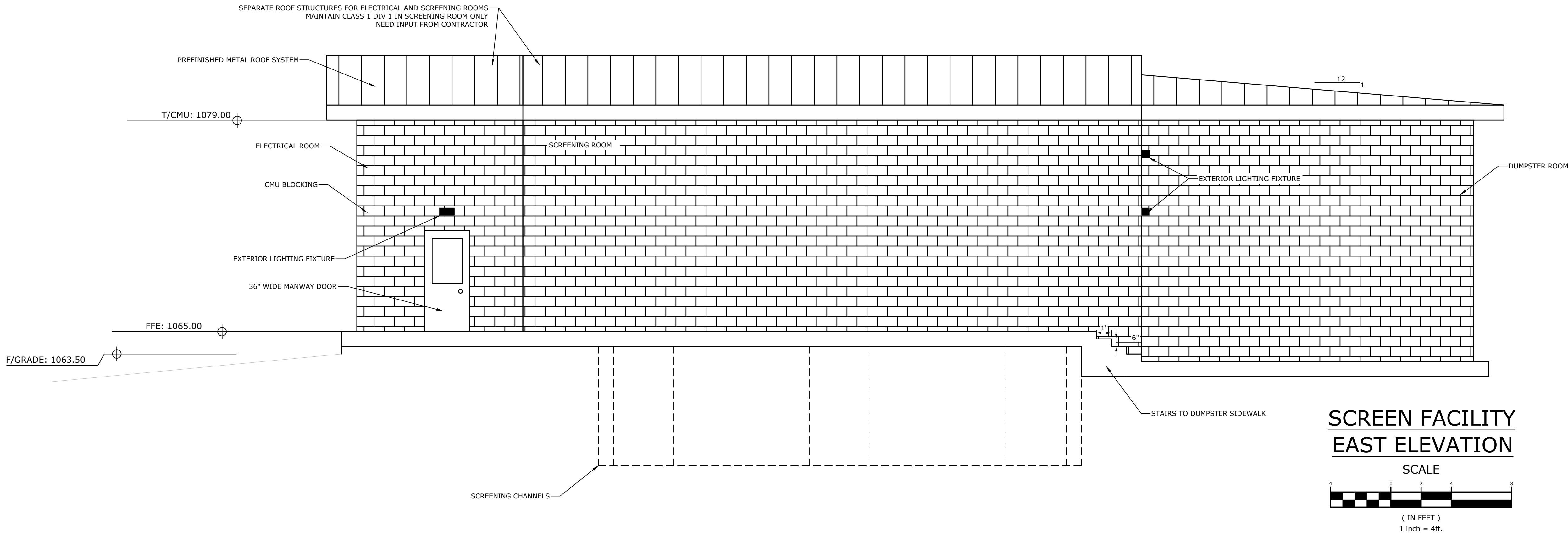
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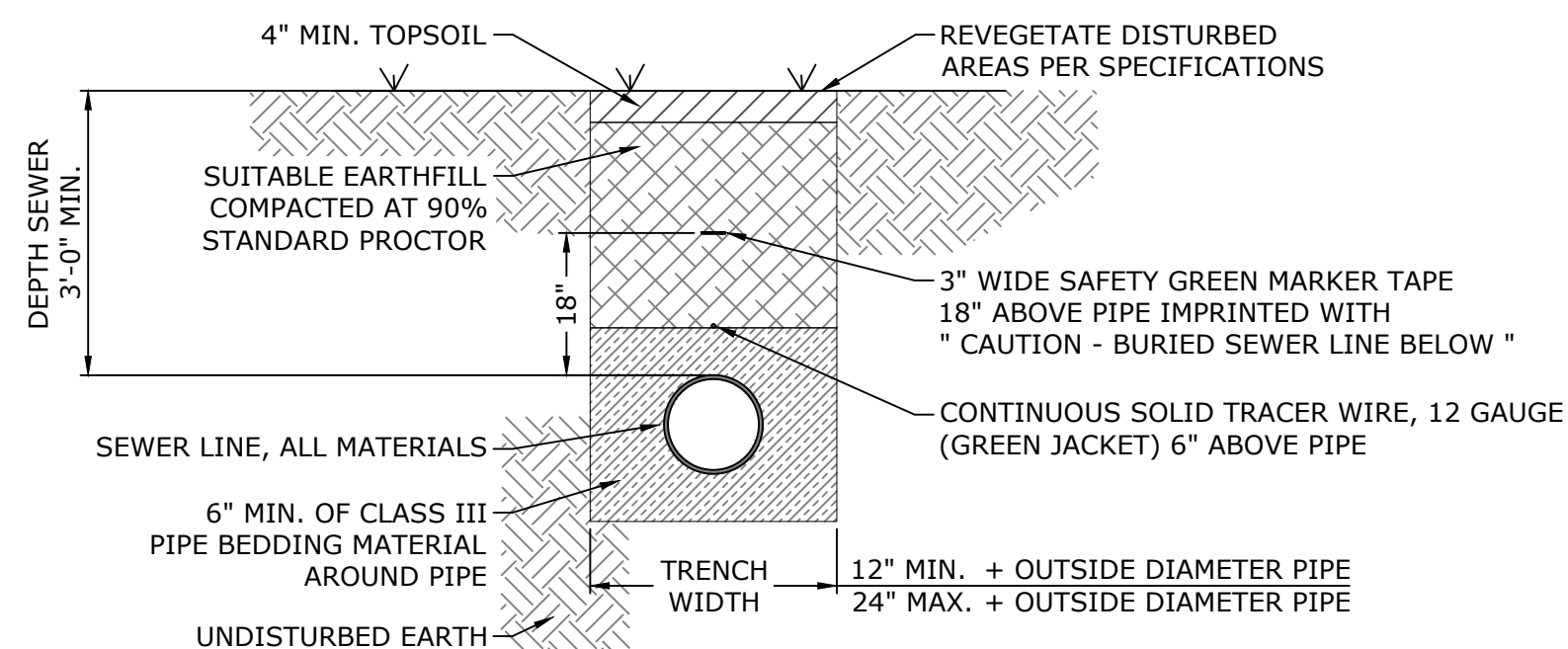


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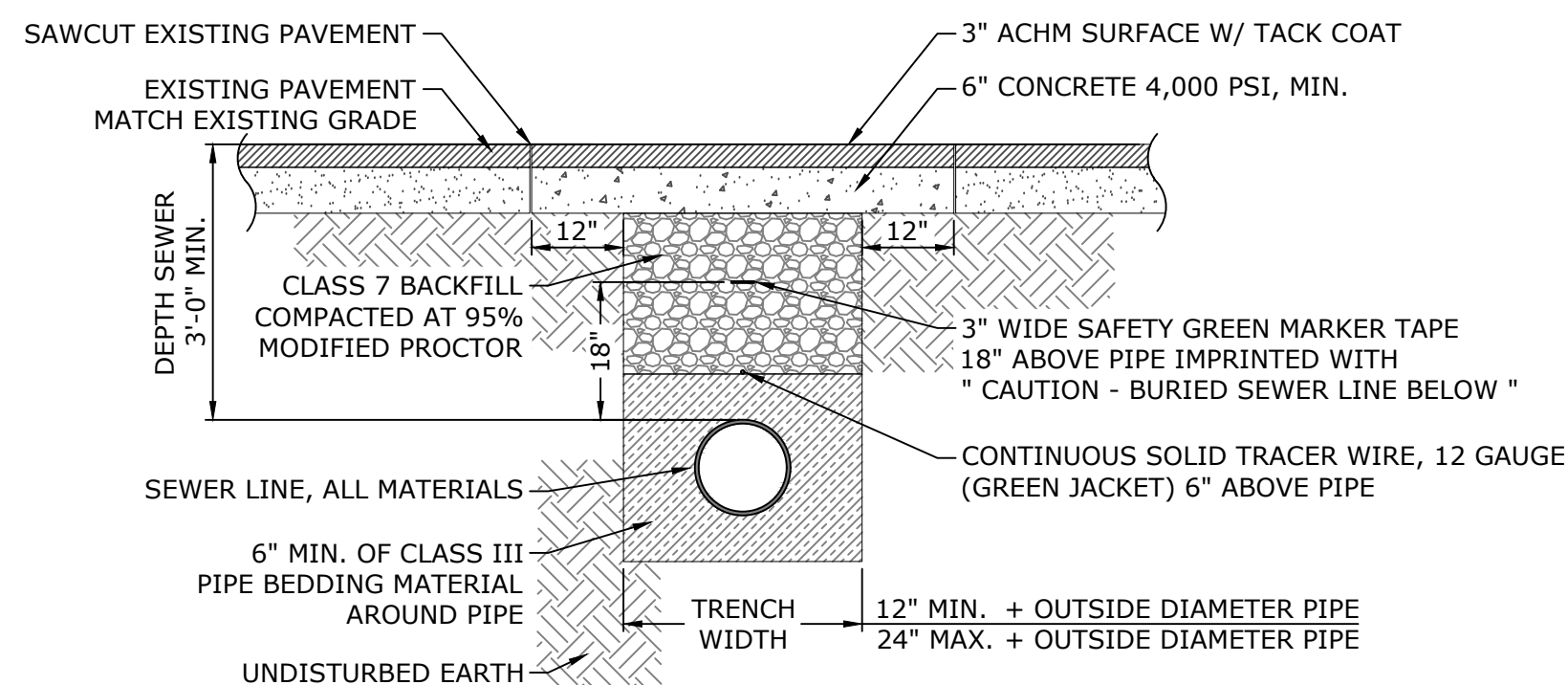
SCREENING FACILITY EAST & WEST ELEVATIONS

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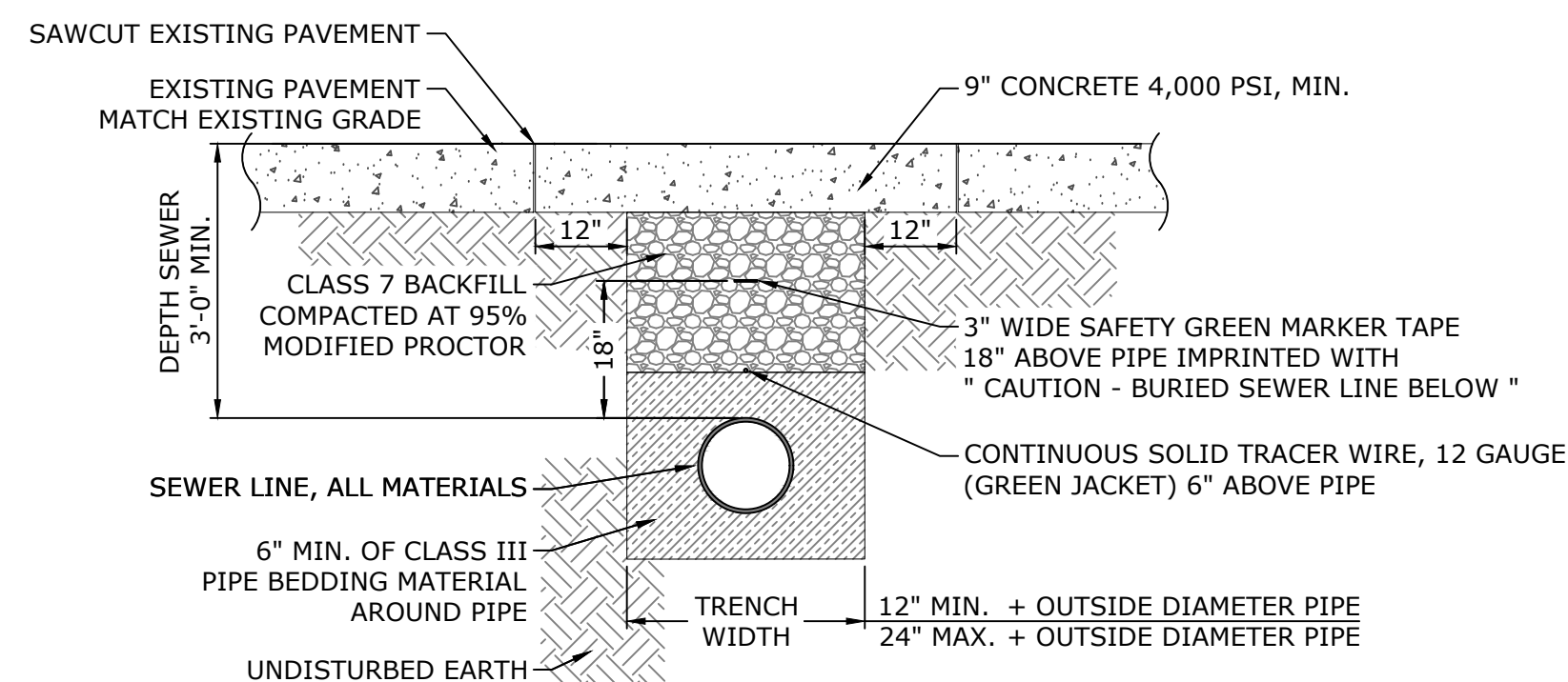




### NON-PAVED AREAS



UNDER ASPHALT



UNDER CONCRETE

- SEWER TRENCH NOTES:

1. FOR SEWER TRENCH UNDER GRAVEL, CLASS 7 BACKFILL COMPACTED AT 95% MODIFIED PROCTOR SHALL BE EXTENDED TO EXISTING GRADE.
2. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING SEWER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE SEWER SYSTEM.
3. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B).

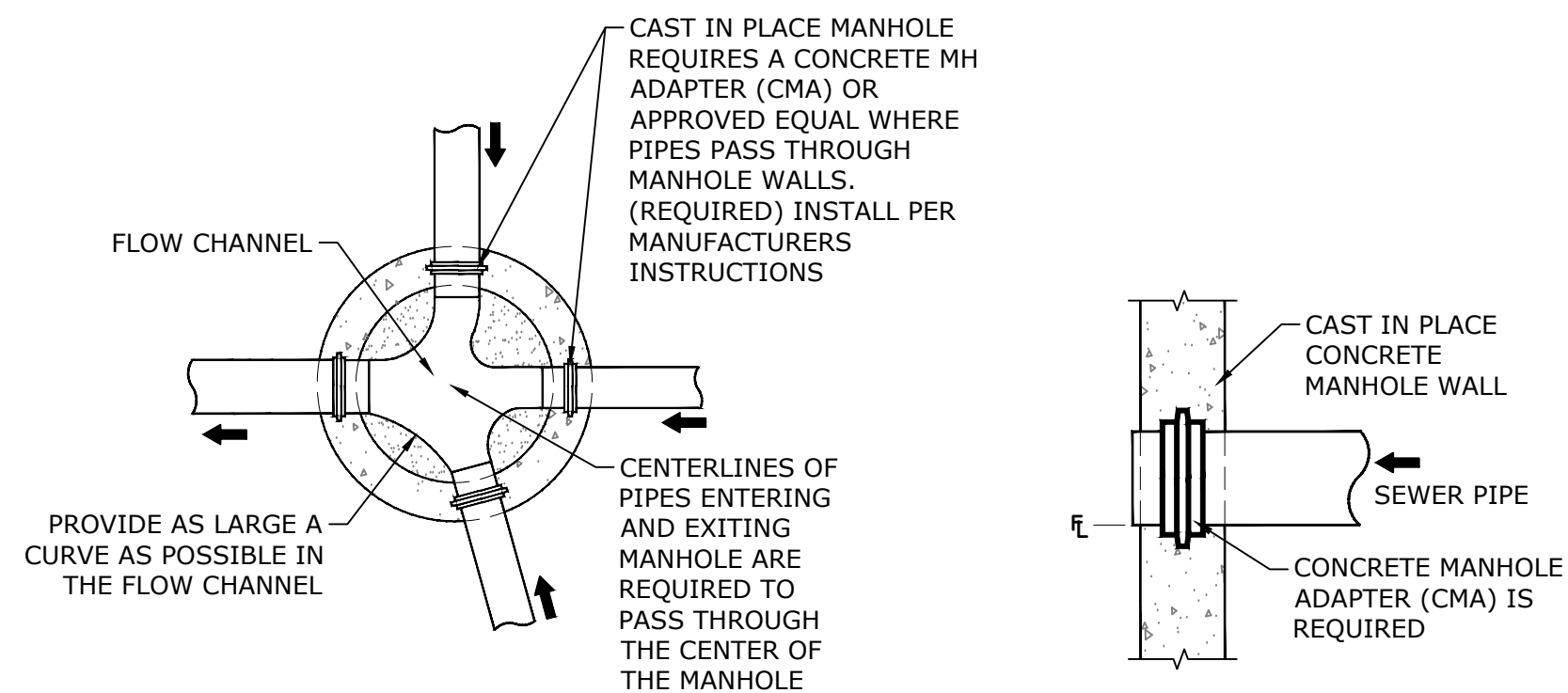
S1

## SEWER TRENCH

NOT TO SCALE

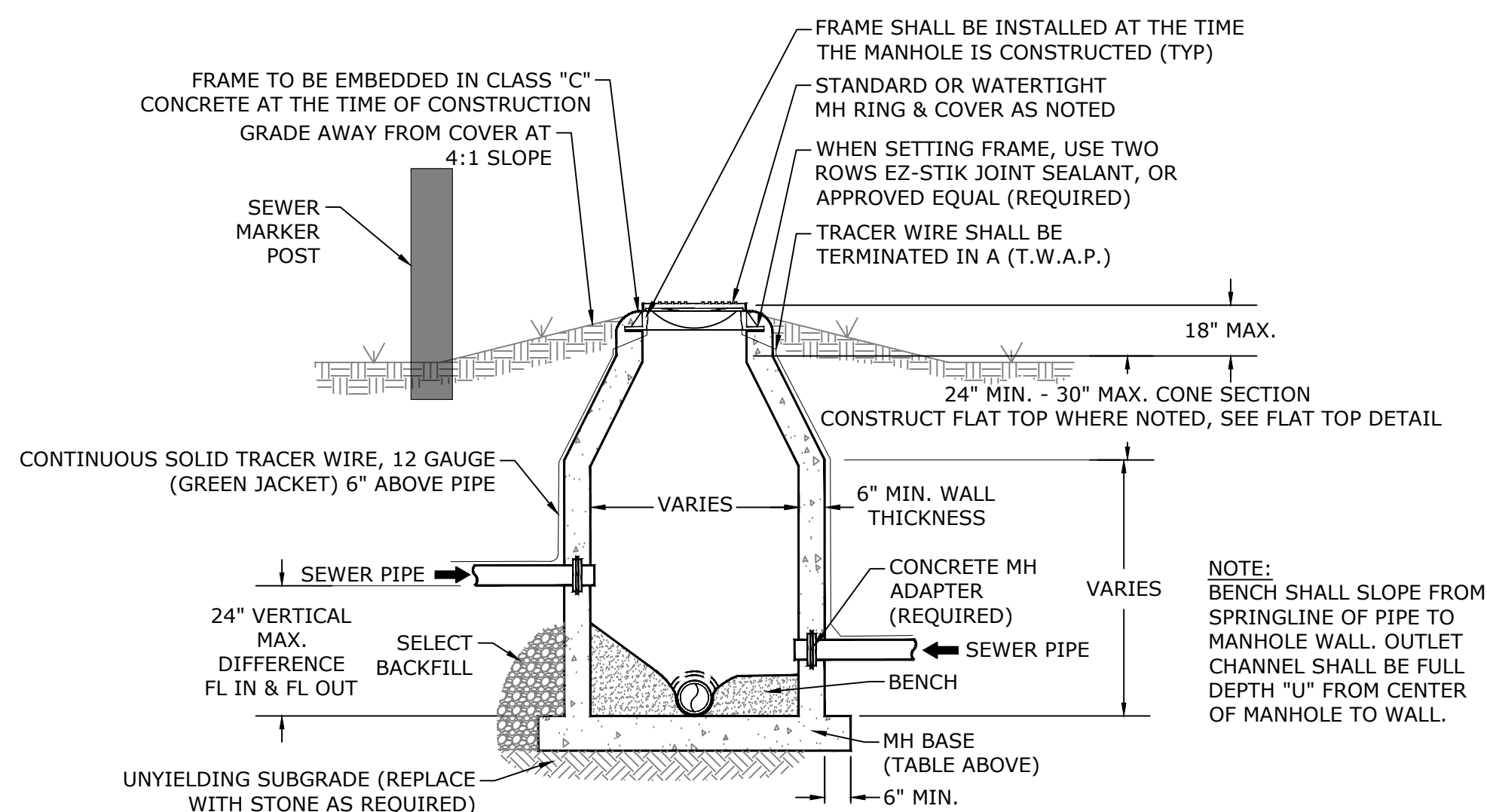
| INSIDE<br>DIAMETER<br>OF MANHOLE | MINIMUM WALL<br>THICKNESS | BASE<br>THICKNESS | MINIMUM<br>RING & COVER SIZE<br>(CLEAR OPENING)    |
|----------------------------------|---------------------------|-------------------|----------------------------------------------------|
| 4' DIA                           | 6"                        | 6"                | 22" (> OR EQUAL 24"<br>PIPES)<br>36" (> 24" PIPES) |
| 5' DIA                           | 8"                        | 8"                |                                                    |
| 6' DIA                           | 8"                        | 12"               |                                                    |

### MANHOLE INFORMATION TABLE



### MANHOLE FLOW CHANNEL

### CONCRETE MANHOLE ADAPTER (CMA) DETAIL



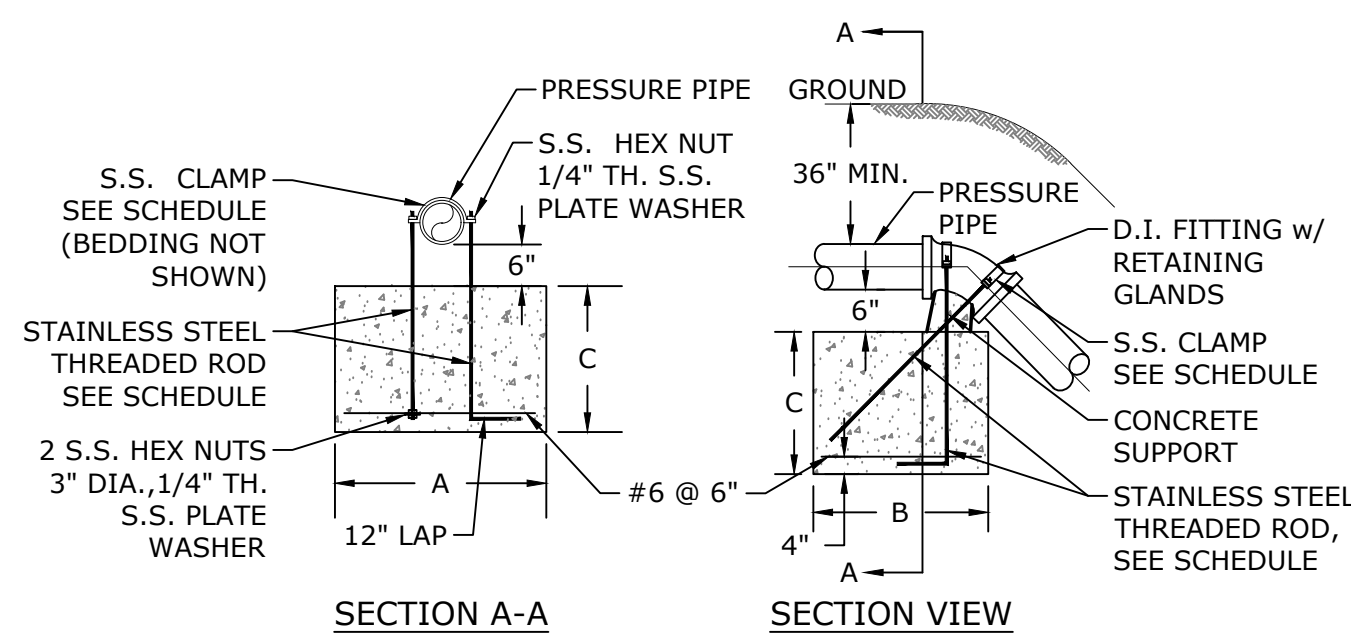
SECTION

S6

## CAST-IN-PLACE MANHOLE

NOT TO SCALE

| VERTICAL BEND THRUST BLOCK SCHEDULE<br>(2000 PSF SOIL, 200 PSI WORKING PRESSURE, 100 PSI SURGE) |                           |           |         |           |           |     |
|-------------------------------------------------------------------------------------------------|---------------------------|-----------|---------|-----------|-----------|-----|
| PIPE SIZE                                                                                       | BEND ANGLE                |           |         | ROD. DIA. | EMBEDMENT |     |
|                                                                                                 | 45°                       | 22-1/2°   | 11 1/4° |           |           |     |
| 2"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 4.8       | 2.5     | 1.2       | 0.50"     | 30" |
|                                                                                                 | A (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | B (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | C (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 1/4" X 2" |         |           |           |     |
| 3"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 10.8      | 5.5     | 2.8       | 0.50"     | 30" |
|                                                                                                 | A (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | B (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | C (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 1/4" X 2" |         |           |           |     |
| 4"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 19.2      | 9.8     | 4.9       | 0.50"     | 30" |
|                                                                                                 | A (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | B (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | C (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 3/8" X 2" |         |           |           |     |
| 6"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 43.3      | 22.1    | 11.1      | 0.75"     | 30" |
|                                                                                                 | A (FT.)                   | 4.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | B (FT.)                   | 3.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | C (FT.)                   | 4.0       | 3.0     | 3.0       |           |     |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 3/8" X 2" |         |           |           |     |
| 12"                                                                                             | VOLUME REQ'D<br>(CU. FT.) | 173.1     | 88.3    | 44.3      | 0.75"     | 30" |
|                                                                                                 | A (FT.)                   | 6.0       | 5.0     | 4.0       |           |     |
|                                                                                                 | B (FT.)                   | 5.0       | 4.0     | 3.0       |           |     |
|                                                                                                 | C (FT.)                   | 6.0       | 5.0     | 4.0       |           |     |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 1/2" X 2" |         |           |           |     |

