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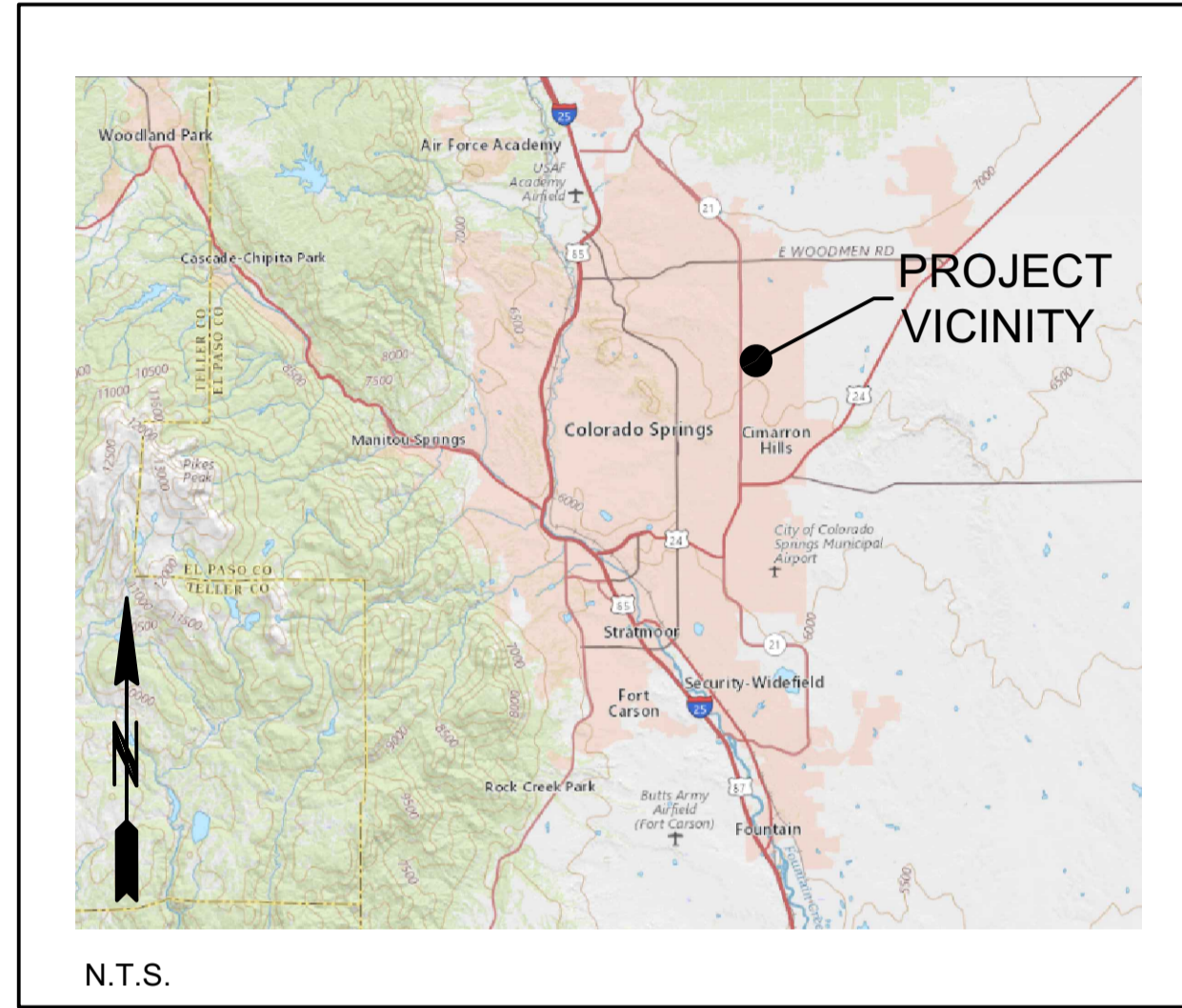
CITY OF COLORADO SPRINGS ENGINEERING DIVISION DATE _____

CITY OF COLORADO SPRINGS STORMWATER ENTERPRISE DATE _____

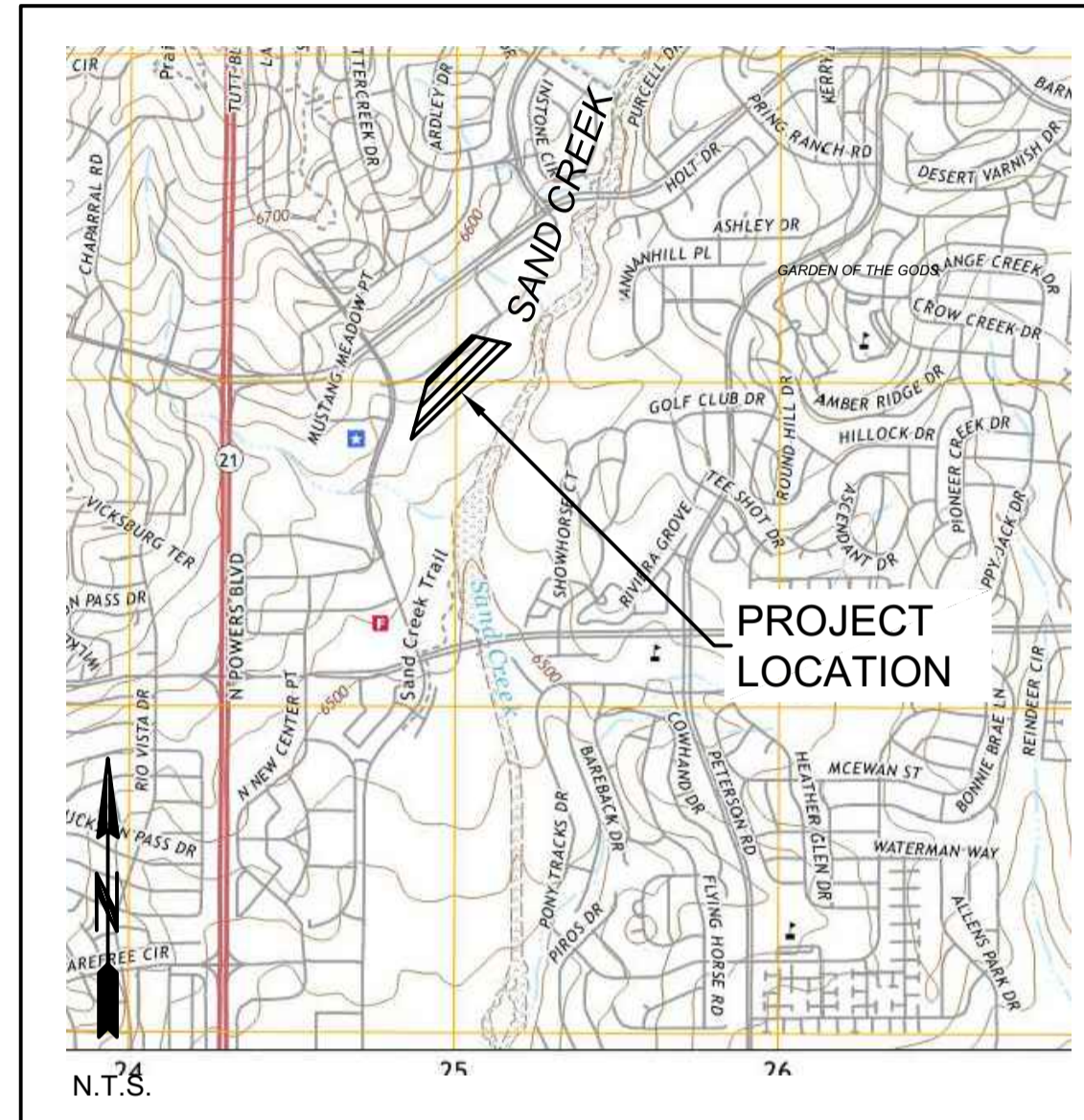
COLORADO SPRINGS PARKS AND RECREATION DEPARTMENT DATE _____

BARNES OUTFALL WATER QUALITY POND PUBLIC PERMANENT CONTROL MEASURE FINAL DESIGN

PREPARED FOR:
CITY OF COLORADO SPRINGS, COLORADO
STORMWATER ENTERPRISE



VICINITY MAP



LOCATION MAP

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"I HEREBY CERTIFY THAT THE DRAINAGE IMPROVEMENTS FOR BARNES OUTFALL WATER QUALITY POND SHALL BE CONSTRUCTED ACCORDING TO THE DESIGN PRESENTED IN THESE PLANS. I FURTHER UNDERSTAND THAT FIELD CHANGES MUST BE REVIEWED BY THE CITY REVIEW ENGINEER TO ENSURE CONFORMANCE WITH THE ORIGINAL DESIGN INTENT. I AM EMPLOYED BY AND PERFORM ENGINEERING SERVICES SOLELY FOR THE CITY OF COLORADO SPRINGS, AND THEREFORE AM EXEMPT FOR COLORADO REVISED STATUTE TITLE 12, ARTICLE 25, PART 1 ACCORDING TO § 12-25-103(1) C.R.S.

Beau Thompson, PE
 NAME OF CITY PROJECT MANAGER
 AUTHORIZED SIGNATURE _____ DATE 3-13-24

CAUTION - NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD.

THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



CALL UTILITY NOTIFICATION CENTER OF COLORADO
 1-800-922-1987 OR 811
 CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

STATEMENT: THE CITY OF COLORADO SPRINGS RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN. THE CITY HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY. RESUBMITTAL REQUIRED IF CONSTRUCTION HAS NOT COMMENCED WITHIN 180 DAYS AFTER REVIEW DATE.

AGENCY REFERRALS

CITY OF COLORADO SPRINGS STORMWATER ENTERPRISE
 30 S. NEVADA AVE., SUITE 401
 COLORADO SPRINGS, CO. 80903
 (719) 385-5980
 CONTACT: BEAU THOMPSON, PE

COLORADO SPRINGS UTILITIES
 111 S. CASCADE AVENUE
 COLORADO SPRINGS, CO 80903
 (719) 448-4800
 CONTACT: KYLE HINTON, PE

PARCEL NUMBER: 5330200048
 DESIGN REPORT: BARNES OUTFALL WATER QUALITY POND DRAINAGE REPORT (STM-REV22-1476; APPROVED: MARCH 4, 2024)
 GEC PLAN: BARNES OUTFALL WATER QUALITY POND FUNCTIONAL MAINTENANCE: CITY OF COLORADO SPRINGS
 AESTHETIC MAINTENANCE: CITY OF COLORADO SPRINGS
 100-YEAR WSE: 6514.90 EURV WSE: N/A WQCV WSE: 6512.66

ENGINEER'S STATEMENT:
 THIS PERMANENT CONTROL MEASURE (PCM) PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION, WAS DESIGNED IN ACCORDANCE WITH THE CITY OF COLORADO SPRINGS DRAINAGE CRITERIA MANUAL (MAY 2014), AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERROR OR OMISSIONS ON MY PART IN PREPARATION OF THIS PCM PLAN.

SIGNATURE: *Walter C. Pennington* DATE: _____
 PRINTED NAME: WALT PENNINGTON
 EMAIL ADDRESS: WALT.PENNINGTON@MERRICK.COM SEAL

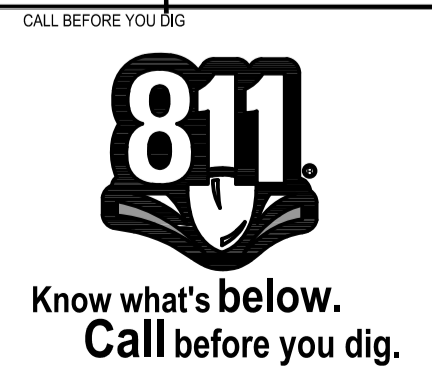
CITY OF COLORADO SPRINGS STATEMENT:
 FILED IN ACCORDANCE WITH SECTION 7.7.906 OF THE CODE OF THE CITY OF COLORADO SPRINGS, 2001, AS AMENDED.

Dana Davison 03/15/2024
 FOR CITY ENGINEER DATE
 Dana Davison

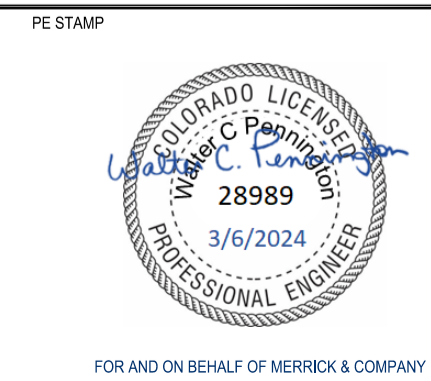
CONDITIONS:

CIVIL ENGINEER	LANDSCAPE ARCHITECT	STRUCTURAL ENGINEER	GEOTECHNICAL ENGINEER	SURVEYOR	ENVIRONMENTAL
MERRICK & COMPANY 2480 W. 26TH AVENUE, SUITE B225 DENVER, CO 80211 (303) 964-3333 CONTACT: WALTER PENNINGTON, P.E.	THE ARCHITERRA GROUP 5881 SOUTH DEFRAME ST. LITTLETON, COLORADO 80127 (303) 948-0766 CONTACT: MARK TAYLOR, PLA, ASLA	SM&RC STRUCTURAL ENGINEERS INC. 215 S. WADSWORTH BLVD, SUITE 320 LAKEWOOD, CO 80226 (303) 274-8656 CONTACT: DAVID BLANCHETTE, P.E.	VIVID ENGINEERING GROUP INC. 5970 ELKTON DRIVE COLORADO SPRINGS, CO 80907 (719) 896-4356 CONTACT: BRYSEN MUSTAIN	MERRICK & COMPANY 5970 GREENWOOD PLAZA BLVD GREENWOOD VILLAGE, CO 80111 (303) 751-0741 CONTACT: TODD BEERS, P.L.S.	CORVUS ENVIRONMENTAL CONSULTING, LLC. 6429 S. MARION PLACE CENTENNIAL, CO 80121 (303) 250-2118 CONTACT: TIM DEMASTERS

REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR



CITY OF COLORADO SPRINGS
 30 S. NEVADA AVE., SUITE 401
 COLORADO SPRINGS, CO 80903
 (719) 385-5980



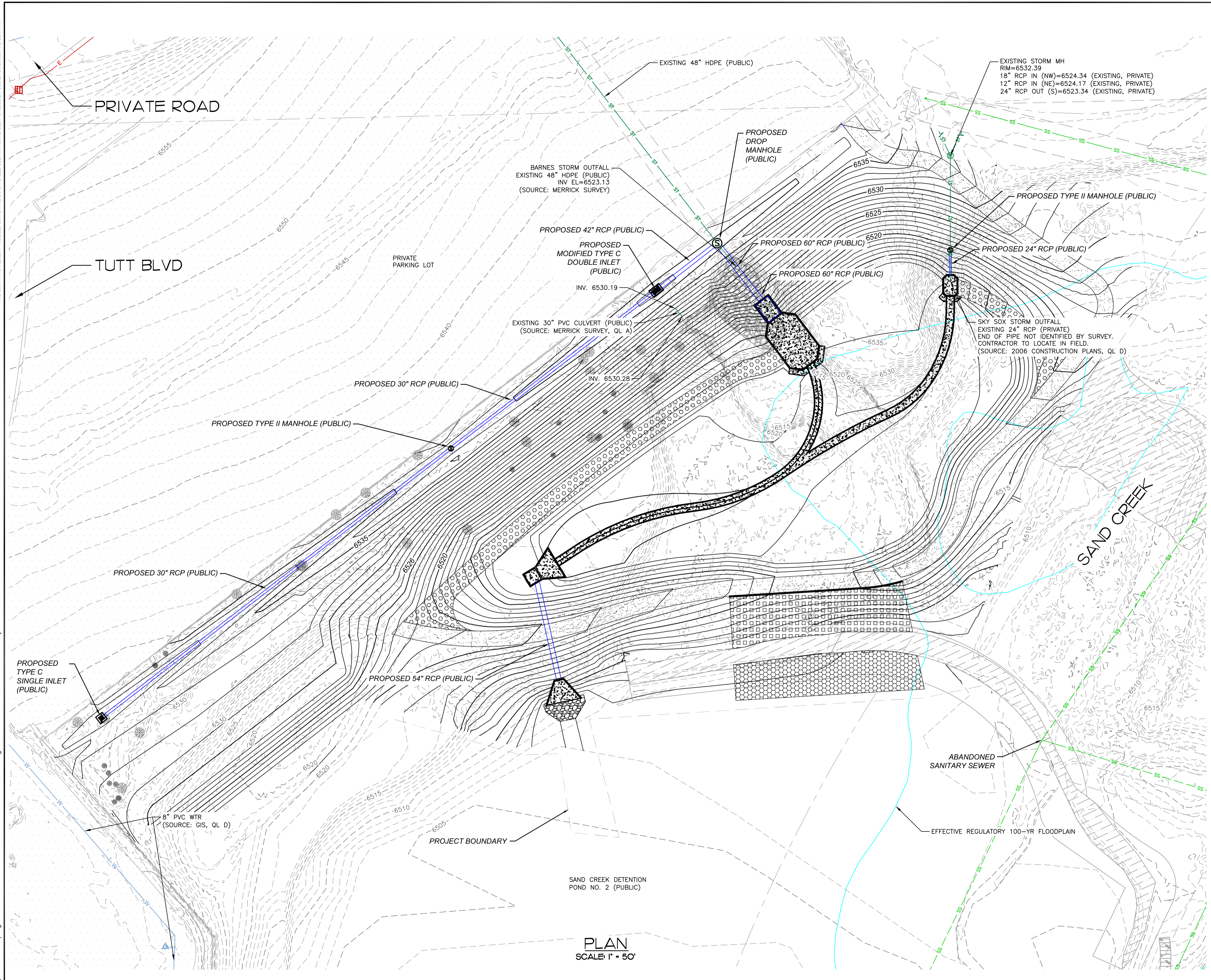
BARNES OUTFALL WATER QUALITY POND

COVER SHEET

JOB NUMBER	65421421
DATE	MARCH 8, 2024
DRAWING	ID-101
1 of 50	

THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AGENCIES.

File Location: C:\Denver_North\Projects\City of Colorado Springs\65421421-00 Barnes Outfall Pond\CAD\CDs\1421 - SUE.dwg Plot Date: 2/7/2024 8:55 AM Last Saved By: TIM MCMULLEN



PLAN
SCALE: 1" = 50'

UTILITY NOTES:

- UTILITY LINES AS SHOWN ON THE PLANS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION. SUBSECTION 105.10 OF THE CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2017 (AS REVISED) SHALL APPLY FOR THIS CONTRACT.
- THE INFORMATION SHOWN ON THESE PLANS CONCERNING TYPE AND LOCATION OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. SERVICES TO INDIVIDUAL RESIDENCES, PLACES OF BUSINESS, AND OTHER PRIVATELY-OWNED UTILITIES ARE NORMALLY NOT SHOWN ON THE DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL LOCATIONS OF EXISTING STRUCTURES AND UTILITIES SHOWN ON THE DRAWINGS AND TO ASCERTAIN WHETHER ANY OTHER STRUCTURES AND UTILITIES MAY EXIST. EVERY REASONABLE MEANS SHALL BE USED, INCLUDING FIELD LOCATION OF THE UTILITY. THE CONTRACTOR ASSUMES RESPONSIBILITY FOR THE PROTECTION OF ALL UTILITIES DURING THE WORK. REPAIR OF DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO ANY EXCAVATION, CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT: 1 (800) 922-1987 AT LEAST TWO WORKING DAYS PRIOR TO DIGGING.
- THE CONTRACTOR SHALL VERIFY AND DOCUMENT THE CONDITION OF EXISTING UTILITIES (VISIBLE FACILITIES) WITH THE ENGINEER AND REPRESENTATIVES FROM THE UTILITY COMPANIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- IT IS SUGGESTED THAT THE CONTRACTOR INITIATE A REQUEST TO XCEL ENERGY FOR ANY CONSTRUCTION-RELATED TEMPORARY ELECTRICAL POWER SOURCES AS SOON AS POSSIBLE. IN SOME INSTANCES UP TO 30 DAYS MAY BE REQUIRED TO PROVIDE THE SOURCES.

DISCLAIMER REGARDING UNDERGROUND UTILITIES:

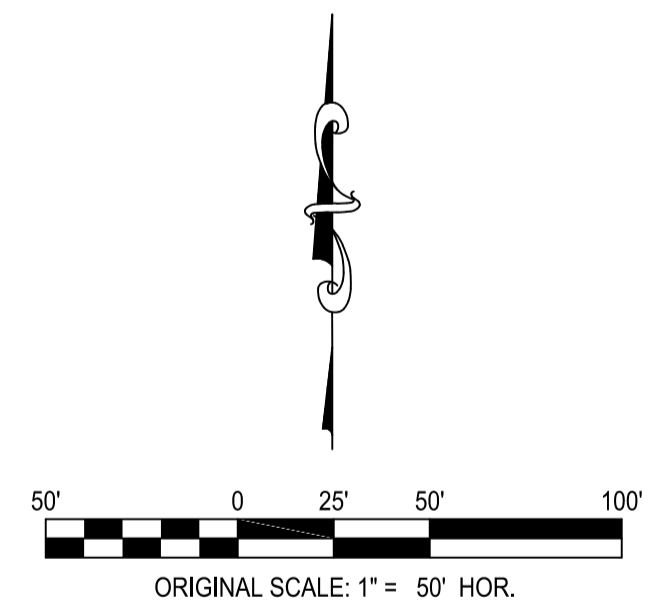
EXISTING UTILITIES ARE DEPICTED ON THESE DRAWINGS AND IN ACCORDANCE WITH THE ACHIEVED "QUALITY LEVELS" FOR EACH UTILITY AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEERS' DOCUMENT ASCE 38 STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA" AND AS REQUIRED BY C.R.S. 9-1.5-101 ET. SEQ.

AS IT APPLIES TO THE DEPICTION OF EXISTING UNDERGROUND UTILITY INFORMATION, THE STAMP AND SEAL ON THIS UTILITY PLAN REFLECT ONLY THAT DEPICTION OF THE EXISTING UNDERGROUND UTILITY MEETS THE NOTED ASCE 38 QUALITY LEVEL, AND DOES NOT SERVE AS A GUARANTY, REPRESENTATION, OR WARRANTY THAT THE DEPICTED UTILITIES EXIST IN THE NOTED LOCATIONS.

RELIANCE UPON THIS DATA FOR RISK MANAGEMENT PURPOSES DURING BIDDING DOES NOT RELIEVE THE EXCAVATOR OR UTILITY OWNER FROM FOLLOWING ALL APPLICABLE UTILITY DAMAGE PREVENTION STATUTES, POLICIES, AND/OR PROCEDURES DURING EXCAVATION. IT IS IMPORTANT THAT THE CONTRACTOR INVESTIGATES AND UNDERSTAND THE SCOPE OF WORK AND CONSULTS WITH THAT PROJECT OWNER AND THE ENGINEER REGARDING THE SCOPE AND LIMITS OF THE INVESTIGATIONS LEADING TO THESE UTILITY DEPICTIONS.

UTILITY QUALITY LEVEL DESCRIPTIONS:

- QUALITY LEVEL A:** PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN PLAN DOCUMENTS. ACCURACY IS USUALLY SET TO 15-MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER.
- QUALITY LEVEL B:** INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.
- QUALITY LEVEL C:** INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.
- QUALITY LEVEL D:** INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.



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FOR AND ON BEHALF OF MERRICK & COMPANY

TITLE

BARNES OUTFALL WATER QUALITY POND

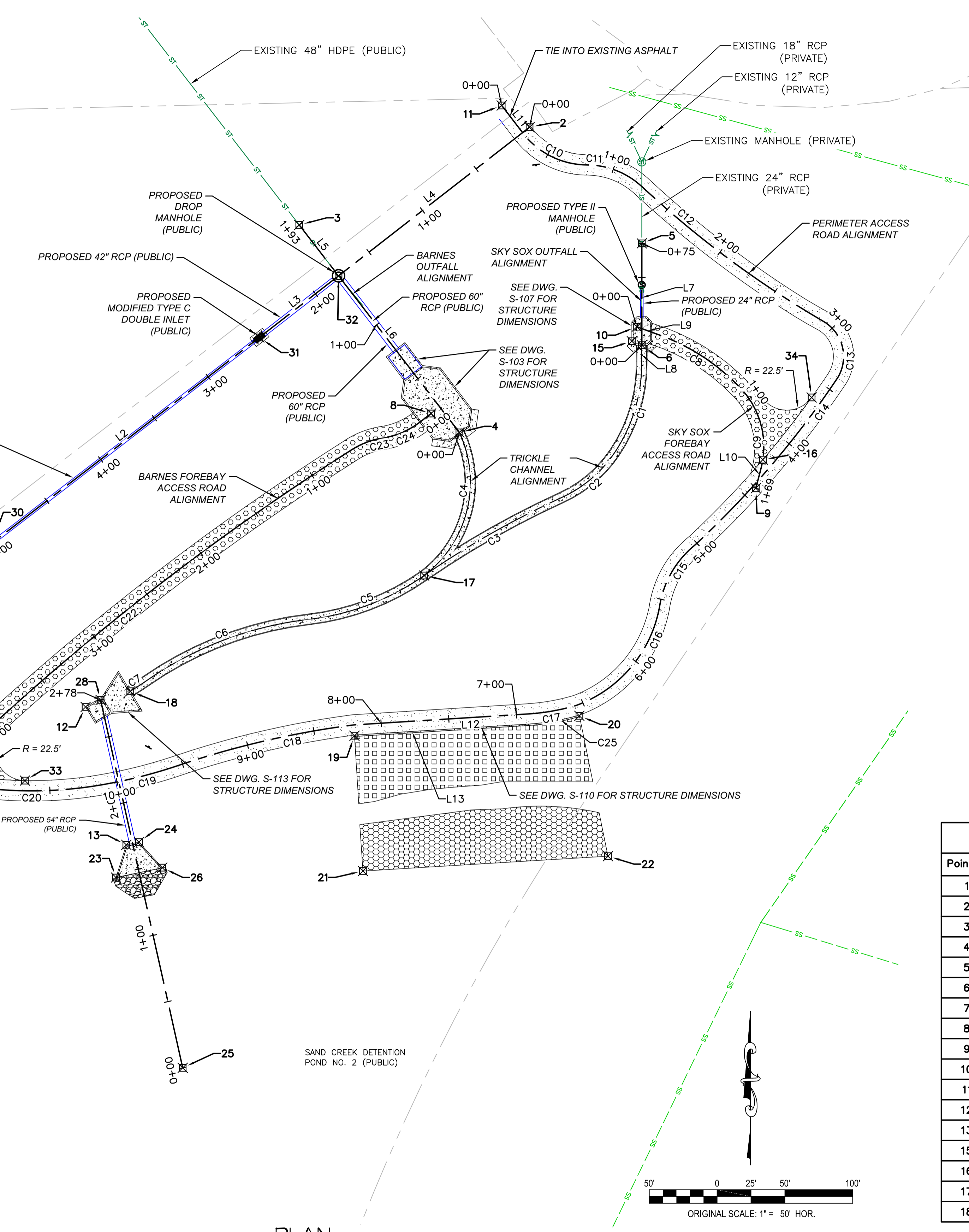
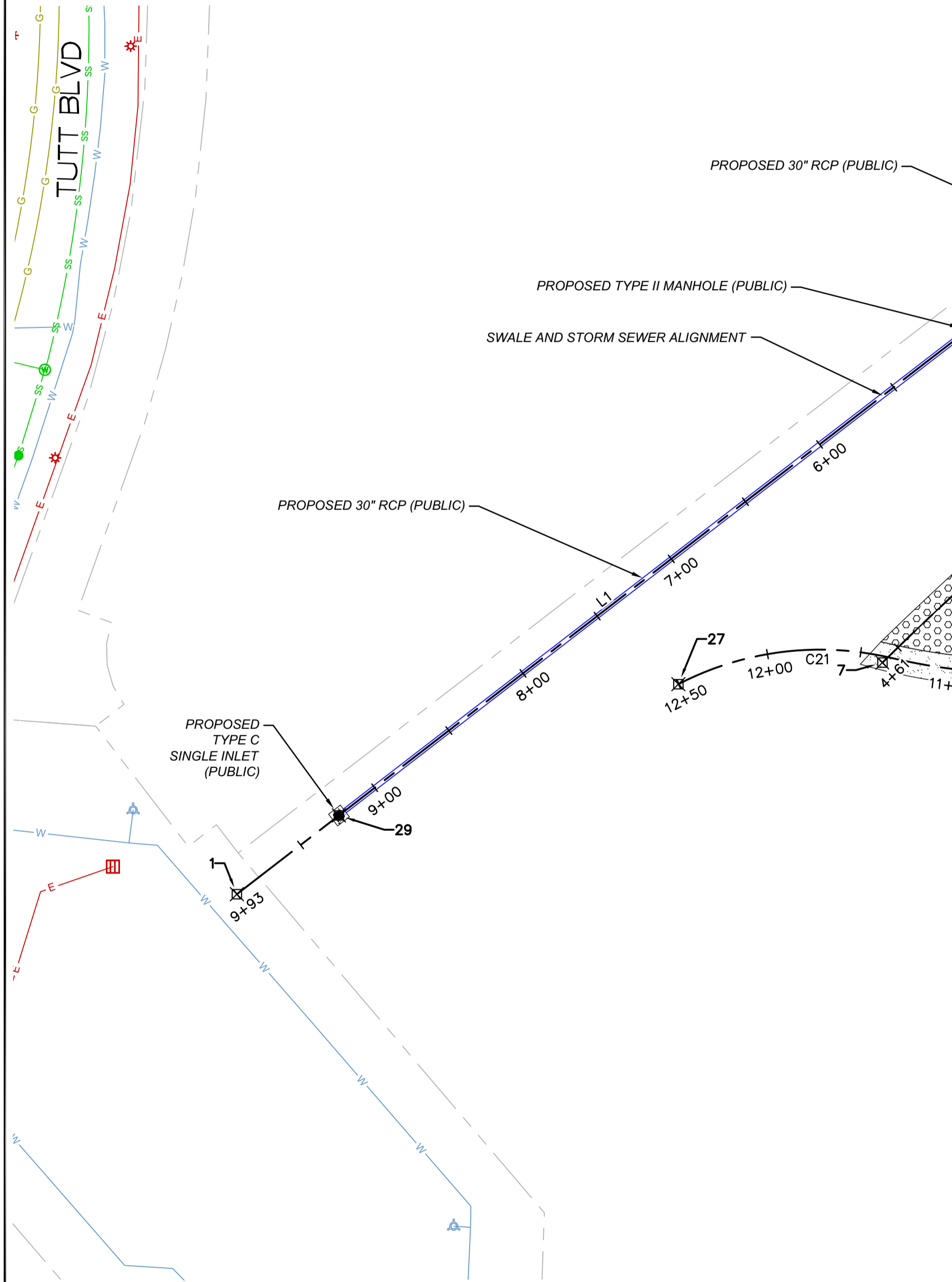
SUBSURFACE UTILITY ENGINEERING PLAN

JOB NUMBER: 65421421
DATE: MARCH 8, 2024
DRAWING: **C-101**
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File Location: D:\Denver_North\Projects\City of Colorado Springs\65421421-10 Barnes Outfall Pond\CAD\CADs\1421 - PROJECT_CONTROLS.dwg Plot Date: 2/20/24 9:55 AM Last Saved By: TIM MCKILLEN

SURVEY CONTROL TABLE							
POINT NUMBER	Modified Northing	Modified Easting	Combined Factor	Northing Grid	Easting Grid	Elevation	Description
1	1378787.147	3228419.972	0.999634449	1378283.13	3227239.82	6542.01	FIMS CH1: NAIL WITH WASHER IN CONCRETE STORM VAULT
4	1383542.255	3228145.002	0.999634449	1383036.5	3226964.95	6525.45	FIMS SR04: 2" CAP IN CONCRETE VAULT
28	1390224.696	3233829.42	0.999634449	1389716.5	3232647.29	6666.94	FIMS BL28: 3.25" CAP IN RANGE BOX
301	1386967.186	3225039.744	0.999634449	1386460.179	3224487.72	6532.383	SET 18" LONG #5 REBAR, 2" DIA. ALUM. CAP STAMPED "MERRICK & CO 301"
302	1387461.214	3225666.87	0.999634449	1386954.026	3224487.724	6536.632	SET 18" LONG #5 REBAR, 2" DIA. ALUM. CAP STAMPED "MERRICK & CO 302"
303	1387449.095	3226596.305	0.999634449	1386941.912	3225416.819	6543.316	SET 18" LONG #5 REBAR, 2" DIA. ALUM. CAP STAMPED "MERRICK & CO 303"
304	1386132.486	3225985.666	0.999634449	1385625.784	3224806.404	6522.822	SET 18" LONG #5 REBAR, 2" DIA. ALUM. CAP STAMPED "MERRICK & CO 304"
305	1386226.971	3225137.533	0.999634449	1385720.234	3223958.581	6522.135	SET 18" LONG #5 REBAR, 2" DIA. ALUM. CAP STAMPED "MERRICK & CO 305"



Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	68.62	117.07	33.58	S17° 22' 12\"W	67.64
C2	51.96	93.93	31.69	S50° 01' 10\"W	51.30
C3	116.17	665.96	9.99	S60° 26' 53\"W	116.02
C4	117.70	86.37	78.08	N13° 57' 09\"E	108.81
C5	91.34	184.51	28.36	N69° 12' 32\"E	90.41
C6	129.78	263.34	28.24	N69° 18' 50\"E	128.47
C7	13.97	205.78	3.89	N57° 11' 38\"E	13.97
C8	77.70	156.14	28.51	N57° 53' 46\"W	76.90
C9	61.94	62.78	56.53	N15° 24' 43\"W	59.46
C10	54.60	60.00	52.14	S63° 38' 30\"E	52.74
C11	44.54	60.00	42.54	S68° 26' 36\"E	43.53
C12	166.95	751.04	12.74	S53° 26' 20\"E	166.61
C13	49.11	30.00	93.79	S12° 54' 51\"E	43.80
C14	160.46	701.63	13.10	S40° 31' 49\"W	160.11
C15	54.86	72.67	43.25	S29° 51' 45\"W	53.57
C16	99.24	95.51	59.54	S40° 26' 44\"W	94.84
C17	34.99	159.24	12.59	S79° 51' 40\"W	34.92
C18	130.03	667.40	11.16	S77° 05' 57\"W	129.82
C19	68.25	370.40	10.56	S76° 11' 39\"W	68.16
C20	114.57	300.00	21.88	N87° 35' 12\"W	113.87
C21	117.09	164.70	40.73	S82° 59' 15\"W	114.64
C22	383.82	1883.42	11.68	S51° 48' 20\"W	383.16
C23	24.61	60.00	23.50	S69° 23' 22\"W	24.43
C24	29.83	60.00	28.49	S66° 53' 41\"W	29.52
C25	37.01	167.22	12.68	N79° 49' 19\"E	36.94

Line Table		
Line #	Length	Direction
L1	491.95	N52° 20' 44.12\"E
L2	248.68	N52° 27' 45.59\"E
L3	73.92	N52° 08' 24.51\"E
L4	178.42	N52° 08' 24.51\"E
L5	44.26	S37° 41' 43.48\"E
L6	148.86	S37° 41' 19.13\"E
L7	65.00	S0° 00' 01.79\"W

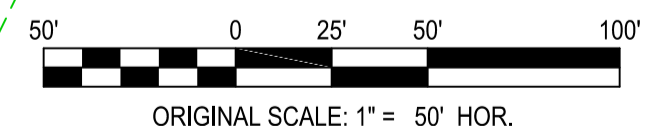
Line Table		
Line #	Length	Direction
L8	14.97	S0° 28' 43.26\"W
L9	11.94	N70° 04' 16.63\"W
L10	17.29	N14° 39' 39.51\"E
L11	25.70	S37° 34' 17.14\"E
L12	130.00	S86° 23' 46.50\"W
L13	129.74	N86° 23' 46.50\"E

Point Table		
Point #	Northing	Easting
1	1386912.1683	3224973.6109
2	1387519.0865	3225759.5146
3	1387447.0533	3225589.6916
4	1387294.2352	3225707.7611
5	1387433.5100	3225842.3130
6	1387358.5084	3225842.3123
7	1387035.7999	3225318.2881
8	1387308.1524	3225686.9293
9	1387253.0837	3225926.3545
10	1387372.0634	3225838.5664
11	1387535.0827	3225738.9619
12	1387091.9814	3225432.1155
13	1386990.3642	3225462.1396
15	1387361.4261	3225834.9135
16	1387274.1521	3225931.5612
17	1387188.8025	3225681.7568
18	1387103.5966	3225465.0730

Point Table		
Point #	Northing	Easting
19	1387070.7516	3225630.3839
20	1387085.4350	3225796.2441
21	1386971.0854	3225636.6292
22	1386982.0296	3225817.3359
23	1386966.3082	3225454.5394
24	1386992.4272	3225471.4339
25	1386826.1001	3225503.7132
26	1386973.5881	3225488.6766
27	1387024.2705	3225209.3409
28	1387097.1131	3225443.1689
29	1386954.2098	3225028.0957
30	1387212.7011	3225363.0950
31	1387364.2151	3225560.2857
32	1387409.5825	3225618.6470
33	1387037.6985	3225387.3777
34	1387319.9824	3225967.5285

NOTE: ALL NORTHINGS AND EASTINGS IN POINT TABLE ARE IN MODIFIED (GROUND) COORDINATES

PLAN
SCALE: 1" = 50'



REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR

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TITLE

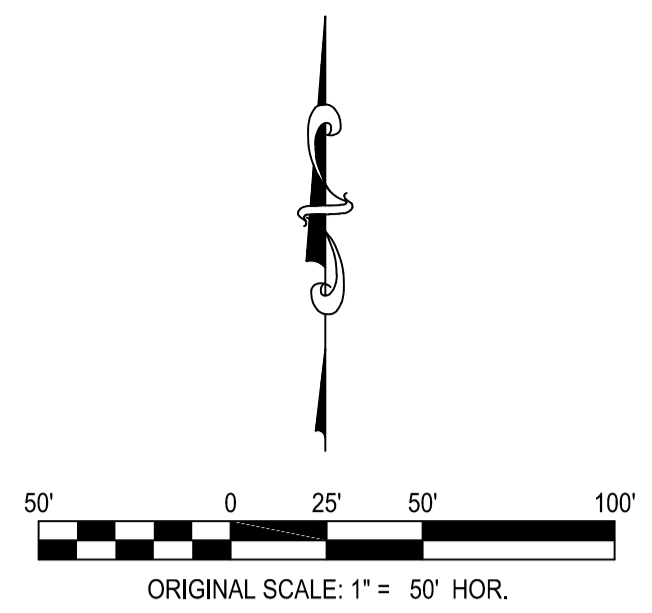
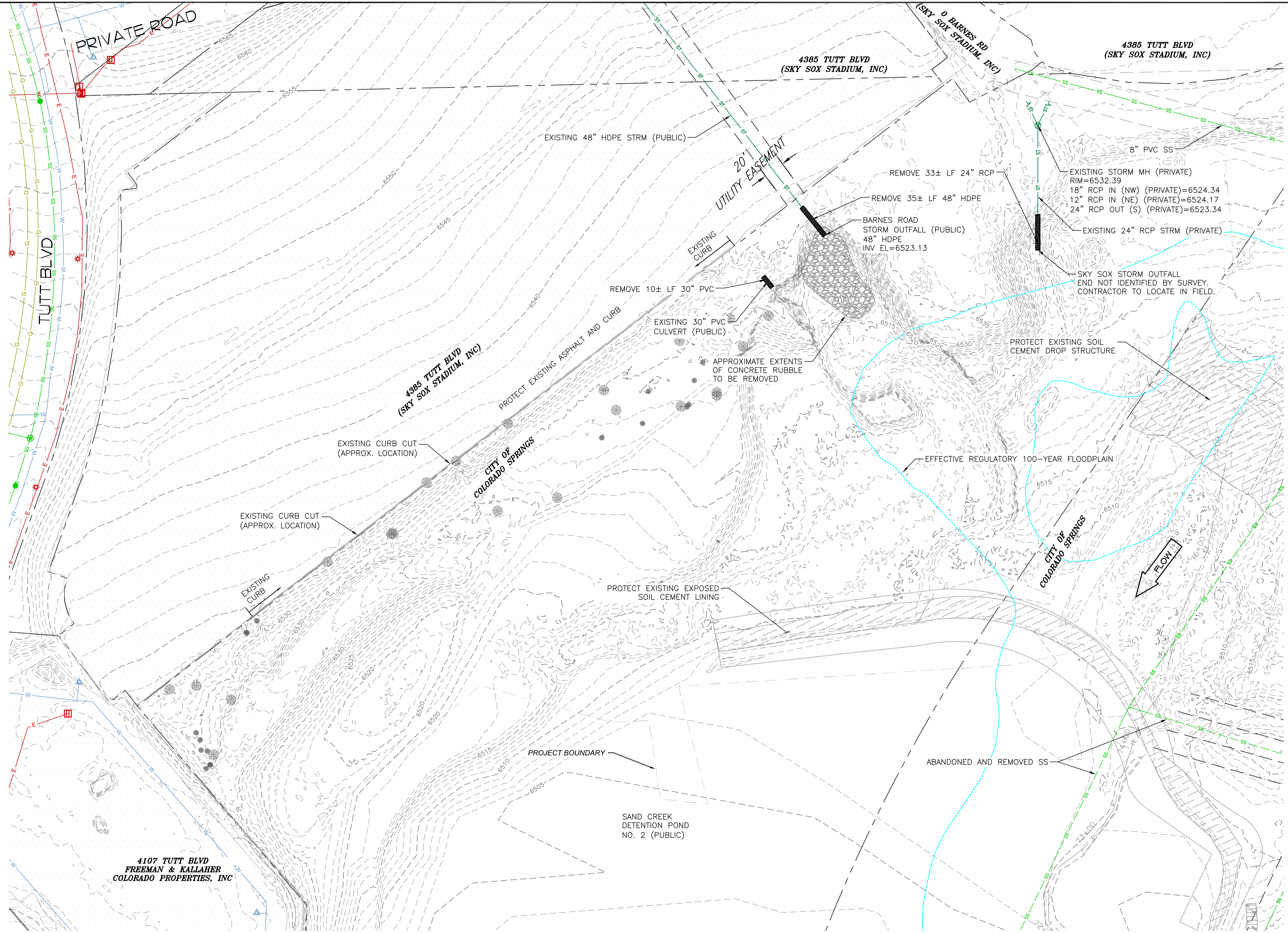
BARNES OUTFALL WATER QUALITY POND

PROJECT CONTROLS

JOB NUMBER: 65421421
DATE: MARCH 8, 2024
DRAWING: C-102
4 of 50

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- NOTES:**
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 - EASEMENT INFORMATION PROVIDED BY GREENWAYS DEVELOPMENT AND DRAINAGE REPORTS.
 - REMOVE AND DISPOSE OF ALL TREES AND STUMPS WITHIN GRADING LIMITS. ALL OTHER TREES MUST BE PROTECTED UNLESS APPROVED BY OWNERS REPRESENTATIVE.

- LEGEND:**
- ≤ 8" CALIPER TREE. REMOVAL PAID BY BID ITEM NO. 4: "CLEARING AND GRUBBING"
 - ⊗ > 8" CALIPER TREE. REMOVAL PAID BY BID ITEM NO. 40: "REMOVE TREE (>8")"

PLAN
SCALE: 1" = 50'

REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR

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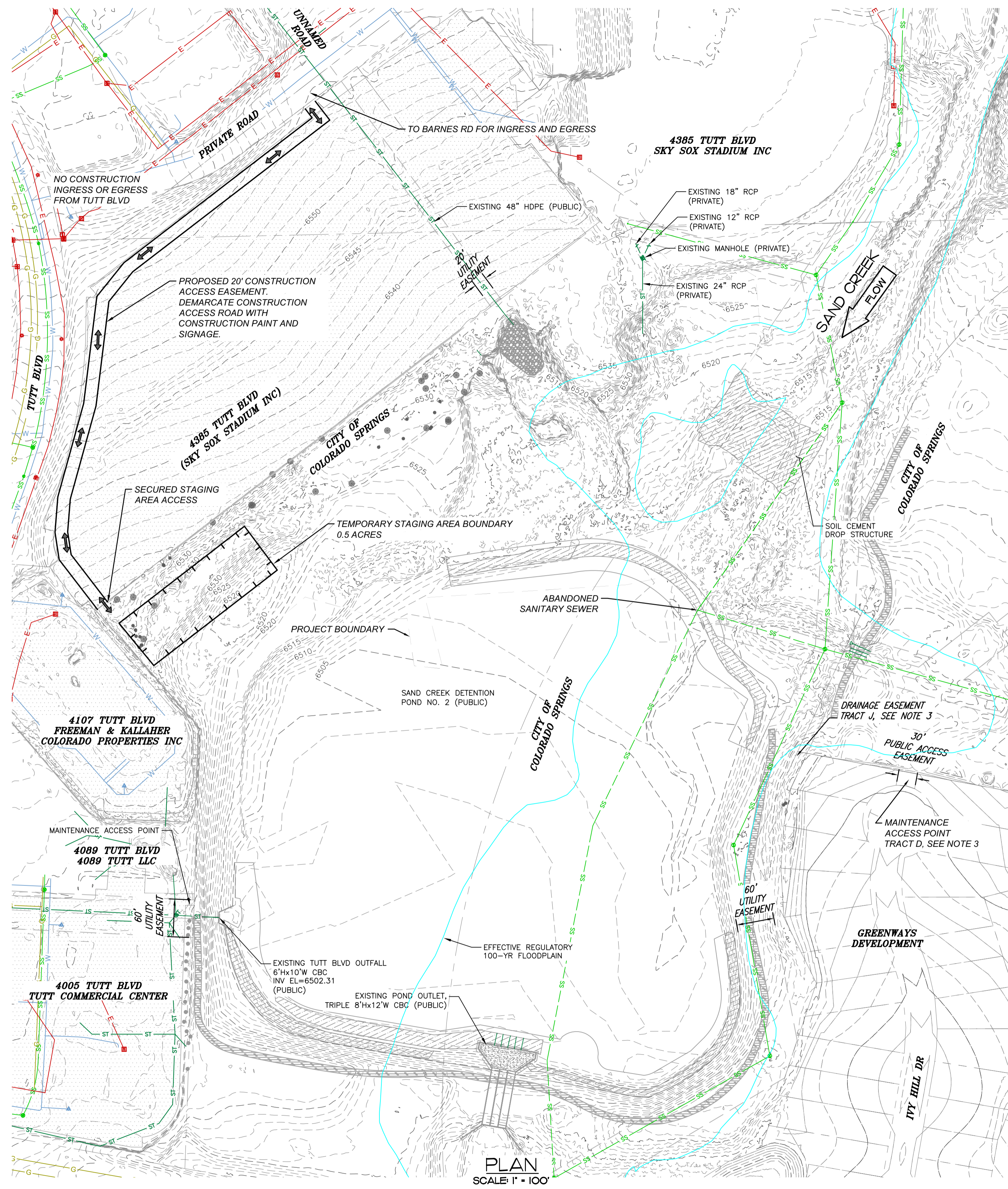
BARNES OUTFALL WATER QUALITY POND

EXISTING CONDITIONS, PROPERTY OWNERSHIP,
AND DEMOLITION PLAN

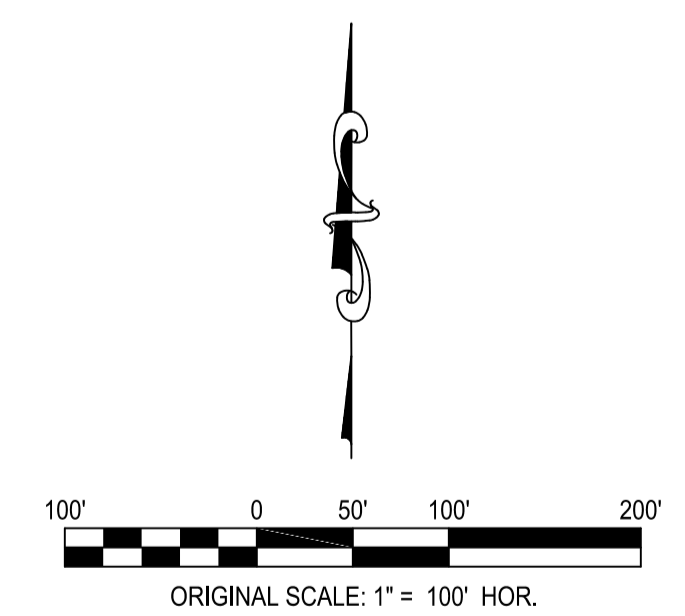
JOB NUMBER	65421421
DATE	MARCH 8, 2024
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PLAN
SCALE: 1" = 100'

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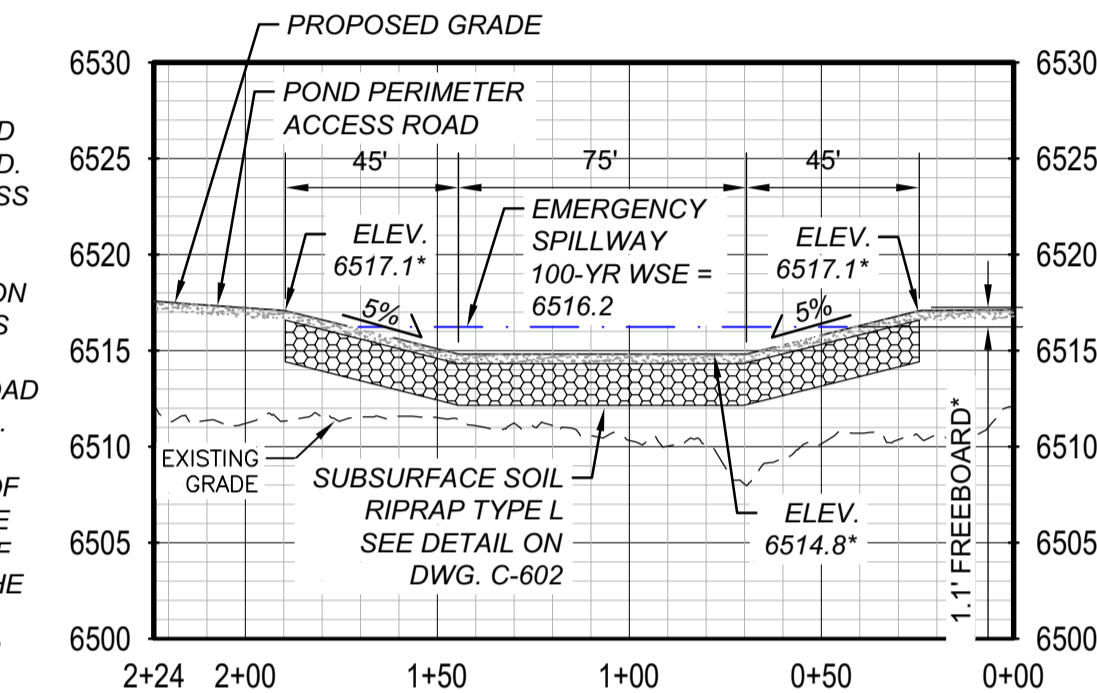
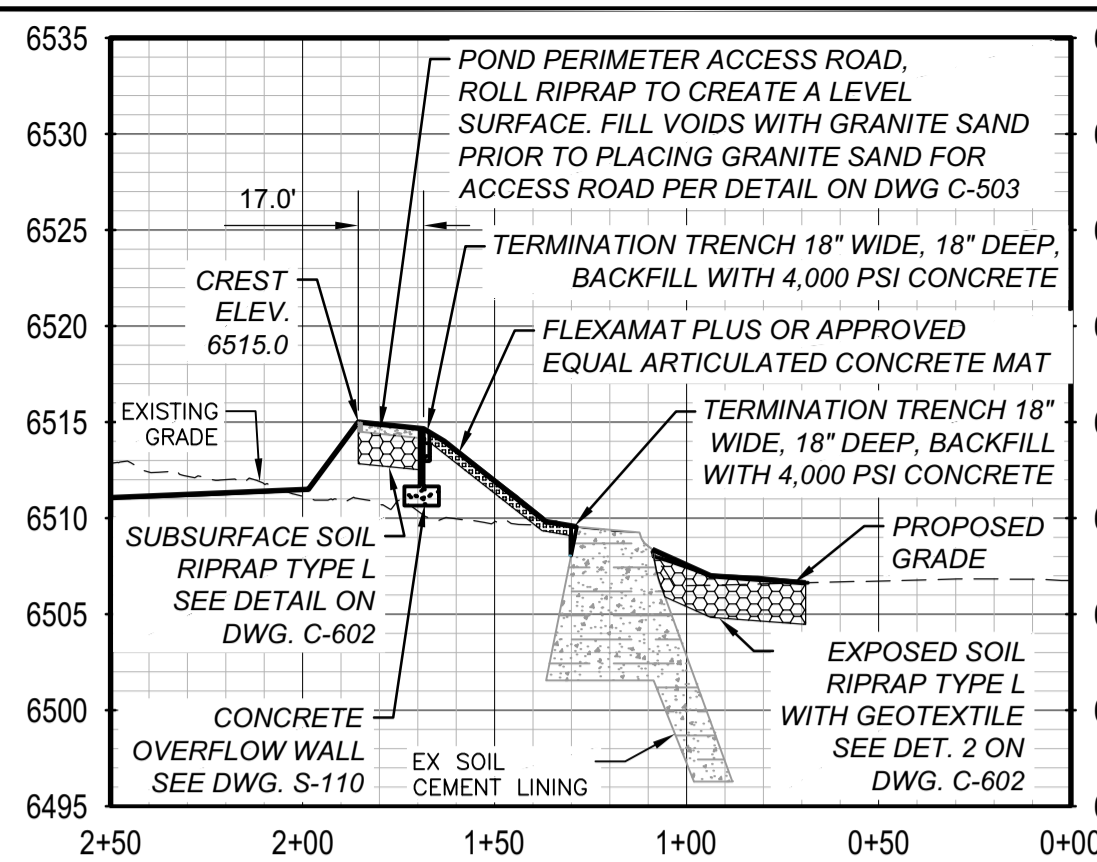
BARNES OUTFALL WATER QUALITY POND

CONSTRUCTION ACCESS, STAGING, AND GENERAL TRAFFIC CONTROL

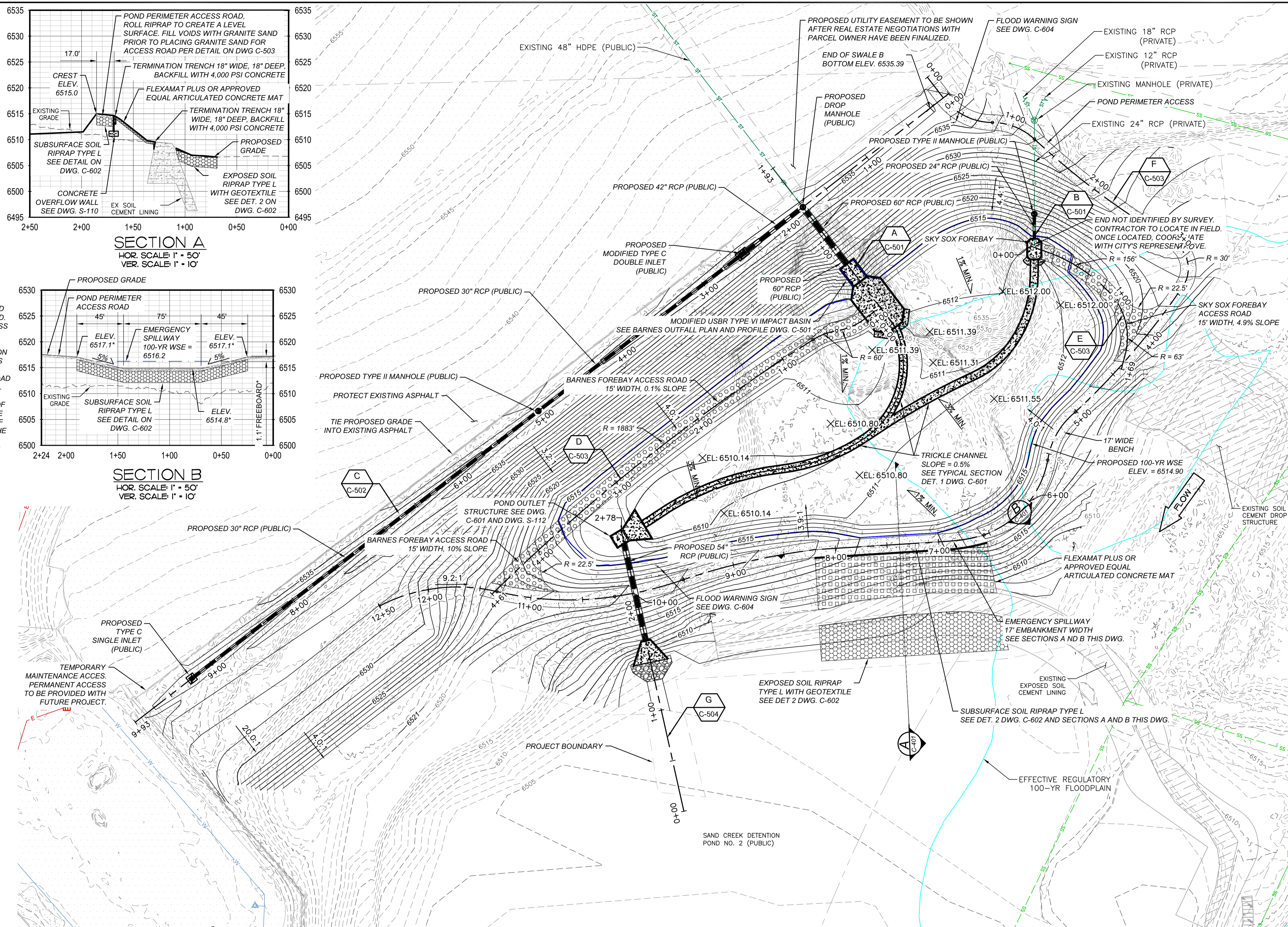
JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: C-301
 6 of 50

THE CITY OF COLORADO SPRINGS HAS REVIEWED THIS PLAN FOR CONFORMANCE WITH THE CITY ENGINEERING DEPARTMENT'S STANDARDS AND SPECIFICATIONS FOR WATERWAYS AND WASTEWATER TREATMENT PLANTS. THIS REVIEW IS LIMITED TO THE TECHNICAL ASPECTS OF THE PROJECT AND DOES NOT CONSTITUTE A GUARANTEE OF THE ACCURACY OF THE INFORMATION PROVIDED HEREON. THE CITY ENGINEERING DEPARTMENT IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS PLAN OR FOR ANY DAMAGE TO PERSONS OR PROPERTY THAT MAY BE CAUSED BY THE USE OF THIS PLAN.

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*SPILLWAY ELEVATIONS SHOWN ARE AT THE CENTERLINE OF THE POND PERIMETER ACCESS ROAD. THE ROAD HAS A 2% CROSS SLOPE TOWARD POND 2 (SEE POND PERIMETER ACCESS ROAD SECTION ON DWG. C-503). ELEVATIONS AT THE SPILLWAY CREST ARE 0.2' HIGHER THAN ROAD CENTERLINE ELEVATIONS. THEREFORE, THE ELEVATION OF THE TOP OF THE SPILLWAY END SLOPE IS 6517.3. THERE IS 1.1' OF FREEBOARD BETWEEN THE EMERGENCY SPILLWAY 100-YR WSE AND THE TOP OF THE EMERGENCY SPILLWAY.



- NOTES:**
- ALL GRADES BELOW ELEV. 6517 TO BE A MAXIMUM OF 4.0:1
 - AREA WITHIN 25' OF THE TRICKLE CHANNEL TO BE SLOPED AT A MINIMUM OF 3% TOWARDS THE TRICKLE CHANNEL. THE POND BOTTOM OUTSIDE OF 25' FROM THE TRICKLE CHANNEL TO HAVE A MINIMUM SLOPE OF 1%.

**BARNES WATER QUALITY POND
STAGE-STORAGE TABLE**

FEATURE	ELEVATION (FT)	AREA (AC)	STORAGE (AC-FT)
MICROPOOL	6507.50	0.00	0.00
	6508	0.01	0.00
	6509	0.03	0.02
	6510	0.20	0.11
	6511	0.77	0.57
	6512	1.49	1.71
WQCV	6512.67	1.76	2.80
	6513	1.88	3.41
	6514	2.08	5.40
100-YR WSE	6514.90	2.21	7.34
EMERGENCY SPILLWAY	6515	2.22	7.56

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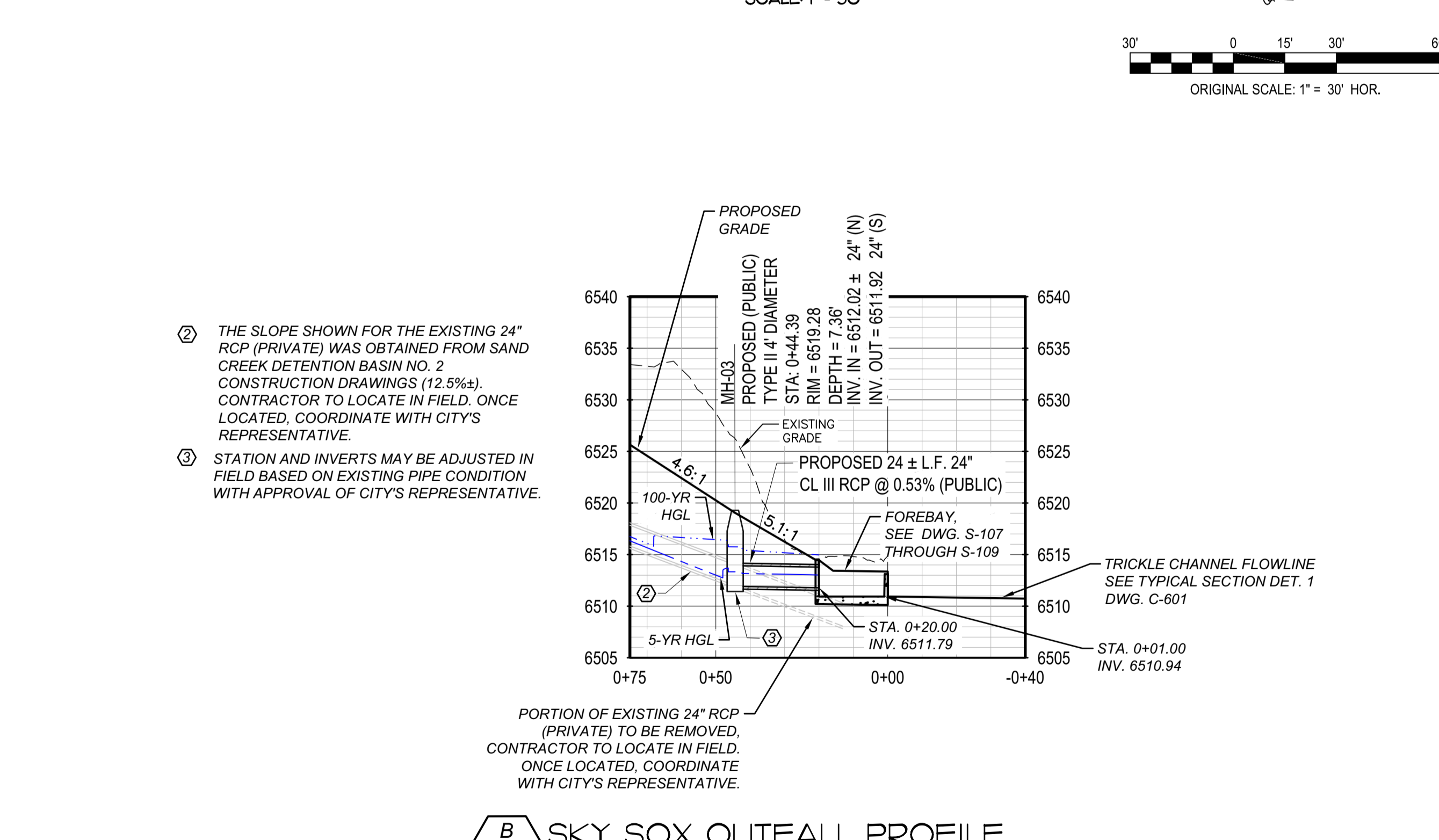
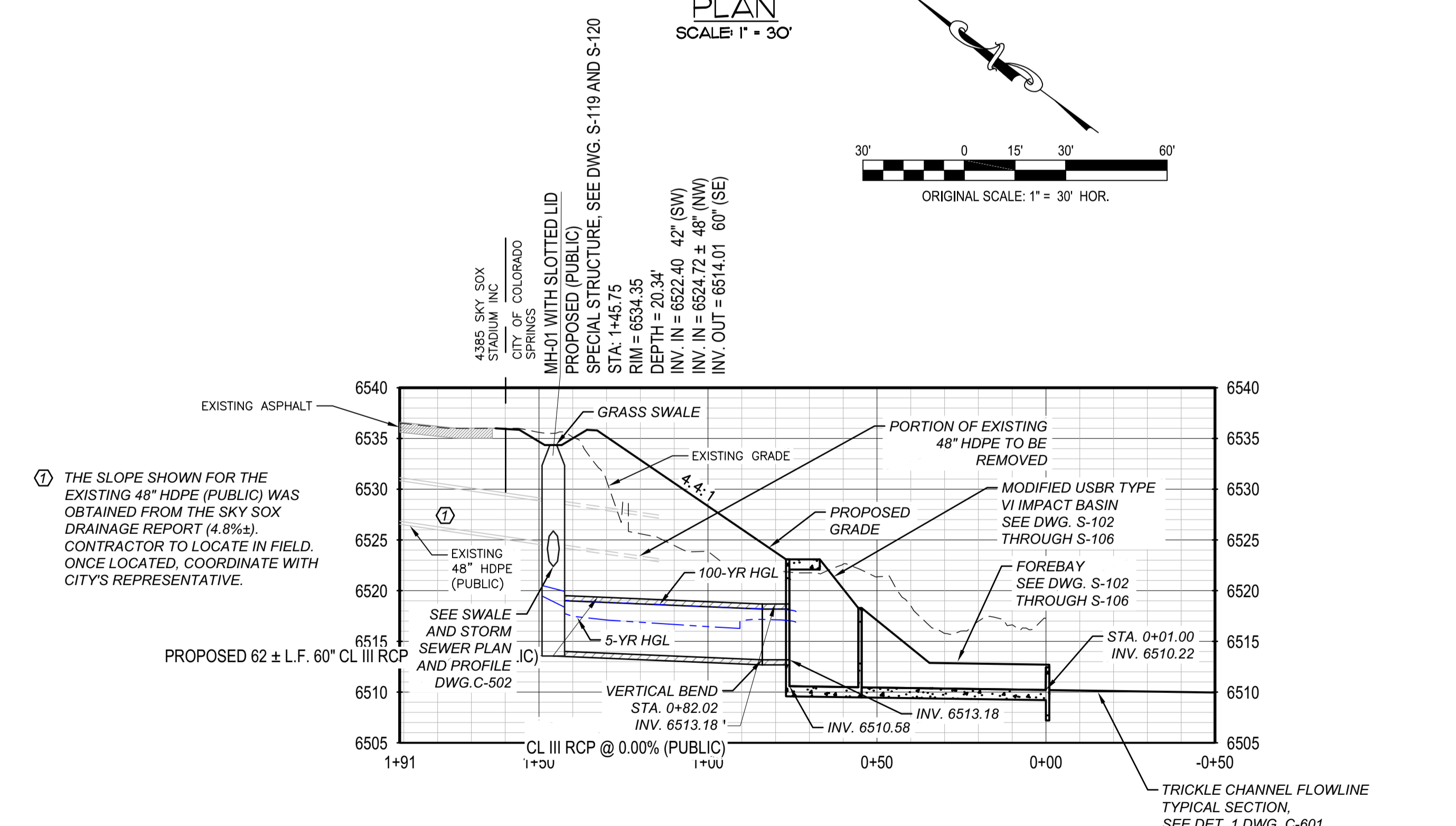
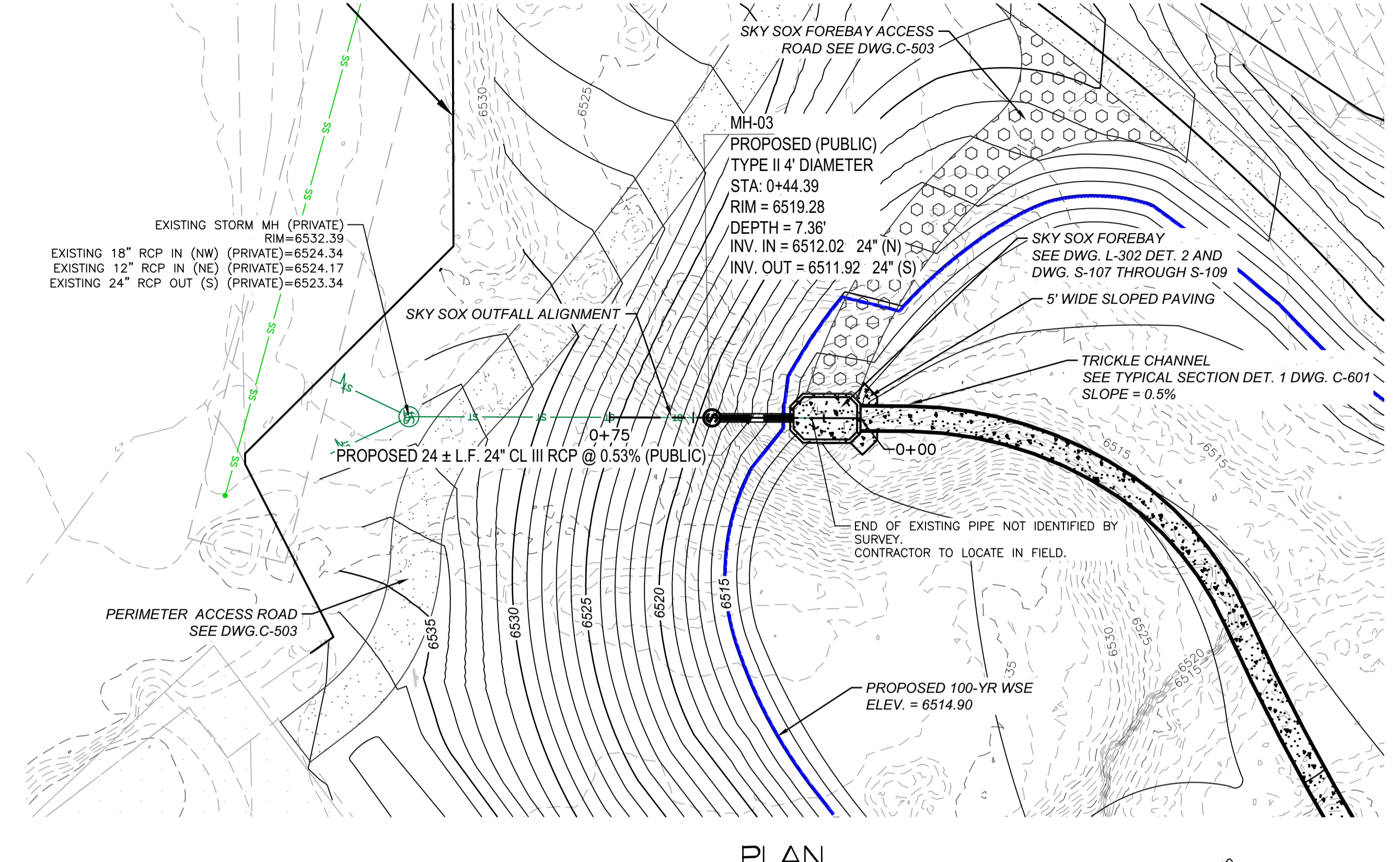
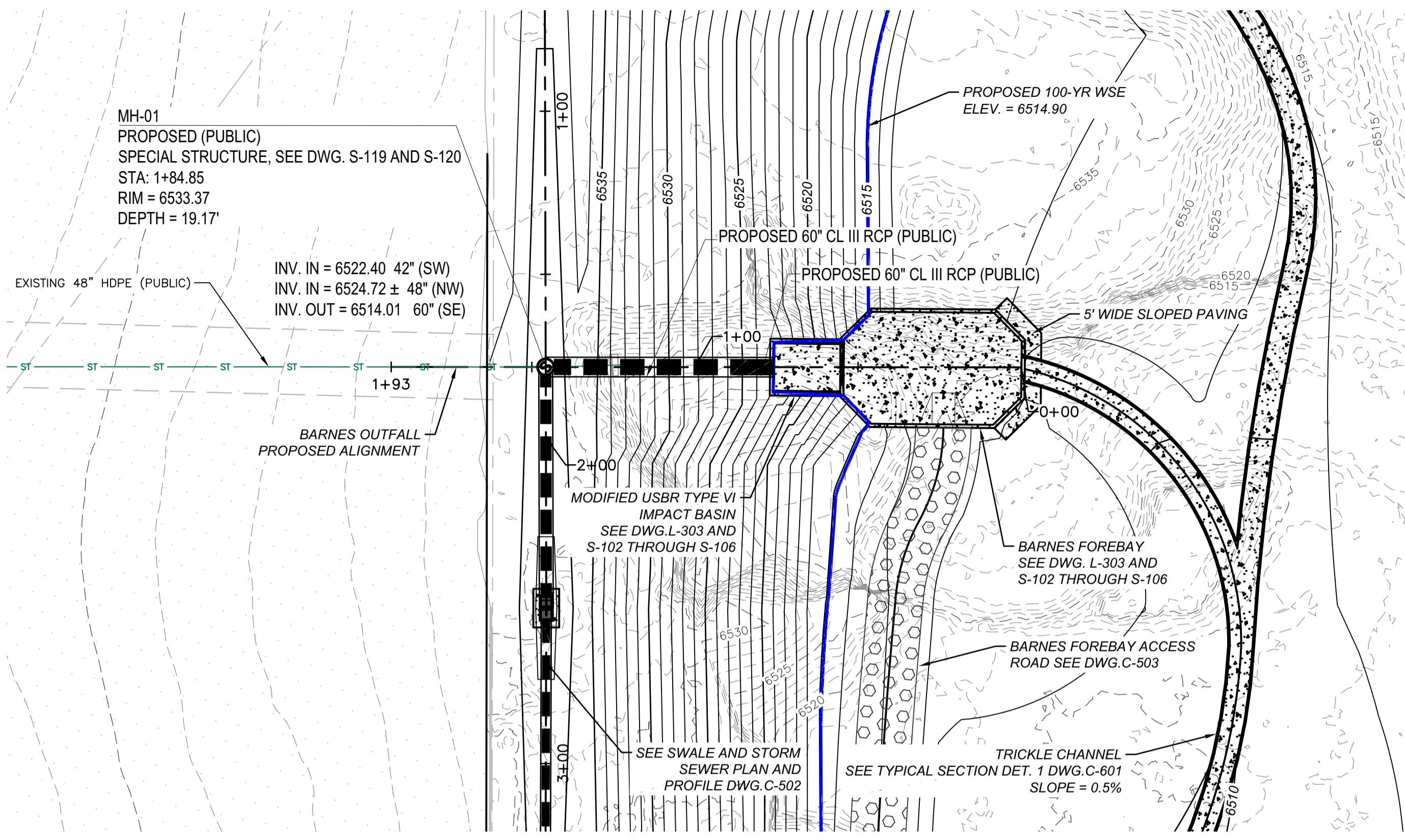
TITLE: **BARNES OUTFALL WATER QUALITY POND**

