

NUTRIENT REDUCTION WETLAND

CHICKASAW COUNTY, IOWA

CLIENT PROJECT NO.: CHI941410B
JEO PROJECT NO.: 241731.01
SEC10/T94N/R14W

CONTACTS

OWNER:



ADDRESS:
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET
DES MOINES, IA 50319

CONTACT INFO:
MIKE BOURLAND
MIKE.BOURLAND@IOWAAGRICULTURE.GOV
P:515.242.6130

PROJECT ENGINEER:



ADDRESS:
JEO CONSULTING GROUP
1937 N CHESTNUT ST
WAHOO, NE 68066

CONTACT INFO:
JACOB MIRIOVSKY, PE
JMIRIOVSKY@JEO.COM
P:402.367.2540

UTILITIES

ELECTRIC:



CONTACT INFO:
DANNON MOHS
DANNON.MOHS@MIDAMERICAN.COM
P:641.330.3993

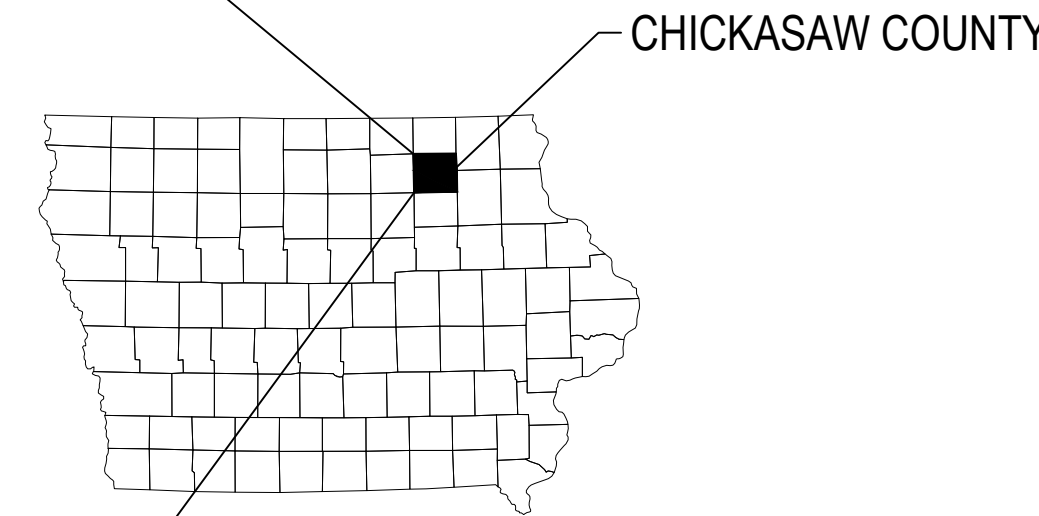
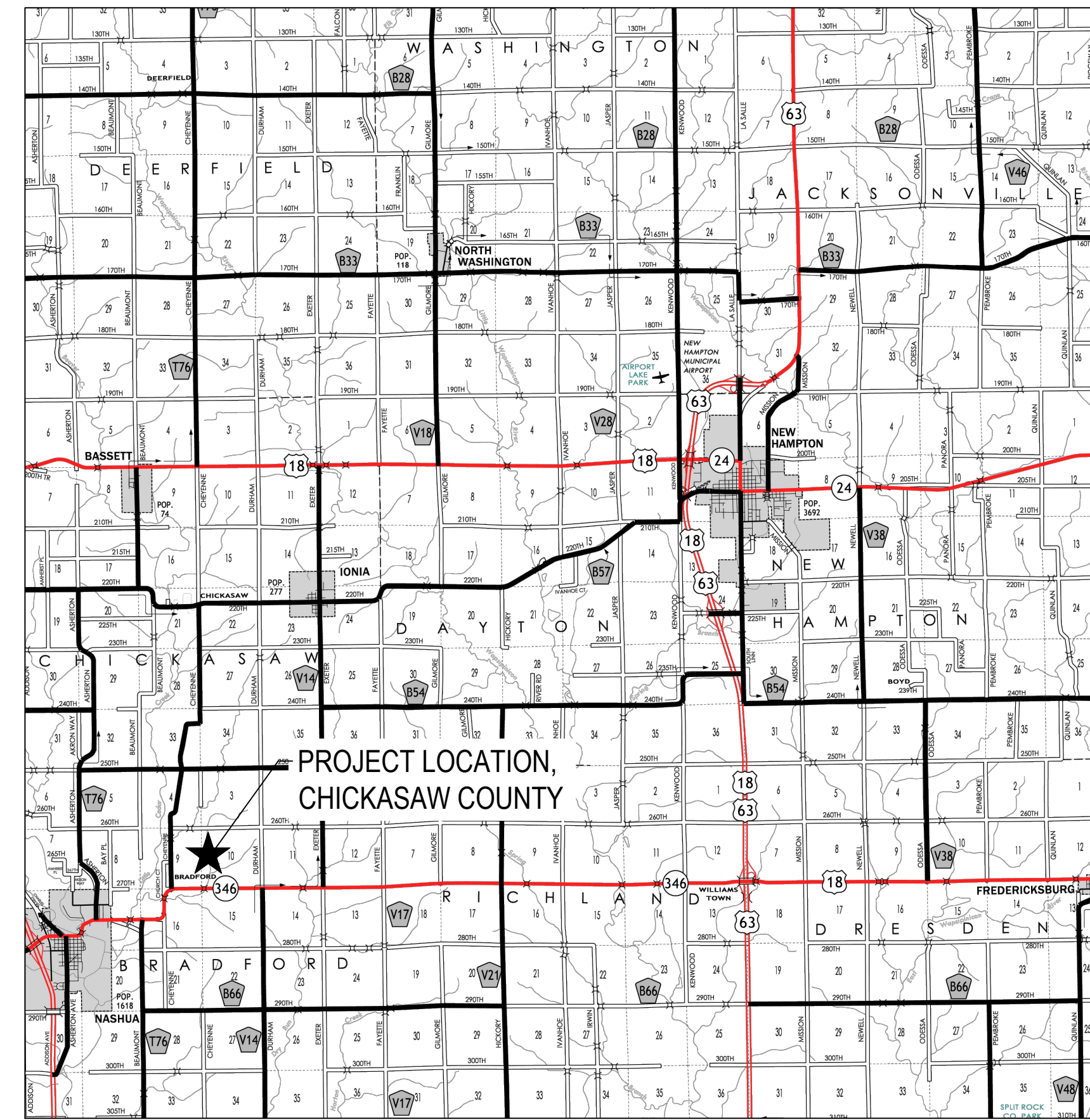


JEO CONSULTING GROUP

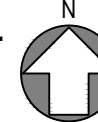
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WAHOO, NE 68066
800.723.8567 | jeo.com

Organization Certificate of
Authorization Number: CA-0069

LOCATION MAP



SCALE: N.T.S.



CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL PRIOR TO CONSTRUCTION. RECORD ONE CALL TICKET NUMBER(S).

TICKET NO.:

NOTE: NEITHER THE OWNER (CLIENT) NOR JEO CONSULTING GROUP, INC. ASSUMES ANY RESPONSIBILITY FOR UTILITY LOCATIONS BEING ACCURATELY SHOWN OR NOT SHOWN ON THE PLANS. A REQUEST FOR UTILITY LOCATES WAS MADE FOR THIS LOCATION AS PER THE ONE-CALL NOTIFICATION SYSTEM ACT.

(DATE: TICKET NO.).

UTILITIES SHOWN ARE FROM FIELD MARKINGS PROVIDED IN THE FIELD BY THE UTILITY PROVIDERS.

THE EXACT LOCATION AND/OR SIZE OF UNDERGROUND FEATURES MAY NOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. FIELD VERIFICATION OF UTILITIES MAY BE REQUIRED. CONTRACTOR(S) SHALL NOTIFY THE RESPECTIVE UTILITY COMPANIES BEFORE COMMENCING ANY WORK.

CULTURAL RESOURCES NOTE:
IF CULTURAL RESOURCES ARE IDENTIFIED DURING CONSTRUCTION, WORK WILL STOP IMMEDIATELY AND THE NRCS ARCHAEOLOGIST WILL BE NOTIFIED.



INDEX OF SHEETS

SHEET NO.	SHEET NAME
A.1	COVER SHEET & LOCATION MAP
B.1	TYPICAL CROSS SECTION DETAILS
B.2	TYPICAL CROSS SECTION DETAILS
C.1	CONSTRUCTION NOTES, SYMBOLS, & TABULATIONS
CG.1	SURVEY CONTROL
D.1	EXISTING SITE PLAN
D.2	OVERALL PROPOSED SITE PLAN
D.3	PROPOSED GRADING PLAN
M.1	PLAN & PROFILE - DAM STRUCTURE
M.2	PLAN & PROFILE - PRINCIPAL SPILLWAY
M.3	PLAN & PROFILE - DRAWDOWN STRUCTURE
R.1	SEEDING & EROSION CONTROL PLAN
U.1 - U.4	DETAILS

PROJECT SPONSOR



NRCS ENGINEER JOB CLASS IV

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Jacob T. Miriovsky
(signature) 6/15/2026
(date)

Printed or typed name: Jacob T. Miriovsky
License Number: 24242
My license renewal date is December 31, 2026.

Pages or sheets covered by this seal:
ALL SHEETS

THE CURRENT NRCS STANDARD SPECIFICATIONS SHALL TO CONSTRUCTION WORK ON THIS PROJECT.
CPS-656 CONSTRUCTED WETLAND
CPS-410 GRADE STABILIZATION STRUCTURE

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGMENT, AND BELIEF, THE DESIGN MEETS NRCS STANDARD AND SPECIFICATIONS AND COMPLIES WITH ALL APPLICABLE LAWS AND REGULATIONS.

ENGINEER'S SIGNATURE: *Jacob T. Miriovsky* 6/15/2026
NAME DATE

I HAVE REVIEWED AND AGREE WITH THE CONTENT OF THE PLAN AND SPECIFICATIONS AS PREPARED:

CLIENT REPRESENTATIVE: _____
NAME DATE

THERE IS NO GUARANTEE THAT THE WETLAND WILL FILL OR REMAIN FILLED WITH WATER.

ISSUE

MARK	DATE	DESCRIPTION
PD	5/7/2025	60% Submittal
PD	6/11/2025	90% Submittal
BD	1/5/2026	100% Submittal

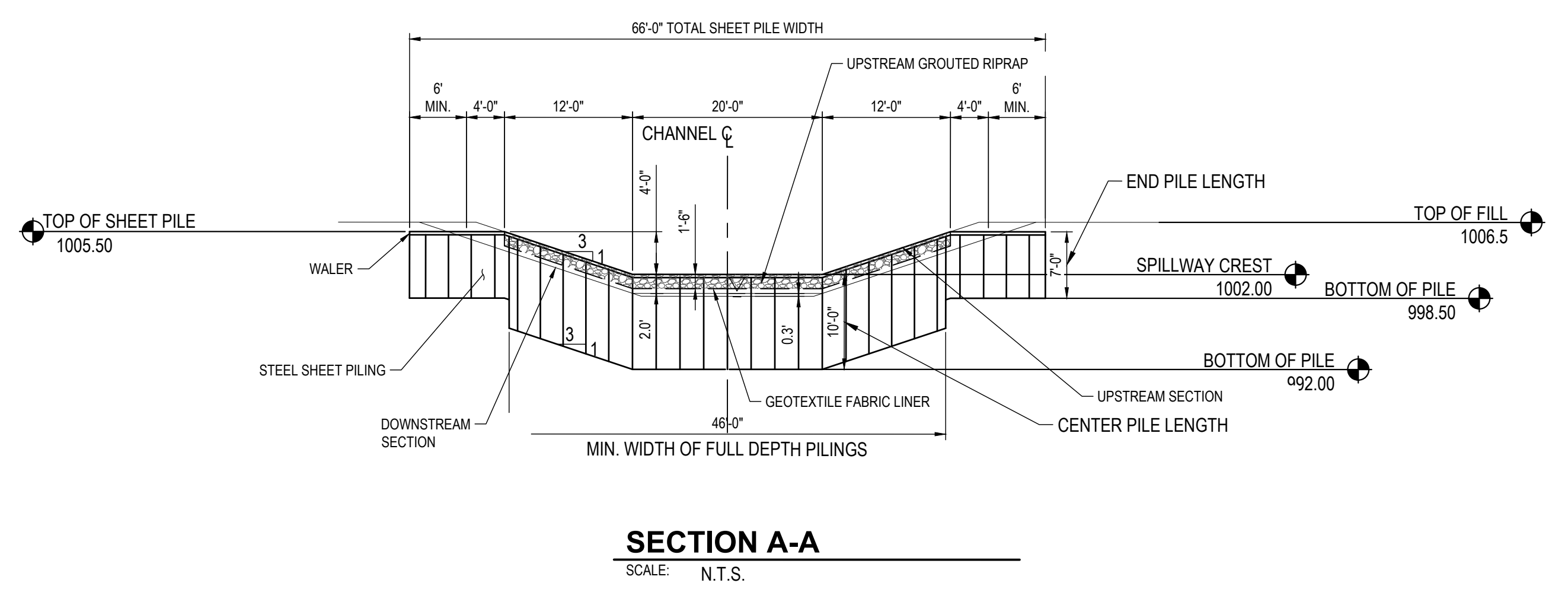
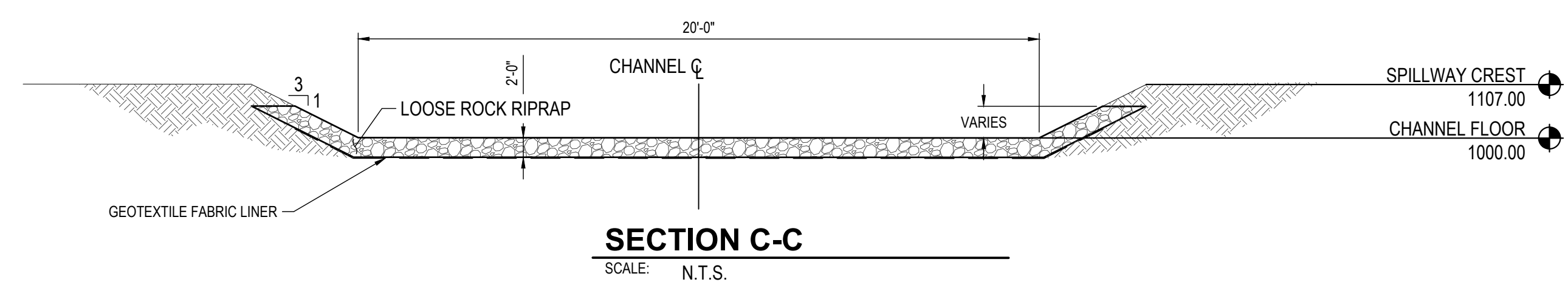
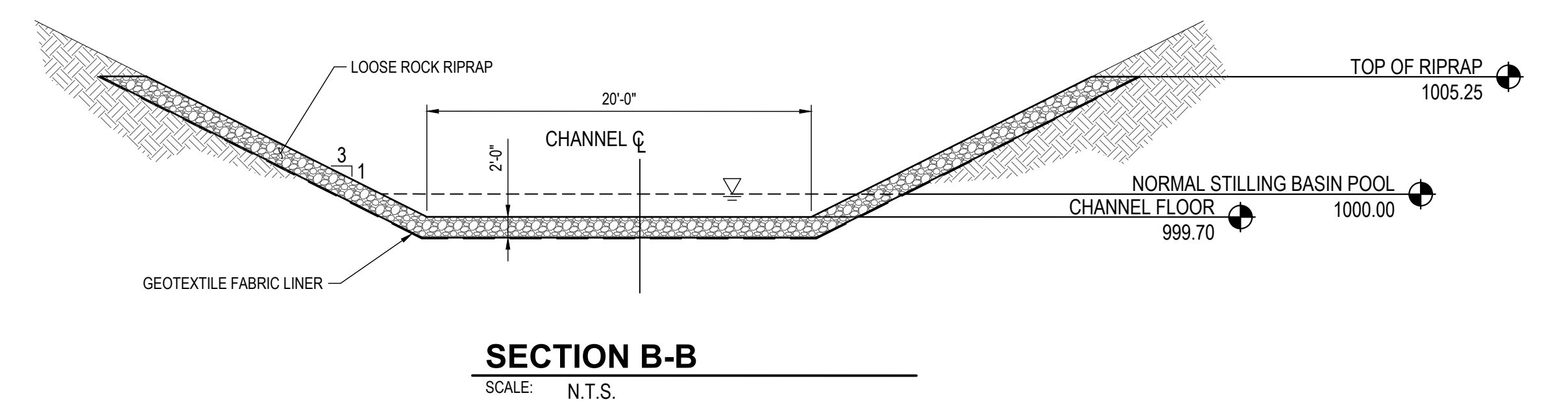
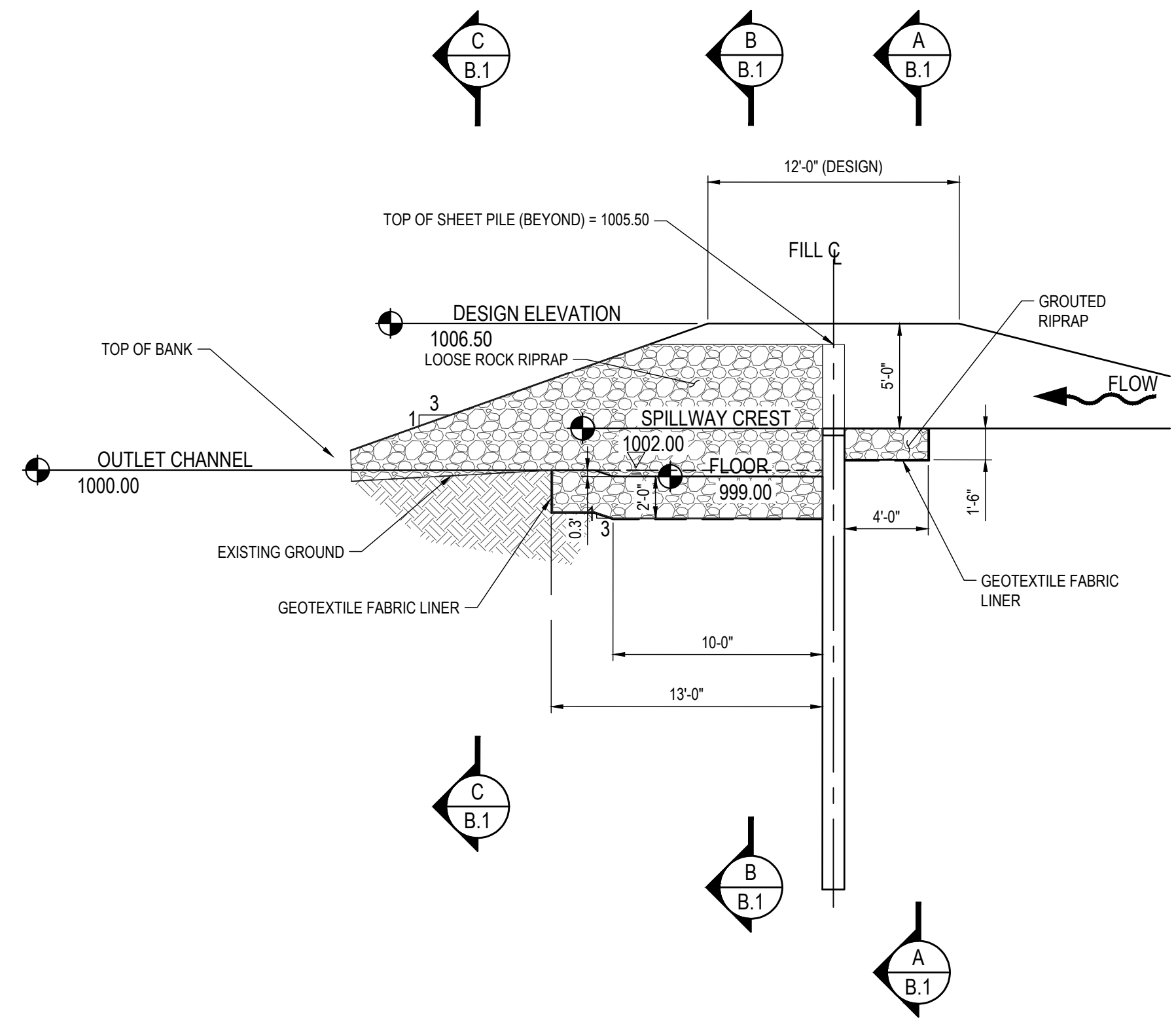
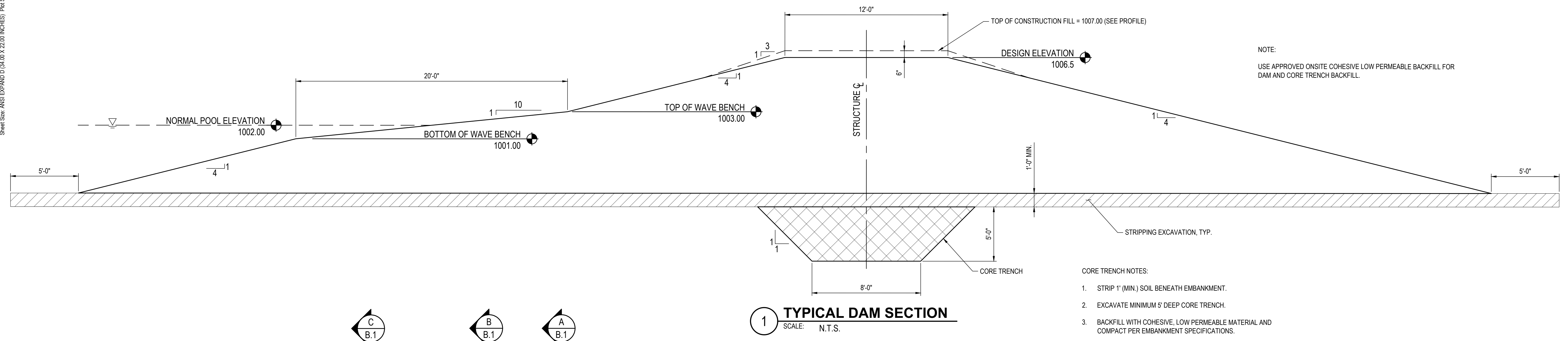
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AGRICULTURE AND LAND
STEWARDSHIP