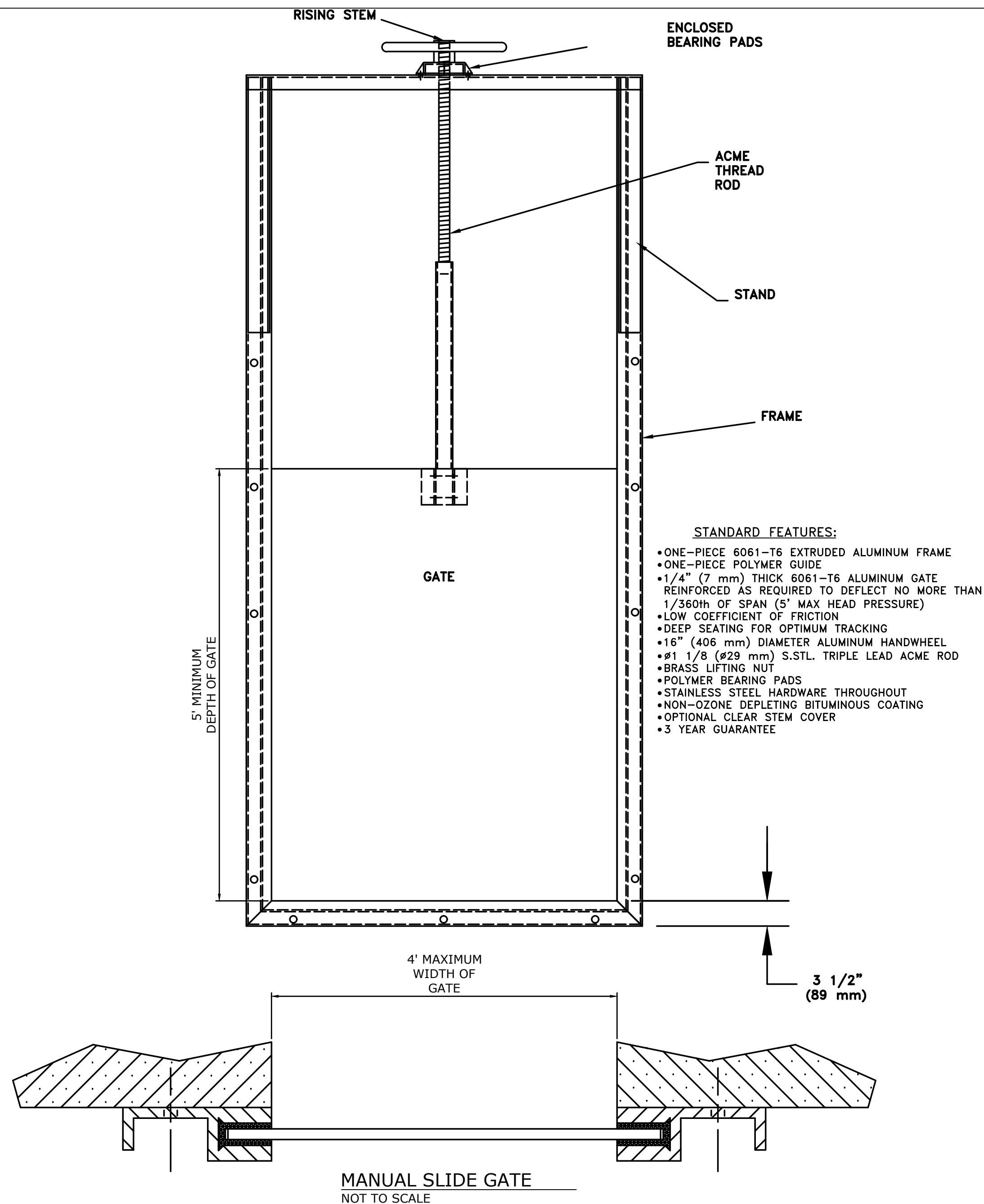


NOTES:

1. ALL DI FITTINGS SHALL BE MECHANICAL JOINT WITH RETAINER GLANDS. BEDDING NOT SHOWN FOR CLARITY.

## VERTICAL TIE DOWN BLOCKING

NOT TO SCALE



## MANUAL SLIDE GATE

NOT TO SCALE

**MCE** McClelland  
Consulting  
Engineers Inc.

1580 E STEARNS ST  
FAYETTEVILLE, ARKANSAS 72703

HTTP://WWW.MCE.US.COM

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02024



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[illegible]

CIVIL DETAILS  
1

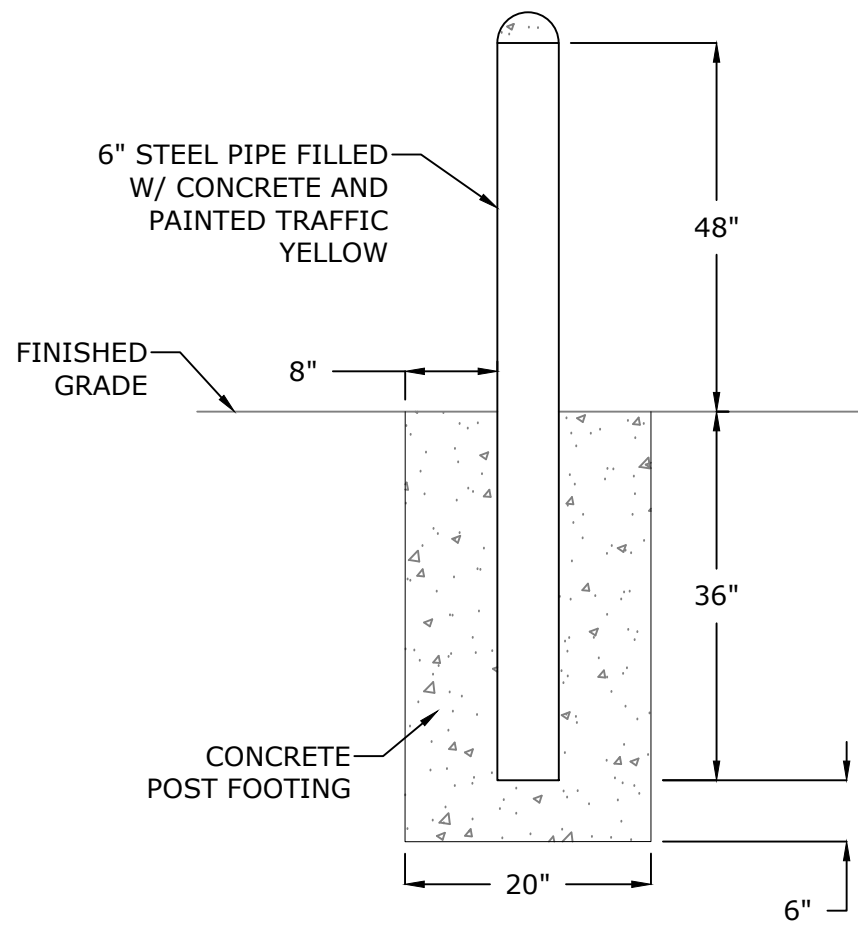
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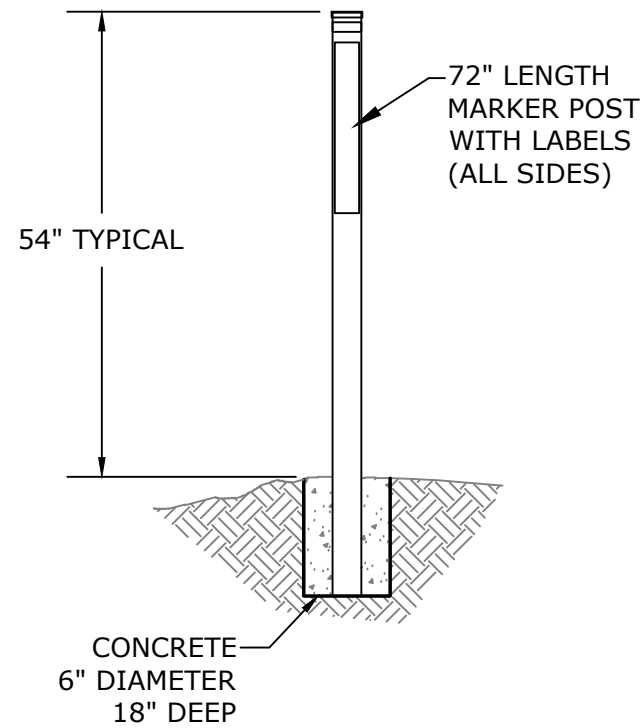
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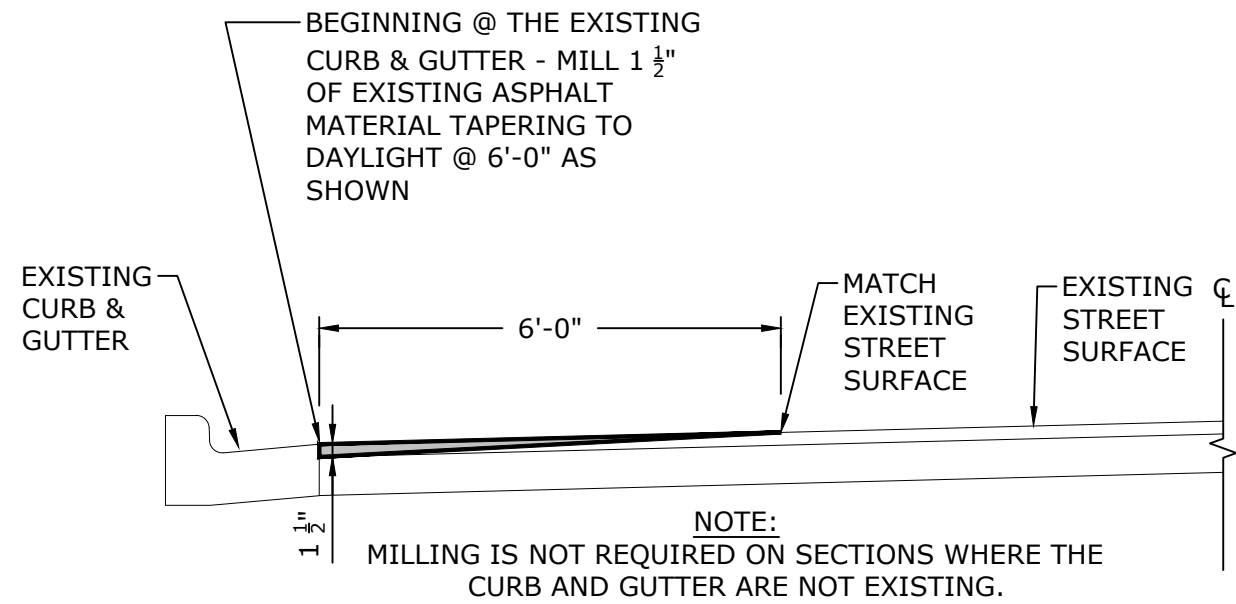


BOLLARD  
NOT TO SCALE

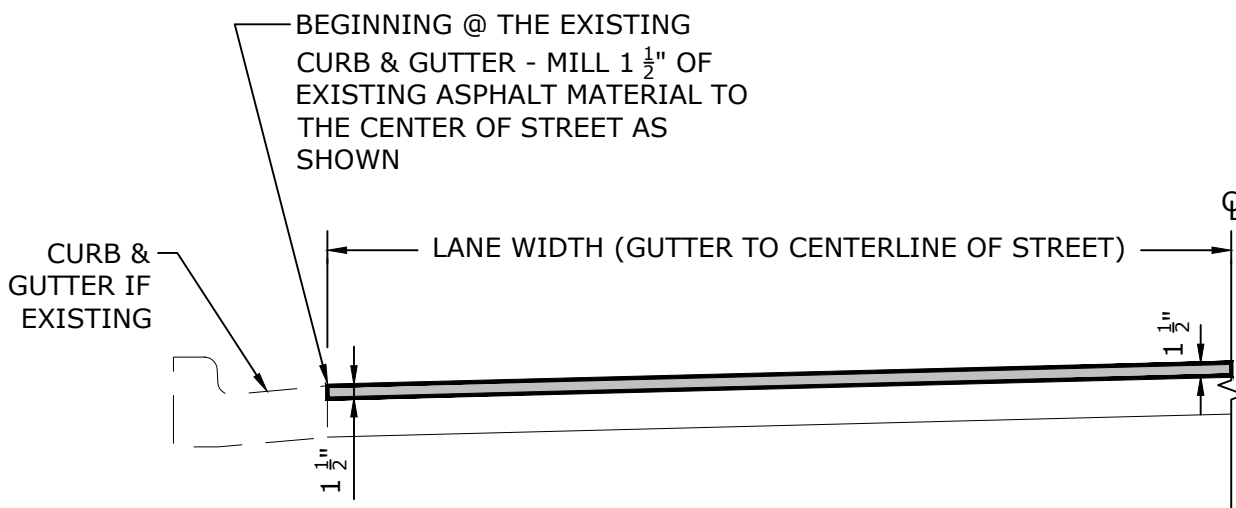


- NOTES:
- SEWER LINE POST SHALL BE TRIVIEW MARKING POST AS MANUFACTURED BY RHINO MARKING AND PROTECTION SYSTEMS, A TRIDENT COMPANY.
  - COLOR SHALL BE GREEN.
  - CONCRETE SHALL BE PLACED 6-INCHES AROUND AND 18-INCHES DEEP AROUND THE BASE OF EACH MARKER.

SEWER MARKER POST  
NOT TO SCALE

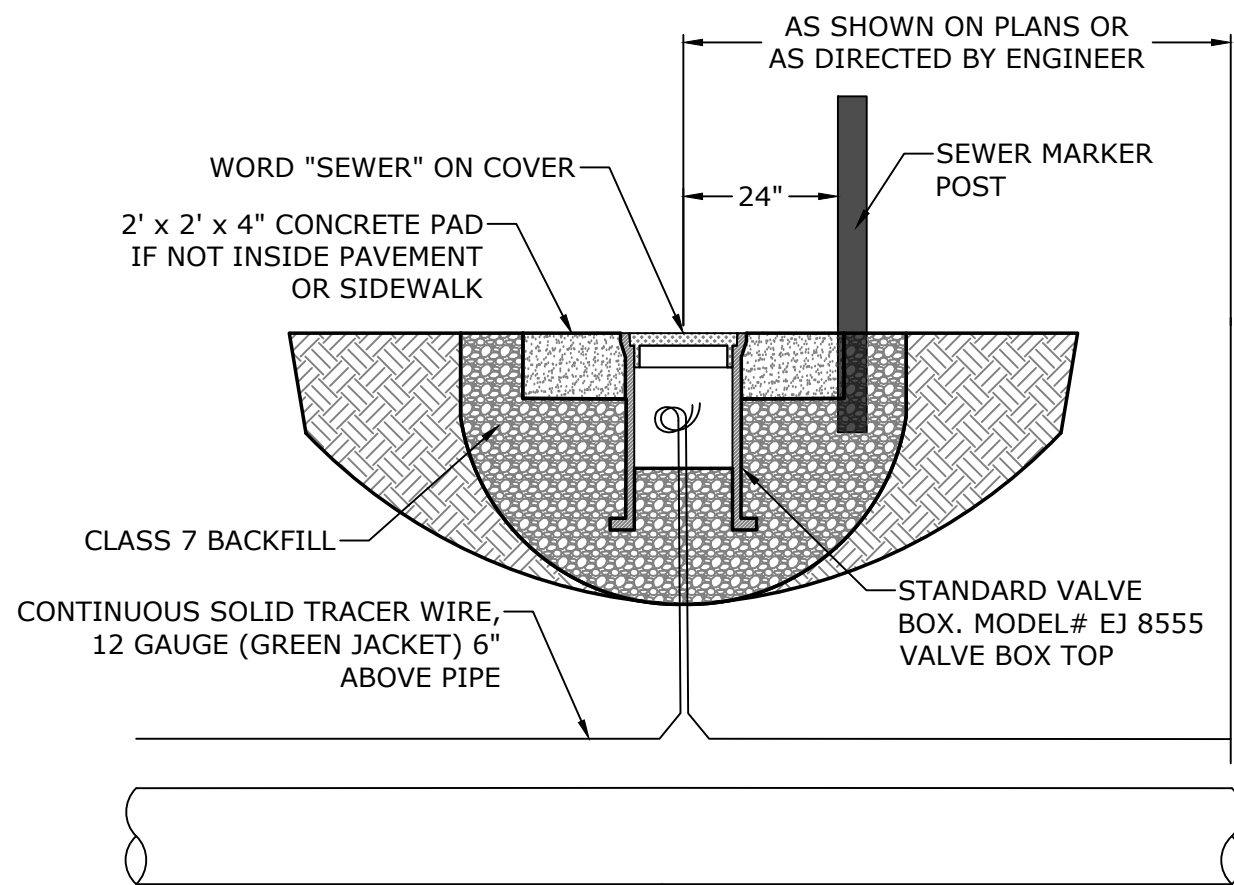


STREET MILLING DETAIL  
FOR EXISTING CURB AND GUTTER  
TWO LANE REPLACEMENT



STREET MILLING DETAIL  
FOR SINGLE LANE REPLACEMENT

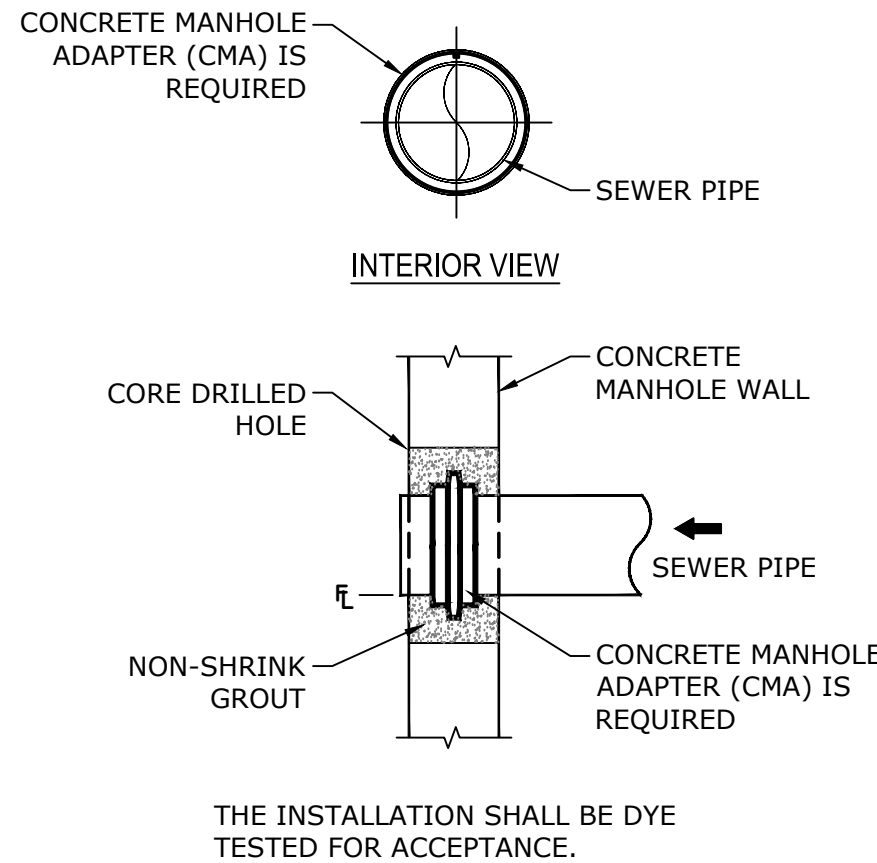
S10 STREET MILLING DETAIL  
NOT TO SCALE



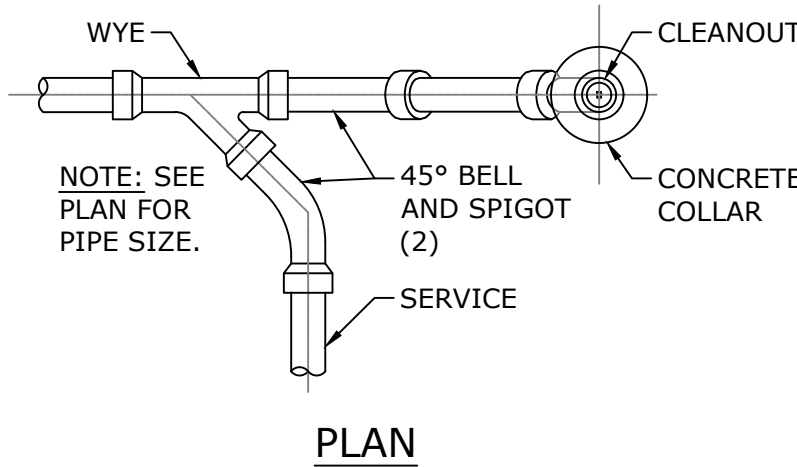
NOTES:

- CONTRACTOR SHALL PROVIDE AN INSTRUMENT AND DEMONSTRATE THE ELECTRICAL CONTINUITY OF ALL TRACER WIRES PRIOR TO THE FINAL ACCEPTANCE BY THE OWNER.