OVERALL GRADING PLAN

JOB NUMBER: 65421421
DATE: MARCH 8, 2024
DRAWING: **C-401**
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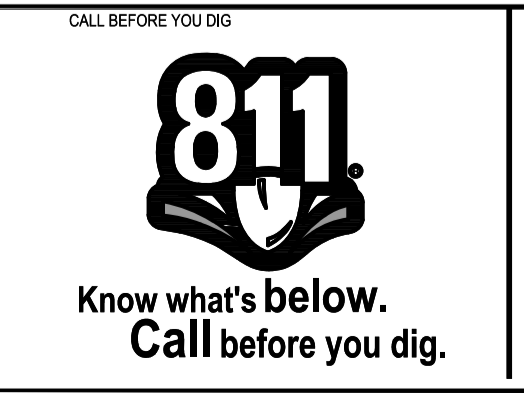
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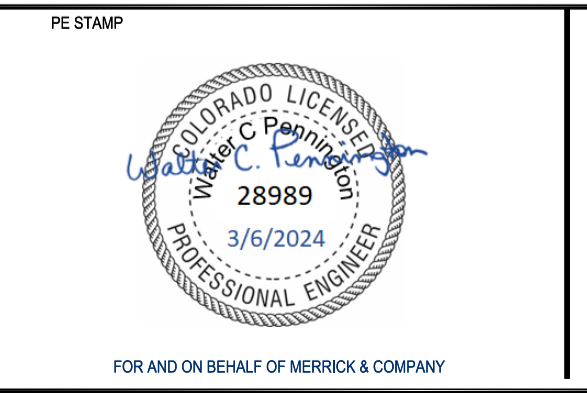
A BARNES OUTFALL PROFILE
 HOR. SCALE: 1" = 30'
 VER. SCALE: 1" = 10'

B SKY SOX OUTFALL PROFILE
 HOR. SCALE: 1" = 30'
 VER. SCALE: 1" = 10'

REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR



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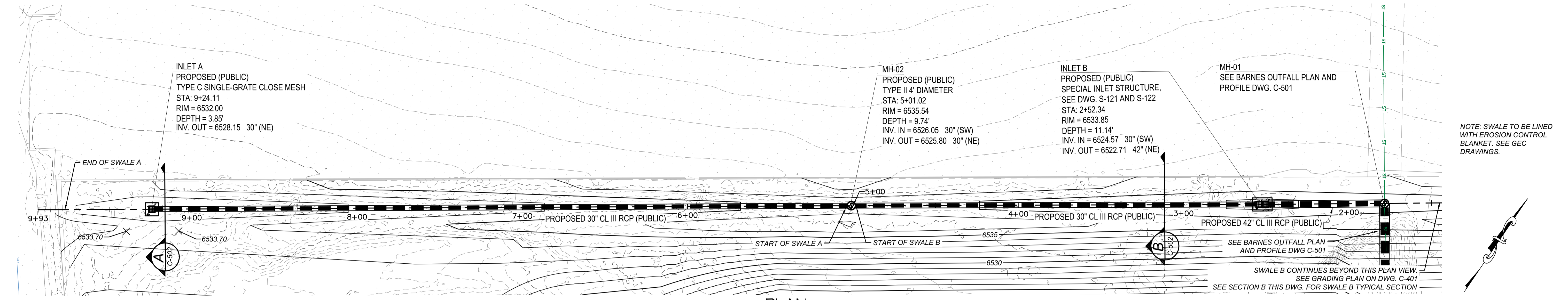


BARNES OUTFALL WATER QUALITY POND
 BARNES AND SKY SOX OUTFALLS PLAN AND PROFILE

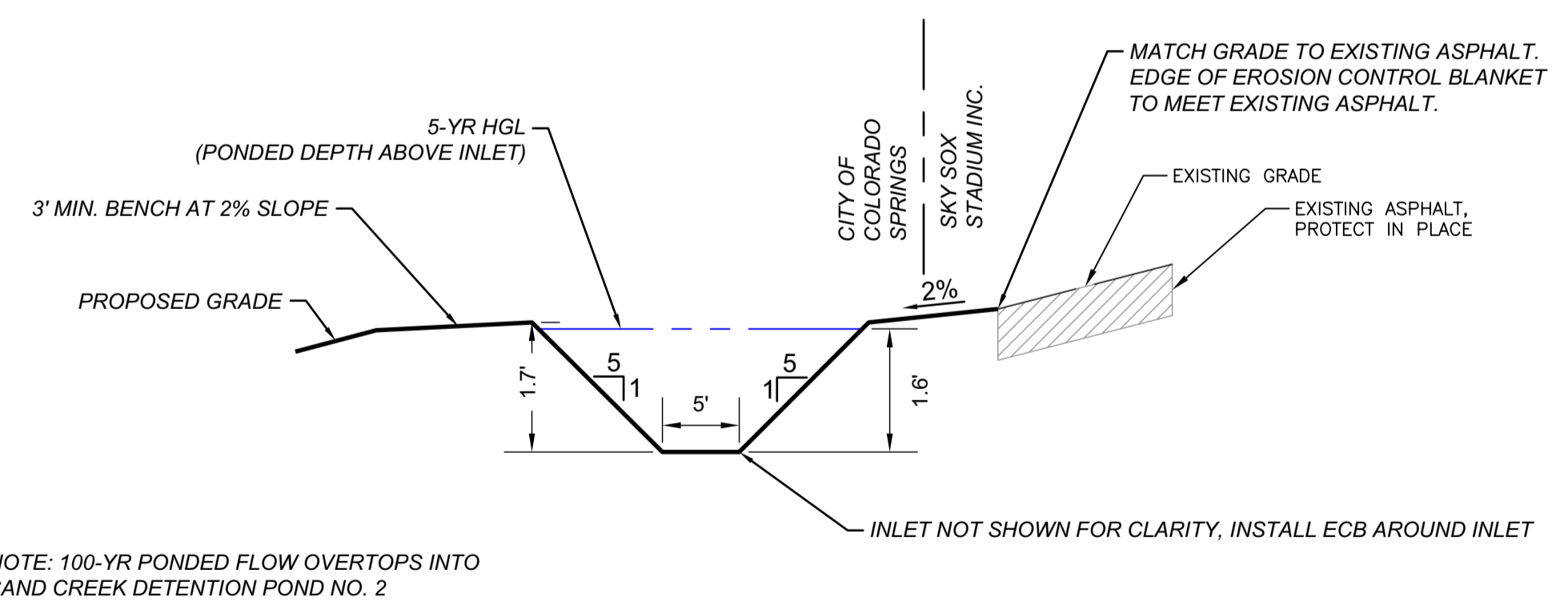
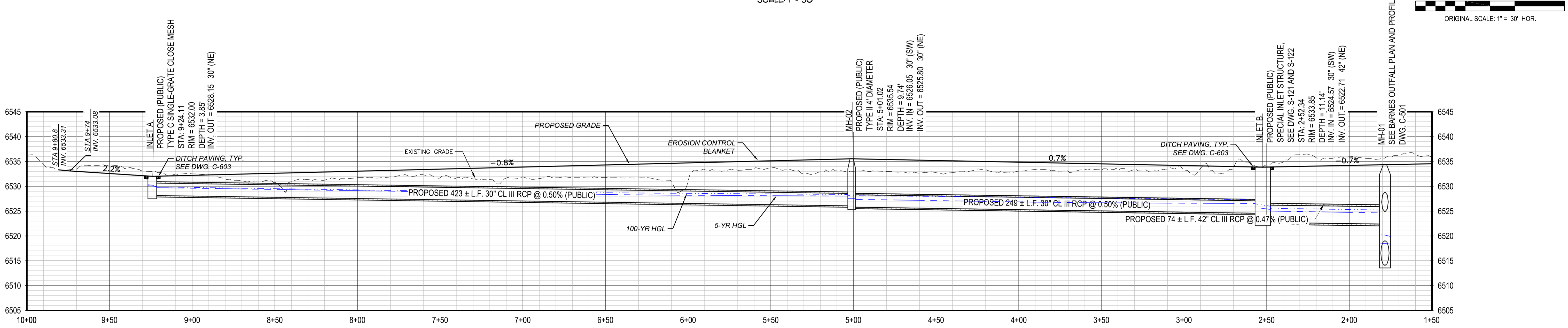
JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: C-501
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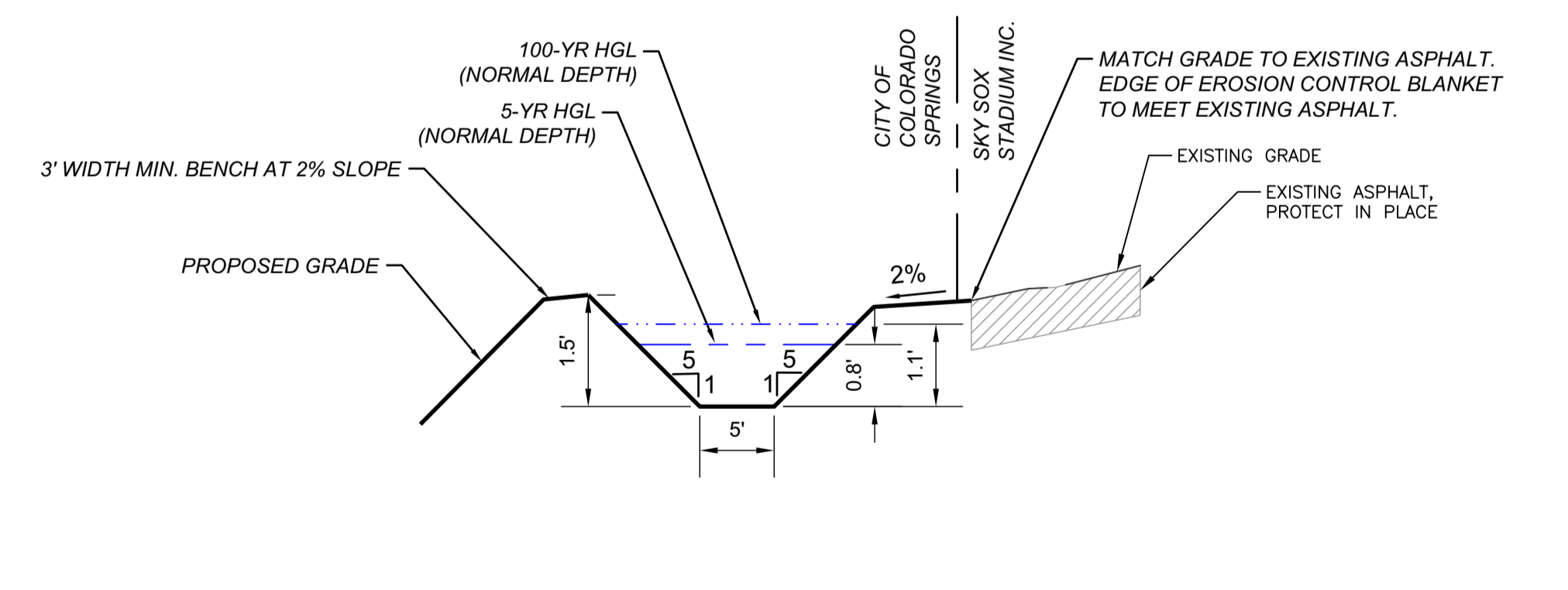
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NOTE: RIM ELEVATION IS AT THE FLOWLINE



SWALE A SECTION AT INLET
 STA. 9+08 TO STA. 9+40
 HOR. SCALE: 1" = 10'
 VER. SCALE: 1" = 2'



SWALE A AND B TYPICAL SECTION
 STA. 0+22 TO STA. 9+08 AND STA. 9+40 TO STA. 9+74
 HOR. SCALE: 1" = 10'
 VER. SCALE: 1" = 2'

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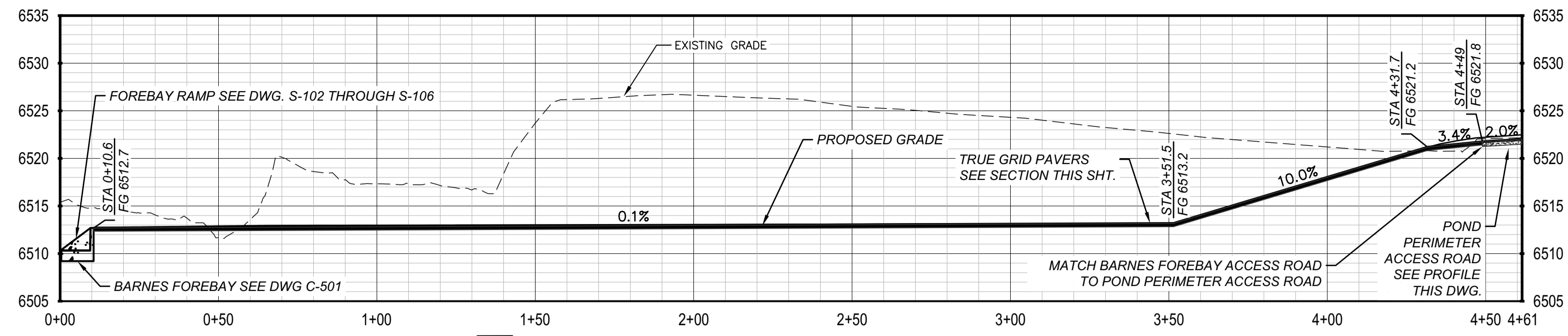
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TITLE
BARNES OUTFALL WATER QUALITY POND
 SWALE AND STORM SEWER PLAN AND PROFILE

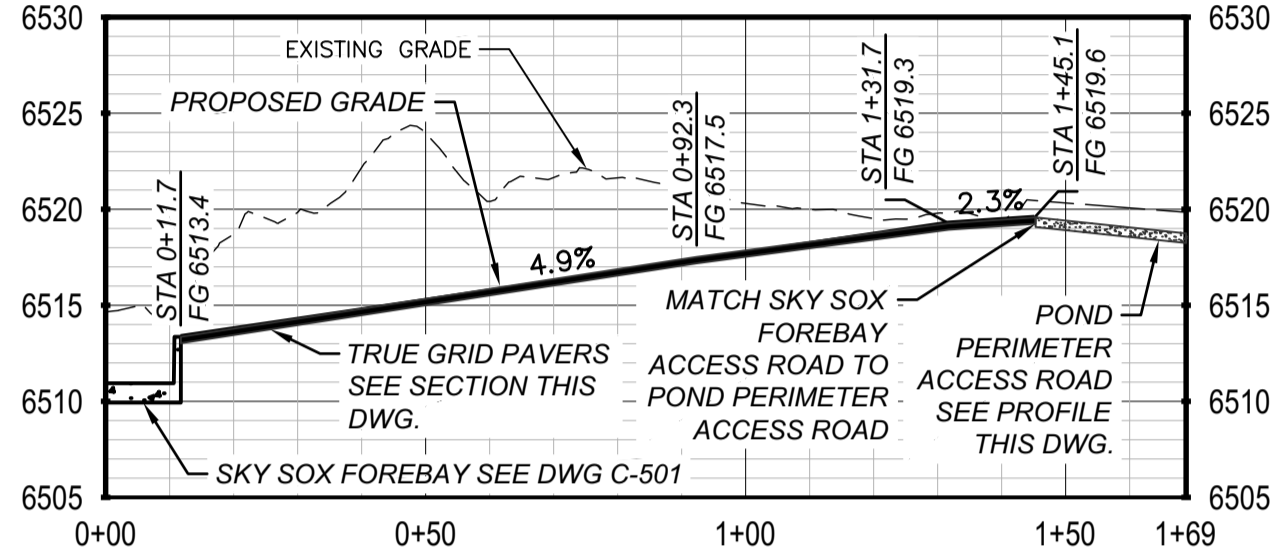
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 DATE: MARCH 8, 2024
 DRAWING: **C-502**
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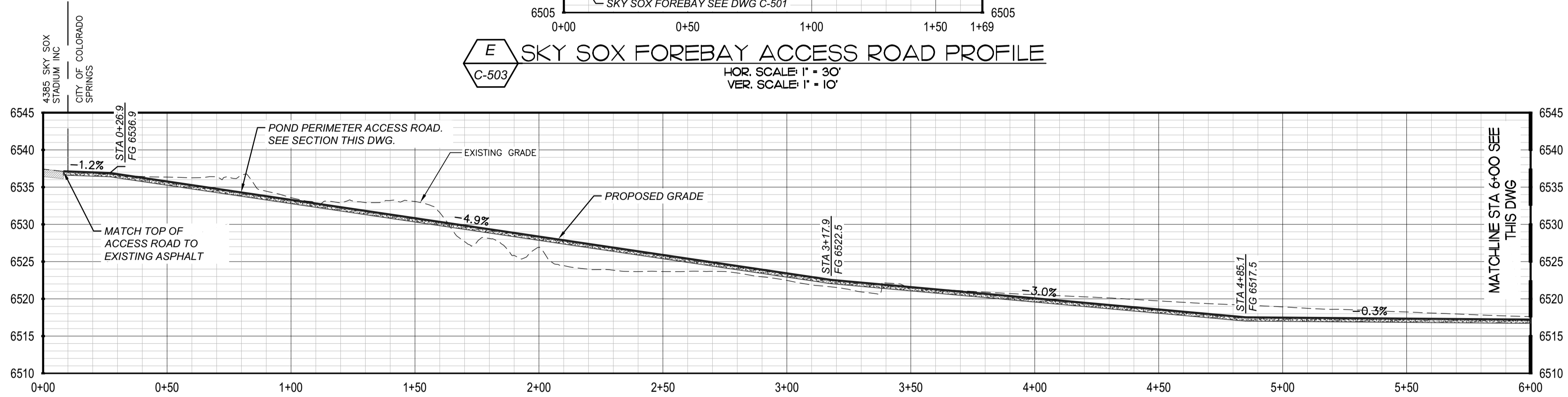
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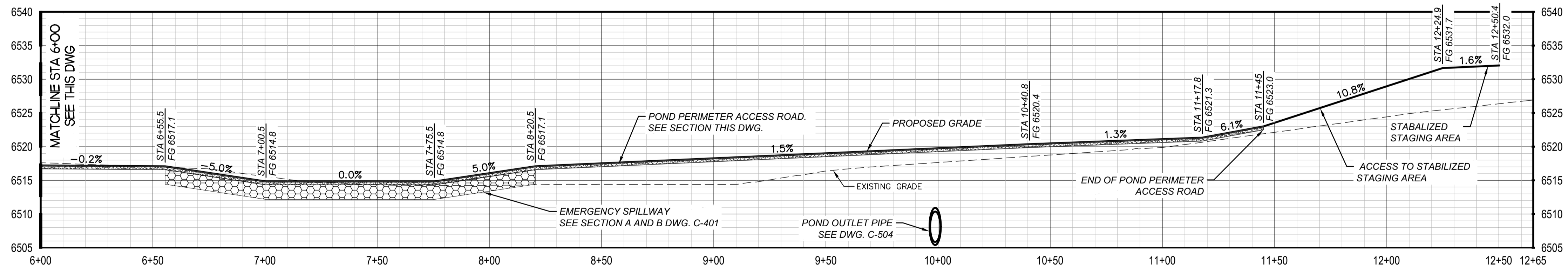
D BARNES FOREBAY ACCESS ROAD PROFILE
 C-503
 HOR. SCALE: 1" = 30'
 VER. SCALE: 1" = 10'



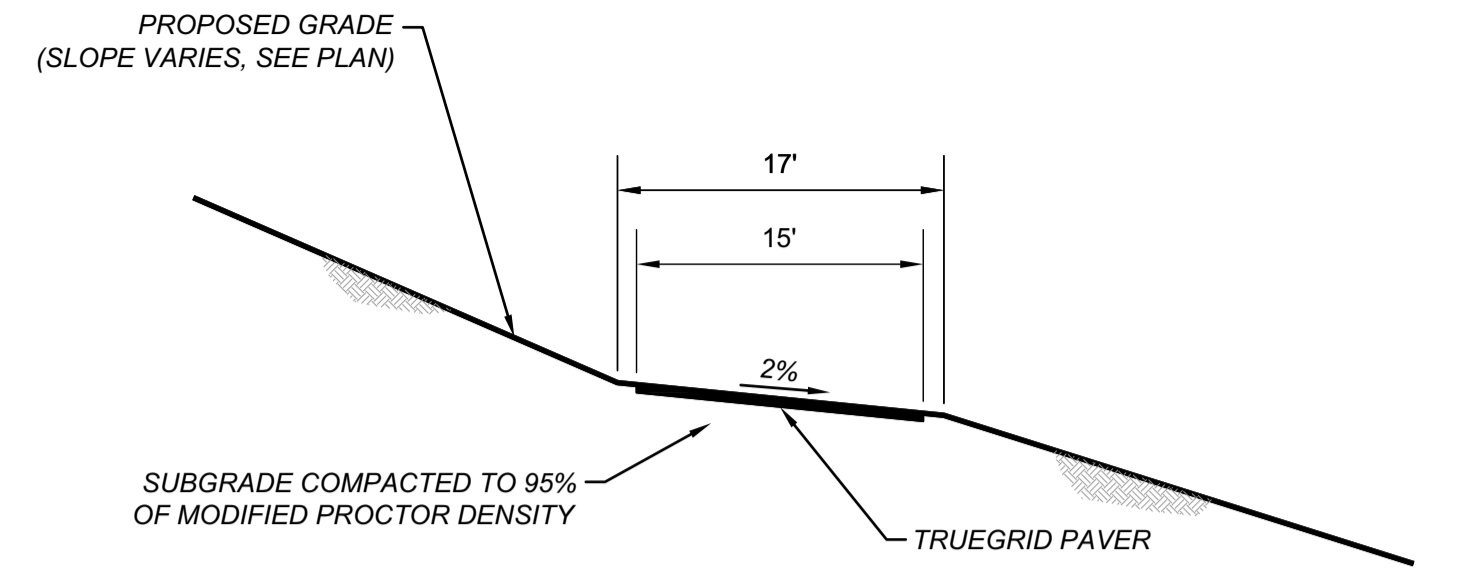
E SKY SOX FOREBAY ACCESS ROAD PROFILE
 C-503
 HOR. SCALE: 1" = 30'
 VER. SCALE: 1" = 10'



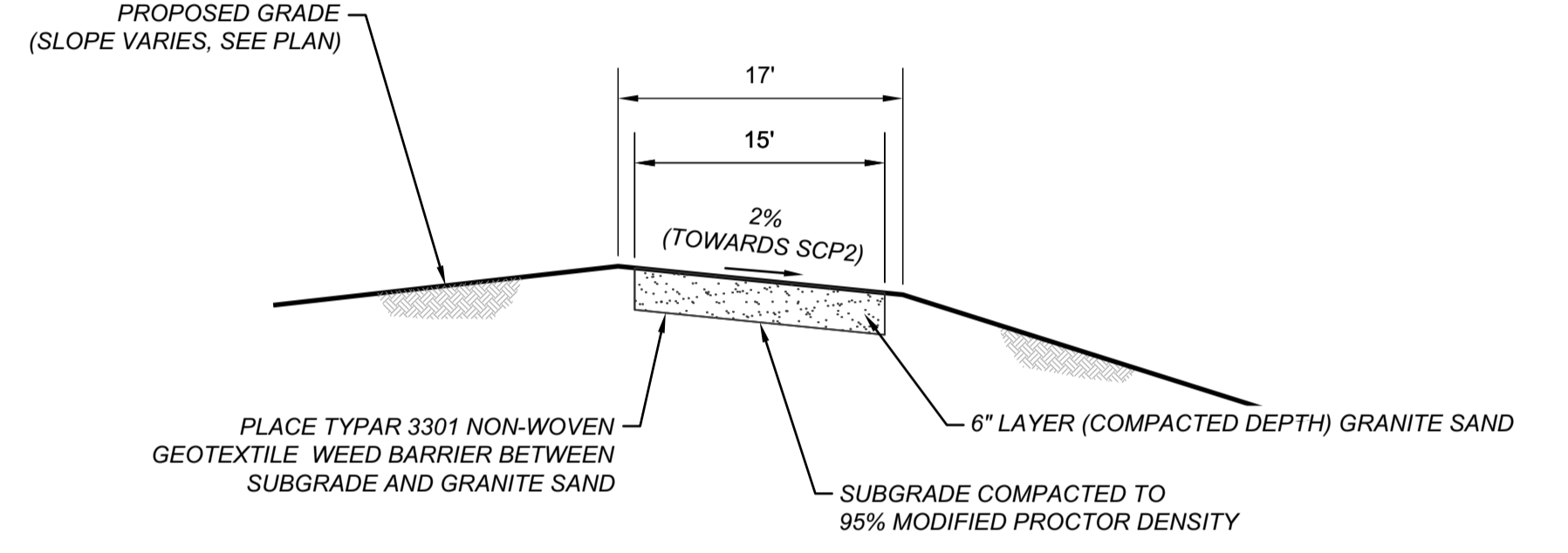
F POND PERIMETER ACCESS ROAD PROFILE STA. 0+00 TO 6+00
 C-503
 HOR. SCALE: 1" = 30'
 VER. SCALE: 1" = 10'



F POND PERIMETER ACCESS ROAD PROFILE STA. 6+00 TO 12+65
 C-503
 HOR. SCALE: 1" = 30'
 VER. SCALE: 1" = 10'

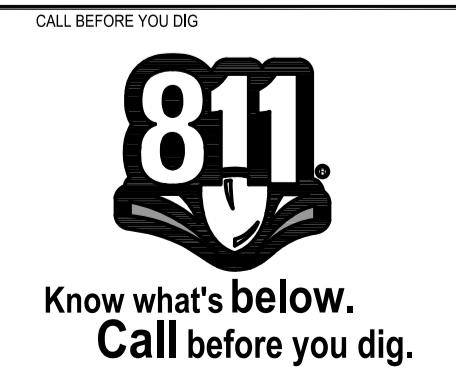


TRUEGRID PAVERS ACCESS ROAD SECTION
 NTS

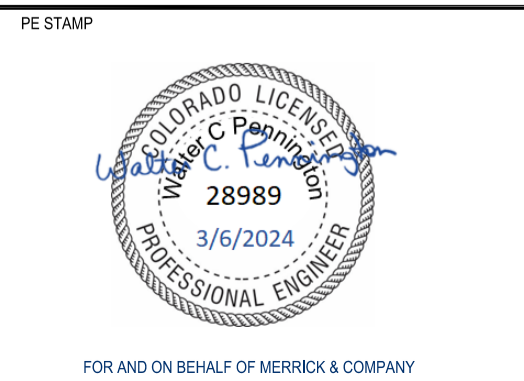


POND PERIMETER ACCESS ROAD SECTION
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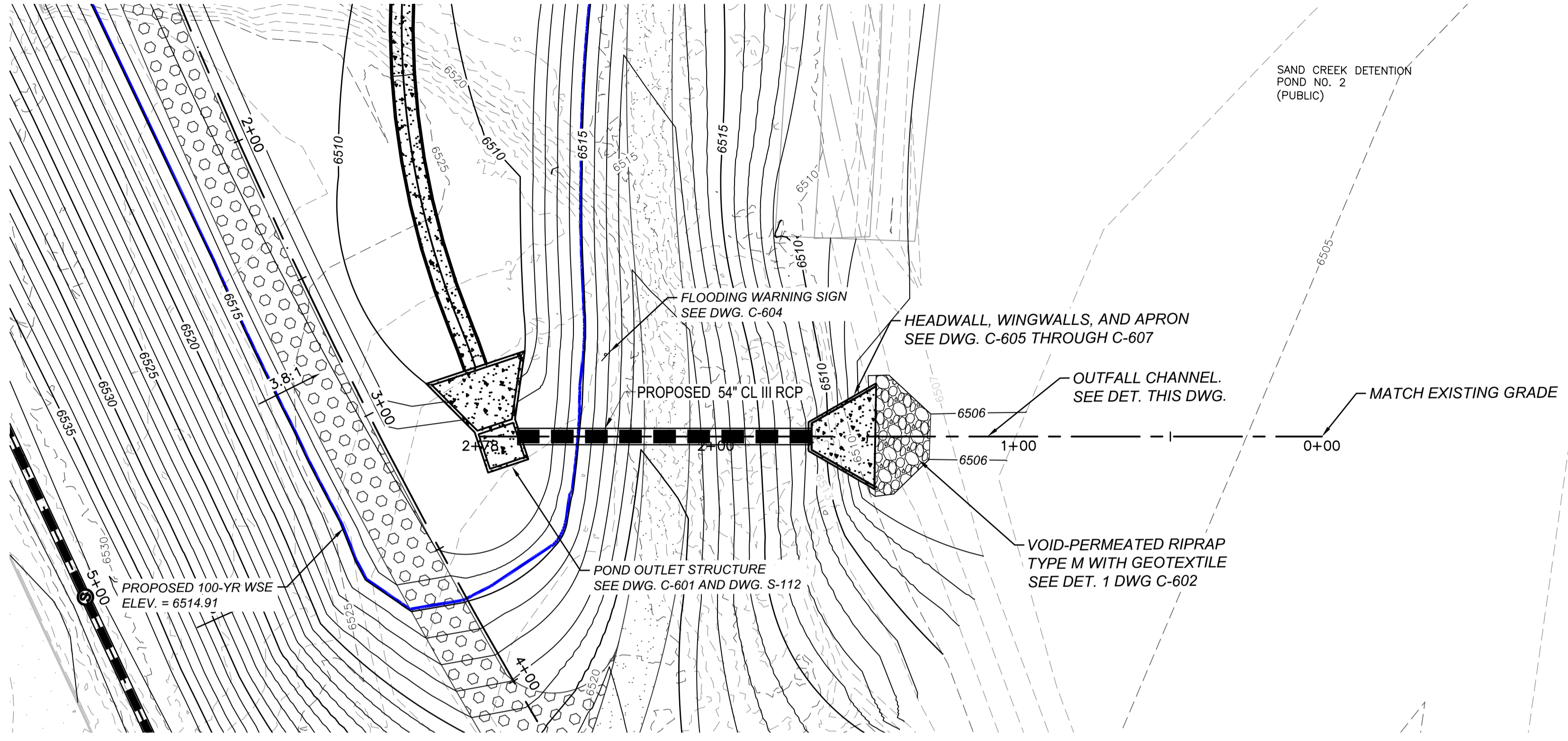


TITLE
BARNES OUTFALL WATER QUALITY POND
BARNES OUTFALL WATER QUALITY POND ACCESS ROAD PROFILE

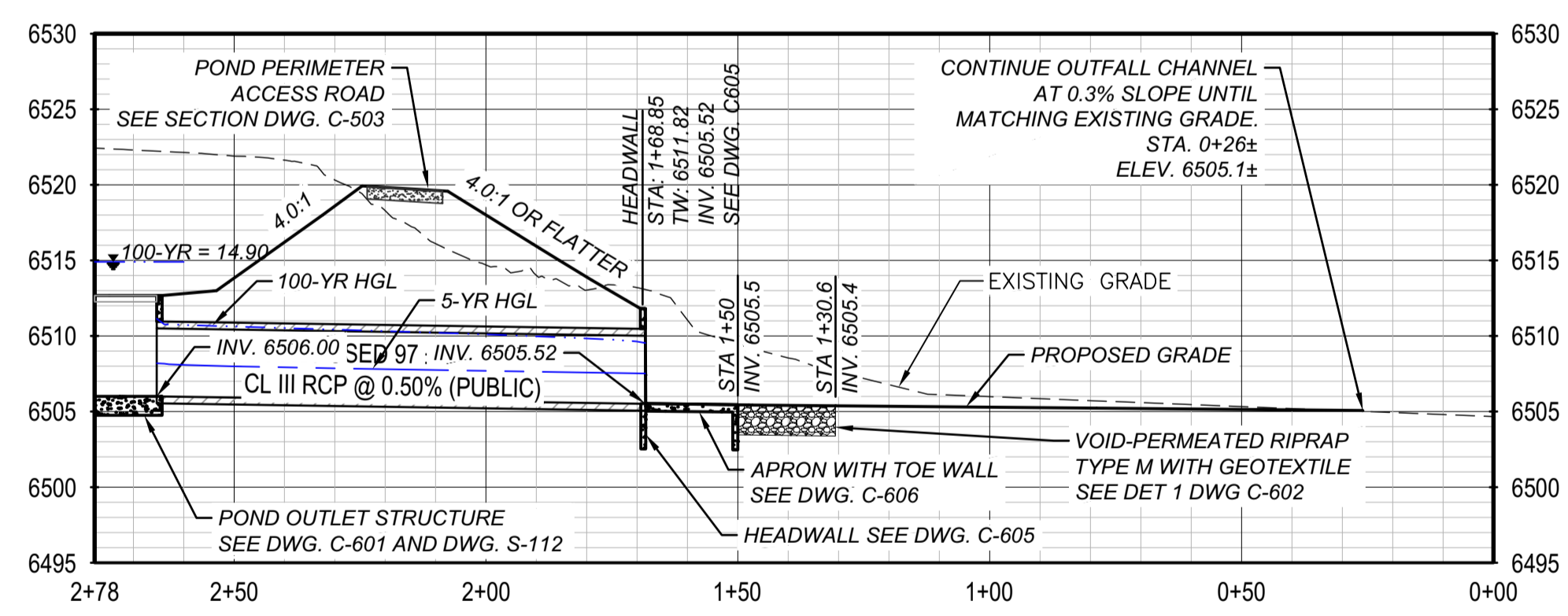
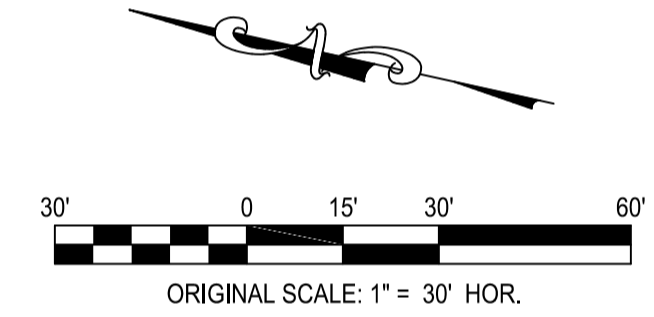
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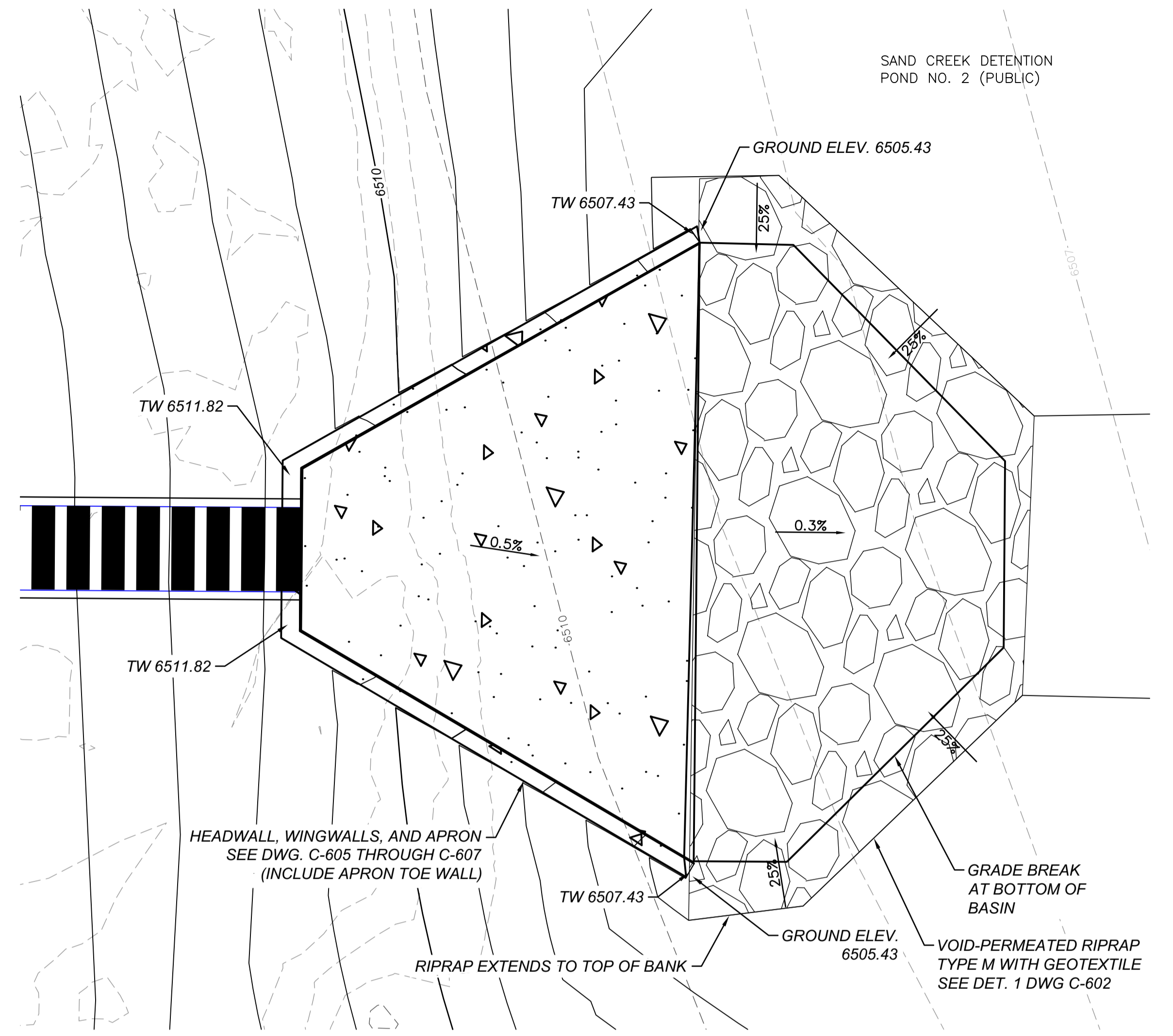
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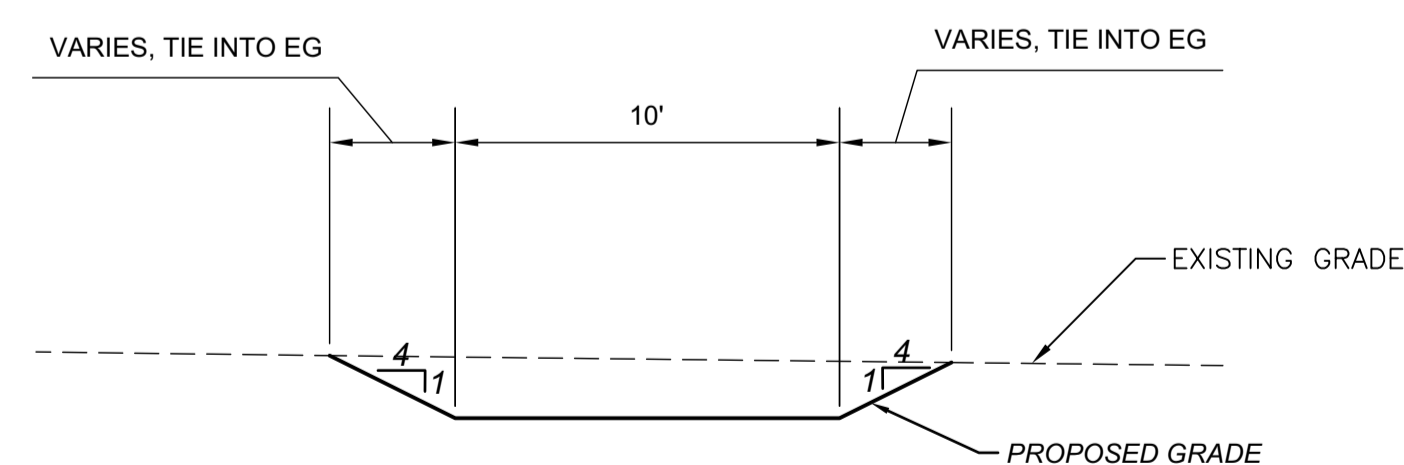
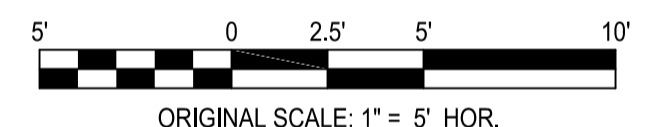
PLAN
SCALE: 1" = 30'



G PROFILE
C-504
HOR. SCALE: 1" = 30'
VER. SCALE: 1" = 10'



OUTFALL ENLARGEMENT PLAN
SCALE: 1" = 5'



OUTFALL CHANNEL TYPICAL SECTION
HOR. SCALE: 1" = 5'
VER. SCALE: 1" = 2'

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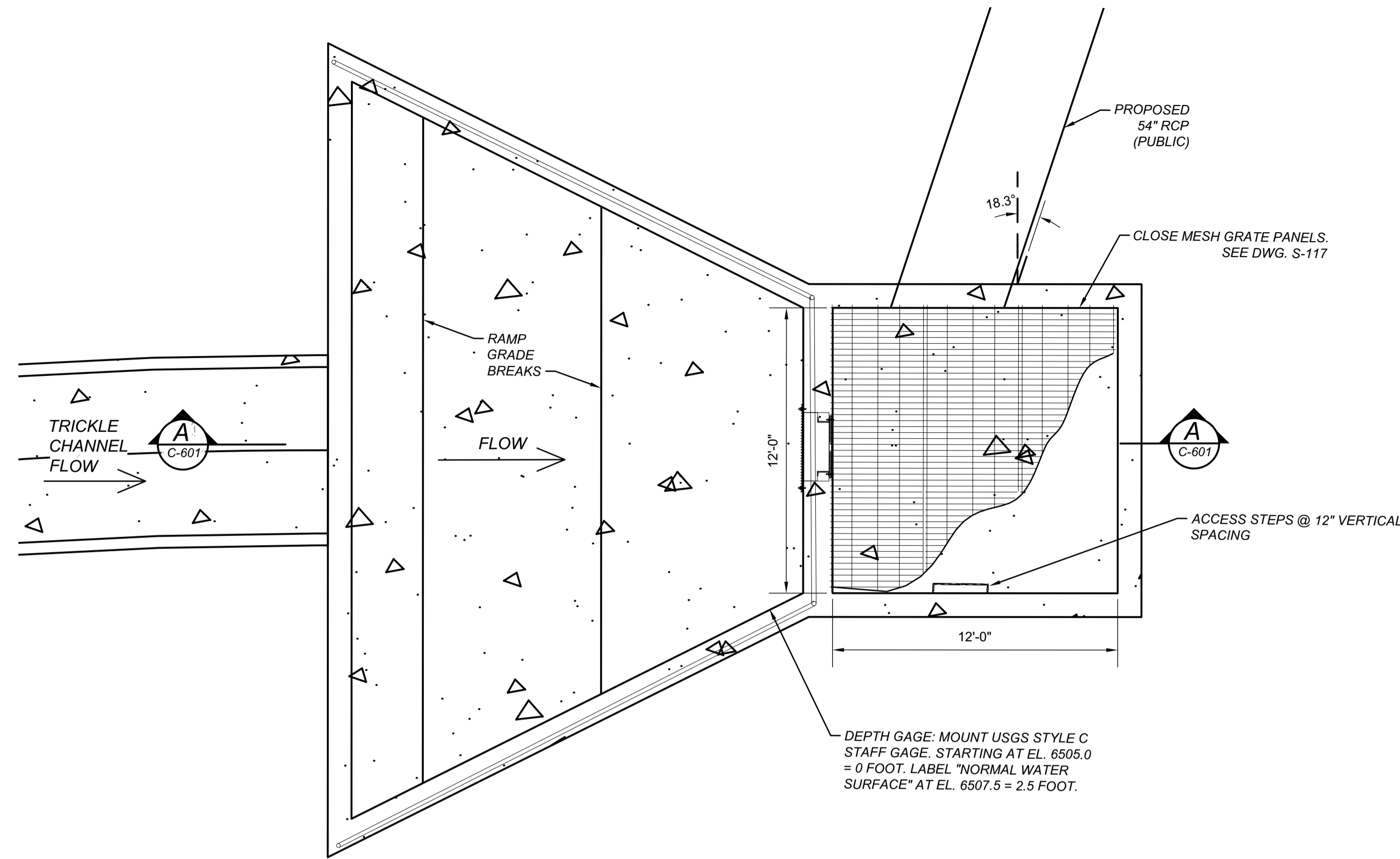
BARNES OUTFALL WATER QUALITY POND

POND OUTFALL PLAN AND PROFILE

JOB NUMBER: 65421421
DATE: MARCH 8, 2024
DRAWING: **C-504**
11 of 50

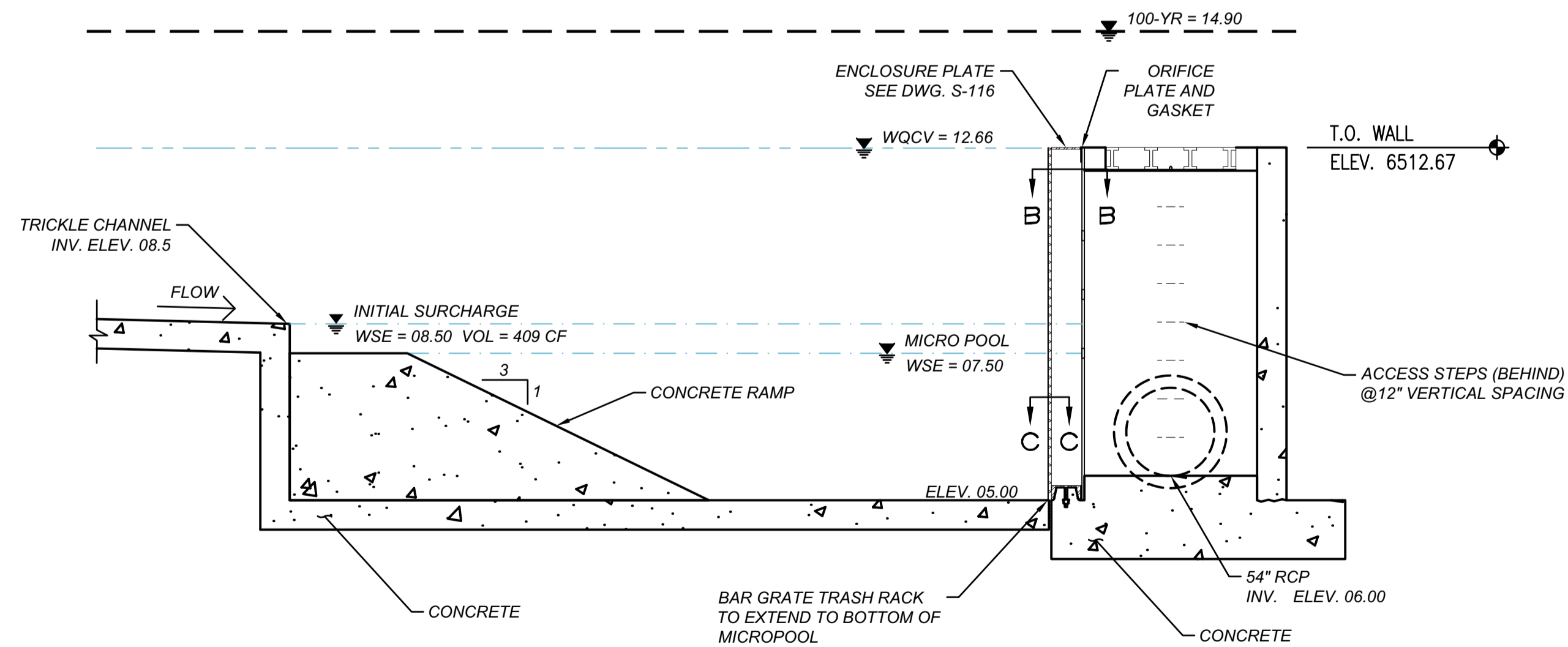
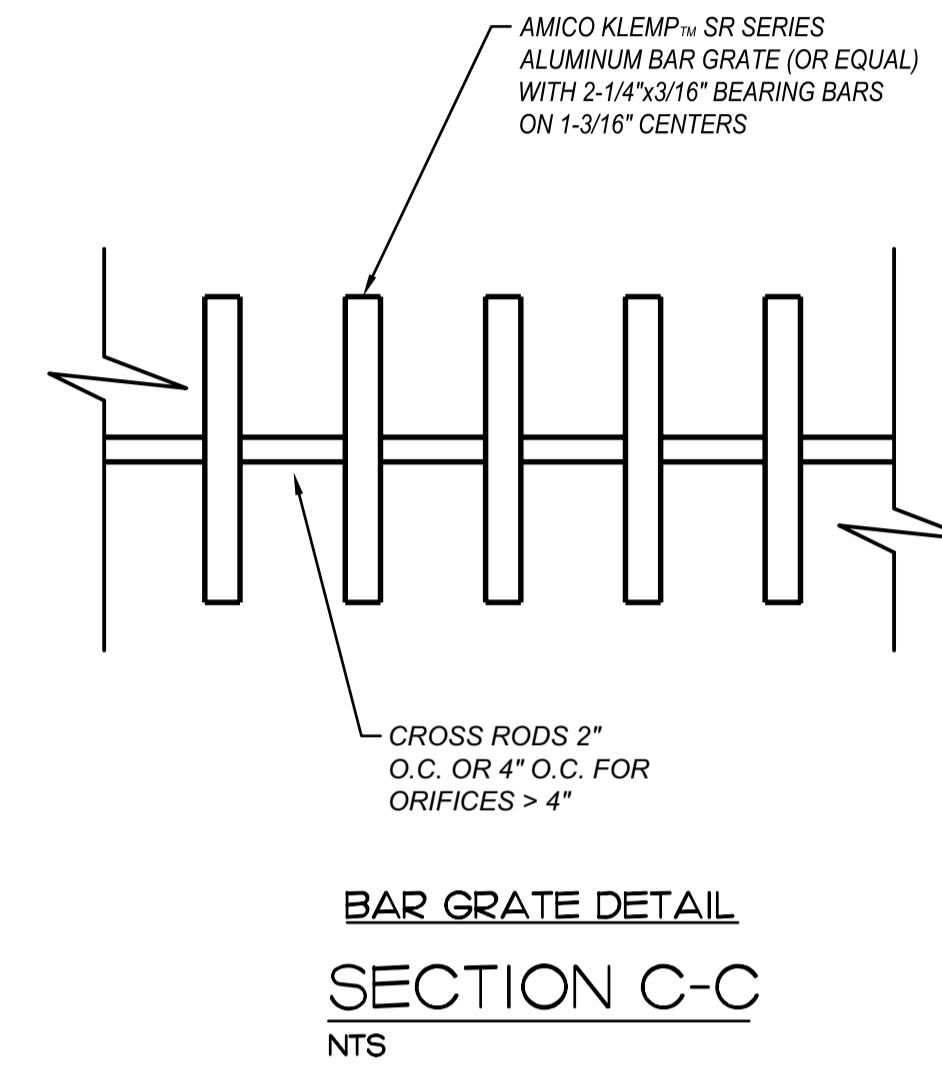
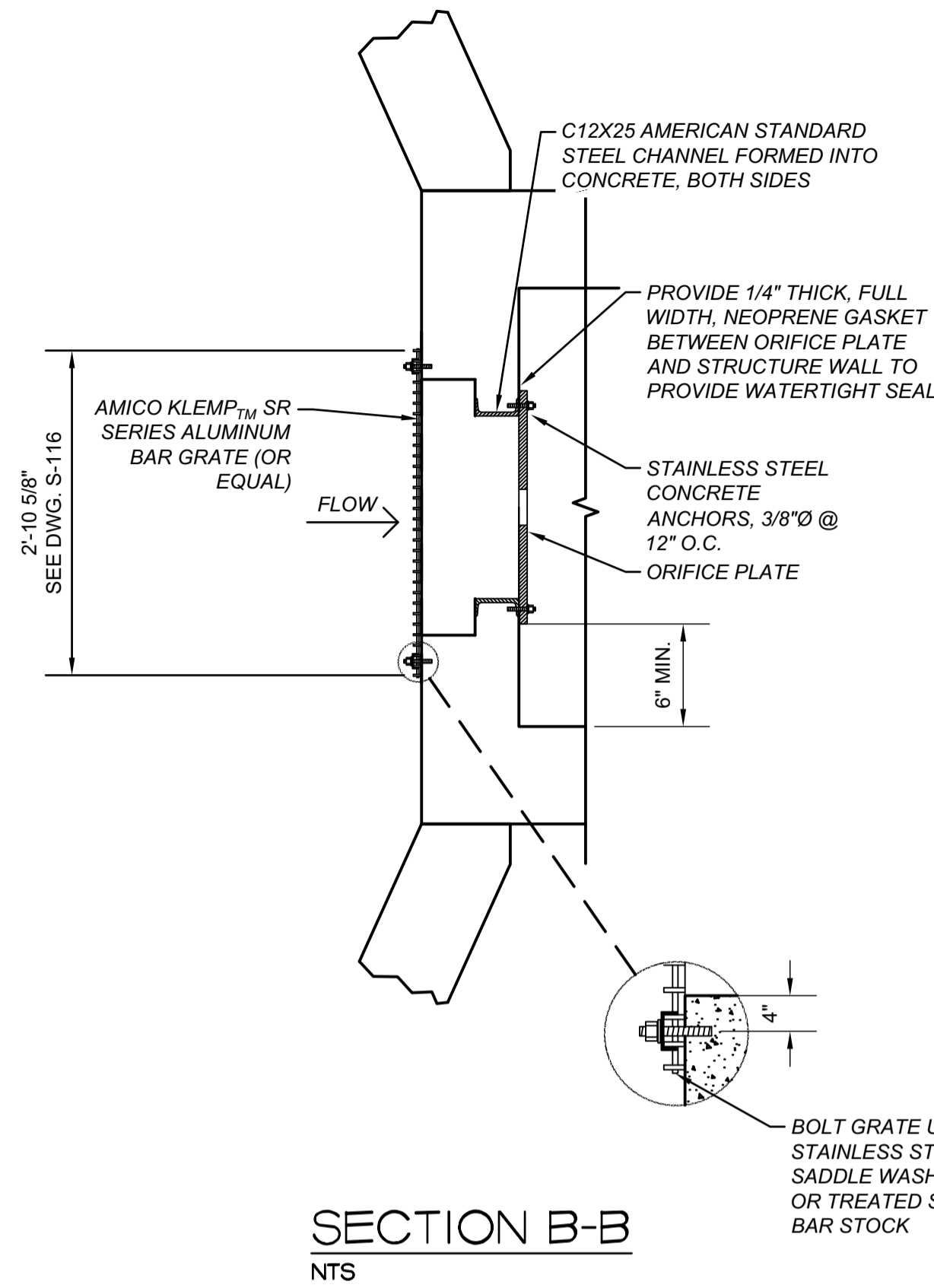
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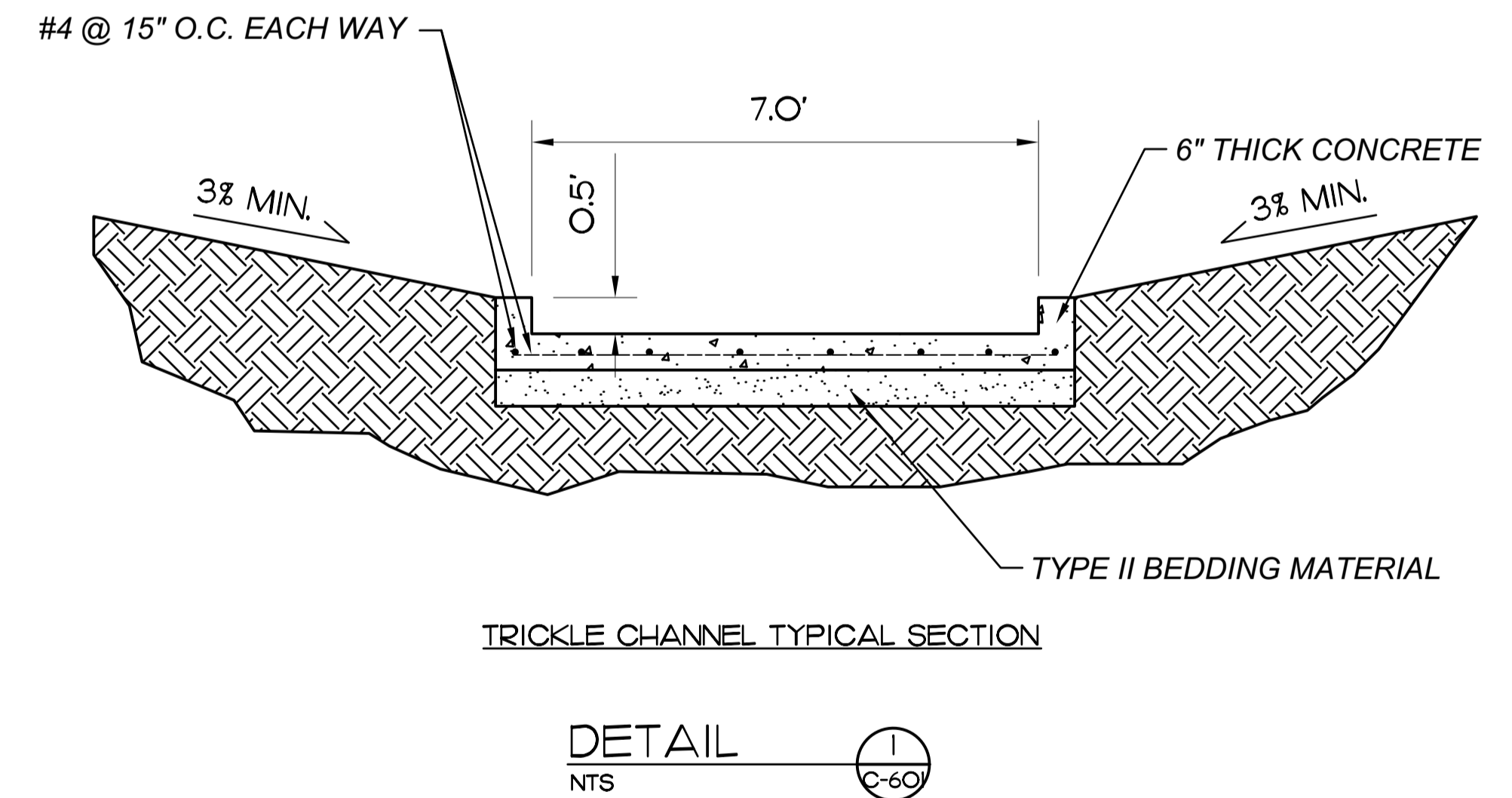
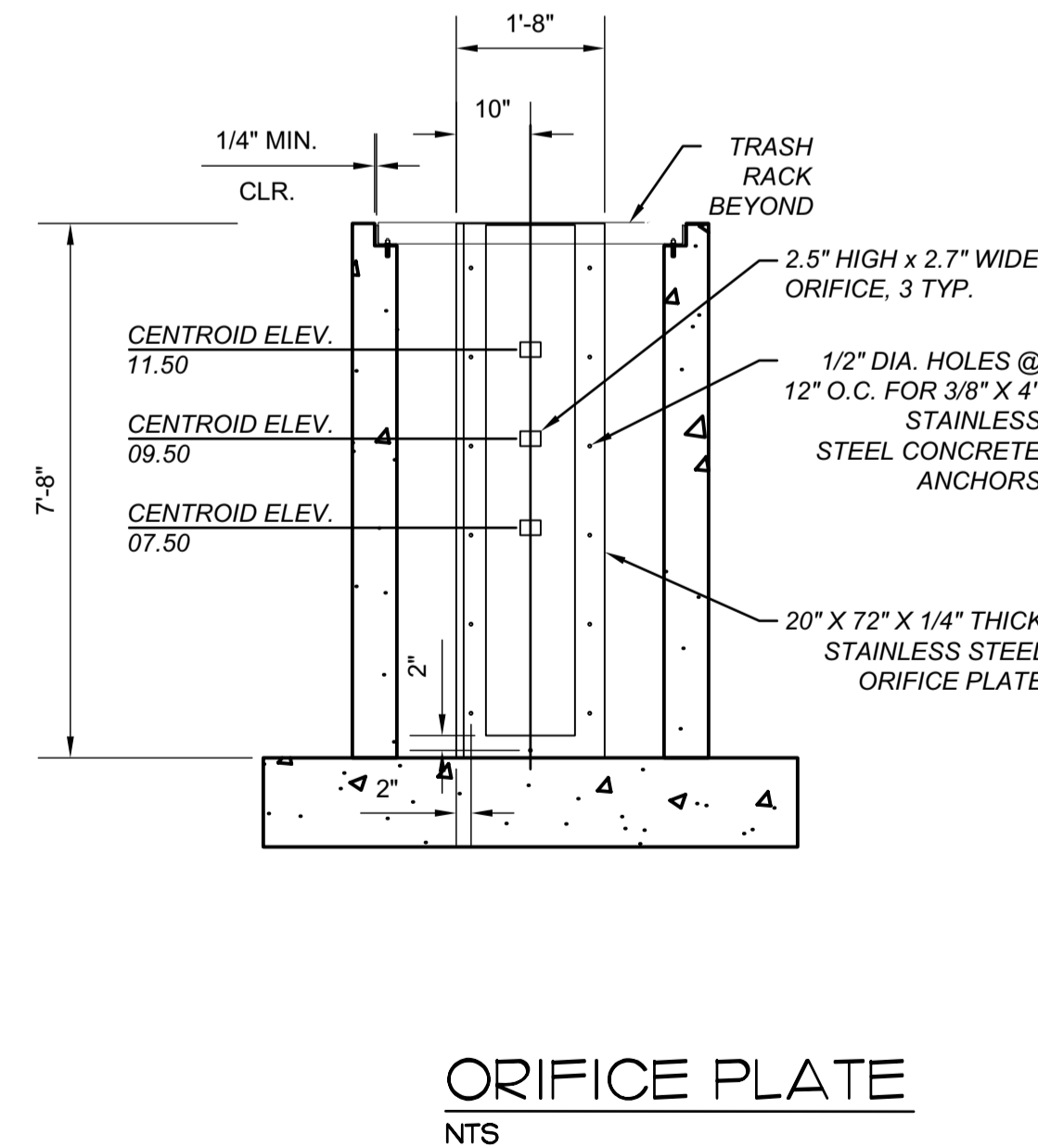


POND OUTLET STRUCTURE

PLAN
NTS



PROFILE SECTION A-A
NTS

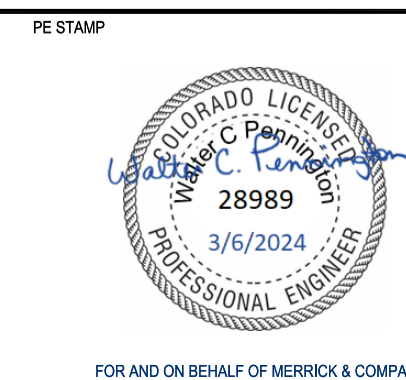


SEE DWGS. S-112 THROUGH S-118 FOR STRUCTURAL DESIGN. DWGS. S-112 THROUGH S-118 TO TAKE PRECEDENCE OVER DWG. C-601 IF CONFLICTING.

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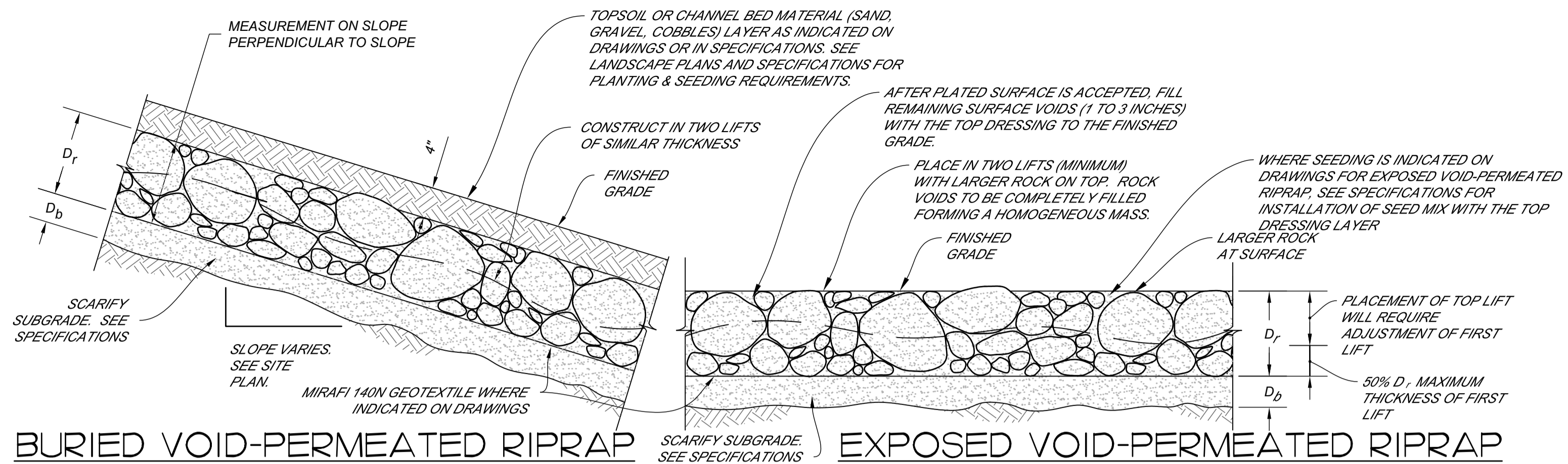
BARNES OUTFALL WATER QUALITY POND

POND OUTLET STRUCTURE
CIVIL DETAILS

JOB NUMBER 65421421
DATE MARCH 8, 2024
DRAWING C-601
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BURIED VOID-PERMEATED RIPRAP **EXPOSED VOID-PERMEATED RIPRAP**

USED THIS PROJECT	RIPRAP TYPE	D ₅₀	D _r	D _b / SCARIFY DEPTH
	VL	6	12	8
	L	9	18	8
X	M	12	24	10
	H	18	36	12
	VH	24	48	12

ALL DIMENSIONS IN INCHES

D_r = DEPTH OF RIPRAP LAYER, (UNLESS NOTED OTHERWISE ON PLANS, DETAILS, AND SECTIONS)

D_b = MINIMUM BEDDING THICKNESS, SEE SPECIFICATIONS

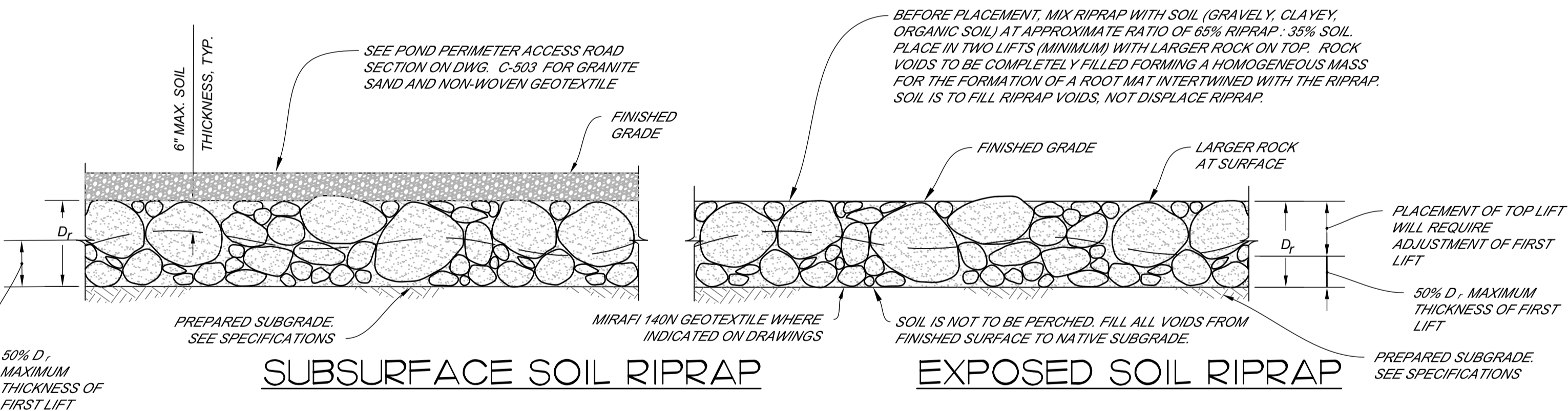
NOTES FOR VOID-PERMEATED RIPRAP:

- EXPOSED AND BURIED VOID-PERMEATED RIPRAP DETAILS ARE APPLICABLE TO FLAT OR SLOPED AREAS. REFER TO SITE PLAN FOR ACTUAL LOCATION AND LIMITS OF EACH TYPE.
- REFER TO SPECIFICATIONS FOR MATERIALS, MIXING, AND PLACEMENT REQUIREMENTS FOR VOID-PERMEATED RIPRAP.
- GENERAL PLACEMENT TECHNIQUES SHOULD RESULT IN LARGER ROCK AT THE SURFACE WITH ROCK SECURELY INTERLOCKED AT THE DESIGN THICKNESS AND GRADE. COMPACTION AND LEVELING SHOULD RESULT IN MINIMAL VOIDS AND PROJECTIONS ABOVE GRADE. TYPICAL FOR BOTH BURIED AND EXPOSED VOID-PERMEATED RIPRAP.
- FINAL VOID-PERMEATED RIPRAP TO BE COMPACTED BY FULL LOADING OF EXCAVATOR BUCKET OR VIBRATORY PLATE COMPACTOR ATTACHED TO EXCAVATOR BOOM/STICK AS APPROVED BY ENGINEER. ANY SOFT, YIELDING OR POCKETS OF SMALL ROCK WILL BE REWORKED.
- SUBGRADE SHALL BE SCARIFIED PRIOR TO PLACEMENT OF RIPRAP. SEE SPECIFICATIONS.
- COORDINATE ROCK PLACEMENT TO PROVIDE TREE OR SHRUB PLANTING PITS WHEN INDICATED ON PLANTING PLANS.

TYPICAL VOID-PERMEATED RIPRAP PLACEMENT

NTS

1
14



SUBSURFACE SOIL RIPRAP

EXPOSED SOIL RIPRAP

USED THIS PROJECT	RIPRAP TYPE	D ₅₀	D _r
	VL	6	20
X	L	9	26
	M	12	32
	H	18	44

ALL DIMENSIONS IN INCHES

D_r = DEPTH OF RIPRAP LAYER, (UNLESS NOTED OTHERWISE ON PLANS, DETAILS, AND SECTIONS)

NOTES FOR SOIL RIPRAP:

- EXPOSED AND BURIED SOIL RIPRAP DETAILS ARE APPLICABLE TO FLAT OR SLOPED AREAS. REFER TO SITE PLAN FOR ACTUAL LOCATION AND LIMITS OF EACH TYPE.
- REFER TO SPECIFICATIONS FOR MATERIALS, MIXING, AND PLACEMENT REQUIREMENTS FOR SOIL RIPRAP.
- GENERAL PLACEMENT TECHNIQUES SHOULD RESULT IN LARGER ROCK AT THE SURFACE WITH ROCK SECURELY INTERLOCKED AT THE DESIGN THICKNESS AND GRADE. COMPACTION AND LEVELING SHOULD RESULT IN MINIMAL VOIDS AND PROJECTIONS ABOVE GRADE. TYPICAL FOR BOTH BURIED AND EXPOSED SOIL RIPRAP.
- FINAL SOIL RIPRAP TO BE COMPACTED BY FULL LOADING OF EXCAVATOR BUCKET OR VIBRATORY PLATE COMPACTOR ATTACHED TO EXCAVATOR BOOM/STICK AS APPROVED BY ENGINEER. ANY SOFT, YIELDING OR POCKETS OF SMALL ROCK WILL BE REWORKED.
- COORDINATE ROCK PLACEMENT TO PROVIDE TREE OR SHRUB PLANTING WELLS WHEN INDICATED ON PLANTING PLANS.

