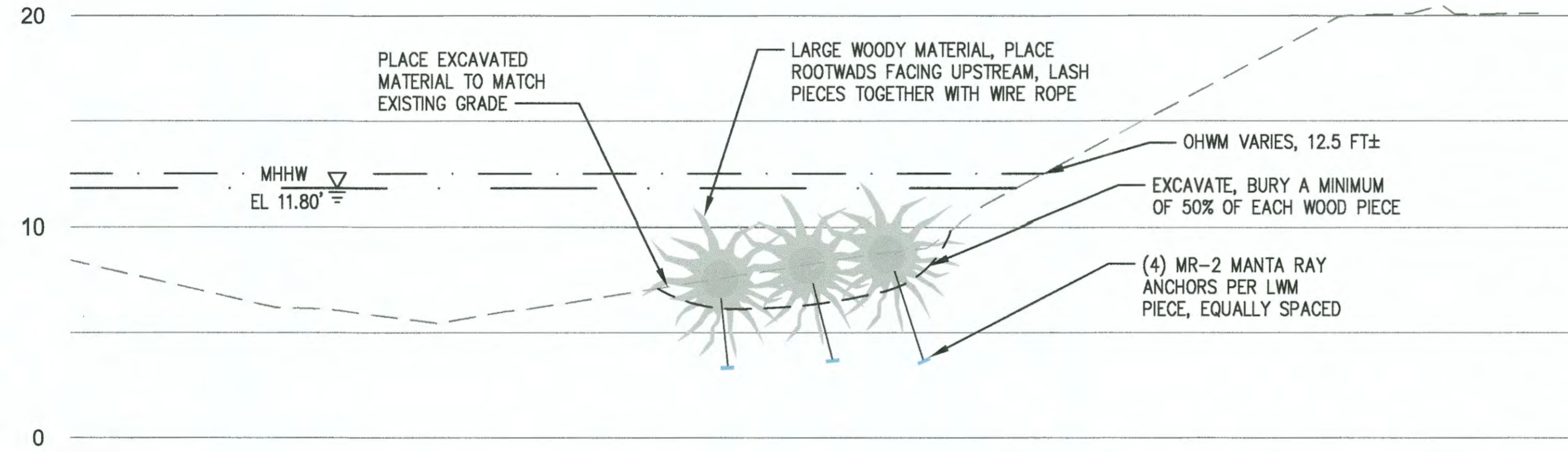


CUTTING NOTES:

1. CUT 1/4 TO 1 INCH DIAMETER PLANTS OR STEMS AND REMOVE ALL BRANCHES.
2. CUT THE STEMS WITH A KNIFE OR PRUNING SHEARS INTO 24 TO 36 INCH LENGTHS.
3. MAKE A HORIZONTAL CUT ON THE END WHICH WILL REMAIN EXPOSED AND A 45 DEGREE ANGLE CUT ON THE END TO BE PLANTED. MAKE SURE BUDS ON THE PLANT FACE UP.
4. PUSH CUTTING DIRECTLY ONTO SOIL OR CREATE A PILOT HOLE BY POUNDING A PIECE OF REBAR INTO SOIL, AND THEN PUSH IN THE CUTTING.
5. PLANT CUTTINGS AT 3 FOOT ON CENTER INTERVALS, STAGGER ROWS.
6. ONLY 4 TO 8 INCHES OF STEM SHOULD BE EXPOSED.

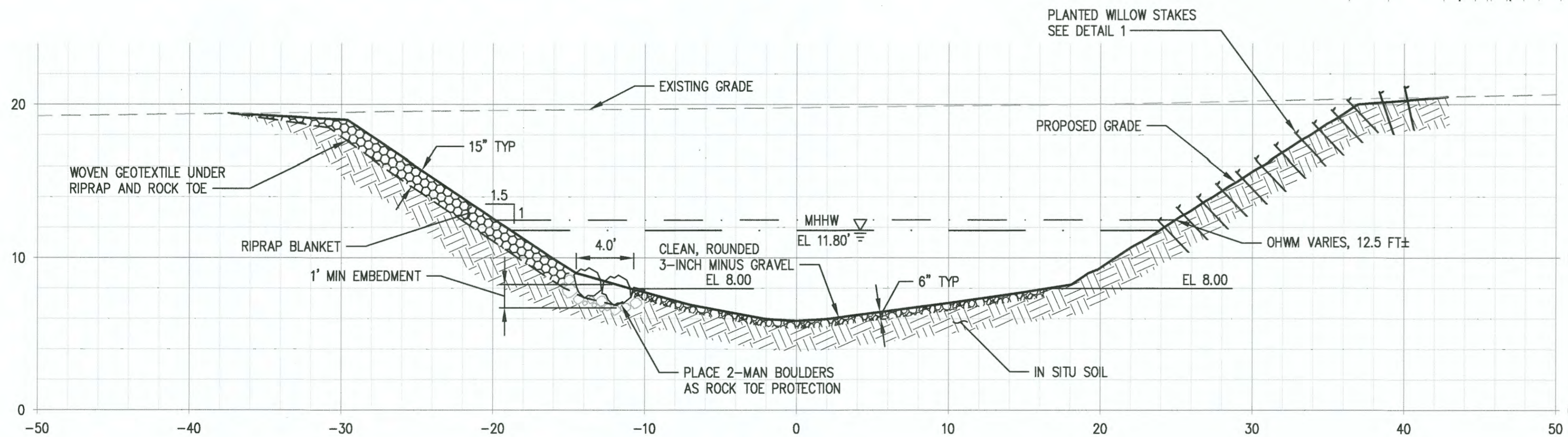
1 WILLOW STAKES TYPICAL DETAIL

NOT TO SCALE



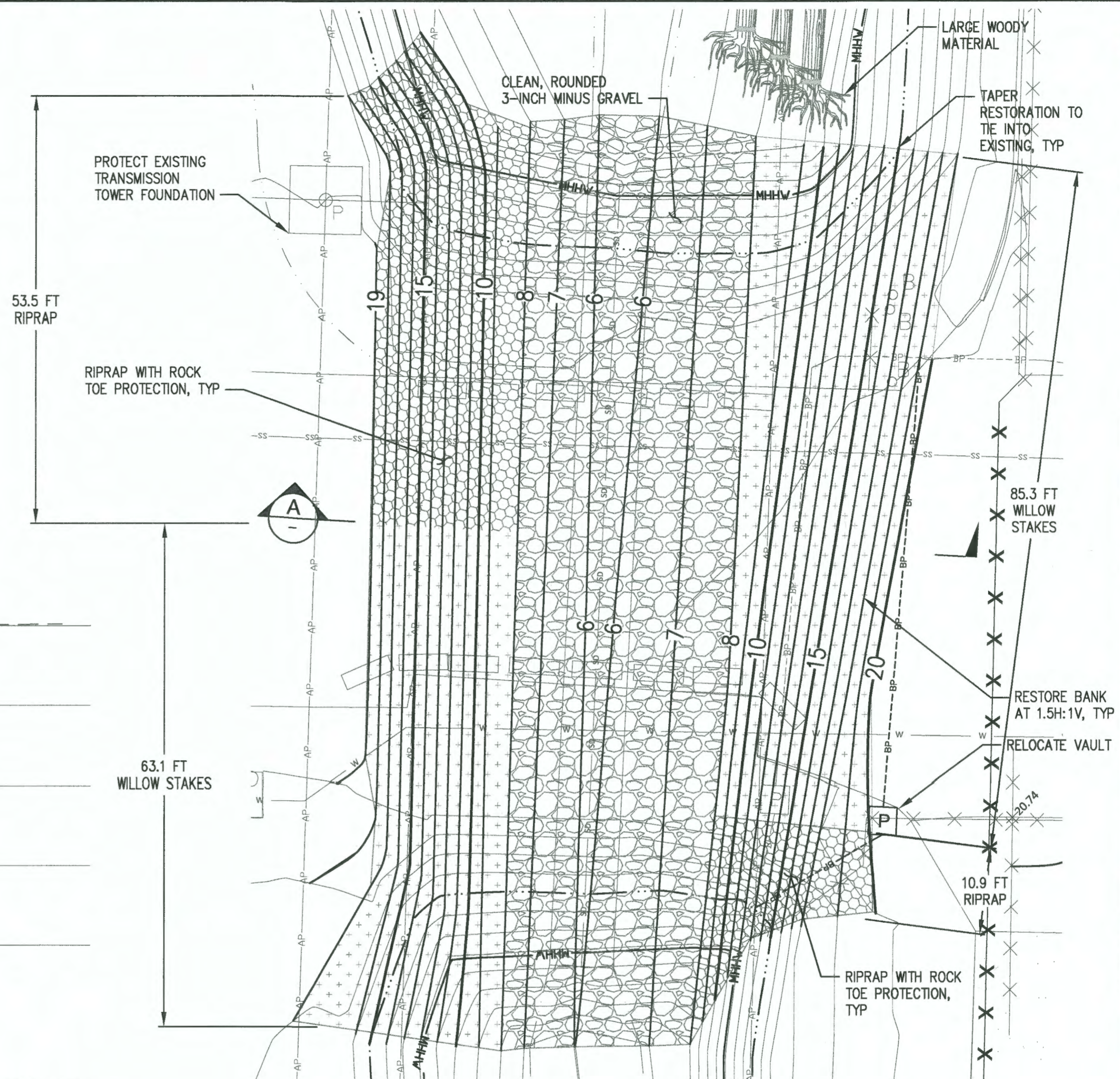
B LARGE WOODY MATERIAL

1" = 5'



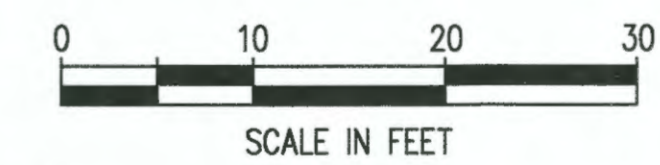
A TYPICAL RESTORATION SECTION

1" = 5'



2 CREEK RESTORATION SITE PLAN

1" = 10'



LEGEND

- PLANTED WILLOW STAKES (1) C2.5
- RIPRAP / BOULDERS
- 3-INCH MINUS GRAVEL
- 10 PROPOSED GRADE
- BASE FLOOD ELEVATION
- MHHW MEAN HIGHER HIGH WATER

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17 OF 33

CONT./CONS: 07/198

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PHASE: BID SET

WAPATO CREEK

BRIDGE AND CULVERT REMOVAL

GRADING AND DRAINAGE DETAILS

CREEK RESTORATION

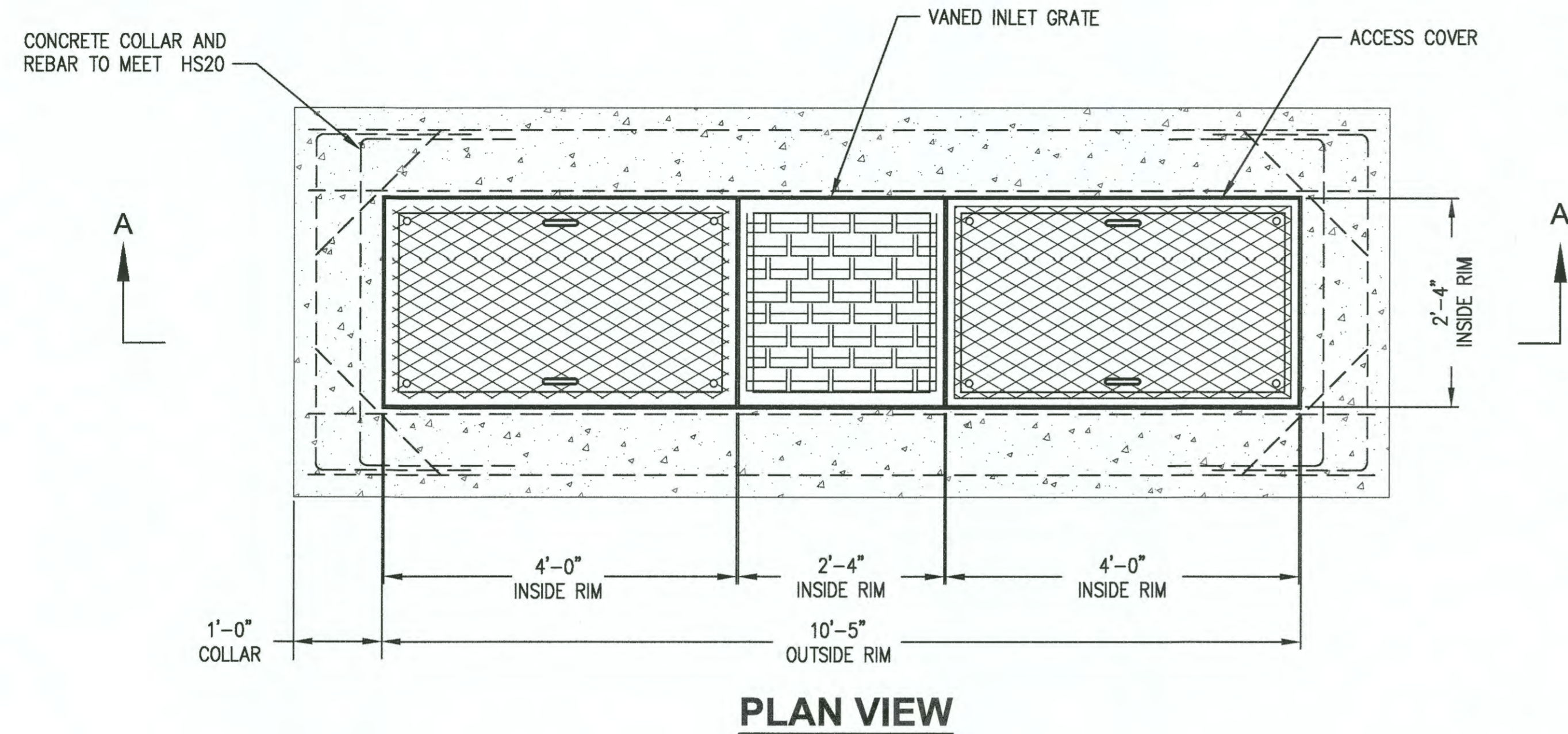
TOWNSHIP: 20N SECTION: 01

RANGE: 03E MLLW 19.18' @ TIDE 22 1983

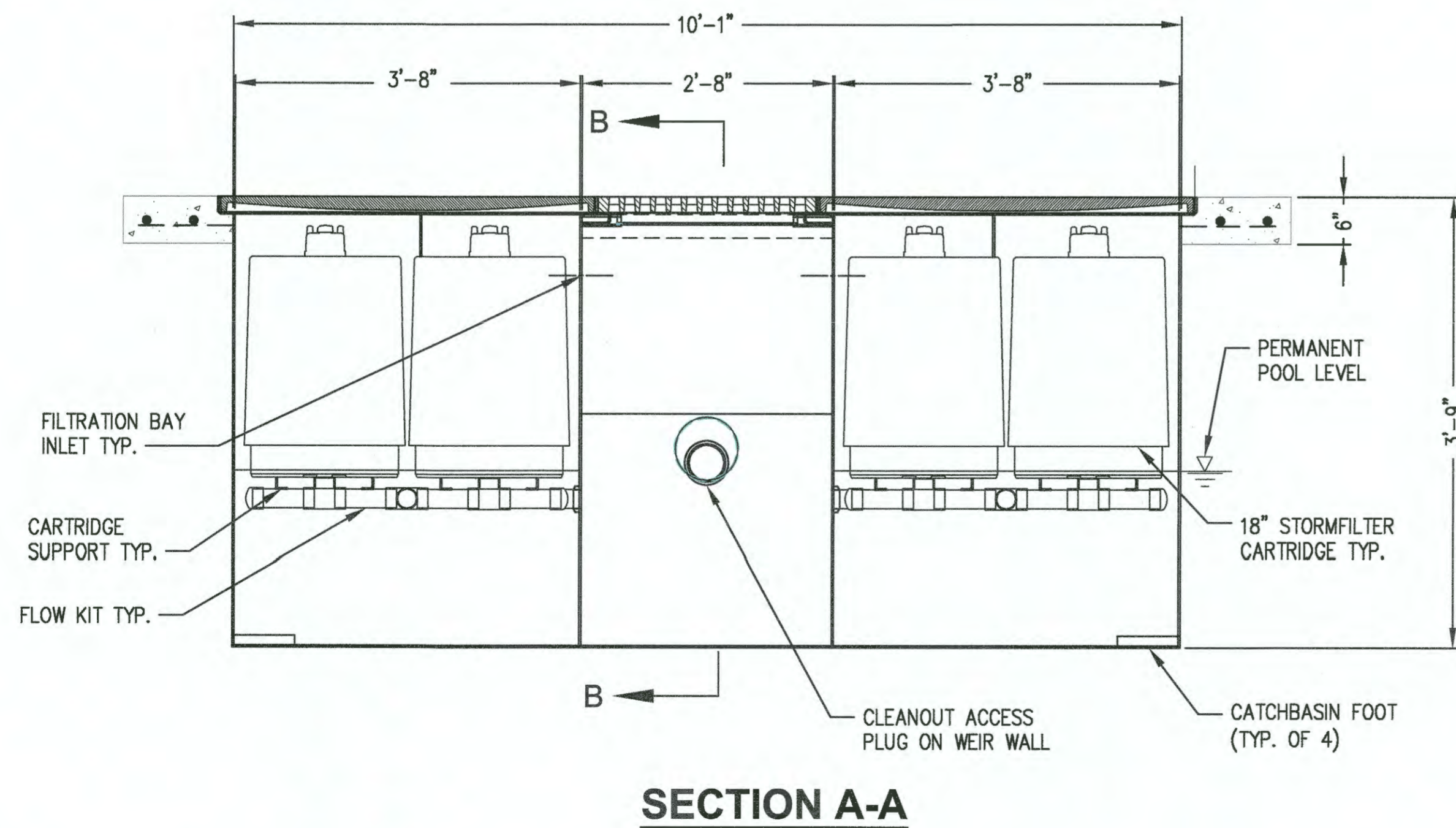
DATE-HRZ: WA83-SF VERT: AS SHOWN

DRAWING SCALE: AS SHOWN

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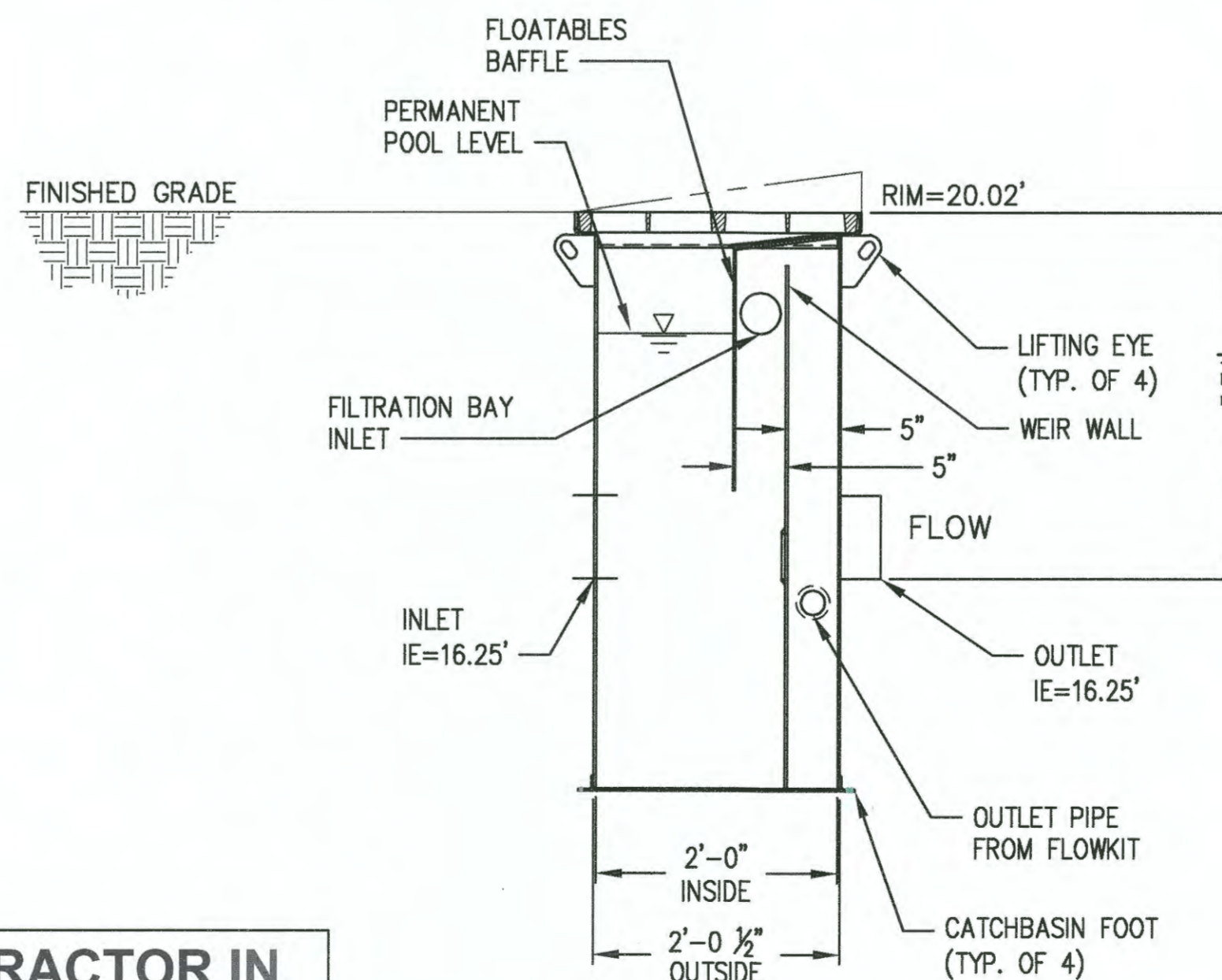
PLAN VIEW



SECTION A-A

DESIGN TO BE PROVIDED BY CONTRACTOR IN ACCORDANCE WITH NOTED PARAMETERS

1 STORMFILTER DETAIL
NTS



SECTION B-B

STORMFILTER STEEL CATCHBASIN DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 4 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF FOUR CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL. PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	18"		
RECOMMENDED HYDRAULIC DROP (H)	2.3'		
SPECIFIC FLOW RATE (gpm/sf)	2	1.67	1
CARTRIDGE FLOW RATE (gpm)	15	12.53	7.5
PEAK HYDRAULIC CAPACITY	1.0		
INLET PERMANENT POOL LEVEL (A)	1'-0"		
OVERALL STRUCTURE HEIGHT (B)	3'-9"		

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB (PSORB) MEDIA ONLY

GENERAL NOTES

1. CONTRACTOR TO PROVIDE ALL PRODUCT AND MATERIALS UNLESS NOTED OTHERWISE. ALL PRODUCT AND MATERIALS SHALL BE SUBMITTED WITH DESIGN BY WASHINGTON STATE PROFESSIONAL ENGINEER.
2. WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
3. INLET SHOULD NOT BE LOWER THAN OUTLET.
4. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
5. WATER QUALITY STRUCTURE EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUB FOR OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. CONNECTION TO EXISTING COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
6. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED AND MUST BE DESIGNED AND INSTALLED BY CONTRACTOR.
7. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
8. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

4-CARTRIDGE CATCHBASIN STORMFILTER DATA	
STRUCTURE ID	#1
WATER QUALITY FLOW RATE (cfs)	0.0589
PEAK FLOW RATE (<1 cfs)	0.3481
RETURN PERIOD OF PEAK FLOW (yrs)	100
CARTRIDGE FLOW RATE (gpm)	7.5
MEDIA TYPE	CSF LEAF
RIM ELEVATION	20.02'
PIPE DATA:	I.E. DIAMETER
INLET STUB	16.25' 8"
OUTLET STUB	16.25' 8"
CONFIGURATION	
SLOPED LID	NO
SOLID COVER	NO
NOTES/SPECIAL REQUIREMENTS:	



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06/18/20	06/18/20	PORT ADDRESS	ONE SITCOM PLAZA
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WAPATO CREEK BRIDGE AND CULVERT REMOVAL GRADING AND DRAINAGE DETAILS

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18 OF 33
CONT/CONS: 07/198
M. ID: 201070.01
PHASE: BID SET

APPROVED: [Signature]
TOWNSHIP: 20N RANGE: 03E SECTION: 01
DATE-HRZ: 201070.01 DAT-HRZ: WAB3-SF VERT: MLLW 19.18' @ TIDE 22 1933
PARCEL: 15 DRAWING SCALE: AS SHOWN

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BRIDGE GENERAL STRUCTURAL DESIGN NOTES

BRIDGE DESIGN SPECIFICATIONS
THE BRIDGE DESIGN IS IN ACCORDANCE WITH THE FOLLOWING DESIGN SPECIFICATIONS :

- AASHTO LRFD BRIDGE DESIGN SPECIFICATION, 8TH EDITION (2017).
- AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN, 2nd EDITION
- WSDOT STANDARD SPECIFICATION LATEST EDITION.
- WSDOT BRIDGE DESIGN MANUAL.
- ASCE 24 – FLOOD RESISTANT DESIGN AND CONSTRUCTION.

BRIDGE DESIGN PROCEDURES

- TRAFFIC BARRIER AND RAILING IS DESIGNED TO MEET THE TEST LEVEL FIVE CRITERIA SET FOURTH IN AASHTO LRFD BDS SECTION 13.7.2 AND RELATED SECTIONS.
- ABUTMENT AND PILE FOUNDATION DESIGN IS IN ACCORDANCE WITH THE FORCE BASED SEISMIC DESIGN PROCEDURES SET FORTH IN THE 2014 AASHTO SEISMIC GUIDE SPECIFICATIONS.

BRIDGE DESIGN GEOTECHNICAL PARAMETERS

- FOR DETAILED GEOTECHNICAL REPORT SEE GEOTECHNICAL REPORT – DATED JULY 29, 2019 BY HART CROWSER INC

BRIDGE GENERAL CONSTRUCTION NOTES:

- CONSTRUCTION SPECIFICATIONS: MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS.
- MATERIALS:
 - CONCRETE : SHALL CONFORM TO THE REQUIREMENTS OF SECTION 03 30 00 OF THE PROJECT SPECIFICATION
 - APPROACH SLAB = CLASS 4000A
 - BRIDGE DECK = CLASS 4000D
 - TRAFFIC BARRIER, ABUTMENTS, WINGWALLS, END DIAPHRAGMS, GIRDER STOPS = CLASS 4000
 - DRILLED SHAFTS = CLASS 5000P
 - PRECAST PRESTRESSED GIRDERS AT RELEASE = 7500 PSI
 - PRECAST PRESTRESSED GIRDERS AT 28 DAYS = CLASS 9000
 - SHAFT SPIRAL REINFORCING STEEL: ASTM A706, GRADE 60–WELDABLE
 - ALL OTHER REINFORCING STEEL: ASTM A615, GRADE 60
 - PRESTRESSING STRANDS : AASHTO M203 GRADE 270 0.6" DIAMETER LOW RELAXATION 7–WIRE STRAND, $F_{pu} = 270$ KSI
 - STAGGER ALL LAP SPLICES IN ADJACENT BARS BY ONE LENGTH MINIMUM, NO MORE THAN 50% OF REINFORCING BARS IN ANY LAYER SHALL BE SPLICED AT ONE LOCATION.
 - THE PRECAST PRESTRESSED GIRDERS SHALL CONFORM TO SECTION 03 40 00 OF THE PROJECT SPECIFICATIONS. THE TYPE OF LIFTING DEVICE FOR PRECAST MEMBERS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. PRECAST PRESTRESSED GIRDERS SHALL BE LIFTED NEAR REARING POINTS.
 - UNLESS OTHERWISE NOTED, CONCRETE COVER SHALL BE AS FOLLOWS:
 - CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE GROUND.....3" CLR
 - CONCRETE IN CONTACT WITH GROUND OR EXPOSED TO WEATHER.....2" CLR

$f'_c = 4000$ PSI SPLICE TABLE

BAR SIZE	TOP BARS	OTHER STRAIGHT BARS	HOOKEED BARS
#3	24"	19"	7"
#4	32"	25"	10"
#5	40"	31"	12"
#6	48"	37"	15"
#7	70"	54"	17"
#8	80"	62"	19"
#9	91"	70"	22"
#10	102"	79"	24"
#11	113"	87"	27"

- ### NOTES
- LENGTHS ARE BASED ON CLASS "B", CASE 1 SPLICES (MAX OF 50% OF BARS SPLICED AT ONE LOCATION).
 - TOP BARS ARE DEFINED AS ANY HORIZONTAL BAR PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR.
 - STAGGER ALL LAP SPLICES IN ADJACENT BARS BY ONE LAP LENGTH +1'-0" MINIMUM.
 - NO MORE THAN 50% OF THE REINFORCING BARS IN ANY LAYER SHALL BE SPLICED AT ONE LOCATION.
 - FOR EPOXY COATED BARS, LAP SPLICE AND DEVELOPMENT LENGTHS SHALL BE 1.5 TIMES THE VALUE IDENTIFIED IN THE SCHEDULE OF MINIMUM LAP SPLICE AND DEVELOPMENT LENGTHS ABOVE.
 - DEVELOPMENT & SPLICE LENGTHS ARE APPLICABLE FOR TENSION OR COMPRESSION.
 - FOR NON-CONTACT LAP SPLICES THE TRANSVERSE CENTER-TO-CENTER SPACING OF SPLICED BARS SHALL NOT EXCEED THE LESSER OF ONE-FIFTH THE REQUIRED LAP SPLICE LENGTH AND 6IN.

