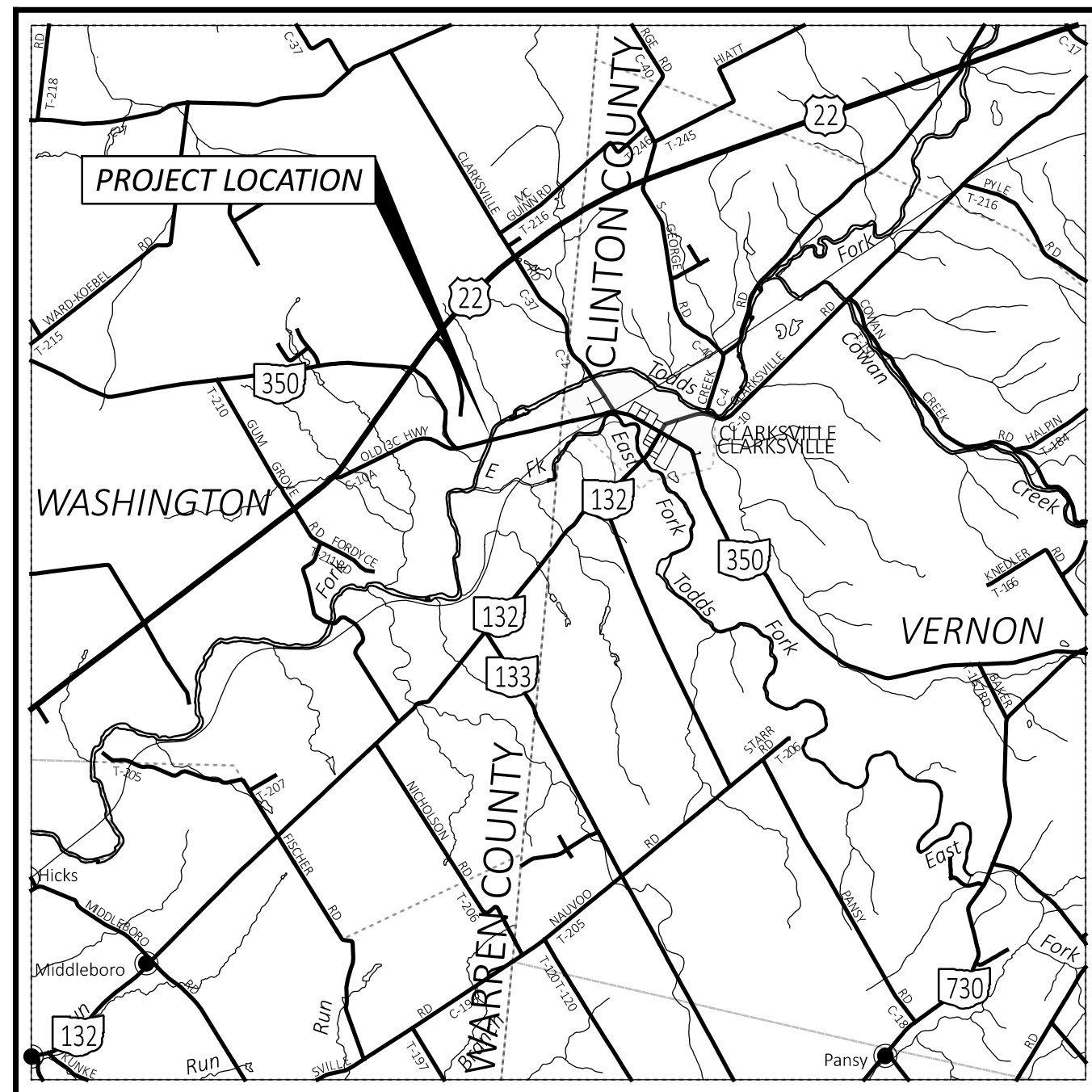


# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## WAR-350-8.73

WASHINGTON TOWNSHIP  
WARREN COUNTY



**LOCATION MAP**

LATITUDE: 39°23'59" LONGITUDE: -84°00'05"



PORTION TO BE IMPROVED	=====
INTERSTATE HIGHWAY	=====
FEDERAL ROUTES	=====
STATE ROUTES	=====
COUNTY & TOWNSHIP ROADS	=====
OTHER ROADS	=====

**DESIGN DESIGNATION**

CURRENT ADT (2024)	1,600
DESIGN YEAR ADT (2044)	2,300
DESIGN HOURLY VOLUME (2044)	300
DIRECTIONAL DISTRIBUTION	60%
TRUCKS (24 HOUR B&C)	3%
DESIGN SPEED	60
LEGAL SPEED	55
DESIGN FUNCTIONAL CLASSIFICATION:	
05 - MAJOR COLLECTOR (RURAL)	
NHS PROJECT	NO

**DESIGN EXCEPTIONS**

NONE

**ADA DESIGN WAIVERS**

NONE

**UNDERGROUND UTILITIES**  
Contact Two Working Days  
Before You Dig

**OHIO811.org**  
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764  
(Non members must be called directly)

PLAN PREPARED BY:  
OHIO DEPARTMENT OF TRANSPORTATION  
DISTRICT 8 PRODUCTION  
505 SOUTH S.R. 741 LEBANON, OHIO 45036

**INDEX OF SHEETS:**

TITLE SHEET	1
TYPICAL SECTIONS	2
GENERAL NOTES	3
MAINTENANCE OF TRAFFIC	4 - 5
GENERAL SUMMARY	6
PAVEMENT CALCULATIONS	7
PROJECT SITE PLAN	8
PLAN AND PROFILE	9 - 11
DRIVE DETAILS	12
CROSS SECTIONS	13 - 21
STRUCTURES OVER 20 FOOT SPAN	
WAR-350-0873	22 - 41
SOIL PROFILE	42 - 50
RIGHT OF WAY	

**FEDERAL PROJECT NUMBER**

E210512

**RAILROAD INVOLVEMENT**

NONE

**PROJECT DESCRIPTION**

COMPLETE STRUCTURE REPLACEMENT OF BRIDGE WAR-350-0873, WIDENING AND RESURFACING OF APPROACH PAVEMENT, UPGRADE GUARDRAIL TO TYPE MGS, RELOCATION OF EXISTING DRIVE AND OTHER MINOR ROADWAY IMPROVEMENTS.

**EARTH DISTURBED AREAS**

PROJECT EARTH DISTURBED AREA:	1.62 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.25 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	1.87 ACRES

**2023 SPECIFICATIONS**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS, CHANGES LISTED IN THE PROPOSAL, AND THE SUPPLEMENTAL SPECIFICATION 800 VERSION INDICATED ON THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 5.

Tammy K. Campbell, P.E.  
District 08 Deputy Director

Jack Marchbanks, PhD  
Director, Department of Transportation

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-3.1	1/19/24	AS-1-15	1/20/23	800-2023	7/19/24
BP-3.2	1/18/19	AS-2-15	7/21/23	832	7/19/24
BP-4.1	7/19/13	DS-1-92	7/15/22	846	4/17/15
		GSD-1-19	7/19/24	878	7/21/23
MGS-1.1	7/16/21	SICD-2-14	1/15/21	894	4/16/21
MGS-2.1	1/19/18	TST-2-21	7/19/24		
MGS-3.3	7/16/21				
MGS-4.2	7/19/13				
TC-65.10	1/17/14				
TC-65.11	1/19/24				
HL-50.21	7/15/22				

**ENGINEER'S SEAL**

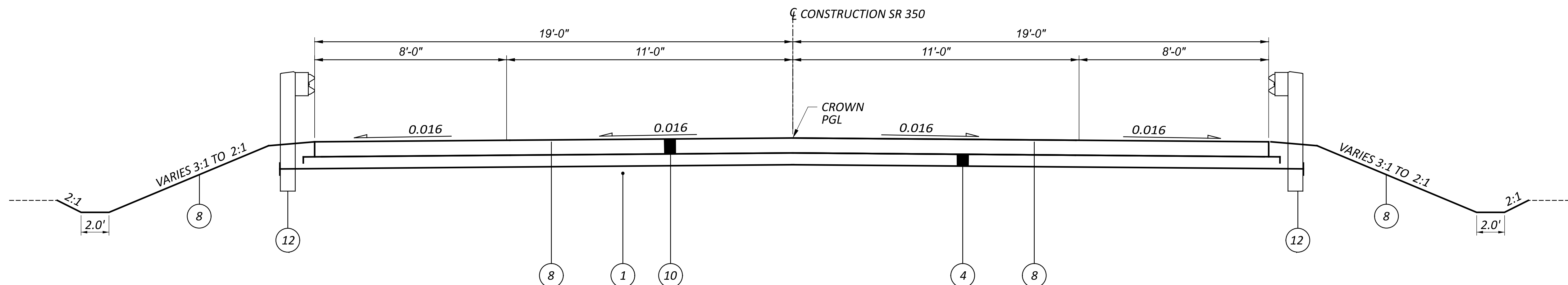
TITLE SHEET

DESIGN AGENCY	
DESIGNER	GTF
REVIEWER	JAO
PROJECT ID	112975
SHEET	1
TOTAL	50

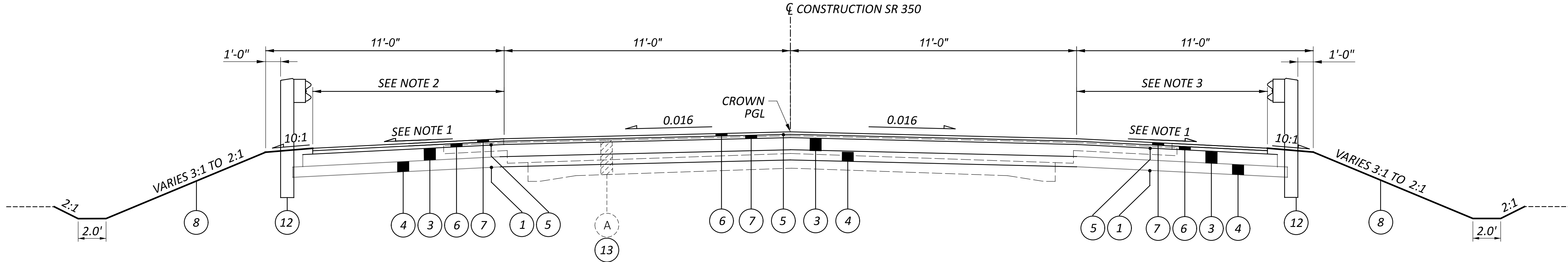
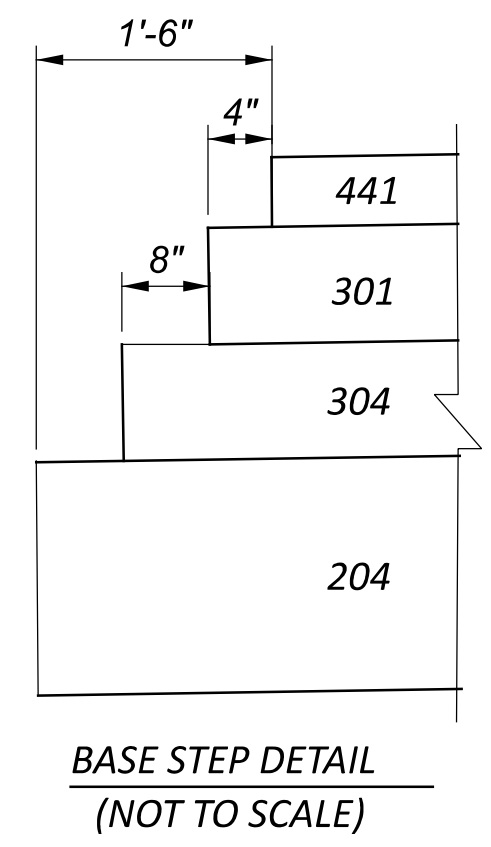
WAR-SR 350-8.73