TYPICAL SOIL RIPRAP PLACEMENT

NTS

2
14

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TITLE

BARNES OUTFALL WATER QUALITY POND

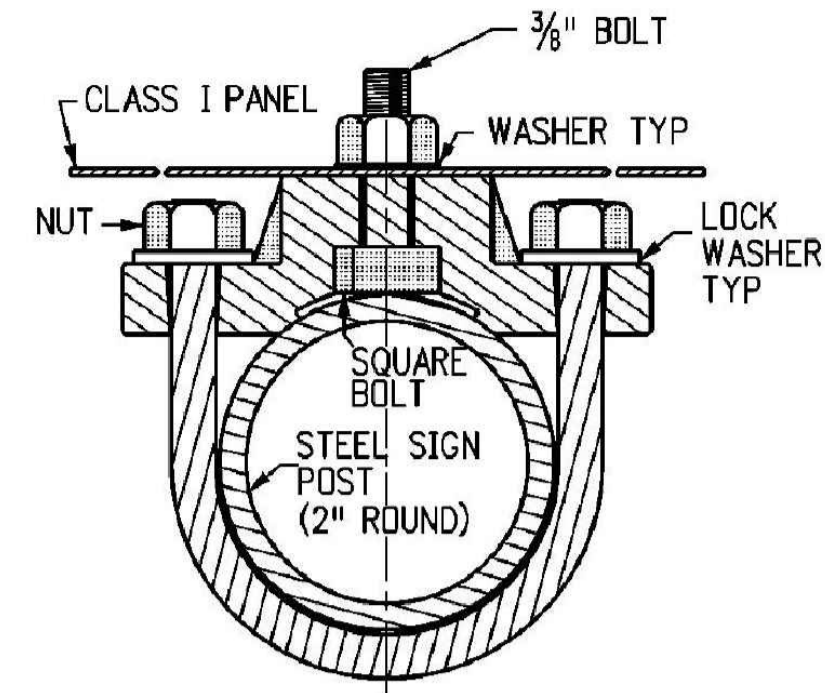
RIPRAP DETAILS

JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: C-602
 12 of 50

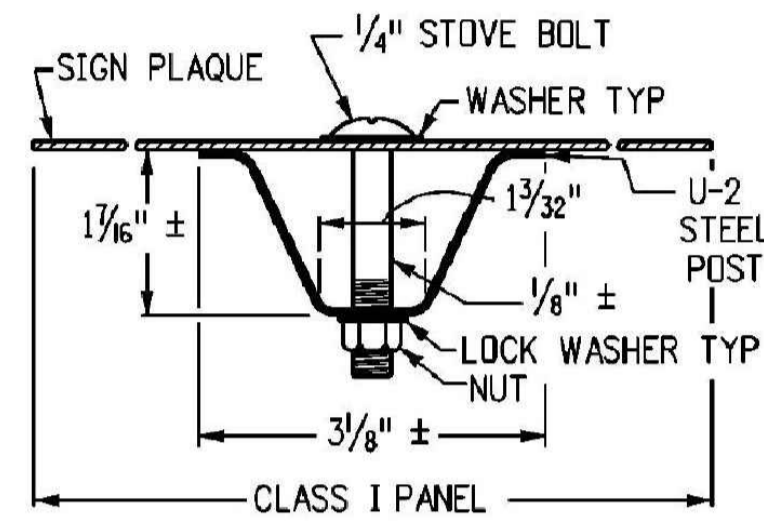
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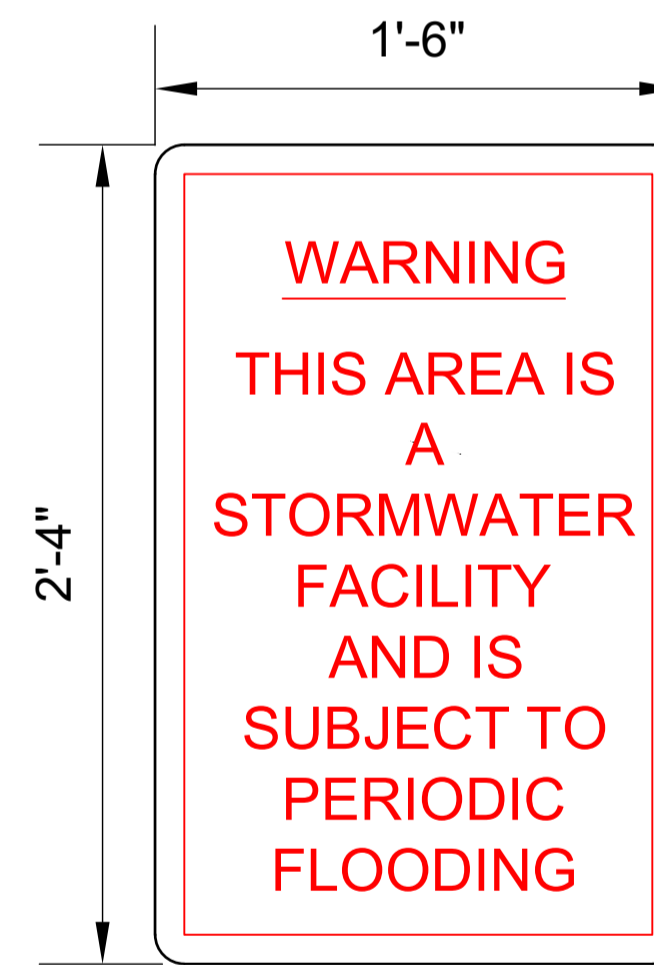
TYPICAL SINGLE BRACKET



TYPICAL ROUND STEEL POLE SECTION



TYPICAL U-2 POST SECTION



SIGN FACE

GENERAL NOTES

1. TIMBER SIGN POSTS MAY ONLY BE USED FOR TEMPORARY SIGNAGE DURING CONSTRUCTION. TUBULAR STEEL SHALL BE USED FOR PERMANENT INSTALLATIONS.
2. CLASS I SIGN PANELS ARE ALL THOSE THAT DO NOT REQUIRE BACKING ZEES. CLASS I PANELS SHALL GENERALLY BE 0.100" MINIMUM THICKNESS SINGLE SHEET ALUMINUM, BUT 0.080" THICKNESS MAY BE USED FOR SIGN PANELS WHERE BOTH THE HORIZONTAL AND VERTICAL DIMENSIONS ARE LESS THAN 36 IN.
3. CLASS I SIGN PANELS SHALL BE FASTENED TO THE U-2 POST WITH 2- IN. STOVE BOLTS AND TO TIMBER POSTS WITH 2- IN. MACHINE BOLTS. SEE STANDARD PLANS S-614-20 AND S-614-22 FOR EXCEPTIONS.
4. A WASHER SHALL BE PLACED BETWEEN THE BOLT HEAD AND THE FACE OF THE SIGN PANEL. A 1 IN. DIA. WASHER SHALL BE PLACED UNDER THE NUT ON THE BACK OF THE TIMBER POST.
5. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
6. ALL SIGNS SHALL BE FABRICATED USING RETROREFLECTIVE SHEETING CONFORMING TO ASTM D4956.
7. PLACE SIGNS ACCORDING TO PLANS, WITH THE SIGN POST 4' FROM THE NEAREST EDGE OF ACCESS ROAD
8. U-2 POSTS MAY ONLY BE USED FOR DELINEATORS, MILE MARKERS AND STRUCTURE NUMBER PLAQUES. "U" SHAPE STEEL POSTS SHALL BE A UNIFORM FLANGED CHANNEL SECTION MADE FROM HOT ROLLED STRUCTURAL STEEL, RE-ROLLED RAIL STEEL, OR NEW BILLET STEEL HAVING A MINIMUM YIELD STRENGTH OF AT LEAST 30,000 PSI, AND A MINIMUM TENSILE STRENGTH OF AT LEAST 50,000 PSI. "U" SHAPE POSTS SHALL WEIGH 2 LBS/FT, EXCEPT THAT A MILL TOLERANCE OF MINUS 3 % OF THE WEIGHT OF ANY ONE POST WILL BE ALLOWED. "U" SHAPE POSTS SHALL HAVE 1/2 IN. HOLES DRILLED OR PUNCHED ON 1 IN. OR 2 IN. CENTERS FOR THE TOP 4 FEET OF THE POST AS A MINIMUM, WITH THE FIRST HOLE 1 IN. FROM THE TOP OF THE POST. COLOR OF POSTS SHALL BE INTERSTATE GREEN.
9. VERTICAL SPACING BETWEEN PANELS ON THE SAME POST SHALL BE 1 IN. TO 1 IN.
10. SIGNS MUST BE MINIMUM OF 3 SQUARE FEET, FABRICATED OF DURABLE MATERIALS (SUCH AS METAL OR PLASTIC) AND USE RED LETTERING ON A WHITE BACKGROUND.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 W. Howard Pl. Denver, CO 80204 Phone: 303-757-9436 FAX: 303-757-9219 Traffic & Safety Engineering	CLASS I SIGNS Issued By: Traffic & Safety Engineering Branch July 31, 2019	STANDARD PLAN NO.
Creation Date: 07/04/12		Date:	Comments:			S-614-2
Created By: KCM						Standard Sheet No. 1 of 1
Last Modification Date: 07/31/19						Project Sheet Number:
Last Modified By: EBUTTA						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English						

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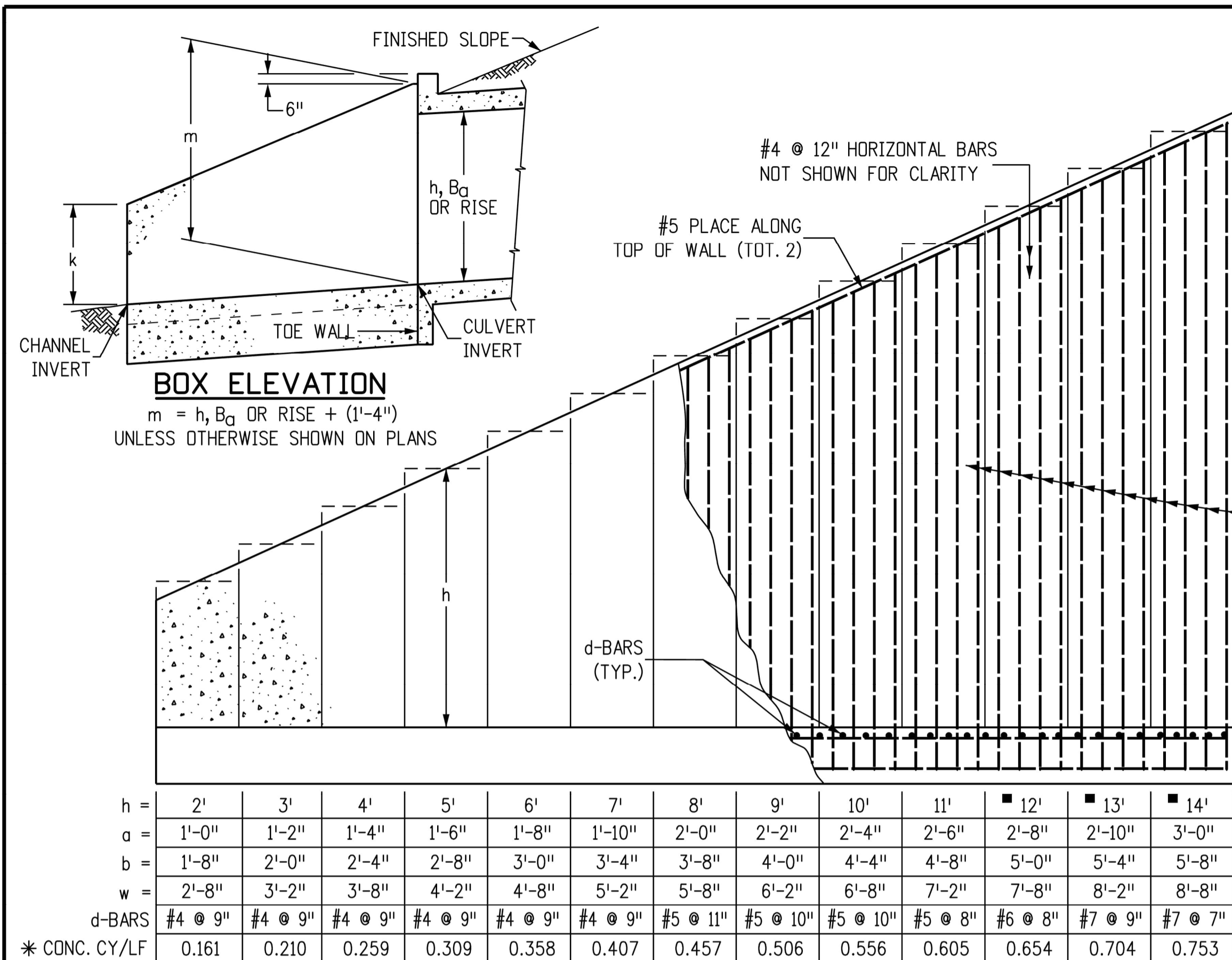
TITLE

BARNES OUTFALL WATER QUALITY POND

CIVIL DETAILS 2

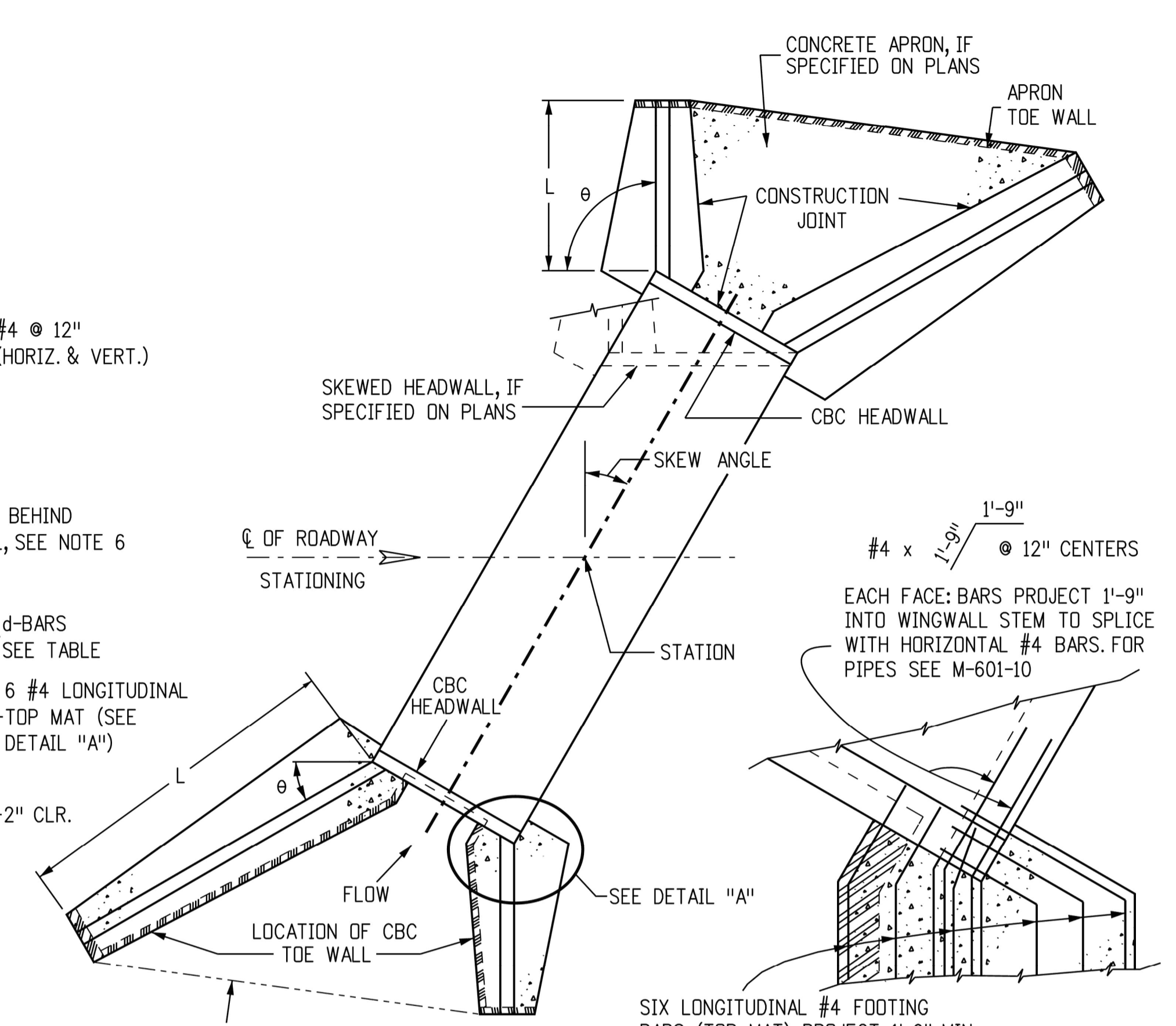
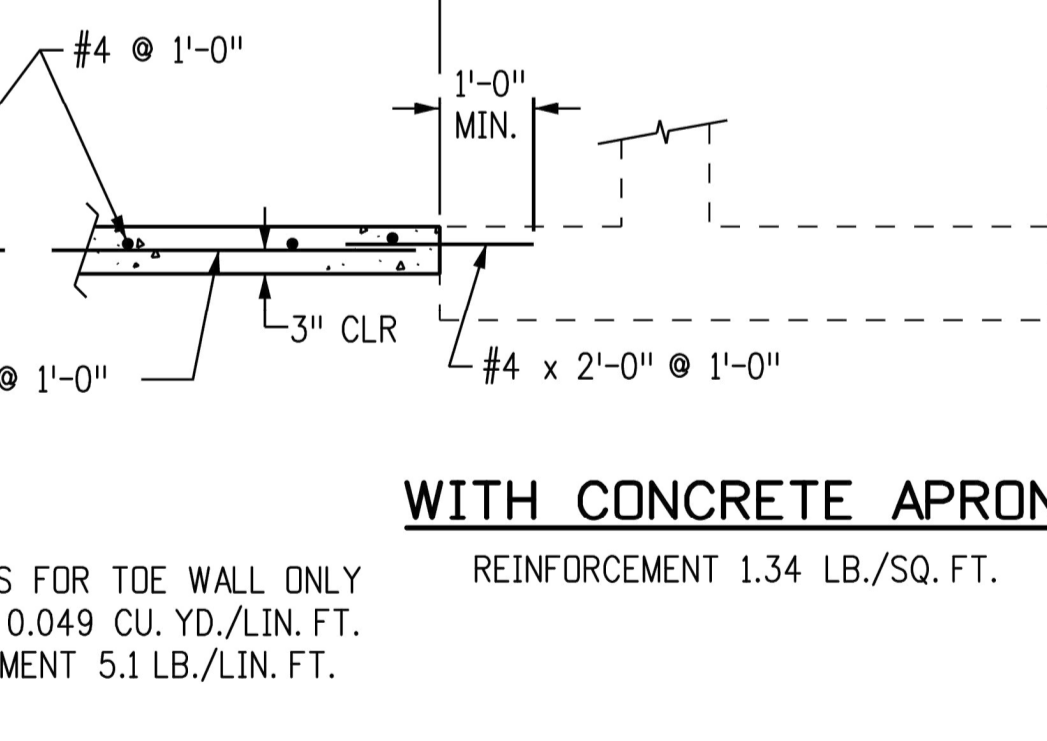
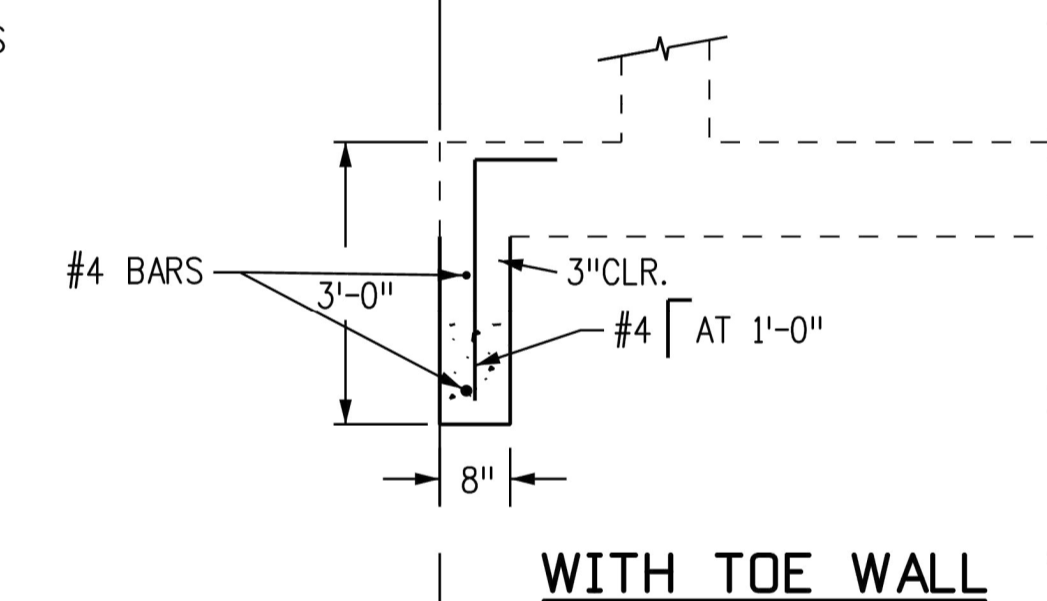
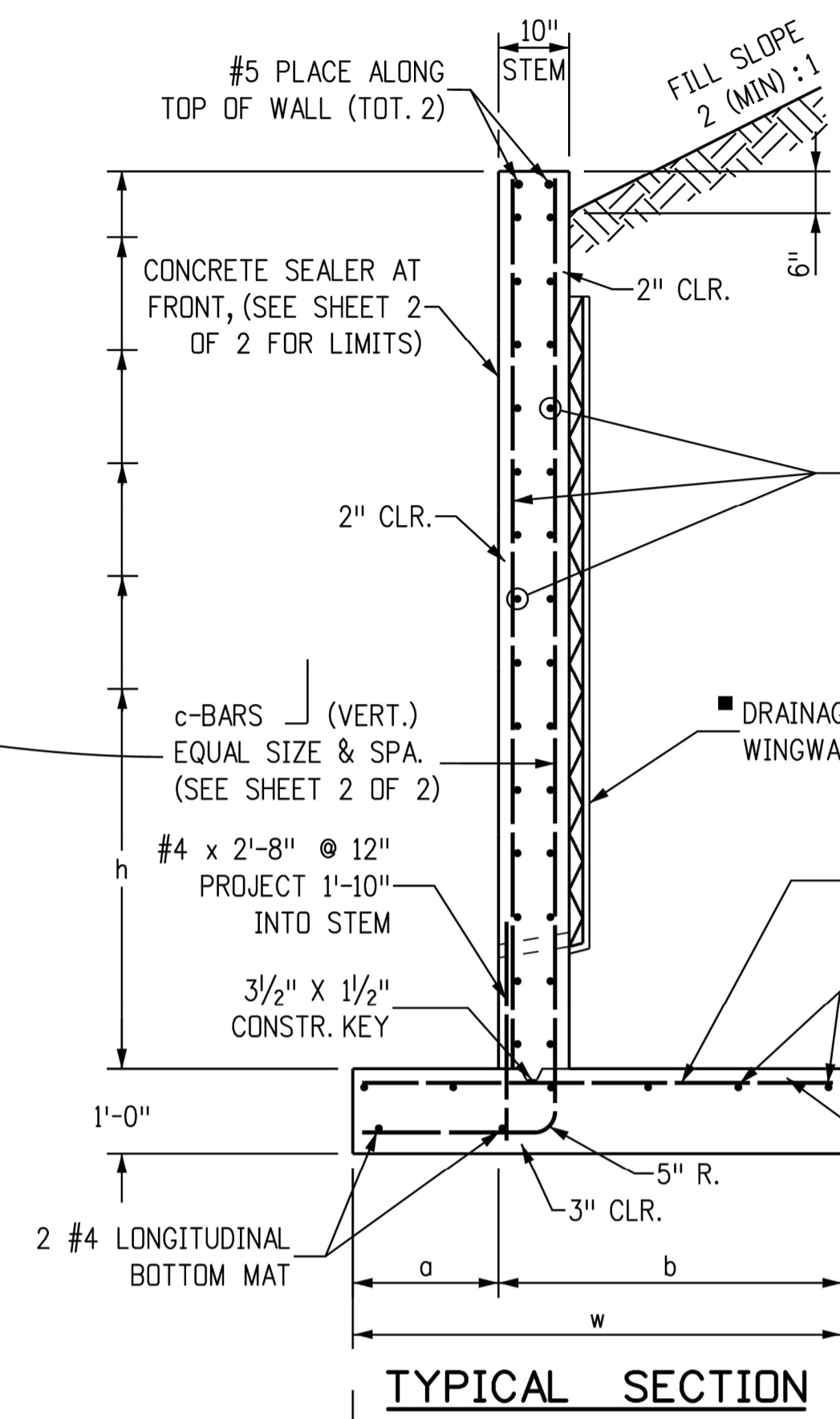
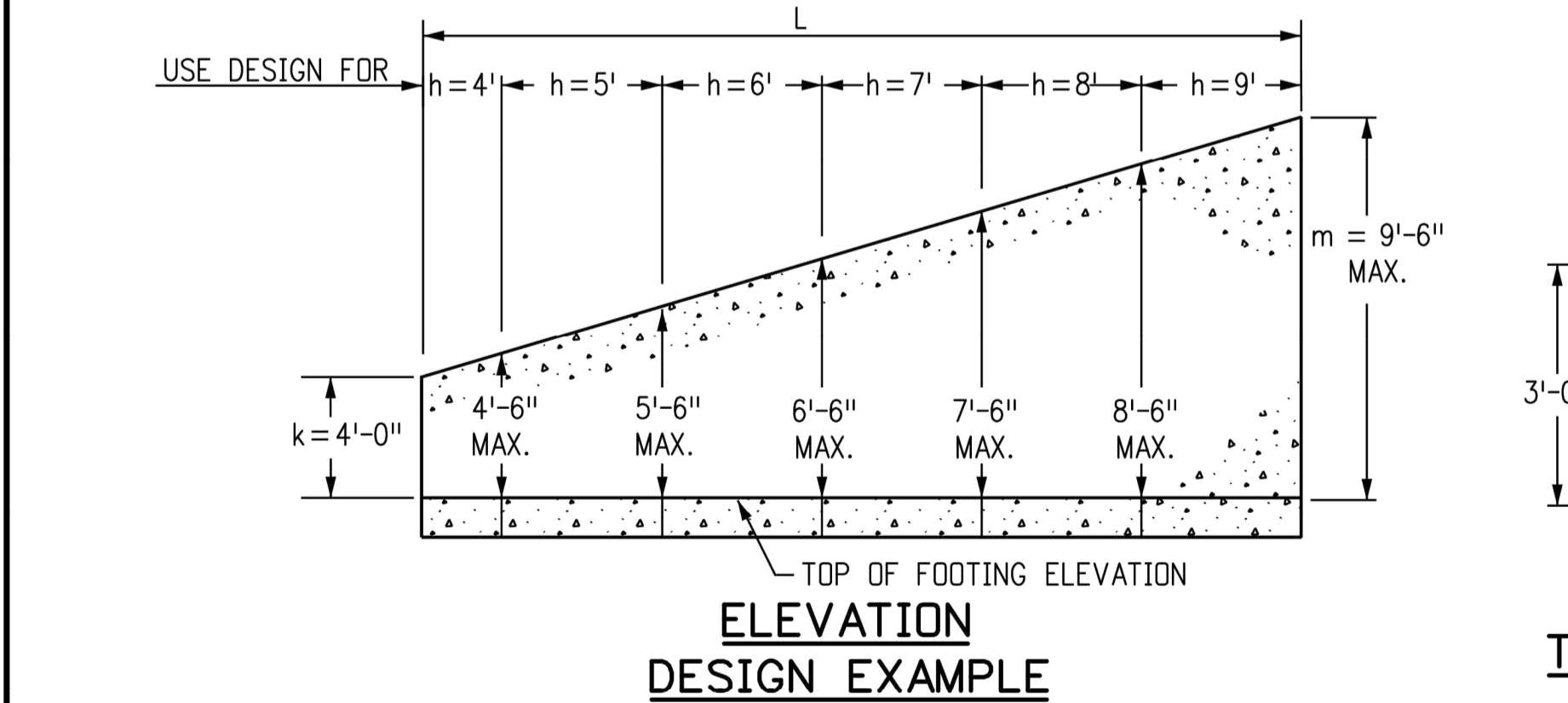
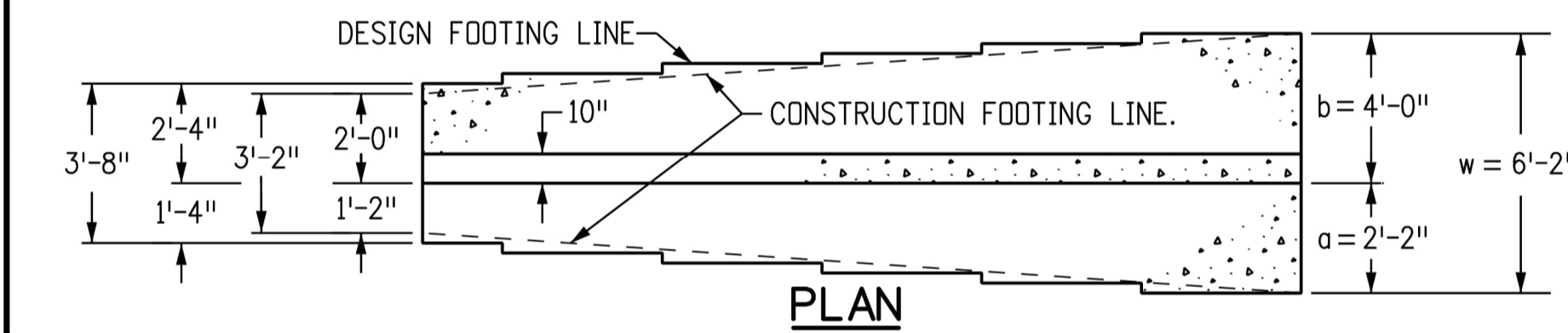
JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: C-604
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* DOES NOT INCLUDE TOE WALL QUANTITIES SEE SHEET 2 OF 2 FOR REINFORCING STEEL QUANTITY

■ REQUIRED DRAINAGE BEHIND WINGWALLS SEE NOTE 6



DESIGN DATA:

AASHTO LRFD EIGHTH EDITION, 2017
 DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN, YIELD LINE METHOD

REINFORCED CONCRETE:
 CONCRETE CLASS D (BOX CULVERT): $f'_c = 4,500 \text{ PSI}$
 REINFORCING STEEL: $f_y = 60,000 \text{ PSI}$

LOADING:
 AT-REST EARTH (FLUID) PRESSURE FOR CONCRETE STEM DESIGN = 55 PCF FOR 2 (MIN.): 1 SLOPED BACKFILL
 ACTIVE EARTH (FLUID) PRESSURE FOR CONCRETE FOOTING DESIGN = 40 PCF FOR 2 (MIN.): 1 SLOPED BACKFILL
 LIVE LOAD SURCHARGE = 2'
 MINIMUM RESISTANCE FOR SOIL BEARING = 5.5 KSF
 SOIL BEARING RESISTANCE FACTOR = 0.45

GENERAL NOTES:

- ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4 IN.
- WINGWALL FOOTING AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
- DIMENSIONS "h", "k", "L", "m" AND ANGLE "θ" FOR WINGWALL SHALL BE AS SHOWN ON THE PLANS.
- MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK REINFORCING BARS:
 BAR SIZE: #4 #5 #6 #7
 SPLICE LENGTH: 1'-6" 1'-11" 2'-3" 2'-7"
- DESIGN DOES NOT CONSIDER ANY SCOUR EFFECTS.
- WINGWALL DRAIN SHALL BE REQUIRED IF "h" ≥ 12.0 FT., SEE SHEET 2 OF 2 FOR DETAILS.

Computer File Information

Creation Date: 07/31/19
Designer Initials: JBK
Last Modification Date: 07/31/19
Detailer Initials: LTA
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
(R-X)	
(R-X)	
(R-X)	
(R-X)	

Colorado Department of Transportation

2829 West Howard Place
 CDOT HQ, 3rd Floor
 Denver, CO 80204
 Phone: 303-757-9021 FAX: 303-757-9868

Project Development Branch **JBK**

WINGWALLS FOR PIPE OR BOX CULVERTS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.

M-601-20

Standard Sheet No. 1 of 2

Project Sheet Number:

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CIVIL DETAILS 4

JOB NUMBER: 65421421

DATE: MARCH 8, 2024

DRAWING: **C-606**

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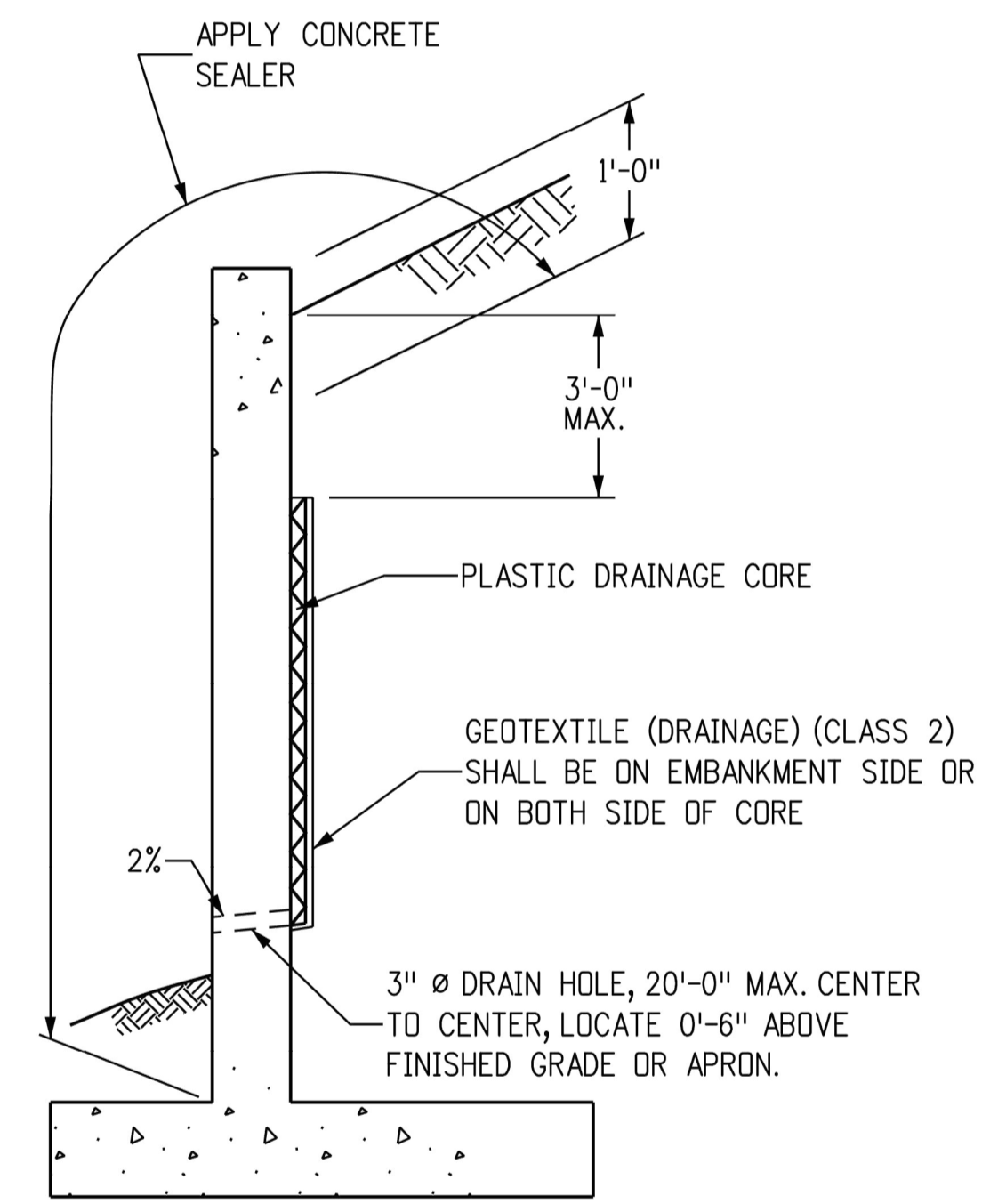
c-BARS AND REINFORCING STEEL QUANTITY (EXCLUDE TOE WALL)

* REINFORCING STEEL QUANTITY INCLUDES STEM AND FOOTING QUANTITIES, BUT DOES NOT INCLUDE TOE WALL QUANTITIES.

L (MULTIPLE OF m)		≤ (1.0 x m)		≤ (1.25 x m)		≤ (1.5 x m)		≤ (1.75 x m)		≤ (2.0 x m)		≤ (2.25 x m)		≤ (2.5 x m)		≤ (2.75 x m)		≤ (3.0 x m)		≤ (3.25 x m)		≤ (3.5 x m)	
m (FT)	k (FT)	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.
14	4	#4 @ 10"	53.60	#5 @ 10"	57.95	#5 @ 10"	57.10	#5 @ 8"	60.22	#5 @ 7"	62.43	#5 @ 7"	62.09	#5 @ 6"	65.38	#5 @ 6"	65.15	#6 @ 8"	67.10	#6 @ 8"	66.94	#6 @ 7"	70.66
	5	#4 @ 10"	55.86	#5 @ 10"	60.46	#5 @ 10"	59.60	#5 @ 8"	62.89	#5 @ 7"	65.23	#5 @ 7"	64.88	#5 @ 6"	68.34	#5 @ 6"	68.11	#6 @ 8"	70.17	#6 @ 8"	70.00	#6 @ 7"	73.90
	6	#5 @ 10"	64.43	#6 @ 10"	70.60	#6 @ 10"	69.69	#6 @ 8"	74.93	#6 @ 8"	74.45	#6 @ 7"	78.30	#6 @ 6"	83.64	#6 @ 6"	83.40	#6 @ 6"	83.22	#6 @ 6"	83.05	#7 @ 7"	89.64
	7	#5 @ 10"	67.29	#6 @ 10"	73.76	#6 @ 10"	72.83	#6 @ 8"	78.32	#6 @ 8"	77.84	#6 @ 7"	81.87	#6 @ 6"	87.45	#6 @ 6"	87.21	#6 @ 6"	87.02	#6 @ 6"	86.86	#7 @ 7"	93.73
	8	#5 @ 8"	74.71	#6 @ 8"	83.46	#6 @ 7"	87.09	#6 @ 6"	92.54	#7 @ 7"	99.47	#7 @ 7"	99.08	#7 @ 6"	107.11	#7 @ 6"	106.86	#7 @ 6"	106.66	#7 @ 6"	106.49	#7 @ 6"	106.35
13	4	#4 @ 10"	50.51	#4 @ 10"	49.25	#5 @ 10"	53.71	#5 @ 10"	53.09	#5 @ 10"	52.36	#5 @ 9"	53.85	#5 @ 8"	55.54	#5 @ 7"	57.85	#5 @ 7"	57.67	#5 @ 7"	57.51	#6 @ 9"	59.93
	5	#4 @ 10"	52.66	#4 @ 10"	51.37	#5 @ 10"	56.09	#5 @ 10"	55.46	#5 @ 10"	54.99	#5 @ 9"	56.29	#5 @ 8"	58.08	#5 @ 7"	60.51	#5 @ 7"	60.33	#5 @ 7"	60.17	#6 @ 9"	62.72
	6	#4 @ 10"	54.92	#5 @ 10"	59.48	#5 @ 9"	60.31	#6 @ 9"	67.56	#6 @ 9"	67.08	#6 @ 9"	66.70	#6 @ 8"	69.53	#6 @ 8"	69.28	#6 @ 7"	73.12	#6 @ 7"	72.95	#6 @ 7"	72.81
	7	#4 @ 10"	57.36	#5 @ 10"	62.16	#5 @ 9"	63.05	#6 @ 9"	70.66	#6 @ 9"	70.16	#6 @ 9"	69.78	#6 @ 8"	72.75	#6 @ 8"	72.50	#6 @ 7"	76.52	#6 @ 7"	76.35	#6 @ 7"	76.20
	8	#5 @ 10"	66.39	#6 @ 10"	72.82	#6 @ 8"	77.97	#6 @ 7"	81.68	#6 @ 7"	81.19	#6 @ 6"	86.67	#6 @ 6"	86.37	#7 @ 7"	93.18	#7 @ 7"	92.97	#7 @ 7"	92.80	#7 @ 7"	92.64
12	2	#4 @ 10"	43.91	#4 @ 10"	42.65	#4 @ 10"	41.82	#4 @ 10"	41.22	#4 @ 10"	40.78	#4 @ 9"	41.29	#5 @ 10"	44.61	#5 @ 10"	44.37	#5 @ 10"	44.18	#5 @ 10"	44.01	#5 @ 10"	43.87
	3	#4 @ 10"	45.82	#4 @ 10"	44.55	#4 @ 10"	43.71	#4 @ 10"	43.11	#4 @ 10"	42.66	#4 @ 9"	43.22	#5 @ 10"	46.75	#5 @ 10"	46.51	#5 @ 10"	46.32	#5 @ 10"	46.15	#5 @ 10"	46.01
	4	#4 @ 10"	47.80	#4 @ 10"	46.51	#4 @ 10"	45.65	#5 @ 10"	50.06	#5 @ 10"	49.59	#5 @ 10"	49.23	#5 @ 10"	48.94	#5 @ 10"	48.69	#5 @ 9"	50.00	#5 @ 8"	51.72	#5 @ 8"	51.57
	5	#4 @ 10"	49.84	#4 @ 10"	48.53	#4 @ 10"	47.66	#5 @ 10"	52.33	#5 @ 10"	51.85	#5 @ 10"	51.48	#5 @ 10"	51.19	#5 @ 10"	50.94	#5 @ 9"	52.33	#5 @ 8"	54.14	#5 @ 8"	54.00
	6	#4 @ 10"	51.99	#4 @ 10"	50.65	#5 @ 10"	55.34	#5 @ 8"	58.41	#5 @ 8"	57.93	#6 @ 10"	60.60	#6 @ 10"	60.29	#6 @ 9"	62.42	#6 @ 9"	62.22	#6 @ 9"	62.04	#6 @ 8"	64.89
11	2	#4 @ 10"	41.70	#4 @ 10"	40.42	#4 @ 10"	39.57	#4 @ 10"	38.96	#4 @ 10"	38.50	#4 @ 10"	38.15	#4 @ 10"	37.87	#4 @ 10"	37.63	#4 @ 9"	38.25	#5 @ 10"	41.46	#5 @ 10"	41.31
	3	#4 @ 10"	43.57	#4 @ 10"	42.27	#4 @ 10"	41.40	#4 @ 10"	40.79	#4 @ 10"	40.33	#4 @ 10"	39.97	#4 @ 10"	39.69	#4 @ 10"	39.45	#4 @ 9"	40.12	#5 @ 10"	43.54	#5 @ 10"	43.39
	4	#4 @ 10"	45.48	#4 @ 10"	44.16	#4 @ 10"	43.28	#4 @ 10"	42.66	#4 @ 9"	43.09	#5 @ 10"	46.57	#5 @ 10"	46.27	#5 @ 10"	46.02	#5 @ 10"	45.82	#5 @ 10"	45.65	#5 @ 10"	45.50
	5	#4 @ 10"	47.46	#4 @ 10"	46.10	#4 @ 10"	45.21	#4 @ 10"	44.58	#4 @ 9"	45.06	#5 @ 10"	48.74	#5 @ 10"	48.44	#5 @ 10"	48.19	#5 @ 10"	47.99	#5 @ 10"	47.81	#5 @ 10"	47.67
	6	#4 @ 10"	49.52	#4 @ 10"	48.14	#4 @ 9"	48.23	#5 @ 10"	51.88	#5 @ 10"	51.38	#5 @ 9"	52.57	#5 @ 9"	52.27	#5 @ 8"	53.99	#5 @ 8"	53.79	#5 @ 7"	56.16	#5 @ 7"	56.01
10	2	#4 @ 10"	39.84	#4 @ 10"	38.53	#4 @ 10"	37.65	#4 @ 10"	37.03	#4 @ 10"	36.57	#4 @ 10"	36.20	#4 @ 10"	35.91	#4 @ 10"	35.67	#4 @ 10"	35.48	#4 @ 9"	36.07	#4 @ 9"	35.93
	3	#4 @ 10"	41.68	#4 @ 10"	40.35	#4 @ 10"	39.47	#4 @ 10"	38.84	#4 @ 10"	38.36	#4 @ 10"	38.00	#4 @ 10"	37.71	#4 @ 10"	37.46	#4 @ 10"	37.27	#4 @ 9"	37.91	#4 @ 9"	37.76
	4	#4 @ 10"	43.58	#4 @ 10"	42.22	#4 @ 10"	41.31	#4 @ 10"	40.67	#4 @ 10"	40.19	#4 @ 10"	39.82	#4 @ 10"	39.53	#4 @ 10"	39.28	#4 @ 10"	39.08	#4 @ 9"	39.77	#4 @ 9"	39.63
	5	#4 @ 10"	45.53	#4 @ 10"	44.14	#4 @ 10"	43.21	#4 @ 10"	42.56	#4 @ 10"	42.07	#5 @ 10"	46.44	#5 @ 10"	46.13	#5 @ 10"	45.87	#5 @ 10"	45.67	#5 @ 10"	45.49	#5 @ 10"	45.34
	6	#4 @ 10"	47.58	#4 @ 10"	46.14	#4 @ 10"	45.20	#4 @ 10"	44.53	#4 @ 10"	44.03	#5 @ 10"	48.67	#5 @ 10"	48.35	#5 @ 10"	48.08	#5 @ 10"	47.88	#5 @ 10"	47.69	#5 @ 10"	47.54
9	2	#4 @ 10"	38.01	#4 @ 10"	36.75	#4 @ 10"	35.85	#4 @ 10"	35.21	#4 @ 10"	34.73	#4 @ 10"	34.36	#4 @ 10"	34.06	#4 @ 10"	33.81	#4 @ 10"	33.61	#4 @ 10"	33.44	#4 @ 10"	33.30
	3	#4 @ 10"	39.93	#4 @ 10"	38.56	#4 @ 10"	37.64	#4 @ 10"	36.99	#4 @ 10"	36.51	#4 @ 10"	36.13	#4 @ 10"	35.83	#4 @ 10"	35.58	#4 @ 10"	35.38	#4 @ 10"	35.21	#4 @ 10"	35.06
	4	#4 @ 10"	41.81	#4 @ 10"	40.40	#4 @ 10"	39.47	#4 @ 10"	38.81	#4 @ 10"	38.31	#4 @ 10"	37.93	#4 @ 10"	37.63	#4 @ 10"	37.37	#4 @ 10"	37.17	#4 @ 10"	36.99	#4 @ 10"	36.84
	5	#4 @ 10"	43.75	#4 @ 10"	42.30	#4 @ 10"	41.35	#4 @ 10"	40.67	#4 @ 10"	40.17	#4 @ 10"	39.78	#4 @ 10"	39.47	#4 @ 10"	39.20	#4 @ 9"	39.86	#5 @ 10"	43.28	#5 @ 10"	43.12
	6	#4 @ 10"	45.79	#4 @ 10"	44.30	#4 @ 10"	43.31	#4 @ 10"	42.62	#4 @ 10"	42.10	#4 @ 10"	41.71	#4 @ 10"	41.39	#4 @ 10"	41.12	#4 @ 9"	41.82	#5 @ 10"	45.46	#5 @ 10"	45.30
8	2	#4 @ 10"	36.41	#4 @ 10"	35.01	#4 @ 10"	34.08	#4 @ 10"	33.42	#4 @ 10"	32.92	#4 @ 10"	32.54	#4 @ 10"	32.23	#4 @ 10"	31.97	#4 @ 10"	31.77	#4 @ 10"	31.59	#4 @ 10"	31.44
	3	#4 @ 10"	38.23	#4 @ 10"	36.80	#4 @ 10"	35.85	#4 @ 10"	35.18	#4 @ 10"	34.67	#4 @ 10"	34.28	#4 @ 10"	33.97	#4 @ 10"	33.70	#4 @ 10"	33.50	#4 @ 10"	33.32	#4 @ 10"	33.17
	4	#4 @ 10"	40.09	#4 @ 10"	38.61	#4 @ 10"	37.64	#4 @ 10"	36.95	#4 @ 10"	36.44	#4 @ 10"	36.04	#4 @ 10"	35.72	#4 @ 10"	35.45	#4 @ 10"	35.25	#4 @ 10"	35.07	#4 @ 10"	34.91
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7	2	#4 @ 10"	34.90	#4 @ 10"	33.44	#4 @ 10"	32.47	#4 @ 10"	31.78	#4 @ 10"	31.27	#4 @ 10"	30.86	#4 @ 10"	30.54	#4 @ 10"	30.27	#4 @ 10"	30.06	#4 @ 10"	29.88	#4 @ 10"	29.72
	3	#4 @ 10"	36.73	#4 @ 10"	35.23	#4 @ 10"	34.23	#4 @ 10"	33.53	#4 @ 10"	33.00	#4 @ 10"	32.59	#4 @ 10"	32.26	#4 @ 10"	31.99	#4 @ 10"	31.78	#4 @ 10"	31.59	#4 @ 10"	31.43
	4	#4 @ 10"	38.59	#4 @ 10"	37.04	#4 @ 10"	36.01	#4 @ 10"	35.29	#4 @ 10"	34.75	#4 @ 10"	34.33	#4 @ 10"	33.99	#4 @ 10"	33.71	#4 @ 10"	33.50	#4 @ 10"	33.31	#4 @ 10"	33.14
	5	#4 @ 10"	40.48	#4 @ 10"	38.86	#4 @ 10"	37.80	#4 @ 10"	37.06	#4 @ 10"	36.50	#4 @ 10"	36.07	#4 @ 10"	35.73	#4 @ 10"	35.44	#4 @ 10"	35.22	#4 @ 10"	35.03	#4 @ 10"	34.86
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EXAMPLE:
 SELECT THE c-BARS SIZE, SPACING AND STEEL QUANTITY FOR A 25.0 FEET LONG WINGWALL WITH m = 11.8 FT. AND k = 6.3 FT.

- SOLUTION:**
- DETERMINE WINGWALL LENGTH IN MULTIPLE OF m:
 $L / m = 25.0 / 11.8 = 2.12$
 $L = (2.12 \times m)$, USE $L \leq (2.25 \times m)$
 - ROUND TO NEAREST WHOLE NUMBER FOR m AND k:
 $m = 11.8$ FT., USE $m = 12.0$ FT.
 $k = 6.3$ FT., USE $k = 6.0$ FT.
 - DETERMINE c-BARS BY USING THE TABLE:
 $L \leq (2.25 \times m)$
 $m = 12$
 $k = 6$
 c-BARS: #6 @ 10"
 REINF. STEEL = 60.60 LB / LF
 - DETERMINE REINFORCING STEEL QUANTITY OF WHOLE WINGWALL:
 REINFORCING STEEL QUANTITY = 25.0 x 60.60 = 1,515 LB.



LIMITS OF CONCRETE SEALER AND WINGWALL DRAIN DETAILS

- NOTES: 1. THE GEOTEXTILE SHALL BE SECURED TO THE WALL TO PREVENT MOVEMENT DURING BACKFILLING.
 2. COST OF GEOTEXTILE DRAIN AND CONCRETE SEALER SHALL BE INCLUDED IN THE WORK.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868	WINGWALLS FOR PIPE OR BOX CULVERTS	STANDARD PLAN NO. M-601-20 Standard Sheet No. 2 of 2
Creation Date: 07/31/19 Designer Initials: JBK Last Modification Date: 07/31/19 Detailer Initials: LTA CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		Date: _____ Comments: _____				

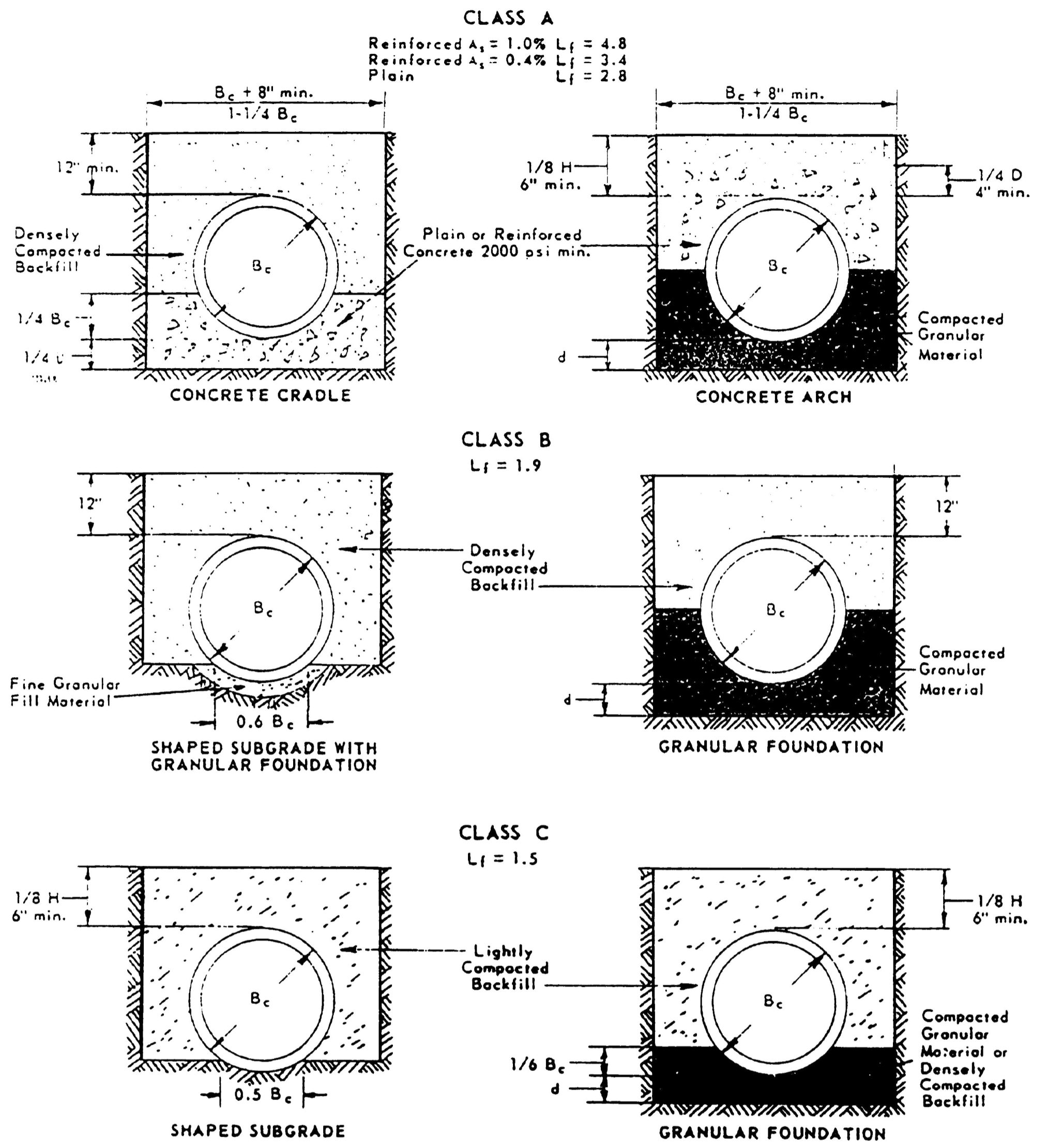
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File Location: Q:\Denver - North\Projects\City of Colorado Springs\65421421-00 Barnes Outfall Pond\CAD\CDS\1421 - DETAIL-Types\Cwg Plot Date: 2/7/2024, 9:12 AM Last Saved By: TIM.MCMULLEN

SOURCE: AMERICAN CONCRETE PIPE ASSOCIATION

TRENCH BEDDING CLASSIFICATION - ROUND PRECAST CONCRETE PIPE



Depth of Bedding Material Below Pipe		Legend	
D	d (min.)	B_c	H
27" & smaller	3"	= outside diameter	= backfill cover above top of pipe
30" to 60"	4"	D	= inside diameter
66" & larger	6"	d	= depth of bedding material below pipe
		A_s	= area of transverse steel in the cradle or arch expressed as a percentage of area of concrete at invert or crown.

Notes:
 For Class B and C beddings, subgrades should be excavated or over excavated, if necessary, so a uniform foundation free of protruding rocks may be provided. Special care may be necessary with Class A or other unyielding foundations to cushion pipe from shock when blasting can be anticipated in the area.

CITY OF COLORADO SPRINGS

TRENCH BEDDING CLASSIFICATION

APPROVED BY *Shay R. Thomas*
 CITY ENGINEER

SCALE: NO SCALE	DATE: JAN. 90	DRAWN: P.L.B.	SHEET D - 30
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 TEL. 303-751-0741, FAX 303-751-2581
 www.merrick.com

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FOR AND ON BEHALF OF MERRICK & COMPANY

TITLE

BARNES OUTFALL WATER QUALITY POND

CIVIL DETAILS 6

JOB NUMBER: 65421421

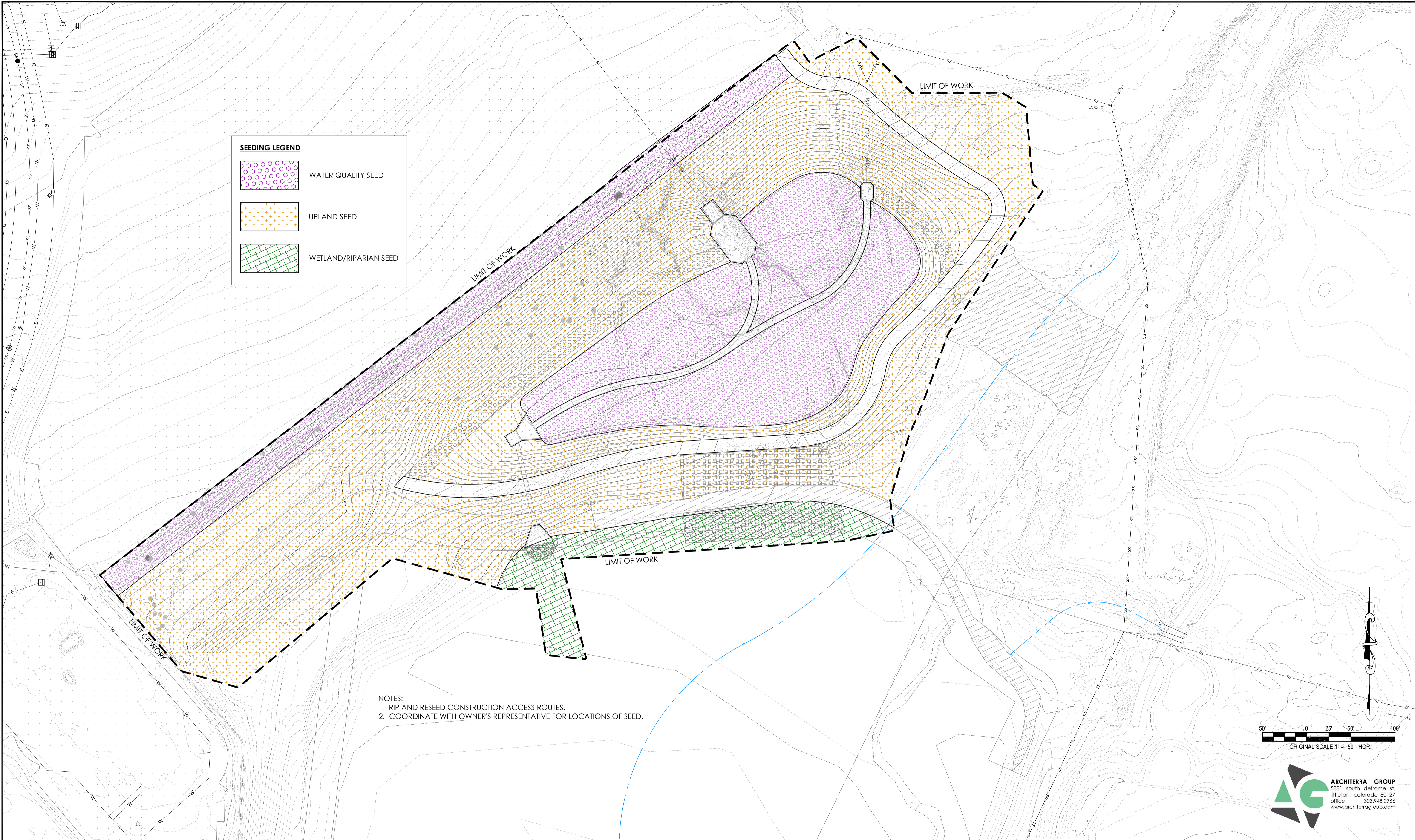
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DRAWING: **C-608**

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SEEDING LEGEND

	WATER QUALITY SEED
	UPLAND SEED
	WETLAND/RIPARIAN SEED

- NOTES:
 1. RIP AND RESEED CONSTRUCTION ACCESS ROUTES.
 2. COORDINATE WITH OWNER'S REPRESENTATIVE FOR LOCATIONS OF SEED.

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TITLE

BARNES OUTFALL WATER QUALITY POND

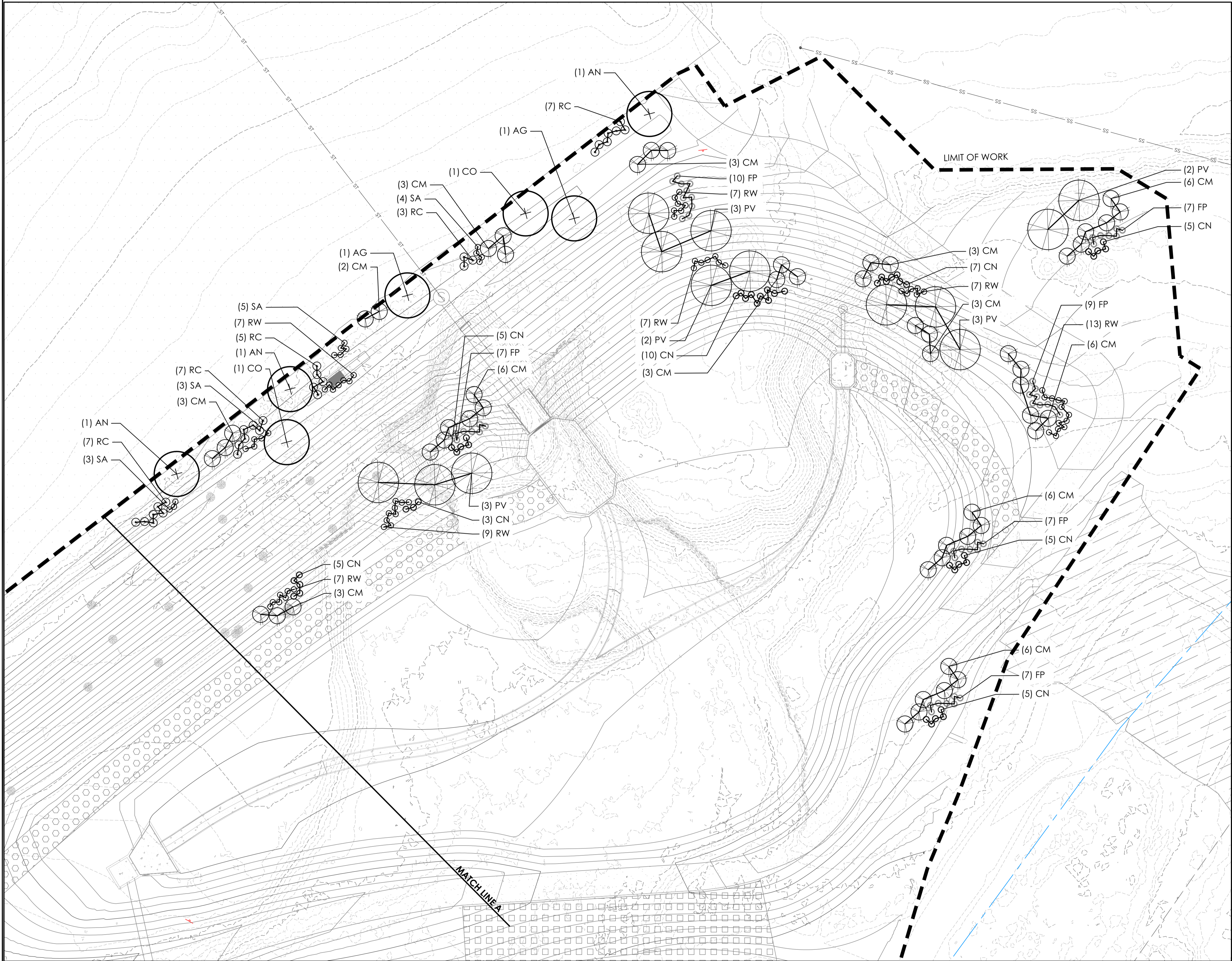
SEEDING PLAN

JOB NUMBER 65421421
 DATE MARCH 8, 2024
 DRAWING L-100
 20 of 50

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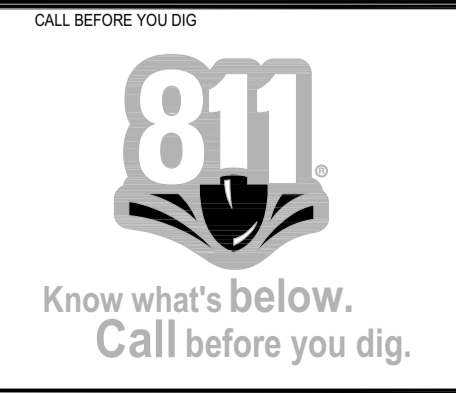
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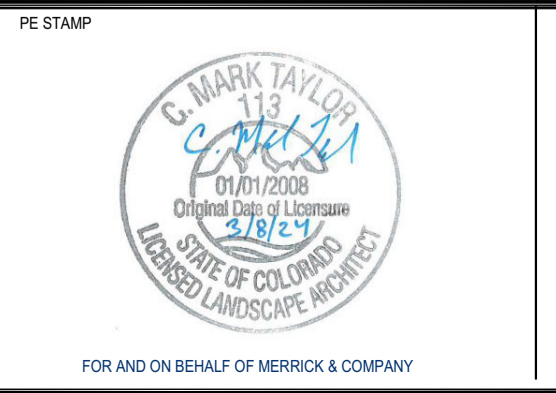
- NOTES:
1. LOCATION OF ALL PLANTS WILL BE APPROVED BY OWNER'S REPRESENTATIVE IN THE FIELD PRIOR TO PLANTING. CONTRACTOR SHALL STAKE TREE LOCATIONS AND LAY POTTED PLANTS ON SITE AT PROPOSED LOCATIONS FOR APPROVAL BY OWNER'S REPRESENTATIVE.
 2. SEE L-201 FOR PLANTING DETAILS.
 3. SEE L-102 FOR PLANT SCHEDULE



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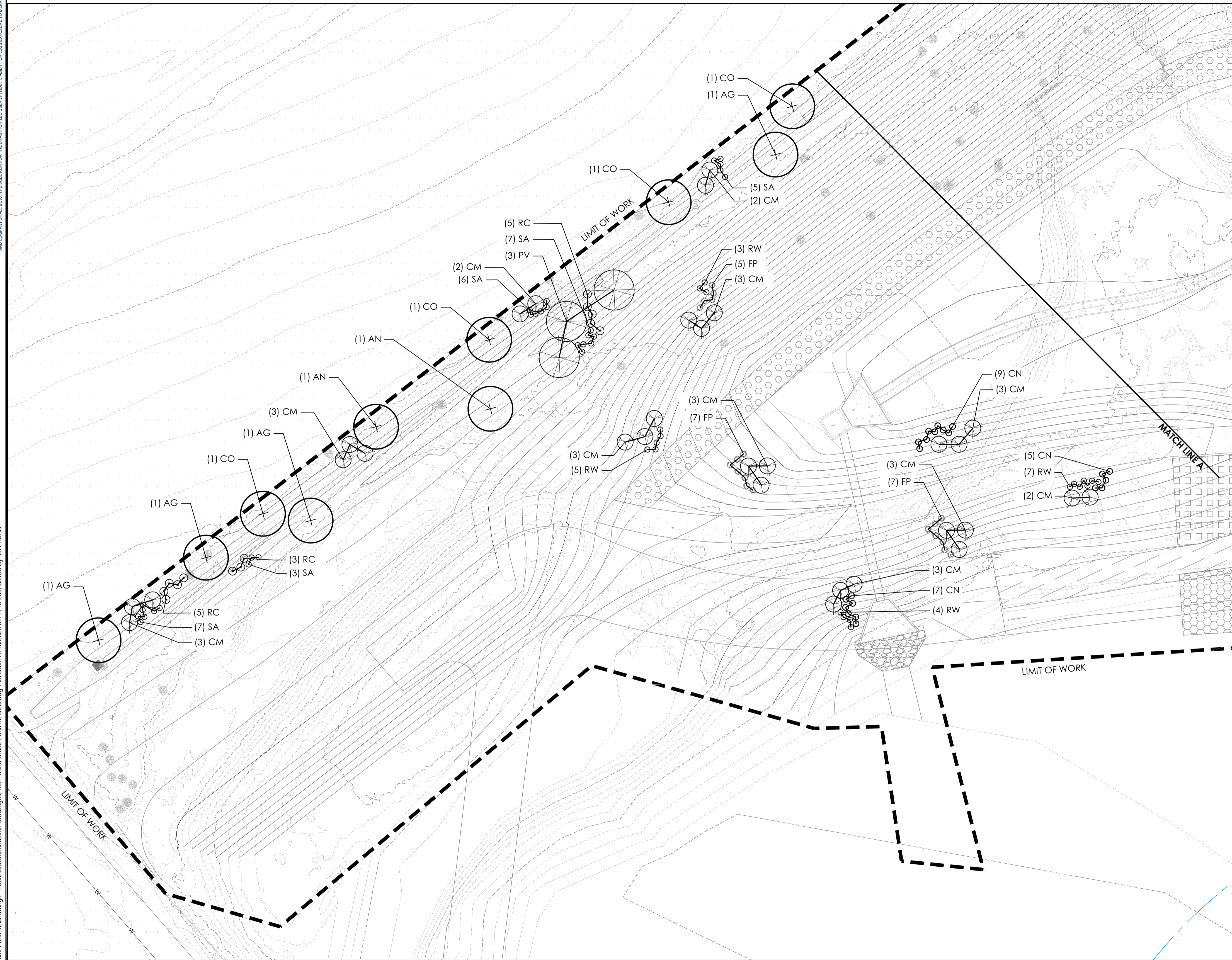


TITLE: **BARNES OUTFALL WATER QUALITY POND**
PLANTING PLAN

JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: **L-101**
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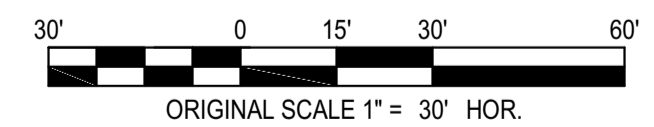
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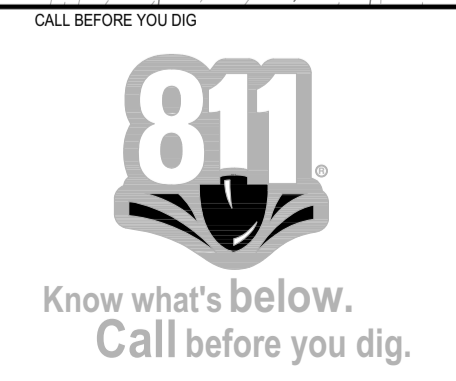


PLANT SCHEDULE					
SHRUBS					
KEY	QTY	LATIN NAME	COMMON NAME	SIZE	REMARKS
CM	82	<i>Cercocarpus montanus</i>	Mountain mahogany	#5	Container
CN	66	<i>Chrysothamnus nauseosus</i>	Rubber rabbitbrush	#5	Container
FP	66	<i>Fallugia paradoxa</i>	Apache plume	#5	Container
PV	16	<i>Prunus virginiana</i>	Chokecherry	#5	Container
RC	42	<i>Ribes cereum</i>	Wax currant	#5	Container
RW	76	<i>Rosa woodsii</i>	Wood's rose	#5	Container
SA	43	<i>Symphoricarpos albus or S. occidentalis</i>	Snowberry	#5	Container
TREES					
KEY	QTY	LATIN NAME	COMMON NAME	SIZE	REMARKS
AG	6	<i>Acer glabrum</i>	Rocky Mountain Maple	2" Caliper	B&B
AN	5	<i>Acer negundo</i>	Box Elder	2" Caliper	B&B
CO	6	<i>Celtis occidentalis</i>	Common Hackberry	2" Caliper	B&B

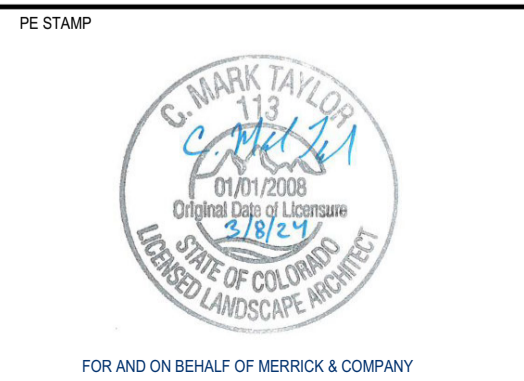
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 - SEE L-201 FOR PLANTING DETAILS.