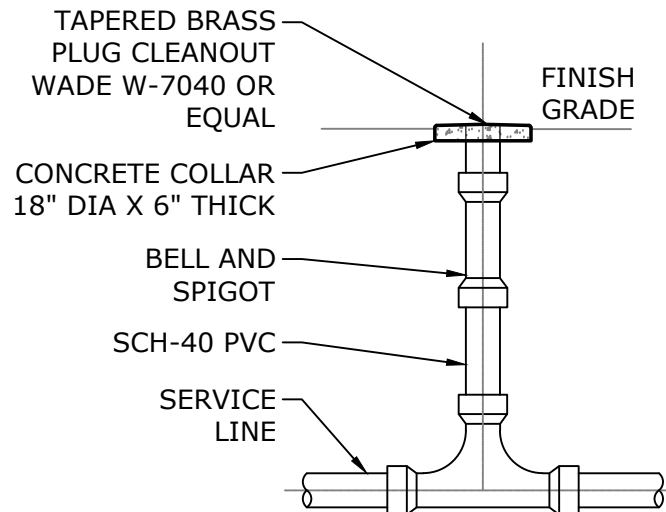
TRACER WIRE ACCESS PORT (T.W.A.P.)  
NOT TO SCALE



S4 MANHOLE CORING DETAIL  
NOT TO SCALE

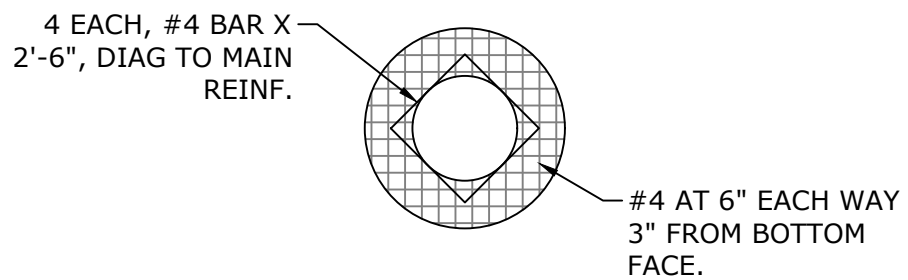


PLAN

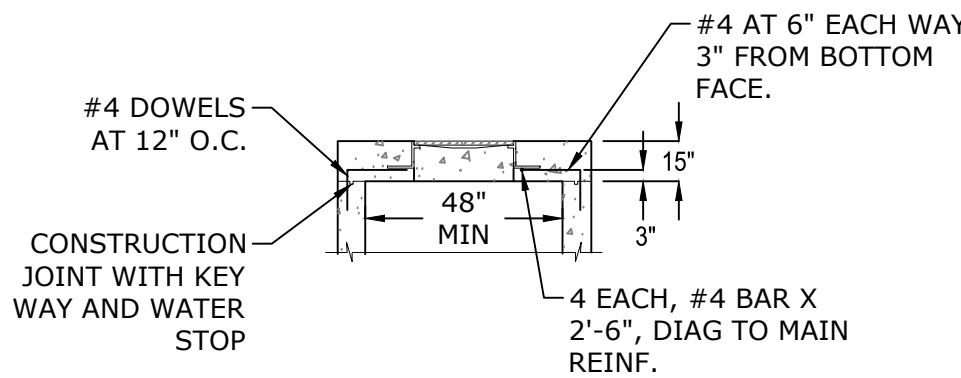


ELEVATION

S7 DOUBLE CLEANOUT DETAIL  
NOT TO SCALE

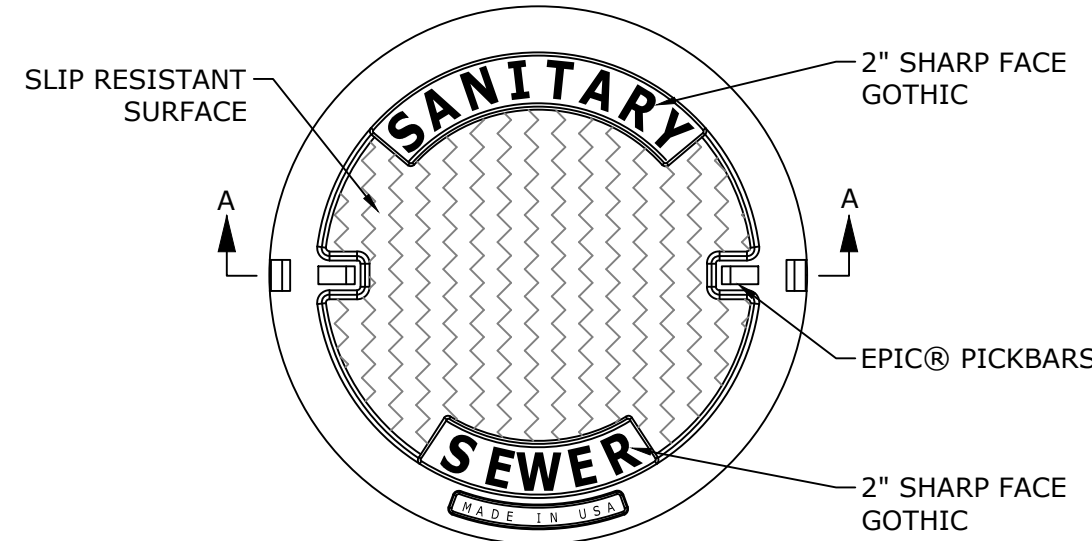


CONCRETE SLAB  
REINFORCEMENT PLAN

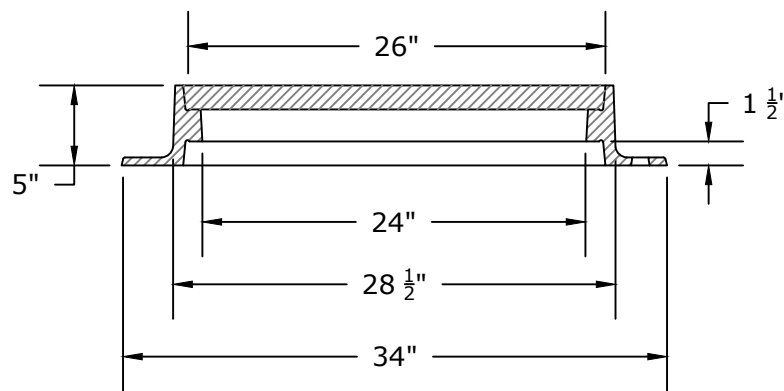


FLAT TOP OPTION

S9 FLAT TOP MANHOLE DETAIL  
NOT TO SCALE



PLAN



SECTION

APPROVED MODELS

FRAME: EJ 00245011 OR DEETER #DF-1156  
COVER: EJ 00104795 OR DEETER #DF-1156

NOTES:

- CASTINGS SHALL BE "MADE IN USA"
- COVERS ARE FURNISHED WITH TWO CLOSED PICK SLOTS
- COVER TO INCLUDE WORDS "SANITARY SEWER"
- FRAME AND COVER SHALL BE THE SAME MANUFACTURER
- MINIMUM WEIGHT OF FRAME: 100 POUNDS
- MINIMUM WEIGHT OF COVER: 110 POUNDS

S2 24" FRAME & COVER  
NOT TO SCALE

PRELIMINARY  
NOT FOR  
CONSTRUCTION

ORIGINAL SIGNATURE ON FILE

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HEADWORKS SCREENING FACILITY  
SILOAM SPRINGS, ARKANSAS



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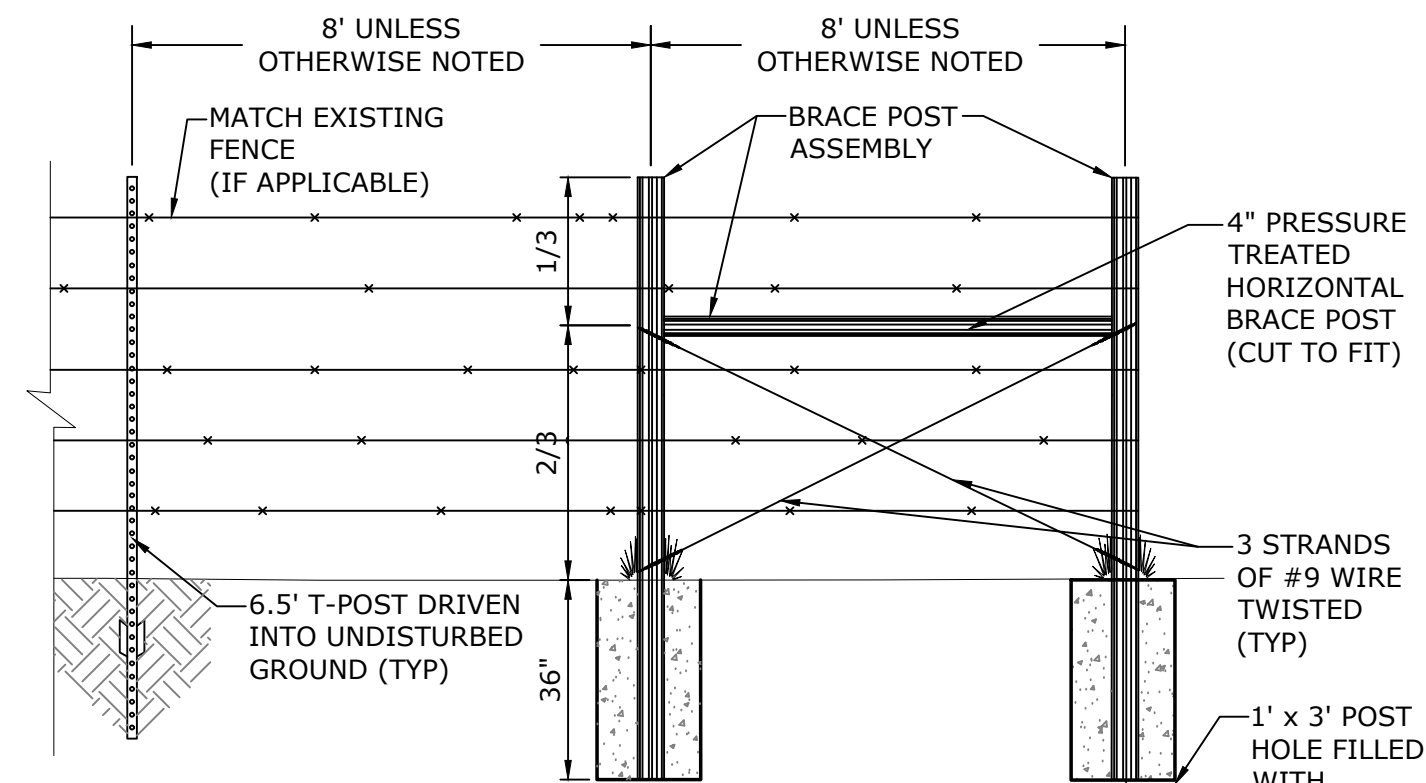
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CIVIL DETAILS  
2

|                          |                        |
|--------------------------|------------------------|
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D2





- 
- FLOW CHANNEL
- CENTERLINES OF PIPES ENTERING AND EXITING MANHOLE ARE REQUIRED TO PASS THROUGH THE CENTER OF THE MANHOLE
- A-LOK OR KOR-N-SEAL BOOT, OR APPROVED EQUAL IS REQUIRED WHERE PIPES PASS THROUGH MANHOLE WALLS. INSTALL PER MANUFACTURERS INSTRUCTIONS
- PROVIDE AS LARGE A CURVE AS POSSIBLE IN THE FLOW CHANNEL

**NOTE:**  
BENCH SHALL SLOPE FROM  
SPRINGLINE OF PIPE TO  
MANHOLE WALL. OUTLET  
CHANNEL SHALL BE FULL  
DEPTH "U" FROM CENTER  
OF MANHOLE TO WALL.

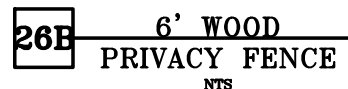
| THRUST BLOCK SCHEDULE                                          |                    |            |      |      |      |                                                        |            |       |       |       |              |               |
|----------------------------------------------------------------|--------------------|------------|------|------|------|--------------------------------------------------------|------------|-------|-------|-------|--------------|---------------|
| (2000 PSF SOIL, 200 PSI WORKING PRESSURE, 100 PSI SURGE)       |                    |            |      |      |      |                                                        |            |       |       |       |              |               |
| BEARING AREA OF THRUST BLOCKS IN SQ. FT.<br>(HORIZONTAL BENDS) |                    |            |      |      |      | VOLUME OF THRUST BLOCK IN CU. FEET<br>(VERTICAL BENDS) |            |       |       |       |              |               |
| FITTING<br>SIZE                                                | PLUG<br>TEE OR CAP | BEND ANGLE |      |      |      | FITTING<br>SIZE                                        | BEND ANGLE |       |       |       | ROD<br>DIAM. | EMBED<br>MENT |
| 2, 3, & 4                                                      | 1.9                | 2.7        | 1.4  | 0.7  | 0.4  | 2, 3, & 4                                              | 35.5       | 19.2  | 9.8   | 4.9   | .50"         | 30"           |
| 6                                                              | 5.6                | 7.9        | 4.3  | 2.2  | 1.1  | 6                                                      | 105.8      | 57.2  | 29.2  | 14.7  | .75"         | 30"           |
| 8                                                              | 9.6                | 13.6       | 7.4  | 3.8  | 1.9  | 8                                                      | 181.9      | 98.5  | 50.2  | 25.2  | .75"         | 30"           |
| 12                                                             | 20.5               | 29.0       | 15.7 | 8.0  | 4.0  | 12                                                     | 387.1      | 209.5 | 106.8 | 53.7  | 1.0"         | 30"           |
| 16                                                             | 35.7               | 50.4       | 27.3 | 13.9 | 7.0  | 16                                                     | 672.6      | 364.0 | 185.6 | 93.2  | 1.0"         | 36"           |
| 18                                                             | 44.8               | 63.4       | 34.3 | 17.5 | 18.8 | 18                                                     | 844.7      | 457.2 | 233.1 | 117.1 | 1.0"         | 36"           |
| 24                                                             | 78.4               | 110.9      | 60.0 | 30.6 | 15.4 | 24                                                     | 1478.7     | 800.3 | 408.0 | 205.0 | 1.5"         | 36"           |

1. CONCRETE FOR THRUST BLOCKS - CLASS A CONCRETE SHALL DEVELOP NOT LESS THAN 3000 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND BE PLACED AGAINST UNDISTURBED SOIL.
2. ALL BENDS, BOTH HORIZONTAL AND VERTICAL, SHALL BE BACKED WITH CONCRETE. VERTICAL BENDS SHALL BE PLACED ON CONCRETE PADS WHERE BENDS TURN UP, OR LOADED WHERE BENDS TURN DOWN.
3. DOUBLE WRAP PIPE JOINTS IN B-VIO ENHANCED POLYETHYLENE ENCASEMENT BEFORE PLACING CONCRETE.
4. BEARING AREA SHOWN IN TABLE, IS BASED UPON A 2000 LB/SF SOIL BEARING, AND UPON A WORKING PRESSURE OF 20 PSI PLUS 100 PSI SURGE. AREAS SHOWN SHALL BE ADJUSTED, SHOULD FIELD CONDITIONS VARY.
5. MJ RESTRAINTS ARE REQUIRED FOR ALL FITTINGS.
6. USE LONG-RADIUS FITTINGS, WHEREVER POSSIBLE.
7. ALL BOLTS FOR FITTINGS SHALL BE 316 STAINLESS STEEL.
8. ALL DUCTILE IRON FITTINGS SHALL BE FUSION-BONDED EPOXY COATED INSIDE AND OUTSIDE IN ACCORDANCE WITH ANSI/AWWA C116/A21.16.
9. UNIT WEIGHT OF CONCRETE FOR VERTICAL THRUST BLOCKS IS 150 LBS/CU. FT.

NOTES:

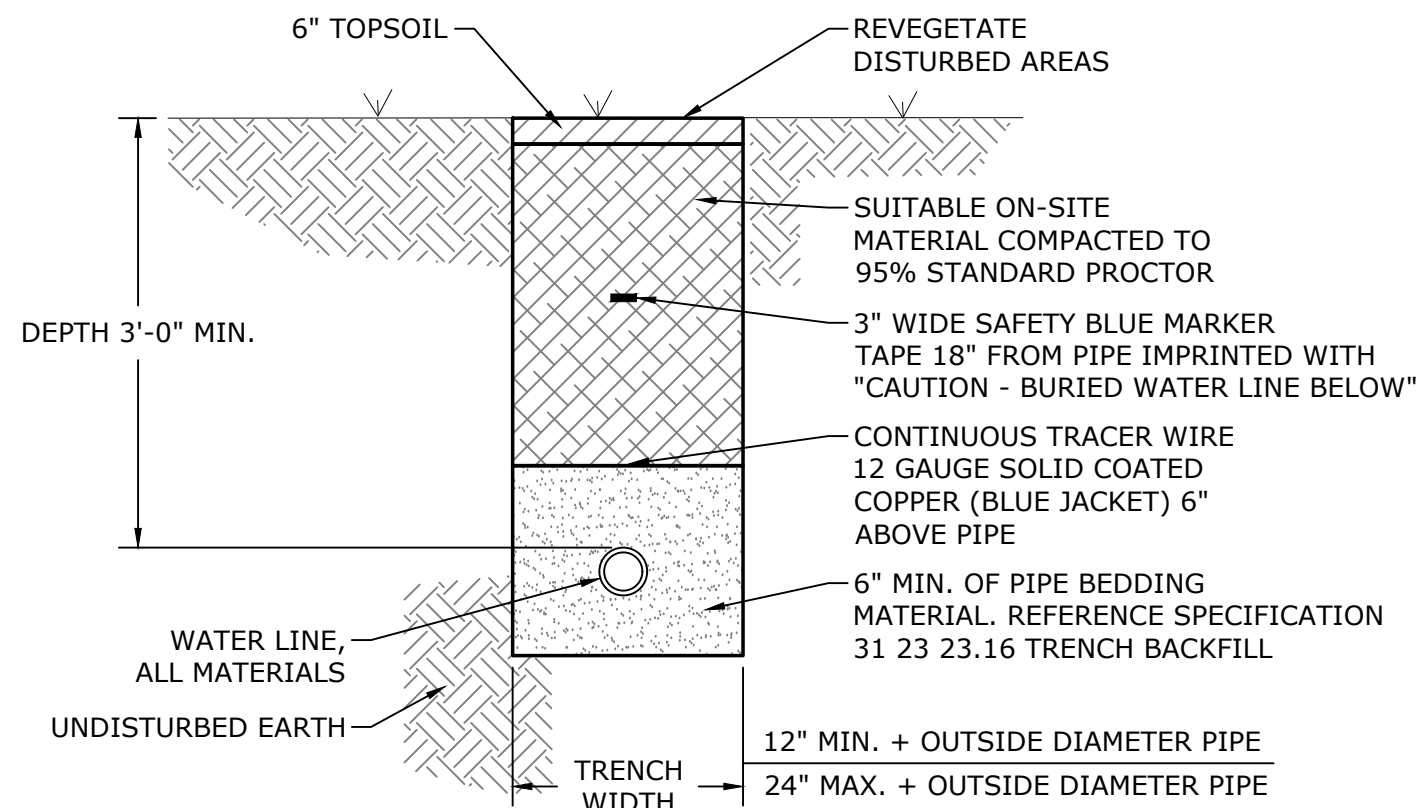
1. CHAIN LINK FABRIC TO BE GALVANIZED AND OF 11 GAUGE WIRE.
2. LINE POSTS SHALL BE 2X6'S, SCH.40 GALVANIZED STEEL. CORNER & GATE POSTS SHALL BE 4"Ø, SCH.40 GALVANIZED STEEL.
3. RAIL & BRACE POSTS SHALL BE 1½"Ø, SCH.10 GALVANIZED STEEL.
4. FENCE DIRECTION AS NOTED ON SITE PLAN, OR AS DIRECTED BY OWNER.

260 10' SECURITY  
CHAIN LINK  
FENCE  
NTS





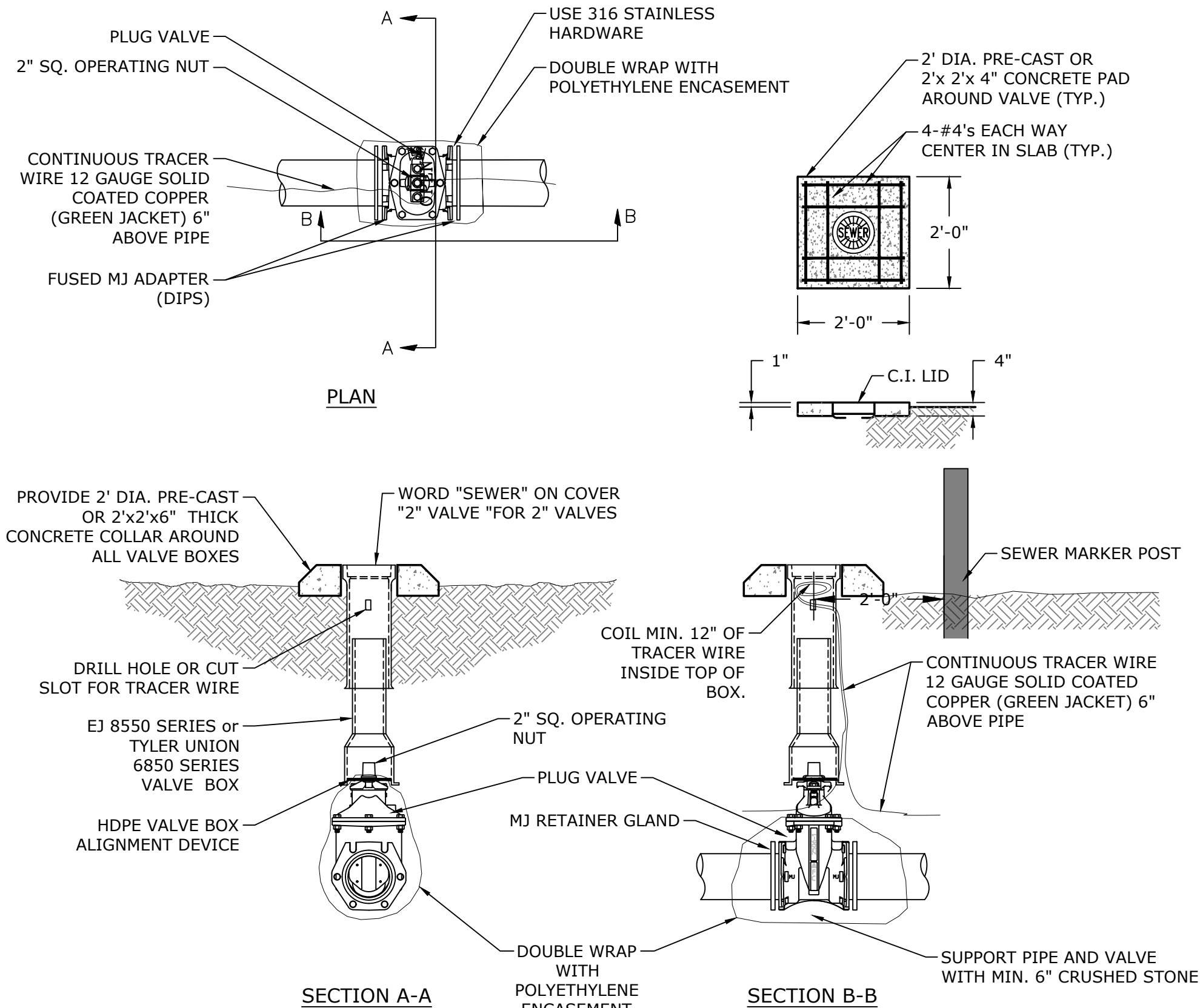
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NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING WATER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE WATER SYSTEM.
2. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
3. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.
4. MAXIMUM PIPE COVER SHALL BE 60" UNDER NORMAL CONDITIONS. COVER GREATER THAN 60" MAY BE ALLOWED FOR SHORT DISTANCES WHERE REQUIRED BY FIELD CONDITIONS. NO HYDRANT SHALL BE ALLOWED WHERE LINES ARE GREATER THAN 60" DEEP.

