

User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002\0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-01.DWG Scale: 1:1 Saved Date: 8/25/2022 Time: 14:33 Plot Date: Sangalang, Zsime: 11/29/2022, 08:37 ; Layout: LAYOUT1

GENERAL

- G-1
- THESE NOTES ARE SUPPLEMENTAL TO THE SPECIFICATIONS AND APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
- G-2
- STANDARD DETAILS SHOWN ON DRAWINGS ARE TYPICAL AND SHALL BE USED AT SIMILAR LOCATIONS UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- G-3
- DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE 2022 RHODE ISLAND STATE BUILDING CODE, EXCEPT WHERE OTHER APPLICABLE CODES AND THE CONTRACT DOCUMENTS ARE MORE RESTRICTIVE.
- G-4
- LIVE LOADS: N/A.
- G-5
- ROOF SNOW LOAD: N/A
- G-6
- SEISMIC DESIGN DATA: N/A
- G-7
- WIND DESIGN DATA: N/A
- G-8
- ALL DIMENSION TO, OF, OR IN EXISTING STRUCTURES SHALL BE FIELD VERIFIED PRIOR TO ANY DEMOLITION, FABRICATION OR CONSTRUCTION. NOTIFY OWNER FOR DISCREPANCY
- G-9
- IF CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S RISK UNTIL THE CONFLICT IS RESOLVED BY THE OWNER.
- G-10
- NO COLD OR HOT WEATHER CONSTRUCTION, AS DEFINED IN SPECIFICATION IS PERMITTED WITHOUT WRITTEN APPROVAL FROM THE OWNER.

CONCRETE

- C-1
- CONCRETE 28-DAY COMPRESSIVE STRENGTH: CLASS A 4500 PSI.
- C-2
- REINFORCEMENT: ASTM A615, GRADE 60.
- C-3
- LAP SPLICES SHALL BE IN ACCORDANCE WITH THE TABLE SHOWN ON S-12.

STRUCTURAL QUALITY ASSURANCE PLAN  
GENERAL

THIS STRUCTURAL QUALITY ASSURANCE PLAN IDENTIFIES THE RESPONSIBILITIES OF THE CONTRACTOR AND THE SPECIAL INSPECTOR IN PERFORMING THE TESTING AND INSPECTION OF THE WORK REQUIRED BY CHAPTER 17 OF THE BUILDING CODE THAT IS WITHIN THE SCOPE OF THE STRUCTURAL ENGINEERING SERVICES FOR THIS PROJECT. REFER TO OTHER PORTIONS OF THE CONSTRUCTION DOCUMENTS FOR TESTING AND INSPECTIONS REQUIRED OF MECHANICAL, ELECTRICAL, CIVIL, OR OTHER BUILDING COMPONENTS.

CONTRACTOR'S RESPONSIBILITIES:

CONTRACTOR SHALL NOTIFY SPECIAL INSPECTION AGENCY/LABORATORY AT LEAST 48 HOURS PRIOR TO START OF WORK AND COOPERATE WITH THE INDIVIDUAL SPECIAL INSPECTORS AND TESTING AGENCIES EMPLOYED BY THE OWNER TO FACILITATE CODE-REQUIRED SPECIAL INSPECTIONS.

SPECIAL INSPECTOR'S RESPONSIBILITIES:

THE SPECIAL INSPECTOR SHALL BE A LICENSED ENGINEER IN THE STATE OF RHODE ISLAND OR PERFORMING APPROPRIATE DUTIES DIRECTLY UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF RHODE ISLAND AND HAVE A THOROUGH UNDERSTANDING OF THE SPECIAL INSPECTION REQUIREMENTS OF THE 2018 IBC. THE SPECIAL INSPECTOR SHALL BE AN INDIVIDUAL OR INDIVIDUALS CERTIFIED OR EXPERIENCED TO PERFORM SUCH INSPECTIONS IN A PARTICULAR FIELD.

THE SPECIAL INSPECTOR SHALL KEEP RECORDS OF ALL INSPECTIONS AND FURNISH REPORTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. PERIODIC REPORTS SHALL BE PROVIDED AND SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED TO THE SATISFACTION OF THE SPECIAL INSPECTOR, THE DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE WORK.

A WEEKLY REPORT OF INSPECTIONS DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED. AT THE COMPLETION OF THE SPECIAL INSPECTIONS, THE LICENSED PROFESSIONAL ENGINEER IN CHARGE OF PERFORMING THE SPECIAL INSPECTION SHALL CERTIFY THE FINAL SPECIAL INSPECTION REPORT AND AFFIX HIS/HER SEAL TO THE SPECIAL INSPECTOR'S FINAL REPORT. PROVIDE THREE (3) COPIES OF THIS REPORT TO THE PROJECT ENGINEER.

CAST-IN-PLACE CONCRETE:

CONTRACTOR SHALL PERFORM THE FOLLOWING:

1.
- ESTABLISH CONCRETE MIX DESIGN PROPORTIONS PER ACI 318 AND THE SPECIFICATIONS. SUBMIT THREE COPIES OF THE CONCRETE MIX DESIGNS. INCLUDE THE FOLLOWING:

A. TYPE AND QUANTITIES OF MATERIALS

B. SLUMP

C. AIR CONTENT

D. FRESH UNIT WEIGHT

E. AGGREGATES SIEVE ANALYSIS

F. DESIGN COMPRESSIVE STRENGTH

G. LOCATION OF PLACEMENT IN STRUCTURE

H. METHOD OF PLACEMENT

I. METHOD OF CURING

J. SEVEN-DAY AND 28-DAY COMPRESSIVE STRENGTHS

K. ADMIXTURE PRODUCT DATA

L. SHRINKAGE TEST RESULTS PER SPECIFICATIONS
2.
- SUBMIT A CERTIFICATION FROM EACH MANUFACTURER OR SUPPLIER STATING THAT MATERIALS MEET THE REQUIREMENTS OF THE SPECIFIED ASTM AND ACI STANDARDS.
3.
- SUBMIT CERTIFICATION THAT THE READY-MIXED CONCRETE PLANT COMPLIES WITH THE REQUIREMENTS OF THE NATIONAL READY MIX CONCRETE ASSOCIATION.

SPECIAL INSPECTOR SHALL PERFORM THE FOLLOWING:

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
TYPE	C	P	REFERENCED STANDARD	IBC REFERENCE
1. INSPECT REINFORCEMENT, AND VERIFY PLACEMENT.	—	X	ACI 318 Ch: 20, 25.2, 25.3, 26.6.1–26.6.3	1908.4
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706 ; b. INSPECT SINGLE PASS FILET WELDS, MAXIMUM 5/16"; AND c. INSPECT ALL OTHER WELDS.	—	X	AWS D1.4 ACI 318: 26.6.4	—
	X			
3. VERIFY USE OF REQUIRED DESIGN MIX.	—	X	ACI 318 Ch: 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
4. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	—	ASTM C172 ASTM C31 ACI 318: 26.5, 26.12	1908.10
5. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	—	ACI 318: 26.5	1908.6, 1908.7, 1908.8
6. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	—	X	ACI 318: 26.5.3–26.5.5	1908.9
7. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	—	X	ACI 318: 26.11.1.2(b)	—

C = CONTINUOUS P = PERIODIC

- A.
- WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.
- B.
- SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT THE ANCHOR ISSUED BY APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES, WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENTS OF THE WORK.

ABBREVIATIONS

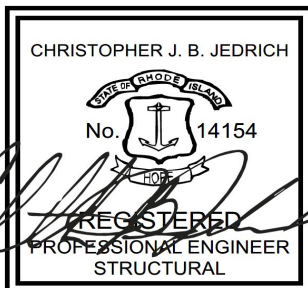
AB	ANCHOR BOLTS	ID	INSIDE DIAMETER
ADD'L	ADDITIONAL	IF	INSIDE FACE
AL	ALUMINUM	INV	INVERT
ALT	ALTERNATE	JT	JOINT
ANCH	ANCHOR	KO	KNOCK OUT
APPROX	APPROXIMATE	L	ANGLE (STRUCTURAL SHAPE)
A	ARCHITECTURAL	LG	LONG
BAL	BALANCE	LL	LIVE LOAD
BET	BETWEEN	LLH	LONG LEG HORIZ
BL	BUILDING LINE	LLV	LONG LEG VERT
BLDG	BUILDING	LOC	LOCATION
BLK	BLOCK	LP	LOW POINT
BM	BEAM	LW	LONG WAY
BOT	BOTTOM	MAS	MASONRY
BRG	BEARING	MCH	MATCH/MATCHING
BGS	BELOW GROUND SURFACE	MAX	MAXIMUM
C	CHANNEL STRUCTURAL SHAPE	MECH	MECHANICAL
CANT'L	CANTILEVER	MEZZ	MEZZANINE
CJ	CONSTRUCTION JOINT	MFR	MANUFACTURE, MANUFACTURER
CL	CLEAR	MH	MANHOLE
CMU	CONCRETE MASONRY UNIT	MID	MIDDLE
COL	COLUMN	MIN	MINIMUM
COMP	COMPRESSIBLE	N	NORTH
CONC	CONCRETE	NF	NEAR FACE
CONN	CONNECTION	#	NUMBER
CONST	CONSTRUCTION	NTS	NOT TO SCALE
CONT	CONTINUOUS	OC	ON CENTER
CSTG	CASTING	OD	OUTSIDE DIAMETER
C/C	CENTER TO CENTER	OF	OUTSIDE FACE
CTR	CENTER	OPNG	OPENING
DET	DETAIL	OPP	OPPOSITE
DIA	DIAMETER	PC	PRECAST CONCRETE
DIAG	DIAGONAL	PCO	PILE CUT OFF
DIM	DIMENSION	PL	PLATE
DL	DEAD LOAD	PSF	POUNDS PER SQUARE FOOT
DN	DOWN	PVC	POLYVINYL CHLORIDE
DO	DITTO	R	RISER
DP	DEEP	RAD	RADIUS
DWG	DRAWING	RD	ROOF DRAIN
DWL	DOWEL	REINF	REINFORCEMENT
E	EAST	REQD	REQUIRED
EA	EACH	RM	ROOM
EF	EACH FACE	RO	ROUGH OPENING
EJ	EXPANSION JOINT	S	SOUTH
EL	ELEVATION	SECT	SECTION
ELEC	ELECTRICAL	SHT	SHEET
EMB	EMBEDMENT	SIM	SIMILAR
ENCL	ENCLOSURE	SL	SLAB
EQ	EQUAL	SP	SPIRAL
EQUIP	EQUIPMENT	SPA	SPACING
ES	EACH SIDE	SPEC	SPECIFICATION
EW	EACH WAY	SQ	SQUARE
EW T&B	EACH WAY TOP & BOTTOM	SST	STAINLESS STEEL
EXIST	EXISTING	STD	STANDARD
EXP	EXPANSION	STIR	STIRRUP
EXT	EXTERIOR	STL	STEEL
FB	FLOOR BEAM	STRUCT	STRUCTURAL
FD	FLOOR DRAIN	SW	SHORT WAY
FDN	FOUNDATION	T&B	TOP AND BOTTOM
FF	FAR FACE	TOC	TOP OF CONCRETE
FIN	FINISH	THK	THICK
FL	FLOOR	T/	TOP OF
FTG	FOOTING	T	TREAD
GA	GAUGE	TYP	TYPICAL
GALV	GALVANIZE	UON	UNLESS OTHERWISE NOTED
GB	GRADE BEAM	VERT	VERTICAL
GR	GRADE	VIF	VERIFY IN FIELD
GRTG	GRATING	W	WEST
H	HIGH	WF	WIDE FLANGE STRUCTURAL SHAPE, WIDTH, WEST
HT	HEIGHT	W/	WITH
HORIZ	HORIZONTAL	WP	WORKING POINT
HP	HIGH POINT	WS	WATERSTOP
HS	HIGH STRENGTH		
HVAC	HEATING, VENTILATING & AIR CONDITIONING		



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SEALS



08-25-2022

CITY OF EAST PROVIDENCE, RI  
DEPARTMENT OF  
PUBLIC WORKS

WATER POLLUTION  
CONTROL FACILITY  
IMPROVEMENTS  
AND CONCRETE LINING

ARCADIS PROJ. NO. 30003179/00702

NO.	DATE	ISSUED FOR	BY
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2022

DATE: DECEMBER 2022

PROJECT NO.: 30003179/00702

FILE NAME: S-01

DESIGNED BY: M. ESTRADA

DRAWN BY: Z. SANGALANG

CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

GENERAL NOTES AND  
DESIGN CRITERIA

SCALE:  
AS SHOWN

S-01

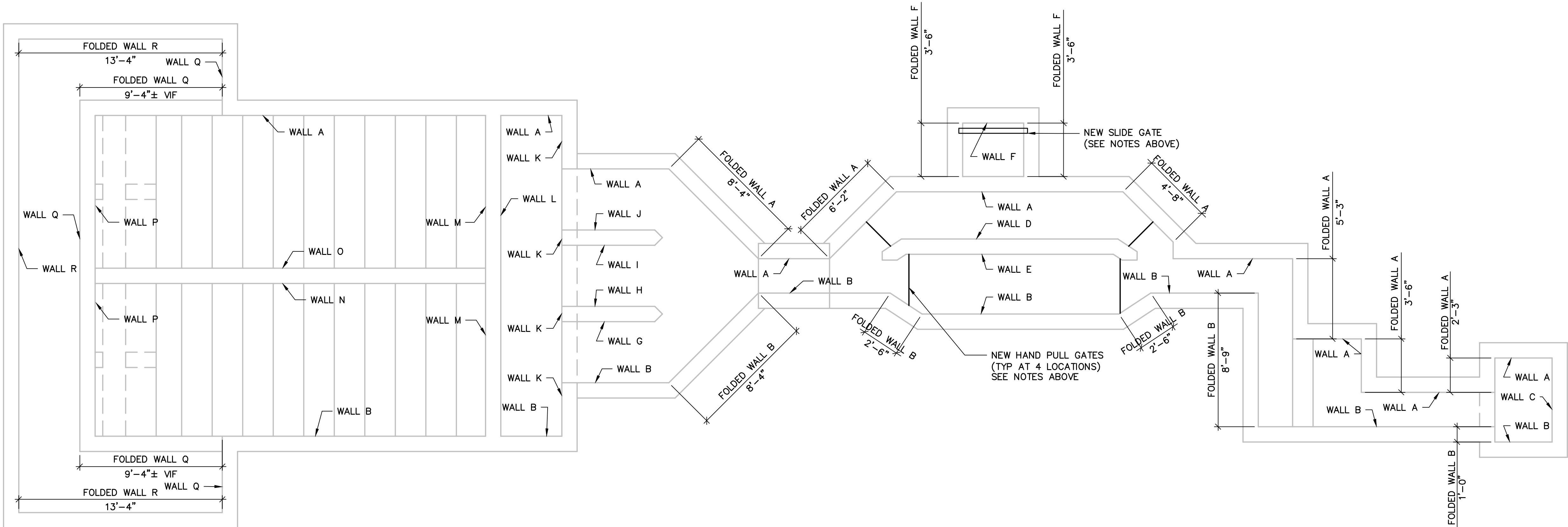
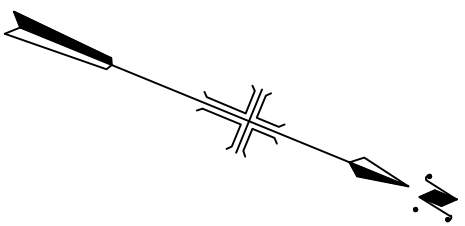
SHEET 11 OF 23



Users: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-02.DWG Scale: 1/4" = 1'-0" Plot Date: 11/29/2022, 08:37 ; Layout: LAYOUT1

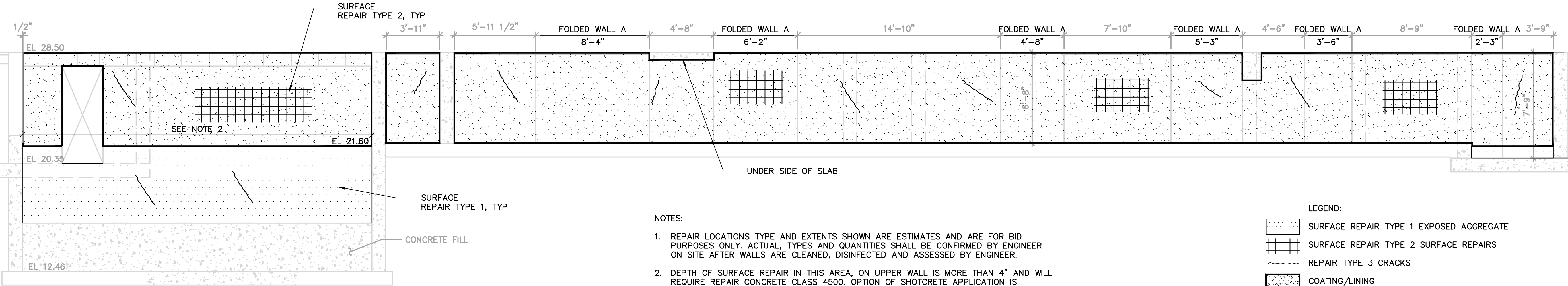
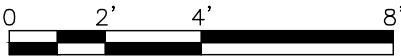
GATES INSTALLATIONS NOTES:

1. EXACT GATES LOCATIONS SHALL BE DECIDED ON SITE.
2. REFER TO MECHANICAL DRAWINGS FOR INSTALLATION DETAILS.
3. REFER TO ANCHOR SYSTEM AND GROUT SPECIFICATIONS FOR INSTALLATION OF GATES.
4. ADHESIVE ANCHORS SHALL BE DESIGNED BY CONTRACTOR APPOINTED PROFESSION ENGINEER IN STATE OF RHODE ISLAND AS REQUIRED BY GATE MANUFACTURER.
5. WHERE WALLS ARE NOT PERPENDICULAR TO GATES, GROUT SHALL BE FILLED UP TO MAXIMUM 3". IF REQUIRED FILL IS MORE THAN 3" REFER TO ENGINEER FOR DETAILS



1 – HEADWORKS PLAN

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



NOTES:

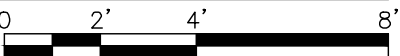
1. REPAIR LOCATIONS TYPE AND EXTENTS SHOWN ARE ESTIMATES AND ARE FOR BID PURPOSES ONLY. ACTUAL TYPES AND QUANTITIES SHALL BE CONFIRMED BY ENGINEER ON SITE AFTER WALLS ARE CLEANED, DISINFECTED AND ASSESSED BY ENGINEER.
2. DEPTH OF SURFACE REPAIR IN THIS AREA, ON UPPER WALL IS MORE THAN 4" AND WILL REQUIRE REPAIR CONCRETE CLASS 4500. OPTION OF SHOTCRETE APPLICATION IS ACCEPTABLE.
3. SYMBOLOGY INDICATED FOR SURFACE REPAIR TYPE 2 AND REPAIR TYPE 3 CRACK REPAIRS ARE DIAGRAMATIC IN NATURE. EXACT LOCATIONS OF REPAIRS WILL BE CONFIRMED BY ENGINEER IN FIELD.

LEGEND:

- SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
- SURFACE REPAIR TYPE 2 SURFACE REPAIRS
- REPAIR TYPE 3 CRACKS
- COATING/LINING

INTERIOR ELEVATION WALL A

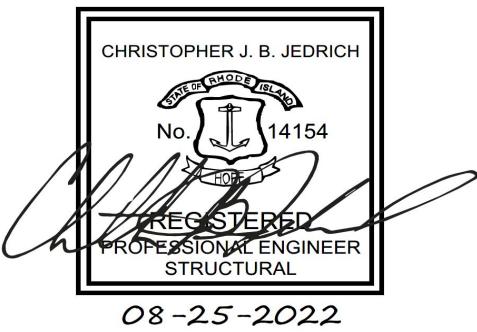
SCALE: 1/4" = 1'-0"



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DEPARTMENT OF  
PUBLIC WORKS

WATER POLLUTION  
CONTROL FACILITY  
IMPROVEMENTS  
AND CONCRETE LINING

ARCADIS PROJ. NO. 30003179/00702

NO.	DATE	ISSUED FOR	BY

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DATE: DECEMBER 2022

PROJECT NO.: 30003179/00702

FILE NAME: S-02

DESIGNED BY: M. ESTRADA

DRAWN BY: Z. SANGALANG

CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

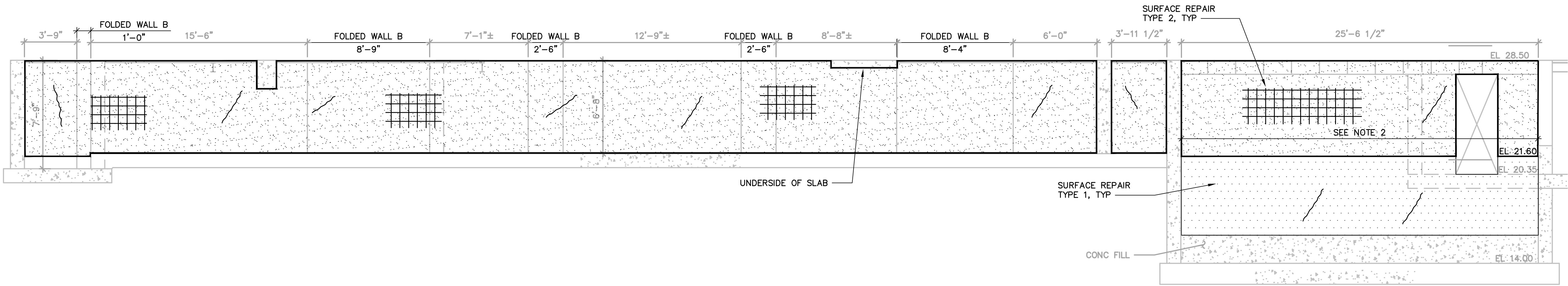
1 – HEADWORKS  
TOP PLAN AND  
INTERIOR ELEVATION  
WALL A

SCALE: AS SHOWN

S-02

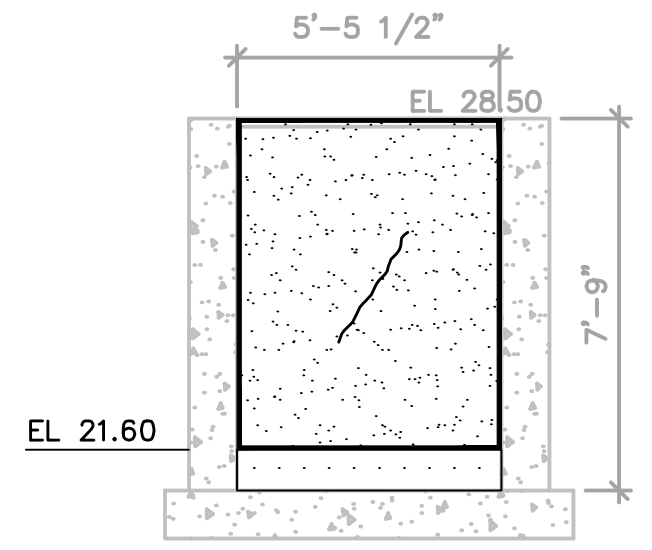
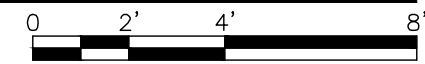
SHEET 12 OF 23

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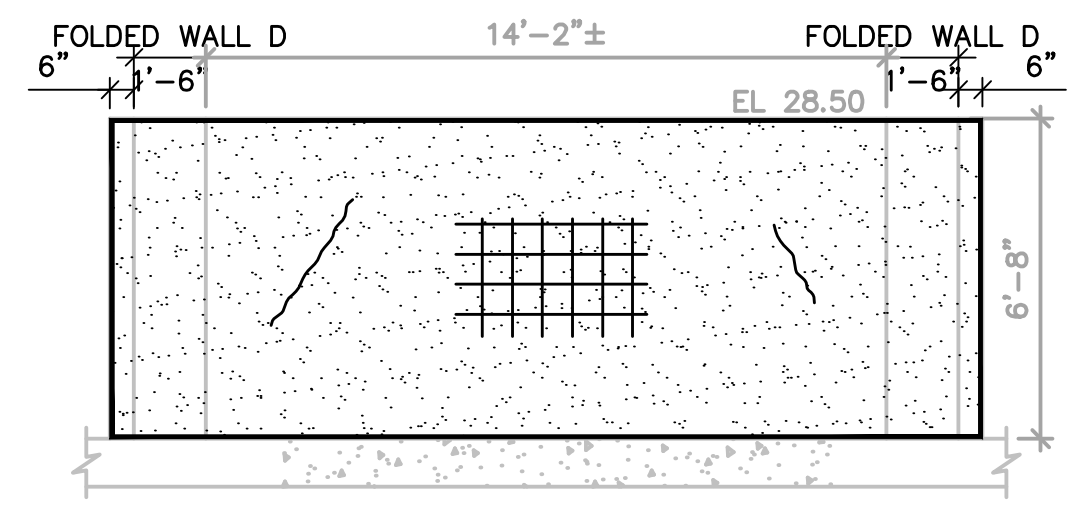
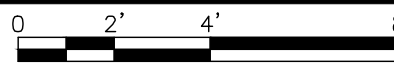
INTERIOR ELEVATION WALL B

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



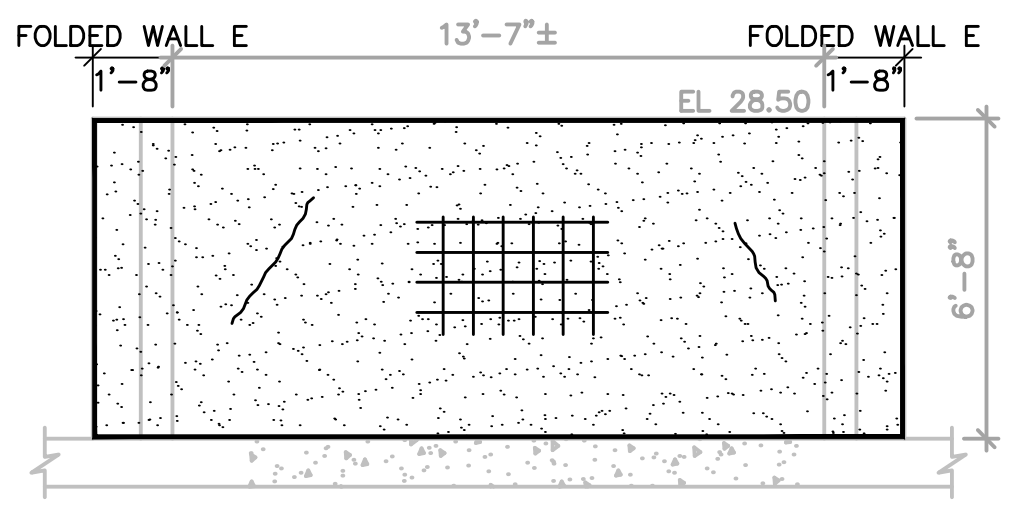
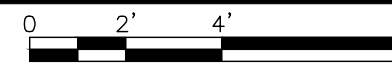
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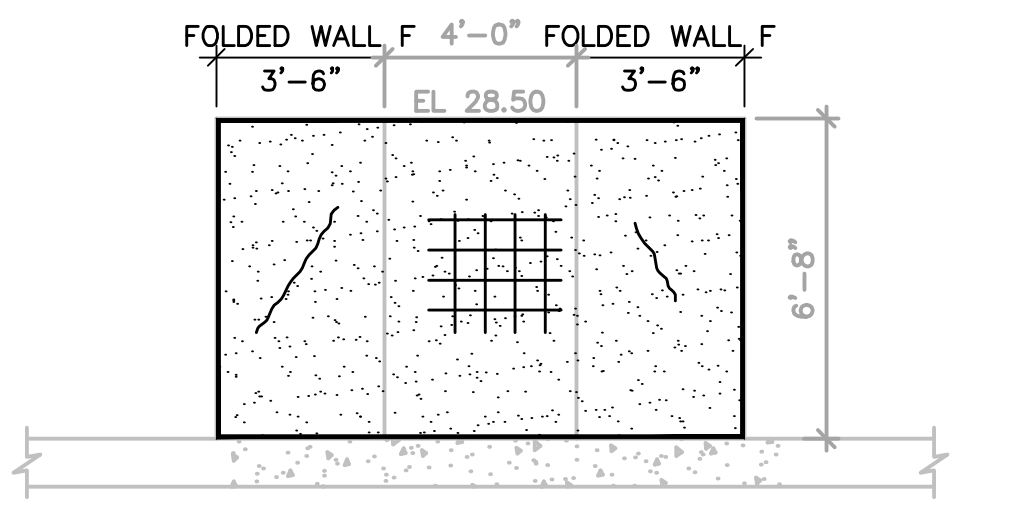
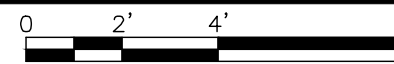
INTERIOR ELEVATION WALL D

