

OVENELL SLOUGH (CEDAR GROVE CULVERT) REPLACEMENT

WA402229

RCO: 18-1490
NFWF: 0314.18.062608

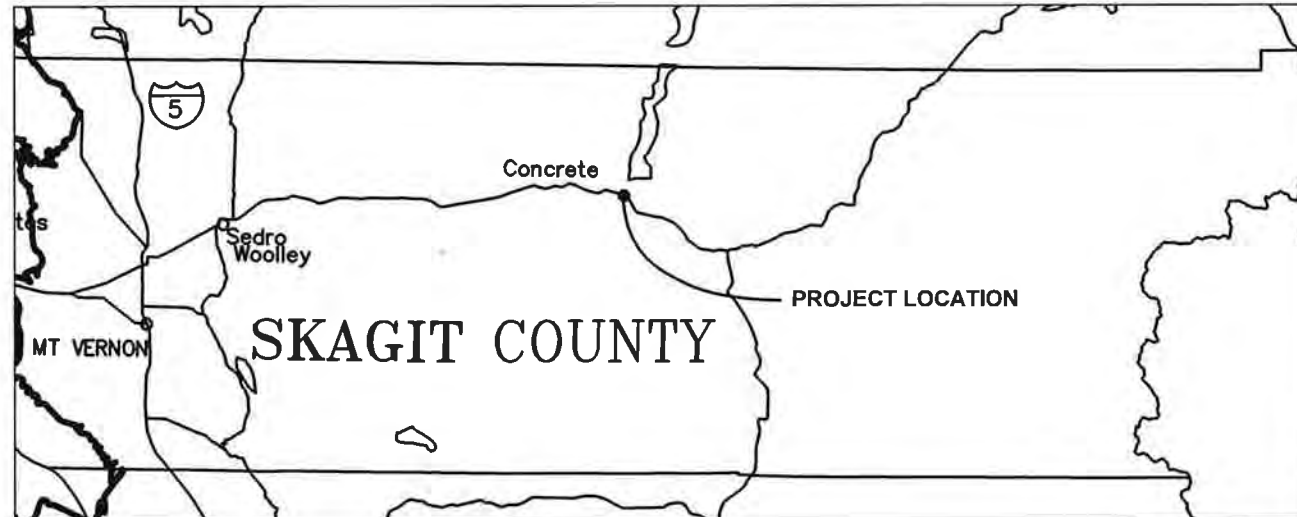


SKAGIT COUNTY OFFICIALS

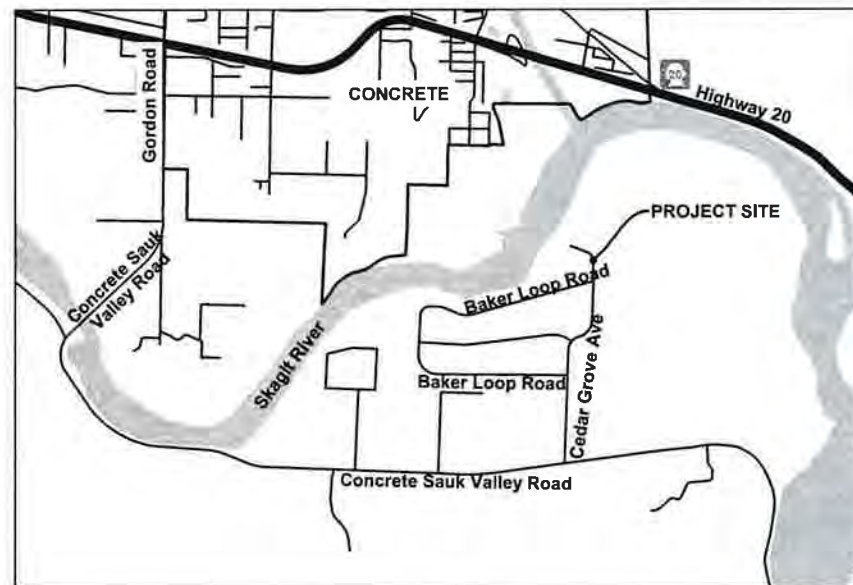
- BOARD OF COMMISSIONERS
- LISA JANICKI, CHAIR
 - PETER BROWNING, COMMISSIONER
 - RON WESEN, COMMISSIONER
- PUBLIC WORKS
- DAN BERENTSON, DIRECTOR

APPROVED FOR CONSTRUCTION

Paul A. Randall-Grutter 9.21.21
PAUL A. RANDALL-GRUTTER, P.E., COUNTY ENGINEER DATE



VICINITY MAP NTS



LOCATION MAP NTS

Item Number	Spec Section	Quantity	Unit	Item
1	1-09.7		LS	Mobilization
2	1-05.4 SP	1	LS	Contractor Surveying
3	1-05.18	1	LS	Record Drawings (Minimum Bid = \$500)
4	1-07.15	1	LS	SPCC Plan
5	1-08.3	1	LS	Type B Progress Schedule
6	2-01	1	FA	Roadside Cleanup
7	2-01	1	LS	Clearing and Grubbing
8	2-02	1	LS	Removal of Structures and Obstructions
9	1-09.7	1	FA	Unanticipated Minor Structure Revisions
10	1-09.7	1	FA	Unanticipated Dewatering
11	1-09.7	1	FA	Unanticipated Repair/Restoration of Public and Private Facilities
12	2-03	1900	CY	Channel Excavation Incl. Haul
13	2-03	93	CY	Roadway Excavation Incl. Haul
14	2-03	140	TN	Gravel Borrow Incl. Haul
15	2-03	75	CY	Embankment Compaction
16	2-09	56	CY	Structure Excavation Class A Incl. Haul
17	2-09	1	LS	Shoring or Extra Excavation Cl. A
18	2-09 SP	1	LS	Temporary Isolation Walls
19	4-04	32	TN	Crushed Surfacing Base Course
20	5-04 SP	17	TN	Commercial HMA
21	6-02	21	CY	Gravel Backfill for Wall
22	6-02	40	CY	Conc. Class 4000
23	6-02	1	CALC	Deficient Strength Conc. Price Adjustment
24	6-02	7830	LB	St. Reinf. Bar
25	6-02	150	LF	Prestressed Conc. Girder - 30 Inch Voided Deck Slab Girder
26	6-05 SP	186	LF	Pedestrian Railing
27	7-01	18	LF	Underdrain Pipe 6 In. Diam.
28	7-01	31	CY	Gravel Backfill for Drains
29	6-05	2	EA	Furnishing and Driving (Steel) Test Pile
30	6-05	86	LF	Furnishing St. Piling
31	6-05	4	EA	Furnishing Steel Pile Tip or Shoe
32	6-05	4	EA	Driving St. Pile
33	8-01	1	LS	Erosion Control and Water Pollution Prevention
34	8-01	920	LF	High Visibility Fence
35	8-22	150	LF	Paint Line
36	8-22	1	EA	Painted Access Parking Space Symbol
37	8-21	1	LS	Permanent Signing
38	8-14	26	SY	Cement Conc. Sidewalk
39	7-08	2	EA	Plugging Existing Pipe
40	2-09	9	CY	Controlled Density Fill
41	8-31	2	EA	Bollard Type 1
42	8-07 SP	2	EA	Wheel Stop
43	8-02 SP	1	LS	Live Siltation
44	8-30 SP	2	EA	Type 1 ELJ

SHEET INDEX	
SHEET	TITLE
1	COVER SHEET
2	HORIZONTAL CONTROL PLAN
3	SITE PREP AND TESC PLAN - PHASE I
4	SITE PREP AND TESC PLAN - PHASE II
5	TRAIL PLAN AND PROFILE
6	PARKING LOT PAVING PLAN
7	CHANNEL IMPROVEMENTS PLAN
8	RESTORATION HABITAT SITE PLAN
9	TYPE 1 RIGHT ELJ
10	TYPE 1 LEFT ELJ
11	LIVE SILTATION DETAIL
12	ELJ DETAILS
13	BRIDGE PLAN AND ELEVATION
14	TYPICAL SECTION AND GENERAL NOTES
15	FOUNDATION LAYOUT
16	PIER PLAN AND ELEVATION
17	PIER DETAILS
18	WINGWALL DETAILS
19	GIRDER SCHEDULE
20	GIRDER DETAIL 1
21	GIRDER DETAIL 2
22	RAILING DETAIL 1 OF 2
23	RAILING DETAIL 2 OF 2

ABBREVIATIONS ARE ON SHEET 14.

CALL TWO (2) BUSINESS DAYS BEFORE YOU DIG

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SKAGIT COUNTY
PUBLIC WORKS
1800 CONTINENTAL PLACE
MOUNT VERNON, WA 98273-5625
(360) 336-9400 FAX (360) 336 9478

NO.	REVISIONS	DATE



PROJECT NO.: 2100080
FED. AID NO.: RCO: 18-1490, NFWF: 0314.18.062608
DESIGNED BY: DLK
CHECKED BY: JRL
DRAWN BY: TLA
APPROVED BY: AMS
PROJECT LOCATED NEAR:
CONCRETE, WA
SECTION 14, TOWNSHIP 35N, RANGE 8E, W.M.

OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
COVER SHEET

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY
SHEET
1 OF 23

NOTES:

- HORIZONTAL DATUM COORDINATES: NAD 83-2011 BASIS OF BEARINGS PER FOUND STREET INTERSECTION MONUMENTATION OF CEDAR GROVE ON THE SKAGIT PLAT NO. 3877 ALONG BAKER LOOP ROAD N74°43'55"E.
- VERTICAL DATUM: NAVD '88 FEET PROJECT BENCHMARK AT CENTERLINE INTERSECTION MONUMENT OF BAKER LOOP ROAD AND CEDAR GROVE AVENUE. ELEVATION: 225.22' (NAVD 88)
- EASEMENT LOCATIONS AND AREAS ARE APPROXIMATE AND FOR REFERENCE ONLY. SEE FILED AND SIGNED LEGAL EASEMENT DOCUMENTS FOR EXACT LOCATIONS AND SIZES.

LEGEND:

- PARCEL LINE
- - - RIGHT OF WAY
- . - . - . TEMPORARY CONSTRUCTION EASEMENT (TCE)
- - - SECTION LINE
- EDGE OF PAVEMENT

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Public Works**
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FED. AID NO.: RCO 18-1480, NFWF: 0314.18.062608
DESIGNED BY: CHA
CHECKED BY: KAI
DRAWN BY: CHA
APPROVED BY: JGM

PROJECT LOCATED NEAR:
CONCRETE, WA
SECTION 14, TOWNSHIP 35N, RANGE 8E, W.M.

OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
HORIZONTAL CONTROL PLAN

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY
SHEET
2 OF 23



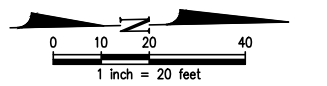
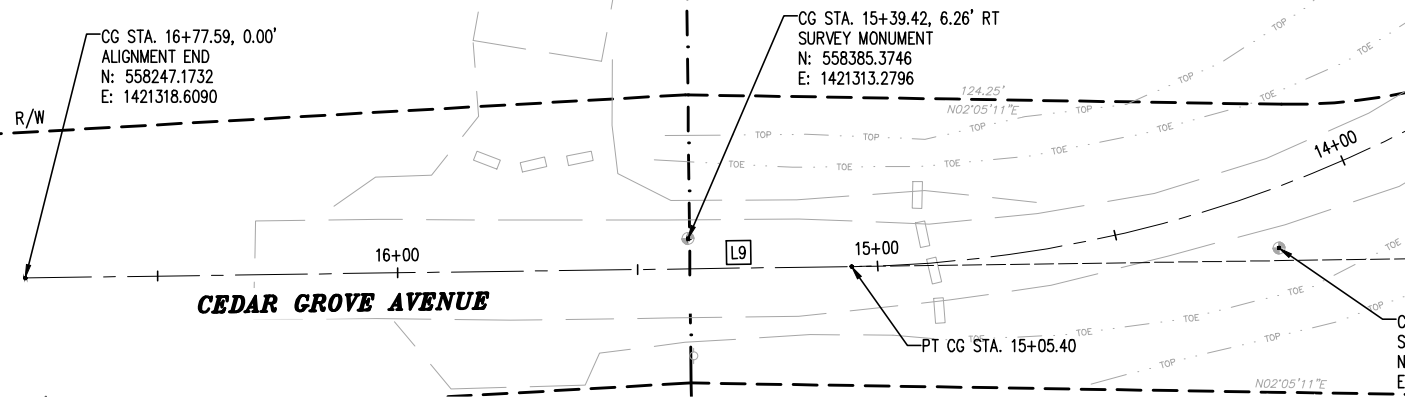
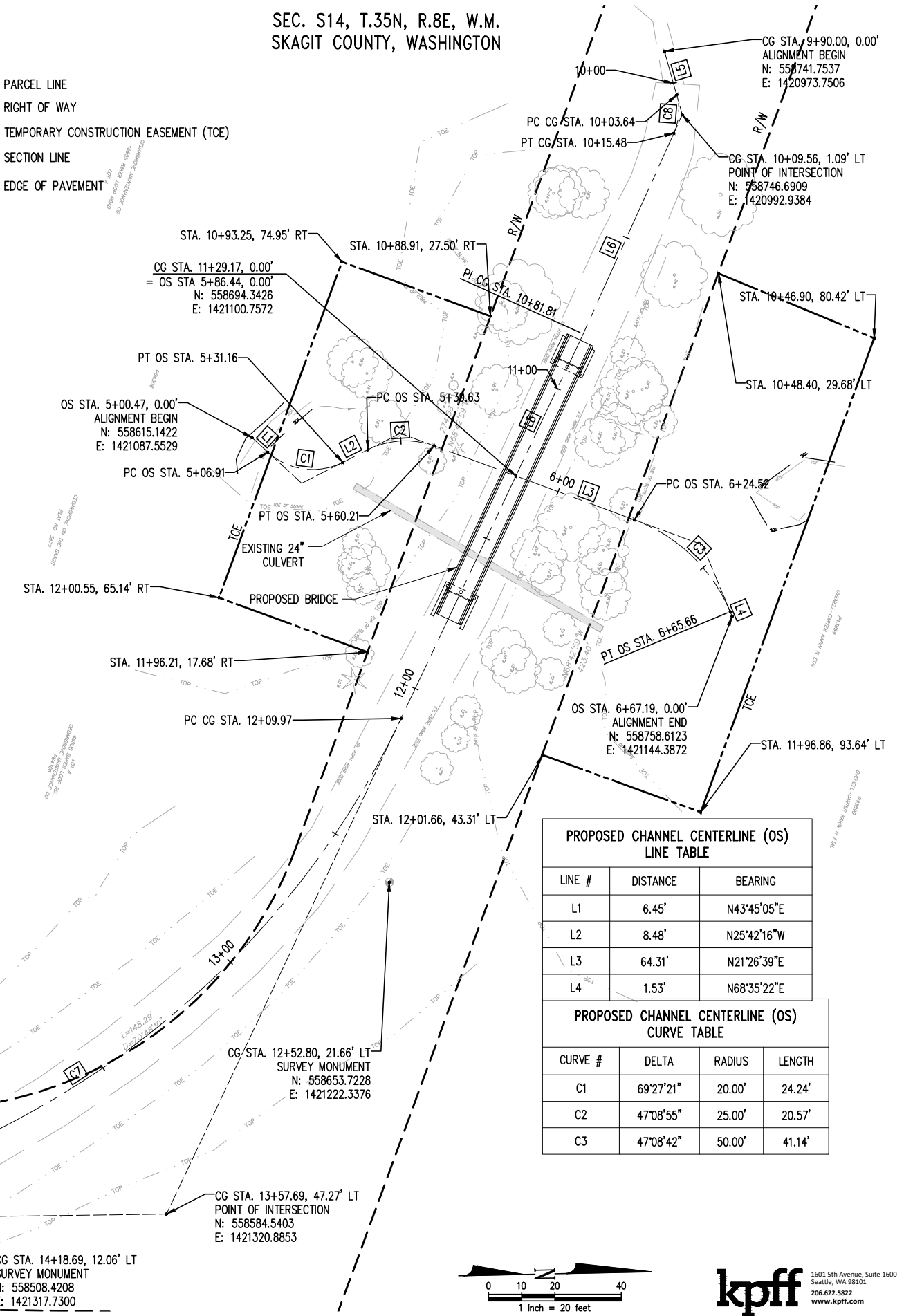
1-800-424-5555

LINE #	DISTANCE	BEARING
L5	13.64'	N75°34'14"E
L6	66.33'	S64°30'10"E
L8	128.16'	S63°29'22"E
L9	172.18'	S0°23'12"W

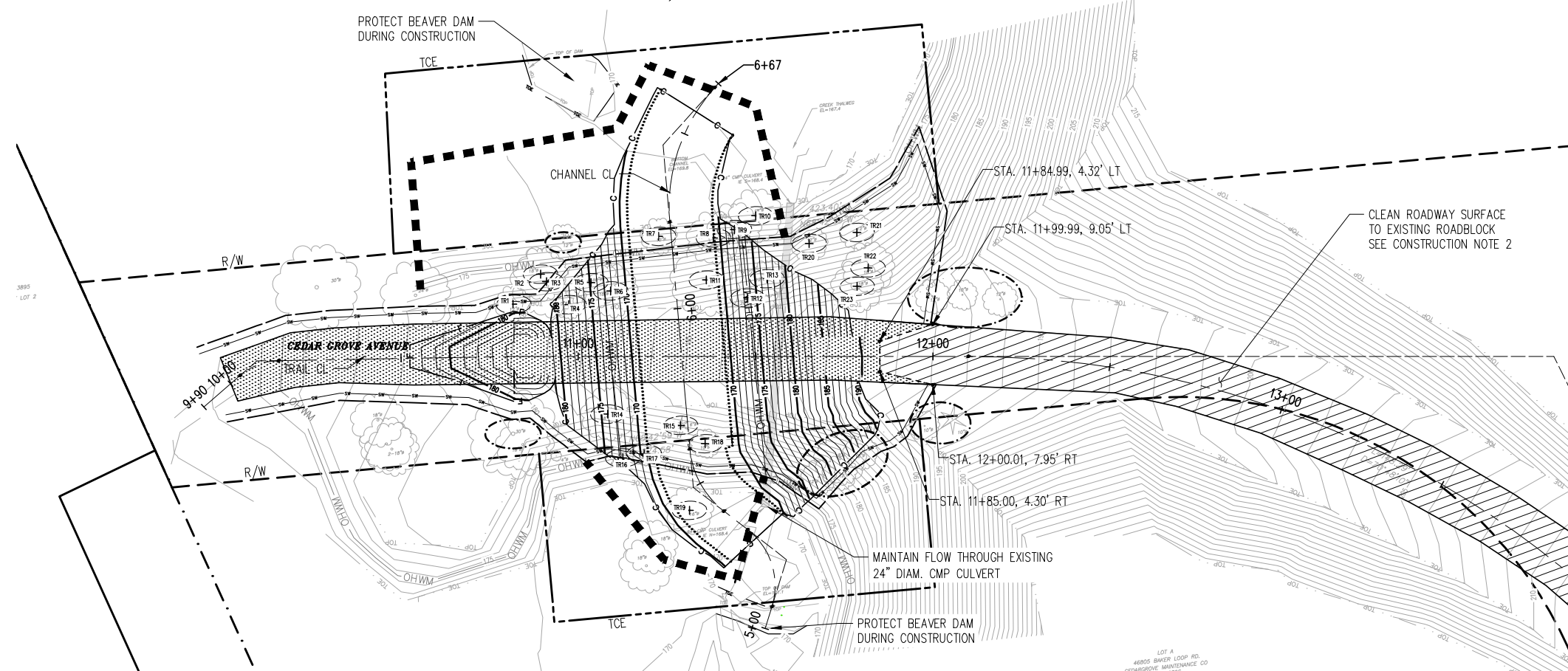
CURVE #	DELTA	RADIUS	LENGTH
C7	63°52'34"	265.00'	295.43'
C8	39°55'36"	17.00'	11.85'

LINE #	DISTANCE	BEARING
L1	6.45'	N43°45'05"E
L2	8.48'	N25°42'16"W
L3	64.31'	N21°26'39"E
L4	1.53'	N68°35'22"E

CURVE #	DELTA	RADIUS	LENGTH
C1	69°27'21"	20.00'	24.24'
C2	47°08'55"	25.00'	20.57'
C3	47°08'42"	50.00'	41.14'



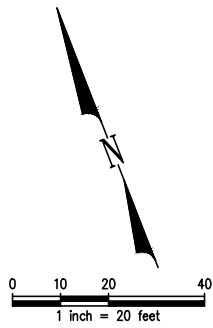
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SKAGIT COUNTY, WASHINGTON



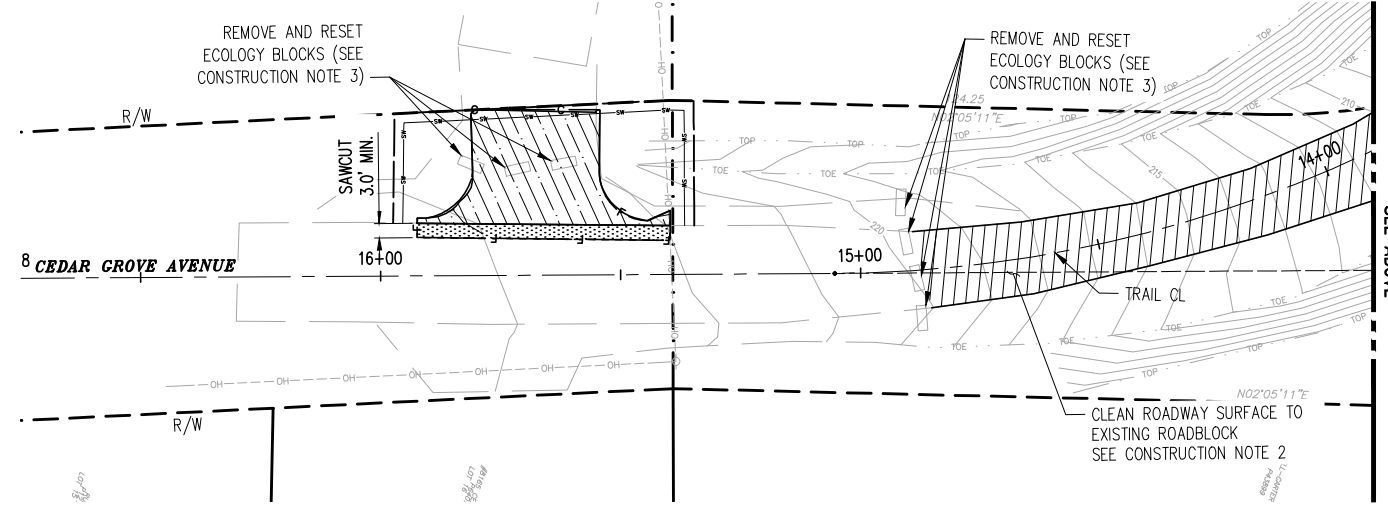
LEGEND:

	RIGHT OF WAY
	TEMPORARY CONSTRUCTION EASEMENT (TCE)
	SAWCUT
	HIGH-VISIBILITY FENCE / CLEARING AND GRUBBING LIMITS
	ISOLATION WALL
	STRAW WATTLE
	CUT LIMIT
	FILL LIMIT
	EX. ORDINARY HIGH WATER MARK
	EX. OVERHEAD POWER LINE
	REMOVE ASPHALT CONCRETE PAVEMENT, FULL DEPTH
	REMOVE GRAVEL ROADWAY, FULL DEPTH
	CLEAN ROADWAY SURFACE
	PROTECT TREE
	TREE REMOVAL ID (SEE TREE REMOVAL TABLE, SHEET 4)

MATCHLINE: STA 3+94.12
SEE BELOW



SITE PREP AND TEMPORARY EROSION AND SEDIMENT CONTROL PHASE 1



CONSTRUCTION NOTES:

1. UTILITIES SHOWN FOR INFORMATION ONLY, CONTRACTOR SHALL VERIFY PRIOR TO CONSTRUCTION ACTIVITIES.
2. CLEAR ROADWAY SURFACE OF SEDIMENTS & DEBRIS. COORDINATE DISPOSAL WITH OWNER.
3. RELOCATE ECOLOGY BLOCK TO ROADSIDE AS SHOWN ON PARKING LOT PAVING PLAN.
4. CONTRACTOR SHALL CALL LOCATE (1-800-424-5555) AND ENSURE MARKING HAS BEEN COMPLETED PRIOR TO ANY CONSTRUCTION ACTIVITIES.