S23 WATER TRENCH  
NOT TO SCALE

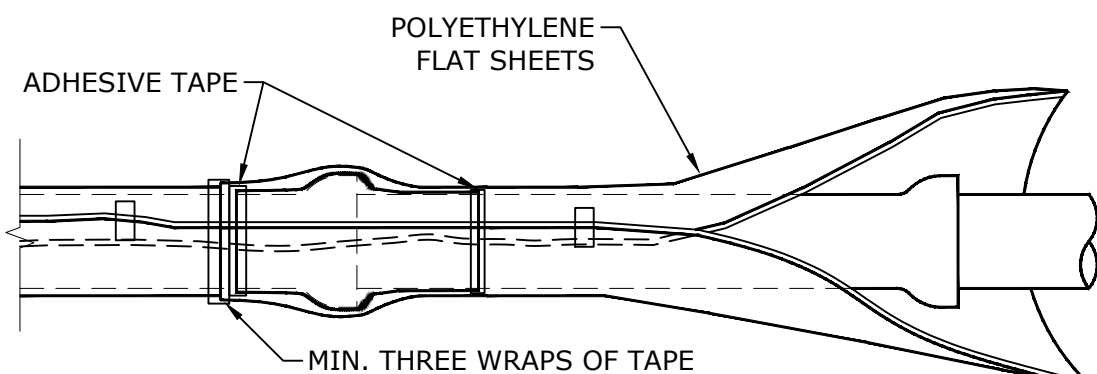
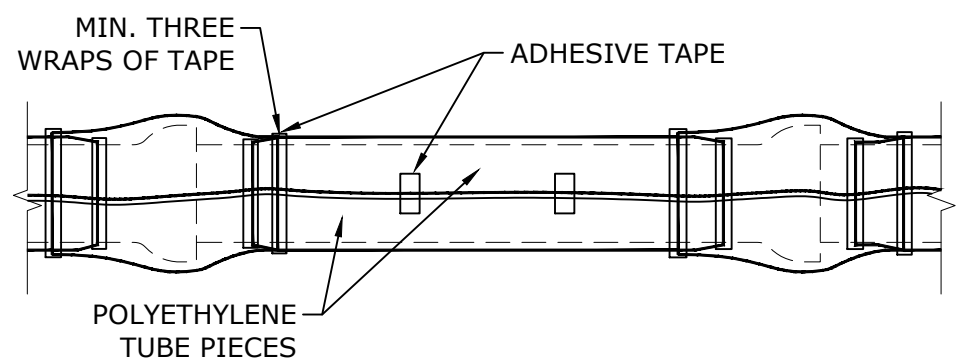
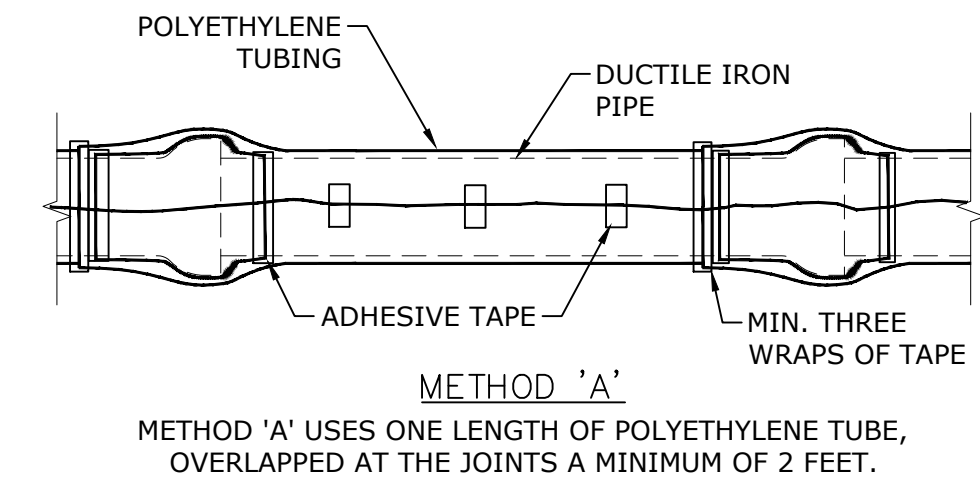


- PLUG VALVE:
1. 100% PORT
  2. AIS COMPLIANT
  3. DUCTILE IRON
  4. MECHANICAL JOINT W/JOINT RESTRAINT
  5. PRODUCTS
    - 5.1. VAL-MATIC CAM-CNETRIC SERIES 5710F/6D02
    - 5.2. OR EQUAL

NOTES:

1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE FITTING.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.
4. CONSTRUCT VALVE MARKER AS REQUIRED.

S21 PLUG VALVE DETAIL  
NOT TO SCALE



ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE DOUBLE POLY WRAPPED.  
THE ANSI/AWWA C105/A21.5 STANDARD OUTLINES THREE (3) METHODS OF INSTALLING POLYETHYLENE ENCASEMENT/SLEEVEING.

POLYETHYLENE PROTECTION MATERIAL  
NOT TO SCALE

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CIVIL DETAILS  
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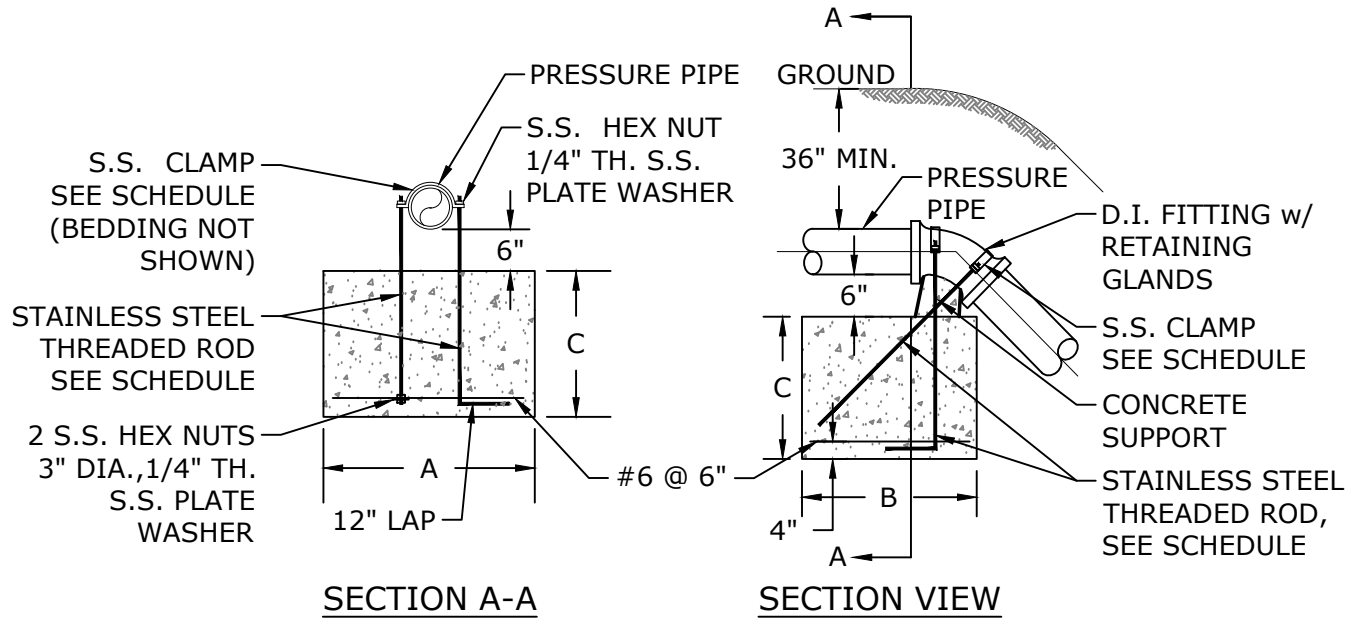
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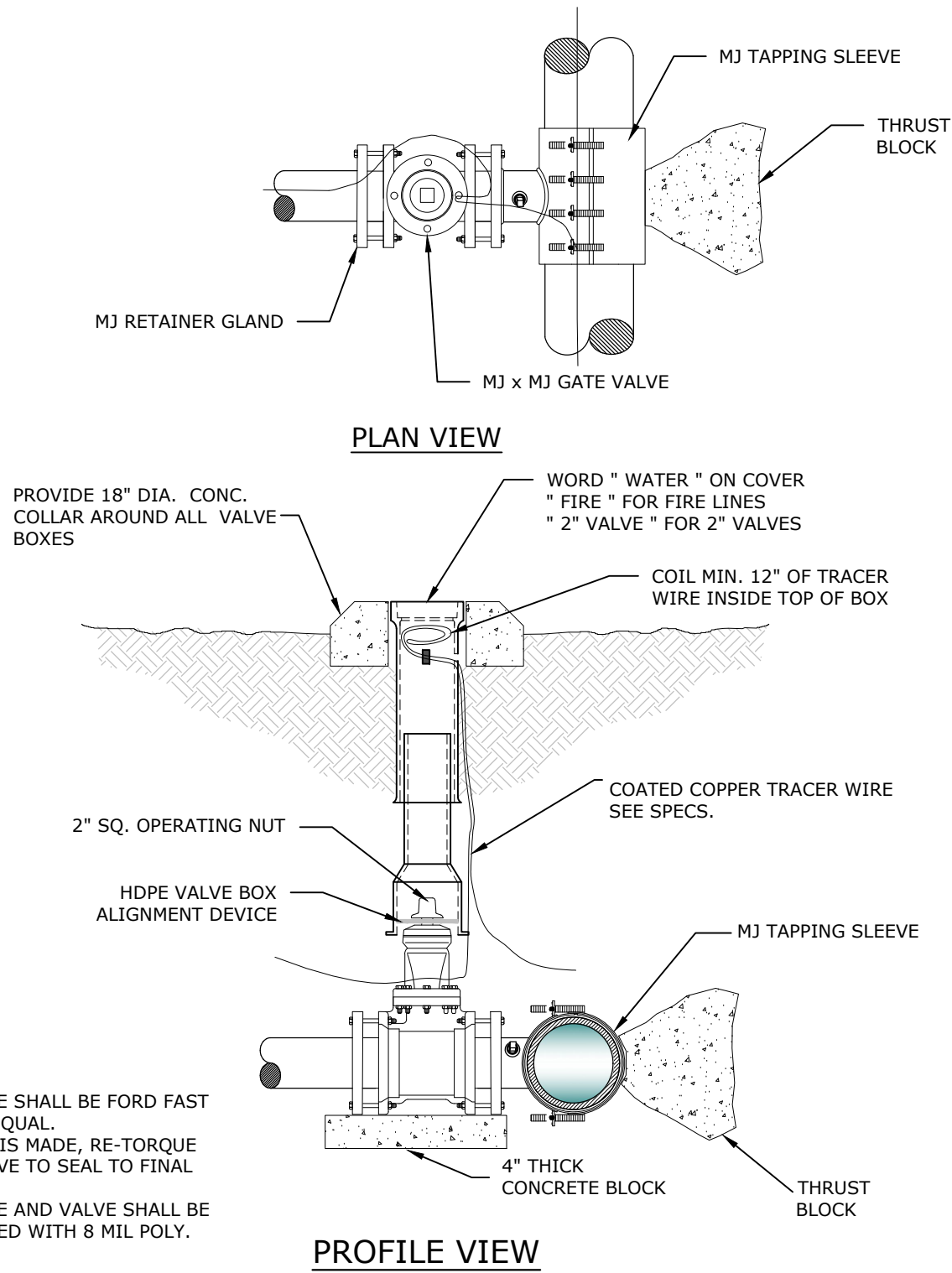
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| VERTICAL BEND THRUST BLOCK SCHEDULE<br>(2000 PSF SOIL, 200 PSI WORKING PRESSURE, 100 PSI SURGE) |                           |            |         |         |           |           |
|-------------------------------------------------------------------------------------------------|---------------------------|------------|---------|---------|-----------|-----------|
| PIPE SIZE                                                                                       |                           | BEND ANGLE |         |         | ROD. DIA. | EMBEDMENT |
|                                                                                                 |                           | 45°        | 22-1/2° | 11 1/4° |           |           |
| 2"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 4.8        | 2.5     | 1.2     | 0.50"     | 30"       |
|                                                                                                 | A (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | B (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | C (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 1/4" X 2"  |         |         |           |           |
| 3"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 10.8       | 5.5     | 2.8     | 0.50"     | 30"       |
|                                                                                                 | A (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | B (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | C (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 1/4" X 2"  |         |         |           |           |
| 4"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 19.2       | 9.8     | 4.9     | 0.50"     | 30"       |
|                                                                                                 | A (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | B (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | C (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 3/8" X 2"  |         |         |           |           |
| 6"                                                                                              | VOLUME REQ'D<br>(CU. FT.) | 43.3       | 22.1    | 11.1    | 0.75"     | 30"       |
|                                                                                                 | A (FT.)                   | 4.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | B (FT.)                   | 3.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | C (FT.)                   | 4.0        | 3.0     | 3.0     |           |           |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 3/8" X 2"  |         |         |           |           |
| 12"                                                                                             | VOLUME REQ'D<br>(CU. FT.) | 173.1      | 88.3    | 44.3    | 0.75"     | 30"       |
|                                                                                                 | A (FT.)                   | 6.0        | 5.0     | 4.0     |           |           |
|                                                                                                 | B (FT.)                   | 5.0        | 4.0     | 3.0     |           |           |
|                                                                                                 | C (FT.)                   | 6.0        | 5.0     | 4.0     |           |           |
|                                                                                                 | MIN CLAMP<br>(2 EA.)      | 1/2" X 2"  |         |         |           |           |

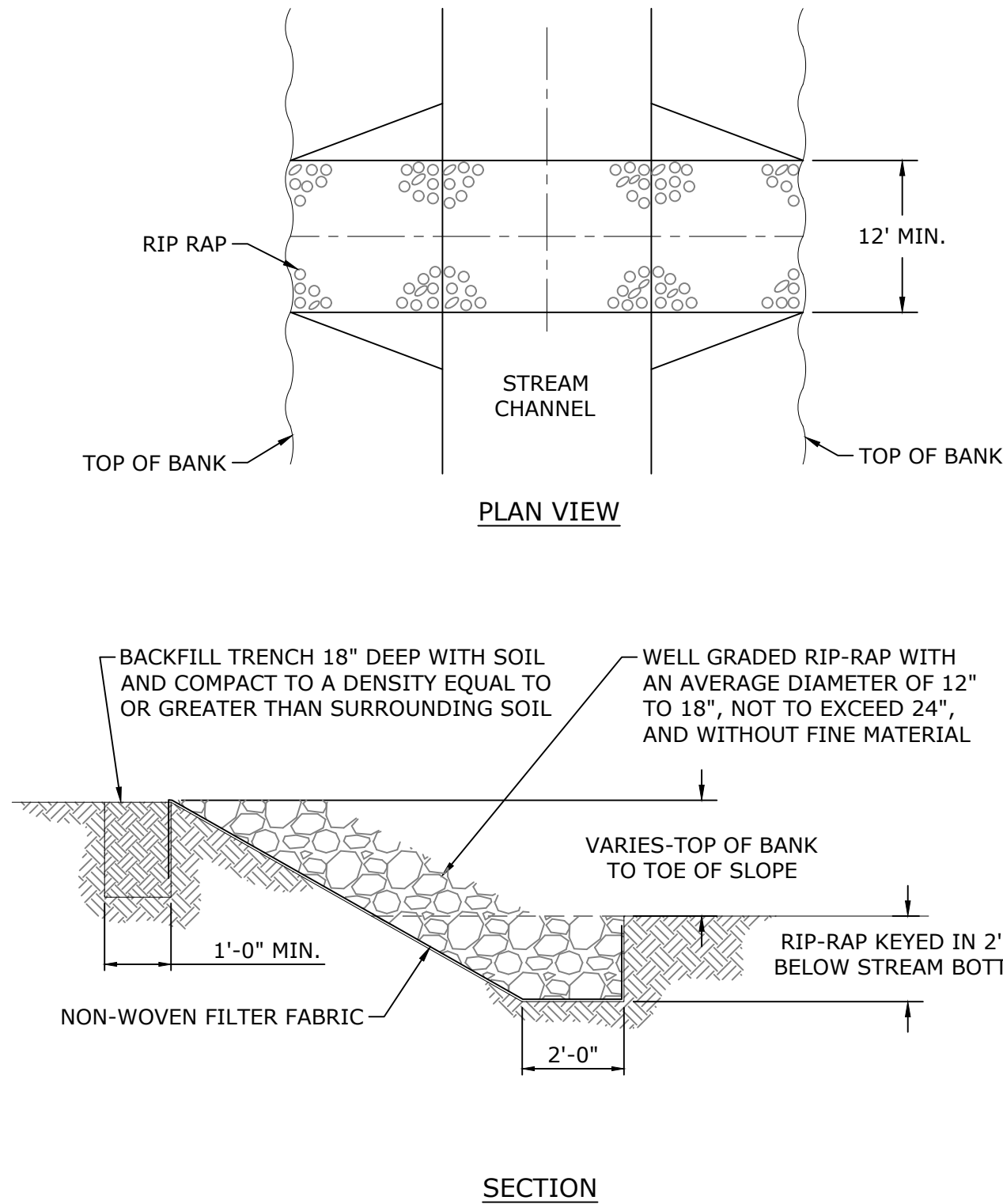


- NOTES:
- ALL DI FITTINGS SHALL BE MECHANICAL JOINT WITH RETAINER GLANDS. BEDDING NOT SHOWN FOR CLARITY.

**VERTICAL TIE DOWN BLOCKING**  
NOT TO SCALE



**TAPPING SLEEVE AND VALVE**



- NOTE:
- ALL DISTURBED STREAMBANKS SHALL BE STABILIZED AS SHOWN AND RESTORED TO PRE-CONSTRUCTION GRADES.
  - MINIMUM WIDTH OF RESTORATION SHALL BE 12 FEET.
  - RIPRAP REQUIRES ADDITIONAL PROJECT SPECIFIC APPROVAL.

**S27 BANK STABILIZATION**  
NOT TO SCALE

PRELIMINARY  
NOT FOR  
CONSTRUCTION

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SILOAM SPRINGS, ARKANSAS



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CIVIL DETAILS  
5

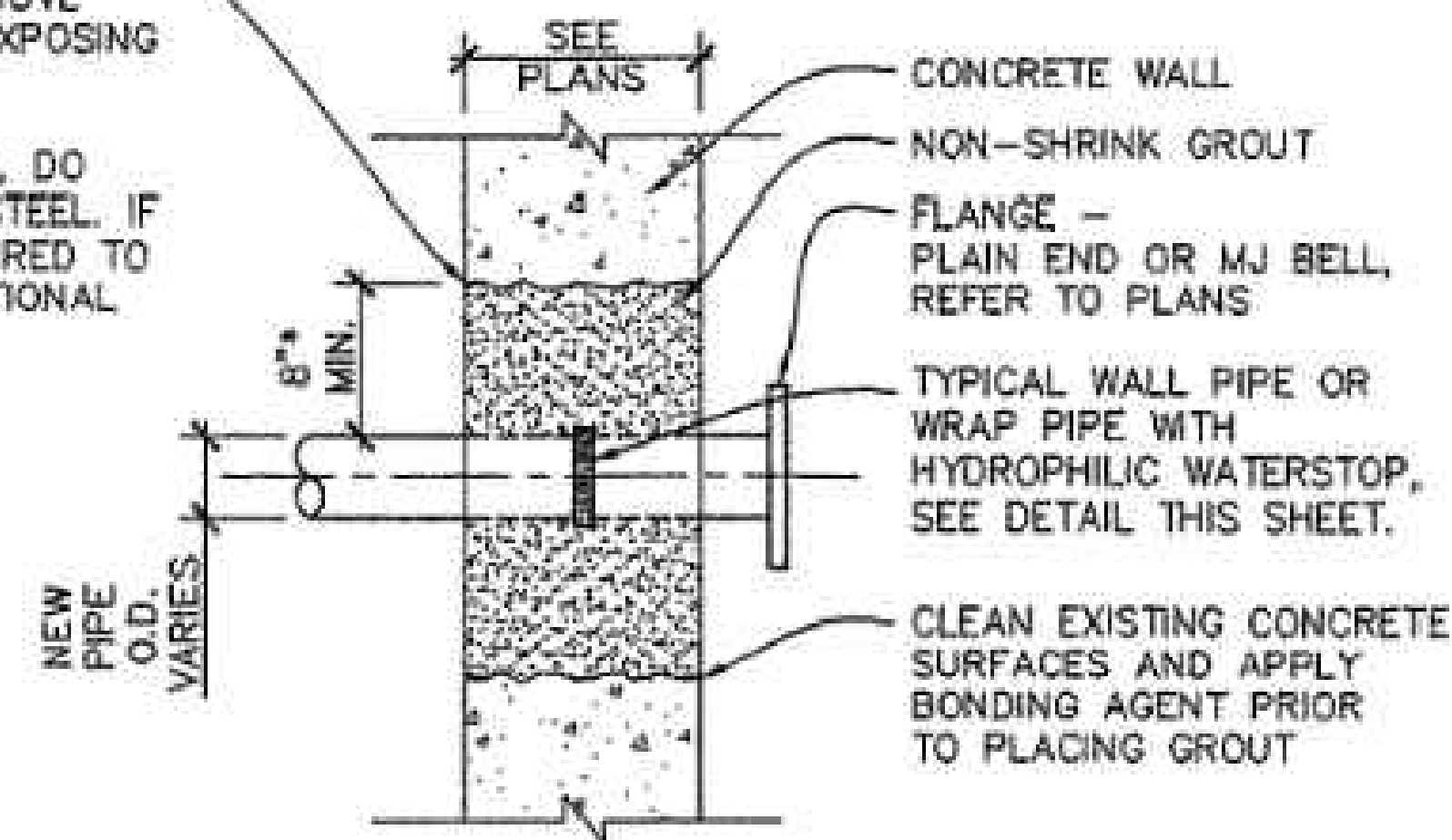
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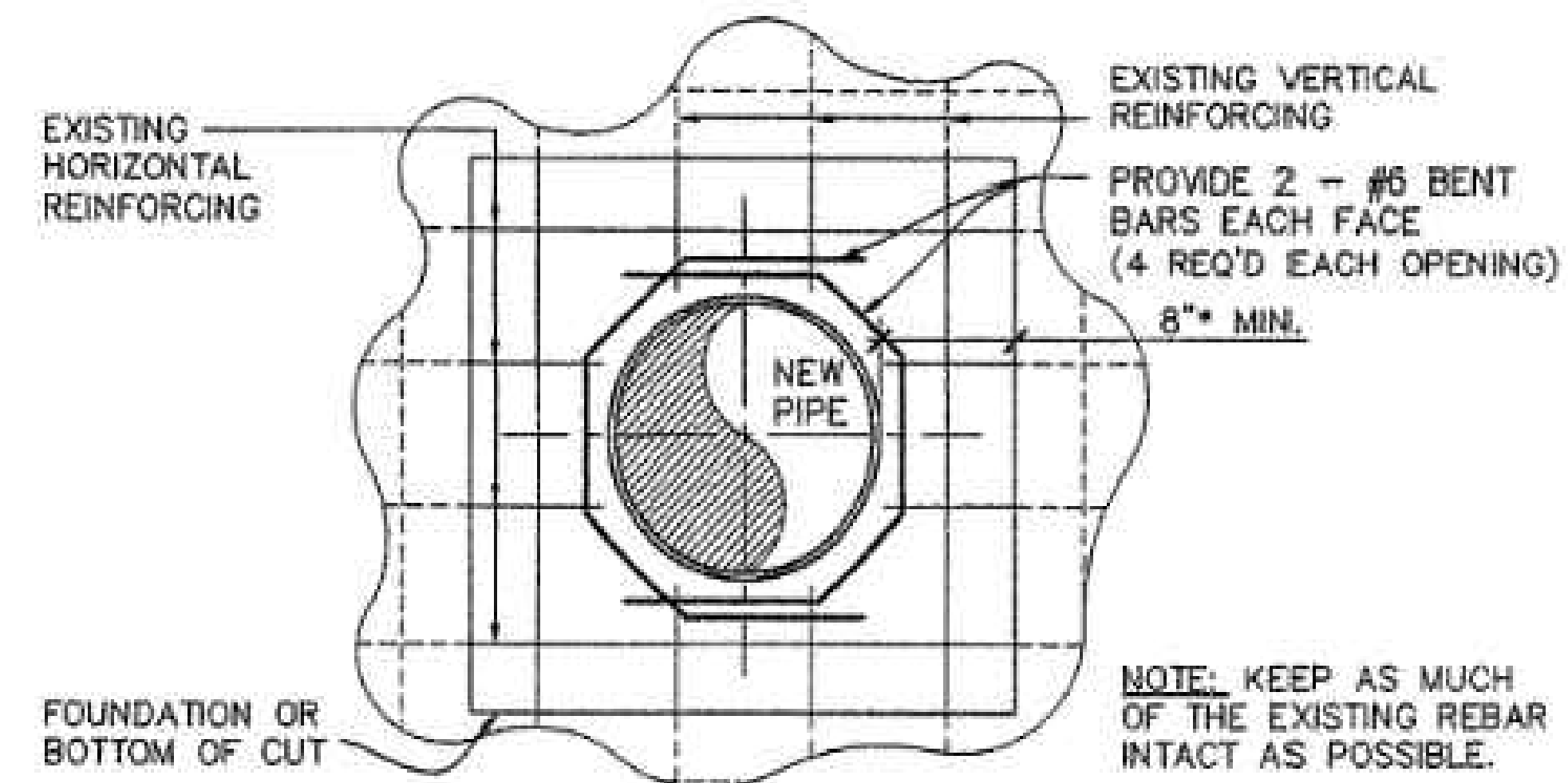
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SAW-CUT 1" DEEP ON BOTH FACES OF WALL AT PIPE PENETRATION LOCATION. REMOVE REMAINDER OF CONCRETE, EXPOSING REINFORCING STEEL. IF PIPE DIAMETER IS SMALLER THAN REINFORCING STEEL SPACING, DO NOT DISTURB REINFORCING STEEL. IF REINFORCING STEEL IS REQUIRED TO BE REMOVED, PROVIDE ADDITIONAL REINFORCING AS SHOWN.



