



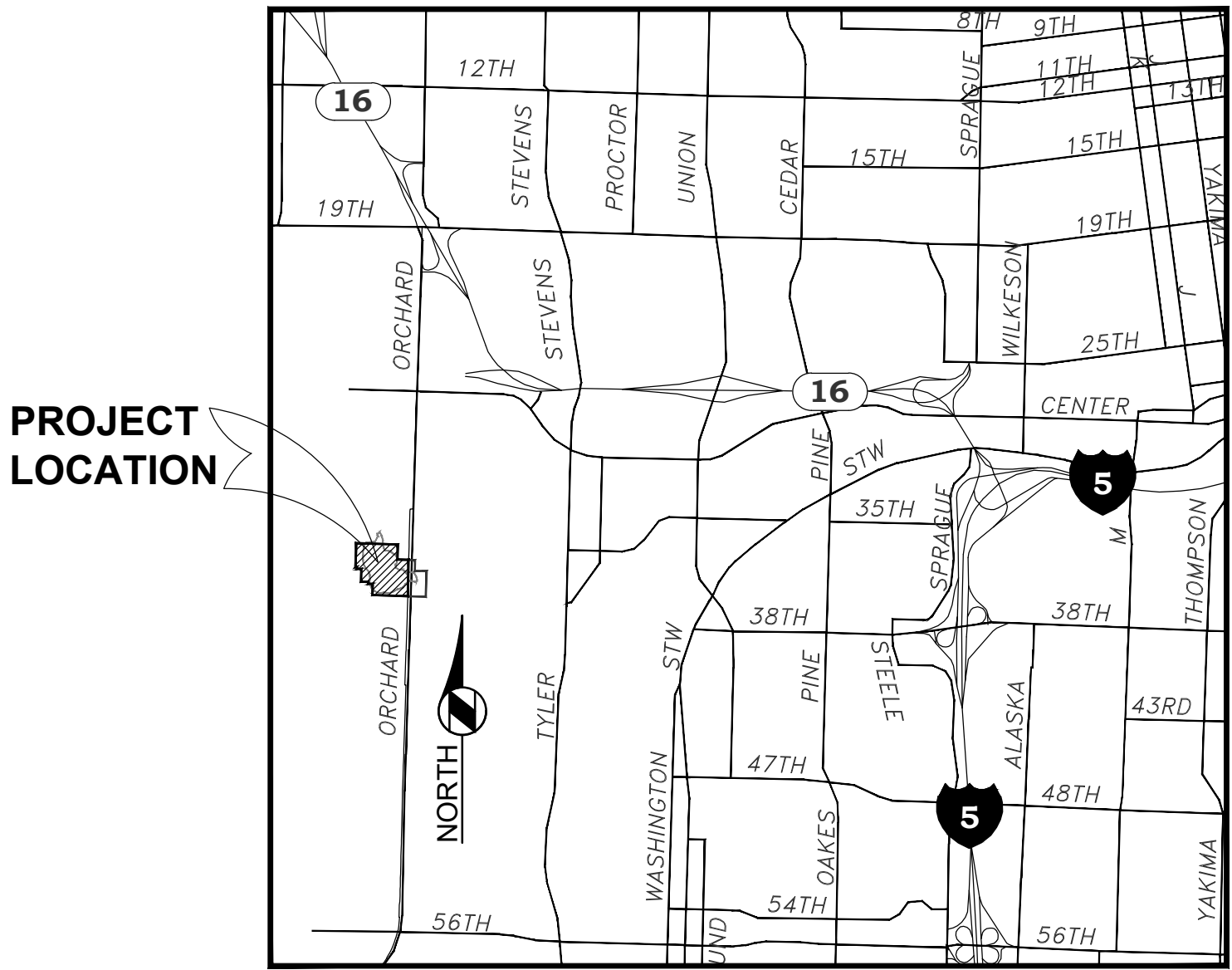
City of Tacoma Environmental Services Department

LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS DRAFT BID SET

*Project No. ENV-03031-01
Spec Number ES22-0242F*

GENERAL NOTES:

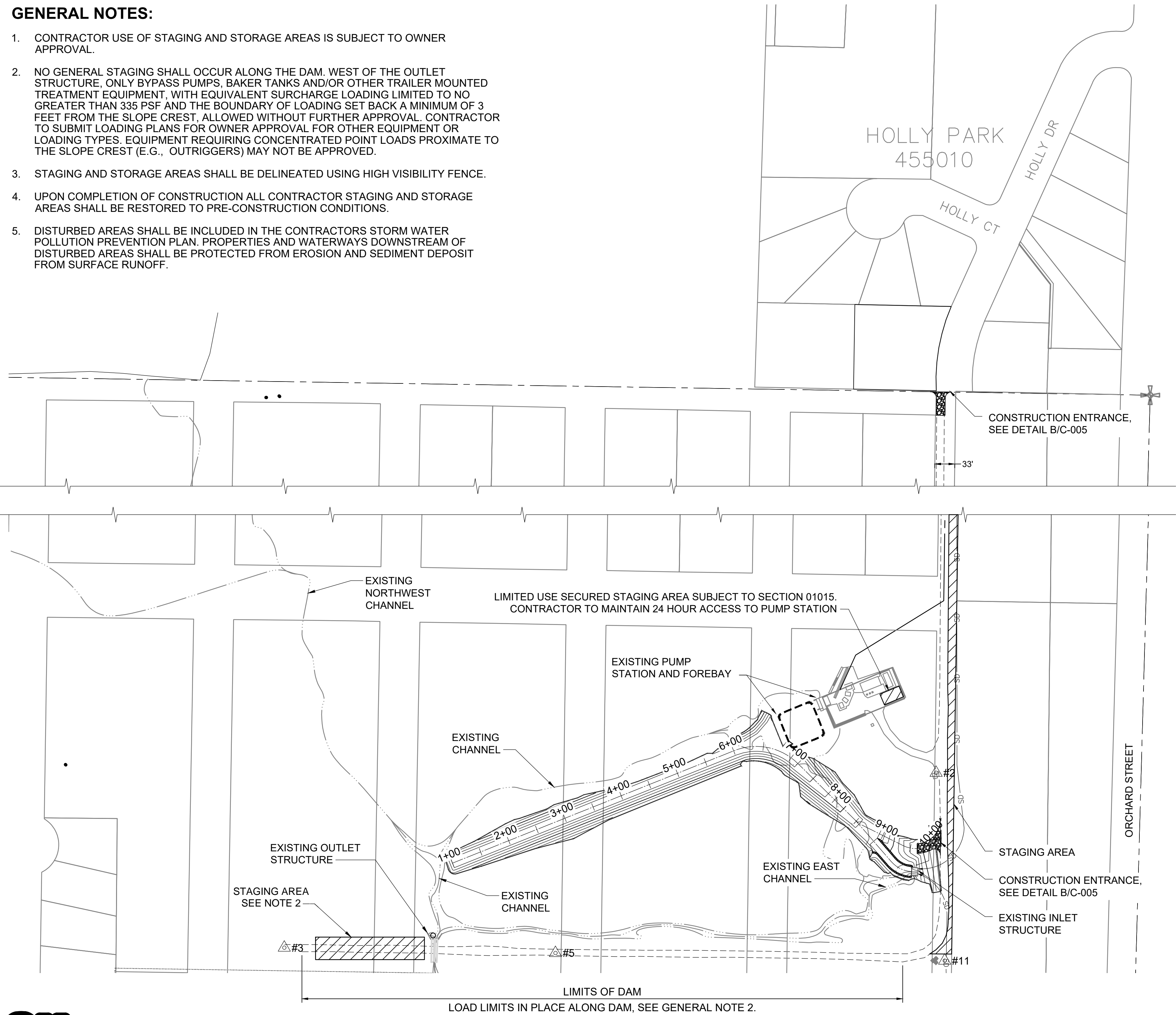
1. CONTRACTOR USE OF STAGING AND STORAGE AREAS IS SUBJECT TO OWNER APPROVAL.
2. NO GENERAL STAGING SHALL OCCUR ALONG THE DAM. WEST OF THE OUTLET STRUCTURE, ONLY BYPASS PUMPS, BAKER TANKS AND/OR OTHER TRAILER MOUNTED TREATMENT EQUIPMENT, WITH EQUIVALENT SURCHARGE LOADING LIMITED TO NO GREATER THAN 335 PSF AND THE BOUNDARY OF LOADING SET BACK A MINIMUM OF 3 FEET FROM THE SLOPE CREST. ALLOWED WITHOUT FURTHER APPROVAL. CONTRACTOR TO SUBMIT LOADING PLANS FOR OWNER APPROVAL FOR OTHER EQUIPMENT OR LOADING TYPES. EQUIPMENT REQUIRING CONCENTRATED POINT LOADS PROXIMATE TO THE SLOPE CREST (E.G., OUTRIGGERS) MAY NOT BE APPROVED.
3. STAGING AND STORAGE AREAS SHALL BE DELINEATED USING HIGH VISIBILITY FENCE.
4. UPON COMPLETION OF CONSTRUCTION ALL CONTRACTOR STAGING AND STORAGE AREAS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS.
5. DISTURBED AREAS SHALL BE INCLUDED IN THE CONTRACTORS STORM WATER POLLUTION PREVENTION PLAN. PROPERTIES AND WATERWAYS DOWNSTREAM OF DISTURBED AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENT DEPOSIT FROM SURFACE RUNOFF.



VICINITY MAP
SCALE: 1" = 5000'

DRAWING INDEX

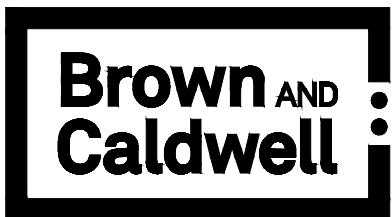
SHT NO.	DWG NO.	DRAWING TITLE
GENERAL		
1	G-001	PROJECT LOCATION, VICINITY MAP, AND DRAWING INDEX
2	G-002	LEGEND
DEMOLITION		
3	D-001	OUTLET STRUCTURE DEMOLITION PLAN
CIVIL		
4	C-001	TEMPORARY EROSION AND SEDIMENT CONTROL, BYPASS, GRADING AND LAYOUT
5	C-002	INFLOW CHANNEL REROUTING AND ACCESS RAMP
6	C-003	GRADING SECTIONS
7	C-004	PLANTING PLAN AND DETAILS
8	C-005	SITE DETAILS
STRUCTURAL		
9	S-001	OUTLET STRUCTURE GENERAL STRUCTURAL NOTES, ABBREVIATION AND LEGEND
10	S-002	OUTLET STRUCTURE PLANS
11	S-003	OUTLET STRUCTURE SECTIONS AND DETAILS - 1



LOCATION MAP
SCALE: 1" = 100'



Know what's below.
Call before you dig.



AT FULL SCALE
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(IF NOT 1", SCALE
ACCORDINGLY)



NO

REVISION

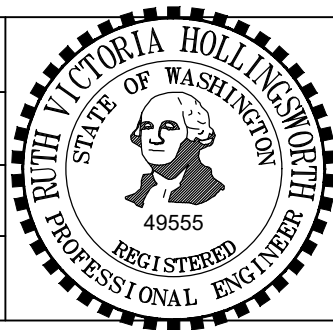
DATE

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DATE
3/3/2023
DESIGNED
VH
DRAWN
KT
DRAWING NAME
158869-G-001.dwg

SCALE
AS NOTED
CHECKED
RB
PROJECT NAME



CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL
PROJECT LOCATION, VACINITY MAP AND DRAWING INDEX

DRAWING NO.
G-001
WBS NO.
ES22-0242F
ENV-03031-01
SHEET NO.
SHEET 1 OF 11

LEGEND

	SLOPE STABILIZATION (COIR MAT WITH EMERGENT MITIGATION PLANTINGS)
	CRUSHED SURFACING
	EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED
	WETLAND HYDROSEED MIX
	EMERGENT MITIGATION PLANTINGS
	RIP-RAP
	NEW FACILITIES (SOLID)
	EXISTING (OR SCREENED)
	PROPERTY LINE
	CENTERLINE
	EDGE OF PAVEMENT
	TEMPORARY SILT FENCE
	EXISTING STORM DRAIN
	EXISTING CATCH BASIN
	EXISTING UNDERGROUND POWER
	FINISH GRADE CONTOURS
	EXISTING CONTOURS
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	PROPOSED SPOT ELEVATION W/ STATION AND OFFSET
	FLOWLINE
	SLOPE (3 HOR. TO 1 VERT.)
	SURVEY MONUMENT
	SURVEY CONTROL POINT
	KEY NOTE DESIGNATION
	MONITORING WELL

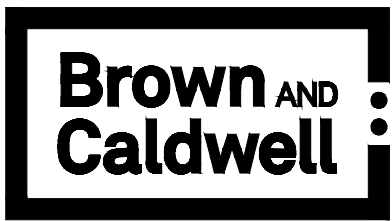
ABBREVIATIONS

AL	ALUMINUM, ALUM	OC	ON CENTERS
APPX	APPROXIMATE(LY)	OD	OUTSIDE AIR DIAMETER
ASSY	ASSEMBLY	OPGN	OPENING
AVE	VENUE	PVT	PAVEMENT
BLDG	BUILDING	R	RADIUS, RISER
BOP	BOTTOM OF PIPE, BACK OF PIPE	RAD	RADIUS
BOT	BOTTOM	RO	ROUGH OPENINGS
CL	CENTERLINE	SCH	SCHEDULE
CND	CONDUIT	SE	SOUTHEAST
CONT	CONTINUOUS	SEC	SECOND
CONTD	CONTINUED	SHT	SHEET
CV	CONTROL VALVE	SIM	SIMILAR
DB	DUCT BANK	SL	SLOPE
DIA	DIAMETER	SLG	SLIDE GATE
DIP	DUCTILE IRON PIPE	SPG	SPACING
DWG(S)	DRAWING(S)	SS	STAINLESS STEEL, SANITARY SEWER, SPEED SELECTOR, SUSPENDED SOLIDS
FAB	FABRICATE(D), FABRICATION	STL	STEEL
FND	FOUNDATION	STRUCT	STRUCTURAL
FR	FRAME	T/C	TOP OF CURB
FT	FLASH TANK, FEET	THD'D	THREADED
GALV	GALVANIZED	TOP	TOP OF PIPE
GEN	GENERAL	TOS	TOP OF STEEL
GPD	GALLONS PER DAY	TPG	TOPPING
GPM	GALLONS PER MINUTE	TYP	TYPICAL
GRD	GRADE	UG	UNDERGROUND
GRTG	GRATING	U/P	UTILITY POLE
H	HIGH, HORIZONTAL	US	UTILITY STATION
HOR	HORIZONTAL	VAR	VARIES, VARIABLE
HR	HANDRAIL, HEAT RESERVIOR	VERT(S)	VERTICAL(S)
ID	INSIDE DIAMETER	W/	WITH
INV	INVERT, INVERT ELEVATION	W/O	WITOUT
INV EL	INVERT ELEVATION	WSTP	WATERSTOP
JB	JUNCTION BOX	WT	WATERTIGHT, WEIGHT
JCT	JUNCTION	WWF	WELDED WIRE FABIRC, WET WEATHER FLOW
LEV	LEVEL	#	NUMBER, POUNDS
MAINT	MAINTENANCE	&	AND
MAT'L	MATERIAL	@	AT
MAX	MAXIMUM	Ø	DIAMETER, PHASE
MECH	MECHANICAL		
MFR	MANUFACTURER		
MG	MILLION GALLONS		
MGD	MILLION GALLONS PER DAY		
N	NEUTRAL, NORTH		
NE	NORTHEAST		
NOM	NOMINAL		
NW	NORTHWEST		

NOTE:
THE MATERIAL PRESENTED ON THIS DRAWING
IS FOR REFERENCE USE. SOME OF THE DETAILS
OR INFORMATION PRESENTED ON THIS
DRAWING MAY NOT BE REQUIRED AS PART OF
THIS CONTRACT.