1-800-424-5555

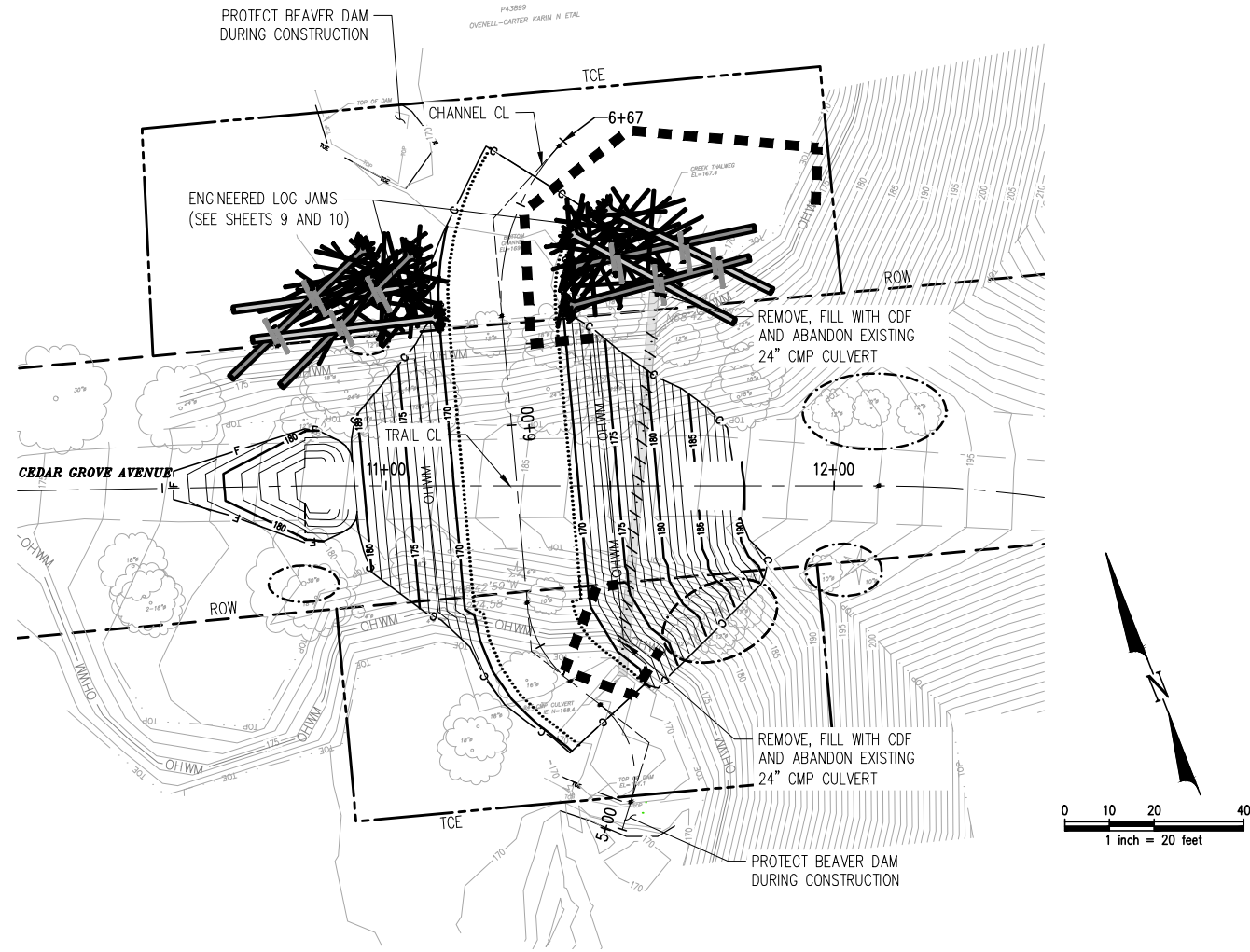
TEMPORARY EROSION AND SEDIMENT CONTROL GENERAL NOTES

1. THE IMPLEMENTATION OF THESE TESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THESE TESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED. THE REMOVAL OF ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UPON APPROVED COMPLETION OF THE PROJECT.
2. THE BOUNDARIES OF THE LIMITS OF SITE PREPARATION SHOWN ON THESE PLANS SHALL BE CLEARLY DEMARCATED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED.
3. THE TESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS OR VIOLATE APPLICABLE WATER STANDARDS.
4. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS DURING THE WET SEASON. DURING THE CONSTRUCTION PERIOD, THESE TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DOES NOT LEAVE THE SITE.
5. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH APPROVED BMP METHODS (E.G. SEEDING, MULCHING, PLASTIC COVERING, ETC.).
6. ANY AREA NEEDING BMP MEASURES NOT REQUIRING IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN TEN (10) DAYS.
7. ALL DISTURBED AREAS OUTSIDE OF THE CHANNEL OHWM SHALL BE STABILIZED WITH SEED AND MULCH BEFORE COMPLETION OF THE PROJECT.

Skagit County Public Works		1800 CONTINENTAL PLACE MOUNT VERNON, WA 98273-5625 (360) 336-9400 FAX (360) 336-9478	
PROJECT NO.: 2100080	FED. AID NO.: RCO 18-1490, NFWF: 0314.18.002608	DESIGNED BY: CHA	DRAWN BY: CHA
CHECKED BY: KAI	APPROVED BY: JGM	PROJECT LOCATED NEAR: CONCRETE, WA	
SECTION 14, TOWNSHIP 35N., RANGE 8E., W. M.			
OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT		SITE PREP AND T.E.S.C. PLAN	
1 INCH SCALE BAR ADJUST SCALE ACCORDINGLY			
SHEET			
3 OF 23			



SEC. 14, T. 35N., R. 8E., W.M.
SKAGIT COUNTY, WASHINGTON



TEMPORARY EROSION AND SEDIMENT CONTROL PHASE 2

LEGEND:

- RIGHT OF WAY
- - - - - TEMPORARY CONSTRUCTION EASEMENT (TCE)
- · · · · ABANDON CULVERT
- ■ ■ ■ ■ ISOLATION WALL
- C — CUT LIMIT
- F — FILL LIMIT
- OHWM — EXISTING ORDINARY HIGH WATER MARK
- OHWM — PROPOSED ORDINARY HIGH WATER MARK
- 180 — PROPOSED CONTOUR (MAJOR)
- — PROPOSED CONTOUR (MINOR)
- ○ ○ ○ ○ PROTECT TREE

CONSTRUCTION NOTES:

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CALL TWO (2)
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BEFORE YOU
DIG

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TREE REMOVAL TABLE (PLAN SHOWN IN PHASE I)			
ID	TYPE*	TRUNK SIZE	STATION/OFFSET
TR1	D	12"	CG STA. 10+81.55, 14.74' LT
TR2	D	18"	CG STA. 10+89.34, 23.19' LT
TR3	D	24"	CG STA. 10+91.02, 21.07' LT
TR4	D	10"	CG STA. 10+97.30, 14.60' LT
TR5	D	18"	CG STA. 11+03.53, 20.81' LT
TR6	D	18"	CG STA. 11+09.13, 18.46' LT
TR7	D	12"	CG STA. 11+22.66, 33.88' LT
TR8	D	18"	CG STA. 11+38.12, 33.42' LT
TR9	D	18"	CG STA. 11+44.03, 35.79' LT
TR10	D	18"	CG STA. 11+50.00, 39.68' LT
TR11	D	24"	CG STA. 11+36.10, 21.56' LT
TR12	D	20"	CG STA. 11+47.71, 16.47' LT
TR13	D	12"	CG STA. 11+53.25, 21.92' LT
TR14	D	18"	CG STA. 11+08.31, 16.29' RT
TR15	C	6"	CG STA. 11+28.86, 19.48' RT
TR16	D	4"	CG STA. 11+12.54, 28.66' RT
TR17	D	8"	CG STA. 11+18.59, 27.47' RT
TR18	D	10"	CG STA. 11+35.80, 24.65' RT
TR19	D	16"	CG STA. 11+31.35, 43.46' RT
TR20	D	12"	CG STA. 11+65.11, 31.85' LT
TR21	D	12"	CG STA. 11+78.59, 34.96' LT
TR22	D	18"	CG STA. 11+81.74, 74.96' LT
TR23	D	18"	CG STA. 11+78.63, 19.76' LT

*NOTE:
D = DECIDUOUS TREE
C = CONIFEROUS TREE

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**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJ**
SITE PREP AND T.E.S.C. PLAN

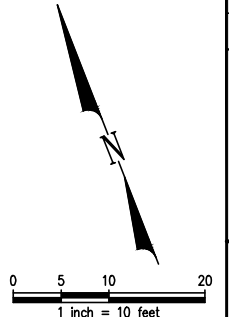
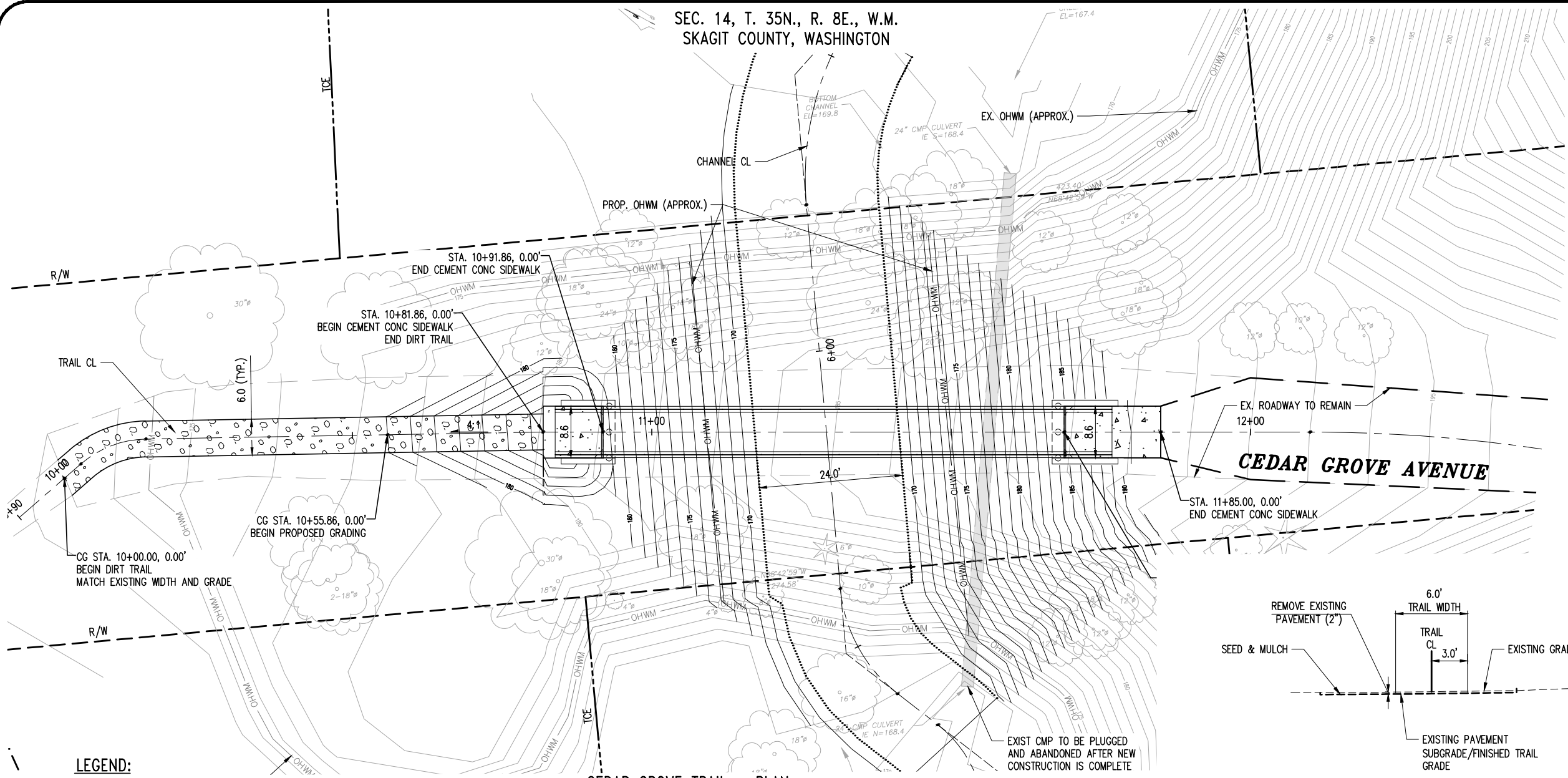
1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

SHEET
4 OF 23



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NO.	REVISIONS	DATE

Skagit County Public Works
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OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
TRAIL PLAN AND PROFILE

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY
SHEET
5 OF 23

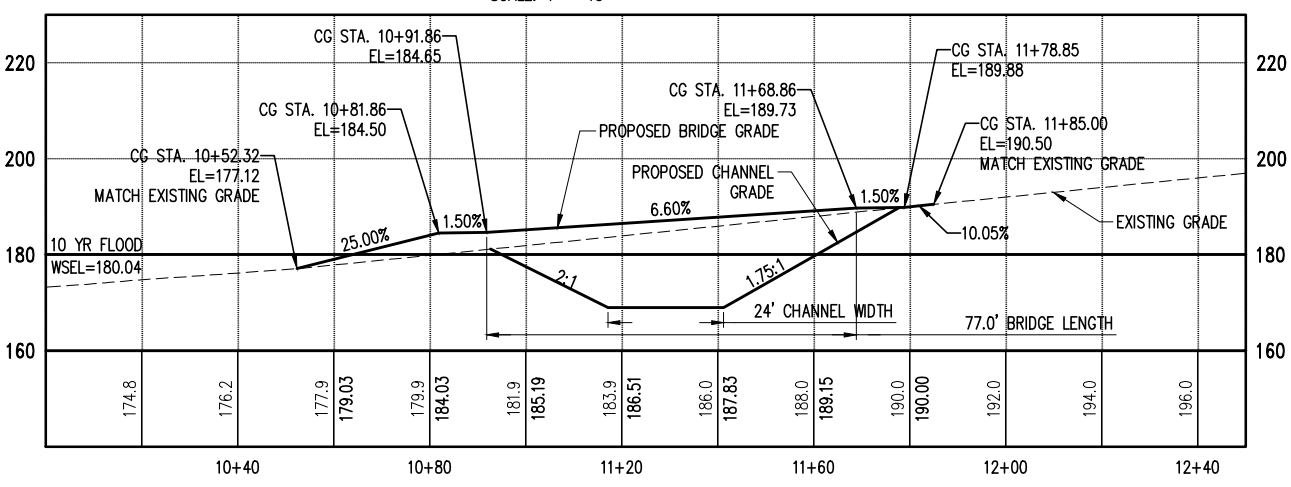
LEGEND:

- CENTERLINE
- - - RIGHT-OF-WAY
- - - TEMPORARY CONSTRUCTION EASEMENT (TCE)
- BOTTOM EDGE OF CHANNEL
- 180 --- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- [Pattern] CEMENT CONC SIDEWALK
- [Pattern] DIRT OR EXISTING CBSC TRAIL, SEE TYPICAL SECTIONS
- REMOVABLE BOLLARD TYPE 1 (PER WSDOT STD PLAN H-60.10-01)

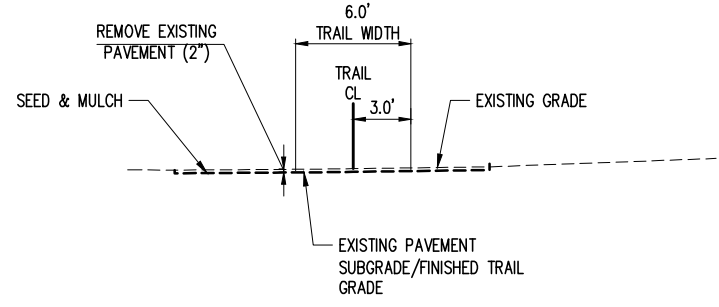


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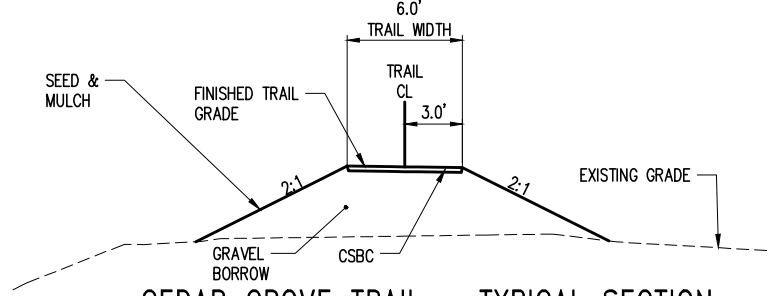
CEDAR GROVE TRAIL - PLAN
SCALE: 1" = 10'



CEDAR GROVE TRAIL - PROFILE
SCALE: 1" = 20'



CEDAR GROVE TRAIL - TYPICAL SECTION
SCALE: 1" = 5'
CG STA 10+00 TO 10+55.86

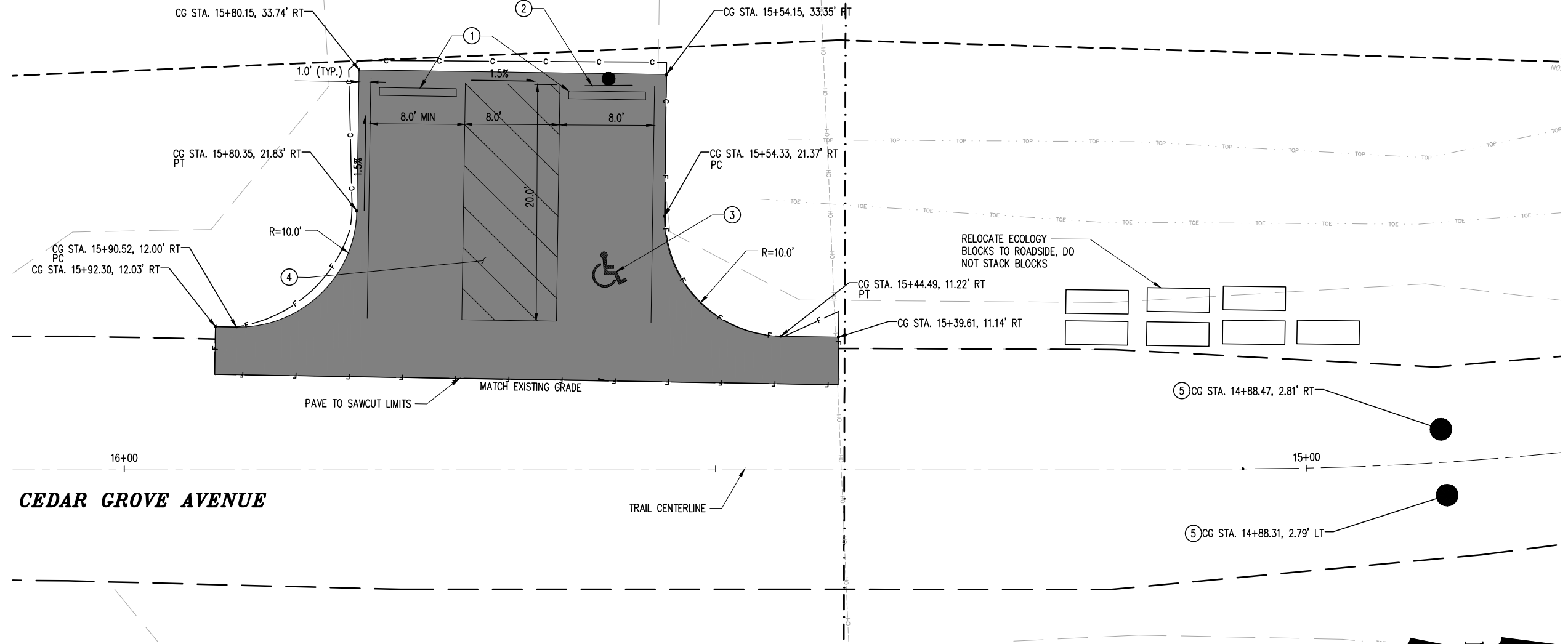


CEDAR GROVE TRAIL - TYPICAL SECTION
SCALE: 1" = 5'
CG STA 10+55.86 TO 10+81.86



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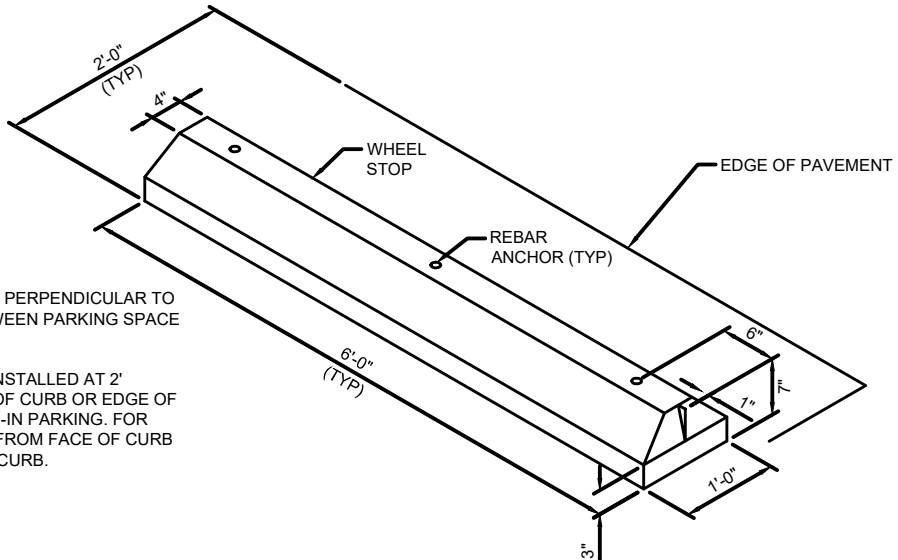
CONSTRUCTION NOTES:

- ① PRECAST CONCRETE WHEELSTOP, 6FT (SEE DETAIL)
- ② PERMANENT SIGNING
MOUNT SIGNAGE:
12"x18" WHITE/GREEN "RESERVED PARKING" (SEE MUTCD R7-8)

12"x6" WHITE/GREEN "VAN ACCESSIBLE" (SEE MUTCD R7-8A)
- ③ PAINT LEGEND, HANDICAP PARKING SPACE
- ④ 4" WHITE ADA VAN STALL LOAD/UNLOAD ZONE STRIPING
- ⑤ INSTALL BOLLARD TYPE 1

LEGEND:

- CENTERLINE
- - - RIGHT-OF-WAY
- 180 — PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- 3" COMMERCIAL HMA OVER 4" CSBC
- REMOVABLE BOLLARD TYPE 1 (PER WSDOT STD PLAN H-60.10-01)
- ECOLOGY BLOCK (RELOCATED BY COUNTY)
- PERMANENT SIGNING



NOTES:

1. INSTALL WHEEL STOP PERPENDICULAR TO AND CENTERED BETWEEN PARKING SPACE STRIPES.
2. WHEEL STOP TO BE INSTALLED AT 2' OFFSET FROM FACE OF CURB OR EDGE OF PAVEMENT FOR HEAD-IN PARKING. FOR ANGLED PARKING, 2' FROM FACE OF CURB AT END NEAREST TO CURB.