BRIDGE DESIGN LOADS

BRIDGE DESIGN LOADS


- PERMANENT LOADS:
 - DC CONCRETE WEIGHT = 155 PCF
 - DW STRUCTURAL STEEL WEIGHT = 490 PCF
 - EV FUTURE HMA OVERLAY WEIGHT = 35 PSF (ASSUMED 3" OVERLAY)
 - EH UNIT WEIGHT OF SOIL (TRIANGULAR DISTRIBUTION) = 115-125 PCF (SEE PROJECT GEOTECH REPORT)
 - EH ACTIVE PRESSURE (TRIANGULAR DISTRIBUTION) = 32 (H+D)
 - EH PASSIVE PRESSURE (TRIANGULAR DISTRIBUTION) = 90D IN FRONT OF ABUTMENT 800D IN FRONT OF WING WALLS
 - EH TRAFFIC SURCHARGE = 64 PSF
 - H = STRUCTURE FREE HEIGHT, FT
 - D =DEPTH BELOW FINISHED GRADE AT FACE OF WALL OR ABUTMENT
- TRANSIENT LOADS:
 - LL HL-93 DESIGN TRUCK AXLE LOAD INCLUDING DESIGN LANE LOAD OF 0.064 KSF
 - IM VEHICULAR DYNAMIC LOAD ALLOWANCE APPLIED TO DESIGN TRUCK = 33%
 - LS LIVE LOAD SURCHARGE APPLIED TO ABUTMENT = 64 PSF
 - TU UNIFORM TEMPERATURE RANGE FROM 0' TO 100' FAHRENHEIT
- SEISMIC DESIGN LOADS AND PARAMETERS: (2014 AASHTO)
 - OPERATIONAL IMPORTANCE $\eta = 1.0$
 - SITE CLASS = E
 - SPECTRAL ACCELERATION AT 0.2s (S_s) = 0.89g
 - SPECTRAL ACCELERATION AT 1.0s (S_1) = 0.301g
 - S_{D5} = 0.918g
 - S_{D1} = 0.841g
 - PGA = 0.56g
 - A_s = 0.363g
 - SEISMIC EARTH PRESSURE (TRIANGULAR DISTRIBUTION) = 27 (H)
 - H = STRUCTURE FREE HEIGHT, FT
 - TOTAL STRUCTURE DEAD WEIGHT = 1098k
- LOAD COMBINATIONS : AASHTO LRFD BDS T3.4.1-1
 - SERVICE I : 1.0 DC + 1.0 DW + 1.0 (LL + IM)
 - SERVICE II : 1.0 DC + 1.0 DW + 0.8 (LL + IM)
 - STRENGTH I : 0.9 / 1.25 DC + 0.65 / 1.5 DW + 1.75 (LL + IM)
 - FATIGUE I : 0.5 DC + 0.5 DW + 1.50 (LL + IM)
 - EXTREME EVENT I : 0.9 / 1.25 DC + 0.65 / 1.5 DW + 0.5 (LL + IM) + 1.0 EQ
 - EXTREME EVENT II : 0.9 / 1.25 DC + 0.65 / 1.5 DW + 0.5 (LL + IM) + 1.0 CT

SPECIAL INSPECTION SCHEDULE


ESTABLISHED PER IBC 2015 CHAPTER 17

ITEMS	CONTINUOUS INSPECTION	PERIODIC INSPECTION	COMMENTS
SOILS			
GRADING, EXCAVATION & FILL		X	BY GEOTECHNICAL ENGINEER
FINAL FOUNDATION PREPARATION		X	BY GEOTECHNICAL ENGINEER
DRILLED PIERS – INSTALLATION & TESTING	X		BY GEOTECHNICAL ENGINEER
CONCRETE			
REINFORCING PLACEMENT		X	
REINFORCING WELDING	X		
REINFORCING COUPLING	X	X	REF. NOTE 5
ANCHOR BOLTS & INSERTS		X	
FORMWORK		X	
PREPARATION OF MIX DESIGNS		X	
PREPARATION OF TEST SPECIMENS	X		
CONCRETE PLACEMENT	X		
EMBEDDED STEEL ITEMS		X	
CURING		X	
PRECAST CONCRETE ERECTION		X	
STRUCTURAL STEEL			
SINGLE PASS FILLET WELDS $\leq 5/16"$		X	REF. NOTE 6
PARTIAL/COMPLETE PENETRATION WELD	X		REF. NOTE 7
OTHER WELDING			
WELDING OF ANCHORS AND STUDS		X	REF. NOTE 8
PREFABRICATED CONSTRUCTION			
			REF. NOTE 4


- ### INSPECTION SCHEDULE NOTES:
- THE ITEMS CHECKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17 BY A CERTIFIED SPECIAL INSPECTOR FROM AN APPROVED TESTING AGENCY. FOR MATERIAL SAMPLING AND TESTING REQUIREMENTS, REFER TO PROJECT SPECIFICATIONS, THE STRUCTURAL AND THE NOTES BELOW. THE TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE PORT OF TACOMA, ENGINEER, CONTRACTOR AND BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER. SPECIAL INSPECTION TESTING REQUIREMENTS APPLY EQUALLY TO ALL BIDDER DESIGNED COMPONENTS. INSPECTION AND TESTING REQUIREMENTS FOR SYSTEMS DESIGNED BY OTHERS SHALL BE DEFINED BY THE REGISTERED DESIGN PROFESSIONAL RESPONSIBLE FOR THEIR DESIGN, EXCEPT THAT THE INSPECTION REQUIREMENTS SHALL NOT BE LESS THAN SPECIFIED IN THIS SCHEDULE.
 - SPECIAL INSPECTION IS NOT REQUIRED FOR WORK PERFORMED BY AN APPROVED FABRICATOR PER IBC 1704.2.5.1. SEE SPECIFICATIONS FOR APPROVAL REQUIREMENTS.
 - CONTINUOUS SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON THE SITE AT ALL TIMES OBSERVING THE WORK REQUIRING SPECIAL INSPECTION. PERIODIC SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON SITE AT TIME INTERVALS NECESSARY TO CONFIRM THAT ALL WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE (IBC 1702.1)
 - INSPECTION FOR PREFABRICATED CONSTRUCTION SHALL BE THE SAME AS IF THE MATERIAL USED IN THE CONSTRUCTION TOOK PLACE ON SITE. CONTINUOUS INSPECTION WILL NOT BE REQUIRED DURING PREFABRICATION IF THE APPROVED AGENCY CERTIFIES THE CONSTRUCTION AND FURNISHES EVIDENCE OF COMPLIANCE. SEE SPECIFICATIONS FOR APPROVED AGENCIES AND SUBMITTAL REQUIREMENTS.
 - CONTINUOUS INSPECTION IS REQUIRED FOR INSTALLATION OF COUPLERS. PERIODIC INSPECTION MAY BE USED FOR VERIFICATION OF COUPLER MATERIALS.
 - ALL WELDS SHALL BE VISUALLY INSPECTED.
 - ALL COMPLETE PENETRATION WELDS SHALL BE TESTED ULTRASONICALLY OR BY USING ANOTHER APPROVED METHOD.
 - WELDED DOWELS AT THE TOP OF PILES SHALL BE PERIODICALLY INSPECTED PRIOR TO INSTALLATION OF ABUTMENT REINFORCEMENT.



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Professional Engineer
No. 18119
State of Washington

AWB 06/01/20

CHECKED BY DATE

SEK 06/01/20

PROJ. ENGR. DATE

DIRECTOR ENG. DATE

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TACOMA, WA 98401-1837

APPROVED:

[Signature]

SECTION: 01

RANGE: 03E

TOWNSHIP: 20N

DAT-HRZ: WA83-SF

PARCEL: 15

SECTION: 01

VERT: MLLW 19.18' @ TIDE 22 1933

DRAWING SCALE: AS SHOWN

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19 OF 33

CONT/CONS: 071198

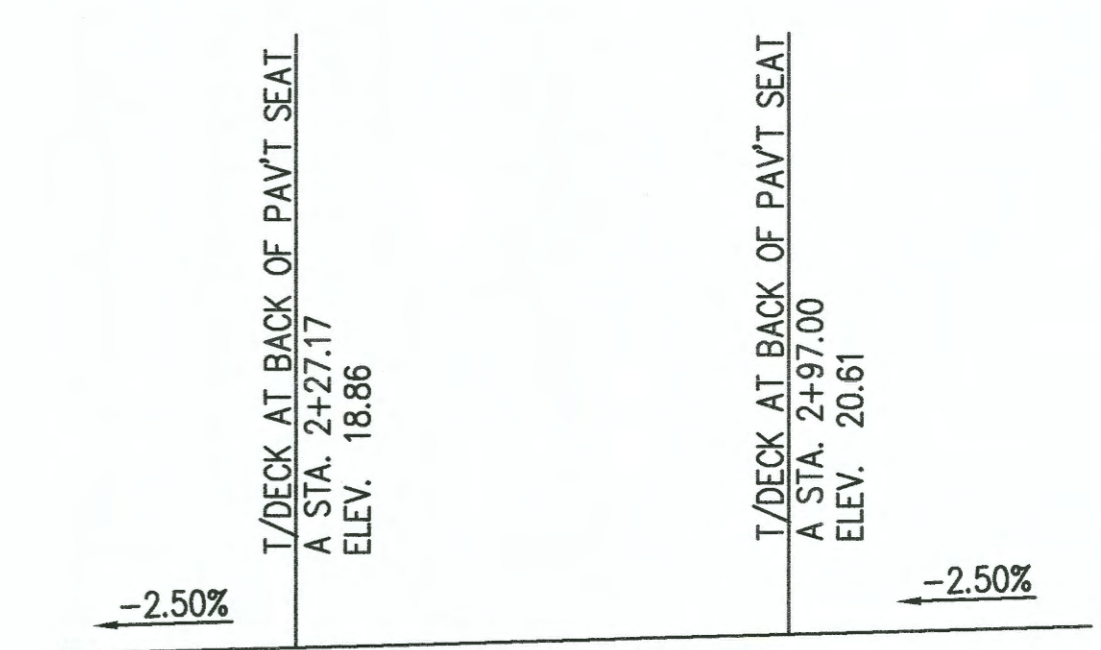
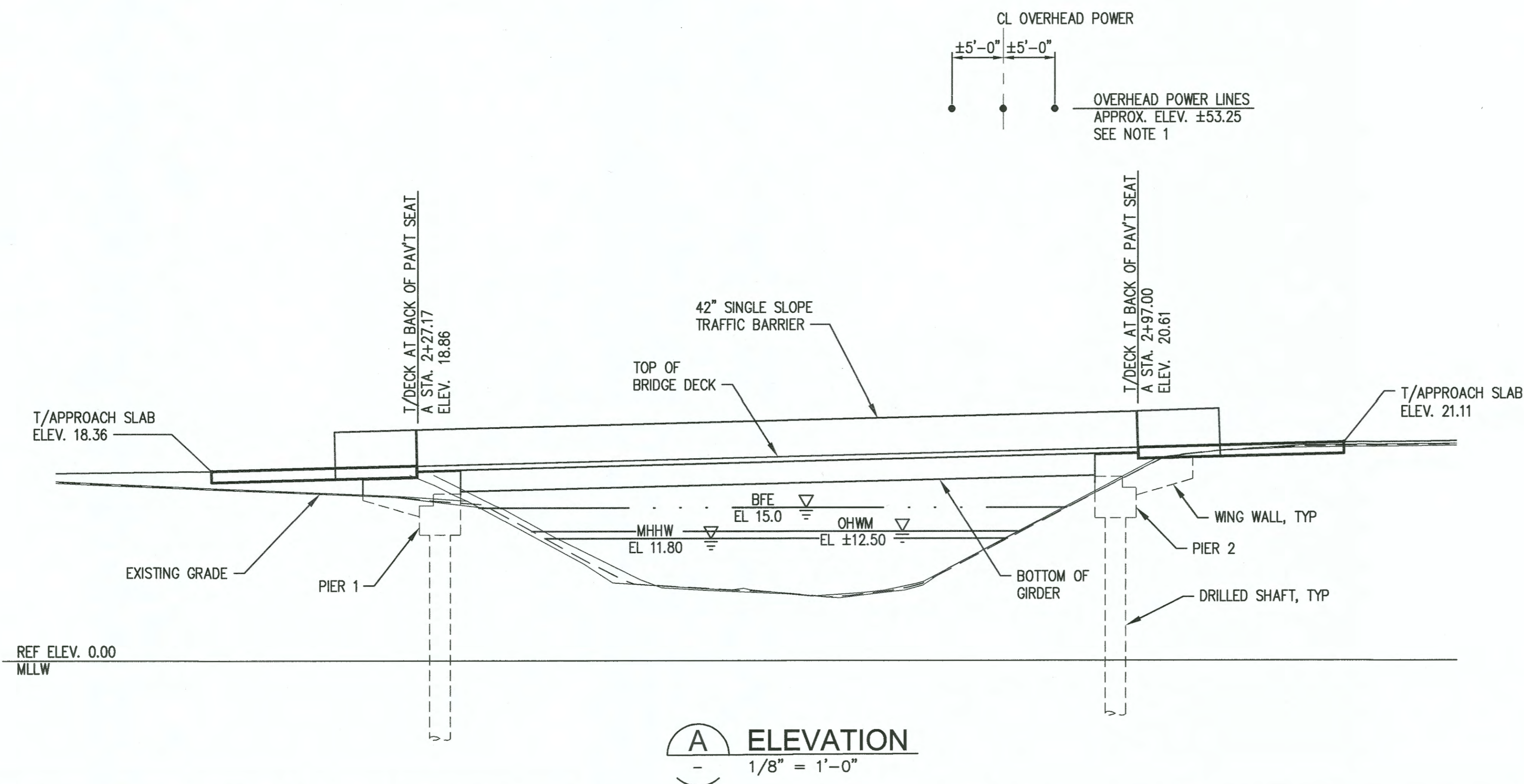
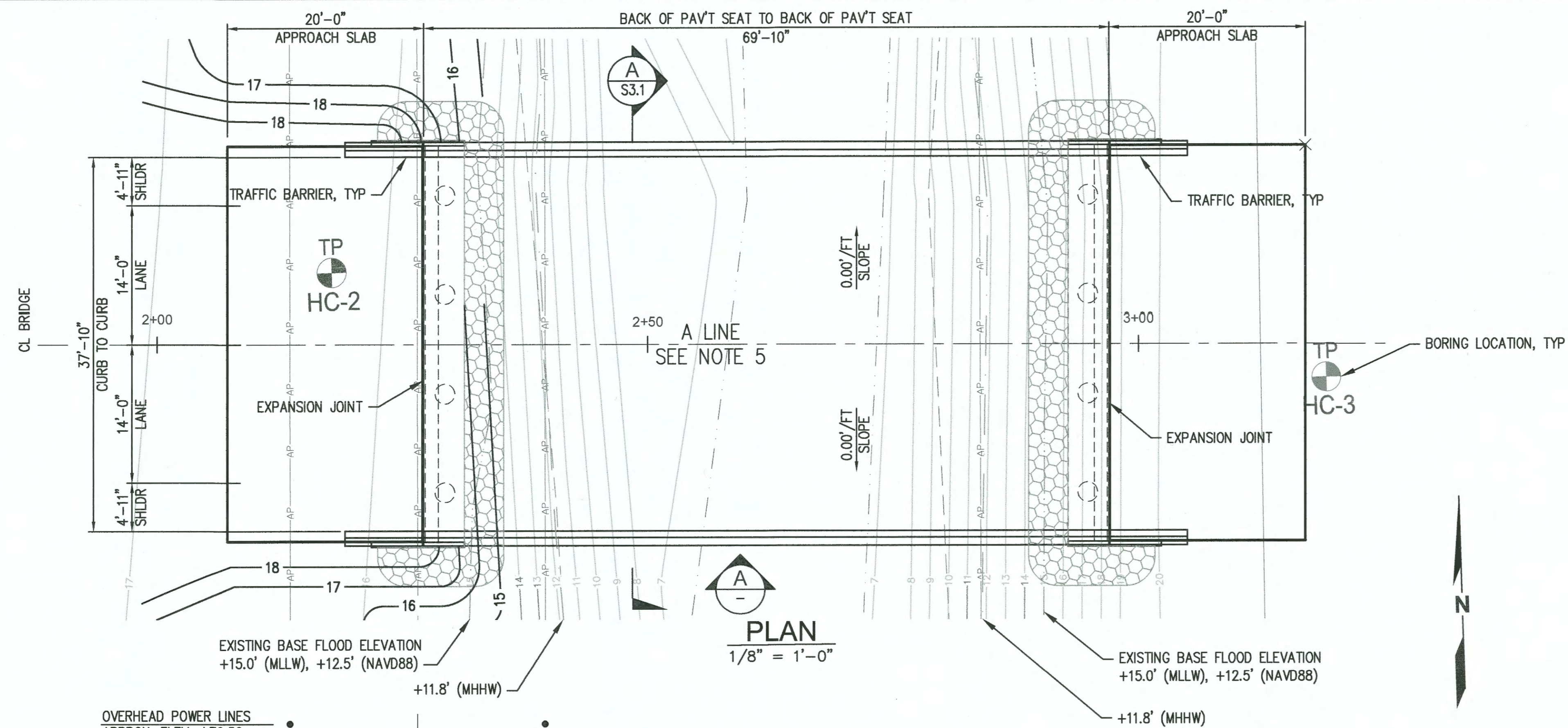
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WAPATO CREEK
BRIDGE AND CULVERT REMOVAL
BRIDGE GENERAL NOTES

BINDING EDGE

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BRIDGE PROFILE

PC GIRDER (26" VOIDED SLAB)

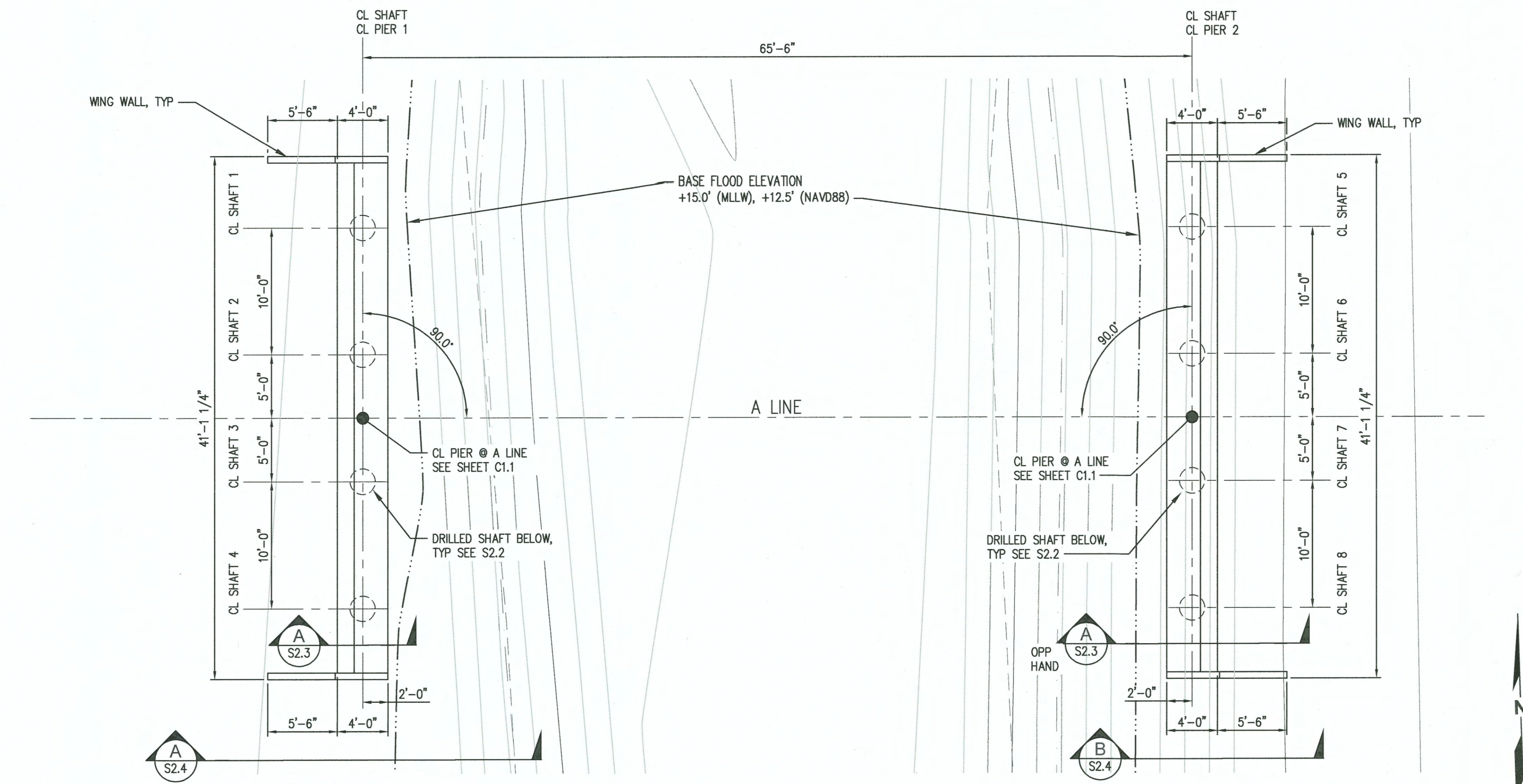
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NOTE

- POWER LINE LOCATIONS SHOWN ARE APPROXIMATE AND SHOULD BE VERIFIED IN FIELD. AT THE CONTRACTORS EXPENSE, THE CONTRACTOR MAY REQUEST LINES OVER EAST ABUTMENT TO BE DEENERGIZED AND GROUNDED. IF DEENERGIZED, CONTRACTOR SHALL PROTECT LINE AGAINST INCIDENTAL CONTACT. LINES ABOVE WEST ABUTMENT WILL BE LIVE. FOR ANY LIVE OVER HEAD LINES, CONTRACTOR SHALL FOLLOW CLEARANCE REQUIREMENTS PER WAC 296-155-53408 AND ANY OTHER RELEVANT REGULATIONS REGARDING WORKING IN THE VICINITY OF LIVE POWER LINES.
- XX — INDICATES PROPOSED FINAL GRADE
— XX — INDICATES EXISTING GRADE
- FINAL GRADING TO MATCH EXISTING GRADING WHERE FINAL GRADING CONTOURS ARE NOT SHOWN
- ALL ELEVATIONS RELATIVE TO MLLW DATUM
- "A LINE" REPRESENTS ROADWAY ALIGNMENT AND IS LOCATED BY BCP #1 AND BCP #2. SEE C1.1 FOR CONTROL POINTS.

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AWB 06/01/20 CHECKED BY: _____ DATE: 06/01/20 SEK PROJ. ENGR DATE: _____ DIRECTOR ENG. DATE: tiernons Jun 15, 2020 PRINTED BY: tiernons ONE SITCUM PLAZA PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837	WAPATO CREEK BRIDGE AND CULVERT REMOVAL BRIDGE LAYOUT TOWNSHIP: 20N RANGE: 03E SECTION: 01 DAT-HRZ: WA83-SF MLLW 19.18' @ TIDE 22 1933 PARCEL: 15 DRAWING SCALE: AS SHOWN
6808 S1.2 20 OF 33	CONT/CONS: 071198 M. ID: 201070.01 PHASE: BID SET

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FOUNDATION PLAN
3/16" = 1'-0"

SHAFT SCHEDULE				
SHAFT #	LENGTH (FT)	TIP ELEV (FT)	TOP OF SHAFT ELEV (FT)	REQUIRED GEOTECHNICAL CAPACITY (KIPS)
1	77.16	-65.0	12.16	324
2	77.16	-65.0	12.16	324
3	77.16	-65.0	12.16	324
4	77.16	-65.0	12.16	324
5	78.81	-65.0	13.81	324
6	78.81	-65.0	13.81	324
7	78.81	-65.0	13.81	324
8	78.81	-65.0	13.81	324

NOTES

- ALL ELEVATIONS RELATIVE TO MLLW DATUM
- REQUIRED GEOTECHNICAL CAPACITY IS THE MINIMUM REQUIRED ULTIMATE SHAFT CAPACITY. A RESISTANCE FACTOR OF 0.55 IS USED TO DETERMINE NOMINAL GEOTECHNICAL STRENGTH OF SHAFTS.
- AN ELEVATION CERTIFICATE OF THE TOP OF THE PILE CAPS, SIGNED AND STAMPED BY A LICENSED SURVEYOR, MUST BE SUBMITTED TO THE CITY OF TACOMA PRIOR TO INSTALLING GIRDERS.