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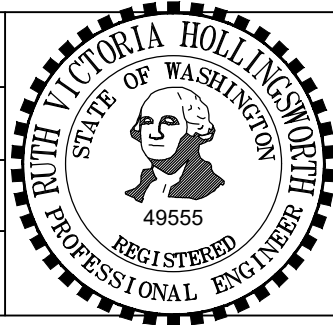
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FINAL
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FIELD BOOKS

DATE
3/3/2023
DESIGNED
VH
DRAWN
KT
DRAWING NAME
158869-G-002.dwg

SCALE
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RB
PROJECT NAME
49555



CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL
LEGEND AND ABBREVIATIONS

DRAWING NO.
G-002
WBS NO.
ES22-0242F
ENV-03031-01
SHEET NO.
SHEET 2 OF 11



PHOTO 1: LOOKING SOUTH



PHOTO 2: LOOKING NORTHEAST

GENERAL NOTES:

1. SEE SPECIFICATION 02050 FOR DEMOLITION AND SALVAGE REQUIREMENTS.

REMOVE AND SALVAGE
EQUIPMENT ENCLOSURES (1)
STILLING WELLS (2)
AND PRESSURE/LEVEL
TRANSDUCERS (2)

REMOVE EXISTING GRATING PANELS (6)

REMOVE EXISTING CONDUIT

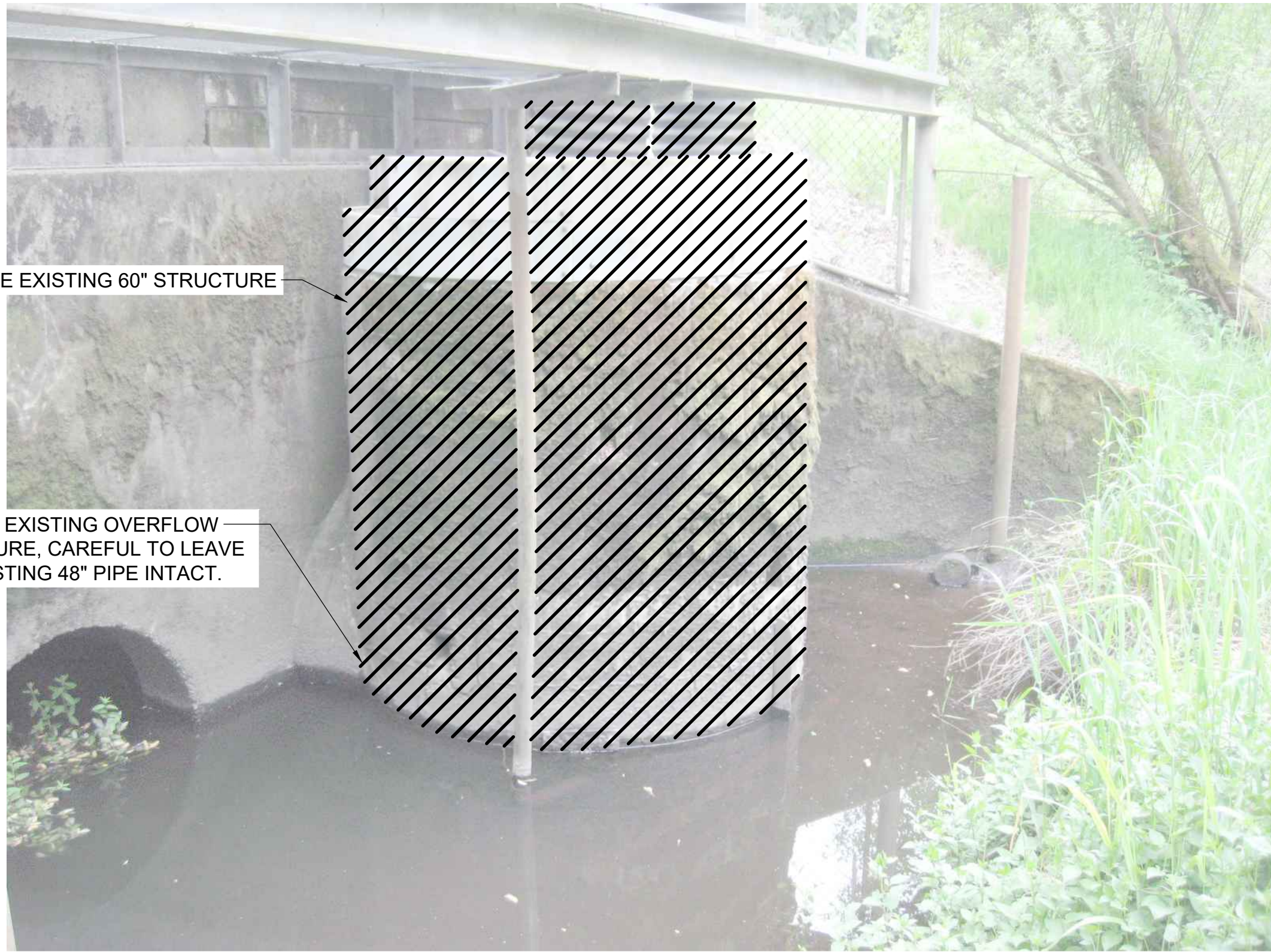
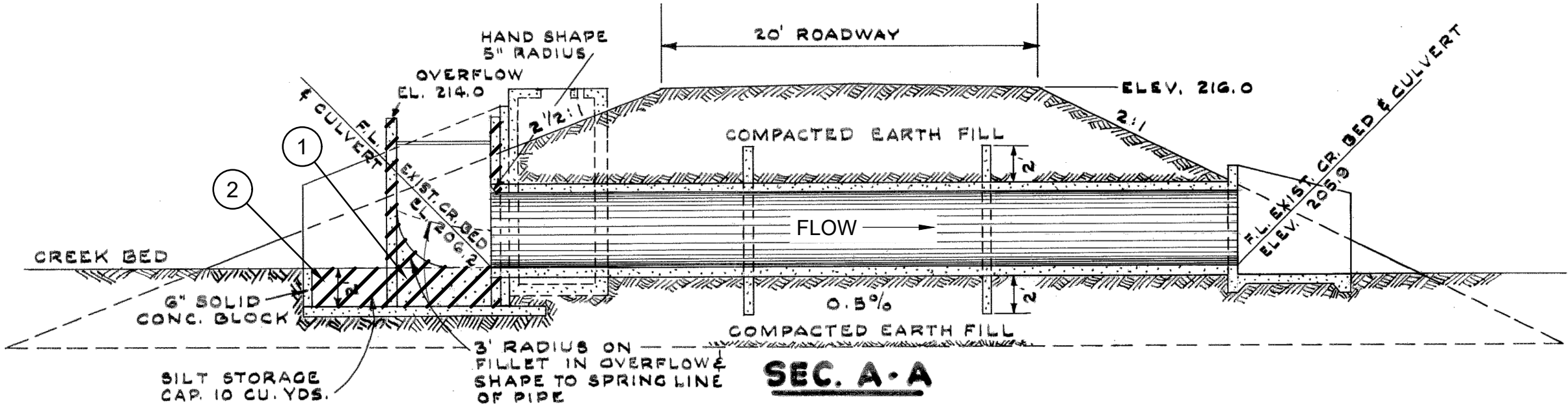


PHOTO 3: LOOKING SOUTHWEST

REMOVE EXISTING 60" STRUCTURE

REMOVE EXISTING OVERFLOW
STRUCTURE, CAREFUL TO LEAVE
THE EXISTING 48" PIPE INTACT.



SOURCE: 1960 RECORD DRAWINGS
FOR: LEACH CREEK HOLDING
BASIN: DAM AND STRUCTURES

EXISTING CONDITION

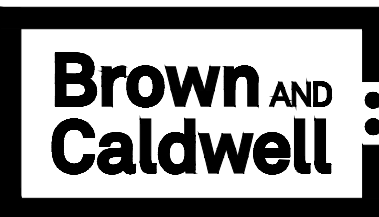
SECTION 1

SCALE: NTS

- KEY NOTES:**
- (1) REMOVE CONCRETE AND ACCUMULATED DEBRIS WITHOUT DAMAGE TO EXISTING PIPE.
 - (2) REMOVE ACCUMULATED SEDIMENT FROM FOREBAY.
 - (3) HINGED PORTION OF GRATING TO REMAIN. SEE S-002.
 - (4) NOT USED.
 - (5) EXISTING HANDRAIL TO REMAIN.
 - (6) EXISTING GRATING IS TACK-WELDED TO THE SUPPORTS AND ALONG PANEL JOINTS AND WILL REQUIRE CUTTING OUT WITHOUT DAMAGE TO THE SUPPORTING ANGLES AND BEAM.



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AT FULL SCALE
0 1/2 1
(IF NOT 1", SCALE
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NO

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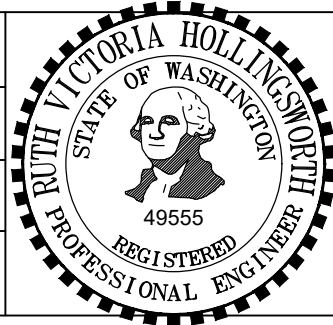
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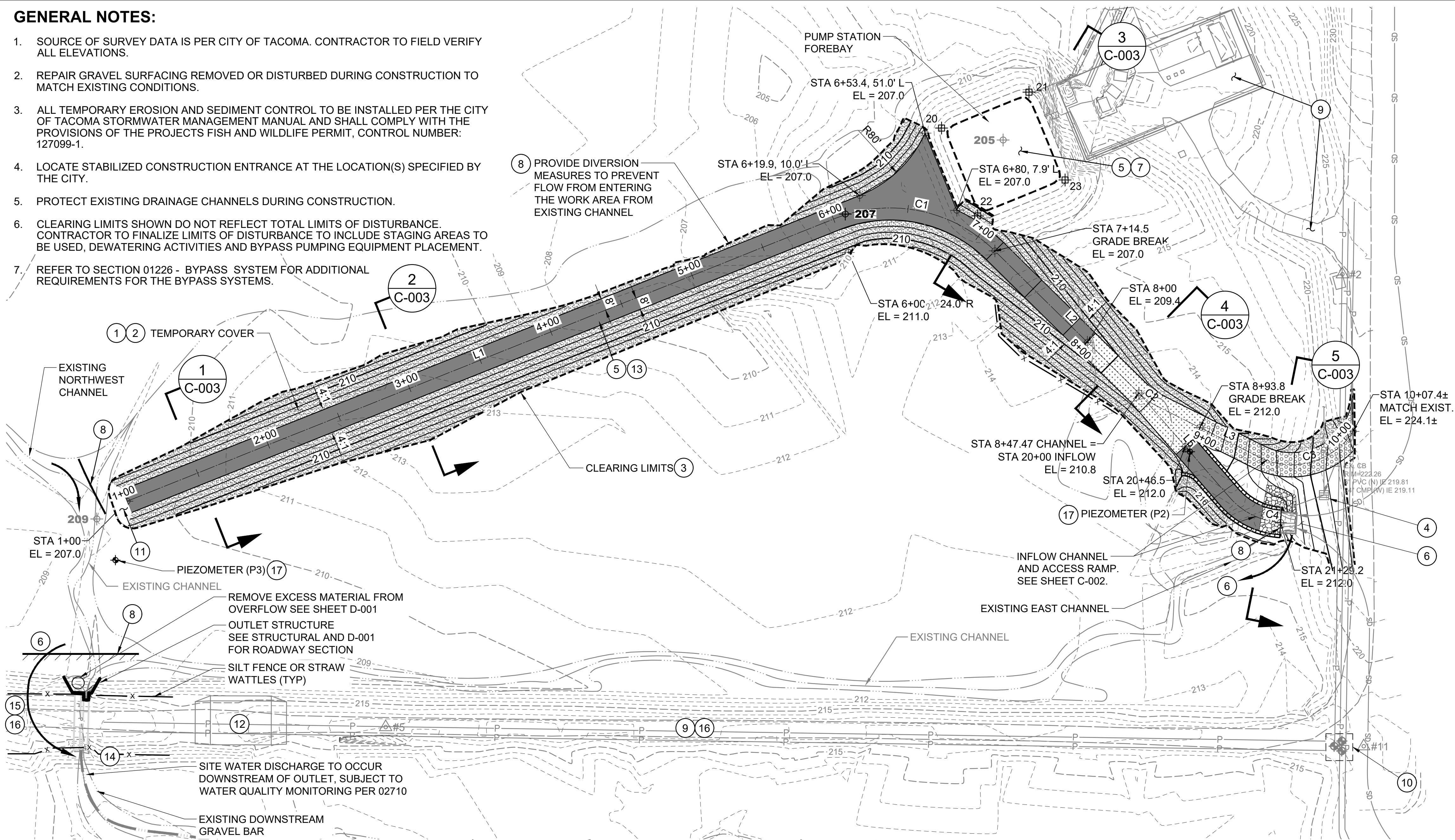


CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL
OUTLET STRUCTURE DEMOLITION PLAN

DRAWING NO.
D-001
WBS NO.
ES22-0242F
ENV-03031-01
SHEET NO.
SHEET 3 OF 11

GENERAL NOTES:

1. SOURCE OF SURVEY DATA IS PER CITY OF TACOMA. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS.
2. REPAIR GRAVEL SURFACING REMOVED OR DISTURBED DURING CONSTRUCTION TO MATCH EXISTING CONDITIONS.
3. ALL TEMPORARY EROSION AND SEDIMENT CONTROL TO BE INSTALLED PER THE CITY OF TACOMA STORMWATER MANAGEMENT MANUAL AND SHALL COMPLY WITH THE PROVISIONS OF THE PROJECTS FISH AND WILDLIFE PERMIT, CONTROL NUMBER: 127099-1.
4. LOCATE STABILIZED CONSTRUCTION ENTRANCE AT THE LOCATION(S) SPECIFIED BY THE CITY.
5. PROTECT EXISTING DRAINAGE CHANNELS DURING CONSTRUCTION.
6. CLEARING LIMITS SHOWN DO NOT REFLECT TOTAL LIMITS OF DISTURBANCE. CONTRACTOR TO FINALIZE LIMITS OF DISTURBANCE TO INCLUDE STAGING AREAS TO BE USED, DEWATERING ACTIVITIES AND BYPASS PUMPING EQUIPMENT PLACEMENT.
7. REFER TO SECTION 01226 - BYPASS SYSTEM FOR ADDITIONAL REQUIREMENTS FOR THE BYPASS SYSTEMS.



KEY NOTES:

1. APPLY 3" OF COMPOSTED MULCH TO ALL DISTURBED AREAS AS TEMPORARY COVER. ERODABLE SOILS SHALL BE COVERED WITHIN THE TIME PERIOD SPECIFIED IN WSDOT SECTION 8-01.3(1).
2. PRIOR TO ALLOWING FLOW IN THE CHANNEL, APPLICATION OF ALL PERMANENT SEEDING, PLANTING, AND EROSION CONTROL BLANKETS MUST BE COMPLETE.
3. DELINEATE CLEARING LIMITS WITH HIGH VISIBILITY PLASTIC FENCE.
4. INSTALL STORM DRAIN INLET PROTECTION.
5. INSTALL DEWATERING SYSTEM PER SECTION 02715. SITE WATER SHALL BE DISCHARGED DOWNSTREAM OF THE OUTLET STRUCTURE AND MUST COMPLY WITH SECTION 02710 SITE WATER DISCHARGE.
6. CONTRACTOR TO PROVIDE BYPASS PUMPING AT THIS LOCATION PER 01126 BYPASS.
7. REMOVE EXCESS MATERIAL AND DEBRIS TO ORIGINAL DESIGN ELEVATION OF 205. SEE SPECIFICATION SECTION 01010.
8. CONSTRUCT TEMPORARY WATERPROOF COFFERDAM IN ORDER TO BYPASS FLOW AWAY FROM WORK AREA DURING CONSTRUCTION PER SECTION 01126.
9. MAINTAIN 24-HOUR ACCESS TO EXISTING PUMP STATION AND OUTLET STRUCTURE AT ALL TIMES.
10. EXISTING WELLS AND BOLLARDS. PROTECT IN PLACE.
11. NEW CHANNEL TO MATCH EXISTING GRADES WITHIN CLEARING LIMITS. CONTRACTOR SHALL TAPER GRADING TO FACILITATE SMOOTH CHANNEL TRANSITION. INSTALL TEMPORARY COFFER DAM OR SANDBAGS TO PROTECT NEW CHANNEL PRIOR TO INSTALLATION OF EROSION CONTROL BLANKETS.
12. PROTECT OVERFLOW SPILLWAY STRUCTURE BY DISTRIBUTING VEHICLE LOADS PER SECTION 02100.
13. SOFT SOILS TO BE ENCOUNTERED DURING EXCAVATION. CONTRACTOR TO UTILIZE STABILIZING TRACK MATS WHERE NECESSARY.
14. ALL WORK WITHIN THE BASIN SHALL OCCUR WITH THE OUTLET PIPES CLOSED OR PLUGGED TO ISOLATE THE BASIN FROM LEACH CREEK PER ARMY CORPS OF ENGINEERS PERMIT NWS-2011-859-WRD.
15. AREA WEST OF OUTLET STRUCTURE AVAILABLE FOR BYPASS AND TREATMENT RELATED EQUIPMENT SEE G-001
16. NO GENERAL STAGING SHALL OCCUR ALONG THE DAM. WEST OF THE OUTLET STRUCTURE AS INDICATED, ONLY BYPASS PUMPS, BAKER TANKS AND/OR OTHER TRAILER MOUNTED TREATMENT EQUIPMENT, WITH EQUIVALENT SURCHARGE LOADING LIMITED TO NO GREATER THAN 335 PSF AND THE BOUNDARY OF LOADING SET BACK A MINIMUM OF 3 FEET FROM THE SLOPE CREST, ALLOWED WITHOUT FURTHER APPROVAL. CONTRACTOR TO SUBMIT LOADING PLANS FOR OWNER APPROVAL FOR OTHER EQUIPMENT OR LOADING TYPES. EQUIPMENT REQUIRING CONCENTRATED POINT LOADS PROXIMATE TO THE SLOPE CREST (E.G., OUTRIGGERS) MAY NOT BE APPROVED.
17. EXISTING PIEZOMETER AVAILABLE FOR CONTRACTOR USE. SEE SECTION 02715.