DETAIL - PRECAST CONCRETE WHEEL STOP
SCALE: NTS



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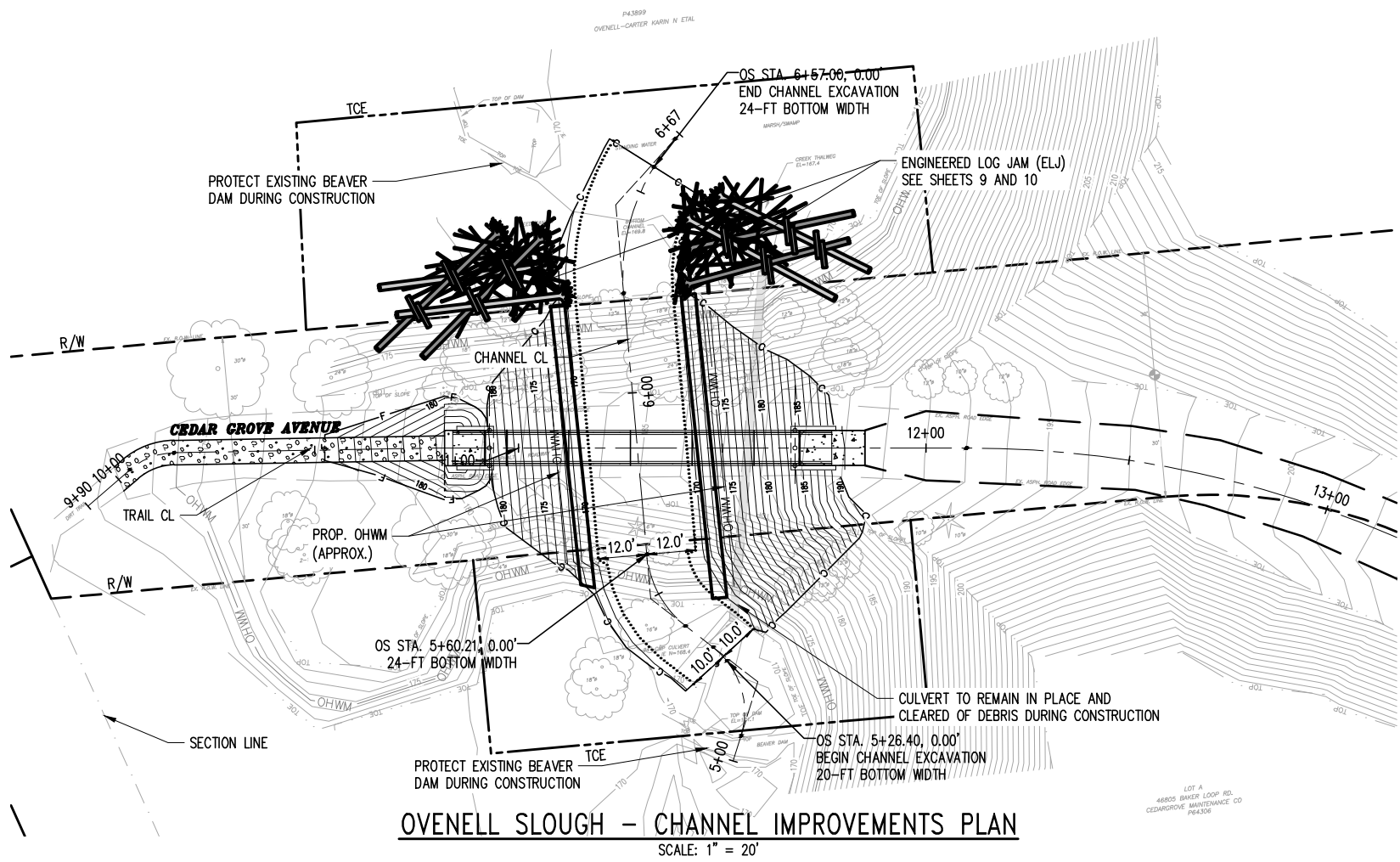
OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
PARKING LOT PAVING PLAN

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

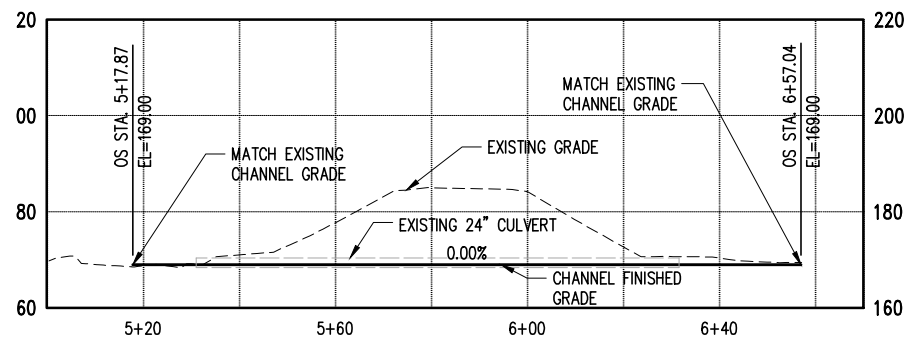


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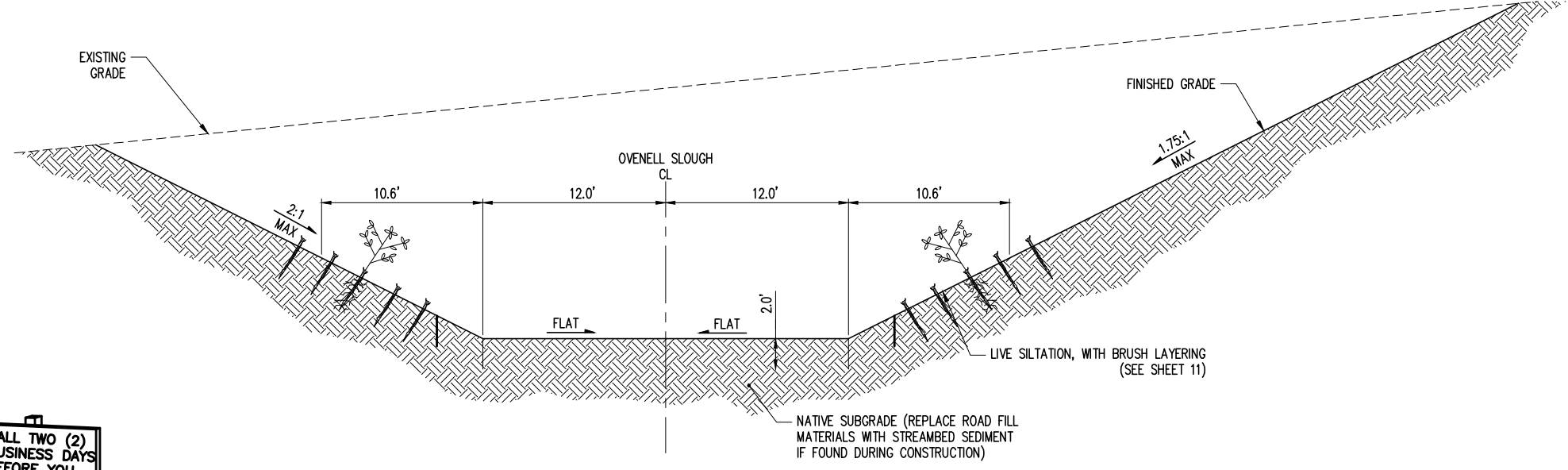
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SKAGIT COUNTY, WASHINGTON



OVENELL SLOUGH - CHANNEL IMPROVEMENTS PLAN
SCALE: 1" = 20'



OVENELL SLOUGH PROFILE
SCALE: 1" = 20'



OVENELL SLOUGH CHANNEL IMPROVEMENTS - TYPICAL SECTION
SCALE: 1" = 5'



1-800-424-5555

August 11, 2021 - 2:58 PM - 2\1000001-1000000\1000710 OVENELL SLOUGH-CEDAR GROVE\CADD\DESIGN\CS-CHL.DWG

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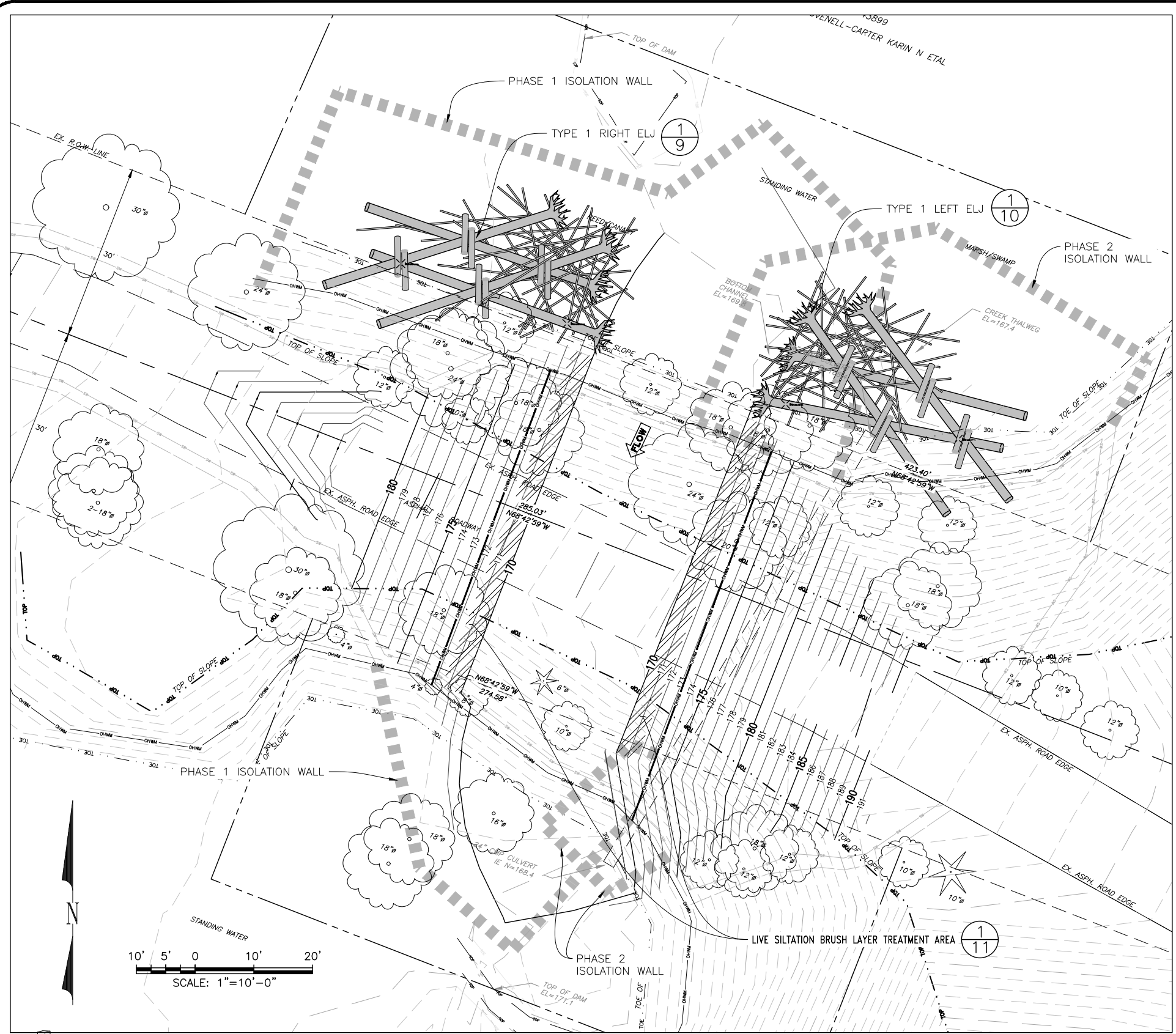
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DESIGNED BY: CHA
CHECKED BY: KAI
DRAWN BY: CHA
APPROVED BY: JGM
PROJECT LOCATED NEAR:
CONCRETE, WA
SECTION 14, TOWNSHIP 35N., RANGE 8E., W.M.

OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
CHANNEL IMPROVEMENT PLAN

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY



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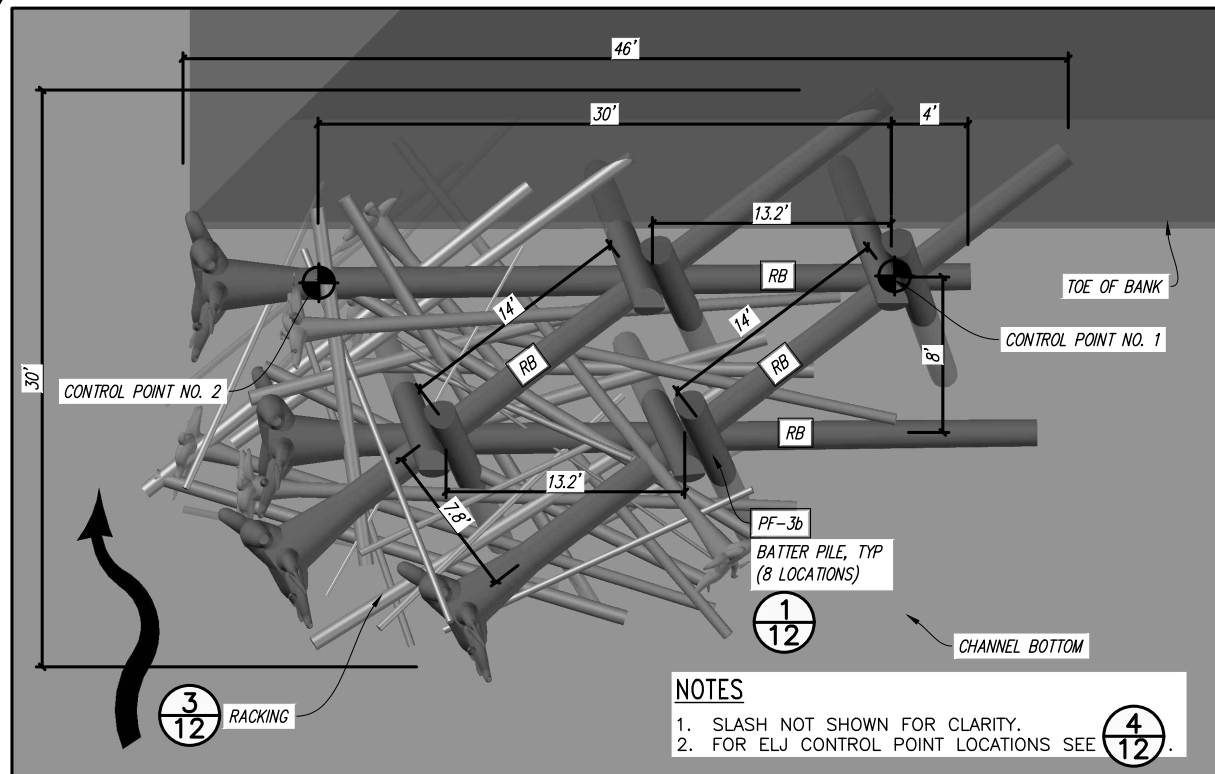
- ### LEGEND
- LIVE SILTATION BRUSH LAYER TREATMENT AREA
 - TEMPORARY CONSTRUCTION EASEMENT
 - ISOLATION WALL
 - EXISTING ORDINARY HIGH WATER MARK
 - PROPOSED ORDINARY HIGH WATER MARK
 - TYPE 1 ELJ RIGHT 1/9
 - TYPE 1 ELJ LEFT 1/10

- ### NOTES
1. MINOR MODIFICATIONS TO RESTORATION HABITAT ELEMENTS (TYPE 1 ELJS AND LIVE SILTATION) ARE ANTICIPATED TO ACCOMMODATE JOB SITE DIMENSIONS AND CONDITIONS. THE OWNER, ENGINEER, AND APPROPRIATE REGULATORY AGENCIES SHALL BE NOTIFIED OF ANY OWNER-AUTHORIZED CHANGE RESULTING IN MORE THAN A 10% DESIGN CHANGE OF PROPOSED FOOTPRINT OR THAT SIGNIFICANTLY AFFECTS THE INTENDED BENEFIT OR FUNCTION OF A PROJECT ELEMENT.
 2. EVERY REASONABLE EFFORT SHALL BE MADE TO CONDUCT THE ACTIVITIES SHOWN IN THESE PLANS, IN A MANNER THAT MINIMIZES THE ADVERSE IMPACT ON WATER QUALITY, FISH AND WILDLIFE, AND THE NATURAL ENVIRONMENT.
 3. ALL WORK WILL BE IN COMPLIANCE WITH PERMIT CONDITIONS ISSUED BY PERTINENT REGULATORY AGENCIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE COPIES OF ALL PERMITS ON THE JOB SITE, UNDERSTAND AND COMPLY WITH ALL PERMIT CONDITIONS.
 4. ALL WORK THAT DISTURBS THE SUBSTRATE, BANK, OR SHORE OF A WATERS OF THE STATE THAT CONTAINS FISH LIFE SHALL BE CONDUCTED ONLY DURING THE WORK PERIOD FOR THAT WATERBODY AS ALLOWED BY RELEVANT HYDRAULIC WORK PERMITS. THOSE PORTIONS OF THE PROJECT WORK THAT OCCUR OUTSIDE OR ABOVE THE ORDINARY HIGH WATER MARK (ABOVE THE USACE JURISDICTIONAL LINE) ARE NOT SUBJECT TO THE WORK PERIODS DESCRIBED ABOVE UNLESS SPECIFIED IN THE RELEVANT PERMITS.
 5. ALL ACTIVITIES THAT INVOLVE WORK ADJACENT TO, OR WITHIN THE WETTED CHANNEL SHALL, AT ALL TIMES, REMAIN CONSISTENT WITH ALL APPLICABLE WATER QUALITY STANDARDS; EFFLUENT LIMITATION; AND STANDARDS OF PERFORMANCE, PROHIBITIONS, PRETREATMENT STANDARDS, AND MANAGEMENT PRACTICES ESTABLISHED PURSUANT TO THE CLEAN WATER ACT OR PURSUANT TO APPLICABLE STATE AND LOCAL LAW.
 6. IF AT ANY TIME, AS A RESULT OF PROJECT ACTIVITIES, FISH ARE OBSERVED IN DISTRESS, A FISH KILL OCCURS, OR WATER QUALITY PROBLEMS DEVELOP (INCLUDING EQUIPMENT LEAKS OR SPILLS), OPERATIONS SHALL CEASE AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY.
 7. IF, DURING CONSTRUCTION, ARCHAEOLOGICAL REMAINS ARE ENCOUNTERED, CONSTRUCTION IN THE VICINITY SHALL BE HALTED, AND THE STATE OFFICE OF HISTORIC PRESERVATION AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY.
 8. SOILS AT THE SITE CONTAIN SOFT SILT, CLAY AND HIGH GROUNDWATER AND MAY REQUIRE EQUIPMENT MATS TO SUPPORT CONSTRUCTION EQUIPMENT. CONSOLIDATION OF THE GROUND SURFACE SHOULD BE EXPECTED. CONTRACTOR IS RESPONSIBLE FOR DETERMINING NEED FOR, DESIGNING, PROCURING, INSTALLING, USING AND REMOVING ANY EQUIPMENT MATS NEEDED TO ALLOW FOR EQUIPMENT OPERATION SUFFICIENT TO CONSTRUCT THE PROJECT.

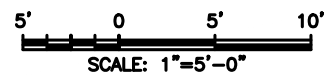
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RESTORATION HABITAT SITE PLAN

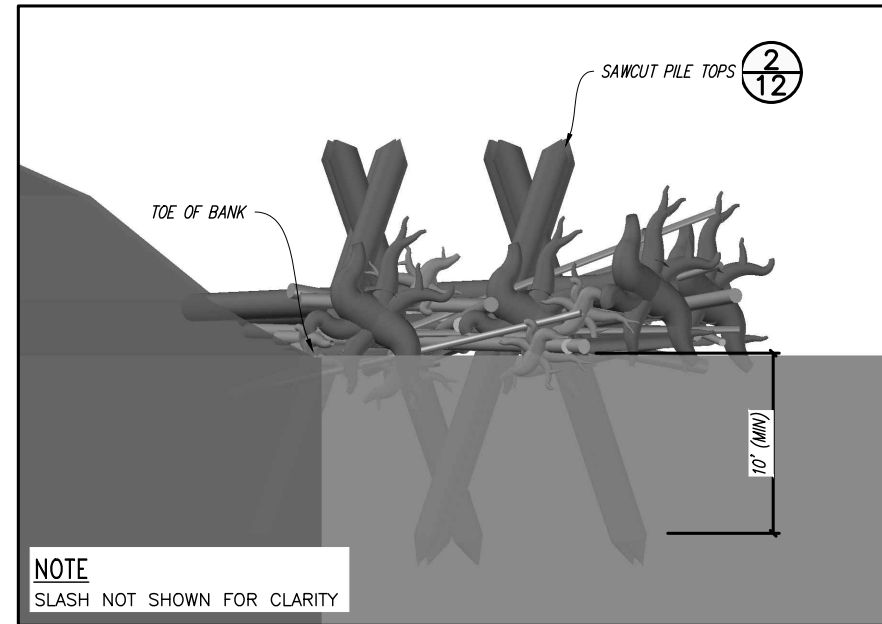
SKAGIT COUNTY PUBLIC WORKS		
1800 CONTINENTAL PLACE MOUNT VERNON, WA 98273-5625 (360) 336-9400 FAX (360) 336-9478		
		
PROJECT NO.: 2100080	FED. AID NO.: RCO 18-1490, NPMF 0314.18.062608	DESIGNED BY: AL
DRAWN BY: GM	CHECKED BY: JS	APPROVED BY: RE
PROJECT LOCATED NEAR: CONCRETE, WA SECTION 14, TOWNSHIP 35N, RANGE 8E, W. 1M.		
OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT	RESTORATION HABITAT SITE PLAN	
1 INCH SCALE BAR ADJUST SCALE ACCORDINGLY		
SHEET 8 OF 23		



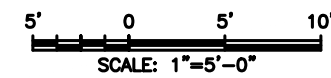
TYPE 1 RIGHT ELJ PLAN
SCALE: 1" = 5'



- NOTES**
1. SLASH NOT SHOWN FOR CLARITY.
 2. FOR ELJ CONTROL POINT LOCATIONS SEE **4/12**.