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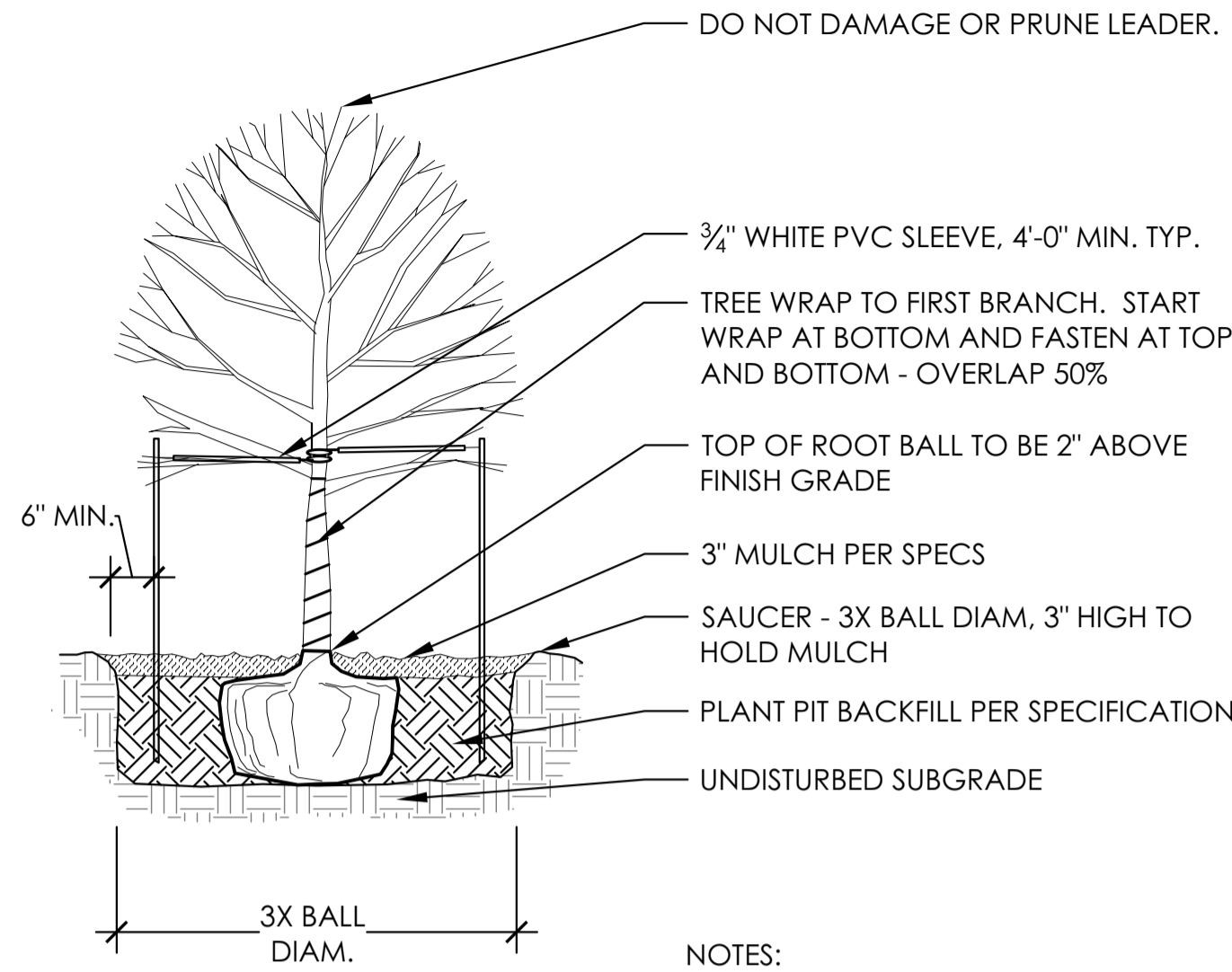


TITLE: **BARNES OUTFALL WATER QUALITY POND**
PLANTING PLAN

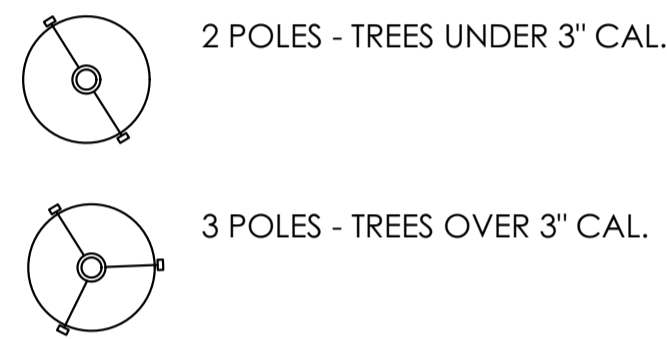
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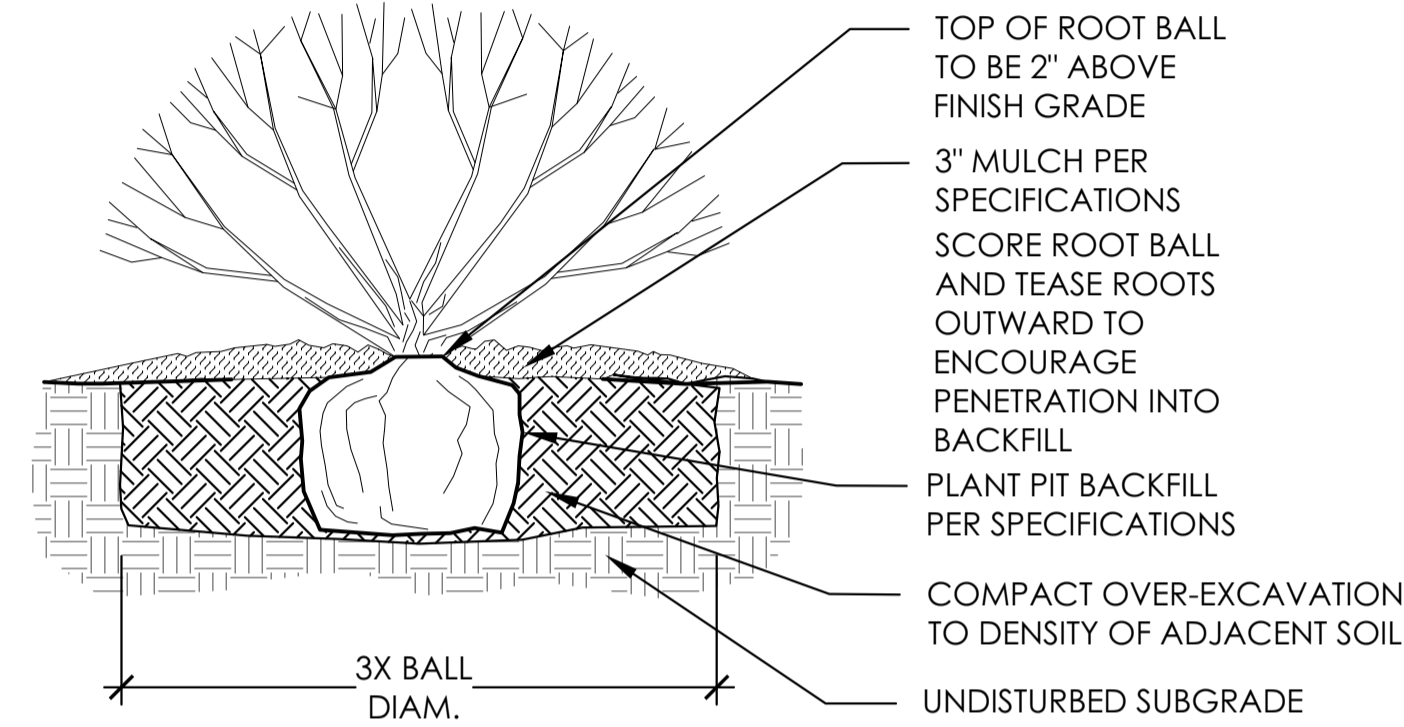


- NOTES:
1. SEE SPECS FOR ADDITIONAL PLANTING REQUIREMENTS.
 2. AFTER PLANT IS SET IN PLANT PIT, CUT AWAY AND REMOVE ALL WIRE AND OTHER RESTRAINING MATERIAL. TAKE CARE NOT TO DAMAGE ROOT BALL. FOLD BURLAP AWAY FROM THE TOP OF THE ROOTBALL.
 3. PLUMB AND ORIENT PLANTS FOR BEST APPEARANCE.



1 DECIDUOUS TREE PLANTING
L-201 SECTION / ELEVATION

NTS



- NOTES:
1. SEE SPECS FOR ADDITIONAL PLANTING REQUIREMENTS.
 2. AFTER PLANT IS SET IN PLANT PIT, CUT AWAY AND REMOVE ALL WIRE AND OTHER RESTRAINING MATERIAL. TAKE CARE NOT TO DAMAGE ROOT BALL. FOLD BURLAP AWAY FROM THE TOP OF THE ROOTBALL.
 3. PLUMB AND ORIENT PLANTS FOR BEST APPEARANCE.

2 SHRUB PLANTING
L-201 SECTION / ELEVATION

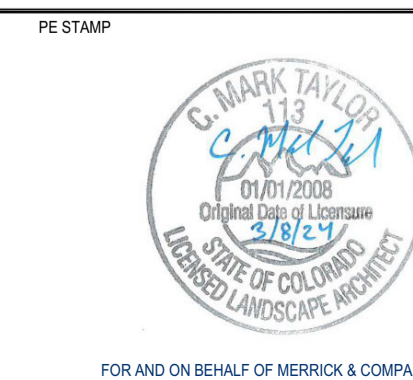
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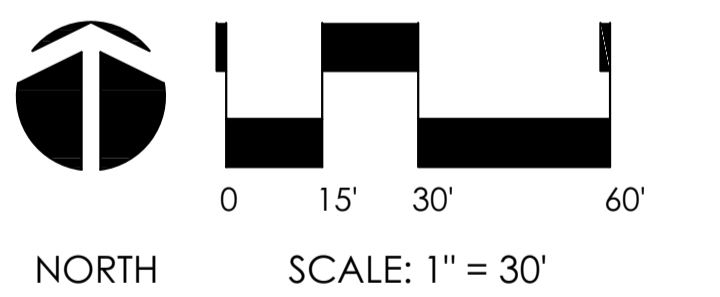
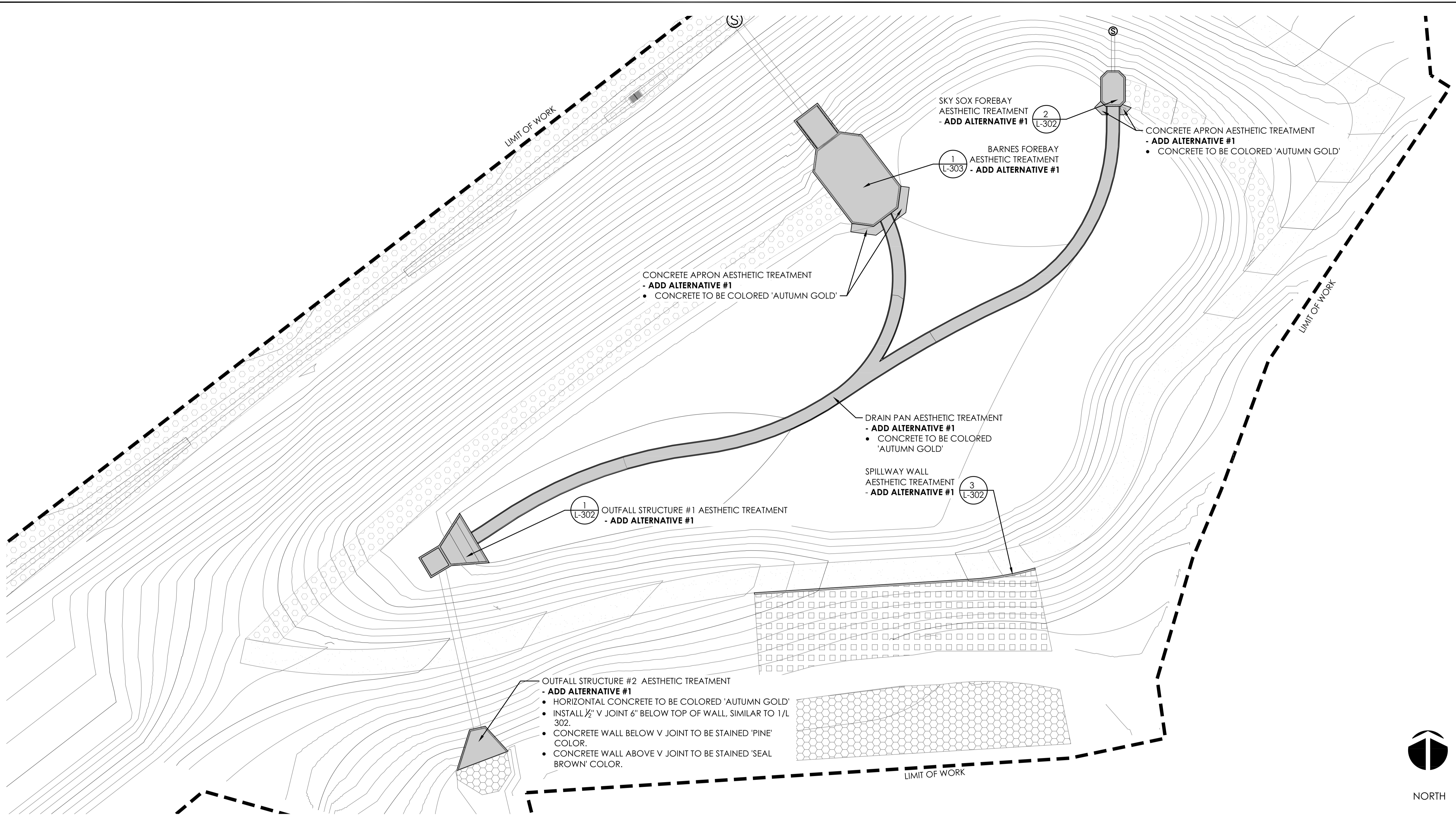


TITLE: **BARNES OUTFALL WATER QUALITY POND**
PLANTING DETAILS

JOB NUMBER	65421421
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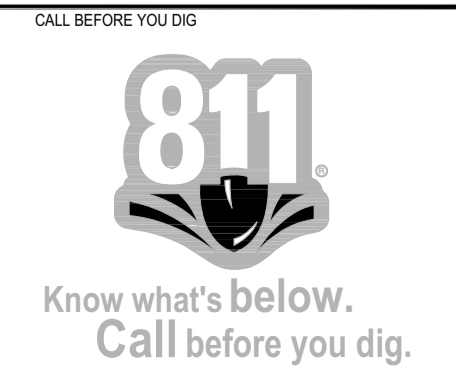
1 BARNES OUTFALL WATER QUALITY STRUCTURES PLAN
L-301 PLAN

- NOTES:
- SEE STRUCTURAL SHEETS FOR LAYOUT, JOINT LAYOUT, AND DESIGN DETAILS.
 - EXTEND STAINS 1'-0" BELOW FINISH GRADE. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE OWNER'S REPRESENTATIVE FOR STAIN LAYOUT PRIOR TO INSTALLING STAIN.
 - STAINS TO BE BOWMANITE CHEMICAL STAINS - FOLLOW MANUFACTURER'S GUIDELINES FOR APPLICATION.
 - INTEGRAL COLOR TO BE 'AUTUMN GOLD' BY DAVIS COLORS. 3 POUNDS OF POWDER (OR 4 POUNDS OF LIQUID) OF #5844 PER 94 POUND SACK OF CEMENT.

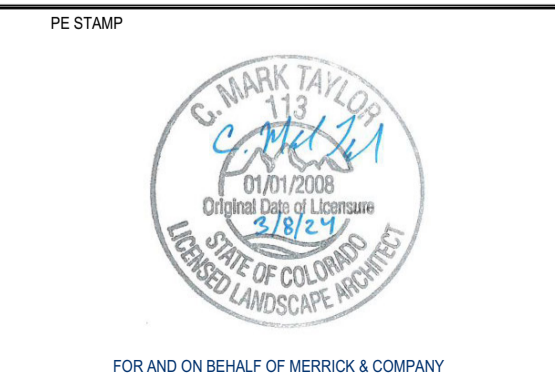
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REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR



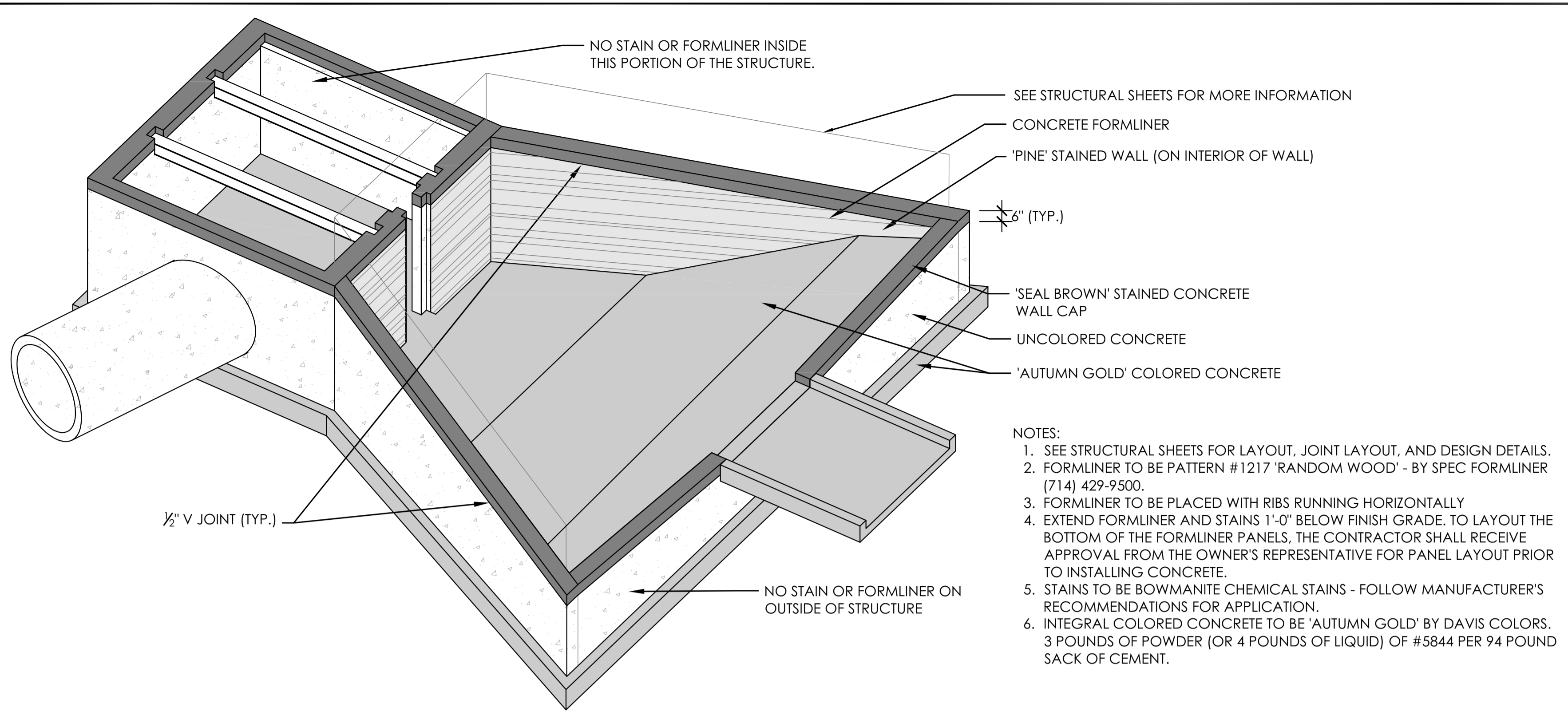
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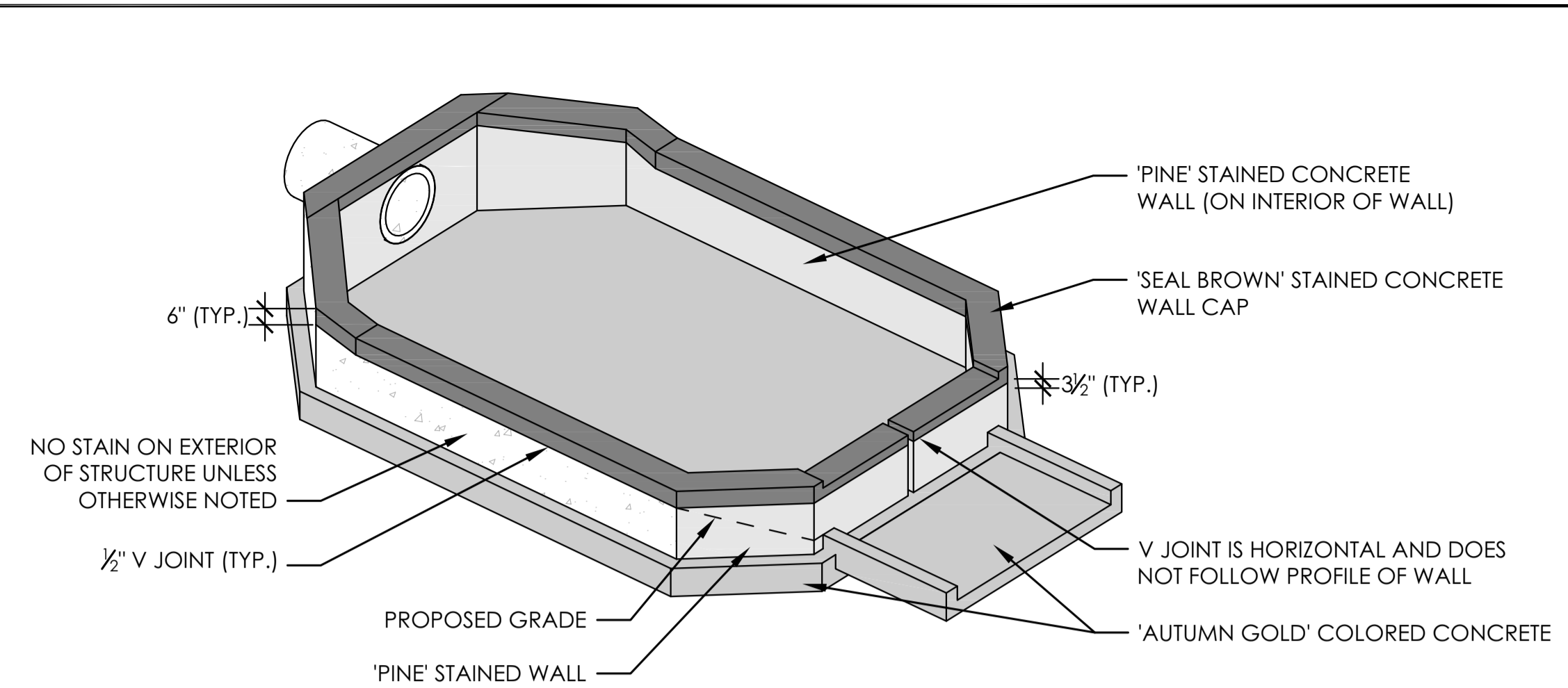
TITLE: **BARNES OUTFALL WATER QUALITY POND**
STRUCTURE AESTHETIC DETAILS

JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: **L-301**
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- NOTES:
1. SEE STRUCTURAL SHEETS FOR LAYOUT, JOINT LAYOUT, AND DESIGN DETAILS.
 2. FORMLINER TO BE PATTERN #1217 'RANDOM WOOD' - BY SPEC FORMLINER (714) 429-9500.
 3. FORMLINER TO BE PLACED WITH RIBS RUNNING HORIZONTALLY
 4. EXTEND FORMLINER AND STAINS 1'-0" BELOW FINISH GRADE. TO LAYOUT THE BOTTOM OF THE FORMLINER PANELS, THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE OWNER'S REPRESENTATIVE FOR PANEL LAYOUT PRIOR TO INSTALLING CONCRETE.
 5. STAINS TO BE BOWMANITE CHEMICAL STAINS - FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION.
 6. INTEGRAL COLORED CONCRETE TO BE 'AUTUMN GOLD' BY DAVIS COLORS. 3 POUNDS OF POWDER (OR 4 POUNDS OF LIQUID) OF #5844 PER 94 POUND SACK OF CEMENT.



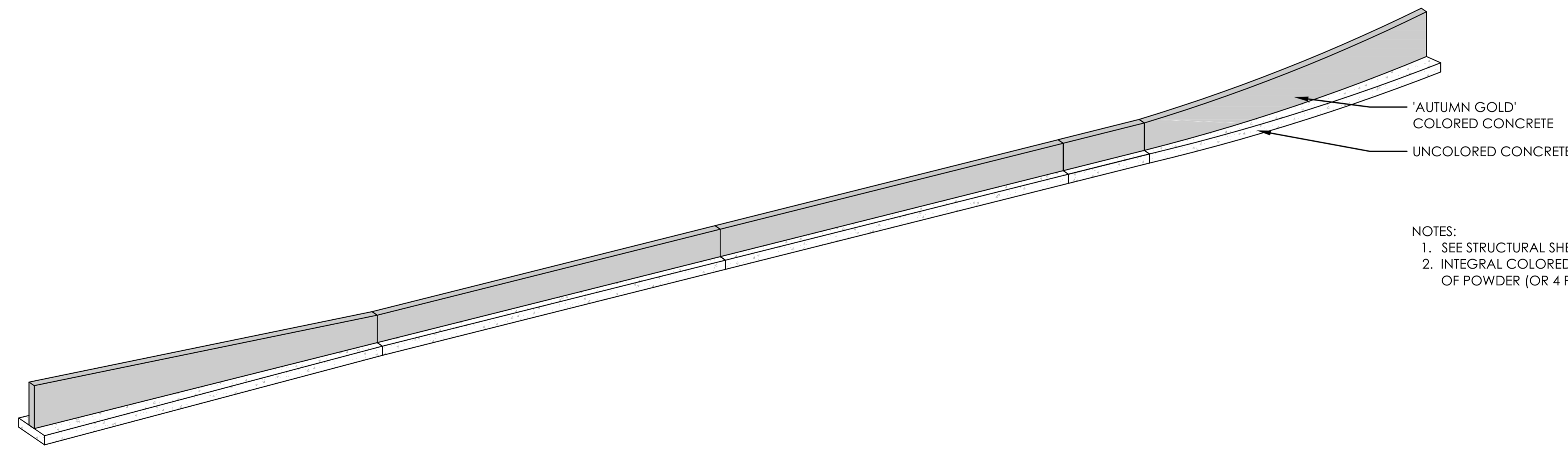
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1 OUTFALL STRUCTURE #1 AESTHETIC TREATMENT - **ADD ALTERNATIVE #1**
L-302 ISOMETRIC

SCALE: NTS

2 SKY SOX FOREBAY AESTHETIC TREATMENT - **ADD ALTERNATIVE #1**
L-302 ISOMETRIC

SCALE: NTS



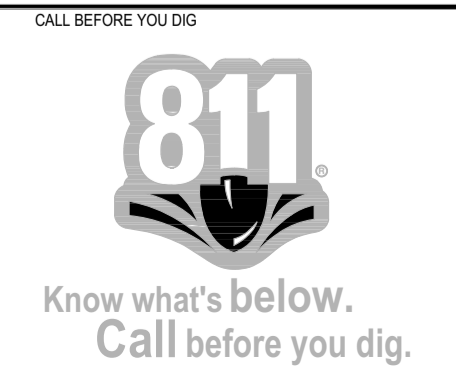
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3 SPILLWAY WALL AESTHETIC TREATMENT - **ADD ALTERNATIVE #1**
L-302 ISOMETRIC

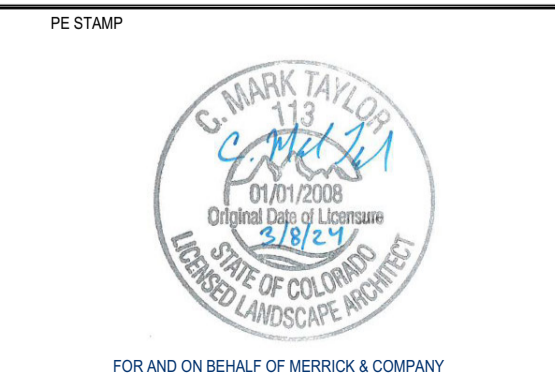
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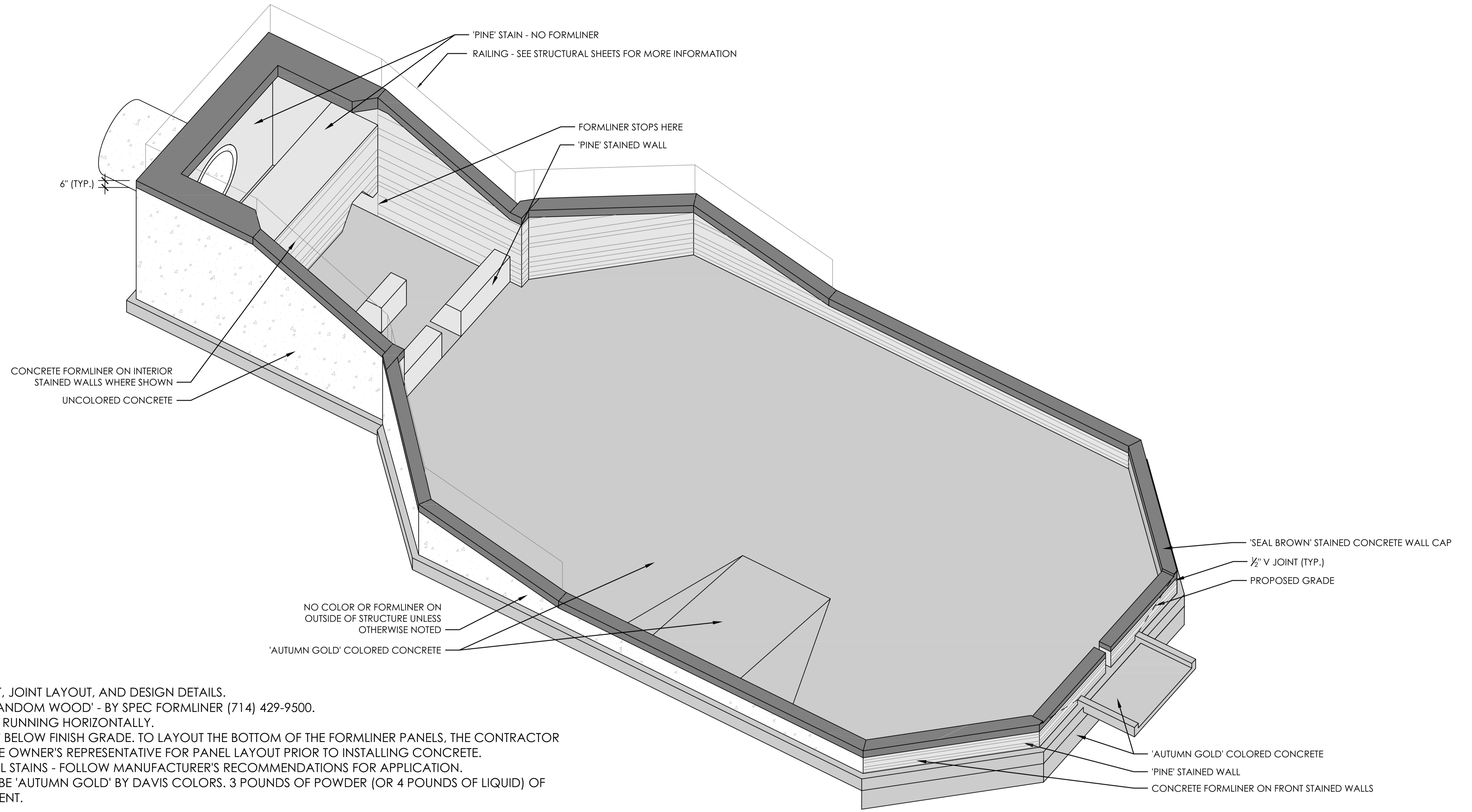
BARNES OUTFALL WATER QUALITY POND
STRUCTURE AESTHETIC DETAILS

JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: L-302
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File Location: \\projects\2\106-Sand Creek Pond #2\Drawings - Technical\Construction Drawings\2106 - Sand Creek Pond #2 Barnes Outfall Architectural Details.dwg Plot Date: 11/15/2023 2:39 PM Last Saved By: MTALETRICO



NOTES:

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1 BARNES FOREBAY AESTHETIC TREATMENT - **ADD ALTERNATIVE #1**
L-303 ISOMETRIC

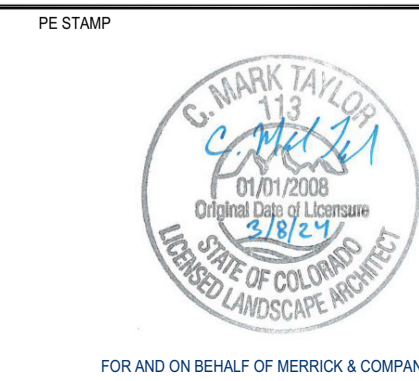
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TITLE: **BARNES OUTFALL WATER QUALITY POND**
STRUCTURE AESTHETIC DETAILS

JOB NUMBER: 65421421
 DATE: MARCH 8, 2024
 DRAWING: **L-303**
 26 of 50

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STRUCTURAL DRAWING LIST

SHEET No.	DRAWING No.	TITLE
1	S-100	LEGEND, ABBREVIATIONS, AND GENERAL NOTES SHEET 1
2	S-101	LEGEND, ABBREVIATIONS, AND GENERAL NOTES SHEET 2
3	S-102	BARNES FOREBAY ISOMETRIC
4	S-103	BARNES FOREBAY OUTLINE PLAN AND SECTIONS
5	S-104	BARNES FOREBAY REINFORCEMENT PLAN AND SECTIONS
6	S-105	BARNES FOREBAY REINFORCEMENT PLAN
7	S-106	BARNES FOREBAY REINFORCEMENT SECTIONS
8	S-107	SKY SOX FOREBAY ISOMETRIC AND OUTLINE PLAN AND SECTIONS
9	S-108	SKY SOX FOREBAY REINFORCEMENT PLAN AND SECTIONS
10	S-109	SKY SOX FOREBAY REINFORCEMENT PLAN
11	S-110	SPILLWAY ISOMETRIC, OUTLINE PLAN, AND SECTION
12	S-111	SPILLWAY REINFORCEMENT SECTIONS AND DETAILS
13	S-112	OUTLET STRUCTURE ISOMETRIC
14	S-113	OUTLET STRUCTURE OUTLINE PLAN AND SECTIONS
15	S-114	OUTLET STRUCTURE REINFORCEMENT PLAN
16	S-115	OUTLET STRUCTURE REINFORCEMENT SECTIONS
17	S-116	OUTLET STRUCTURE STEEL DETAILS 1
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19	S-118	HANDRAIL STEEL DETAILS
20	S-119	MANHOLE STRUCTURE ISOMETRIC AND OUTLINE PLAN AND SECTION
21	S-120	MANHOLE STRUCTURE REINFORCEMENT PLAN AND SECTIONS
22	S-121	TYPE C INLET PLAN AND SECTIONS
23	S-122	TYPE C INLET SECTIONS
24	S-123	CONCRETE STANDARD DETAILS

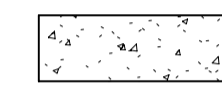
ABBREVIATIONS/LEGEND

NOT ALL ABBREVIATIONS MAY APPLY TO THIS PROJECT

ADDL	ADDITIONAL	HORIZ	HORIZONTAL
CL	CENTERLINE	IE	INVERT ELEVATION
CJ	CONSTRUCTION JOINT	IF	INSIDE FACE
CLR	CLEAR	LLV	LONG LEG VERTICAL
CMP	CORRUGATED METAL PIPE	MAX	MAXIMUM
CTJ	CONTRACTION JOINT	MIN	MINIMUM
CONC	CONCRETE	N	NORTH
CONT	CONTINUED/CONTINUOUS	NF	NEAR FACE
DET	DETAIL	OC	ON CENTER
DIA	DIAMETER	OF	OUTSIDE FACE
DWGS	DRAWINGS	OPNG	OPENING
DWLS	DOWELS	OPP	OPPOSITE
EA	EACH	PL	PLATE
EF	EACH FACE	REINF	REINFORCEMENT
EL	ELEVATION	SECT	SECTION
EMB/EMBED	EMBEDDED	SS/SST	STAINLESS STEEL
EQ SP	EQUAL SPACE	STL	STEEL
EW	EACH WAY	T&B	TOP AND BOTTOM
EXIST	EXISTING	THK	THICK
EXP	EXPANSION	TYP	TYPICAL
FF	FAR FACE	UNO	UNLESS NOTED OTHERWISE
GALV	GALVANIZED	VERT	VERTICAL
GR	GRADE	W/	WITH
GW	GROUND WATER	WS	WATER SURFACE



COMPACTED STRUCTURAL FILL



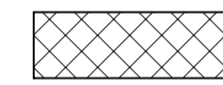
CONCRETE



GRATING



BACKFILL CONCRETE



NATIVE FILL



EXISTING SOIL CEMENT

GENERAL NOTES

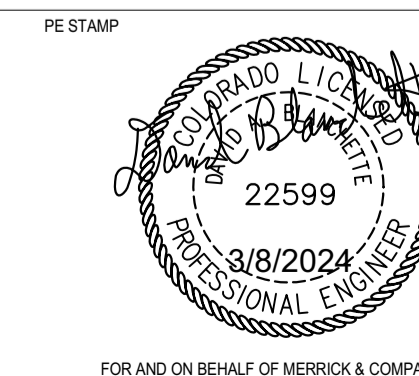
- ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS ADOPTED BY THE CITY OF COLORADO SPRINGS. ALL PUBLIC IMPROVEMENTS SHALL BE INSPECTED AND APPROVED BY THE CITY.
- ALL WORK SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE 2018 EDITION AS AMENDED BY CITY OF COLORADO SPRINGS.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE SUBSURFACE UTILITY ENGINEERING FOR THE PROJECT IS QUALITY LEVEL D. CALL THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 48 HOURS BEFORE STRIPPING, OR EXCAVATING. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY PERTINENT LOCATIONS AND ELEVATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.
- THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE CITY, AND ALL UTILITY COMPANIES INVOLVED, WITH REGARD TO RELOCATIONS OR ADJUSTMENTS OF EXISTING UTILITIES DURING CONSTRUCTION, AND TO ASSURE THAT THE WORK IS COMPLETED IN A TIMELY FASHION AND WITH A MINIMUM DISRUPTION OR SERVICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PARTIES AFFECTED BY ANY DISRUPTION OF UTILITY SERVICE.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM REGULATORY AUTHORITIES NECESSARY TO PERFORM THE PROPOSED WORK A MINIMUM OF 48 HOURS BEFORE THE START OF CONSTRUCTION. A PERMIT FOR WORK WITHIN THE COLORADO DEPARTMENT OF TRANSPORTATION'S (CDOT'S) RIGHT OF WAY WILL BE REQUIRED. THE CONTRACTOR SHALL APPLY FOR THE PERMIT TO CDOT NO MORE THAN 3 DAYS AFTER GIVEN NOTICE TO PROCEED.
- THE CONTRACTOR IS RESPONSIBLE FOR SURVEYS TO LAYOUT AND CONSTRUCT THE WORK, AND FOR QUANTITY DETERMINATIONS FOR UNIT PRICE ITEMS.
- THE CONTRACTOR SHALL NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES. ANY MISSING DIMENSIONS OR DISCREPANCIES IN THE DRAWINGS, SPECIFICATIONS, OR PHYSICAL FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION. IF THE CONTRACTOR PROCEEDS PRIOR TO OBTAINING THE ENGINEER'S RESOLUTION, CONTRACTOR DOES SO AT THEIR OWN RISK.
- THE CONTRACTOR SHALL MAINTAIN A SET OF THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES. ONE SET OF THE CONSTRUCTION DRAWINGS SHALL BE MAINTAINED SOLELY TO DOCUMENT ANY CHANGES IN THE WORK AS A RESULT OF CHANGE ORDERS OR FIELD CONDITIONS THAT MAY REQUIRE ALTERNATIVE CONSTRUCTION DETAILS. ALL SUCH CHANGES SHALL BE MARKED ON A FULL SIZE RECORD SET OF DRAWINGS IN PERMANENT INK.
- CONSTRUCTION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR SAFETY IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY WITH ANY REGULATIONS RELATING THERETO.
- EXCAVATIONS SHALL BE SHORED AS REQUIRED TO PREVENT SUBSIDENCE OR DAMAGE TO ADJACENT EXISTING STRUCTURES, STREETS, UTILITIES, ETC.
- CONSTRUCTION SHORING AND BRACING OF FORMWORK SHALL BE IN ACCORDANCE WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK".
- THE STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. THESE PLANS DO NOT INCLUDE THE NECESSARY COMPONENTS OR EQUIPMENT FOR THE STRUCTURES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.
- HEAVY COMPACTION EQUIPMENT SHALL NOT BE USED WITHIN 5'-0" OF WALLS. USE HAND GUIDED COMPACTION EQUIPMENT FOR THESE AREAS.
- OBSERVATIONS OF THE WORK IN PROGRESS AND ON-SITE VISITS BY THE ENGINEER OR OWNER ARE NOT TO BE CONSTRUED AS ACCEPTANCE OR WARRANTIES OF THE CONTRACTOR'S CONTRACTUAL OBLIGATIONS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR CONCRETE MIXTURE DESIGN, CONCRETE REINFORCEMENT, HANDRAIL, AND STRUCTURAL AND MISCELLANEOUS STEEL PRIOR TO FABRICATION FOR ENGINEER REVIEW.
- SPECIAL INSPECTION (OWNER FURNISHED) IS REQUIRED IN ACCORDANCE WITH IBC CHAPTER 17 INCLUDING THE FOLLOWING PORTIONS OF THE WORK:
 - CONCRETE
 - REINFORCING STEEL
 - CAST-IN-PLACE ANCHOR BOLTS AND EMBEDS
- ALL FOUNDATION SURFACES SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF GRANULAR FILL AND REINFORCING STEEL. NOTIFY ENGINEER AT LEAST TWO DAYS IN ADVANCE.
- NOTIFY THE ENGINEER AT LEAST 48 HOURS IN ADVANCE OF ANY CONCRETE PLACEMENTS.
- CONCRETE TESTS FOR CONCRETE DELIVERED TO THE SITE AND SOIL COMPACTION TESTING ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER RESERVES THE RIGHT TO CONDUCT ITS OWN TESTS AS HE MAY DEEM NECESSARY.
- SEE ARCHITECTURAL PLANS FOR AESTHETIC TREATMENT INCLUDING COLORED CONCRETE, FORMLINER, AND CONCRETE FINISHES.
- SEE CIVIL PLANS FOR LOCATION OF ALL STRUCTURES.

REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR



CITY OF COLORADO SPRINGS
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 (719) 385-5980

SM&C
Structural Engineers Inc.
 215 S. Wadsworth Blvd., Suite 320
 Lakewood, CO 80226 ph 303.274.8656
 www.smrstructures.com



BARNES OUTFALL WATER QUALITY POND

LEGEND, ABBREVIATIONS, AND GENERAL NOTES SHEET 1

JOB NUMBER	65421421
DATE	MARCH 8 2024
DRAWING NO.	S-100
SHEET	27 of 50

THIS PLAN AND SPECIFICATIONS ARE FOR THE USE OF AN ARCHITECT OR ENGINEER. THE ARCHITECT OR ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ARCHITECT OR ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ARCHITECT OR ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ARCHITECT OR ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT.

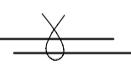

CONCRETE NOTES

- ALL CONCRETE IS DESIGNED IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE, ACI 350-20 OR ACI 318-14 AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI UNLESS NOTED OTHERWISE.
- CONCRETE WORK SHALL CONFORM TO ACI 301.
- REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615, "SPECIFICATIONS FOR DEFORMED AND PLAIN CARBON STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 60.
- ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
- CONSTRUCTION TOLERANCES SHALL BE IN ACCORDANCE WITH ACI 117.
- METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.
- REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH THE FORMS WITH PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE, A MINIMUM OF 2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.
- UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
 - FOR CONCRETE PLACED AGAINST EARTH 3"
 - FOR CONCRETE FORMED BUT EXPOSED TO EARTH, WEATHER, OR FLOWING WATER 2"
- UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED.
- PLACING OF CONCRETE SHALL CONFORM TO ACI 304R. HOT WEATHER CONCRETE SHALL BE PLACED PER ACI 305R. COLD WEATHER CONCRETE SHALL BE PLACED PER ACI 306R.
- ALL DIMENSIONS TO A JOINT ARE TO THE CENTERLINE OF THE JOINT.
- DIMENSIONS NOT SHOWN ARE THE SAME AS DIMENSIONS FOR IDENTICAL DETAILS SHOWN ELSEWHERE.
- BEFORE PLACING CONCRETE ON GRADE, CARE SHALL BE TAKEN THAT ALL BURIED MATERIAL BELOW GRADE IS IN PLACE.
- PIPE SLEEVES AND EMBEDDED PIPING 12" IN DIAMETER AND LARGER ARE ALWAYS SHOWN ON THE CONCRETE OUTLINE DRAWINGS. SMALLER DIAMETER PIPE SLEEVES OR PIPING MAY OR MAY NOT BE SHOWN ON THE CONCRETE OUTLINE DRAWINGS.
- CHAMFER EDGES OF PERMANENTLY EXPOSED CONCRETE SURFACES WITH A 45 DEGREE BEVEL, 3/4"x3/4".
- DRAWINGS ARE NOT TO BE SCALED FOR ESTIMATING OR ANY OTHER PURPOSE.
- ALL REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENT:

DETAIL OF REINFORCEMENT - LAP LENGTHS

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
CONCRETE DESIGN STRENGTH	4500 PSI							
GR 60	TOP BAR 2'-6"	3'-2"	3'-9"	5'-6"	6'-4"	7'-1"	8'-0"	8'-11"
	OTHER BAR 1'-11"	2'-5"	2'-11"	4'-3"	4'-10"	5'-6"	6'-2"	6'-10"

* TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR, IN ANY SINGLE PLACEMENT. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

- SPLICES ARE TO BE MADE SO THAT THE GIVEN DISTANCES TO FACE OF CONCRETE WILL BE MAINTAINED.
- DIMENSIONS ARE TO THE CENTERLINES OF THE BARS UNLESS SHOWN OTHERWISE.
- REINFORCEMENT PARALLELING CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 2" CLEAR COVER.
- REINFORCEMENT AT SMALL OPENINGS (MAX 1'-6") IN WALLS AND SLABS MAY BE SPREAD APART NOT MORE THAN 1 1/2 TIMES THE BAR SPACING.
- REINFORCEMENT MAY BE ADJUSTED Laterally TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1" BETWEEN THE REINFORCEMENT AND WATERSTOPS, ANCHOR BOLTS, FORM TIES, CONDUITS, AND OTHER EMBEDDED MATERIAL. IN HEAVILY REINFORCED AREAS RELOCATION OF THE EMBEDDED MATERIAL MUST BE CONSIDERED.
- IN NO CASE SHOULD BARS BE FIELD BENT TO GREATER THAN 6 TO 1 SLOPE.
- BARS SHOWN WITH BENDS NOT DIMENSIONED SHALL BE ASSUMED TO END WITH A STANDARD HOOK.
- THE  SYMBOL DESIGNATES THE BAR CALLOUTS ARE THE SAME SIZE AND SPACING.
- REINFORCEMENT PARALLEL TO ANCHOR BOLTS OR OTHER EMBEDDED MATERIAL SHALL BE PLACED TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1-1/3 TIMES THE MAXIMUM SIZE AGGREGATE.
- THE FIRST AND LAST BARS IN WALLS AND SLABS, STIRRUPS IN BEAMS, AND TIES IN COLUMNS ARE TO START AND END AT A MAXIMUM OF ONE HALF OF THE ADJACENT BAR SPACING.
- BARS SHOWN THUS  #8@12, INDICATE A GROUP OF THE SAME SIZE BARS EQUALLY SPACED.

STRUCTURAL STEEL NOTES

- ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST CODES AND SPECIFICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) AND IN ACCORDANCE WITH THESE DRAWINGS.
- ALL BARS, PLATES, AND ANGLE SHAPES SHALL BE OF STEEL MEETING ASTM A36 SPECIFICATIONS UNLESS NOTED OTHERWISE. W STRUCTURAL SHAPES SHALL CONFORM TO ASTM A992.
- ALL WELDS SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND SHALL CONFORM TO AWS D1.1 LATEST EDITION. ALL BUTT WELDS ARE FULL PENETRATION UNLESS INDICATED OTHERWISE. WELD FILLER METAL SHALL BE AWS A5.1 OR A5.5 E70 XX SERIES ELECTRODES.
- ALL WELDS FOUND DEFECTIVE SHALL BE REPAIRED AND/OR REPLACED AND RETESTED FOR ADEQUACY AT THE CONTRACTOR'S EXPENSE.
- AT ALL FIELD WELDS AT EMBED PLATES AND ANGLES, LOW HEAT AND INTERMITTENT WELDS SHALL BE UTILIZED TO AVOID SPALLING OR CRACKING THE EXISTING CONCRETE.
- ALL MATERIAL SHALL BE FABRICATED STRAIGHT AND TRUE AND FREE FROM ALL TWISTS AND WARPS.
- HANDRAIL SHALL BE ASTM A500 GRADE B.
- ANCHOR BOLTS SHALL BE SS AND SHALL CONFORM TO ASTM A240 TYPE 316 SS.
- ALL EXPOSED STEEL SHALL BE ELECTROSTATIC COATED.
- BOLTS INDICATED AS ANCHOR BOLTS SHALL CONFORM TO ASTM A307 FOR CARBON STEEL, A193 FOR STAINLESS STEEL, AND A307 WITH A153 ZINC COATING FOR GALVANIZED STEEL EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE. ALL JOINT CONTACT SURFACES SHALL BE CLEAN AND FREE FROM OIL, DIRT AND PAINT.
- CONNECTIONS NOT DETAILED SHALL BE BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATION OR AS DIRECTED BY THE ENGINEER.
- GRATING PANEL LAYOUT SHALL PROVIDE FOR THE REMOVAL OF GRATING AROUND THE ACCESS STEPS AND OTHER GRATING PENETRATIONS.
- ALL GRATING SHALL BE SECURELY FASTENED TO SUPPORTS WITH STAINLESS STEEL GRATING CLIPS AND ANCHORS, UNLESS NOTED OTHERWISE. EACH PIECE SHALL BE FASTENED WITH A MINIMUM OF 4 CLIPS AT THE CORNERS, ONE AT EACH CORNER. ALL GRATING SHALL HAVE A BANDED PERIMETER.

DESIGN CRITERIA

- APPLICABLE CODES AND STANDARDS
 - 2021 INTERNATIONAL BUILDING CODE WITH LOCAL BUILDING CODE AMENDMENTS.
 - ACI 318-14 AND ACI 350-20
- LOADS
 - WIND LOADS
 - V_{ULT}.....130 MPH
 - EXPOSURE CATEGORY.....C
 - IMPORTANCE FACTOR.....IW = 1.0
 - SEISMIC LOADS
 - IMPORTANCE FACTOR.....IE = 1.0
 - SITE CLASS.....D
 - SPECTRAL RESPONSE COEFFICIENTS.....S_{DS} = 0.185 g
 - S_{D1} = 0.059 g
 - SEISMIC DESIGN CATEGORY.....A
- GEOTECHNICAL
 - NET ALLOWABLE BEARING PRESSURE FOOTINGS.....3000 PSF
 - FOUNDATION RECOMMENDATIONS ARE FROM THE REPORT " GEOTECHNICAL EVALUATION REPORT BY VIVID ENGINEERING GROUP, PROPOSED SAND CREEK POND NO. 2 IMPROVEMENTS, VICINITY OF BARNES ROAD AND TUTT BOULEVARD, COLORADO SPRINGS, CO, VIVID PROJECT NO. D21-2-389, REVISION 1."
 - DESIGN LOADS:
 - VERTICAL EARTH LOAD = 130 LBS/FT³
 - ACTIVE EARTH PRESSURE = 83 LBS/FT³
 - AT-REST EARTH PRESSURE = 94 LBS/FT³
 - PASSIVE STRUCTURAL FILL = 188 LBS/FT³
 - PASSIVE WEATHERED BEDROCK = 400 LBS/FT³
 - PASSIVE FORMATIONAL BEDROCK = 500 LBS/FT³
- FROST DEPTH = 2'-6"

INSPECTION NOTES

SPECIAL INSPECTIONS SHALL BE CARRIED OUT PER ALL THE REQUIREMENTS IN CHAPTER 17 OF THE 2021 INTERNATIONAL BUILDING CODE. THE OWNER IS RESPONSIBLE FOR RETAINING AN INDEPENDENT INSPECTION AGENCY TO CONDUCT THESE INSPECTIONS. ALL SPECIAL INSPECTORS MUST SUBMIT FINAL REPORTS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE SPECIAL INSPECTION AGENCY WITH AN UPDATED SCHEDULE SO A PROPER COORDINATION OF WORK CAN OCCUR. SEE IBC CHAPTER 17 FOR ADDITIONAL INFORMATION ON THE FOLLOWING REQUIREMENTS.

- FOUNDATIONS
 - A. VISUAL EXAMINATION AND APPROVAL OF ALL FOUNDATION EXCAVATIONS AND MATERIALS BELOW SHALLOW FOUNDATIONS.
 - B. VISUAL EXAMINATION AND TESTING OF ALL COMPACTED FILL MATERIALS.
- CONCRETE
 - A. TEST CYLINDERS FOR CONCRETE OVER 2,500 PSI.
- REINFORCING
 - A. MILL REPORTS AND IDENTIFICATION OF REINFORCING
 - B. PLACEMENT OF REINFORCING
 - C. CAST IN PLACE CONCRETE ANCHORS
 - D. POST INSTALLED CONCRETE ANCHORS
- WELDING
 - A. ALL STRUCTURAL FIELD WELDING
- BOLTING
 - A. ALL HIGH STRENGTH STRUCTURAL STEEL BOLTING
- STRUCTURAL STEEL
 - A. MILL REPORTS AND IDENTIFICATION OF STEEL
- STRUCTURAL OBSERVATIONS

IN ADDITION TO SPECIAL INSPECTIONS THE STRUCTURAL ENGINEER OF RECORD SHALL BE NOTIFIED SO PERIODIC STRUCTURAL OBSERVATIONS CAN BE CONDUCTED FOR THE FOLLOWING ELEMENTS. THIS NOTIFICATION SHALL BE MADE AT LEAST 48 HRS IN ADVANCE OF THE REQUIRED STRUCTURAL OBSERVATION.

- A. REINFORCING STEEL
- B. STRUCTURAL STEEL

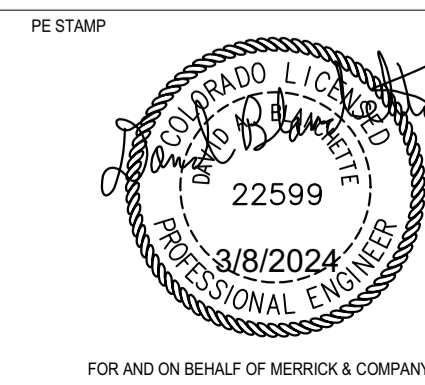
DRAINAGE PIPE

- DRAINAGE PIPE SHALL BE 4" DIAMETER PVC SCHEDULE 40 PLASTIC PIPE.
- DRAINAGE PIPE SHALL BE INSTALLED WITH INTERGRAL BELL AND SPIGOT JOINTS. PROVISIONS SHALL BE MADE FOR CONTRACTION AND EXPANSION AT EACH JOINT WITH A RUBBER RING.
- 4 INCH SLOTTED PIPE SHALL HAVE OPEN SLOTS 0.125" WIDE, THAT ARE 1.25" LONG IN 4 ROWS SPREAD EVENLY AROUND THE PIPE CIRCUMFERENCE. SPACING OF ROWS SHALL BE 2" O.C. SLOTS SHALL BE SHOP CUT.
- DRAIN GRAVEL SHALL CONFORM TO ASTM A33 QUALITY AND HAVE A No. 57 GRADATION.

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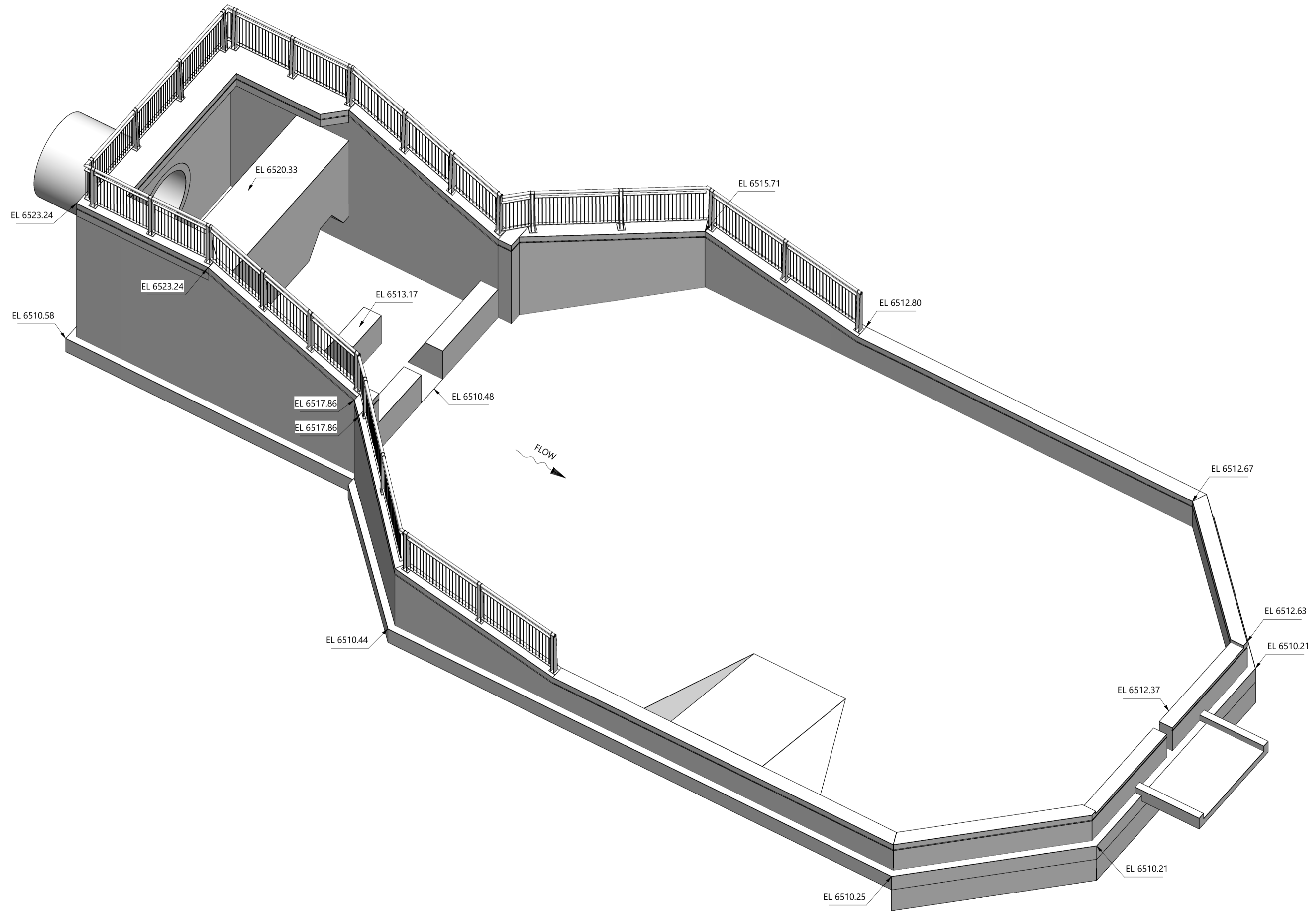
TITLE

BARNES OUTFALL WATER QUALITY POND

LEGEND, ABBREVIATIONS, AND GENERAL NOTES SHEET 2

JOB NUMBER	65421421
DATE	MARCH 8 2024
DRAWING NO.	S-101
SHEET	28 of 50

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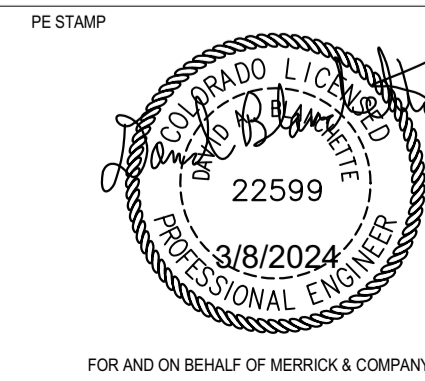
- SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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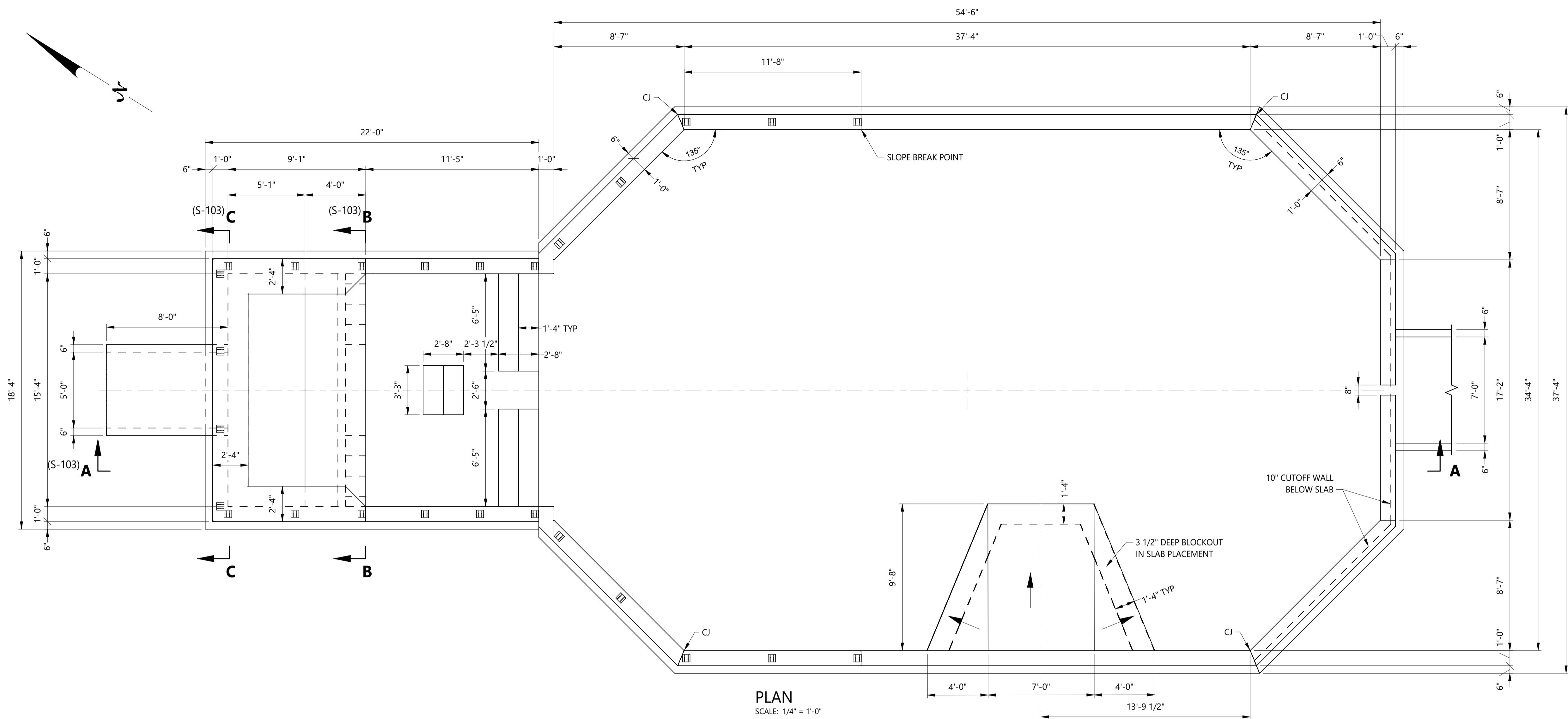
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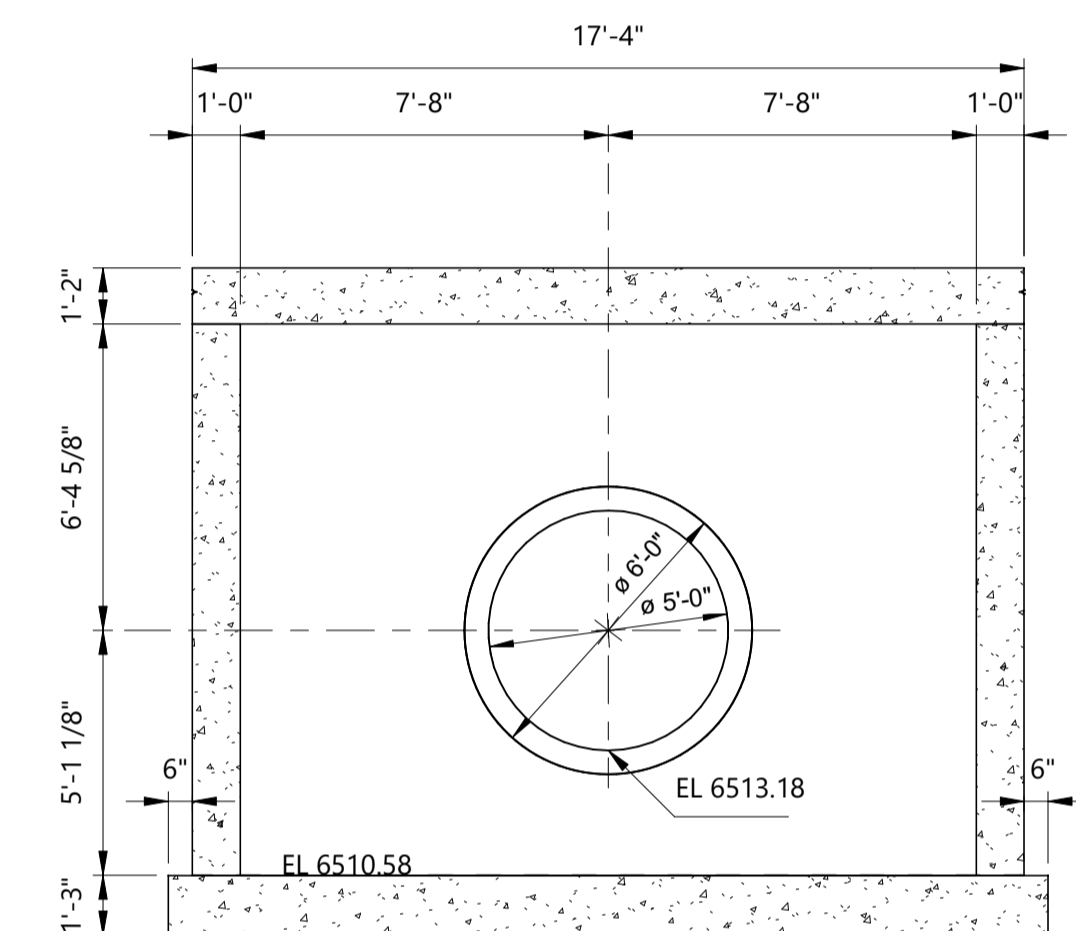
TITLE
BARNES OUTFALL WATER QUALITY POND
BARNES FOREBAY
ISOMETRIC

JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-102**
 SHEET: 29 of 50

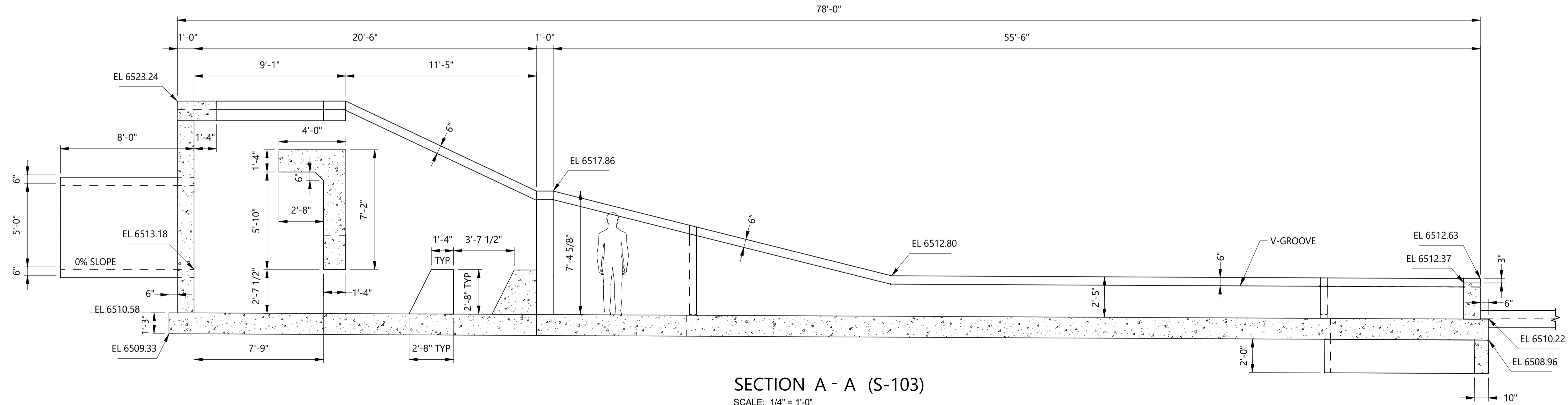
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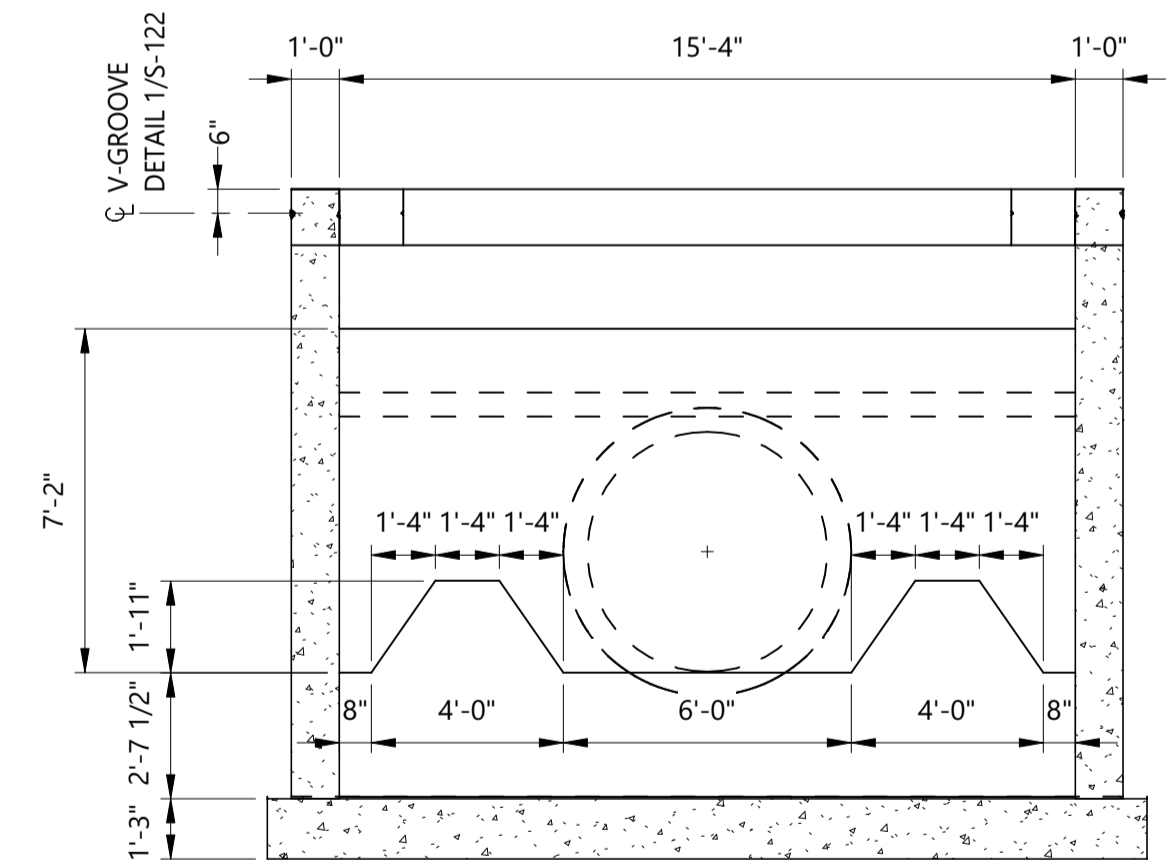
PLAN
SCALE: 1/4" = 1'-0"



SECTION C - C (S-103)
SCALE: 1/4" = 1'-0"



SECTION A - A (S-103)
SCALE: 1/4" = 1'-0"



SECTION B - B (S-103)
SCALE: 1/4" = 1'-0"

NOTES:

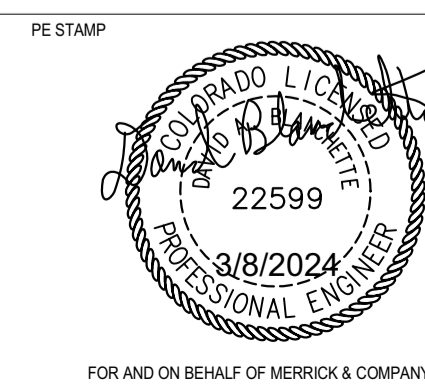
- SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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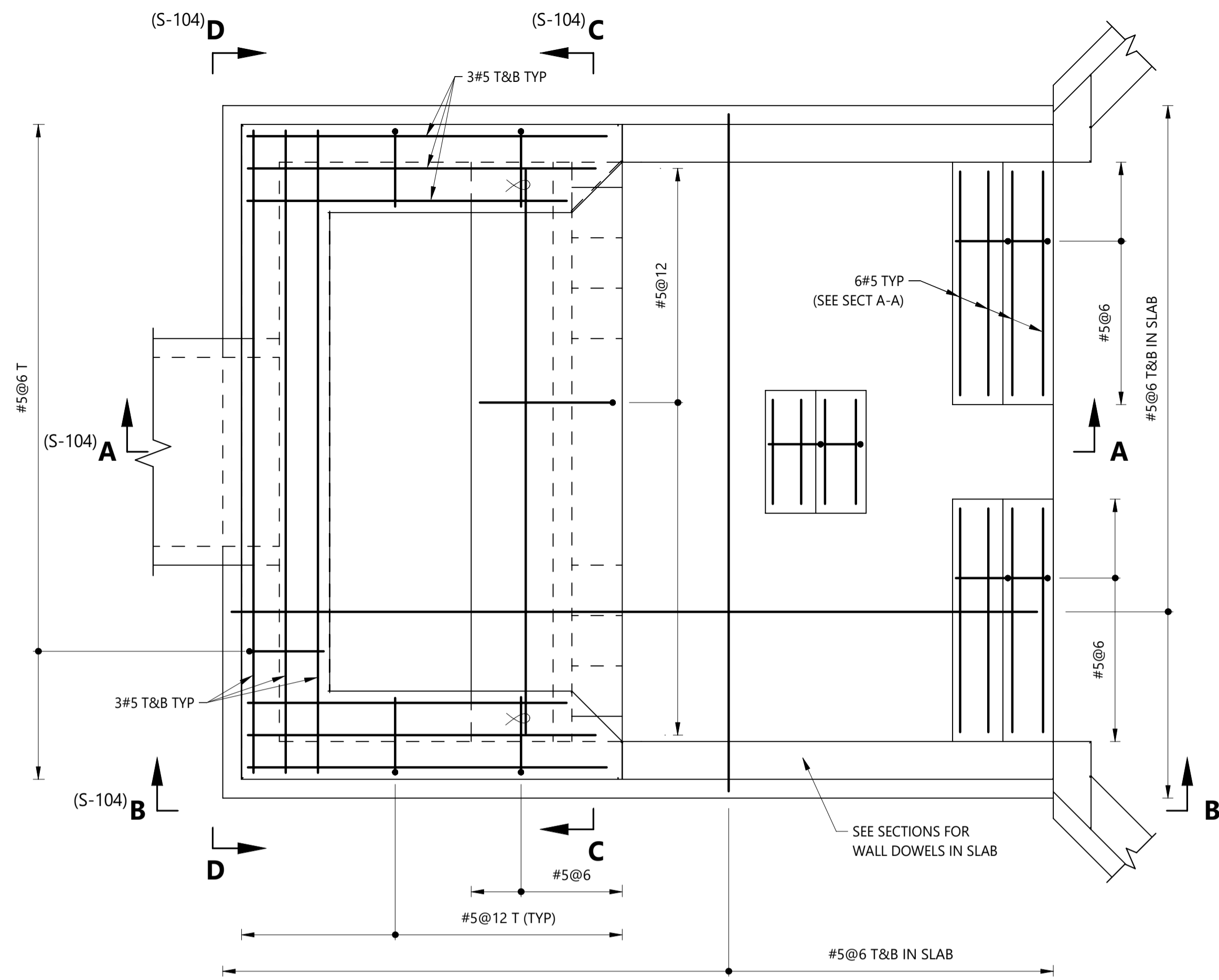