JEO Project No.: 241731.01
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Drawn by: NJB
QAQC: JGP
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COVER SHEET & LOCATION MAP



JEO CONSULTING GROUP
 1937 N CHESTNUT ST
 WAHOO, NE 68066
 800.723.8567 | jeo.com

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TYPICAL CROSS SECTION DETAILS

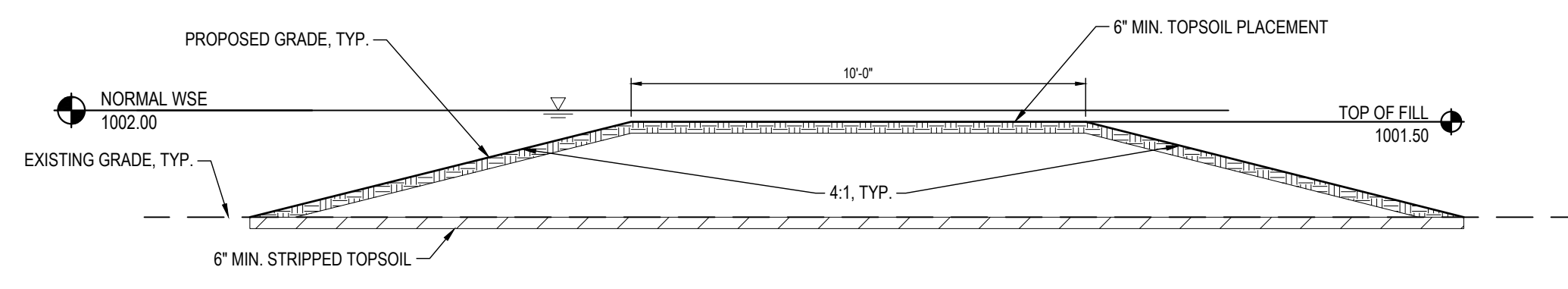




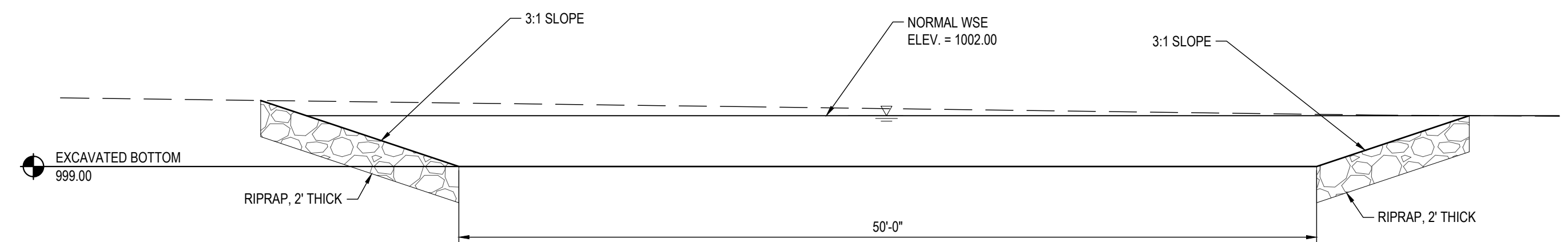
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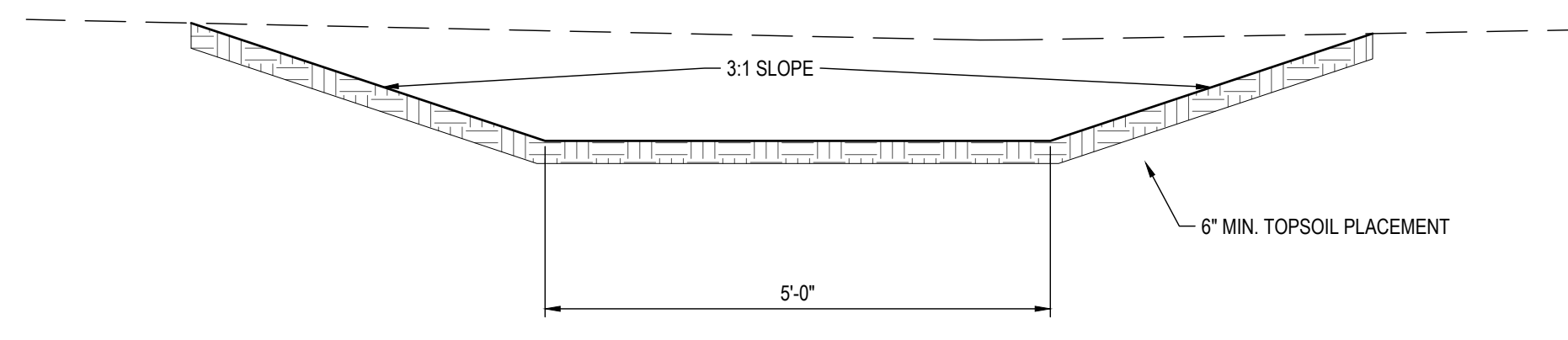
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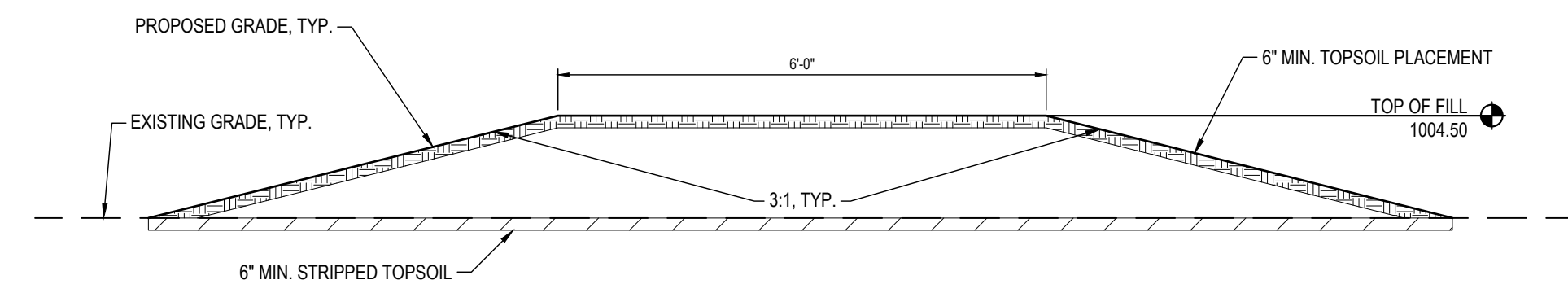
1 SUBMERGED BERM - TYPICAL SECTION
 SCALE: N.T.S.



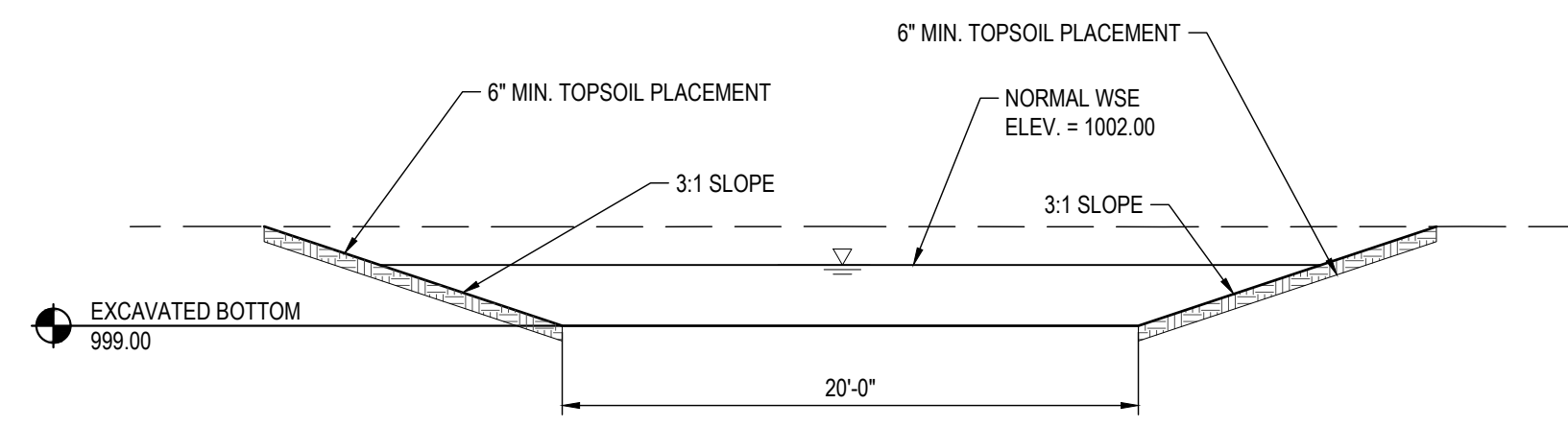
4 SEDIMENT FOREBAY LONGITUDINAL - TYPICAL SECTION
 SCALE: N.T.S.



2 TILE OUTLET SWALE
 SCALE: N.T.S.



3 DIVERSION DAM - TYPICAL SECTION
 SCALE: N.T.S.



5 SEDIMENT FOREBAY TRANSVERSE - TYPICAL SECTION
 SCALE: N.T.S.

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TYPICAL CROSS SECTION DETAILS



GENERAL NOTES:

- THIS PROJECT SHALL BE CONSTRUCTED TO THE IOWA NRCS CONSTRUCTION SPECIFICATIONS AND ALL SUBSEQUENT REVISIONS. "https://efotg.sc.egov.usda.gov/#/state/IA/documents/section=4&folder=-843"
- OWNER AND ENGINEER SHALL BE CONTACTED A MINIMUM OF 72 HOURS PRIOR TO COMMENCING WORK ON THE PROJECT.
- NOTIFY UTILITIES AT LEAST 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXISTENCE AND EXACT LOCATION OF ALL UTILITIES AND AVOIDING DAMAGE TO UTILITIES AND SERVICES DURING CONSTRUCTION. ANY DAMAGE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. COORDINATE AND COOPERATE WITH UTILITY COMPANIES DURING CONSTRUCTION. UTILITY ONE CALL: 1-800-292-8989.
- CONTRACTOR SHALL SUBMIT A SCHEDULE FOR PERFORMANCE OF WORK ITEMS. THIS SCHEDULE SHALL BE PROVIDED AT THE PRE-CONSTRUCTION CONFERENCE. NO WORK SHALL BEGIN UNTIL A SCHEDULE HAS BEEN SUBMITTED AND ACCEPTED BY THE ENGINEER.
- CONTRACTOR SHALL REMAIN WITHIN LIMITS OF CONSTRUCTION FOR ALL WORK UNLESS AUTHORIZATION IS GIVEN BY OWNER AND ENGINEER PRIOR TO COMMENCING SUCH WORK.
- CONTRACTOR IS LIABLE FOR DAMAGES TO PUBLIC AND PRIVATE PROPERTY CAUSED BY THEIR ACTION OR INACTION IN PROVIDING FOR HANDLING OF STORM WATER FLOW DURING CONSTRUCTION.
- BID QUANTITIES SHALL NOT BE EXCEEDED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM OWNER AND ENGINEER. ANY ITEM OR WORK NECESSARY TO COMPLETE THE PROJECT NOT DIRECTLY CALLED FOR AS A BID ITEM SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS FOR WHICH PAYMENT IS MADE.
- ELEVATION OF PIPES REFER TO FLOWLINES.
- ANY ADDITIONAL EXCAVATION REQUIRED FOR RESHAPING OF ADJACENT AREAS TO PROVIDE DRAINAGE IS CONSIDERED INCIDENTAL TO THE PROJECT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAUL EXCESS MATERIAL TO DESIGNATED WASTE AREAS NOTED ON THE PLANS, INCLUDING SOILS WHICH ARE NOT APPROVED FOR INCORPORATION INTO THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. ADDITIONAL WASTE AREAS FOR EXCESS SOIL WILL BE DESIGNATED BY THE ENGINEER ON SITE AFTER CONSTRUCTION COMMENCES.
- OVERHAUL ON THIS PROJECT SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE.
- CONTRACTOR SHALL NOTIFY ENGINEER OF ANY FIELD TILE ENCOUNTERED DURING CONSTRUCTION. CONTRACTOR TO ROUTE DISTURBED TILE TO CLOSEST DRAINAGE OUTLET, DITCH, OR POND. WORK SHALL BE SUBJECT TO CHANGE ORDER.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY AND ALL NRCS STANDARD DETAIL DRAWINGS AND SPECIFICATIONS NECESSARY FOR THE PROJECT THAT ARE NOT DIRECTLY GIVEN WITH THIS PROJECT.
- COMPLETELY REMOVE AND DISPOSE OF TREES, SHRUBS AND VEGETATION DESIGNATED FOR REMOVAL ON THE PLANS. THIS INCLUDES ALL TREES AND SHRUBS WITHIN THE WETLAND POOL AREA BELOW ELEVATION 1002' AND ANY VEGETATION WITHIN THE FOOTPRINT OF ANY GRADING WORK. DISPOSE OF IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS. ON-SITE BURNING OR CHIPPING MAY BE NEGOTIATED WITH THE LANDOWNER. THIS SITE CLEARING WORK IS CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK AN NO SEPARATE MEASUREMENTS OR PAYMENTS WILL BE MADE.
- CONTRACTOR SHALL SATISFY THEMSELVES PRIOR TO SUBMISSION OF BIDS AS TO THE SOIL CONDITIONS.
- PROTECT AND SAVE ALL PROPERTY CORNER MONUMENTS. CONTRACTOR TO REPLACE IF REMOVED OR DAMAGED AT THEIR OWN EXPENSE.
- STRIP, SALVAGE, AND RESPREAD TOP SIX INCHES OF TOPSOIL IN ALL AREAS WITHIN THE CONSTRUCTION LIMITS AS PER SPECIFICATIONS, EXCEPT AREAS NOT DISTURBED BY CONSTRUCTION AND USED TO STOCKPILE SOIL AND MATERIALS. MECHANICALLY LOOSEN THE TOP 18 INCHES OF SOIL ON ALL HAUL ROADS AND OVERLY COMPACTED AREAS PRIOR TO RE-SPREADING OF TOPSOIL.
- CONTRACTOR SHALL KEEP UP TO DATE RECORDS ON ALL MEASUREMENTS, MATERIALS DELIVERIES AND PLACEMENTS, AND AS-BUILT DRAWINGS.
- CONTRACTOR SHALL ATTEND PROGRESS MEETINGS AS REQUESTED BY THE ENGINEER AND OWNER.
- DIMENSIONS, UTILITIES, AND GRADING ARE BASED ON AVAILABLE INFORMATION AT THE TIME OF DESIGN. DEVIATIONS MAY BE NECESSARY IN THE FIELD. REPORT ANY SUCH CHANGES OR CONFLICTS BETWEEN THE PLAN AND FIELD CONDITIONS TO ENGINEER IMMEDIATELY AND PRIOR TO CONTINUING OF WORK.