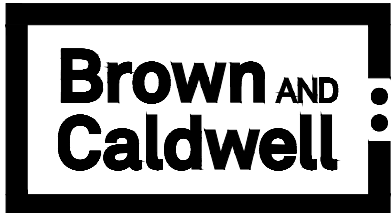
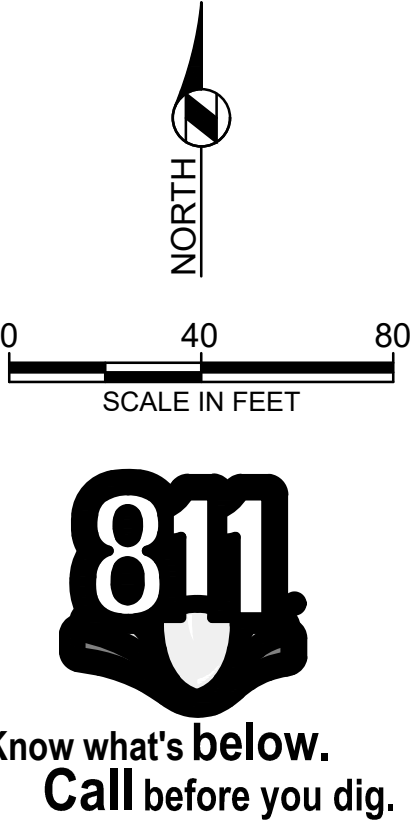
CHANNEL CENTERLINE									
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	500.94'	N68°13'39"E				1+00.00	N = 696309.47 E = 1141107.70	6+00.94	N = 696495.28 E = 1141572.91
C1	113.59'		066°24'28"	98.00'	64.14'	6+00.94	N = 696495.28 E = 1141572.91	7+14.53	N = 696474.01 E = 1141678.11
L2	132.94'	S45°21'53"E				7+14.53	N = 696474.01 E = 1141678.11	8+47.47	N = 696380.61 E = 1141772.72
C2	15.19'		018°08'02"	48.00'	7.66'	8+47.47	N = 696380.61 E = 1141772.72	8+62.66	N = 696371.81 E = 1141785.02
L3	74.67'	S63°29'56"E				8+62.66	N = 696371.81 E = 1141785.02	9+37.33	N = 696338.49 E = 1141851.85
C3	70.11'		083°41'18"	48.00'	42.98'	9+37.33	N = 696338.49 E = 1141851.85	10+07.44	N = 696355.43 E = 1141913.61

INFLOW CHANNEL CENTERLINE									
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L5	90.92'	S40°59'56"E				20+00.00	N = 696380.62 E = 1141772.73	20+90.92	N = 696312.00 E = 1141832.38
C4	38.20'		045°36'05"	48.00'	20.18'	20+90.92	N = 696312.00 E = 1141832.38	21+29.13	N = 696295.57 E = 1141865.76

# DESIGN POINTS			
ID	NORTHING	EASTING	DESCRIPTION
#20	696,554.785	1,141,643.037	LIMITS OF EXISTING FOREBAY
#21	696,578.412	1,141,700.544	LIMITS OF EXISTING FOREBAY
#22	696,497.035	1,141,666.763	LIMITS OF EXISTING FOREBAY
#23	696,520.661	1,141,724.270	LIMITS OF EXISTING FOREBAY

SURVEY CONTROL POINTS				
ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
#2	696,458.618	1,141,906.423	225.73	"X" NE COR VAULT
#3	696,169.796	1,140,829.824	218.41	BRASSIE/CONC W END DIKE
#5	696,161.011	1,141,277.701	218.03	R&C APPROX CL GRAVEL RD
#11	696,148.402	1,141,920.544	218.51	SBM IDAHO & DIKE

HORIZONTAL DATUM: STATE PLANE GRID COORDINATE SYSTEM (NAD83/91) SOUTH ZONE.
VERTICAL DATUM: NGVD 29



AT FULL SCALE
0 1/2 1
(IF NOT 1", SCALE
ACCORDINGLY)



NO

REVISION

DATE

APPD

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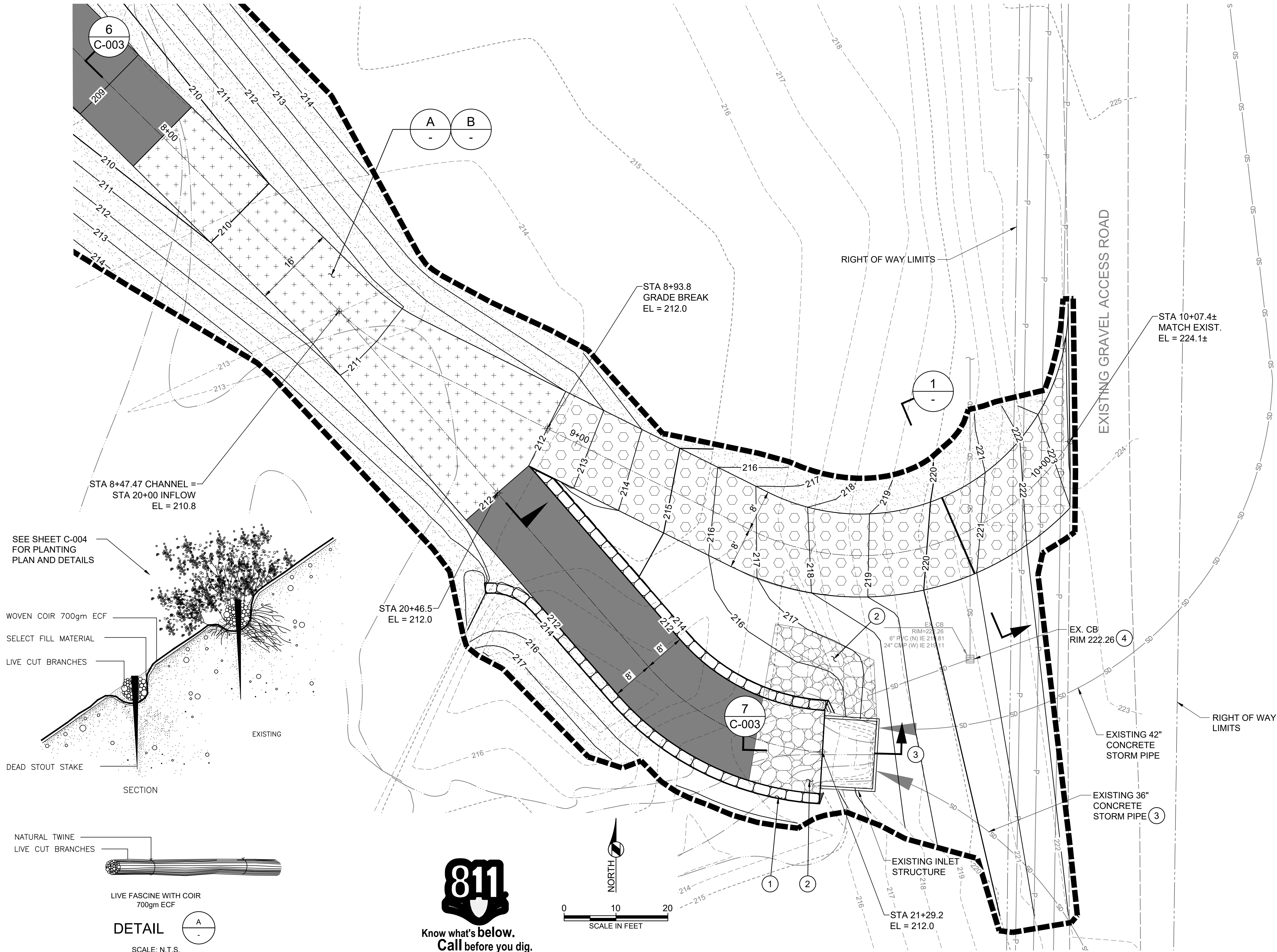
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CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL - TEMPORARY EROSION AND SEDIMENT CONTROL,
BYPASS, GRADING AND LAYOUT

DRAWING NO.
C-001
WBS NO.
ES22-0242F
ENV-03031-01
SHEET NO.
4 OF 12

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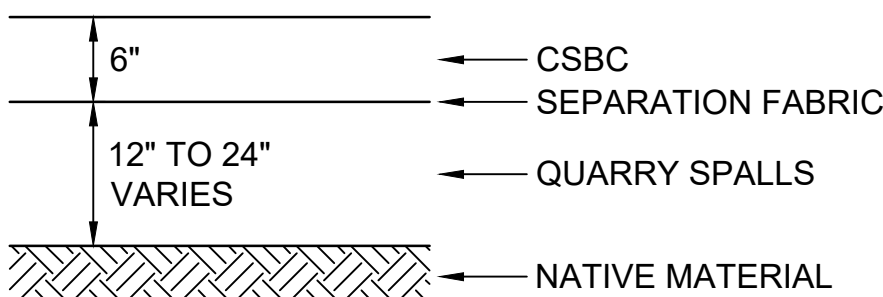


GENERAL NOTES:

1. SOURCE OF SURVEY DATA IS PER CITY OF TACOMA. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS.
2. CONTRACTOR TO LOCATE AND PROTECT EXISTING UTILITIES.
3. SEE SHEET C-001 FOR TEMPORARY EROSION AND SEDIMENT CONTROL.
4. FOR CHANNEL CENTERLINE SURVEY CONTROL, SEE SHEET C-001.

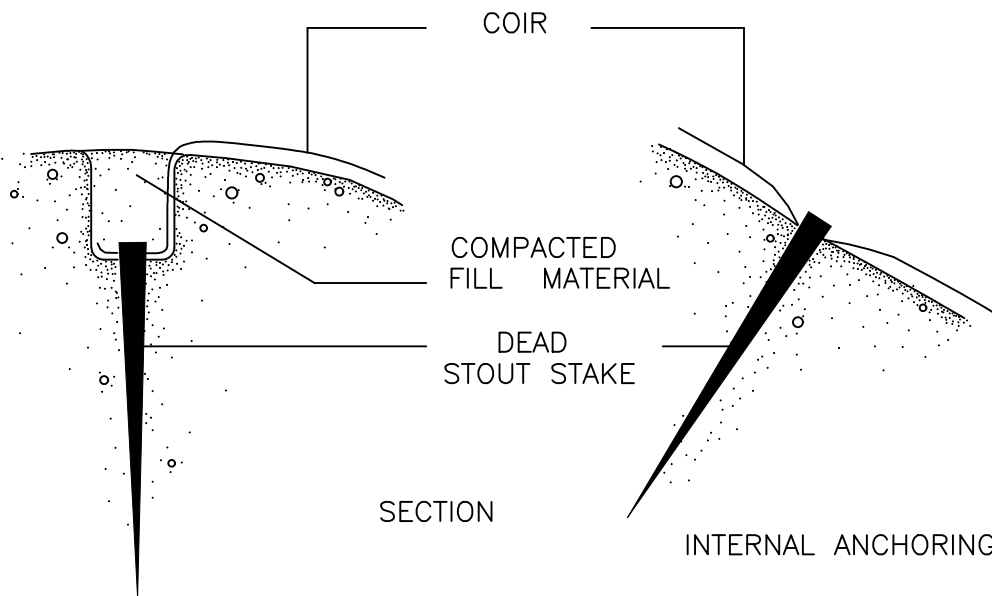
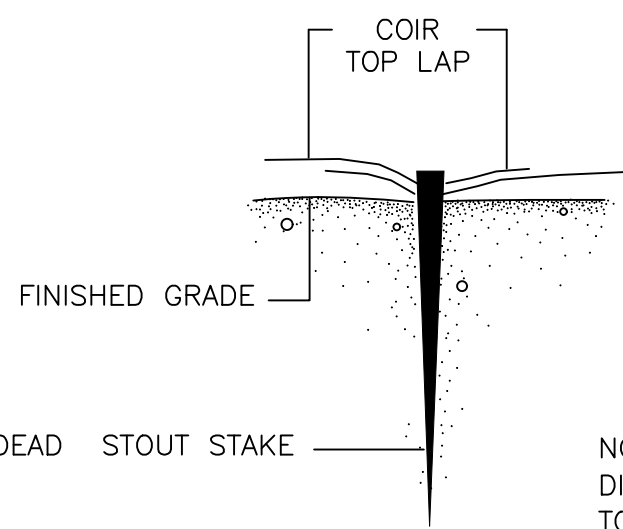
KEY NOTES:

1. INSTALL ECOLOGY BLOCKS FOR 80' DOWNSTREAM OF INLET STRUCTURE. SEE SECTION 5, C-003.
2. INSTALL RIPRAP OUTLET PROTECTION, 14-FOOT DOWNSTREAM AND EXTENDING UP THE CHANNEL SIDES A MINIMUM OF 1-FOOT ABOVE THE PIPE CROWN ELEVATION.
3. CONTRACTOR TO PROVIDE BYPASS PUMPING AT THIS LOCATION PER 01126 BYPASS.
4. ADJUST FINAL GRADE TO RIM OF EXISTING INLET.



SECTION 1

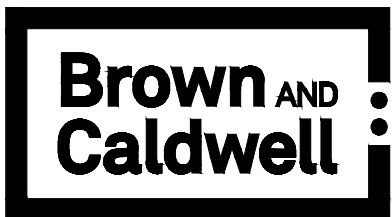
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COIR INSTALLATION

DETAIL B

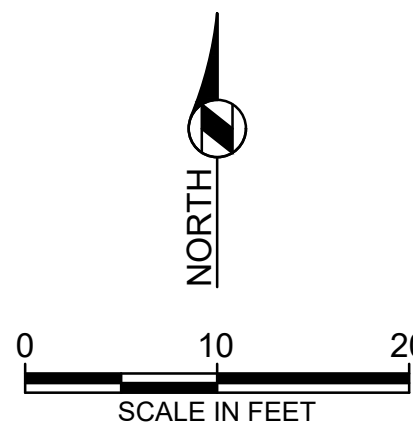
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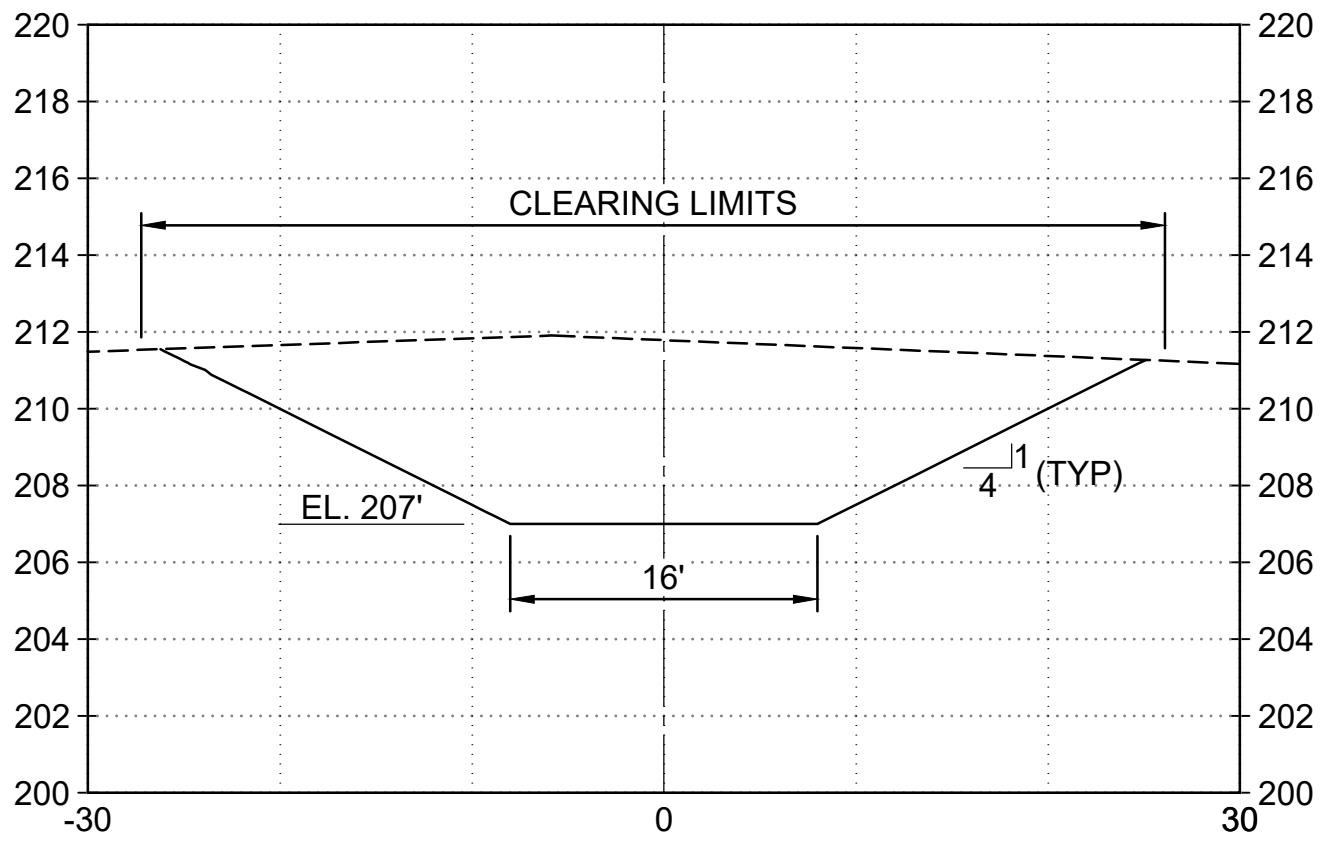


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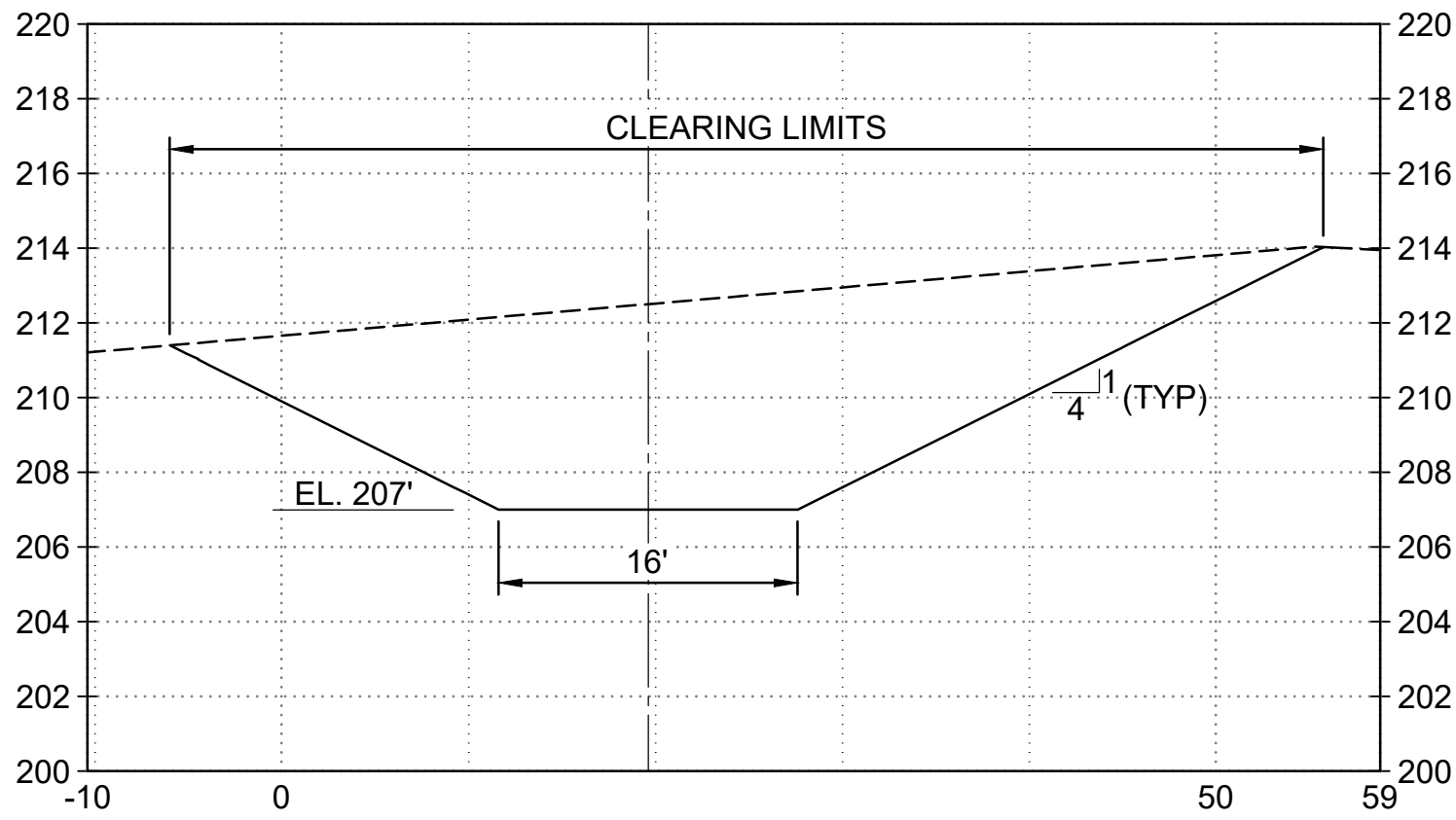


CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL
INFLOW CHANNEL REROUTING AND ACCESS RAMP

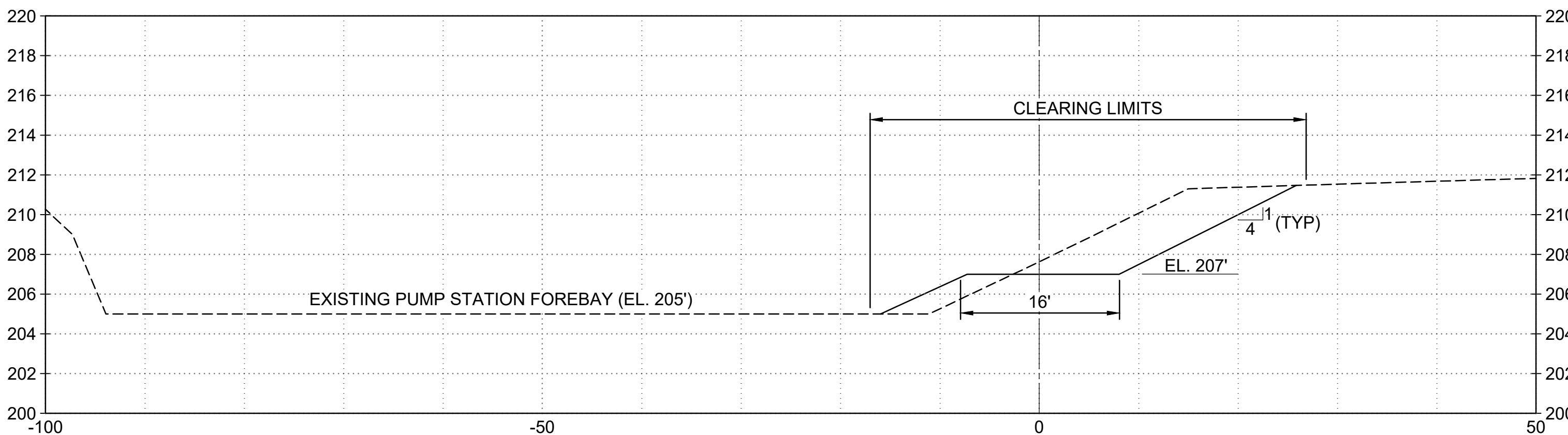
DRAWING NO.	C-002
WBS NO.	ES22-0242F
SHEET NO.	ENV-03031-01
SHEET 5	OF 11



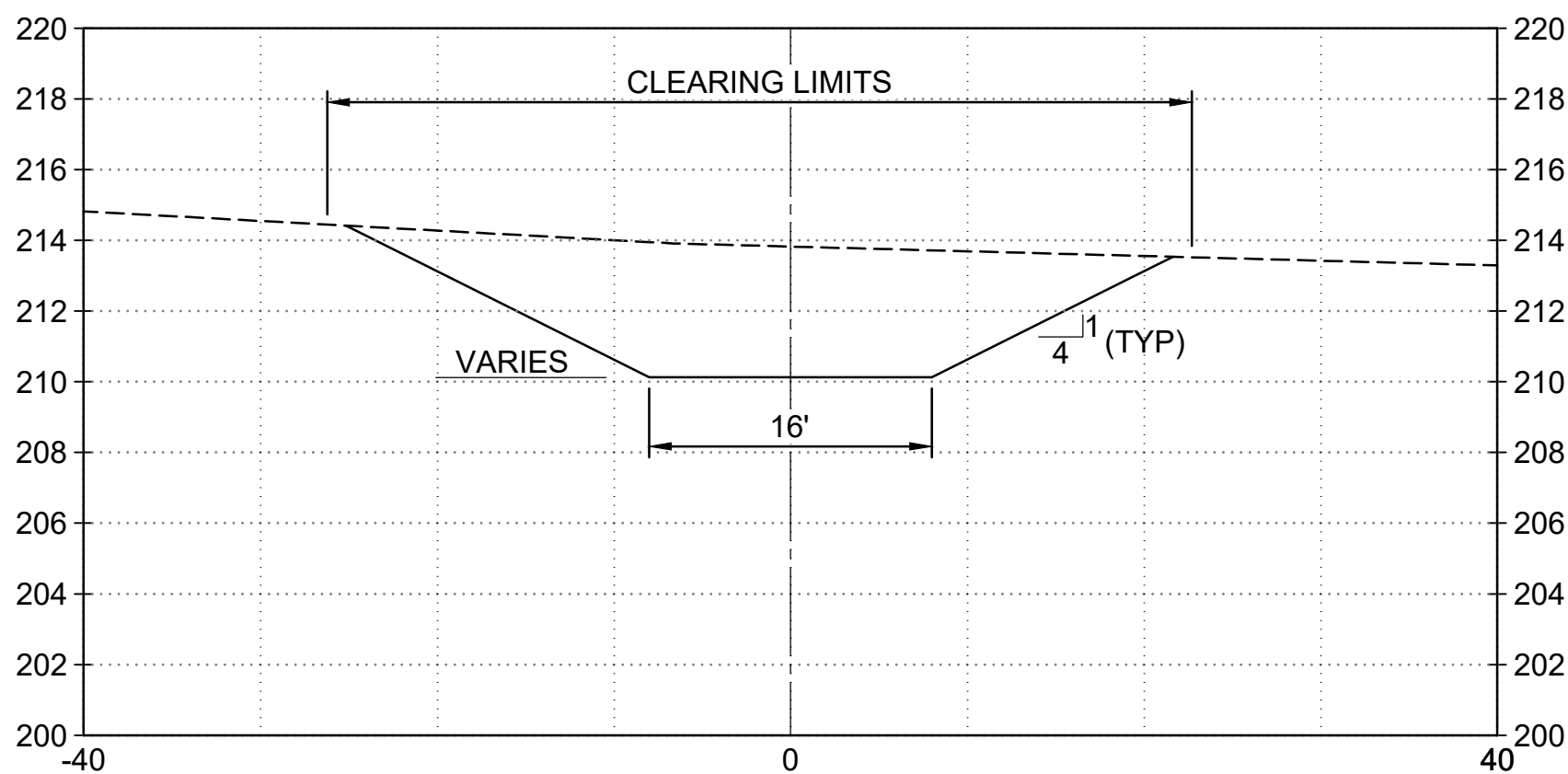
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C-001
SCALE: 1" = 10' (H)
1" = 5' (V)



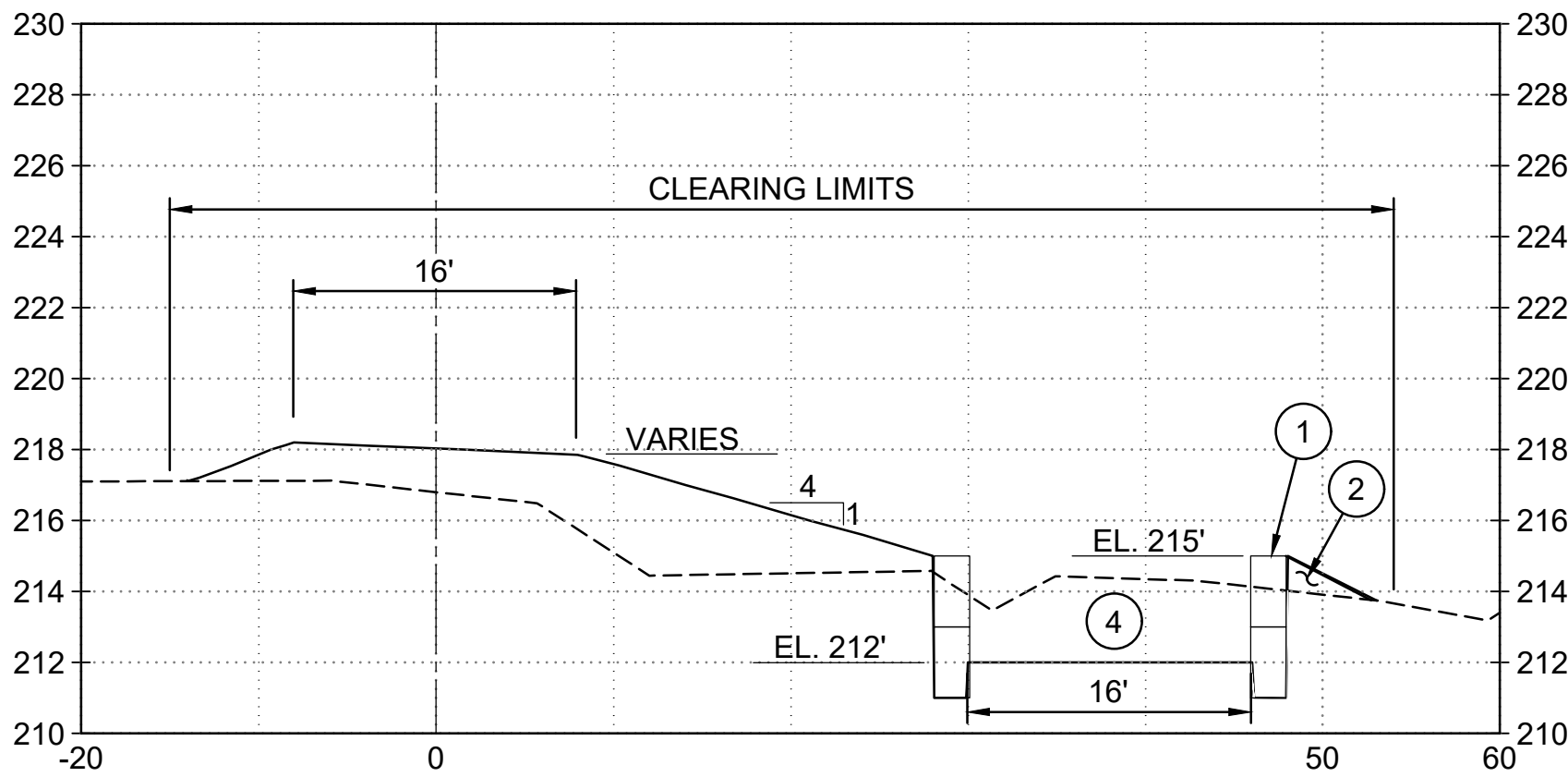
SECTION 2
C-001
SCALE: 1" = 10' (H)
1" = 5' (V)



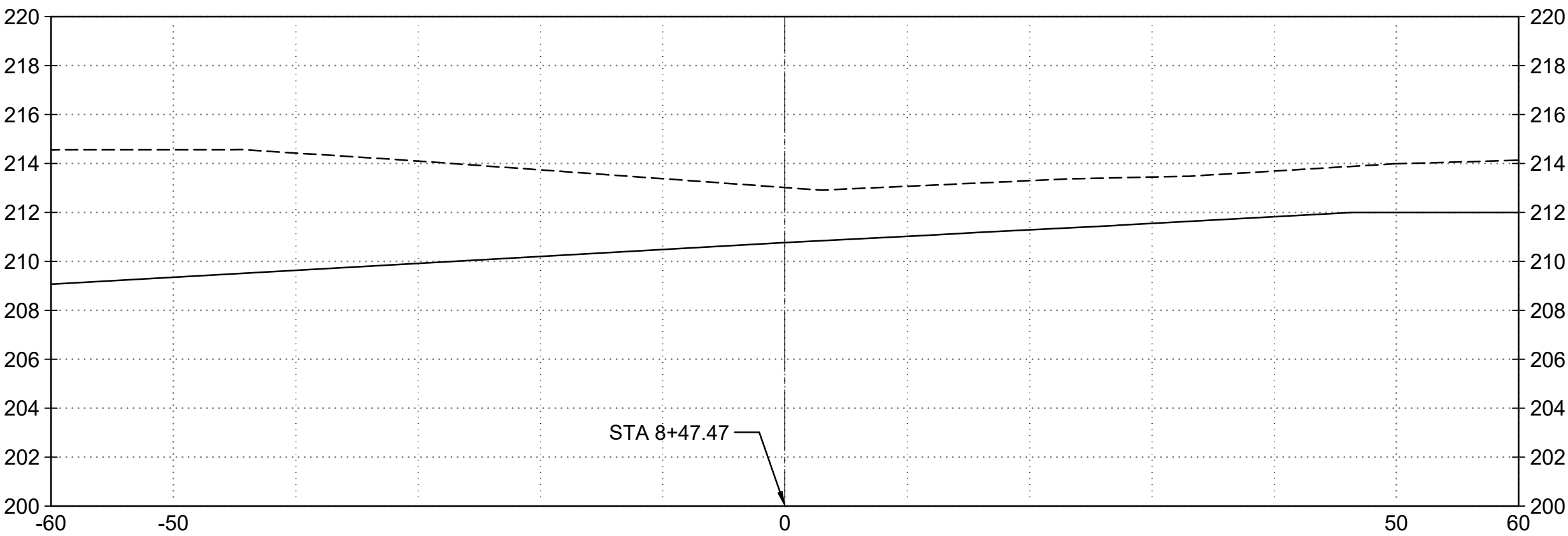
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C-001
SCALE: 1" = 10' (H)
1" = 5' (V)



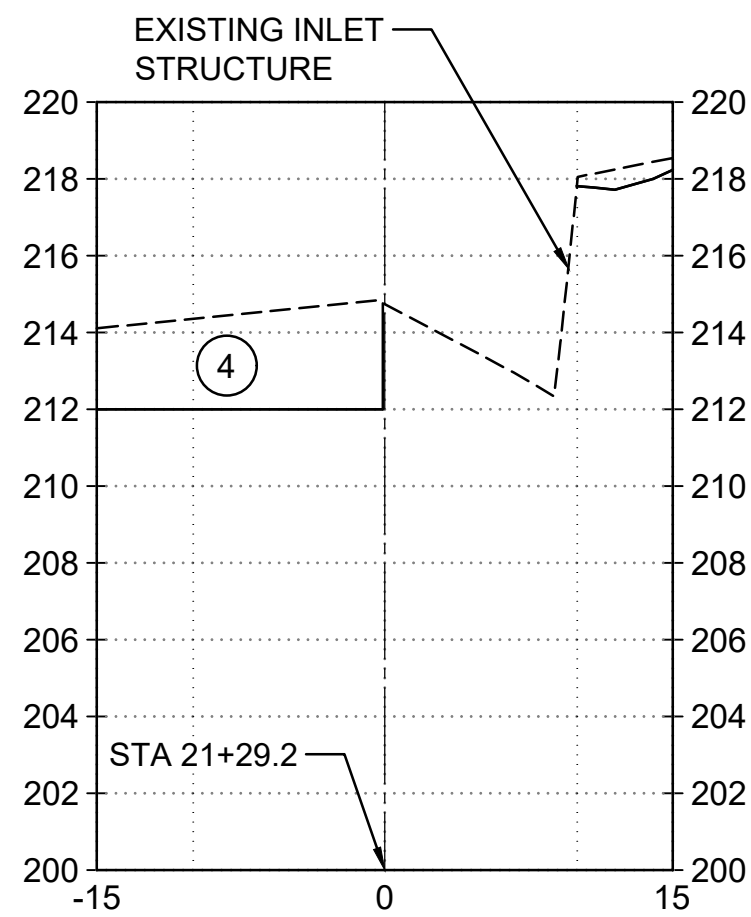
SECTION 4
C-001
SCALE: 1" = 10' (H)
1" = 5' (V)



SECTION 5
C-001
SCALE: 1" = 10' (H)
1" = 5' (V)



SECTION 6
C-002
SCALE: 1" = 10' (H)
1" = 5' (V)



SECTION 7
C-002
SCALE: 1" = 10' (H)
1" = 5' (V)

GENERAL NOTES:

1. ALL MATERIAL REMOVED FROM THE HOLDING BASIN AND CHANNEL SHALL BE HAULED TO LRI LANDFILL LOCATED AT 30919 MERIDIAN STREET EAST, GRAHAM WA.

KEY NOTES:

1. ECOLOGY BLOCKS. SEE C-002 FOR EXTENTS OF INSTALLATION.
2. BACKFILL SURFACE TO TOP OF ECOLOGY BLOCKS.
3. EXCESS MATERIAL TO BE REMOVED FROM HOLDING BASIN ESTIMATED TO BE 150 CY.
4. INSTALL RIPRAP OUTLET PROTECTION, 14 FEET DOWNSTREAM. SEE C-002.