BARNES OUTFALL WATER QUALITY POND

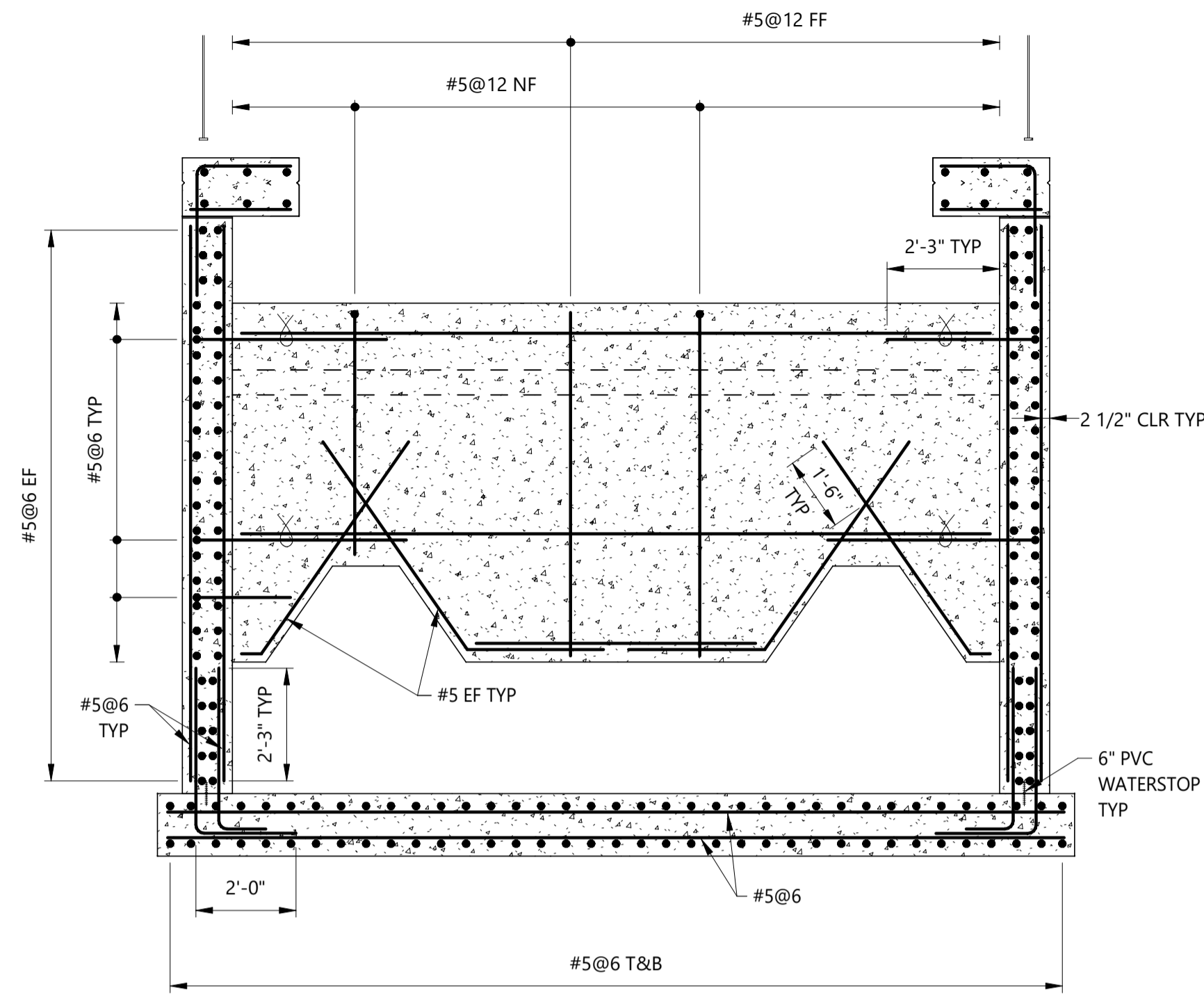
BARNES FOREBAY
OUTLINE PLAN AND SECTIONS

JOB NUMBER: 65421421
DATE: MARCH 8 2024
DRAWING NO.: S-103
SHEET: 30 of 50

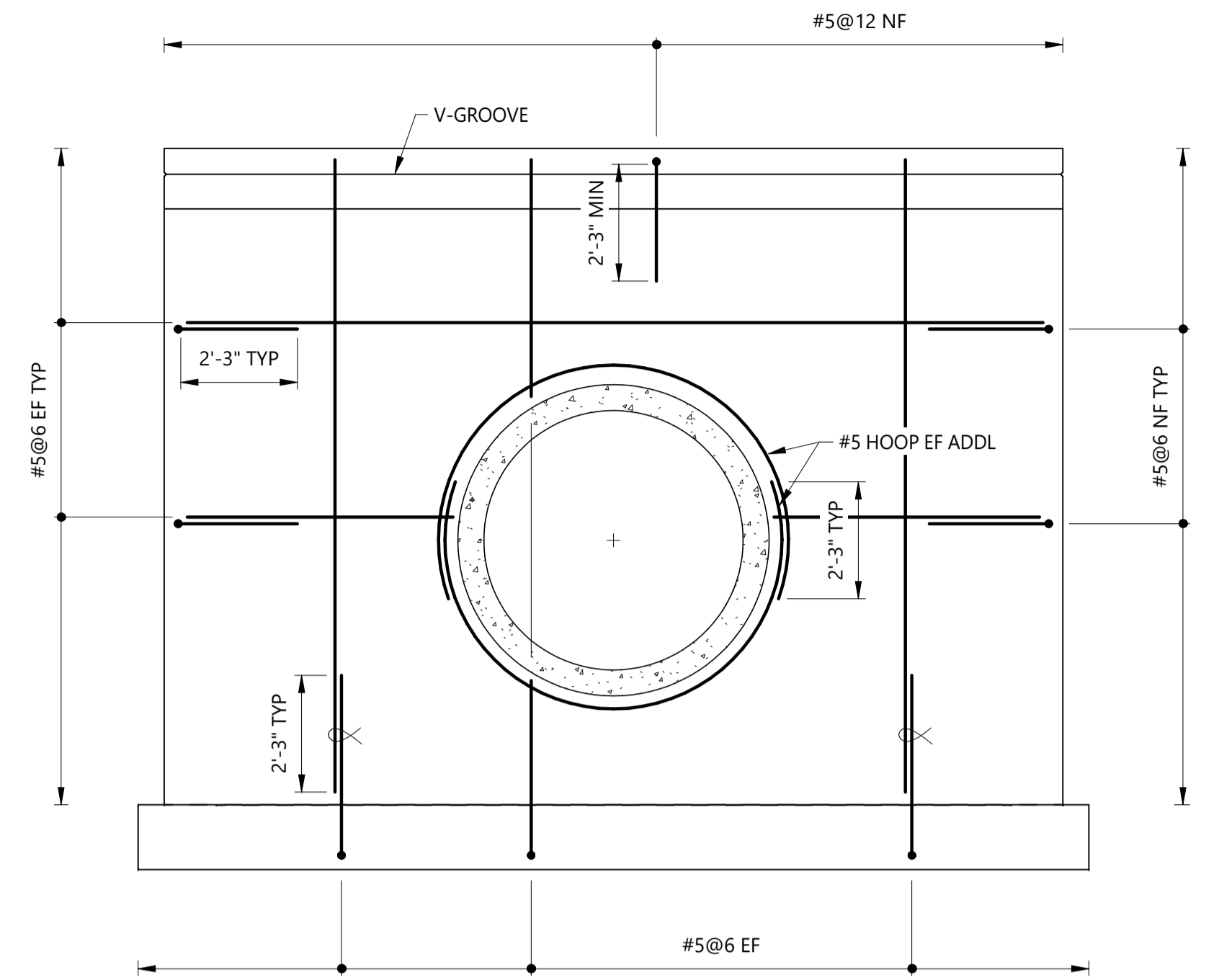
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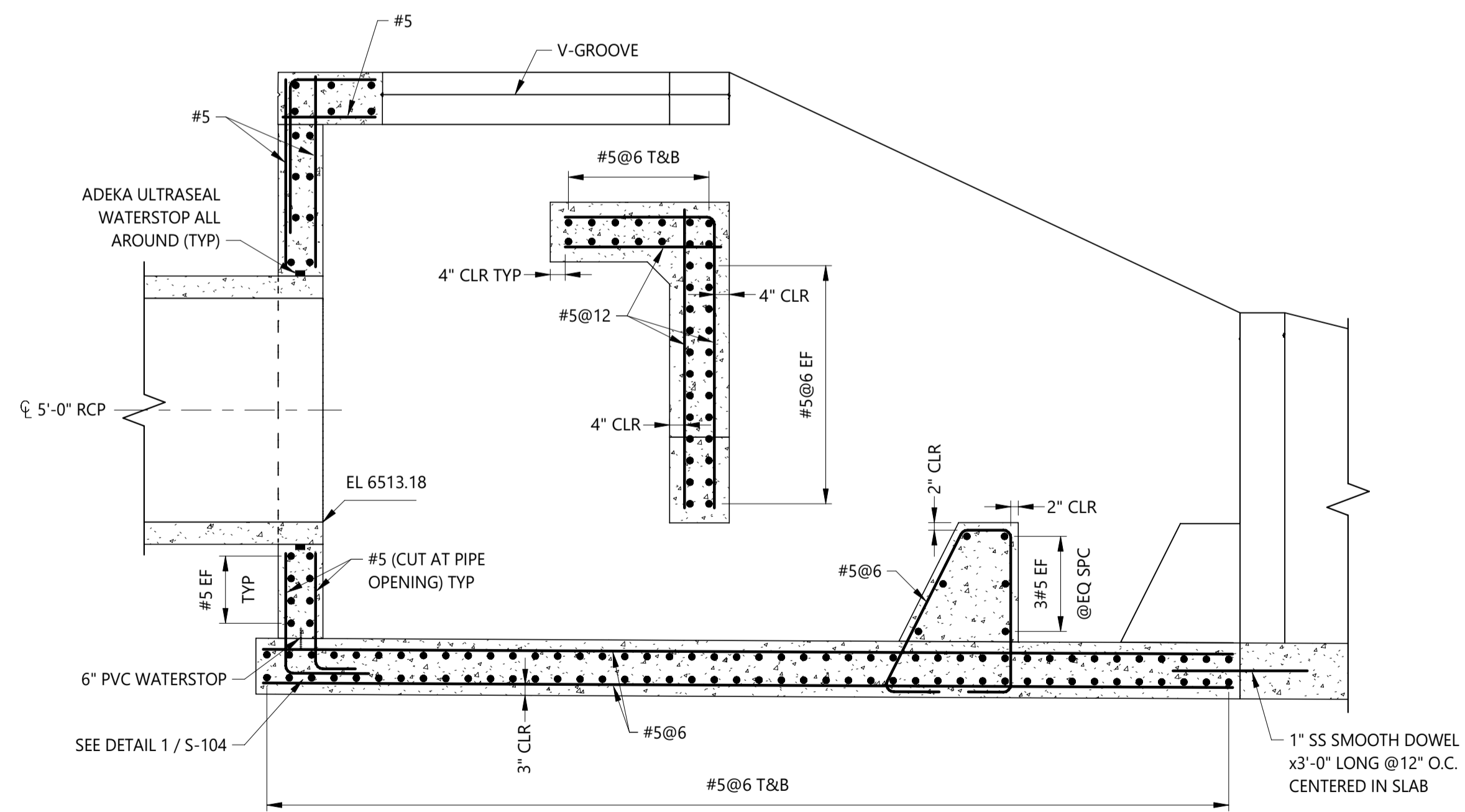
PLAN - REINFORCEMENT
SCALE: 3/8" = 1'-0"



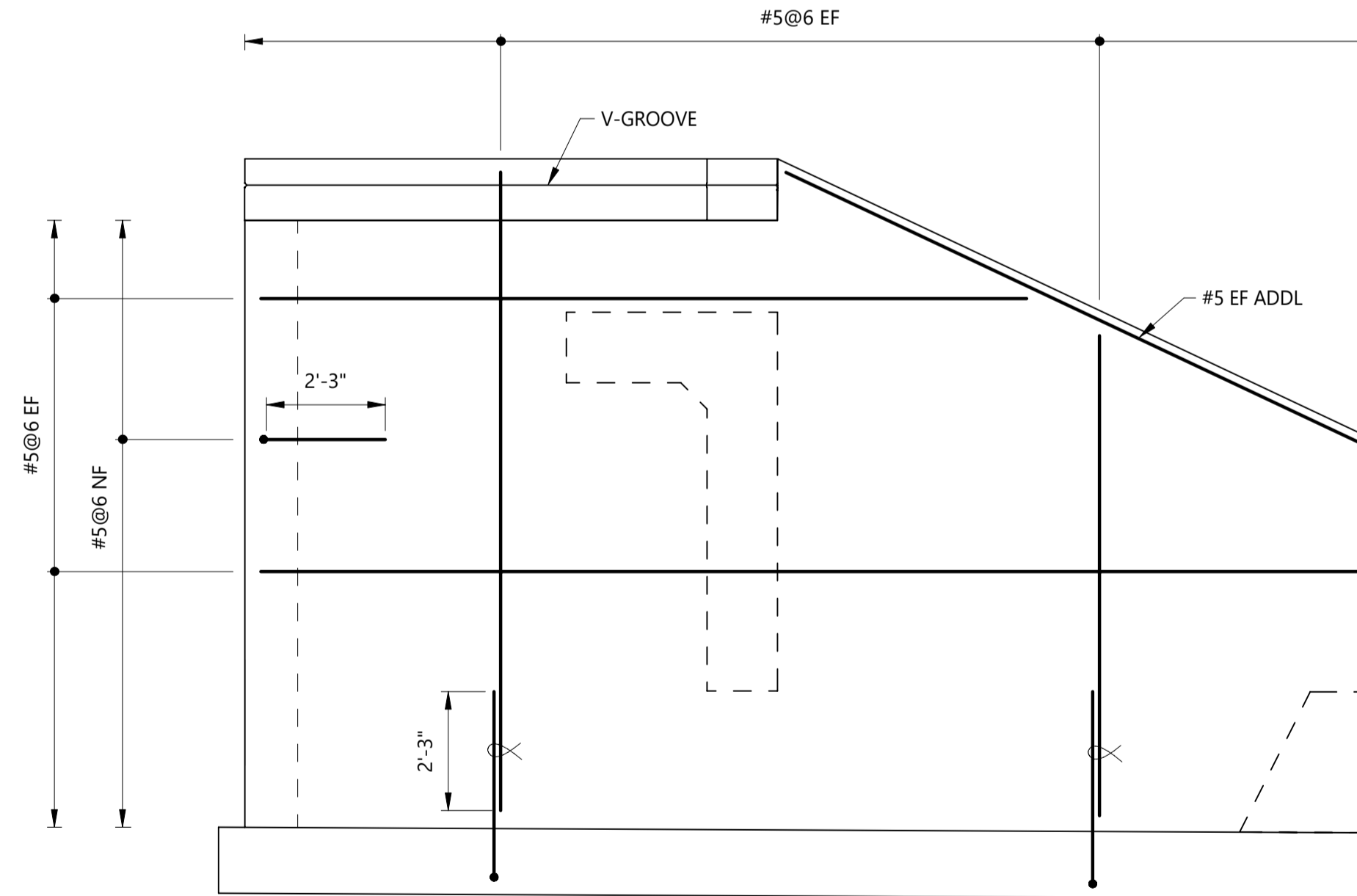
SECTION C - C (S-104)
SCALE: 3/8" = 1'-0"



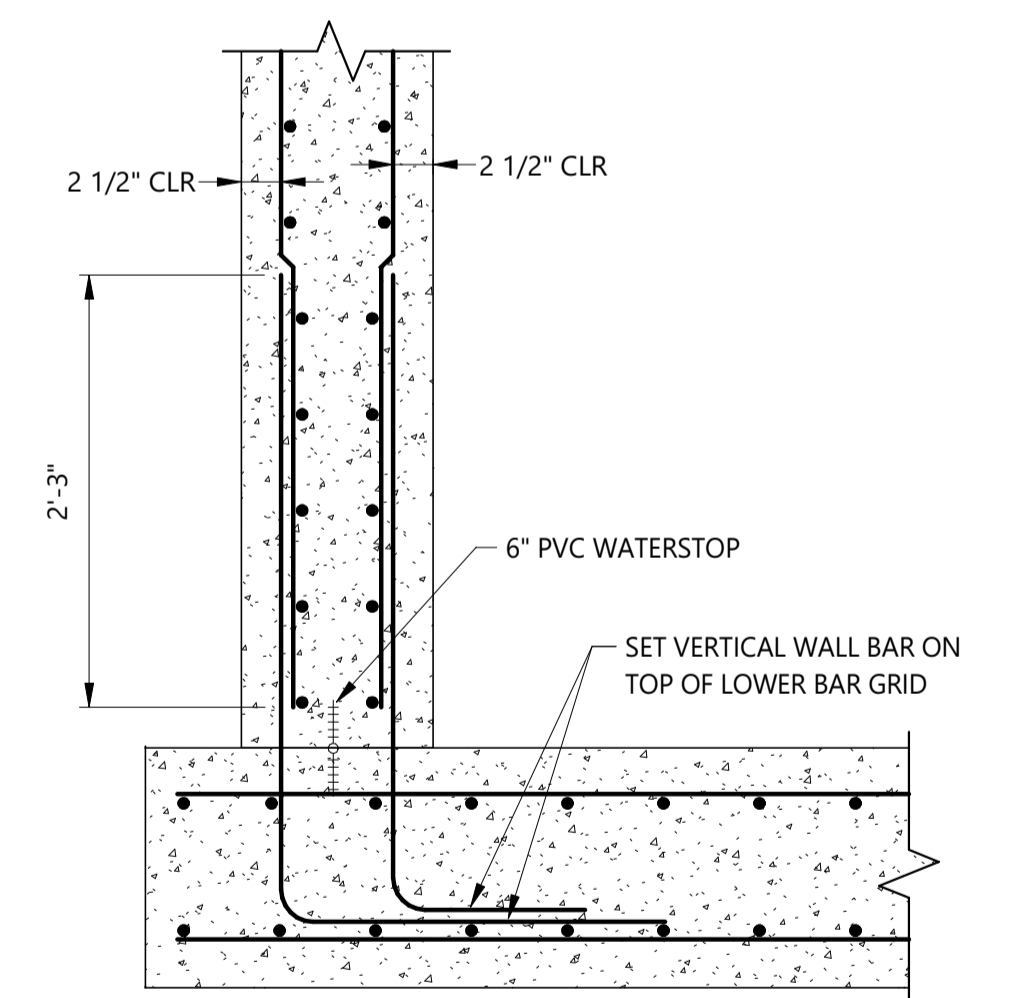
SECTION D - D (S-104)
SCALE: 3/8" = 1'-0"



SECTION A - A (S-104)
SCALE: 3/8" = 1'-0"



SECTION B - B (S-104)
SCALE: 3/8" = 1'-0"



DETAIL 1 - WALL/SLAB REINFORCEMENT
SCALE: 1" = 1'-0"

NOTES:

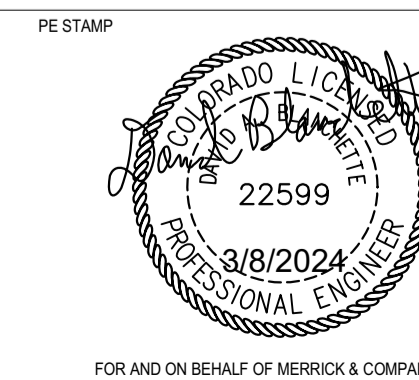
- SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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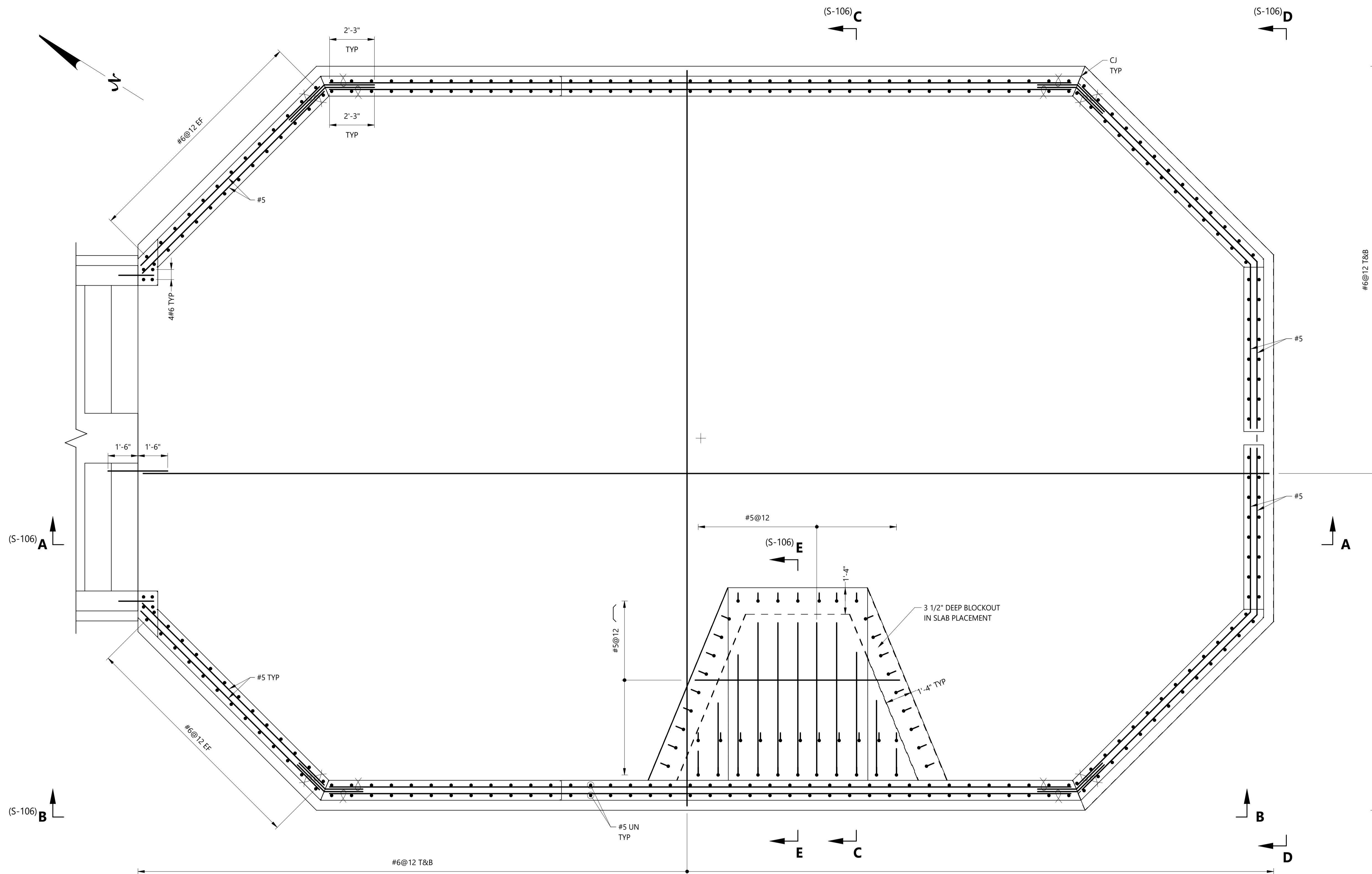


BARNES OUTFALL WATER QUALITY POND

**BARNES FOREBAY
REINFORCEMENT PLAN AND SECTIONS**

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DRAWING NO.: **S-104**
SHEET: 31 of 50

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PLAN - REINFORCEMENT
SCALE: 3/8" = 1'-0"

NOTES:

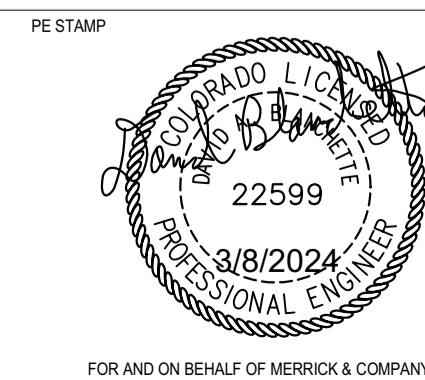
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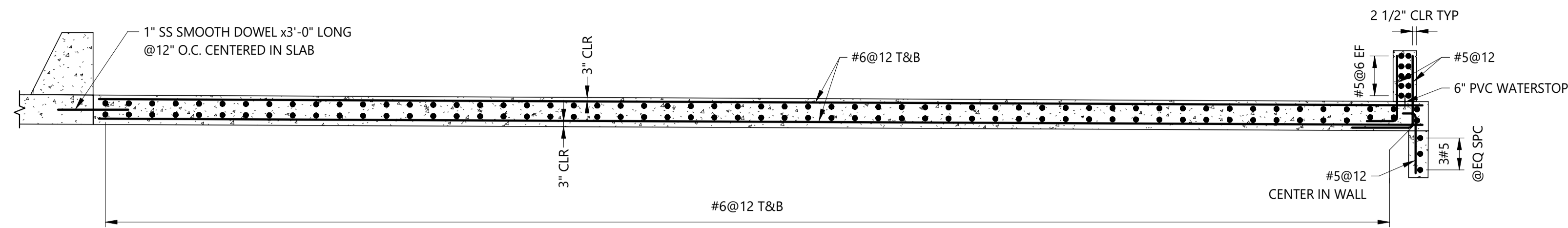


BARNES OUTFALL WATER QUALITY POND

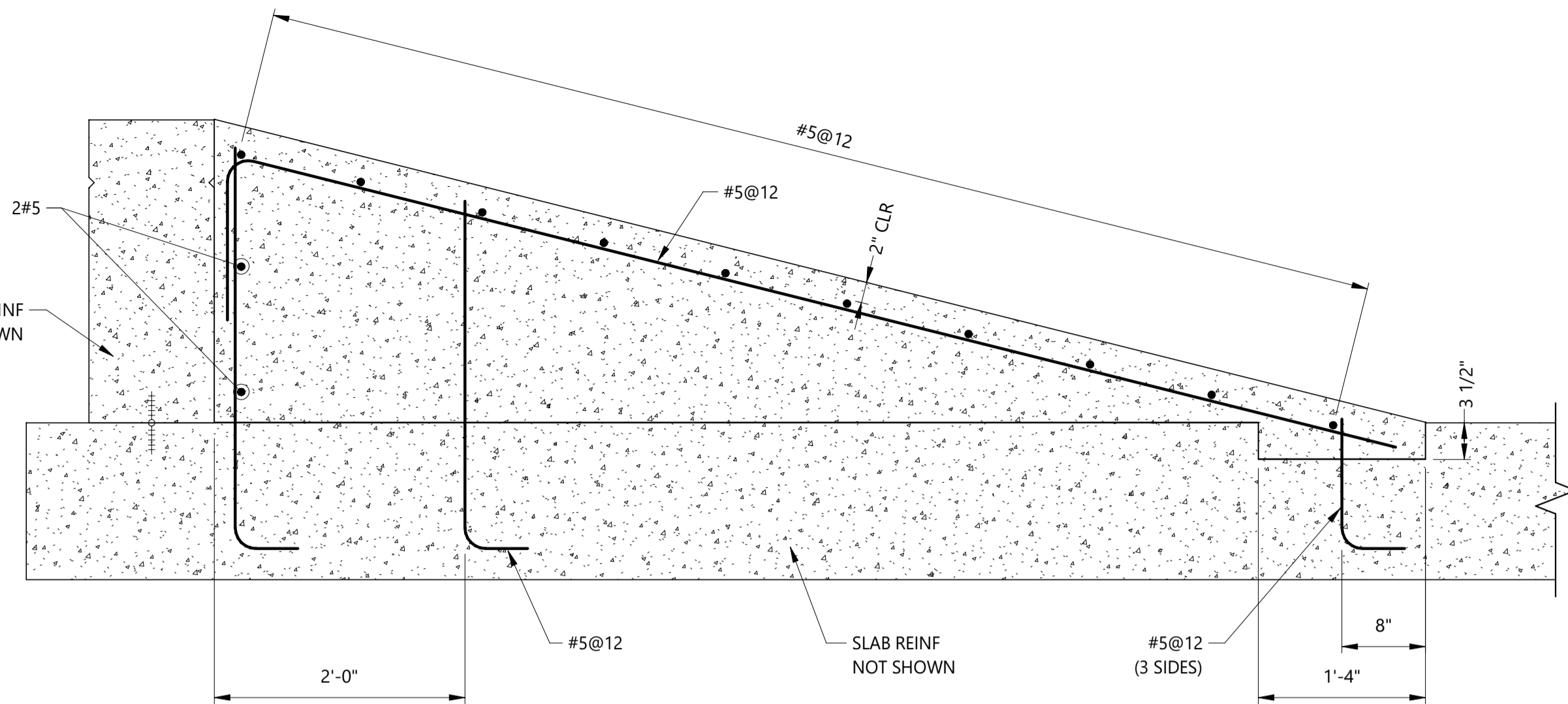
BARNES FOREBAY
REINFORCEMENT PLAN

JOB NUMBER	65421421
DATE	MARCH 8 2024
DRAWING NO.	S-105
SHEET	32 of 50

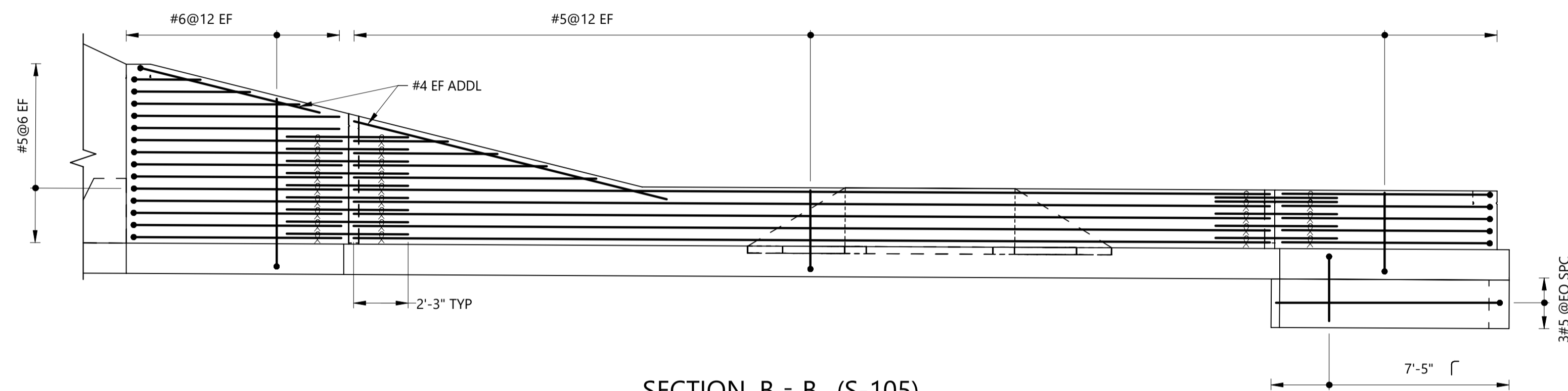
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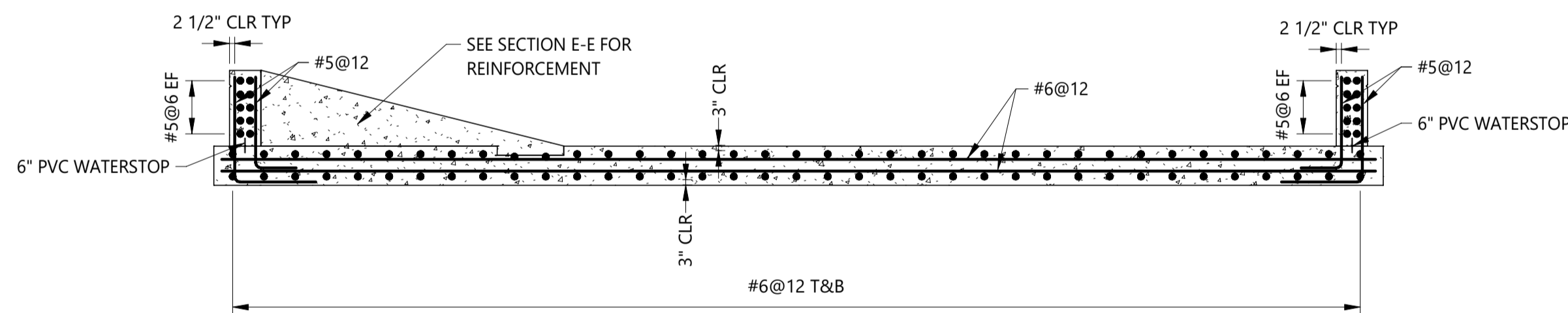
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SCALE: 1/4" = 1'-0"



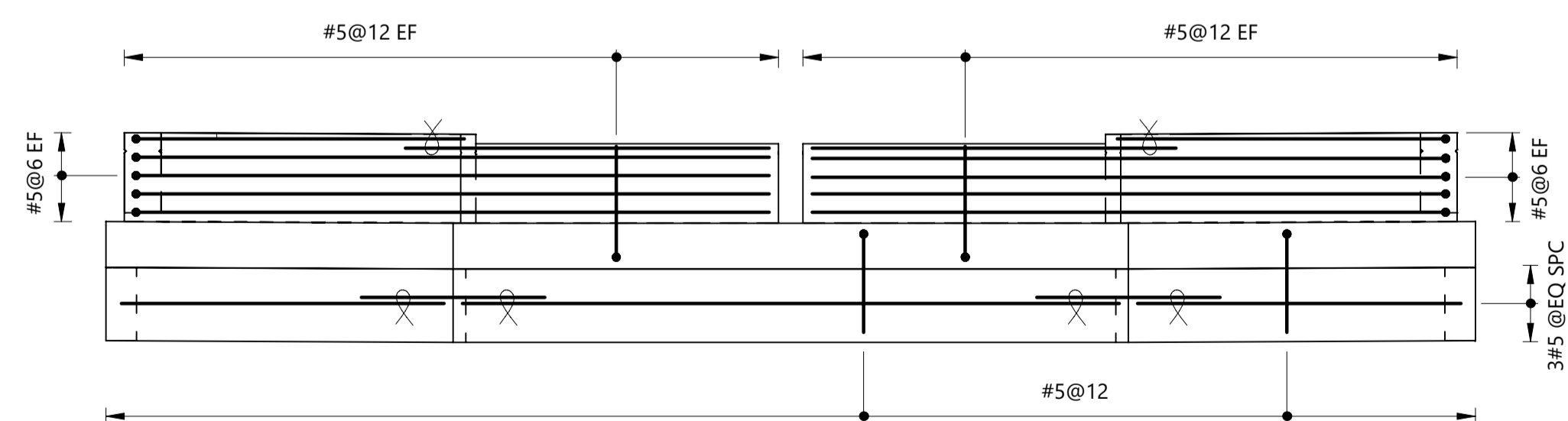
SECTION E - E (S-105)
SCALE: 1" = 1'-0"



SECTION B - B (S-105)
SCALE: 1/4" = 1'-0"



SECTION C - C (S-105)
SCALE: 1/4" = 1'-0"



SECTION D - D (S-105)
SCALE: 1/4" = 1'-0"

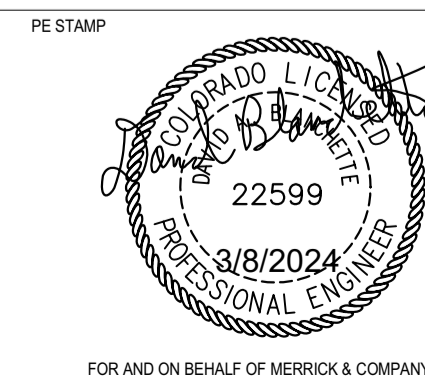
NOTES:

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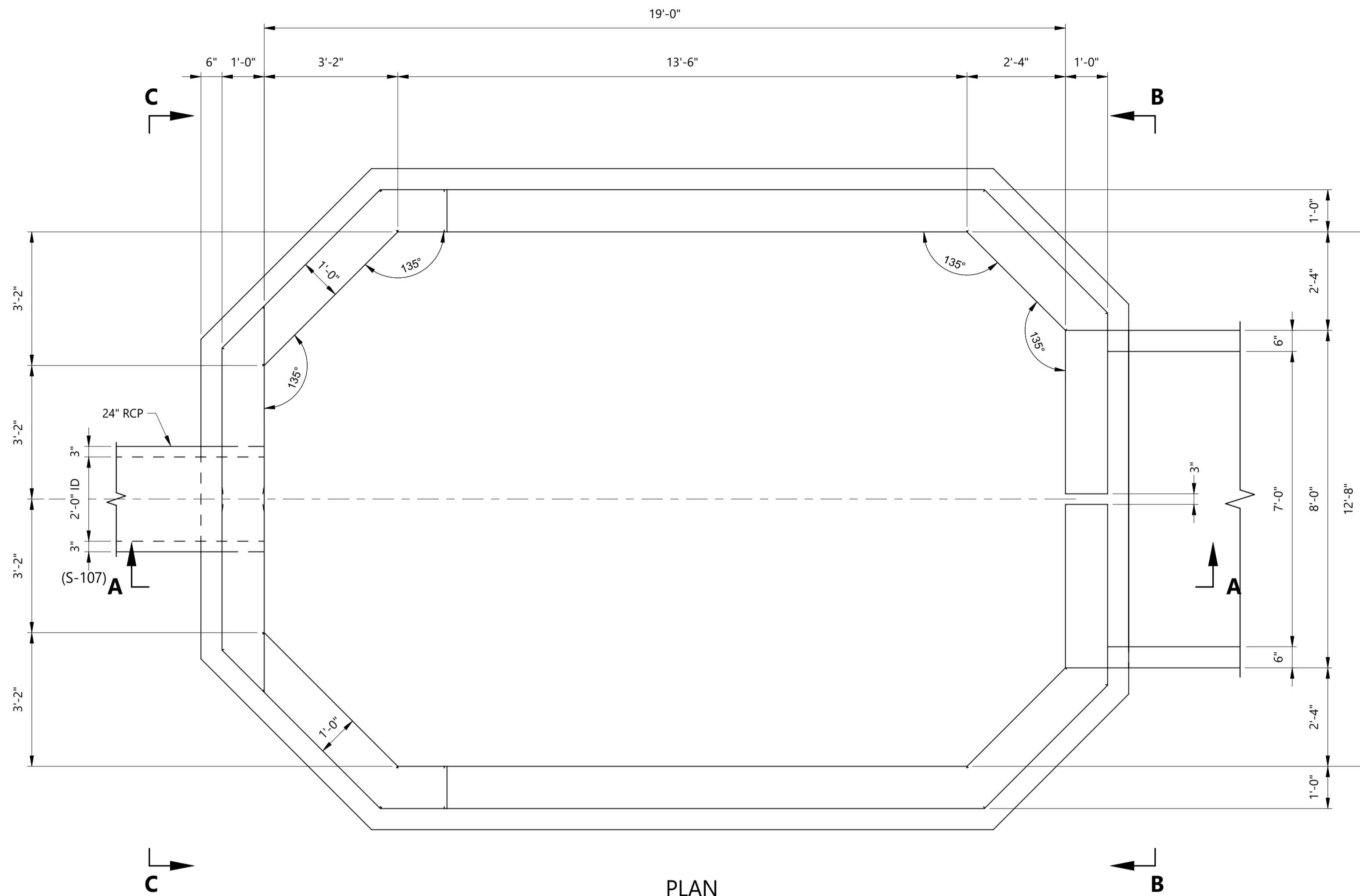


BARNES OUTFALL WATER QUALITY POND

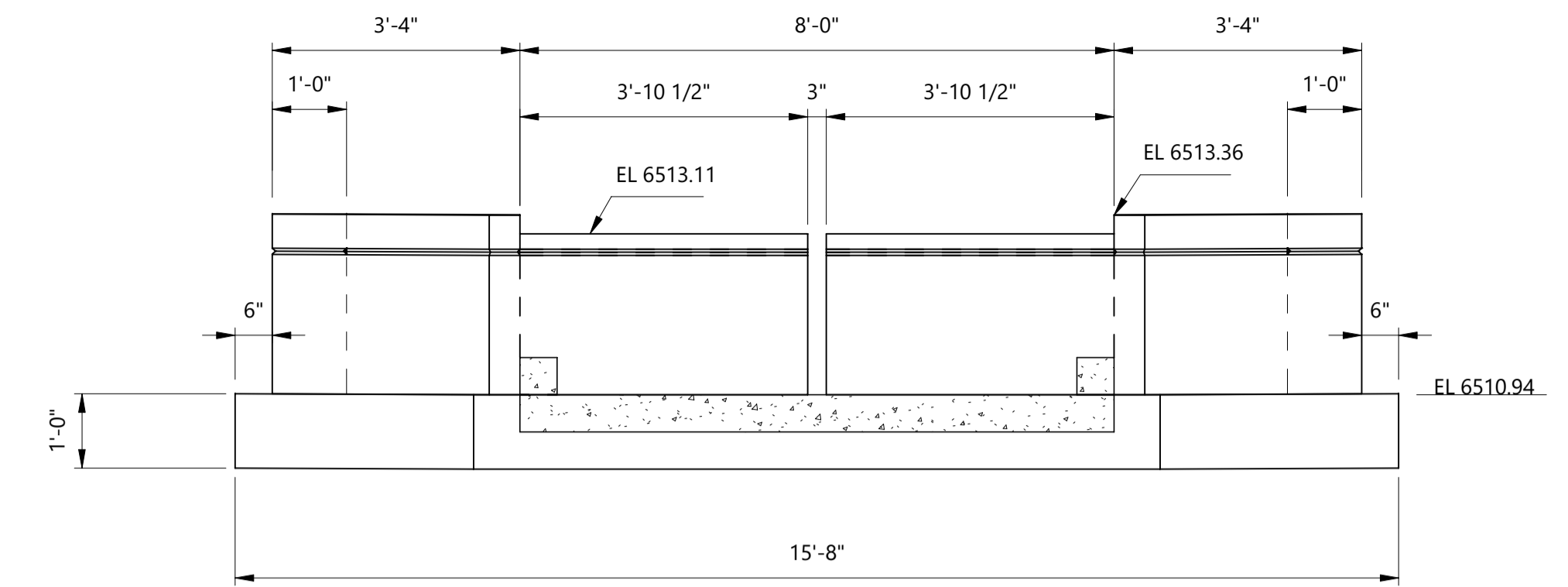
BARNES FOREBAY
REINFORCEMENT SECTIONS

JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-106**
 SHEET: 33 of 50

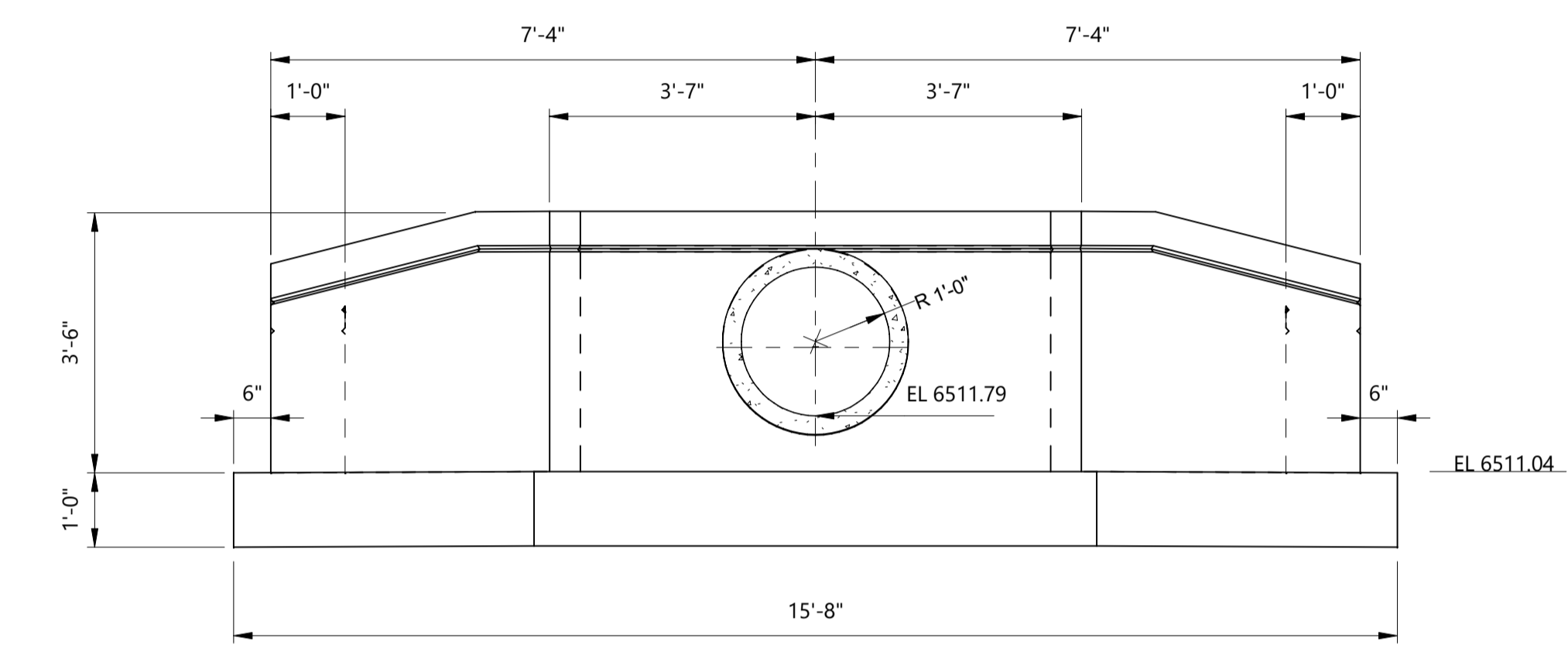
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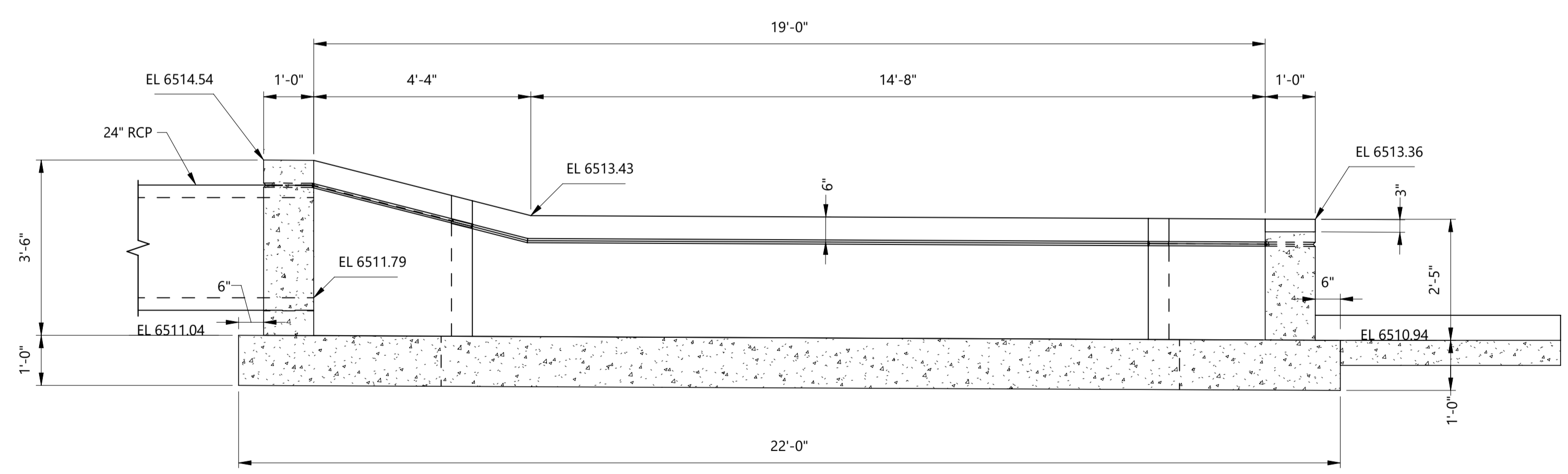
PLAN
SCALE: 1/2" = 1'-0"



SECTION B - B (S-107)
SCALE: 1/2" = 1'-0"

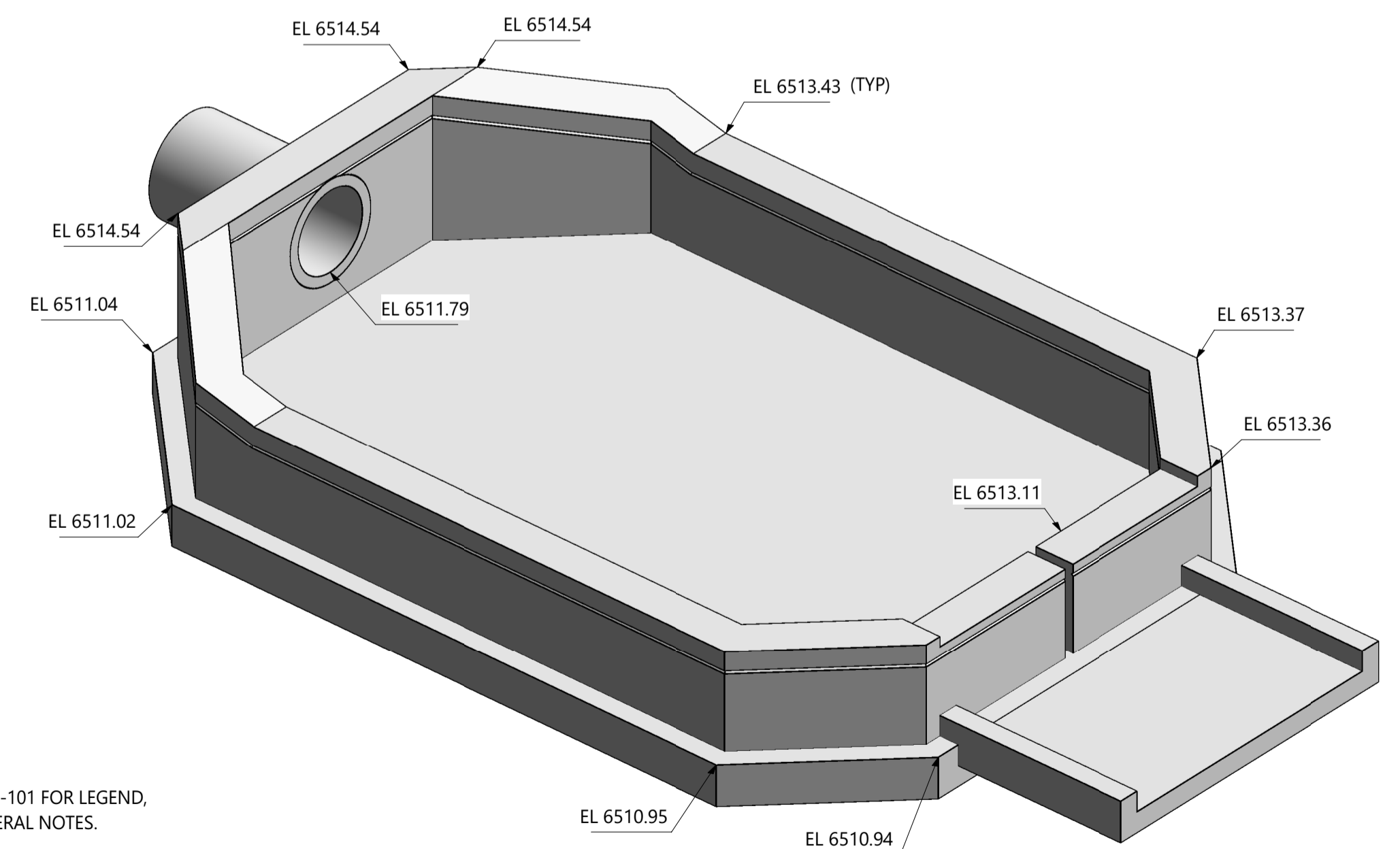


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SCALE: 1/2" = 1'-0"

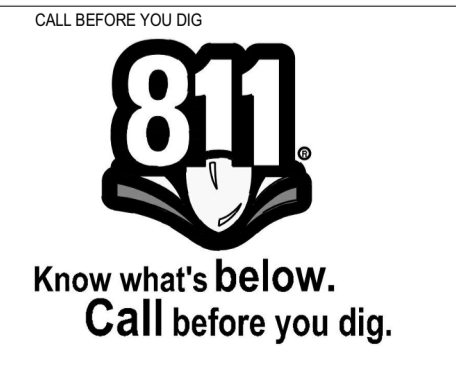


SECTION A - A (S-107)
SCALE: 1/2" = 1'-0"

- NOTES:
- SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

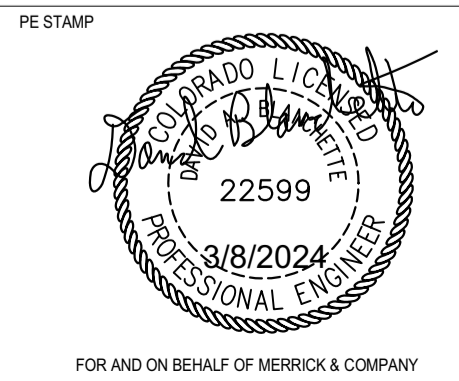


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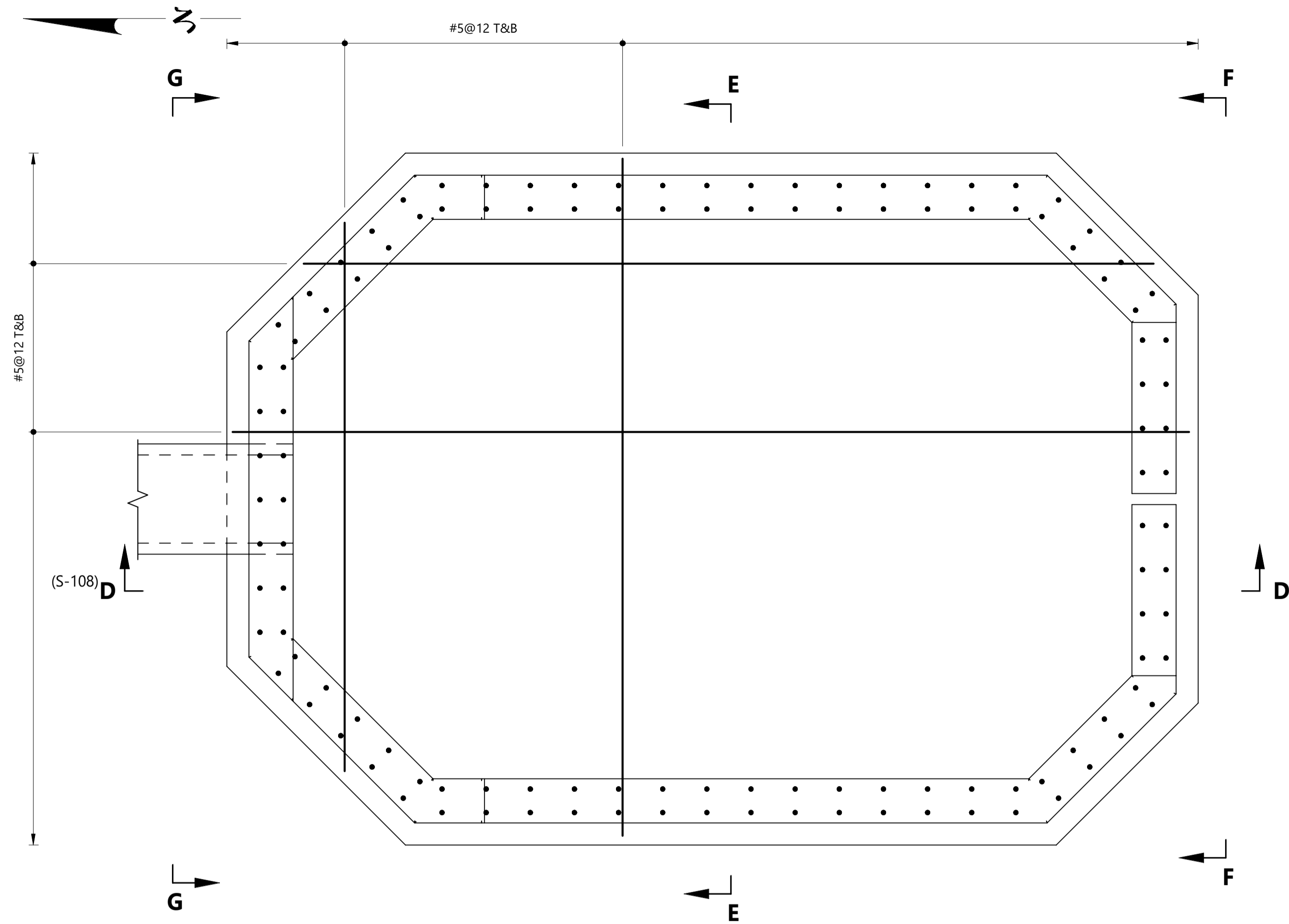
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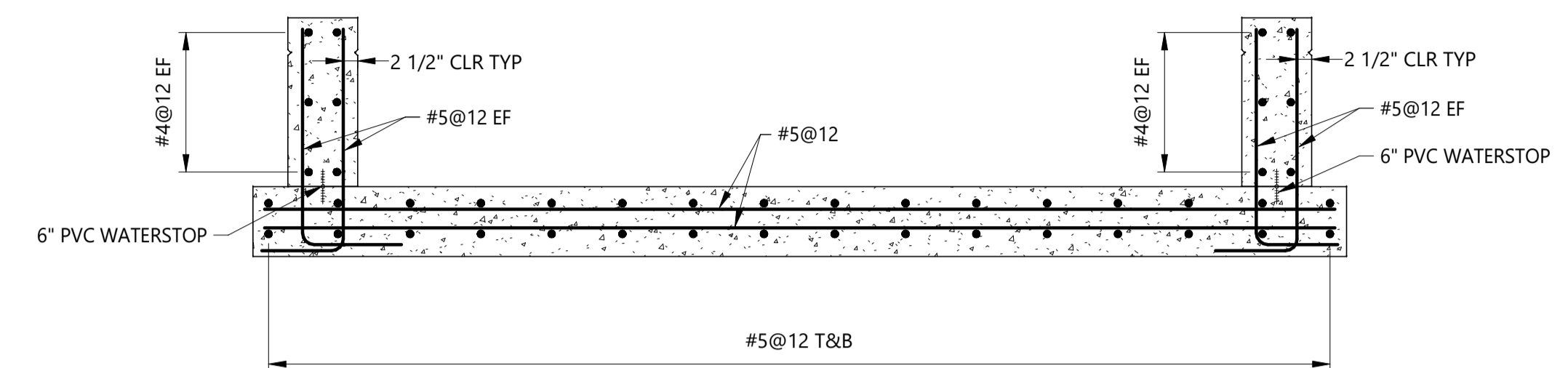
BARNES OUTFALL WATER QUALITY POND
SKY SOX FOREBAY
ISOMETRIC AND OUTLINE PLAN AND SECTIONS

JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-107**
 SHEET: 34 of 50

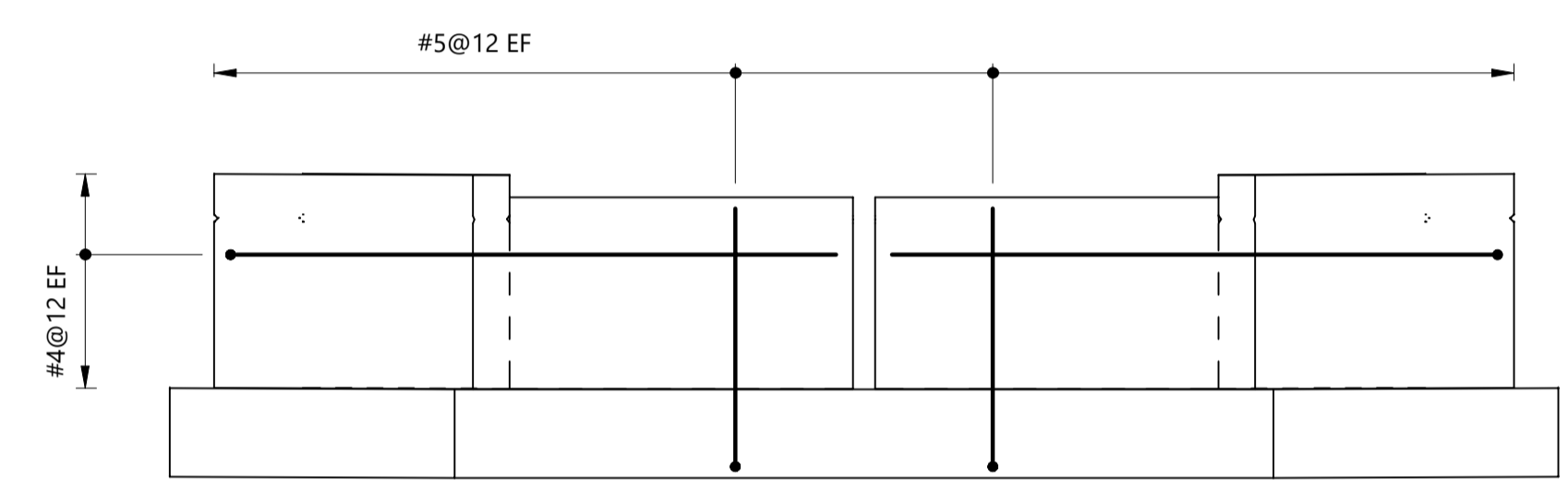
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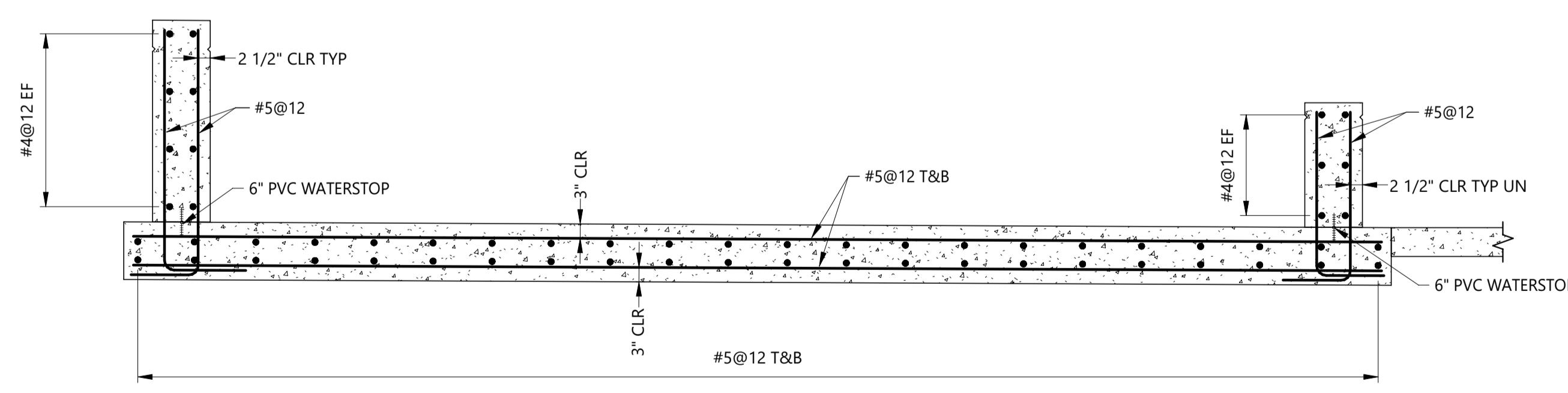
PLAN - REINFORCEMENT
SCALE: 1/2" = 1'-0"



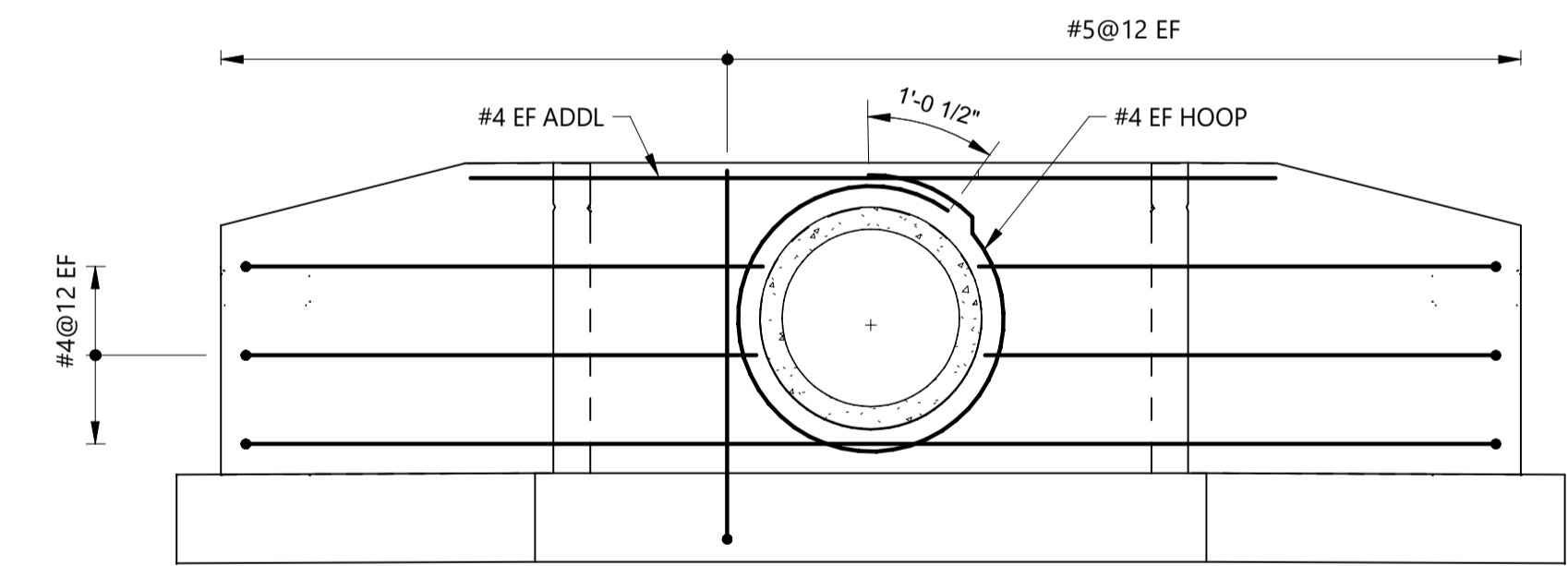
SECTION E - E (S-108)
SCALE: 1/2" = 1'-0"



SECTION F - F (S-108)
SCALE: 1/2" = 1'-0"



SECTION D - D (S-108)
SCALE: 1/2" = 1'-0"

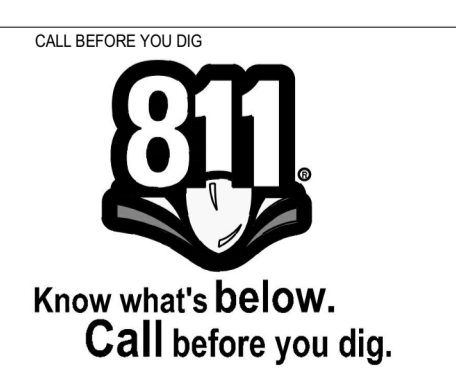


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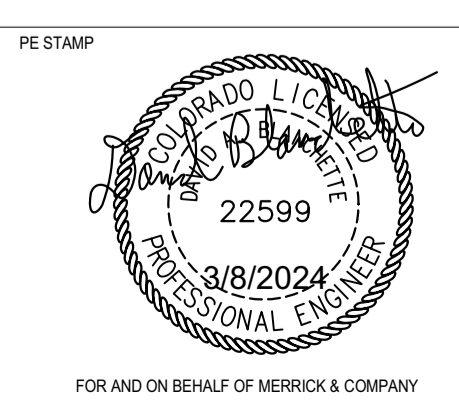
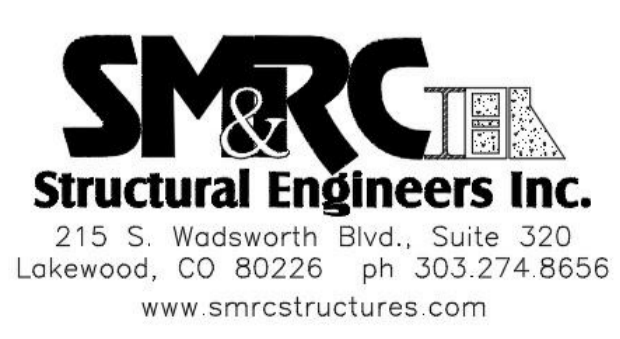
NOTES:

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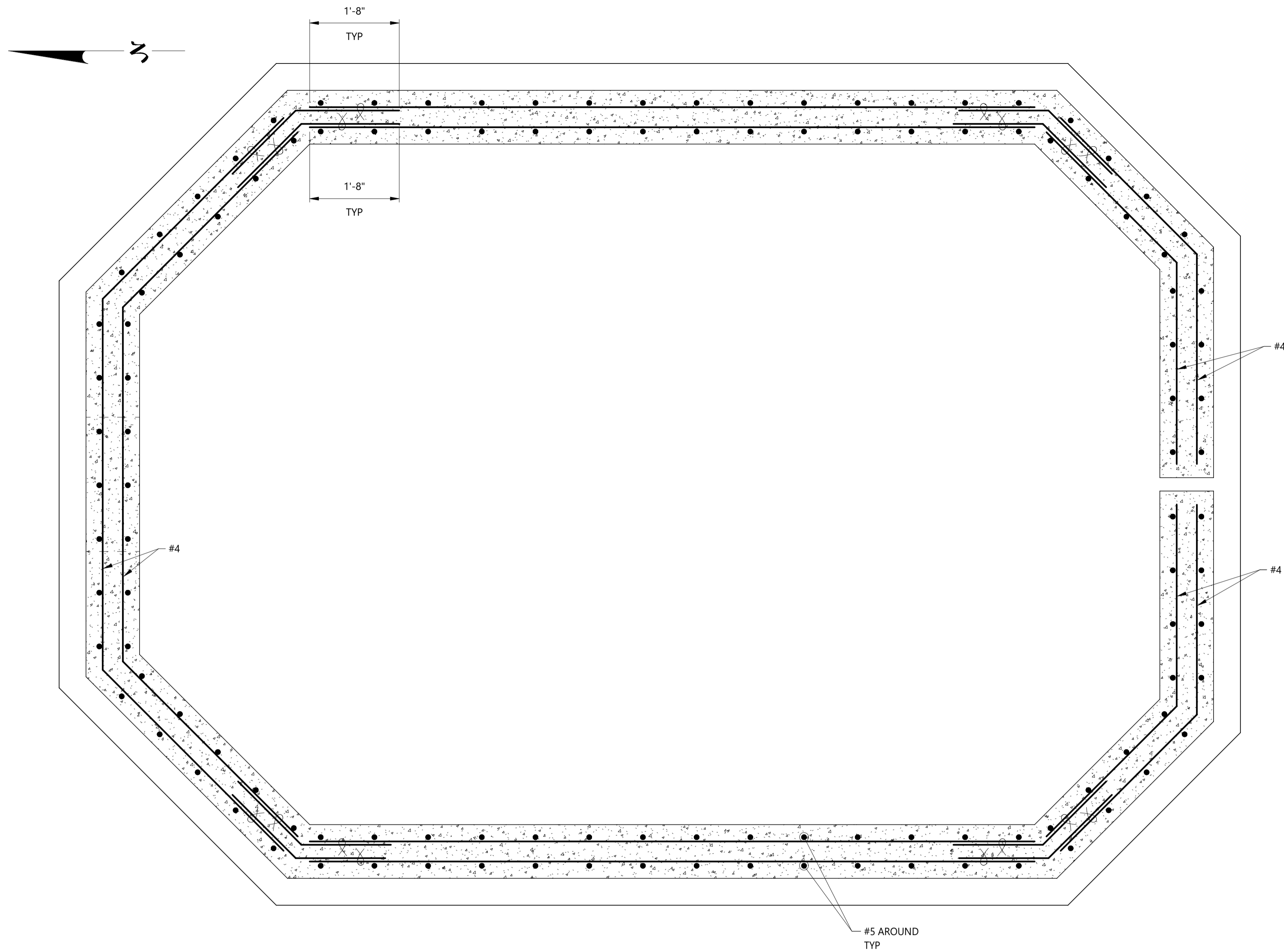
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TITLE
BARNES OUTFALL WATER QUALITY POND
SKY SOX FOREBAY
REINFORCEMENT PLAN AND SECTIONS

JOB NUMBER: 65421421
DATE: MARCH 8 2024
DRAWING NO.: **S-108**
SHEET: 35 of 50

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PLAN - WALL
SCALE: 3/4" = 1'-0"

NOTES:

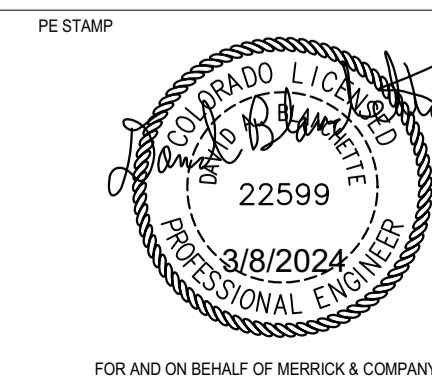
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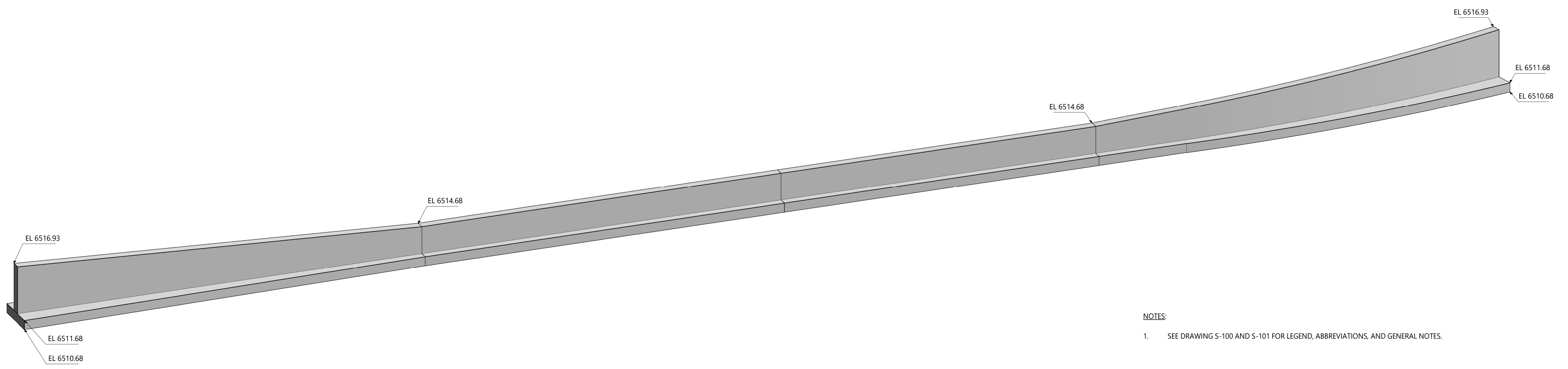
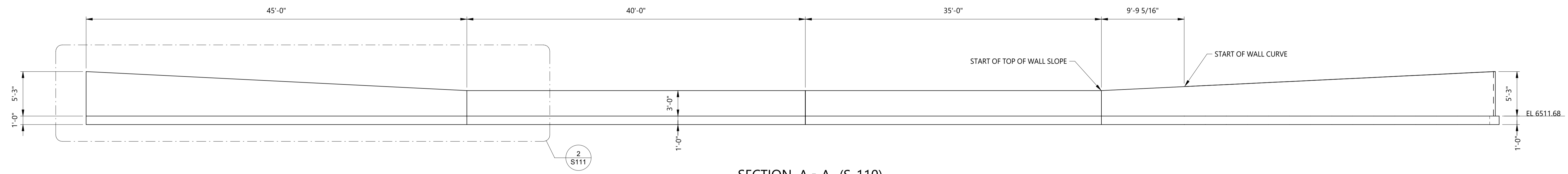
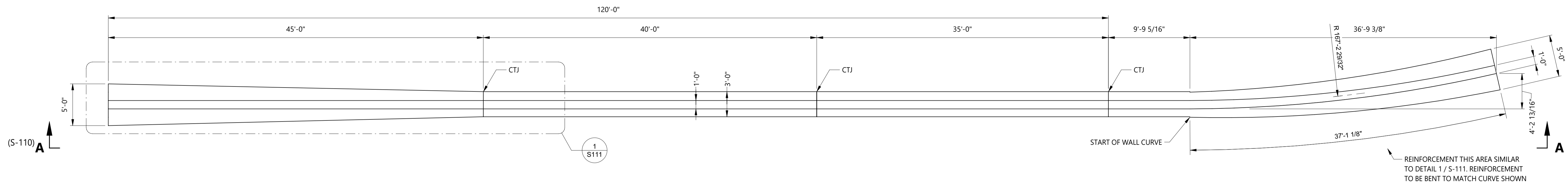