UTILITY WARNING:

- THE UTILITIES HAVE SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND/OR RECORDS OBTAINED. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES OR SUBSURFACE FEATURES SHOWN COMPRISE ALL SUCH ITEMS IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES OR SUBSURFACE FEATURES SHOWN ARE IN THE EXACT LOCATION INDICATED EXCEPT WHERE NOTED.

PROJECT DATA TABLE		
CONSULTANT	JEO CONSULTING GROUP, INC.	
PROJECT ID	CHI941419B	
LANDOWNER(S)	SUDOL	
PRELIMINARY OR FINAL DESIGN	PRELIMINARY	
DRAINAGE AREA	433.50	ACRES
WETLAND POOL AREA	7.32	ACRES
PERCENT WETLAND POOL TO DRAINAGE AREA	1.69	%
DEEP WATER AREA (>3 FT DEEP)	0	ACRES
PERCENT DEEP WATER TO POOL AREA	0	%
NORMAL POOL ELEVATION / PRIMARY SPILLWAY ELEVATION	1002	FEET
AVERAGE POOL DEPTH	0.79	FEET
MAXIMUM POOL DEPTH	2.42	FEET
POOL STORAGE	5.80	ACRE-FEET
BERM ELEVATION	1006.5	FEET
BERM STORAGE	68.62	ACRE-FEET
LENGTH OF BERM	1,033	FEET
WEIR WIDTH	20	FEET
DROP HEIGHT (PRIMARY SPILLWAY ELEVATION – STILLING BASIN LOWEST ELEVATION)	2.3	FEET
HEIGHT OF DAM (BERM ELEVATION – STILLING BASIN LOWEST ELEVATION)	6.8	FEET
STILLING BASIN LENGTH	10	FEET
TIME OF CONCENTRATION	2.42	HOURS
WEIGHTED RUNOFF CURVE NUMBER	83	-----
25-YEAR STORM DESIGN FLOW	510	CFS
100-YEAR STORM DESIGN FLOW	750	CFS
100-YEAR FLOOD SURF. ELEVATION	1005.54	FEET
ESTIMATED SEDIMENT STORAGE	32	YEARS
TOTAL EASEMENT AREA	28.44	ACRES

WETLAND STORAGE TABLE		
CONTOUR ELEVATION (FT)	CONTOUR AREA (AC)	CUMULATIVE VOLUME, AVG, END (AC-FT)
999.58	0.00	0.00
1000	0.12	0.02
1001	2.06	1.24
1002	7.32	4.75
1003	9.85	11.34
1004	12.37	21.75
1005	16.41	36.14
1006	20.09	54.39
1006.50	21.80	64.86

QUANTITY TABULATIONS					
ITEM	DESCRIPTION	SPEC. ITEM	UNIT	QUANTITY	AS-BUILT
1	SITE STRIPPING & PREPARATION	IA CS-001	LS	1	
2	CROP DAMAGES**	IA CS-001	ACRE	0	
3	POLLUTION CONTROL	IA CS-005	LS	1	
4	SILT FENCE	IA CS-005	LF	1115	
5	STRUCTURE SEEDING	IA CS-006	ACRE	1.1	
6	WATERWAY SEEDING	IA CS-006	ACRE	0.1	
7	BUFFER SEEDING	IA CS-006	ACRE	18.9	
8	MOBILIZATION & DEMOBILIZATION*	IA CS-008	LS	1	
9	TILE INVESTIGATION	IA CS-009	LS	1	
10	SHEET PILE	IA CS-013	SF	600	
11	EXCAVATION (CORE TRENCH)	IA CS-021	CY	1,985	
12	EXCAVATION (BORROW)	IA CS-021	CY	8,175	
13	EXCAVATION (SEDIMENT FOREBAY)	IA CS-021	CY	230	
14	EXCAVATION (TILE OUTLET SWALE)	IA CS-021	CY	25	
15	EARTHFILL (DAM)**	IA CS-023	CY	6,270	
16	EARTHFILL (DAM AS CONSTRUCTED)**	IA CS-023	CY	175	
17	EARTHFILL (DAM CORE)**	IA CS-023	CY	1985	
18	EARTHFILL (DIVERSION DAMS)**	IA CS-023	CY	75	
19	EARTHFILL (SUBMERGED BERMS)**	IA CS-023	CY	235	
20	DRAINFILL	IA CS-024	CY	12	
21	TOPSOIL PLACEMENT	IA CS-026	CY	6,805	
22	CMP WATER CONTROL STRUCTURE	IA CS-051	LS	1	
23	CMP RISER INLET STRUCTURE	IA CS-051	EA	1	
24	CMP PIPE (15" DIA.)	IA CS-051	LF	86	
25	CMP FLARED END SECTION W/ BAR GUARD	IA CS-051	EA	1	
26	RIPRAP	IA CS-061	TON	425	
27	CONCRETE GROUT	IA CS-062	CY	8	
28	GEOTEXTILE FABRIC	IA CS-095	SY	235	

QUANTITY NOTES:

- * INCLUDES SHAPING AND MAINTENANCE ON THE INGRESS/EGRESS.
- ** EARTHFILL (EMBANKMENT) ASSUMES NO COMPACTION FACTOR.
- *** QUANTIFIED AREAS ARE APPROXIMATE AND SHALL BE DETERMINED BY CONTRACTOR, ENGINEER, AND OWNER.

STANDARD SYMBOLS	
ITEM	SYMBOL/HATCH
CONTOUR MINOR (EX. SCREENED)	--- 1202 ---
CONTOUR MAJOR (EX. SCREENED)	--- 1200 ---
CONTOUR MINOR (PR)	--- 1202 ---
CONTOUR MAJOR (PR)	--- 1200 ---
LIMITS OF CONSTRUCTION	--- LOC --- LOC ---
CULVERT	□ ST IS □ ST IS □
ELECTRIC (OVHD)	--- OHE --- OHE ---
FENCE (WIRE OR UNKNOWN)	--- X --- X --- X --- X ---
PROPERTY BOUNDARY	---
STORM SEWER (NS)	<ST> --- <ST> ---
CROPLINE	--- ∇ --- ∇ ---
RIP RAP	
CONCRETE	
POWER POLE (EXISTING)	□
CONTROL POINT (NON-PROPERTY)	⊙
TREE MASS LINE	--- (wavy line) ---
SILT FENCE	--- SF --- SF ---
FLOW ARROW (PLAN)	→



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**CONSTRUCTION NOTES, SYMBOLS,
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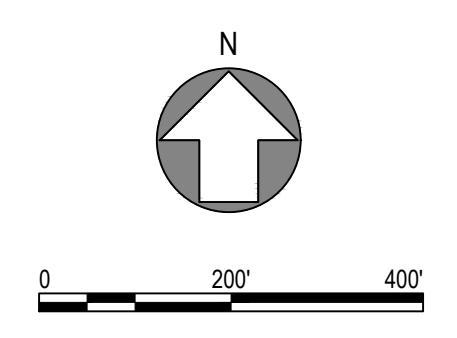
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Sheet Size: ANSI EXPAND D (34.00 X 22.00 INCHES) Plot Scale: 1"

Drawing Name: S:\241731.01.dwg
File Path: J:\Projects\241731.01\DWG\SBP Wetland - Chickasaw County\17 Design\2 Drawings\ Sheets



HORIZONTAL SURVEY CONTROL - IA RCS ZONE 2 (MASON CITY) / NAVD88

POINT NAME	NORTHING US SURVEY FEET	EASTING US SURVEY FEET	ELEVATION	LONG DESCRIPTION
CP-9000	9730053.86	12568850.29	1004.93	5/8" REBAR 676' +/- NORTH OF EASTWEST POWERLINE; 555' +/- WEST OF NORTH/SOUTH POWERLINE; 1978' +/- SOUTH OF 260TH STREET



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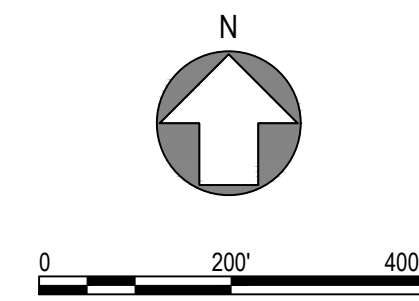
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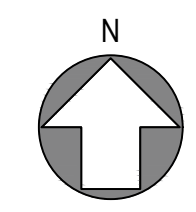


EXISTING SITE PLAN

Plotted By: ANTHONY BLANKMAN
 Sheet Size: ANSI EXPAND D (34.00 X 22.00 INCHES) Plot Scale: 1" = 40'



Drawing Name: S:241731.01.dwg
 File Path: J:\Projects\241731\01-D\ALS\BP Wetland - Chickasaw County\17 Drawings\2 Drawings\ Sheets



0 200' 400'

BUILD TABLE		
DESCRIPTION	UNIT	QUANTITY
SITE STRIPPING AND PREPARATION	LS	1
TILE INVESTIGATION	LS	1

- GENERAL NOTES:**
- SITE STRIPPING & PREPARATION SHALL BE LIMITED TO THE AREAS OF EXCAVATION, EARTHFILL, NORMAL POOL, AND SITE ACCESS ROUTE.
 - STAGING AND MATERIALS STORAGE SHALL BE KEPT WITHIN THE LIMITS OF CONSTRUCTION.
 - TILE EXPLORATION AREAS INCLUDE DOWNSTREAM OF KNOWN TILE LOCATIONS ALONG WITH UNDER THE EMBANKMENT.



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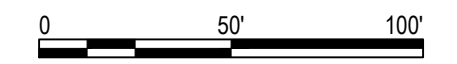
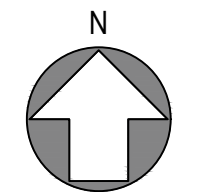
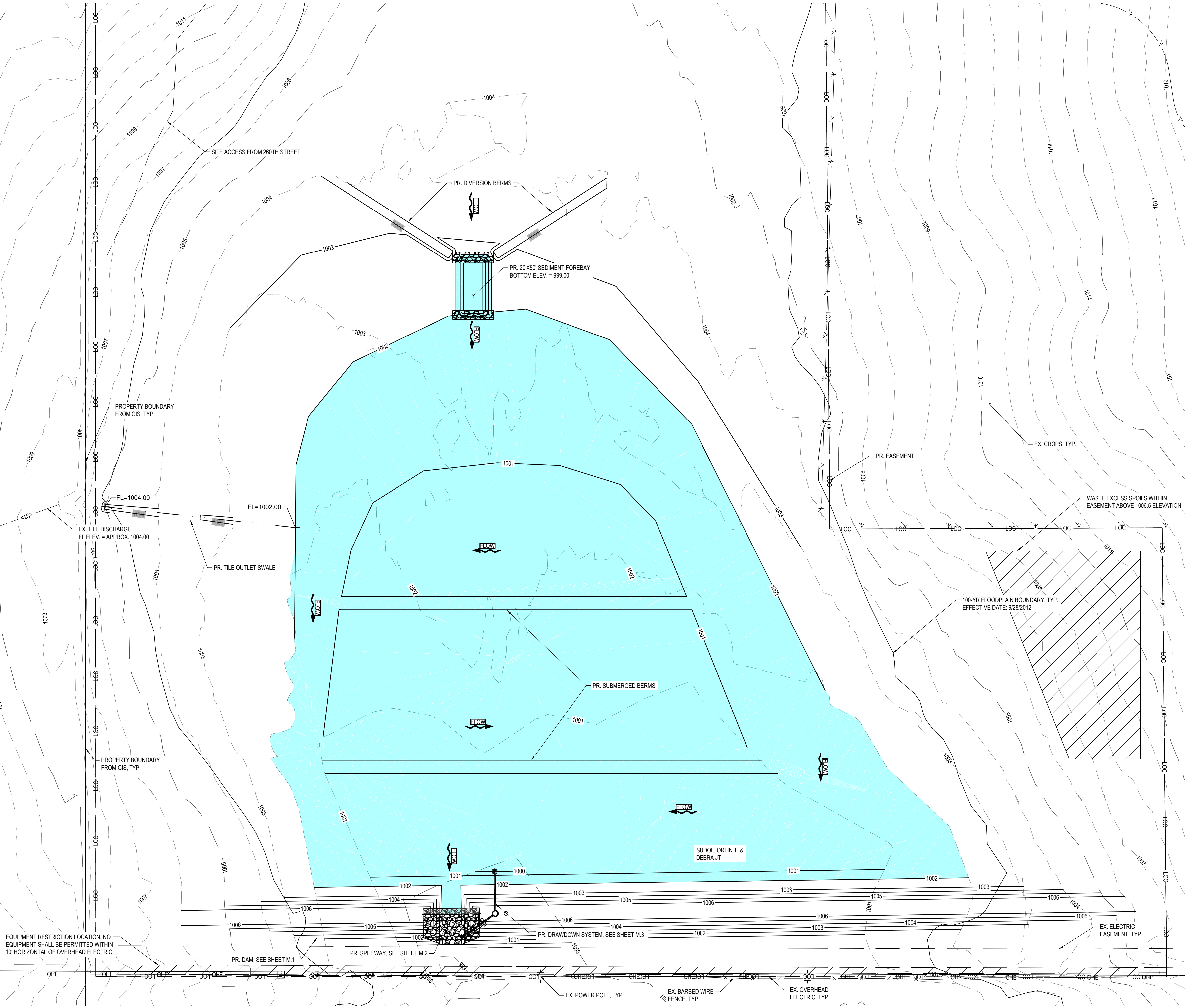
**2025
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 WETLAND
 CHICKASAW COUNTY, IA
 CHI941410B**

IOWA DEPARTMENT OF
 AGRICULTURE AND LAND
 STEWARDSHIP

JEO Project No.: 241731.01
 Sheet Size: 22" x 34"
 Drawn by: NJB
 QAQC: JGP
 ADDITIONAL INFO:



OVERALL PROPOSED SITE PLAN



EARTHWORK TABLE

DESCRIPTION	CUT (CU. YDS.)	FILL (CU. YDS.)
EXCAVATION (CORE TRENCH)	1,985	0
EXCAVATION (BORROW)	8175	0
EXCAVATION (SEDIMENT FOREBAY)	230	0
EXCAVATION (TILE OUTLET SWALE)	25	0
EARTHFILL (DAM)	0	6,270
EARTHFILL (DAM AS CONSTRUCTED)	0	175
EARTHFILL (DAM CORE)	0	1,985
EARTHFILL (DIVERSION DAM)	0	75
EARTHFILL (SUBMERGED BERMS)	0	235
TOPSOIL PLACEMENT	0	6,805

ROCK RIPRAP	
LOCATION	TONS
SEDIMENT FOREBAY NORTH	52
SEDIMENT FOREBAY SOUTH	41

GENERAL NOTES:

1. TOPSOIL ALL DISTURBED AREAS ABOVE ELEVATION 1000.00 WITH 6" TOPSOIL.
2. ADD 6" TOPSOIL IN SHALLOW GRADED POOL AREA (LESS THAN 3' DEEP) IF DISTURBED DURING CONSTRUCTION ACTIVITIES.
3. STRIP 12 INCHES OF TOPSOIL IN EARTHWORK AREAS. ESTIMATED STRIPPED TOPSOIL QUANTITY = 14,100 CY.
4. ELECTRIC EASEMENT IS 30' TO THE NORTH OF THE CENTER LINE OF OVERHEAD ELECTRIC LINES. NO EQUIPMENT SHALL BE PERMITTED WITHIN 10' HORIZONTAL OF OVERHEAD ELECTRIC. UTILITY COMPANY INTENDS TO REPLACE OVERHEAD ELECTRIC POLES IN THE NEAR FUTURE.
5. NO EARTHWORK CUT/FILL FACTOR WAS USED.
6. EARTHWORK IS TO BE BALANCED ON-SITE.