TYPE 1 RIGHT ELJ PROFILE
SCALE: 1" = 5'



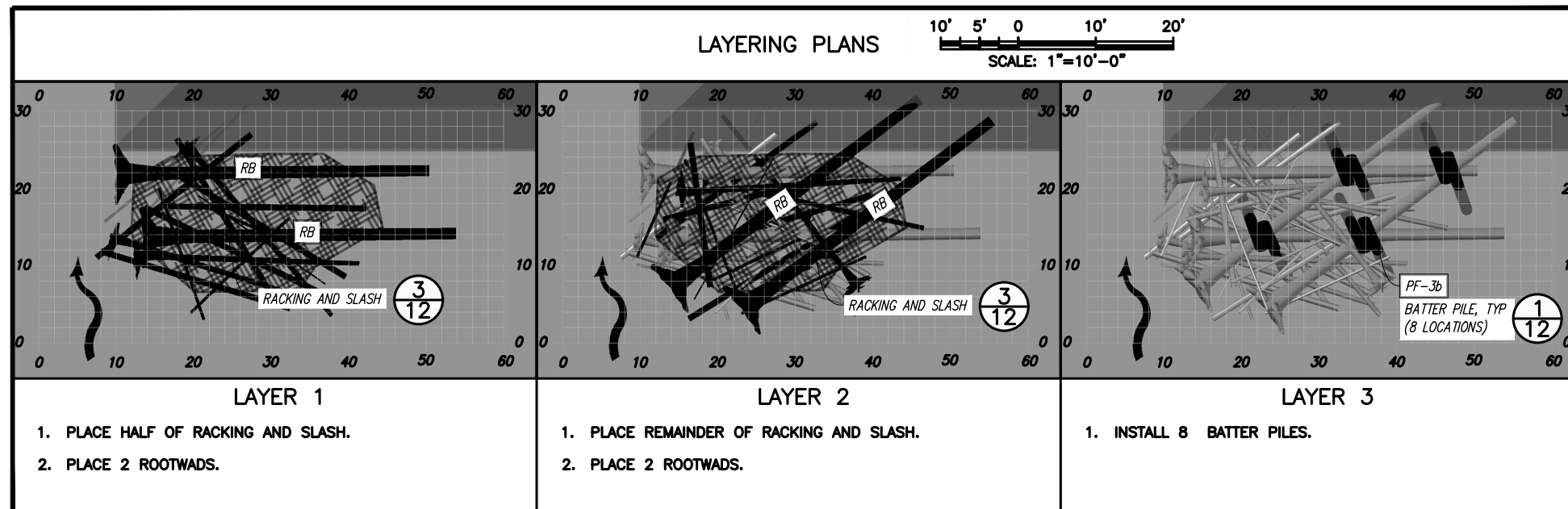
NOTE
SLASH NOT SHOWN FOR CLARITY

NOTES

1. ALL PILES SHALL BE DOUGLAS FIR OR WESTERN RED CEDAR. PILES SHALL BE FREE FROM DEFECTS, CRACKS, AND SPLITTING AT THE TIME OF INSTALLATION.
2. ALL FRAMING LOGS SHALL BE DOUGLAS FIR OR WESTERN RED CEDAR.
3. LOGS WITH ROOTWADS SHALL HAVE A DIAMETER AS SHOWN MEASURED AT DBH, DEFINED AS 4.5 FEET ABOVE GROUND WHEN TREE WAS STANDING.
4. THE CONTRACTOR SHALL PLACE LOGS AS ILLUSTRATED ON THIS SHEET UNLESS DIRECTED OTHERWISE BY THE CONTRACTING OFFICER.
5. SOIL EXCAVATED DURING CONSTRUCTION SHALL BE REPLACED TO ORIGINAL GROUND FOLLOWING PLACEMENT OF ALL LOGS.
6. RACKING LOGS SHALL CONSIST OF TREES WITH BRANCHES HAVING A BASE DIAMETER AND LENGTH PER THE LOG SCHEDULE. TOTAL NUMBER OF RACKING LOGS PER STRUCTURE SHALL BE PER LOG SCHEDULE. RACKING MATERIAL SHALL OCCUR WITH EACH LAYER TO ENSURE THAT RACKING MATERIAL EXTENDS THROUGH THE STRUCTURE AND IS PINNED BY SUBSEQUENT LAYERS. SLASH MATERIAL SHALL CONSIST OF LIMBS AND BRANCHES AND A BASE DIAMETER PER THE LOG SCHEDULE. TOTAL SLASH MATERIAL QUANTITY SHALL BE PER THE LOG SCHEDULE. SLASH MATERIAL SHALL BE PLACED AS DIRECTED BY THE CONTRACTING OFFICER.
7. EXISTING WOODY MATERIAL AT THE STRUCTURE CONSTRUCTION SITE SHALL BE MOVED OR PROTECTED FROM CONSTRUCTION ACTIVITIES AND THEN INCORPORATED INTO THE STRUCTURE AS DIRECTED BY THE CONTRACTING OFFICER.

TYPE 1 ELJ MATERIALS SCHEDULE					
LOG ID	DIA* (INCHES)	LENGTH ** (FEET)	ROOTWAD (Y/N)	QUANTITY PER STRUCTURE	NOTES
RB	20	40	Y	4	FRAMING LOG
PF-3b	16	25	N	8	INSTALL BATTER PILES AT 15 TO 20 DEGREES FROM VERTICAL
RACKING	6-12	20-30	Y/N***	30	
SLASH				50 CY	

* MINIMUM DIAMETER AT BREAST HEIGHT, NOT INCLUDING BARK THICKNESS
 ** TOTAL LENGTH INCLUDING ROOTWAD
 *** APPROXIMATELY 50% SHALL HAVE ROOTWADS



TYPE 1 RIGHT ELJ DETAILS
SCALE: AS NOTED **1/9**

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NO.	REVISIONS	DATE

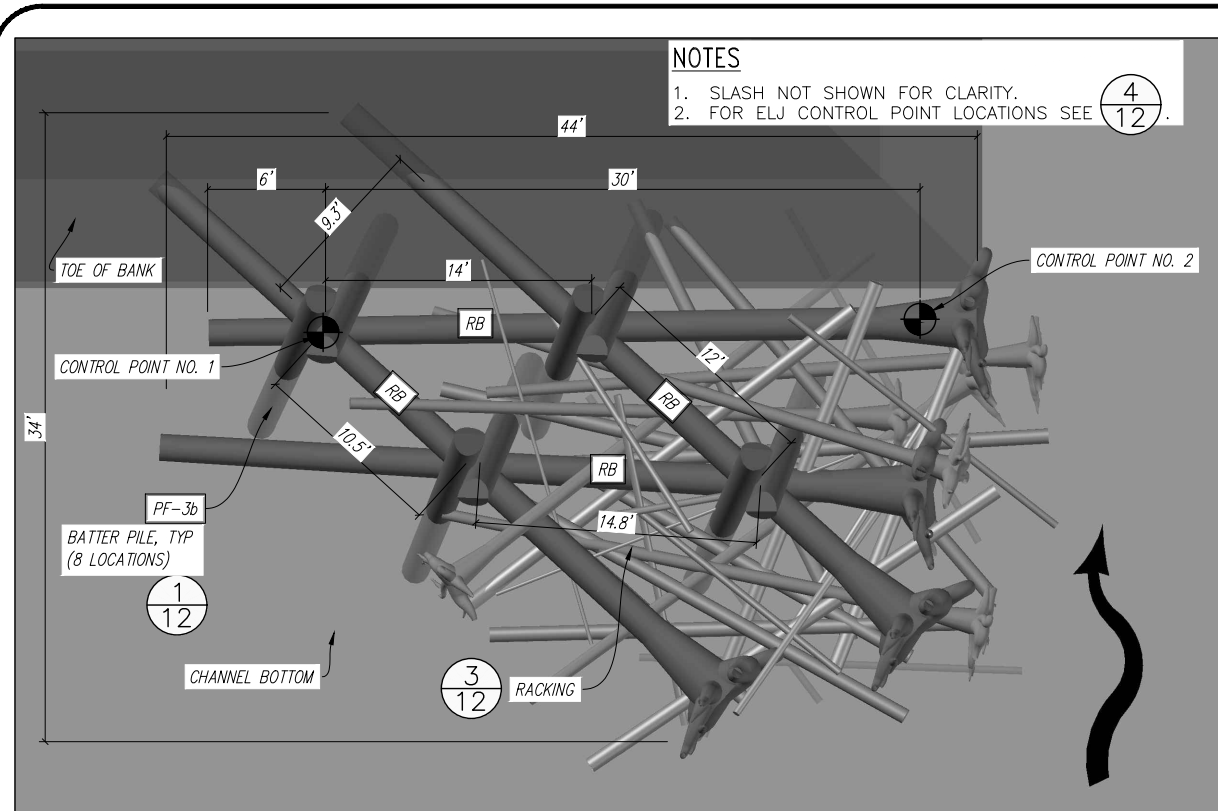


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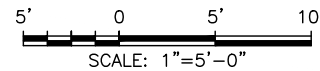
OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
TYPE 1 RIGHT ELJ

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

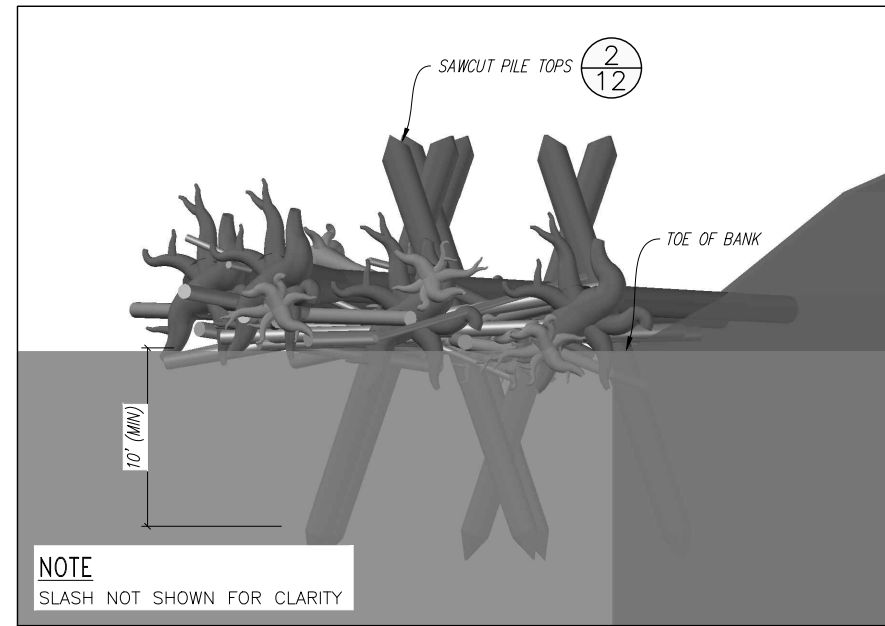
SHEET
9 OF 23



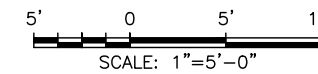
TYPE 1 LEFT ELJ PLAN
SCALE: 1" = 5'



- NOTES**
1. SLASH NOT SHOWN FOR CLARITY.
 2. FOR ELJ CONTROL POINT LOCATIONS SEE 4
12.



TYPE 1 LEFT ELJ PROFILE
SCALE: 1" = 5'

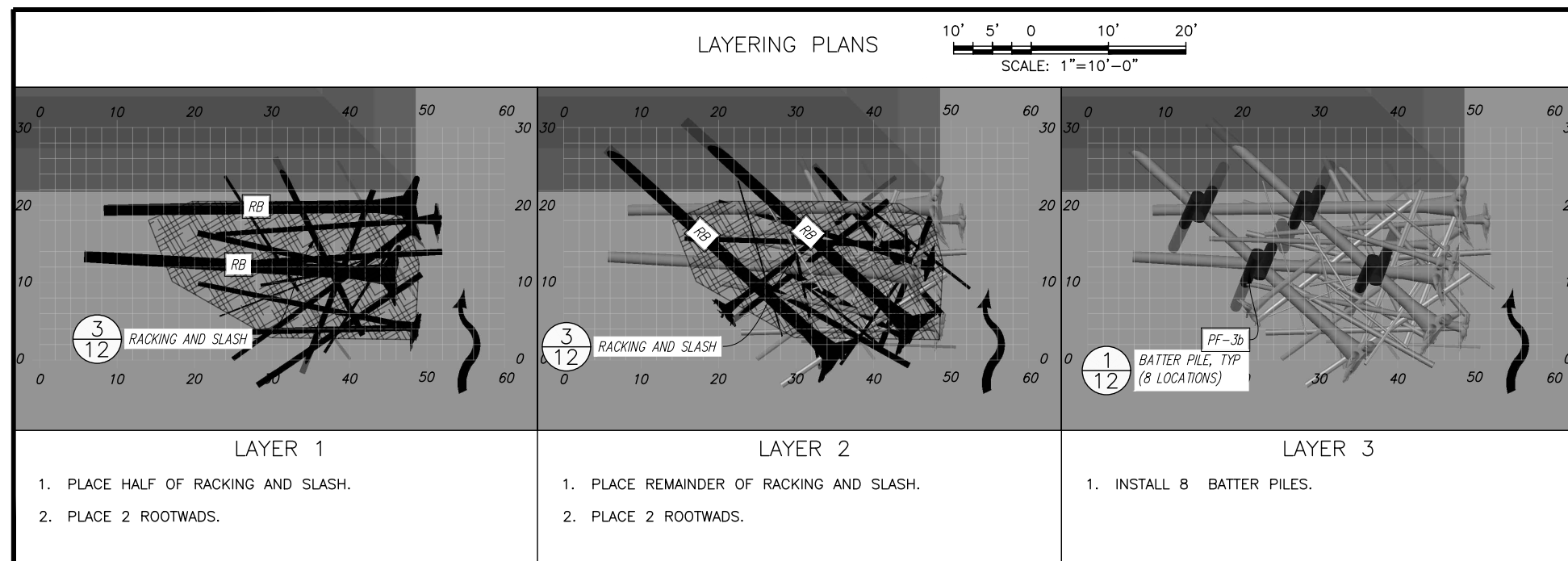


NOTES

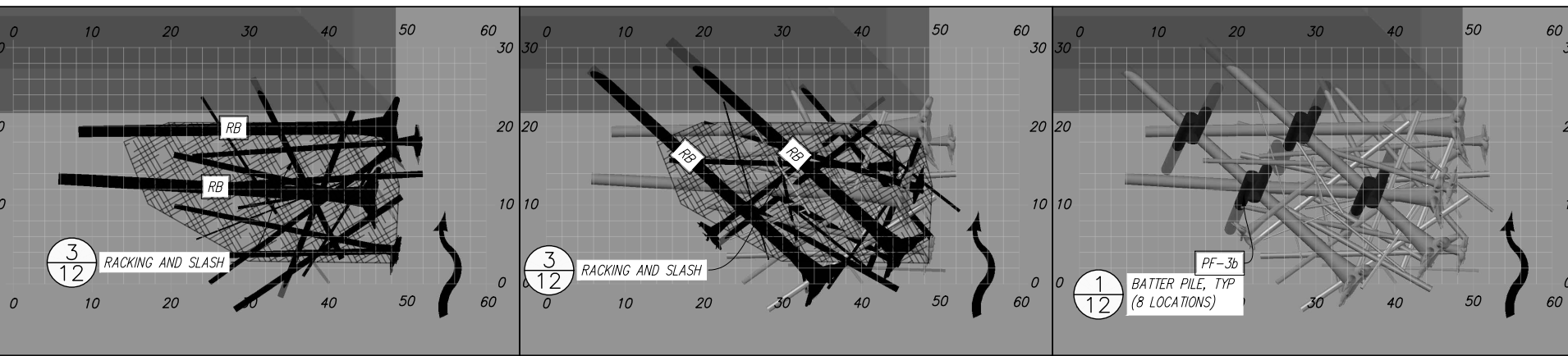
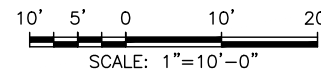
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SLASH				50 CY	

* MINIMUM DIAMETER AT BREAST HEIGHT, NOT INCLUDING BARK THICKNESS
 ** TOTAL LENGTH INCLUDING ROOTWAD
 *** APPROXIMATELY 50% SHALL HAVE ROOTWADS



LAYERING PLANS

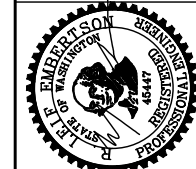


TYPE 1 LEFT ELJ DETAIL
SCALE: AS NOTED 1
10

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NO.	REVISIONS	DATE

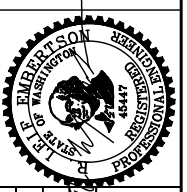


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 SECTION 14, TOWNSHIP 35N, RANGE 8E, W. 1M.

OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
TYPE 1 LEFT ELJ

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

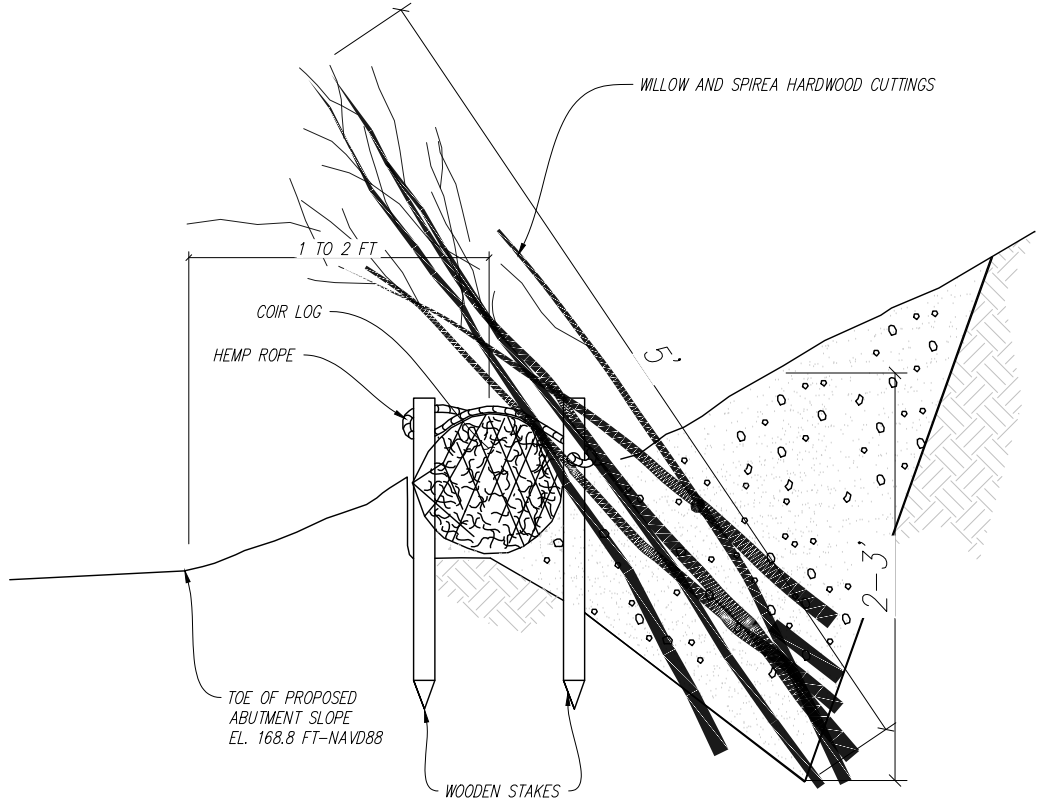
NO.	REVISIONS	DATE



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 PROJECT LOCATED NEAR:
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 SECTION 14, TOWNSHIP 35N, RANGE 8E, W. 1/4

**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJECT**
 LIVE SILTATION DETAIL

1 INCH SCALE BAR
 ADJUST SCALE ACCORDINGLY



CROSS SECTION
 NOT TO SCALE

NOTES

- CUTTINGS FOR THE LIVE SILTATION SHALL BE TAKEN AS CLOSE TO INSTALLATION TIME AS POSSIBLE SO THAT INTERIM STORAGE OF CUTTINGS IS NOT NECESSARY. THIS WILL REQUIRE CLOSE COORDINATION WITH THE ONSITE CONSTRUCTION TEAM. QUANTITY HARVESTED SHALL TOTAL MINIMUM OF 10-12 WILLOW CUTTINGS AND 8 HARDHACK (SPIRAEA DOUGLASSII) CUTTINGS PER LINEAL FOOT OF PROPOSED INSTALLED LIVE SILTATION. FOR 150' OF LIVE SILTATION HARVEST:
 - 1650+ WILLOW CUTTINGS IN A ROUGHLY 1:1 RATIO OF SITKA WILLOW (SALIX SITCHENSIS) TO SCOULER'S WILLOW (SALIX SCOULERIANA);
 - AND 1200 HARDHACK CUTTINGS.
- WILLOW CUTTINGS SHALL BE 5' (+/- 6") IN LENGTH, AVERAGING 3/4-1 1/2" IN DIAMETER. HARDHACK CUTTINGS SHALL BE AS CLOSE TO 5' IN LENGTH AS POSSIBLE. ALL CUTTINGS SHALL BE LOCALLY SOURCED WITHIN WATERSHED AND SIMILAR ELEVATION, FRESHLY CUT FROM 1-2 YEAR OLD LIVE WOOD, AND HARVESTED AND HANDLED PER NRCS TECHNICAL BULLETIN GUIDANCE (IDAHO NRCS TECHNICAL BULLETIN #23, 2007).
- PRIOR TO INSTALLATION, ALL CUTTINGS SHALL BE SOAKED FOR A MINIMUM OF 24 HRS, AND UP TO 1 WEEK. THE ENTIRE CUTTING SHALL BE COVERED WITH WATER (SEE PHOTO 1).
- ONCE ON SITE, STORE IN A COOL, SHADED AREA FOR AS SHORT A TIME AS POSSIBLE PRIOR TO PLANTING. DO NOT LET CUTTINGS GET WARM IN THE SUN OR DRY OUT AT ANY TIME.
- CONSTRUCT A V-SHAPED TRENCH PARALLEL TO TOE OF STREAMBANK LANDWARD OF OHWM APPROXIMATELY 2-3' DEEP TO ACCOMMODATE CUTTING LENGTH. SIDE SLOPE OF TRENCH SHALL BE APPROXIMATELY 45 DEGREES.
- INSTALL MIN. 12" DIAMETER COIR LOG, WITH A MINIMUM GRADE OF 400 GRAMS, ALONG TOE OF STREAMBANK AT EDGE OF TRENCH AND SECURE WITH 30" LENGTH WOODEN STAKES ON WATERSIDE AND LANDSIDE APPROXIMATELY EVERY 3.5 FT. STAKES MAY BE POUNDED THROUGH COIR LOG. THE COIR LOG SHALL BE EMBEDDED APPROXIMATELY HALF ITS DIAMETER INTO THE TRENCH. ADDITIONALLY, TIE COIR LOG TO WOODEN STAKES WITH SEVERAL LOOPS OF 0.25 INCH DIAMETER (6 MM) HEMP ROPE PER WSDOT DETAIL.
- TIE THE ENDS OF ADJACENT COIR LOGS TOGETHER WITH ROPE TO KEEP THEM AS ONE UNIT. BEND THE ENDS OF THE FIRST AND LAST COIR LOG TOWARD THE SHORE AND DIG ENDS INTO THE BANK TO AVOID WATER GETTING BEHIND THE COIR LOG.
- LAY A THICK LAYER OF CUTTINGS IN THE TRENCH SO THAT NO MORE THAN 1/3 OF THE CUTTING IS OUT OF THE TRENCH OVERHANGING THE COIR LOG AND CHANNEL, AND THE REMAINING 2/3 IS IN THE TRENCH. ALL CUTTINGS SHALL BE INSTALLED WITH THE TOPS ORIENTED TOWARDS THE CHANNEL - BUDS POINTING UPWARD. CUTTING DENSITY IN THE TRENCH SHALL BE ROUGHLY 10-12 BRANCHES OF WILLOW AND 8 OF SPIREA PER LINEAL FOOT OF TRENCH (SEE PHOTOS 2, 3, 4, 5).
- WHEN CUTTINGS HAVE BEEN INSTALLED IN TRENCH, BACKFILL OVER THE BRANCHES WITH NATIVE EXCAVATED SOIL MAKING SURE TO WATER IN THE CUTTINGS INTERMITTENTLY AS BACKFILLING OCCURS TO ENSURE GOOD SOIL TO CUTTING CONTACT AND TO MOISTEN DEEPER SOILS (SEE PHOTOS 3 AND 4).
- COMPLETE FINISH GRADE FOR SMOOTH TRANSITION WITH EXISTING BANK AND FINAL GRADE OF CONSTRUCTION ZONE. SECURE TOP SURFACE WITH LARGE GRAVEL OR OTHER EROSION CONTROL MATERIAL AS SPECIFIED (SEE PHOTOS 4 AND 5).