MODEL: Sheet PAPER: 34x22 (in.) DATE: 11/22/2024 TIME: 10:42:01 AM USER: gfreeman pwc:\ohio\dot-pw-bentley.com\ohio\dot-pw-02\Documents\01 Active Projects\District 08\Warren\112975\400-Engineering\Roadway\Sheets\112975\_GT001.dgn





**APPROACH SLAB SECTION**  
 STA. 990+50.26 TO STA. 990+84.26  
 STA. 992+54.47 TO STA. 992+84.47



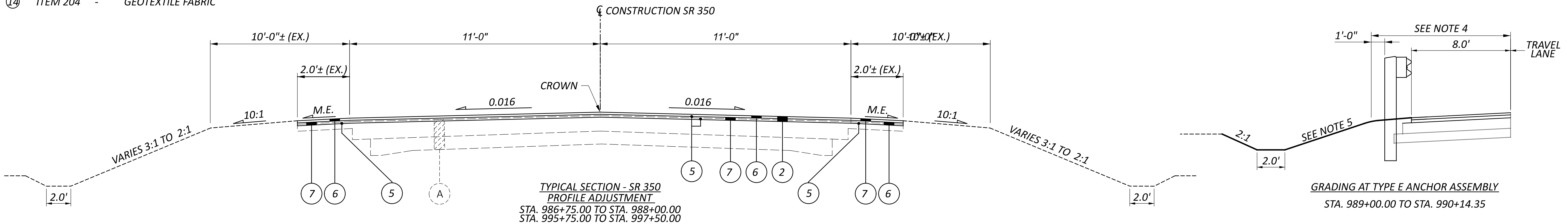
**TYPICAL SECTION - SR 350**  
 FULL DEPTH PAVEMENT REPLACEMENT AND WIDENING  
 STA. 988+00.00 TO STA. 990+50.26  
 STA. 992+84.47 TO STA. 995+75.00

**LEGEND**

- (A) EX. ±6 ASPHALT CONCRETE ON ±7" CONCRETE PAVEMENT
- ① ITEM 204 - SUBGRADE COMPACTION
- ② ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (D = 3")
- ③ ITEM 301 - 8" ASPHALT CONCRETE BASE, PG64-22 (449)
- ④ ITEM 304 - 6" AGGREGATE BASE
- ⑤ ITEM 407 - NON-TRACKING TACK COAT
- ⑥ ITEM 441 - 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448), PG64-22
- ⑦ ITEM 441 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448) (VARIABLE THICKNESS)
- ⑧ ITEM 659 - SEEDING AND MULCHING
- ⑨ ITEM 204 - EXCAVATION OF SUBGRADE, 12" DEPTH
- ⑩ ITEM 526 - REINFORCED CONCRETE APPROACH SLAB, (T=17")
- ⑪ ITEM 204 - GRANULAR MATERIAL, TYPE C
- ⑫ ITEM 606 - GUARDRAIL, TYPE MGS
- ⑬ ITEM 202 - PAVEMENT REMOVED
- ⑭ ITEM 204 - GEOTEXTILE FABRIC

**NOTES**

- 1) CROSS SLOPE = 0.04 FROM STA. 986+75.00 STA. 989+50.00  
 CROSS SLOPE VARIES FROM 0.04 AT STA. 989+50.00 TO 0.016 AT STA. 990+50.26  
 CROSS SLOPE VARIES FROM 0.016 AT STA. 992+84.47 TO 0.04 AT STA. 993+84.50  
 CROSS SLOPE = 0.04 FROM STA. 993+84.50 STA. 997+50.00
- 2) SHOULDER WIDTH = 2.0'± (MATCH EX.) FROM STA. 986+75.00 TO STA. 988+32.10  
 SHOULDER WIDTH VARIES FROM 2.7'± (EX.) AT STA. 988+32.10 TO 8.0' AT STA. 990+24.46  
 SHOULDER WIDTH = 8.0' FROM STA. 990+24.46 TO STA. 994+22.00  
 SHOULDER WIDTH VARIES FROM 8.0' AT STA. 994+22.00 TO 2.0'± (EX.) AT STA. 994+75.00  
 SHOULDER WIDTH = 2.0'± (MATCH EX.) FROM STA. 994+75.00 TO STA. 997+50.00
- 3) SHOULDER WIDTH = 2.0'± FROM STA. 986+75.00 TO STA. 989+60.80  
 SHOULDER WIDTH VARIES FROM 2.0'± AT STA. 989+60.80 TO 8.0' AT STA. 990+24.46  
 SHOULDER WIDTH = 8.0'± FROM STA. 990+24.46 TO STA. 993+46.89  
 SHOULDER WIDTH VARIES FROM 8.0' AT STA. 993+46.89 TO 2.3'± (EX.) AT STA. 994+75.00  
 SHOULDER WIDTH = 2.0'± (MATCH EX.) FROM STA. 994+75.00 TO STA. 997+50.00
- 4) GRADED SHOULDER WIDTH VARIES FROM 11.0' STA. 994+22.00 TO 2.0'± AT STA. 994+75.00
- 5) SIDESLOPE VARIES FROM 2:1± (EX.) AT STA. 995+00.00 TO 3:1 AT STA. 994+34.50  
 SIDESLOPE = 3:1 FROM STA. 994+34.50 TO STA. 993+75.00



**TYPICAL SECTION - SR 350**  
 PROFILE ADJUSTMENT  
 STA. 986+75.00 TO STA. 988+00.00  
 STA. 995+75.00 TO STA. 997+50.00


**GRADING AT TYPE E ANCHOR ASSEMBLY**  
 STA. 989+00.00 TO STA. 990+14.35

TYPICAL SECTIONS

DESIGN AGENCY	
DESIGNER	GTF
REVIEWER	JAO
PROJECT ID	112975
SHEET	2
TOTAL	50

SHEET NUM.											PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
3	7	21									01/STR/10	EXT	TOTAL				
											LUMP	201	11000	LS		<b>ROADWAY</b>	
	1,943										1,943	202	23000	1,943	SY	CLEARING AND GRUBBING	
	375										375	202	38000	375	FT	PAVEMENT REMOVED	
	4										4	202	42001	4	EACH	GUARDRAIL REMOVED	
	2										2	202	42040	2	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN	3
	1										1	202	53100	1	EACH	ANCHOR ASSEMBLY REMOVED, TYPE T	
		280									280	203	10000	280	CY	MAILBOX REMOVED	
		3,416									3,416	203	20001	3,416	CY	EXCAVATION	
	748										748	203	35120	748	CY	EMBANKMENT, AS PER PLAN	3
	2,143										2,143	204	10000	2,143	SY	GRANULAR MATERIAL, TYPE C	
	2,621										2,621	204	13000	2,621	CY	SUBGRADE COMPACTION	
	2,143										2,143	204	50000	2,143	SY	EXCAVATION OF SUBGRADE	
																GEOTEXTILE FABRIC	
	375										375	606	15050	375	FT		
	2										2	606	26100	2	EACH	GUARDRAIL, TYPE MGS	
	4										4	606	26500	4	EACH	ANCHOR ASSEMBLY, TYPE E	
	4										4	606	34600	4	EACH	ANCHOR ASSEMBLY, TYPE T	
	1										1	SPECIAL	69050000	1	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE TST-2	
											LUMP	SPECIAL	69071000	LS		MAILBOX SUPPORT	3
											LUMP	878	25000	LS		ASBESTOS ABATEMENT, NOTIFICATION	3
																INSPECTION AND COMPACTION TESTING OF UNBOUND MATERIALS	
																<b>EROSION CONTROL</b>	
	365										365	601	32004	365	CY	ROCK CHANNEL PROTECTION, TYPE A WITH GEOTEXTILE FABRIC	
	511										511	659	00300	511	CY		
	4,605										4,605	659	10000	4,605	SY	TOPSOIL	
	230										230	659	14000	230	SY	SEEDING AND MULCHING	
	0.62										0.62	659	20000	0.62	TON	REPAIR SEEDING AND MULCHING	
	0.95										0.95	659	31000	0.95	ACRE	COMMERCIAL FERTILIZER	
	24.9										24.9	659	35000	24.9	MGAL	LIME	
											1,157	670	00500	1,157	SY	WATER	
											40,000	832	30000	40,000	EACH	SLOPE EROSION PROTECTION	
											LUMP	832	15000	LS		EROSION CONTROL	
											LUMP	832	15002	LS		STORM WATER POLLUTION PREVENTION PLAN	
											LUMP	832	15010	LS		STORM WATER POLLUTION PREVENTION INSPECTIONS	
																STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	
																<b>DRAINAGE</b>	
	2										2	602	20000	2	CY	CONCRETE MASONRY	
	72										72	611	04900	72	FT	12" CONDUIT, TYPE D	
																<b>PAVEMENT</b>	
	813										813	254	01000	813	SY	PAVEMENT PLANING, ASPHALT CONCRETE (T = 1.5")	
	487										487	301	56010	487	CY	ASPHALT CONCRETE BASE, PG64-28, (449)	
	339										339	304	20000	339	CY	AGGREGATE BASE	
	575										575	407	20000	575	GAL	NON-TRACKING TACK COAT	
	109										109	441	50000	109	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22	
	139										139	441	50300	139	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	
																<b>TRAFFIC CONTROL</b>	
											13	621	54000	13	EACH	RAISED PAVEMENT MARKER REMOVED	
											13	621	00100	13	EACH	RPM	
											0.36	644	00104	0.36	MILE	EDGE LINE, 6"	
											0.18	644	00300	0.18	MILE	CENTER LINE	
											0.08	646	10010	0.08	MILE	EDGE LINE, 6"	
											0.04	646	10200	0.04	MILE	CENTER LINE	
																<b>STRUCTURE OVER 20 FOOT SPAN (WAR-350-0873)</b>	
																SEE SHEET 24	
																<b>MAINTENANCE OF TRAFFIC</b>	
											LUMP	614	12420	LS		DETOUR SIGNING	
																<b>INCIDENTALS</b>	
											LUMP	614	11000	LS		MAINTAINING TRAFFIC	
											LUMP	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
											LUMP	624	10000	LS		MOBILIZATION	