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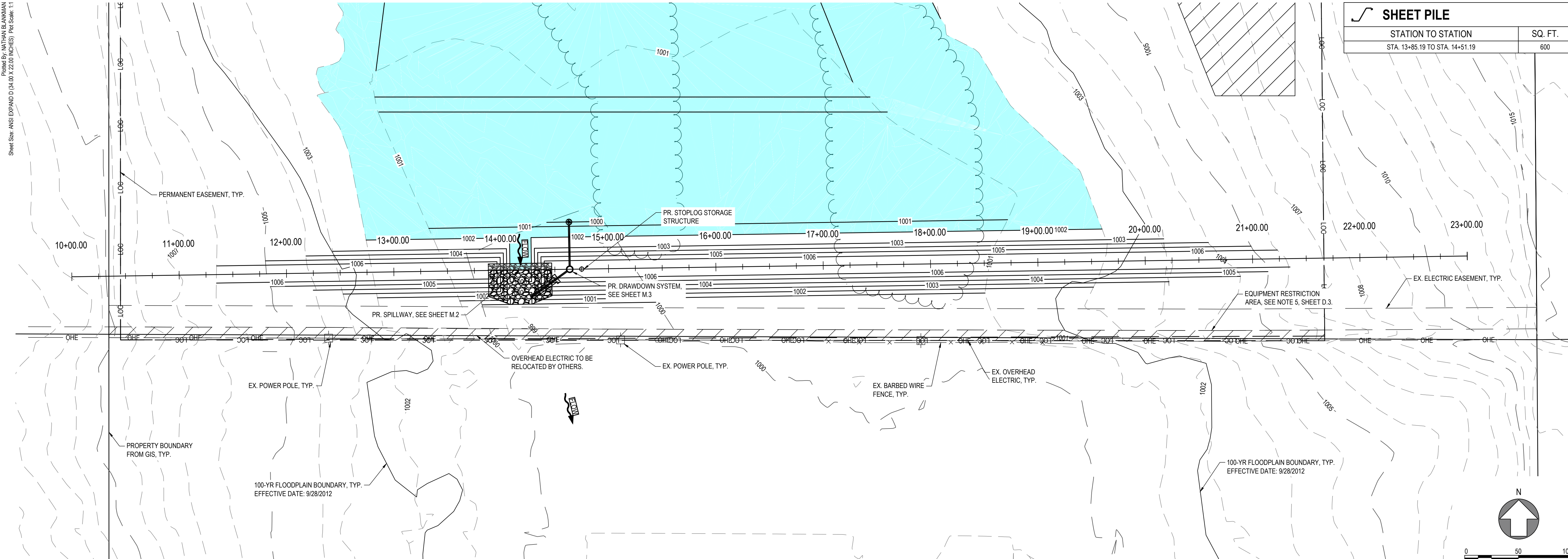
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PROPOSED GRADING PLAN

Printed By: NATHAN BLANKMAN
 Sheet Size: ANSI EXPAND D (34.00 X 22.00 INCHES) Plot Scale: 1:1



 SHEET PILE	STATION TO STATION STA. 13+85.19 TO STA. 14+51.19	SQ. FT. 600
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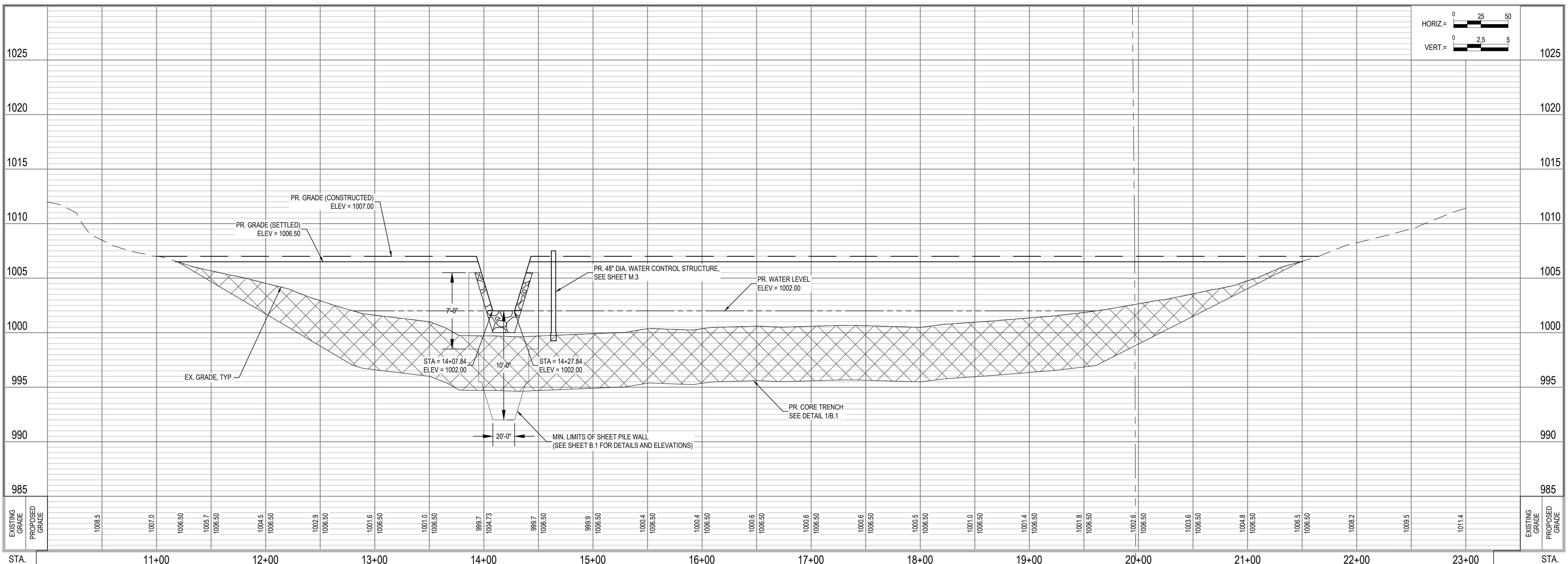
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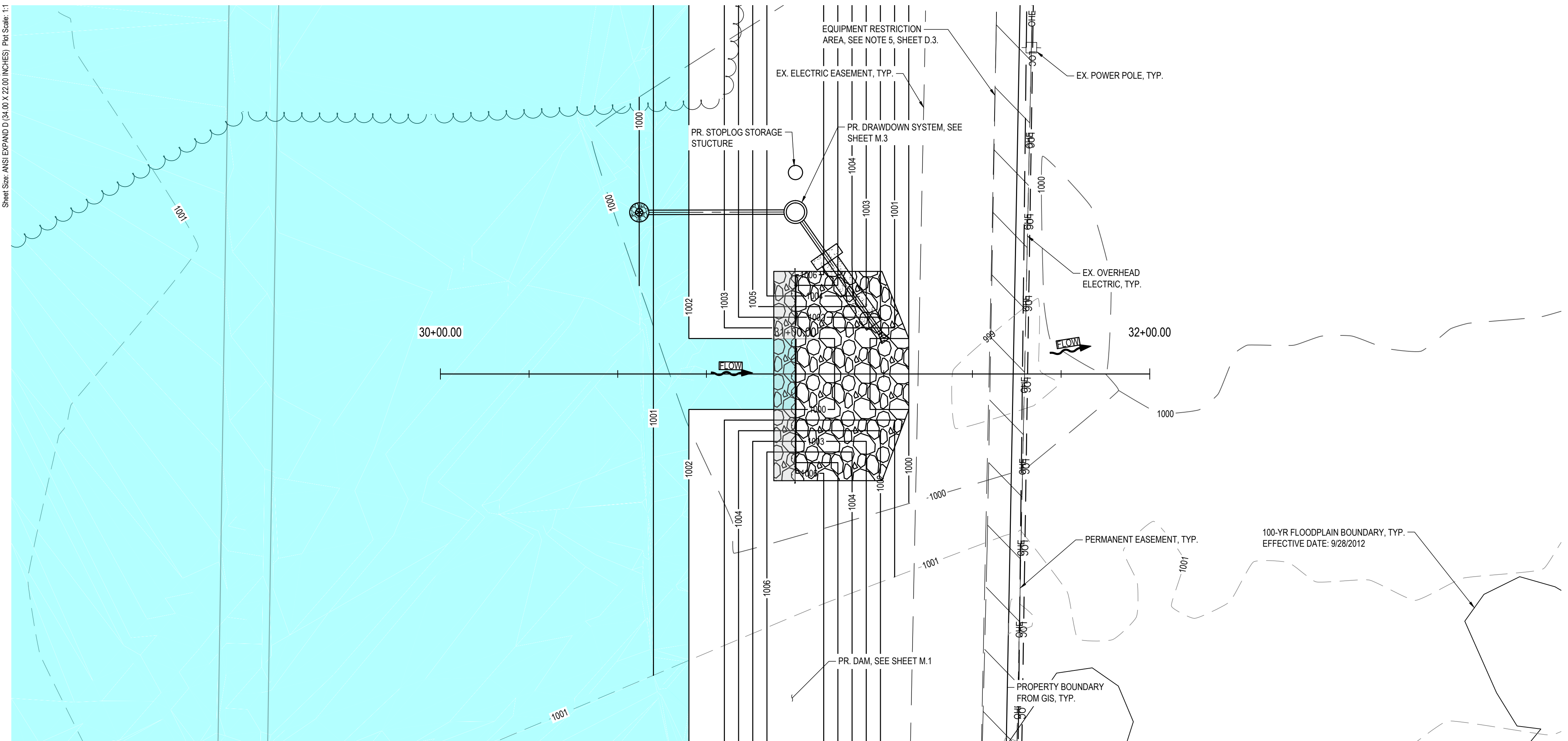
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S-241731.01 - M.1

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 File Path: J:\Projects\241731\10-DALS\BP Wetland - Chickasaw County\17 Design\2 Drawings\ Sheets

Plotted By: ANTHONY BLANKMAN
 Sheet Size: ANSI EXPAND D (34.00 X 22.00 INCHES) (Plot Scale: 1:1)



GEOTEXTILE FABRIC	
STATION TO STATION	SQ. YDS.
STA. 30+94.00 TO STA. 31+32.06	235

ROCK RIPRAP	
STATION TO STATION	TONS
STA. 30+94.00 TO STA. 31+32.06	332

CONCRETE GROUT	
STATION TO STATION	CY
STA. 30+94.00 TO STA. 31+32.06	8



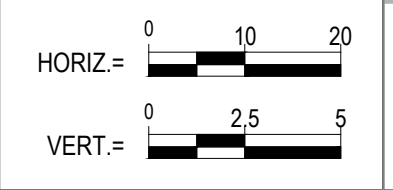
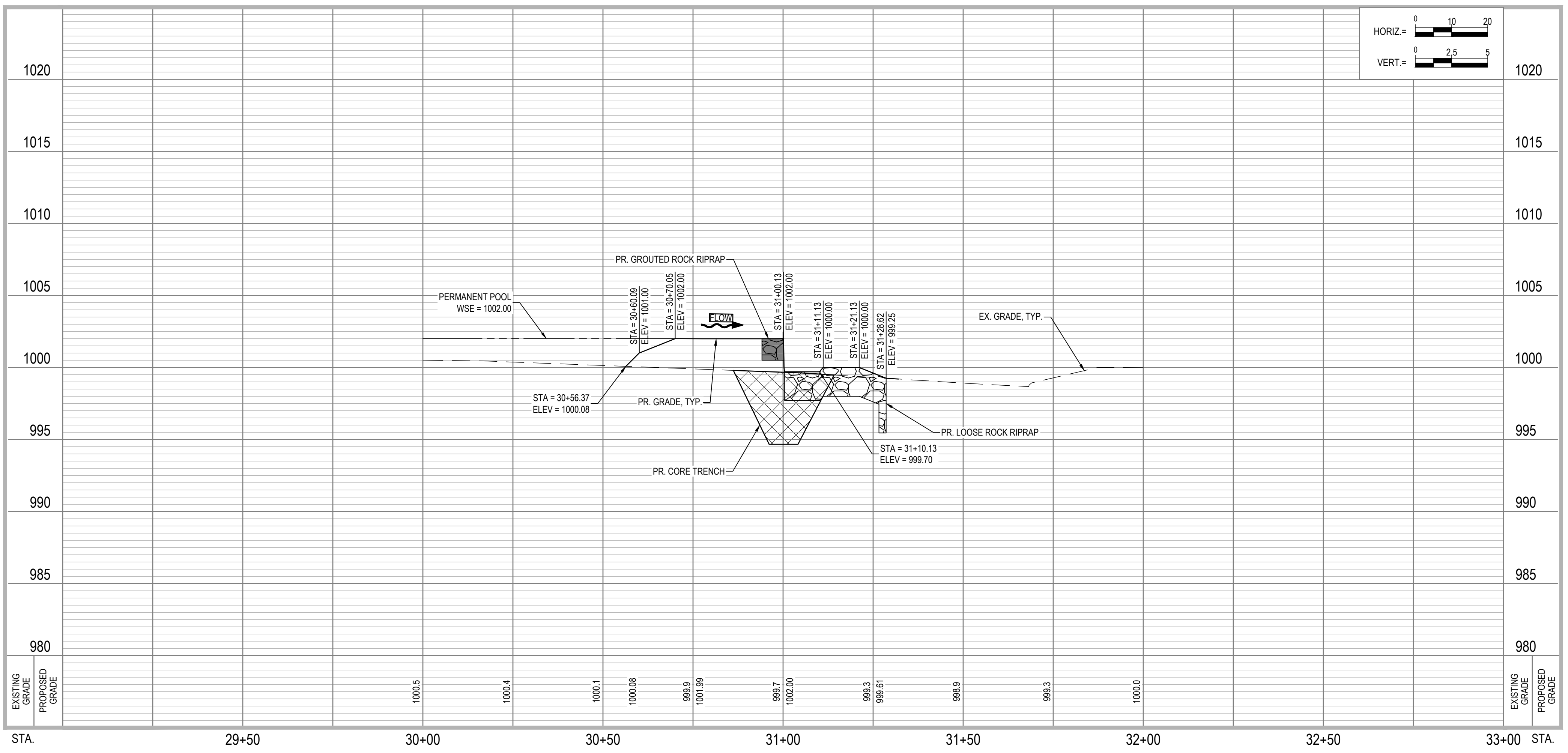
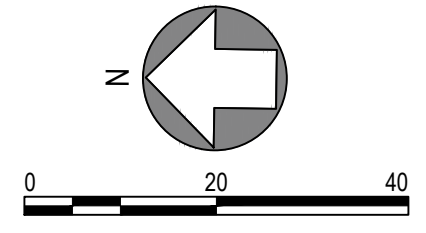
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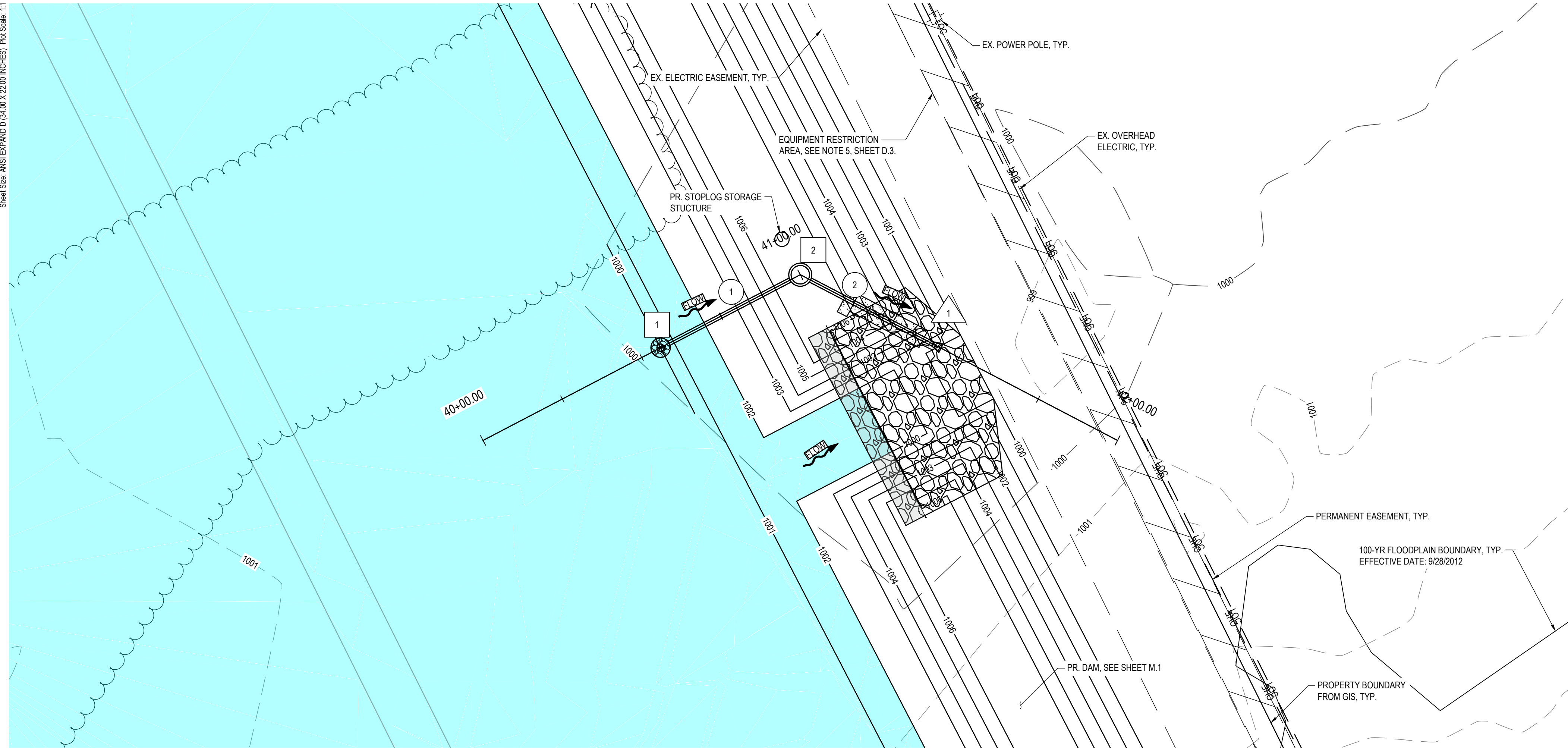
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S-241731.01 - M.2

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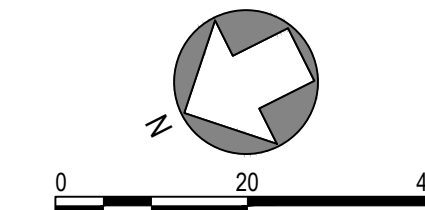


# FLARED END SECTION, CMP			
NO.	STATION	SIZE	EACH
1	41+41.95	15"	1

# CMP PIPE (15" DIA.)				
NO.	STRUCTURE TO STRUCTURE	SIZE	LIN. FT.	SLOPE
1	CMP RISER INLET STRUCTURE TO CMP WATER CONTROL STRUCTURE	15"	44	0.25%
2	CMP WATER CONTROL STRUCTURE TO FLARED END SECTION, CMP	15"	42	0.25%