\* DISTANCE MAY BE REDUCED, AS APPROVED BY THE ENGINEER, FOR PIPE SMALLER THAN REBAR SPACING

### SECTION

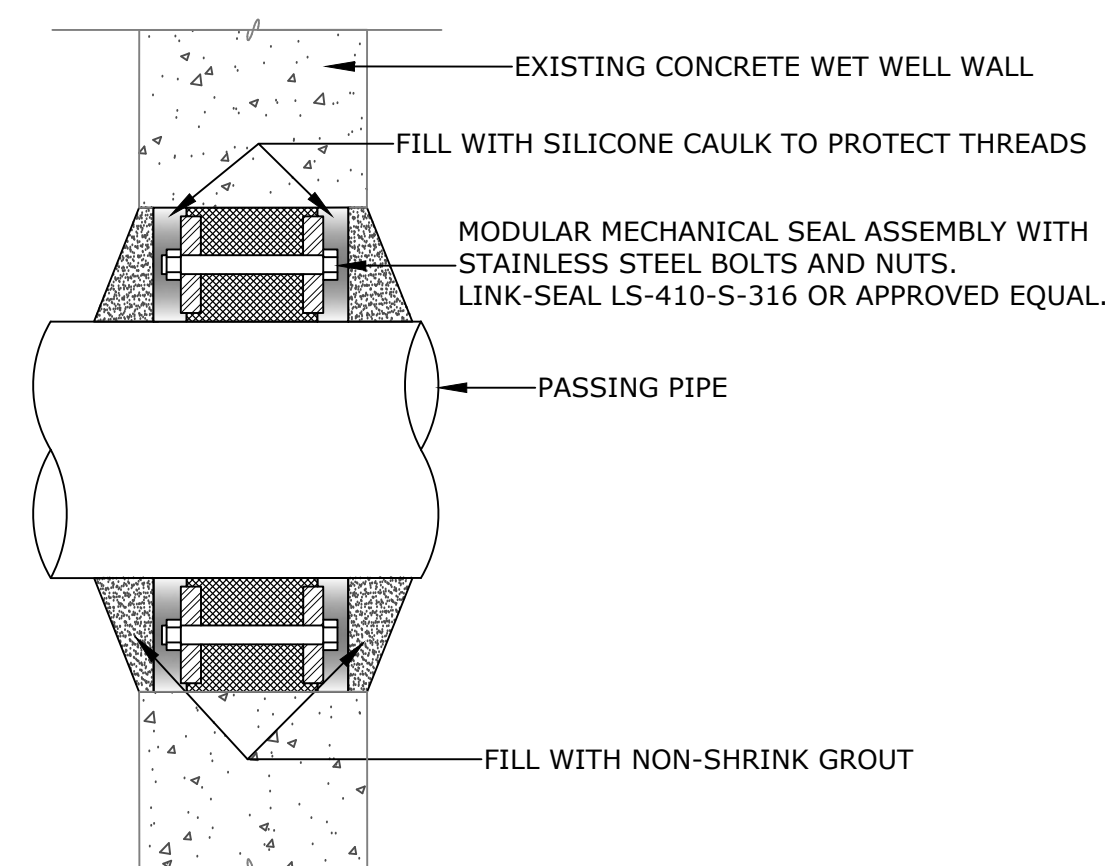


\* DISTANCE MAY BE REDUCED FOR PIPE SMALLER THAN REBAR SPACING

### ELEVATION

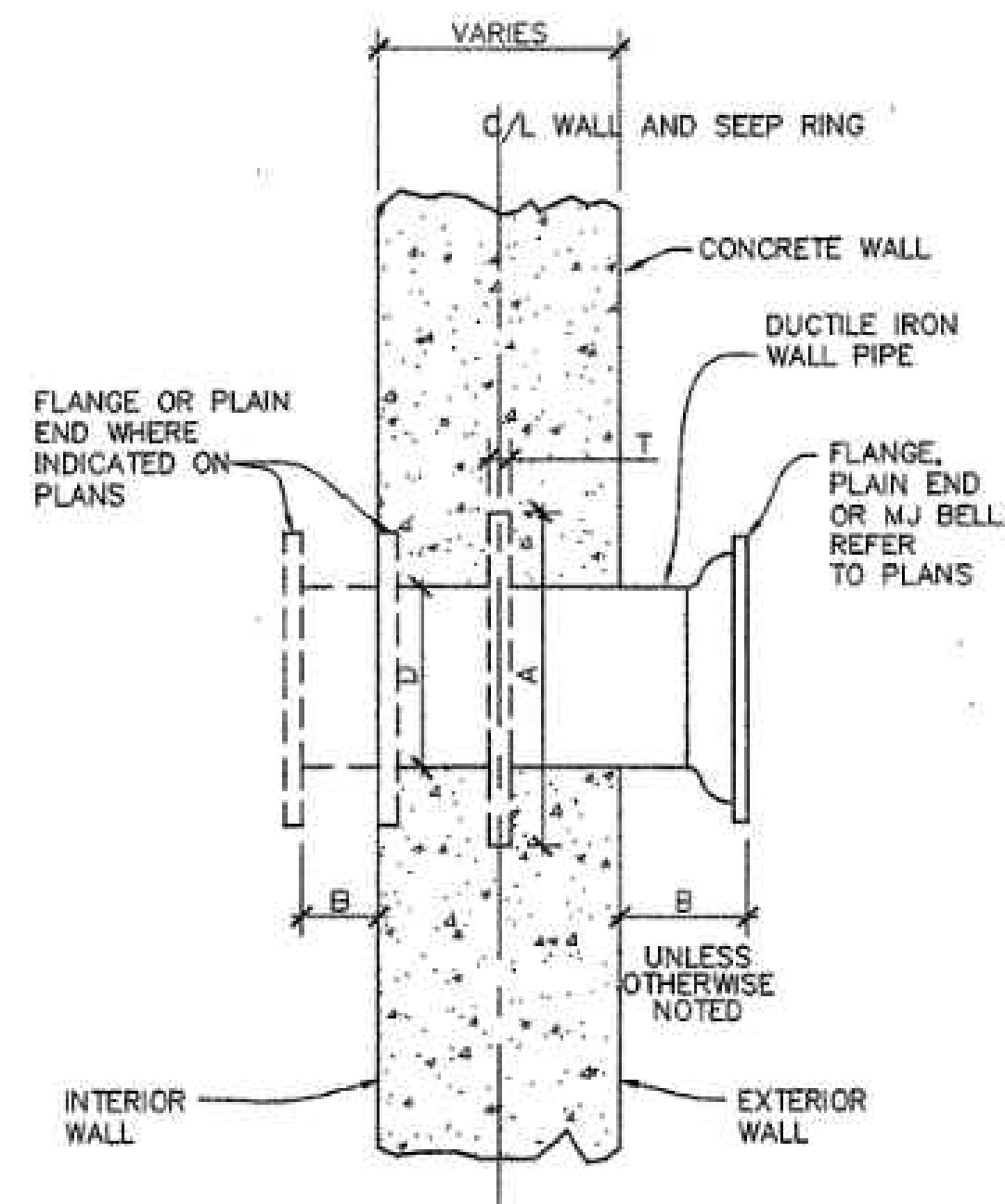
## C - TYPICAL EXISTING WALL

NOTE: FOR USE WHERE NEW PIPING IS PROPOSED TO PENETRATE AN EXISTING REINFORCED CONCRETE TANK WALL.



NOTE:

EXISTING CONCRETE WET WELL WALL SHALL BE CORE DRILLED AT THE DIAMETER SPECIFIED BY MODULAR MECHANICAL SEAL ASSEMBLY MANUFACTURER. SEAL SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS TO PRODUCE A MECHANICALLY-SOUND, WATER-TIGHT JOINT.



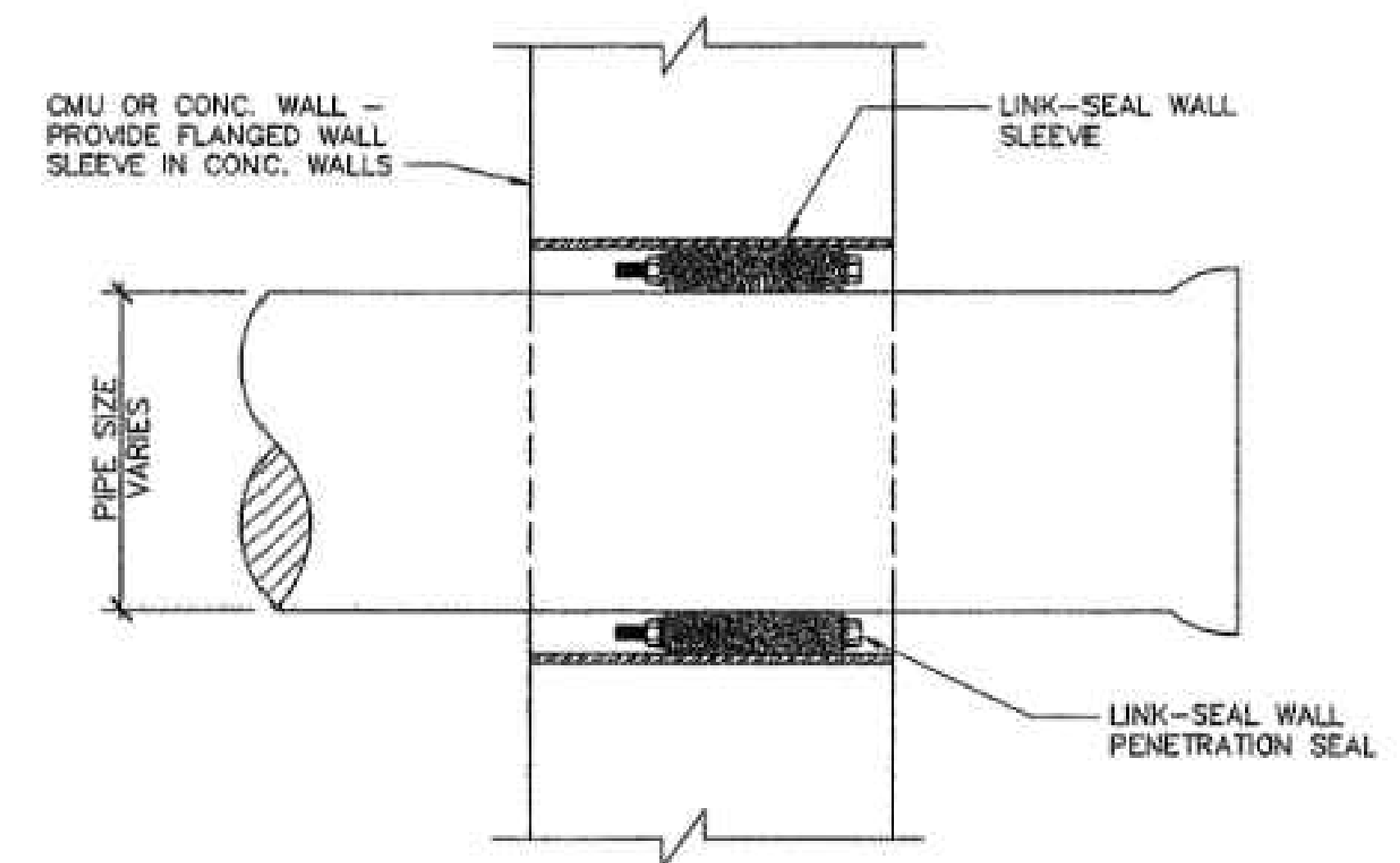
| PIPE SIZE D (IN) | DIM A (MIN) (IN) | DIM B (MIN) (IN) | DIM T (MIN) (IN) |
|------------------|------------------|------------------|------------------|
| 4                | 6.80             | 6                | .25              |
| 6                | 8.90             | 8                | .25              |
| 8                | 11.05            | 9                | .25              |
| 10               | 13.10            | 9                | .25              |
| 12               | 15.20            | 9                | .25              |
| 14               | 17.30            | 9                | .25              |
| 16               | 19.40            | 9                | .25              |
| 18               | 22.50            | 9                | .38              |
| 20               | 24.60            | 9                | .38              |
| 24               | 28.80            | 12               | .38              |
| 30               | 36.00            | 12               | .50              |
| 36               | 42.30            | 12               | .50              |
| 42               | 50.75            | 12               | .75              |
| 48               | 57.05            | 12               | .75              |
| 54               | 66.06            | 15               | 1.00             |
| 60               | 70.11            | 15               | 1.00             |
| 64               | 74.17            | 15               | 1.00             |

### DETAIL

### TABLE

## A - TYPICAL WALL PIPE

NOTE: FOR USE WHERE NEW PIPING PENETRATES NEW WALLS, OR AS CALLED OUT ON THE PLANS.



7

## WALL PENETRATION DETAIL - LINK SEAL

NOT TO SCALE

D27 WALL PENETRATION SEAL  
NOT TO SCALE

PRELIMINARY  
NOT FOR  
CONSTRUCTION

ORIGINAL SIGNATURE ON FILE

SILOAM SPRINGS WWTP  
HEADWORKS SCREENING FACILITY  
SILOAM SPRINGS, ARKANSAS

**811**  
Know what's below.  
Call before you dig.

| REVISIONS |      | DESCRIPTION |
|-----------|------|-------------|
| REV       | DATE |             |
|           |      |             |
|           |      |             |
|           |      |             |
|           |      |             |

CIVIL DETAILS  
5

DESIGNED BY: SB/OM/DP  
DATE: 9/19/2024  
SCALE: AS NOTED  
DRAWN BY: ZSL  
REVISION: 30%  
JOB NUMBER: 22-2156

D6

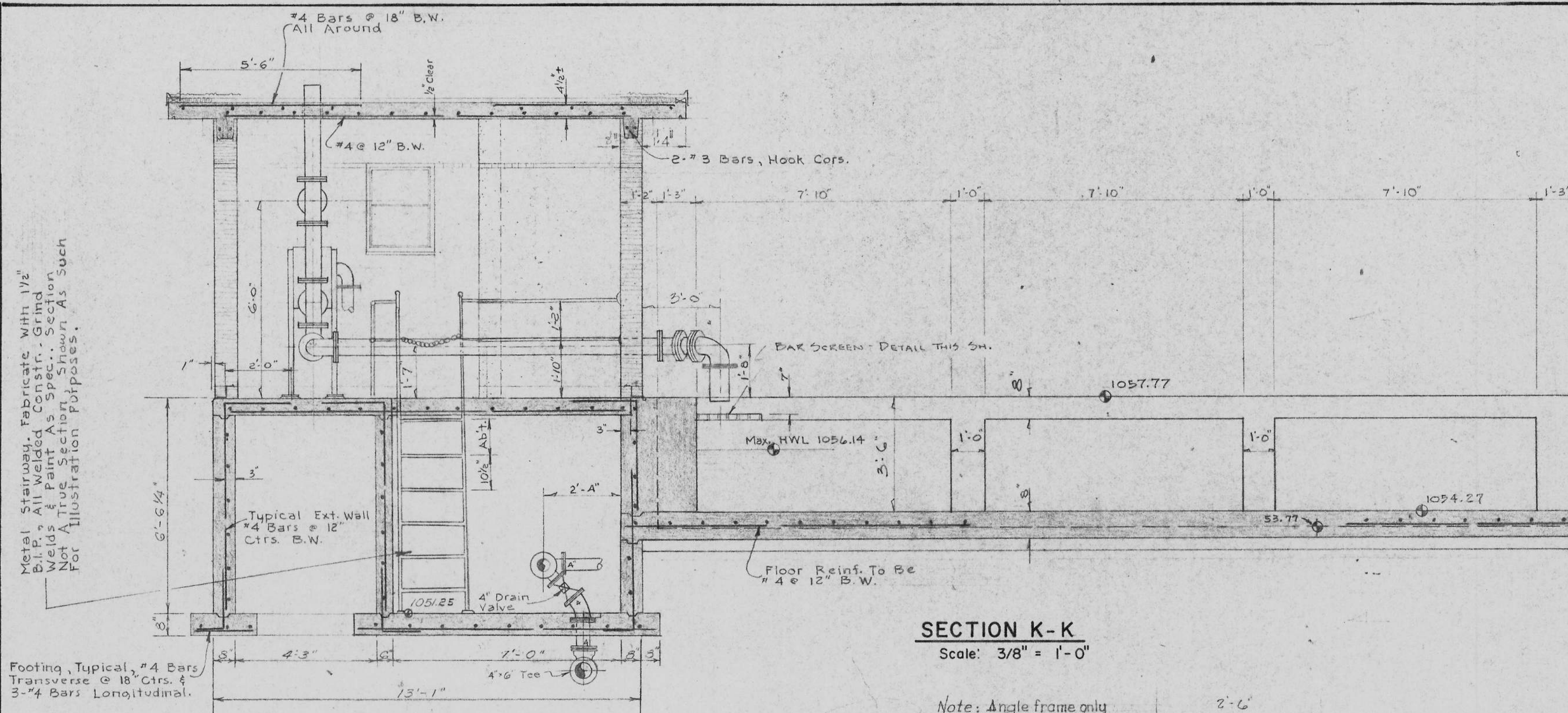
## Attachment F

### Siloam Springs 1968 WWTP Expansion Grit Record Drawings

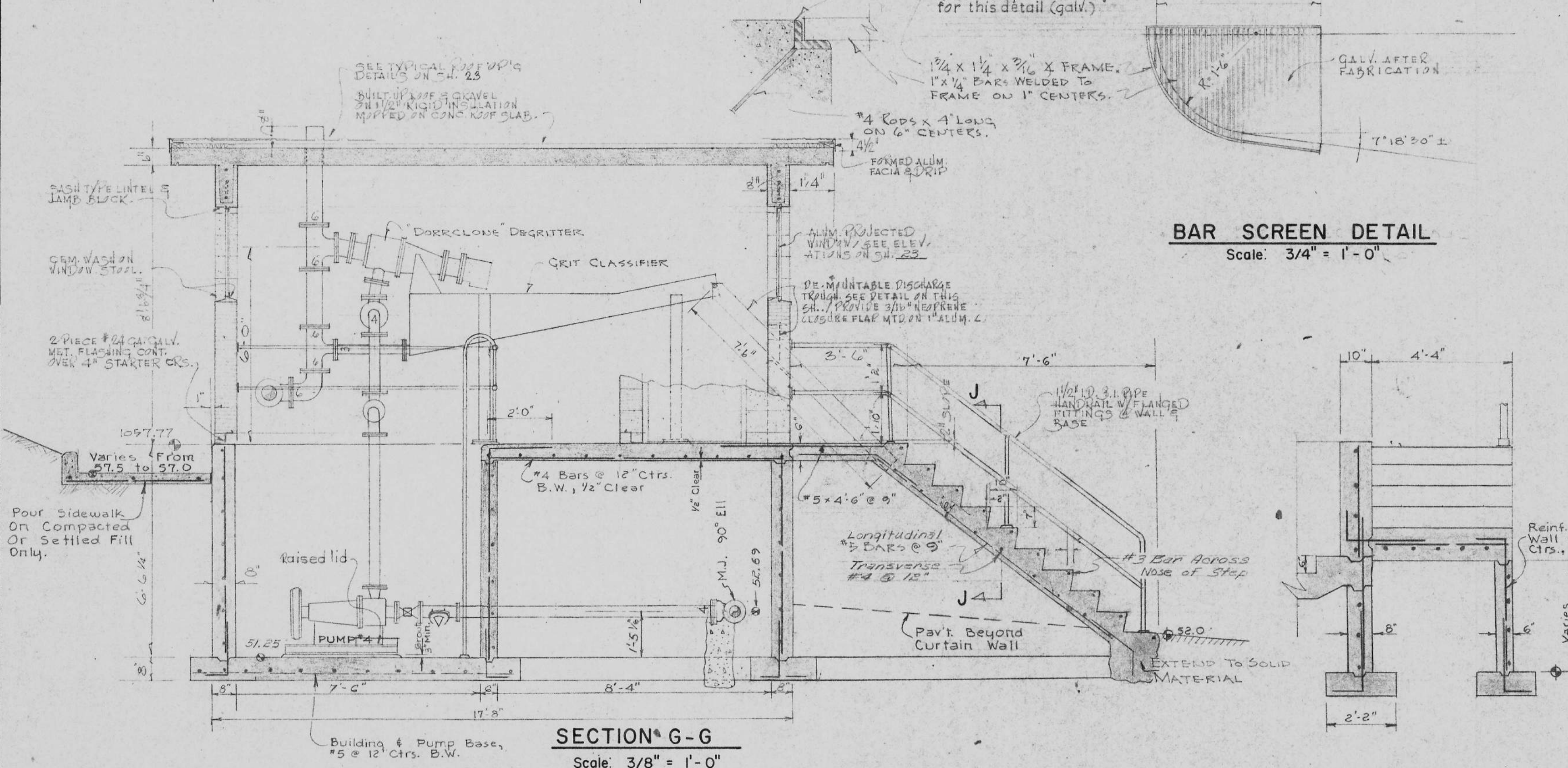
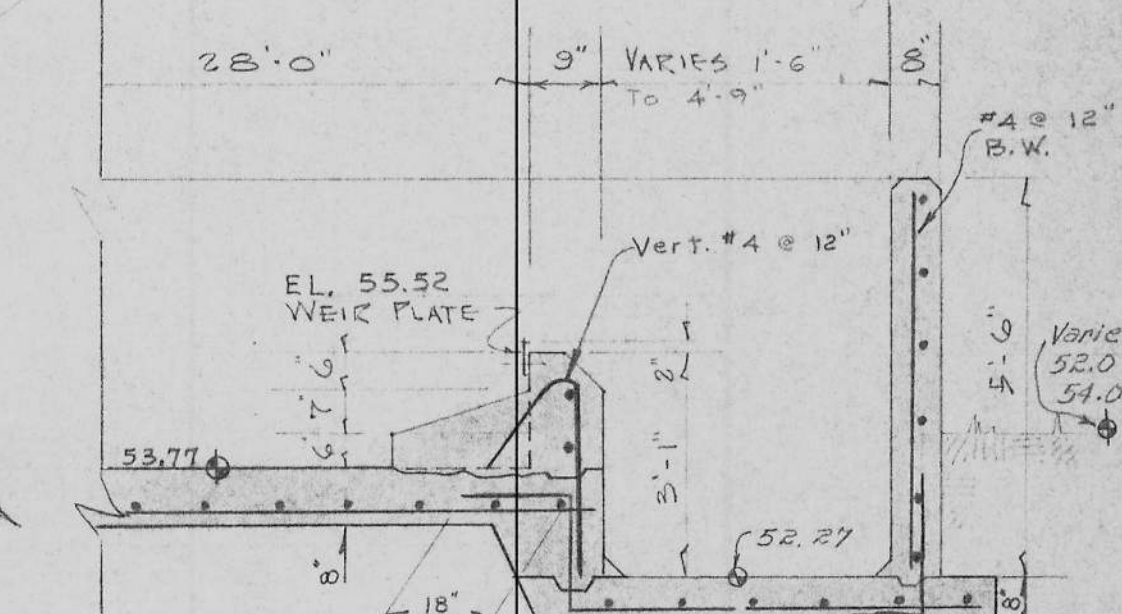
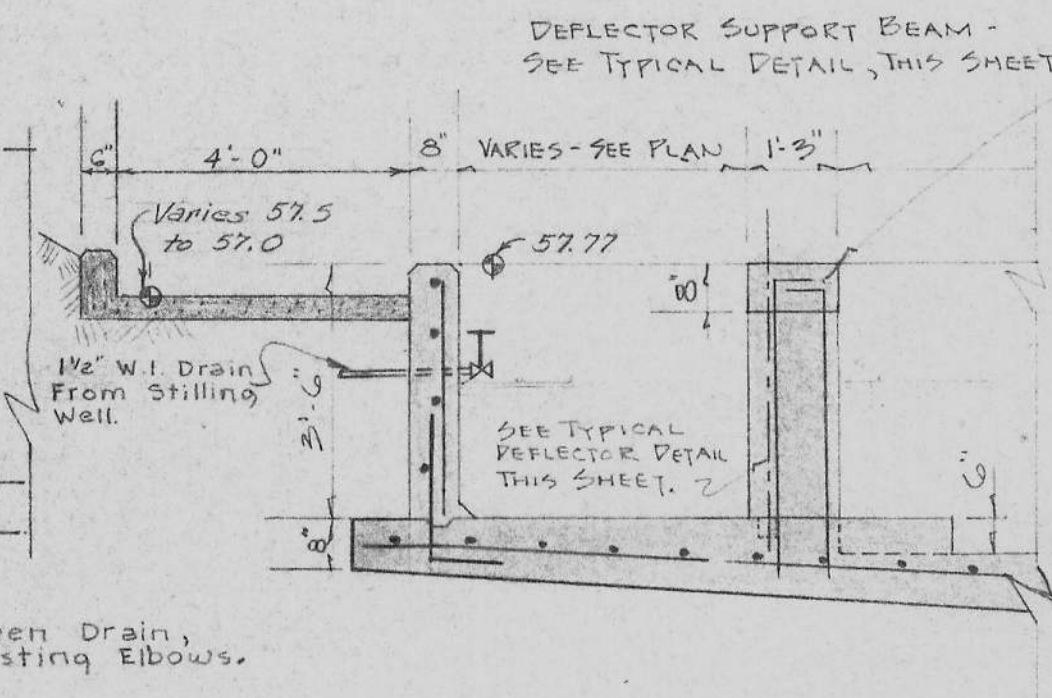