BARNES OUTFALL WATER QUALITY POND

SKY SOX FOREBAY
REINFORCEMENT PLAN

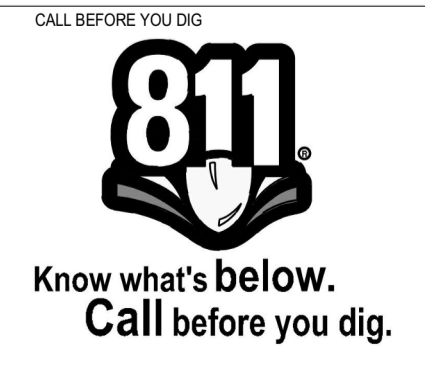
JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-109**
 SHEET: 36 of 50

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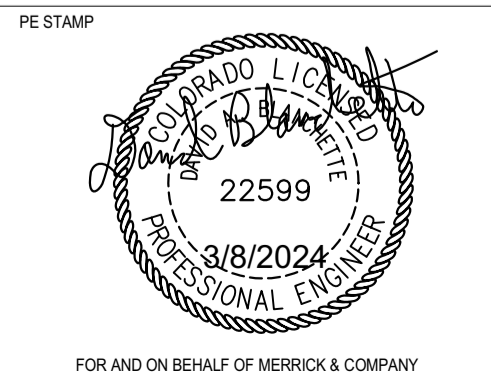
NOTES:
 1. SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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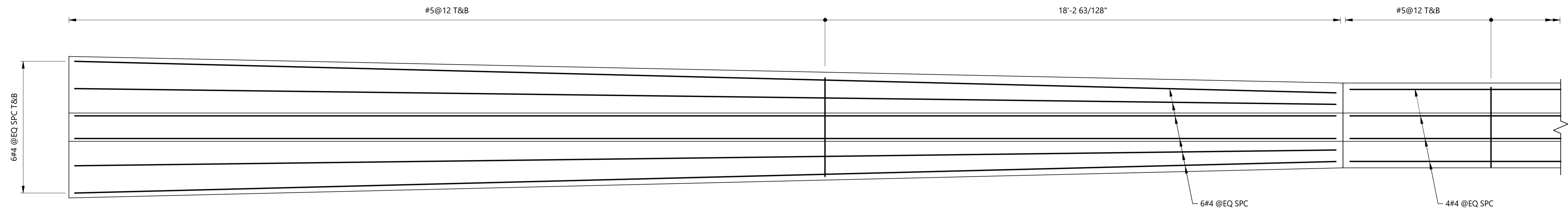
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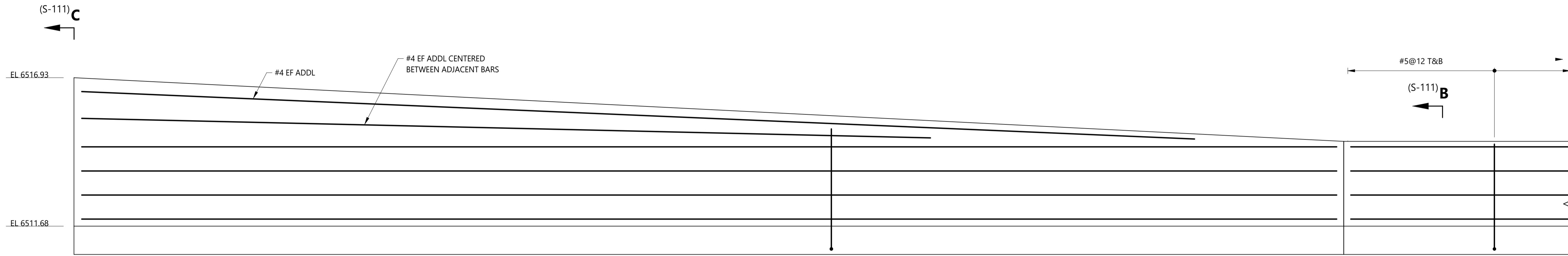
TITLE
BARNES OUTFALL WATER QUALITY POND
SPILLWAY
ISOMETRIC, OUTLINE PLAN, AND SECTION

JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-110**
 SHEET: 37 of 50

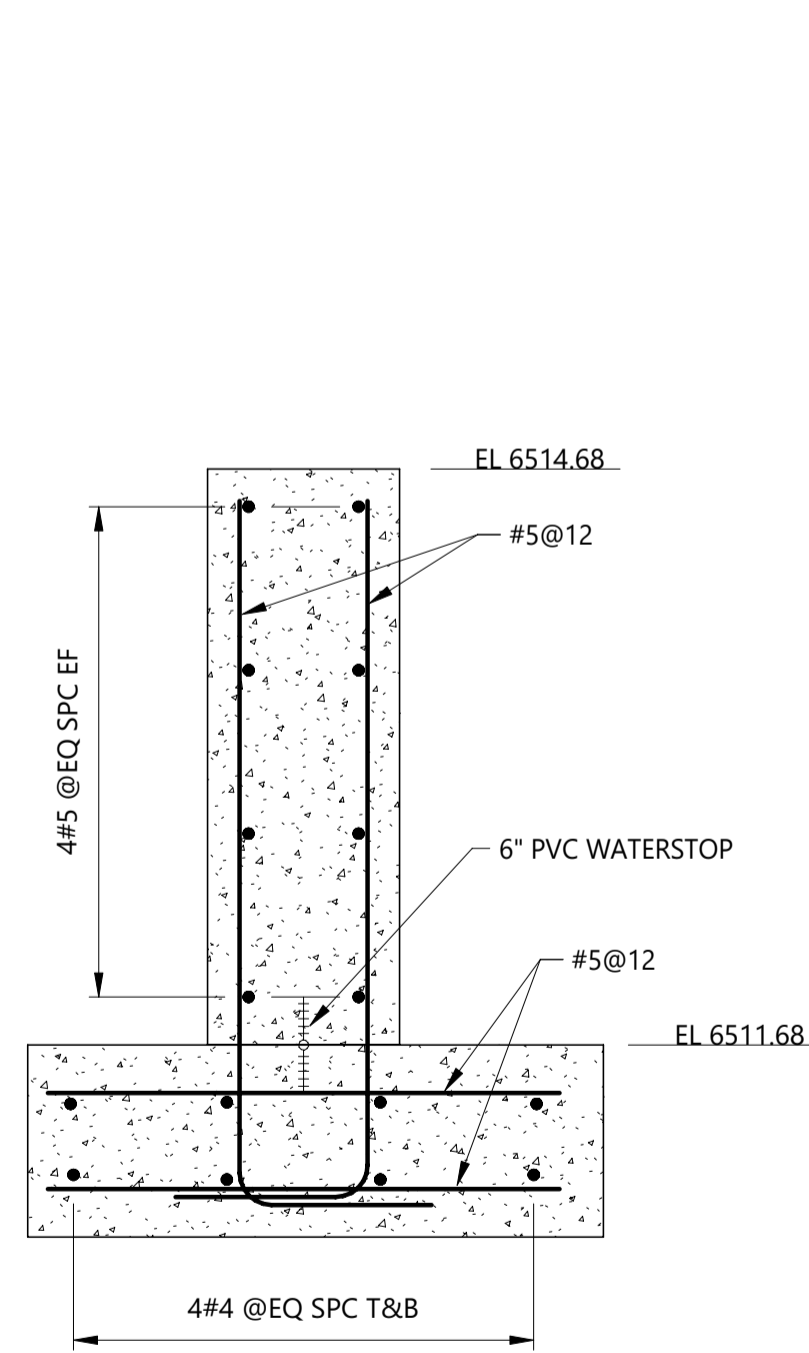
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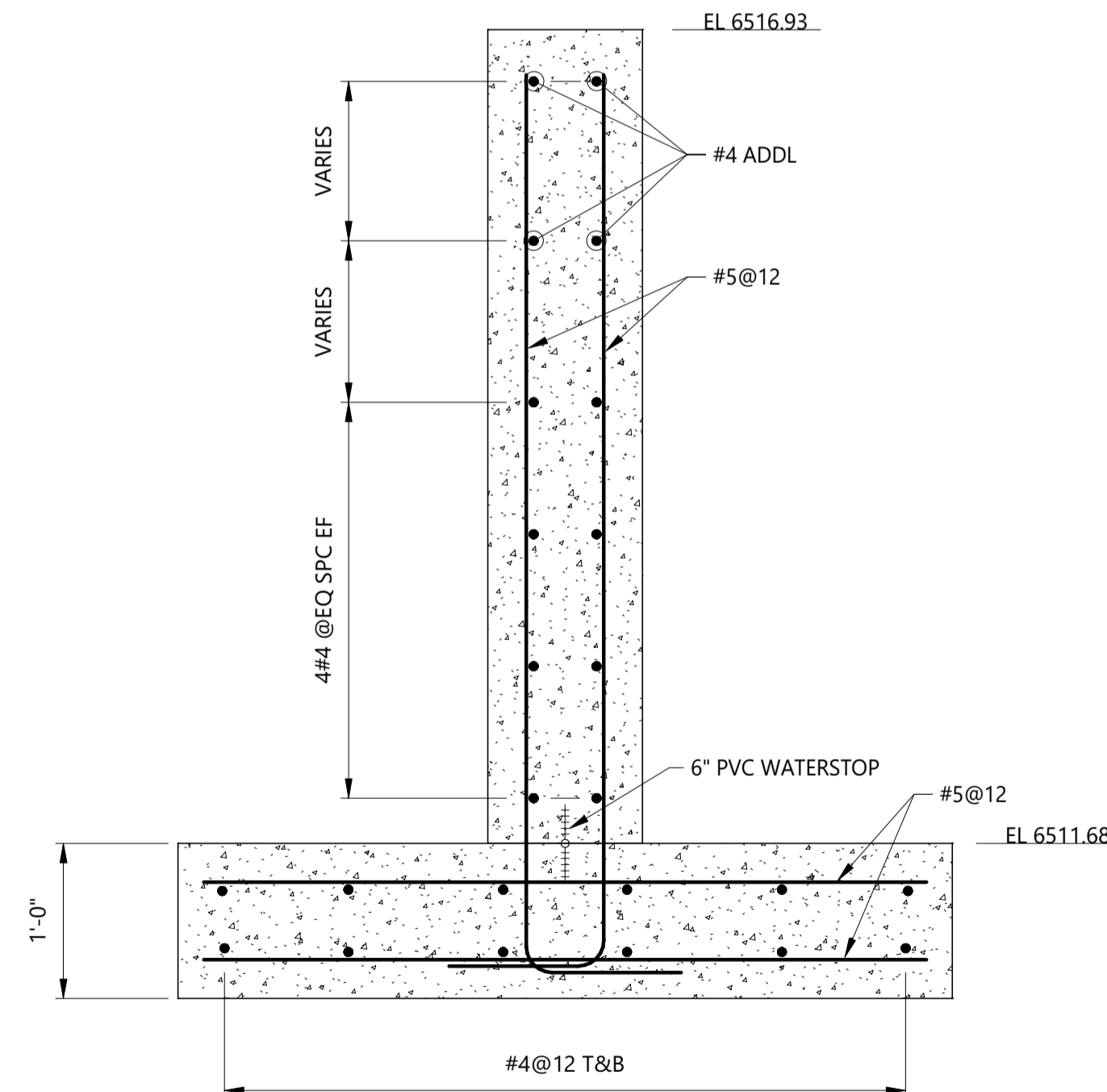
DETAIL 1 (S-10)
SCALE: 1/2" = 1'-0"



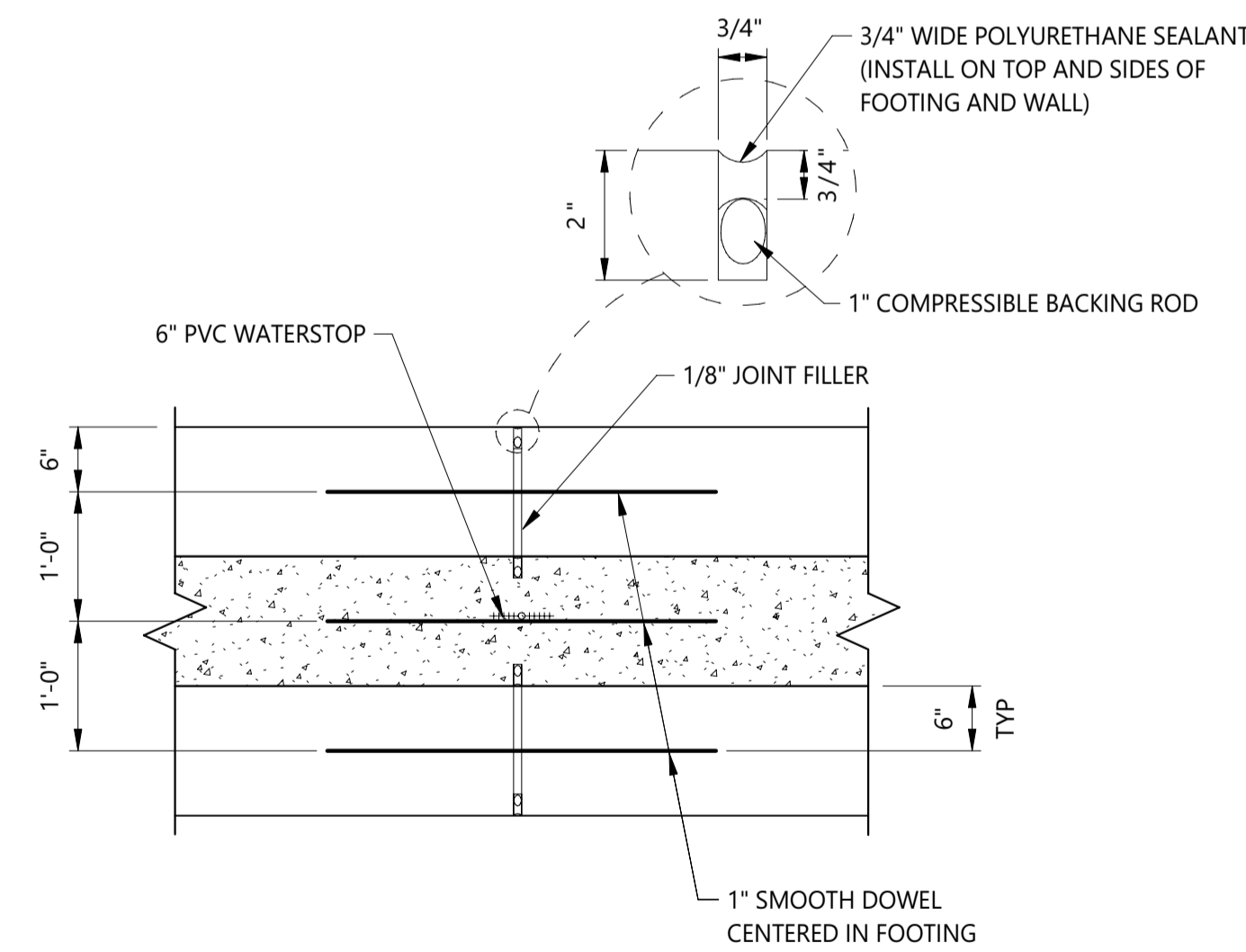
DETAIL 2 (S-10)
SCALE: 1/2" = 1'-0"



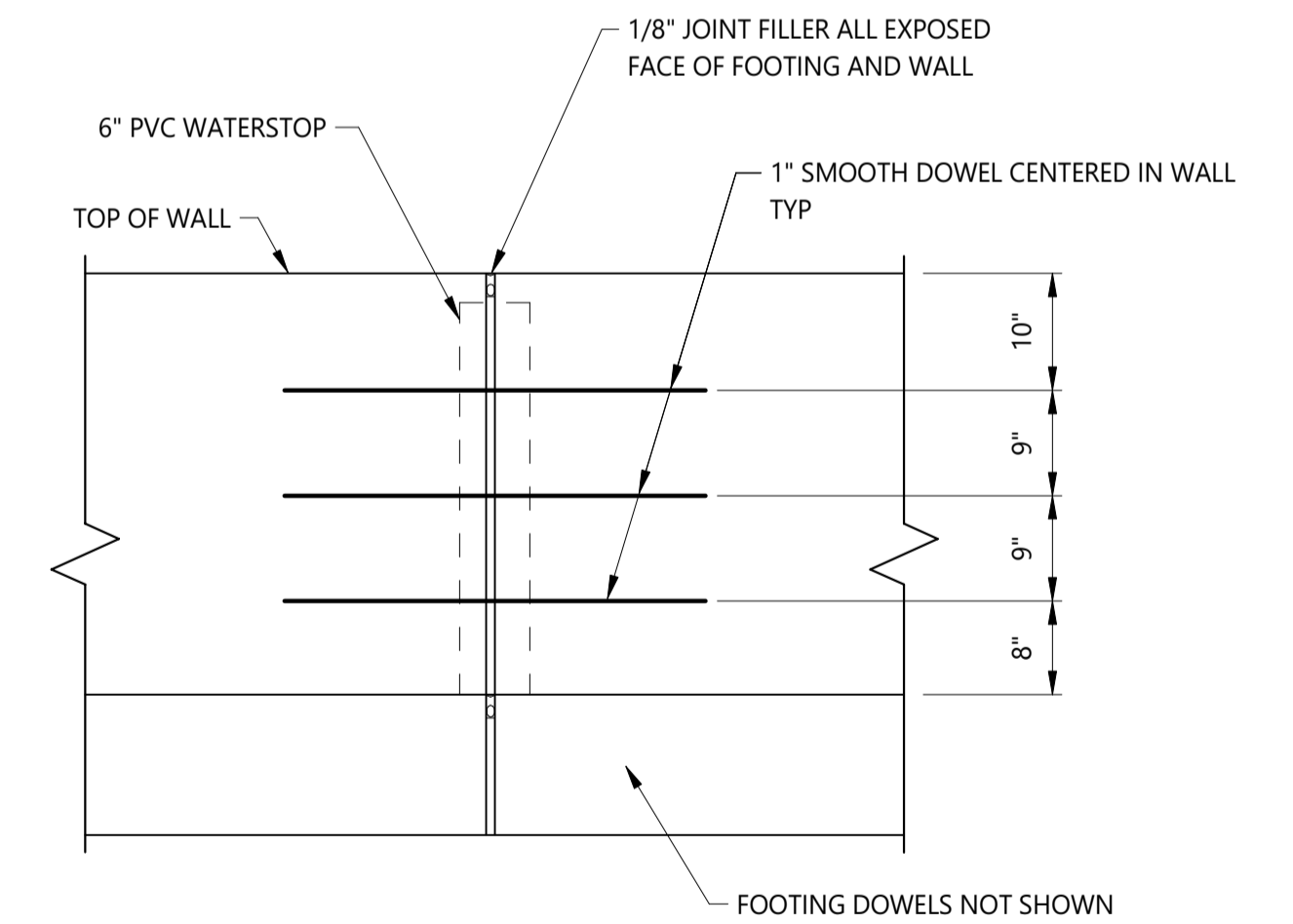
SECTION B - B (S-111)
SCALE: 1" = 1'-0"



SECTION C - C (S-111)
SCALE: 1" = 1'-0"



PLAN - CONTRACTION JOINT
SCALE: 3/4" = 1'-0"



ELEVATION - CONTRACTION JOINT
SCALE: 3/4" = 1'-0"

NOTES:

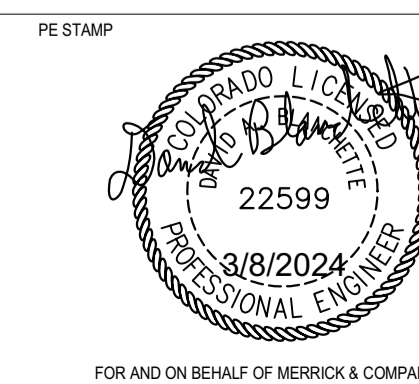
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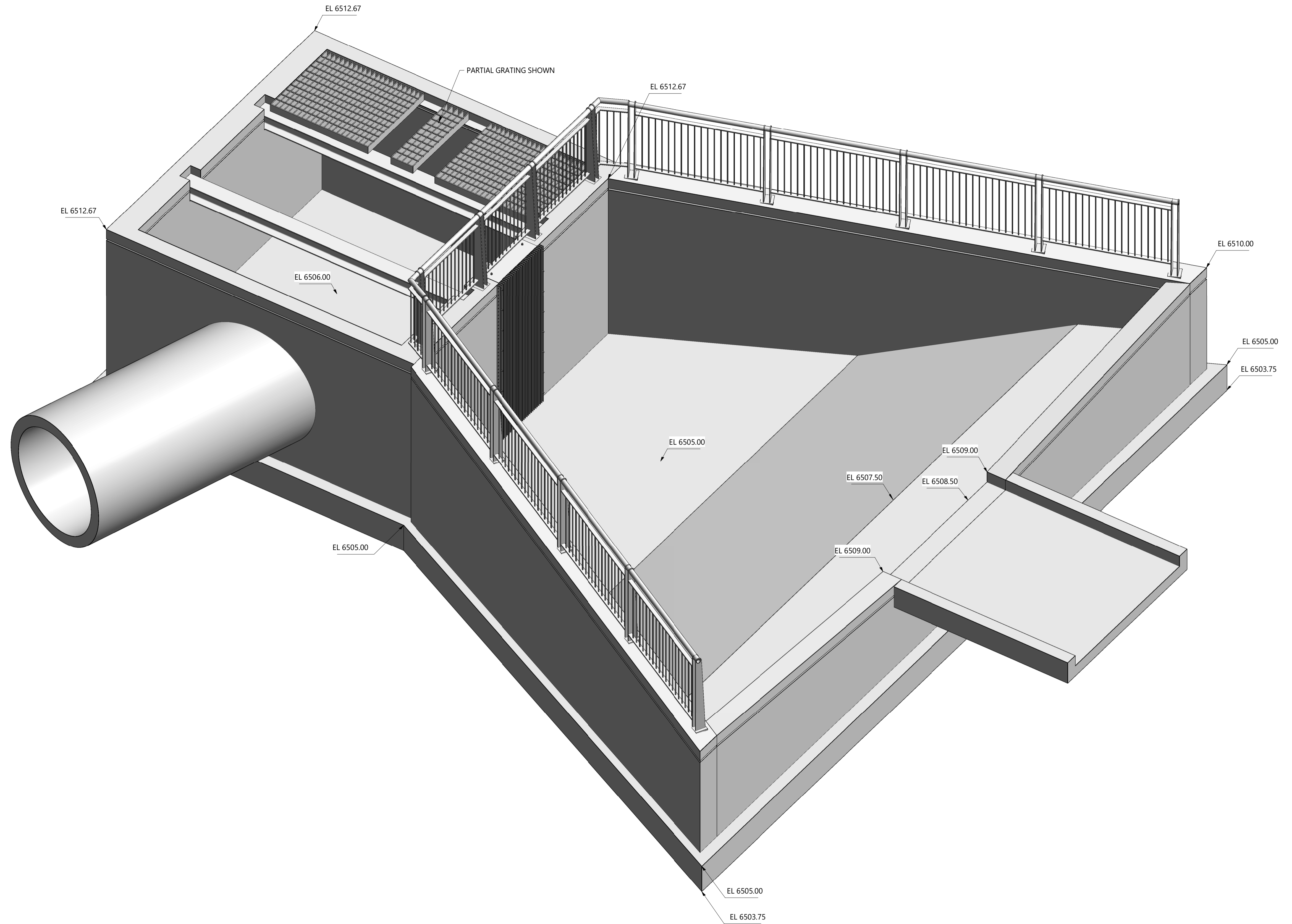


BARNES OUTFALL WATER QUALITY POND

SPILLWAY
 REINFORCEMENT SECTIONS AND DETAILS

JOB NUMBER	65421421
DATE	MARCH 8 2024
DRAWING NO.	S-111
SHEET	38 of 50

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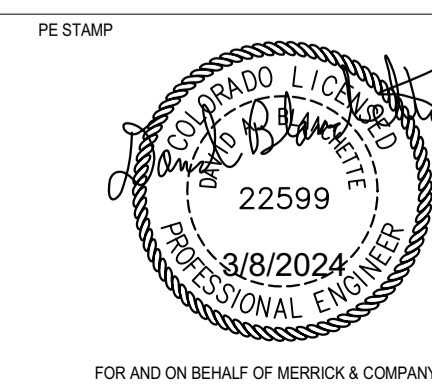
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REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR



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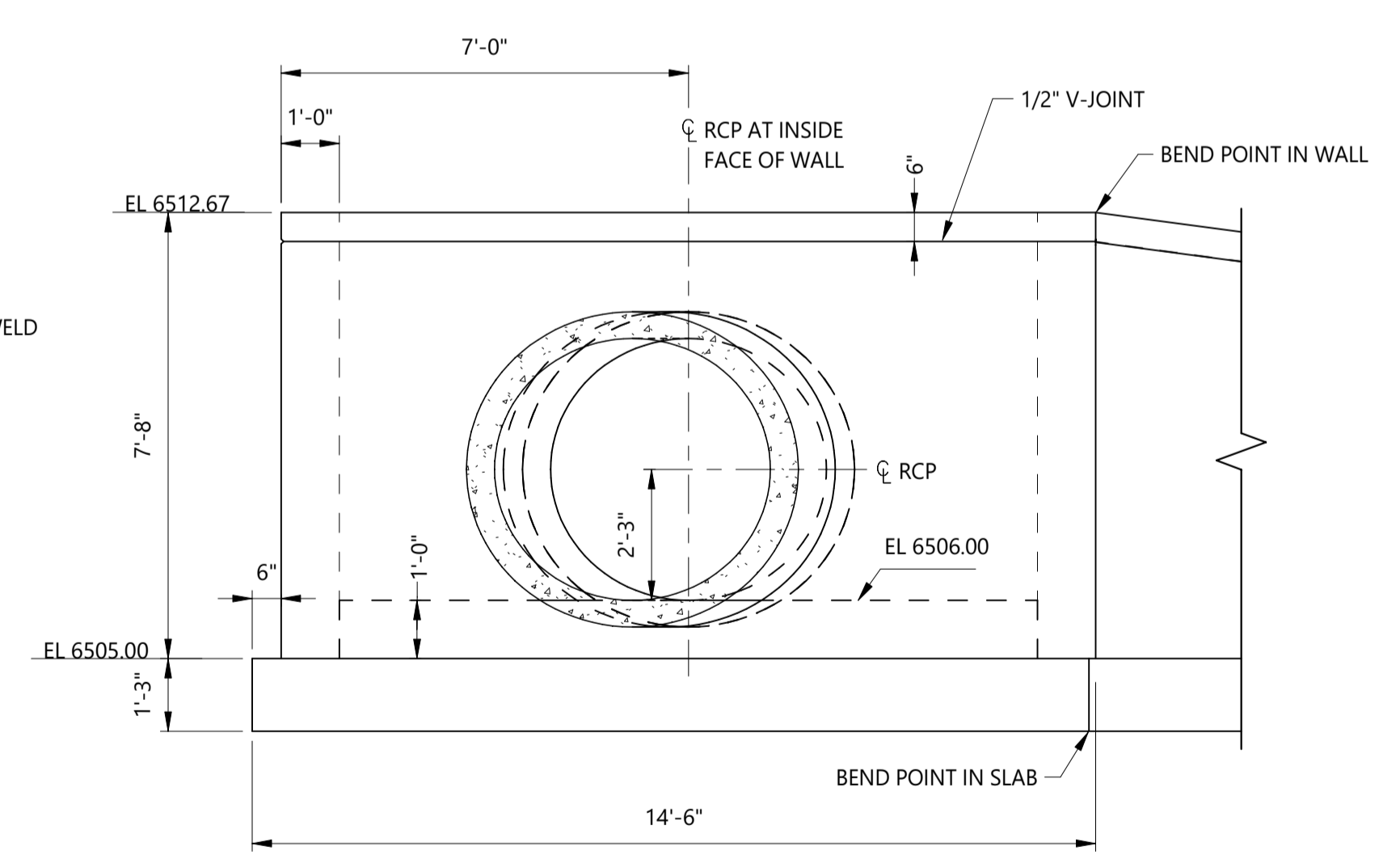
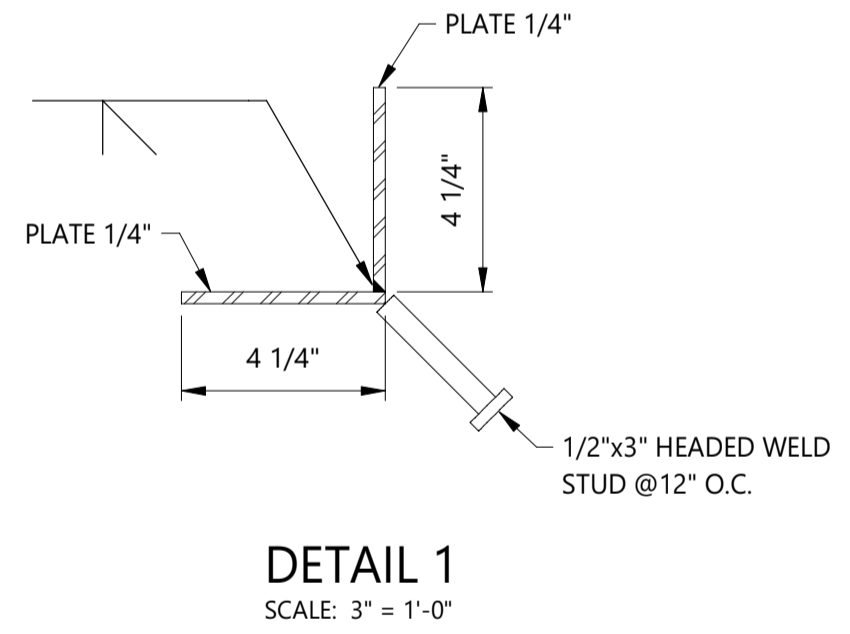
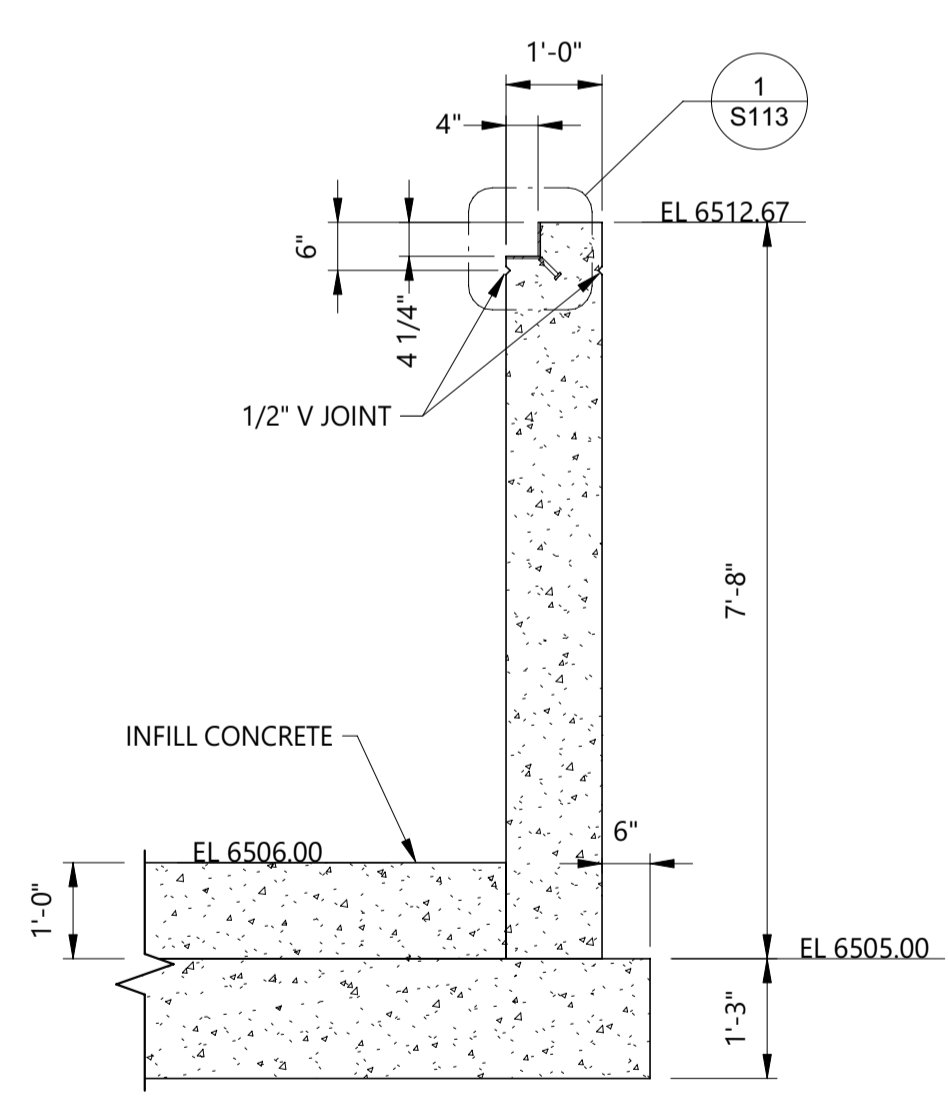
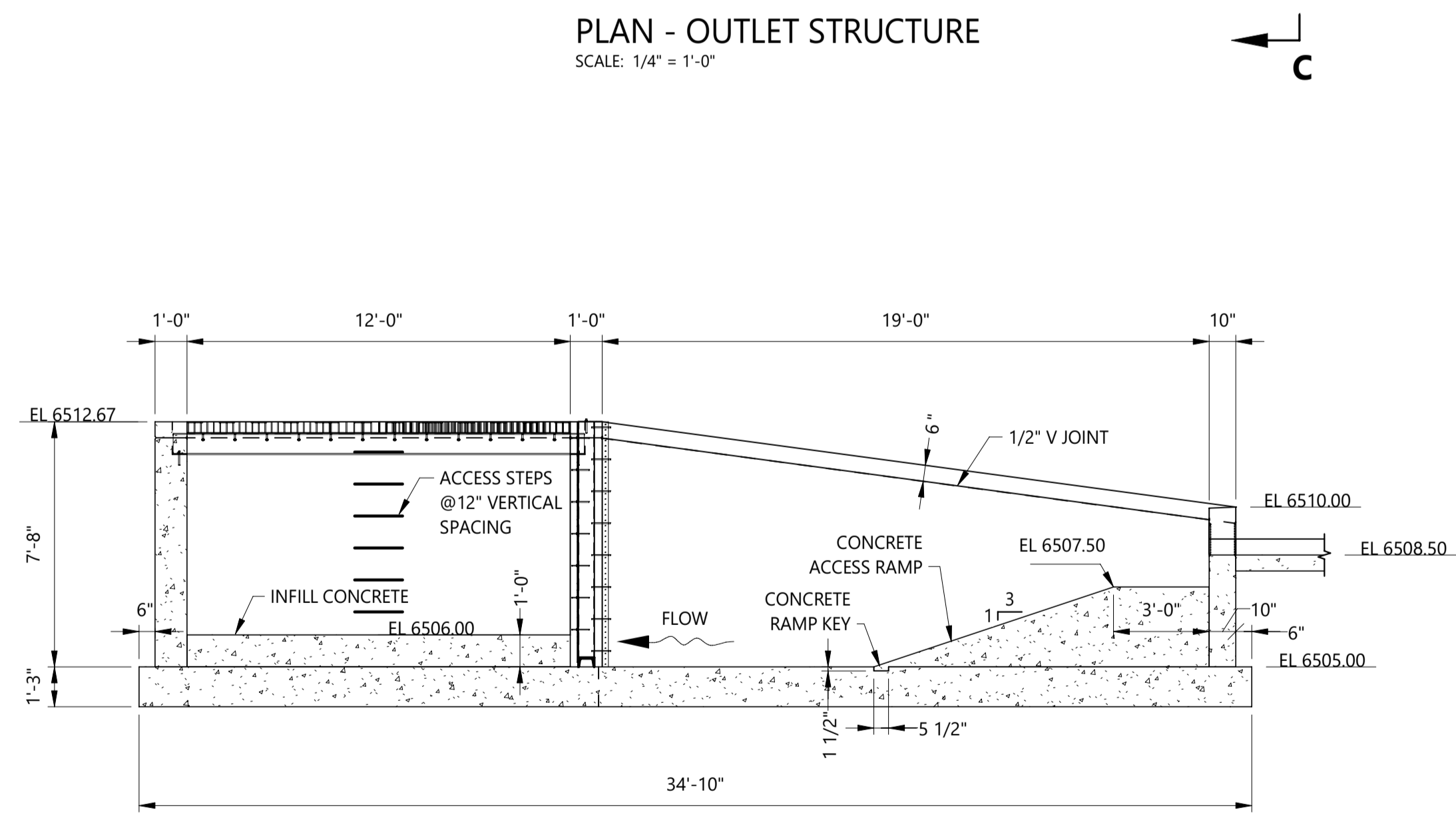
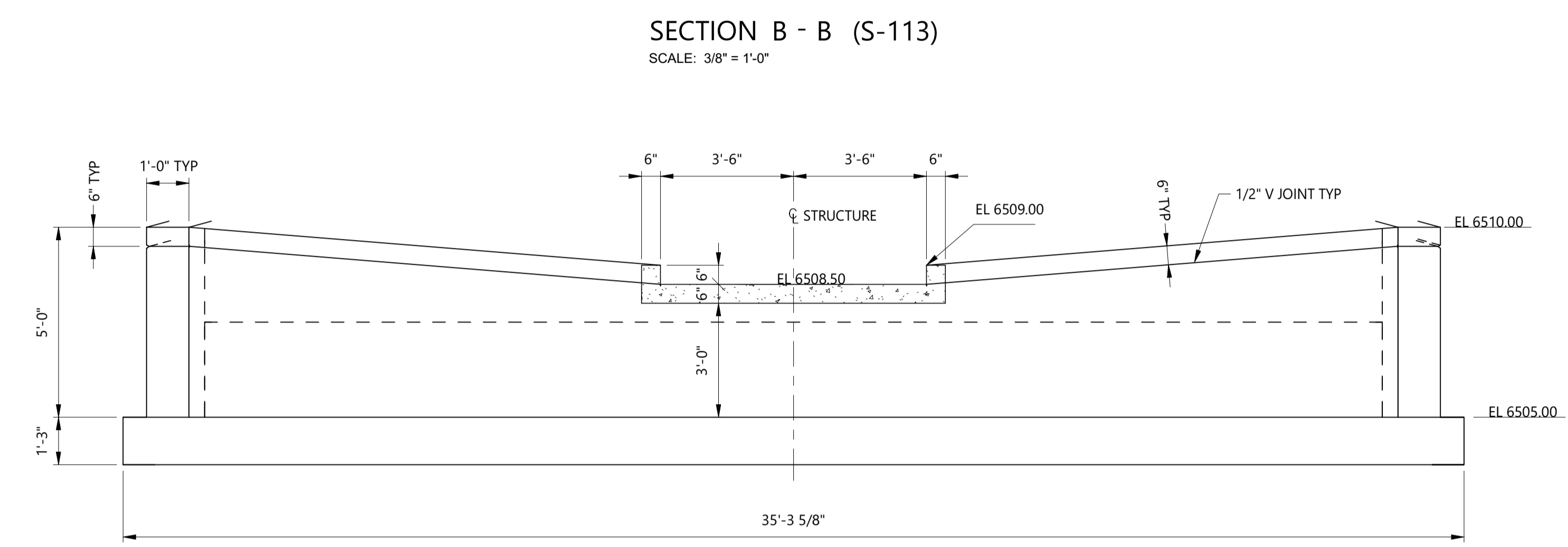
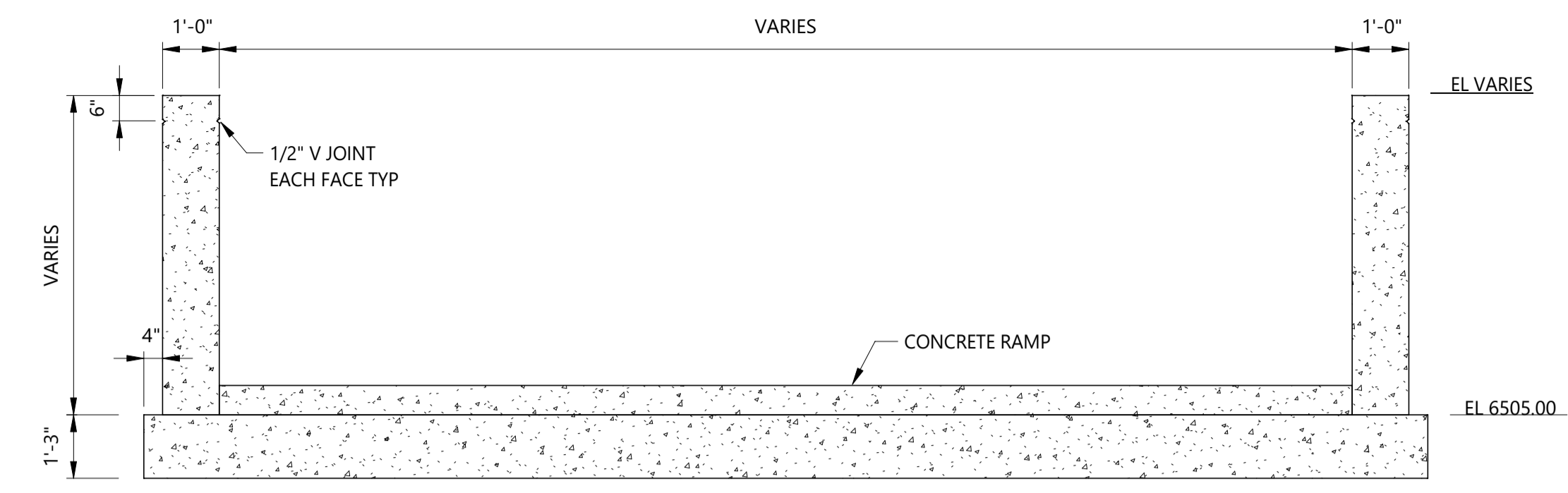
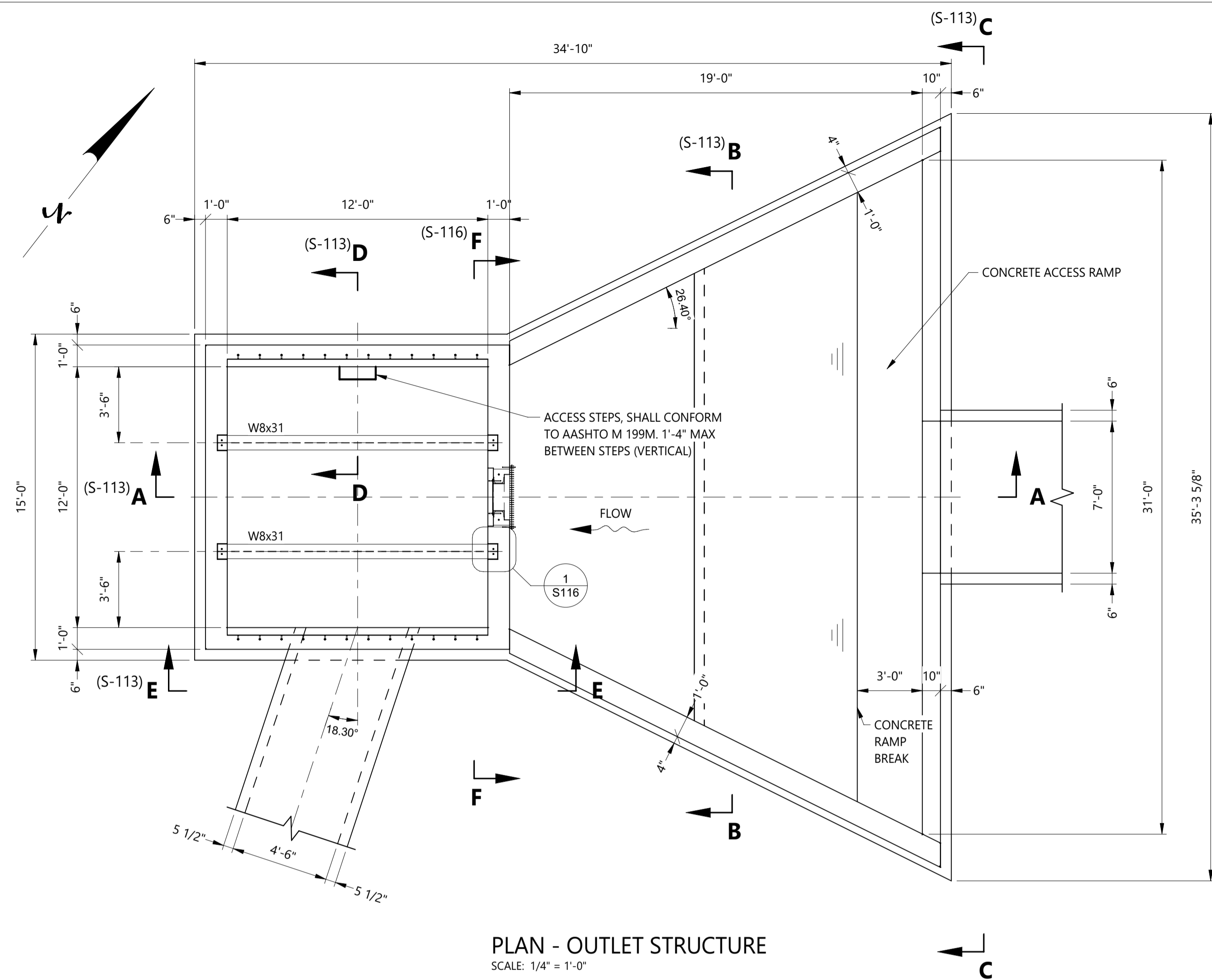


BARNES OUTFALL WATER QUALITY POND

OUTLET STRUCTURE
ISOMETRIC

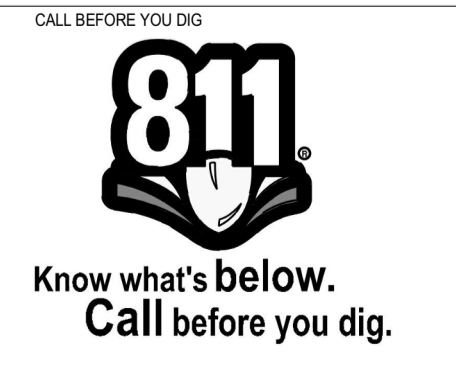
JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-112**
 SHEET: 39 of 50

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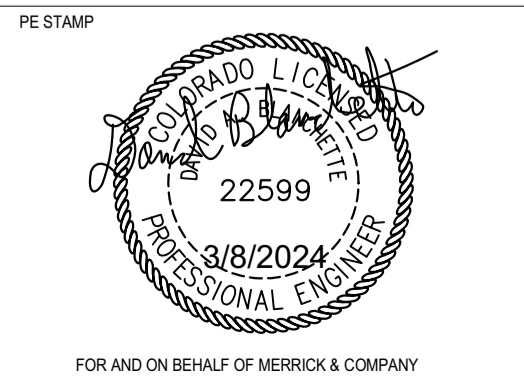
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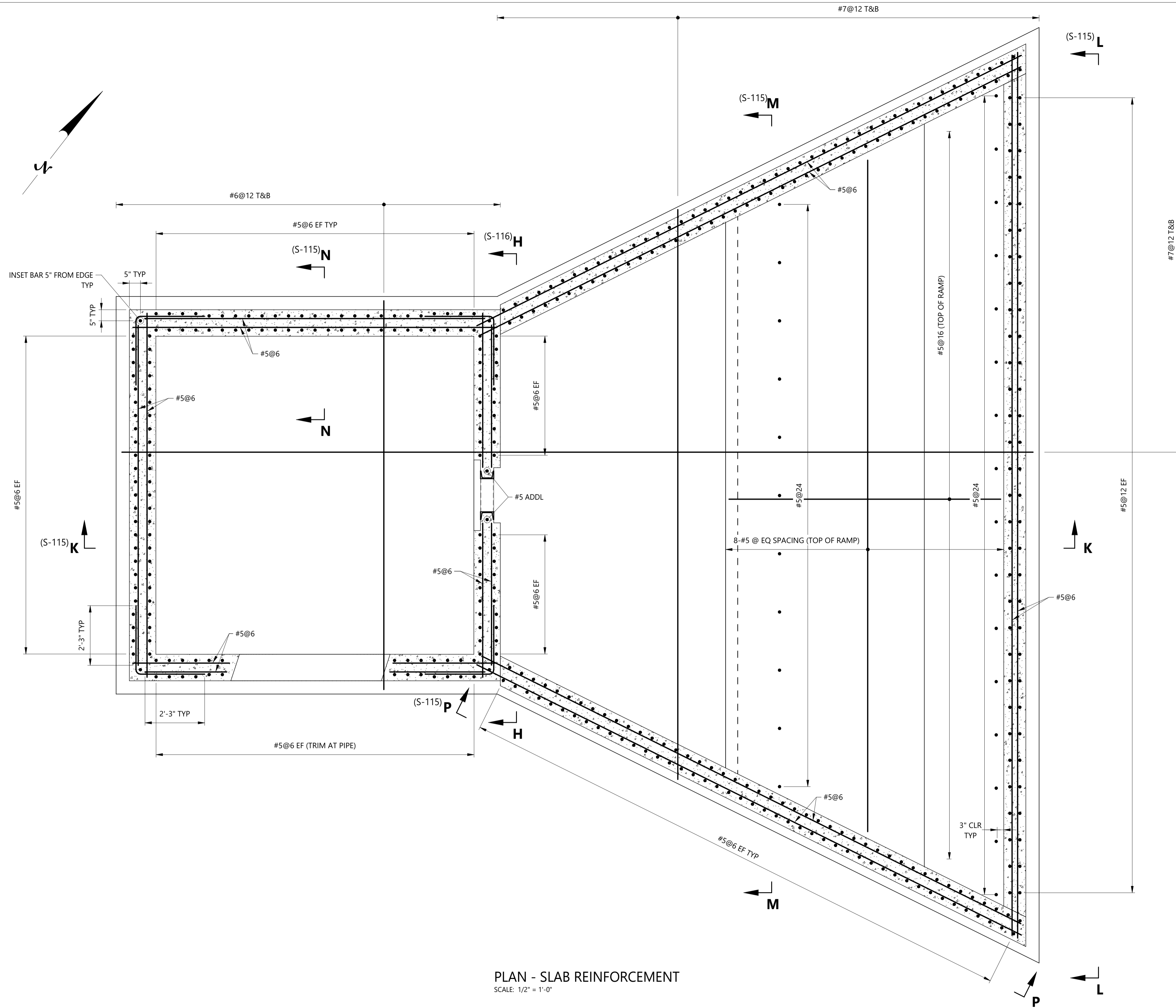
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TITLE
BARNES OUTFALL WATER QUALITY POND
OUTLET STRUCTURE
OUTLINE PLAN AND SECTIONS

JOB NUMBER 65421421
DATE MARCH 8 2024
DRAWING NO. **S-113**
SHEET 40 of 50

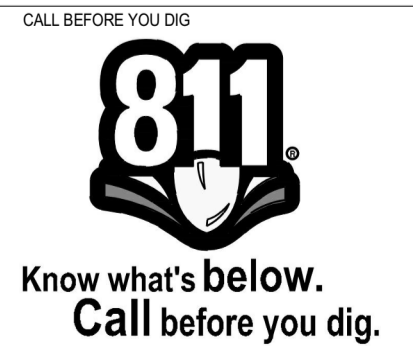
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PLAN - SLAB REINFORCEMENT
SCALE: 1/2" = 1'-0"

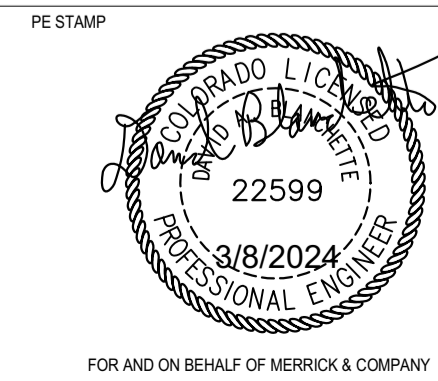
- NOTES:
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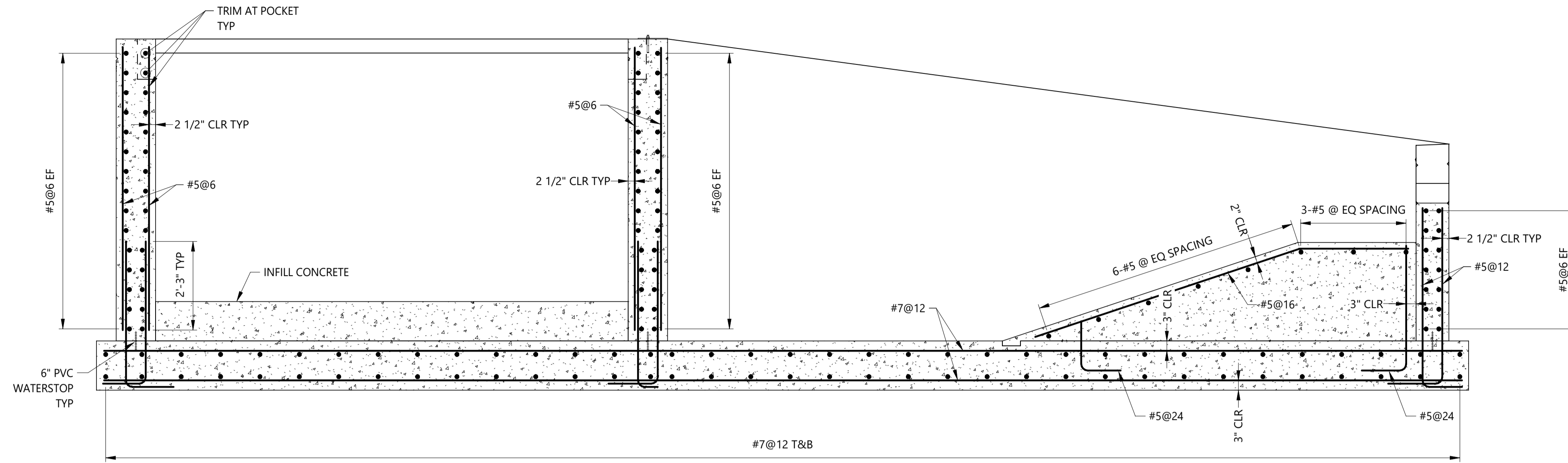


BARNES OUTFALL WATER QUALITY POND

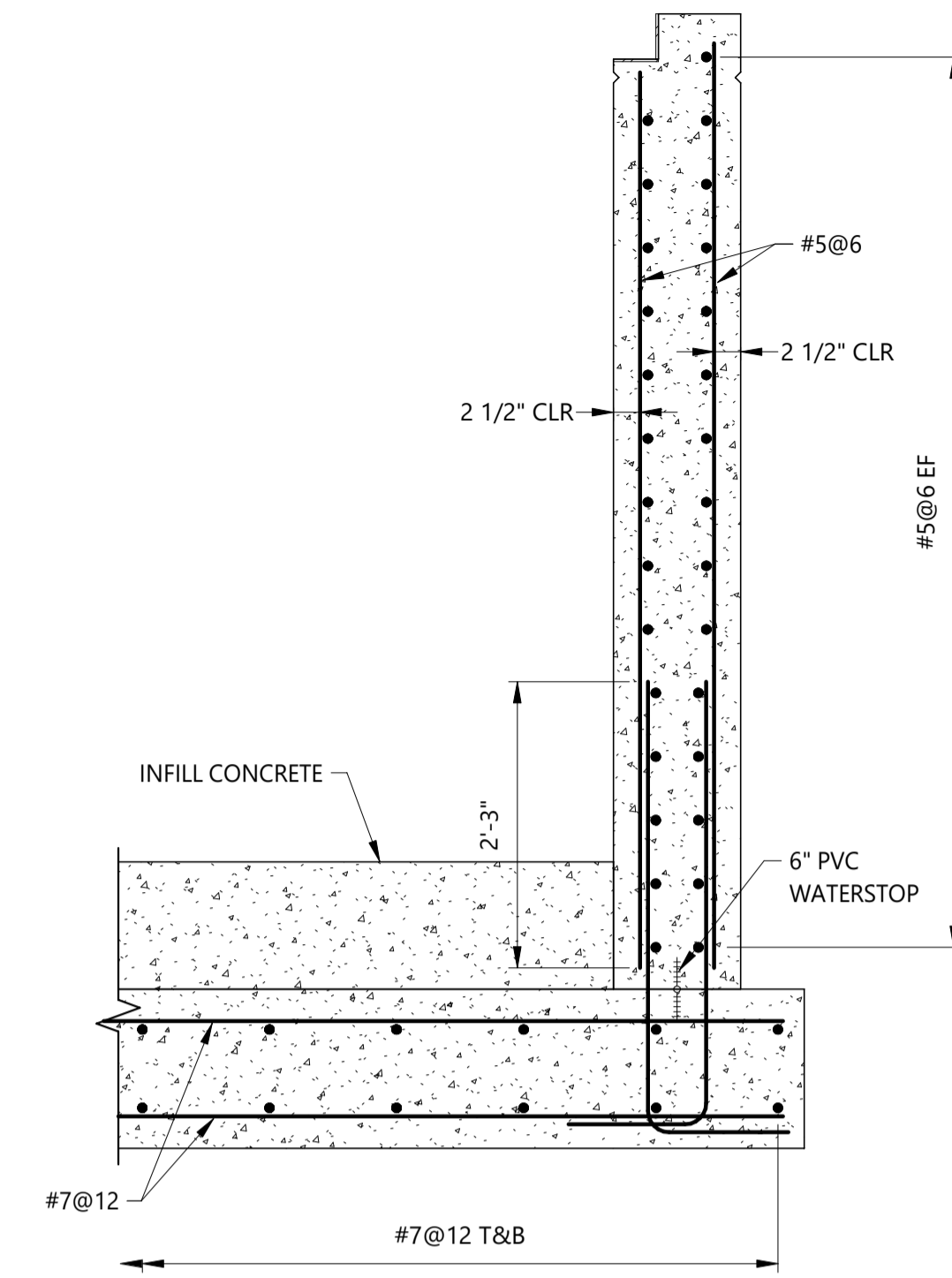
OUTLET STRUCTURE
REINFORCEMENT PLAN

JOB NUMBER: 65421421
DATE: MARCH 8 2024
DRAWING NO.: S-114
SHEET: 41 of 50

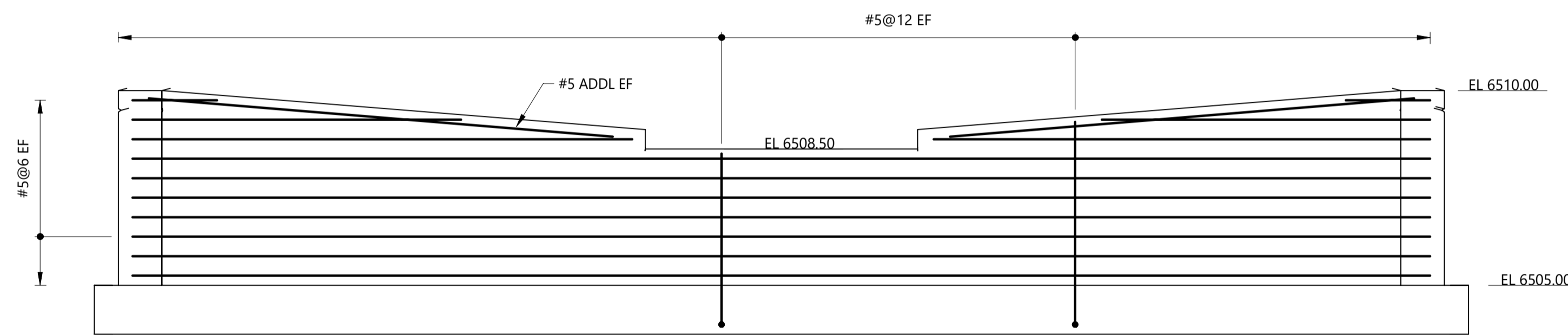
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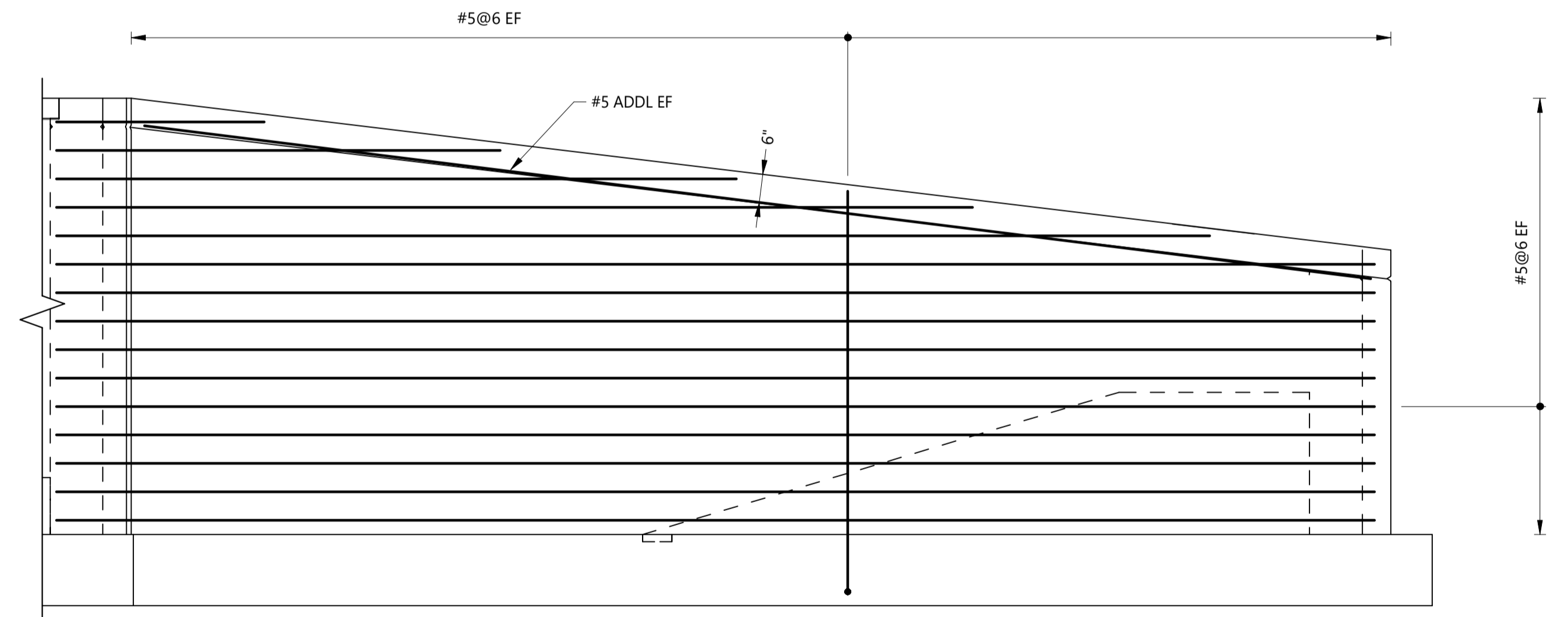
SECTION K - K (S-114)
SCALE: 1/2" = 1'-0"



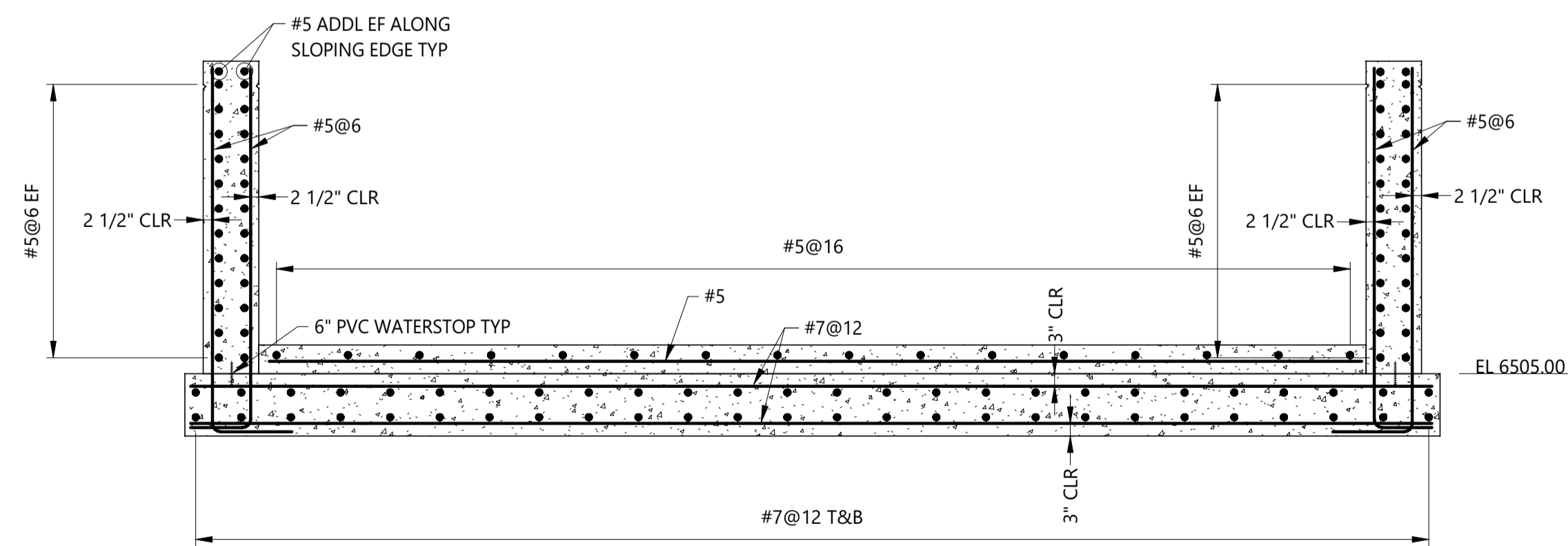
SECTION N - N (S-114)
SCALE: 3/4" = 1'-0"



SECTION L - L (S-114)
SCALE: 3/8" = 1'-0"



SECTION P - P (S-114)
SCALE: 1/2" = 1'-0"



SECTION M - M (S-114)
SCALE: 3/8" = 1'-0"

NOTES:

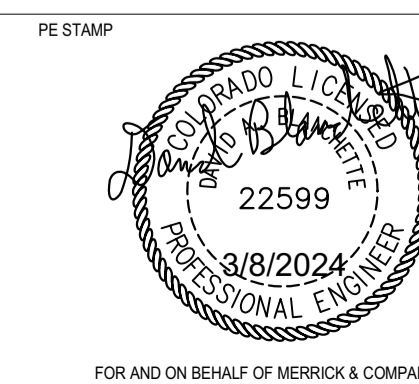
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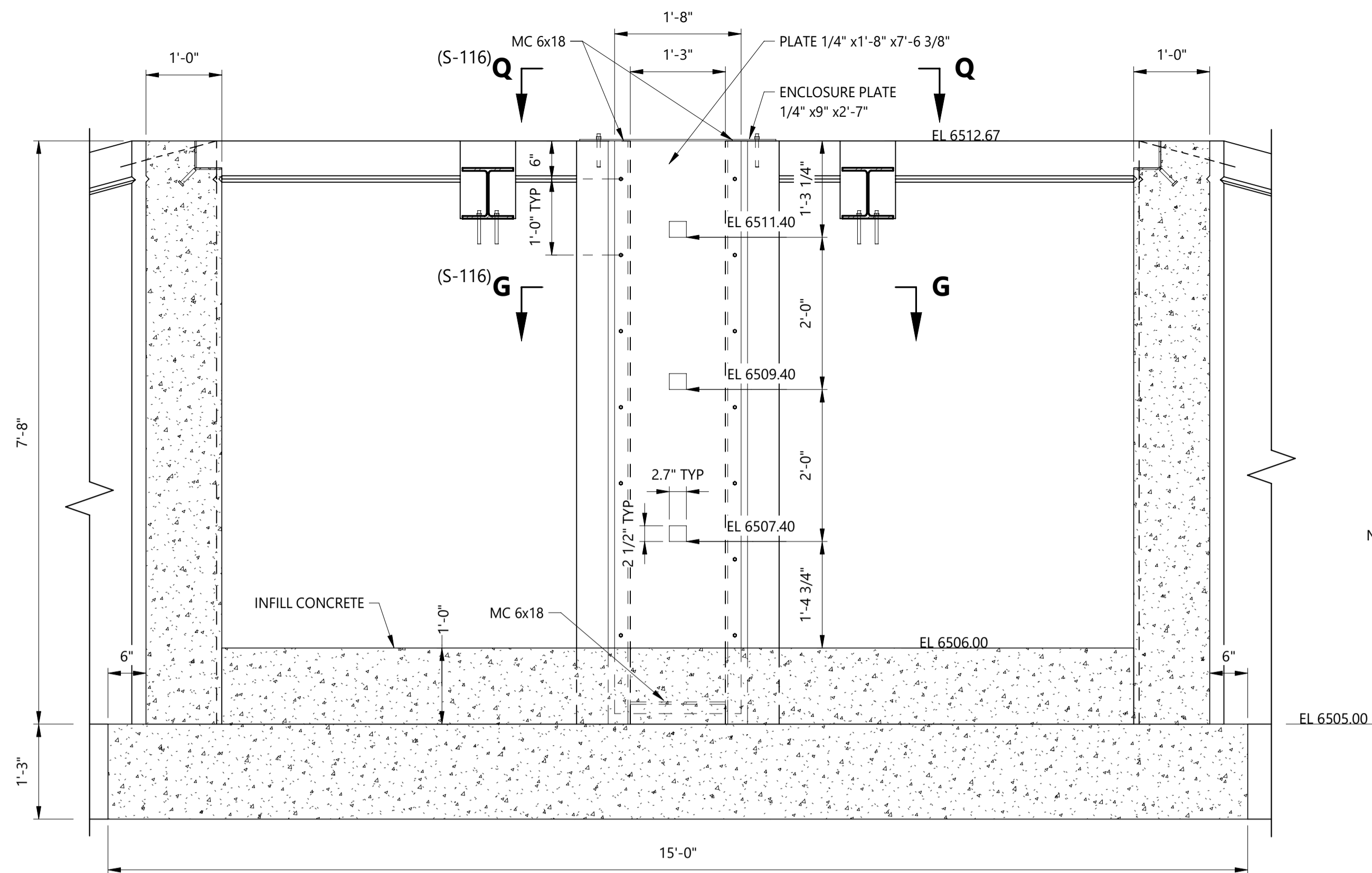
TITLE