AT FULL SCALE
0 1/2 1
(IF NOT 1", SCALE
ACCORDINGLY)



NO

REVISION

DATE

APPD

FINAL
CONSTRUCTION
CHECKED
BY
DATE

DATE
2/22/2023
DESIGNED
VH
DRAWN
KT
FIELD BOOKS

SCALE
AS NOTED
CHECKED
RB
PROJECT NAME
DRAWING NAME
158869-C-003.dwg



CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL
GRADING SECTIONS

DRAWING NO.
C-003
WBS NO.
ES22-0242F
ENV-03031-01
SHEET NO.
SHEET 6 OF 11

GENERAL NOTES:

1. SOURCE OF SURVEY DATA IS PER CITY OF TACOMA.
CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS.

KEY NOTES:

- 1 SEE SHEET C-002 FOR COIR MAT INSTALLATION DETAILS.
2 SEE SHEET C-005 FOR EROSION CONTROL BLANKET
OVER WETLAND HYDROSEED INSTALLATION DETAILS.

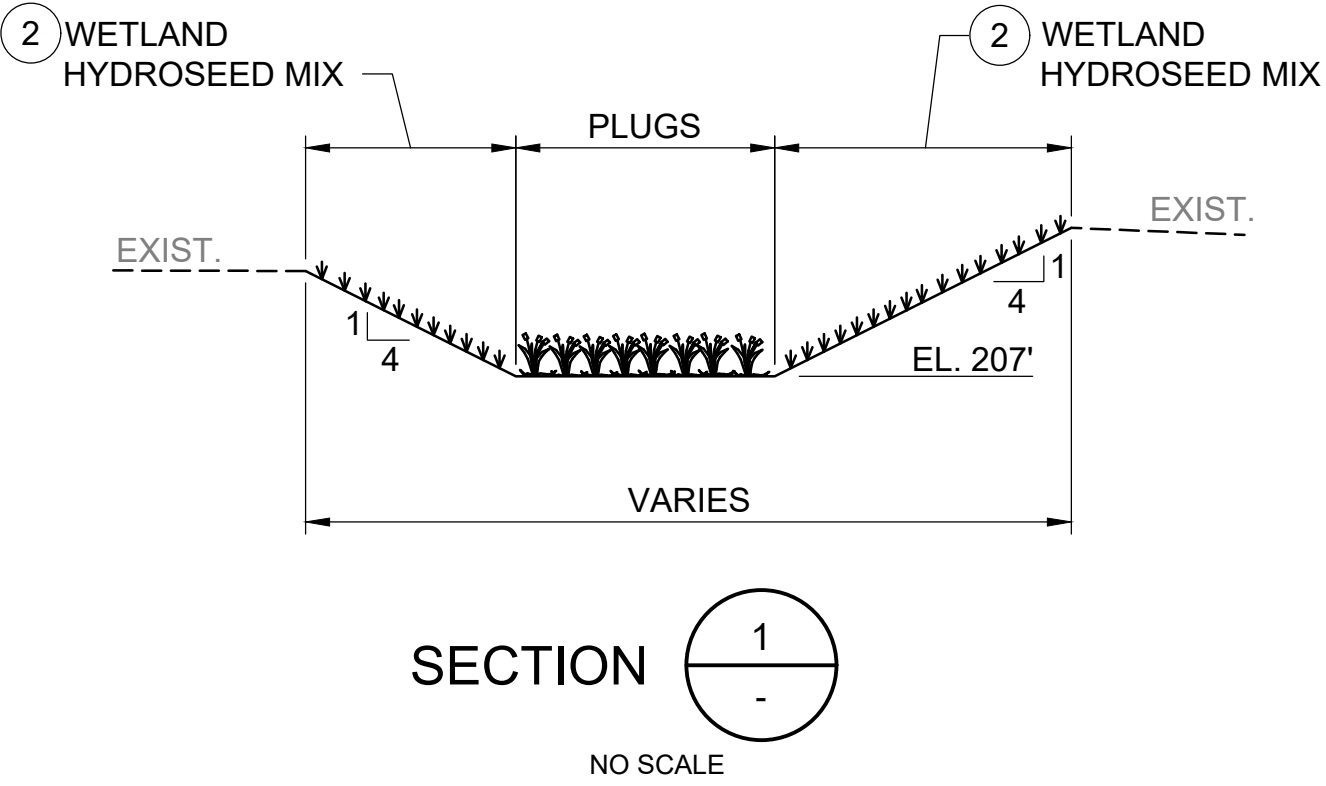


Table 5. Emergent wetland planting schedule – Base of Stormwater Channel¹

Common Name	Species Name	Indicator Status	Size ²	Spacing (O.C)
Emergent Species				
Slough sedge	<i>Carex obnupta</i>	OBL	Plug	2 ft.
Saw-beaked sedge	<i>Carex stipata</i>	OBL	Plug	2 ft.
Tall mannagrass	<i>Glyceria elata</i>	FACW	Plug	2 ft.
Tapertip rush	<i>Juncus acuminatus</i>	OBL	Plug	2 ft.
Hardstem bulrush	<i>Schoenoplectus acutus</i>	OBL	Plug	2 ft.
Small-flowered bulrush	<i>Scirpus microcarpus</i>	OBL	Plug	2 ft.

¹ Quantities to be determined upon completion of grading.

² Plugs will be planted in clumps of four.

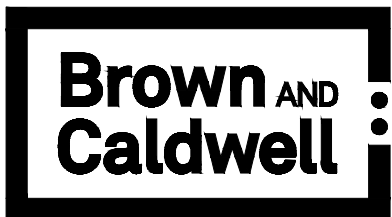
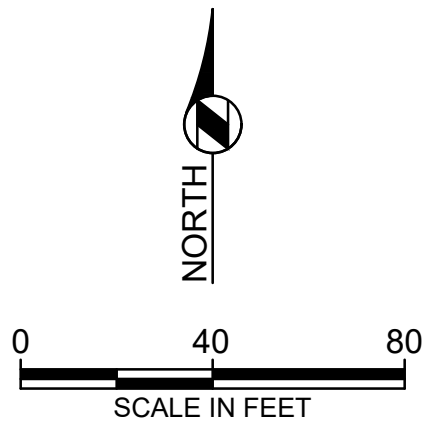
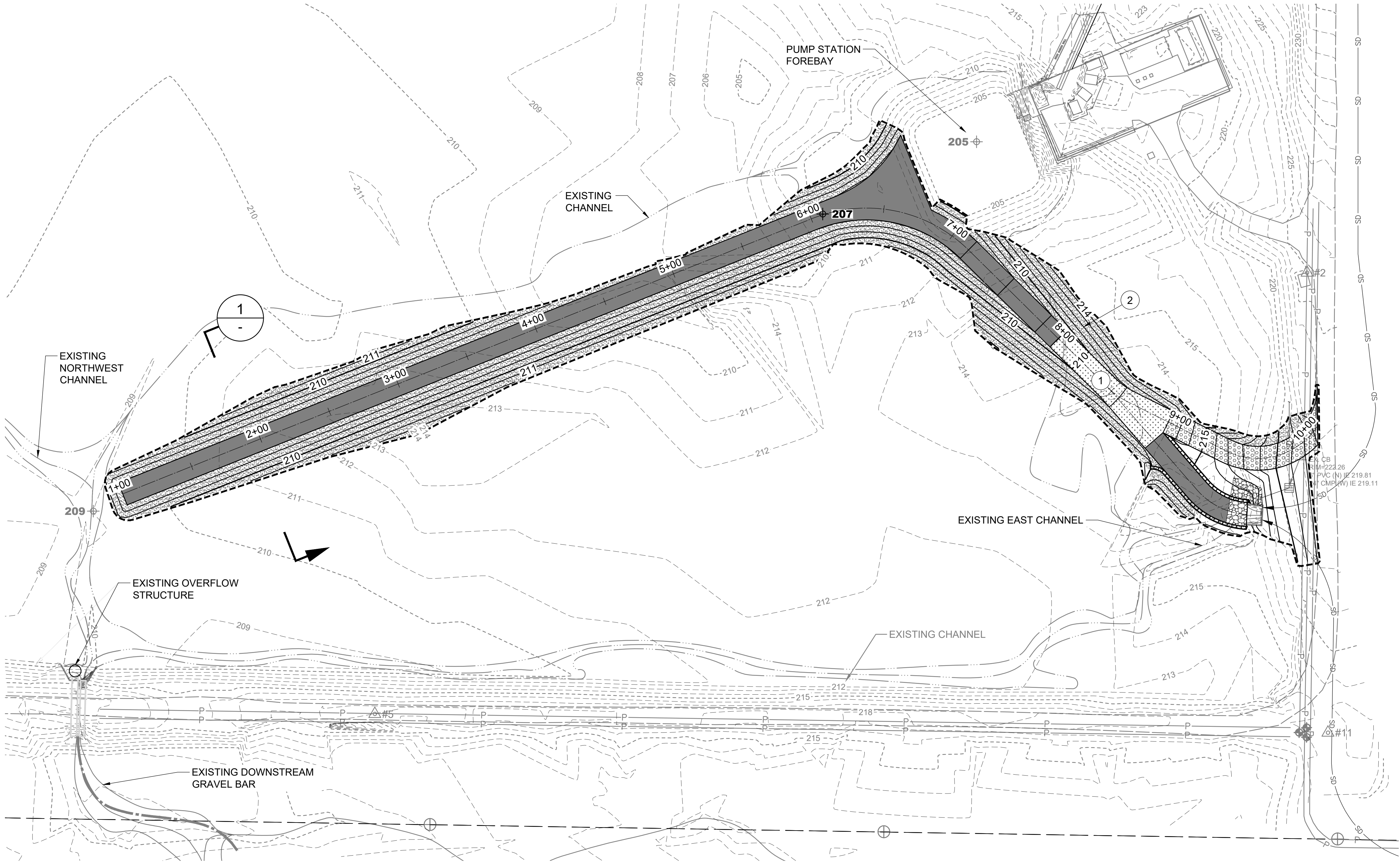
Table 6. Wetland hydrosed mix – Slopes of Stormwater Channel^{1, 2, 3}

Common Name	Species Name	Indicator Status
Tall mannagrass	<i>Glyceria elata</i>	FACW
Tufted hairgrass	<i>Deschampsia spicata</i>	FACW
Water foxtail	<i>Alopecurus geniculatus</i>	FACW
Meadow barley	<i>Hordeum brachyantherum</i>	FACW
Slough sedge	<i>Carex obnupta</i>	OBL

¹ An assortment (by weight) of the species listed in Table 6 should be included in the seed mix.

² Seed mix shall be applied at approximately 0.25-50 lbs. per 1,000 sq. ft.

³ Species may be substituted with other native wetland species if availability is limited.



AT FULL SCALE
0 1/2 1
(IF NOT 1", SCALE
ACCORDINGLY)



NO

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DATE

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CONSTRUCTION
CHECKED
BY
DATE

DATE
2/22/2023
DESIGNED
VH
DRAWN
KT
FIELD BOOKS

SCALE
AS NOTED
CHECKED
RB
PROJECT NAME
DRAWING NAME
158869-C-004.dwg

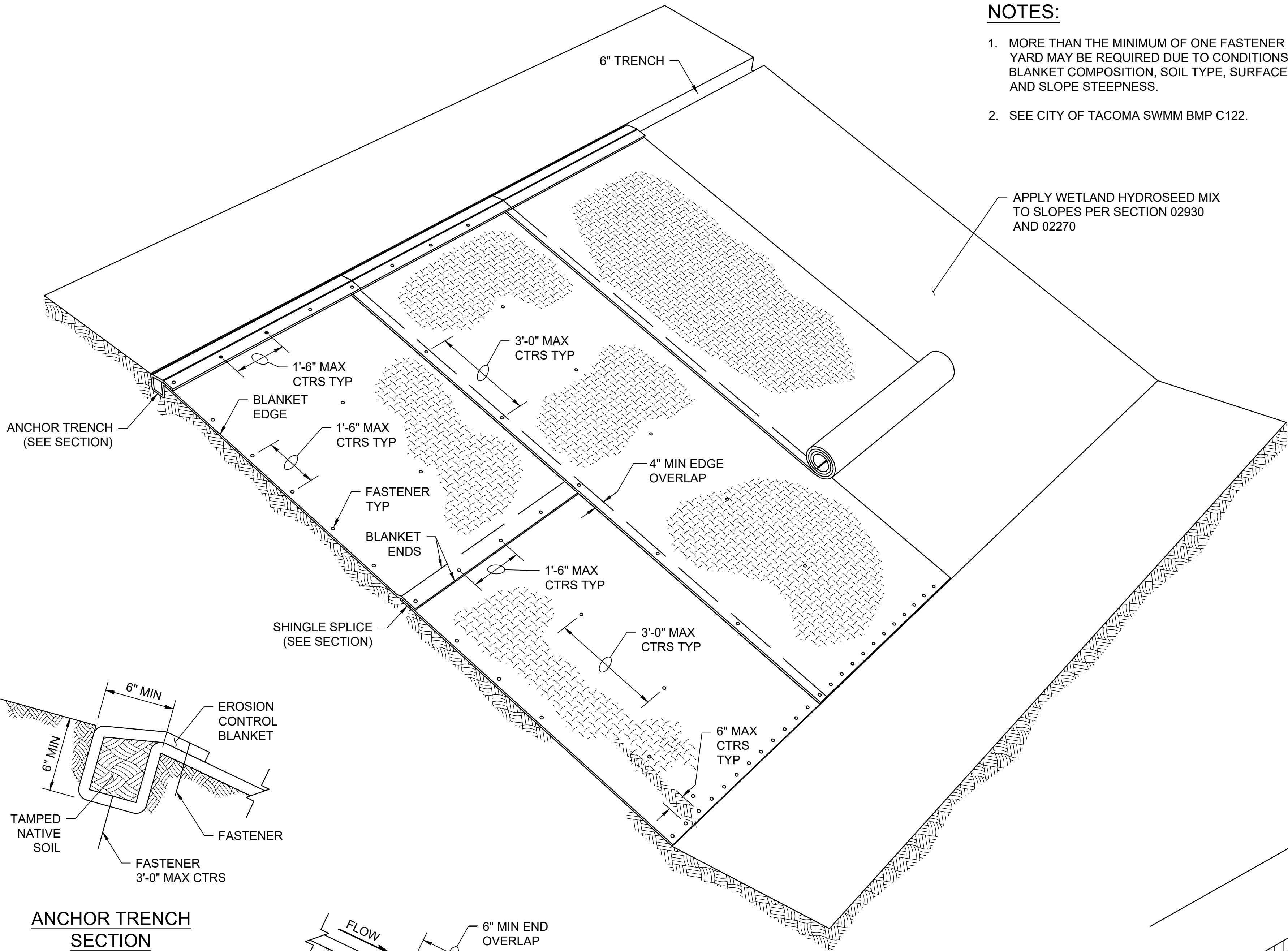


CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL
PLANTING PLAN AND DETAILS

DRAWING NO.
C-004
WBS NO.
ES22-0242F
ENV-03031-01
SHEET NO.
SHEET 7 OF 11

NOTES:

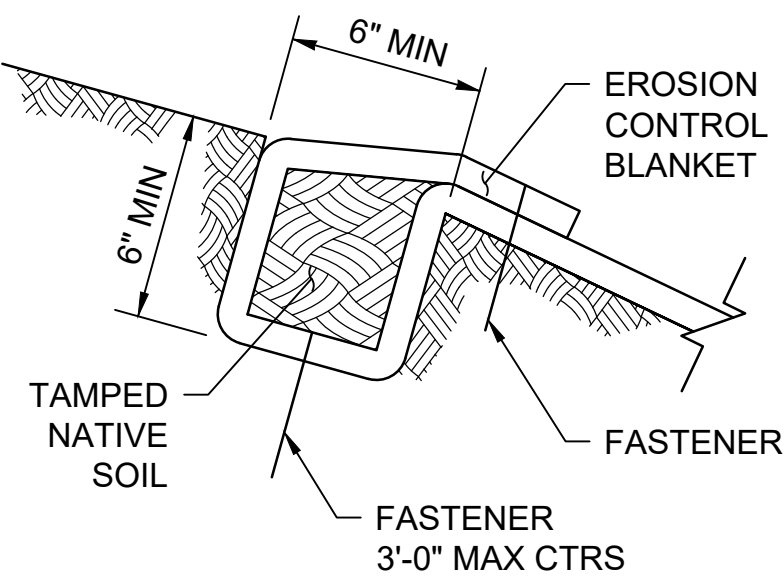
- 1. MORE THAN THE MINIMUM OF ONE FASTENER PER SQUARE YARD MAY BE REQUIRED DUE TO CONDITIONS SUCH AS BLANKET COMPOSITION, SOIL TYPE, SURFACE UNIFORMITY, AND SLOPE STEEPNESS.
- 2. SEE CITY OF TACOMA SWMM BMP C122.



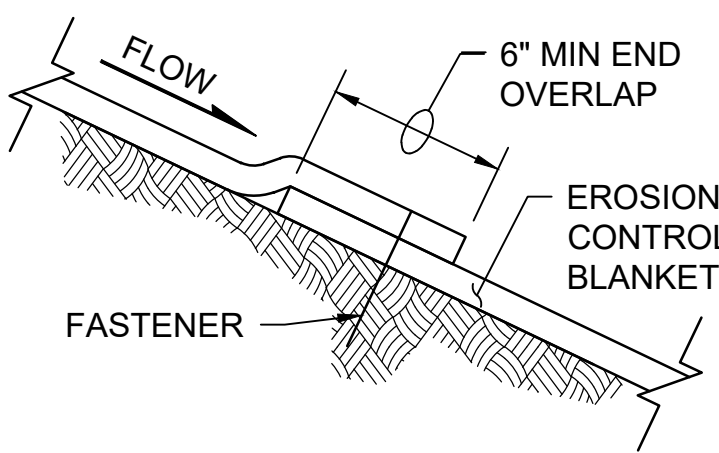
APPLY WETLAND HYDROSEED MIX
TO SLOPES PER SECTION 02930
AND 02270

NOTES:

- 1. CONTRACTOR SHALL INSTALL AND MAINTAIN A STABILIZED CONSTRUCTION ENTRANCE WHERE VEHICLES ENTER THE PROJECT SITE.
- 2. THE ROCK PAD SHALL BE AT LEAST 12" THICK AND 100' LONG. MATERIAL SHALL BE 4" TO 8" QUARRY SPALLS AND MAY BE TOP-DRESSED WITH 1" TO 3" ROCK. WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA.
- 3. ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
- 4. CONTRACTOR TO MAINTAIN ROAD DURING CONSTRUCTION TO MINIMIZE TRACK-OUT OF DIRT AND MATERIAL.
- 5. CONSTRUCTION ENTRANCE SHALL MEET CITY OF TACOMA SWMM REQUIREMENTS.