# DRAWDOWN STRUCTURES					
NO.	DESCRIPTION	SIZE	RIM ELEV.	FL ELEV. (IN)	FL ELEV. (OUT)
1	CMP RISER INLET STRUCTURE	24"	1003.00		15' = 1000.00 (S)
2	CMP WATER CONTROL STRUCTURE	48"	1007.50	15' = 999.89 (N)	15' = 999.89 (SW)

# DRAINFILL	
STATION TO STATION	CU. YDS.
STA. 41+13.95 TO STA. 41+38.81	12




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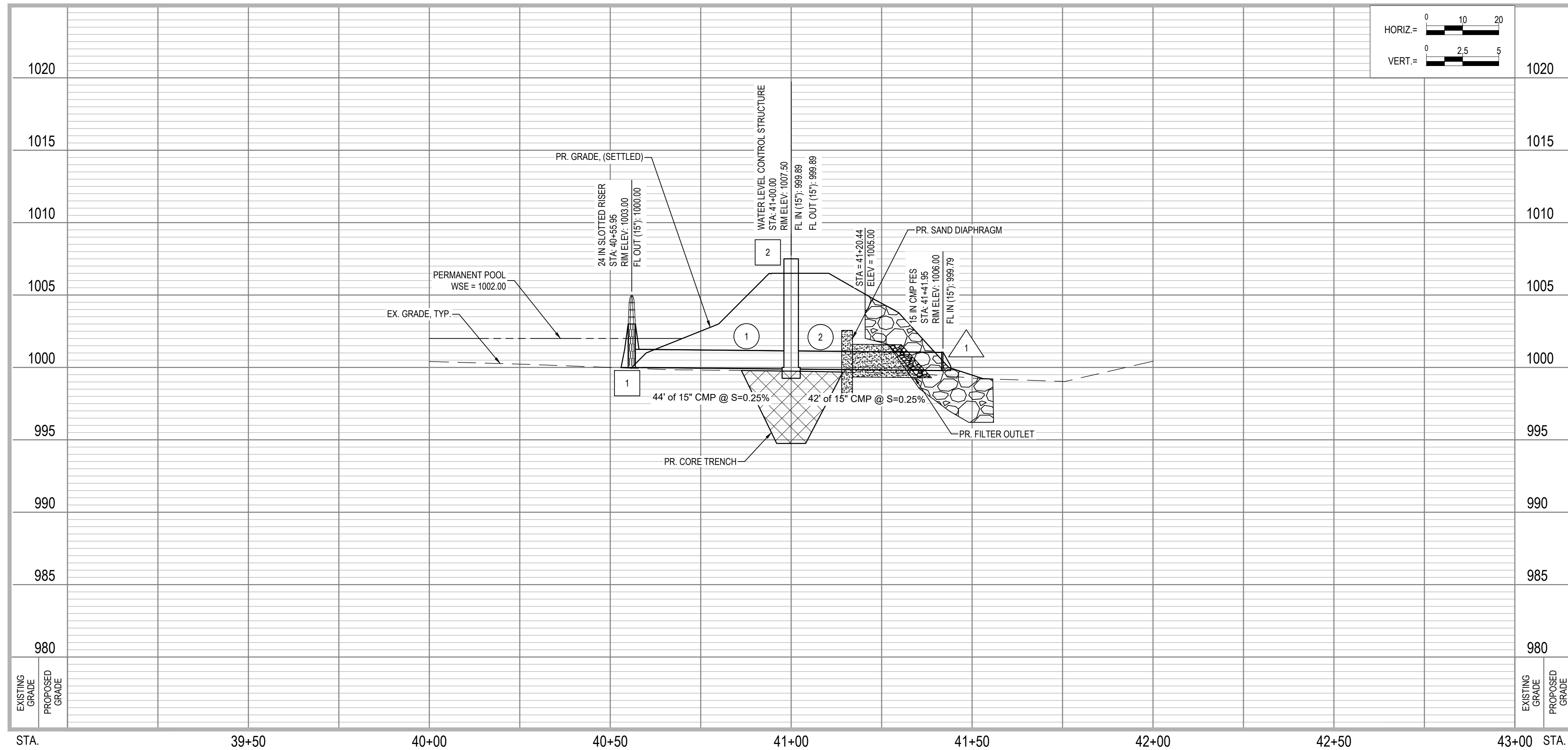
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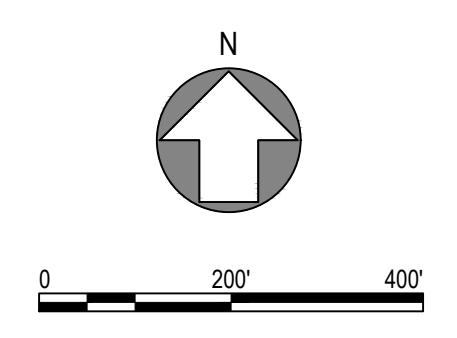


S-241731.01 - M.3



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Drawing Name: S:\241731\01.dwg
 File Path: J:\Projects\241731\01\DWG\BP Wetland - Chickasaw County\17 Drawings\ Sheets



SEEDING, FERTILIZER, AND MULCH		
TYPE	HATCH	AC.
STRUCTURE		1.1
BUFFER		18.9
WATERWAY		0.1

SILT FENCE	
LOCATION	LIN. FT.
SOUTH OF DAM EMBANKMENT	1115

- GENERAL NOTES:**
- STRUCTURE SEEDING TO BE INSTALLED ABOVE THE 1002.00 ELEVATION ON THE POOL SIDE OF THE STRUCTURE. INSTALL SEEDING AND MULCH ON ENTIRE TOP AND DOWNSTREAM SIDE AND EXTEND TO 5' OUTSIDE OF THE TOE AS NECESSARY.
 - BUFFER SEEDING AND MULCH TO BE INSTALLED ON ALL OTHER DISTURBED AREAS WITHIN THE LIMITS OF CONSTRUCTION. EXCLUDING BELOW THE 1002.00 ELEVATION WITHIN THE POOL. SEEDING AND MULCHING TO EXTEND 5' INSIDE THE NORMAL POOL. MULCH FOR NATIVE SEEDING TO BE PROVIDED ON ALL SLOPES STEEPER THAN 4:1.
 - RESEED DISTURBED CROP GROUND WITH OAT COVER CROP.
- ANTICIPATED CROP DAMAGES: 0.0 ACRES.

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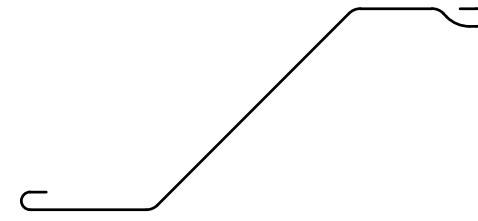
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 ADDITIONAL INFO:

US SURVEY FEET (±FT)

**SEEDING AND EROSION CONTROL
 PLAN**

DESIGN NOTES:

1. DESIGN SHEET PILE AREA = 600 SF
2. SHEET PILE:
 - MINIMUM SECTION MODULUS = 24.2 CU.IN. PER FT. OF WALL
 - MINIMUM THICKNESS = 0.375 IN.
 - MINIMUM STEEL GRADE = 36 KSI
 - MEET ASTM A-328, A-572, OR A-690 MATERIAL SPECIFICATION
 - MINIMUM MOMENT OF INERTIA OF 152 IN. PER FOOT OF WALL
3. PILING TO BE INSTALLED STARTING FROM THE CENTER OF THE WEIR SECTION AND PROGRESSING AWAY FROM CENTERLINE.
4. ALTERNATE SHEET PILE SECTIONS THAT MEET THE MINIMUM REQUIREMENTS NOTED ABOVE MUST BE PRE-APPROVED BY THE ENGINEER PRIOR TO THE BID. ALTERNATES MUST BE SUBMITTED PRIOR TO THE PRE-BID MEETING. APPROVED ALTERNATES WILL BE PUBLISHED IN AN ADDENDUM.

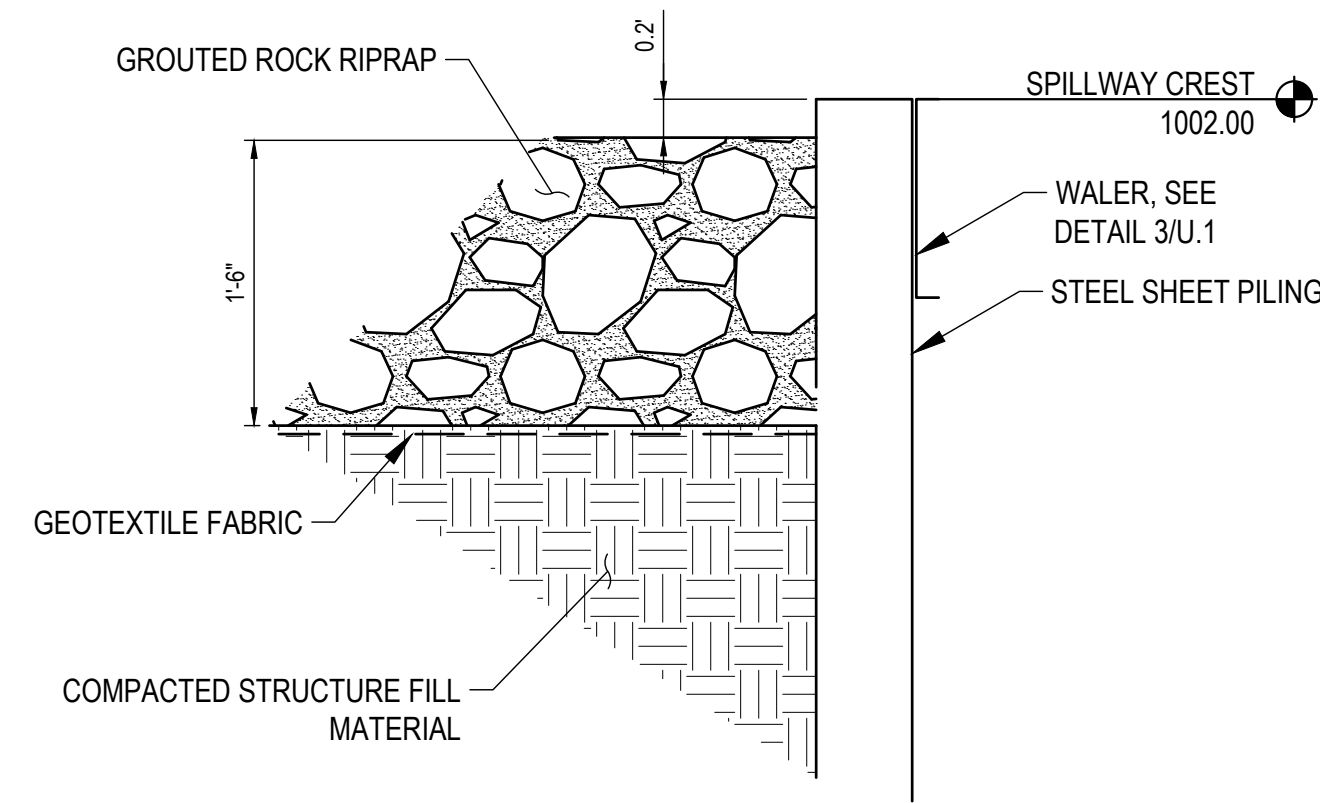


PZC 13 SHEET PILE CROSS-SECTION

SCALE: N.T.S.

1 SHEET PILING DETAIL

SCALE: N.T.S.



NOTES:

AN AREA 6' WIDE ADJACENT TO THE SHEET PILE, EXTENDING THE LENGTH OF THE WEIR SHALL BE CONSTRUCTED FROM EXCESS GROUT TO HAVE A FLAT, LEVEL SURFACE WITH FLOAT FINISH. NO PORTION OF THIS AREA OR THE RIPRAP UPSTREAM SHALL EXCEED ELEVATION 1001.80.

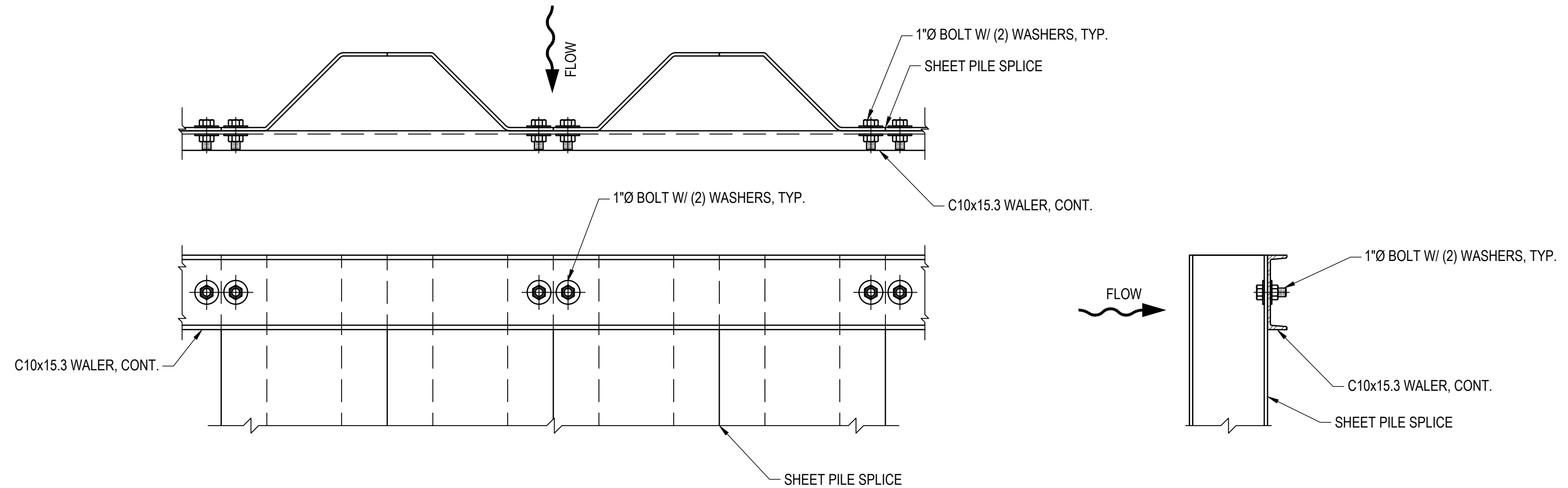
FINISH GROUT / RIPRAP SHALL BE 0.2 FEET BELOW TOP OF SHEET PILING.

2 GROUDED ROCK RIPRAP (UPSTREAM SECTION)

SCALE: N.T.S.

NOTES:

1. ALL BOLTS WILL BE 1" DIA. WITH 2 WASHERS, BOLT SHALL BE EXTENDED A MINIMUM OF 1/2" BEYOND THE NUT.
2. ALL HOLES SHALL BE DRILLED 1/16" DIA LARGER THAN THE BOLT.
3. IT IS RECOMMENDED THAT THE WALER SHALL BE PLACED ON THE DOWNSTREAM SIDE OF THE WEIR.
4. ANY HOLES LEFT IN THE SHEET PILE (LIFTING HOOKS, ETC.) SHALL BE CLOSED OFF TO NOT ALLOW WATER TO FLOW THROUGH SHEET PILE.
5. AFTER SHEETING AND WALER INSTALLATION ALL SHEETING IS TO BE CUT TO CONFORM WITH 3:1 SLOPE.
6. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATION AISC. FABRICATOR SHALL SUBMIT SHOP DRAWINGS. FABRICATE AFTER ENGINEER'S REVIEW.
7. DEFLECTION SHALL BE MADE IN FABRICATED PIECES AND STILL CONFORM TO THE DIMENSIONS.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LIVE LOADS.
9. PROVIDE ALL NECESSARY TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.
10. IF CONTRACTOR WISHES TO WELD WALER TO SHEET PILE INSTEAD OF BOLTING, CONTRACTOR MUST PROVIDE ENGINEER THE DESIGN AND SPECIFICATIONS THEY INTEND TO FOLLOW.



3 WALER DETAIL

SCALE: N.T.S.