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



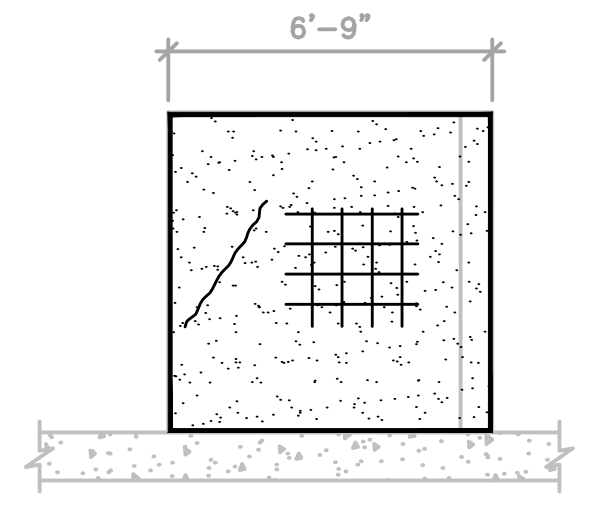
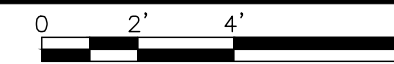
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SCALE: 1/4" = 1'-0"



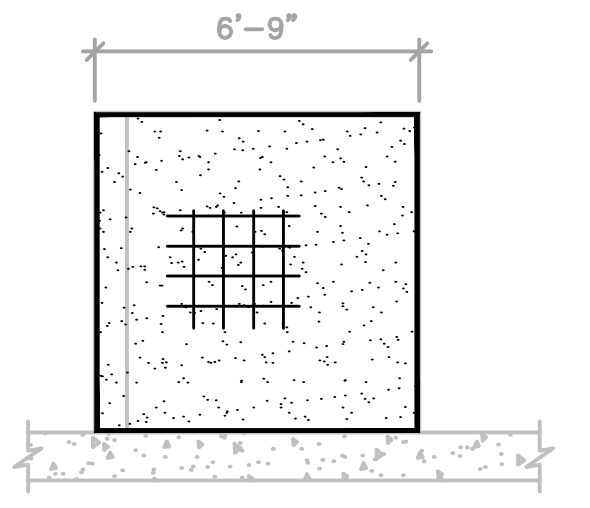
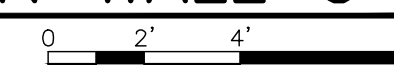
INTERIOR ELEVATION WALL F

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



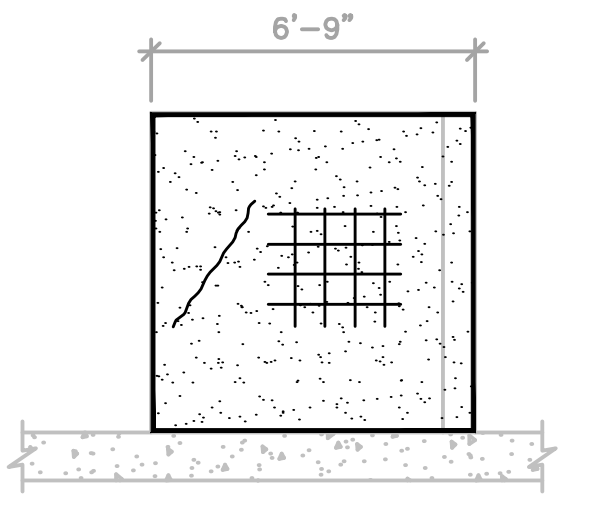
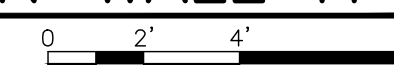
INTERIOR ELEVATION WALL G

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



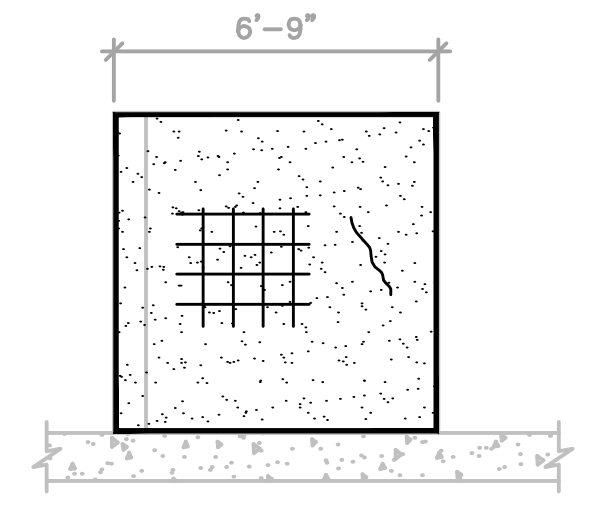
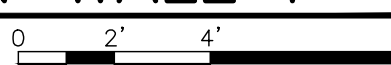
INTERIOR ELEVATION WALL H

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



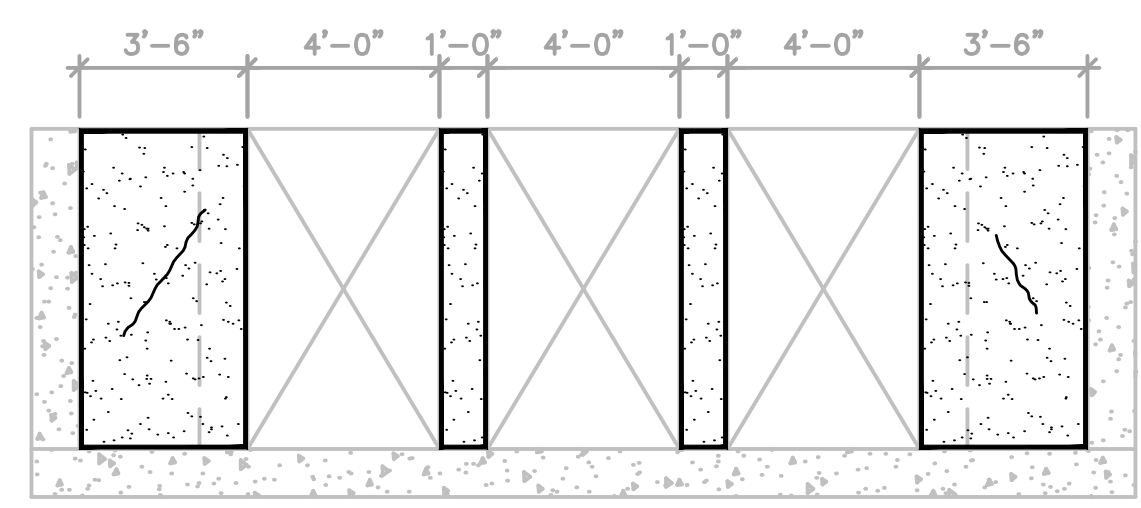
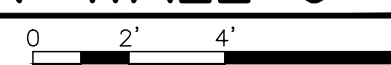
INTERIOR ELEVATION WALL I

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



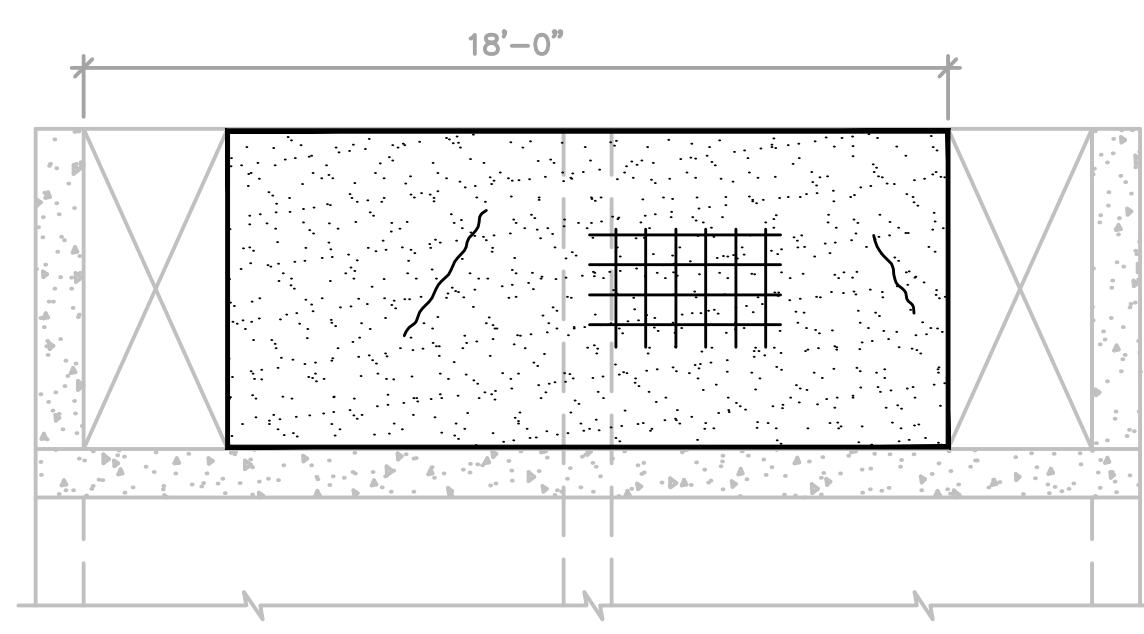
INTERIOR ELEVATION WALL J

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



INTERIOR ELEVATION WALL K

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



INTERIOR ELEVATION WALL L

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



- LEGEND:
- SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
  - SURFACE REPAIR TYPE 2 SURFACE REPAIRS
  - REPAIR TYPE 3 CRACKS
  - COATING/LINING

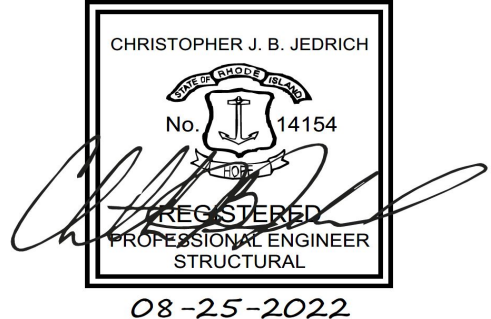
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SEALS



CITY OF EAST PROVIDENCE, RI  
DEPARTMENT OF  
PUBLIC WORKS

WATER POLLUTION  
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IMPROVEMENTS  
AND CONCRETE LINING

ARCADIS PROJ. NO. 30003179/00702

NO.	DATE	ISSUED FOR	BY

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2022

DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-03  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

1 - HEADWORKS  
INTERIOR ELEVATION  
WALLS

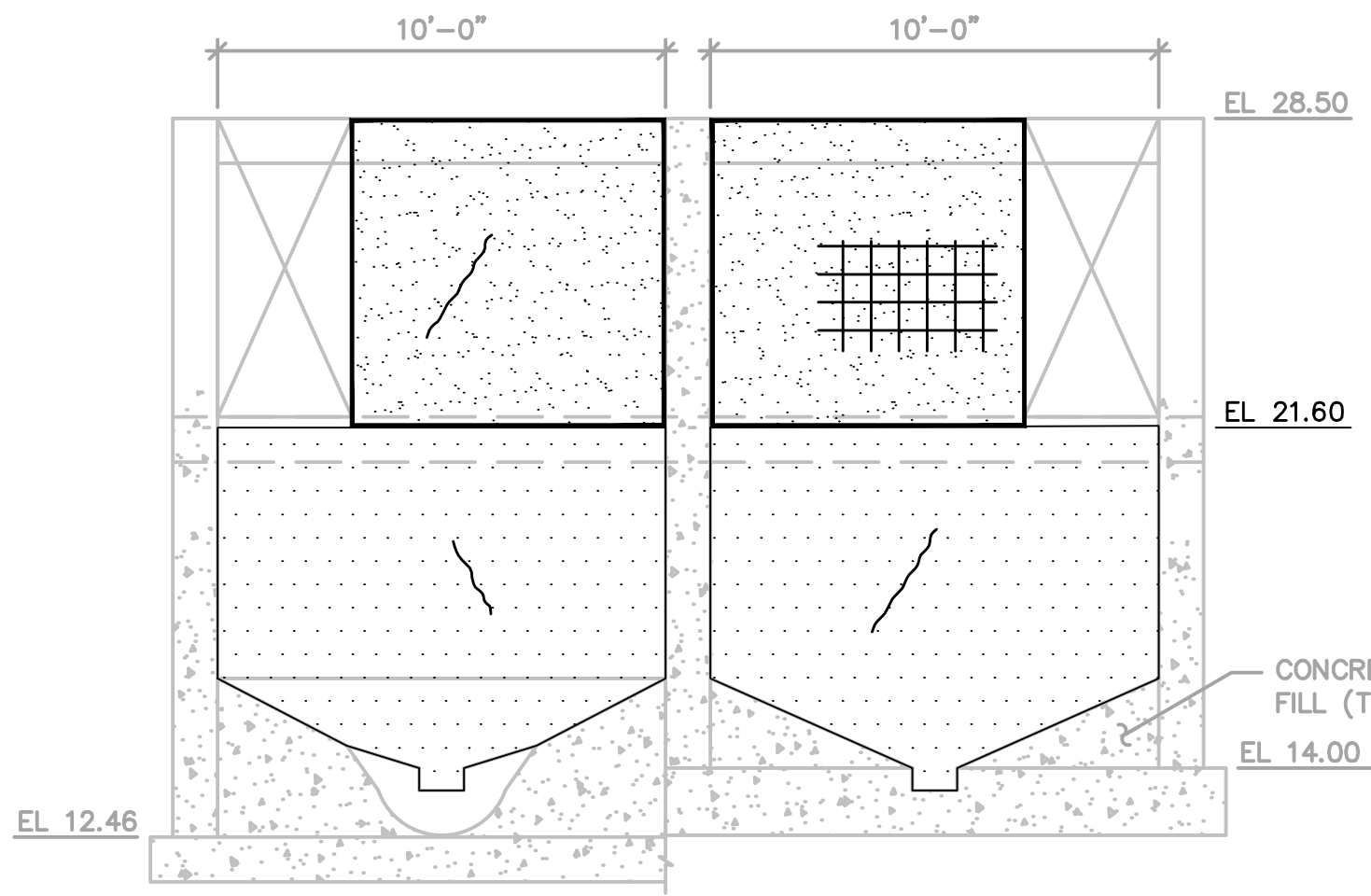
SCALE: AS SHOWN

S-03

SHEET 13 OF 23

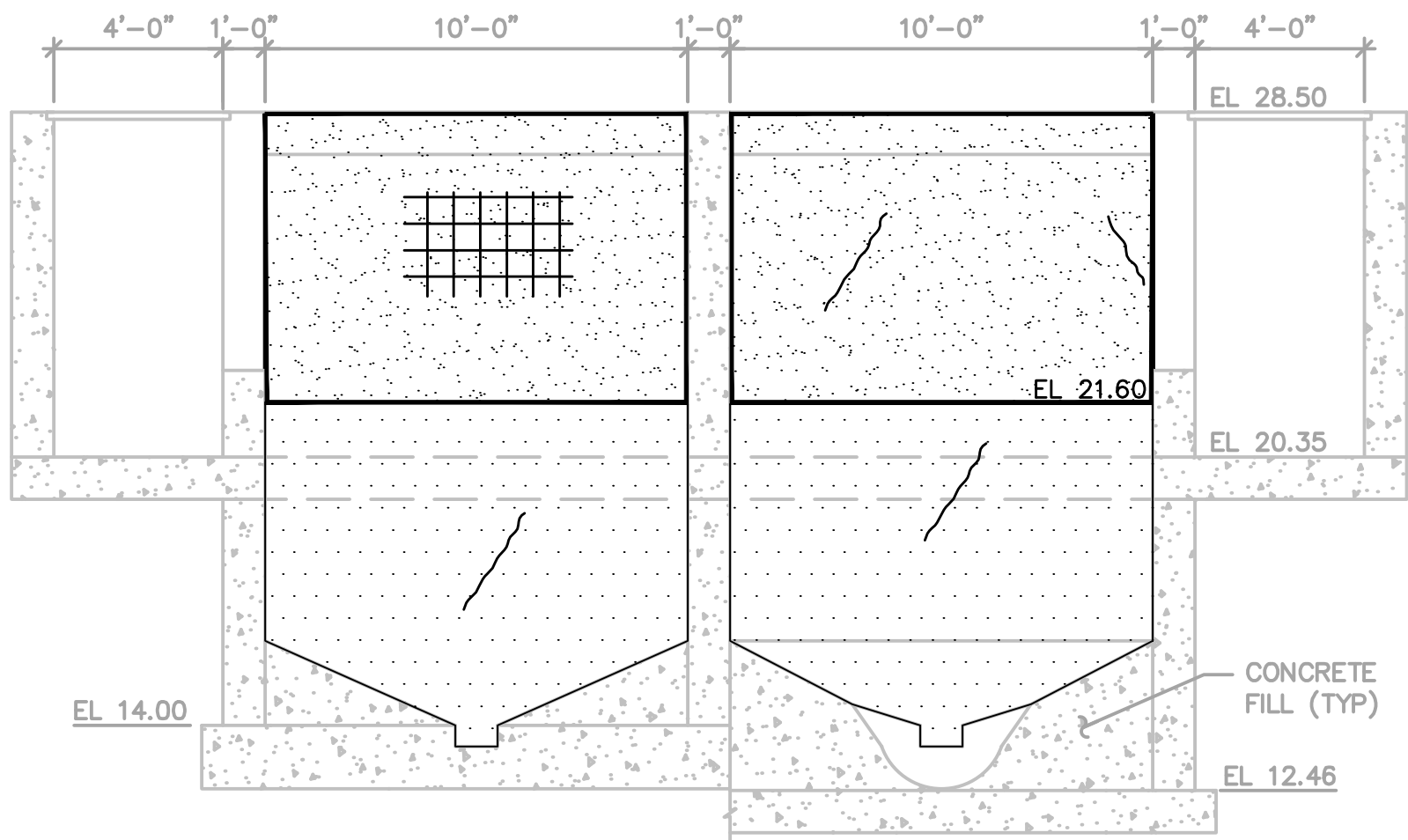


User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-04.DWG Scale: 1:1 Saved Date: 8/25/2022 Time: 15:49 Plot Date: Sangalang, Zsineer, 11/29/2022, 08:38 Layout: LAYOUT1



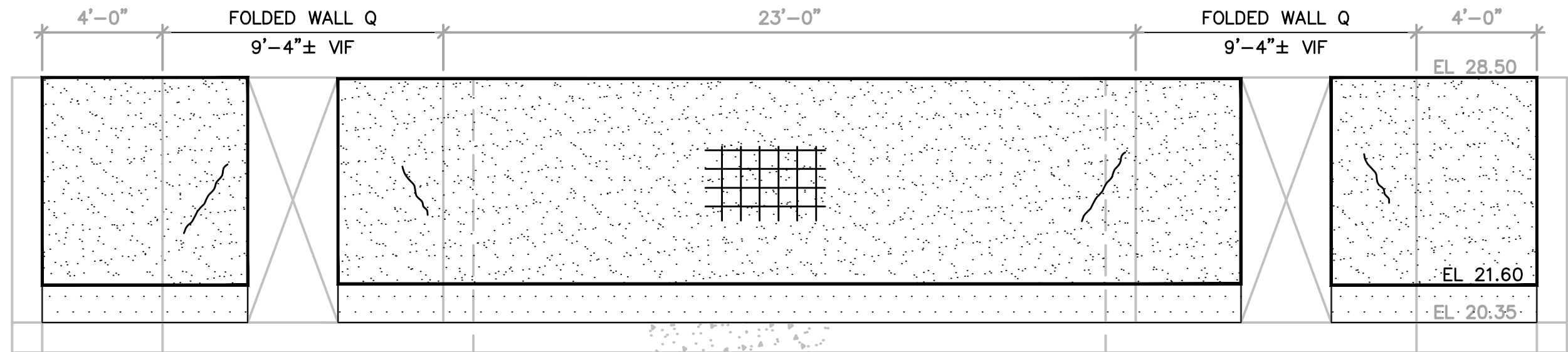
INTERIOR ELEVATION WALL M

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



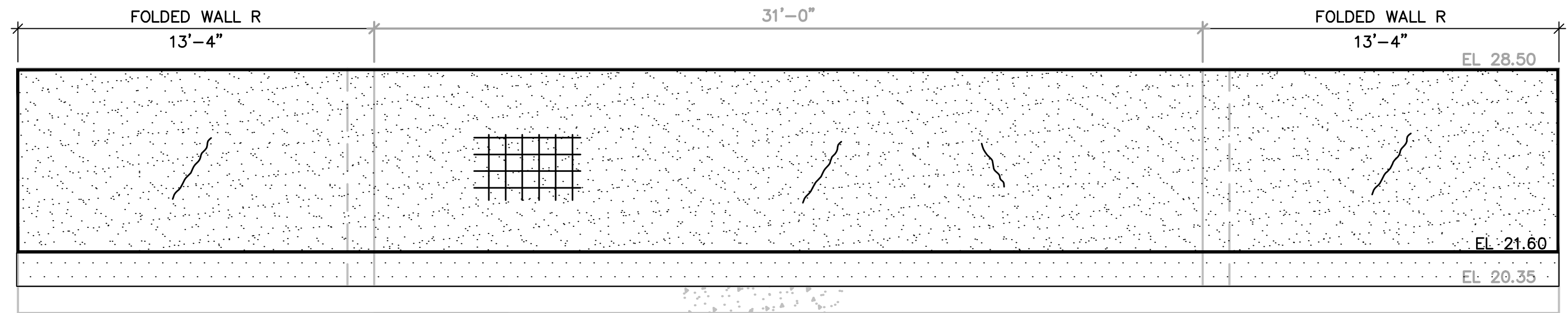
INTERIOR ELEVATION WALL P

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



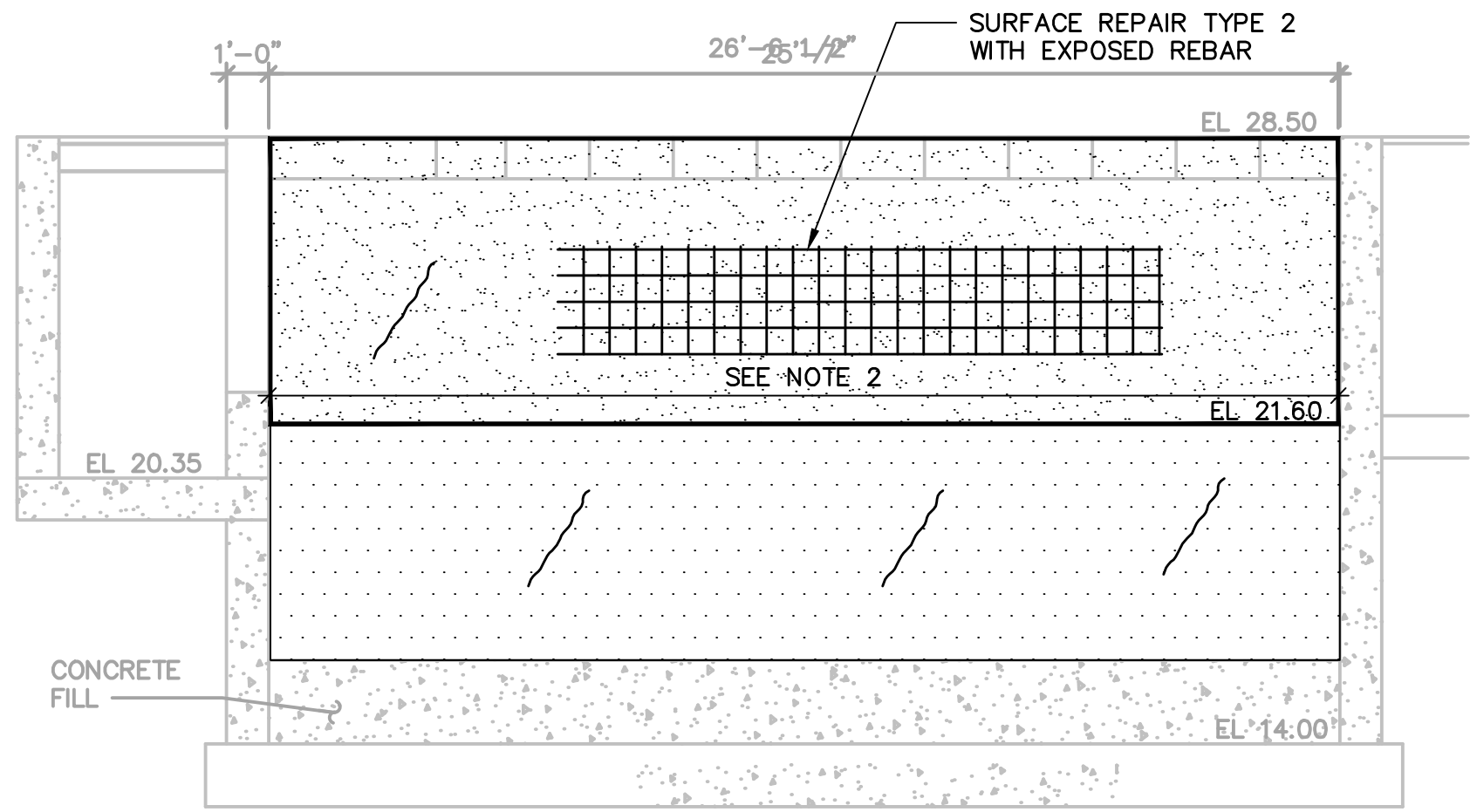
INTERIOR ELEVATION WALL Q

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



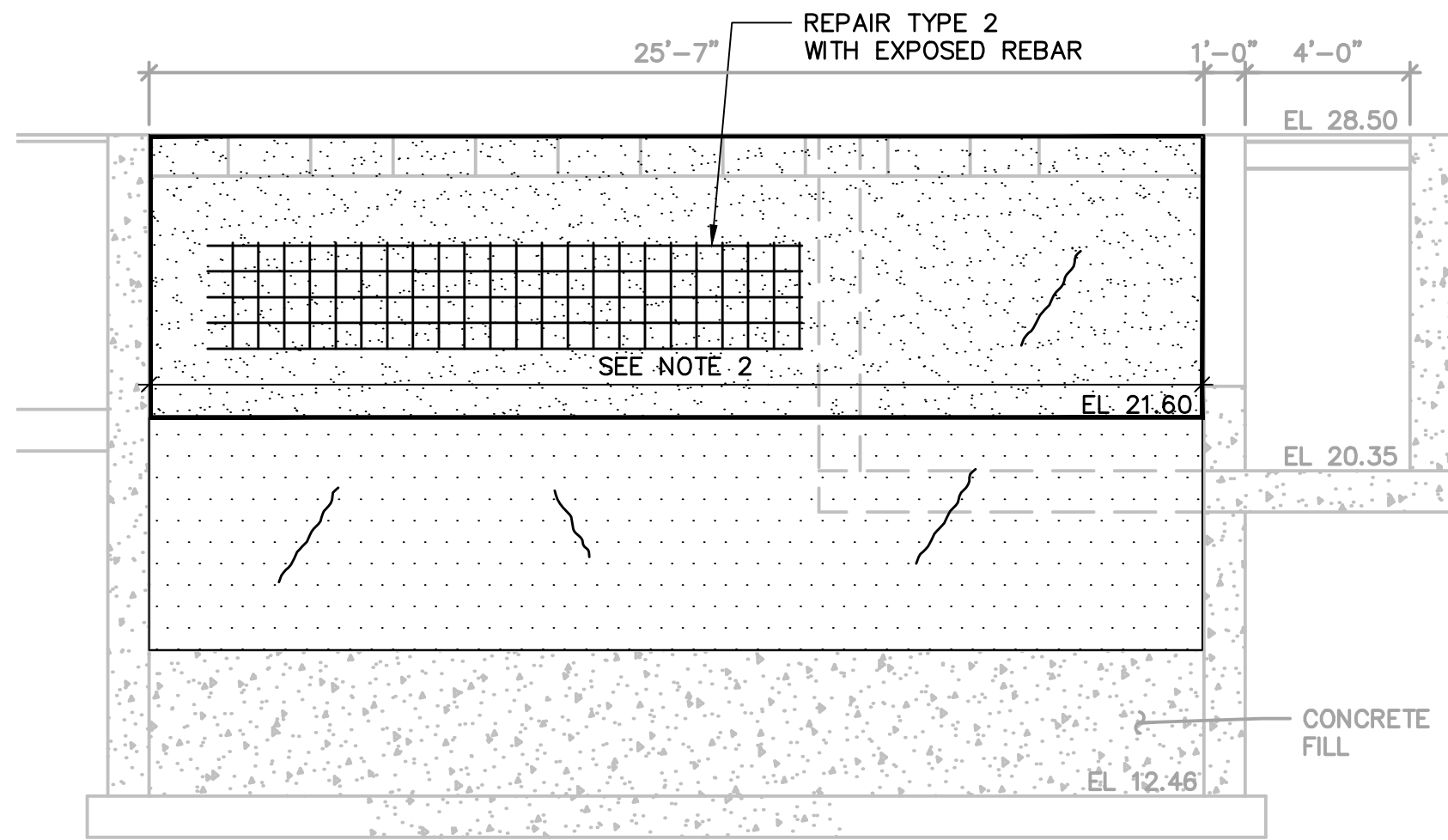
INTERIOR ELEVATION WALL R

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



INTERIOR ELEVATION WALL N

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



INTERIOR ELEVATION WALL O

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

NOTES:

- REPAIR LOCATIONS TYPE AND EXTENTS SHOWN ARE ESTIMATES AND ARE FOR BID PURPOSES ONLY. ACTUAL TYPES AND QUANTITIES SHALL BE CONFIRMED BY ENGINEER ON SITE AFTER WALLS ARE CLEANED, DISINFECTED AND ASSESSED BY ENGINEER.
- DEPTH OF SURFACE REPAIR IN THIS AREA, ON UPPER WALL IS MORE THAN 4" AND WILL REQUIRE REPAIR CONCRETE CLASS 4500. OPTION OF SHOTCRETE APPLICATION IS ACCEPTABLE.
- SYMBOLGY INDICATED FOR SURFACE REPAIR TYPE 2 AND REPAIR TYPE 3 CRACK REPAIRS ARE DIAGRAMATIC IN NATURE. EXACT LOCATIONS OF REPAIRS WILL BE CONFIRMED BY ENGINEER IN FIELD.