ANCHOR TRENCH
SECTION



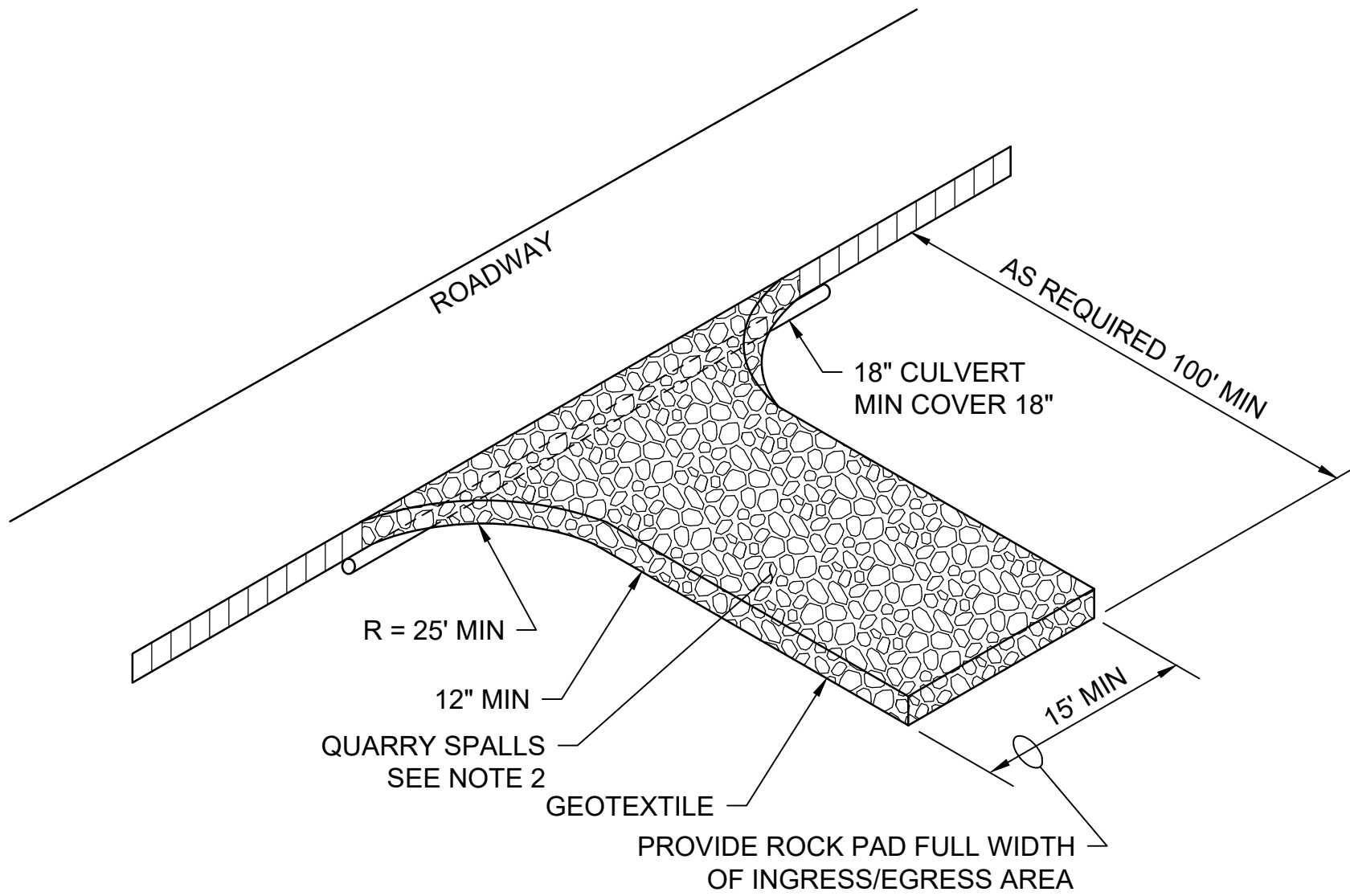
SHINGLE SPLICE
SECTION

PERSPECTIVE VIEW

EROSION CONTROL BLANKET
PLACEMENT ON SLOPE

DETAIL A

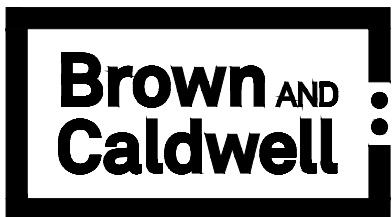
SCALE: NTS



CONSTRUCTION ENTRANCE DETAIL

DETAIL B

SCALE: NTS



AT FULL SCALE
0 1/2 1
(IF NOT 1", SCALE
ACCORDINGLY)



NO

REVISION

DATE

APPD

FINAL
CONSTRUCTION
CHECKED
BY
DATE
FIELD BOOKS

DATE
3/6/2023
DESIGNED
VH
DRAWN
KT
DRAWING NAME
158869-C-005.dwg

SCALE
AS NOTED
CHECKED
RB
PROJECT NAME



CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS
CIVIL
SITE DETAILS

DRAWING NO.
C-005
WBS NO.
ES22-0242F
ENV-03031-01
SHEET NO.
SHEET 8 OF 12

GENERAL STRUCTURAL NOTES

DESIGN CRITERIA
APPLICABLE BUILDING NOTES AND CODES
INTERNATIONAL BUILDING CODE, IBC 2018 EDITION, EXCEPT WHERE OTHER CODES ARE MORE RESTRICTIVE.

LIVE LOADS
PLATFORM GRATING25 psf

DRILLED-IN CONCRETE ANCHOR (DICA)
DRILLED-IN EXPANSION BOLTS SHALL BE STAINLESS STEEL "KWIK BOLT TYPE TZ" BY HILTI CORP., OR APPROVED EQUAL. ICBO CERTIFICATION IS REQUIRED.

ADHESIVE ANCHORING SYSTEM SHALL BE STAINLESS STEEL RODS AISI 316. REINFORCING BARS AND RODS ANCHORED INTO EXISTING CONCRETE SHALL BE IN DRILLED HOLE WITH HILTI "HIT-RE 500 V3", OR SIKA "SIKADUR" EPOXY INJECTION GEL OR APPROVED EQUAL. ICBO CERTIFICATION AND SPECIAL INSPECTION IS REQUIRED.

CEMENT GROUT/MORTAR
GROUT AND FILL GROUT SHALL BE HIGH-STRENGTH, NON-SHRINK CEMENTITIOUS UNDERWATER CEMENT RESISTANT TO WASH-OUT.

SURFACE PREPARATION, MIXING, AGGREGATES, AND PLACEMENT SHALL CONFORM MANUFACTURE'S INSTRUCTIONS.

UNDERWATER GROUT SHALL BE AS MANUFACTURED BY DAYTON SUPERIOR, FIVE STAR, USCP CONCRETE PRODUCTS OR EUCLID CHEMICAL. SUBMIT PRODUCT CUTSHEET.

ALUMINUM MATERIAL
ALUMINUM CONSTRUCTION SHALL BE IN ACCORDANCE WITH ASCE SPECIFICATIONS FOR STRUCTURES OF ALUMINUM. MATERIAL TO BE ALLOY 6061-T6, UNLESS NOTED OTHERWISE.
ALL CONNECTIONS BOLTS FOR ALUMINUM SHALL BE STAINLESS STEEL. WHERE ALUMINUM IS IN CONTACT WITH STEEL, CONCRETE OR MASONRY SURFACES, CONTACT SURFACES SHALL BE COATED WITH HEAVY ALKALI-RESISTANT BITUMINOUS PAINT, OR COAL TAR EPOXY PROTECTING COAT.

WELDING
MATERIALS AND PROCEDURES FOR WELDING ALUMINUM SHALL BE IN ACCORDANCE WITH AWS D1.2 CODE.

STAINLESS STEEL MATERIAL
STAINLESS STEEL CONSTRUCTION SHALL BE IN ACCORDANCE WITH AISI SPECIFICATIONS. STRUCTURES OF STAINLESS STEEL SHALL CONFORM TO AISI TYPE 304 OR ASTM A240. STAINLESS STEEL BOLTS AND NUTS SHALL CONFORM TO ASTM A193 AND A194.

WELDING
MATERIALS AND PROCEDURES FOR WELDING STAINLESS STEEL SHALL BE IN ACCORDANCE WITH AWS D1.6 CODE.

SPECIAL INSPECTION
THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION PER IBC SECTION 1704.

DRILLED IN CONCRETE ANCHORS:
PERIODIC SPECIAL INSPECTION SHALL INCLUDE VISUAL OBSERVATION OF DRILLED HOLE, SPACINGS, AND EDGE DISTANCES.

EPOXY OR CEMENT GROUTED DOWELS OR ANCHORS:
OBSERVE DRILLED HOLES AFTER CLEANING AND OBSERVE INSTALATION OF GROUT ANCHORS.

MISCELLANEOUS
VERIFY ALL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE PRIOR TO STARTING WORK AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

CALCULATIONS AND DRAWINGS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHER SHALL BE PREPARED BE A WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER. SUBMIT CALCULATIONS AND SHOP DRAWINGS TO THE ENGINEER FOR SATISFACTORY REVIEW PRIOR TO FABRICATION.

DEFERRED SUBMITTALS INCLUDE:
PRECAST CONCRETE RISER AND ANCHORAGE CALCULATIONS
VALVE ANCHORAGE CALCULATIONS

SUBMIT ALL REQUIRED SHOP DRAWINGS AND RECEIVE THEIR SATISFACTORY REVIEW FROM THE ENGINEER, PRIOR TO FABRICATION.

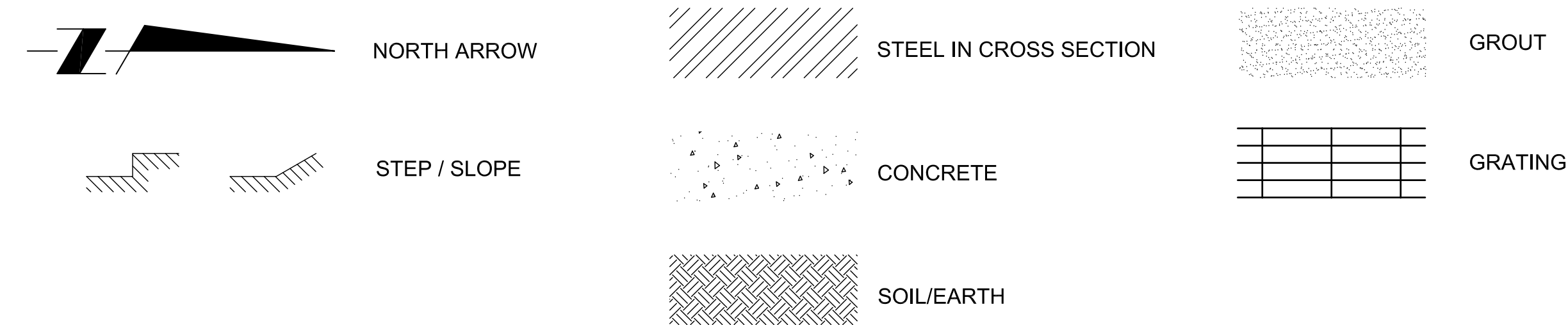
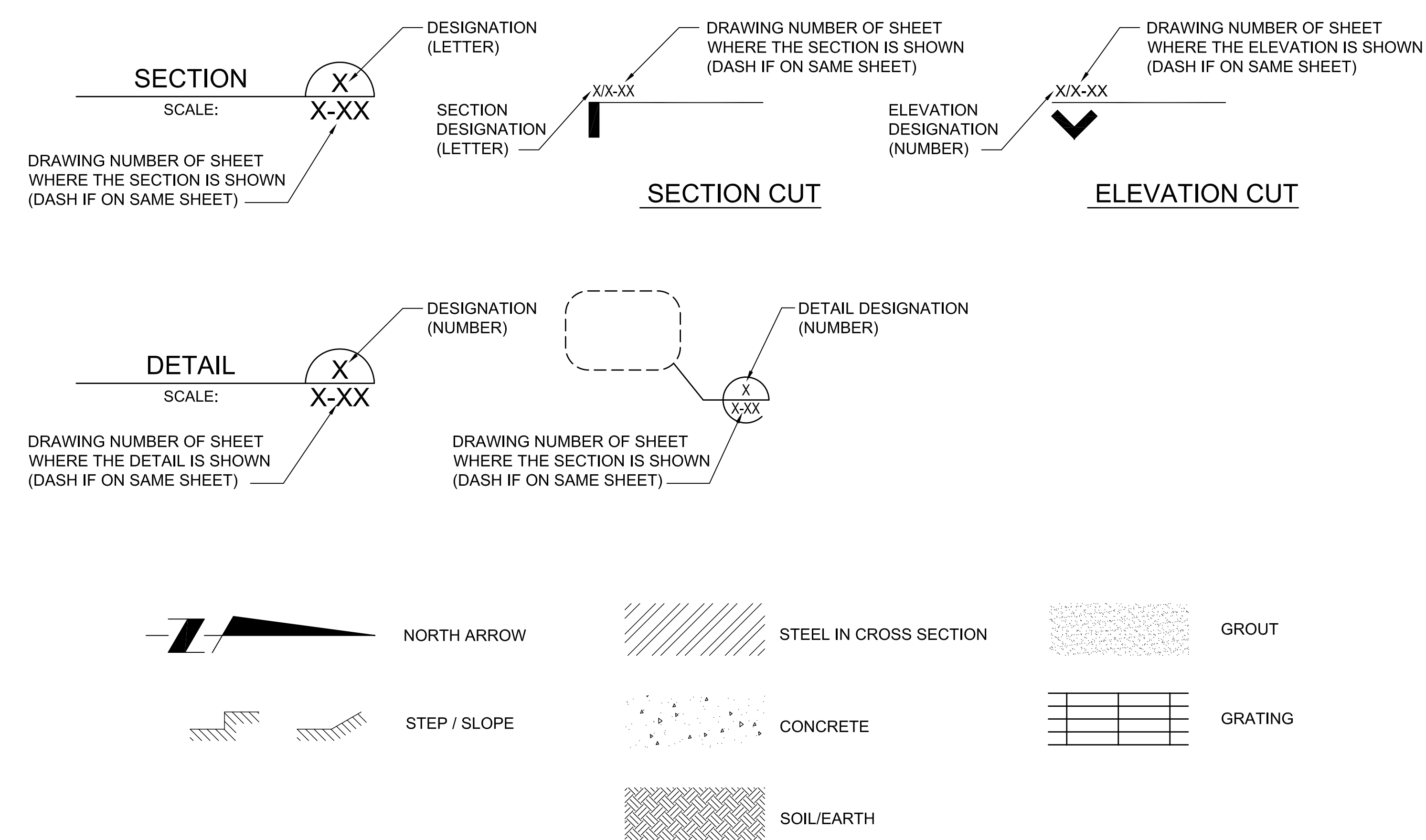
STRUCTURAL SYSTEM HAS BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. PROVIDE TEMPORARY ERECTION BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE AND ADJACENT STRUCTURES, DURING ALL PHASES OF CONSTRUCTION.

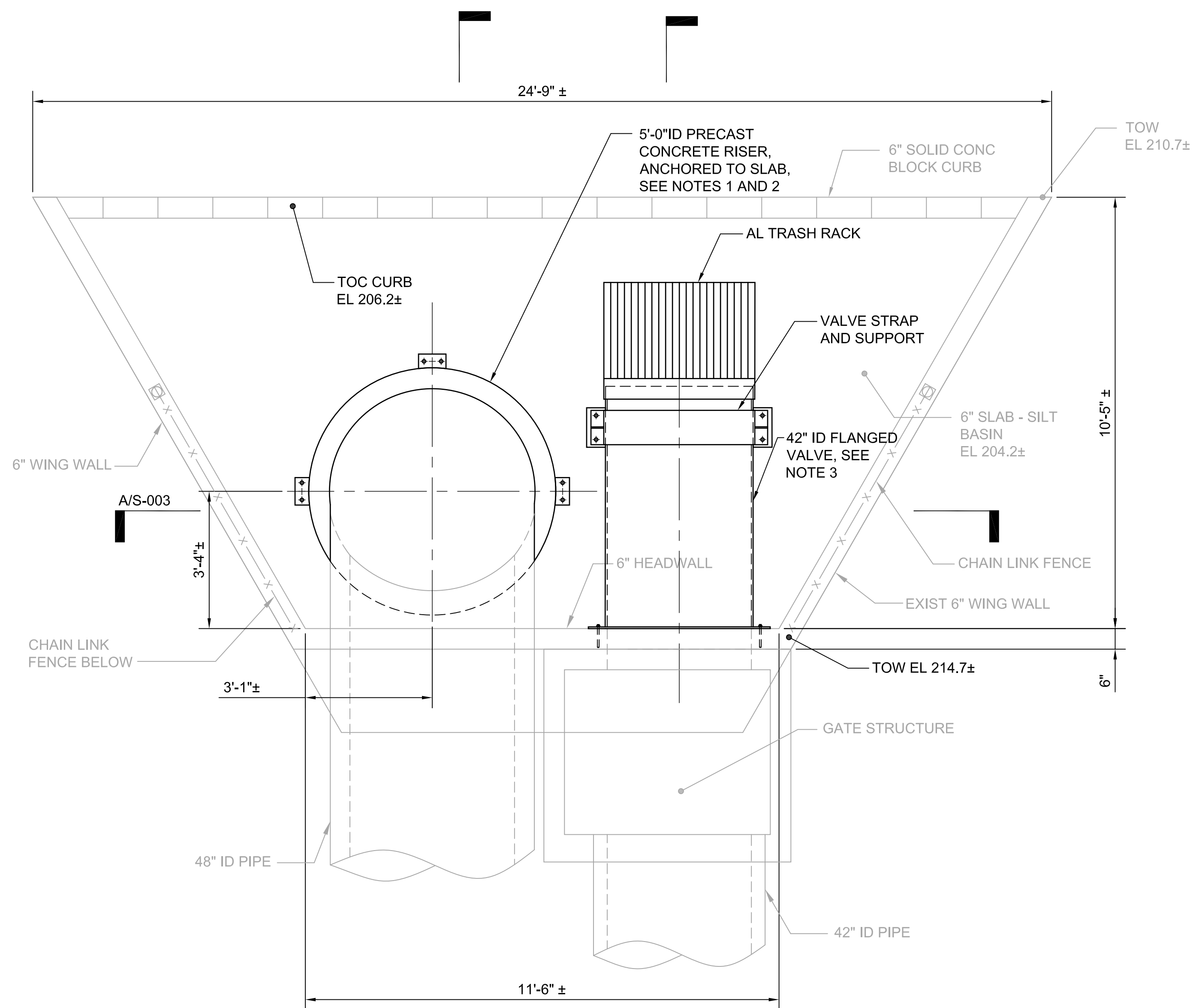
REFER TO SPECIFICATIONS FOR INFORMATION NOT CONTAINED IN THESE GENERAL NOTES.