PHOTO 1: SOAKING CUTTING AT OR NEARBY INSTALLATION SITE



PHOTO 2: BRUSH LAYER PRIOR TO BACKFILLING AT TOE OF SLOPE (OTHER ASPECTS OF THIS EXAMPLE DIFFER FROM THE DETAIL, E.G. ROCK BASE INSTEAD OF COIR LOG)



PHOTO 3: WATERING IN AS BACKFILLING OCCURS (OTHER ASPECTS OF THIS EXAMPLE DIFFER FROM THE DETAIL, E.G. ANGLE OF BRUSH LAYER AND USE OF COIR CLOTH)



PHOTO 4: EXAMPLE OF LIVE SILTATION BRUSHLAYER BEING BACKFILLED, WITH ADDITION OF VERTICAL BRUSHLAYER ON LANDWARD SIDE OF TRENCH



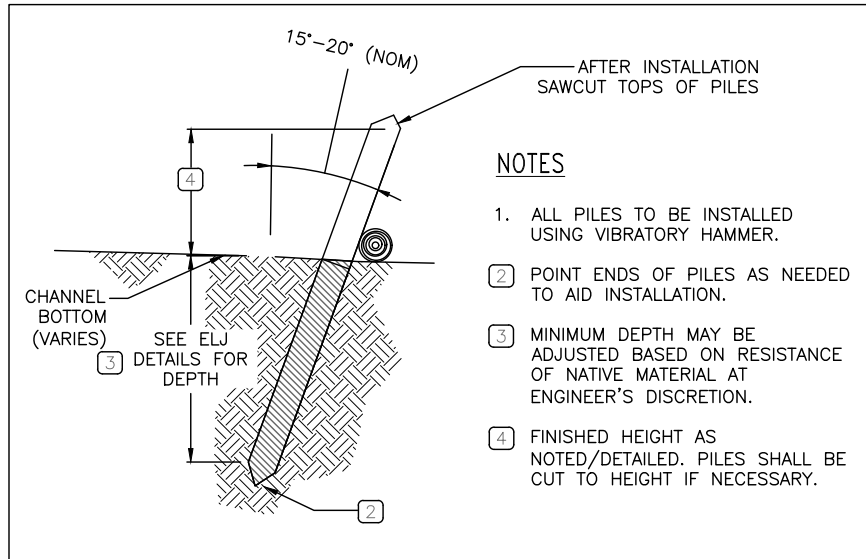
PHOTO 5: EXAMPLE OF BACKFILLED TRENCH IN SLIGHTLY DIFFERENT SETTING (OTHER ASPECTS OF THIS EXAMPLE DIFFER FROM THE DETAIL, E.G. NO COIR LOG AND USE OF COIR CLOTH)



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LIVE SILTATION BRUSH LAYER
 NOT TO SCALE

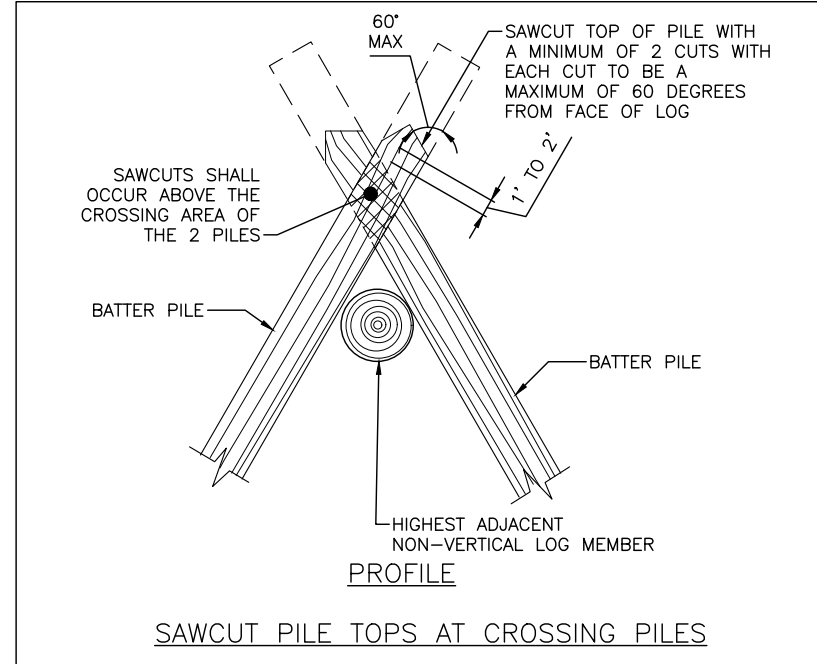




NOTES

1. ALL PILES TO BE INSTALLED USING VIBRATORY HAMMER.
2. POINT ENDS OF PILES AS NEEDED TO AID INSTALLATION.
3. MINIMUM DEPTH MAY BE ADJUSTED BASED ON RESISTANCE OF NATIVE MATERIAL AT ENGINEER'S DISCRETION.
4. FINISHED HEIGHT AS NOTED/DETAILED. PILES SHALL BE CUT TO HEIGHT IF NECESSARY.

BATTER PILE INSTALLATION 1
12
NOT TO SCALE



SAWCUT PILE TOPS 2
12
NOT TO SCALE



NOTES

1. PLACEMENT OF RACKING AND SLASH MATERIAL IS INTENDED TO OCCUR THROUGHOUT STRUCTURE CONSTRUCTION.
2. PLACEMENT OF A MAJORITY OF RACKING AND SLASH MATERIAL UPON STRUCTURE COMPLETION IS NOT DESIRABLE.
3. CONTRACTOR SHALL PLACE RACKING AND SLASH MATERIAL AS SHOWN ON THESE PLANS OR AS DIRECTED BY THE CONTRACTING OFFICER. THE GENERAL INTENT IS TO INCORPORATE A MAJORITY OF THE RACKING AND SLASH MATERIAL INTO THE STRUCTURE SUCH THAT RETENTION LOGS WORK TO SECURE THE PLACED MATERIAL. RACKING MATERIAL AND SLASH PLACEMENT SHALL BE CONCENTRATED ON THE UPSTREAM FACE OF THE STRUCTURE WITH LOGS CLOSEST TO THE STRUCTURE FACE ORIENTED ROUGHLY PERPENDICULAR TO FLOW DIRECTION.

RACKING AND SLASH MATERIAL PLACEMENT 3
12
NOT TO SCALE

<i>ELJ CONTROL POINTS</i>		
<i>DESCRIPTION</i>	<i>NORTHING</i>	<i>EASTING</i>
ELJ RIGHT CONTROL POINT NO 1	558748	1421067
ELJ RIGHT CONTROL POINT NO 2	558738	1421096
ELJ LEFT CONTROL POINT NO 1	558718	1421162
ELJ LEFT CONTROL POINT NO 2	558724	1421133

ELJ CONTROL POINTS 4
12
NOT TO SCALE



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**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJECT**
ELJ DETAILS

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

SHEET
12 OF 23

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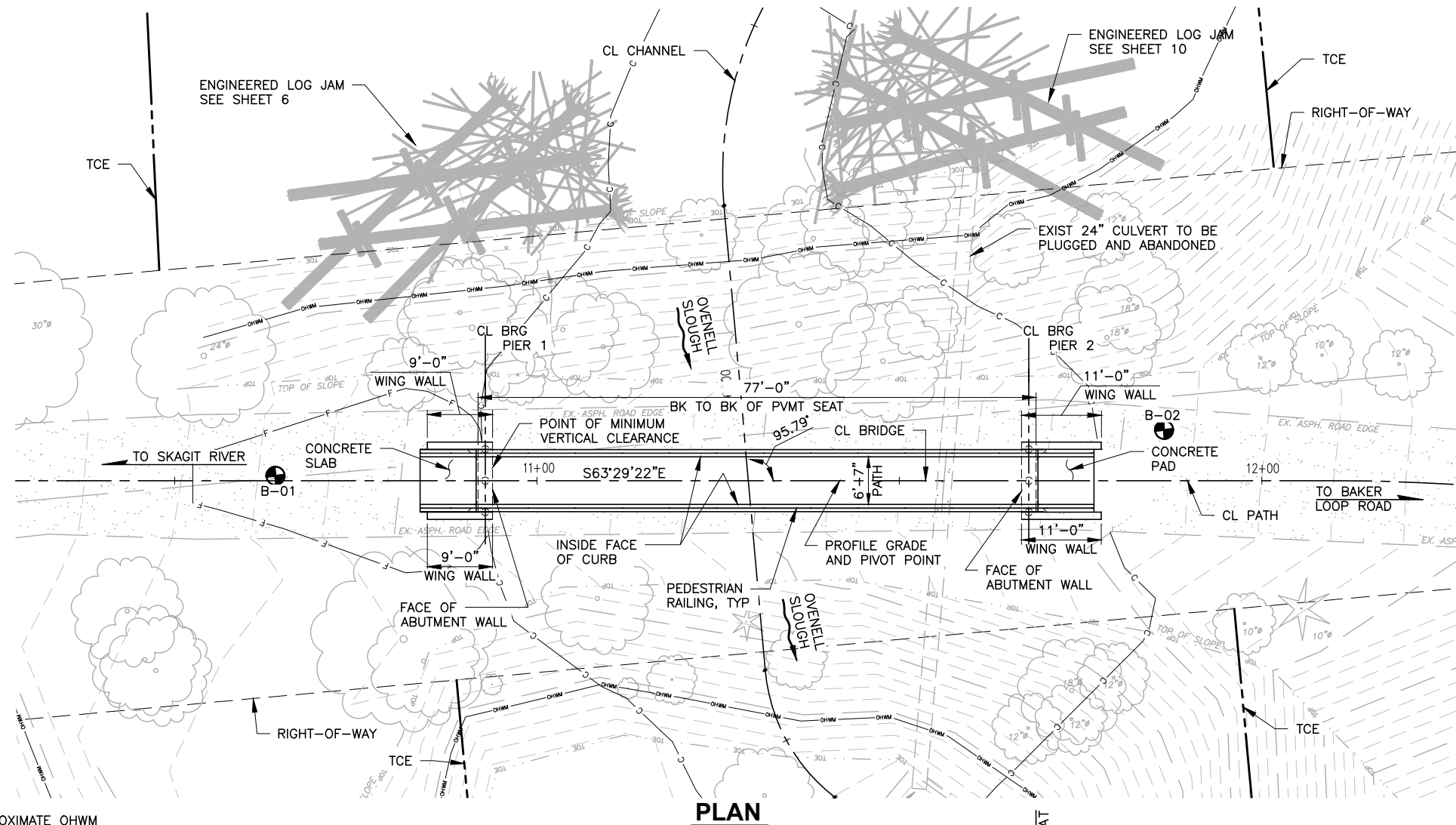


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SECTION 14, TOWNSHIP 35N, RANGE 8E, W.M.

**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJECT**
BRIDGE PLAN AND ELEVATION

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

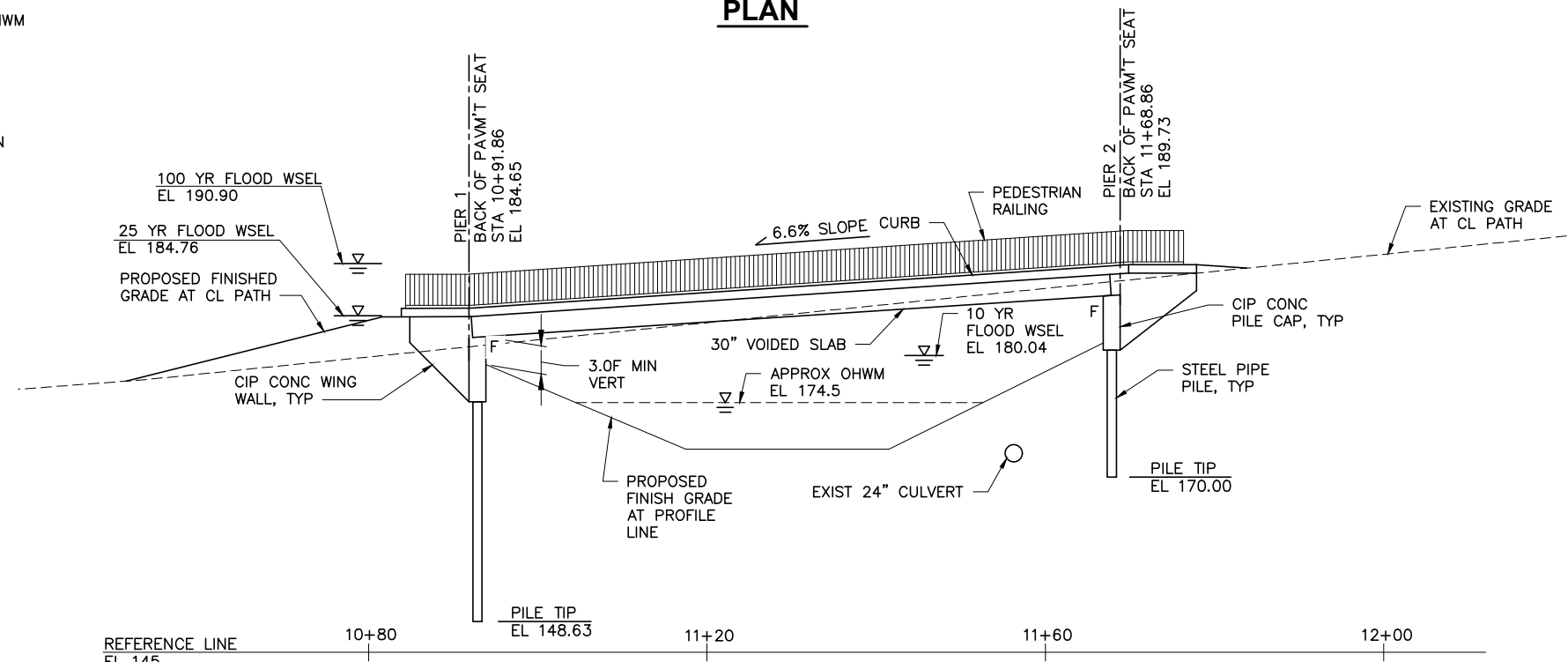
SHEET
13 OF 23



PLAN

LEGEND

- OHWM — APPROXIMATE OHWM
- c — TOP OF CUT
- F — TOP OF FILL
- — RIGHT-OF-WAY
- ⊙ BORING LOCATION



ELEVATION

**PRECAST PRESTRESSED
SLAB CONCRETE
GIRDERS - 30" VOIDED SLAB UNIT
LIVE LOADING: 90 PSF**

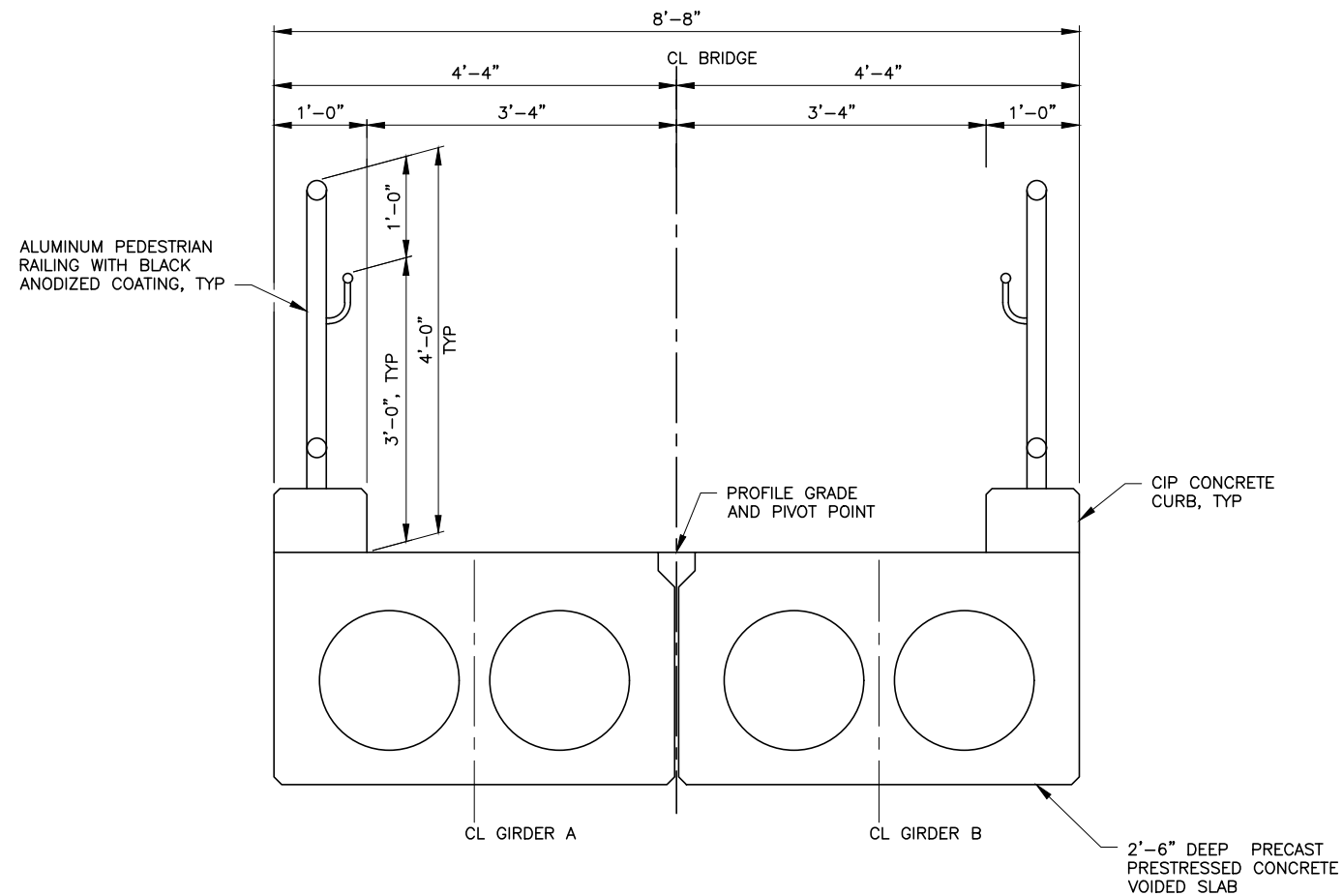


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DATUM: NAVD88



TYPICAL SECTION

Scale: 1" = 1'-0"

NOTE: LOOKING AHEAD ON STATION

GENERAL NOTES

- ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION" DATED 2021.
- THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES (AASHTO, 2015).
- SEISMIC DESIGN OF THE STRUCTURE HAS BEEN COMPLETED USING

PGA	=	0.266G
SITE CLASS	=	D
- DESIGN LOADS:

DEAD LOAD:	
CONCRETE	-155 PCF
STEEL	-490 PCF
LIVE LOAD:	
PEDESTRIAN	-90 PSF
SURCHARGE	-50 PSF UNIFORM LATERAL PRESSURE
EARTH PRESSURE:	
AT REST	-55 PCF EQUIVALENT FLUID PRESSURE
SEISMIC SURCHARGE	-12H PSF UNIFORM LATERAL PRESSURE
LIQUEFACTION	-500 PCF EQUIVALENT FLUID PRESSURE
HYDRAULIC PRESSURE:	
TRANSVERSE	-5.6 PSF
BUOYANCY	-62.4D PSF
- UNLESS OTHERWISE SHOWN IN THE PLANS THE CONCRETE COVER MEASURED FROM THE FACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING STEEL SHALL BE THREE INCHES AT THE BOTTOM AND SIDES OF THE CAPS, TWO INCHES AT THE TOP OF THE CAPS, AND ONE AND A HALF INCHES AT ALL OTHER LOCATIONS.
- CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000, UNO.
- ALL STEEL REINFORCEMENT SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATIONS SECTION 6-02.3(24).
- ALL EXTERIOR CORNERS SHALL HAVE A 3/4" CHAMFER AND ALL INTERIOR CORNERS SHALL HAVE A 3/4" FILLET UNO.
- ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
- STEEL PIPE PILES SHALL BE DRIVEN TO AN ULTIMATE BEARING CAPACITY OF 400 KIPS PER PILE AND TIP ELEVATIONS SHOWN IN THE PLANS.
- FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL ENGINEERING REPORT BY ASPECT CONSULTING, LLC, DATED AUGUST 4, 2021.
- HYDRAULIC AND SCOUR DESIGN IS BASED ON THE OVENELL SLOUGH FISH PASSAGE FINAL DESIGN TECHNICAL MEMORANDUM BY NATURAL SYSTEMS DESIGN, DATED AUGUST 3, 2021.

ABBREVIATIONS

A/C	ASPHALT CONCRETE	MAX	MAXIMUM
ABT	ABOUT	MB	MAILBOX
BH	BORE HOLE PATCH	MIN	MINIMUM
BM	BENCH MARK	NF	NEAR FACE
BMP	BEST MANAGEMENT PRACTICE	NTS	NOT TO SCALE
BRG	BEARING	OC	ON CENTER
BOT	BOTTOM	OHWM	ORDINARY HIGH WATER MARK
CG	CENTER OF GRAVITY	OPP	OPPOSITE
CIP	CAST-IN-PLACE	PAVM'T	PAVEMENT
CJ	CONSTRUCTION JOINT	PCF	POUNDS PER CUBIC FEET
CL, C	CENTERLINE	PEN	PENETRATION
CLR	CLEAR	PL	PLATE
CMP	CORRUGATED METAL PIPE	P.S.	PRESTRESSED
CO.	COUNTY	PSF	POUNDS PER SQUARE FOOT
CONC	CONCRETE	PT	POINT
CONST	CONSTRUCTION	REINF	REINFORCEMENT
CONT	CONTINUOUS	ROW	RIGHT OF WAY
CSBC	CRUSHED SURFACING BASE COURSE	SHLDR	SHOULDER
EA	EACH	SPA	SPACING
EL, ELEV	ELEVATION	SPEC	SPECIFICATION
EP	EXISTING EDGE PAVED ROAD	STA	STATION
EQ	EQUAL	STD	STANDARD
ESC	EROSION SEDIMENT CONTROL	STR	STRAIGHT
EST	ESTIMATED	SW	SIDEWALK
EXC	EXCAVATION	SYM, SYMM	SYMMETRICAL
EXIST	EXISTING	TEMP	TEMPORARY
FF	FAR FACE	T.O.	TOP OF
GIR	GIRDER	TYP	TYPICAL
HMA	HOT MIX ASPHALT	UNO	UNLESS NOTED OTHERWISE
HORIZ	HORIZONTAL	VERT	VERTICAL
HWY	HIGHWAY	WHS	WELDED HEADED STUD
INCL	INCLUDING	WP	WORK POINT
JT	JOINT		



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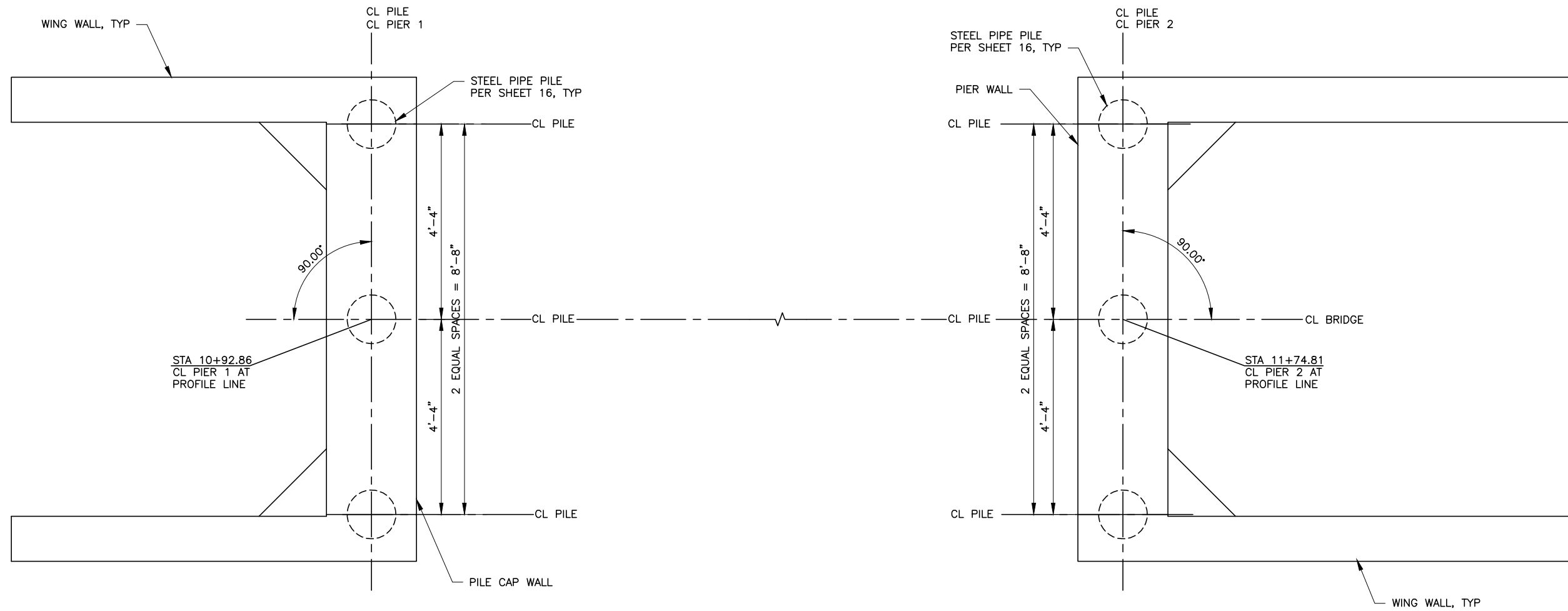
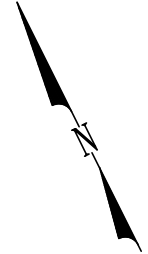
NO.	REVISIONS	DATE



PROJECT NO.: 2100080
FED. AID NO.: RCO: 18-1490, NFAWF: 0314.18.062608
DESIGNED BY: DLK DRAWN BY: TLA
CHECKED BY: JRL APPROVED BY: AMS
PROJECT LOCATED NEAR:
CONCRETE, WA
SECTION 14, TOWNSHIP 35N, RANGE 8E, W.M.