LEGEND:	
	SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
	SURFACE REPAIR TYPE 2 SURFACE REPAIRS
	REPAIR TYPE 3 CRACKS
	COATING

1-HEADWORKS-WALLS				
WALL	REPAIR TYPE 1 EXPOSED AGGREGATE	REPAIR TYPE 2 SURFACE REPAIRS	REPAIR TYPE 3 CRACKS	COATING/LINING (INCLUDING SOME REPAIR TYPE 1 & 3)
	QUANTITIES (SF)	QUANTITIES (SF)	QUANTITIES (LF)	QUANTITIES (SF)
A	100	200	50	700
B	100	200	50	700
C	5	5	10	40
D	5	5	10	115
E	5	5	10	115
F	5	5	5	75
G	5	5	5	45
H	5	5	5	45
I	5	5	5	45
J	5	5	5	45
K	5	10	20	55
L	5	10	20	140
M	5	10	20	140
N	100	190	50	200
O	100	190	50	200
P	100	75	50	120
Q	75	30	50	345
R	60	50	50	400
TOTAL	690	1005	465	3525

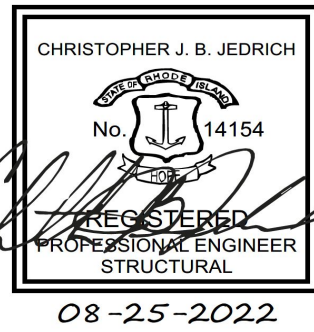
HEADWORKS-UNDERSIDE OF SLAB			
REPAIR TYPE 1 EXPOSED AGGREGATE	REPAIR TYPE 2 SURFACE REPAIRS	REPAIR TYPE 3 CRACKS	COATING/LINING (INCLUDING SOME REPAIR TYPE 1 & 3)
QUANTITIES (SF)	QUANTITIES (SF)	QUANTITIES (LF)	QUANTITIES (SF)
5	50	25	175



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CONTROL FACILITY  
IMPROVEMENTS  
AND CONCRETE LINING

ARCADIS PROJ. NO. 30003179/00702

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2022

DATE: DECEMBER 2022

PROJECT NO.: 30003179/00702

FILE NAME: S-04

DESIGNED BY: M. ESTRADA

DRAWN BY: Z. SANGALANG

CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

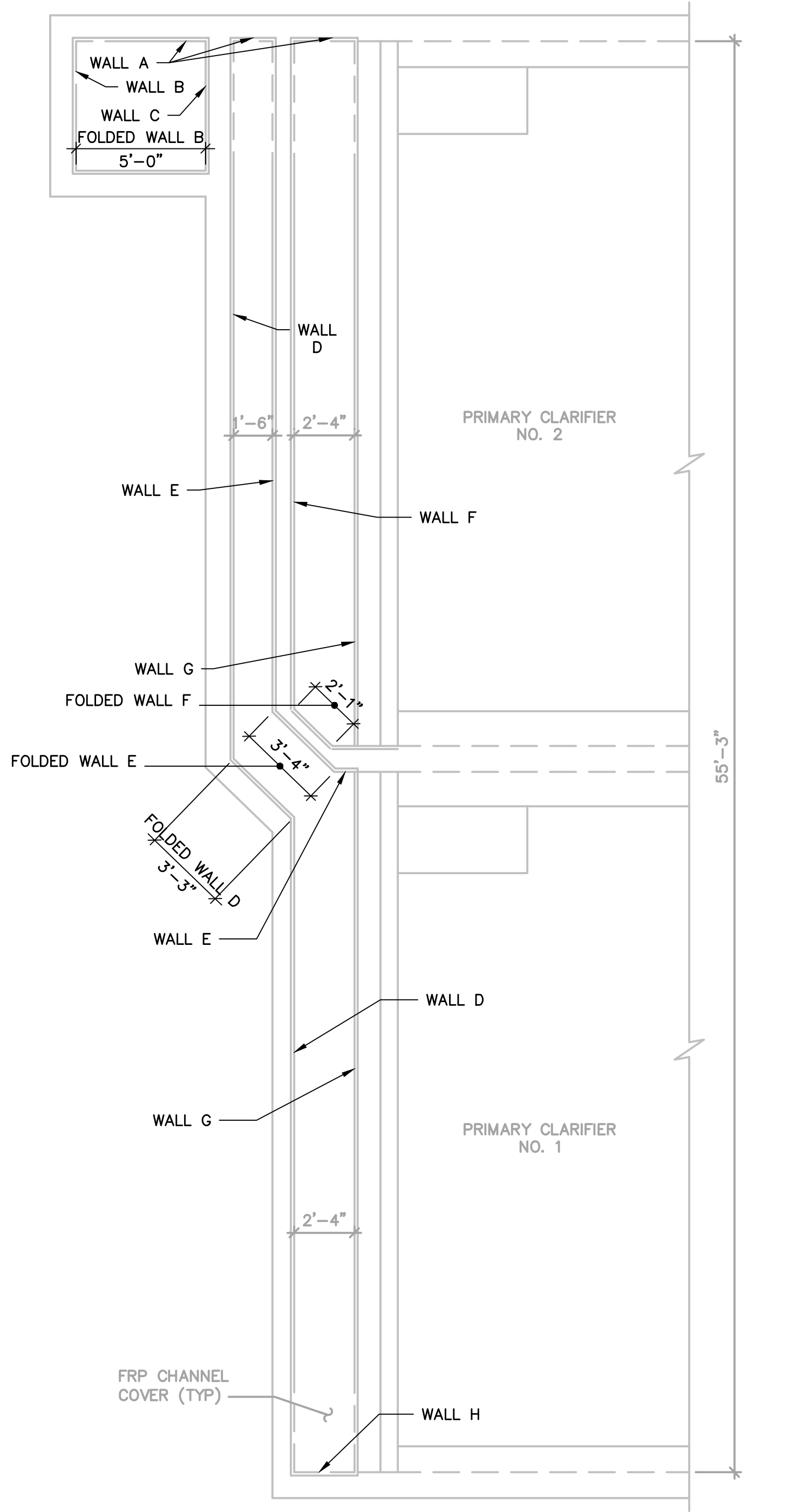
1 - HEADWORKS  
INTERIOR ELEVATION  
WALLS AND SECTIONS

SCALE: AS SHOWN

S-04

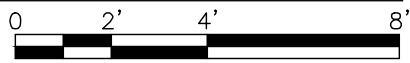
SHEET 14 OF 23

Users\SANGALANG\_Spec\AUS-NCS\MOD\_Files\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-05.DWG Scale:1:1 SavedDate:8/25/2022 Time:15:51 Plot Date: Sangalang, Zedine; 11/28/2022; 08:39 ; Layout:LAYOUT1

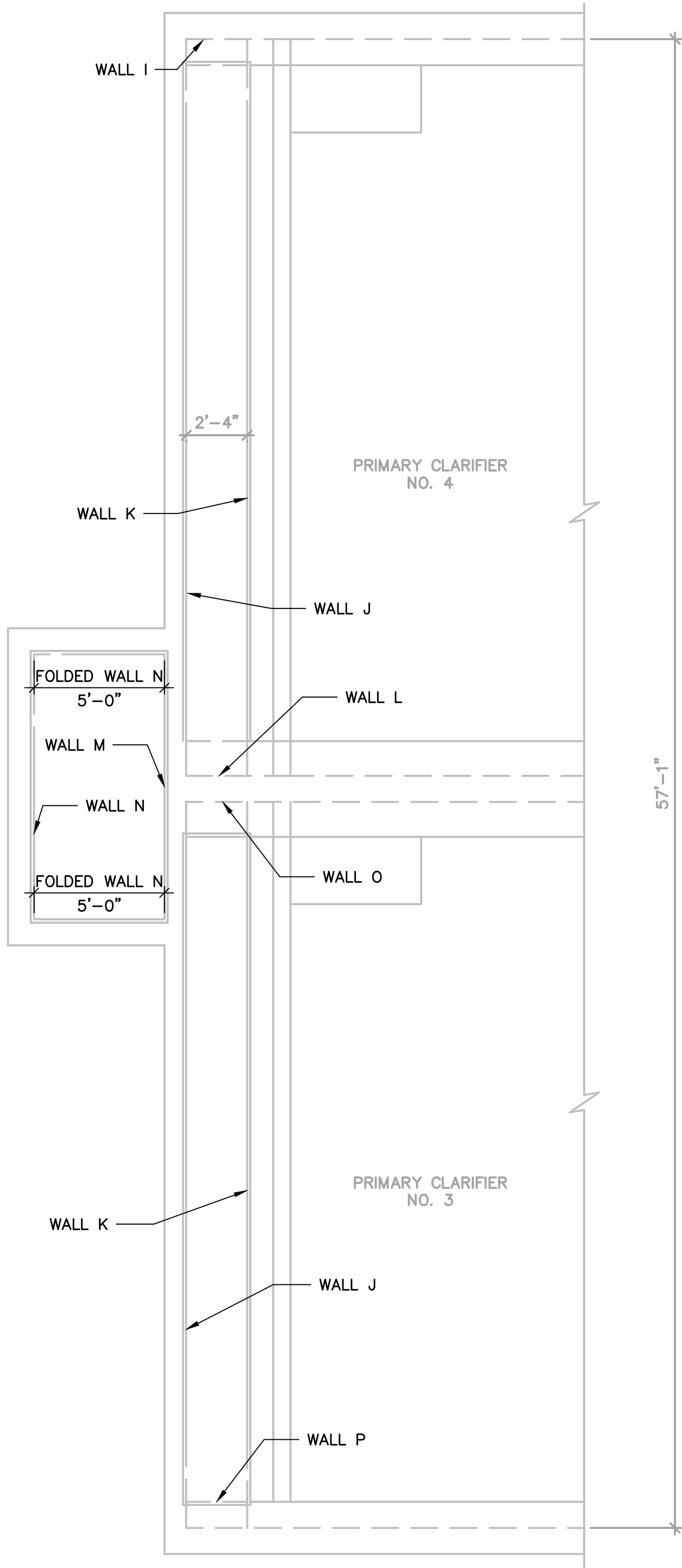


3 – PRIMARY CLARIFIER 1 & 2  
EFFLUENT CHANNEL TOP PLAN

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

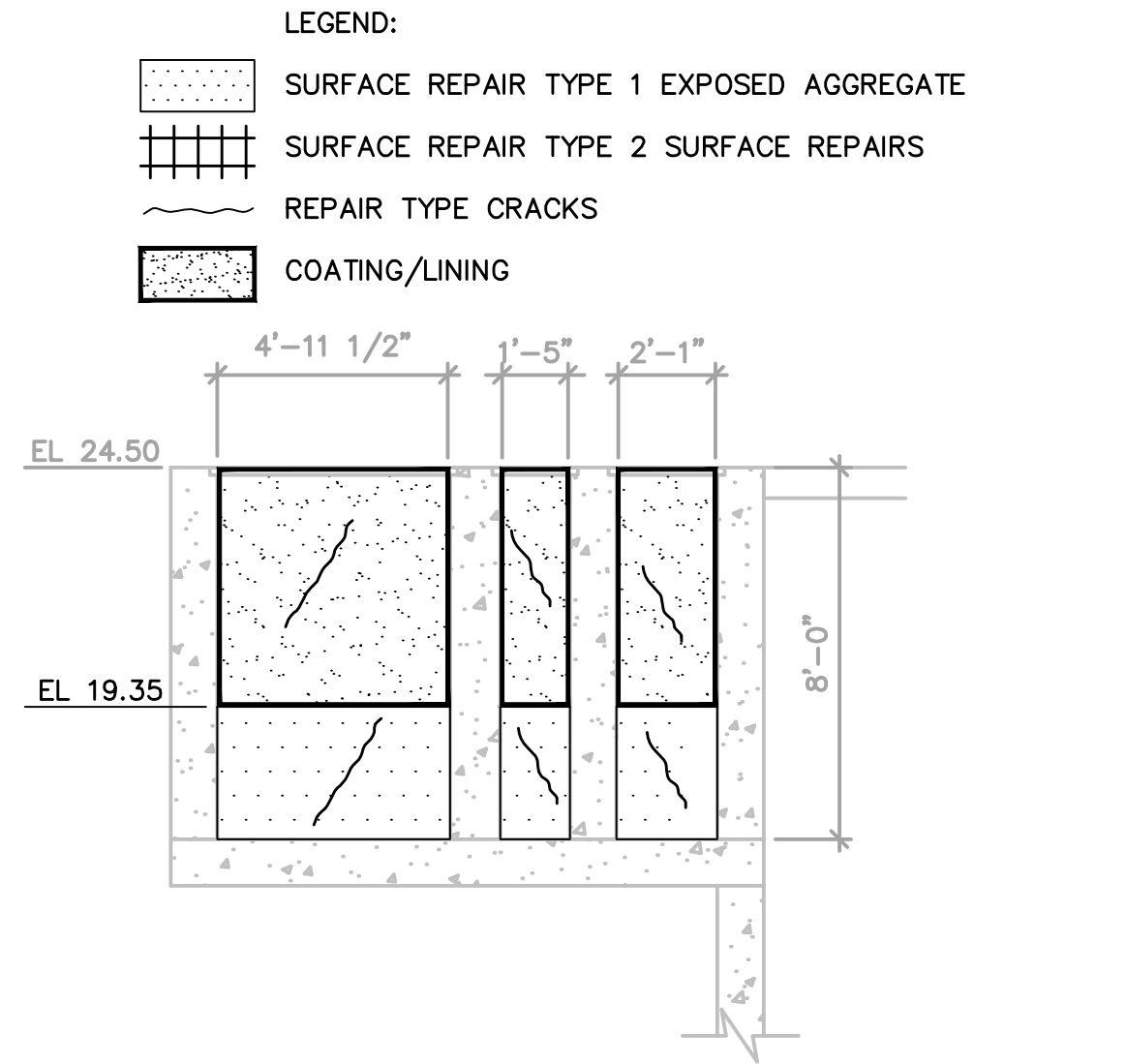
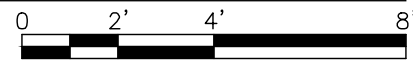


- NOTES:
- REPAIR LOCATIONS TYPE AND EXTENTS SHOWN ARE ESTIMATES AND ARE FOR BID PURPOSES ONLY. ACTUAL, TYPES AND QUANTITIES SHALL BE CONFIRMED BY ENGINEER ON SITE AFTER WALLS ARE CLEANED, DISINFECTED AND ASSESSED BY ENGINEER.
  - SYMBOLGY INDICATED FOR SURFACE REPAIR TYPE 2 AND REPAIR TYPE 3 CRACK REPAIRS ARE DIAGRAMATIC IN NATURE. EXACT LOCATIONS OF REPAIRS WILL BE CONFIRMED BY ENGINEER IN FIELD.



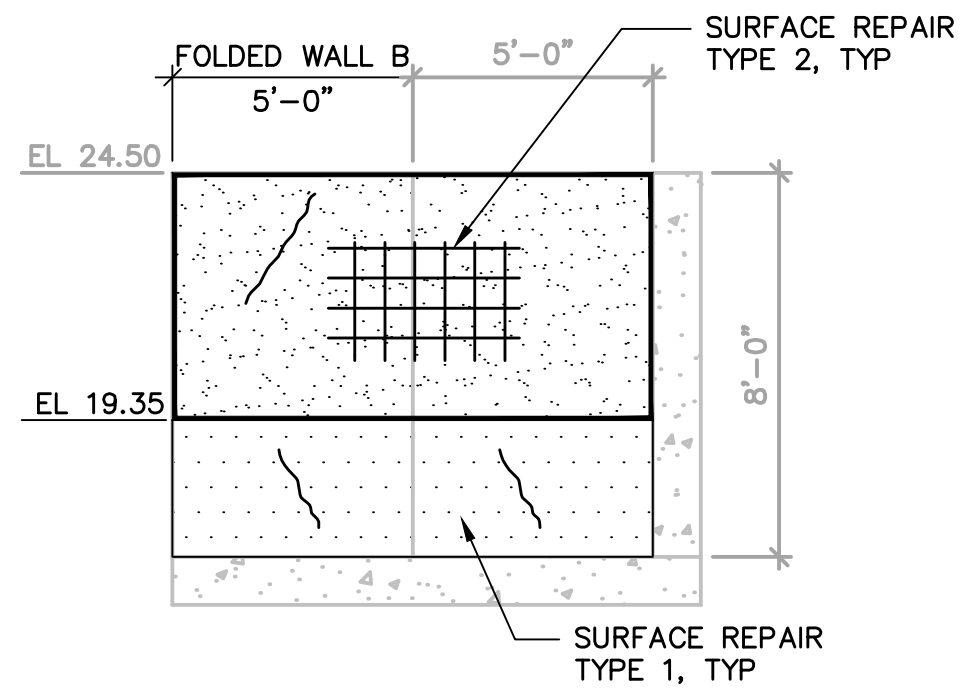
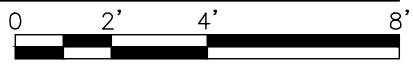
5 – PRIMARY CLARIFIER 3 & 4  
EFFLUENT CHANNEL TOP PLAN

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



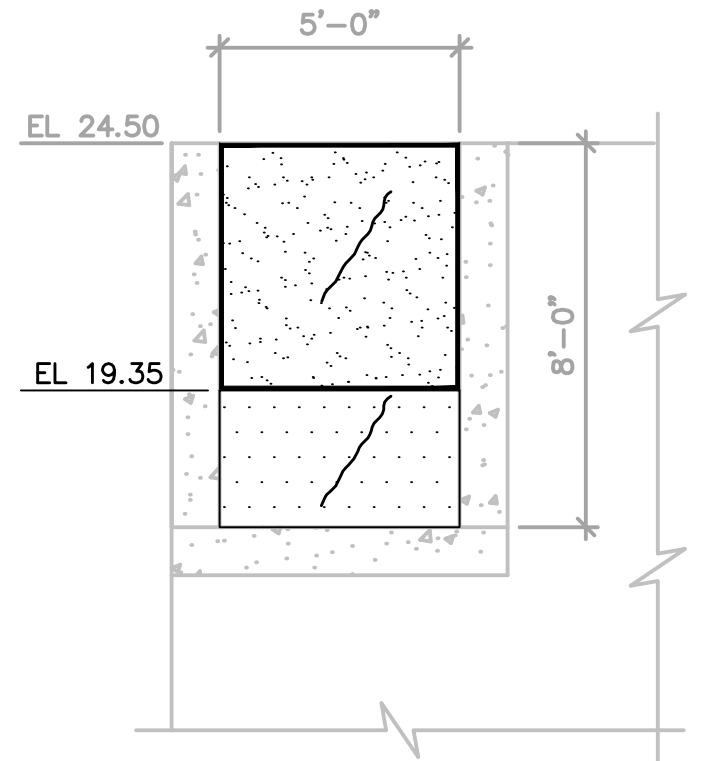
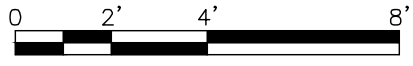
INTERIOR ELEVATION WALL A

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



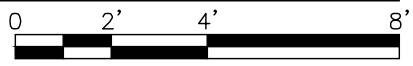
INTERIOR ELEVATION WALL B

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



INTERIOR ELEVATION WALL C

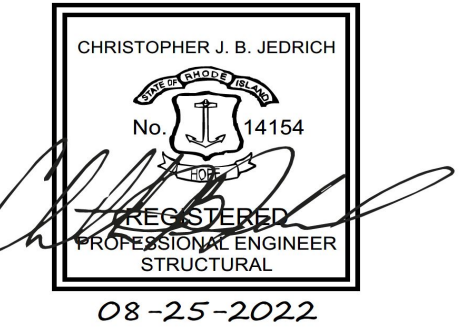
SCALE: 1/4" = 1'-0"



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NO.	DATE	ISSUED FOR	BY

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DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-05  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

3 & 5 – PRIMARY  
CLARIFIERS EFFLUENT  
CHANNELS TOP PLANS  
AND INTERIOR  
ELEVATIONS

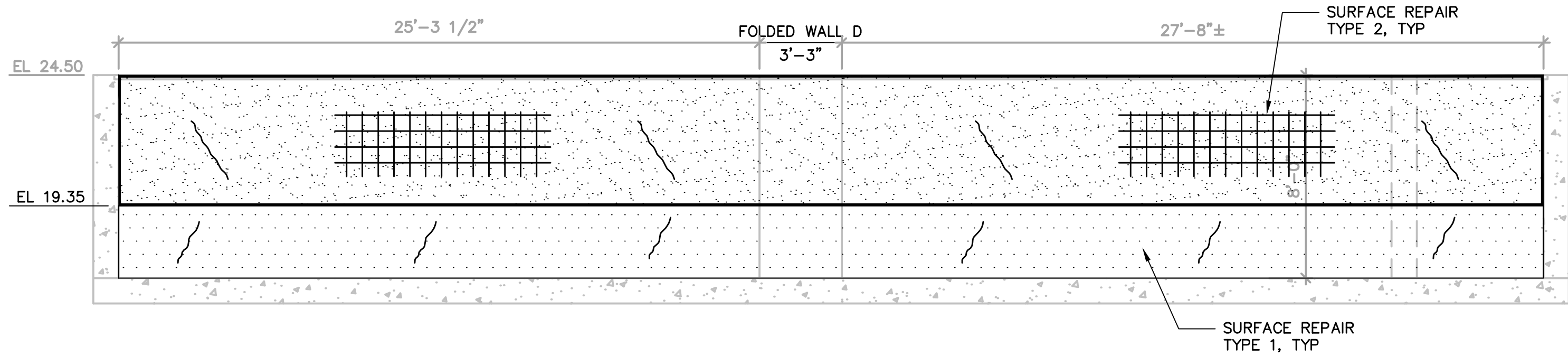
SCALE:  
AS SHOWN

S-05

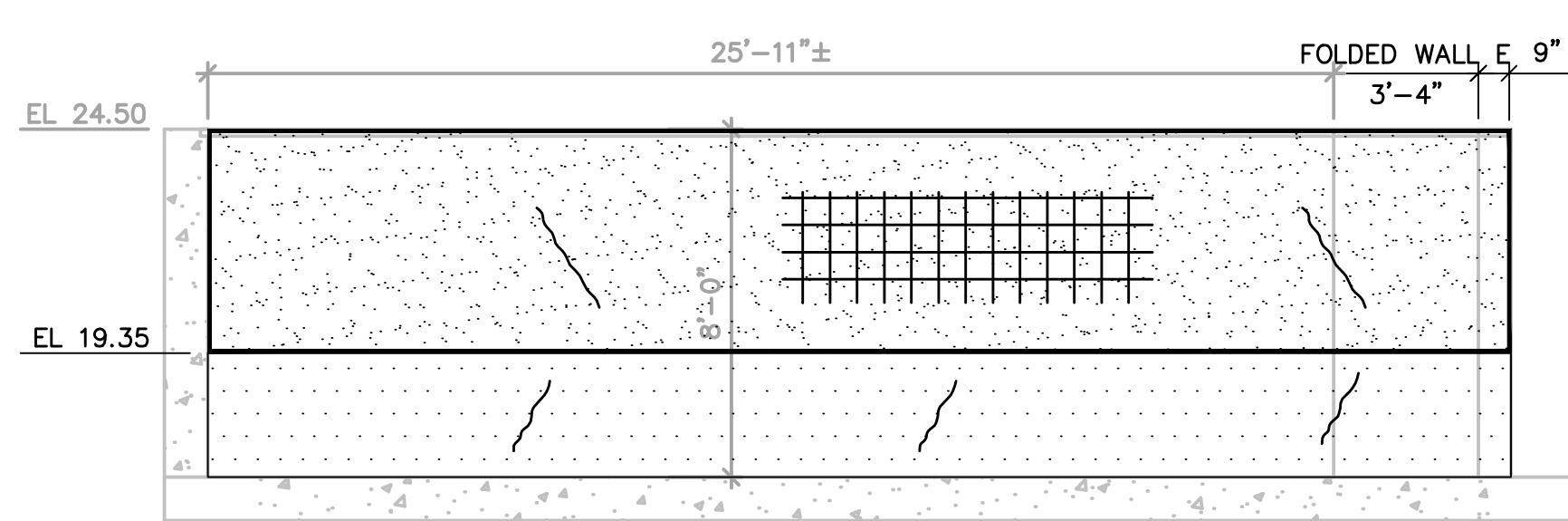
SHEET 15 OF 23



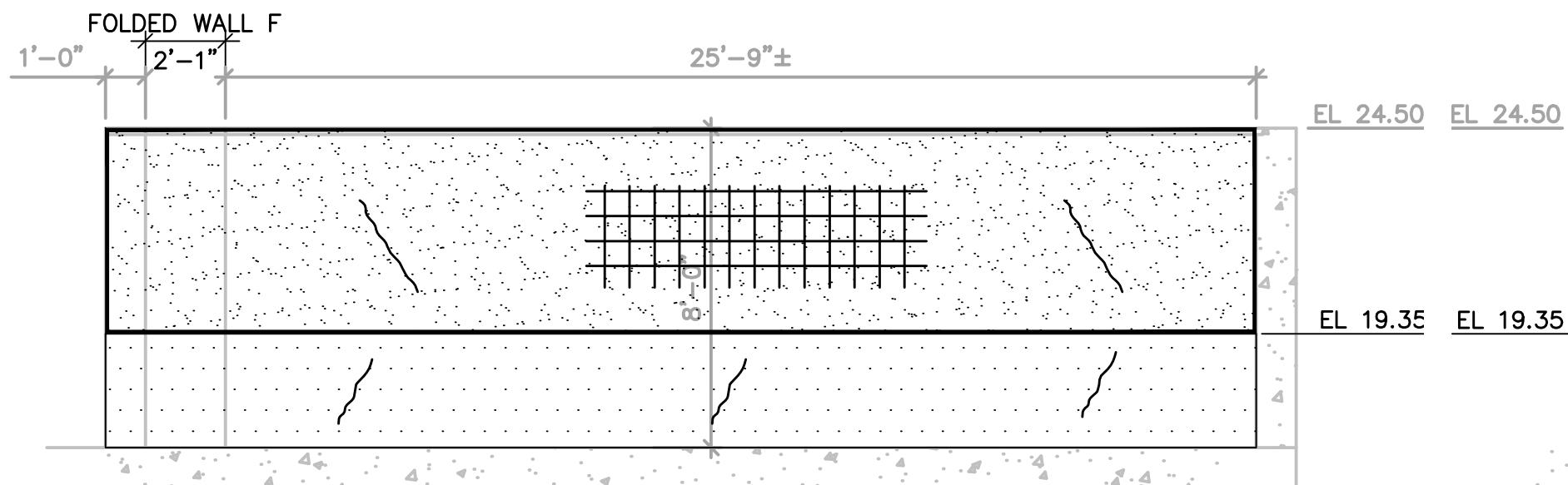
User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-06.DWG Scale: 1:1 Saved Date: 8/25/2022 Time: 15:04 Plot Date: Sangalang, Zsimeir, 11/29/2022, 08:39 : Layout: LAYOUT1