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S2.1

21 OF 33

**WAPATO CREEK
BRIDGE AND CULVERT REMOVAL
FOUNDATION PLAN**

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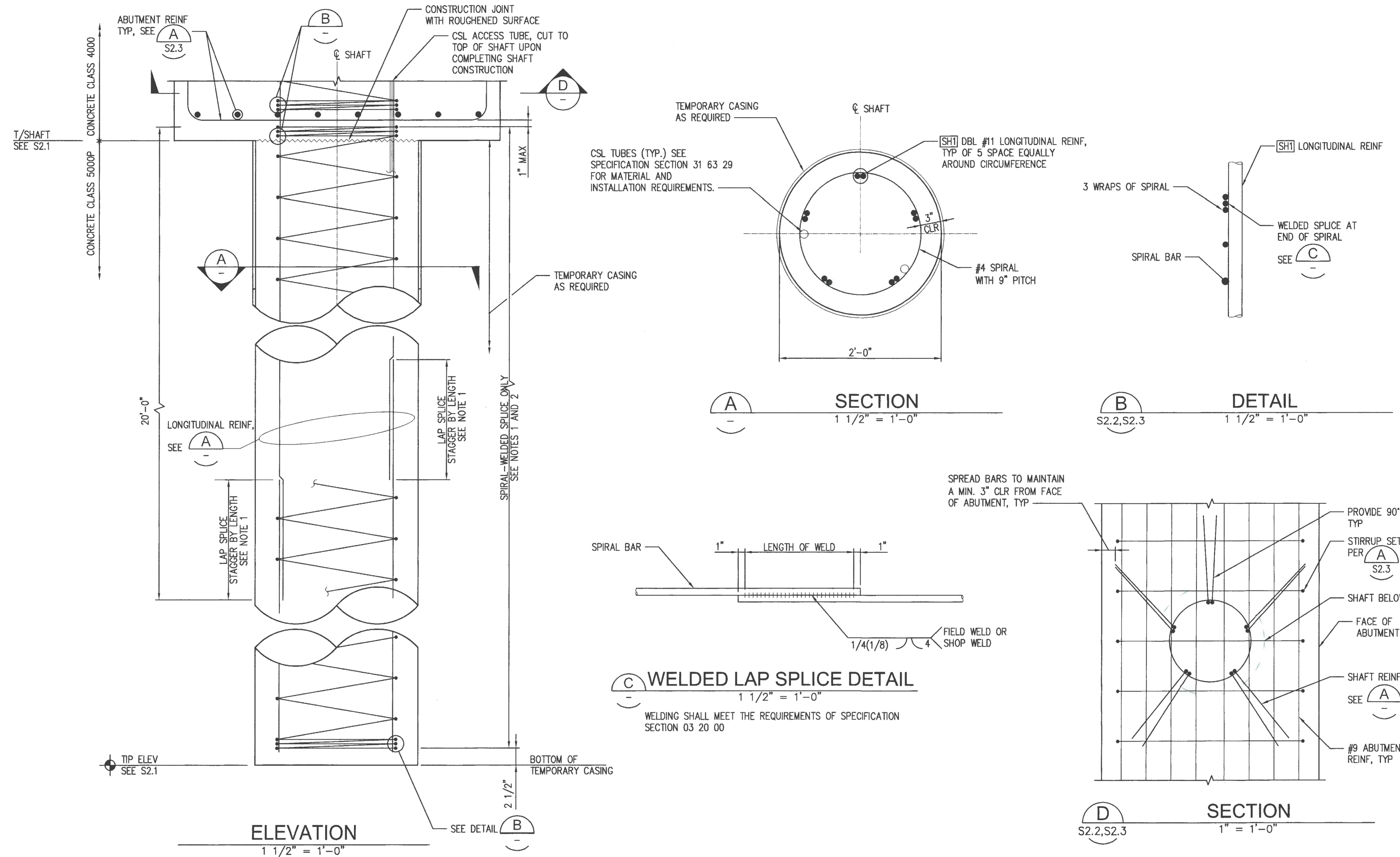
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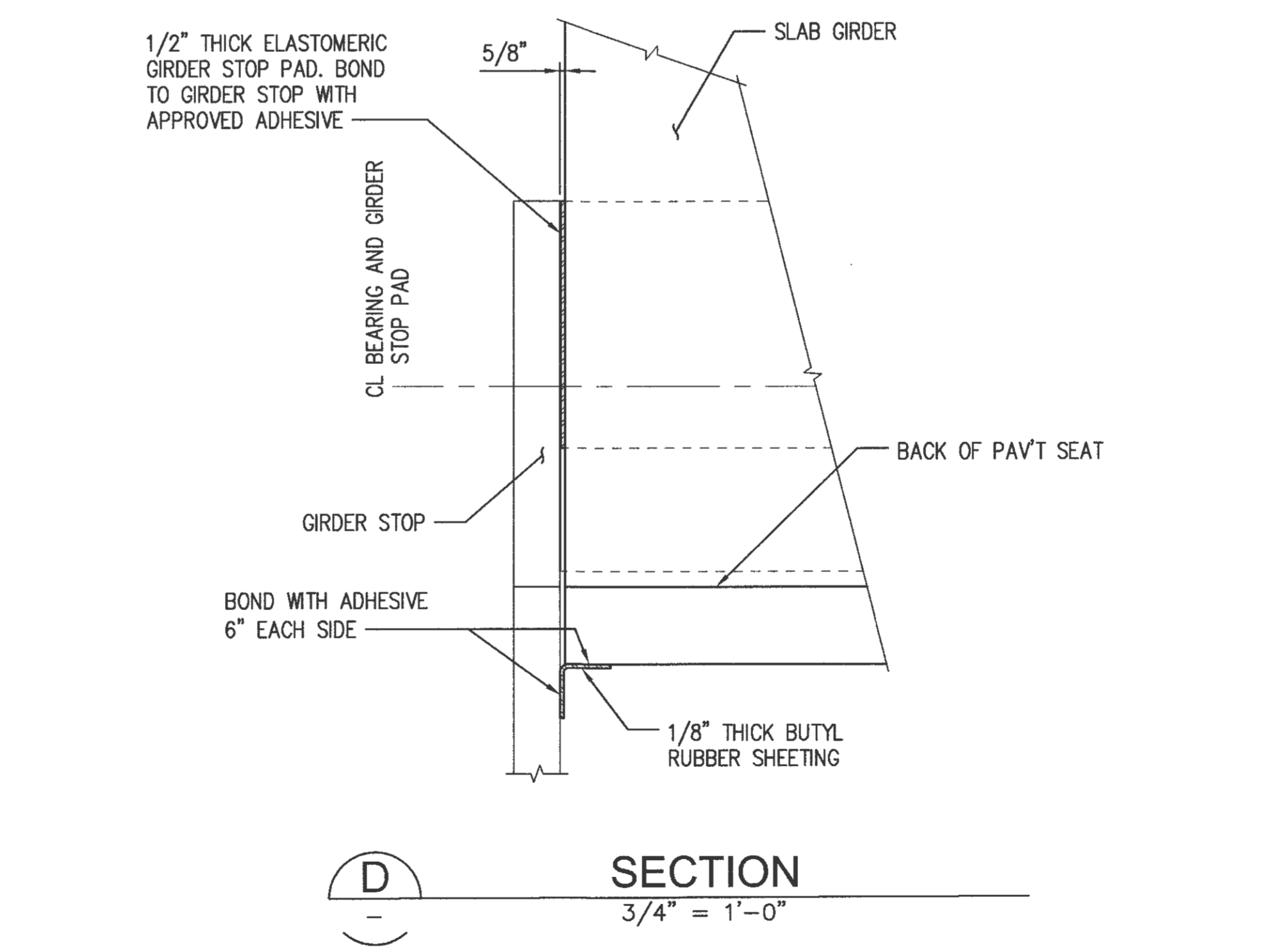
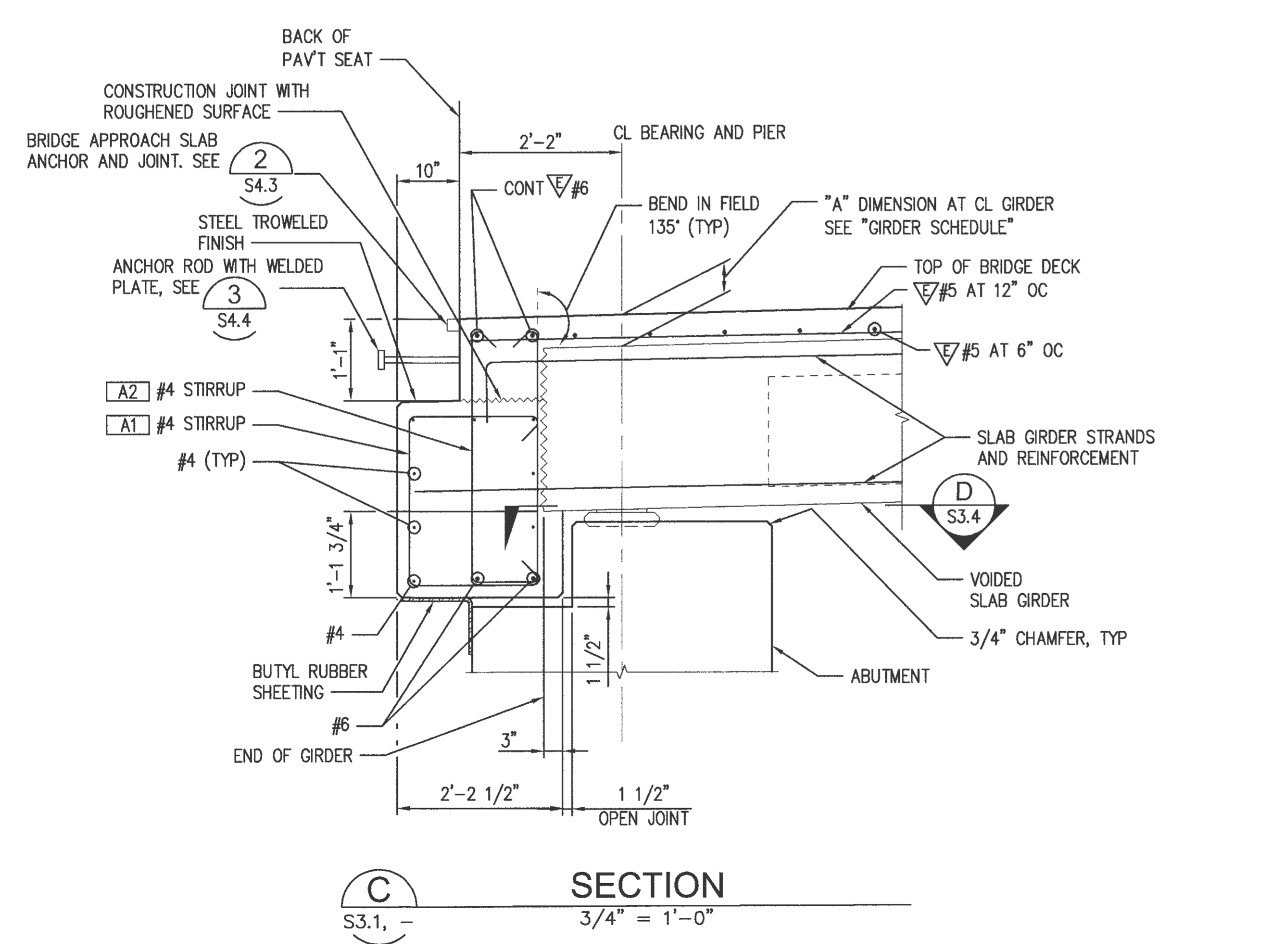
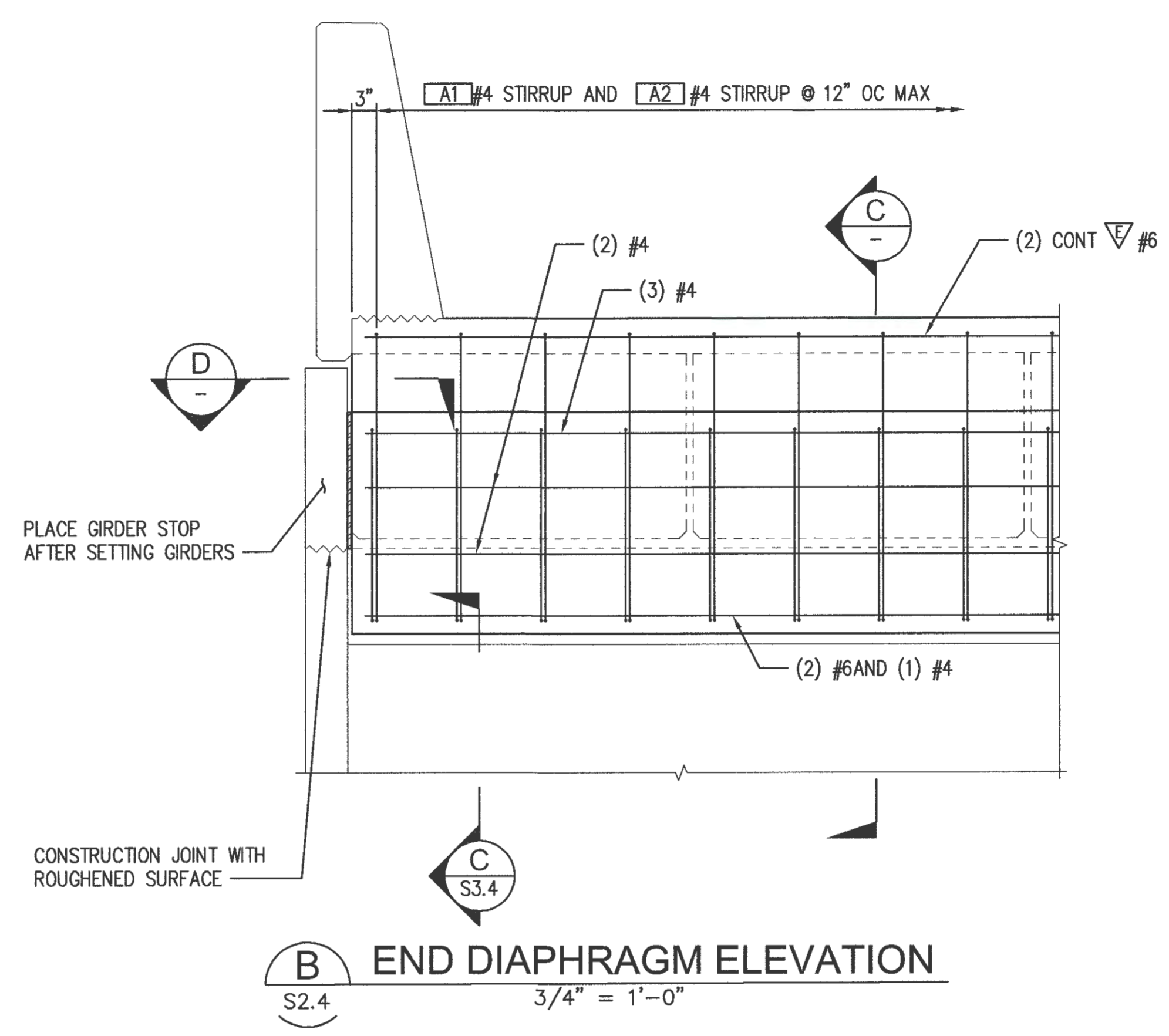
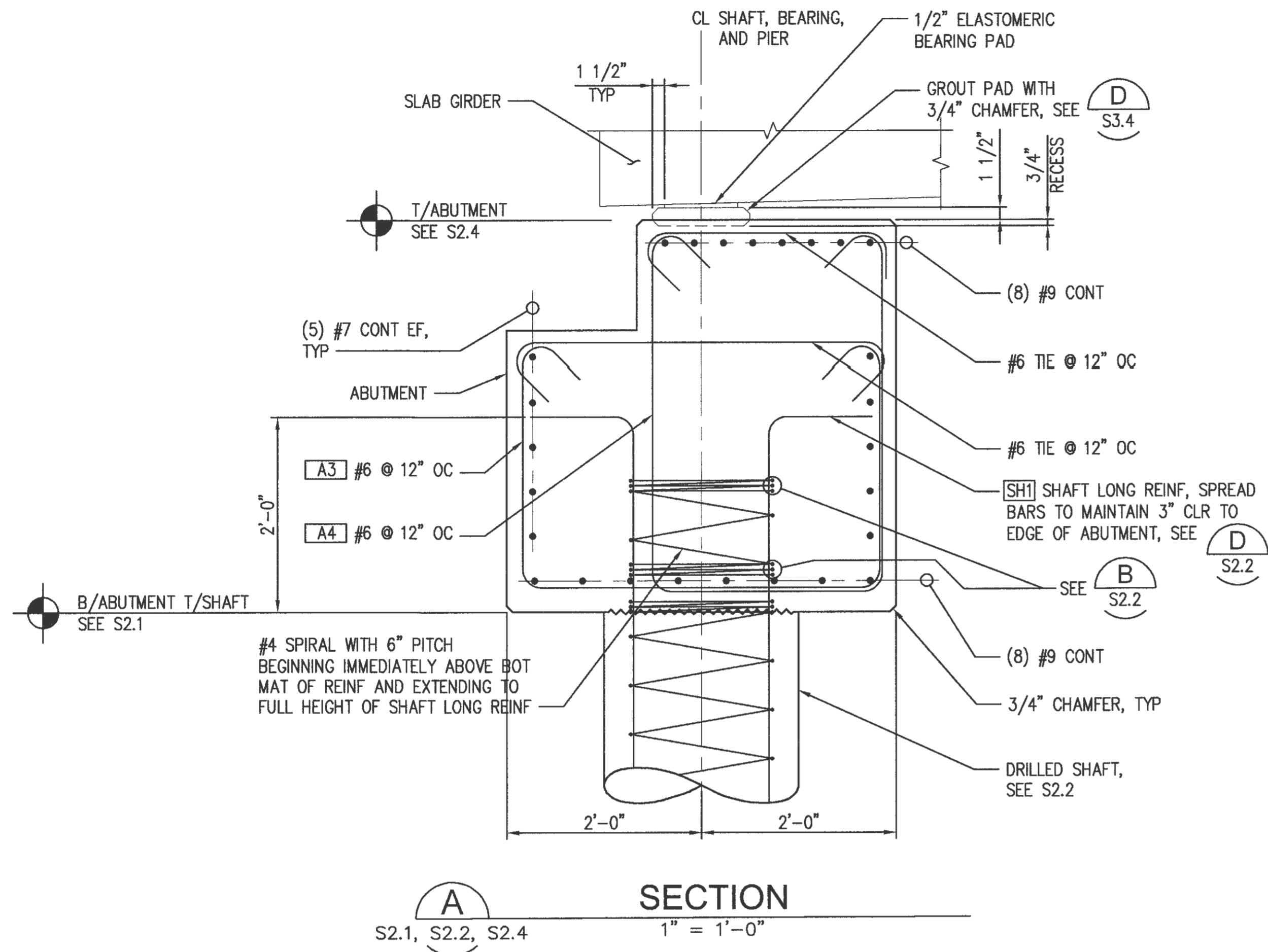
PORT OF TACOMA FILE: N:\2018\1800249 POT PCT Culvert Repair\Drawings\Current\201070 - S2.2 (TYP) SHAFT DET



- NOTES**
1. STAGGERED MECHANICAL OR WELDED SPLICES MAY BE UTILIZED FOR LONGITUDINAL REINF, IN LIEU OF LAP SPLICES. CONTRACTOR SHALL SUBMIT A SHAFT REINFORCEMENT SPLICING PLAN FOR REVIEW BY THE ENGINEER. SEE SPECIFICATIONS SECTION 31 63 29
 2. CONTRACTOR SHALL SPLICE CAGE SEGMENTS (LONGITUDINAL AND SPIRAL REINF) AS REQUIRED FOR CAGE INSTALLATION UNDER POWER LINES. SPLICED SEGMENTS SHALL NOT BE LESS THAN 20' AND ALL SPLICE LOCATIONS SHALL BE SHOWN ON THE SHOP DRAWINGS AND SHAFT REINFORCEMENT SPLICING PLAN.

 2407 North 31st Street, Suite 100 Tacoma, WA 98401 (253) 396-0150 Fax (253) 396-0162	 P.O. BOX 1837 TACOMA, WA 98401-1837	DATE: _____
	BY: _____	APPR: _____
2018 JUN 15 10:41 AM PORT OF TACOMA TACOMA, WA 98401		REVISION: _____
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WAPATO CREEK BRIDGE AND CULVERT REMOVAL TYPICAL DRILLED SHAFT DETAILS		RANGE: 03E SECTION: 01 TOWNSHIP: 20N DAT-HRZ: WAB3-SF VERT: MILLW 19.18' @ TIDE 22 1933 PARCEL: 15 DRAWING SCALE: AS SHOWN
6608 S2.2 22 OF 33	CONT/CONS: 071198 M. ID: 201070.01 PHASE: BID SET	

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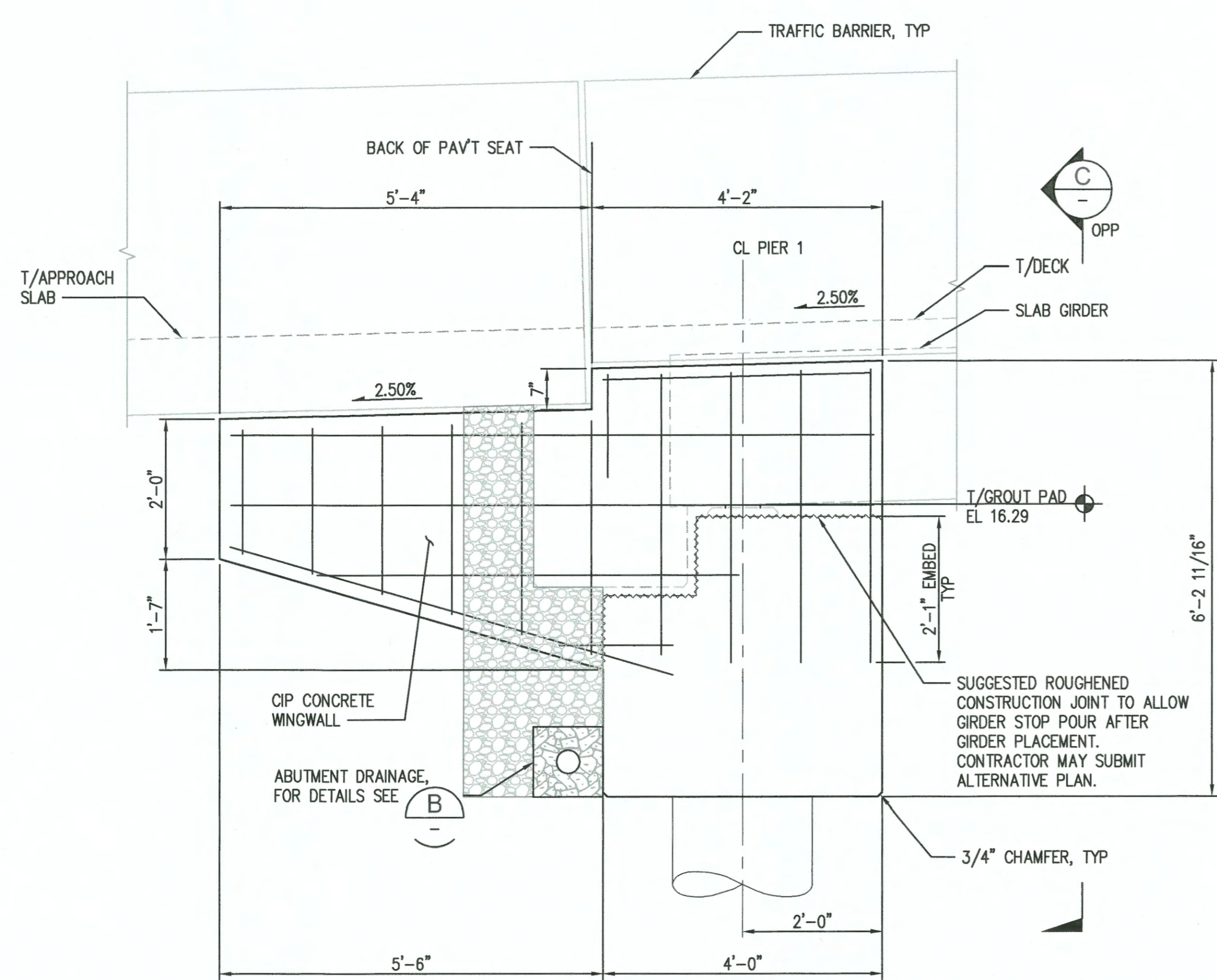


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		DATE: _____ BY: _____ REVISION: _____ APPR: _____
AWB: 06/01/20 CHECKED BY: DATE: 06/01/20 SEK: 06/01/20 DIRECTOR ENG. DATE: PROJ. ENGR. DATE: tiemoans Jun 15, 2020 PRINTED BY: tiemoans ONE SITCUM PLAZA PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837	WAPATO CREEK BRIDGE AND CULVERT REMOVAL ABUTMENT DETAILS	
6608 S2.3 23 OF 33	TOWNSHIP: 20N RANGE: 03E SECTION: 01 DAT-HRZ: WA83-SF VERT: MLLW 19.18' @ TIDE 22.1933 PARCEL: 15 DRAWING SCALE: AS SHOWN	CONT/CONS: 071198 M. ID: 201070.01 PHASE: BID SET