ABBREVIATIONS

@	AT			NTS	NOT TO SCALE	STD	STANDARD
AB	ANCHOR BOLT	FT	FEET OR FOOT			STL	STEEL
AL	ALUMINUM	GA	GAUGE, GAGE	OC	ON CENTER, CENTERS	T&B	TOP AND BOTTOM
		GALV	GALVANIZED	OD	OUTSIDE DIAMETER	TOC	TOP OF CONCRETE
BOT	BOTTOM			OPNG	OPENING	TOS	TOP OF STEEL
		ID	INSIDE DIAMETER			TOW	TOP OF WALL
CL	CENTER LINE	IE	INVERT ELEVATION			TYP	TYPICAL
CLR	CLEAR	IF	INSIDE FACE	PL	PROPERTY LINE OR PLATE		
CONC	CONCRETE	IN	INCH		POUNDS PER SQUARE	UNO	UNLESS NOTED
CONN	CONNECTION			PSF		OTHERWISE	
CONT	CONTINUOUS	KSI	KIPS PER SQUARE	FOOT			
		INCH		PSI	POUNDS PER SQUARE	VERT	VERTICAL
DIA	DIAMETER			INCH			
DICA	DRILLED IN CONCRETE ANCHOR	L	LENGTH OR ANGLE			w/	WITH
		LB	POUND	R	RADIUS	w/o	WITHOUT
DWG	DRAWING	LONGIT	LONGITUDINAL	REBAR REINF	REINFORCEMENT BAR REINFORCEMENT OR REINFORCING REQUIRED		
				REQD			
EA	EACH	MAX	MAXIMUM				
EF	EACH FACE	MECH	MECHANICAL				
EL	ELEVATION	MIN	MINIMUM				
ELEC	ELECTRICAL	MISC	MISCELLANEOUS	SECT	SECTION		
ES	EACH SIDE			SHT	SHEET		
EW	EACH WAY	N/A	NOT APPLICABLE	SIM	SIMILAR		
EXIST	EXISTING	NF	NEAR FACE	SPCG	SPACING		
EXP	EXPANSION	NO	NUMBER	SS	STAINLESS STEEL		

LEGEND



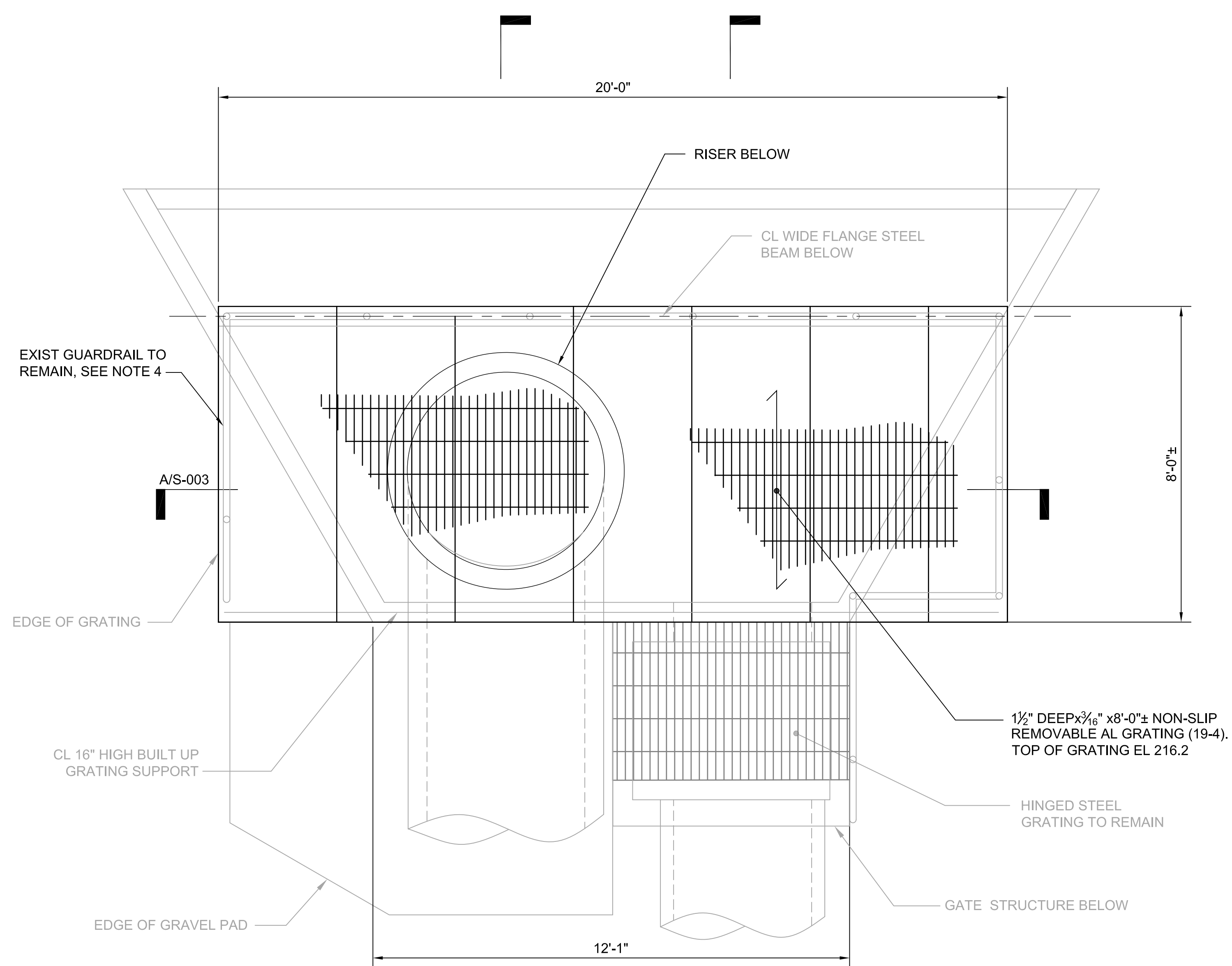


OUTLET BASIN PLAN

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

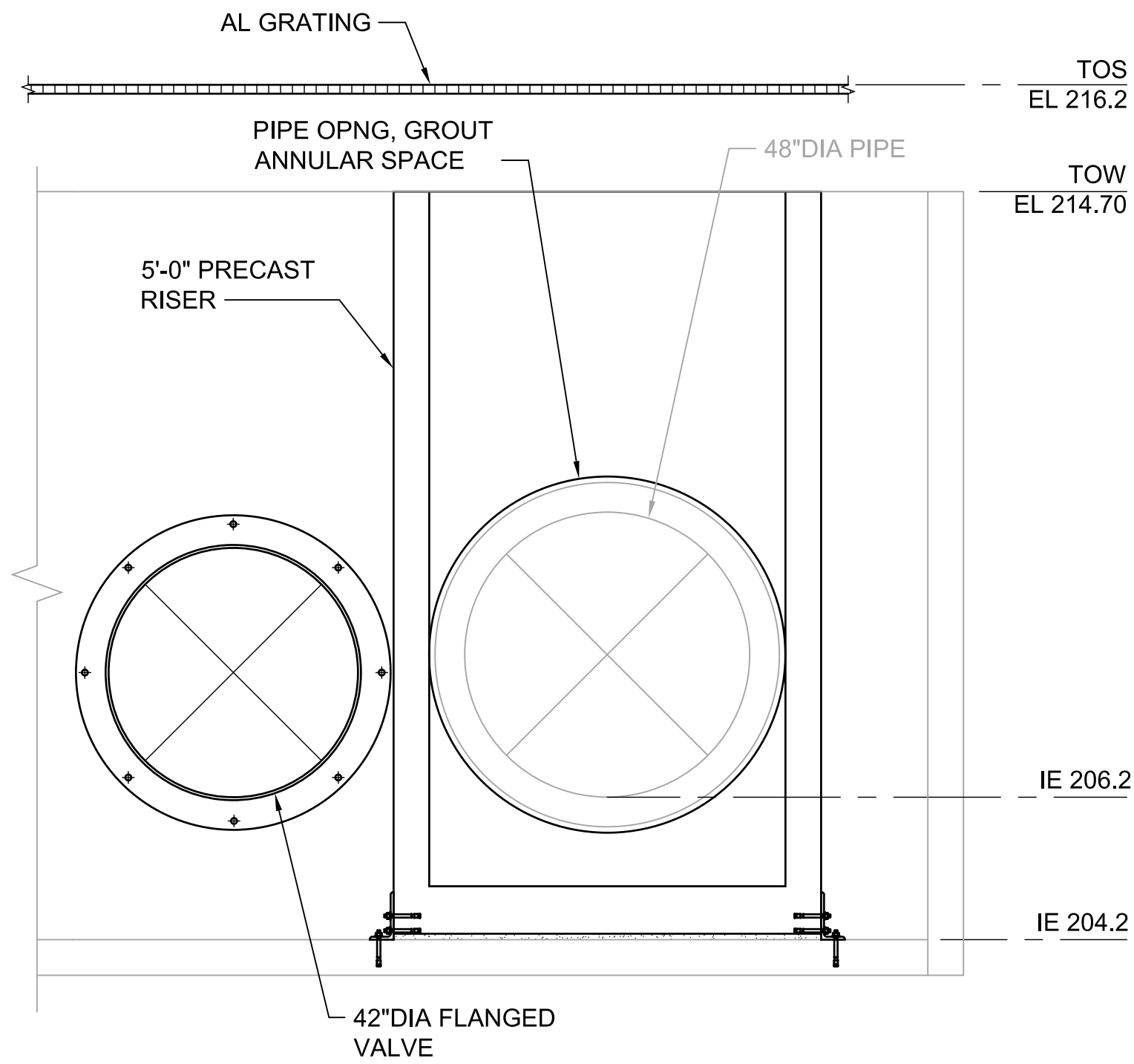
NOTES:

- EXISTING 5'-0" DIA CINDER BLOCK RISER AND ANNULAR GROUT TO EXISTING 48" DIA PIPE SHALL BE CAREFULLY REMOVED AND WITHOUT DAMAGE TO THE EXISTING 48" DIA PIPE STUB OUT.
- PRECAST CONCRETE RISER AND ANCHORAGE CONFIGURATION TO EXISTING SLAB SHALL BE DESIGNED BY THE CONTRACTOR AS SPECIFIED. SUBMIT CALCULATIONS.
- VALVE ANCHORAGE TO EXISTING CONCRETE WALL SHALL BE DESIGNED BY THE CONTRACTOR. SUBMIT CALCULATIONS.
- FIELD VERIFY NUMBER, SIZE, AND LOCATIONS OF GUARDRAIL POSTS FOR CUTTING AND BANDING GRATINGS PRIOR TO FABRICATION.



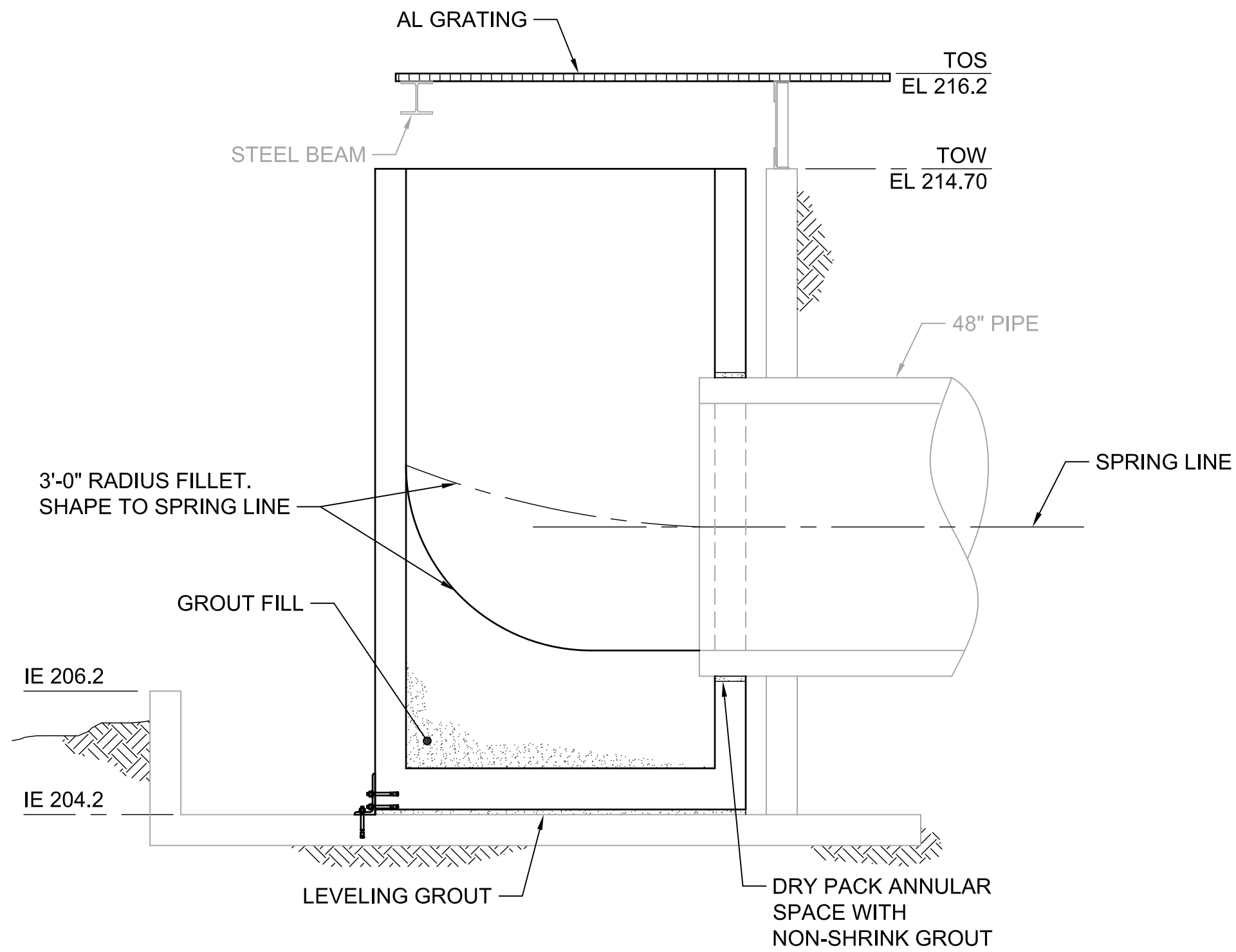
OUTLET PLATFORM PLAN

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



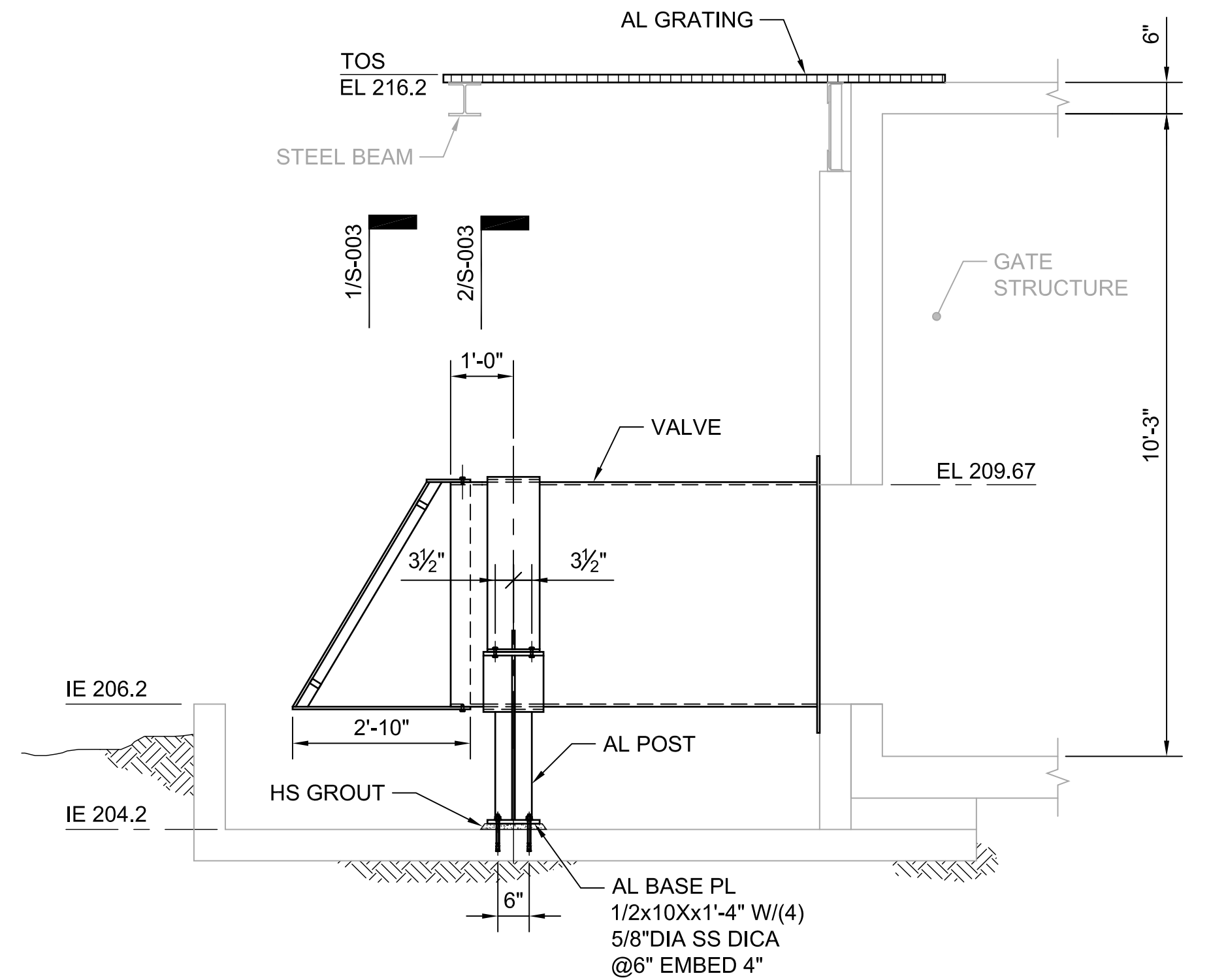
SECTION
SCALE: 1/2" = 1'-0"