GENERAL SUMMARY

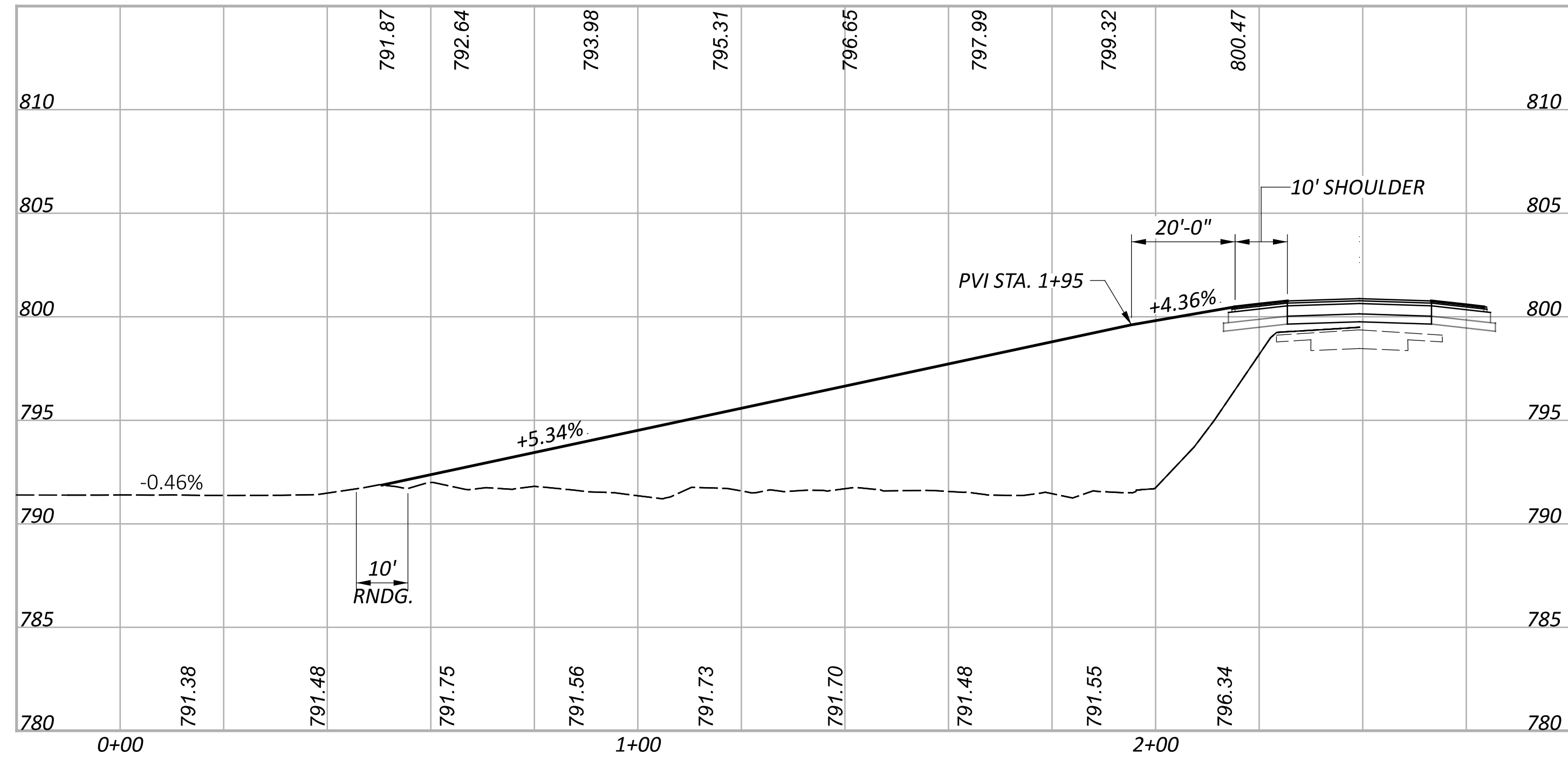
DESIGN AGENCY  
  
 DESIGNER: GTF  
 REVIEWER: JAO  
 PROJECT ID: 112975  
 SHEET TOTAL: 6 | 50



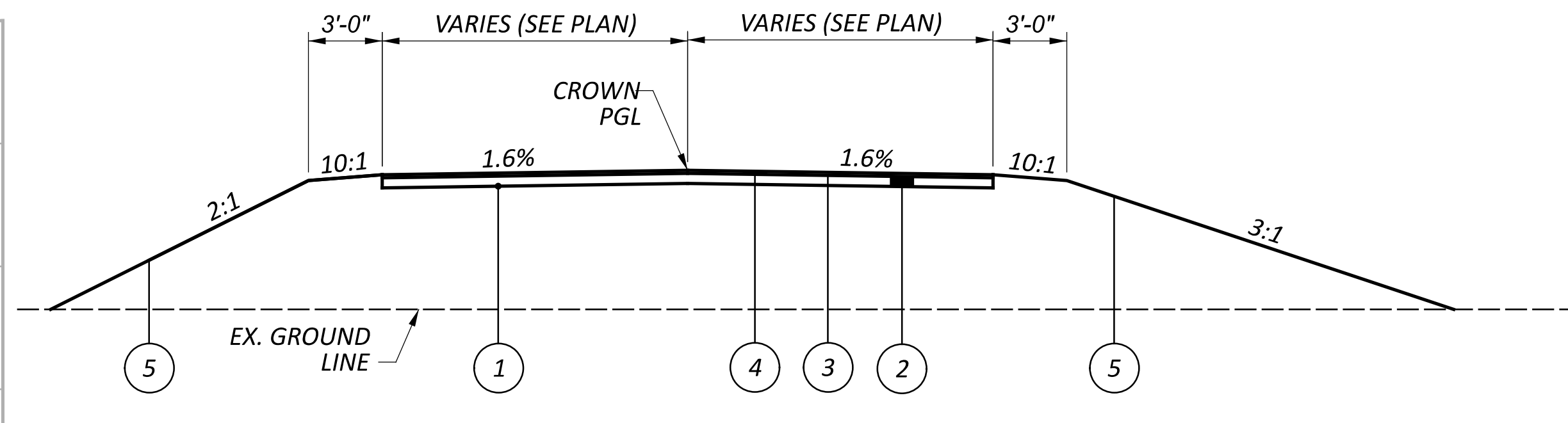
PAVEMENT CALCULATIONS																										
PLAN SPLIT	ROUTE	STATION		LENGTH	AVERAGE WIDTH	PAVEMENT AREA	202	204	204	204	204	254		301	304	407	441				NOTES					
		FROM	TO				PAVEMENT REMOVED	GRANULAR MATERIAL, TYPE C	SUBGRADE COMPACTION	GEOTEXTILE FABRIC	EXCAVATION OF SUBGRADE, 12" DEPTH	PAVEMENT PLANING ASPHALT CONCRETE	8" ASPHALT CONCRETE BASE, PG64-22	6" AGGREGATE BASE	NON TRACKING TACK COAT @ 0.09 GAL/SQ YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22		ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)		ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448) (VARIABLE THICK.)						
							SQ YD	CU YD	SQ YD	SQ YD	CU YD	DEPTH	SQ YD	CU YD	GAL	THICK-NESS	CU YD	THICK-NESS	CU YD	INCHES		CU YD				
		FT	FT	SQ YD	SQ YD	CU YD	SQ YD	CU YD	INCHES	SQ YD	CU YD	INCHES	CU YD	INCHES	CU YD	INCHES	CU YD	INCHES	CU YD							
01/STR/10	SR 350	986+75.00	988+00.00	125	24.6	342							1.50	342		61.50	1.50	14			1.50	14	PAVEMENT WEDGE			
01/STR/10	SR 350	988+00.00	988+32.10	32	24.6	88	73	31	88	88	81			20	16	15.79	1.25	3	1.75	4			BEGIN FULL DEPTH PAVEMENT REPLACEMENT			
01/STR/10	SR 350	988+32.10	989+60.58	128	28.8	412	355	144	412	412	441			94	73	74.11	1.25	14	1.75	20			FULL DEPTH W/ SHOULDER WIDENING			
01/STR/10	SR 350	989+60.58	990+00.00	39	33.2	145	145	51	145	145	180			33	26	26.14	1.25	5	1.75	7			FULL DEPTH W/ SHOULDER WIDENING			
01/STR/10	SR 350	990+00.00	990+24.46	24	37.7	102	92	36	102	102	145			23	18	18.45	1.25	4	1.75	5			FULL DEPTH W/ SHOULDER WIDENING			
01/STR/10	SR 350	990+24.46	990+54.26	30	38.0	126	126	44	126	126	179			28	22	33.97	1.25	4	1.75	6			FULL DEPTH AC PAVEMENT (SEE AS-2-15)			
01/STR/10	SR 350	990+54.26	990+84.26	30	38.0	127	127	44	127	127	180			29	22	34.20	1.25	4	1.75	6			REAR APPROACH SLAB			
01/STR/10	SR 350	990+84.26	992+54.47	170																			BRIDGE No.: WAR-350-0873			
01/STR/10	SR 350	992+54.47	992+84.47	30	38.0	127	127	44	127	127	180			29	22	34.20	1.25	4	1.75	6			FORWARD APPROACH SLAB			
01/STR/10	SR 350	992+84.47	993+09.47	25	38.0	106	106	37	106	106	151			24	22	28.50	1.25	4	1.75	5			FULL DEPTH AC PAVEMENT (SEE AS-2-15)			
01/STR/10	SR 350	993+09.47	993+46.89	37	38.0	158	141	55	158	158	224			36	28	28.44	1.25	5	1.75	8			FULL DEPTH W/ SHOULDER WIDENING			
01/STR/10	SR 350	993+46.89	994+22.00	75	36.2	302	269	105	302	302	408			68	53	54.42	1.25	10	1.75	15			FULL DEPTH W/ SHOULDER WIDENING			
01/STR/10	SR 350	994+22.00	994+75.00	53	30.2	178	154	62	178	178	201			40	32	32.03	1.25	6	1.75	9			FULL DEPTH PAVEMENT REPLACEMENT			
01/STR/10	SR 350	994+75.00	995+75.00	100	24.5	273	228	96	273	273	249			62	49	49.08	1.25	9	1.75	13			END FULL DEPTH PAVEMENT REPLACEMENT			
01/STR/10	SR 350	995+75.00	997+50.00	175	24.2	470							1.50	470		84.68	1.50	20			1.50	20	PAVEMENT WEDGE			
TOTALS CARRIED TO GENERAL SUMMARY							1943	748	2143	2143	2621		X	813	487	339	575		X	109		X	105		X	34