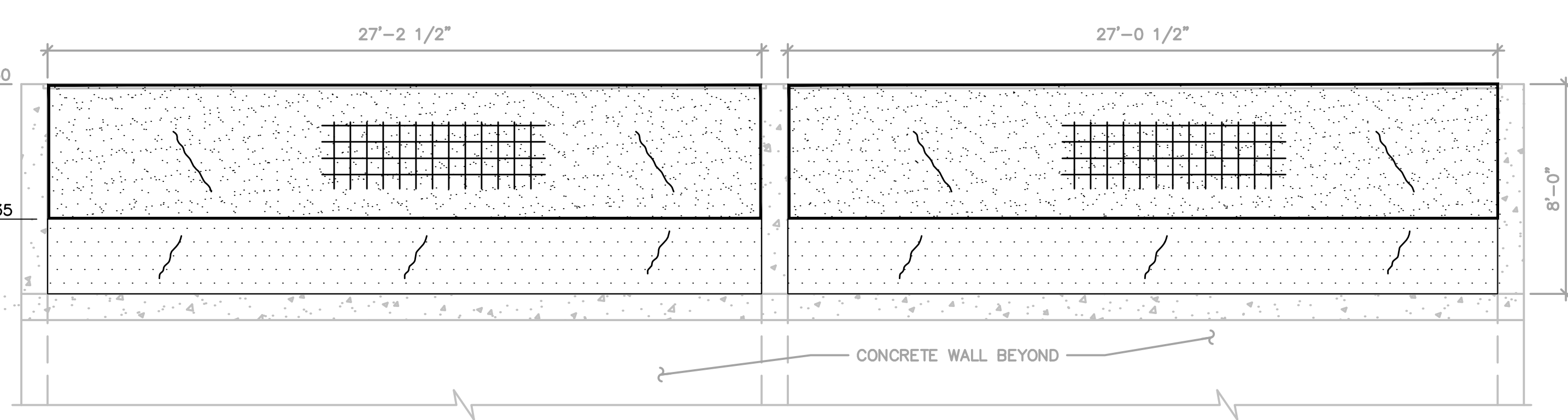
INTERIOR ELEVATION WALL D  
SCALE: 1/4" = 1'-0"



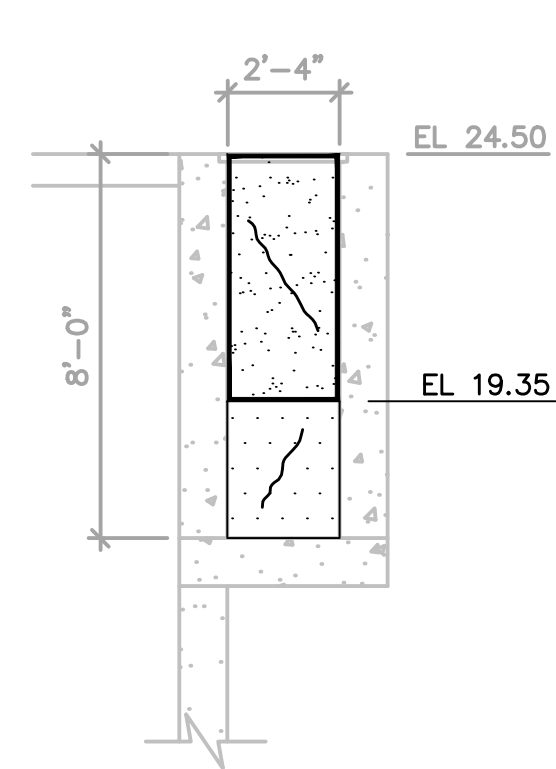
INTERIOR ELEVATION WALL E  
SCALE: 1/4" = 1'-0"



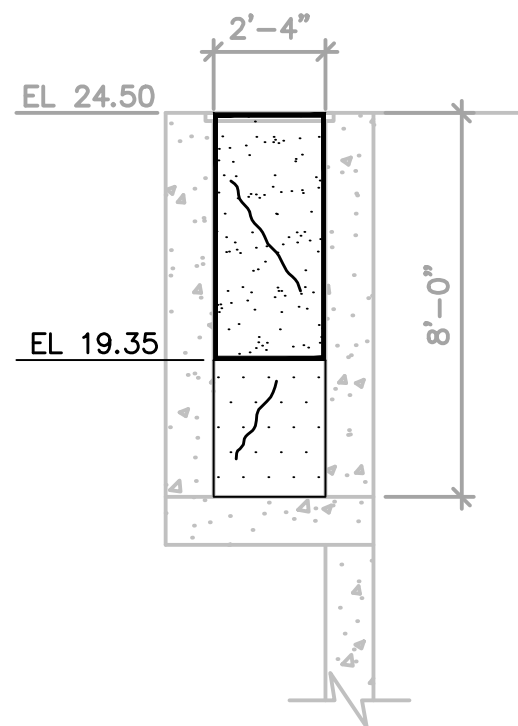
INTERIOR ELEVATION WALL F  
SCALE: 1/4" = 1'-0"



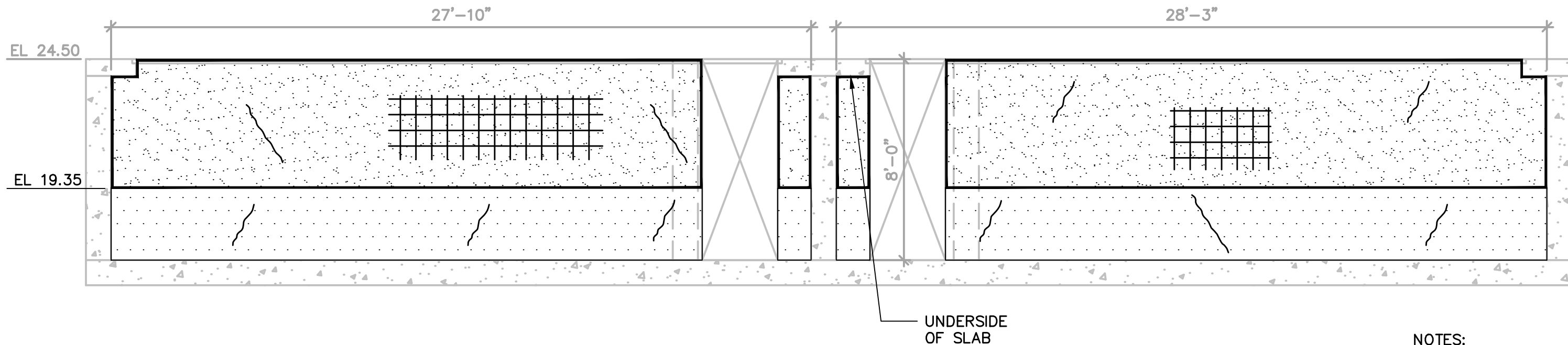
INTERIOR ELEVATION WALL G  
SCALE: 1/4" = 1'-0"



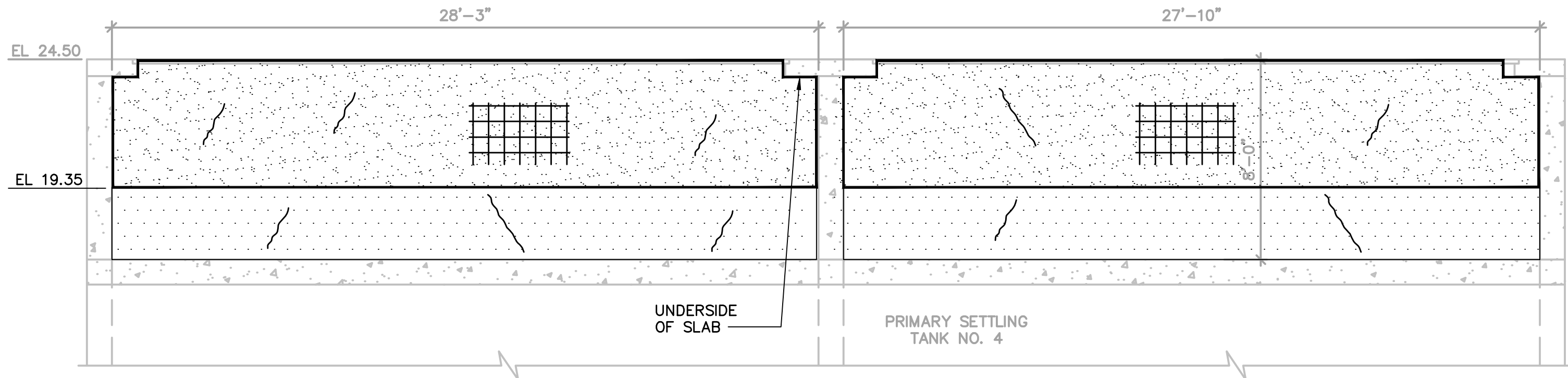
INTERIOR ELEVATION WALL H  
SCALE: 1/4" = 1'-0"



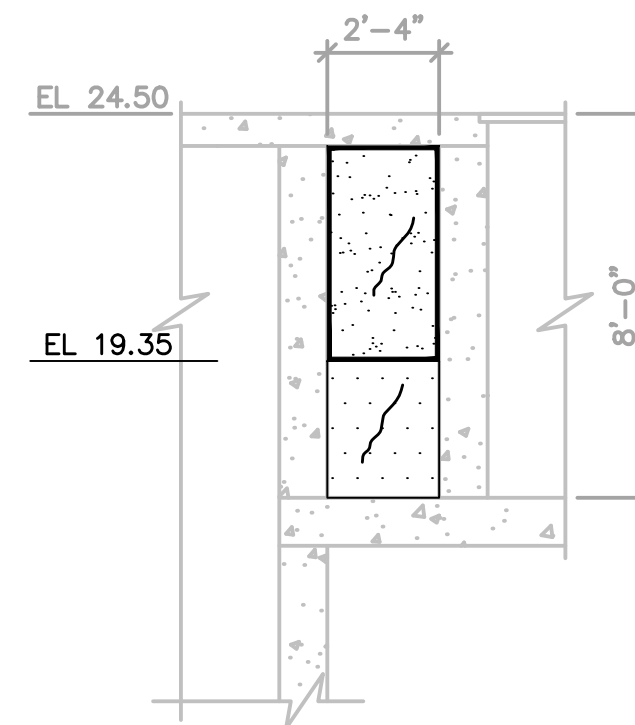
INTERIOR ELEVATION WALL I  
SCALE: 1/4" = 1'-0"



INTERIOR ELEVATION WALL J  
SCALE: 1/4" = 1'-0"



INTERIOR ELEVATION WALL K  
SCALE: 1/4" = 1'-0"



INTERIOR ELEVATION WALL L  
SCALE: 1/4" = 1'-0"

NOTES:

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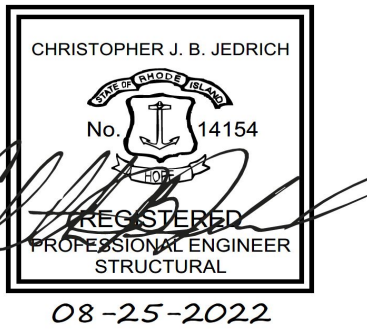
LEGEND:	
	SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
	SURFACE REPAIR TYPE 2 SURFACE REPAIRS
	REPAIR TYPE 3 CRACKS
	COATING/LINING



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ARCADIS PROJ. NO. 30003179/00702

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DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-06  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

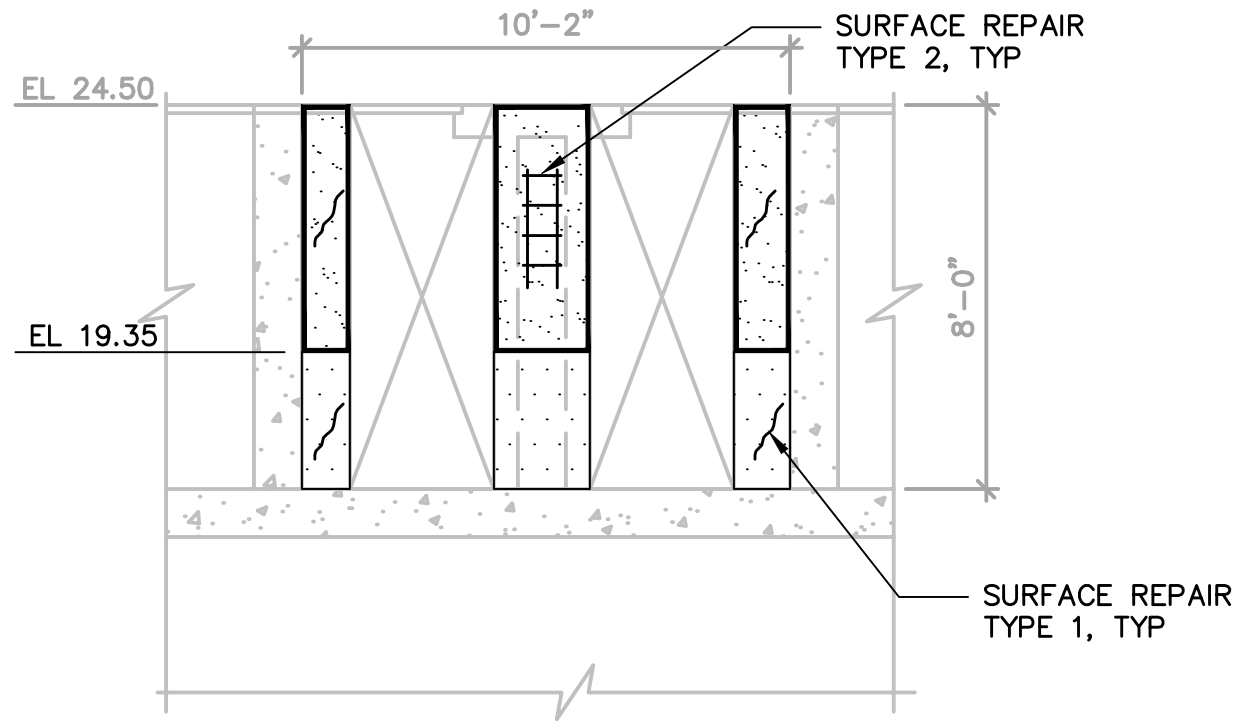
STRUCTURAL

3 & 5 - PRIMARY  
CLARIFIERS EFFLUENT  
CHANNELS INTERIOR  
WALL ELEVATIONS

SCALE:  
AS SHOWN

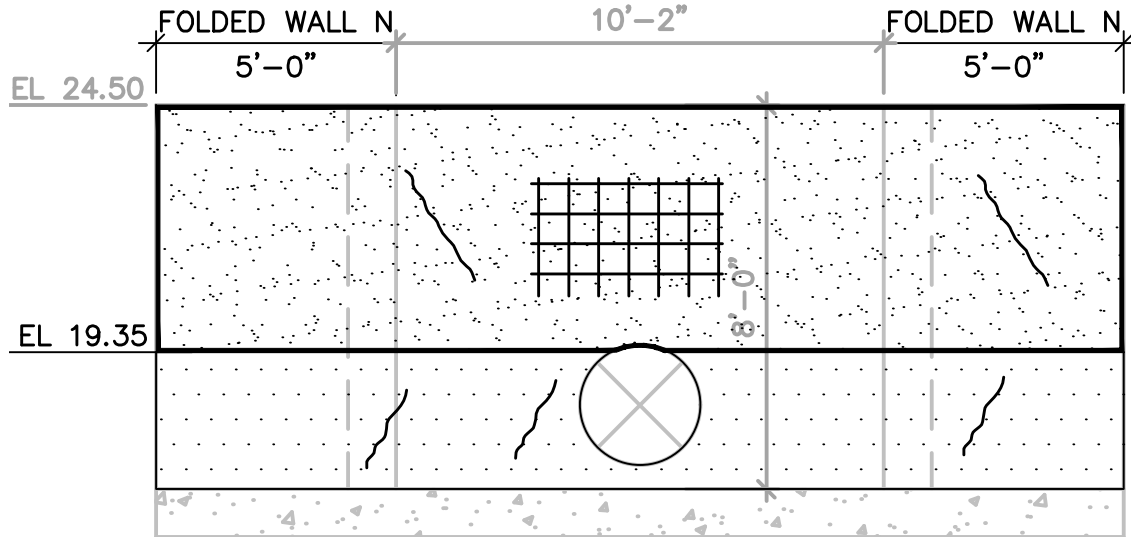
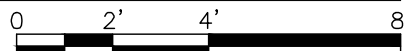
S-06  
SHEET 16 OF 23

User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-07.DWG Scale: 1:1 Saved Date: 8/25/2022 Time: 16:23 Plot Date: Sangalang, Zsimeir, 11/29/2022, 08:39 ; Layout: LAYOUT1



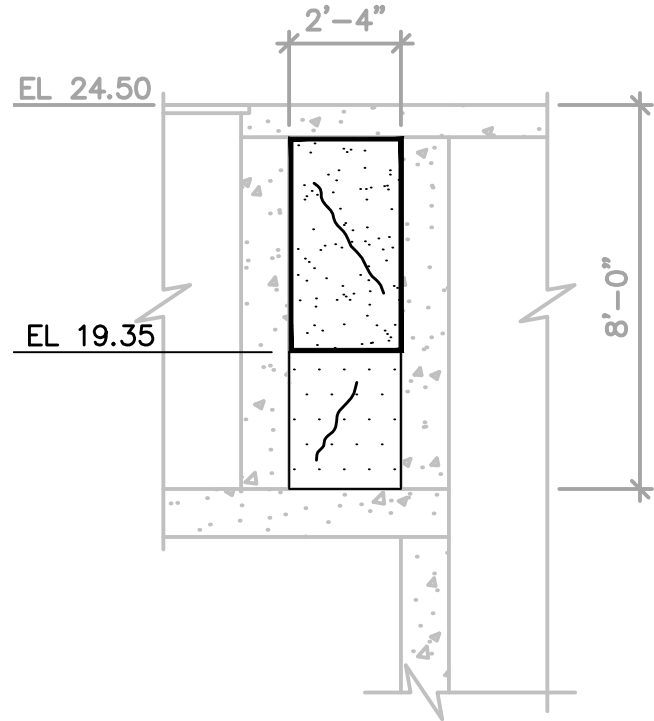
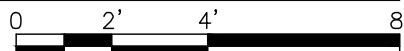
INTERIOR ELEVATION WALL M

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



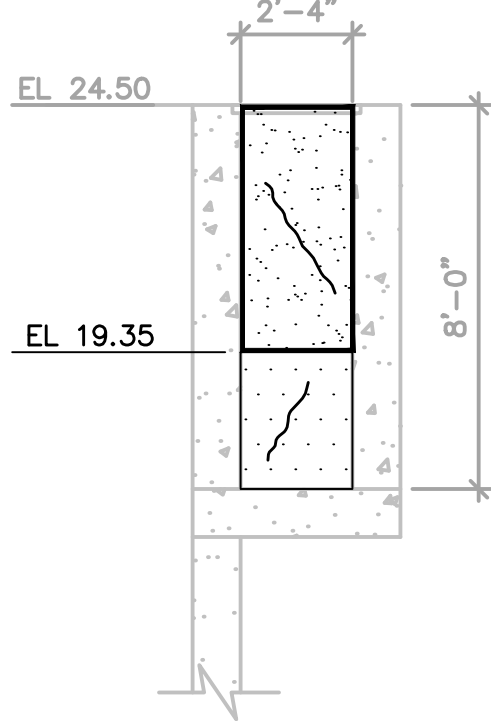
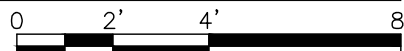
INTERIOR ELEVATION WALL N

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



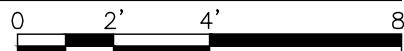
INTERIOR ELEVATION WALL O

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



INTERIOR ELEVATION WALL P

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



NOTES:

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- SYMBOLGY INDICATED FOR SURFACE REPAIR TYPE 2 AND REPAIR TYPE 3 CRACK REPAIRS ARE DIAGRAMATIC IN NATURE. EXACT LOCATIONS OF REPAIRS WILL BE CONFIRMED BY ENGINEER IN FIELD.

LEGEND:

- SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
- SURFACE REPAIR TYPE 2 SURFACE REPAIRS
- REPAIR TYPE 3 CRACKS
- COATING/LINING

3 & 5 PC – EFF. – CH. – WALLS				
WALL	REPAIR TYPE 1 SURFACE REPAIRS	REPAIR TYPE 2 SURFACE REPAIRS	REPAIR TYPE 3 CRACKS	COATING/LINING (INCLUDING SOME REPAIR TYPE 1 & 3)
	QUANTITIES (SF)	QUANTITIES (SF)	QUANTITIES (LF)	QUANTITIES (SF)
A	24	5	10	40
B	30	5	15	50
C	15	5	5	25
D	168	20	25	280
E	84	20	30	140
F	84	20	30	140
G	165	40	40	275
H	9	2	5	15
I	9	2	5	15
J	168	25	35	280
K	168	25	25	280
L	5	5	5	15
M	60	5	10	50
N	60	15	30	100
O	8	5	5	12
P	8	5	5	12
TOTAL	1065	204	280	1729

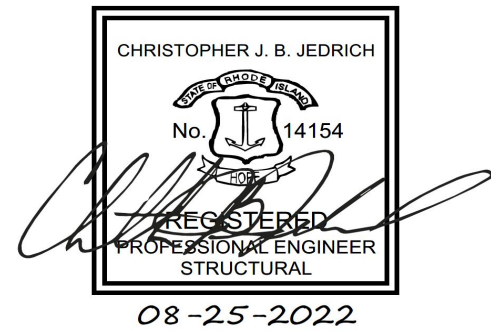
3 & 5 PC – EFF. CH. UNDERSIDE OF SLABS				
	REPAIR TYPE 1 SURFACE REPAIRS	REPAIR TYPE 2 SURFACE REPAIRS	REPAIR TYPE 3 CRACKS	COATING/LINING (INCLUDING SOME REPAIR TYPE 1 & 3)
	QUANTITIES (SF)	QUANTITIES (SF)	QUANTITIES (LF)	QUANTITIES (SF)
WALKWAY	5	5	5	10



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ARCADIS PROJ. NO. 30003179/00702

NO.	DATE	ISSUED FOR	BY
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DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-07  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