BARNES OUTFALL WATER QUALITY POND

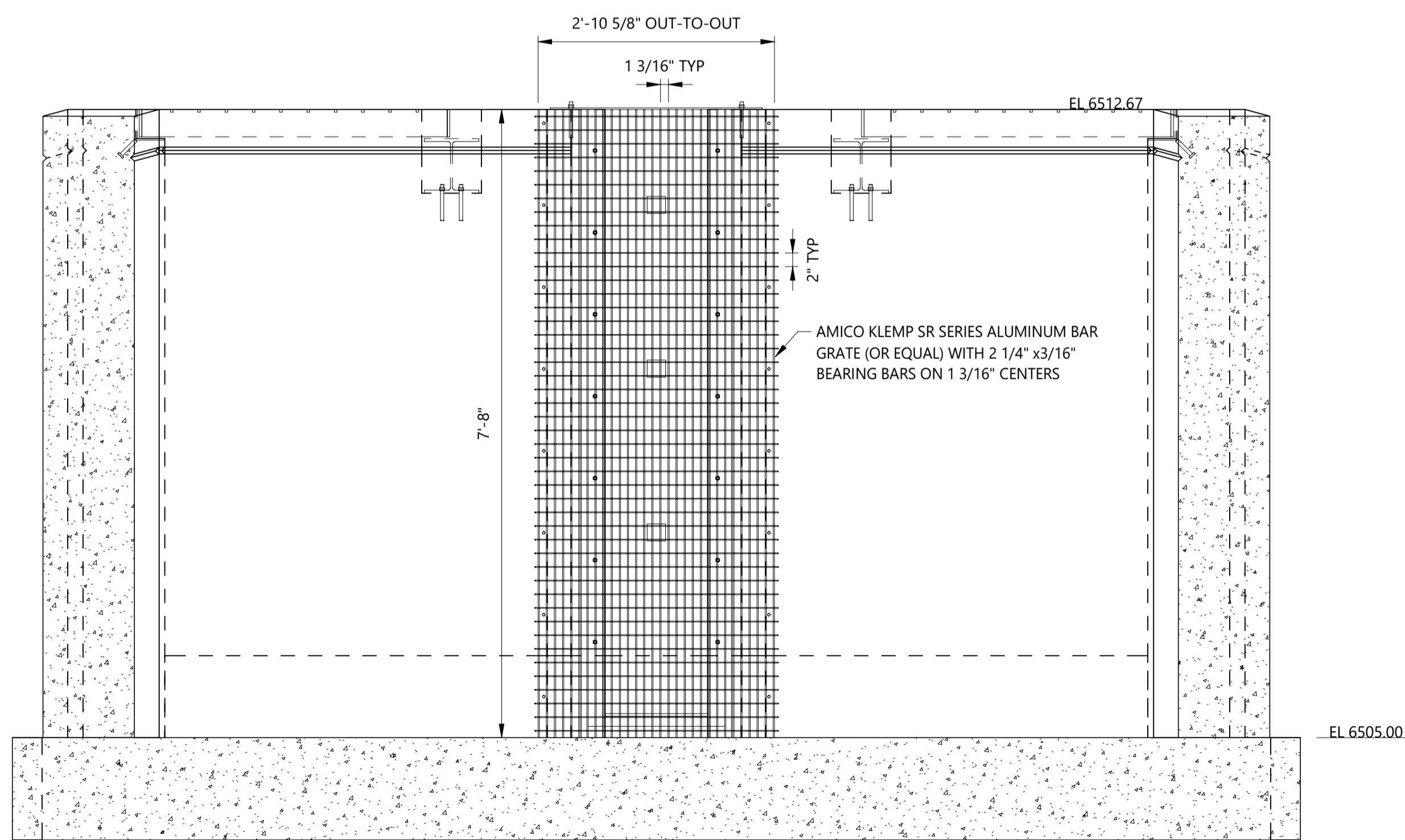
OUTLET STRUCTURE
REINFORCEMENT SECTIONS

JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-115**
 SHEET: 42 of 50

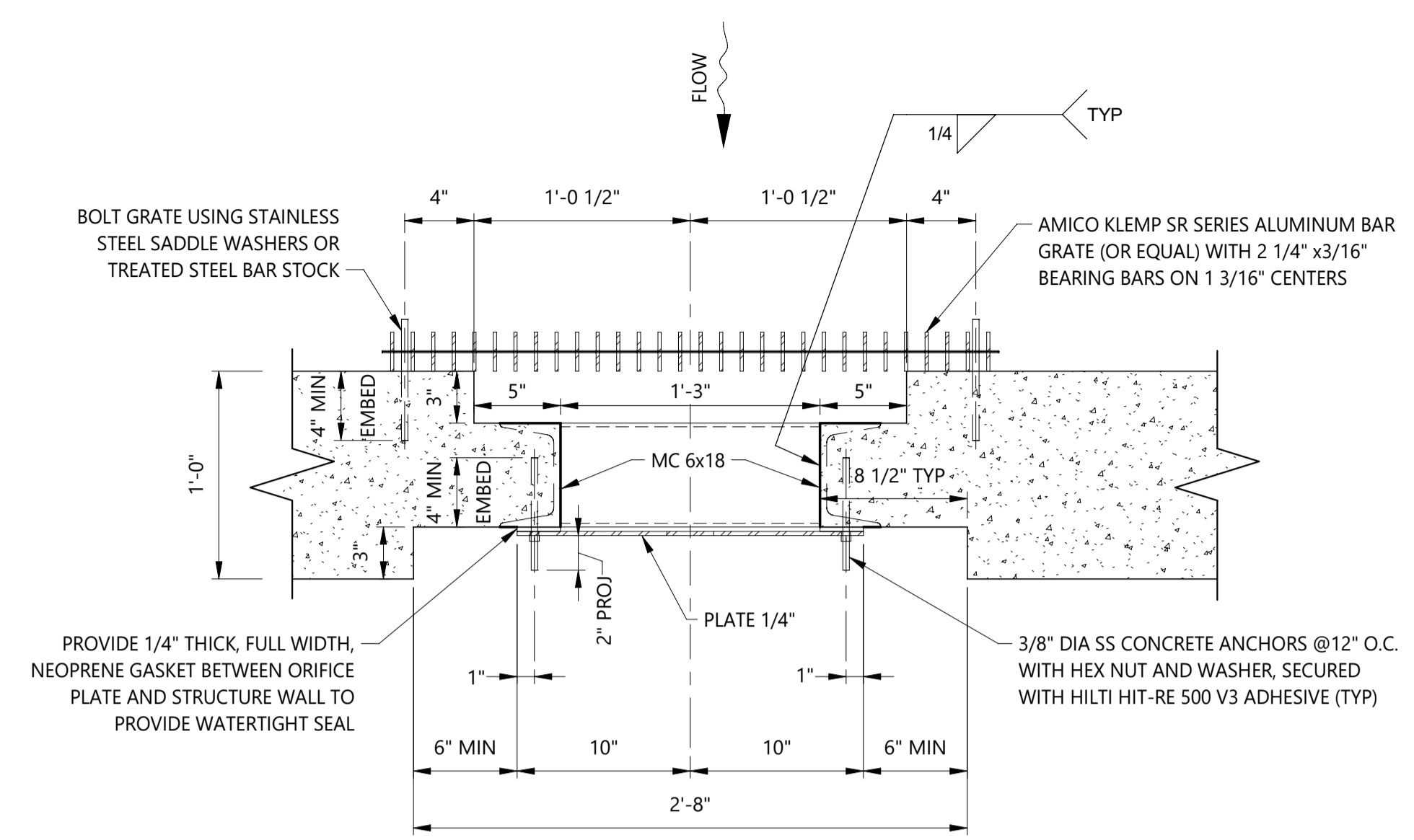
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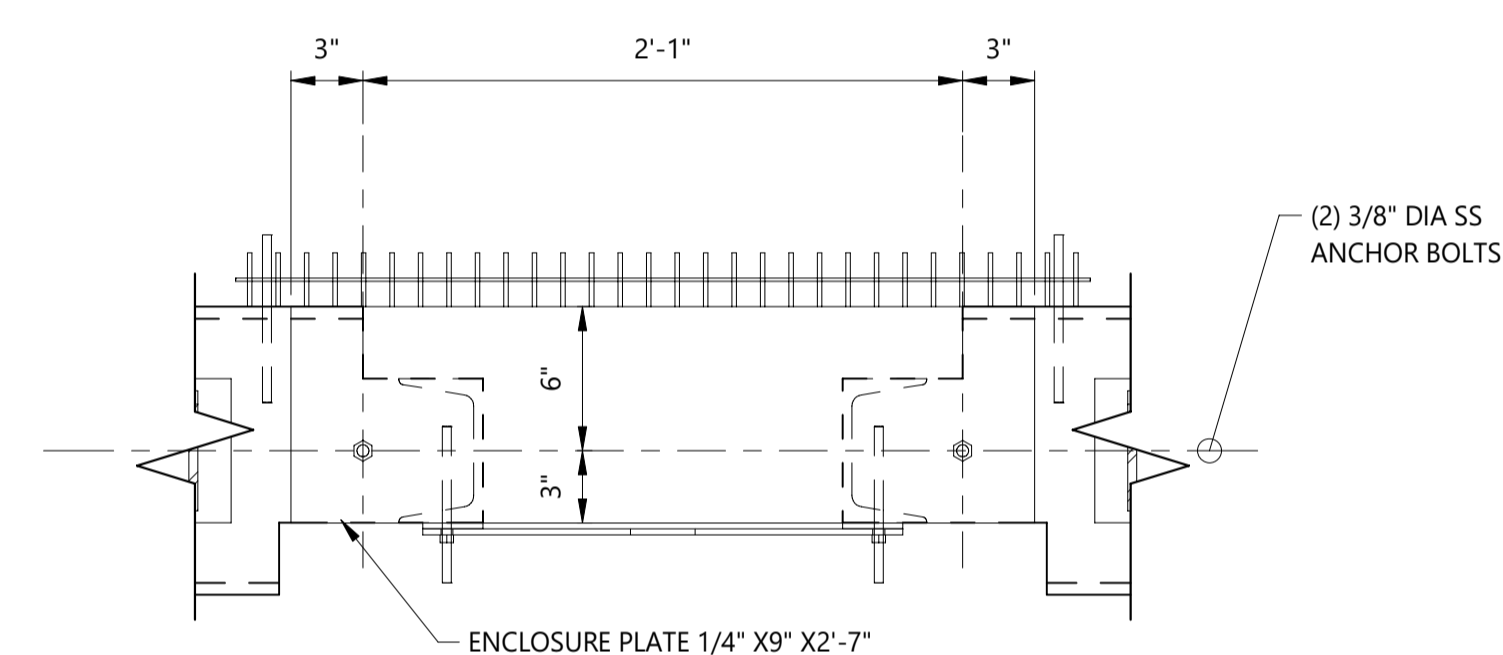
SECTION F - F (S-113)
SCALE: 3/4" = 1'-0"



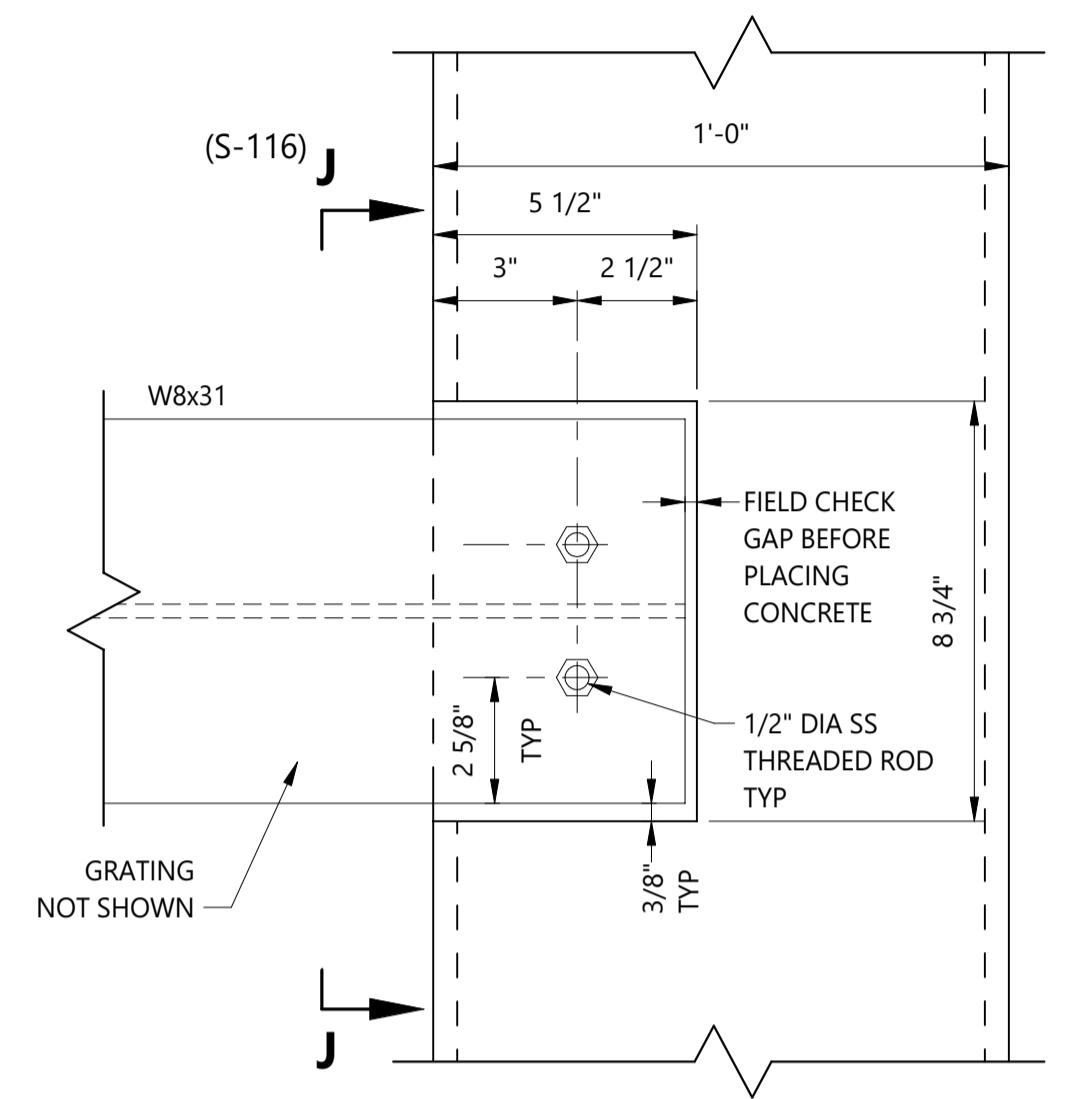
SECTION H - H (S-114)
SCALE: 3/4" = 1'-0"



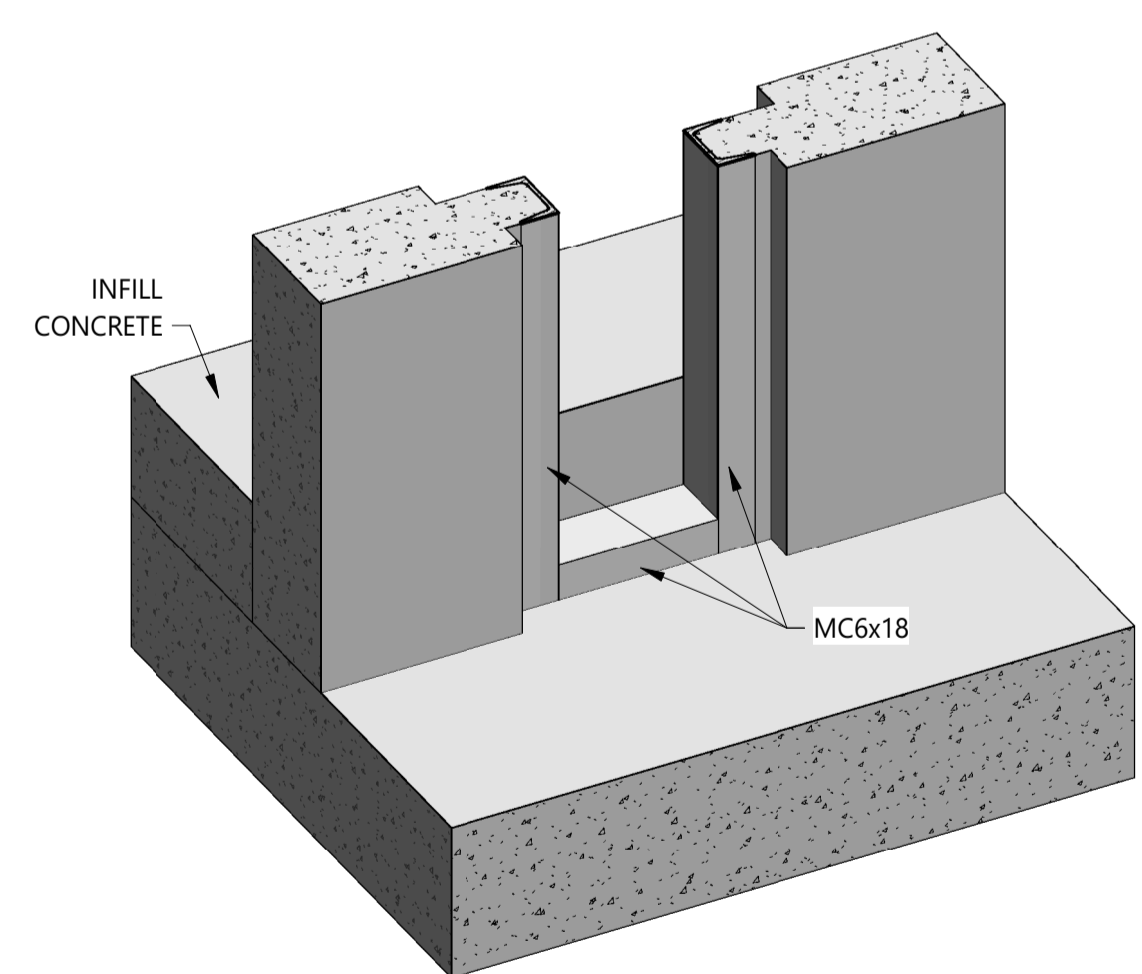
SECTION G - G (S-116)
SCALE: 1 1/2" = 1'-0"



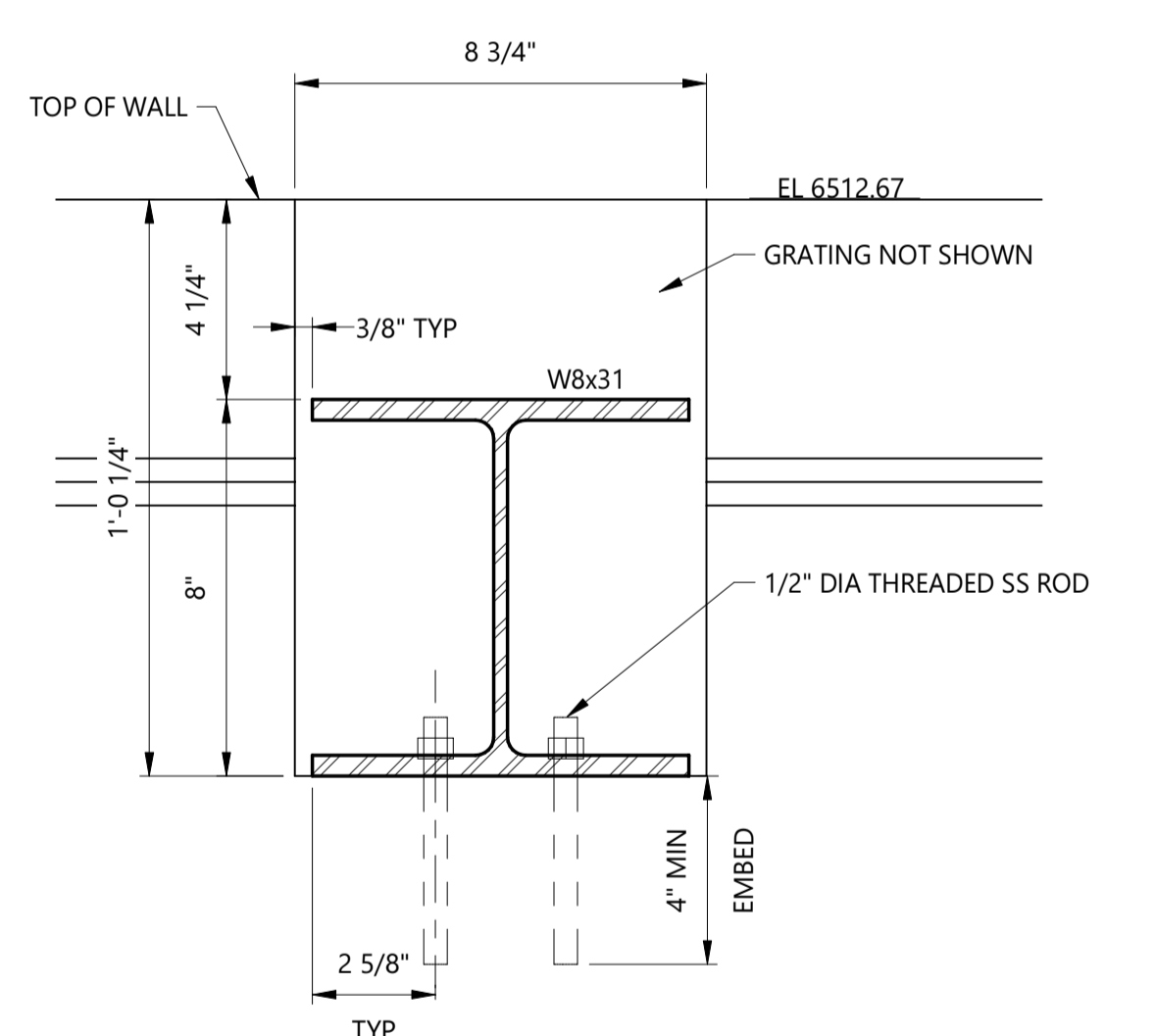
SECTION Q - Q (S-116)
SCALE: 1 1/2" = 1'-0"



DETAIL 1 / S-113
SCALE: 3" = 1'-0"



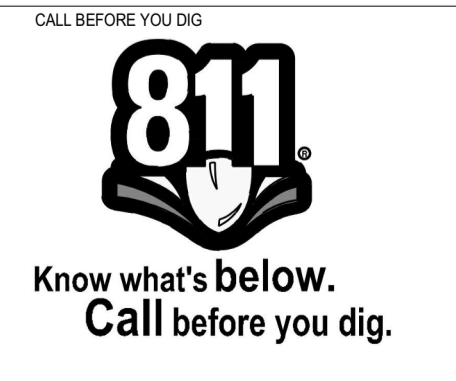
BOTTOM OF WALL OPENING
ISOMETRIC



SECTION J - J (S-116)
SCALE: 3" = 1'-0"

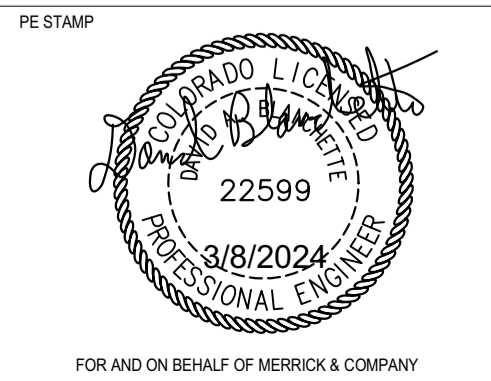
NOTES:
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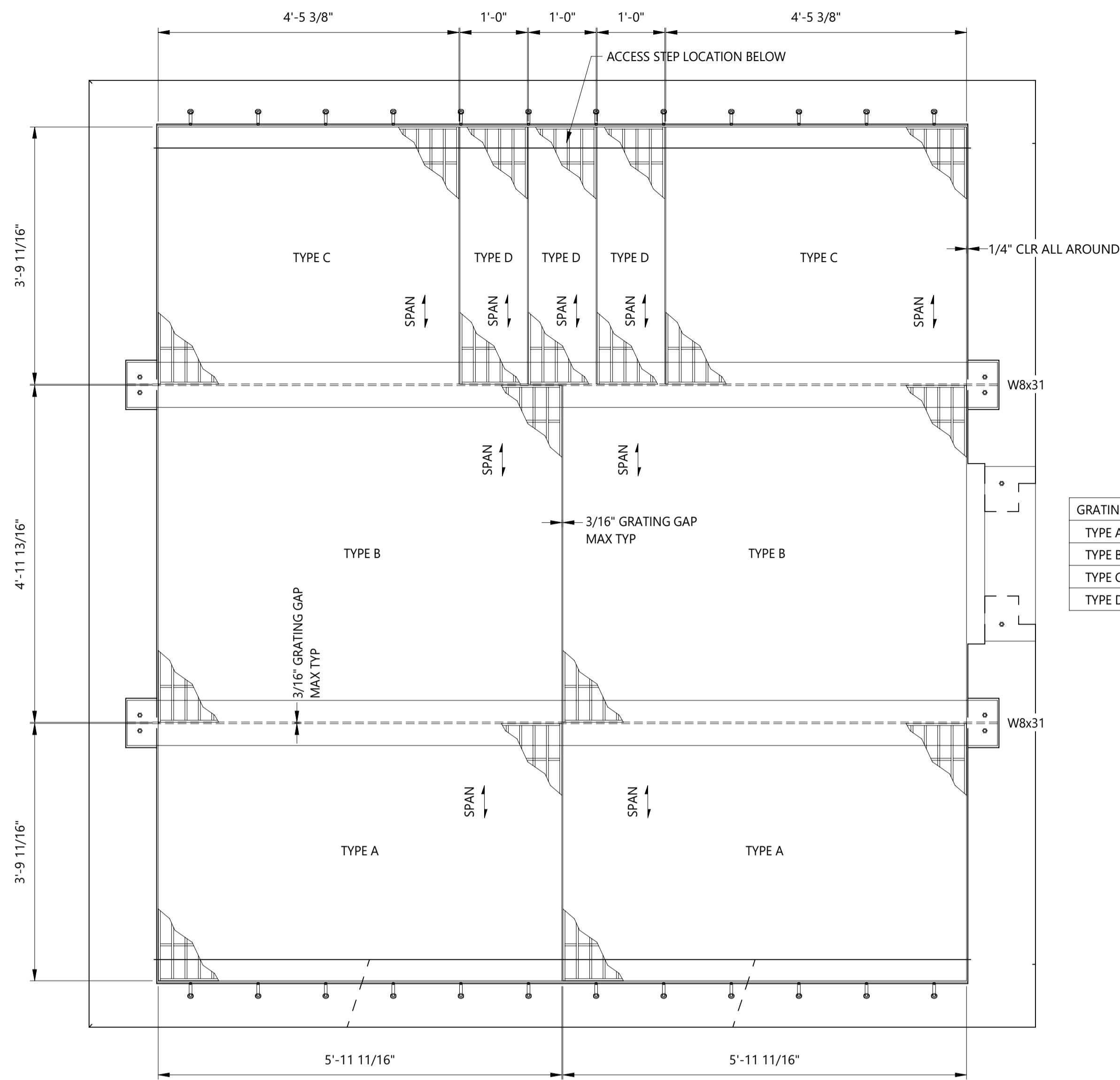
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BARNES OUTFALL WATER QUALITY POND
OUTLET STRUCTURE
STEEL DETAILS 1

JOB NUMBER: 65421421
DATE: MARCH 8 2024
DRAWING NO.: **S-116**
SHEET: 43 of 50

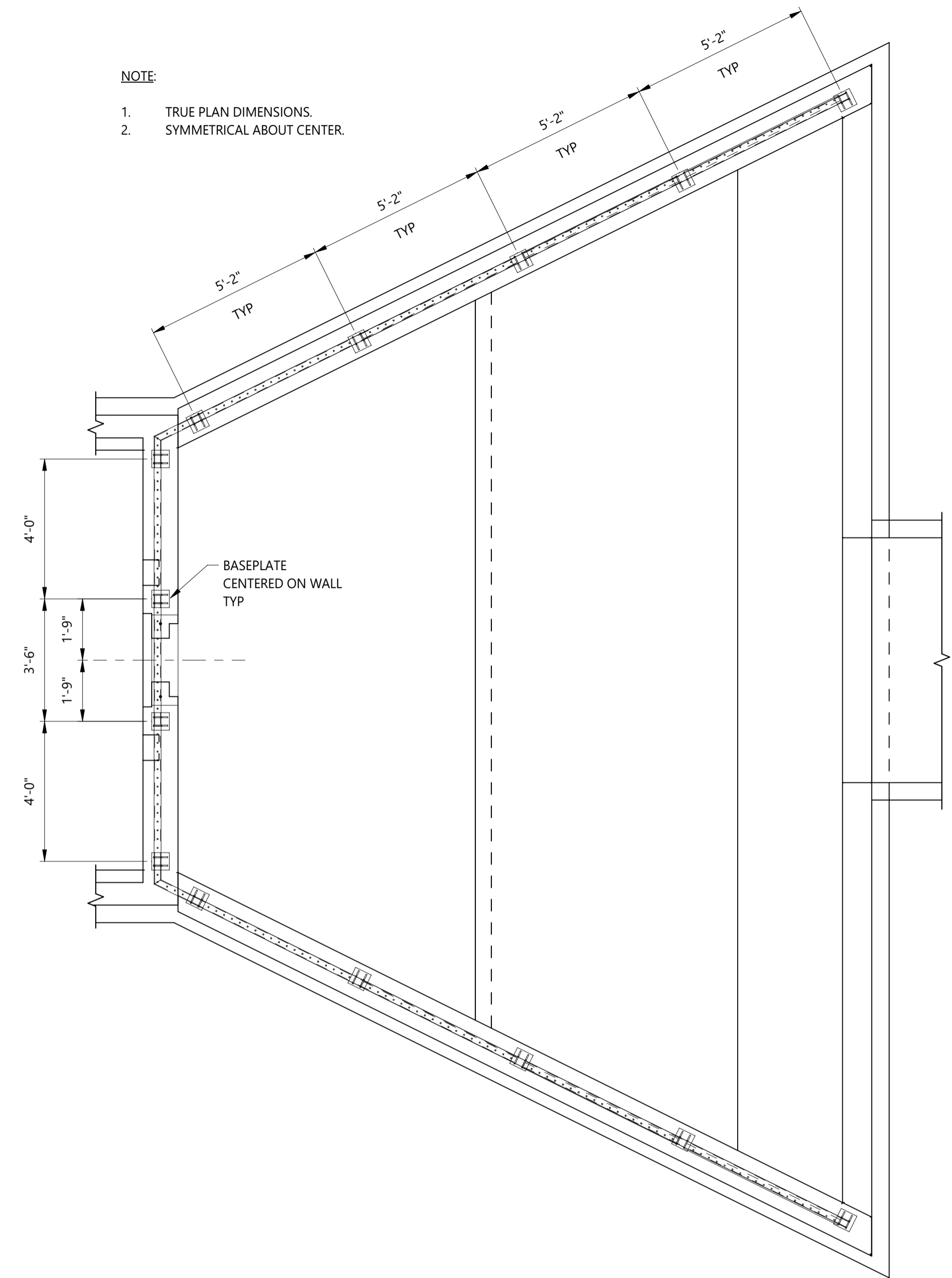
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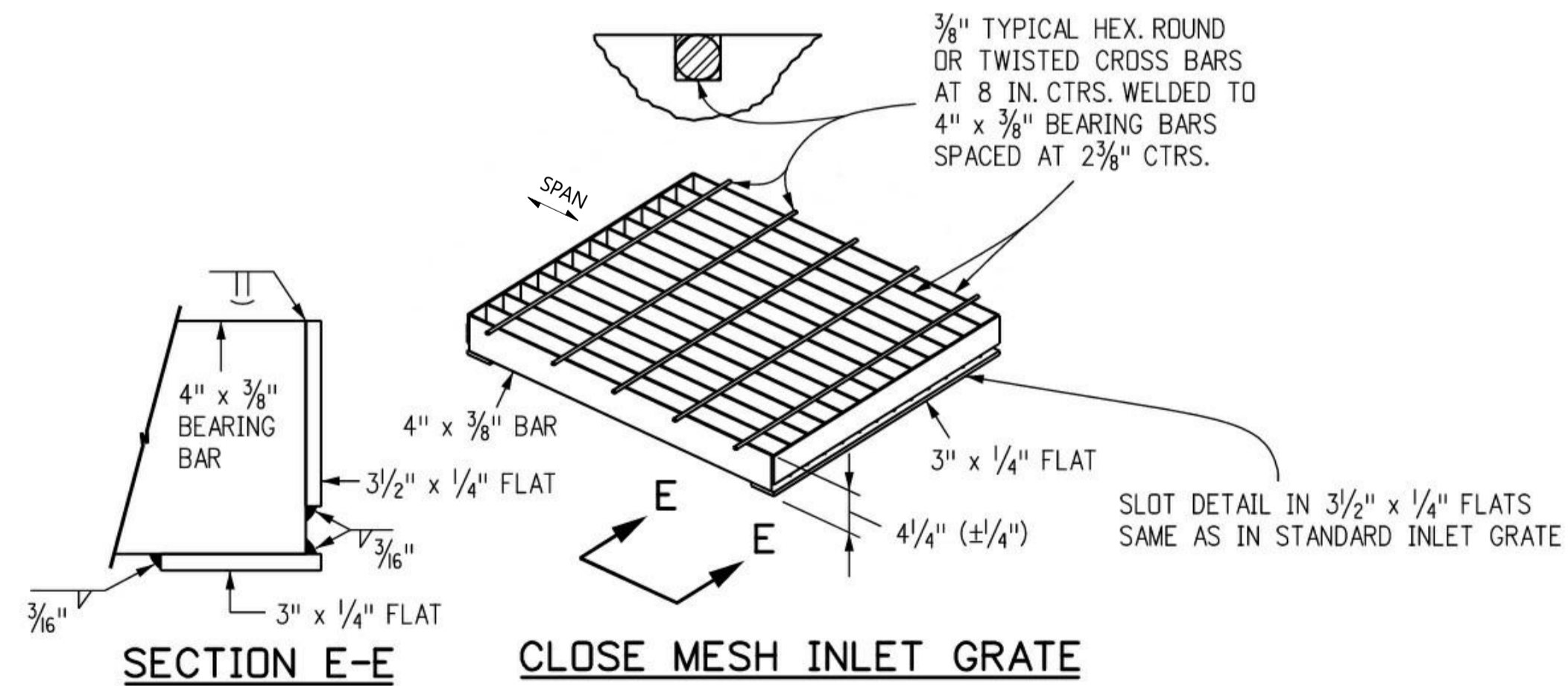
PLAN - GRATING PLATFORM
SCALE: 3/4" = 1'-0"

GRATING	SIZE	WEIGHT	QUANTITY
TYPE A	5'-11 11/16" x 3'-9 11/16"	660 LBS	2
TYPE B	5'-11 11/16" x 4'-11 13/16"	855 LBS	2
TYPE C	4'-5 3/8" x 3'-9 11/16"	506 LBS	2
TYPE D	1'-0" x 3'-9 11/16"	110 LBS	3

- NOTE
- TRUE PLAN DIMENSIONS.
 - SYMMETRICAL ABOUT CENTER.



PLAN - HANDRAIL
SCALE: 3/8" = 1'-0"



NOTES:

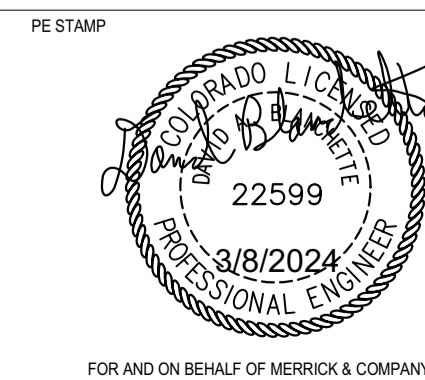
- SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
- HANDRAIL SHOP DRAWINGS SHOWING DETAILING FOR ALL MEMBERS, PLATES, AND WELDS SHALL BE PROVIDED.

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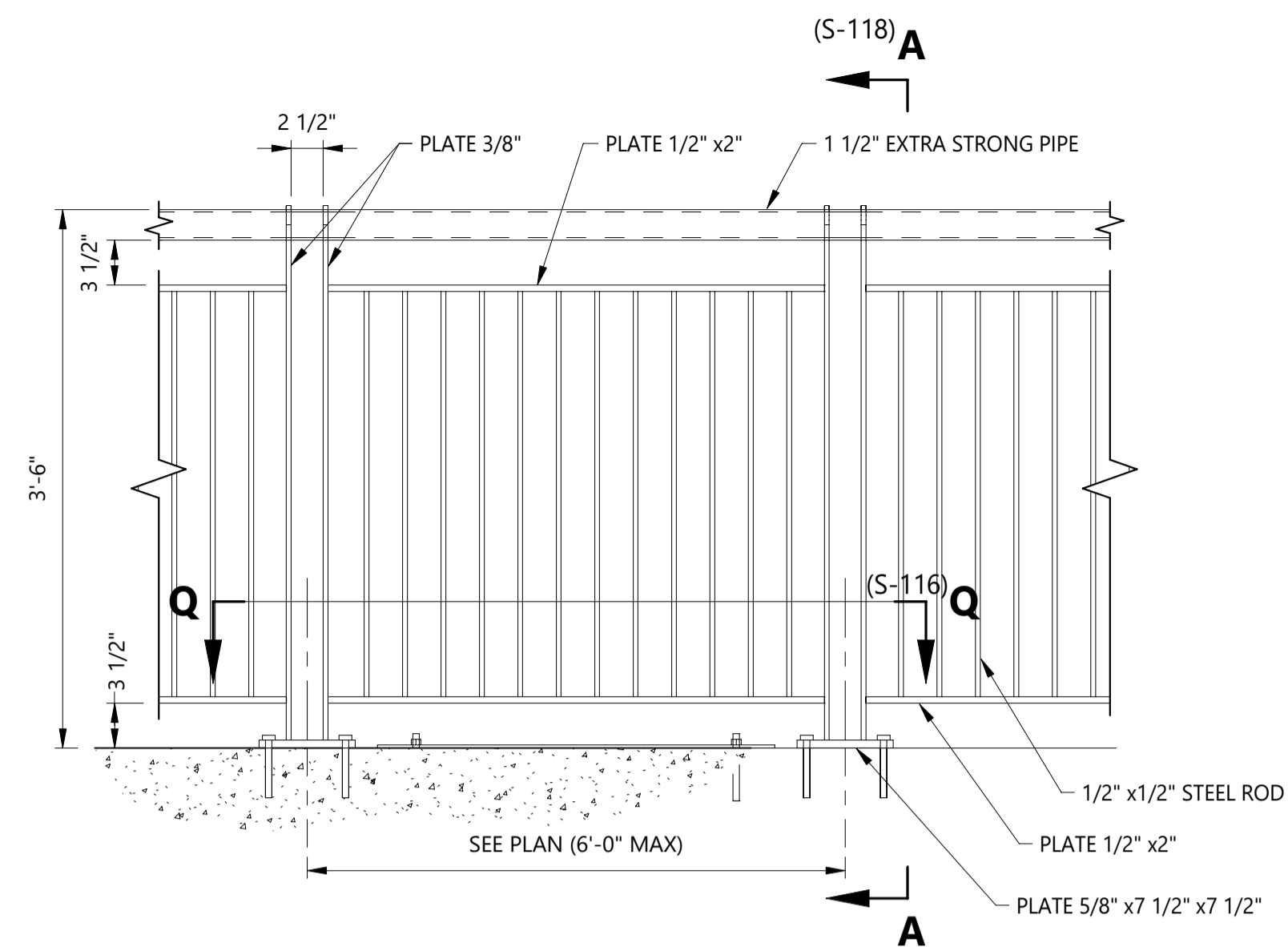


TITLE: **BARNES OUTFALL WATER QUALITY POND**

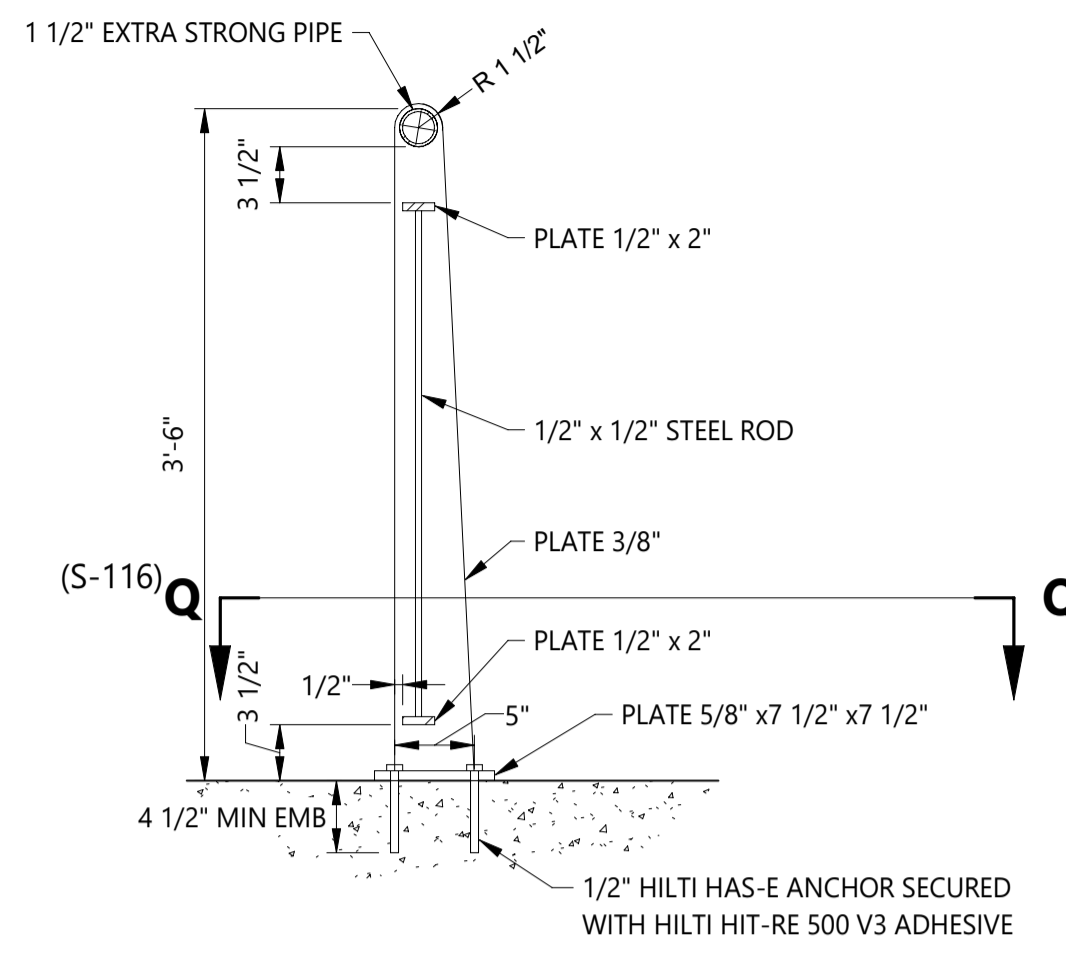
OUTLET STRUCTURE
STEEL DETAILS 2

JOB NUMBER	65421421
DATE	MARCH 8 2024
DRAWING NO.	S-117
SHEET	44 of 50

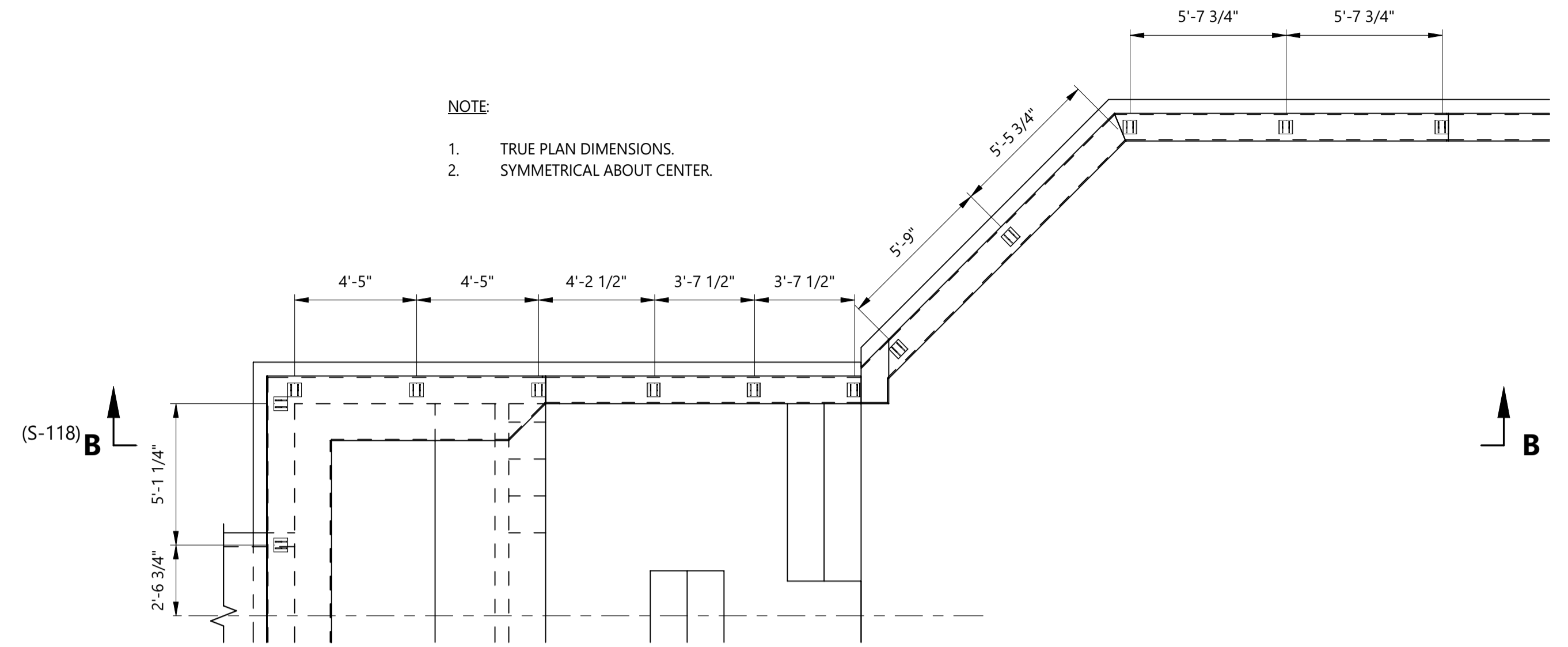
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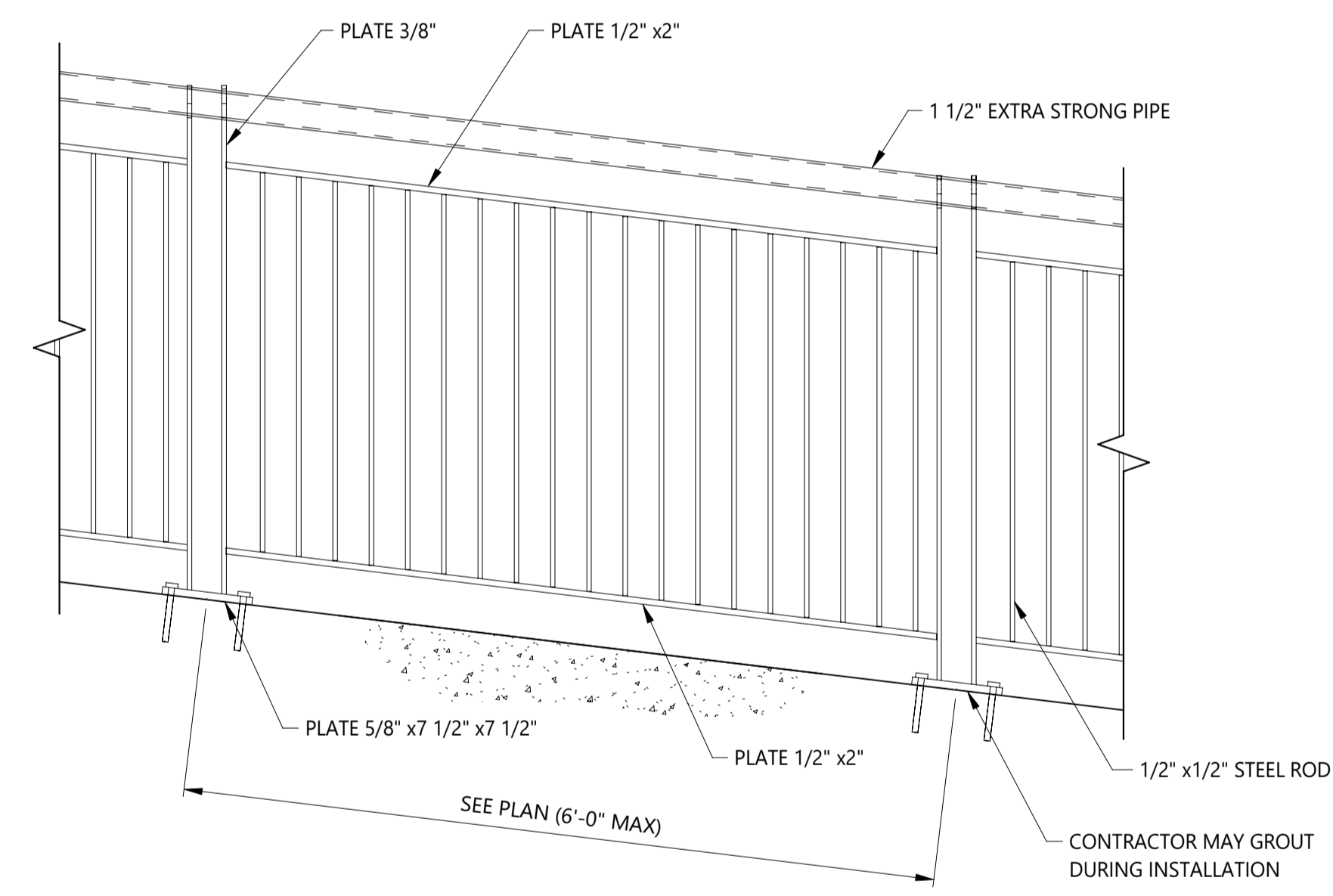
TYPICAL HORIZONTAL HANDRAIL
SCALE: 1" = 1'-0"



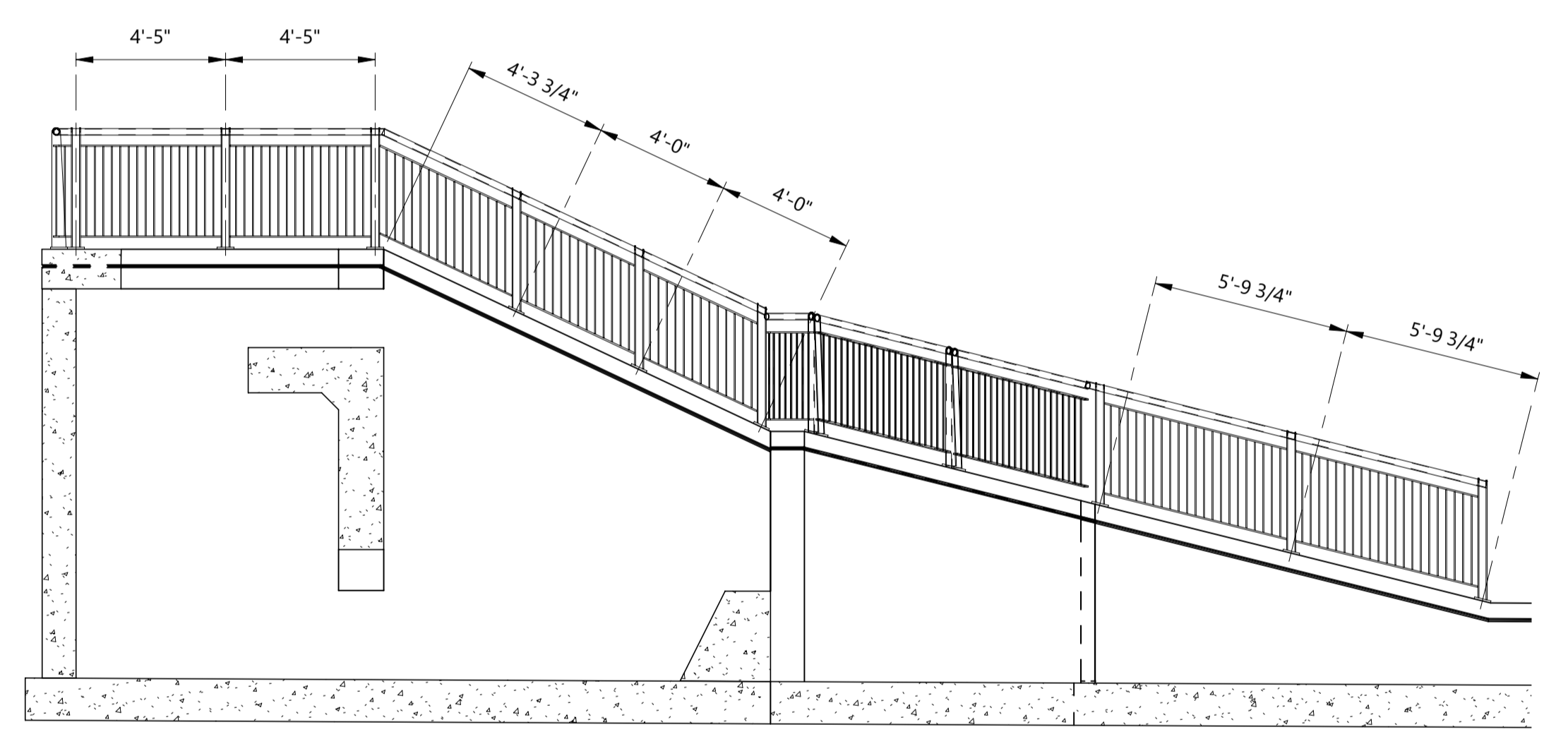
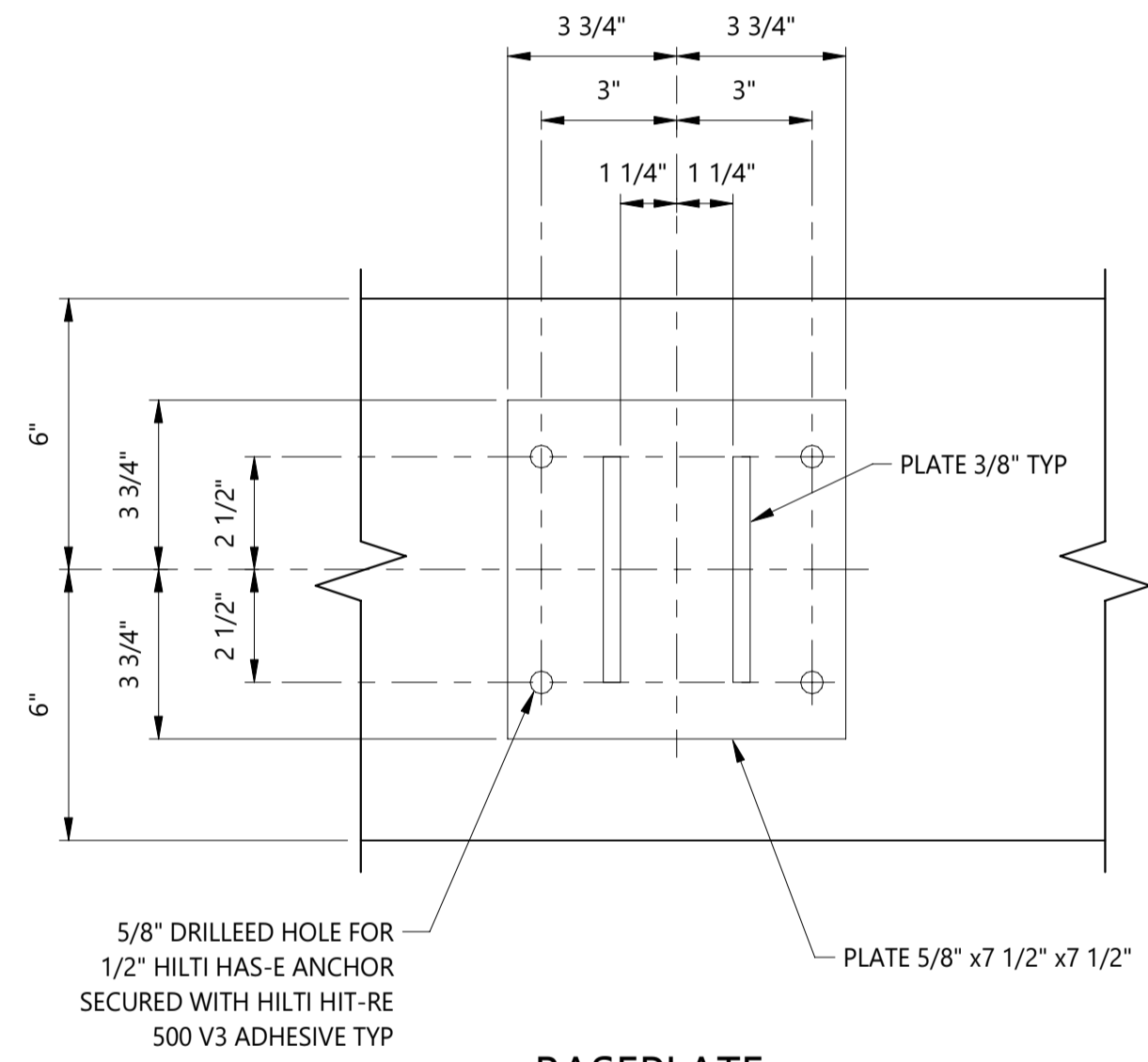
SECTION A - A (S-118)
SCALE: 1" = 1'-0"



PLAN
SCALE: 1/4" = 1'-0"



TYPICAL SLOPING HANDRAIL (SLOPE VARIES)
SCALE: 1" = 1'-0"



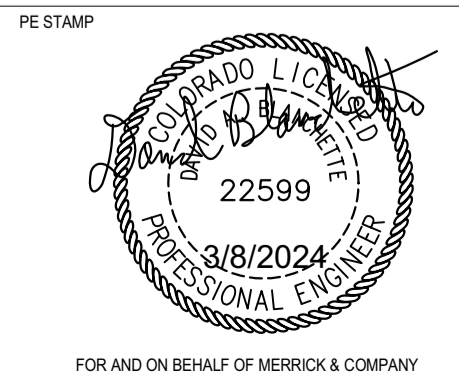
SECTION B - B (S-118)
SCALE: 1/4" = 1'-0"

- NOTES:**
- SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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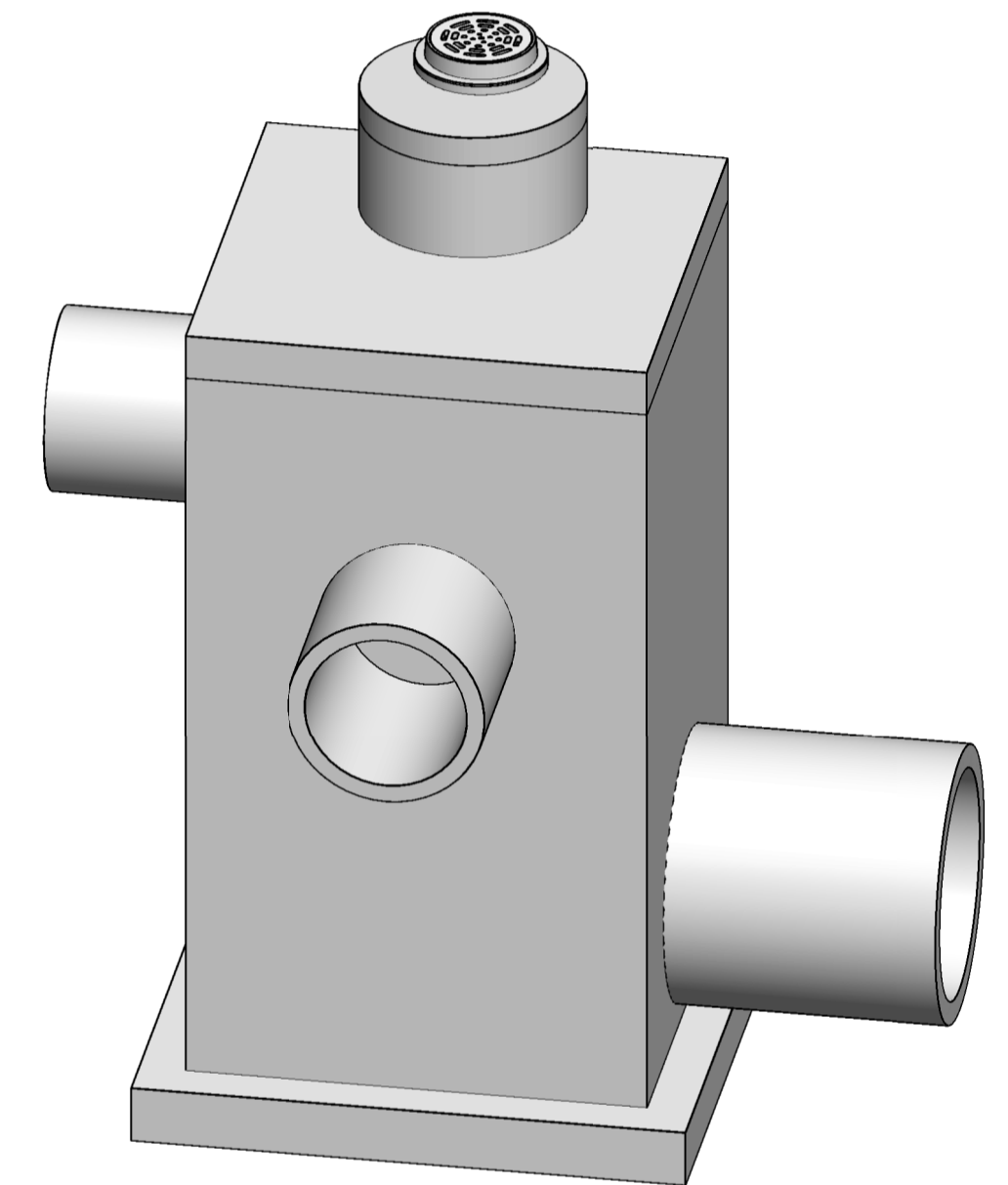
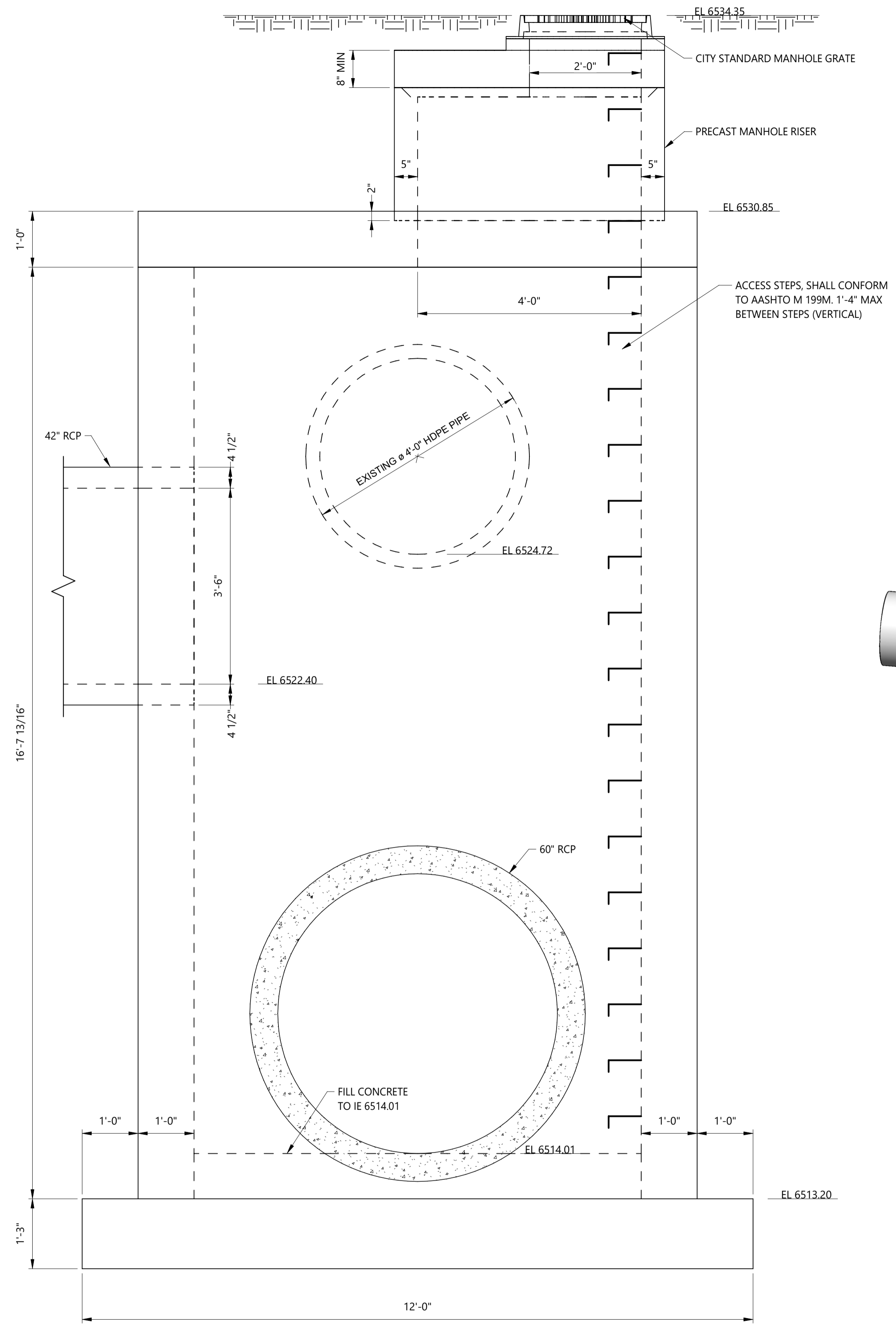
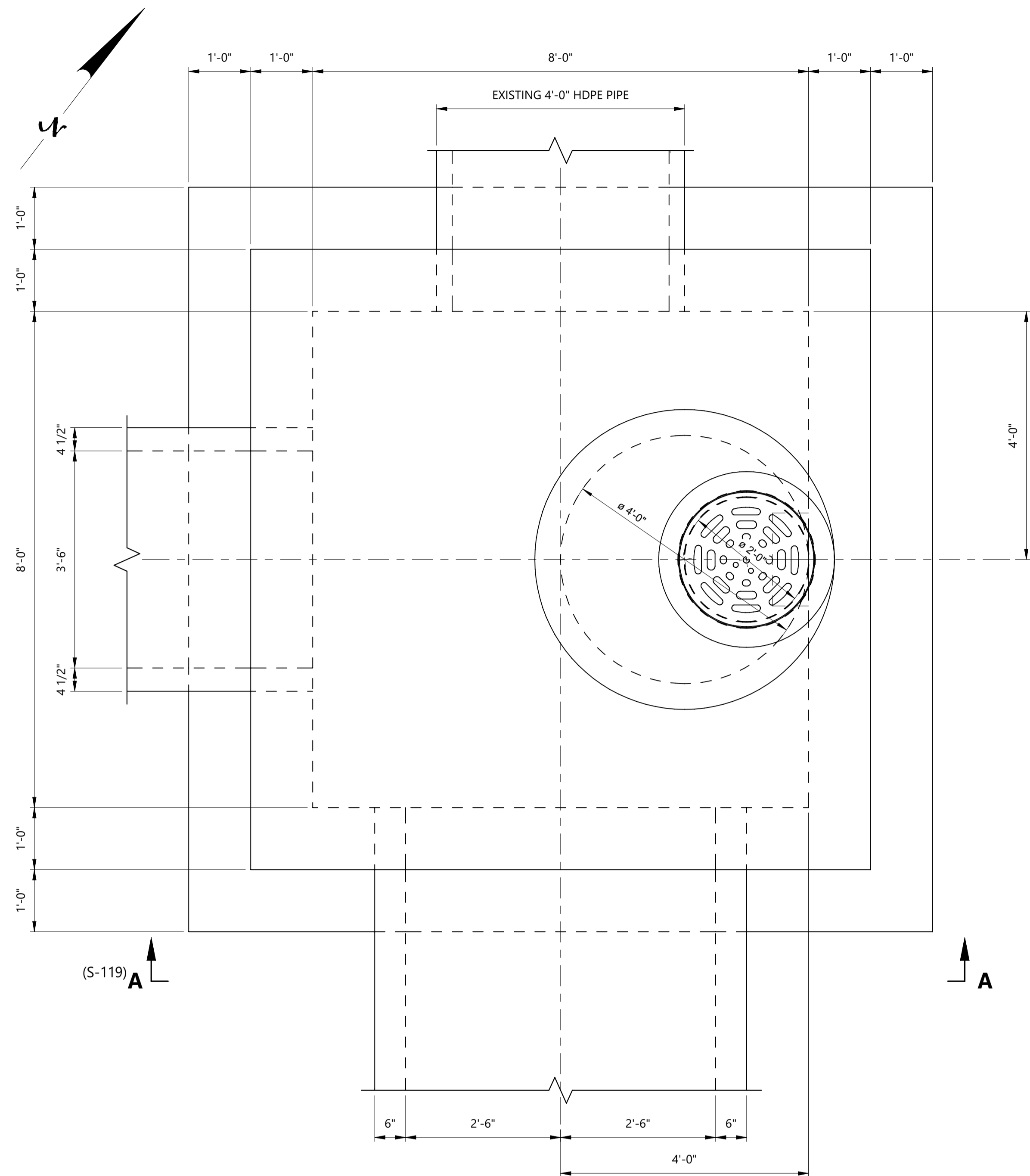


BARNES OUTFALL WATER QUALITY POND

HANDRAIL STEEL DETAILS

JOB NUMBER	65421421
DATE	MARCH 8 2024
DRAWING NO.	S-118
SHEET	45 of 50

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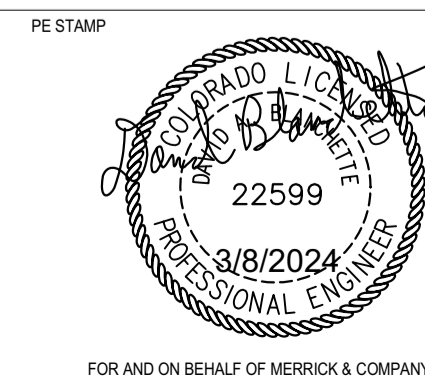
- NOTES:
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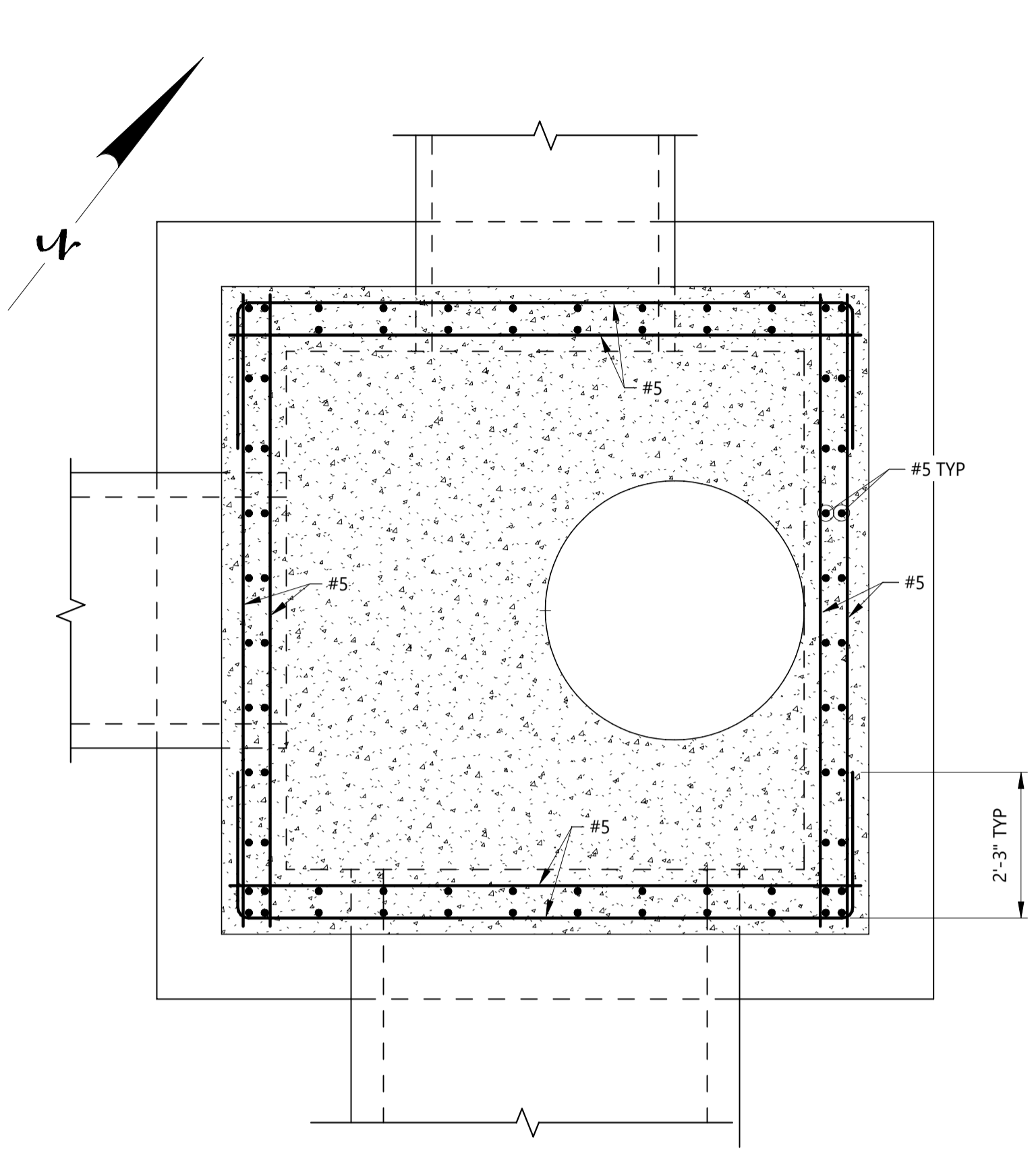
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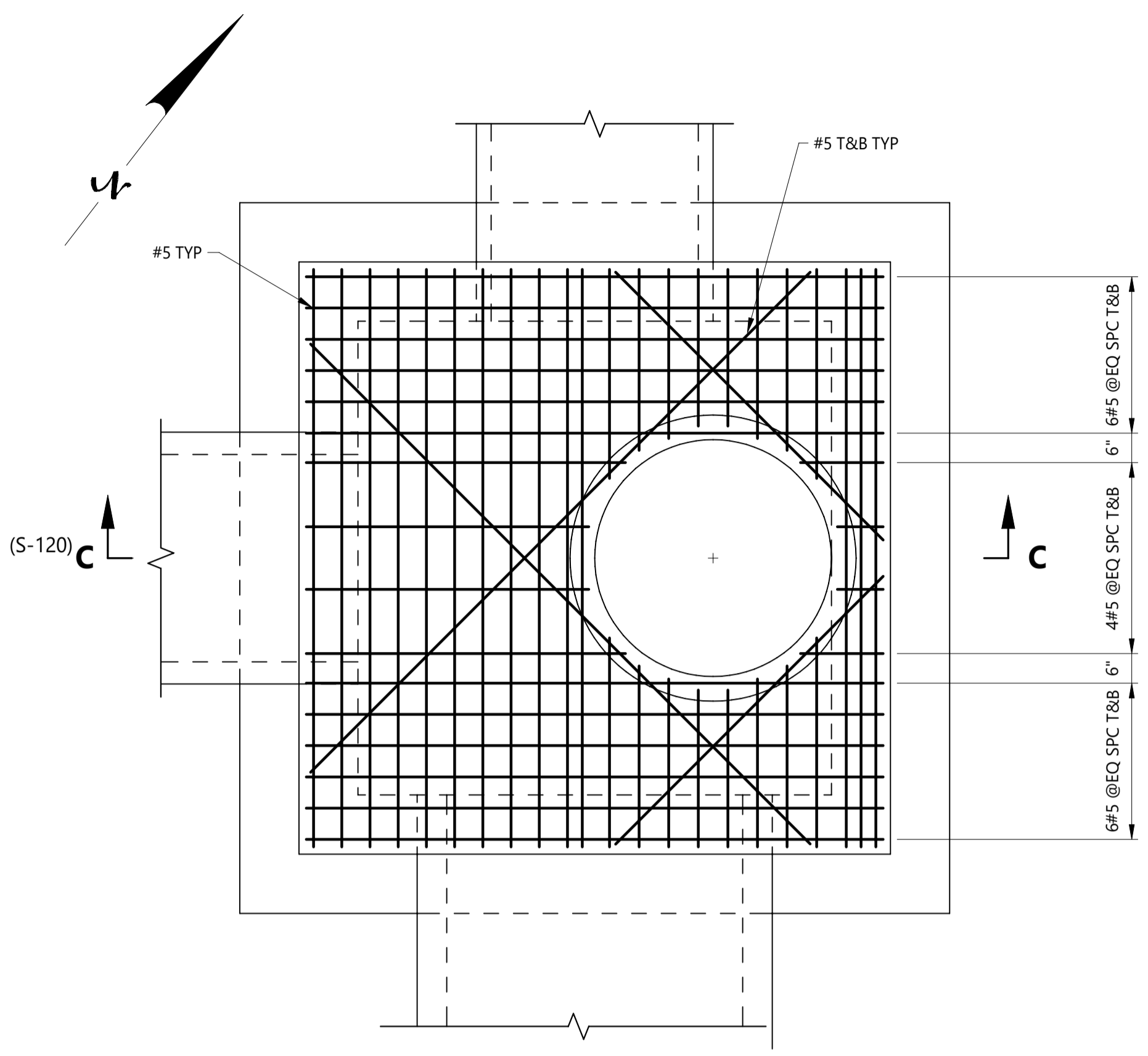
BARNES OUTFALL WATER QUALITY POND
MANHOLE STRUCTURE
ISOMETRIC AND OUTLINE PLAN AND SECTION

JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-119**
 SHEET: 46 of 50

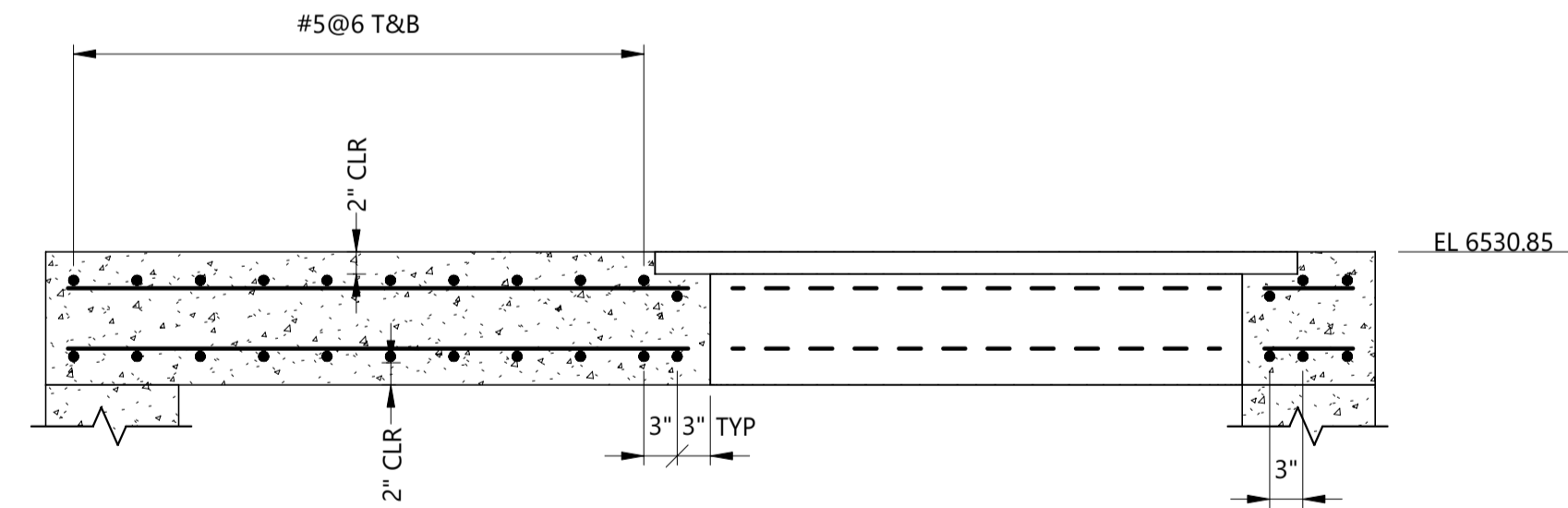
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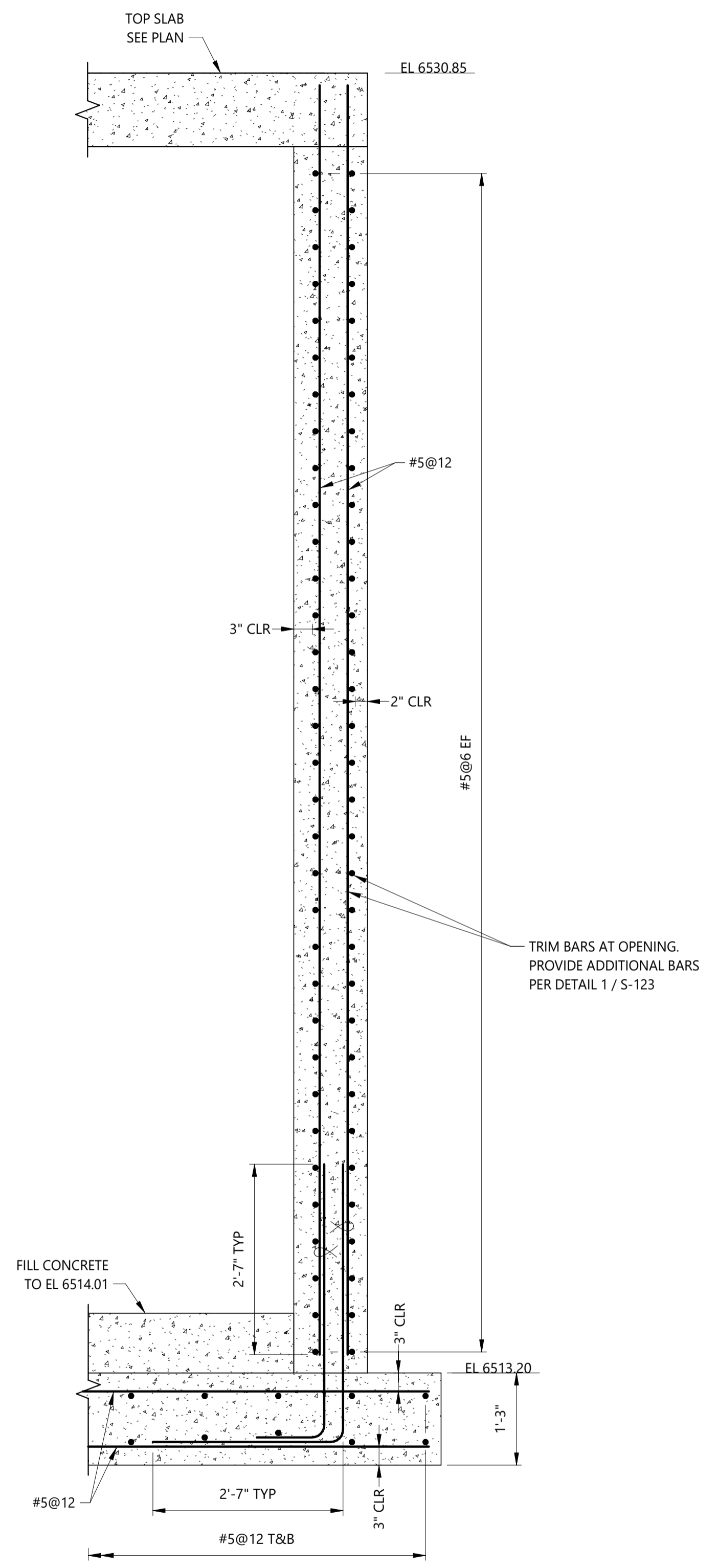
PLAN
SCALE: 1/2" = 1'-0"



PLAN
SCALE: 1/2" = 1'-0"



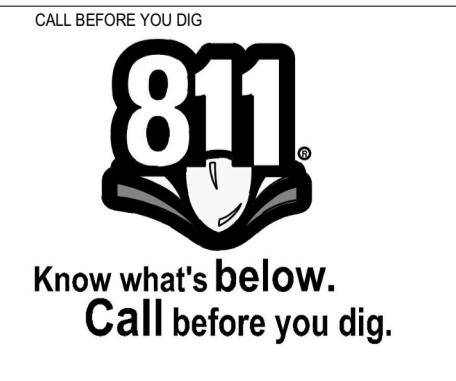
SECTION C - C (S-120)
SCALE: 3/4" = 1'-0"



TYPICAL WALL SECTION
SCALE: 3/4" = 1'-0"

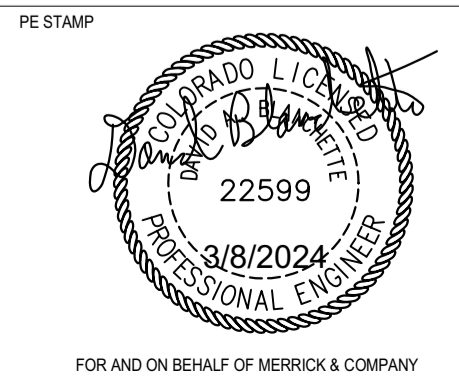
- NOTES:
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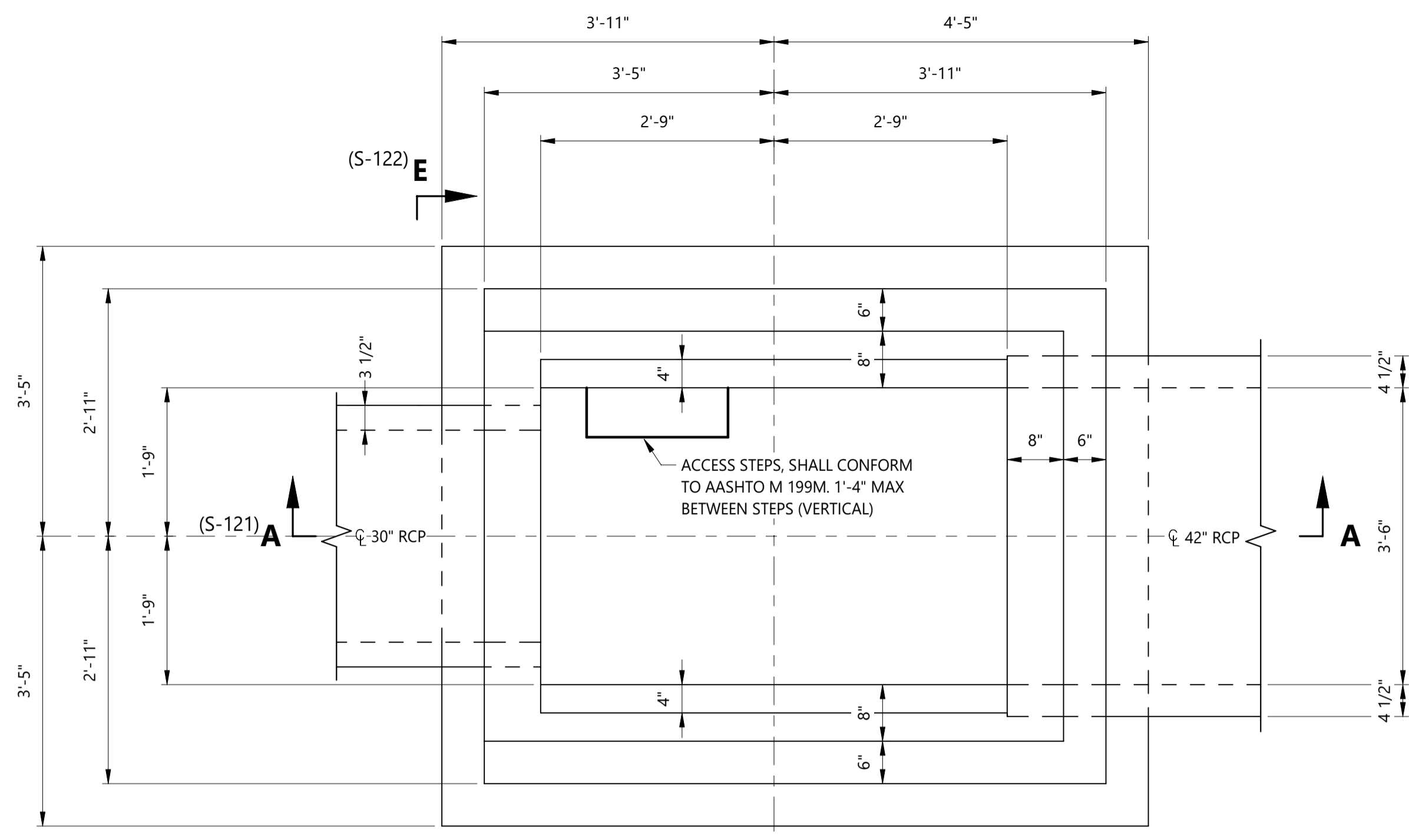


BARNES OUTFALL WATER QUALITY POND

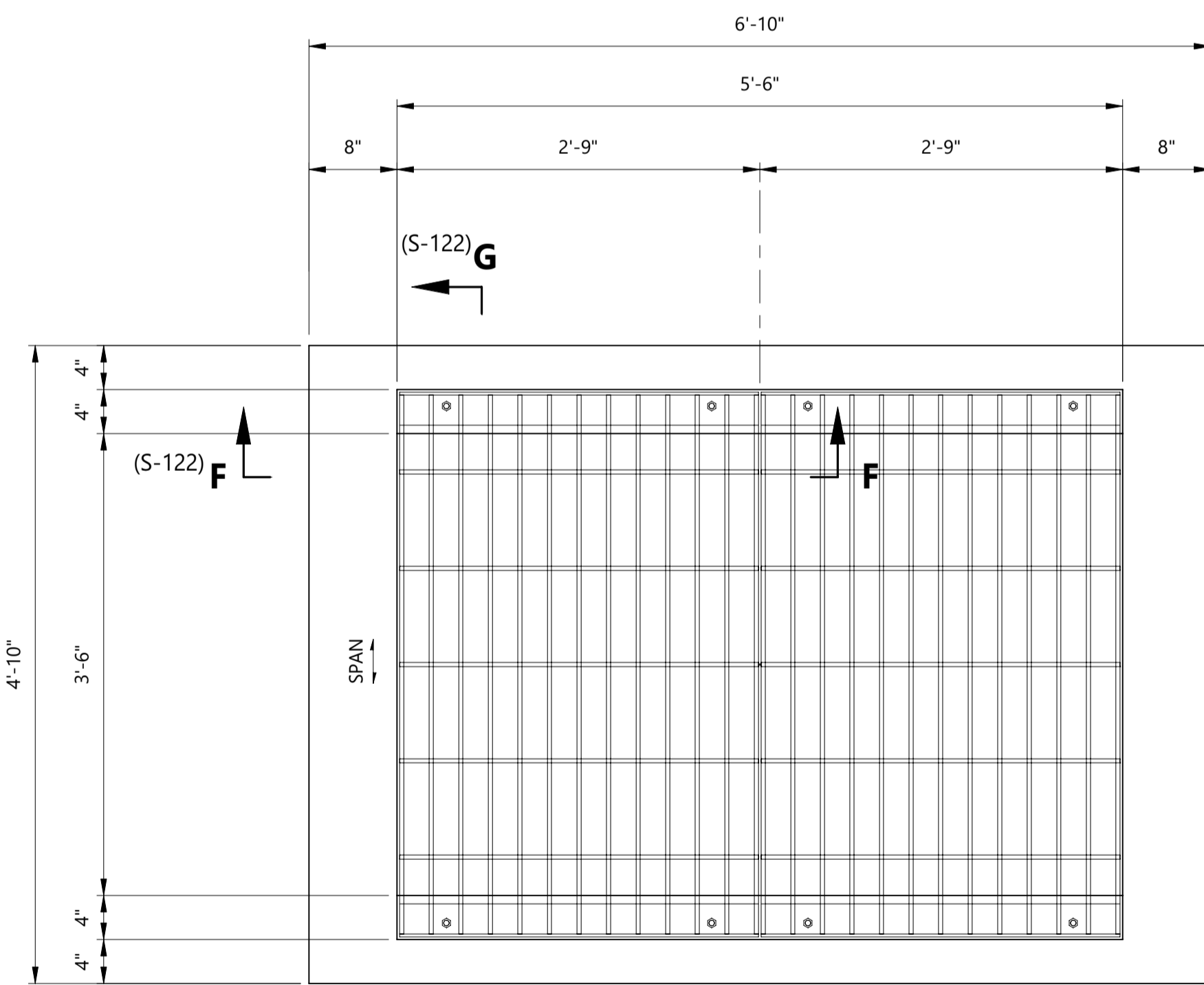
MANHOLE STRUCTURE
REINFORCEMENT PLAN AND SECTIONS

JOB NUMBER: 65421421
 DATE: MARCH 8 2024
 DRAWING NO.: **S-120**
 SHEET: 47 of 50

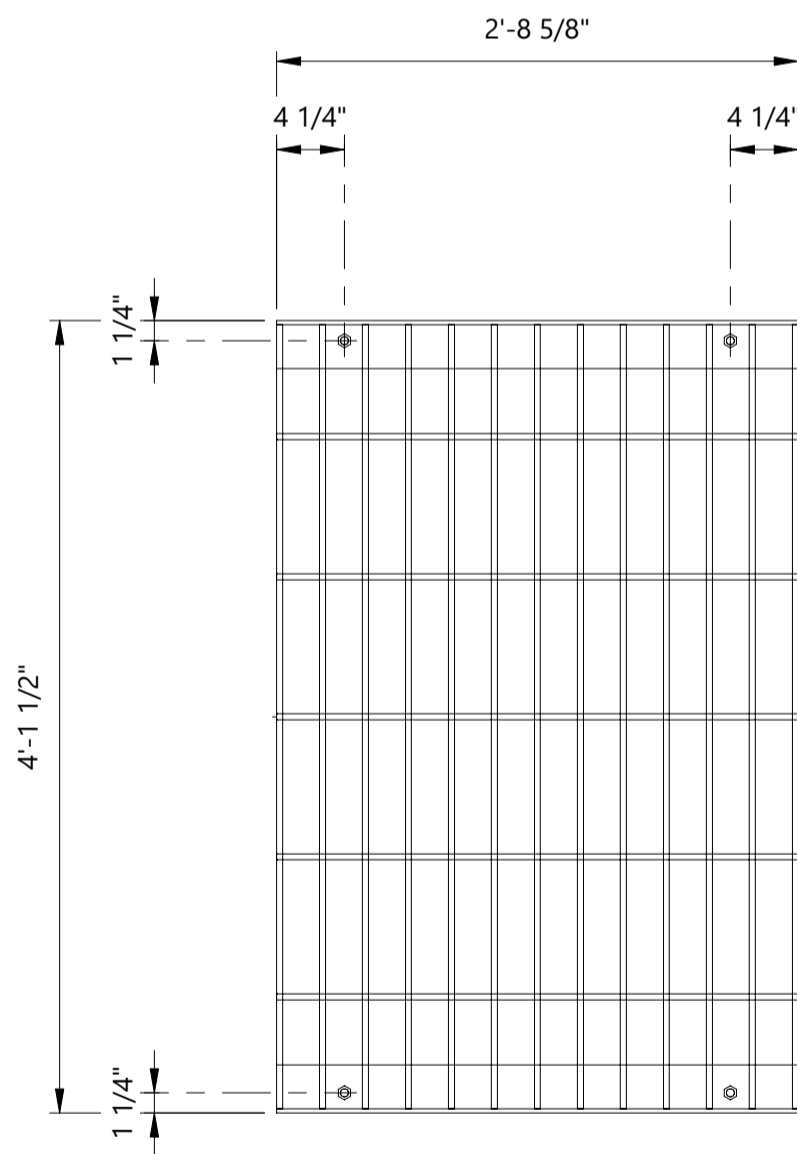
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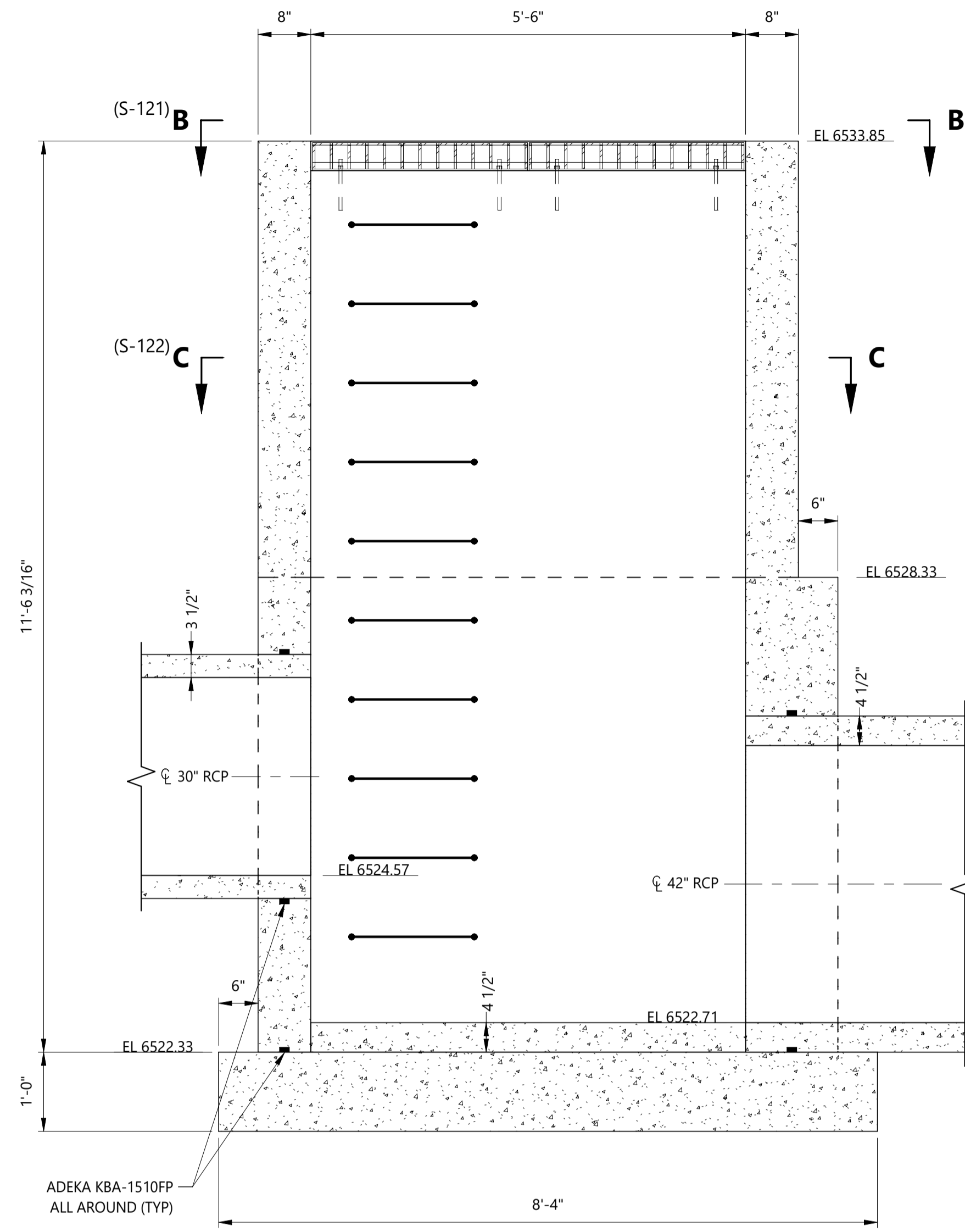
PLAN - INLET
SCALE: 3/4" = 1'-0"



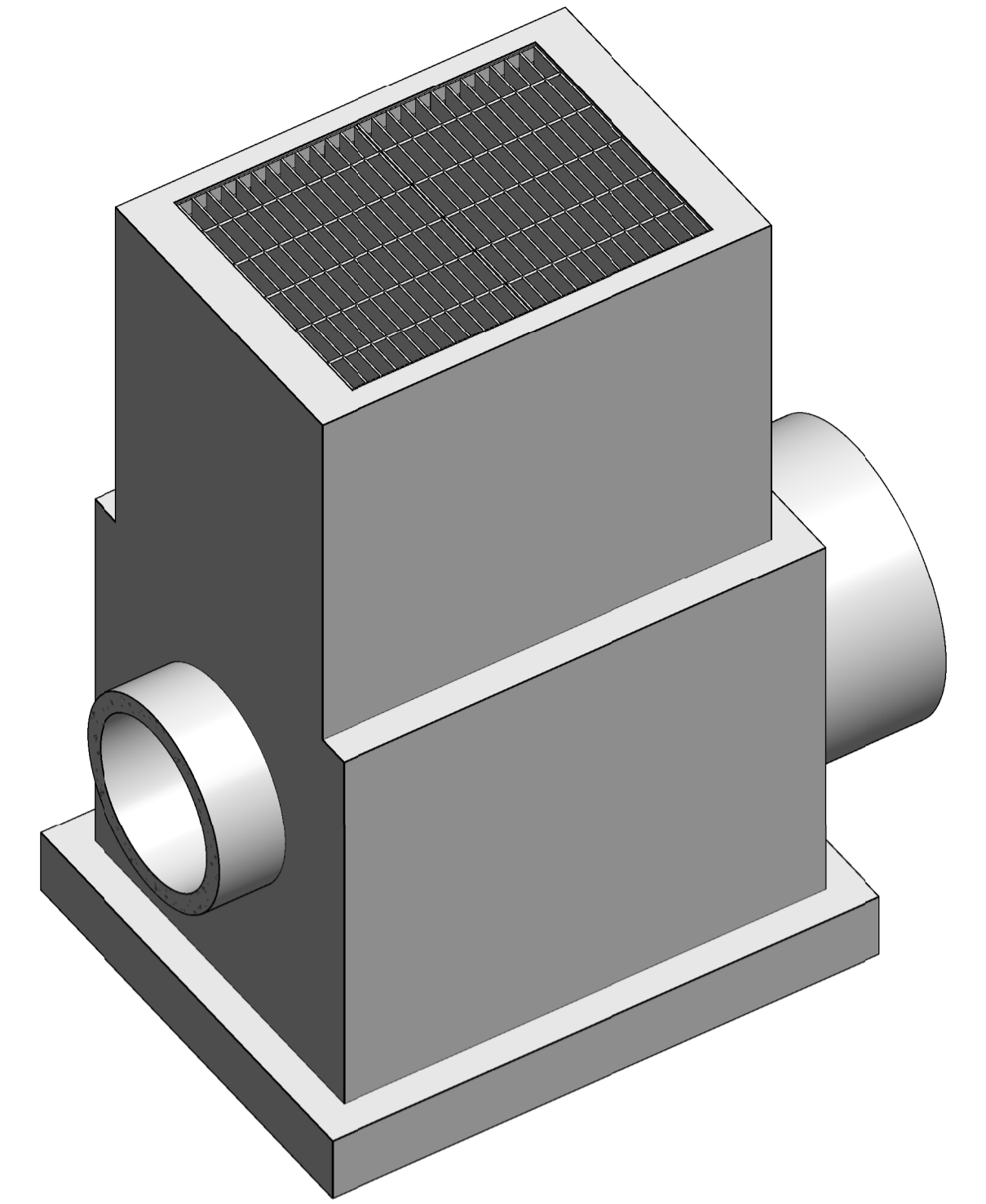
SECTION B - B (S-121)
SCALE: 1" = 1'-0"



GRATE (2 REQ'D)
SCALE: 1" = 1'-0"



SECTION A - A (S-121)
SCALE: 3/4" = 1'-0"



INLET
ISOMETRIC

NOTES:

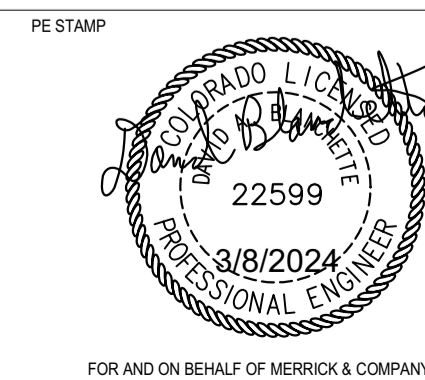
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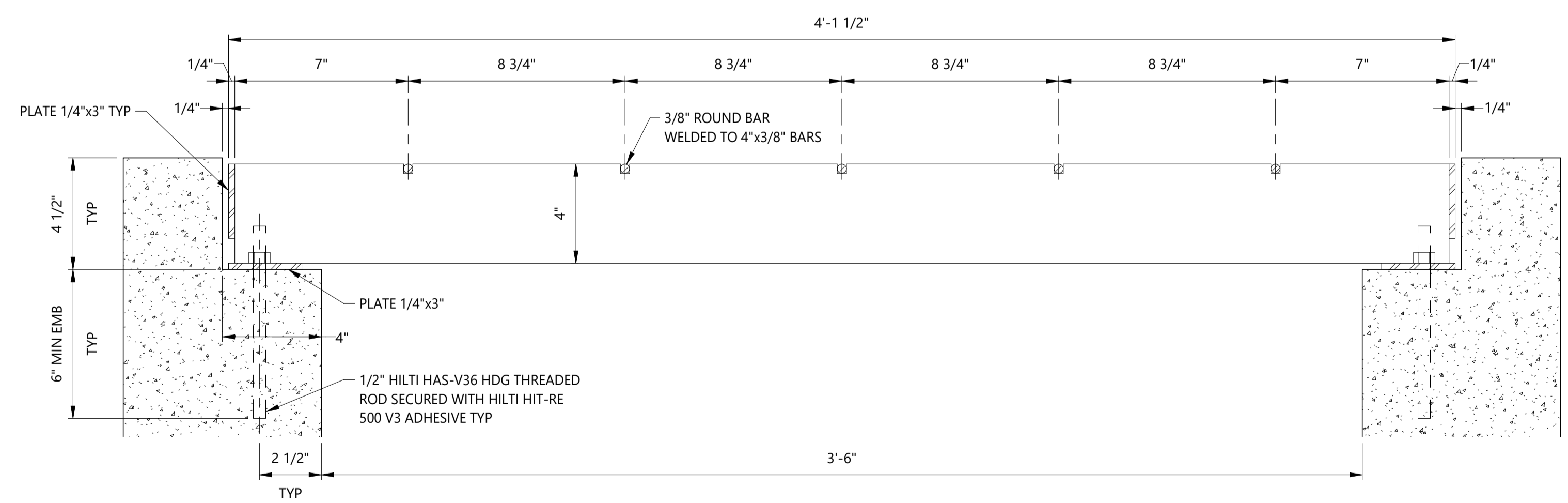
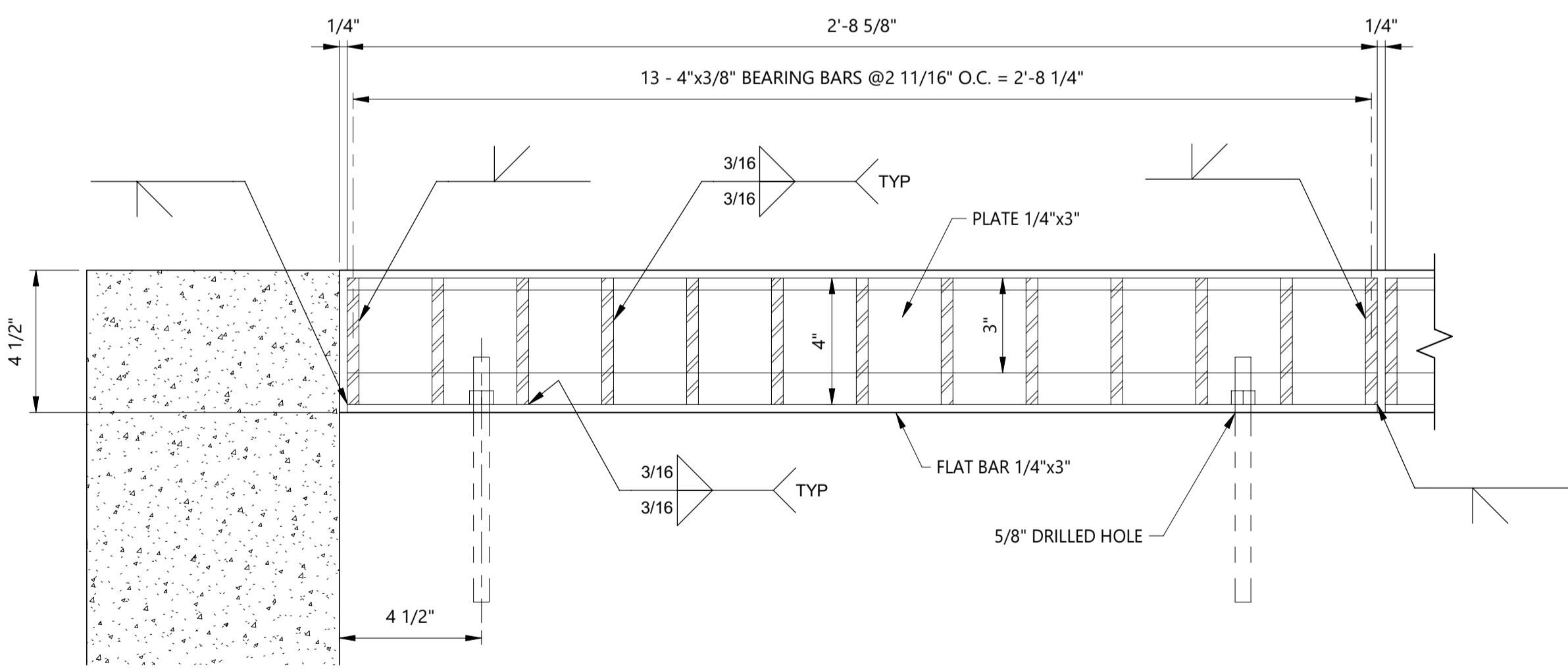
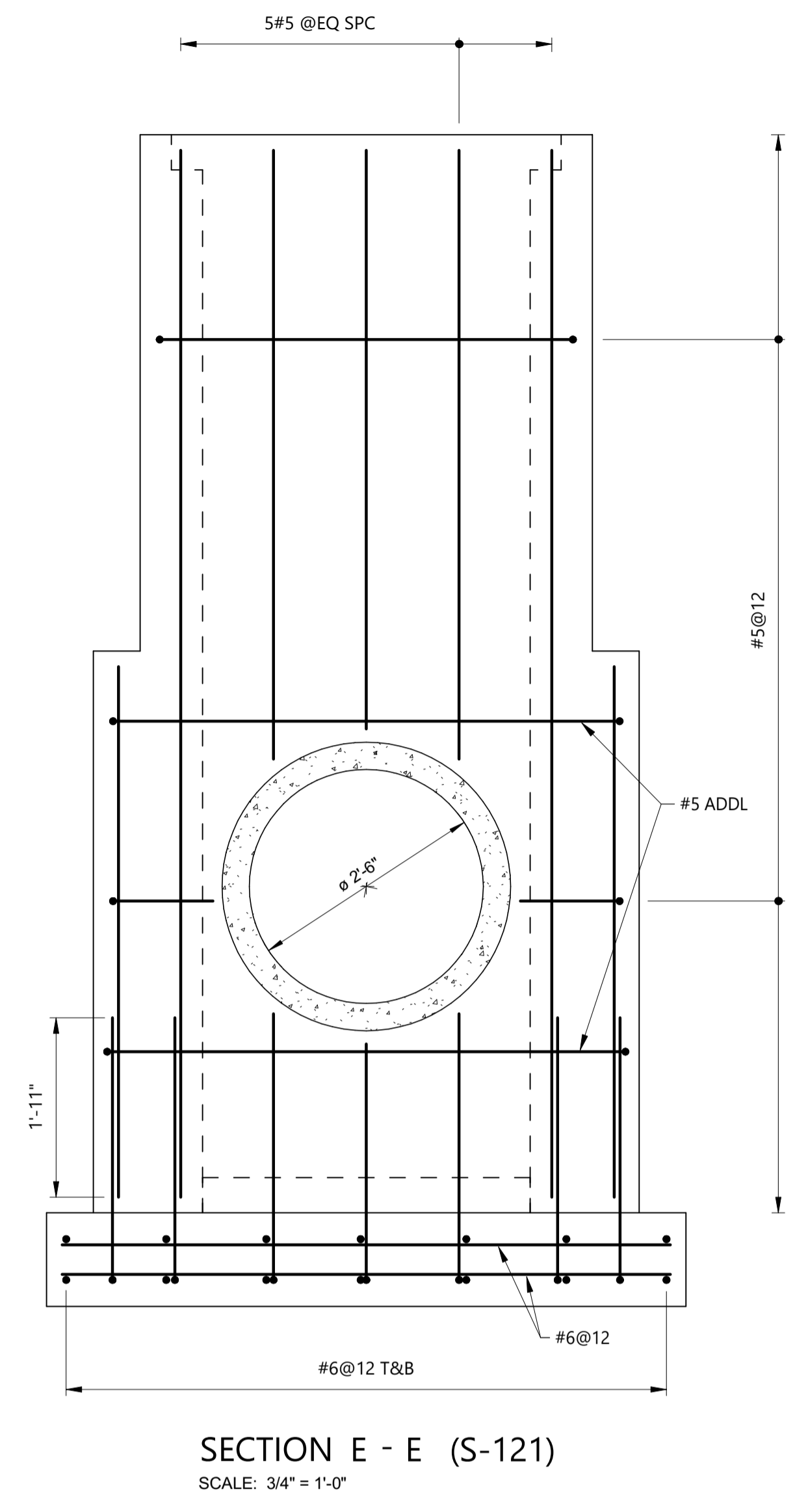
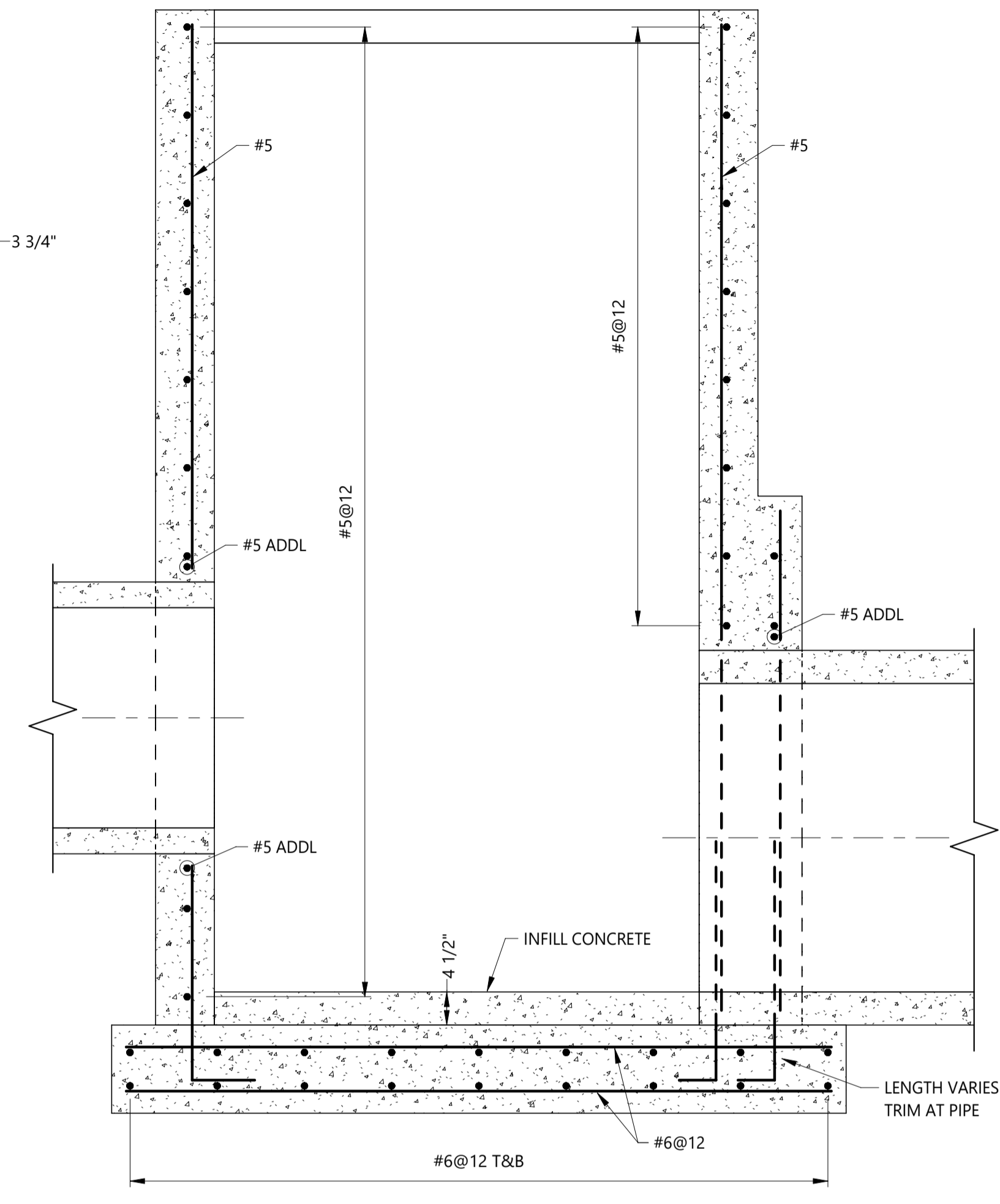
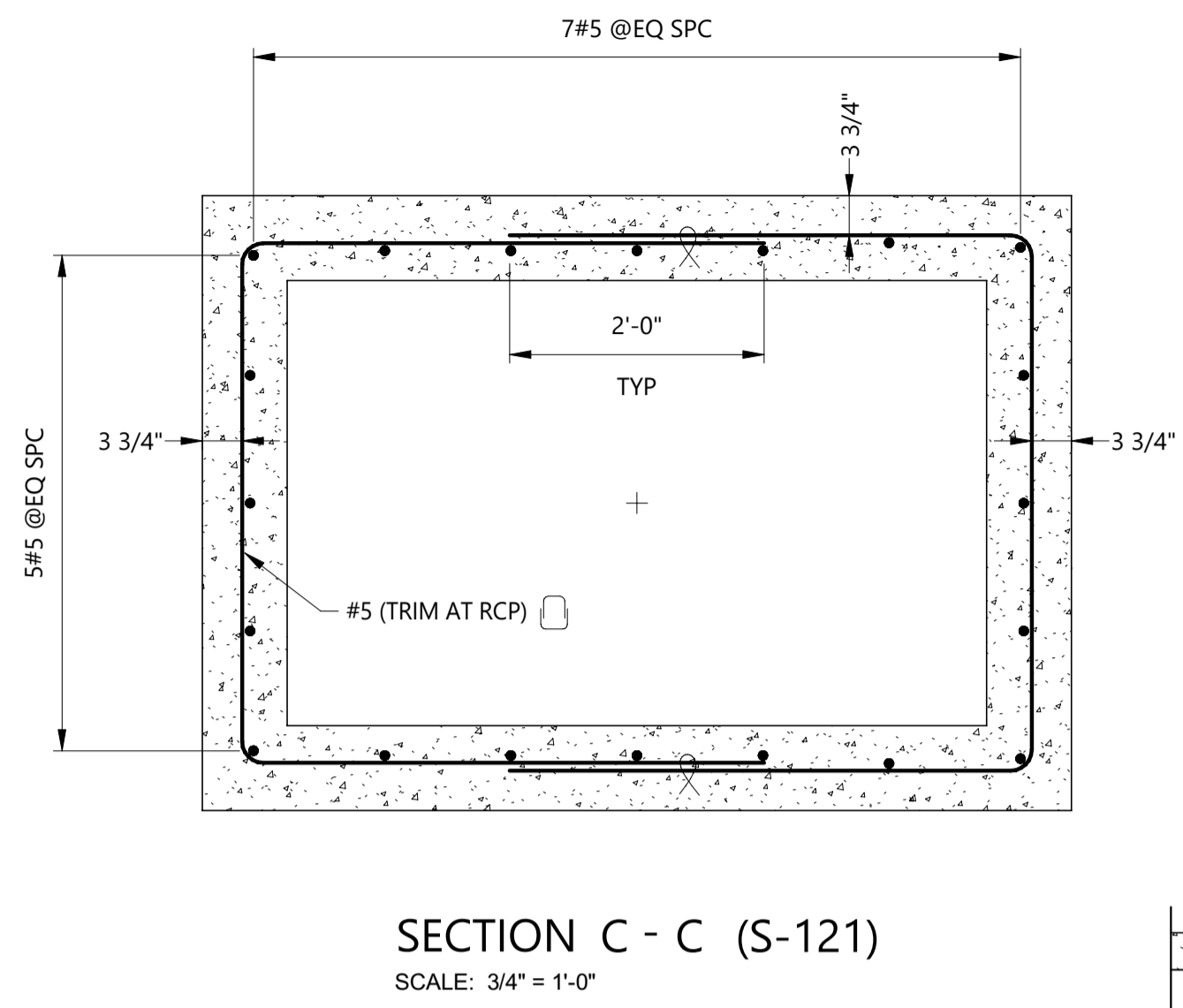
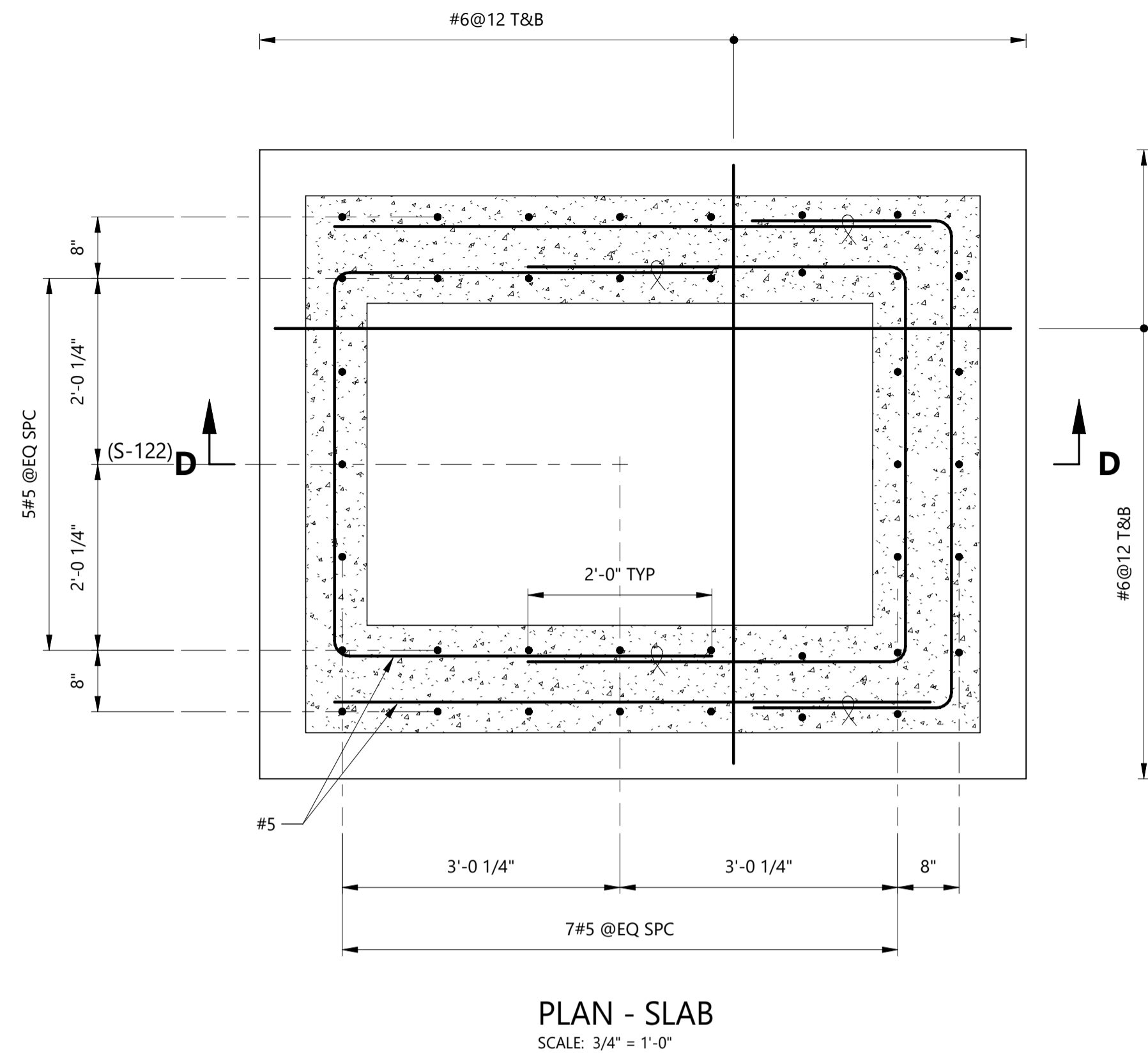
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TITLE
BARNES OUTFALL WATER QUALITY POND
TYPE C INLET PLAN AND SECTIONS

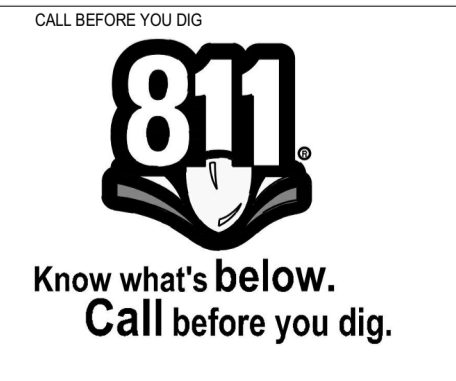
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DRAWING NO.: **S-121**
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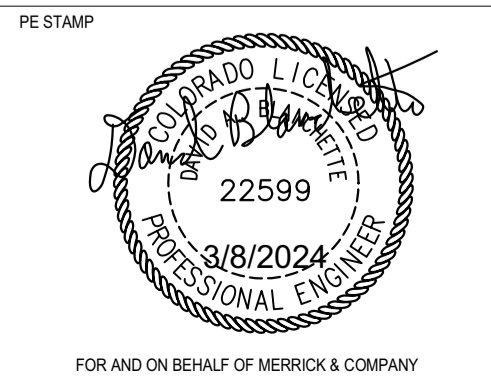
NOTES:
 1. SEE DRAWING S-100 AND S-101 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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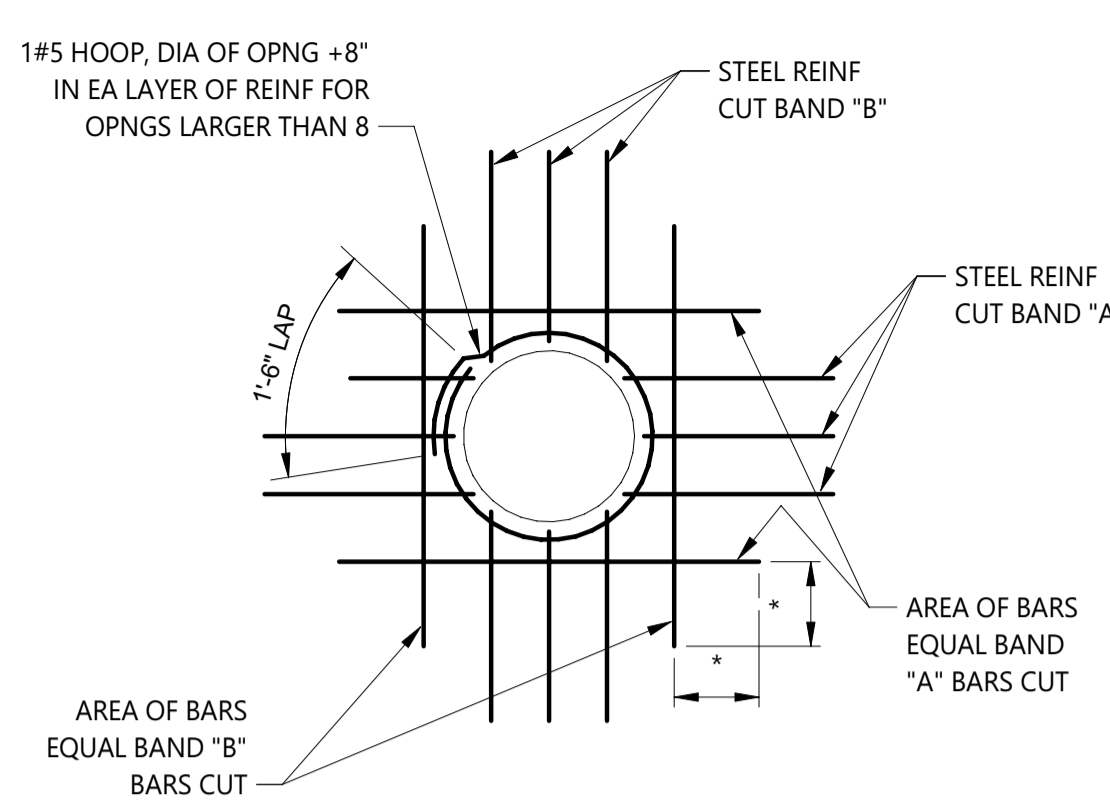
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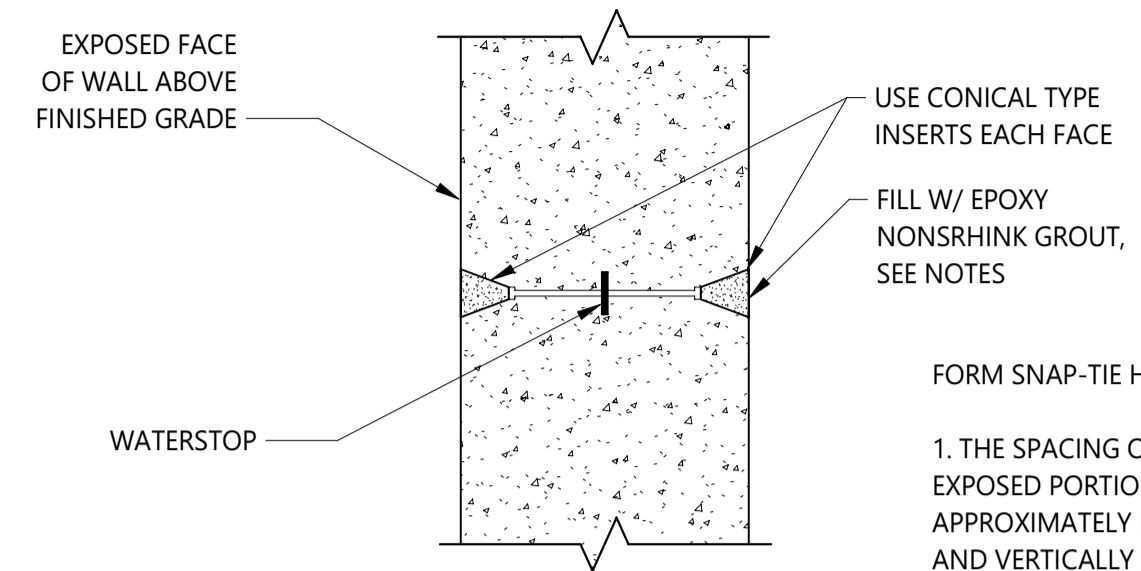
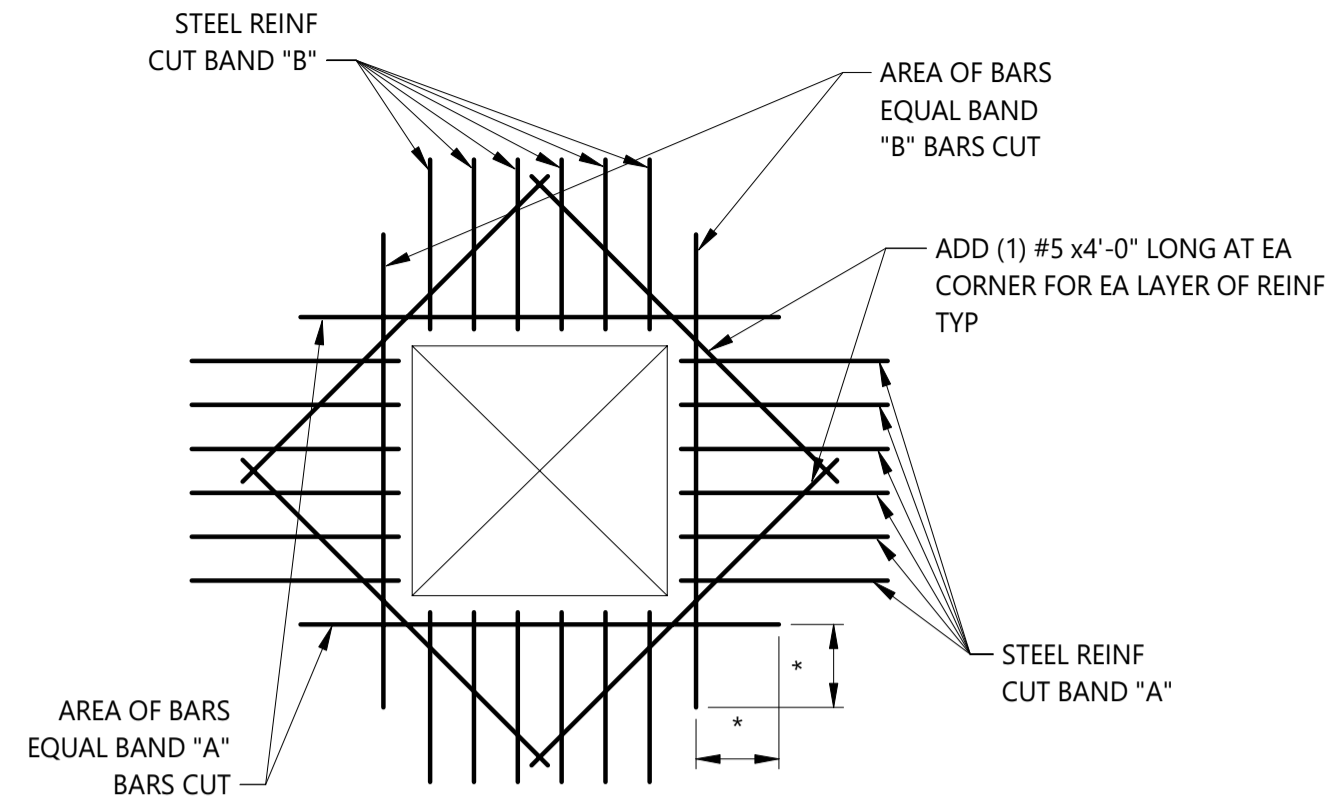
BARNES OUTFALL WATER QUALITY POND
TYPE C INLET SECTIONS

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 DATE: MARCH 8 2024
 DRAWING NO.: **S-122**
 SHEET: 49 of 50

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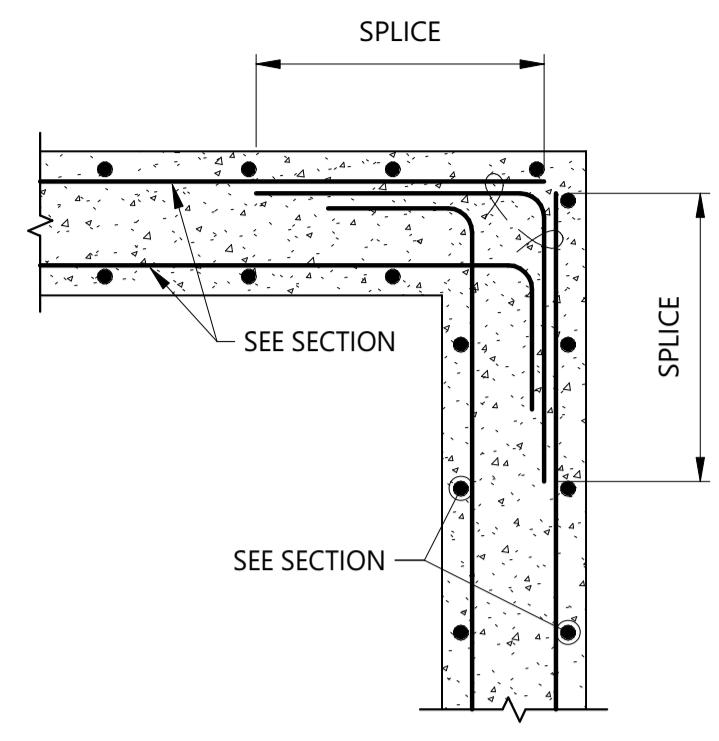


- OPENING REINFORCEMENT NOTES:**
- TYPICAL FOR ALL OPENINGS IN CONCRETE WALLS AND SLABS UNLESS INDICATED OTHERWISE ON PLANS.
 - DO NOT WELD REINFORCEMENT TO PIPE SLEEVES AND INSERTS.
 - PROVIDE A MINIMUM OF (2) "A" BARS AND (2) "B" BARS EACH SIDE OF OPENING (ONE EACH FACE).
 - SPACE AT 3 BAR DIAMETERS ON CENTER (3" MINIMUM).
 - * PROVIDE MINIMUM LAP AS NOTED OR SHOWN ON PLANS, TYPICAL. PROVIDE STD HOOK IF FULL LAP LENGTH IS NOT POSSIBLE.



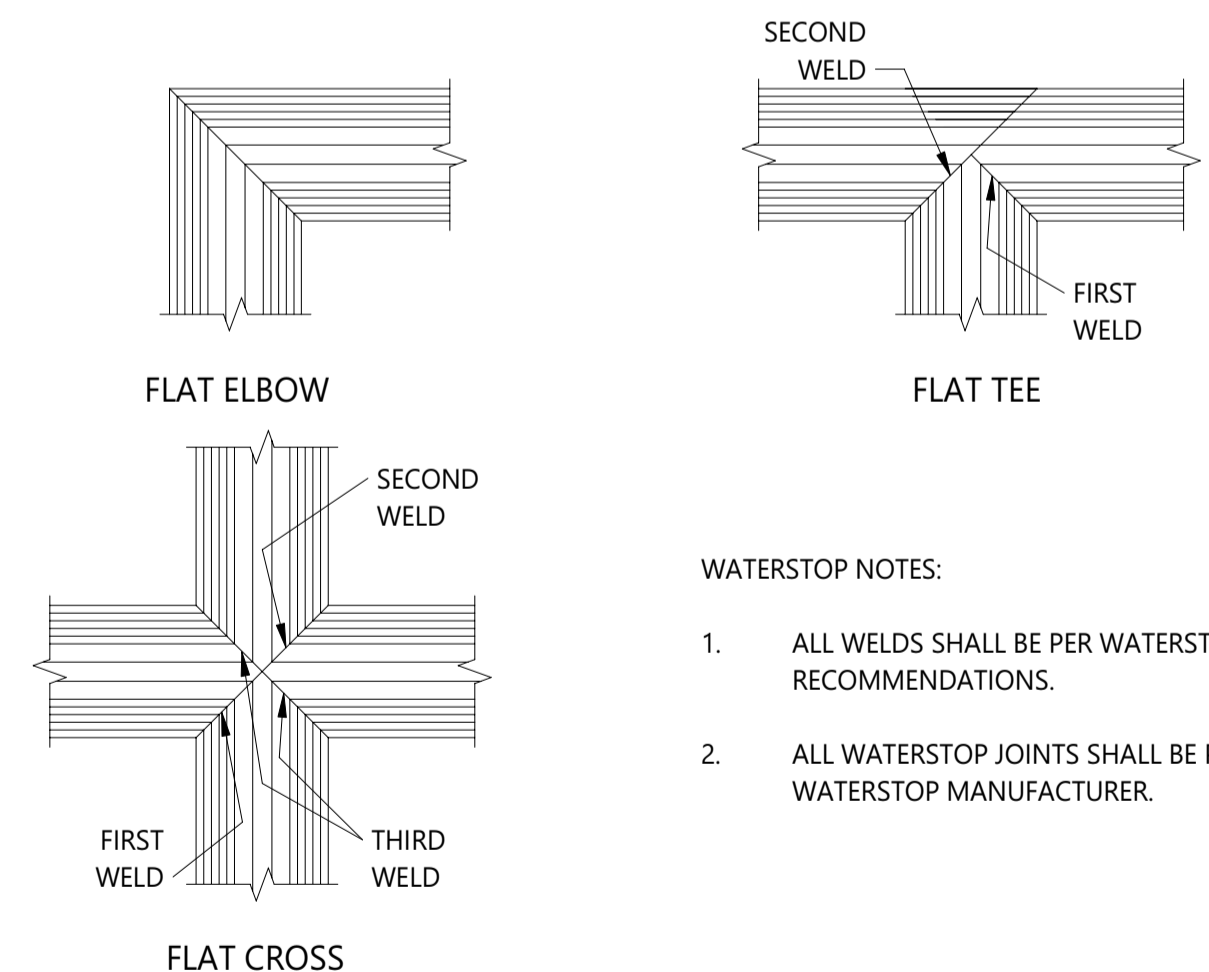
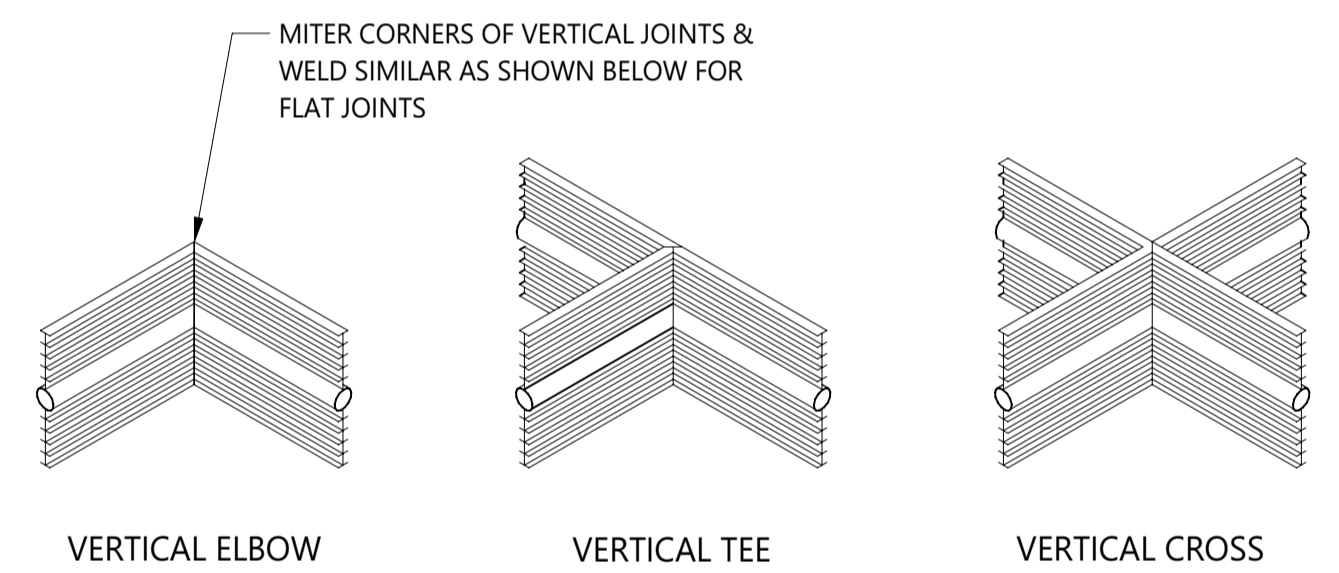
- FORM SNAP-TIE HOLE NOTES:**
- THE SPACING OF FORM TIES ON EXPOSED PORTIONS OF WALLS SHALL BE APPROXIMATELY EQUAL HORIZONTALLY AND VERTICALLY AND SHALL BE UNIFORM IN EACH DIRECTION.
 - DRY PACK TIE HOLES WITH EPOXY NON SHRINK GROUT WITH COLOR OF GROUT TO MATCH COLOR OF CONCRETE.

TYPICAL FORM SNAP - TIE JOINT
SCALE: N.T.S.



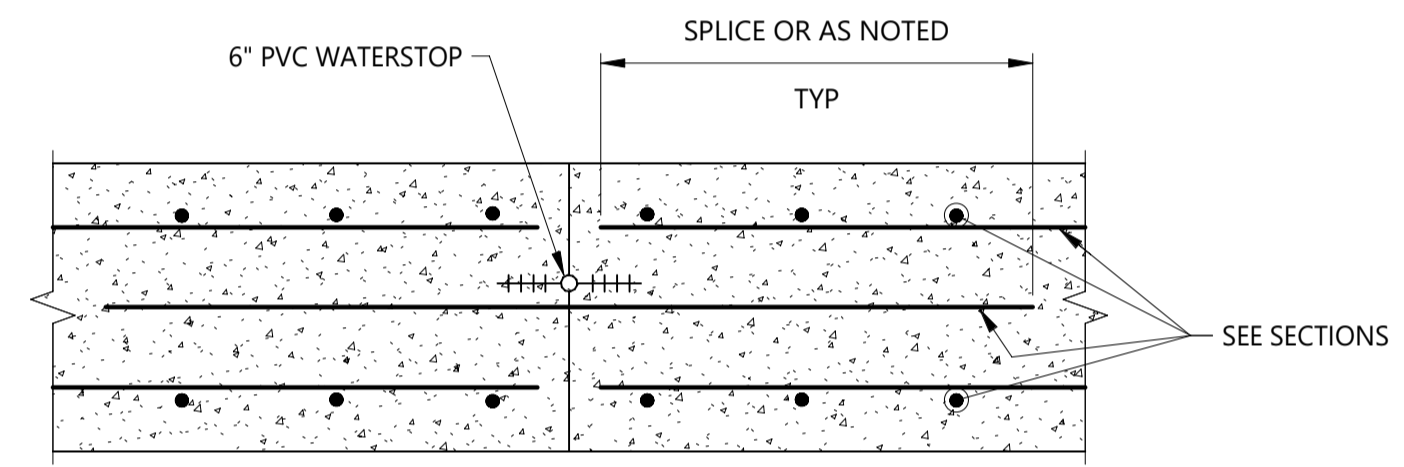
TYPICAL CORNER INTERSECTION
SCALE: N.T.S.

DETAIL 1 - TYPICAL OPENING REINFORCEMENT
DETAIL N.T.S.

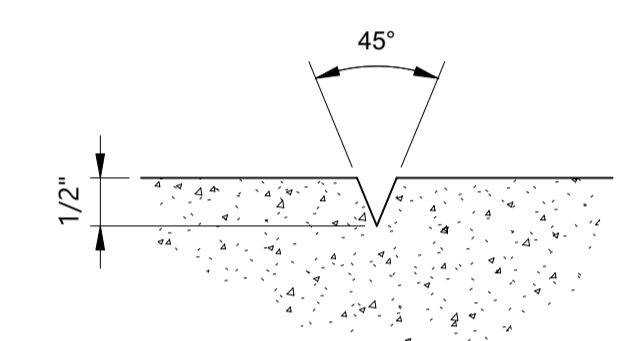


- WATERSTOP NOTES:**
- ALL WELDS SHALL BE PER WATERSTOP MANUFACTURER'S RECOMMENDATIONS.
 - ALL WATERSTOP JOINTS SHALL BE PRE-FABRICATED BY WATERSTOP MANUFACTURER.

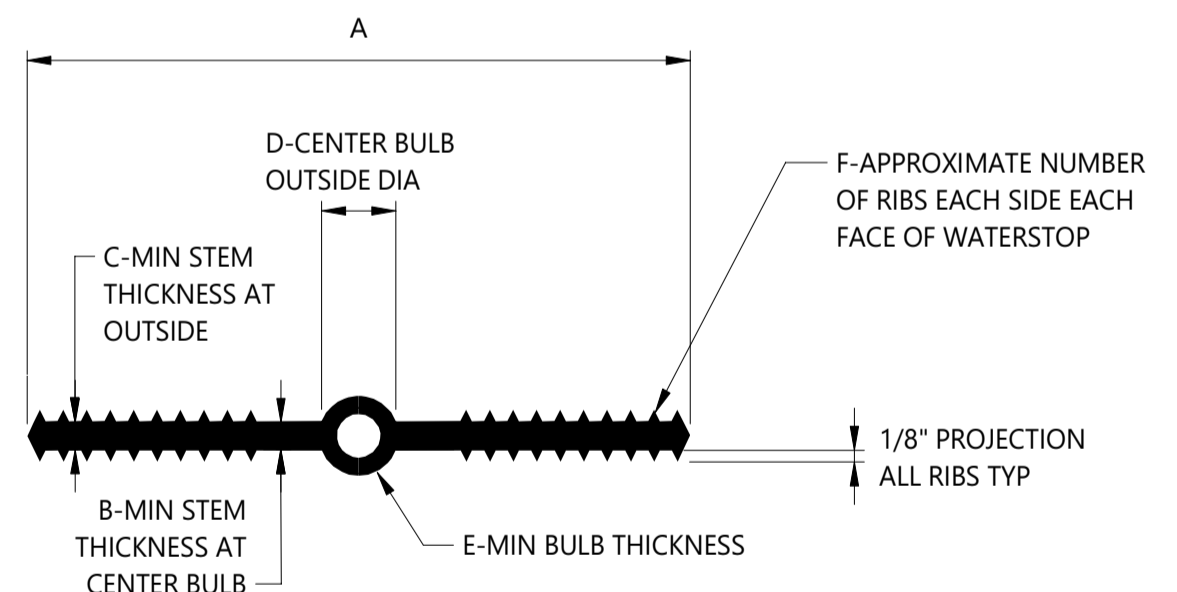
WATERSTOP JOINT
DETAIL N.T.S.



VERTICAL WALL CONSTRUCTION JOINT
SCALE: 1 1/2" = 1'-0"



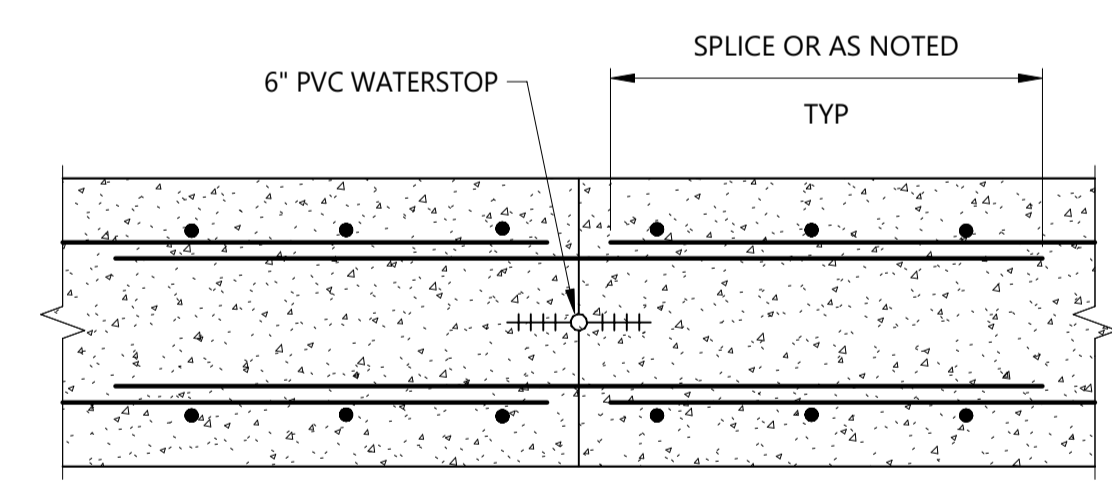
DETAIL 1 - V-JOINT
SCALE: 6" = 1'-0"



- WATERSTOP NOTES:**
- NON-ROUND CENTER BULBS SHALL HAVE A MINIMUM OUTSIDE DIMENSION OF 'D'.

SIZE	A	B	C	D	E	F
6"x3/8"	6"	3/8"	3/8"	1"	1/4"	8

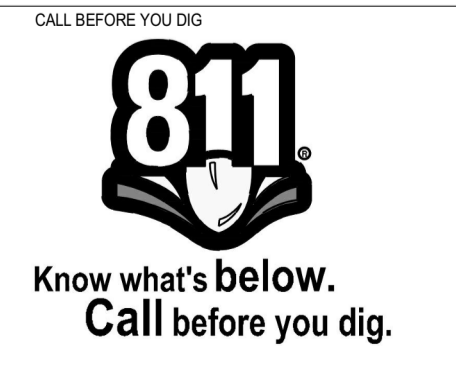
PLASTIC WATERSTOP
NOT TO SCALE



SLAB CONSTRUCTION JOINT
NOT TO SCALE

- NOTES:**
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BOB BARNES
22599
3/8/2024
PROFESSIONAL ENGINEER

FOR AND ON BEHALF OF MERRICK & COMPANY

TITLE

BARNES OUTFALL WATER QUALITY POND

CONCRETE STANDARD DETAILS

JOB NUMBER: 65421421

DATE: MARCH 8 2024

DRAWING NO: **S-123**

SHEET 50 of 50