This Stop Plank & Frame Salvaged From Existing Grit Chamber

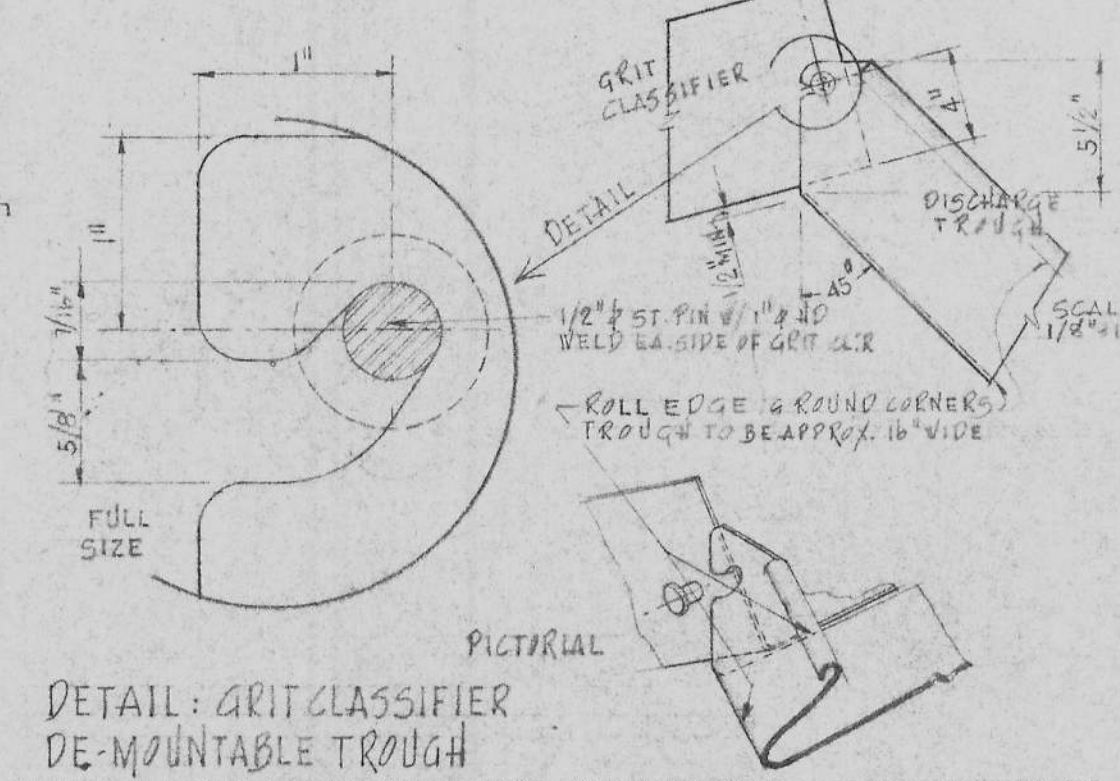


**BAR SCREEN DETAIL**  
Scale: 3/4" = 1'-0"

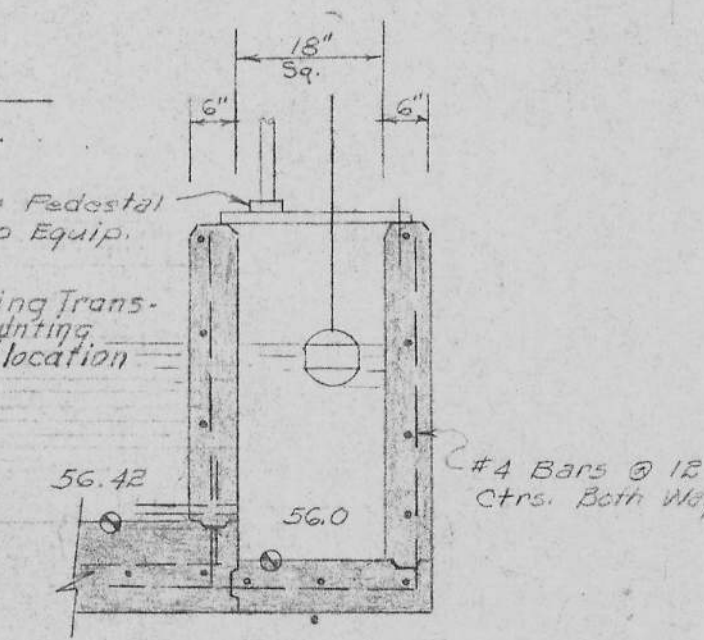
**TYPICAL DETAIL DEFLECTOR SETTING**  
Scale: 3/4" = 1'-0"

**TYPICAL DETAIL - DEFLECTOR SUPPORT**  
Scale: 3/4" = 1'-0"

**SECTION J-J**  
Scale: 1/2" = 1'-0"



**SECTION H-H**  
Scale: 3/8" = 1'-0"



**SLIDE GATE SCHEDULE**

| LOCATION            | SHEET | MARK | NO. GATES | PROVIDED | REQUIRE | MIN. HEIGHT | SIZE | WALL BRACKET | TYPE OF FRAME | LIFT |
|---------------------|-------|------|-----------|----------|---------|-------------|------|--------------|---------------|------|
| Grit Chamber        | 7     | A    | 2         | 220L     | 24"x24" | W.B.        | Flat | B3-2600      |               |      |
| Grit Chamber        | 7     | E    | 1         | 220L     | 20"x20" | W.B.        | Flat | B3-2600      |               |      |
| Lift / Recirc. Sta. | 11    | C    | 3         | 120M     | 24"x24" | W.B.        | Flat | S-5002       |               |      |
| Lift / Recirc. Sta. | 11    | D    | 1         | 120M     | 18"x18" | W.B.        | Flat | S-5002       |               |      |

NOTE: Slide Gate to be provided with 2" stems, Wall Brackets & Adjustable Stem Guides set at max. of 6'-0" Ctrs. Threaded Portions of Stems to be Rolled Bronze.

NOTE: Typical Plug Valves @ Spec. Grit Values @ Spec.

EXPANSION OF WASTE WATER TREATMENT FACILITIES  
SILOAM SPRINGS, ARKANSAS  
**GRIT REMOVAL EQUIPMENT DETAILS**

McGOODWIN, WILLIAMS & YATES INC.  
CONSULTING ENGINEERS  
FAYETTEVILLE, ARK. NOVEMBER, 1968  
PLANS NO. 14-2-68 SHEET 8 OF 28 SHEETS  
PROJECT NO. WPC-ARK-250



## Attachment G

### Siloam Springs WWTP 1986 Expansion Digester Record Drawings





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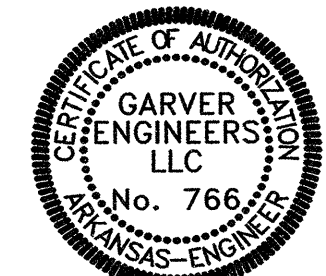
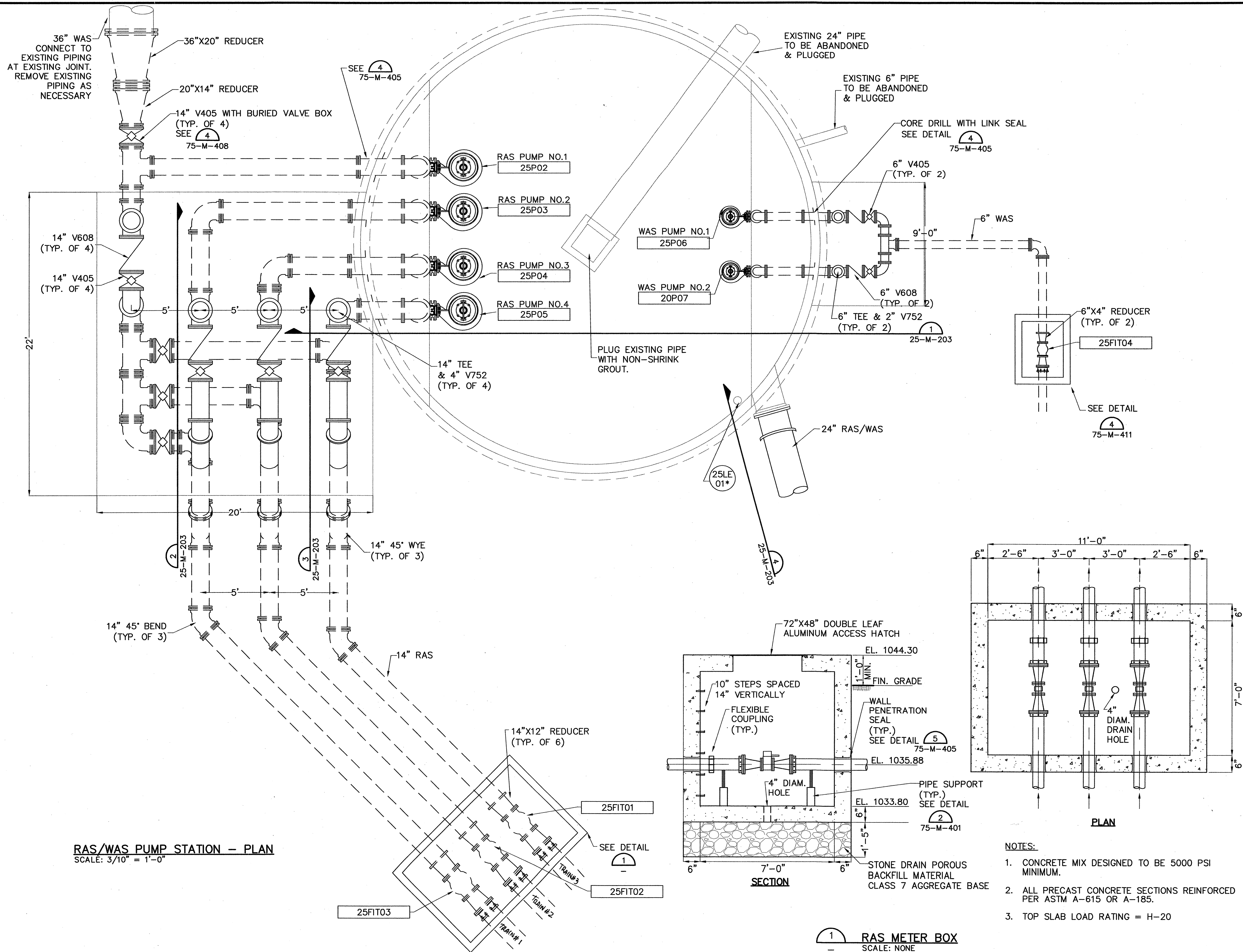


## Attachment H

Siloam Springs WWTP 2008 Expansion  
RAS/WAS Record Drawings



11/2007/07057000 SSAR WWP Design Drawings 25-M-133 WWP.dwg, MODEL 11/12/2008 4:28:02 PM, DWGNAME: 25-M-133 WWP.dwg, DESIGNED BY: CBM, CHECKED BY: SDO, PLOTTED BY: SDO, PLOT DATE: 11/12/2008 4:28:02 PM, PLOT SCALE: 1/8" = 1'-0"



BAR IS ONE INCH ON ORIGINAL DRAWING  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

| REV. | DATE | DESCRIPTION | BY | APPROVED |
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|      |      |             |    |          |

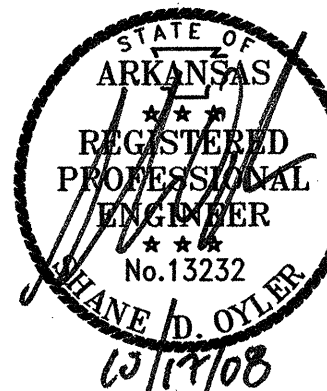
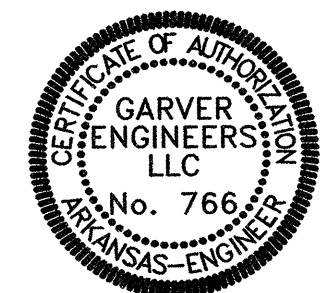
**GARVER ENGINEERS**  
1088 EAST WILLIAMS ROAD, FAYETTEVILLE, AR 72703, (479) 627-9100

**Siloam Springs**  
SILOAM SPRINGS, AR  
**WASTEWATER TREATMENT PLANT IMPROVEMENTS**

**RAS/WAS PUMPING STATION PLAN**

JOB NO.: 07057000  
DATE: OCT. 2008  
DESIGNED BY: SDO  
DRAWN BY: CBM  
DRAWING NUMBER  
**25-M-133**  
SHEET NUMBER  
102





BAR IS ONE INCH ON ORIGINAL DRAWING  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

| REV. | DATE | DESCRIPTION | BY | APPROVED |
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**GARVER ENGINEERS**  
1088 EAST MILLSAP ROAD, FAYETTEVILLE, AR 72703, (479) 527-9100

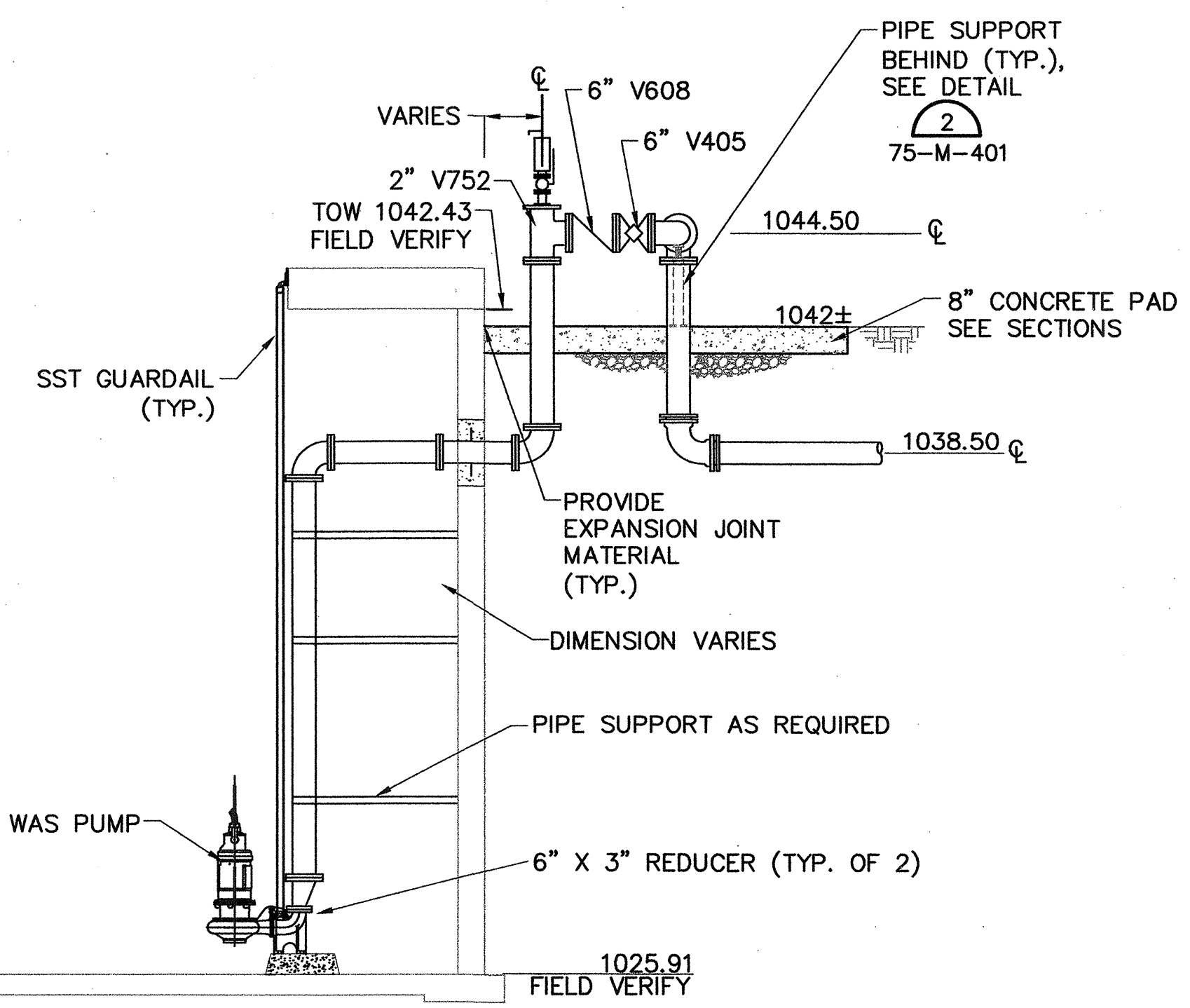
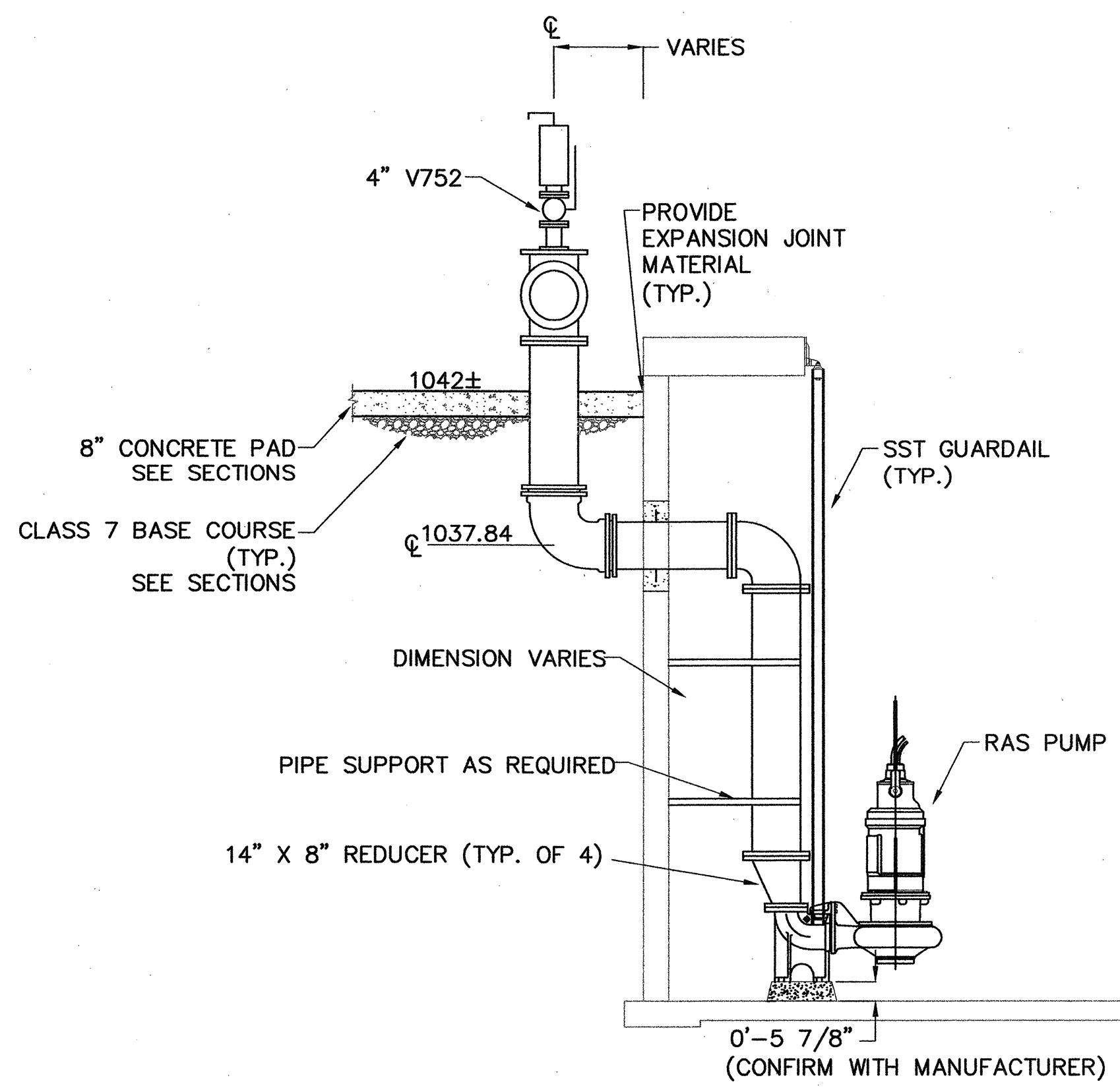
**SILLOAM SPRINGS**  
SILLOAM SPRINGS, AR  
**WASTEWATER TREATMENT PLANT IMPROVEMENTS**