**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJECT**
TYPICAL SECTION AND GENERAL NOTES

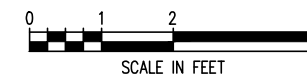
1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY
SHEET
14 OF 23



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



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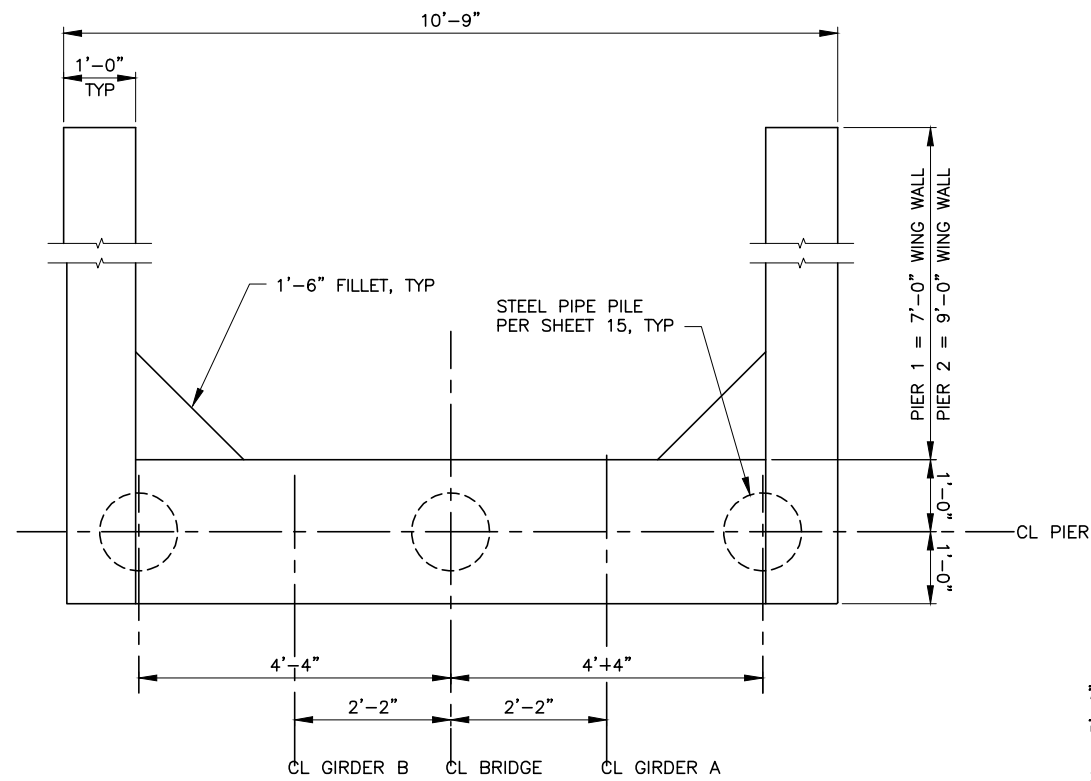
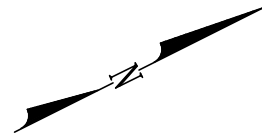


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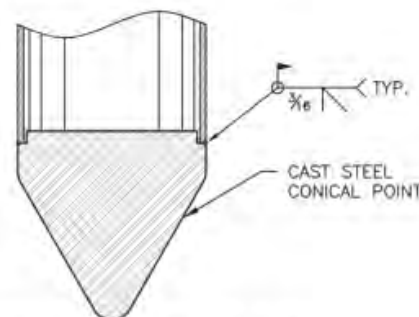
**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJECT**
FOUNDATION LAYOUT

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

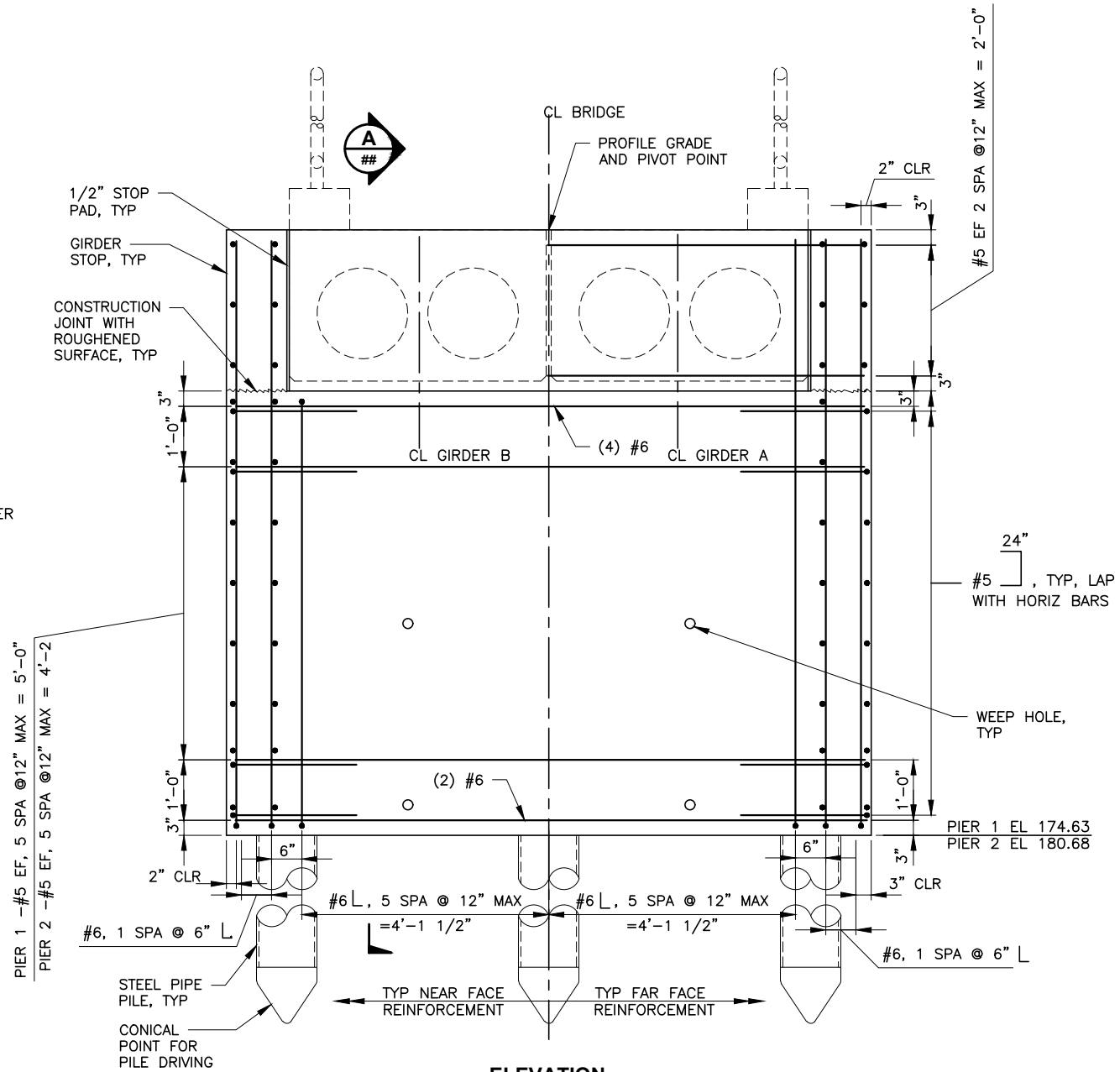
SHEET
15 OF 23



PLAN
Scale: 3/4" = 1'-0"
PIER 1 SHOWN, PIER 2 SIMILAR



CLOSED SHOE DETAIL



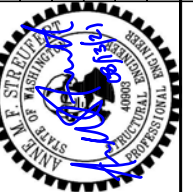
ELEVATION
Scale: 3/4" = 1'-0"

PIER 1 SHOWN, PIER 2 SIMILAR
NOTE: LOOKING BACK ON STATION



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**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJECT**
PIER PLAN AND ELEVATION

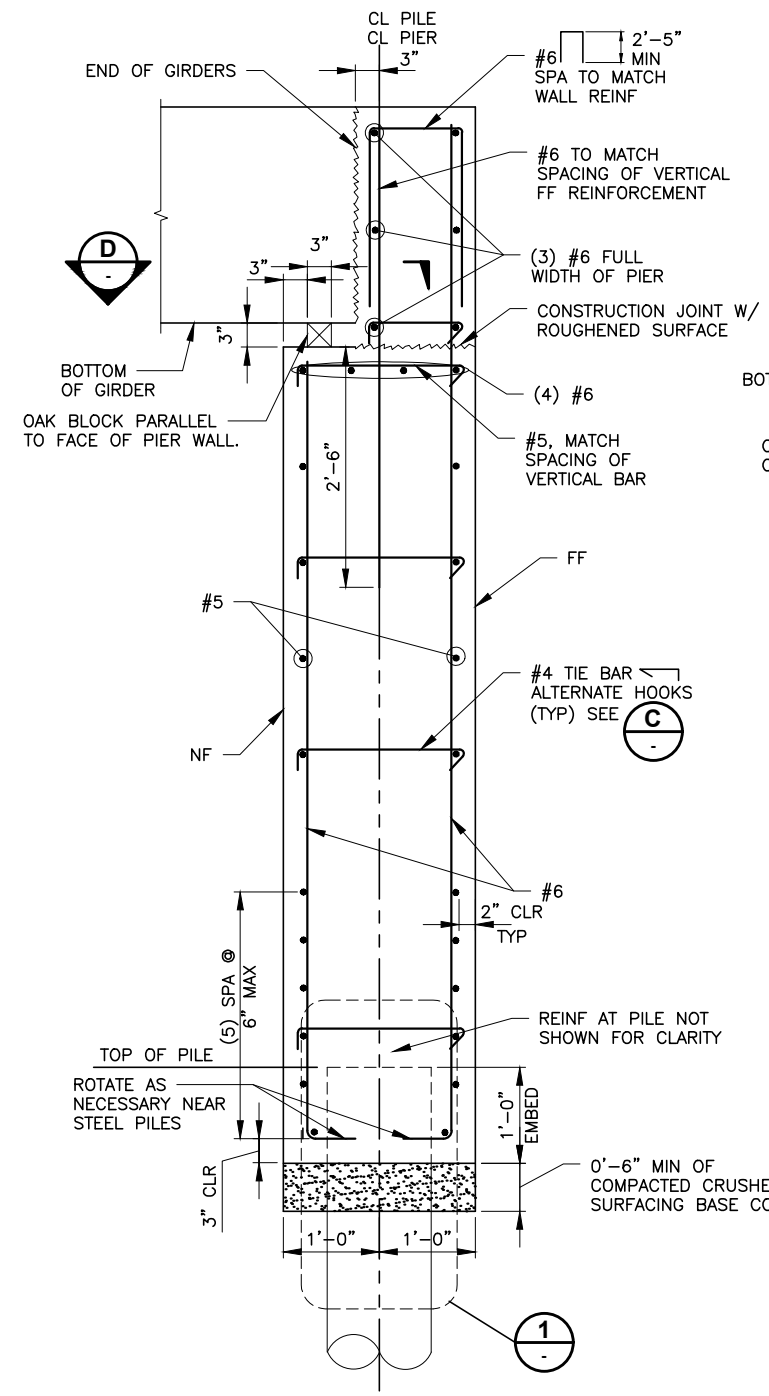
1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

NO.	REVISIONS	DATE



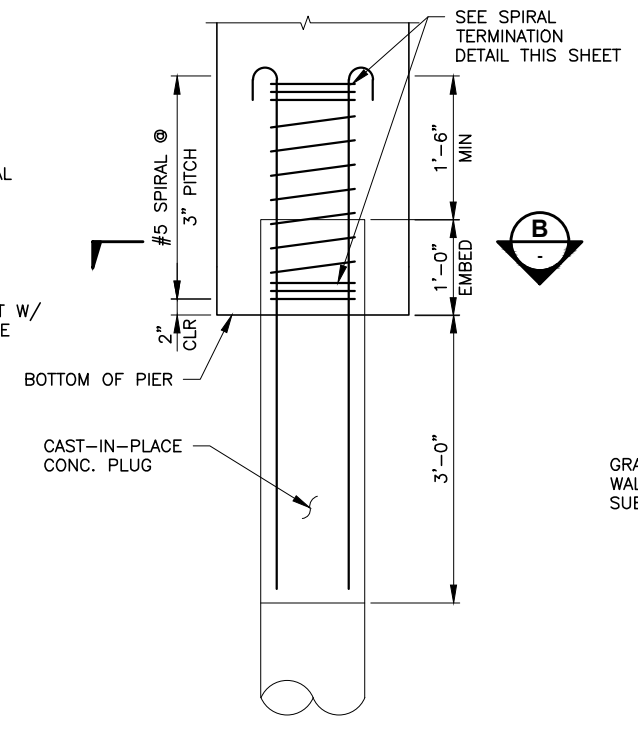
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**OVENELL SLOUGH/CEDAR
GROVE CULVERT
REPLACEMENT PROJECT**
 PIER DETAILS

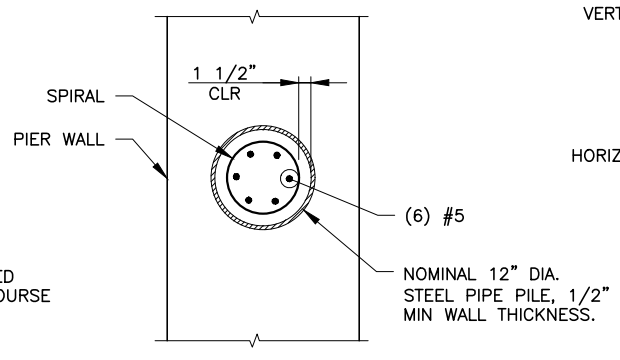


A SECTION
 Scale: 1" = 1'-0"

PIER 1 SHOWN, SIMILAR AT PIER 2

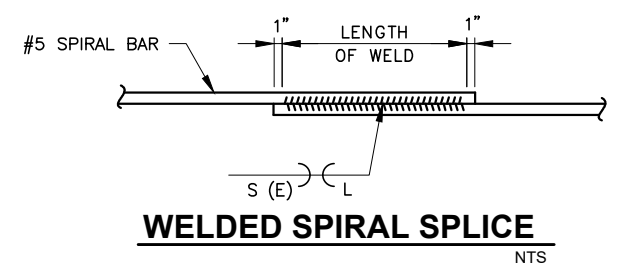


1 PILE DETAIL
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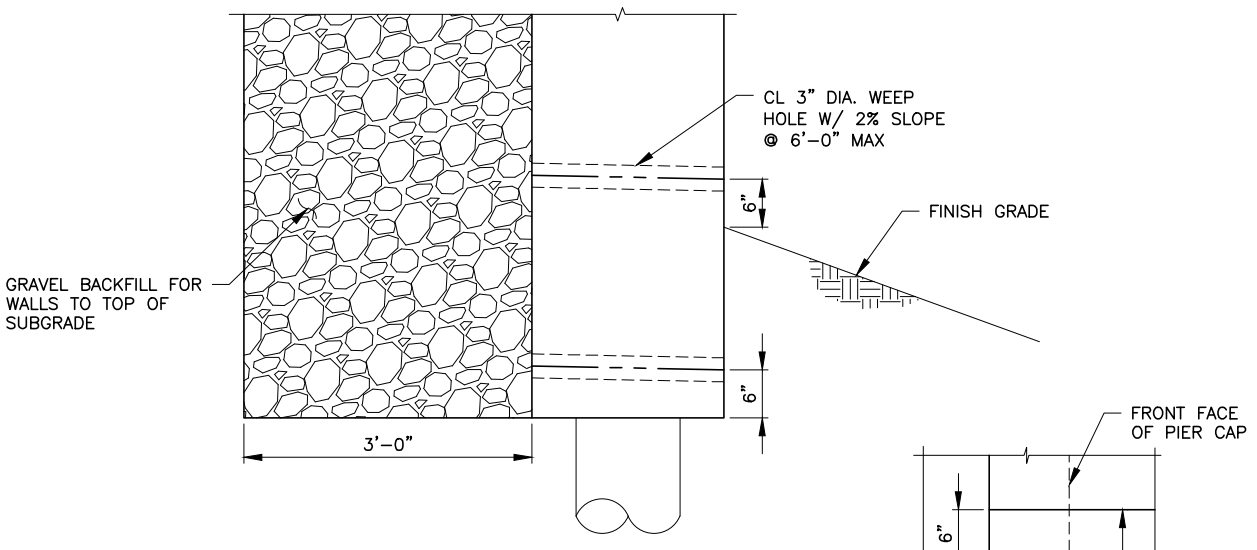


B SECTION
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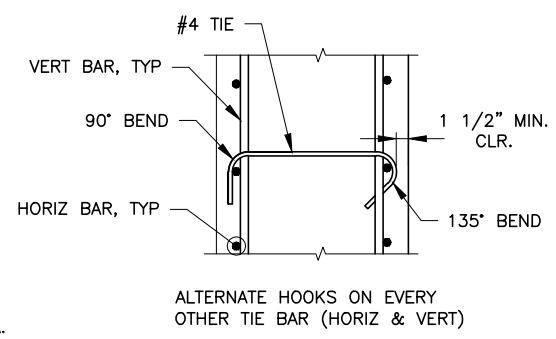
WELD DIMENSIONS (IN)			
BAR SIZE	S	E	LENGTH
SPIRAL #5	5/16	3/16	6



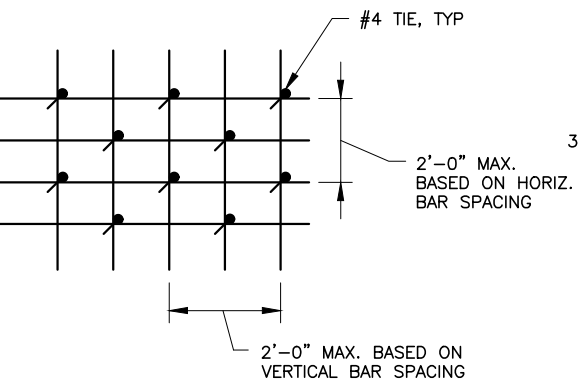
WELDED SPIRAL SPLICE
 NTS



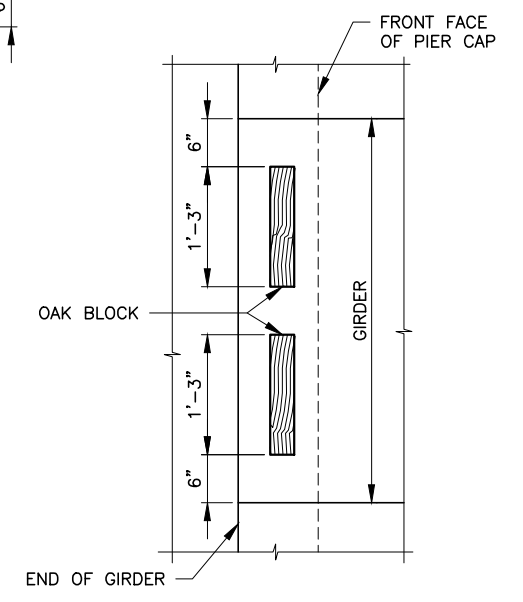
DRAINAGE DETAIL
 Scale: 1" = 1'-0"



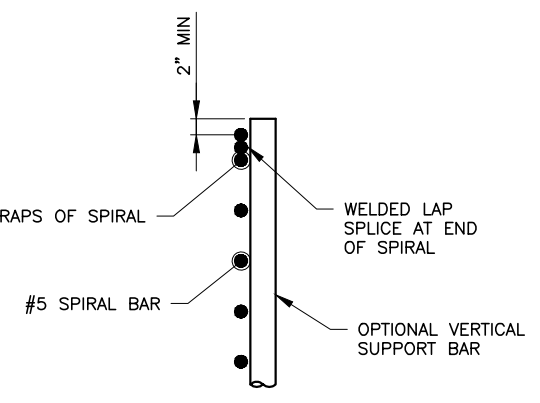
C TIE BAR DETAIL
 NTS



TIE BAR SPACING DETAIL
 NTS



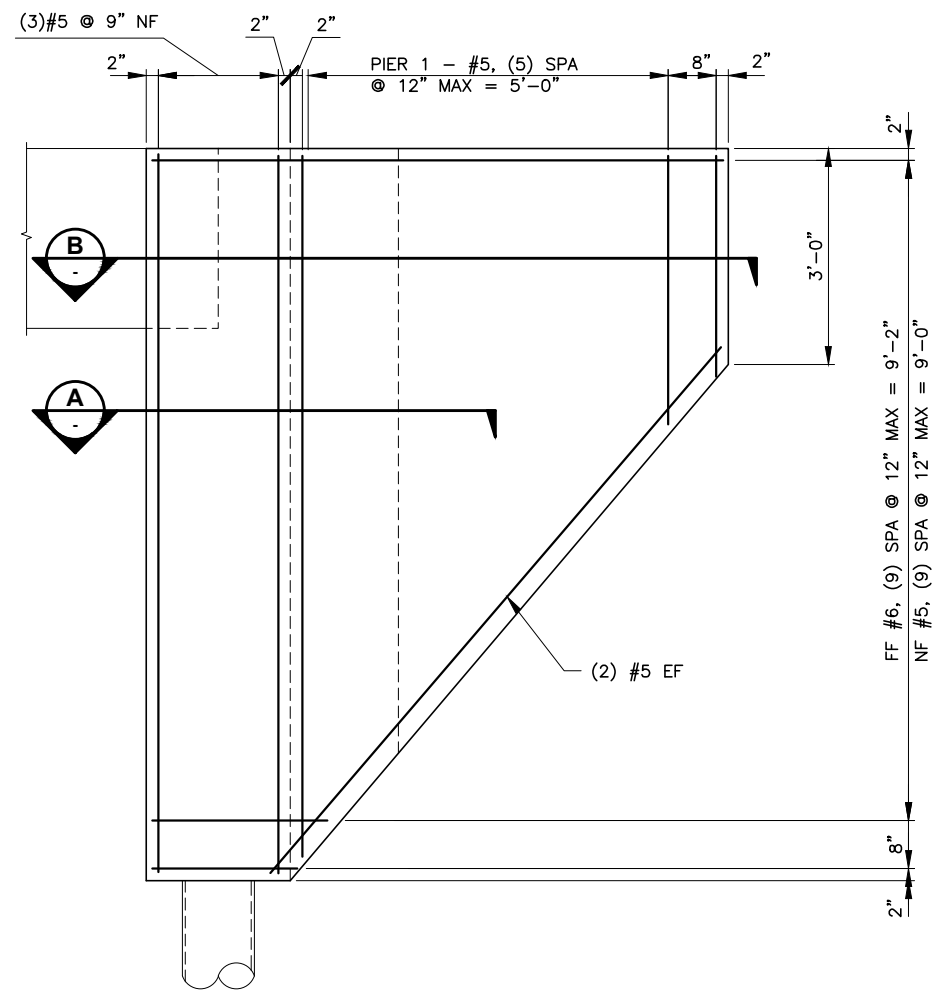
D SECTION
 Scale: 1" = 1'-0"