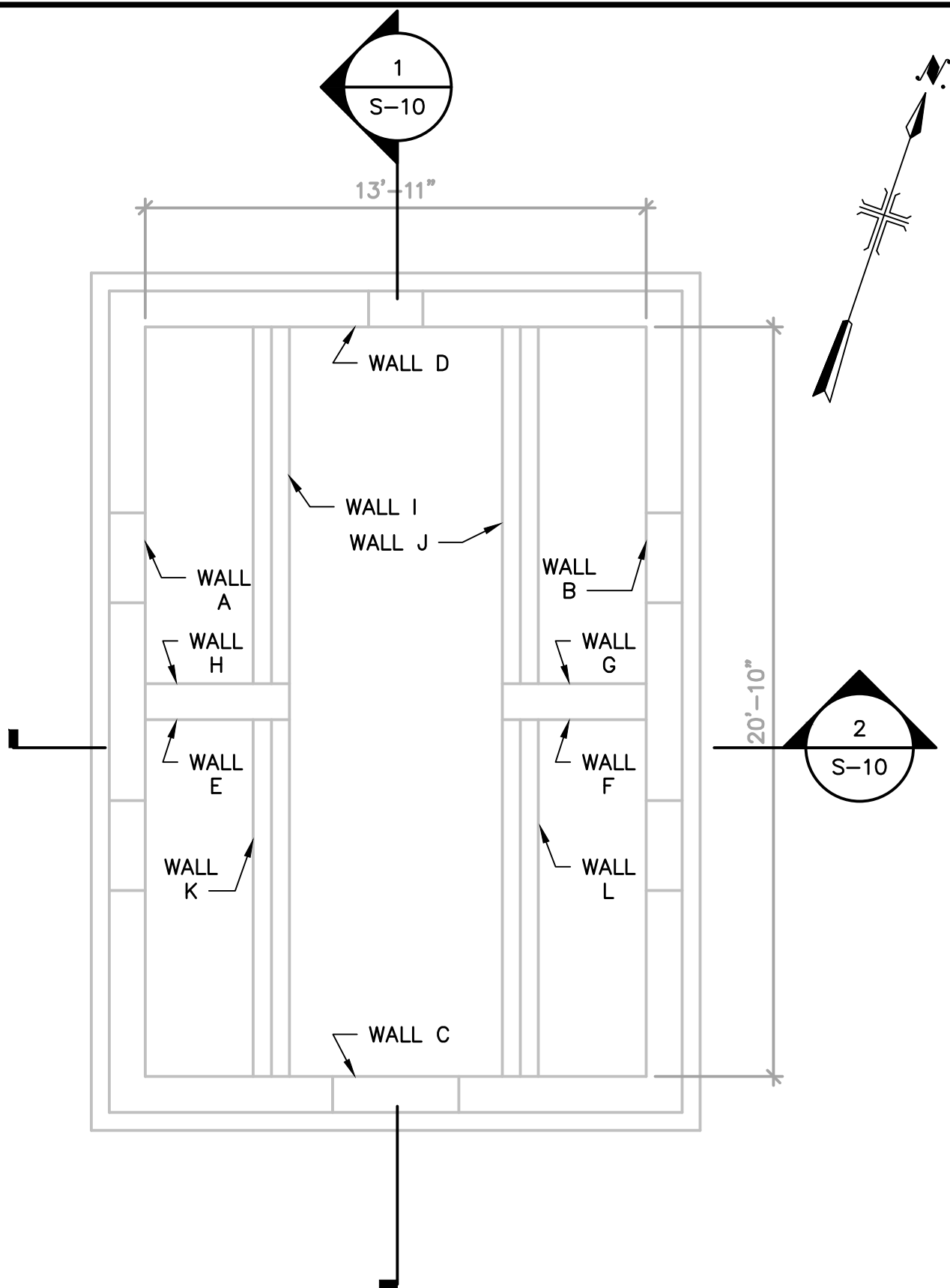
3 & 5 – PRIMARY  
CLARIFIER EFFLUENT  
CHANNELS  
ELEVATIONS AND  
SECTIONS

SCALE: AS SHOWN

S-07  
SHEET 17 OF 23

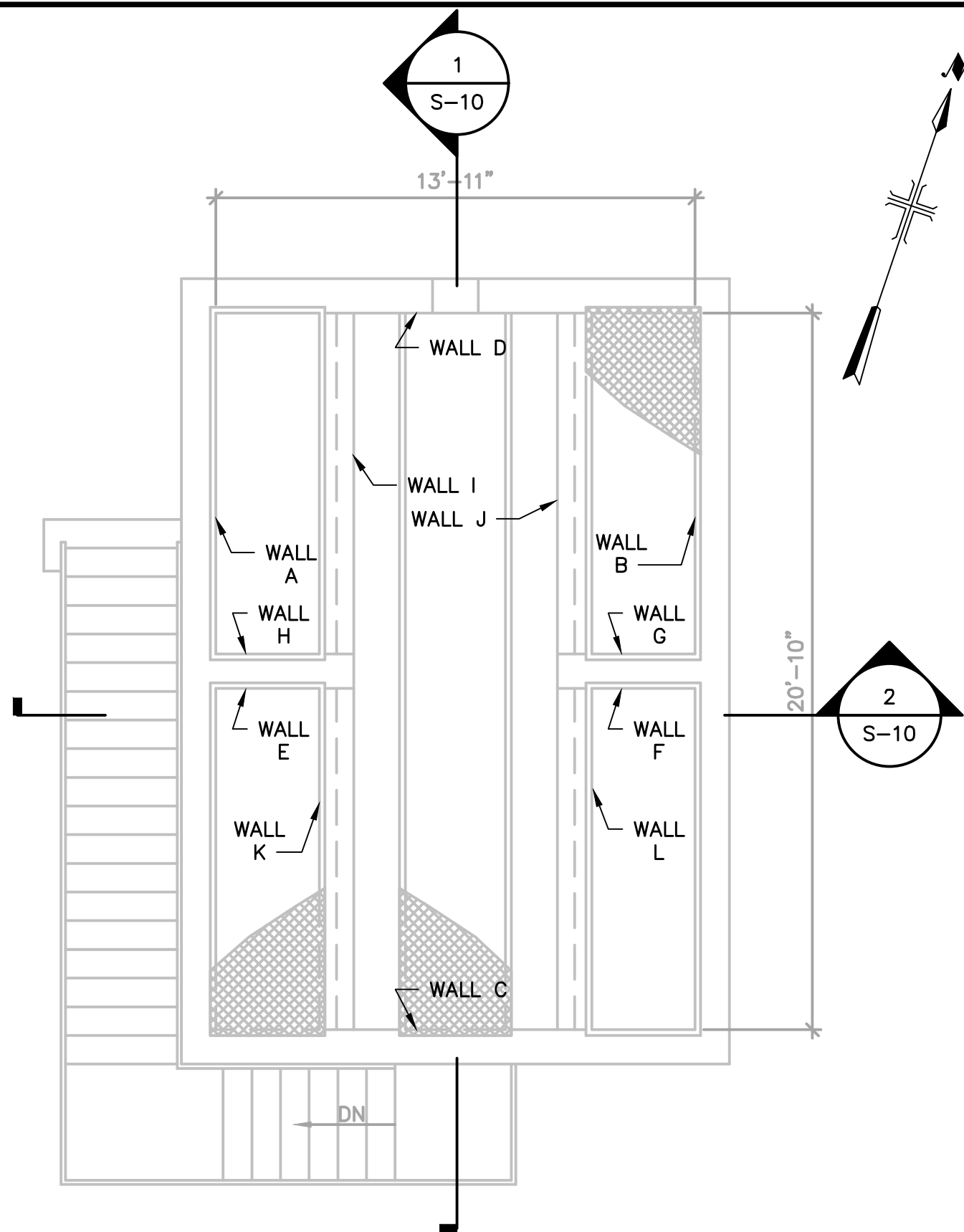
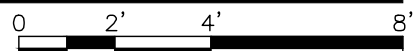


User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-08.DWG Scale: 1:1 SaveDate: 8/25/2022 Time: 16:23 Plot Date: Sangalang, Zsimeir, 11/29/2022, 08:40 ; Layout: LAYOUT1



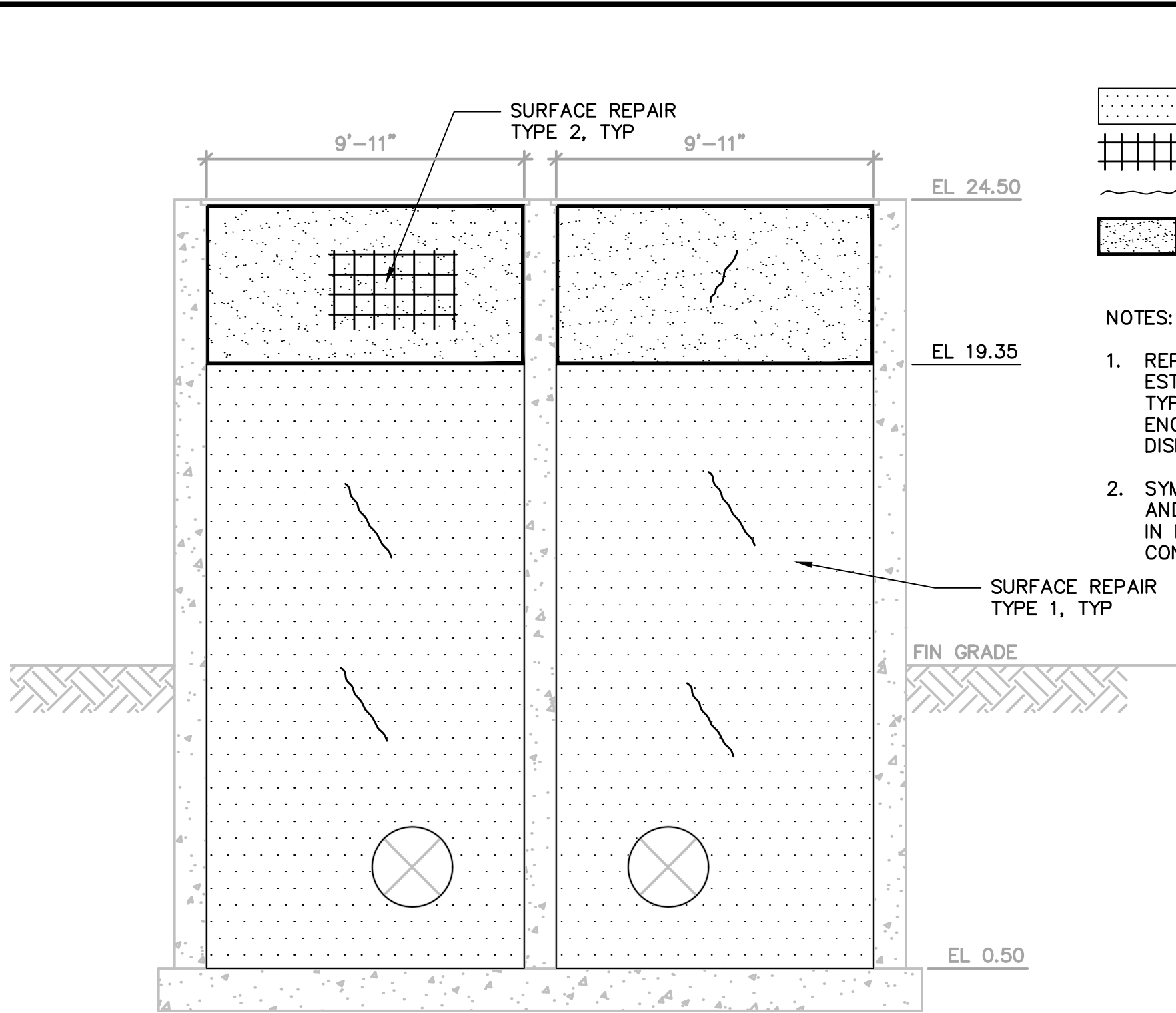
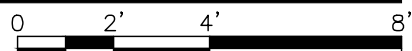
8 - AERATION TANKS  
SPLITTER BOX BOTTOM PLAN

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



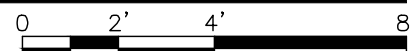
8 - AERATION TANKS  
SPLITTER BOX TOP PLAN

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



INTERIOR WALL ELEVATION "A"

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

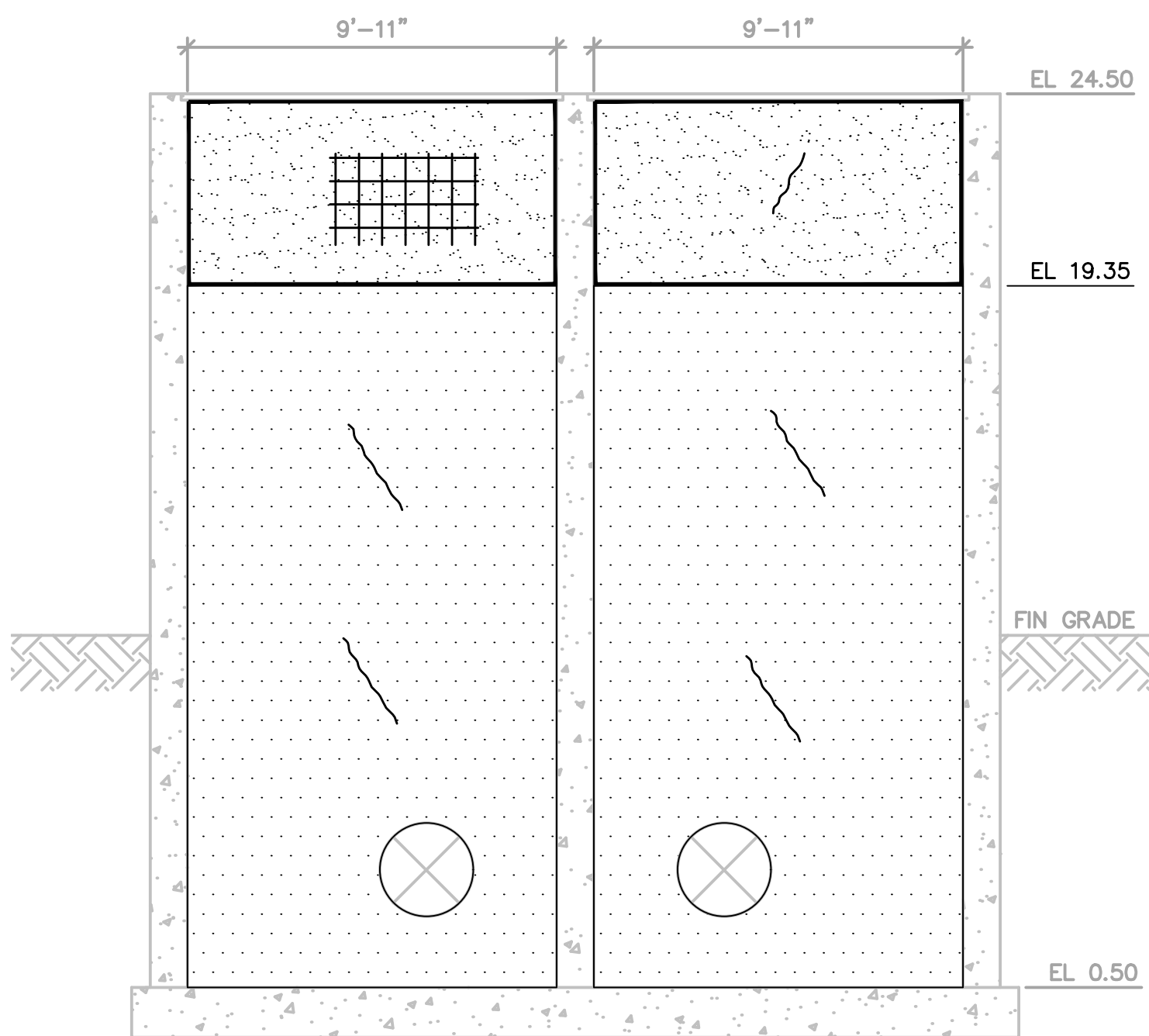


- LEGEND:
- SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
  - SURFACE REPAIR TYPE 2 SURFACE REPAIRS
  - REPAIR TYPE 3 CRACKS
  - COATING/LINING

NOTES:

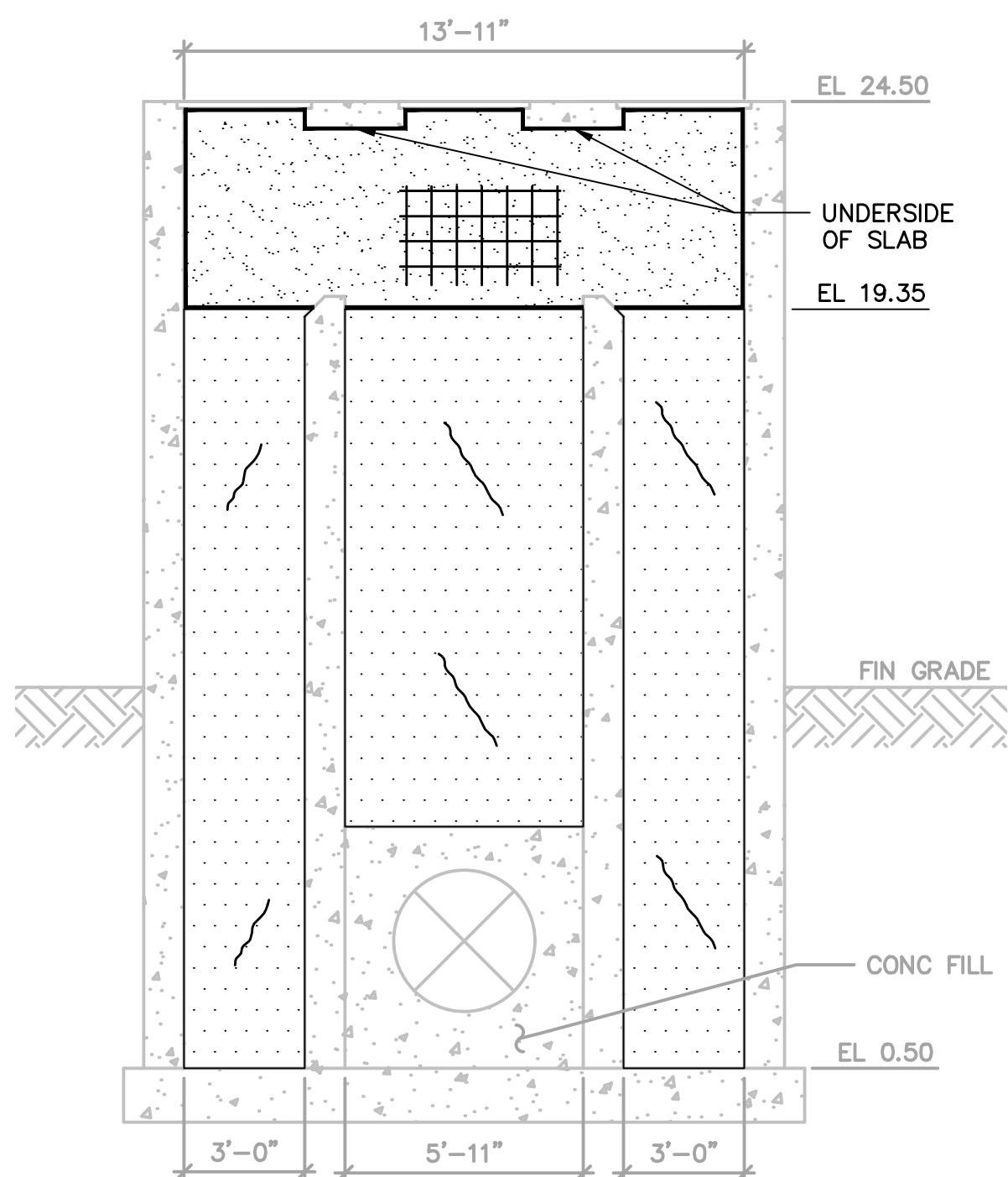
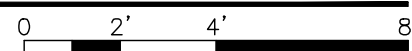
- REPAIR LOCATIONS TYPE AND EXTENTS SHOWN ARE ESTIMATES AND ARE FOR BID PURPOSES ONLY. ACTUAL TYPES AND QUANTITIES SHALL BE CONFIRMED BY ENGINEER ON SITE AFTER WALLS ARE CLEANED, DISINFECTED AND ASSESSED BY ENGINEER.
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SURFACE REPAIR TYPE 1, TYP



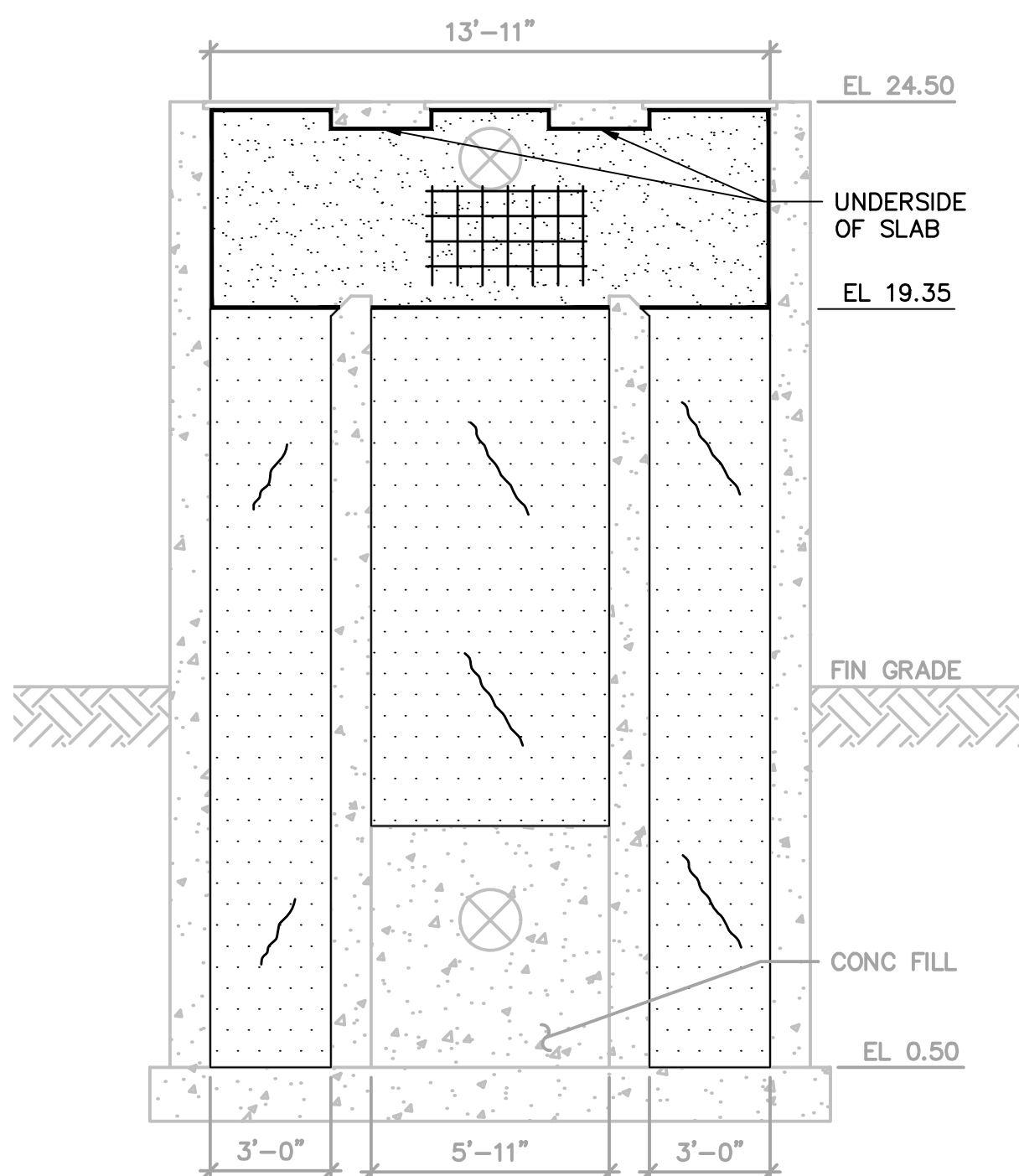
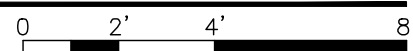
INTERIOR ELEVATION WALL B

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



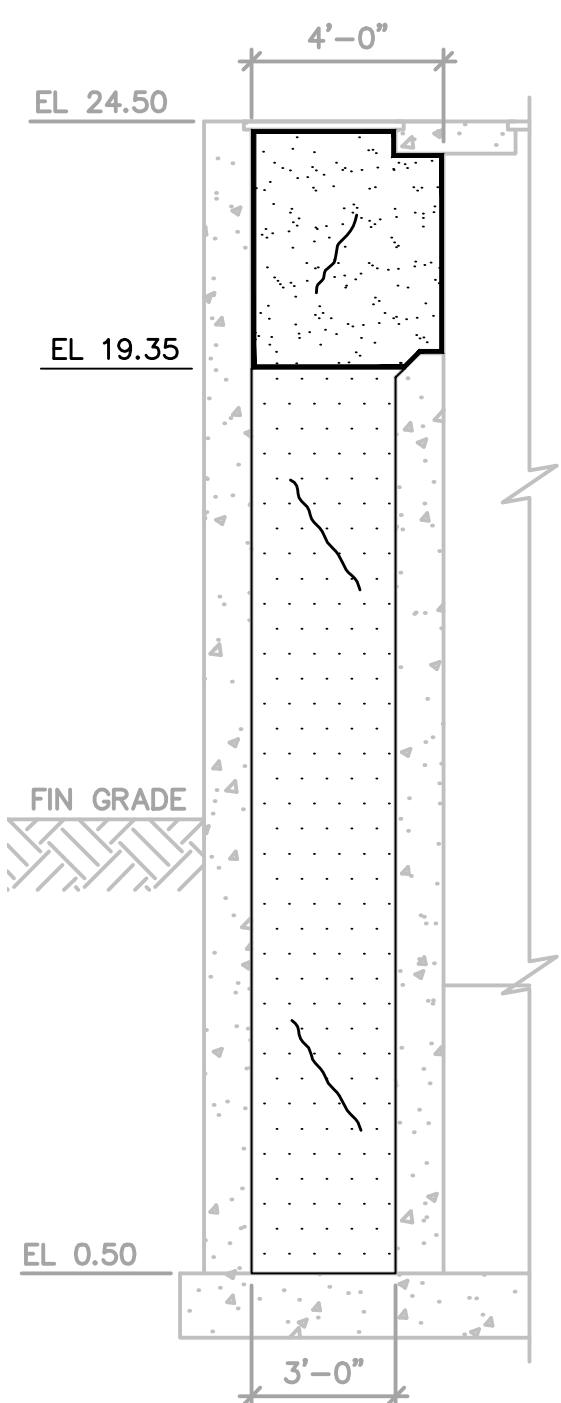
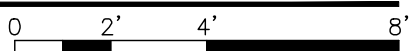
INTERIOR ELEVATION WALL C

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



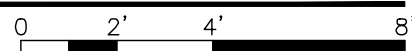
INTERIOR ELEVATION WALL D

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



INTERIOR ELEVATION WALL E

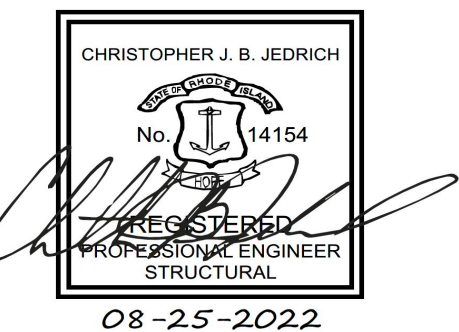
SCALE: 1/4" = 1'-0"



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ARCADIS PROJ. NO. 30003179/00702

NO.	DATE	ISSUED FOR	BY

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DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-08  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

8 - AERATION TANKS  
SPLITTER BOX  
PLANS AND INTERIOR  
WALL ELEVATIONS

SCALE: AS SHOWN

S-08

SHEET 18 OF 23



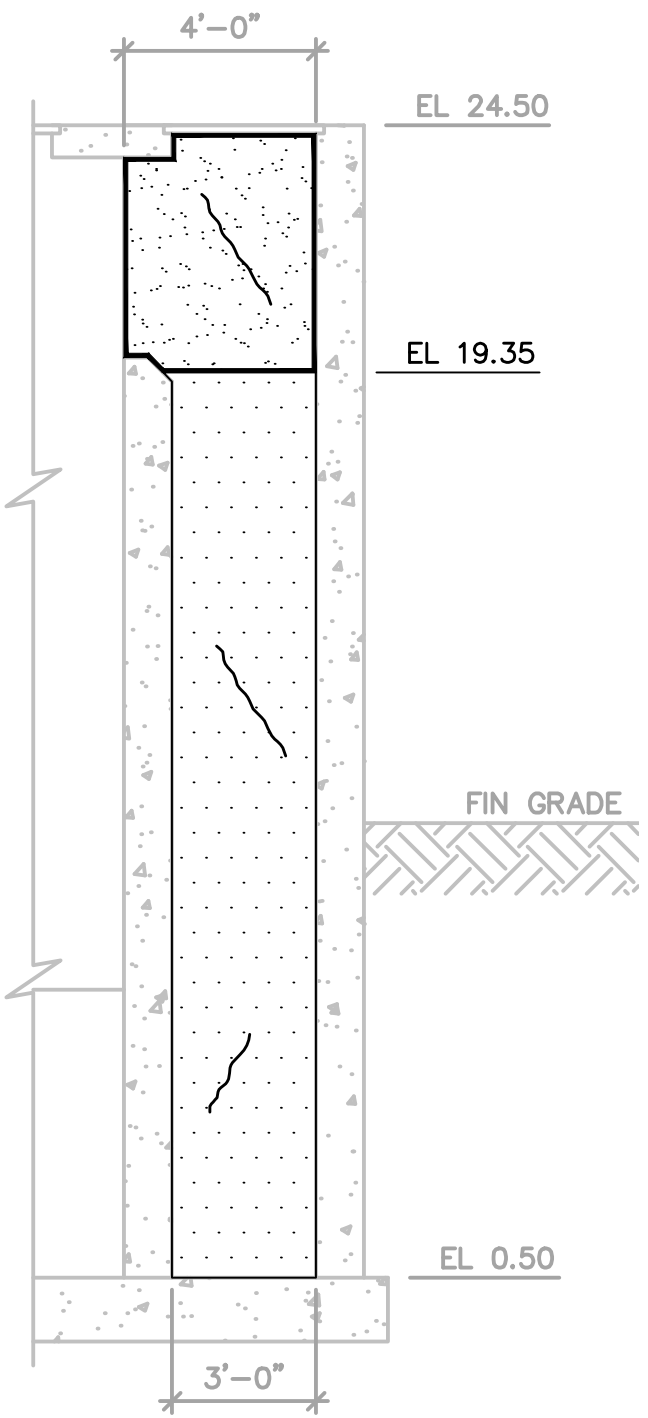
Users\SANGALANG\_Spec\AUS-NCS\MOD\_Files\Users\SANGALANG\ARCADIS\_30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-09.DWG Scale:1:1 SavedDate:8/25/2022 Time:16:26 Plot Date: Sangalang, Zsimeor, 11/29/2022, 08:40 : Layout:LAYOUT1

NOTES:

- REPAIR LOCATIONS TYPE AND EXTENTS SHOWN ARE ESTIMATES AND ARE FOR BID PURPOSES ONLY. ACTUAL, TYPES AND QUANTITIES SHALL BE CONFIRMED BY ENGINEER ON SITE AFTER WALLS ARE CLEANED, DISINFECTED AND ASSESSED BY ENGINEER.
- SYMBOLGY INDICATED FOR SURFACE REPAIR TYPE 2 AND REPAIR TYPE 3 CRACK REPAIRS ARE DIAGRAMATIC IN NATURE. EXACT LOCATIONS OF REPAIRS WILL BE CONFIRMED BY ENGINEER IN FIELD.