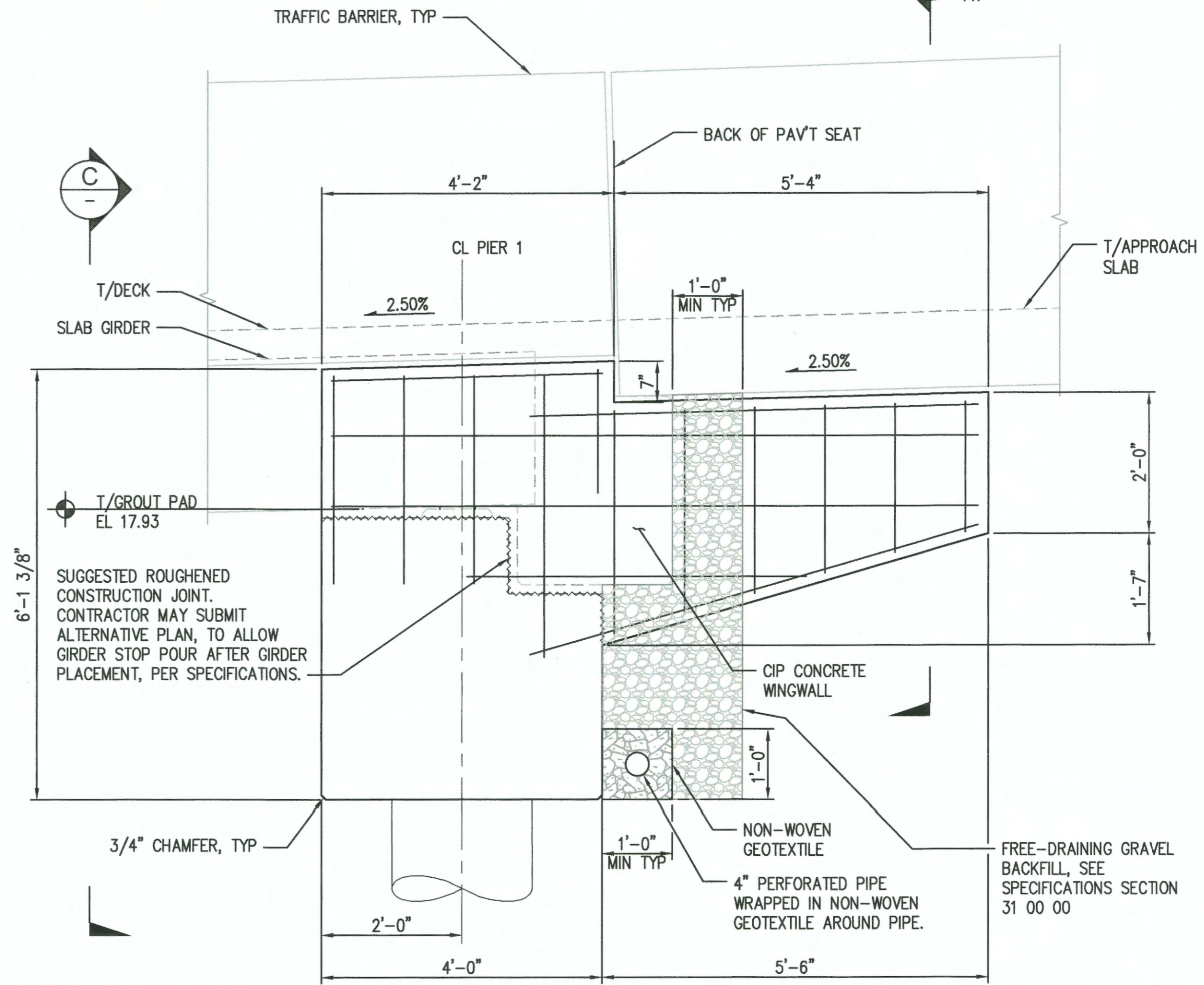
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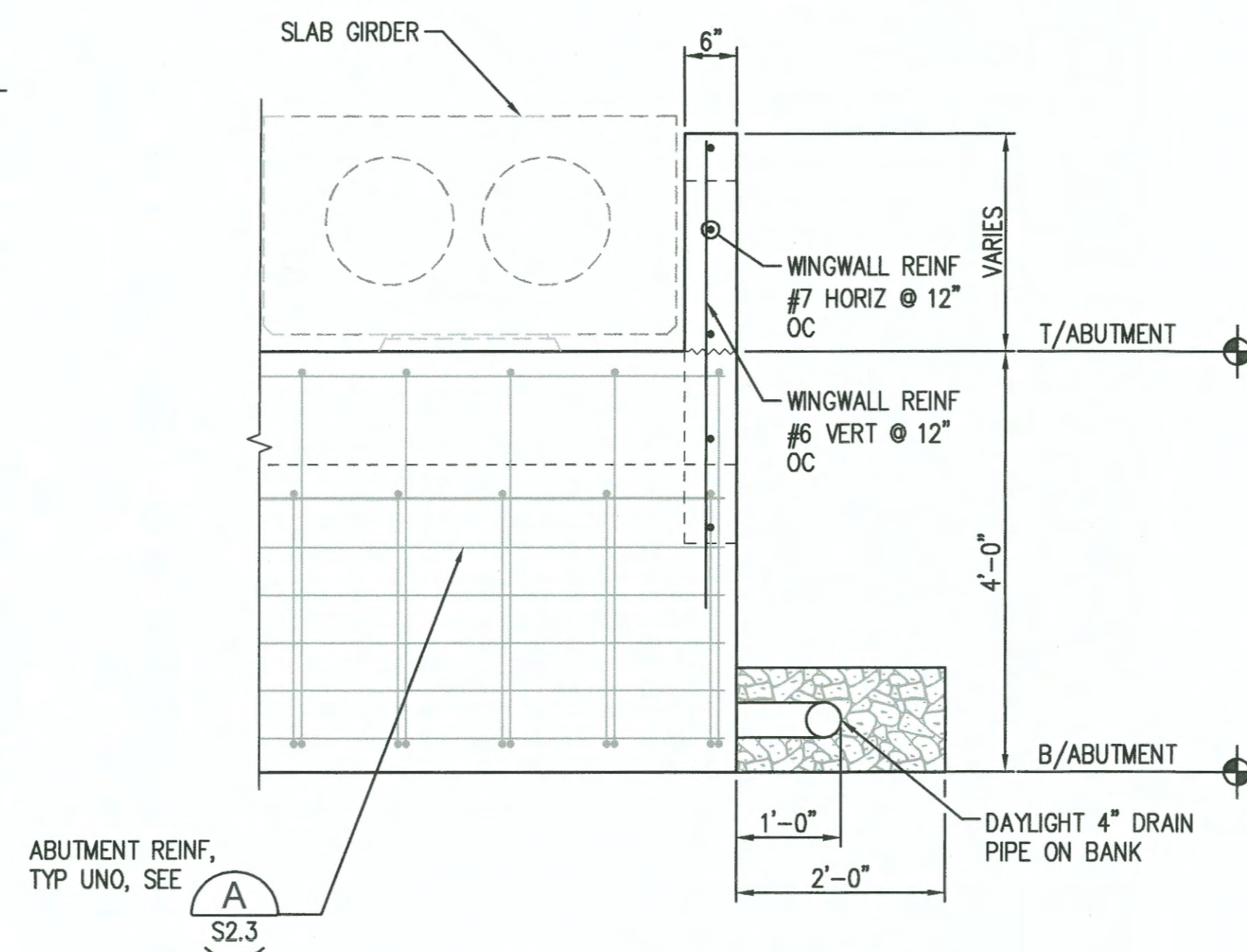
PORT OF TACOMA FILE: N:\2018\1800249 POT PCT Culvert Repair\Drawings\Current\201070 - S2.4 (WING WALL)



A
S2.1
**SW WINGWALL ELEVATION
(NW OPP HAND)**
3/4" = 1'-0"

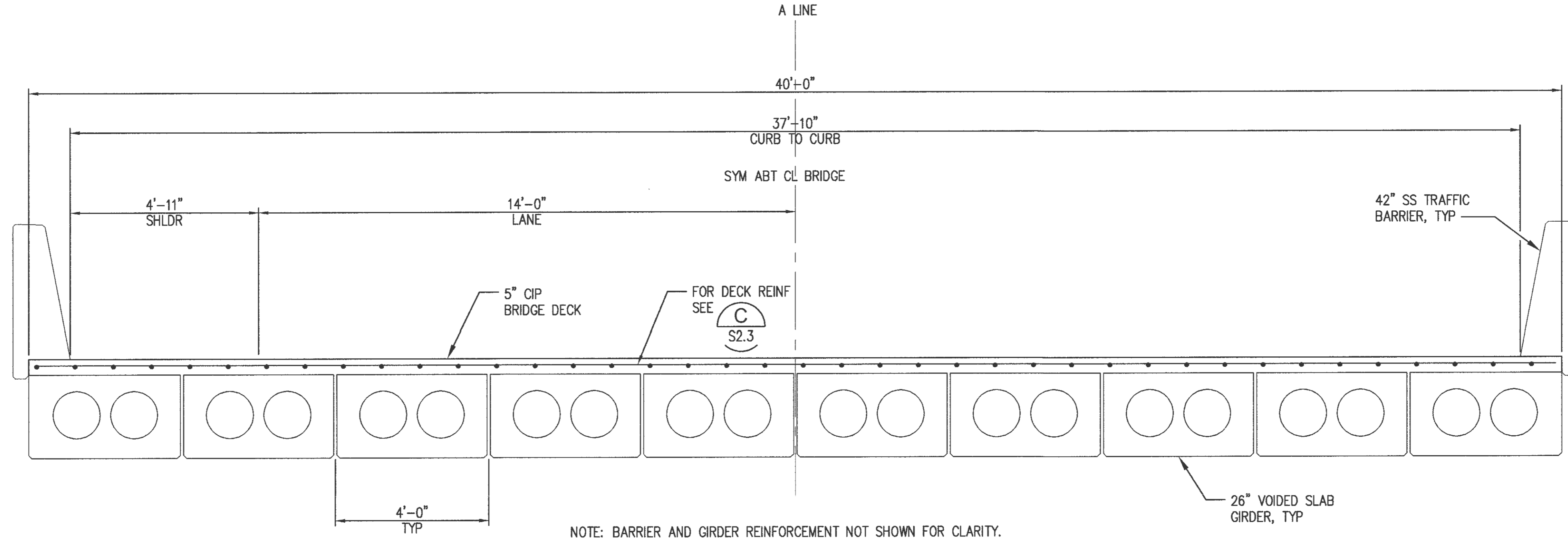


B
C2.3, S2.1
**SE WINGWALL ELEVATION
(NE OPP HAND)**
3/4" = 1'-0"



C
**EAST SECTION
(WEST OPP HAND)**
3/4" = 1'-0"

 2407 North 34th Street, Suite 100 Tacoma, WA 98401 (253) 396-0150 Fax (253) 396-0162	 Kiewit Professional Firm 1000 1st Avenue Tacoma, WA 98401	 T. Tiamons JUN 15 2020 PROFESSIONAL ENGINEER WASHINGTON STATE	DATE: 06/01/20 APPR: [Signature] BY: [Signature] REVISION: [Signature]
	WAPATO CREEK BRIDGE AND CULVERT REMOVAL WING WALL DETAILS	TOWNSHIP: 20N RANGE: 03E SECTION: 01 DAT-HRZ: WAB3-SF VERT: MLLW 19.18 @ TIDE 22 1933 PARCEL: 15 DRAWING SCALE: AS SHOWN	TACOMA, WA 98401-1837
6608 S2.4 24 OF 33	CONT/CONS: 071198 M. ID: 201070.01 PHASE: BID SET	THIS DRAWING IS THE PROPERTY OF THE PORT OF TACOMA AND SHALL NOT BE USED ON OTHER WORK, DISCLOSED, COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION	



A
S1.2

TYPICAL SECTION

1/2" = 1'-0"

6608
S3.1
25 OF 33

**WAPATO CREEK
BRIDGE AND CULVERT REMOVAL**
TYPICAL SECTION

CONT/CONS: 071198
M. ID: 201070.01
PHASE: BID SET

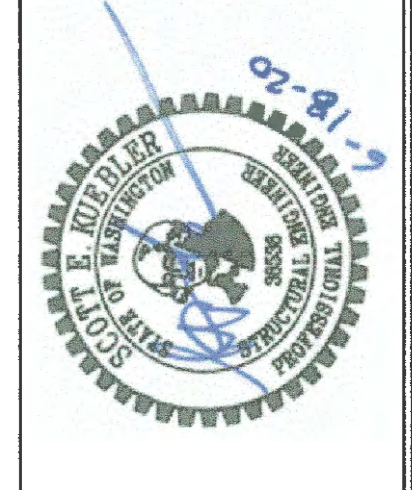
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DATE-HRZ: WAB3-SF
PARCEL: 15

RANGE: 03E
SECTION: 01

VERT: MLLW 19.18 @ TIDE 22.1933
DRAWING SCALE: AS SHOWN

APPROVED:

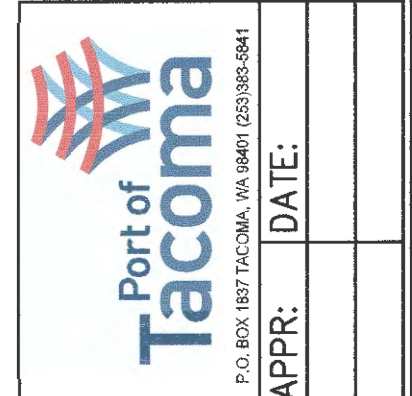
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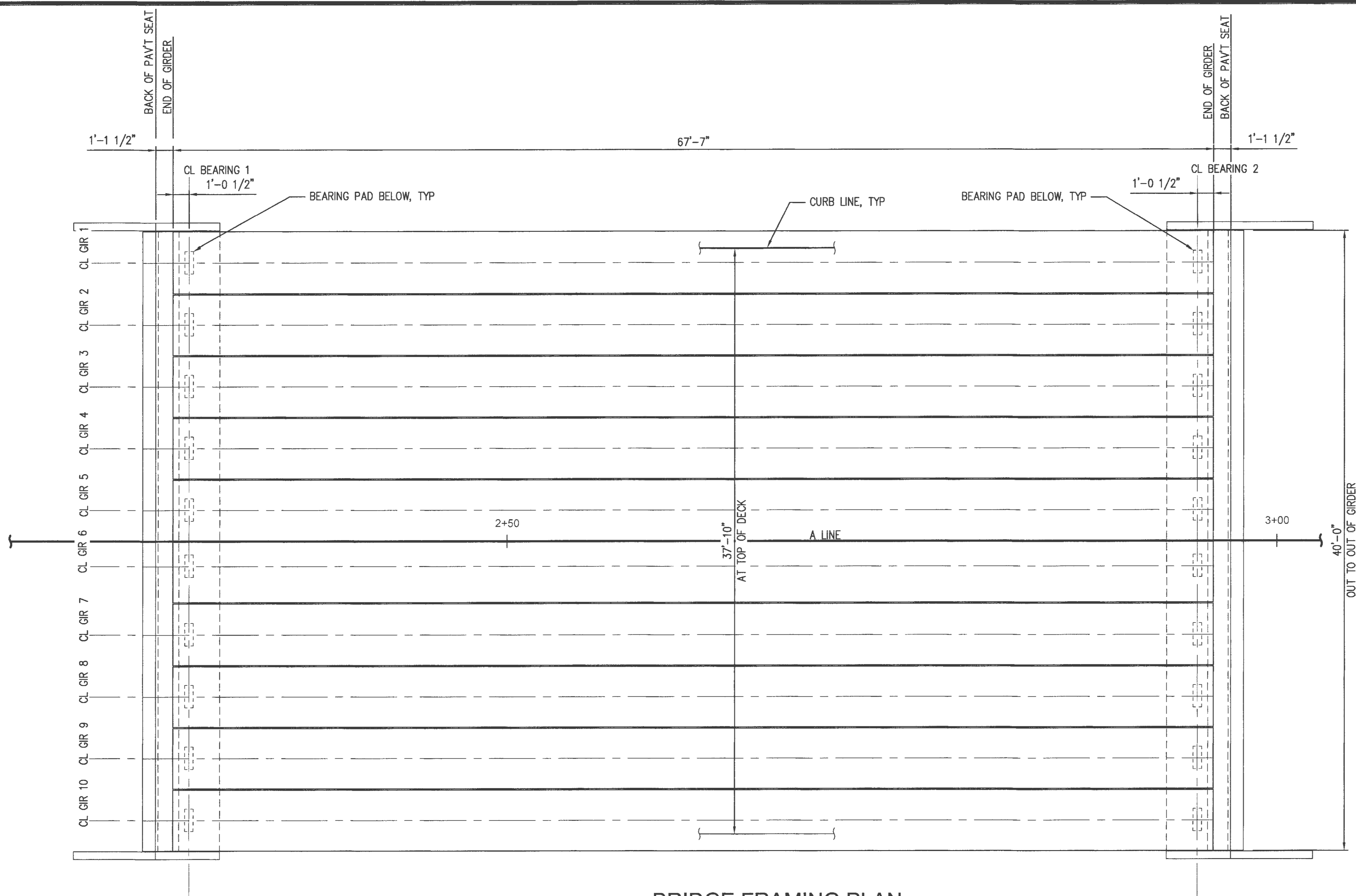
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APPR: DATE:



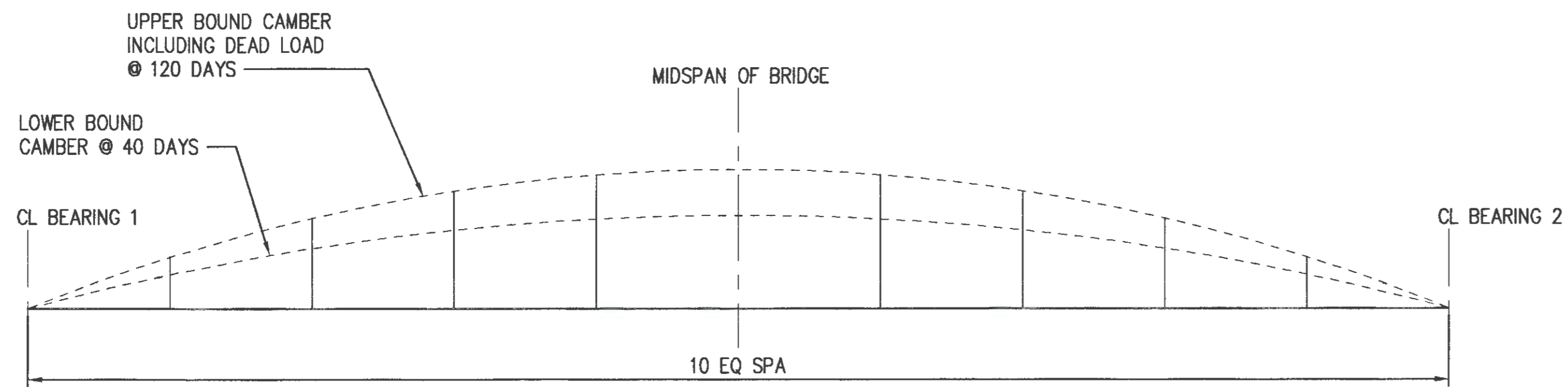
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BRIDGE FRAMING PLAN
1/4" = 1'-0"



GIRDER CAMBER DIAGRAM
NTS

	TENTH POINTS								
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
LOWER BOUND CAMBER INCLUDING 50% DEAD LOAD @ 40 DAYS (IN)	0.17	0.30	0.40	0.45	0.47	0.45	0.40	0.30	0.17
UPPER BOUND CAMBER INCLUDING 100% DEAD LOAD @ 120 DAYS (IN)	0.38	0.67	0.87	1.00	1.04	1.00	0.87	0.67	0.38

6608
S3.2
26 OF 33

CONT/CONS: 071198
M. ID: 201070.01
PHASE: BID SET

WAPATO CREEK
BRIDGE AND CULVERT REMOVAL
FRAMING PLAN AND CAMBER DIAGRAM

RANGE: 03E SECTION: 01
TOWNSHIP: 20N
DATE-HRZ: WAB3-SF
PARCEL: 15

VERT: MLLW 19.18' @ TIDE 22 1933
DRAWING SCALE: AS SHOWN

APPROVED: DIRECTOR
PRINTED BY: *tiemoons* JUN 15, 2020
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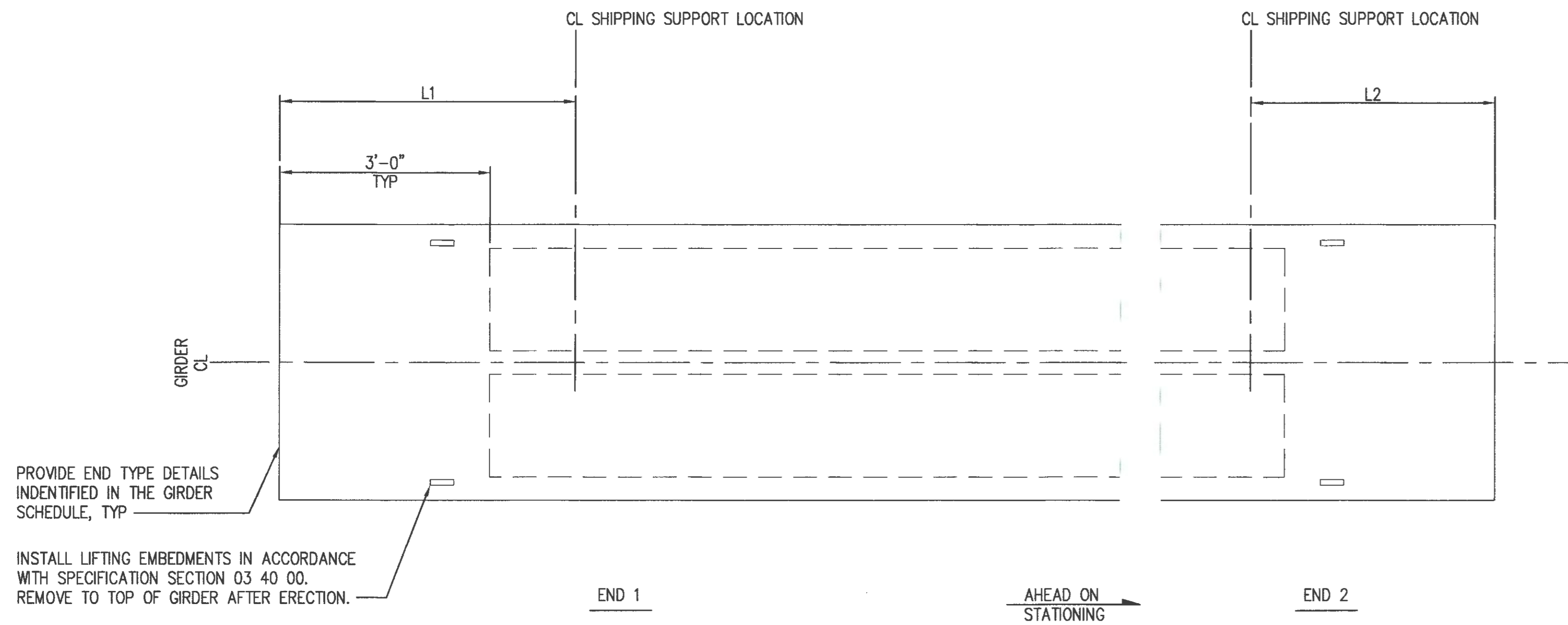
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NOTES

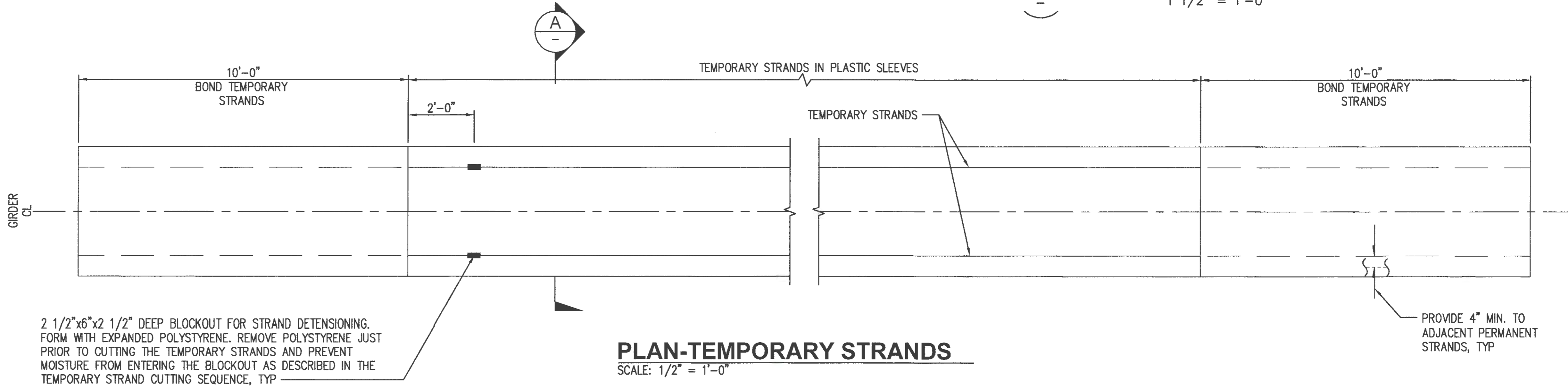
- 1. ○ INDICATES PERMANENT STRAND LOCATION.
- 2. ■ INDICATES TEMPORARY STRAND LOCATION.



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

TEMPORARY STRAND CUTTING SEQUENCE

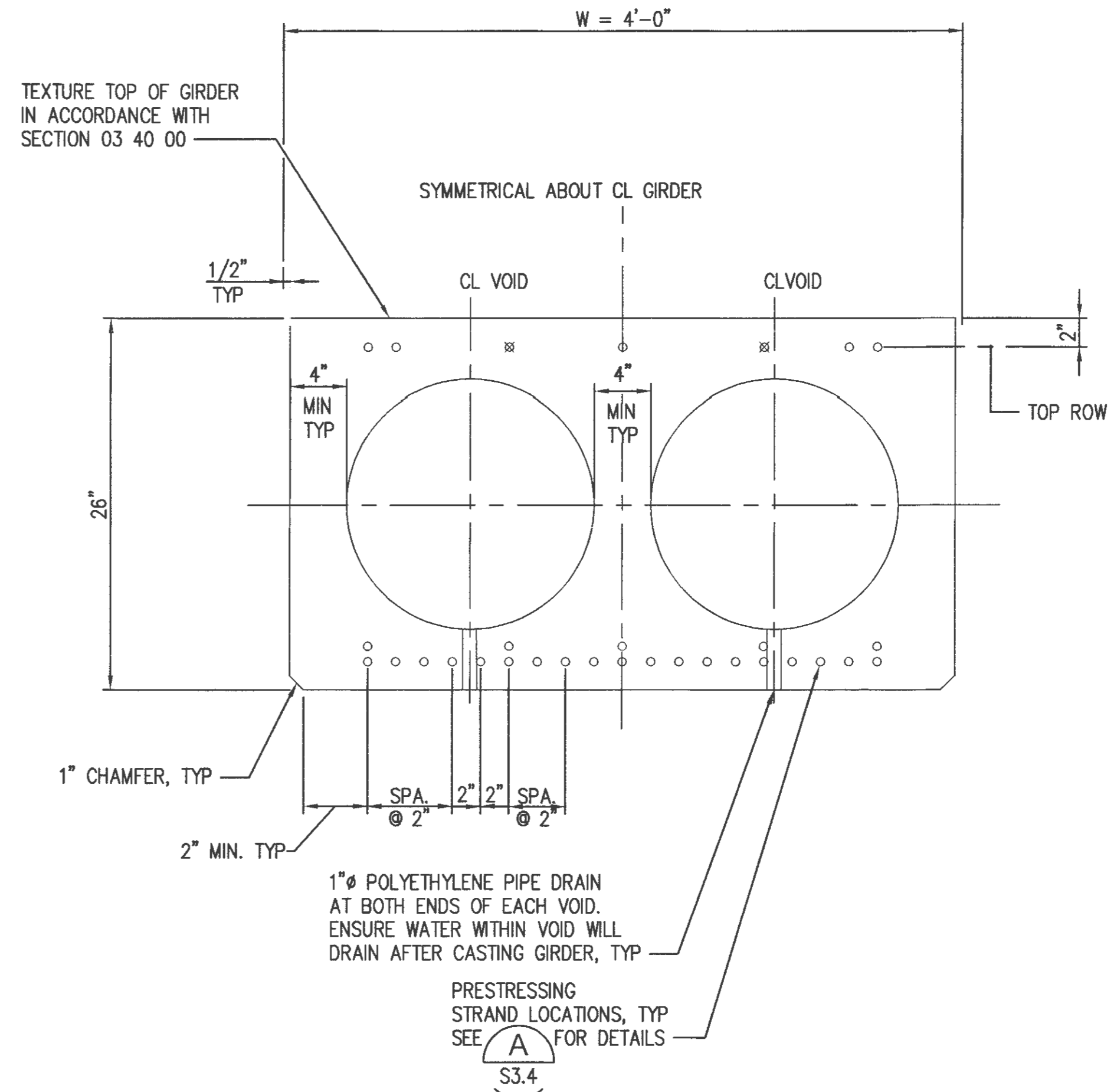
1. ERECT AND BRACE GIRDERS.
2. JUST PRIOR TO CUTTING THE TEMPORARY STRANDS, REMOVE EXPANDED POLYSTYRENE IN BLOCKOUTS IN TOP FLANGE OF GIRDERS. ONCE THE EXPANDED POLYSTYRENE HAS BEEN REMOVED FROM THE STRAND DETENSIONING BLOCKOUT, PREVENT MOISTURE FROM ENTERING THE BLOCKOUT UNTIL THE TEMPORARY TOP STRAND IS CUT AND THE BLOCKOUT FILLED WITH GROUT.
3. CUT STRANDS IN BLOCKOUTS. STRANDS SHALL BE CUT BY USING A CUTTING TORCH AND MOVING THE FLAME BACK AND FORTH OVER THE LENGTH OF THE EXPOSED STRAND TO LET THE INDIVIDUAL WIRES BREAK ONE AT A TIME TO LESSEN THE SHOCK TO THE GIRDER. STRANDS SHALL BE RELEASED IN A SYMMETRICAL MANNER ABOUT THE GIRDER CENTERLINE STARTING WITH THOSE FURTHEST FROM THE CENTERLINE AND WORKING INWARDS. FOR POST-TENSIONED TEMPORARY TOP STRANDS, ACTIVELY RESTRAIN THE STRAND CHUCKS AT THE GIRDER ENDS DURING CUTTING.
4. WITHIN 24 HOURS OF CUTTING THE TEMPORARY STRANDS, FILL THE BLOCKOUTS WITH A GROUT CONFORMING TO SPEC SECTION 03 60 00 PARAGRAPH 2.01. REMOVE ALL MOISTURE IN BLOCKOUTS PRIOR TO FILLING THEM WITH GROUT.