**RAS/WAS PUMPING STATION SECTIONS**

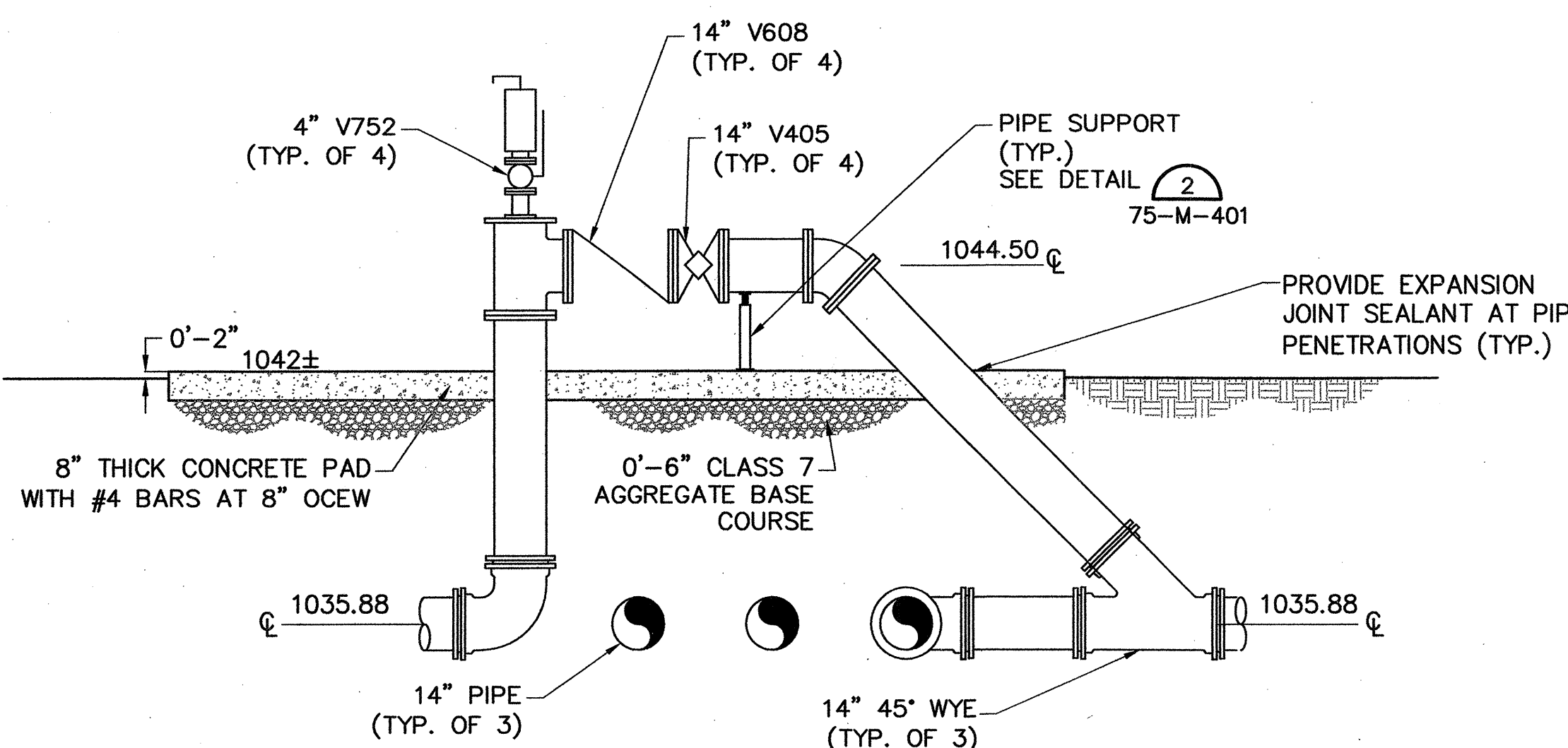
JOB NO.: 07057000  
DATE: OCT. 2008  
DESIGNED BY: SDO  
DRAWN BY: CBM

DRAWING NUMBER  
**25-M-203**

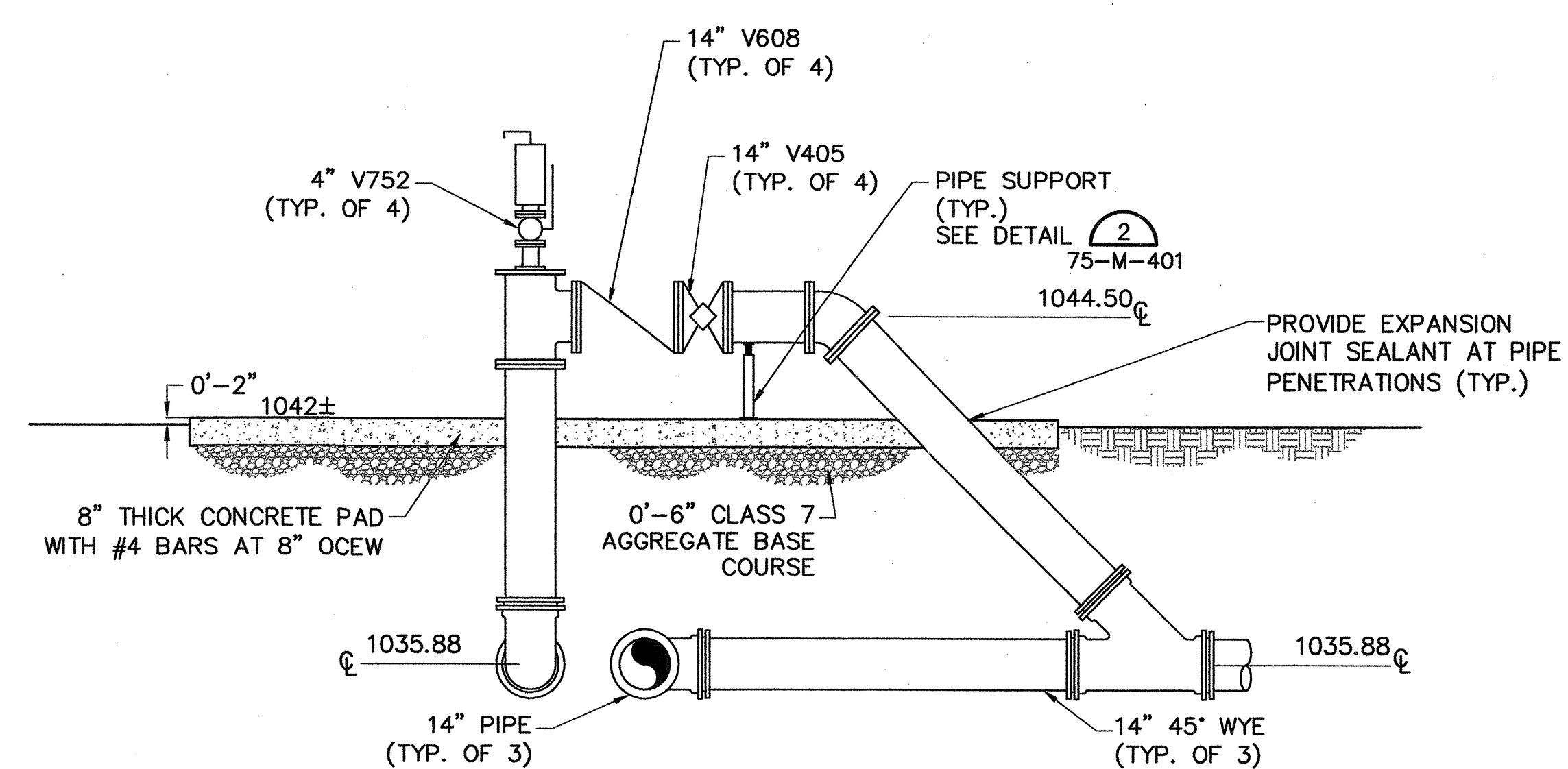
SHEET NUMBER  
103



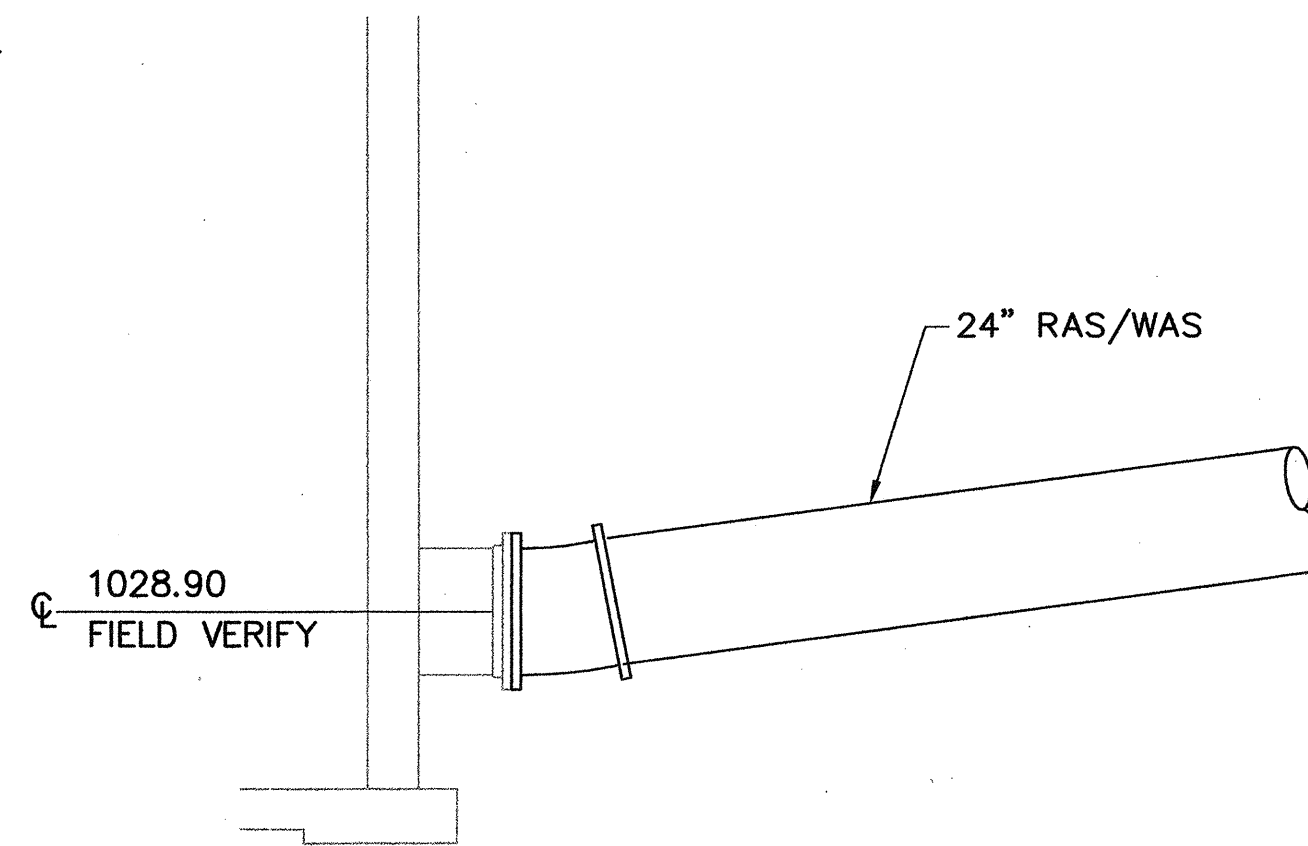
**1 RAS/WAS PUMP STATION**  
25-M-133 SCALE: 3/10" = 1'-0"



**2 RAS PIPING**  
25-M-133 SCALE: 3/10" = 1'-0"



**3 RAS PIPING**  
25-M-133 SCALE: 3/10" = 1'-0"



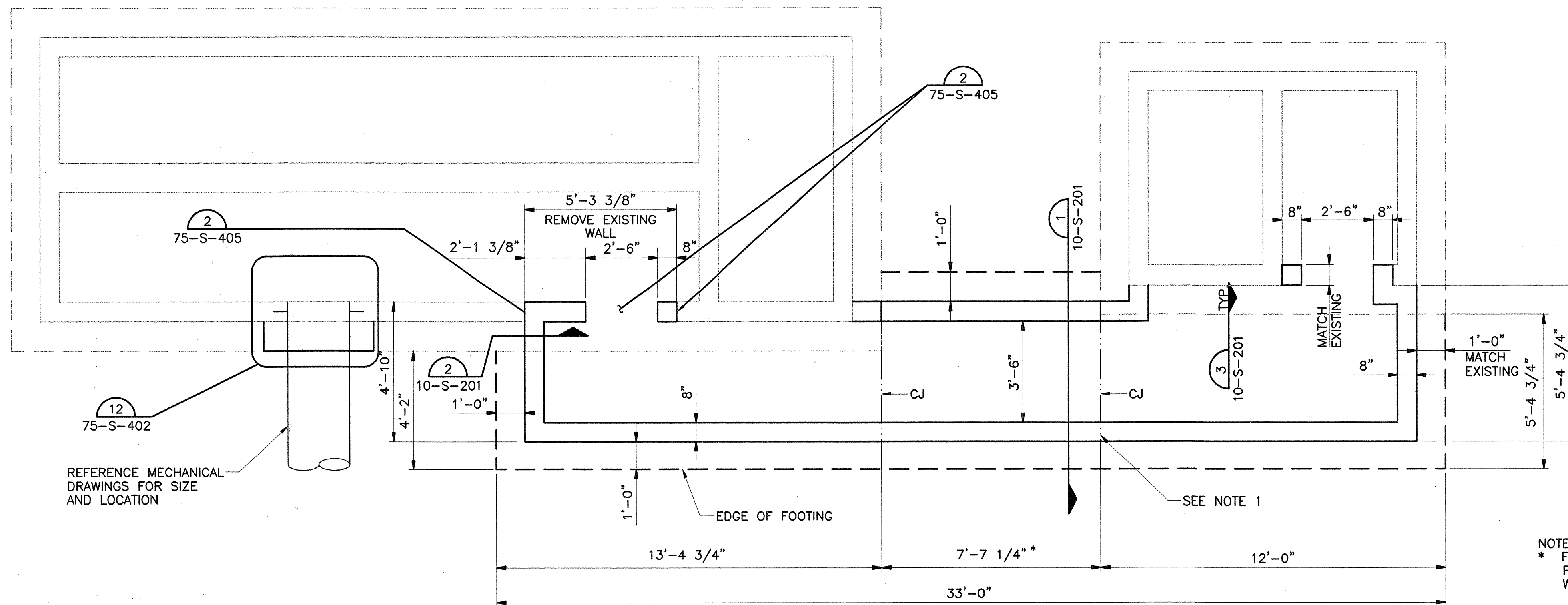
**4 24" RAS/WAS**  
25-M-133 SCALE: 3/10" = 1'-0"



## Attachment I

### Siloam Springs WWTP 2008 Expansion Screening Record Drawings



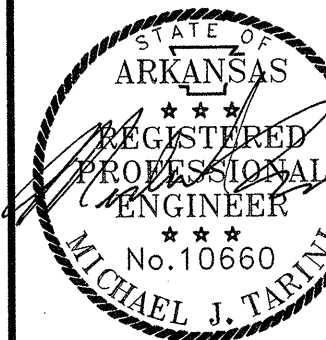
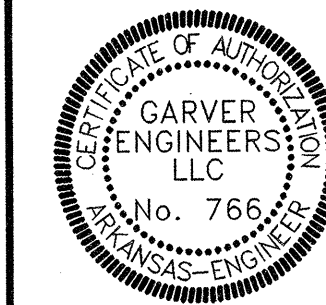


**LEGEND**

- EDGE OF FOOTING
- CONSTRUCTION JOINT

**NEW SCREEN CHANNEL — FOUNDATION PLAN**  
SCALE: 3/8" = 1'-0"

- NOTES:**
- \* FIELD VERIFY EDGE OF EXISTING FOOTINGS. PLACE CONSTRUCTION JOINTS TO COINCIDE WITH EDGES OF EXISTING FOOTINGS.
  - 1. CONTRACTOR TO LAYOUT AND FIELD VERIFY TANK LOCATIONS PRIOR TO CONSTRUCTION OF NEW SCREEN CHANNEL. COORDINATE CHANNEL DIMENSIONS WITH EQUIPMENT MANUFACTURER.
  - 2. WALL CONSTRUCTION JOINTS TO MATCH SLAB CONSTRUCTION JOINTS.
  - 3. SEE 75-S-401 & 75-S-401 FOR JOINT DETAILS.
  - 4. REF 75-S-402 FOR REINFORCING AT WALL CORNERS.
  - 5. CJ INDICATES CONSTRUCTION JOINTS
  - 6. REF 75-S-405 FOR WATERSTOP DETAILS.
  - 7. SEE 75-S-402 & 75-S-402 FOR ADDITIONAL REINFORCING DETAILS.
  - 8. REF 75-S-402 FOR LAP SPLICE SCHEDULE.



10/10/08  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1'  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

| REV. | DATE | DESCRIPTION | BY | APPROVED |
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|      |      |             |    |          |
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|      |      |             |    |          |

**GARVERENGINEERS**  
1088 EAST MILLSAP ROAD, FAYETTEVILLE, AR 72703, (479) 527-9100

**SILOAM SPRINGS**  
SILOAM SPRINGS, AR  
**WASTEWATER TREATMENT PLANT IMPROVEMENTS**

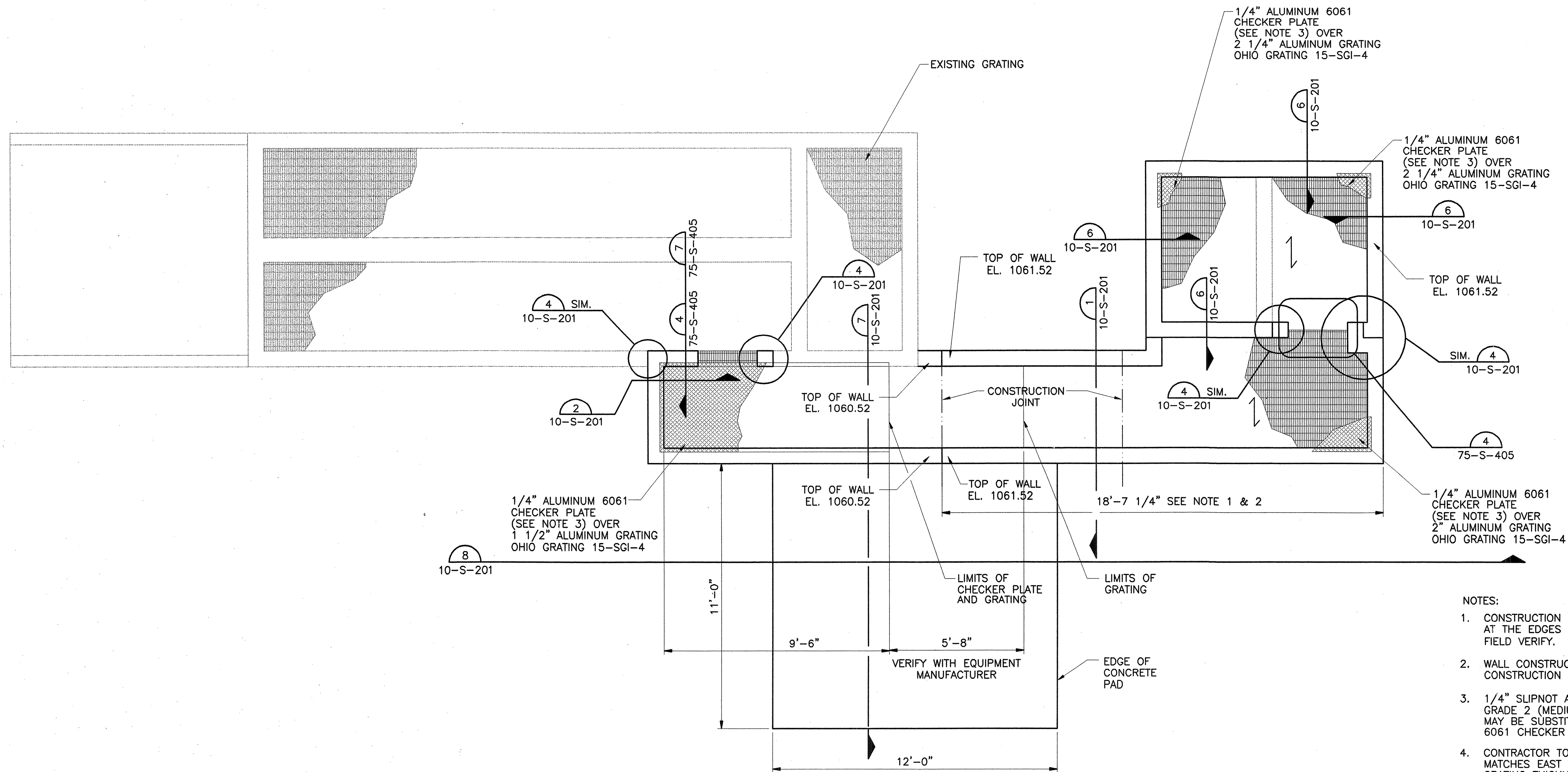
**HEADWORKS  
NEW SCREEN  
CHANNEL  
FOUNDATION PLAN**

JOB NO.: 07057000  
DATE: OCT. 2008  
DESIGNED BY: MJT  
DRAWN BY: MJT

**DRAWING NUMBER  
10-S-121**

SHEET NUMBER  
**52**

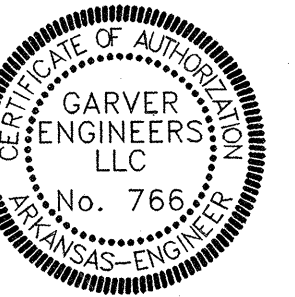




NEW SCREEN CHANNEL - TOP OF WALL PLAN  
SCALE: 3/8" = 1'-0"

NOTES:

1. CONSTRUCTION JOINTS SHALL BE LOCATED AT THE EDGES OF EXISTING FOOTINGS. FIELD VERIFY.
2. WALL CONSTRUCTION JOINTS TO MATCH SLAB CONSTRUCTION JOINTS.
3. 1/4" SLIPNOT ALUMINUM 6061 GRIP PLATE GRADE 2 (MEDIUM) ALUMINUM ON ALUMINUM MAY BE SUBSTITUTED FOR 1/4" ALUMINUM 6061 CHECKER PLATE.
4. CONTRACTOR TO ENSURE TOP OF GRATING MATCHES EAST END OF EXISTING TANK. NOTE GRATING THICKNESS VARIES.
5. SEE (8) AND (9) FOR 75-S-401 75-S-401 CONSTRUCTION JOINT DETAILS
6. SEE (3) FOR WALL REINFORCING AT CORNERS 75-S-402
7. SEE (6) AND (7) FOR GRATING DETAILS. 75-S-405 75-S-405
8. SEE (5) FOR LAP SPLICE SCHEDULE. 75-S-402
9. SEE (3) FOR WATERSTOP DETAILS. 75-S-405



10/10/08

BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1'  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

| REV. | DATE | DESCRIPTION | BY | APPROVED |
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SILOAM SPRINGS  
SILOAM SPRINGS, AR  
WASTEWATER TREATMENT PLANT  
IMPROVEMENTS