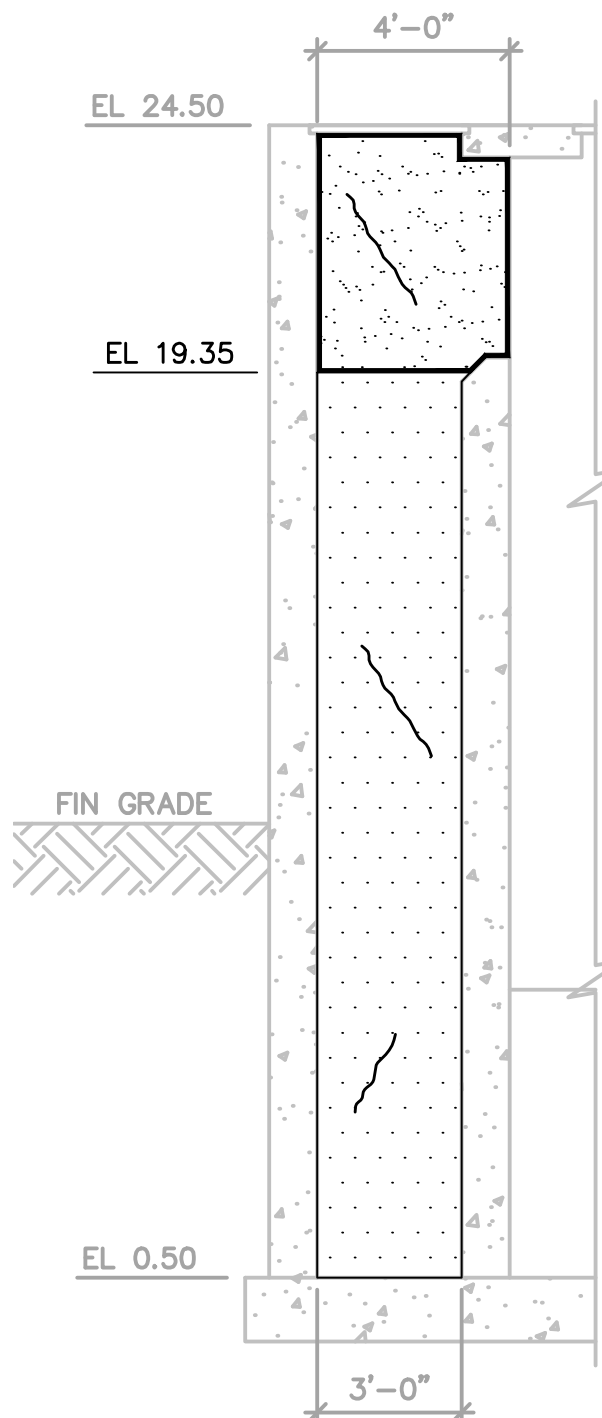
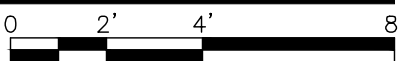
LEGEND:

- SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
- SURFACE REPAIR TYPE 2 SURFACE REPAIRS
- REPAIR TYPE 3 CRACKS
- COATING/LINING



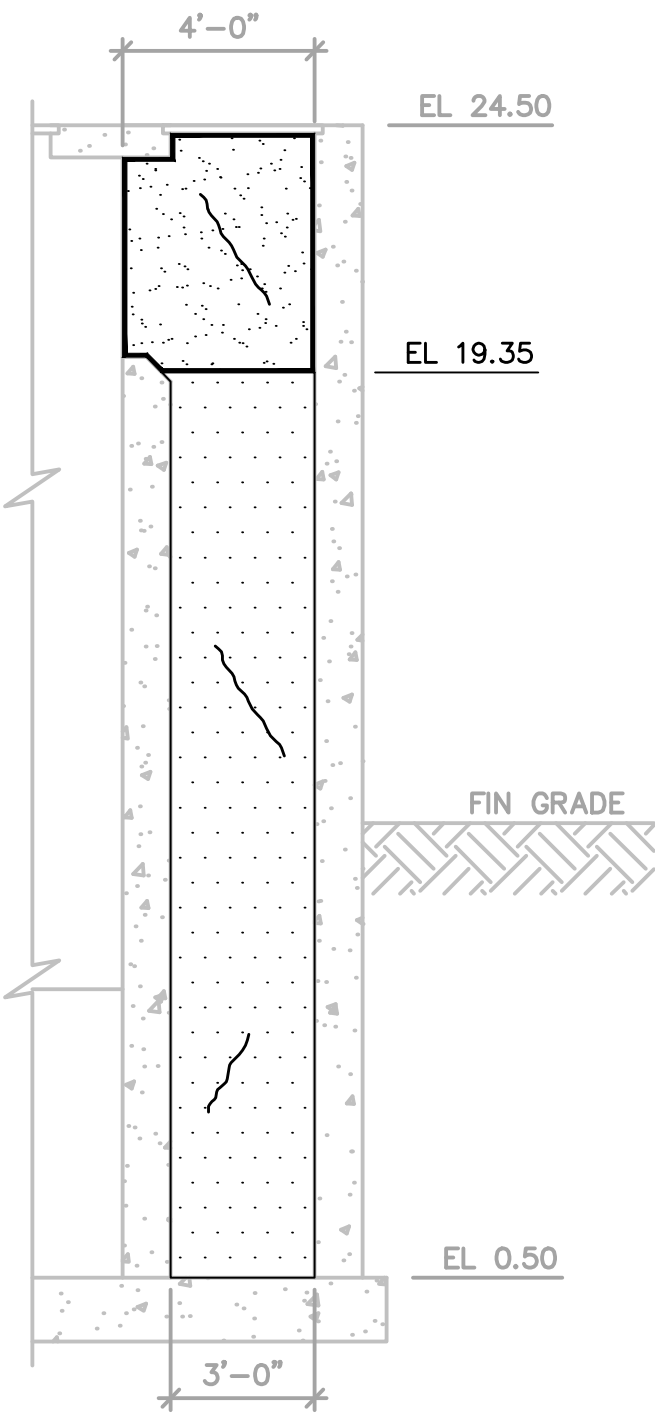
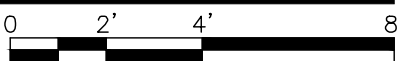
INTERIOR WALL ELEVATION "F"

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



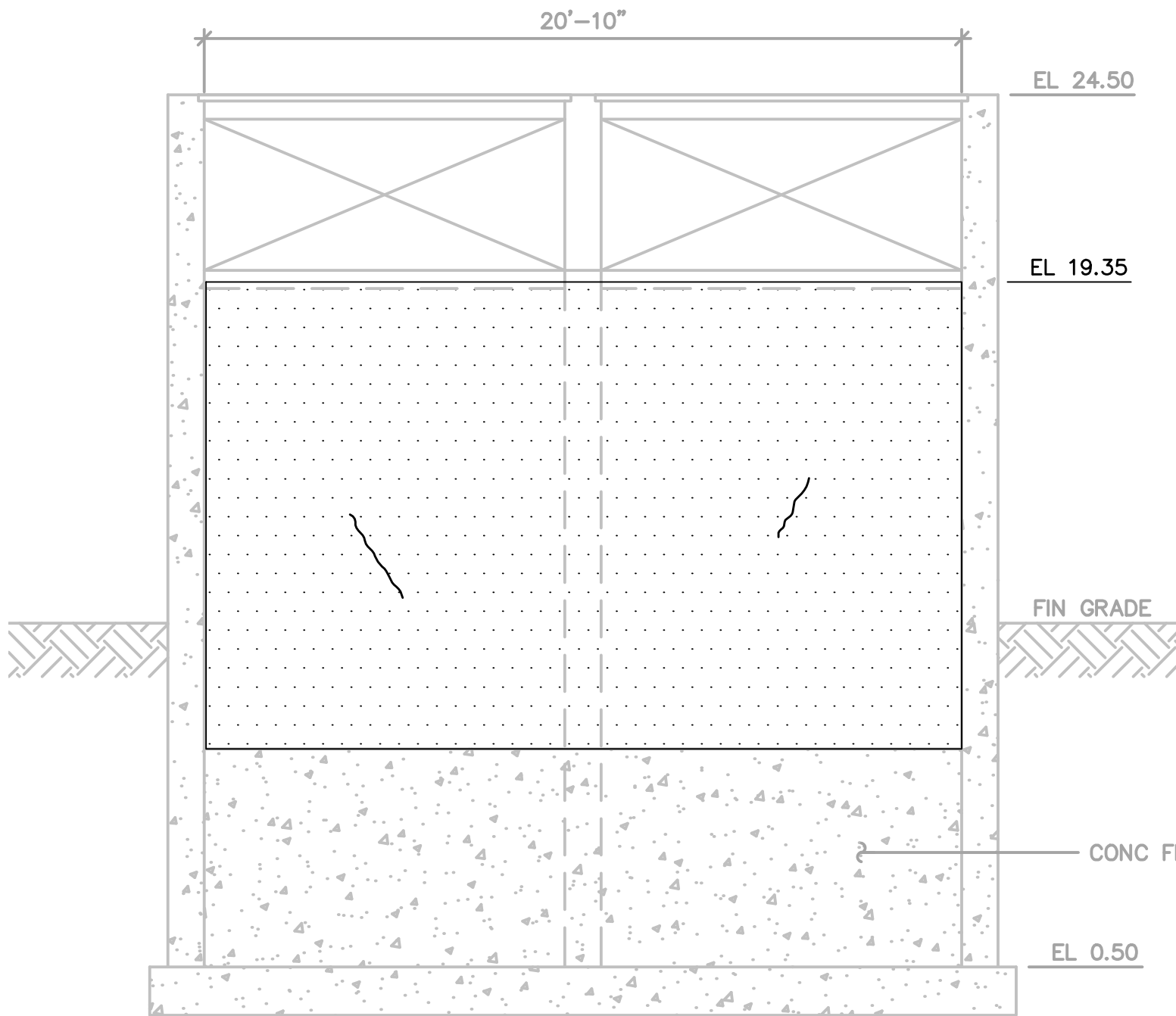
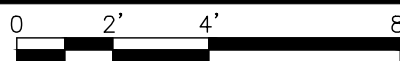
INTERIOR ELEVATION WALL G

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



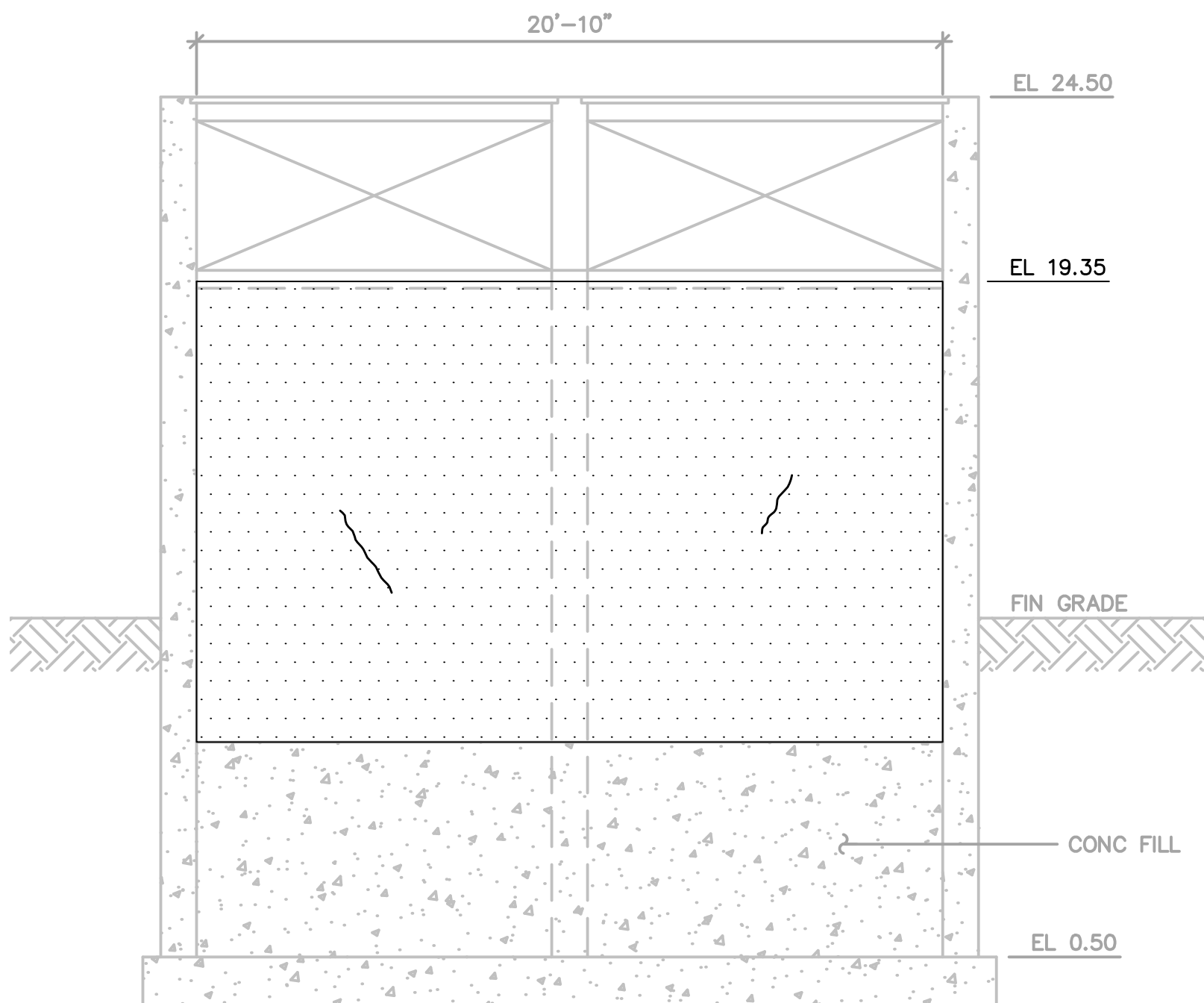
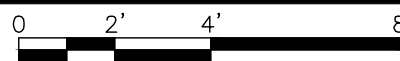
INTERIOR ELEVATION WALL H

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



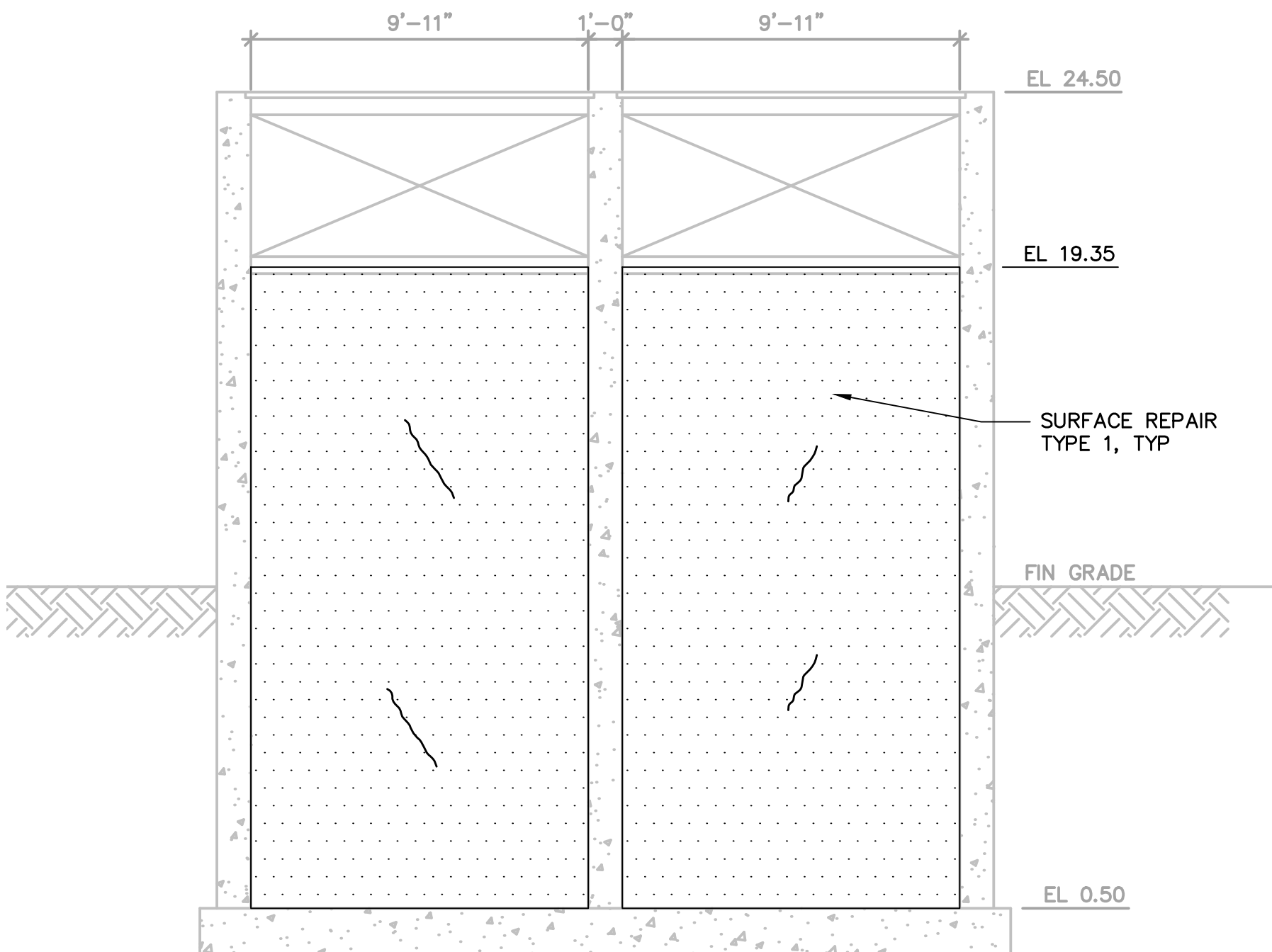
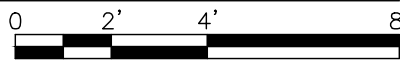
INTERIOR ELEVATION WALL I

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



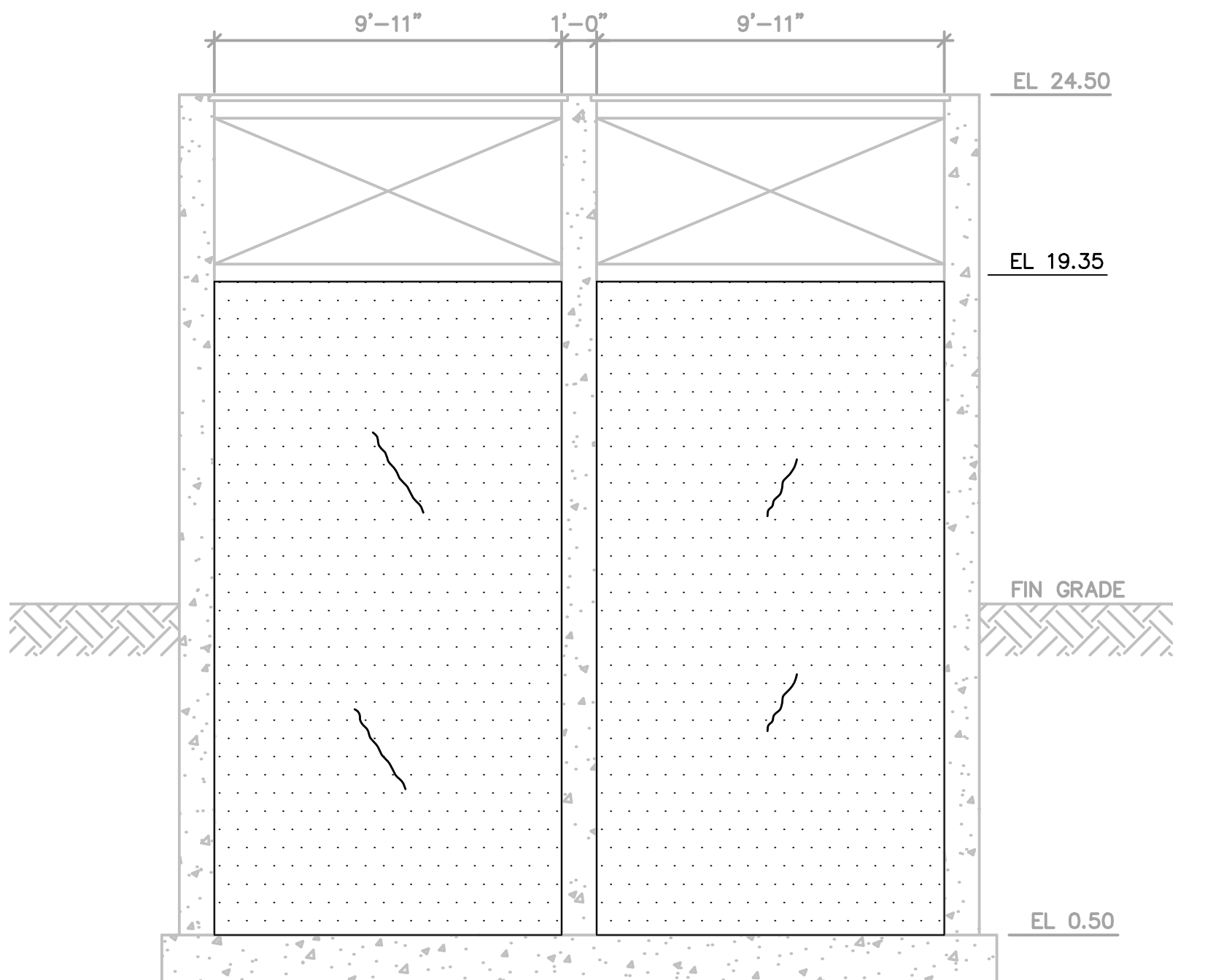
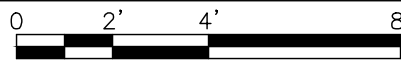
INTERIOR ELEVATION WALL J

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



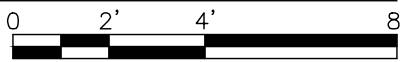
INTERIOR ELEVATION WALL K

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



INTERIOR ELEVATION WALL L

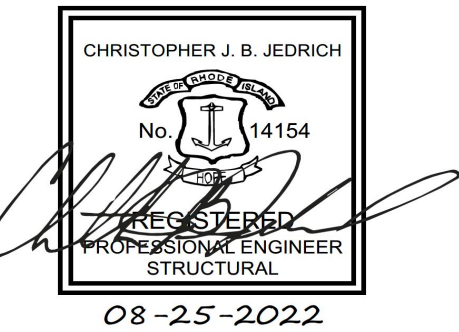
SCALE: 1/4" = 1'-0"



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DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-09  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

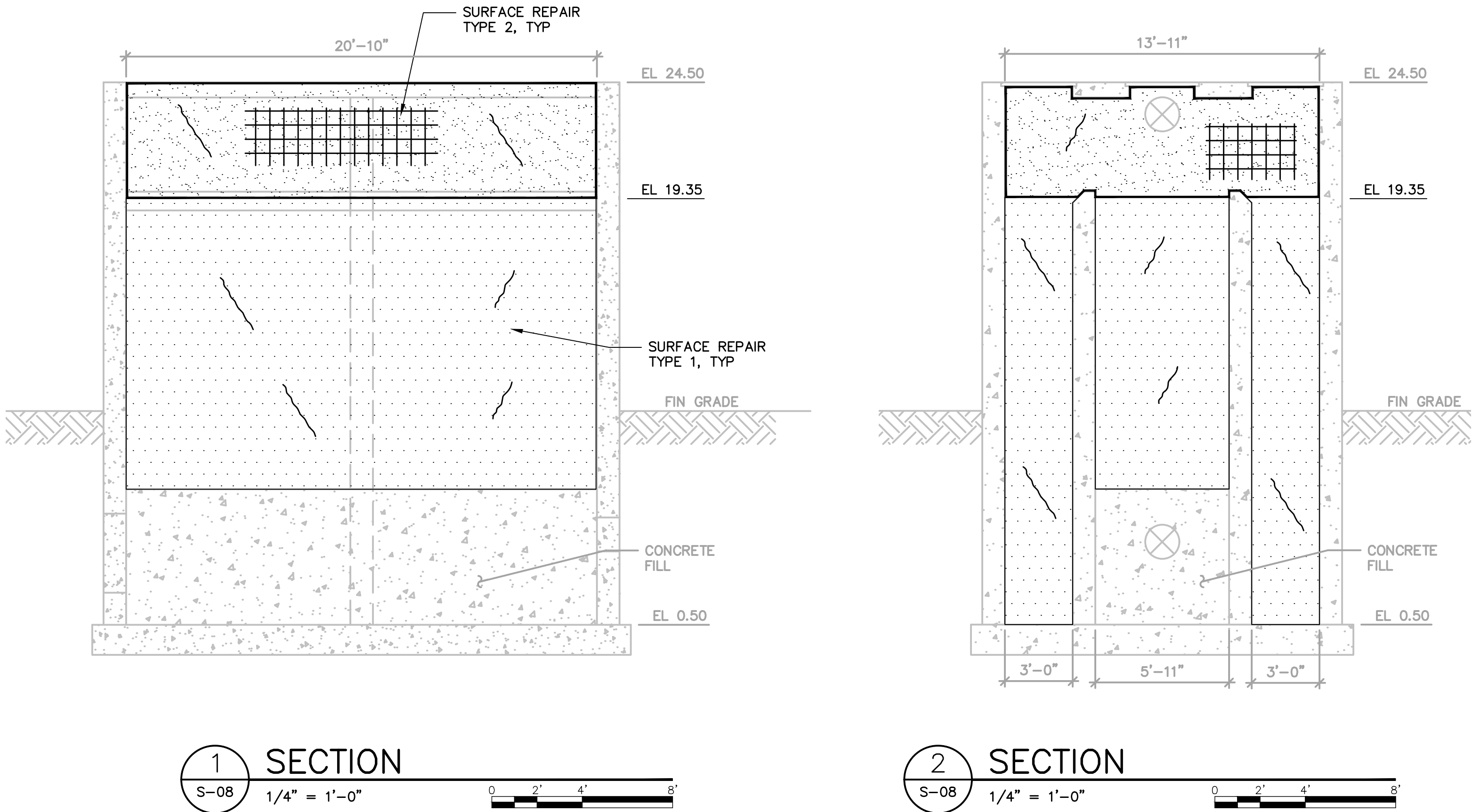
8 - AERATION TANKS  
SPLITTER BOX  
INTERIOR WALL  
ELEVATIONS

SCALE: AS SHOWN

S-09

SHEET 19 OF 23

User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-10.DWG Scale: 1:1 Saved Date: 8/26/2022 Time: 10:03 Plot Date: Sangalang, Zedine: 11/28/2022, 08:41 : Layout: LAYOUT1



NOTES:

1. REPAIR LOCATIONS TYPE AND EXTENTS SHOWN ARE ESTIMATES AND ARE FOR BID PURPOSES ONLY. ACTUAL, TYPES AND QUANTITIES SHALL BE CONFIRMED BY ENGINEER ON SITE AFTER WALLS ARE CLEANED, DISINFECTED AND ASSESSED BY ENGINEER.
2. SYMBOLOGY INDICATED FOR SURFACE REPAIR TYPE 2 AND REPAIR TYPE 3 CRACK REPAIRS ARE DIAGRAMATIC IN NATURE. EXACT LOCATIONS OF REPAIRS WILL BE CONFIRMED BY ENGINEER IN FIELD.