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

TEMPORARY STRAND NOTES

1. SEE GIRDER SCHEDULE FOR REQUIRED NUMBER OF TEMPORARY STRANDS. TEMPORARY STRANDS SHALL BE PLACED IN THE TOP ROW.
2. FOR GIRDERS ERECTED ON A LONGITUDINAL GRADE, STRAND DETENSIONING BLOCKOUTS SHALL BE PLACED AT THE LOW END OF THE GIRDER.

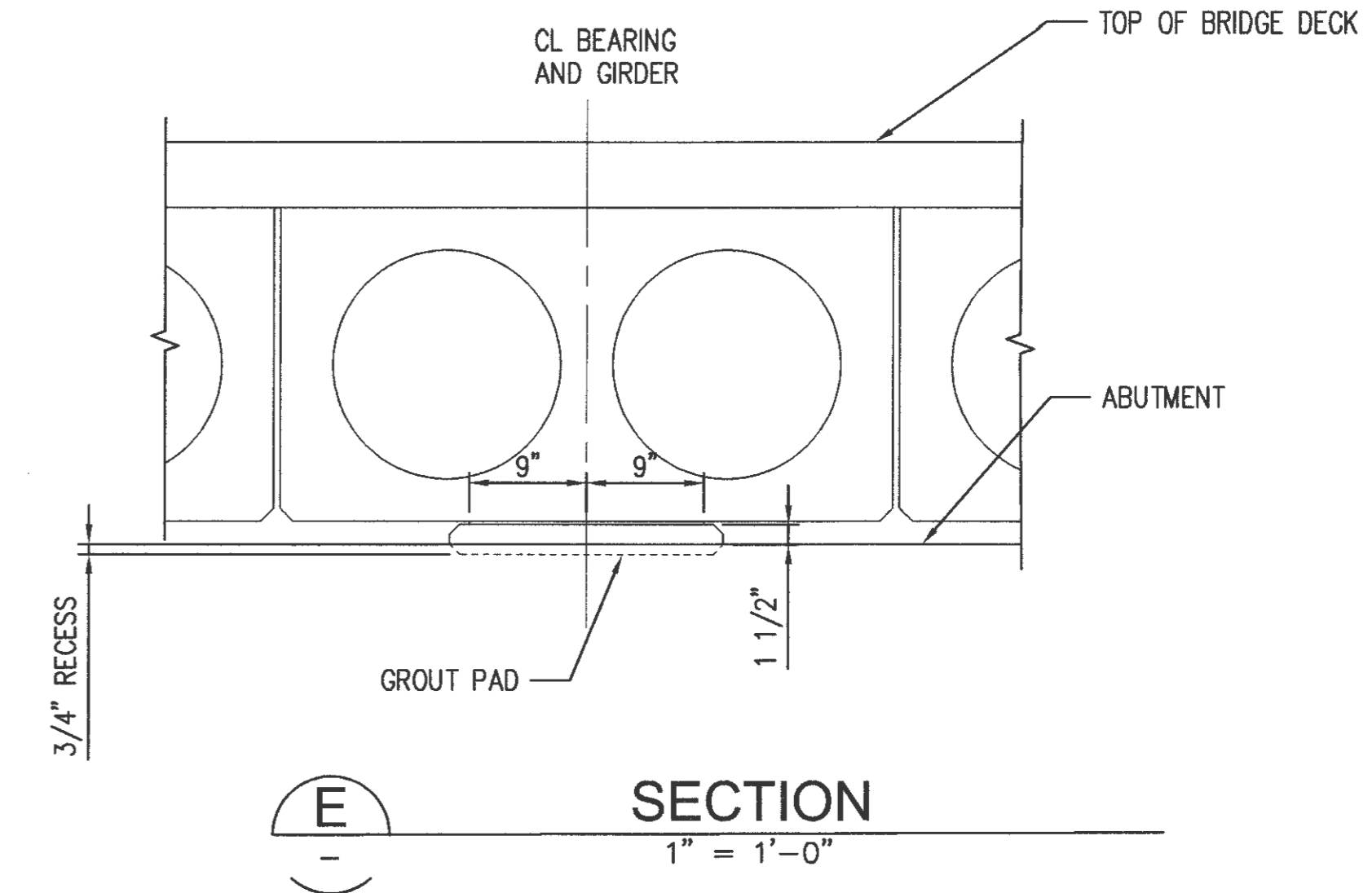
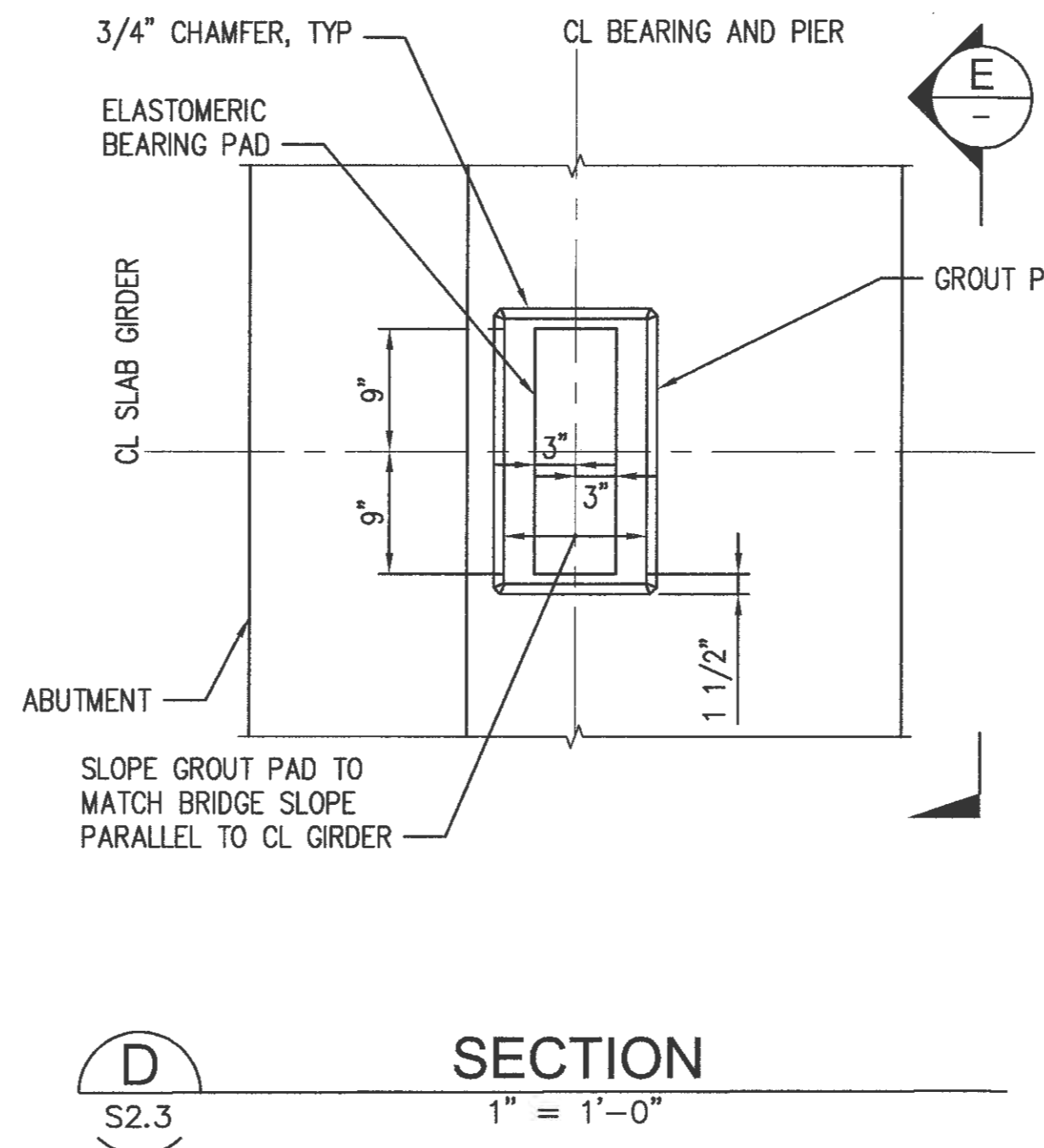
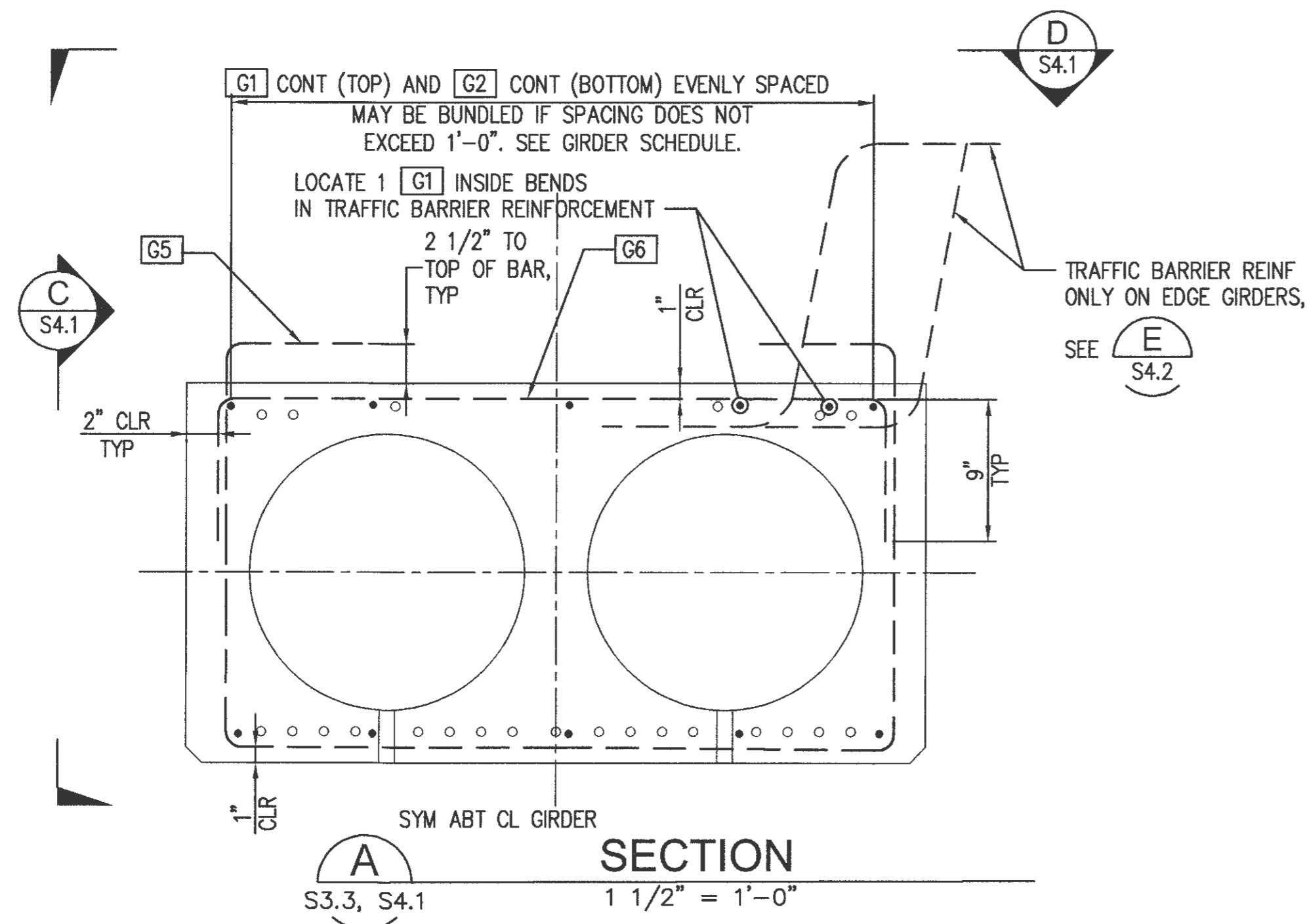
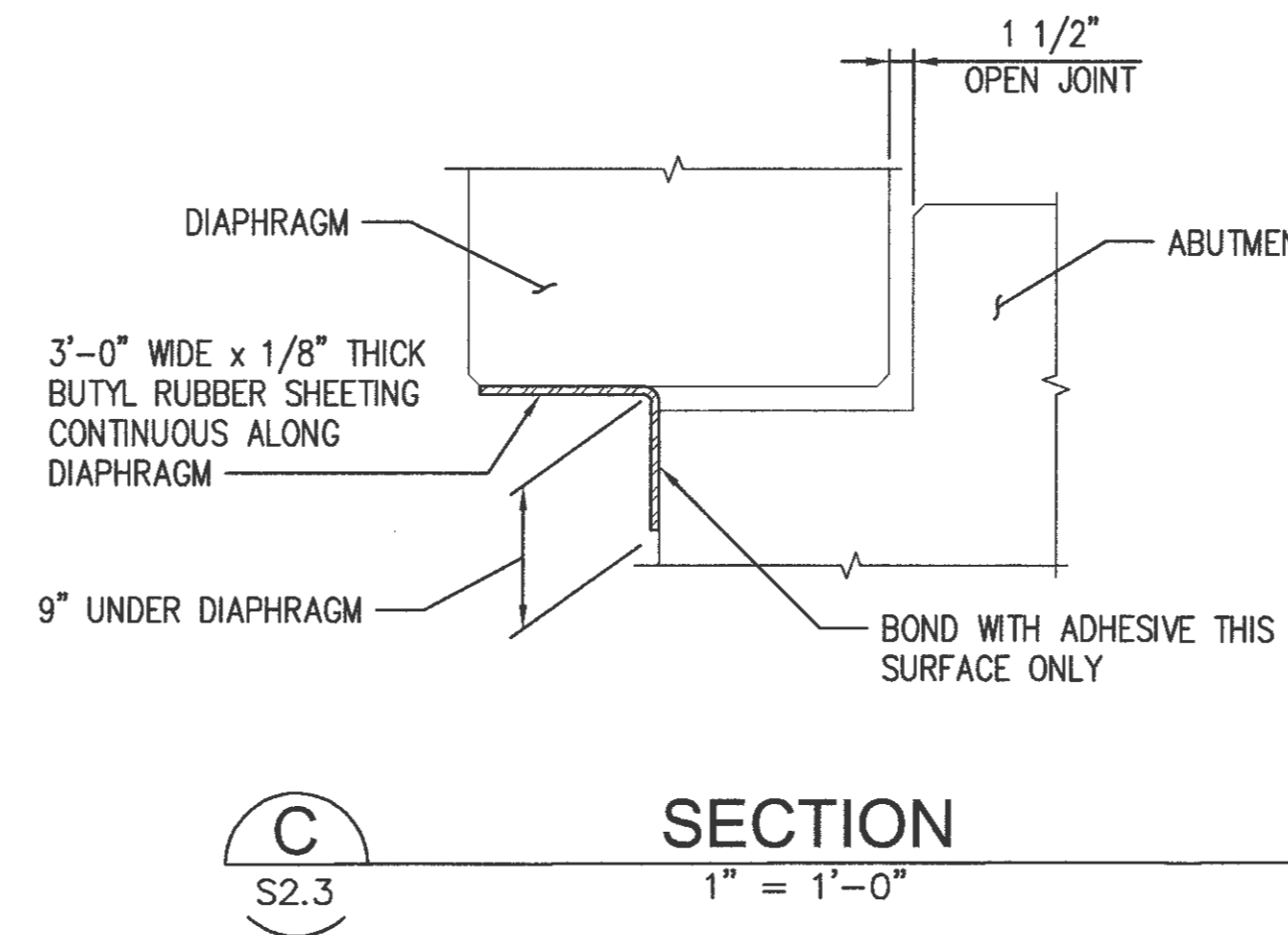
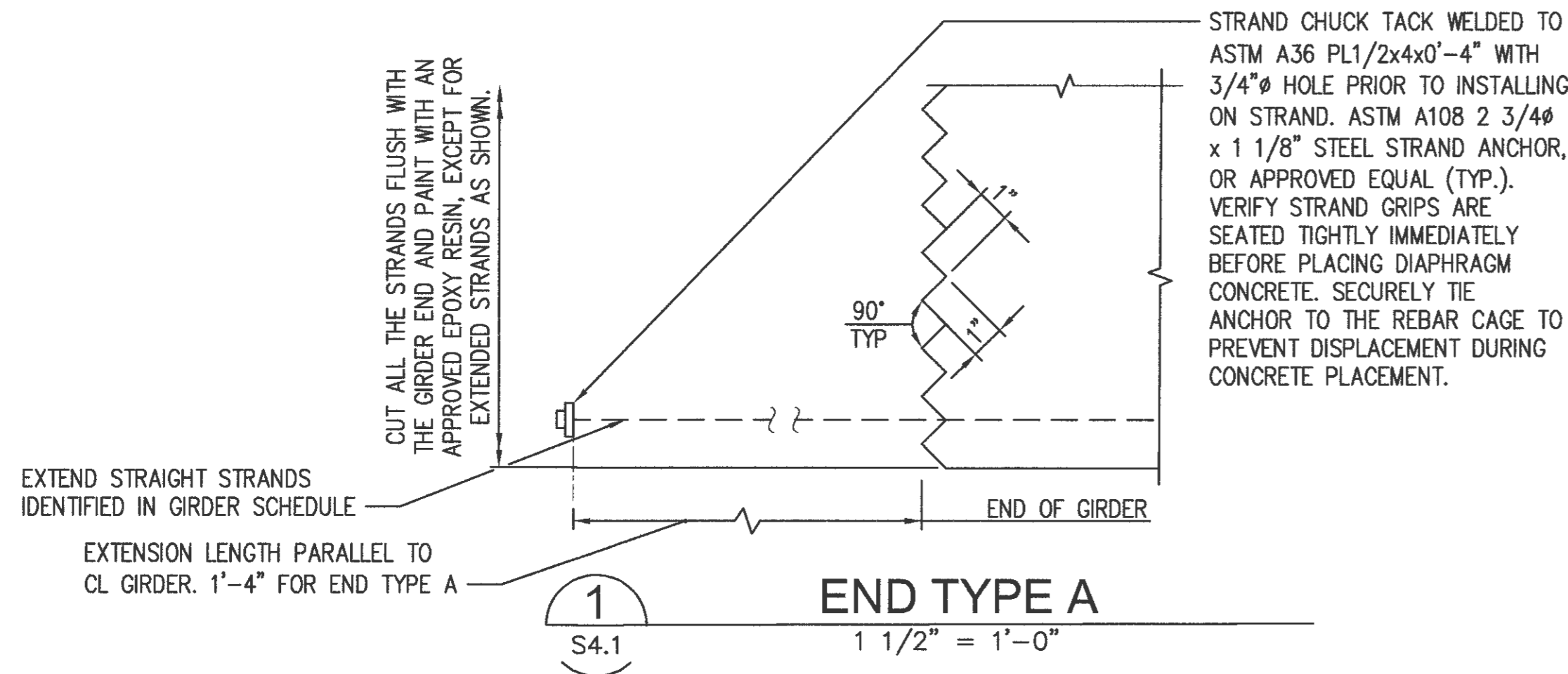


(A) TYPICAL GIRDER SECTION
SCALE: 1 1/2" = 1'-0"

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6608 S3.3 27 OF 33	WAPATO CREEK BRIDGE AND CULVERT REMOVAL GIRDER DETAILS	TOWNSHIP: 20N RANGE: 03E SECTION: 01 DAT-HRZ: WA83-SF VERT: MLLW 19'18" @ TIDE 22 1933 PARCEL: 15 DRAWING SCALE: AS SHOWN	THIS DRAWING IS THE PROPERTY OF THE PORT OF TACOMA AND SHALL NOT BE USED ON OTHER WORK, DISCLOSED, COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION

SPAN	GIRDERS	GIRDER HEIGHT H	GIRDER WIDTH W	PLAN LENGTH (ALONG GIRDER GRADE) (SEE GIRDER NOTE 1)	VOIDS		GIRDER END DETAILS		MIN. CONC. STRENGTH	PRESTRESSING STRANDS (SEE GIRDER NOTES 2-4)						DECK SCREED CAMBER C	MIDSPAN VERTICAL DEFLECTION D			TRANSVERSE REINFORCEMENT						LONGITUDINAL REINFORCEMENT			SHIPPING AND HANDLING DETAILS											
					NUMBER	DIAMETER	END 1 TYPE	END 2 TYPE		28-DAYS F'c (ksi)	RELEASE F'c (ksi)	PERMANENT STRANDS	EXTENDED STRANDS	DEBONDED NUMBER AND LENGTH	PERMANENT STRANDS		TEMPORARY STRANDS	"A" DIMENSION AT CL BEARINGS	LOWER BOUND @ 40 DAYS	UPPER BOUND @ 120 DAYS	ZONE 1		ZONE 2		ZONE 3		G1	G2	L	L1	L2	K _s MINIMUM SHIPPING SUPPORT ROTATIONAL SPRING CONSTANT	W _{cc} MINIMUM SHIPPING SUPPORT CNTR-TO-CNTR WHEEL SPACING							
																					BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING						LENGTH	BAR SIZE	NO. OF BARS	BAR SIZE	NO. OF BARS		
1	1 - 10	26	48	67'-7"	2	15.7"	A	A	7.5	9.0	19	4	0	5	0	0	5	2	5"	1/2"	3/8"	7/8"	5	3"	1'	5	5"	5'	5	6"	6'	4	4	4	4	2'	2'	2'	40000 KP-IN/RAD	6'-0"



GIRDER NOTES

1. PLAN LENGTH SHALL BE INCREASED AS NECESSARY TO COMPENSATE FOR SHORTENING DUE TO PRESTRESS SHRINKAGE.
2. ALL STRANDS SHALL BE 0.6" ϕ AASHTO M203 GRADE 270 LOW RELAXATION STRANDS, JACKED TO 202.5 KSI. STRANDS SHALL BE SYMMETRICAL ABOUT THE GIRDER CENTERLINE. EXTERIOR STRANDS IN EACH ROW SHALL BE FULLY BONDED.
3. SPACE EXTENDED STRANDS SYMMETRICALLY AND EVENLY ACROSS GIRDER WIDTH. STAGGER EXTENDED STRAND LOCATIONS WITH RESPECT TO GIRDERS IN ADJACENT SPANS.
4. DEBONDED STRANDS SHALL BE DEBONDED AT EACH GIRDER END FOR THE INDICATED LENGTH PARALLEL TO THE GIRDER CENTERLINE. DEBONDED STRANDS SHALL NOT BE EXTENDED PAST GIRDER ENDS. DEBONDED STRANDS SHALL BE SYMMETRICAL PLACED ABOUT THE GIRDER CENTERLINE. DEBONDED LENGTHS OF PAIRS OF STRANDS THAT ARE SYMMETRICALLY POSITIONED ABOUT THE GIRDER CENTERLINE SHALL BE EQUAL.
5. DEFORMED WELDED WIRE REINFORCEMENT MAY BE SUBSTITUTED FOR MILD REINFORCEMENT IN ACCORDANCE WITH SPECIFICATION SECTION 03 40 00

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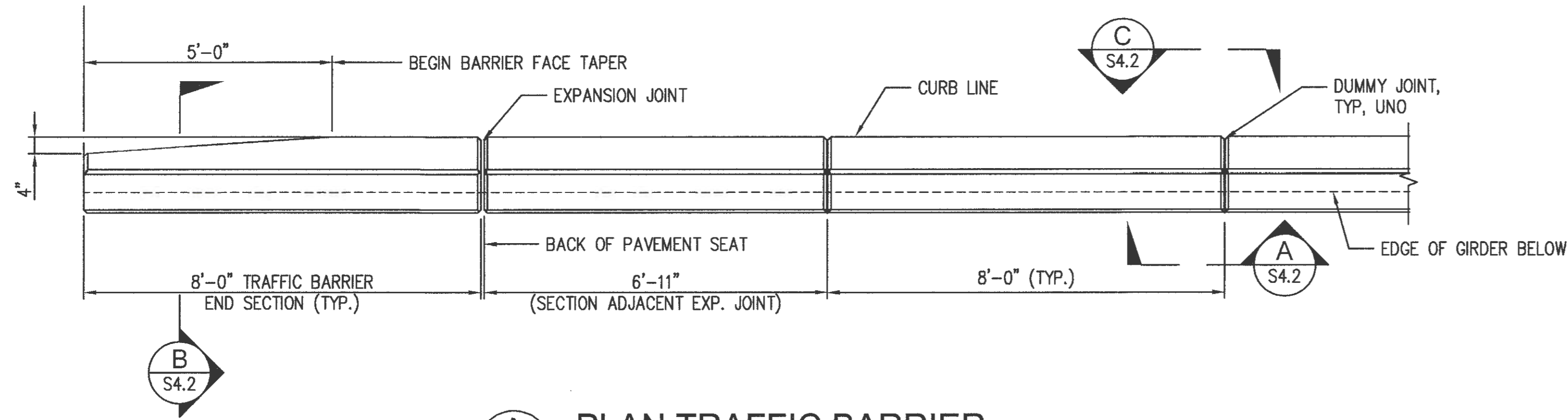
WAPATO CREEK
BRIDGE AND CULVERT REMOVAL
GIRDER AND BEARING DETAILS