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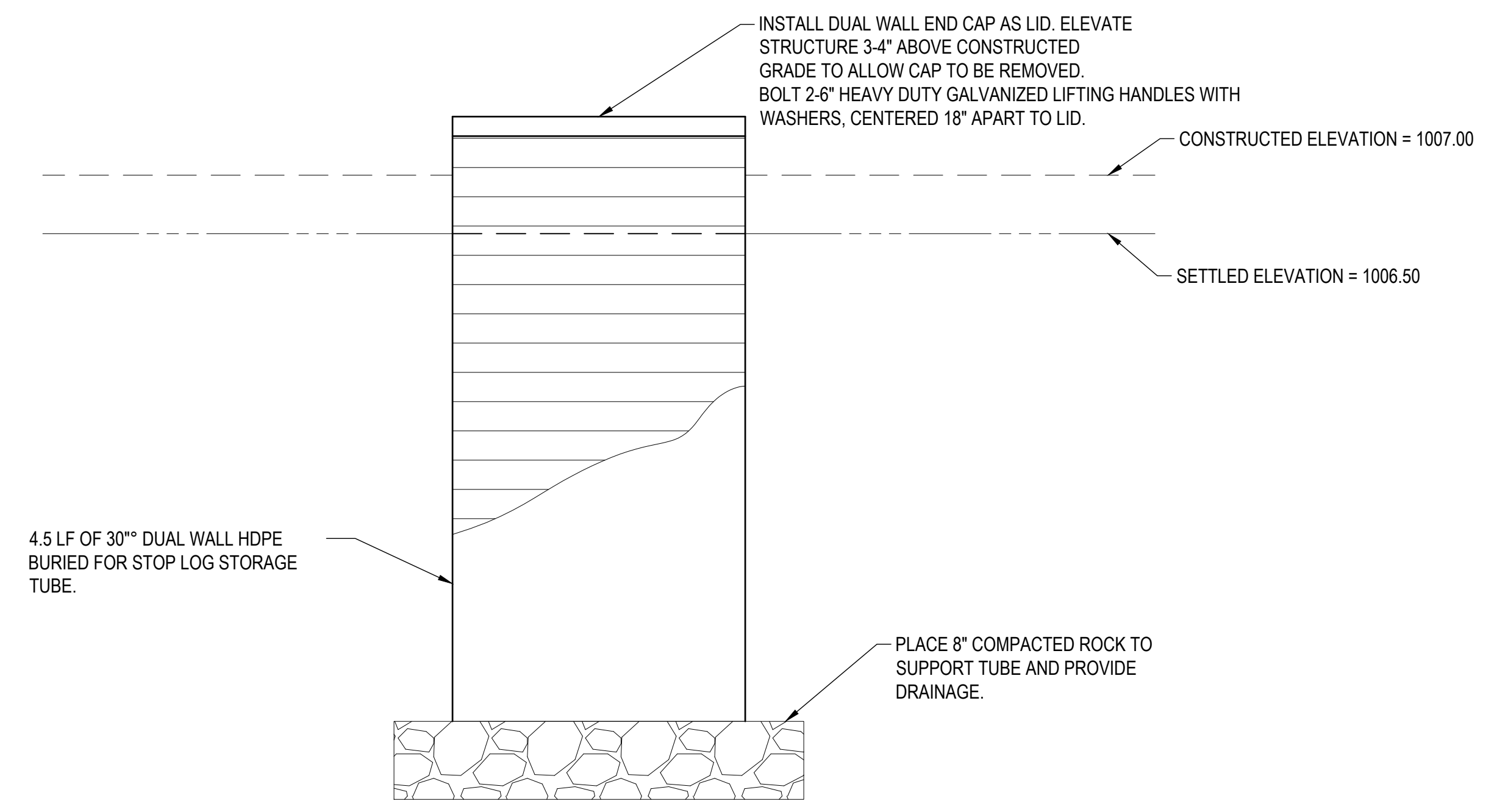
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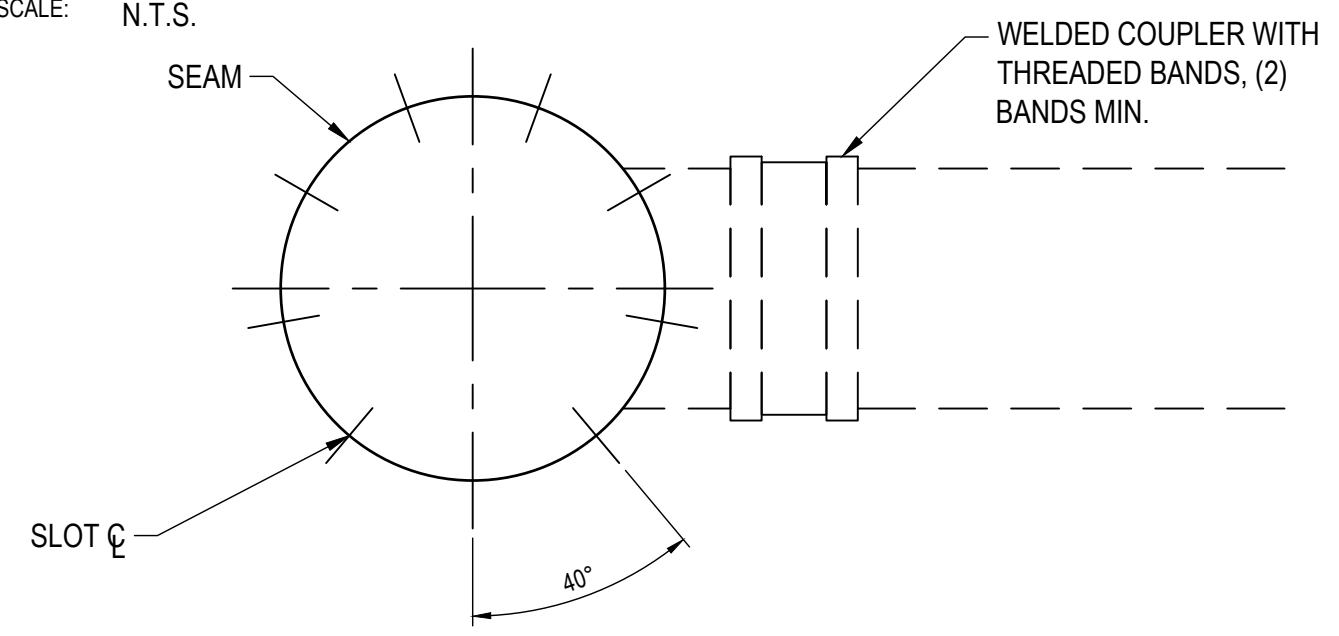
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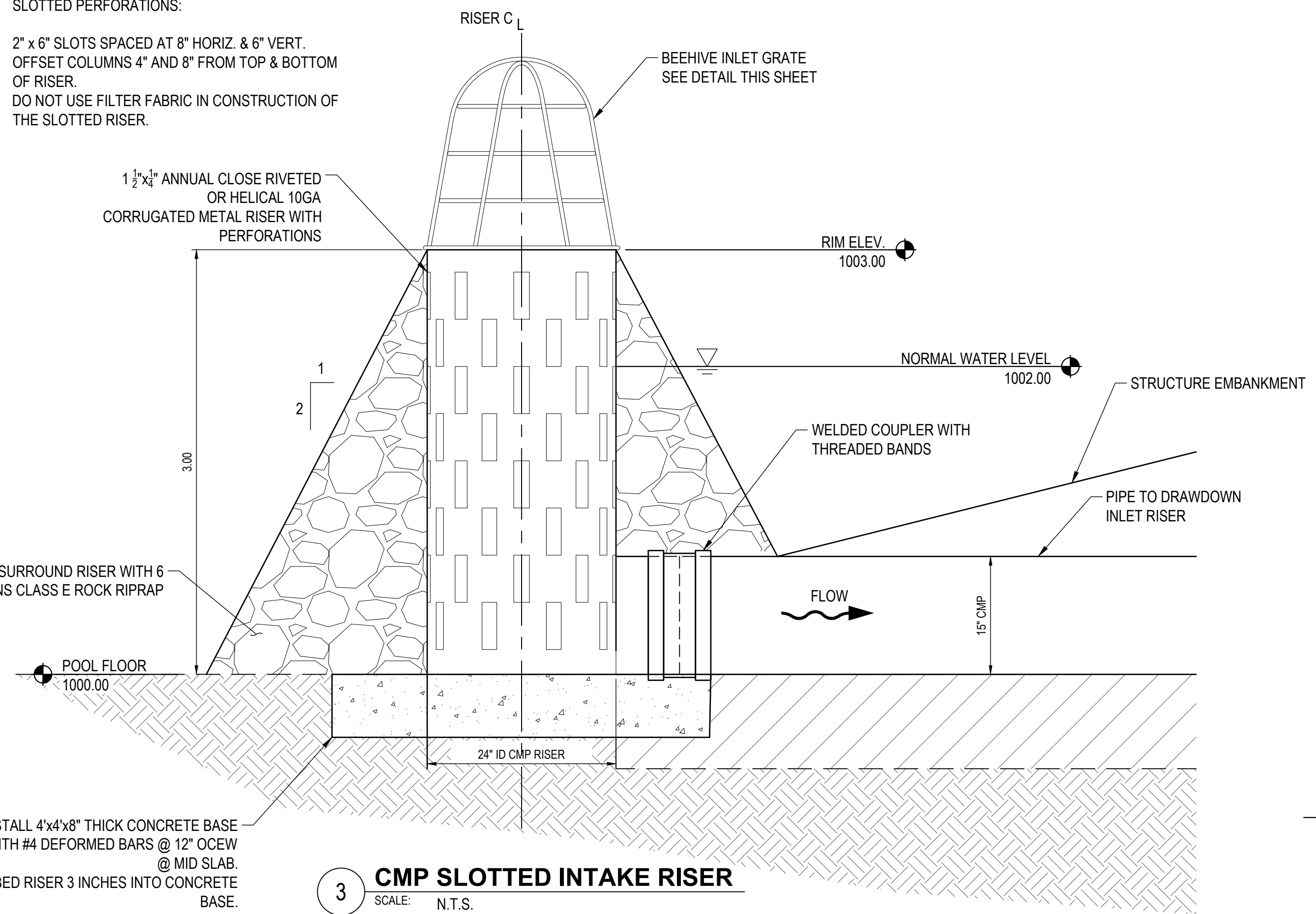


1 COVER & STOP LOG STORAGE STRUCTURE
 SCALE: N.T.S.



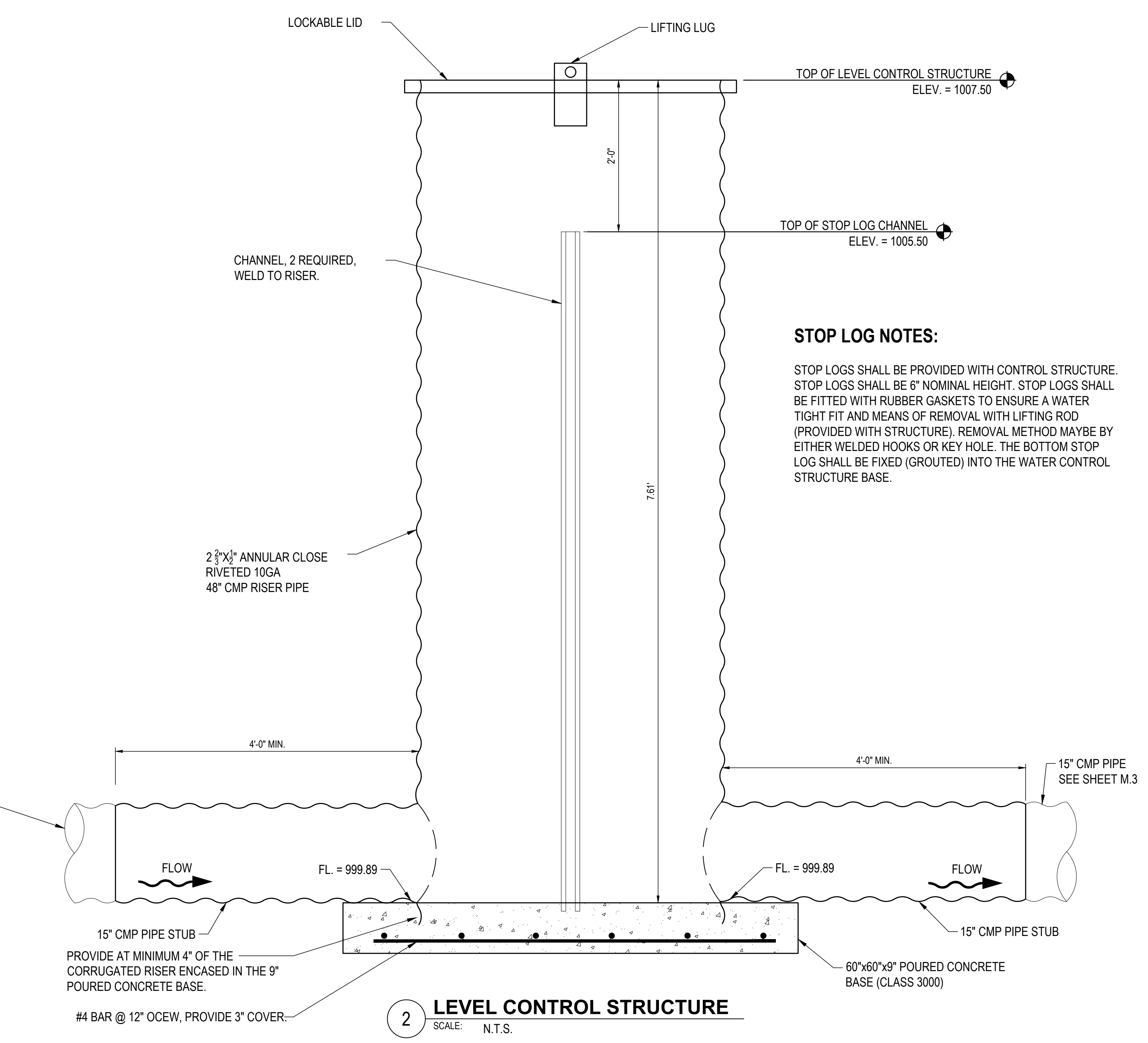
NOTE:
 SLOTTED PERFORATIONS:

2" x 6" SLOTS SPACED AT 8" HORIZ. & 6" VERT.
 OFFSET COLUMNS 4" AND 8" FROM TOP & BOTTOM
 OF RISER.
 DO NOT USE FILTER FABRIC IN CONSTRUCTION OF
 THE SLOTTED RISER.



3 CMP SLOTTED INTAKE RISER
 SCALE: N.T.S.

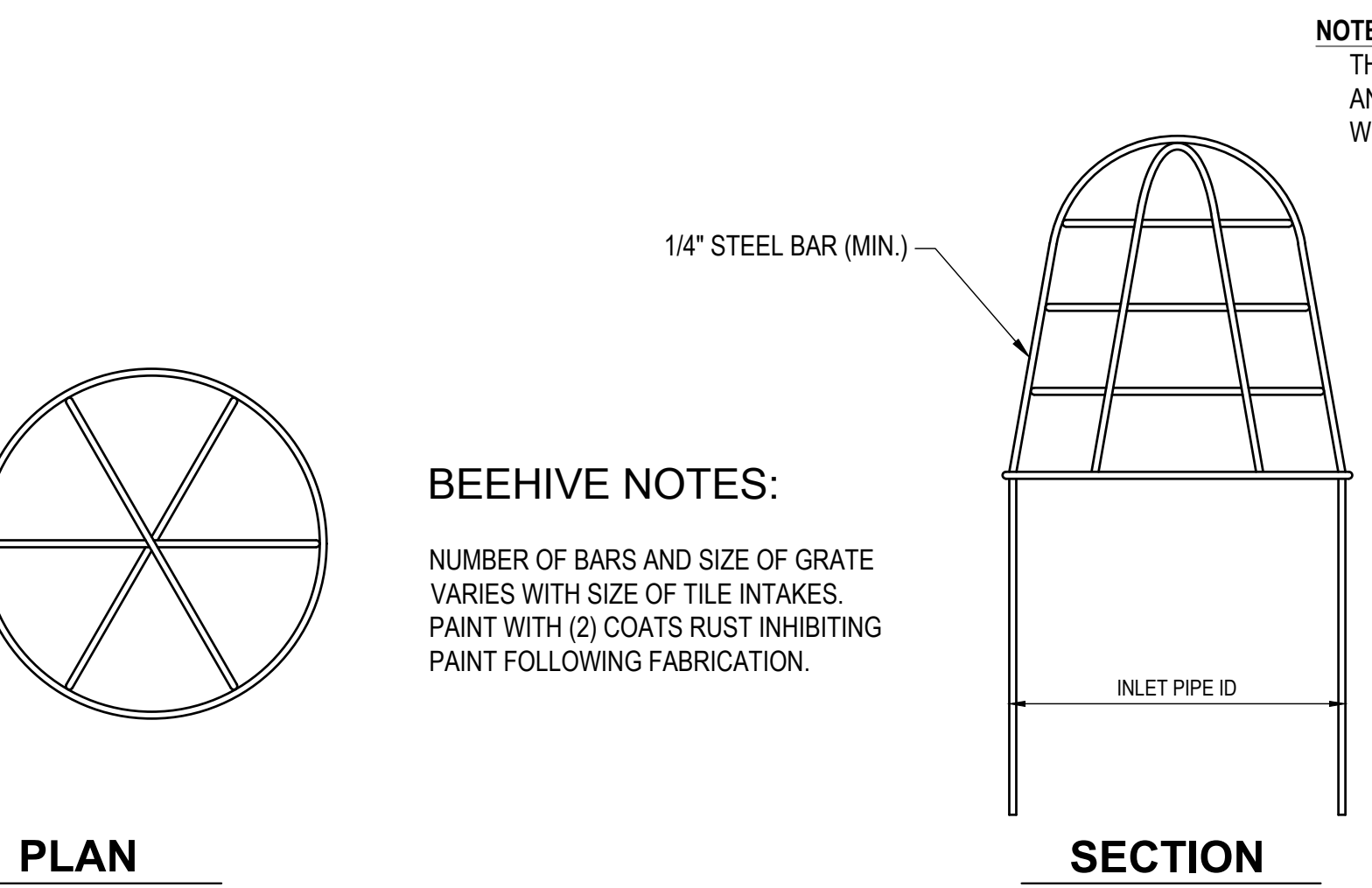
INSTALL 4"x4"x8" THICK CONCRETE BASE
 WITH #4 DEFORMED BARS @ 12" OCEW
 @ MID SLAB.
 EMBED RISER 3 INCHES INTO CONCRETE
 BASE.



2 LEVEL CONTROL STRUCTURE
 SCALE: N.T.S.

STOP LOG NOTES:

STOP LOGS SHALL BE PROVIDED WITH CONTROL STRUCTURE.
 STOP LOGS SHALL BE 6" NOMINAL HEIGHT. STOP LOGS SHALL
 BE FITTED WITH RUBBER GASKETS TO ENSURE A WATER
 TIGHT FIT AND MEANS OF REMOVAL WITH LIFTING ROD
 (PROVIDED WITH STRUCTURE). REMOVAL METHOD MAYBE BY
 EITHER WELDED HOOKS OR KEY HOLE. THE BOTTOM STOP
 LOG SHALL BE FIXED (GROUTED) INTO THE WATER CONTROL
 STRUCTURE BASE.



4 BEEHIVE INLET GRATE (STEEL BARS)
 SCALE: N.T.S.

BEEHIVE NOTES:

NUMBER OF BARS AND SIZE OF GRATE
 VARIES WITH SIZE OF TILE INTAKES.
 PAINT WITH (2) COATS RUST INHIBITING
 PAINT FOLLOWING FABRICATION.

NOTE:

THE FOLLOWING DESIGNATION FOR PIPE CLASSIFICATION, CORRUGATIONS
 AND COATINGS WHEN REFERRED TO ON THE DRAWINGS ARE IN ACCORDANCE
 WITH CURRENT ASTM'S:

A760 STANDARD SPECIFICATION FOR CORRUGATED STEEL
 PIPE, METALLIC-COATED.