LEGEND:	
	SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
	SURFACE REPAIR TYPE 2 SURFACE REPAIRS
	REPAIR TYPE 3 CRACKS
	COATING/LINING

SPLITTER BOX-WALLS				
WALL	REPAIR TYPE 1 EXPOSED AGGREGATE	REPAIR TYPE 2 SURFACE REPAIRS	REPAIR TYPE 3 CRACKS	COATING/LINING (INCLUDING SOME REPAIR TYPE 1 & 3)
	QUANTITIES (SF)	QUANTITIES (SF)	QUANTITIES (LF)	QUANTITIES (SF)
A	100	30	25	100
B	100	30	25	100
C	50	15	20	70
D	50	15	20	70
E	25	5	10	20
F	25	10	5	20
G	25	10	5	20
H	25	10	5	20
I	100	5	5	-
J	100	5	5	-
K	100	5	5	-
L	100	5	5	-
TOTAL	800	145	135	420

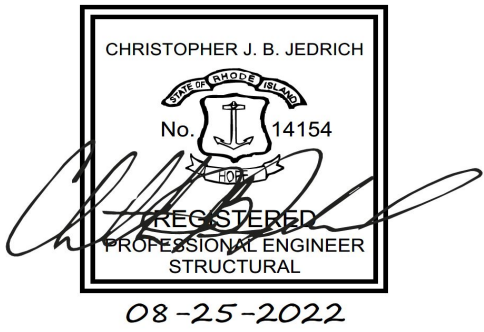
SPLITTER BOX-UNDERSIDE OF SLAB			
REPAIR TYPE 1 EXPOSED AGGREGATE	REPAIR TYPE 2 SURFACE REPAIRS	REPAIR TYPE 3 CRACKS	COATING/LINING (INCLUDING SOME REPAIR TYPE 1 & 3)
QUANTITIES (SF)	QUANTITIES (SF)	QUANTITIES (LF)	QUANTITIES (SF)
10	40	15	130



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ARCADIS PROJ. NO. 30003179/00702

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DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-10  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

8 - AERATION TANKS  
SPLITTER BOX  
SECTIONS

SCALE:  
AS SHOWN

S-10  
SHEET 20 OF 23



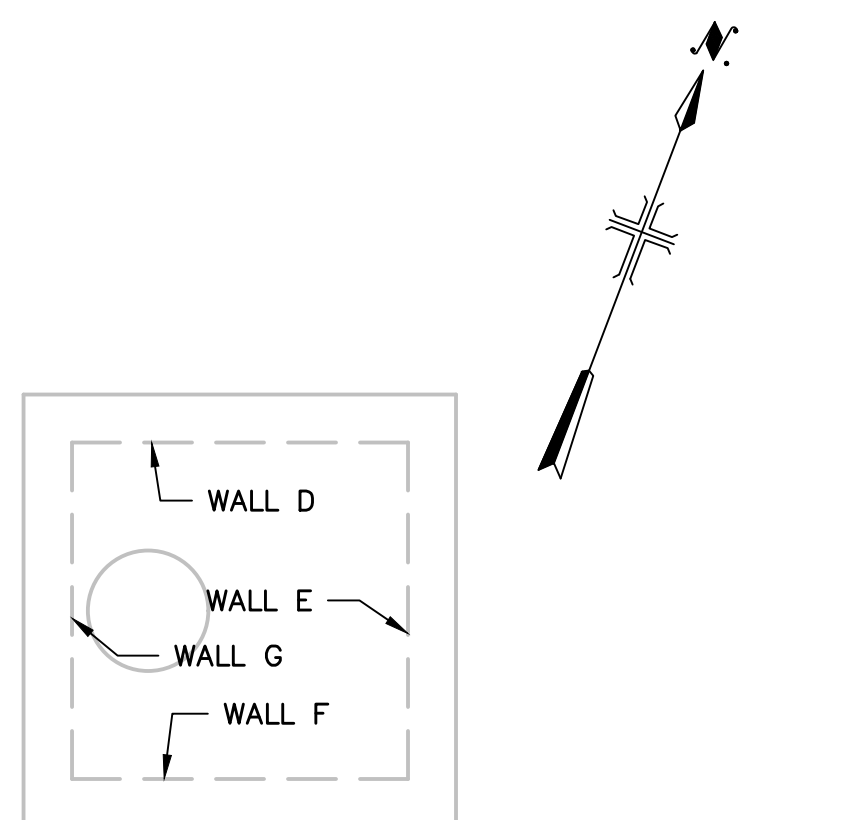
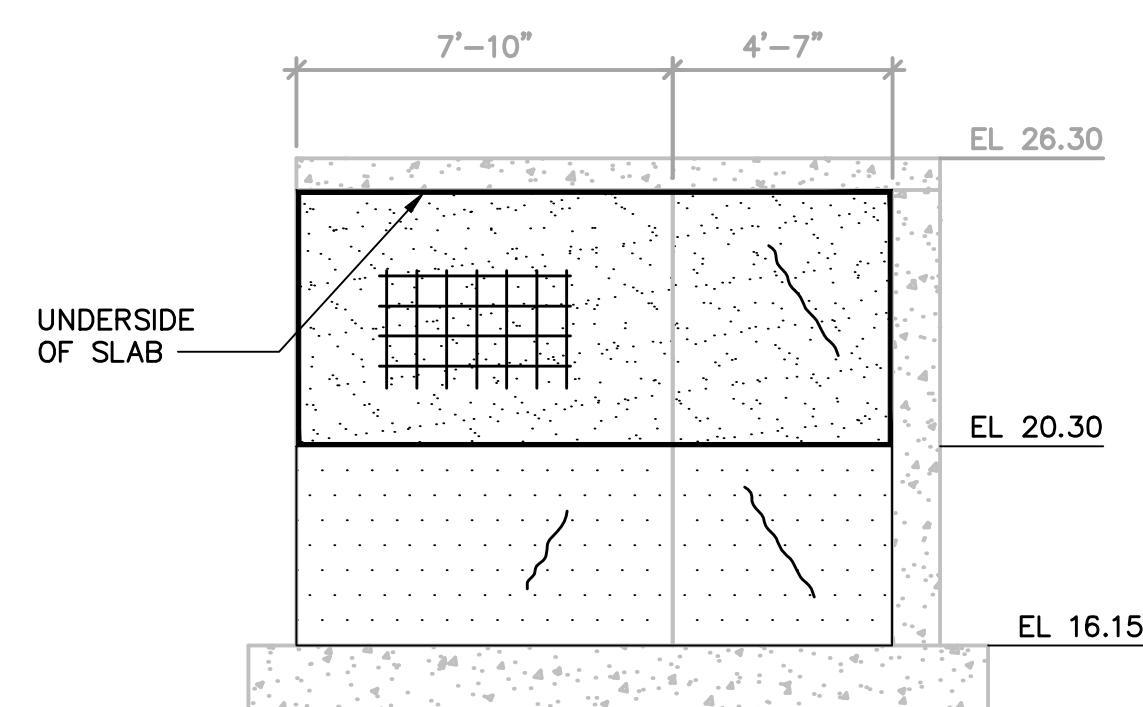
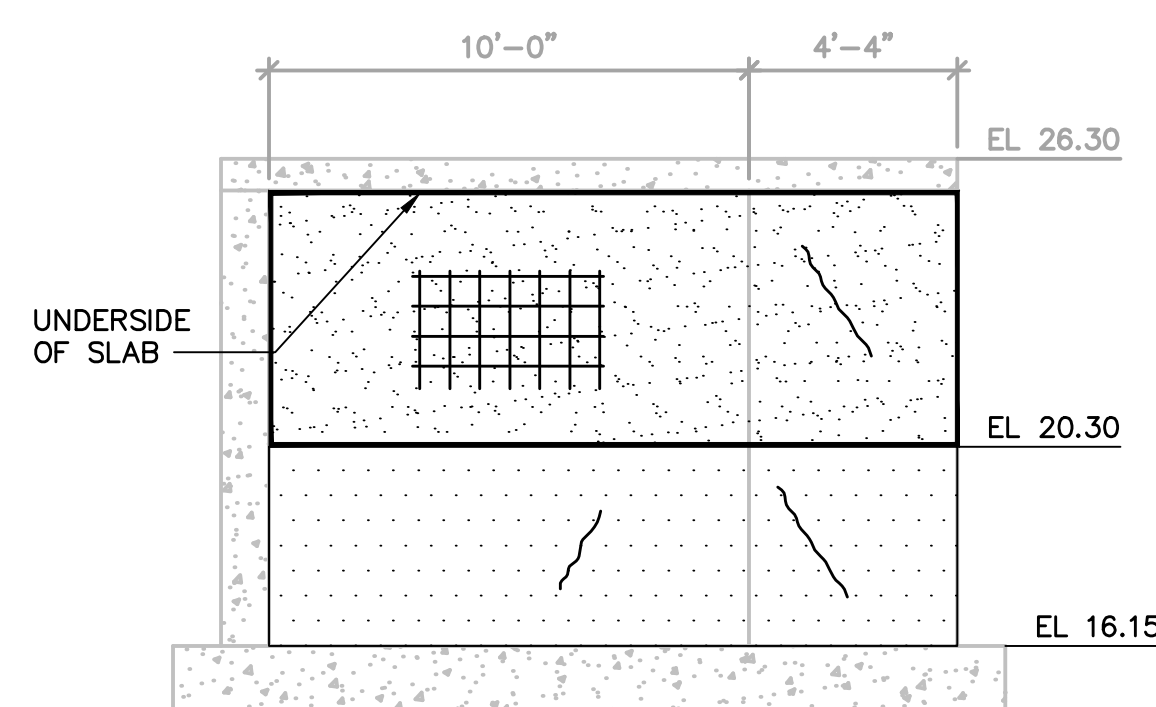
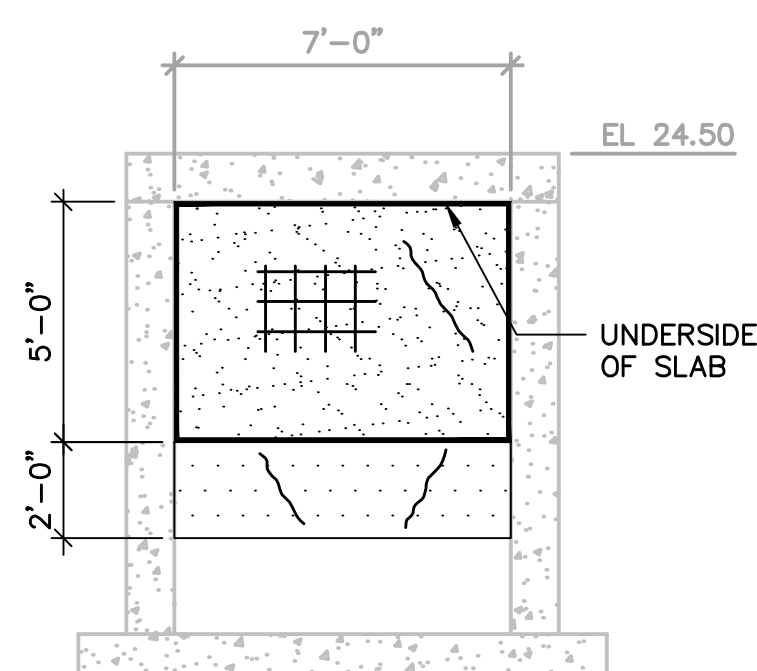
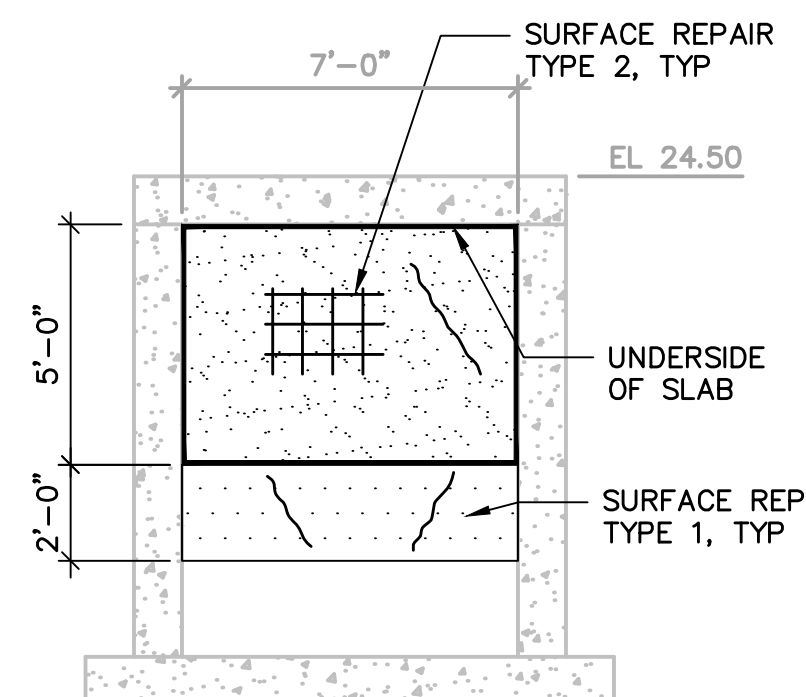
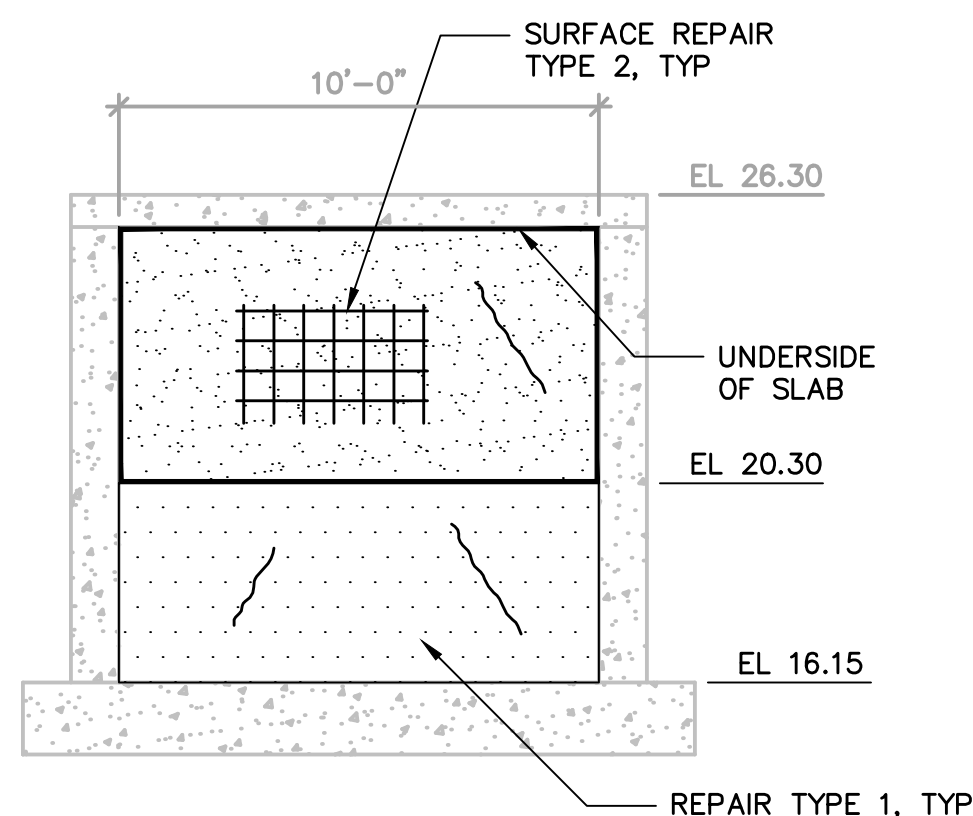






Diagram illustrating the underside of a slab with dimensions and reinforcement details:

- Overall width: 7'-0"
- Overall height: 5'-0"
- Bottom reinforcement bar spacing: 2'-0"
- Top reinforcement bar spacing: 2'-0"
- Reinforcement details include a grid pattern and diagonal cracks.
- Label: **UNDERSIDE OF SLAB**
- Elevation: **EL 24.50**



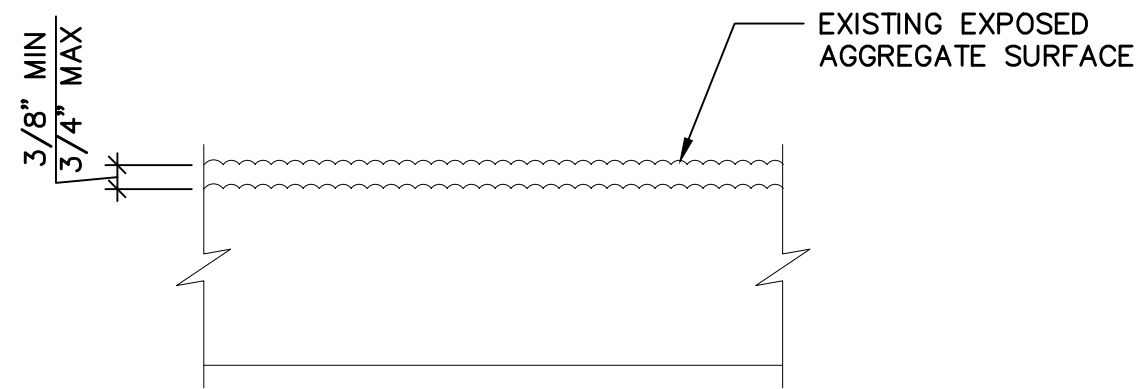
MANHOLES – UNDERSIDE OF SLAB				
MANHOLE & WALL	REPAIR TYPE 1 EXPOSED AGGREGATE	REPAIR TYPE 2 SURFACE REPAIRS	REPAIR TYPE 3 CRACKS	COATING/LINING (INCLUDING SOME REPAIR TYPE 1 &
	QUANTITIES (SF)	QUANTITIES (SF)	QUANTITIES (LF)	QUANTITIES (SF)
2-PC SPLITTER STR.	5	25	25	90
4, 6 & 7 MANHOLES	15	30	45	75
TOTAL	20	55	70	165

1. REPAIR LOCATIONS TYPE AND EXTENTS SHOWN ARE ESTIMATES AND ARE FOR BID PURPOSES ONLY. ACTUAL TYPES AND QUANTITIES SHALL BE CONFIRMED BY ENGINEER ON SITE AFTER WALLS ARE CLEANED, DISINFECTED AND ASSESSED BY ENGINEER.
2. FOR LOCATIONS OF MANHOLES AND PC SPLITTER STRUCTURE, REFER TO CIVIL DRAWINGS.
3. SYMBOLLOGY INDICATED FOR SURFACE REPAIR TYPE 2 AND REPAIR TYPE 3 CRACK REPAIRS ARE DIAGRAMATIC IN NATURE. EXACT LOCATIONS OF REPAIRS WILL BE CONFIRMED BY ENGINEER IN FIELD.

	SURFACE REPAIR TYPE 1 EXPOSED AGGREGATE
	SURFACE REPAIR TYPE 2 SURFACE REPAIRS
	REPAIR TYPE 3 CRACKS
	COATING/LINING



User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-12.DWG Scale: 1:1 Saved Date: 8/25/2022 Time: 16:28 Plot Date: Sangalang, Zedine: 11/29/2022, 08:41 Layout: LAYOUT1

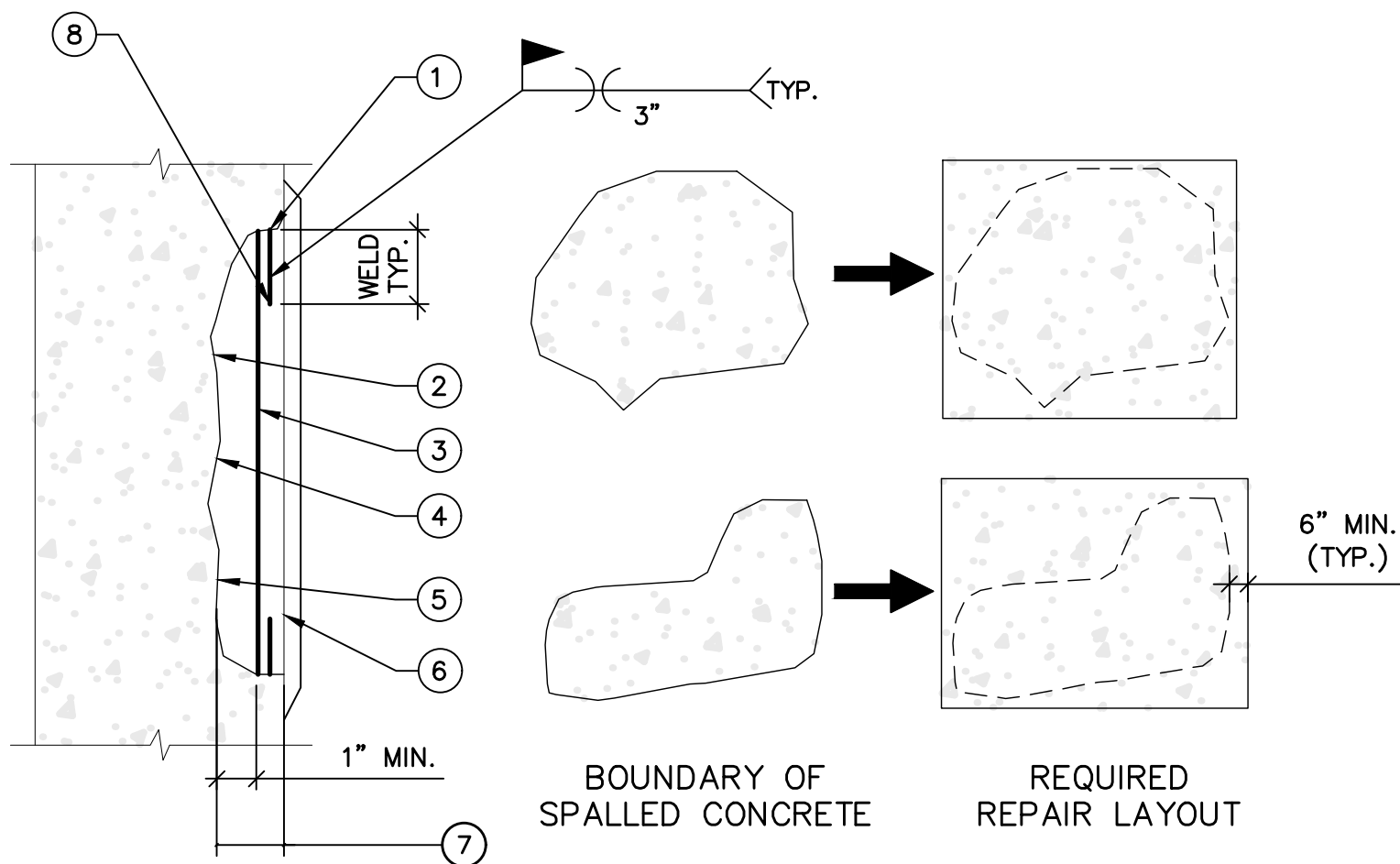


NOTES:

- 1 REMOVE DETERIORATED CONCRETE. REMOVE MAX. 3/4" OF SURFACE CONCRETE BY HYDROBLASTING.
- 2 IF DAMAGED CONCRETE IS DEEPER THAN 3/4", REMOVE DAMAGED CONCRETE UNTIL SOUND CONCRETE IS ENCOUNTERED AND REPAIR PER SPECIFICATION 03 01 30 AND REPAIR TYPE 2 TYPICAL DETAIL.
- 3 REPAIR CRACKS PER CRACK REPAIR - TYPE 3.
- 4 APPLY REPAIR MORTAR TO RESTORE SURFACE TO ORIGINAL CONDITION.
- 5 COATING SHALL BE APPLIED AFTER ALL REPAIR TYPES ARE COMPLETED AND IN ACCORDANCE WITH SPECIFICATION SECTION 09 85 00.

TYPICAL REPAIR TYPE 1  
EXPOSED AGGREGATE

SCALE: NOT TO SCALE



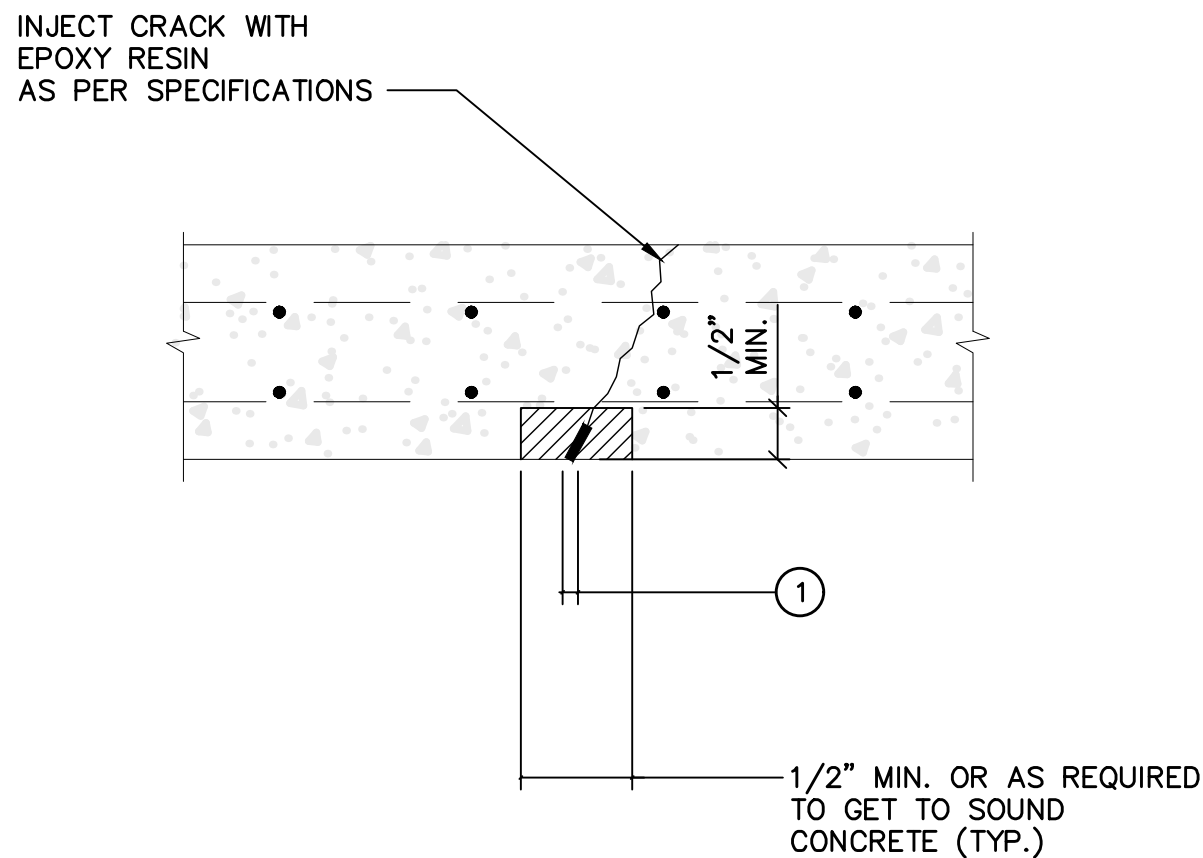
SECTION

ELEVATION

- 1 REFER TO THE GENERAL NOTES FOR ADDITIONAL EXISTING CONCRETE NOTES, SPECIFIED PRODUCTS AND REQUIREMENTS FOR COORDINATION OF WORK
- 2 REMOVE ALL DETERIORATED CONCRETE TO SOUND CONCRETE. CHIP CONCRETE SUBSTRATE TO OBTAIN A SURFACE PROFILE OF 1/8-INCH IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE.
- 3 WHERE REINFORCING STEEL WITH ACTIVE CORROSION IS ENCOUNTERED, ENGINEER TO REVIEW CONDITION OF CORRODED REBARS PRIOR TO REPAIR. REPLACEMENT IS REQUIRED WHERE LOSS ON REBAR CROSS SECTION IS OVER 10%. AFTER REPAIR WHERE REINFORCING REMAINS, CLEAN REINFORCING STEEL TO REMOVE ALL CONTAMINANTS AND RUST. REMOVE CONCRETE TO A DEPTH OF 1-INCH MINIMUM BEHIND REINFORCING BAR AS SHOWN.
- 4 SURFACE SHALL BE DAMP BUT FREE OF STANDING WATER.
- 5 APPLY CONCRETE REPAIR MATERIALS PER THE MANUFACTURER'S REQUIREMENTS.
- 6 REPAIR MORTAR SHALL BE ADDED SO THAT THE MINIMUM COVER OVER EXISTING REINFORCING STEEL IS 1 1/2".
- 7 THE CONTRACTOR SHALL BE PERMITTED TO PLACE REPAIR MORTAR RESULTING IN LOCALLY RAISED AREAS, WHERE NEEDED TO PROVIDE COVER. TRANSITION TO EXISTING SURFACE WITH 4:1 OR FLATTER SLOPE.
- 8 CUT EXISTING CORRODED REINFORCING BAR AS REQUIRED AND WELD NEW REBAR OF SAME SIZE.
- 9 FOR BID PURPOSES, ASSUME TOTAL DEPTH OF REPAIR IS 4-INCHES.