TOWNSHIP: 20N
RANGE: 03E
SECTION: 01
DATE-HRZ: WAB3-SF
PARCEL: 15

6608
S3.4
28 OF 33

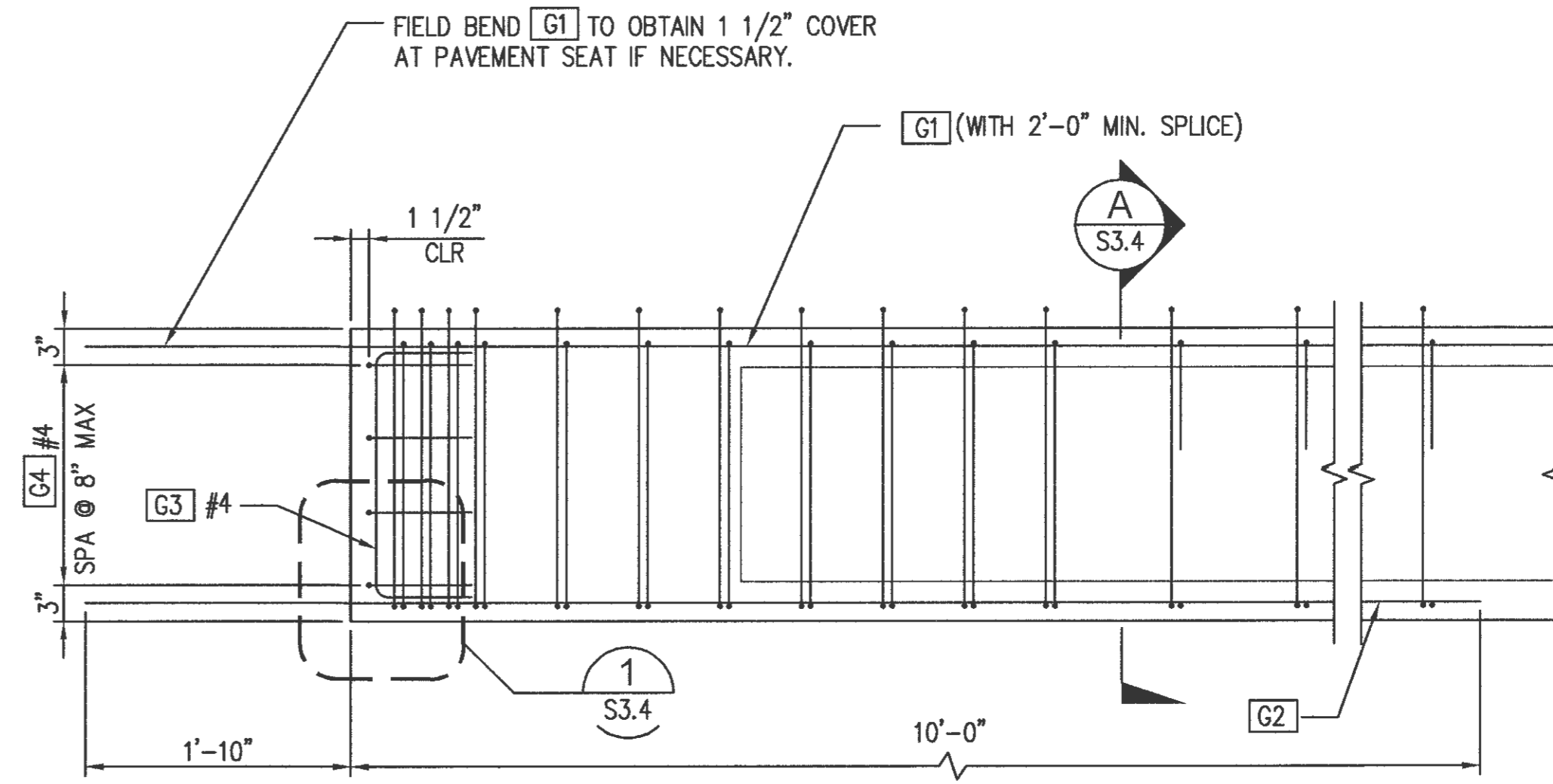
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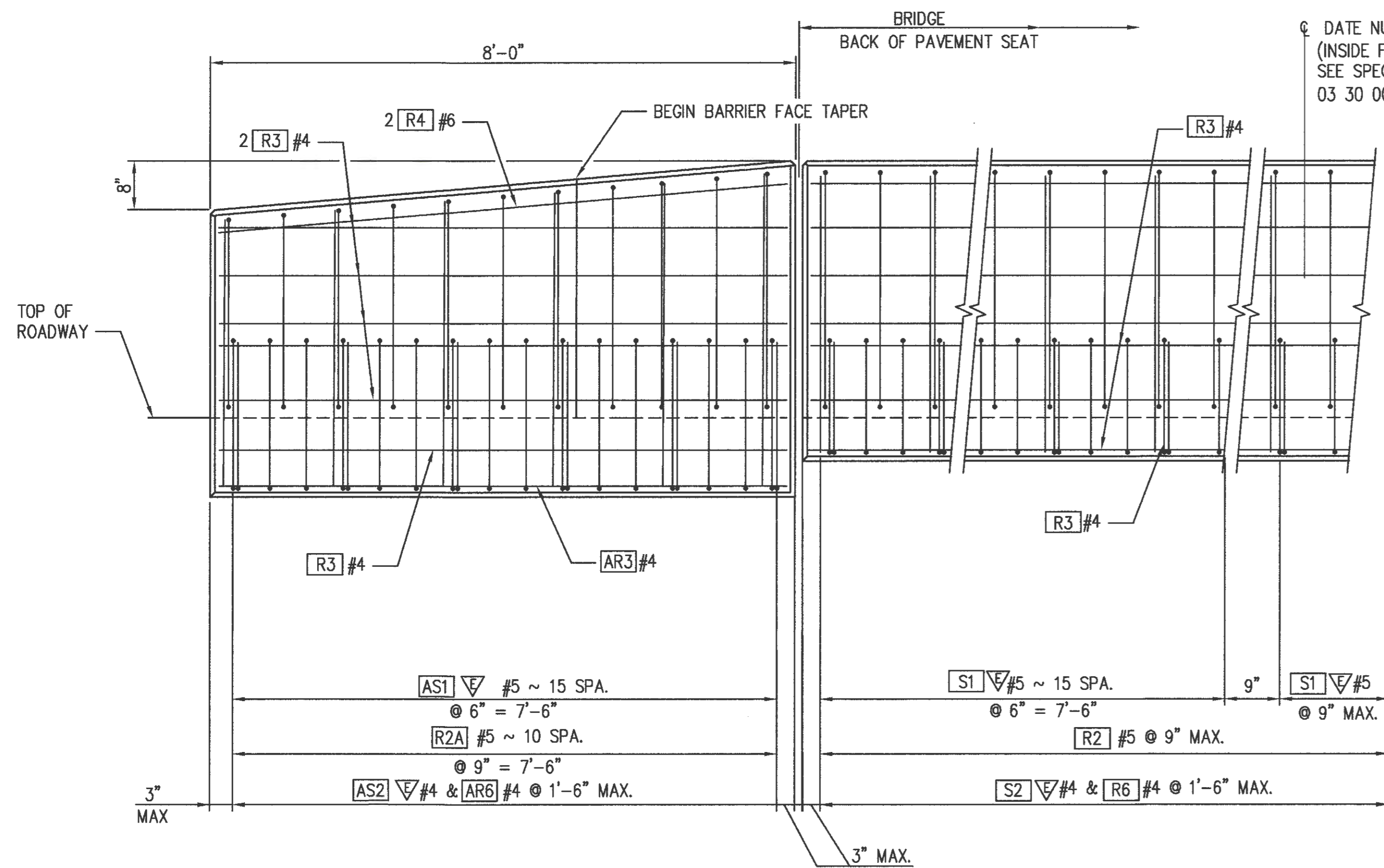


A PLAN TRAFFIC BARRIER
1/2" = 1'-0"

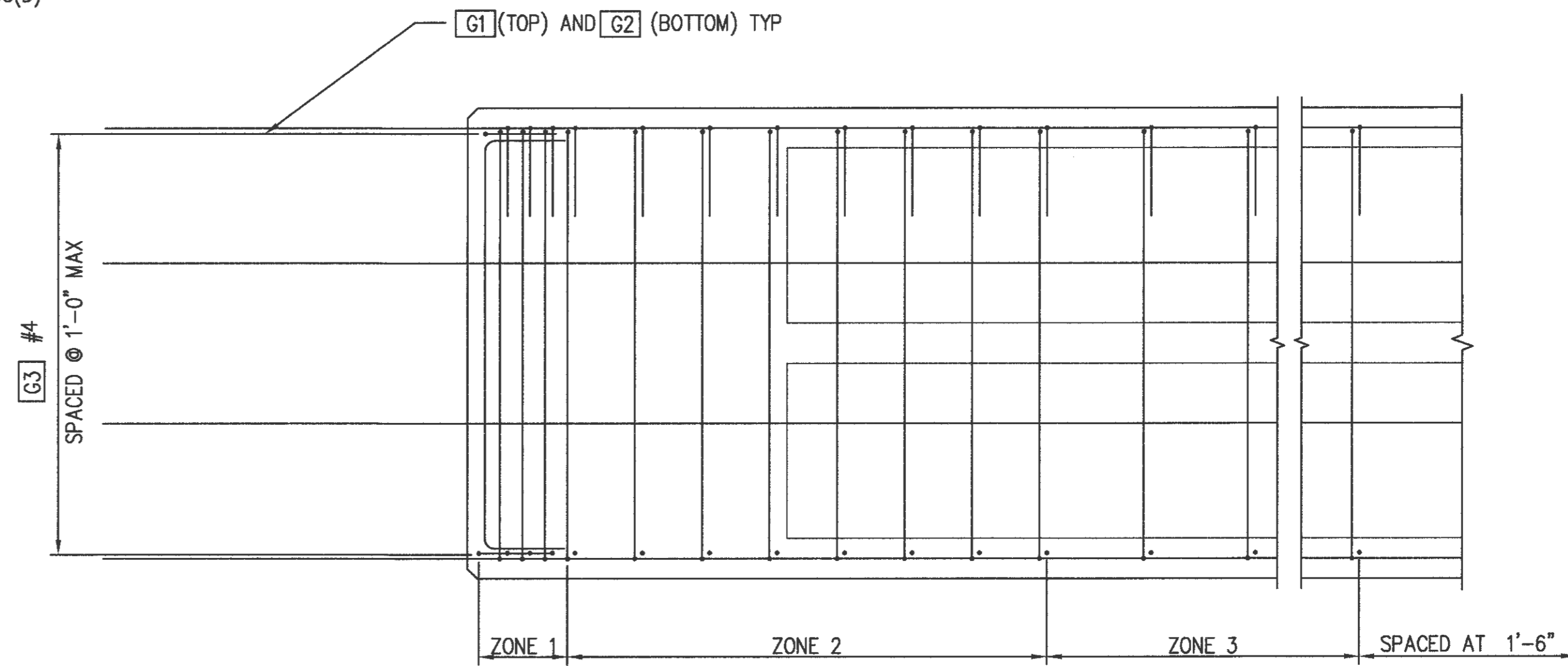
BARRIER CONTINUOUS BETWEEN BRIDGE DECK EXPANSION JOINTS.
CONSTRUCTION JOINTS WITH SHEAR KEYS ARE PERMISSIBLE AT DUMMY JOINT LOCATIONS.
FORM JOINTS BETWEEN DUMMY JOINTS SHALL NOT BE PERMITTED.



C ELEVATION (STRANDS NOT SHOWN)
1" = 1'-0"

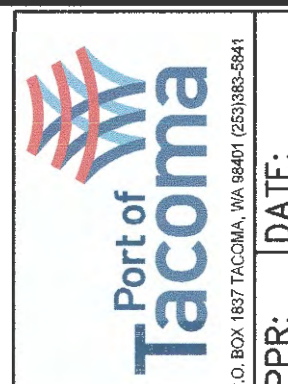


**B OUTSIDE ELEVATION
END OF TRAFFIC BARRIER**
3/4" = 1'-0"



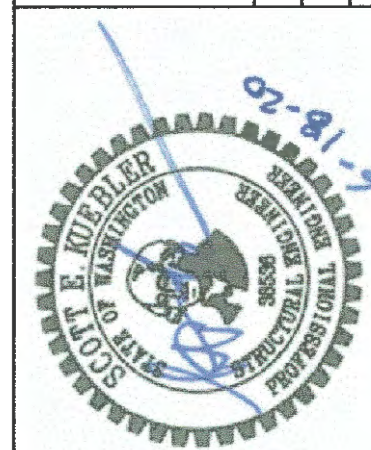
D PLAN
1" = 1'-0"

TRAFFIC BARRIER BARS NOT SHOWN FOR CLARITY.
SEE TRAFFIC BARRIER SHEETS FOR DETAILS AND LOCATIONS.
OTHER END SIMILAR. STRANDS NOT SHOWN.



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WAPATO CREEK
BRIDGE AND CULVERT REMOVAL
TRAFFIC BARRIER 1

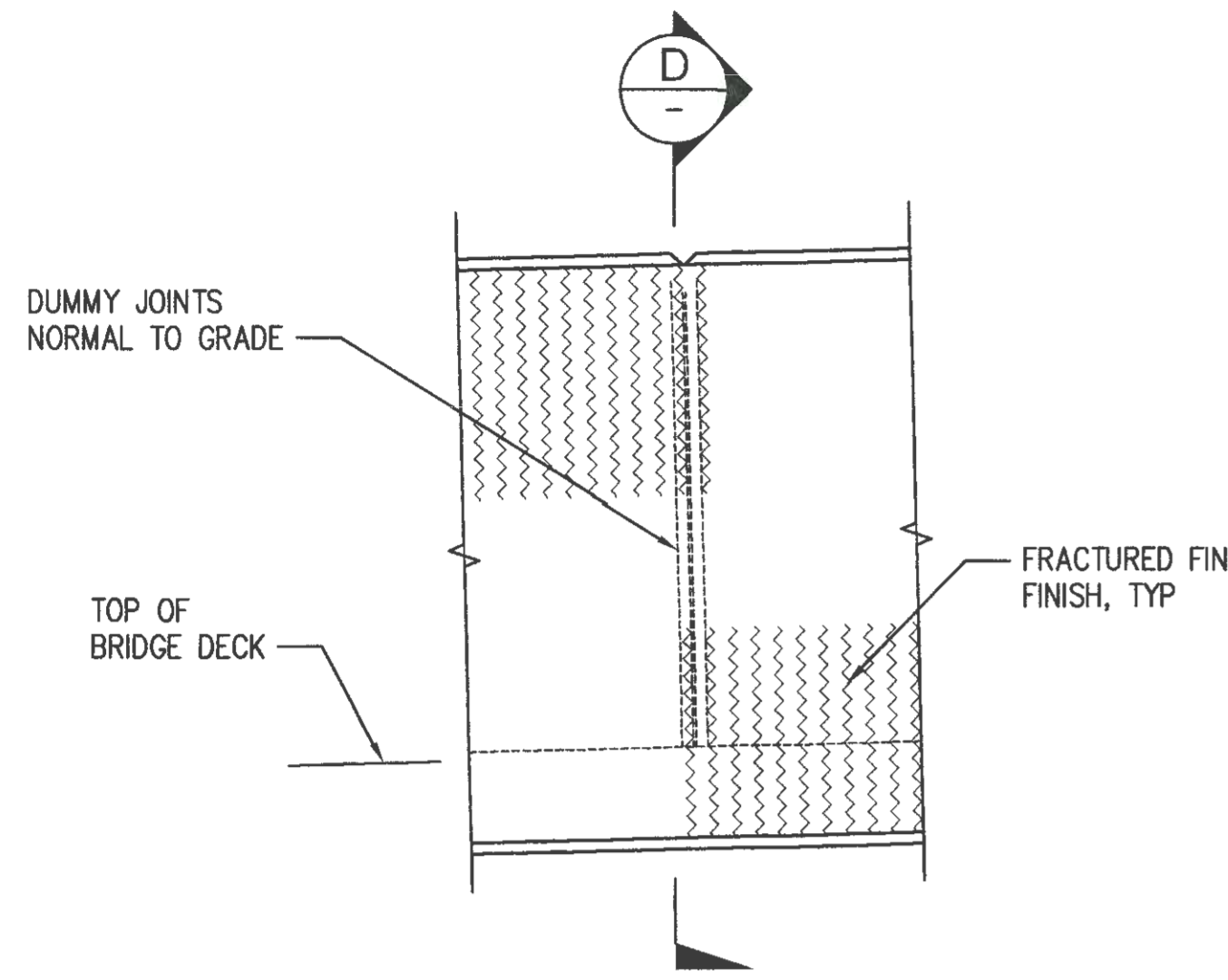
6608
S4.1
29 OF 33
CONT/CONS: 071198
M. ID: 201070.01
PHASE: BID SET

MARK: REVISION: BY: DATE: APPR: DATE:

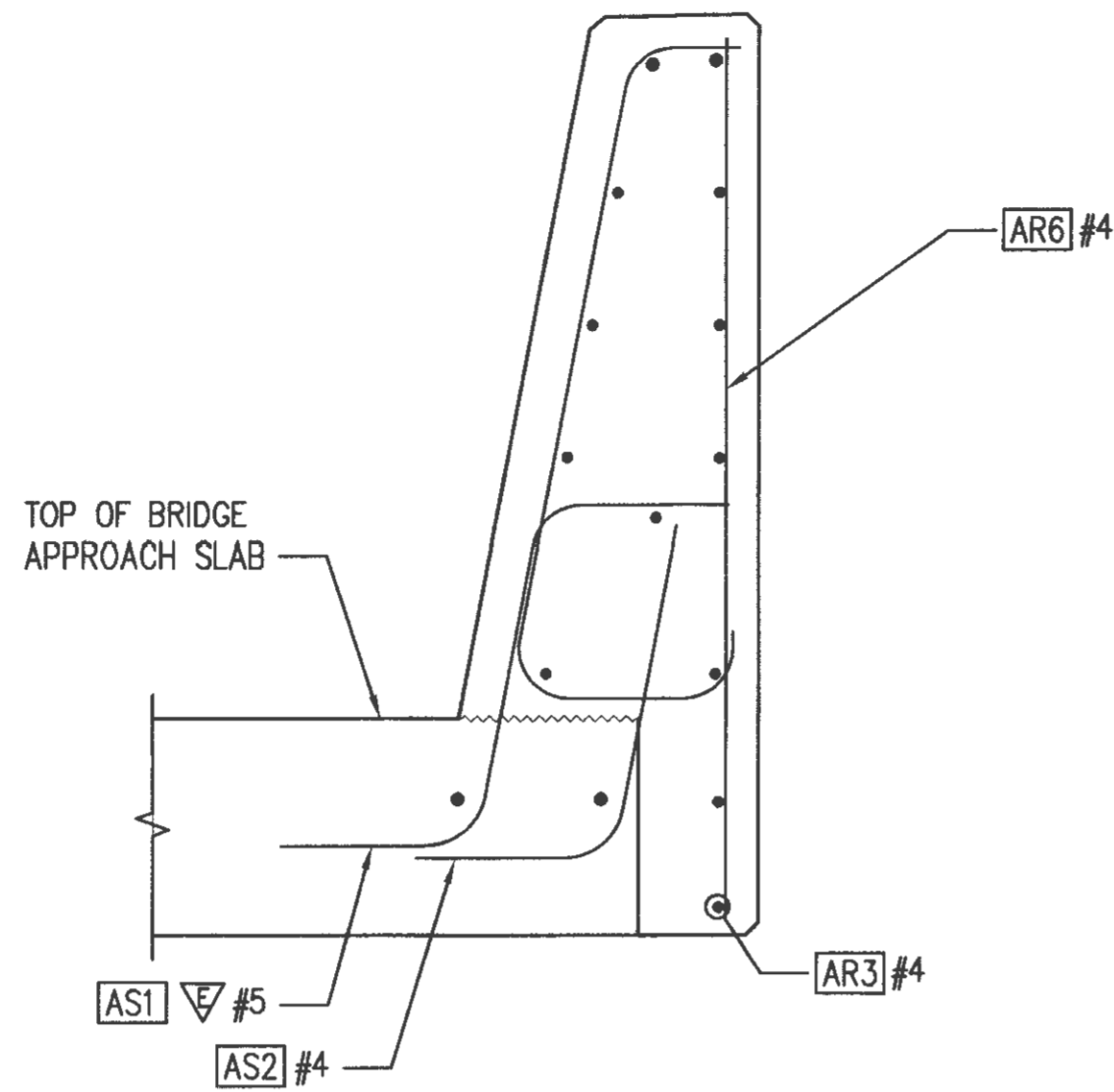
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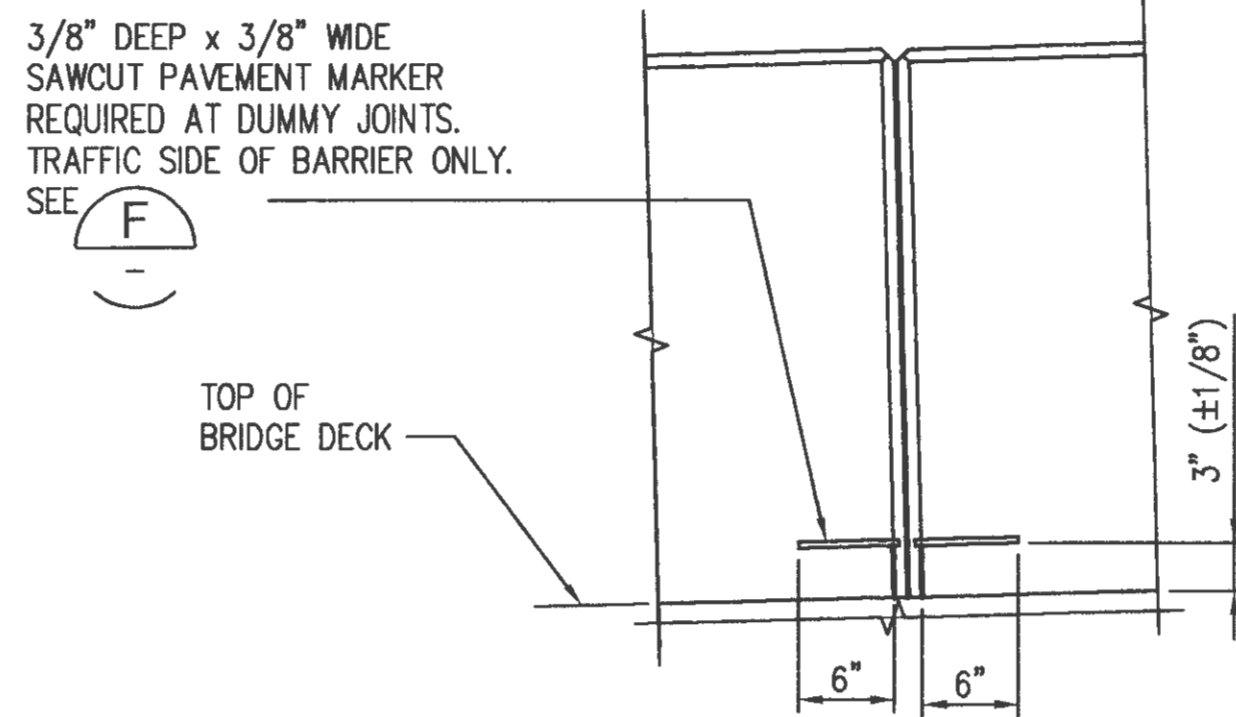
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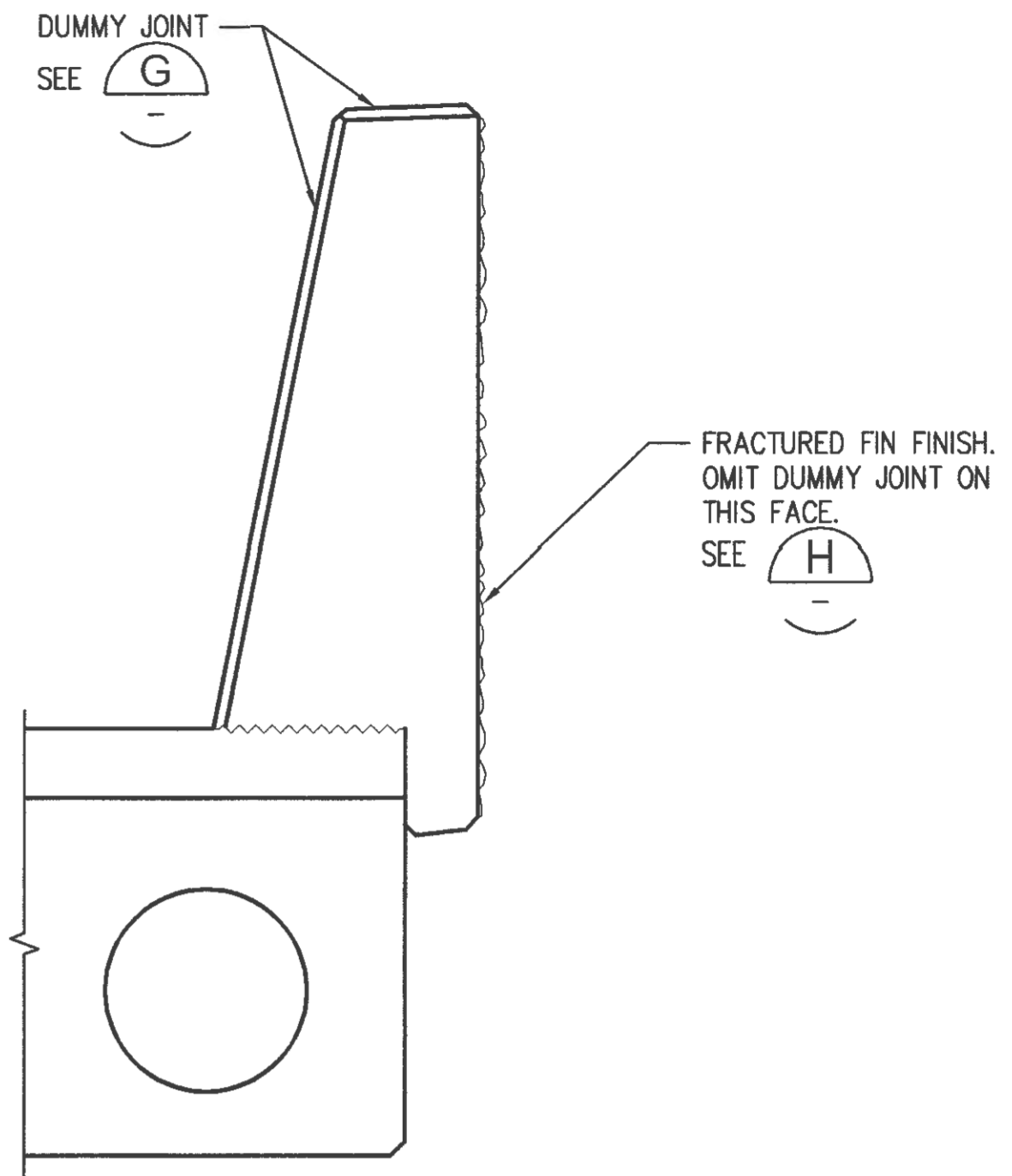
A VIEW
S4.1 1" = 1'-0"



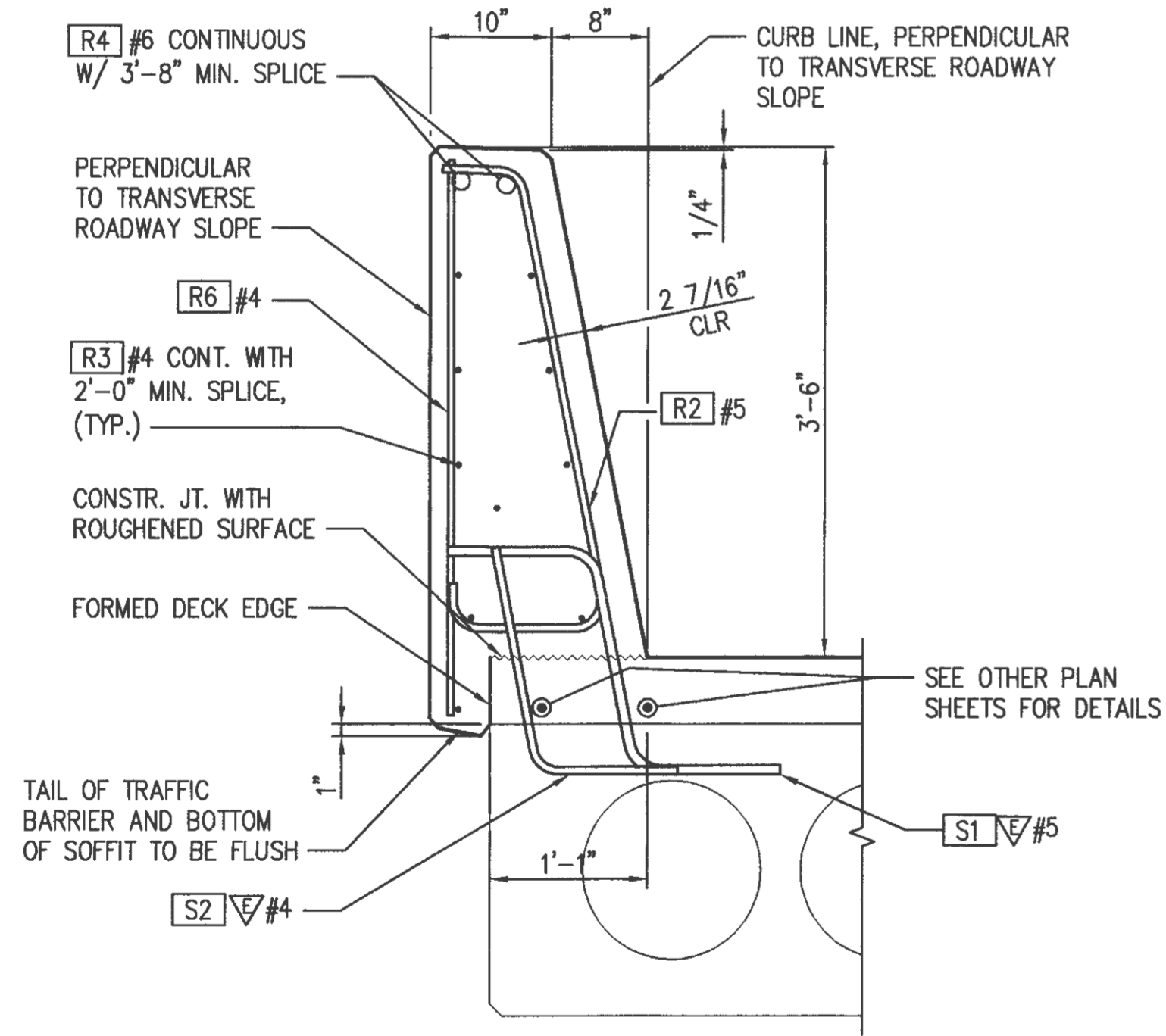
B SECTION BRIDGE APPROACH SLAB
S4.1 1" = 1'-0"