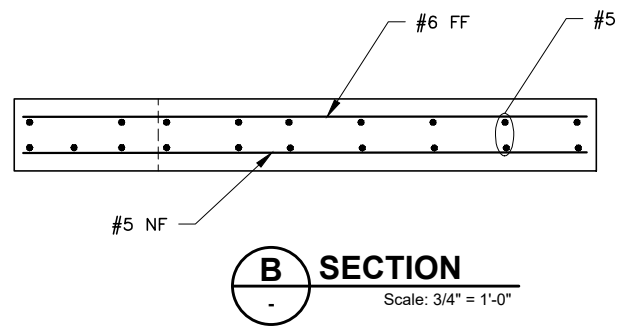
SPIRAL TERMINATION DETAIL
 NTS



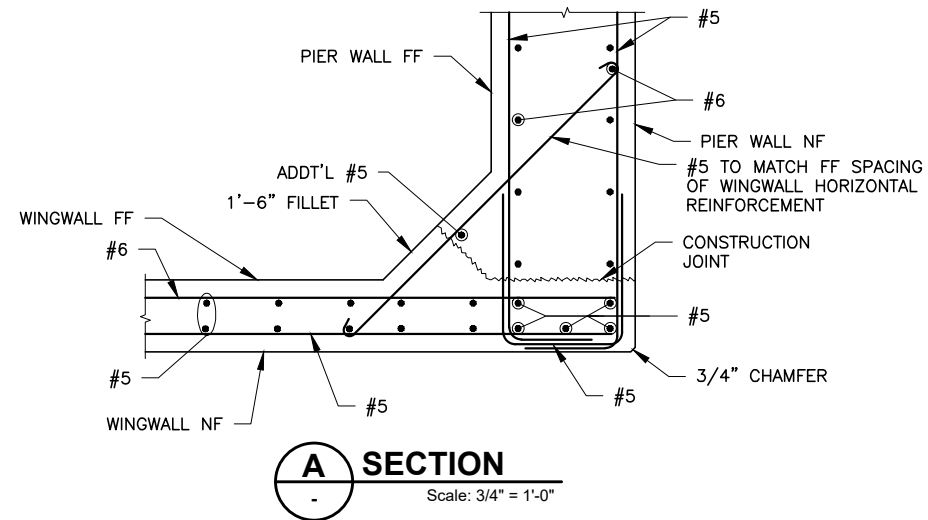
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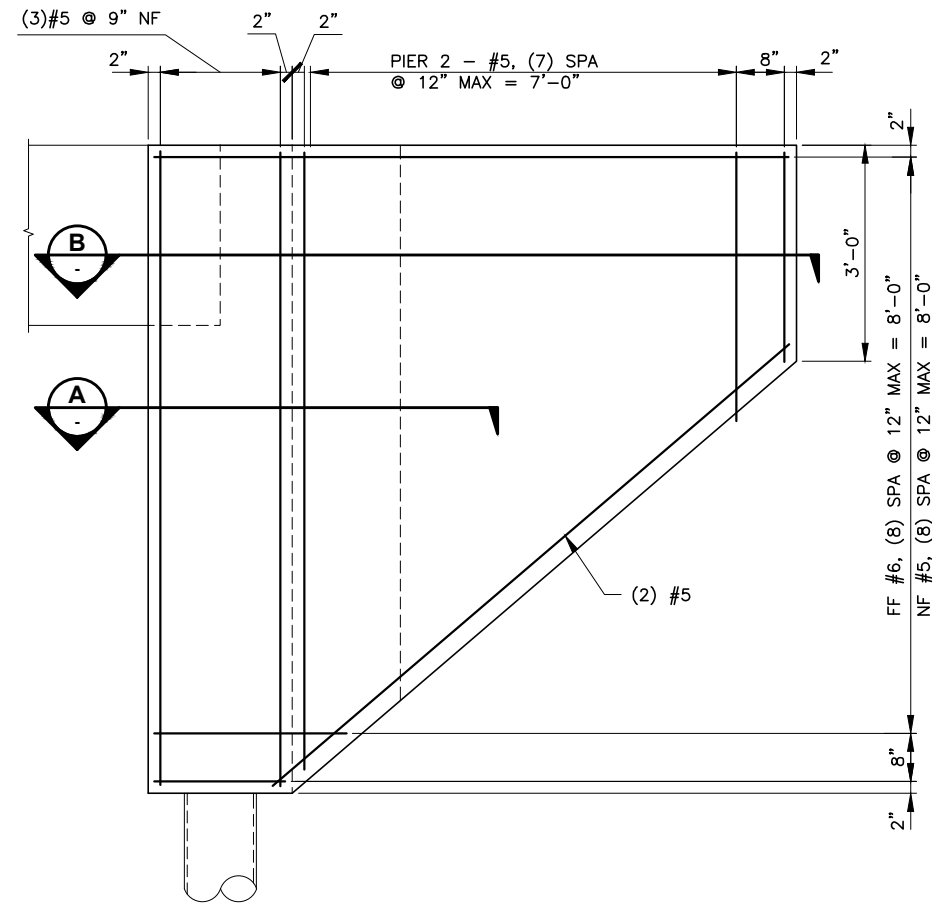
WING WALL ELEVATION - PIER 1
Scale: 3/4" = 1'-0"



B SECTION
Scale: 3/4" = 1'-0"



A SECTION
Scale: 3/4" = 1'-0"



WING WALL ELEVATION - PIER 2
Scale: 3/4" = 1'-0"



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OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
WINGWALL DETAILS

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

GIRDER SCHEDULE

GIRDER TYPE	GIRDER HEIGHT H	GIRDER WIDTH W	PLAN LENGTH (ALONG GIRDER GRADE) (SEE GIRDER NOTE 1)	VOIDS		GIRDER END DETAILS		MIN CONCRETE COMP STRENGTH		PRESTRESSING STRANDS (SEE GIRDER NOTES 2 - 4)										MIDSPAN VERTICAL DEFLECTION D		TRANSVERSE REINFORCEMENT								LONGITUDINAL REINFORCEMENT		SHIPPING AND HANDLING DETAILS																
				NUMBER	DIAMETER	END 1 TYPE	END 2 TYPE	θ ₁	θ ₂	● 28-DAYS F'C (KSI)	● RELEASE F'C (KSI)	ROW 1				ROW 2			ROW 3			TOP ROW		ZONE 1		ZONE 2		ZONE 3		ZONE 4		G1	G2	L	L1	L2	K _g	W _{CC}										
												PERMANENT STRANDS	EXTENDED NUMBER AND LENGTH	DEBONDED NUMBER AND LENGTH	PERMANENT STRANDS	EXTENDED NUMBER AND LENGTH	DEBONDED NUMBER AND LENGTH	PERMANENT STRANDS	EXTENDED NUMBER AND LENGTH	DEBONDED NUMBER AND LENGTH	PERMANENT STRANDS	TEMPORARY STRANDS	LOWER BOUND ● 40 DAYS	UPPER BOUND ● 120 DAYS	BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING	LENGTH	BAR SIZE	NO. OF BARS	BAR SIZE	NO. OF BARS				MINIMUM SHIPPING SUPPORT ROTATIONAL SPRING CONSTANT (kip-in/rad)	MINIMUM SHIPPING SUPPORT WHEEL SPACING			
1	2'-6"	4'-4"	74'-8 5/8"	2	18"	D	D	90	90	8.5	4.0	21	22	2	3	2	9	5	-	-	-	-	-	2	6	3/4"	1 1/2"	5	3"	1'	5	6"	11'	5	9"	2.25'	5	18"	TO MID SPAN	6	6	6	6	3'-0"	2'-6"	2'-6"	40,000	6'-0"

GIRDER NOTES:

- PLAN LENGTH SHALL BE INCREASED AS NECESSARY TO COMPENSATE FOR SHORTENING DUE TO PRESTRESS AND SHRINKAGE.
- ALL STRANDS SHALL BE 0.6"Ø 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.
- SPACE EXTENDED STRANDS SYMMETRICALLY AND EVENLY ACROSS GIRDER WIDTH. STAGGER EXTENDED STRAND LOCATIONS WITH RESPECT TO GIRDERS IN ADJACENT SPANS.
- 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 SYMMETRICALLY PLACED ABOUT THE GIRDER CENTERLINE. DEBONDED LENGTHS OF PAIRS OF STRANDS THAT ARE SYMMETRICALLY POSITIONED ABOUT THE GIRDER CENTERLINE SHALL BE EQUAL.

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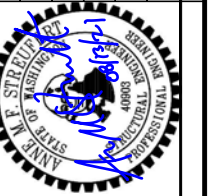
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TALNIEA - August 12, 2021 - 3:24 PM - V:\1900719 (OVENELL SLOUGH)\02_DESIGN (V2019)\19 - GIRDER SCHEDULE.DWG

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REPLACEMENT PROJ**

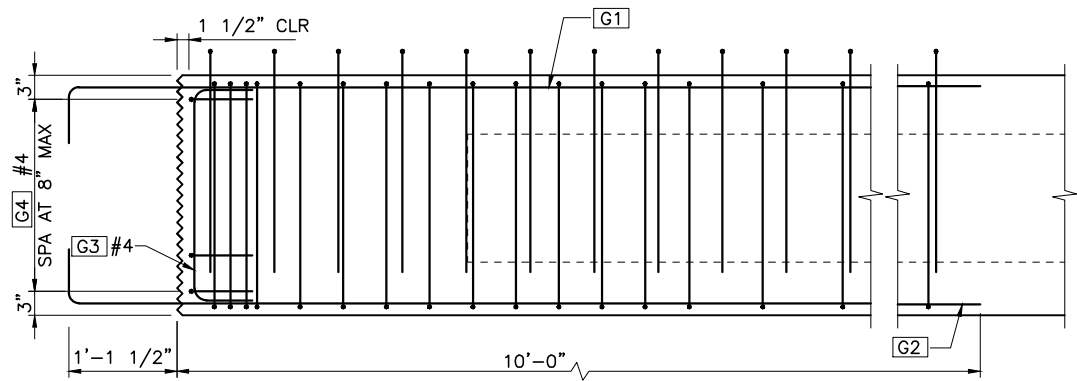
GIRDER SCHEDULE

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

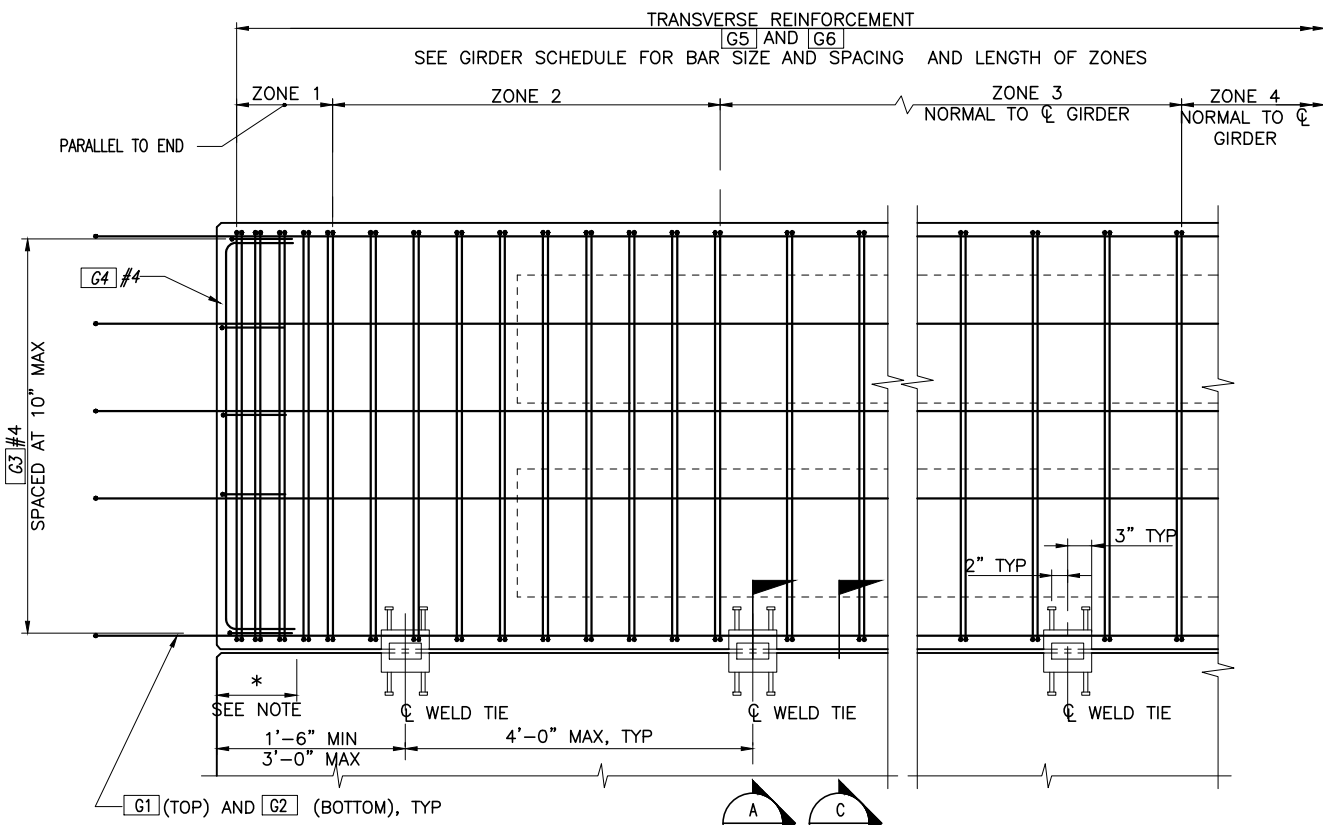
SHEET
19 OF 23

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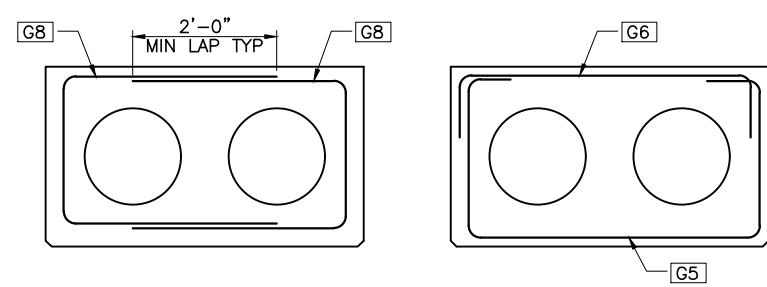


ELEVATION
STRANDS NOT SHOWN

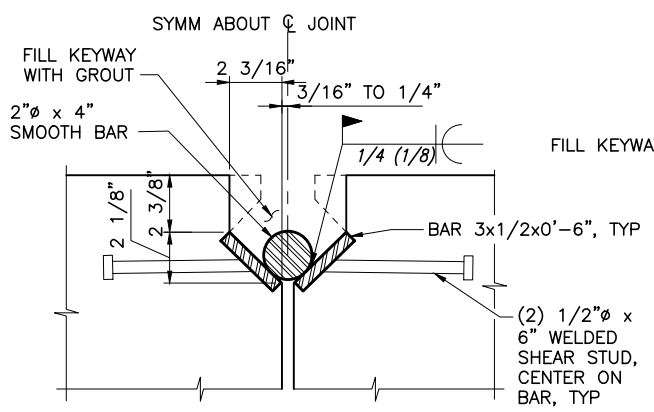


PLAN

CURB BARS NOT SHOWN FOR CLARITY.
STRANDS NOT SHOWN FOR CLARITY.
* KEYWAY MAY BE STOPPED SHORT A MAXIMUM OF 10" FROM EACH END.

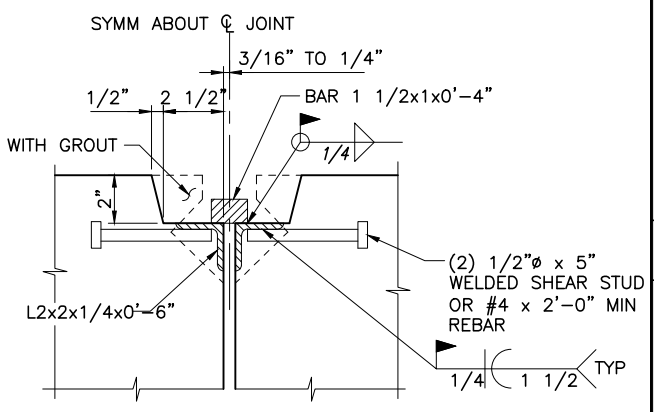


TRANSVERSE REINFORCEMENT OPTIONS



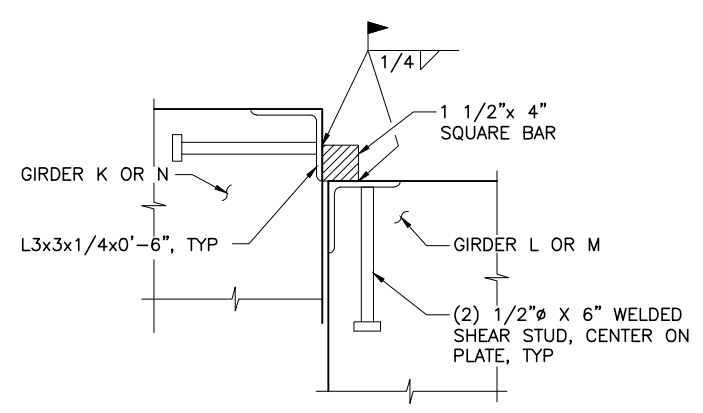
WELD TIE ALTERNATE #1

A SECTION
Scale: 3" = 1'-0"

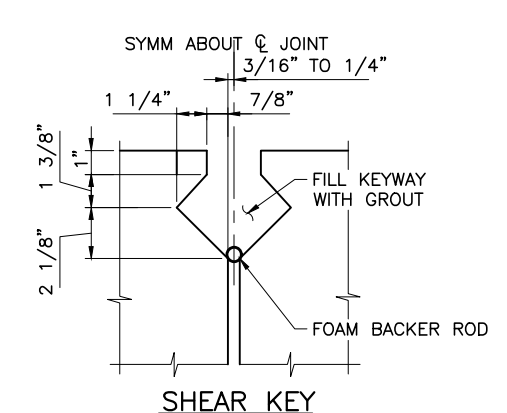


WELD TIE ALTERNATE #2

B SECTION
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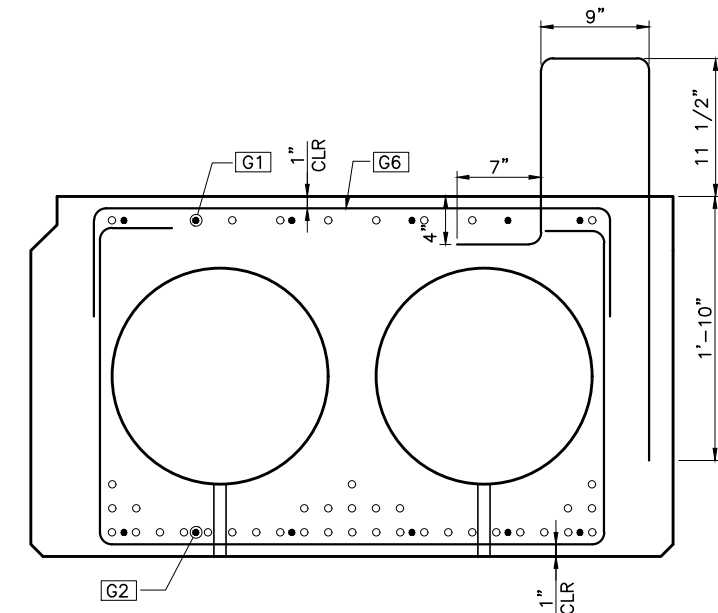


WELD TIE SECTION
SCALE: 3" = 1'-0"



SHEAR KEY

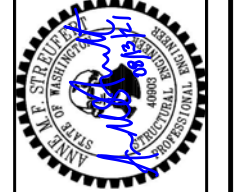
C SECTION
Scale: 3" = 1'-0"



TYPICAL GIRDER SECTION

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OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
GIRDER DETAIL 1

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY



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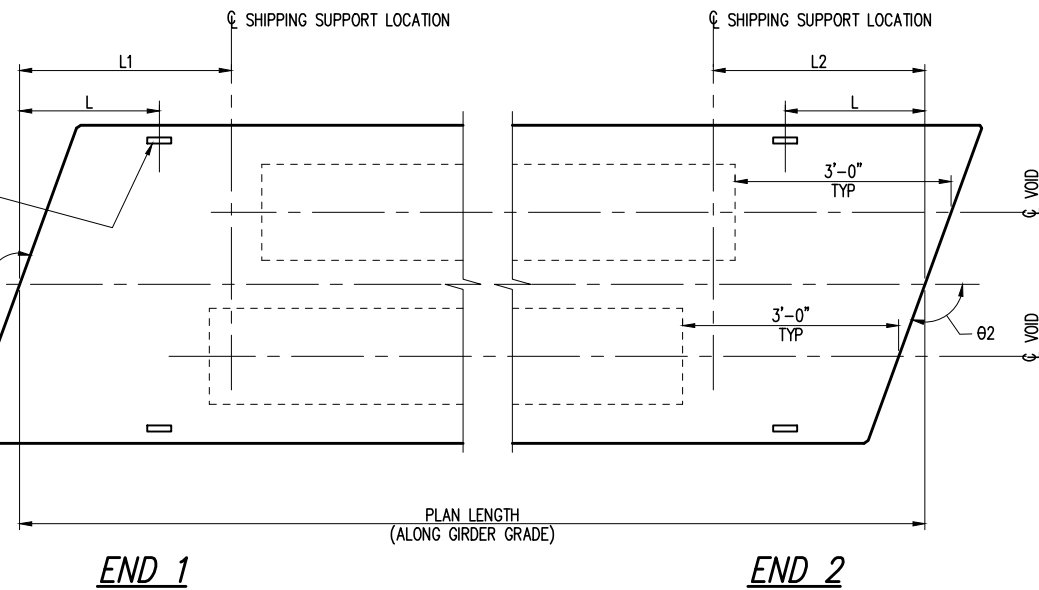