A761 STANDARD SPECIFICATION FOR STEEL, GALVANIZED
 CORRUGATED STRUCTURAL PLATES AND FASTENERS.

A849 STANDARD SPECIFICATION FOR POST-COATED AND LINED
 CORRUGATED STEEL SEWER AND DRAINAGE PIPE (BITUMINOUS
 OR CONCRETE)

A885 STANDARD SPECIFICATION OF STEEL SHEET, ZINC AND
 ARIMID FIBER COMPOSITE-COATED FOR CORRUGATED STEEL
 SEWER, CULVERT AND UNDERDRAIN PIPE.

NOTE:

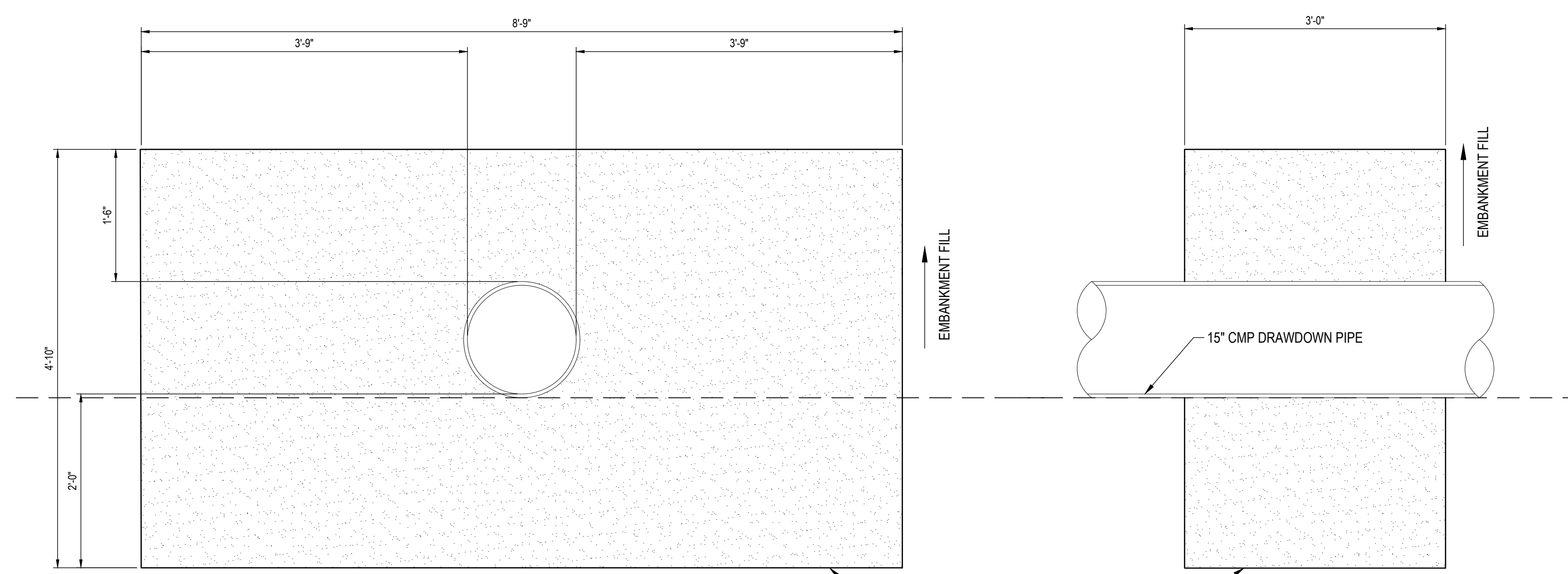
TAR MASTIC ON ALL JOINTS FOR RISER AND PIPE TEES.



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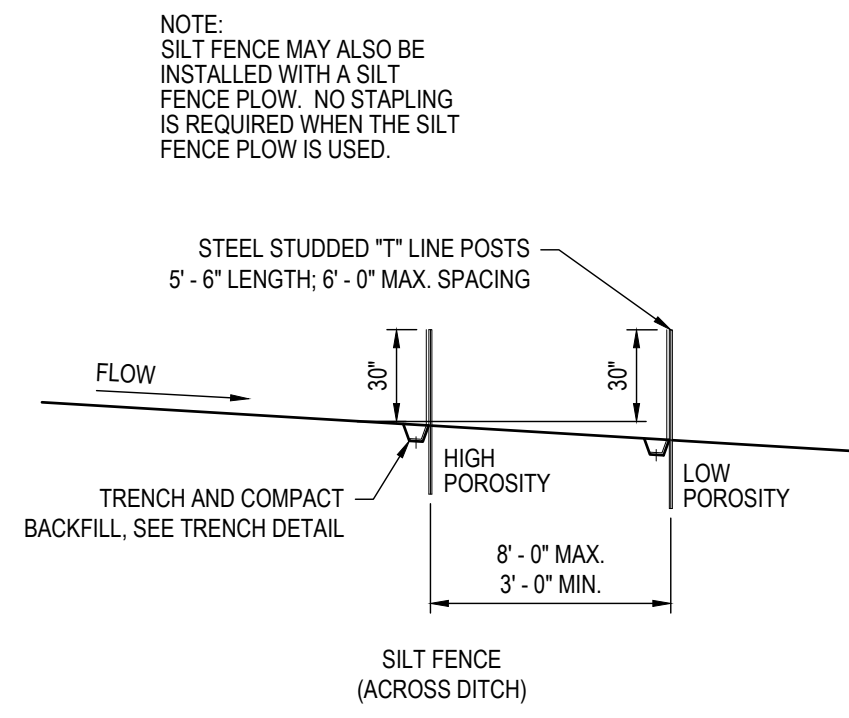
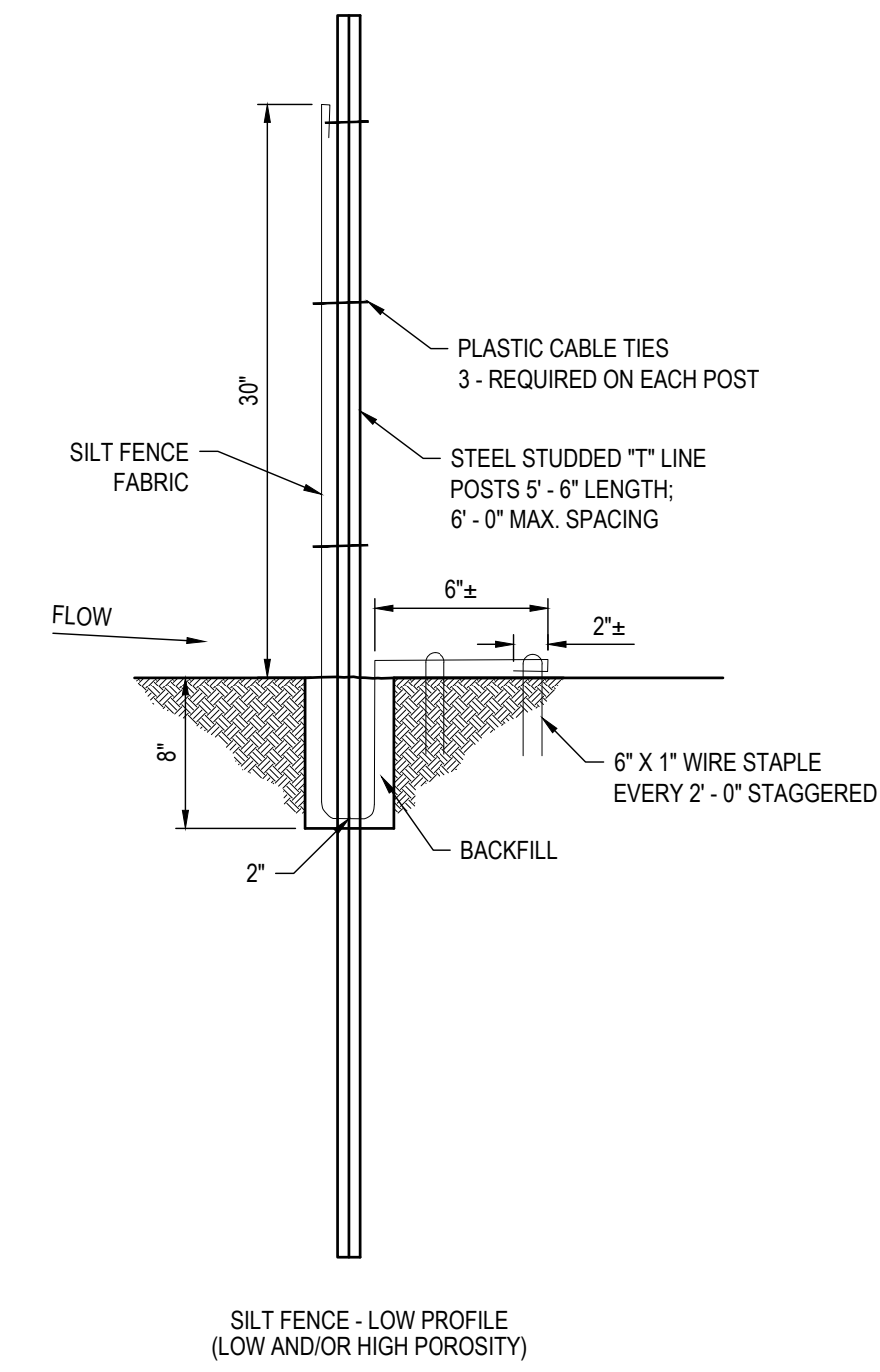
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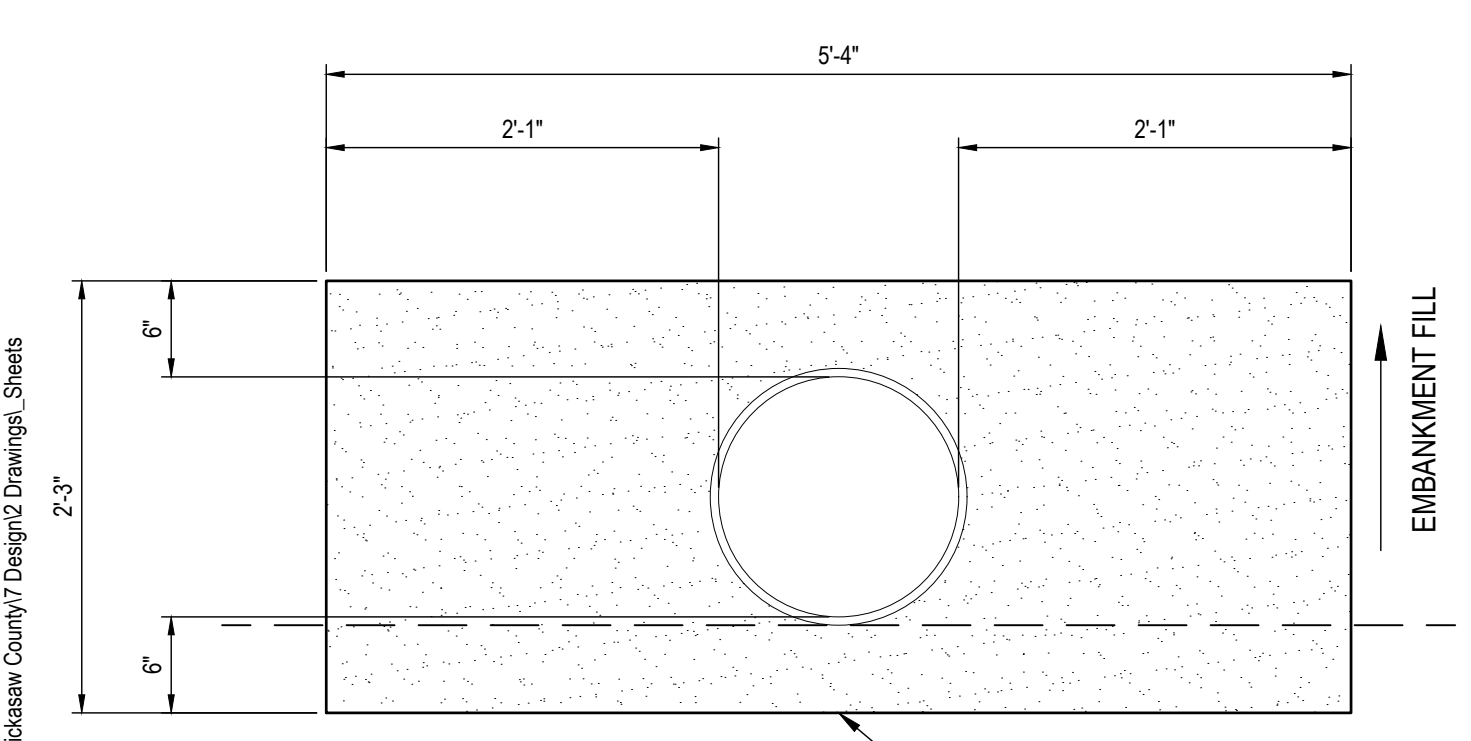
- FILTER DIAPHRAGM NOTES:**
- DRAINAGE DIAPHRAGM AND FILTER OUTLET MATERIAL SHALL MEET THE FINE DRAINFILL GRADATION OF IA-24, DRAINFILL SPECIFICATION.
 - FILTER MATERIAL SHALL BE PLACED IN 8" LIFTS MAXIMUM.
 - SEE PROFILE VIEW FOR LOCATION.

1 FILTER DIAPHRAGM OUTLET
 SCALE: N.T.S.



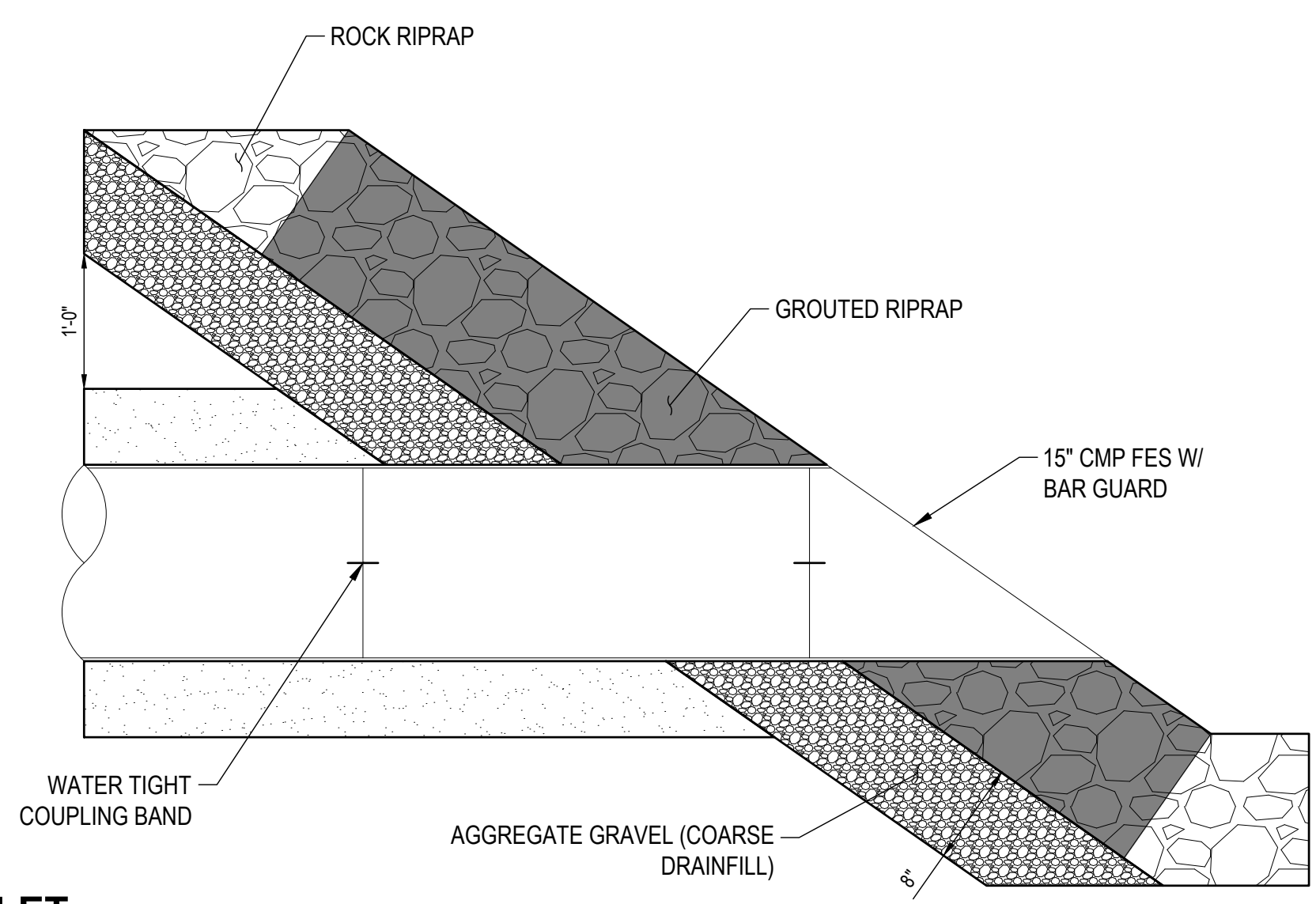
NOTE:
 SILT FENCE MAY ALSO BE
 INSTALLED WITH A SILT
 FENCE FLOW. NO STAPLING
 IS REQUIRED WHEN THE SILT
 FENCE FLOW IS USED.

3 SILT FENCE INSTALLATION DETAIL
 SCALE: N.T.S.



- FILTER OUTLET NOTES:**
- THE FILTER ENVELOPE SHALL FULLY SURROUND THE OUTLET PIPE FROM THE FILTER DIAPHRAGM TO OUTLET.
 - EXTEND GRAVEL LAYER 1' BEYOND FILTER FACE IN ALL DIRECTION.
 - DO NOT PLACE GEOTEXTILE FABRIC BETWEEN GRAVEL LAYER AND ROCK RIPRAP.