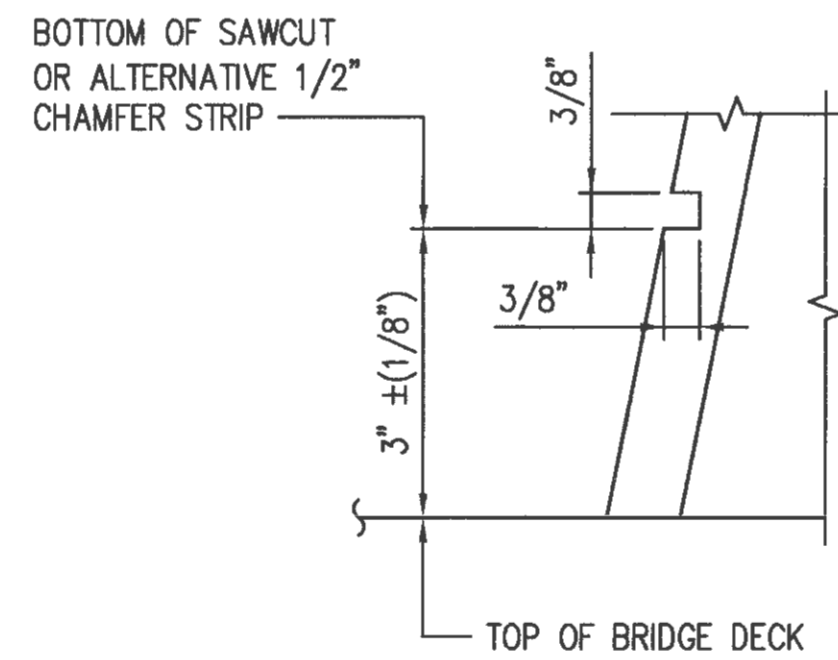
C VIEW
S4.1 1" = 1'-0"



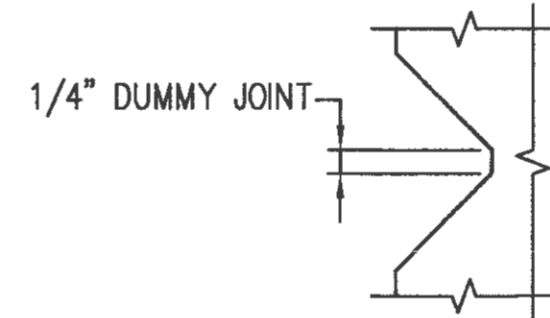
D SECTION
1" = 1'-0"



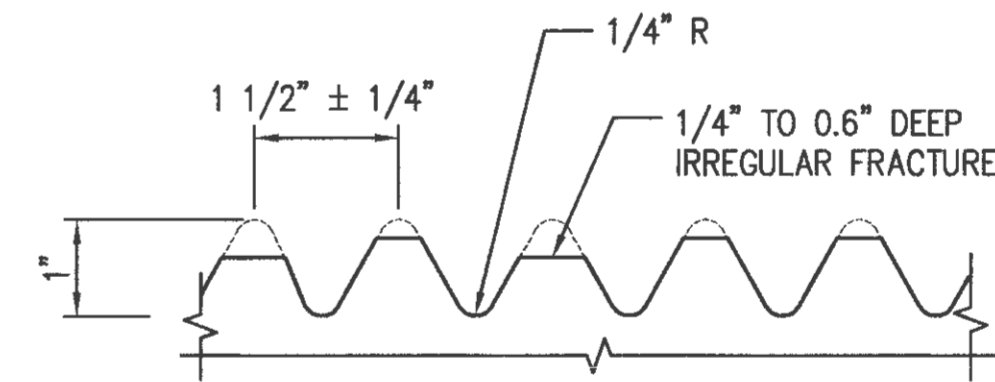
E TYPICAL SECTION TRAFFIC BARRIER (SHOWN ON BRIDGE)
S3.4 1" = 1'-0"



F SECTION
1" = 1'-0"



G DUMMY JOINT DETAIL
6" = 1'-0"



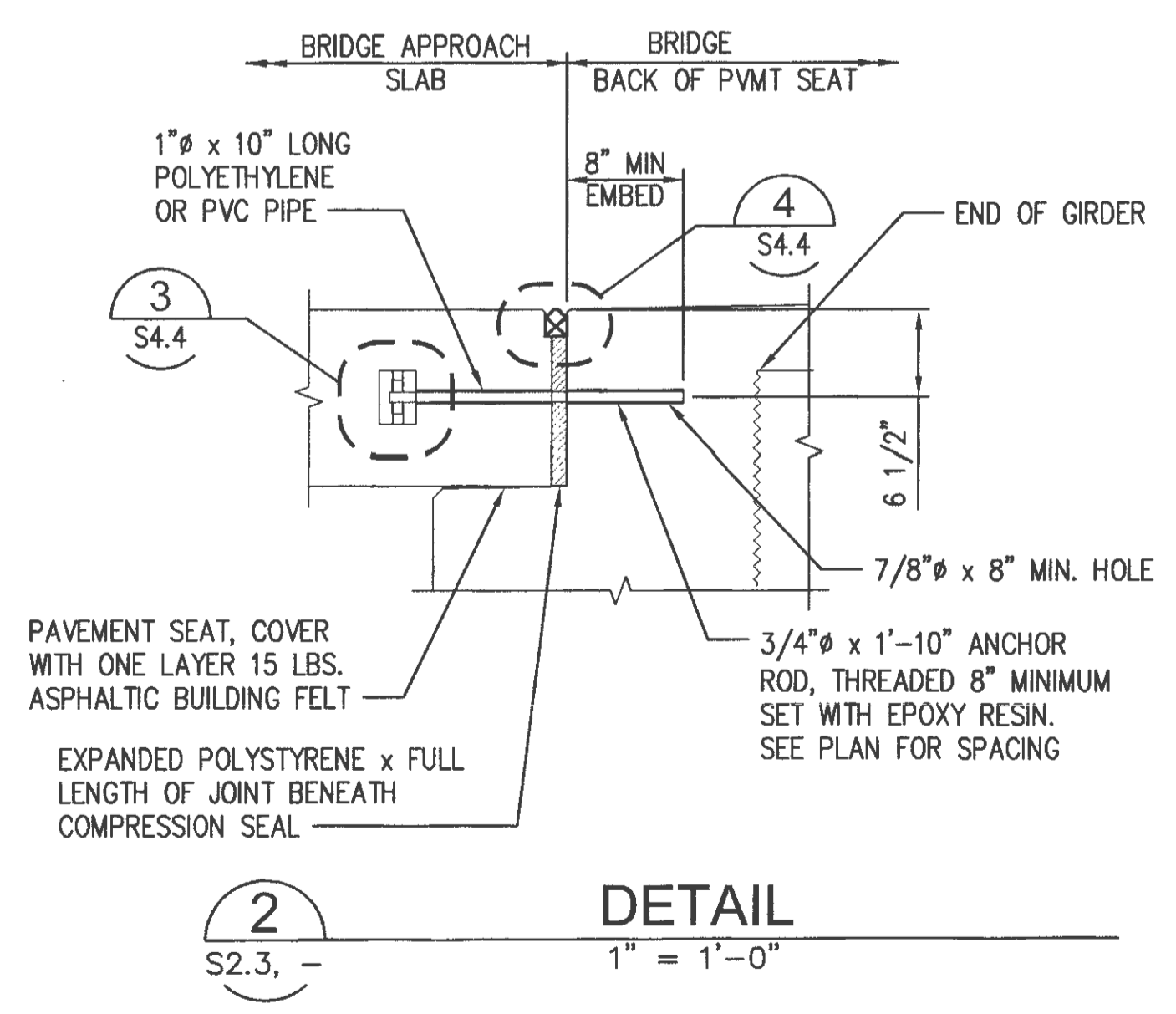
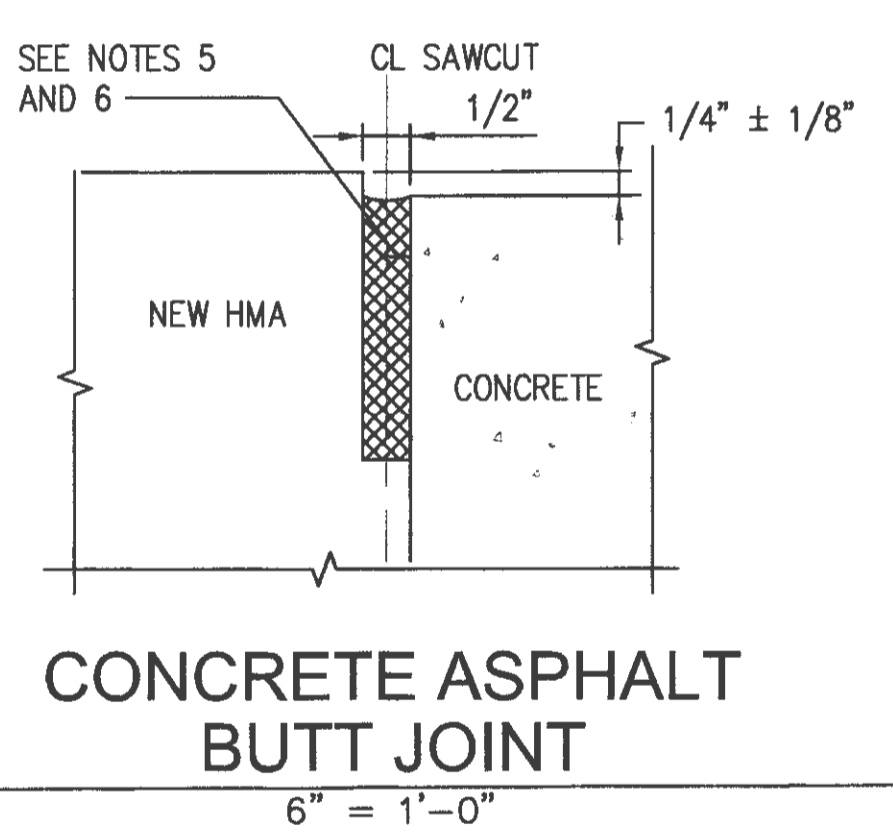
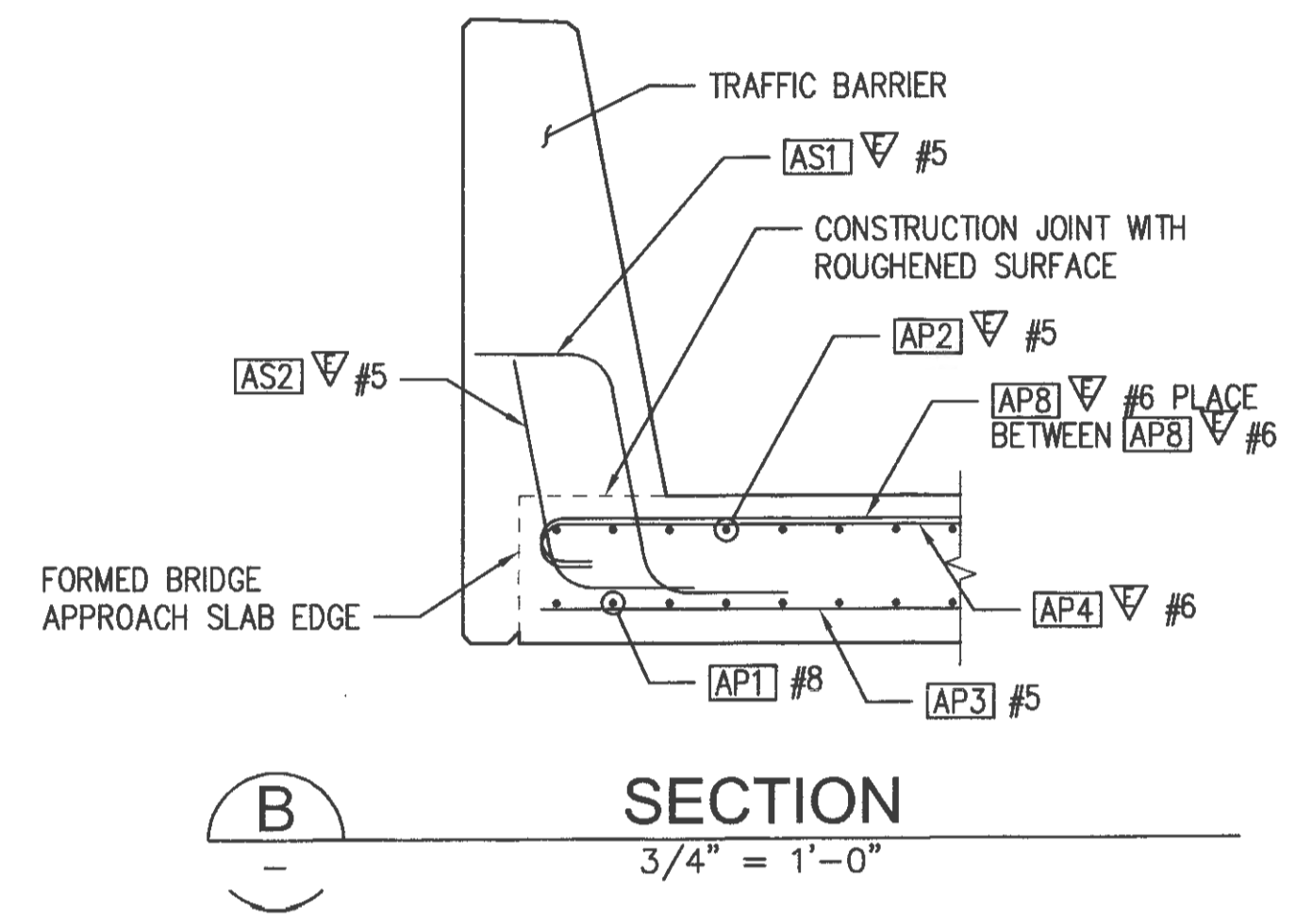
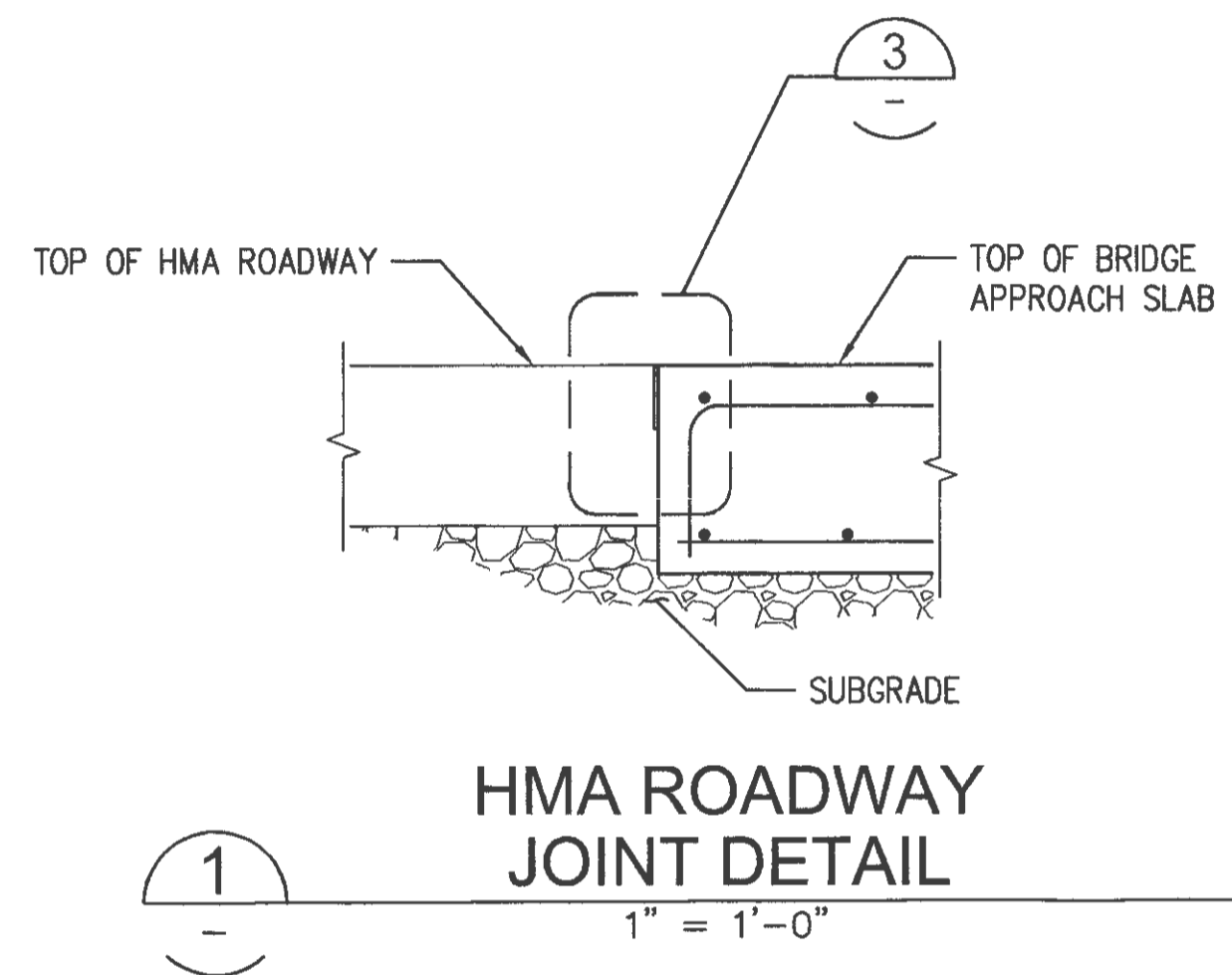
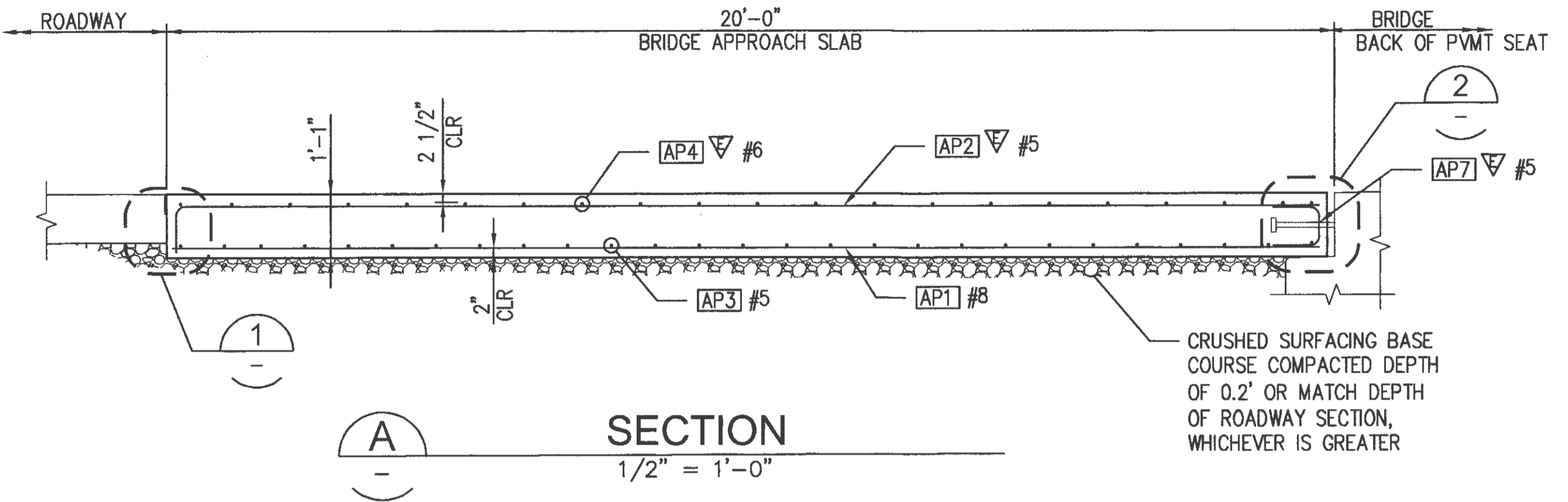
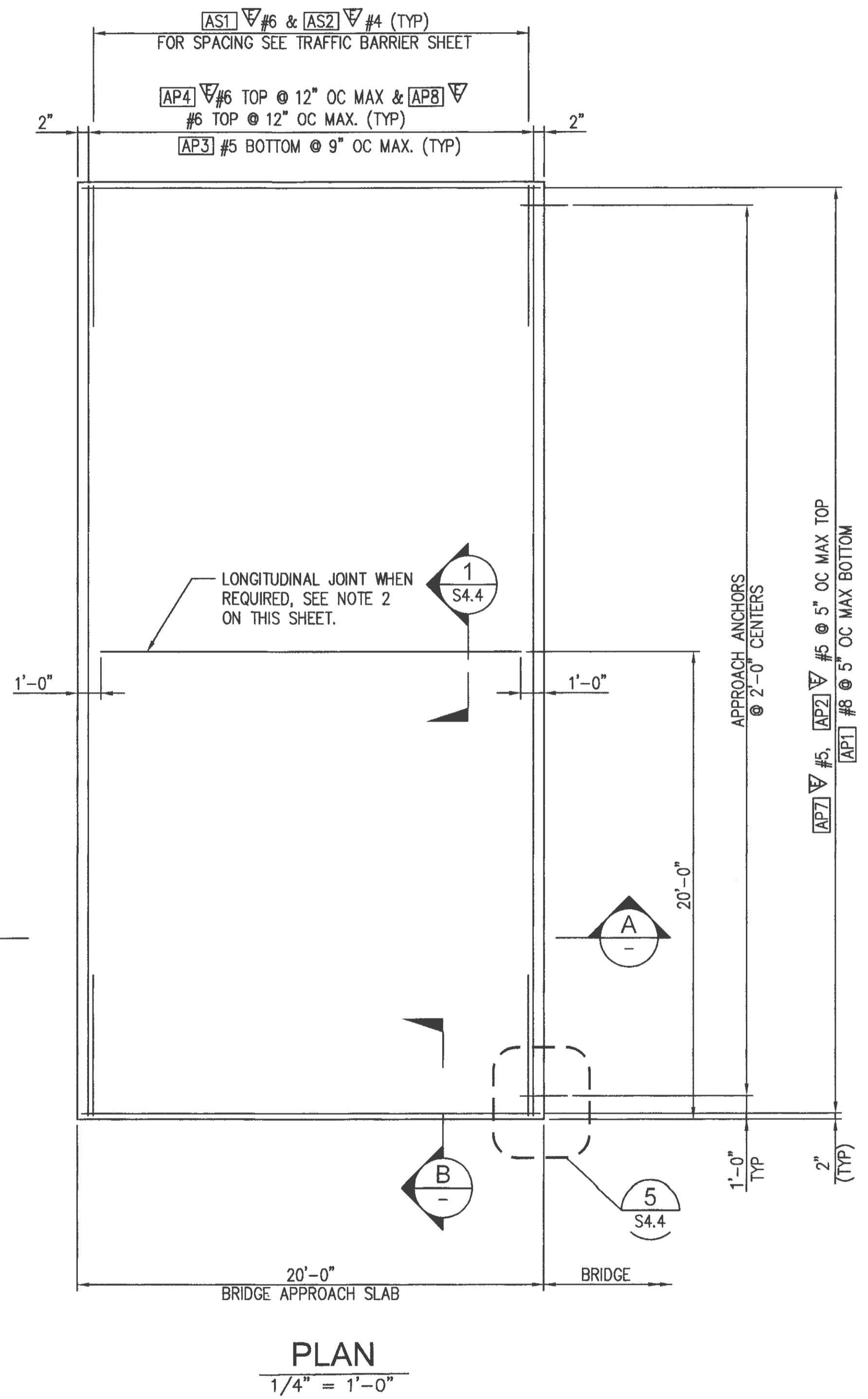
H FRACTURED FIN FINISH
6" = 1'-0"

6608 S4.2 30 OF 33	WAPATO CREEK BRIDGE AND CULVERT REMOVAL TRAFFIC BARRIER 2			APPROVED:	AWB	06/01/20	DATE
	CONT/CONS: 071198 M. ID: 201070.01 PHASE: BID SET	TOWNSHIP: 20N DAT-HRZ: WAB3-SF PARCEL: 15	RANGE: 03E SECTION: 01	DATE	06/01/20	DATE	06/01/20
				2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162 P.O. BOX 1837 TACOMA, WA 98401-1837			
kpf Port of Tacoma P.O. BOX 1837 TACOMA, WA 98401-1837				MARK:	REVISION:	BY:	DATE:

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BINDING EDGE

PORT OF TACOMA FILE: N:\2018\1802249 POT PCT Culvert Repair\Drawings\Current\201070 - S4.3 (APPROACH SLAB 1)