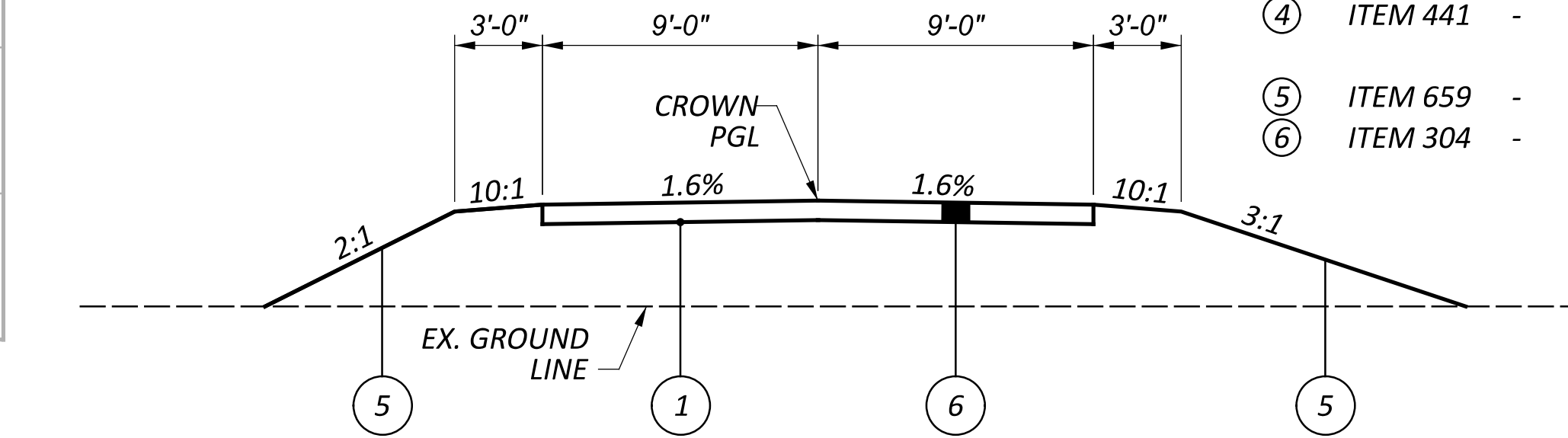




**DRIVE PROFILE  
WAR-350 STA. 993+38**



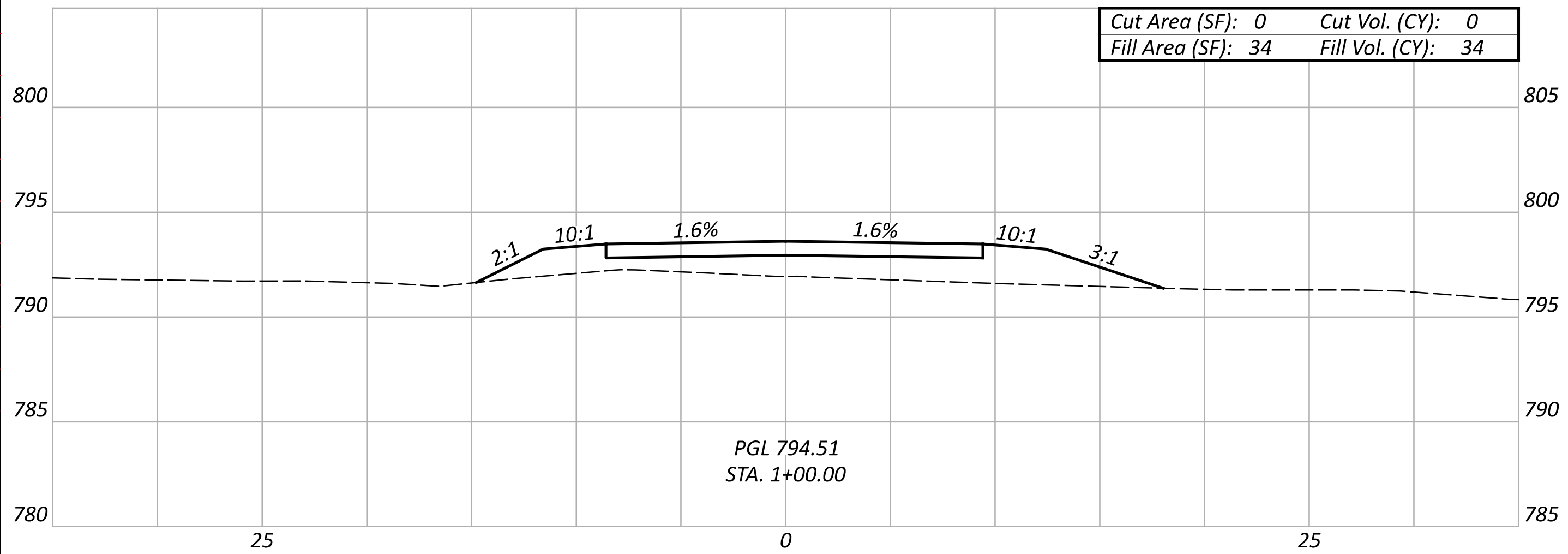
**TYPICAL SECTION  
PROPOSED DRIVE - APRON**



**TYPICAL SECTION  
PROPOSED DRIVE - NORMAL SECTION**

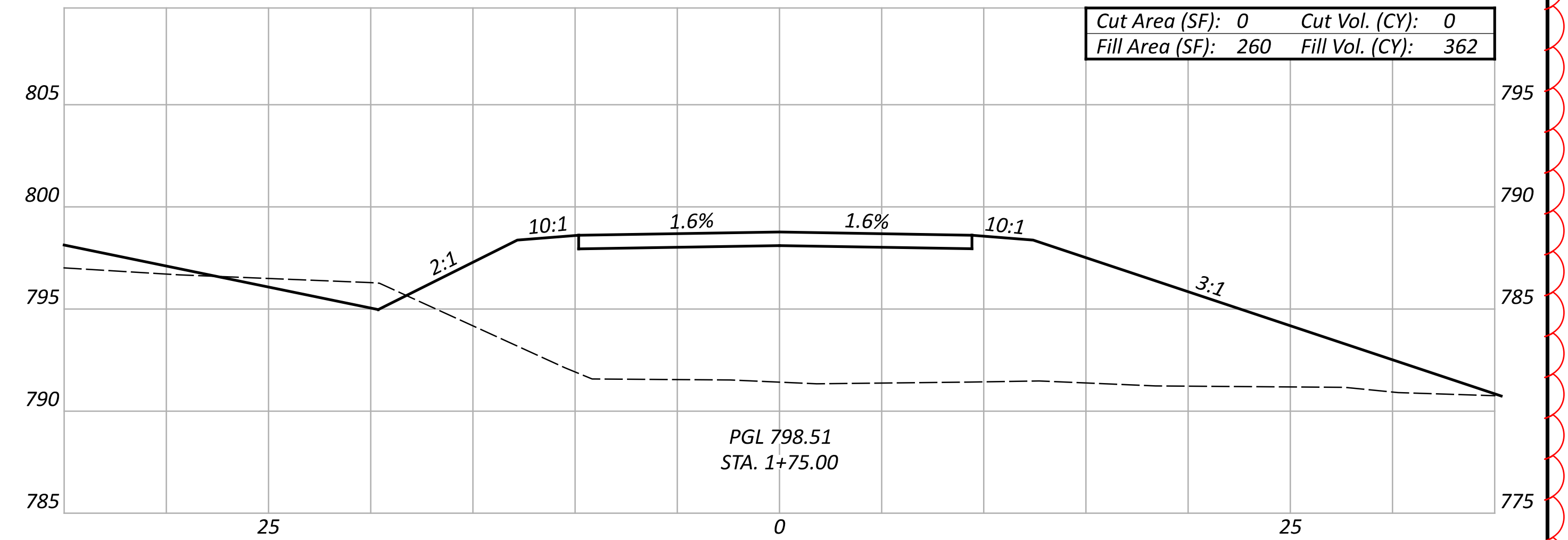
**LEGEND**

- ① ITEM 204 - SUBGRADE COMPACTION
- ② ITEM 301 - 5" ASPHALT CONCRETE BASE, PG64-22 (449)
- ③ ITEM 407 - NON-TRACKING TACK COAT
- ④ ITEM 441 - 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448), PG64-22
- ⑤ ITEM 659 - SEEDING AND MULCHING
- ⑥ ITEM 304 - 8" AGGREGATE BASE