2 FILTER OUTLET
 SCALE: N.T.S.



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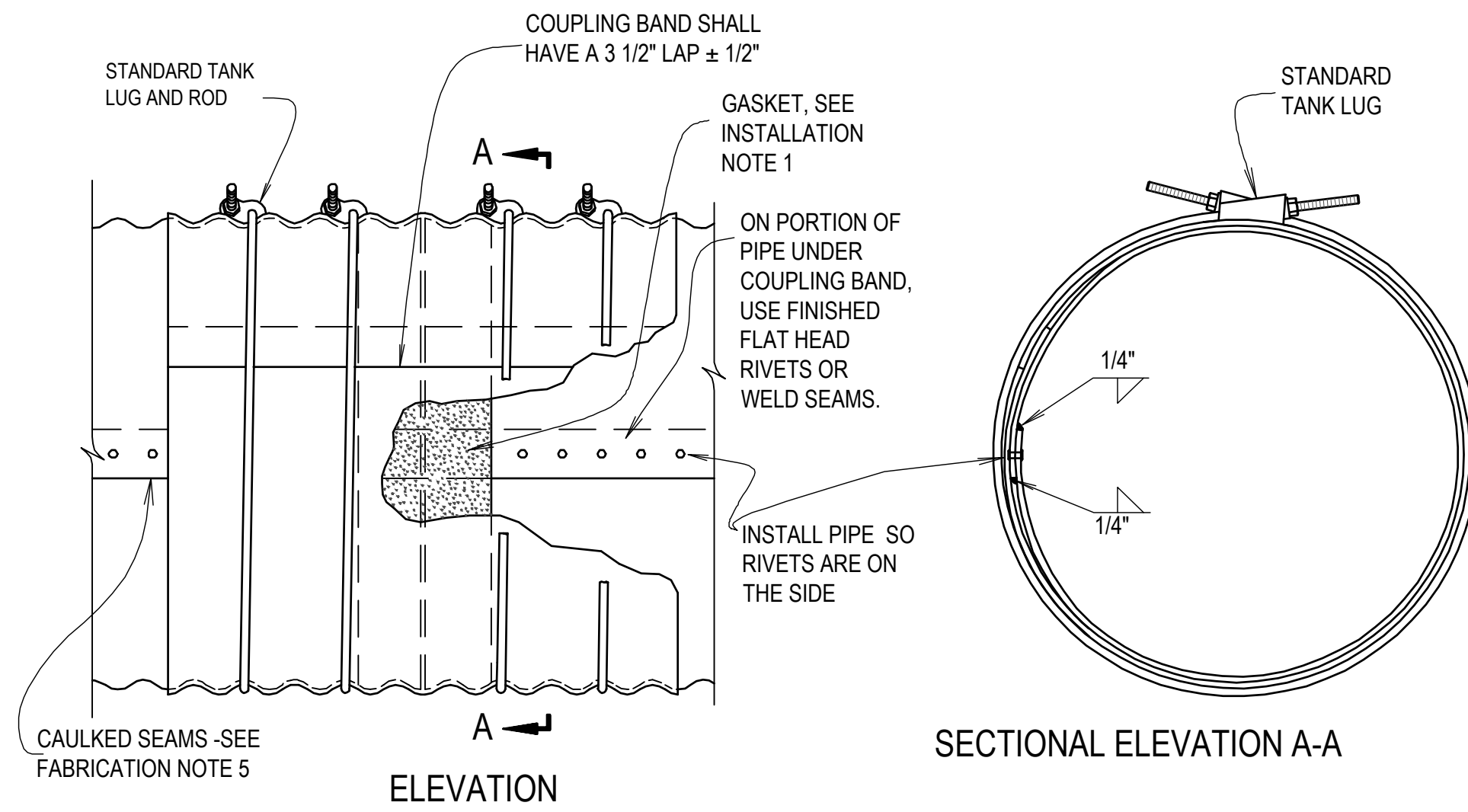
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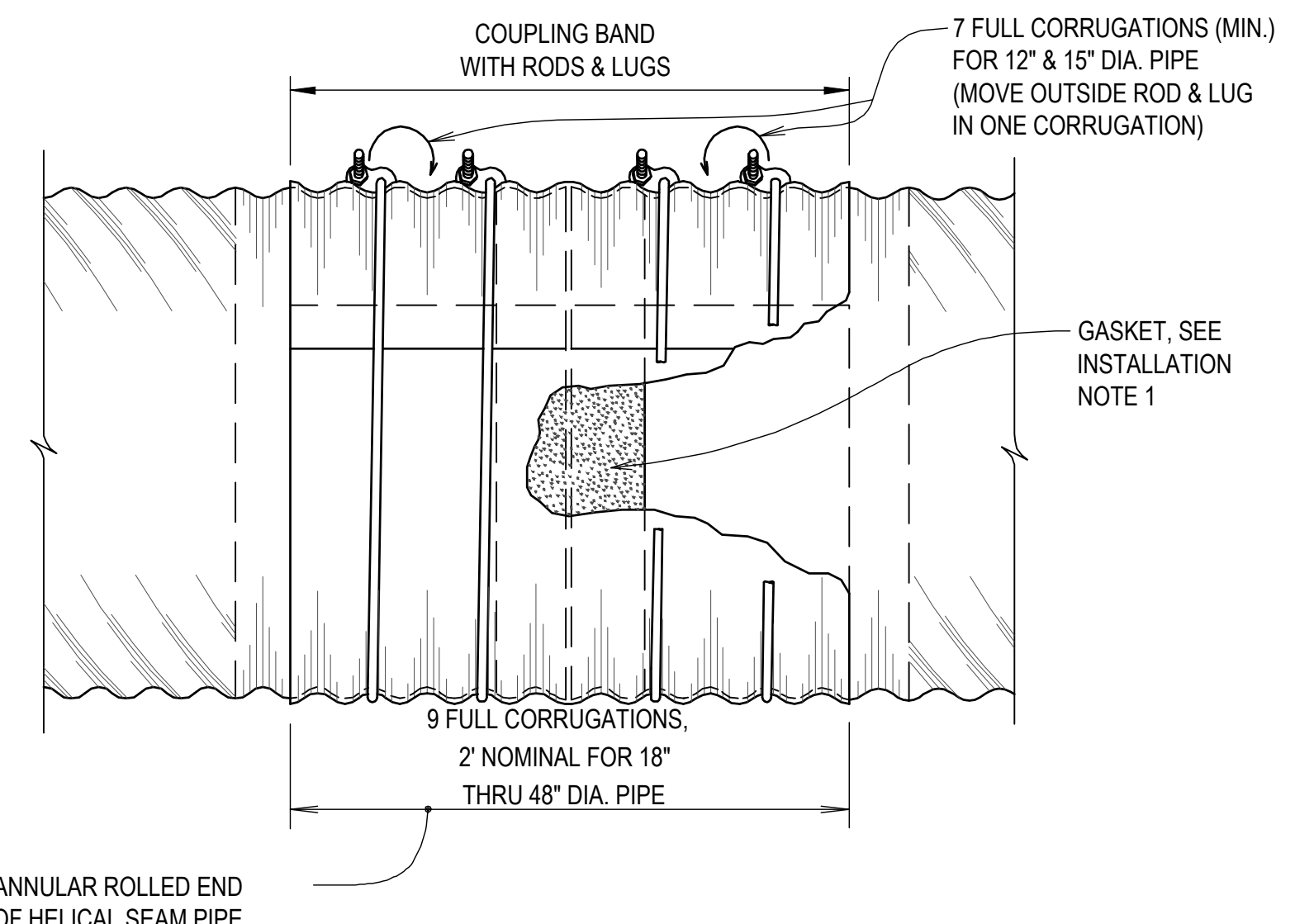
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SHEET TITLE



1 WATERTIGHT COUPLING BAND FOR ANNULAR PIPE
 SCALE: N.T.S.



2 WATERTIGHT COUPLING BAND FOR HELICAL PIPE
 SCALE: N.T.S.

- WHEN SEVERAL DIFFERENT COATINGS OR CORRUGATIONS ARE CHECKED IN THE COLUMN BOXES, EACH TYPE IS ACCEPTABLE, BUT ONLY ONE TYPE SHALL BE USED IN EACH INSTALLATION.
- COUPLING BANDS PER DETAIL "A" SHALL HAVE THE SAME CORRUGATION REQUIREMENT AND THE SAME COATING AS THE DESIGNATED PIPE.
- ALL WELDS AND ALL HEAT AFFECTED AREAS ON COATED STEEL SHALL BE THOROUGHLY CLEANED AND TREATED IN ACCORDANCE WITH ASTM'S.
- FOR PIPE LARGER THAN 15" DIAMETER, THE ROD SHALL BE 1/2" DIAMETER. DIAMETER HOLES IN THE LUGS SHALL BE 1/8" LARGER THAN THE DIAMETER OF THE ROD USED.
- DURING FABRICATION, WHEN ASPHALT COATING IS NOT USED, RIVETED SEAMS SHALL BE CAULKED WITH AS ASPHALT OR TAR BASED MATERIAL MEETING ASTM A849 TO PROVIDE A WATERTIGHT SEAM. ALL CIRCUMFERENTIAL AND LONGITUDINAL SEAMS SHALL BE CAULKED BEFORE RIVETING. THIS SHALL BE ACCOMPLISHED BY APPLYING A UNIFORM BEAD OF THE ASPHALT OR TAR BASED COMPOUND TO THE INNER LAP SURFACE BEFORE RIVETING SUCH THAT WHEN THE RIVETS ARE IN PLACE ALL VOIDS ARE FILLED.
- CLOSE RIVETED PIPE SHALL BE FABRICATED SO THAT THE RIVET SPACING IN THE CIRCUMFERENTIAL SEAMS SHALL NOT EXCEED 3 INCHES.

INSTALLATION NOTES:

- THE SLEEVE TYPE NEOPRENE GASKET SIZE SHALL BE 3/8" THICK WITH A MINIMUM WIDTH OF 7" CENTERED ON THE PIPE JOINT AND FASTENED AT ENDS TO FORM A FULL CIRCLE. IN LIEU OF A NEOPRENE GASKET, ASPHALT OR TAR BASED MASTIC MAY BE USED FOR DETAIL "1" AND "2". (SEE NOTE 5)
- IN CONNECTING THE PIPE SECTIONS, THE COUPLING BANDS WILL BE CENTERED ON THE PIPE JOINT AND ALIGNED FOR COMPLETE AND TIGHT NESTING OF CORRUGATIONS BETWEEN COUPLING BAND AND EACH PIPE SECTION. RODS AND LUGS ON COUPLING BANDS WILL BE INSTALLED ACCORDING TO THE DRAWINGS. THE NUTS ON THE RODS WILL BE TIGHTENED WITHOUT OVER STRESS AND WILL BE RETIGHTENED AT LEAST TWICE AFTER INITIAL INSTALLATION, AT INTERVALS OF APPROXIMATELY 1/2 HOUR. THE FINAL TENSION ON THE RODS SHALL BE DETERMINED BY THE ENGINEER. BACKFILLING AROUND THE PIPE, EXCEPT AT COUPLING BANDS, MAY PROCEED DURING THE INTERVALS REQUIRED FOR TIGHTENING BANDS.
- BEFORE COUPLING BANDS ARE INSTALLED ON RIVETED PIPE, THE PIPE SECTIONS THAT ARE TO BE CONNECTED SHALL BE ROTATED SO RIVETS ON THE PIPE ARE ON THE SIDE OF THE PIPE (SEE DETAIL "1") AND THE INSIDE LAPS ARE POINTED DOWNSTREAM.
- ON BITUMINOUS COATED PIPE, REMOVE EXCESS BITUMINOUS COATING FROM CORRUGATIONS WHERE BANDS AND PIPE JOIN.
- THE ENDS OF THE TWO PIPE SECTIONS AND THE LAP SEAM WILL BE COATED WITH 1/4" OF ASPHALT OR TAR BASED MASTIC (ASTM A849, TROWEL GRADE) FOR DETAIL "1" COUPLING BANDS. THE MASTIC COATED AREAS SHOULD BE KEPT FREE OF ALL DIRT, GRAVEL, AND OTHER FOREIGN MATERIAL UNTIL BANDS ARE IN PLACE AND TIGHTENED. WHEN AIR TEMPERATURE IN 50°F OR LOWER, HEAT WILL BE APPLIED TO SOFTEN, BUT NOT BURN OR MELT, THE MASTIC.
- FLANGE COUPLING BANDS SHALL BE ALIGNED WITH THE MATCHING SLOTS, AND NUTS ON THE BOLTS TIGHTENED SECURELY. NEOPRENE GASKET OR MASTIC SHALL BE USED BETWEEN FLANGES, AND NUTS WILL BE RETIGHTENED AFTER COMPLETE ASSEMBLY.

NOTE: THE FOLLOWING DESIGNATIONS FOR PIPE CLASSIFICATIONS, CORRUGATIONS AND COATINGS WHEN REFERRED TO ON THE DRAWINGS ARE IN ACCORDANCE WITH CURRENT ASTM'S:

A760	STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, METALLIC-COATED FOR SEWERS AND DRAINS.
A761	STANDARD SPECIFICATION FOR CORRUGATED STEEL STRUCTURAL PLATE, ZINC-COATED, FOR FIELD BOLTED PIPE, PIPE ANCHORS, AND ARCHES.
A762	STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, POLYMER PRECOATED FOR SEWERS AND DRAINS.
A849	STANDARD SPECIFICATION FOR POST APPLIED COATINGS, PAVINGS, AND LININGS FOR CORRUGATED STEEL SEWER AND DRAINAGE PIPE.
A885	STANDARD SPECIFICATION FOR STEEL SHEET, ZINC AND ARAMID FIBER COMPOSITE-COATED FOR CORRUGATED STEEL SEWER, CULVERT AND UNDERDRAIN PIPE.

PIPE CLASSIFICATION:

- TYPE I FULL CIRCULAR CROSS-SECTION
- TYPE II, THIS IS TYPE I PIPE WHICH HAS BEEN REFORMED INTO A PIPE ARCH HAVING APPROXIMATELY A FLAT BOTTOM

CORRUGATION REQUIREMENTS FOR TYPE I AND II PIPE:

- NOMINAL SIZE (INCH):
- 1 1/2 x 1/4 (AVAILABLE ONLY IN HELICALLY CORRUGATED PIPE)
 - 2 2/3 x 1/2
 - 3 x 1

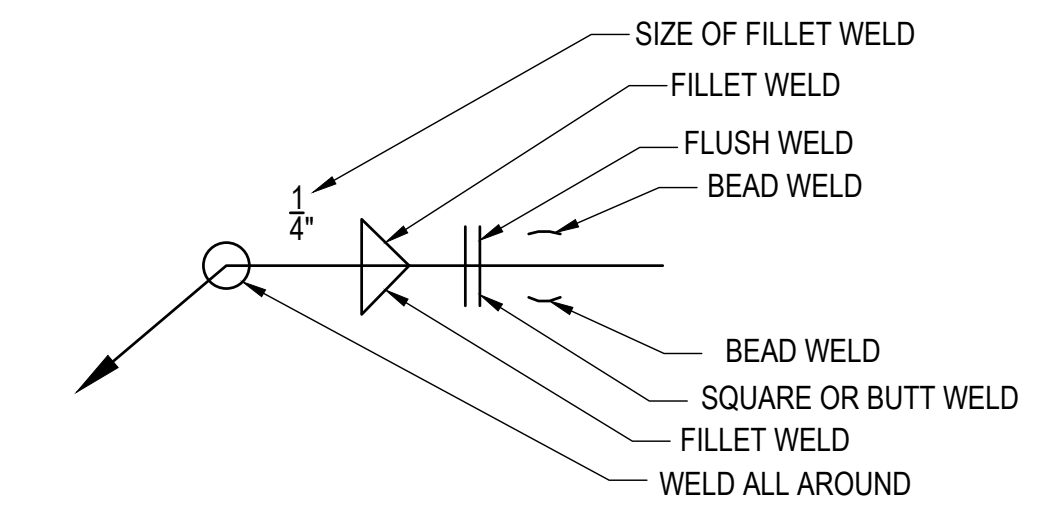
COATINGS - SEE FABRICATION NOTE No.1:

- ALUMINUM COATED STEEL - SEE FABRICATION NOTE NO. 5
- ZINC COATED STEEL - SEE FABRICATION NOTE NO. 5
- POLYMER PRECOATED - SEE FABRICATION NOTE NO. 5
- ARAMID FIBER COMPOSITE, BITUMINOUS COATED
- FULLY BITUMINOUS COATED

CORRUGATION TYPES - SEE FABRICATION NOTE No.1:

- ANNULAR, CLOSE RIVETED
- HELICAL

COUPLING BAND REQUIREMENTS						
GAGE		BAND TYPE AND NUMBER OF RODS REQUIRED	NUMBER BANDS REQUIRED	SEE DETAIL		
14	<input checked="" type="checkbox"/>	2 FT. WITH 4 RODS FOR 15" DIA. PIPE	AS REQUIRED	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
-		4 FT. WITH 6 RODS FOR 54" DIA. PIPE	-		1	2



NOTE: WELD SYMBOL ABOVE LINE INDICATES WELD IS ON OPPOSITE SIDE OF JOINT TO WHICH ARROWS POINTS. WELD SYMBOL BELOW LINE INDICATES WELD IS ON SIDE OF JOINT TO WHICH ARROW POINTS.

3 WELD SYMBOLS
 SCALE: N.T.S.



JEO CONSULTING GROUP

1937 N CHESTNUT ST
 WAHOO, NE 68066
 800.723.8567 | jeo.com

Organization Certificate of
 Authorization Number: CA-0069

ISSUE

MARK	DATE	DESCRIPTION
PD	5/7/2025	60% Submittal
PD	6/11/2025	90% Submittal
BD	1/5/2026	100% Submittal

**2025
 NUTRIENT REDUCTION
 WETLAND
 CHICKASAW COUNTY, IA
 CHI941410B**

**IOWA DEPARTMENT OF
 AGRICULTURE AND LAND
 STEWARDSHIP**

JEO Project No.: 241731.01
 Sheet Size: 22" x 34"
 Drawn by: NJB
 QAQC: JGP
 ADDITIONAL INFO:



SHEET TITLE