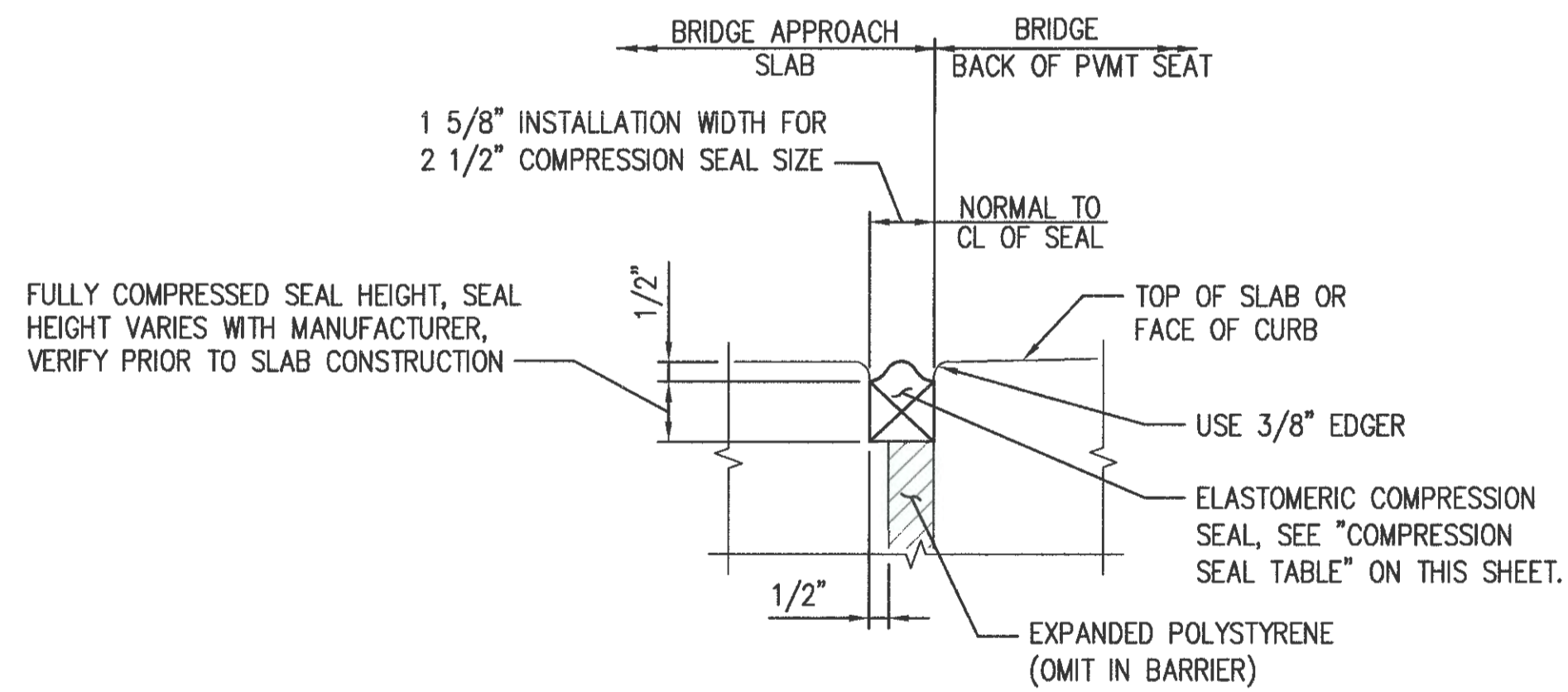
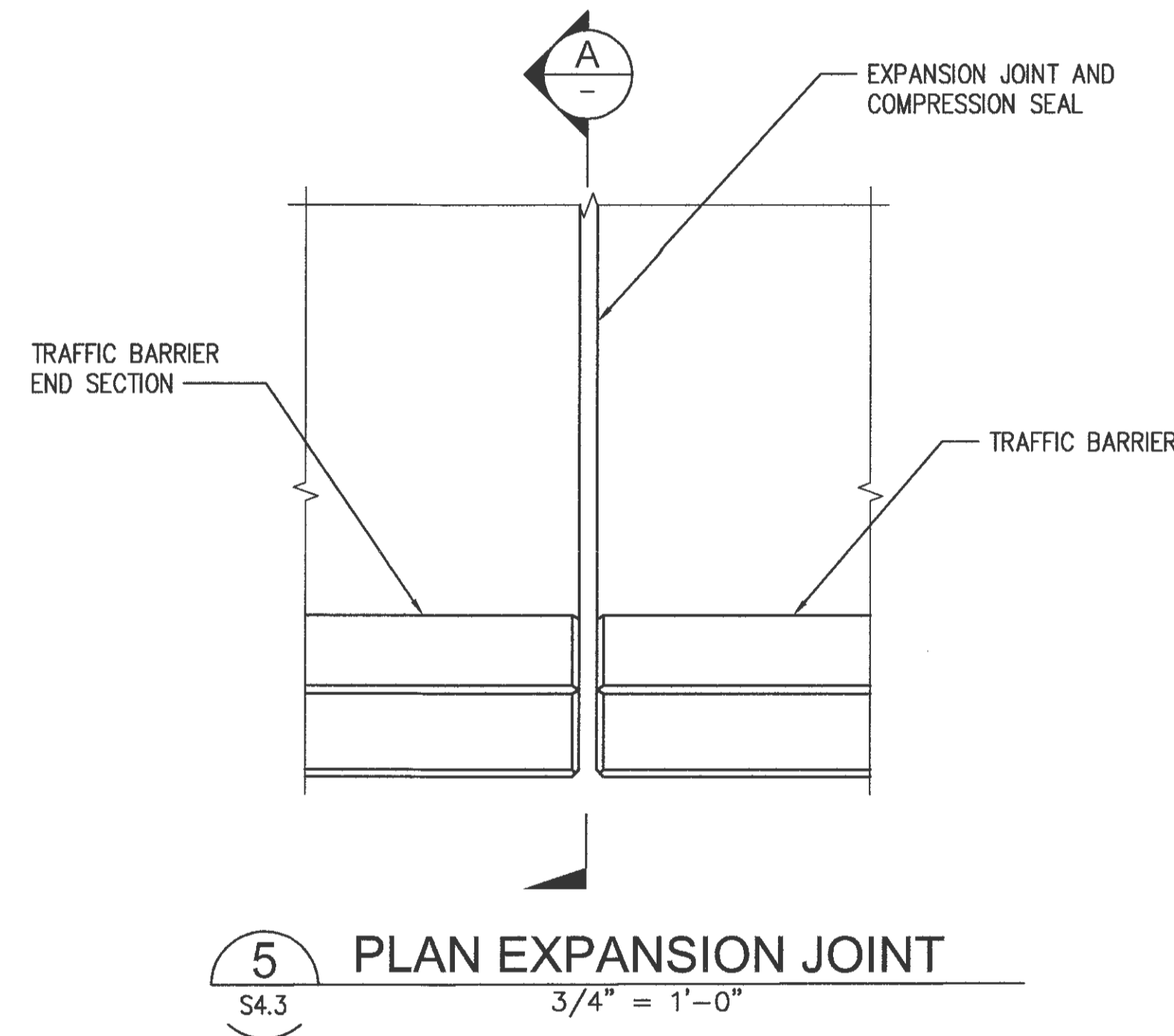
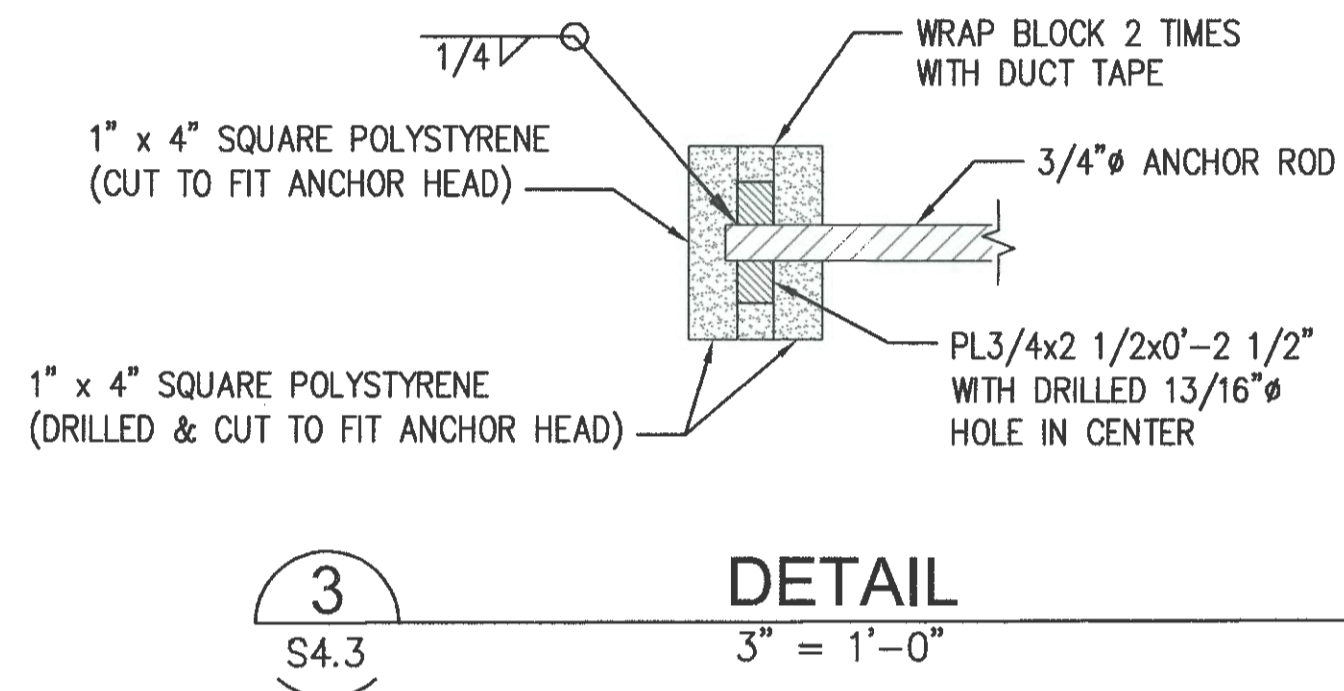
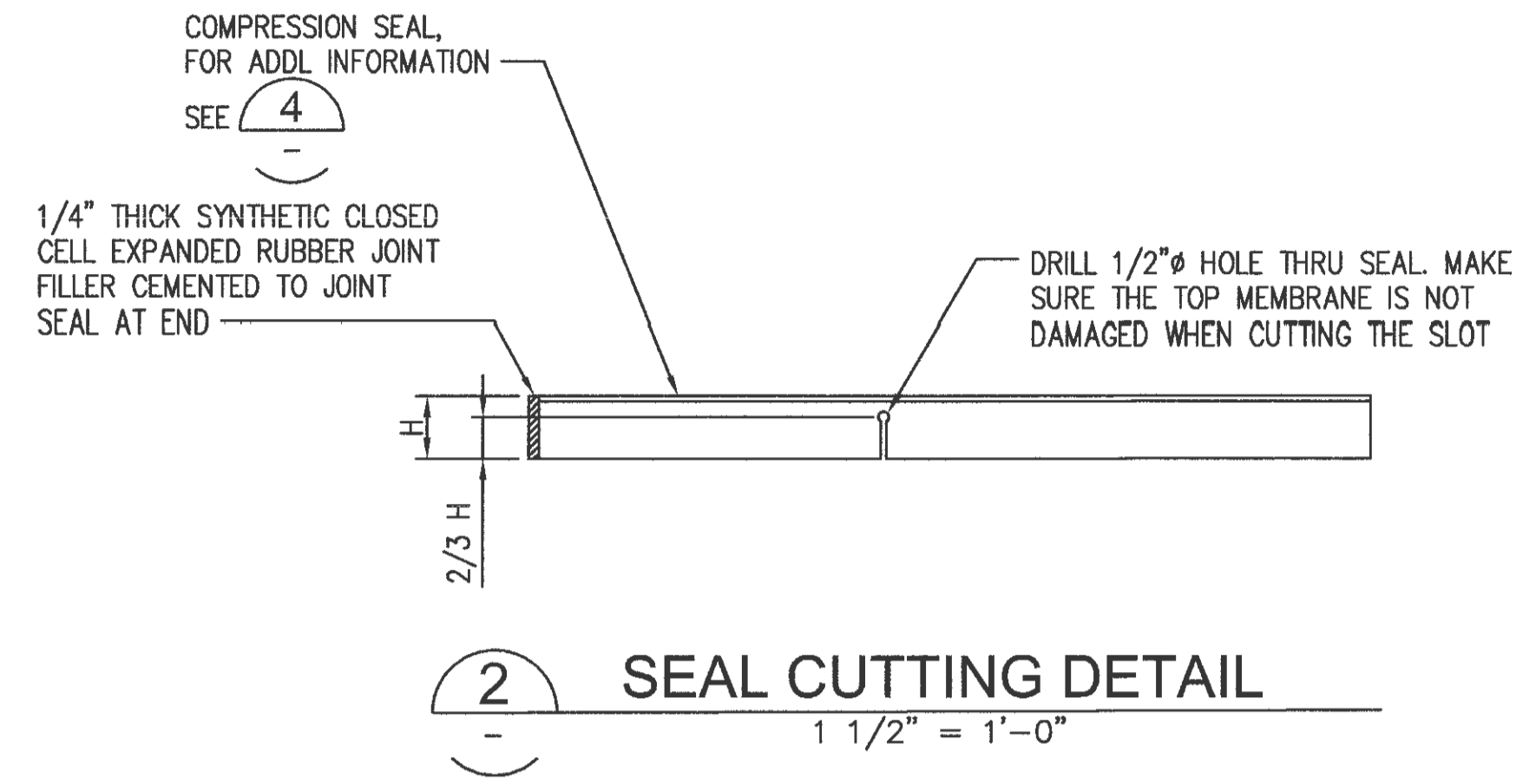
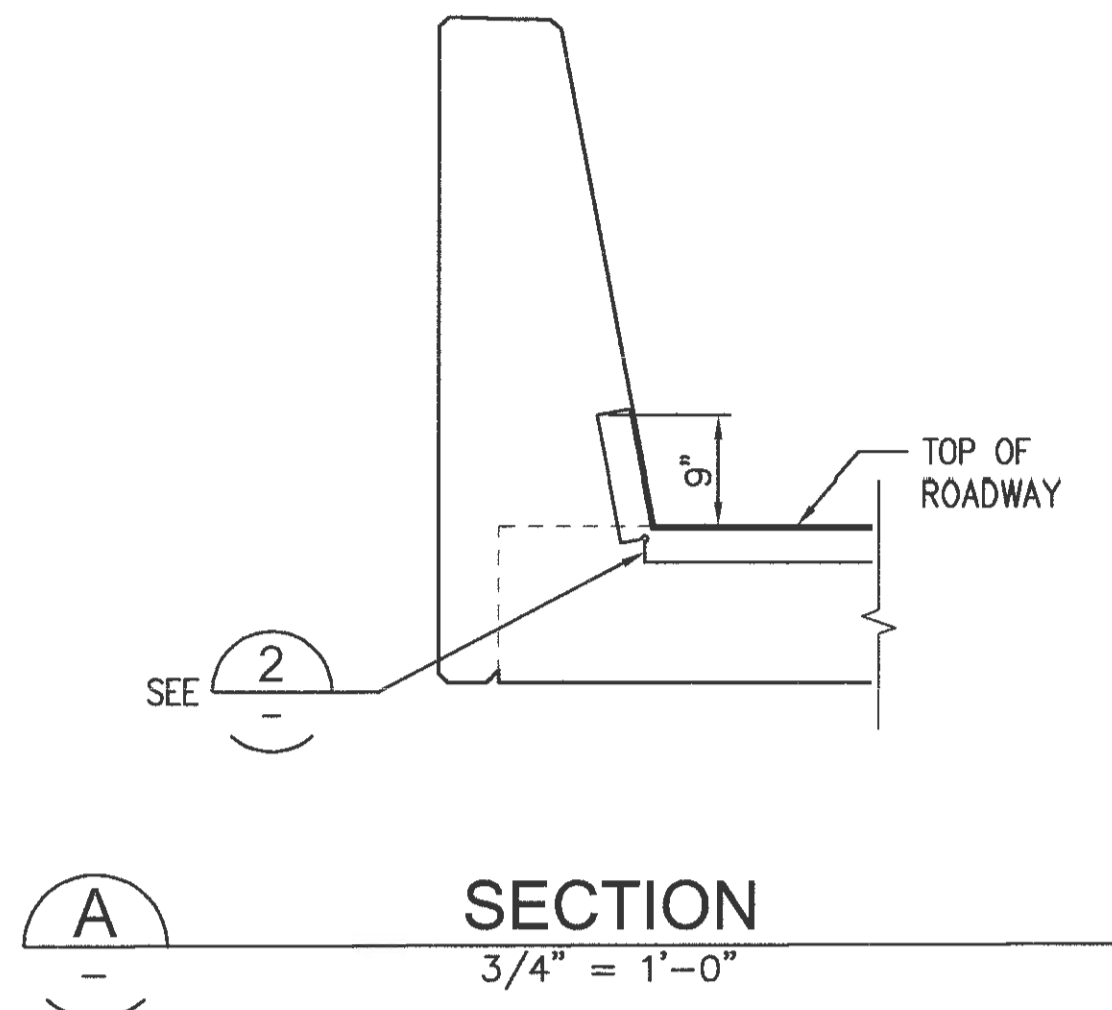
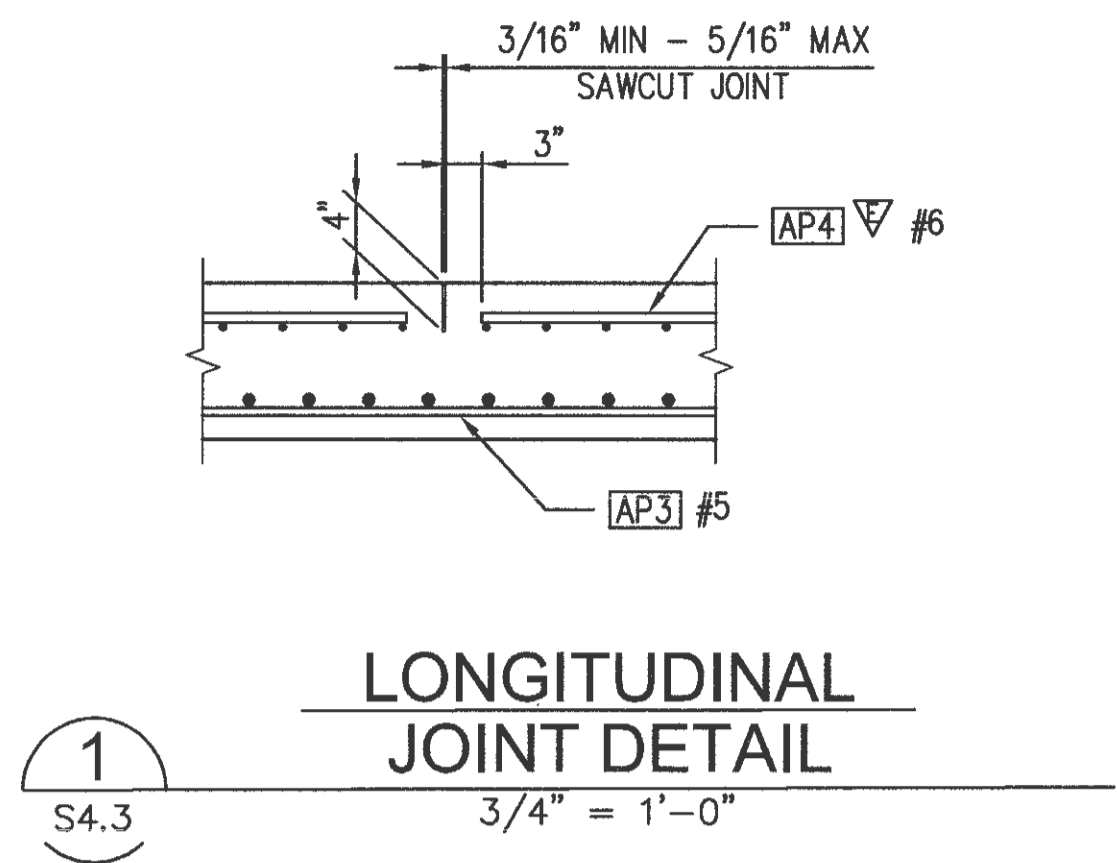


NOTES

1. ALL EDGES OF BRIDGE APPROACH SLAB SHALL HAVE 1/2" RADIUS EXCEPT AT LONGITUDINAL JOINTS.
2. LONGITUDINAL JOINTS SHALL BE PLACED ON LANE LINES AND SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH SPECIFICATION SECTION 03 30 00. JOINTS MAY BE EITHER A SAWCUT CRACK CONTROL JOINT OR A CONSTRUCTION JOINT. SAWCUT JOINTS SHALL TERMINATE 1'-0" BEFORE REACHING EDGE OF SLAB AND MUST BE SAW CUT AS SOON AS POSSIBLE AFTER PLACEMENT OF CONCRETE. SEE "LONGITUDINAL JOINT DETAIL" ON DETAIL 1/S4.3.
3. THE MINIMUM LAP SPlice OF #5 IS 2'-0" ∇ #5 IS 2'-6", ∇ #6 IS 3'-0" AND #8 IS 3'-3". ALL LAP SPICES SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF REBAR IS SPICED AT THE SAME LOCATION. LAP SPICES SHALL BE LOCATED WITHIN THE MIDDLE HALF OF THE BRIDGE APPROACH SLAB. OPTIONAL SPICES ARE ALLOWED FOR AP2 #6.
4. FOR TRAFFIC BARRIER, INCLUDING ANY BRIDGE APPROACH SLAB BLOCKOUT INFORMATION SEE TRAFFIC BARRIER SHEETS.
5. SAWCUT SHALL BE DESCRIBED IN SPECIFICATION SECTION 03 30 00.
6. THE CONTRACTOR SHALL AVOID SAWCUTTING CONCRETE AT ALL CONCRETE ASPHALT BUTT JOINT LOCATIONS.

6608 S4.3 31 OF 33	WAPATO CREEK BRIDGE AND CULVERT REMOVAL APPROACH SLAB DETAILS 1 OF 2		AMB 06/01/20 CHECKED BY DATE	DATE:
	CONT/CONS: 071198 M. ID: 201070.01 PHASE: BID SET	TOWNSHIP: 20N DAT-HRZ: WA83-SF PARCEL: 15	RANGE: 03E SECTION: 01 VERT: MILL 19.18' @ TIDE 22 1933	DIRECTOR ENG. DATE: 06/01/20 PRINTED BY: Items Jun 15, 2020 PORT ADDRESS: ONE SITJUM PLAZA TACOMA, WA 98401-1837
		APPROVED:	REVISION:	APPR:

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4
S4.3, -
3" = 1'-0"

COMPRESSION SEAL TABLE			
D.S. BROWN		WATSON BOWMAN ACME	
SEAL	WIDTH	SEAL	WIDTH
CV-2502	2 1/2"	WA-250	2 1/2"

Port of Tacoma
2407 North 31st Street, 6th Fl. 100
Tacoma, Washington 98407
(253) 396-0150 Fax: (253) 396-0162

kpff
2407 North 31st Street, 6th Fl. 100
Tacoma, Washington 98407
(253) 396-0150 Fax: (253) 396-0162

APPR: DATE: _____

BY: _____

REVISION: _____

MARK: _____

**WAPATO CREEK
BRIDGE AND CULVERT REMOVAL**
APPROACH SLAB DETAILS
2 OF 2

AWB 06/01/20
CHECKED BY: _____ DATE: 06/01/20

SEK 06/01/20
PROJ. ENGR. DATE: 06/01/20

DIRECTOR ENGR. DATE: _____

PRINTED BY: ttiemans Jun 15, 2020

PORT ADDRESS: ONE SITCUM PLAZA
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6608
S4.4
32 OF 33

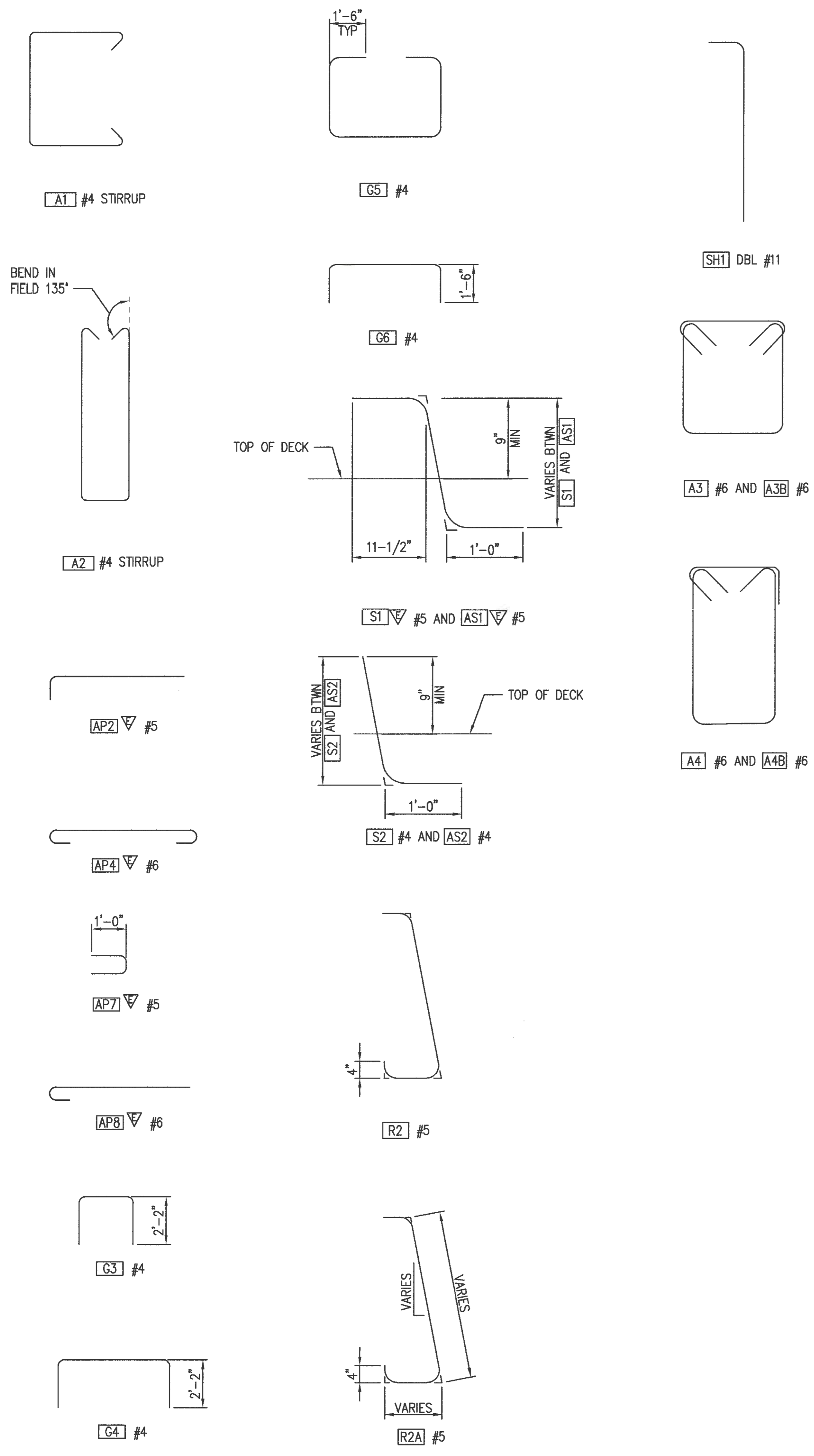
CONTR/CONS: 071198
M. ID: 201070.01
PHASE: BID SET

TOWNSHIP: 20N RANGE: 03E SECTION: 01

DAT-HRZ: WA83-SF VERT: MLLW 19.18' @ TIDE 22.1933

PARCEL: 15 DRAWING SCALE: AS SHOWN

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NOTES

1. EPOXY COATED REINFORCING STEEL
2. ALL DIMENSIONS ARE OUT TO OUT.
3. STRAIGHT BARS, INCLUDING BUT NOT LIMITED TO THOSE IN THE STRAIGHT BAR LIST, ARE SHOWN THROUGHOUT THE DRAWINGS AND HAVE VARYING LENGTHS.
4. THIS SHEET IS INTENDED FOR REFERENCE PURPOSES ONLY. NUMBER, LENGTH, AND GEOMETRY OF BARS TO BE DETERMINED BY THE CONTRACTOR FROM THESE DRAWINGS. CONTRACTOR SHALL SUBMIT REBAR SHOP DRAWINGS PER SPECIFICATION SECTION 03 20 00.
5. ALL HOOKS ARE STANDARD HOOKS UNLESS NOTED OTHERWISE.

STRAIGHT BAR LIST

- G1
- G2
- R3
- R4
- R6
- AR3
- AR6
- AP1
- AP3

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	MARK: _____ REVISION: _____	BY: _____ DATE: _____
APPROVED: _____	AMB 06/01/20 CHECKED BY: _____ DATE: 06/01/20	DATE: 06/01/20
DIRECTOR: _____ ENG. DATE: _____	PROJ. ENGR: _____ DATE: _____	DATE: _____
PRINTED BY: _____ PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837	SECTION: 01 RANGE: 03E TOWNSHIP: 20N DAT-HRZ: WA83-SF M.L.W 19.18' @ TIDE 22.19.33 VERT: _____ DRAWING SCALE: AS SHOWN	PARCEL: 15
6608 S5.1 33 OF 33	WAPATO CREEK BRIDGE AND CULVERT REMOVAL BAR BENDING DIAGRAM	PHASE: BID SET

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