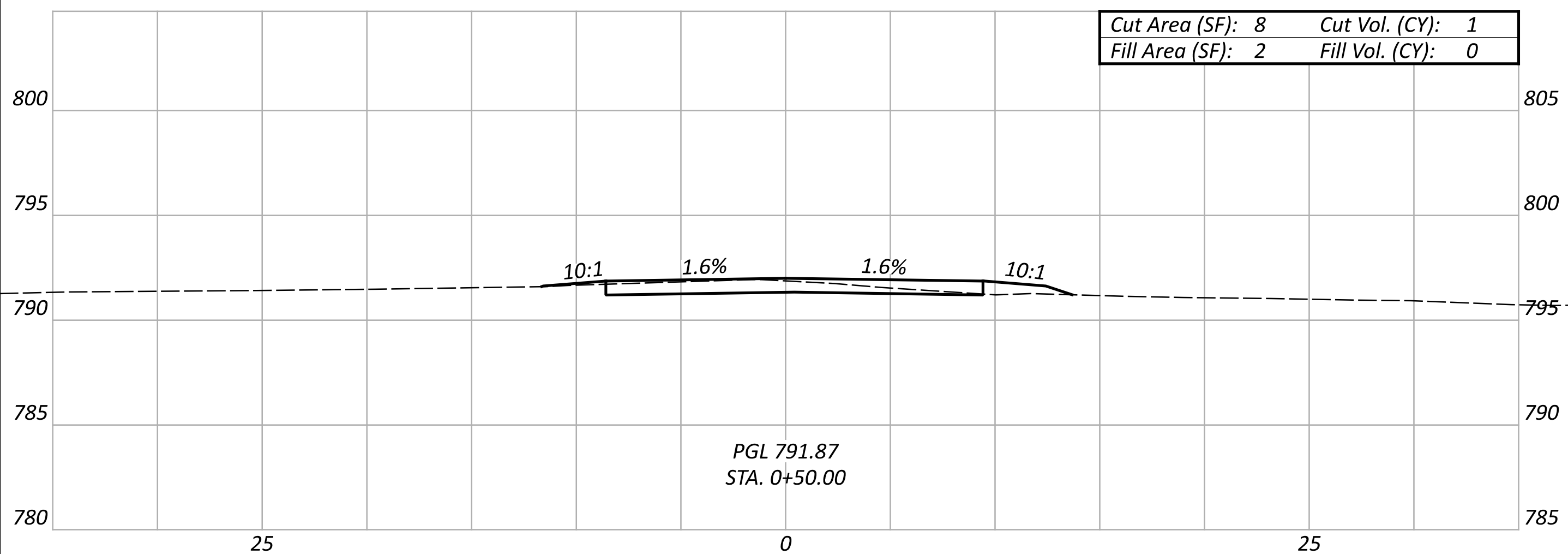
PGL 794.51  
STA. 1+00.00

Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 34	Fill Vol. (CY): 34



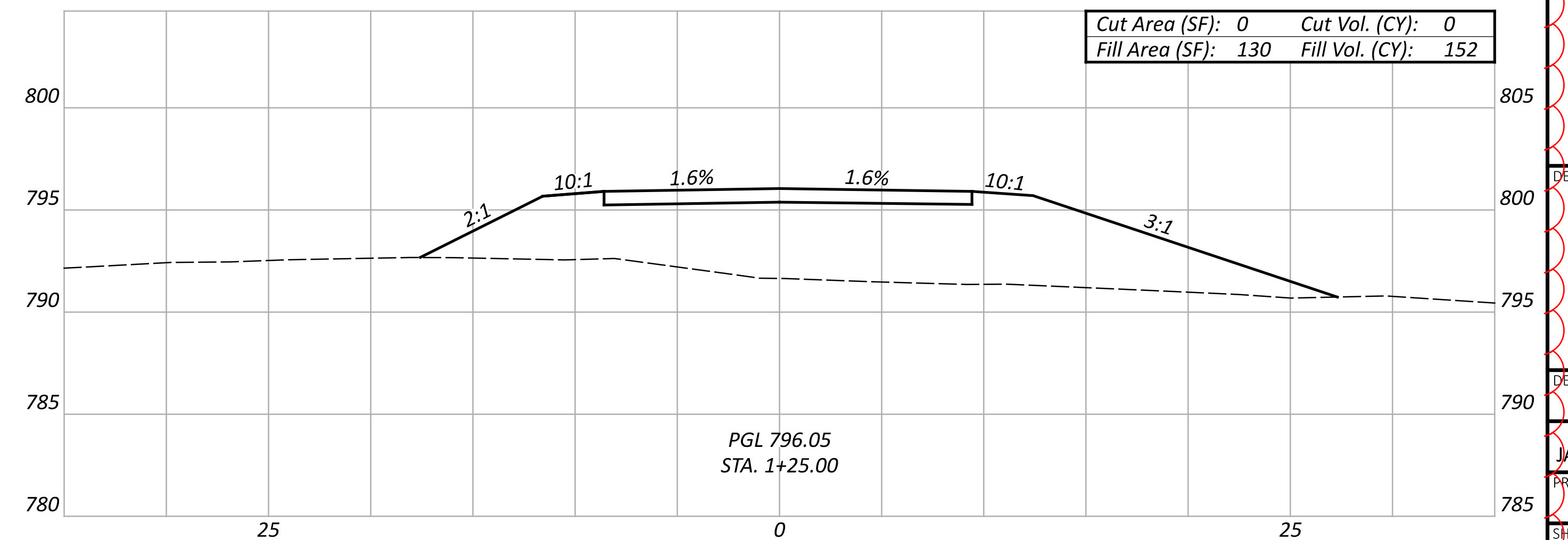
PGL 798.51  
STA. 1+75.00

Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 260	Fill Vol. (CY): 362



PGL 791.87  
STA. 0+50.00

Cut Area (SF): 8	Cut Vol. (CY): 1
Fill Area (SF): 2	Fill Vol. (CY): 0



PGL 796.05  
STA. 1+25.00

Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 130	Fill Vol. (CY): 152

DRIVEWAY DETAILS  
STATE ROUTE 350 - STA. 993+38

WAR-SR 350-8.73

MODEL: PGL\_DriveALT - Profile 1 (Sheet) PAPER SIZE: 34x22 (in.) DATE: 11/18/2024 TIME: 2:01:02 PM USER: gfreeman  
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DESIGN AGENCY



DESIGNER

GTF

REVIEWER

JAO

PROJECT ID

112975

SHEET

TOTAL

12 | 50



**STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS**

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-15	REVISED 1-20-23
AS-2-15	REVISED 7-21-23
DS-1-92	REVISED 7-15-22
GSD-1-19	REVISED 1-15-21
SICD-2-14	REVISED 1-19-24
TST-2-21	DATED 7-16-21

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS

800	DATED 4-21-23
846	DATED 4-17-15

**DESIGN SPECIFICATIONS**

THIS STRUCTURE CONFORMS TO THE 9th EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

**OPERATIONAL IMPORTANCE**

A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL.

**DESIGN LOADING**

DESIGN LOADING INCLUDES:  
 VEHICULAR LIVE LOAD: HL-93  
 FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/FT<sup>2</sup>

**DESIGN DATA**

CONCRETE CLASS QC1 WITH QC/QA- COMPRESSIVE STRENGTH 4.0 KSI (ABUTMENT)

CONCRETE CLASS QC2 WITH QC/QA - COMPRESSIVE STRENGTH 4.5 KSI (DECK SLAB, APPROACH SLAB)

CONCRETE CLASS QCS WITH 3/8" MAX. AGGREGATE SIZE - COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFTS)

GALVANIZED STEEL REINFORCEMENT – MINIMUM YIELD STRENGTH 60-KSI (DECK SLAB, ABUTMENTS, APPROACH SLABS, & DRILLED SHAFTS)

STRUCTURAL STEEL - ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI

**DECK PROTECTION METHOD**

GALVANIZED STEEL REINFORCEMENT  
 2 1/2" CONCRETE COVER  
 STEEL DRIP STRIP  
 SEALING OF CONCRETE SURFACES

**MONOLITHIC WEARING SURFACE**

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

**BRIDGE SCOUR**

THE DESIGN FLOOD AND CHECK FLOOD SCOUR ELEVATIONS ARE PROVIDED BELOW:

	REAR ABUTMENT	FORWARD ABUTMENT
DESIGN FLOOD	775.13	775.83
CHECK FLOOD	775.82	776.52

**ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN**

REMOVE ABUTMENTS IN THEIR ENTIRETY TO ELEV. OF APPROXIMATELY 776.50.

REMOVE PIERS TO ELEV. 777.70. BACKFILL THE CAVITY CREATED BY REMOVAL OF PIERS IN THE STREAM BED WITH DUMP ROCK FILL, TYPE A.

**ROCK-SOCKETED SHAFTS**

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 497 KIPS AT THE ABUTMENTS THIS LOAD IS RESISTED BY TIP RESISTANCE.

**LATERALLY LOADED DRILLED SHAFTS**

THE MAXIMUM FACTORED INTERNAL LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT ARE 72 KIPS, AND 395 KIP-FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 796 KIP-FEET, AND A MAXIMUM FACTORED SHEAR OF 210 KIPS, WITHIN THE DRILLED SHAFT.

**ITEM 894 - THERMAL INTEGRITY PROFILER (T.I.P.) TEST**

PERFORM INTEGRITY TESTING ON THREE OF THE DRILLED SHAFTS AT THE REAR ABUTMENT AND THE FORWARD ABUTMENT BY THERMAL INTEGRITY PROFILING (TIP). PERFORM TIP TESTING PER ASTM D7949, "STANDARD TEST METHODS FOR THERMAL INTEGRITY PROFILING OF CONCRETE DEEP FOUNDATIONS," METHOD B, AND PER SUPPLEMENTAL SPECIFICATION 894.

**ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN**

PREPARE AND PROVIDE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IN ACCORDANCE WITH C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING.

**DECK PLACEMENT DESIGN ASSUMPTIONS**

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.37 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103 INCHES.

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 INCHES.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65 INCHES.

**ITEM 514 FIELD PAINTING, MISC.: COATING OF BEAM ENDS**

PRIOR TO ENCASING THE BEAM ENDS, PREPARE THE ENDS PER SSPC SP10 OR SSPC SP11 TO BARE METAL ACHIEVING A 1.5 TO 3.5 MIL PROFILE. PAINT THE BEAM ENDS WITH ORGANIC ZINC PRIME COAT PER C&MS 514. PROVIDE THE PRIME COAT THICKNESS AS PER C&MS 514.20. EXTEND THE LIMITS OF THE BEAM PREPARATION AND PAINTING 1-FT BEYOND THE LIMITS OF THE END DIAPHRAGM CONCRETE.

AFTER THE DIAPHRAGM CONCRETE IS SET, SEAL THE INTERFACE BETWEEN THE BEAM AND CONCRETE WITH CAULK.

THE DEPARTMENT WILL PAY FOR ALL ABOVE LABOR AND AT THE CONTRACT BID PRICE FOR ITEM 514 FIELD PAINTING, MISC: COATING OF BEAM ENDS.

**ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)**

ABUTMENTS AND DECK OVERHANGS: SEAL SURFACES AS NOTED IN THE BRIDGE PLANS, WITH EPOXY-URETHANE, USING FEDERAL STANDARD COLOR NUMBER 17778 (LIGHT NEUTRAL)

**ITEM 514 - FIELD PAINTING STRUCTURAL STEEL**

THE COLOR OF THE FINISH COAT FOR ALL STRUCTURAL STEEL SHALL BE FEDERAL COLOR NO. FS-595C-14277 (LIGHT GREEN)

**ABBREVIATIONS:**

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS TO INDICATE THE DESIGNATIONS CONTAINED IN THE LEGEND BELOW:

ABUT. - ABUTMENT	O/O - OUT TO OUT
APPR. - APPROACH	P.C.P.P - PERFORATED CORRUGATED PLASTIC PIPE
BTM. - BOTTOM	P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
BRG. - BEARING	PG - PROFILE GRADE
BRS. - BEARINGS	PGL - PROFILE GRADE LINE
CL - CENTERLINE	PROP. - PROPOSED
C/C - CENTER TO CENTER	PT - POINT OF TANGENCY
CIP - CAST-IN-PLACE	PVC - POINT OF VERTICAL CURVATURE
C.J. - CONSTRUCTION JOINT	PVI - POINT OF VERTICAL INTERSECTION
CLR. - CLEARANCE	PVT - POINT OF VERTICAL TANGENCY
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS	R. - RADIUS
CONC. - CONCRETE	R.A. - REAR ABUTMENT
CONSTR. - CONSTRUCTION	RF - RIGHT FORWARD
CONTR. - CONTRACTION	RT. - RIGHT
CU YD - CUBIC YARD	R/W - RIGHT OF WAY
DIA. - DIAMETER	SAN. - SANITARY
E.F. - EACH FACE	SER. - SERIES
ELEV., EL. - ELEVATION	SHT. - SHEET
EQ. - EQUAL	S.O. - SERIES OF
EX. - EXISTING	SPA. - SPACES OR SPACING
EXP. - EXPANSION	SR - STATE ROUTE
F.A. - FORWARD ABUTMENT	STA. - STATION
F.F. - FAR FACE	STD. - STANDARD
F.S. - FIELD SPLICE	STM. - STORM
FT/FT - FOOT PER FOOT	STR. - STRAIGHT
FTG. - FOOTING	TBM - TEMPORARY BENCH MARK
FWD. - FORWARD	TEMP. - TEMPORARY
GALV. = GALVANIZED	T.O.S. - TOE OF SLOPE
GEN. - GENERAL	T/PARAPET - TOE OF PARAPET
LF - LEFT FORWARD	T/T - TOE TO TOE
LT. - LEFT	TYP. - TYPICAL
MAX. - MAXIMUM	U.G. - UNDERGROUND
MIN. - MINIMUM	VAR. - VARIES
MISC. - MISCELLANEOUS	VC - VERTICAL CURVE
MOT - MAINTENANCE OF TRAFFIC	VERT. - VERTICAL
N.F. - NEAR FACE	W/O - WITHOUT
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE	
NO./# - NUMBER	

DESIGN AGENCY



DESIGNER

GTF

REVIEWER

CAH

PROJECT ID

112975

SHEET TOTAL


23 | 50



ESTIMATED QUANTITIES - STRUCTURE No.: WAR-350-0873 (01/STR/10 FUNDING SPLIT)								ABUT.	SUPER.	GEN.	SEE SHEET
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION							
202	11003	LUMP	LS	STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN							
202	22900	98	SY	APPROACH SLAB REMOVED						98	
202	23500	623	SY	WEARING COURSE REMOVED				623			
503	11100	LUMP	LS	COFFERDAMS AND EXCAVATION BRACING						LUMP	
503	21302	LUMP	LS	UNCLASSIFIED EXCAVATION, INCLUDING SHALE						LUMP	
509	26000	104,799	LB	GALVANIZED STEEL REINFORCEMENT		48360	56439				
511	34446	278	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK				278			
511	33500	4	EACH	SEMI-INTEGRAL DIAPHRAGM GUIDE		4					
511	43512	549	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING				549			
512	10100	441	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)				359		82	
512	33000	55	SY	TYPE 2 WATERPROOFING				55			
513	10280	315,090	LB	STRUCTURAL STEEL MEMBERS, LEVEL 4			315090				
513	20000	2700	EACH	WELDED STUD SHEAR CONNECTORS			2700				
514	00060	14,217	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT				14217			
514	00066	14,217	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT				14217			
514	10000	8	EACH	FINAL INSPECTION REPAIR				8			
514	27700	406	SF	FIELD PAINTING, MISC. COATING OF BEAM ENDS				406			
516	10010	86.5	FT	ARMORLESS PREFORMED JOINT SEAL						86.5	
516	13600	4	SF	1" PREFORMED EXPANSION JOINT FILLER			4				
516	13900	121	SF	2" PREFORMED EXPANSION JOINT FILLER			121				
516	14020	96	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL			96				
516	44300	8	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (22"x23"x4.428")						8	
517	70100	345.72	FT	RAILING (THREE STEEL TUBE BRIDGE RAILING)				345.72			
518	21200	278	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC				278			
SPECIAL	51822300	340	FT	STEEL DRIP STRIP				340			
518	40000	240	FT	6" PERFORATED CORRUGATED PLASTIC PIPE						240	
518	40010	50	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS						50	
524	94804	510	FT	DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK		510					
524	94902	119	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK		119					
526	30010	254	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17")						254	
526	90030	86.5	FT	TYPE C INSTALLATION						86.5	
625	33000	2	EACH	STRUCTURE GROUNDING SYSTEM						2	
894	10000	6	EACH	THERMAL INTEGRITY PROFILING (TIP) TEST			6				