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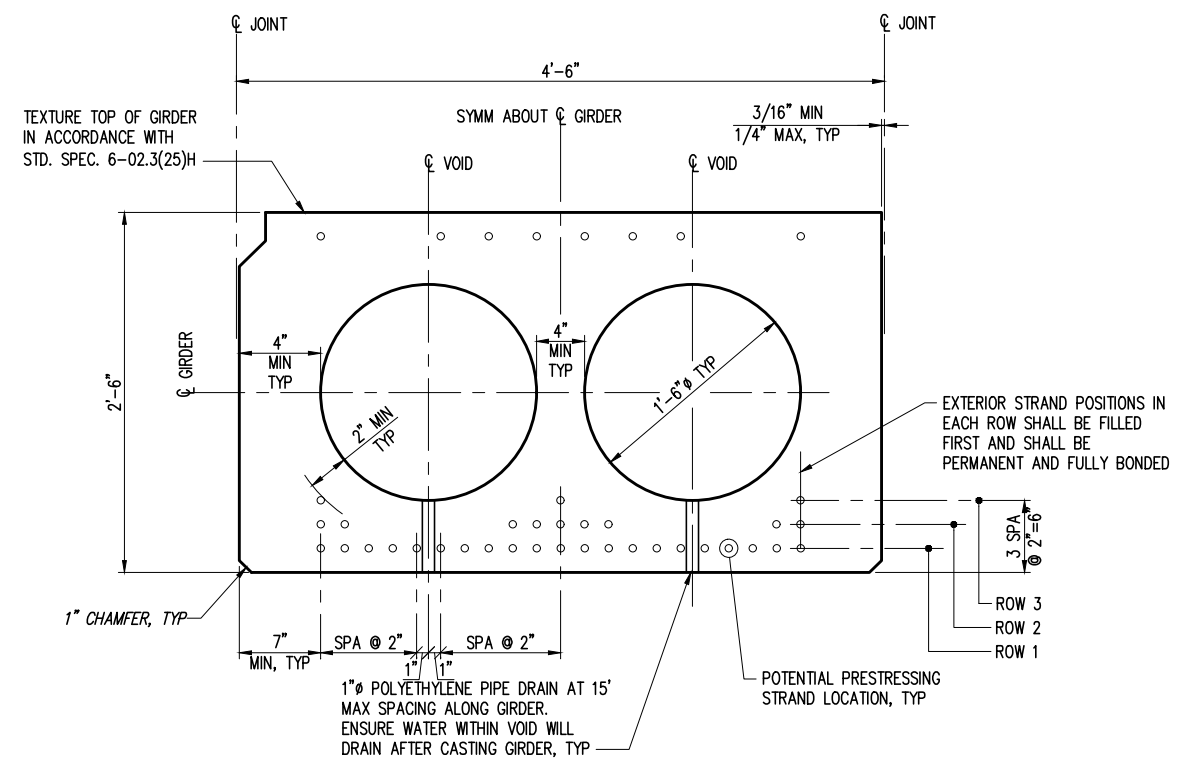
INSTALL LIFTING EMBEDMENTS IN ACCORDANCE WITH WSDOT STD.SPEC. 6-02.3(25)L. REMOVE TO TOP OF GIRDER AFTER ERECTION

PROVIDE END TYPE DETAILS IDENTIFIED IN THE GIRDER SCHEDULE (TYP)

1/2" CHAMFER AT CORNERS (TYP)

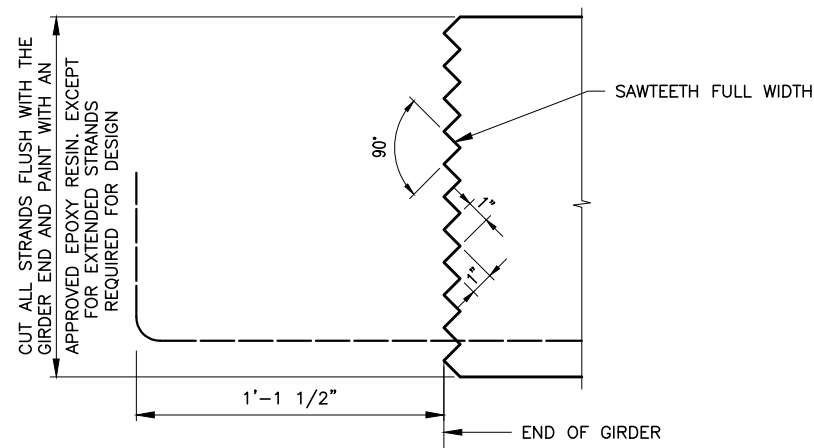


PLAN

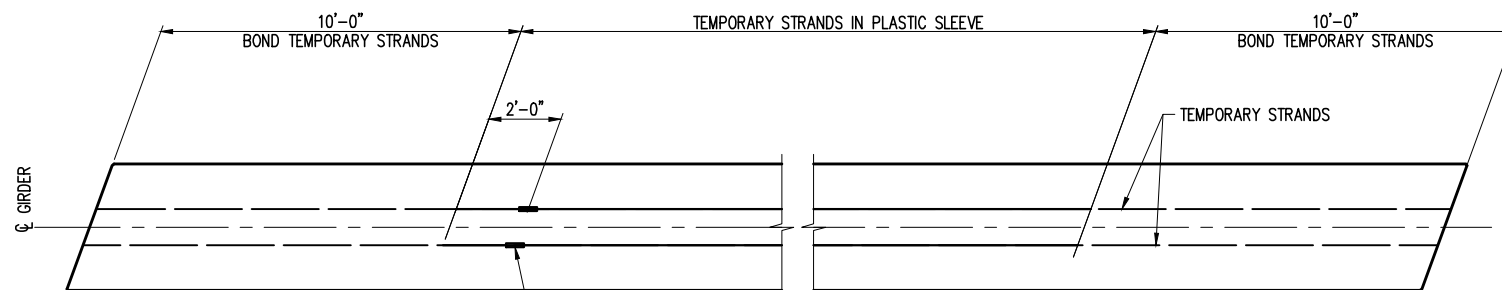


TYPICAL GIRDER SECTION

FOR STRAND PATTERNS, SEE GIRDER DETAILS 3



END TYPE D



PLAN TEMPORARY STRANDS

2 1/2"x6"x2 1/2" DEEP BLOCKOUT FOR STRAND DETENSIONING. FORM WITH EXPANDED POLYSTYRENE. REMOVE POLYSTYRENE JUST PRIOR TO CUTTING THE TEMPORARY STRANDS AND PREVENT MOISTURE FROM ENTERING THE BLOCKOUT AS DESCRIBED IN THE TEMPORARY STRAND CUTTING SEQUENCE (TYP)

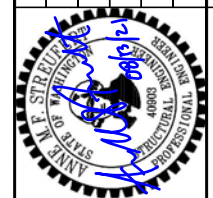
TEMPORARY STRANDS NOTES

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.
3. TEMPORARY STRAND CUTTING SEQUENCE:
 - a. ERECT GIRDERS.
 - b. 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 IS FILLED WITH GROUT.
 - c. CUT STRANDS IN BLOCKOUTS. STRANDS MAY BE CUT BY USING A CUTTING TORCH AND MOVING THE FLAME BACK AND FORTH OVER THE LENGTH OF THE EXPOSED STRAND TO LET INDIVIDUAL WIRES BREAK ONE AT A TIME TO LESSEN THE SHOCK TO THE GIRDER. STRAND 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.
 - d. WITHIN 24 HOURS OF CUTTING THE TEMPORARY STRANDS, FILL THE BLOCKOUTS WITH A GROUT CONFORMING TO STD. SPEC. 9-20.3(2). REMOVE ALL MOISTURE IN BLOCKOUTS PRIOR TO FILLING THEM WITH GROUT.

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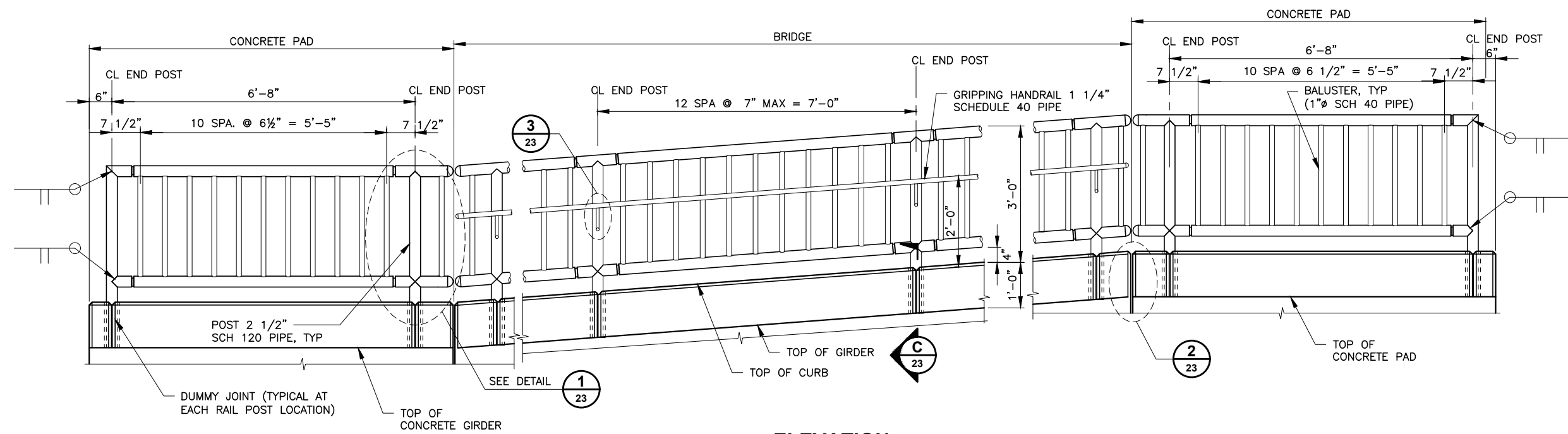
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DESIGNED BY: DLK	DRAWN BY: TLA
CHECKED BY: JRL	APPROVED BY: AMS
PROJECT LOCATED NEAR: CONCRETE, WA	
SECTION 14, TOWNSHIP 35N, RANGE 8E, W.M.M.	

OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
GIRDER DETAIL 2

NO.	REVISIONS	DATE



ELEVATION
ALL POSTS AND BALUSTERS VERTICAL
TOP & BOTTOM RAILS PARALLEL TO GRADE.

GENERAL NOTES:

1. SHOP DRAWINGS OF RAILING SHALL BE SUBMITTED AS A TYPE 2 WORKING DRAWING SHOWING COMPLETE DIMENSIONS AND DETAILS OF FABRICATION AND INCLUDING AN ERECTION DIAGRAM. MATERIAL SPECIFICATIONS SHALL BE PROVIDED IN THE SHOP DRAWINGS FOR ALL COMPONENTS.
2. CUTTING SHALL BE DONE BY SAWING OR MILLING AND ALL CUTS SHALL BE TRUE AND SMOOTH. FLAME CUTTING WILL NOT BE PERMITTED.
3. WELDING OF ALUMINUM SHALL CONFORM TO STD. SPEC. SECTION 9--28.14(3).
4. ALL ALUMINUM PARTS SHALL BE GIVEN BLACK COATING OF AT LEAST 0.0006" THICK AND SEALED TO MEET THE REQUIREMENTS OF ASTM B 580 WITH A UNIFORM FINISH.
5. PIPE RAILING, PIPE BALUSTERS AND PIPE RAILING SPLICES SHALL BE ADEQUATELY WRAPPED TO INSURE SURFACE PROTECTION DURING HANDLING AND TRANSPORTATION TO THE JOB SITE.

MAT'L	PART	MATERIAL SPECIFICATION
ALUMINUM	RAILS & BALUSTERS	ASTM B221-6005-T5, 6005A-T5 OR ASTM B241-6061-T6
	STRIP	ASTM B221-6005-T5
STEEL	ANCHOR BOLTS, NUTS & WASHERS	STANDARD SPECIFICATION SECTION 9-06.5(4) GR. 36 (GALVANIZE IN ACCORDANCE WITH AASHTO SPECIFICATION M 232)
	DRIVE PINS	ASTM A276 OR A240 TYPE 302 STAINLESS STEEL



1-800-424-5555

PROJECT NO.: 2100080
FED. AID NO.: RCO: 18-1490, NFWF: 0314.18.062608
DESIGNED BY: DLK DRAWN BY: TLA
CHECKED BY: JRL APPROVED BY: AMS
PROJECT LOCATED NEAR:
CONCRETE, WA
SECTION 14, TOWNSHIP 35N, RANGE 8E, W.M.

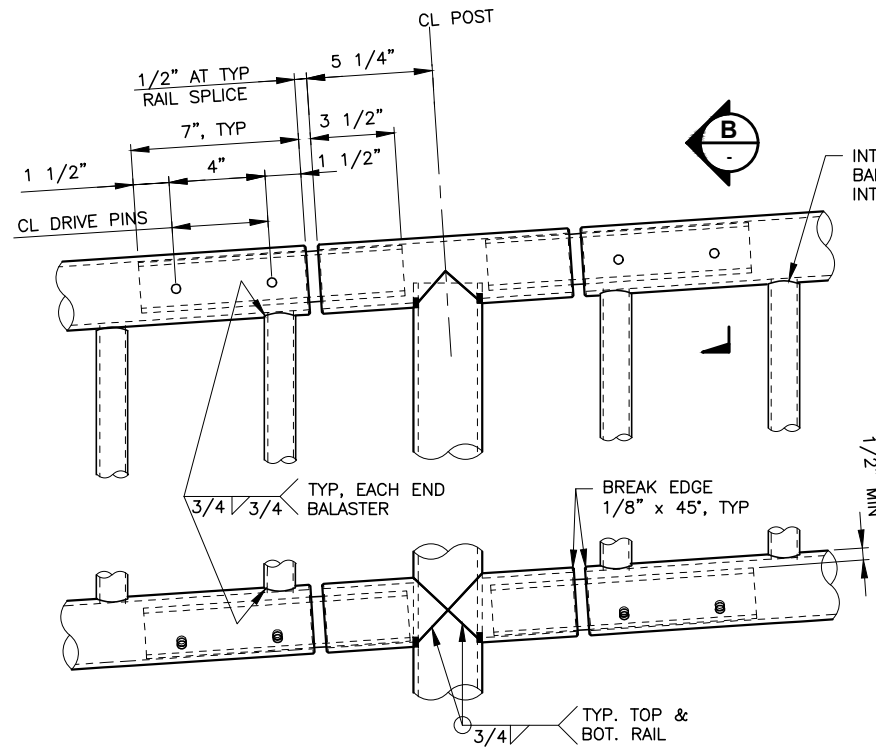
OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
RAILING DETAIL 1 OF 2

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY

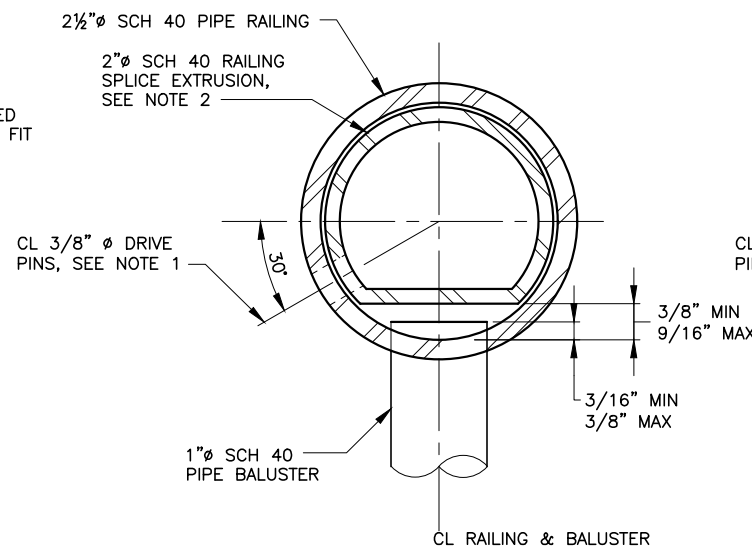
SHEET
22 OF 23



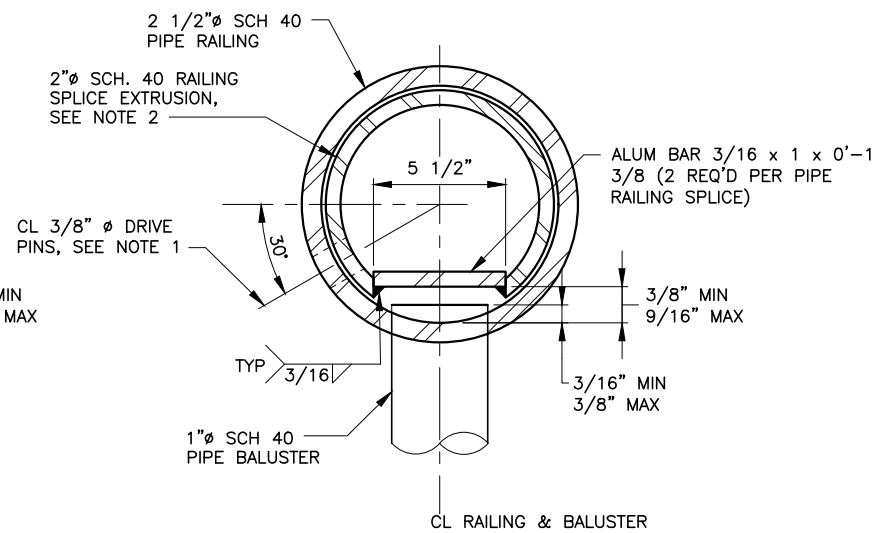
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



1 DETAIL
22 Scale: 3" = 1'-0"



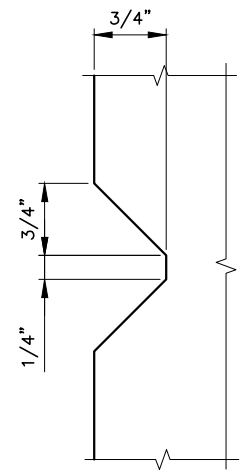
B SECTION
OPTION #1



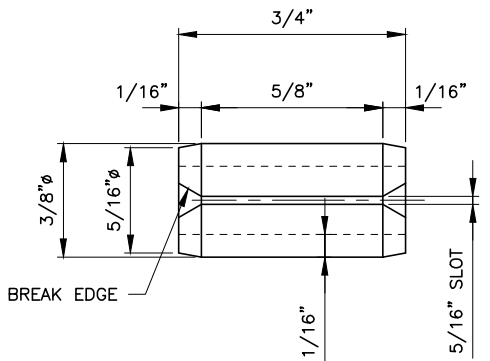
B SECTION
OPTION #2

NOTES:

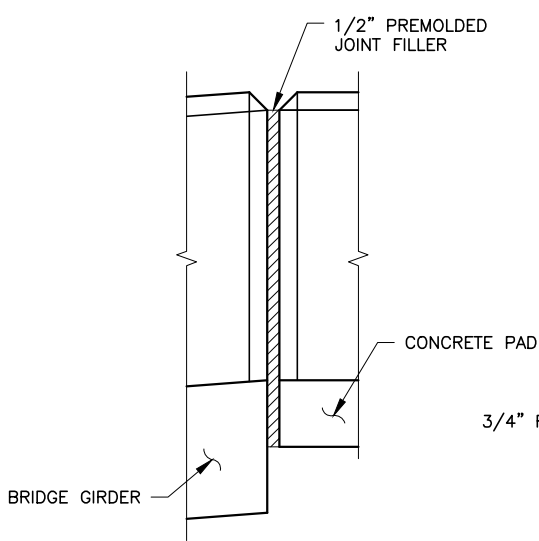
1. LOCATE ON OPPOSITE SIDE OF TRAFFIC. DRIVE PINS SHALL BE DRIVEN FLUSH WITH THE OUTSIDE FACE OF THE RAILING.
2. DRILL 3/8" Ø HOLE FOR 3/8" DRIVE PIN AT LOCATION SHOWN.



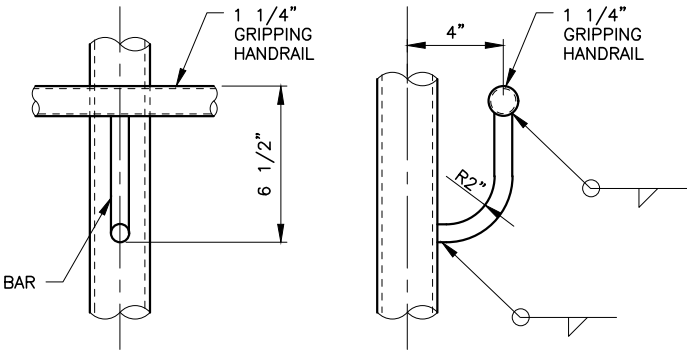
D SECTION
Scale: 3" = 1'-0"



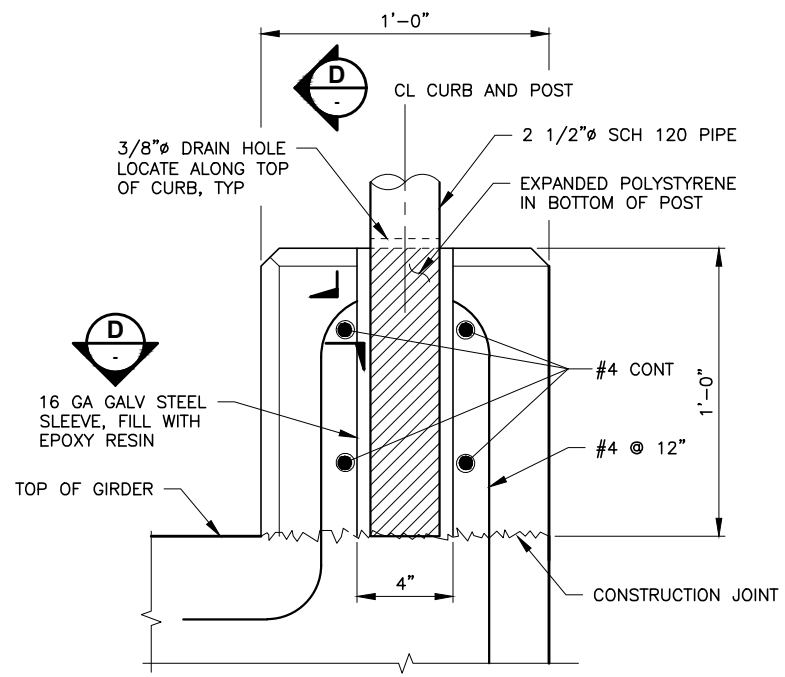
DRIVE PIN DETAIL
SLOTTED TYPE SPRING PIN (ANSI B18.8.2)



2 DETAIL
22 Scale: 3" = 1'-0"



3 DETAIL
22 Scale: 3" = 1'-0"



C SECTION
22 Scale: 3" = 1'-0"

CALL TWO (2) BUSINESS DAYS BEFORE YOU DIG

1-800-424-5555

SKAGIT COUNTY PUBLIC WORKS
1800 CONTINENTAL PLACE
MOUNT VERNON, WA 98273-5625
(360) 336-9400 FAX (360) 336-9478

NO.	REVISIONS	DATE



PROJECT NO.: 2100860
FED. AID NO.: RCO: 18-1490, NFWF: 0314.18.062608
DESIGNED BY: DLK DRAWN BY: TLA
CHECKED BY: JRL APPROVED BY: AMS
PROJECT LOCATED NEAR:
CONCRETE, WA
SECTION 14, TOWNSHIP 35N, RANGE 8E, W.M.M.

OVENELL SLOUGH/CEDAR GROVE CULVERT REPLACEMENT PROJECT
RAILING DETAIL 2 OF 2

1 INCH SCALE BAR
ADJUST SCALE ACCORDINGLY



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