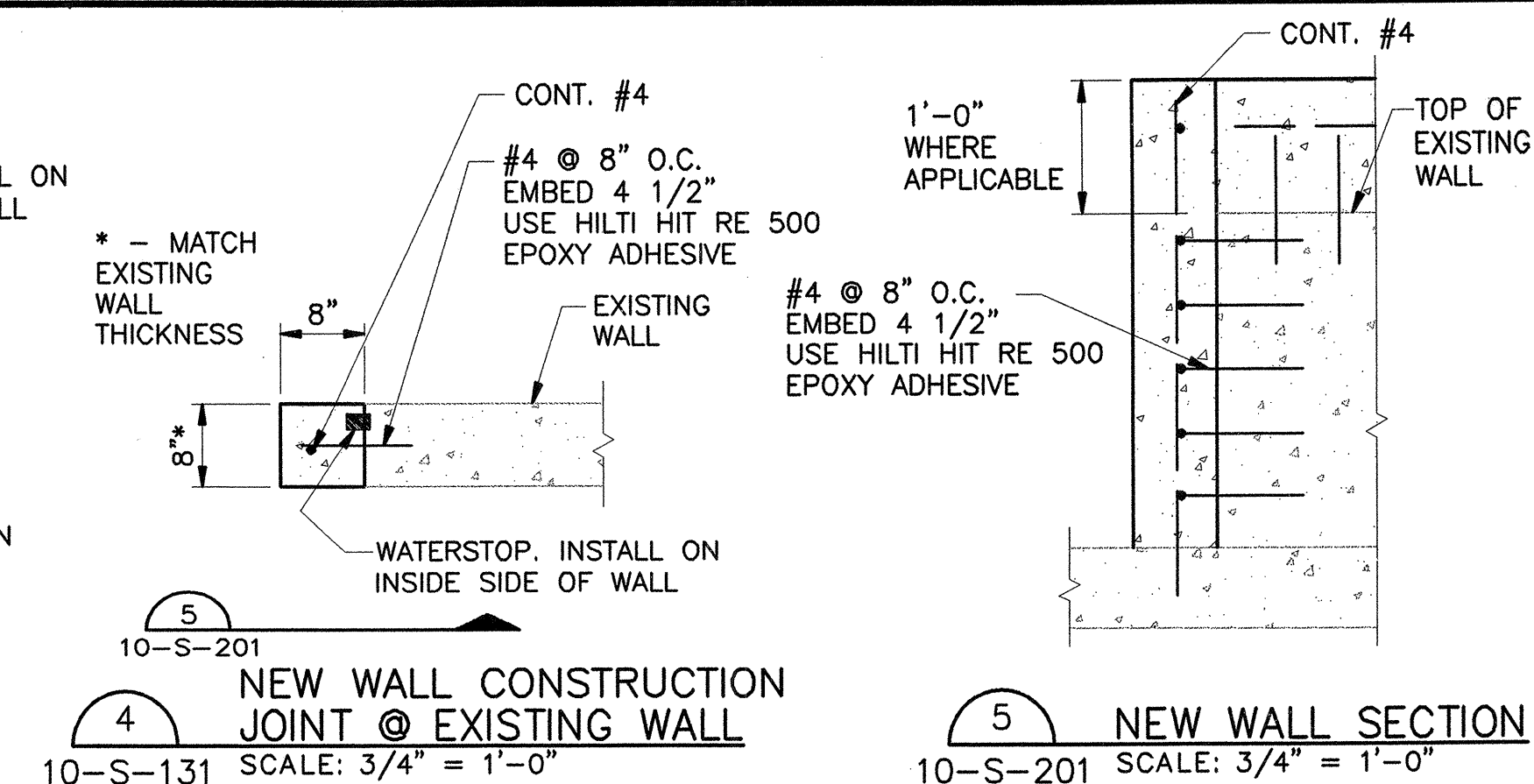
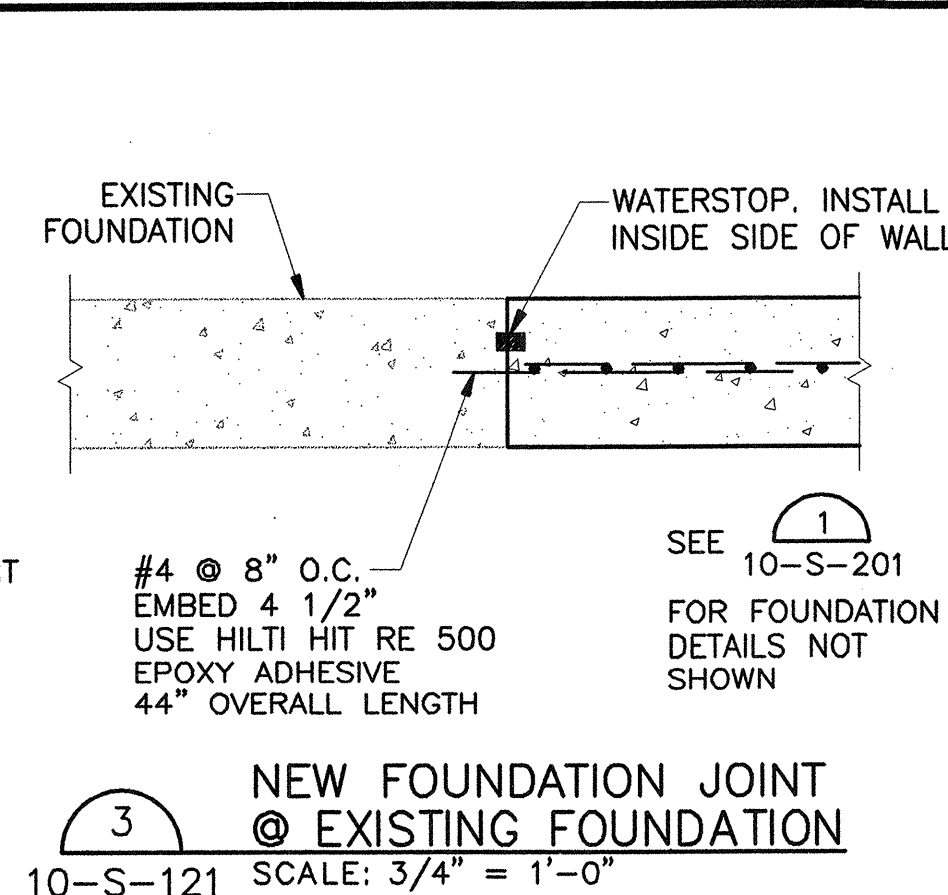
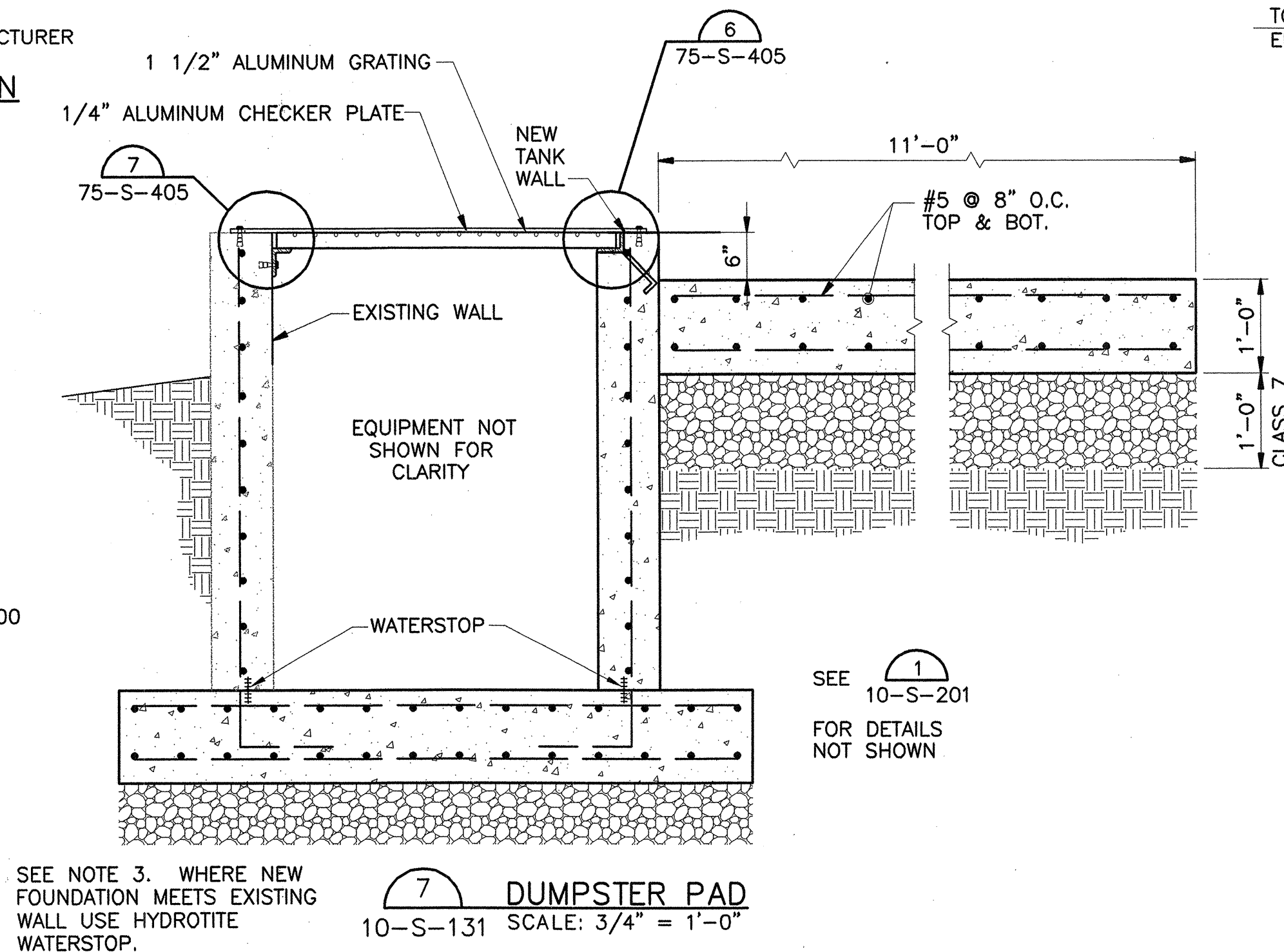
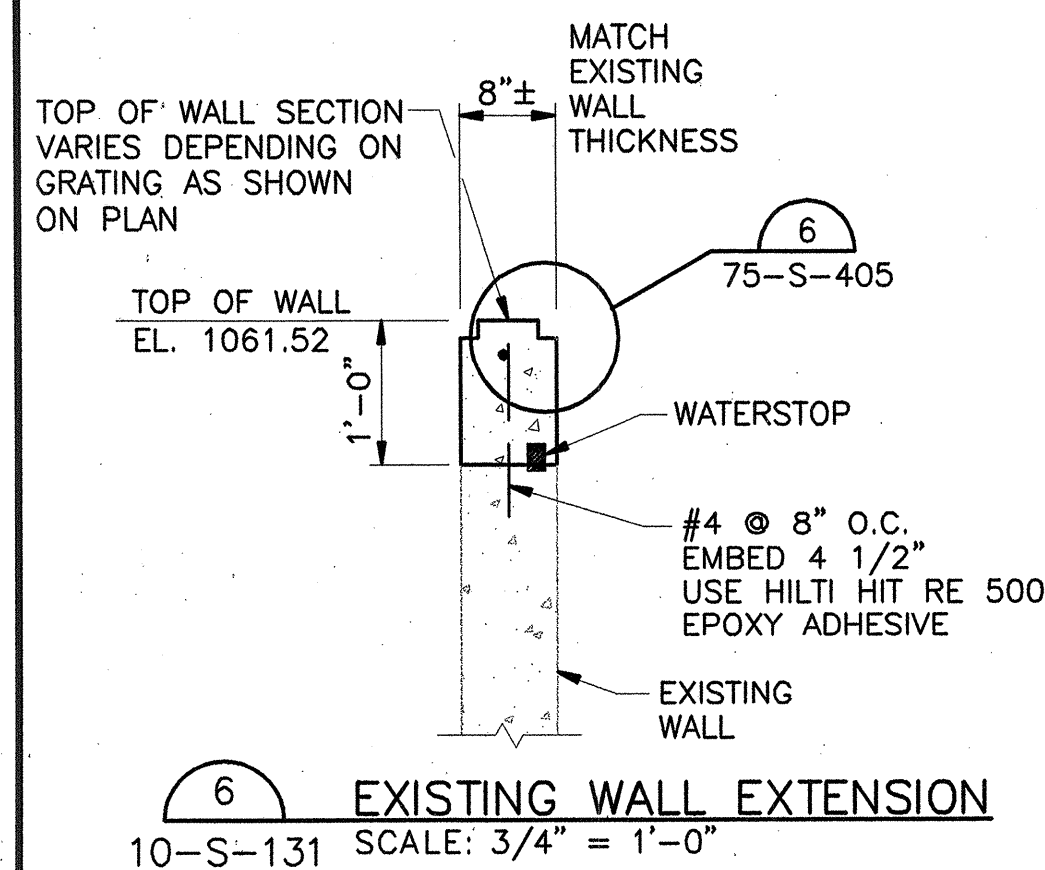
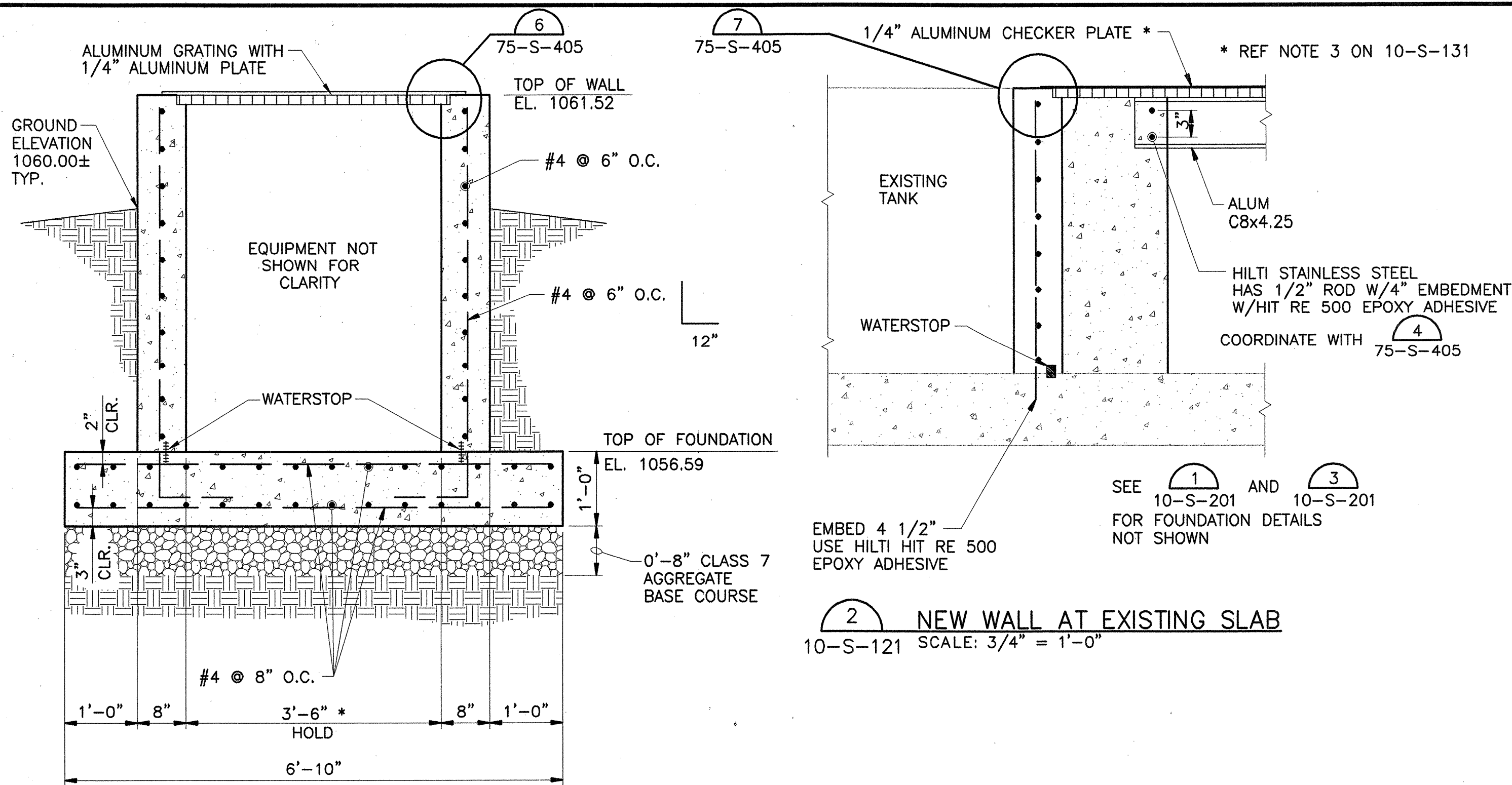
HEADWORKS  
NEW SCREEN  
CHANNEL  
TOW PLAN

JOB NO.: 07057000  
DATE: OCT. 2008  
DESIGNED BY: JDB  
DRAWN BY: CBM

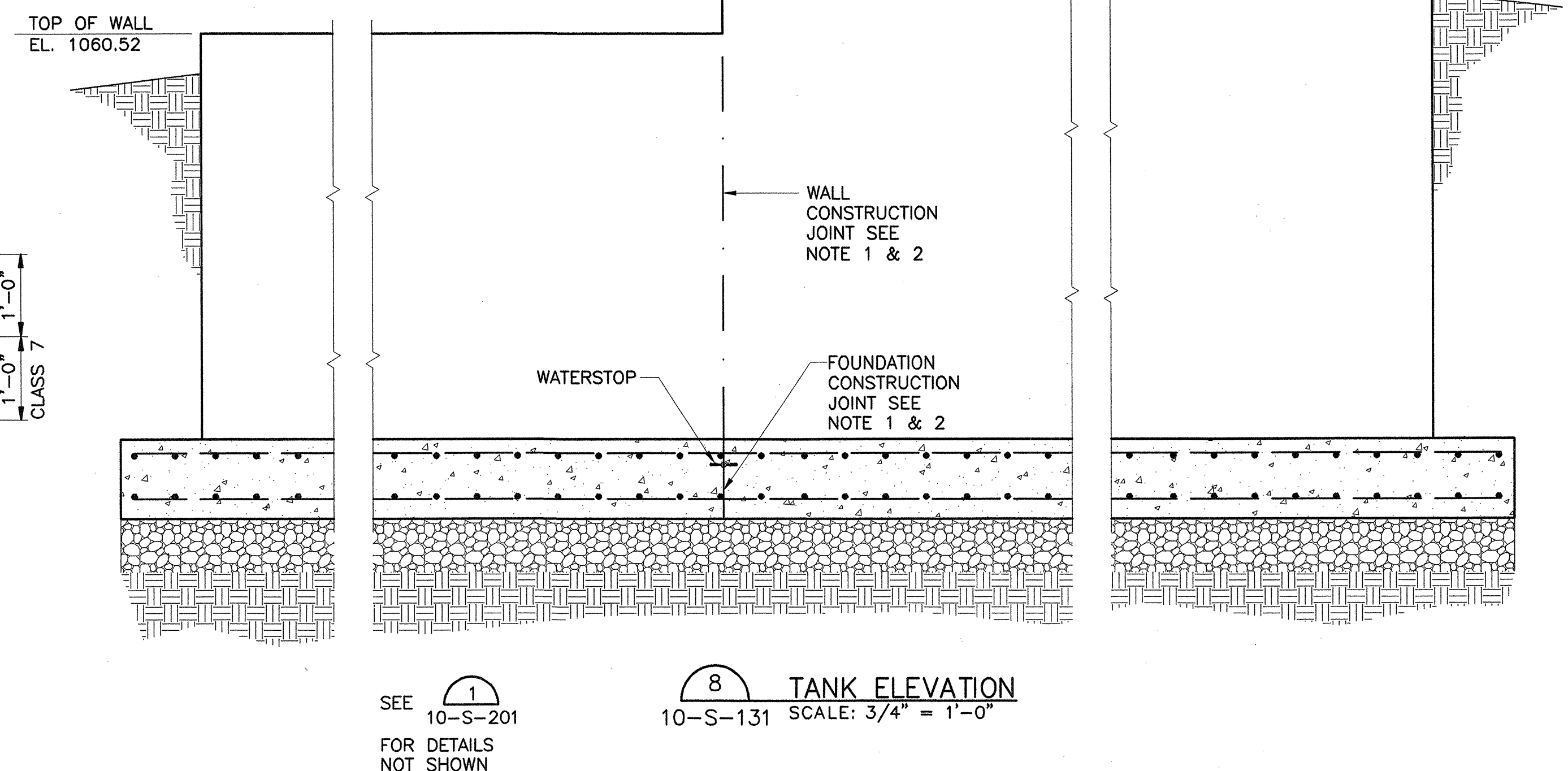
DRAWING NUMBER  
**10-S-131**

SHEET NUMBER  
53





NOTE: NEW DUMPSTER PAD NOT SHOWN FOR CLARITY.



#### NOTES:

\* FIELD VERIFY PLACEMENT OF CONSTRUCTION JOINTS. CONSTRUCTION JOINTS TO COINCIDE WITH EDGES OF EXISTING FOOTINGS.

1. WALL CONSTRUCTION JOINTS TO MATCH SLAB CONSTRUCTION JOINTS.

2. SEE 75-S-401 AND 75-S-401 FOR JOINT DETAILS.

3. SEE 75-S-405 FOR WATERSTOP DETAILS.

4. CLASS 7 AGGREGATE BASE COURSE MATERIAL REQUIREMENTS, PLACEMENT AND TESTING REQUIREMENTS SHALL CONFORM TO AHTD SPECIFICATIONS.



**GARVER ENGINEERS**  
1088 EAST MILLSAP ROAD, FAYETTEVILLE, AR 72703 (479) 527-9100



REGISTERED PROFESSIONAL ENGINEER  
No. 10660  
MICHAEL J. TADINI

| REV. | DATE | DESCRIPTION | BY | APPROVED |
|------|------|-------------|----|----------|
|      |      |             |    |          |

**SILLOAM SPRINGS**  
SILLOAM SPRINGS, AR

**WASTEWATER TREATMENT PLANT IMPROVEMENTS**

HEADWORKS  
NEW SCREEN  
CHANNEL  
DETAILS I

JOB NO.: 07057000  
DATE: OCT. 2008  
DESIGNED BY: MJT  
DRAWN BY: RJS

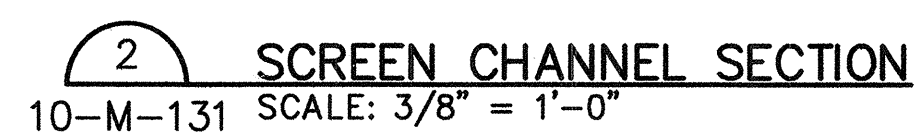
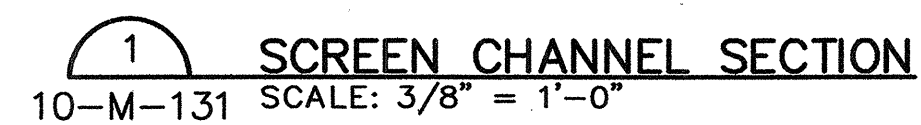
DRAWING NUMBER  
**10-S-201**

SHEET NUMBER  
54







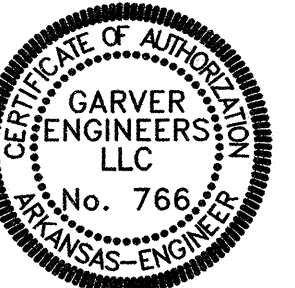
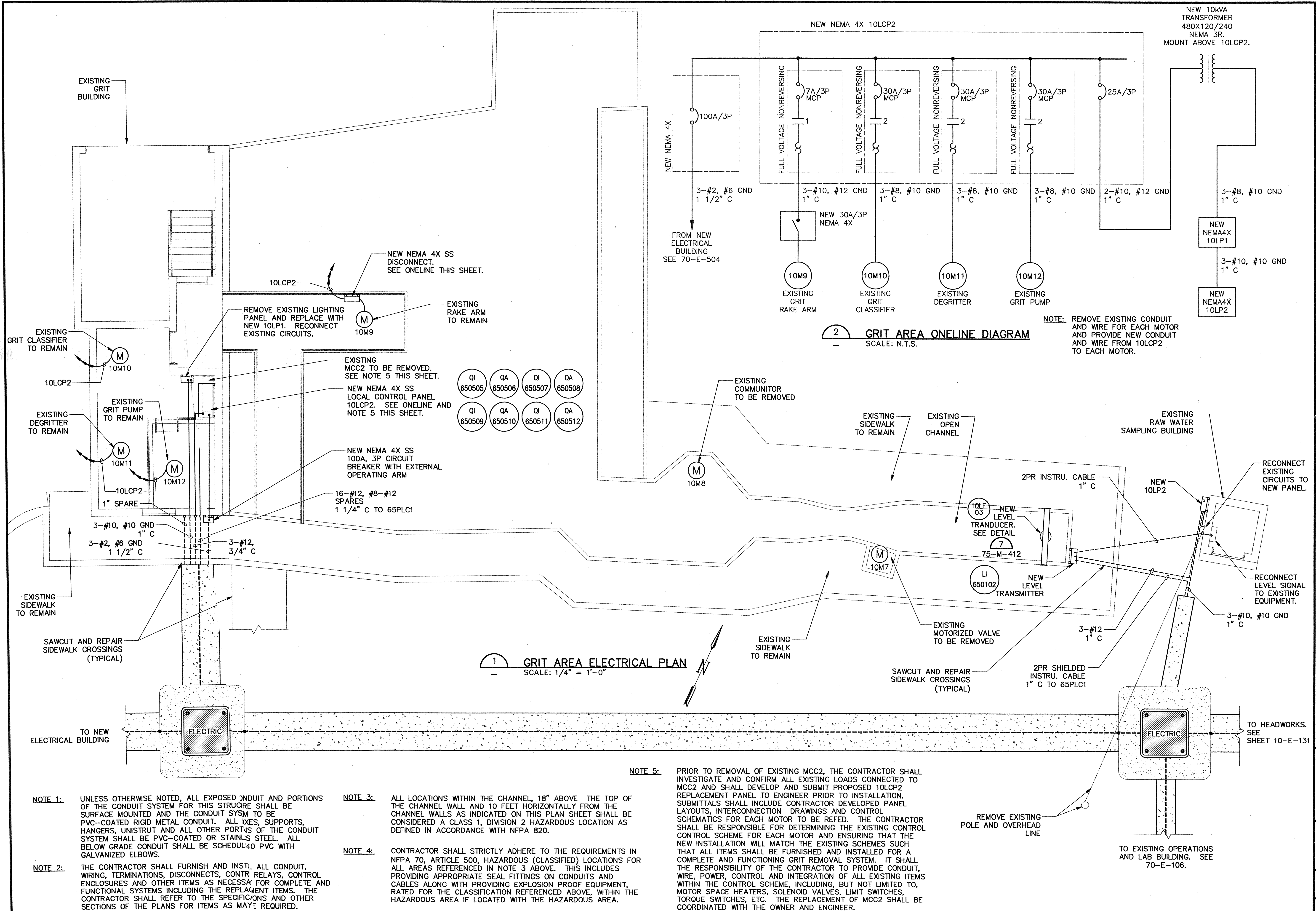


- 1) \* BY SCREEN MANUFACTURER.
- 2) COORDINATE WITH GATE SUPPLIER FOR INSTALLATION REQUIREMENTS.  
COORDINATE GATE OPENINGS WITH MANUFACTURING OF GRATING.









BAR IS ONE INCH ON  
ORIGINAL DRAWING  
0  1"  
IF NOT ONE INCH ON  
THIS SHEET, ADJUST  
SCALES ACCORDINGLY.

[illegible]

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