STRUCTURE ESTIMATED QUANTITIES  
 BRIDGE No.: WAR-350-0873  
 STATE ROUTE 350 OVER TODD'S FORK

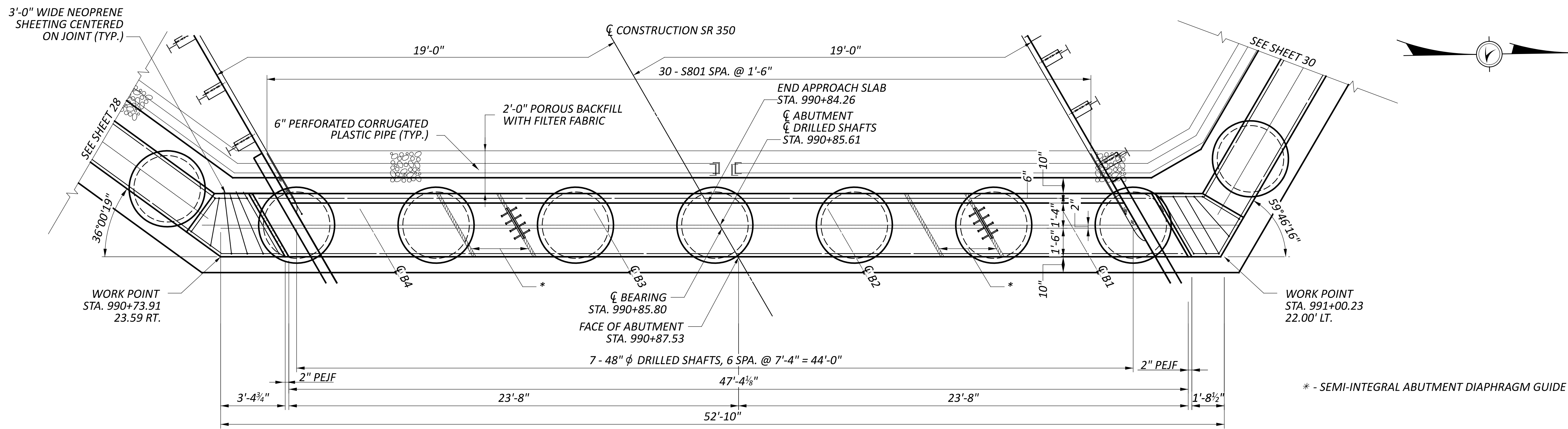
SFN  
 8306272  
 DESIGN AGENCY



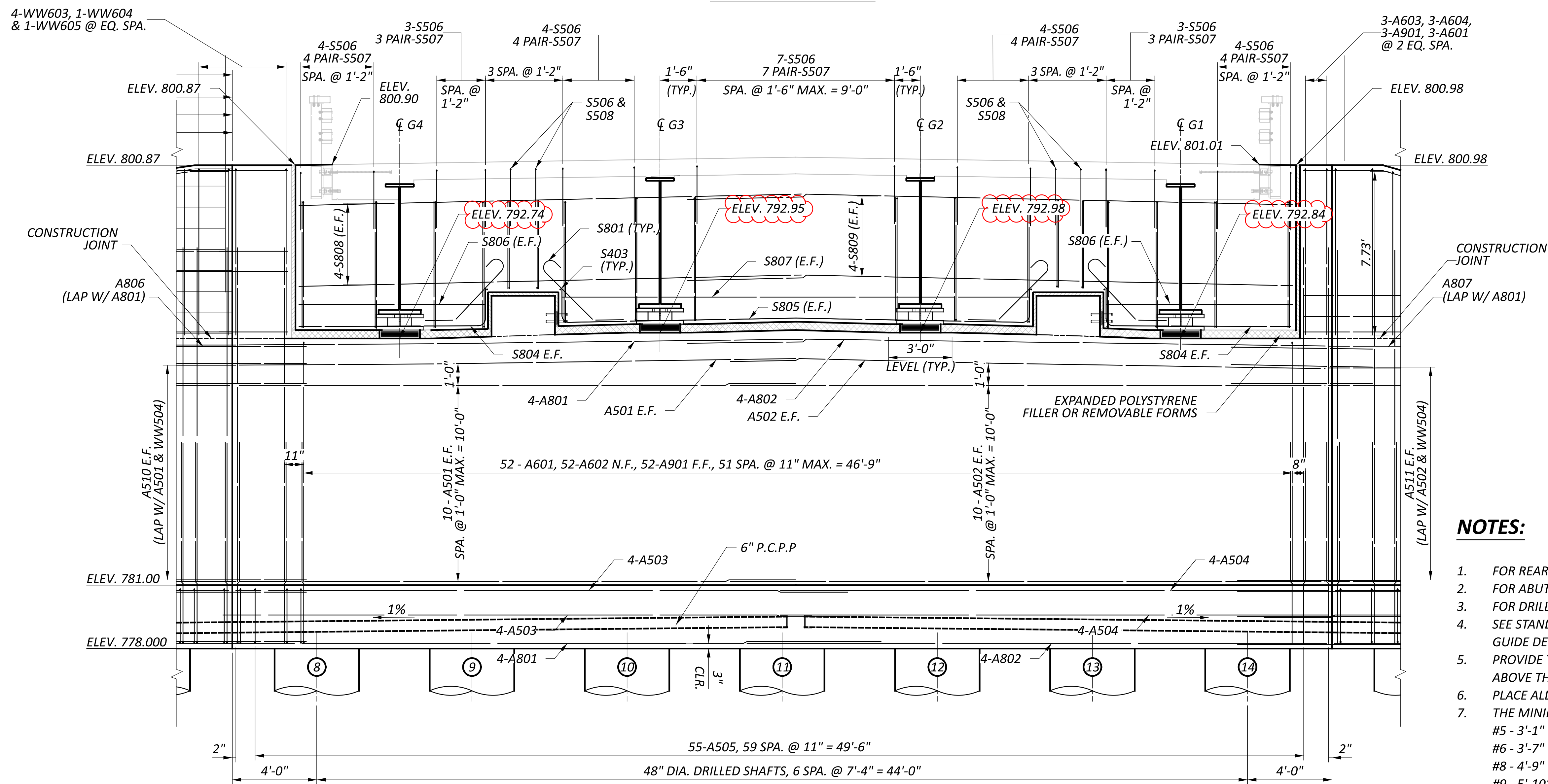
DESIGNER: GTF  
 CHECKER: CAH  
 REVIEWER: SRK

PROJECT ID: 112975

SUBSET	TOTAL
3	20
SHEET	TOTAL
24	50



REAR ABUTMENT PLAN



REAR ABUTMENT ELEVATION

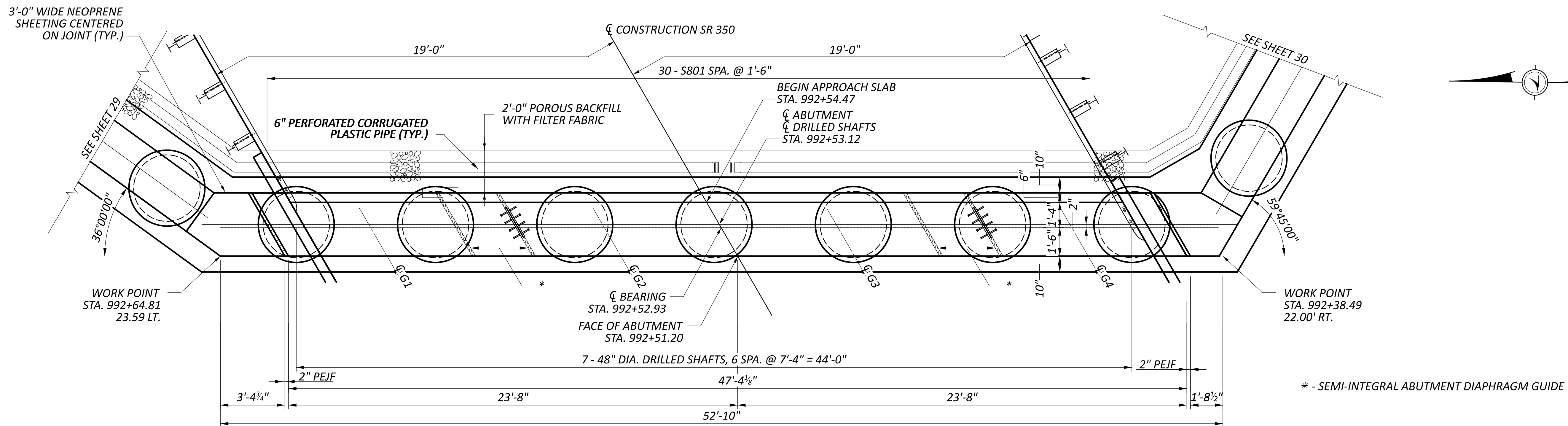
**NOTES:**

- FOR REAR ABUTMENT SECTION AND DETAILS, SEE SHEET 32.
- FOR ABUTMENT FOUNDATION PLAN SEE SHEET 25.
- FOR DRILLED SHAFT REINFORCING SEE SHEETS 31 & 32.
- SEE STANDARD SICD-2-14 FOR ADDITIONAL DIAPHRAGM GUIDE DETAILS.
- PROVIDE TYPE 2 WATERPROOFING AT ALL CONSTRUCTION JOINTS ABOVE THE FOOTING ADJACENT TO BACKFILL.
- PLACE ALL DIAPHRAGM REINFORCING STEEL PARALLEL WITH BEAMS.
- THE MINIMUM LAP LENGTHS ARE AS FOLLOWS:  
 #5 - 3'-1" (HORIZONTAL)  
 #6 - 3'-7" (VERTICAL)  
 #8 - 4'-9" (HORIZONTAL)  
 #9 - 5'-10" (VERTICAL)

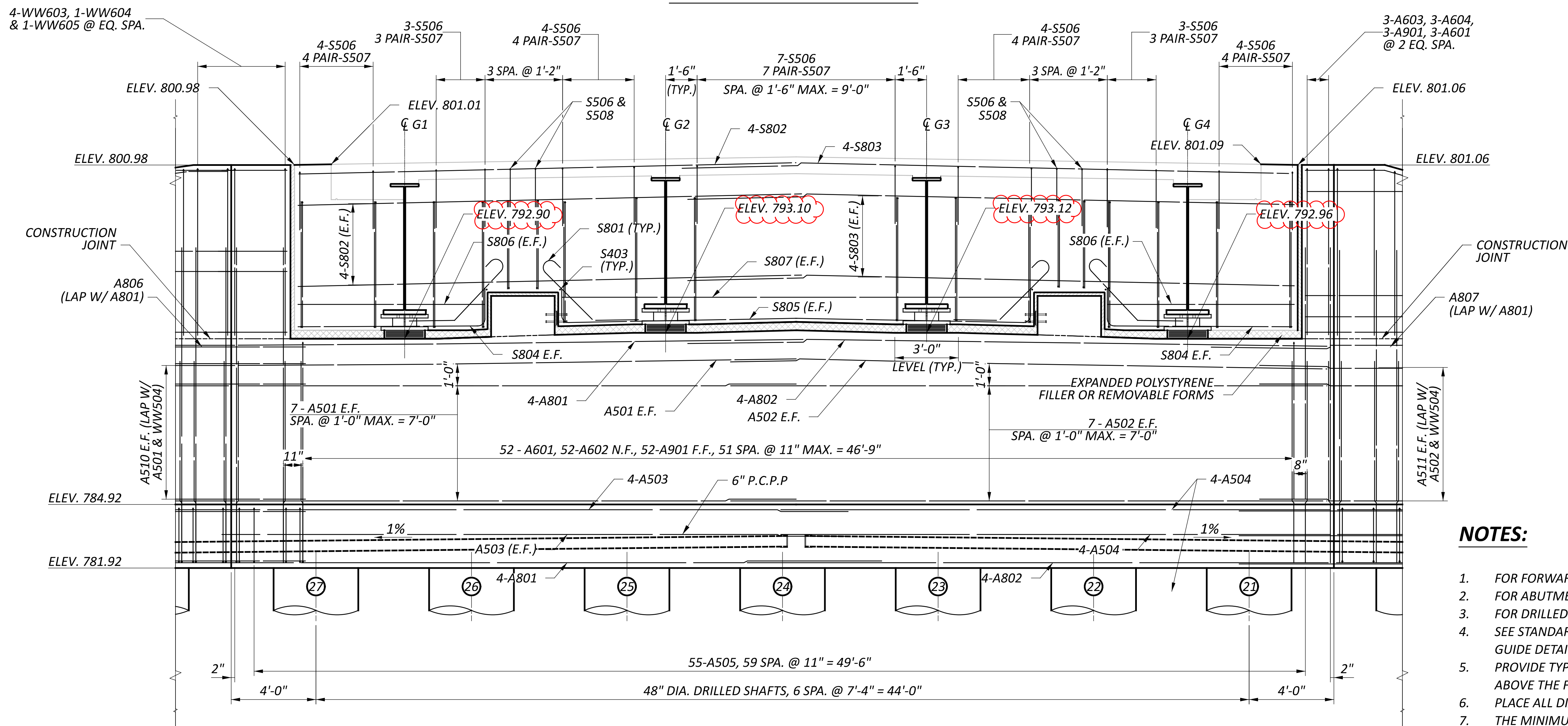
REAR ABUTMENT DETAILS  
 BRIDGE No.: WAR-350-0873  
 STATE ROUTE 350 OVER TODD'S FORK