TYPICAL REPAIR TYPE 2  
CONCRETE SURFACE

SCALE: NOT TO SCALE



- 1 FOR CRACKS WIDER THAN 1/8" CUT CONCRETE AS SHOWN AND PATCH.
- 2 IF EXISTING REINFORCING BARS ARE EXPOSED, REPAIR AS PER REPAIR TYPE 2.

REPAIR TYPE 3 CRACKS

SCALE: N.T.S.

LAP SPLICE AND EMBEDMENT LENGTH TABLE

REINFORCEMENT LAP SPLICE, EMBEDMENT LENGTH AND STANDARD HOOKS												
BAR SIZE	MIN LAP LENGTHS FOR				MIN EMBEDMENT LENGTHS					MIN STD. HOOKS		
	BEAMS AND COLUMNS*		SLABS AND WALLS **		FOR BEAMS AND COLUMNS *		FOR SLABS AND WALLS **		WITH STD HOOKS	90°		135°
	CLASS B		CLASS B							A OR G	A OR G	H
	TOP***	OTHERS	TOP***	OTHERS	TOP***	OTHERS	TOP***	OTHERS				
#3	24	19	16	16	18	14	12	12	7	6	4	2.5
#4	32	24	19	16	24	18	14	12	9	8	4.5	3
#5	39	30	24	19	30	23	18	14	11	10	5.5	3.8
#6	46	36	28	23	35	27	21	17	13	12	8	4.5
#7	67	52	41	32	51	40	31	24	15	14	9	5.3
#8	77	59	46	36	59	45	35	27	17	16	10.5	6
#9	86	67	58	45	66	51	44	34	19	19	—	—
#10	97	75	71	55	74	57	54	42	21	22	—	—
#11	107	84	85	65	82	64	65	50	25	24	—	—

REINFORCEMENT LAP SPLICE, EMBEDMENT LENGTH AND STANDARD HOOK TABLE IS BASED ON A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4500 PSI AND 60000 PSI REINFORCEMENT (WITH NO EPOXY COATING).

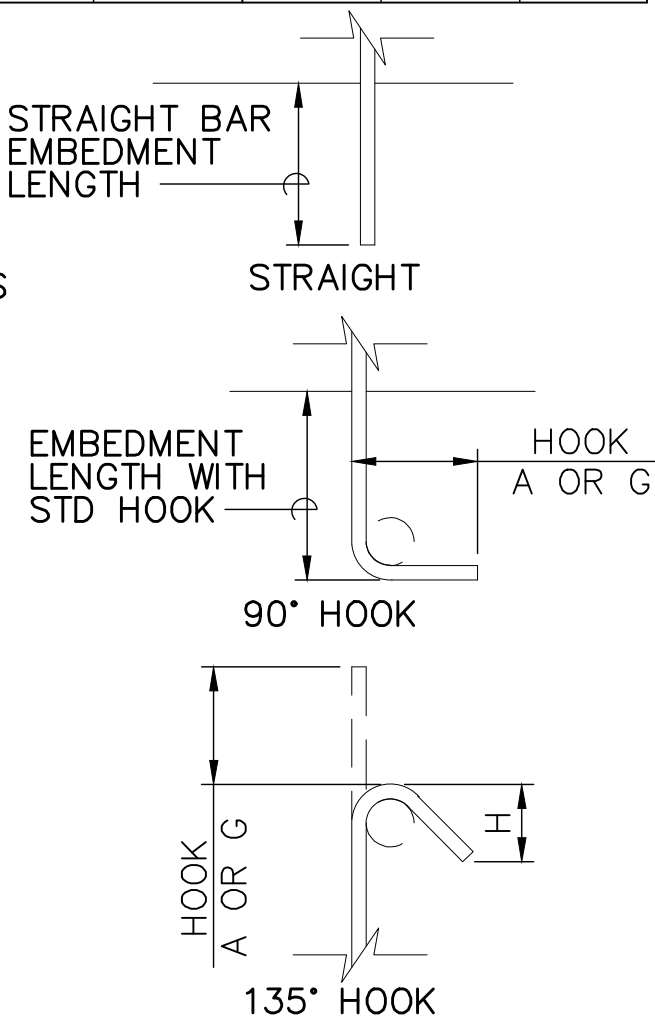
ALL LAPS SPLICES SHALL BE CLASS B SPLICES.

\* THE MINIMUM LAP LENGTH FOR BEAMS, COLUMNS AND STRAIGHT EMBEDMENTS ARE BASED ON A 3 BAR DIAMETER MINIMUM CENTER TO CENTER BAR SPACING AND A 2 INCH BAR COVER. IF THE SPLICE AND/OR EMBEDMENT DOES NOT CONFORM TO THESE REQUIREMENTS, THEN CONTRACTOR SHALL APPLY APPROPRIATE FACTORS IN COMPLIANCE WITH ACI 318 AND ACI 350 WITH PRIOR APPROVAL BY ENGINEER.

\*\* THE MINIMUM LAP LENGTH FOR SLABS, WALLS AND STRAIGHT EMBEDMENTS ARE BASED ON A 6 INCH BAR SPACING AND A 2 INCH BAR COVER. IF THE LAP CONDITION DOES NOT CONFORM TO THESE REQUIREMENTS, THEN USE BEAM LAP LENGTHS; OR COMPLY WITH LAP REQUIREMENTS OF ACI 318 WITH APPROVAL BY ENGINEER.

\*\*\* TOP BARS ARE DEFINED AS ALL HORIZONTAL BARS WITH 12 INCHES OR MORE FRESH CONCRETE BENEATH.

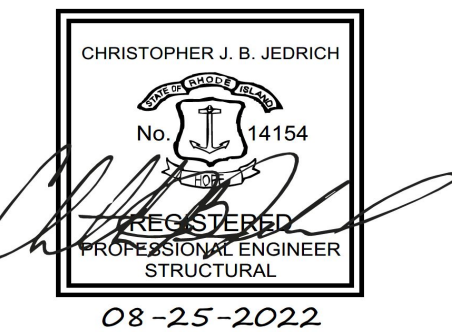
WHERE SPLICES ARE REQUIRED BETWEEN BARS OF DIFFERENT SIZES, THE LAP LENGTH SHALL BE NO LESS THAN THE EMBEDMENT LENGTH OF THE LARGER BAR OR THE LAP LENGTH OF THE SMALLER BAR, WHICHEVER IS GREATER.



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DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-12  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

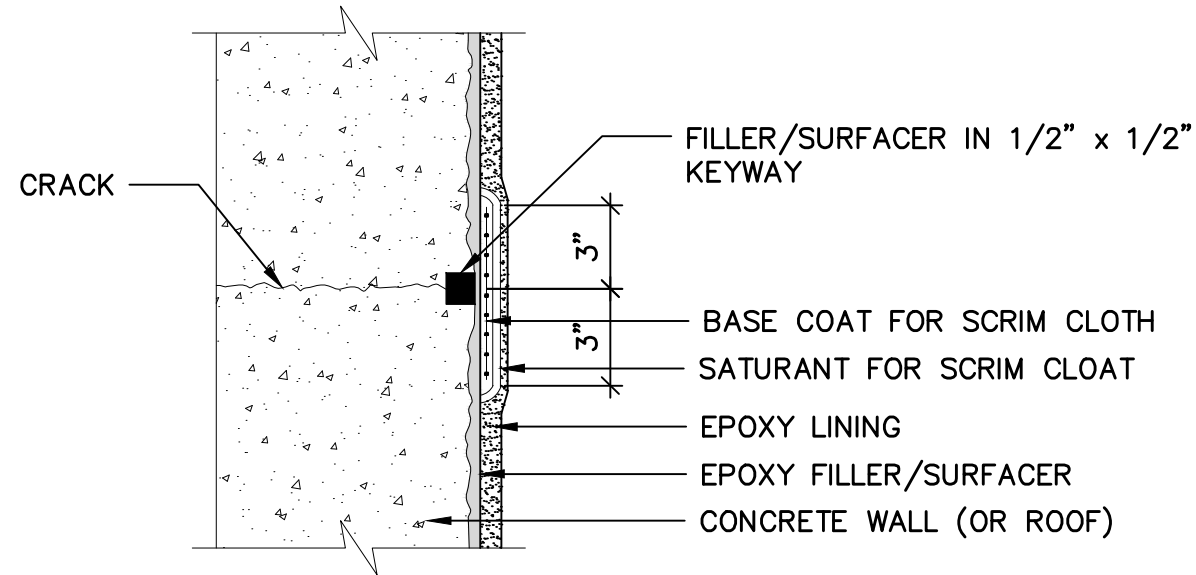
TYPICAL REPAIR  
DETAILS

SCALE:  
N.T.S.

S-12  
SHEET 22 OF 23

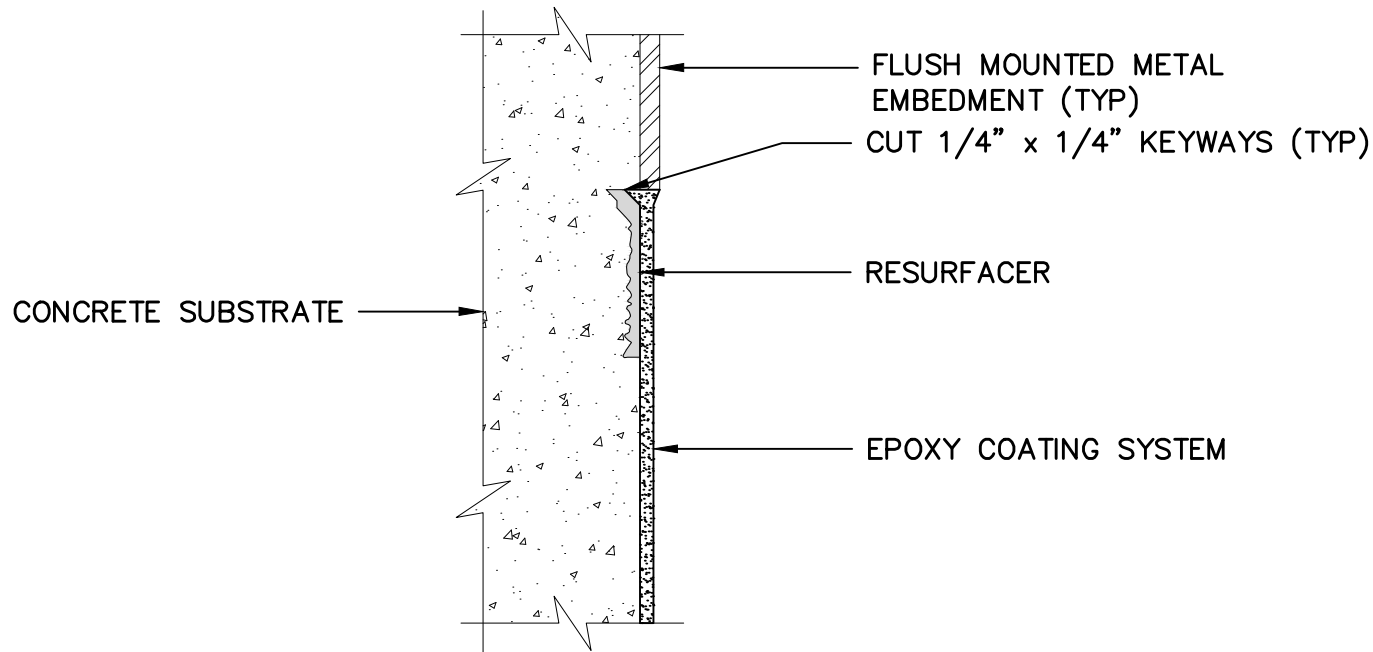


User: SANGALANG Spec: AUS-NCSMOD File: C:\Users\SANGALANG\ARCADIS\30003179 - 06421002.0000-WASTEWATER OPERATING CONTRACT - CAD\SHEETS\S-13.DWG Scale: 1:1 Saved Date: 8/26/2022 Time: 08:54 Plot Date: Sangalang, Zsineer, 11/29/2022, 08:42 ; Layout: LAYOUT1



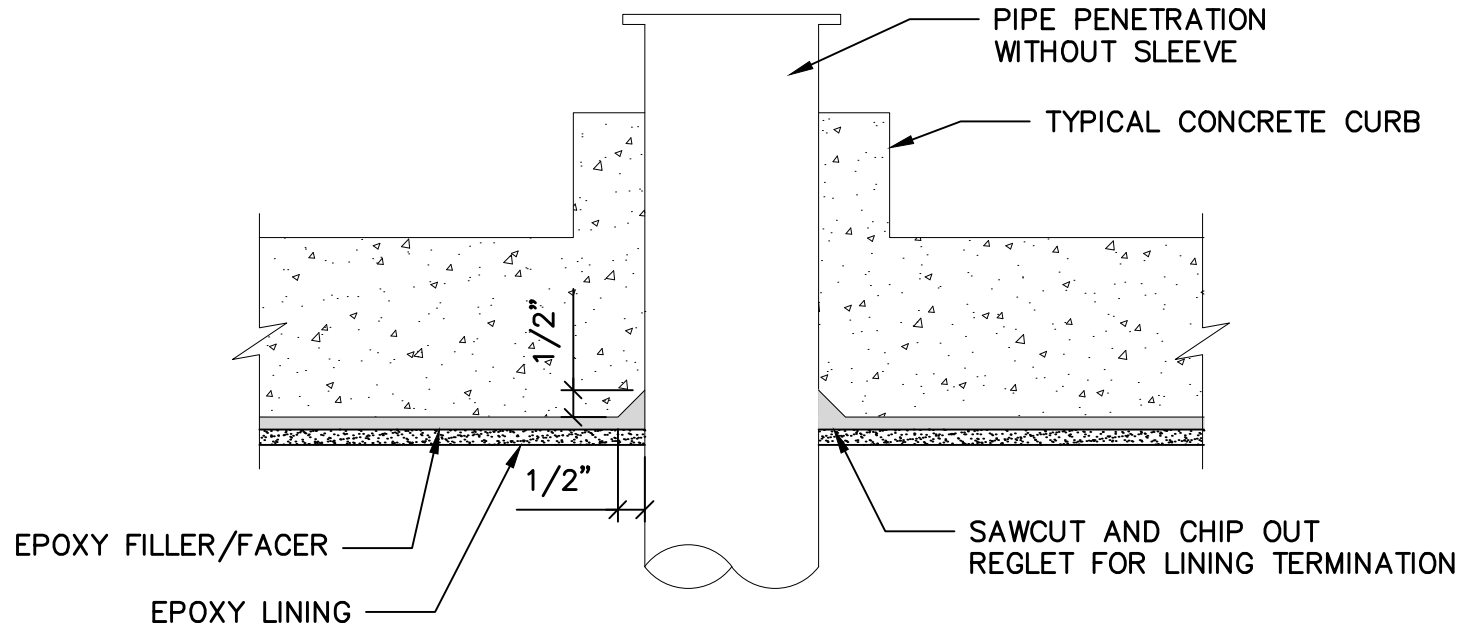
TYPICAL CRACK TREATMENT DETAIL  
FOR WALL OR ROOF

- NOTES:
1. MAKE 1/2" x 1/2" SAWCUT AND CHIP OUT CONCRETE TO CREATE KEYWAY.
  2. FILL KEYWAY WITH FILLER/SURFACER MATERIAL.
  3. SET SCRIM CLOTH IN BASE COAT AND TOP WITH SATURANT COAT AS SHOWN – EXTEND SCRIM CLOTH 3" IN EACH DIRECTION FROM CENTERLINE OF CRACK.
  4. INSTALL EPOXY LINING SYSTEM.



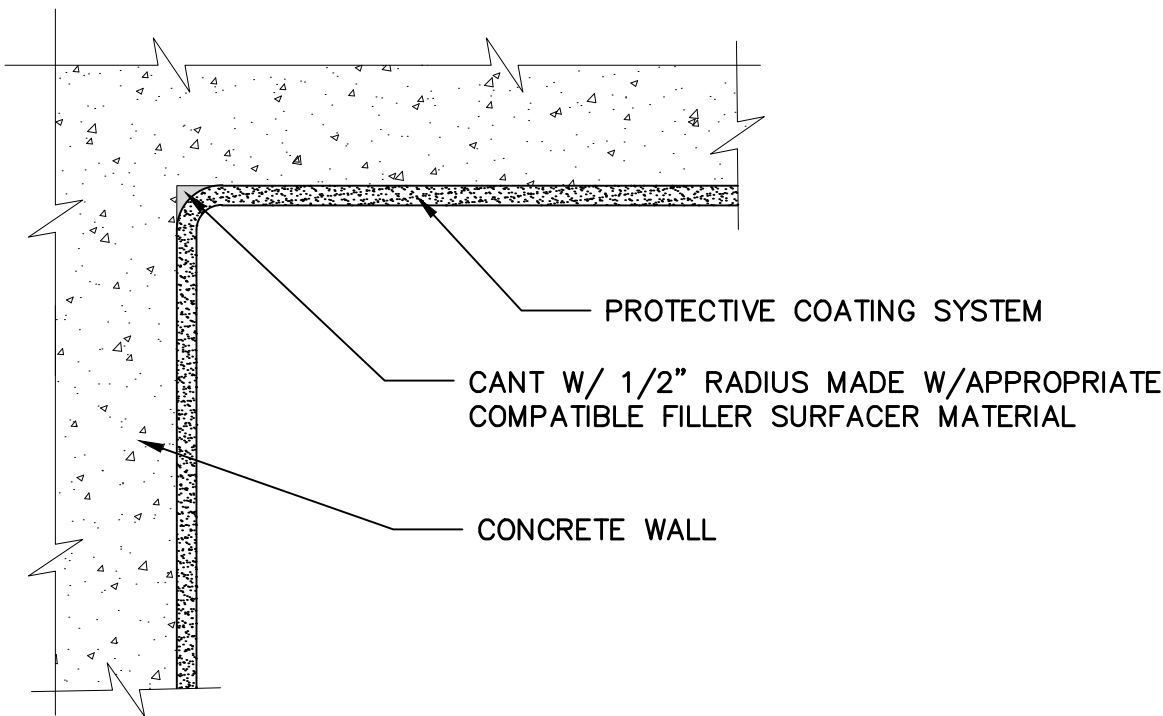
TYPICAL COATING DETAIL  
FLUSH MOUNTED METAL

- NOTES:
1. SAWCUT AND CHIP OUT CONCRETE AT PERIMETER OF EMBEDDED ITEM TO CREATE 1/4" x 1/4" KEYWAYS.
  2. MASK COATING AT PERIMETER OF REPAIR AREA AND FOLLOWING SURFACE PREPARATION, INSTALL FILLER/SURFACER MATERIAL ON CONCRETE SUBSTRATE FILLING IN KEYWAYS.
  3. FOLLOWING SURFACE PREPARATION OF SURFACER, REMOVE MASKING COATING ON PROPERLY SURFACED SUBSTRATE.



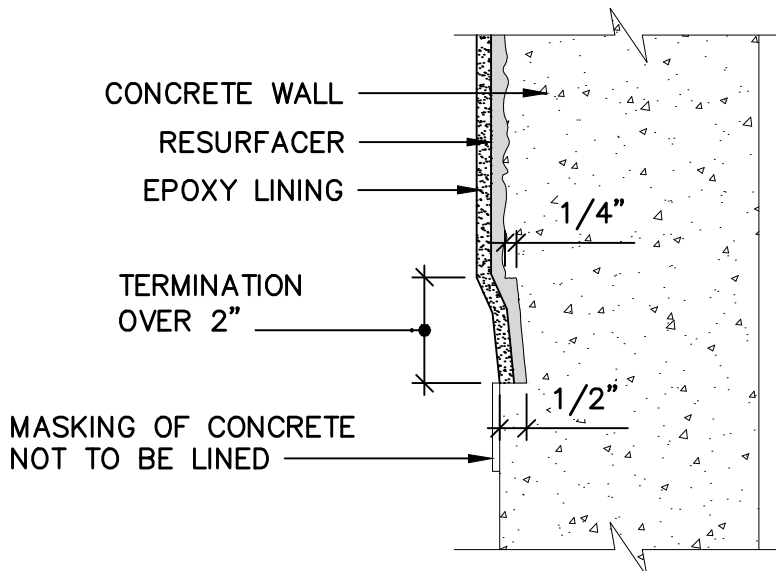
TYPICAL LINING TERMINATION DETAIL  
PIPE PENETRATION WITHOUT SLEEVE

- NOTES:
1. SAWCUT AND CHIP OUT CONCRETE AT PERIMETER OF PIPE PENETRATION TO CREATE A 1/2" x 1/2" REGLET.
  2. FOLLOWING SURFACE PREPARATION, INSTALL FILLER/SURFACER MATERIAL IN REGLET.
  3. INSTALL PROTECTIVE LINING SYSTEM.



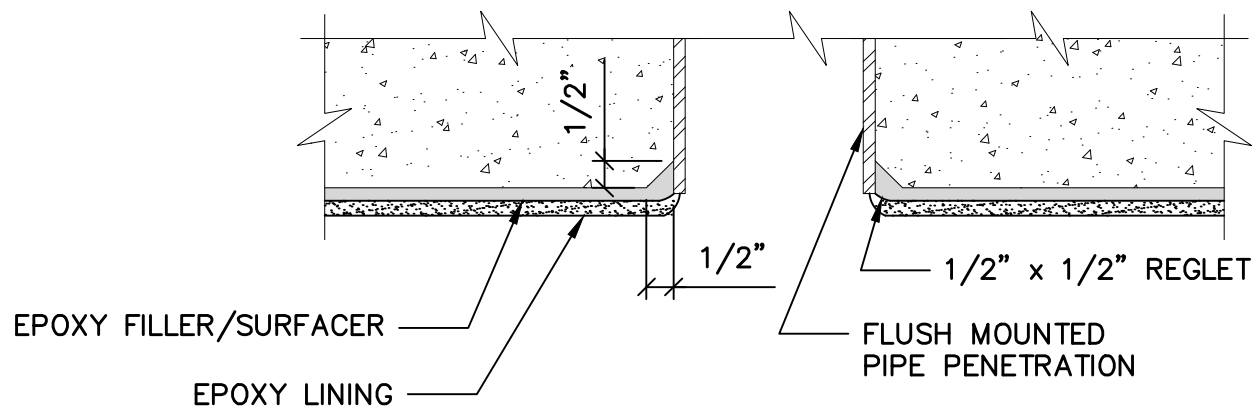
TYPICAL DETAIL  
AT ALL INSIDE CORNERS

- NOTE:
1. USE THIS DETAIL AT ALL WALL TO WALL, AND WALL TO CEILING LOCATIONS, ETC.



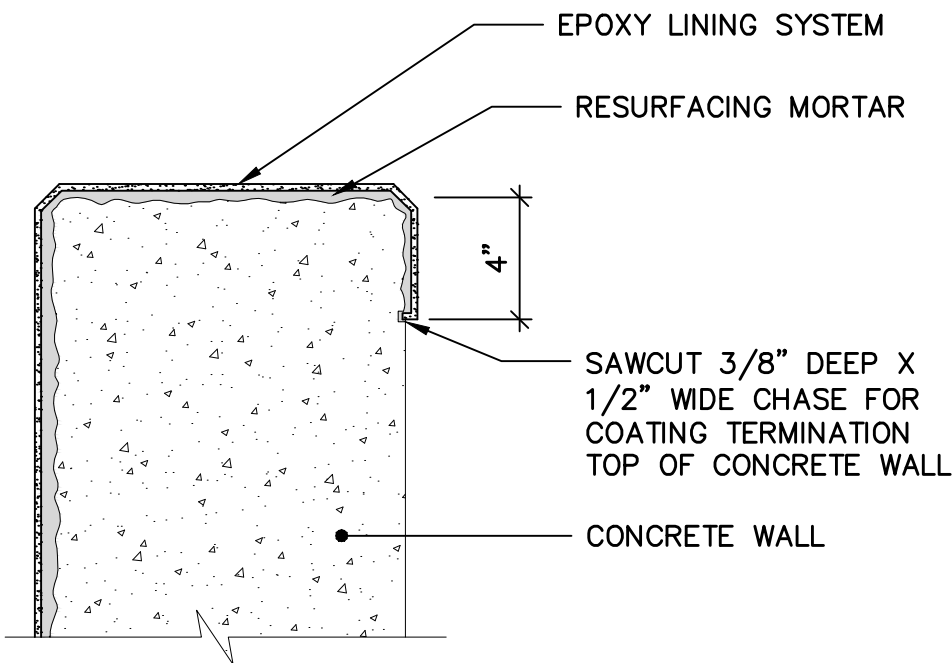
STANDARD TERMINATION OF VERTICAL  
LINING SYSTEM AT LOCATIONS ON WALLS

- NOTES:
1. MAKE HORIZONTAL 1/4" AND 1/2" SAWCUTS AS SHOWN AT LINING SYSTEM TERMINATION.
  2. CHIP CONCRETE OUT OVER 2" AWAY FROM THE 1/2" SAWCUT TO THE 1/4" SAWCUT TO CREATE THE LINING SYSTEM TERMINATION.
  3. INSTALL THE LINING SYSTEM AS SHOWN.



TYPICAL LINING TERMINATION DETAIL  
FLUSH MOUNTED PIPE

- NOTES:
1. SAWCUT AND CHIP OUT CONCRETE AT PERIMETER OF PIPE PENETRATION TO CREATE A 1/2" x 1/2" REGLET.
  2. FOLLOWING SURFACE PREPARATION, INSTALL FILLER/SURFACER MATERIAL IN REGLET.
  3. INSTALL PROTECTIVE LINING SYSTEM.



TOP OF WALL – LINING  
TERMINATION DETAIL

- NOTE:
- THESE TYPICAL DETAILS SHALL BE COORDINATED  
WITH APPROVED COATING MANUFACTURER.

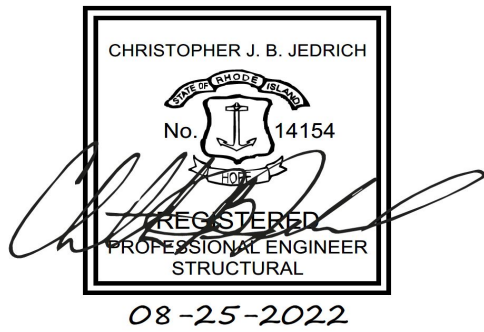


LEGAL ENTITY:  
ARCADIS U.S., INC.

CONSULTANTS



SEALS



CITY OF EAST PROVIDENCE, RI  
DEPARTMENT OF  
PUBLIC WORKS

WATER POLLUTION  
CONTROL FACILITY  
IMPROVEMENTS  
AND CONCRETE LINING

ARCADIS PROJ. NO. 30003179/00702

NO.	DATE	ISSUED FOR	BY

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2022

DATE: DECEMBER 2022  
PROJECT NO.: 30003179/00702  
FILE NAME: S-13  
DESIGNED BY: M. ESTRADA  
DRAWN BY: Z. SANGALANG  
CHECKED BY: K. PATEL

SHEET TITLE

STRUCTURAL

TYPICAL  
COATING/LINING  
DETAILS

SCALE: N.T.S.

S-13

SHEET 23 OF 23