A
S-002



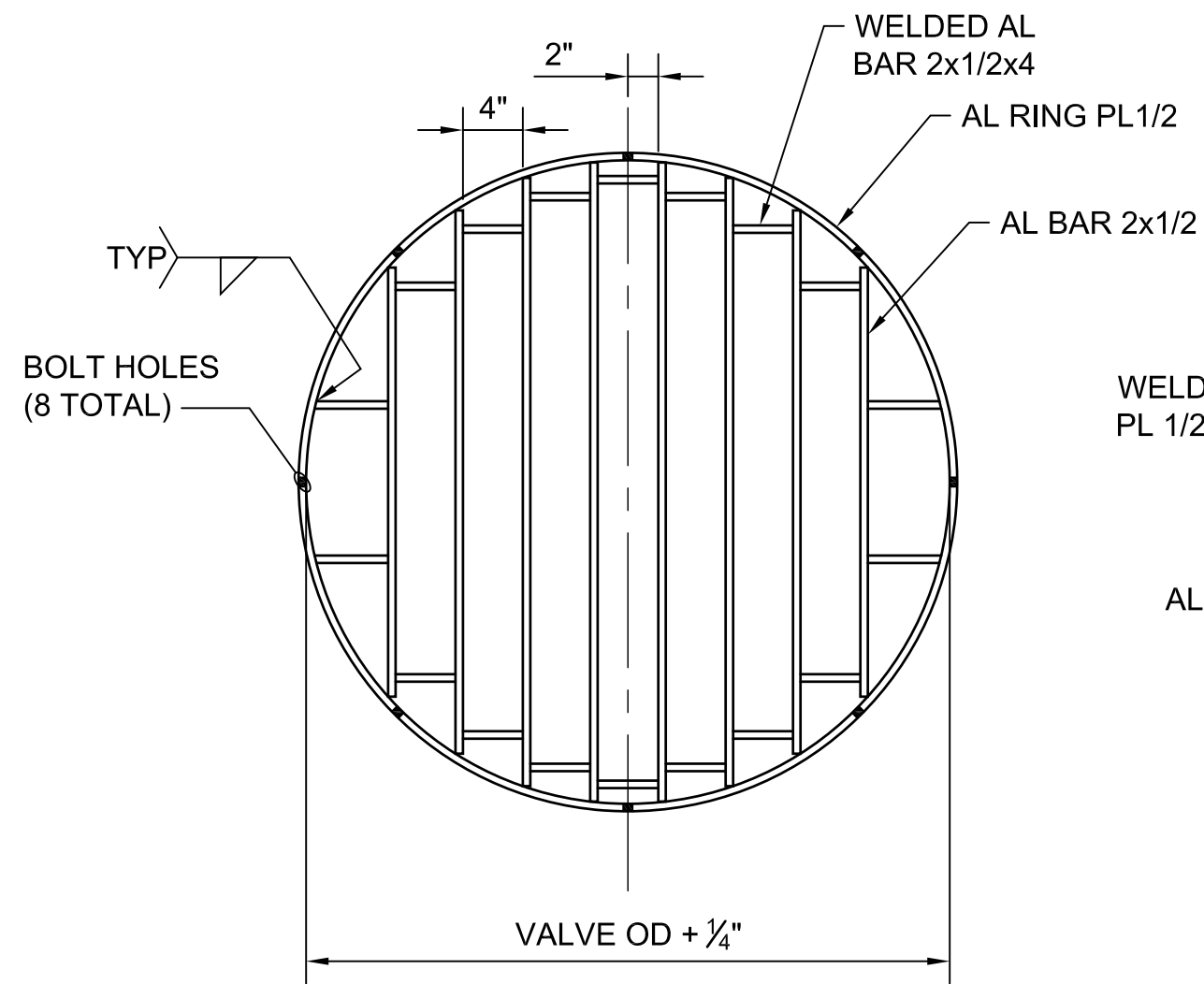
SECTION
SCALE: 1/2" = 1'-0"

B
S-002



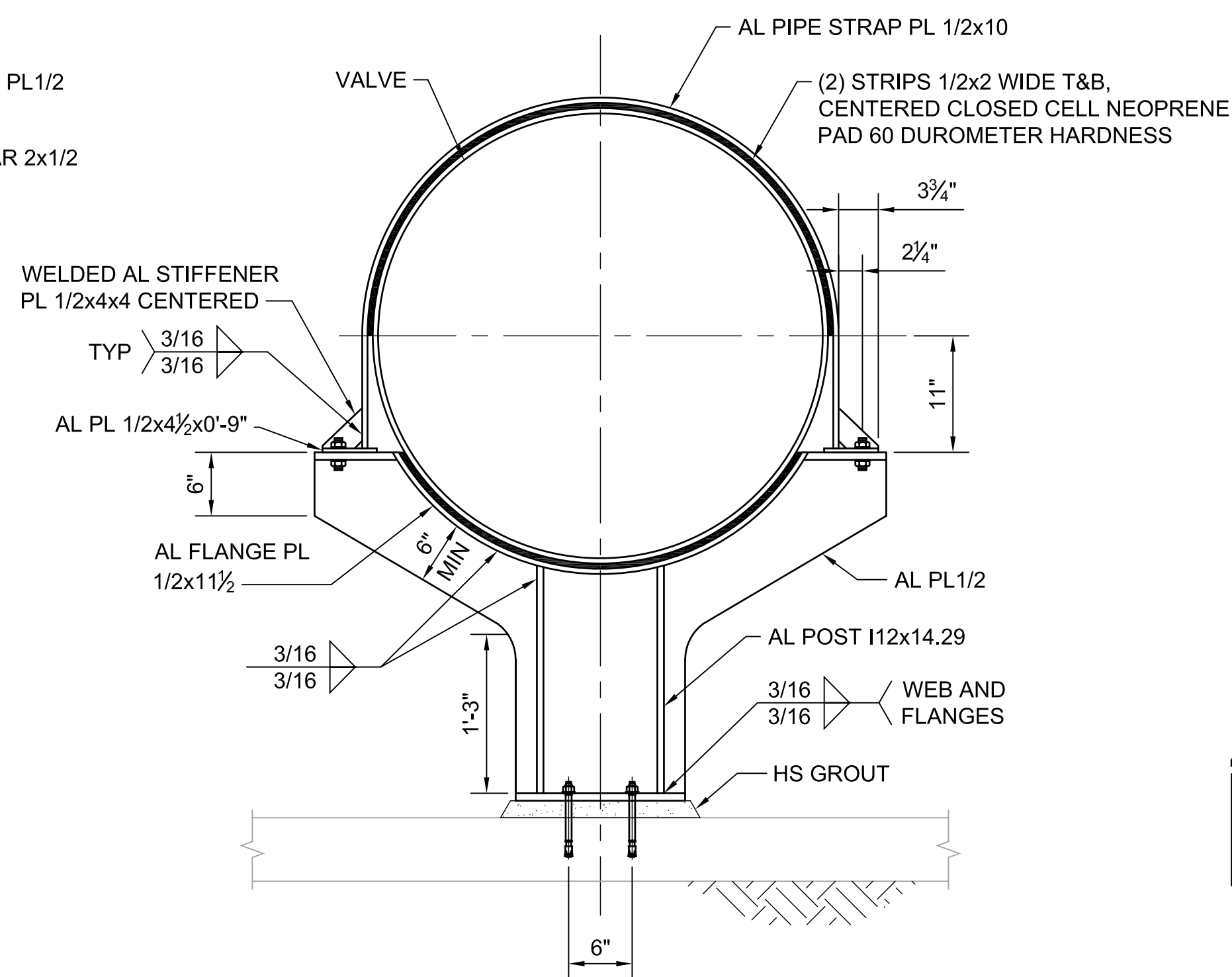
SECTION
SCALE: 1/2" = 1'-0"

C
S-002



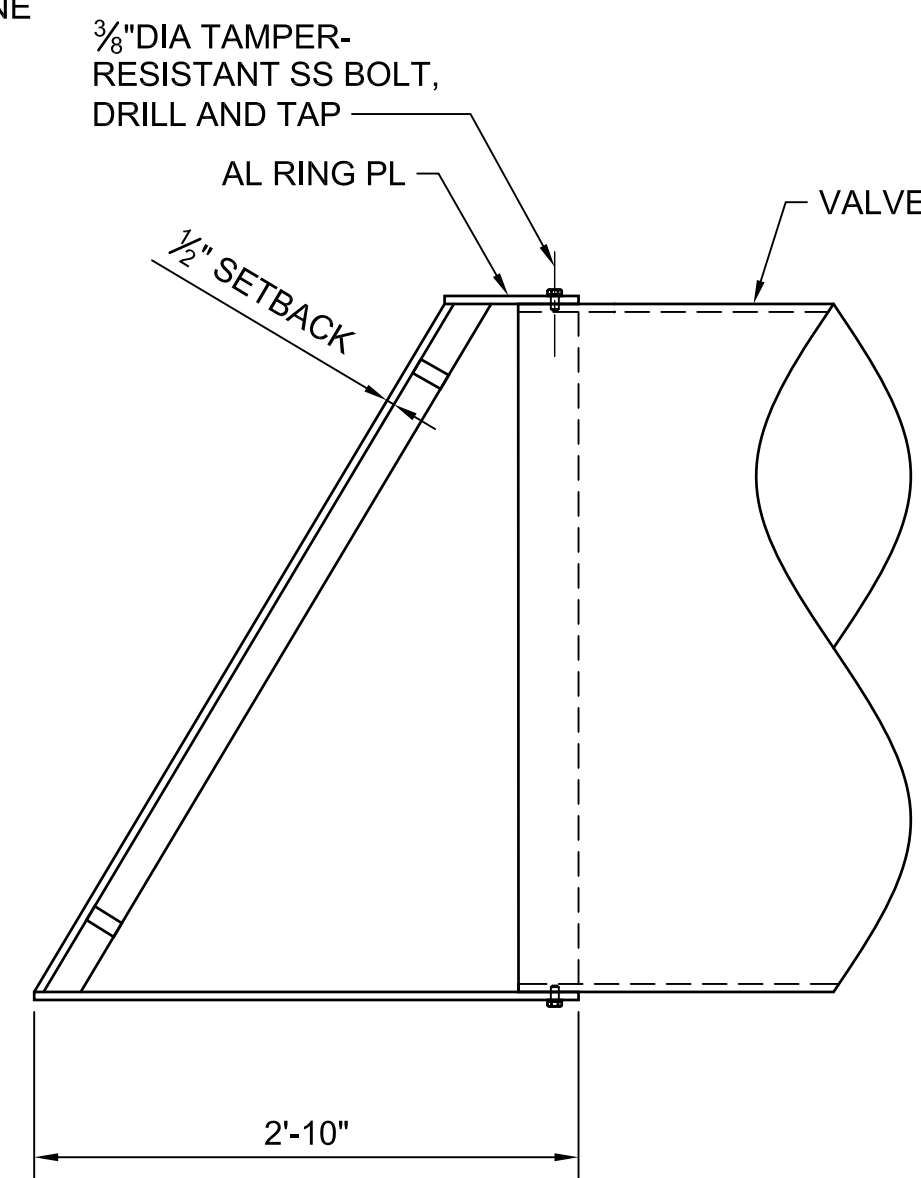
VALVE TRASH RACK
DETAIL
SCALE: 1" = 1'-0"

1
-



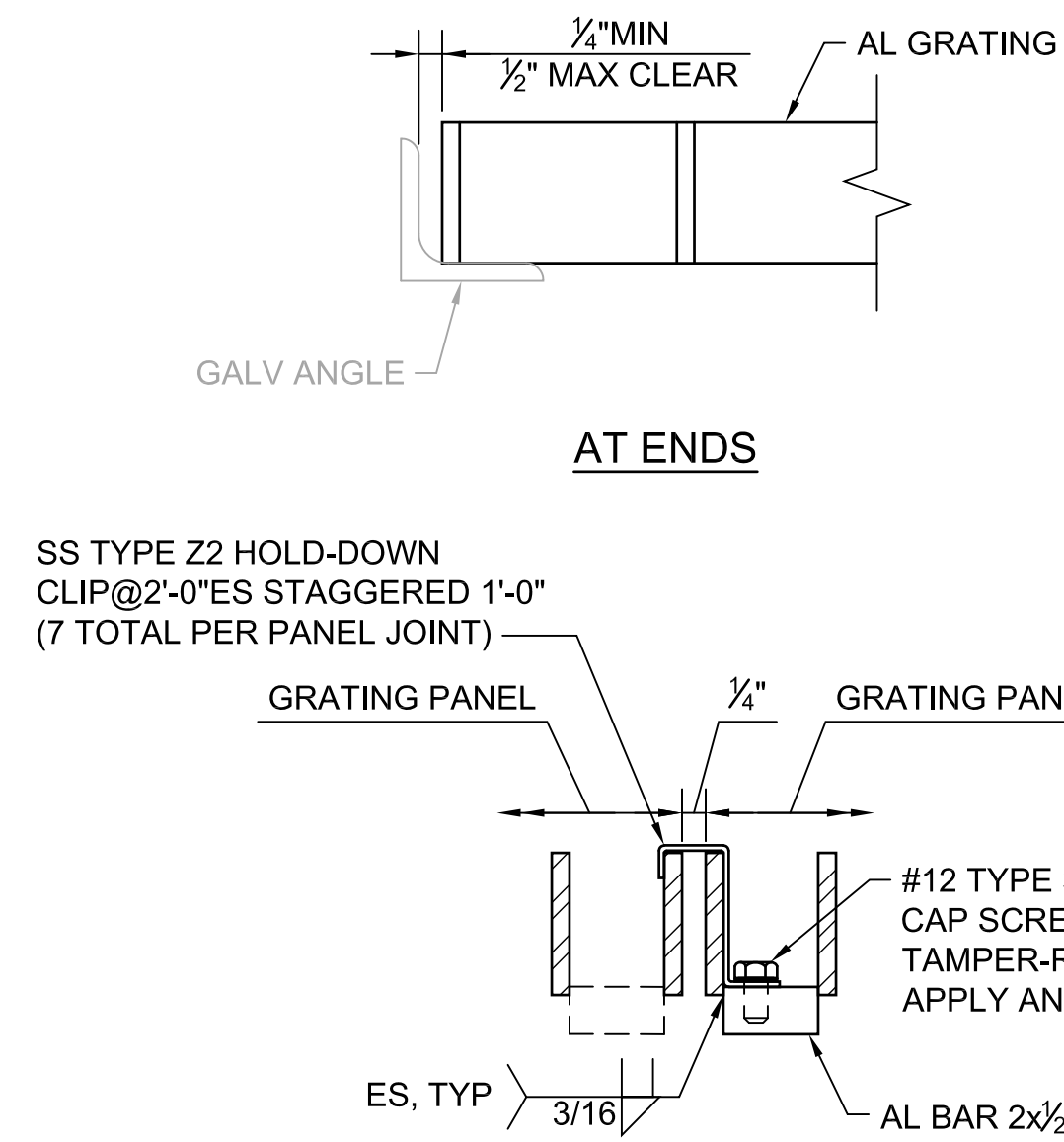
VALVE SUPPORT
DETAIL
SCALE: 1" = 1'-0"

2
-



TRASH RACK
DETAIL
SCALE: NTS

3
TYP



GRATING SUPPORT
DETAIL
SCALE: 6" = 1'-0"

4
TYP

NOTES:

- GRATING SHALL BE NON-SLIP WITH BEARING BARS SPACED AT 1 3/16" OC AND CROSS BARS AT 4" OC.
- BAND ALL EDGES OF GRATING. PROVIDE EDGE BAND 3/16" THICK WITH DEPTH 1/4" LESS THAN GRATING DEPTH. INSTALL EDGE BAND FLUSH WITH TOP OF GRATING WELD ALL BEARING BARS TO EDGE BAND.
- ANCHOR ALL GRATING SECTIONS TO SUPPORTS WITH A MINIMUM OF FOUR STAINLESS STEEL CLIPS, FASTENERS OR ANCHORS.