SFN	8306272
DESIGN AGENCY	
DESIGNER	GTF
CHECKER	SRK
REVIEWER	CAH
PROJECT ID	112975
SUBSET	5
TOTAL	20
SHEET	26
TOTAL	50





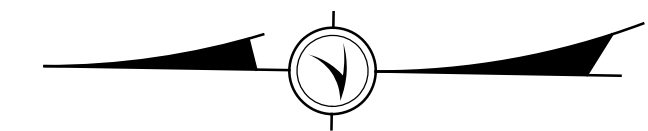
**FORWARD ABUTMENT PLAN**



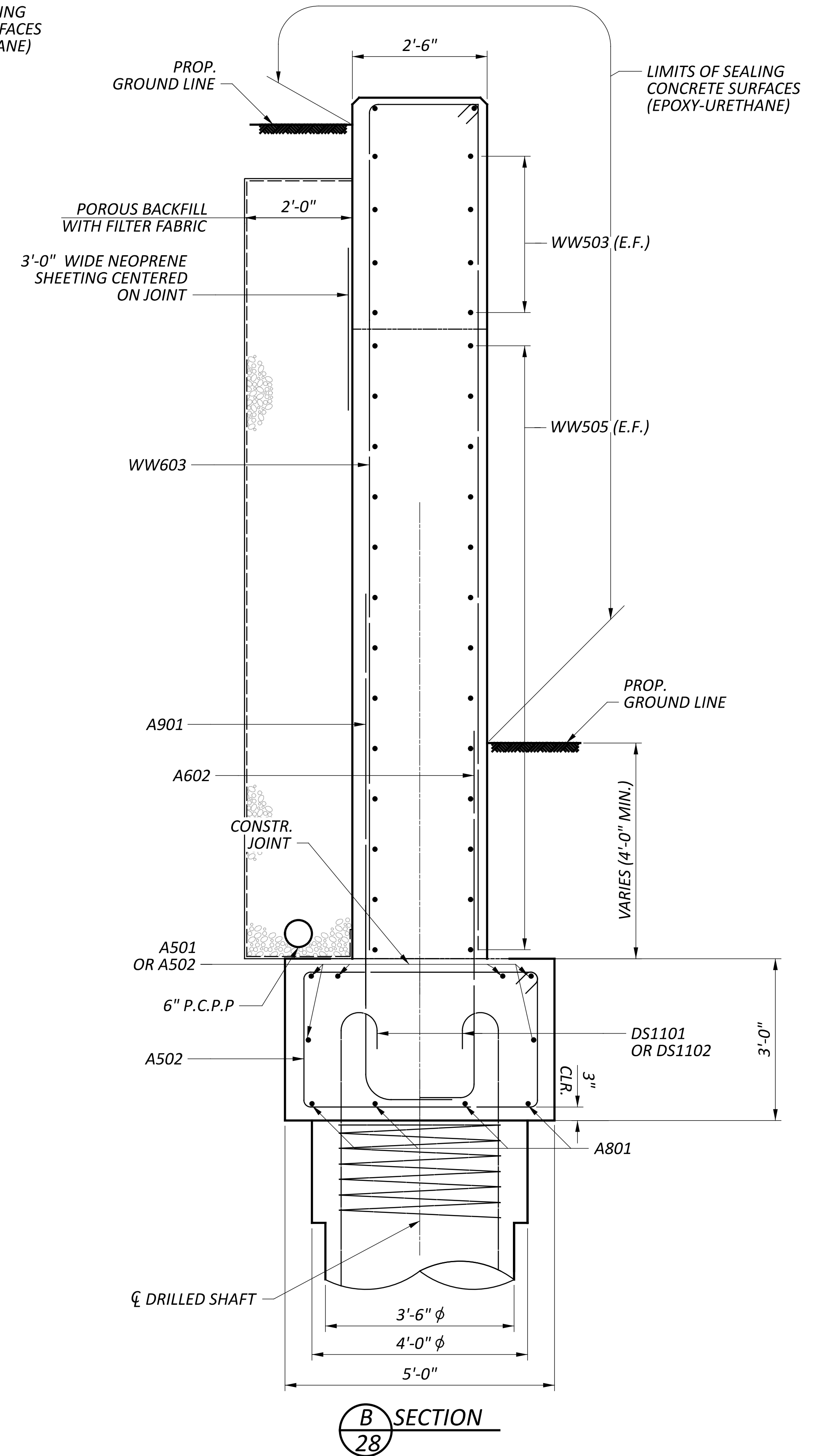
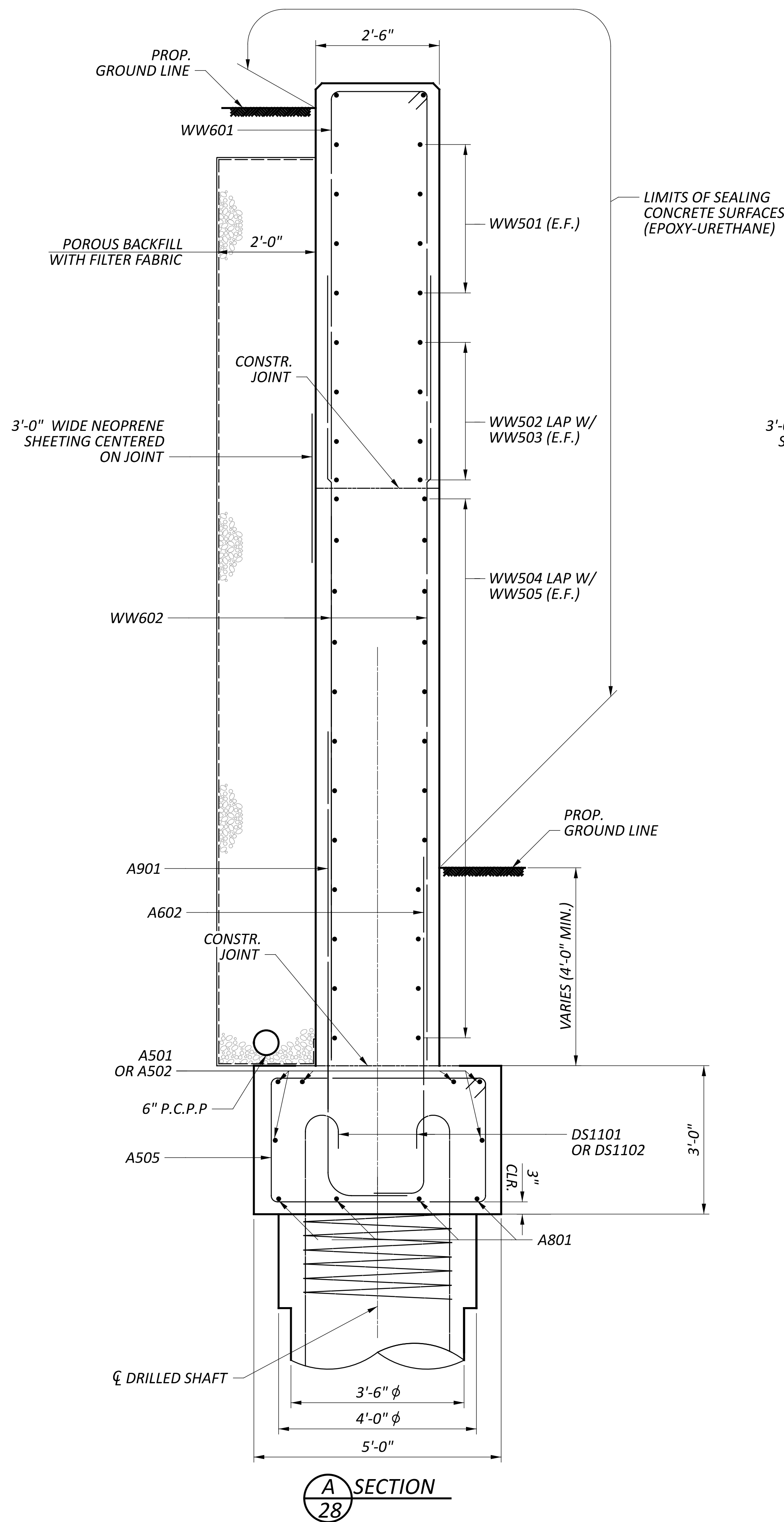
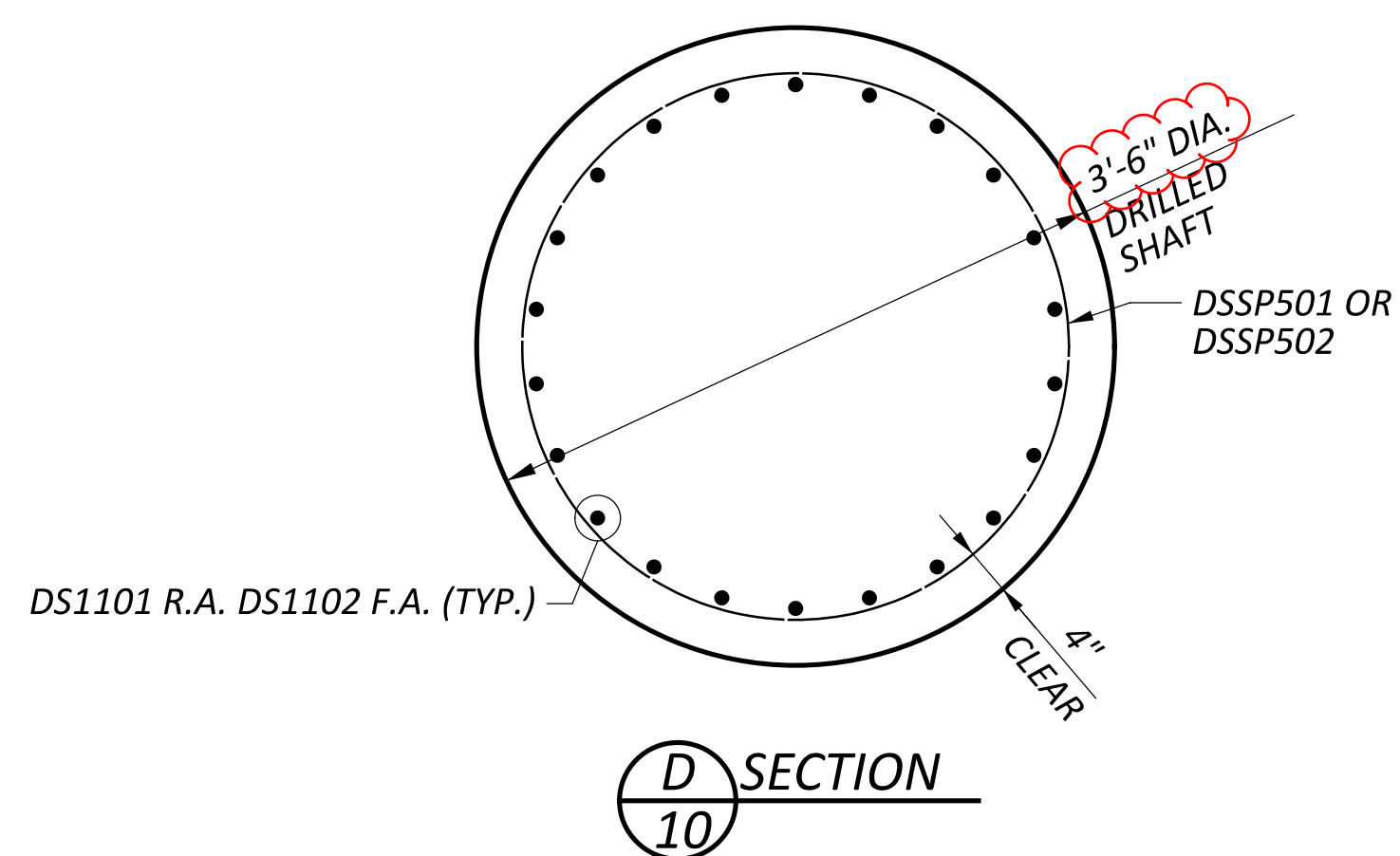
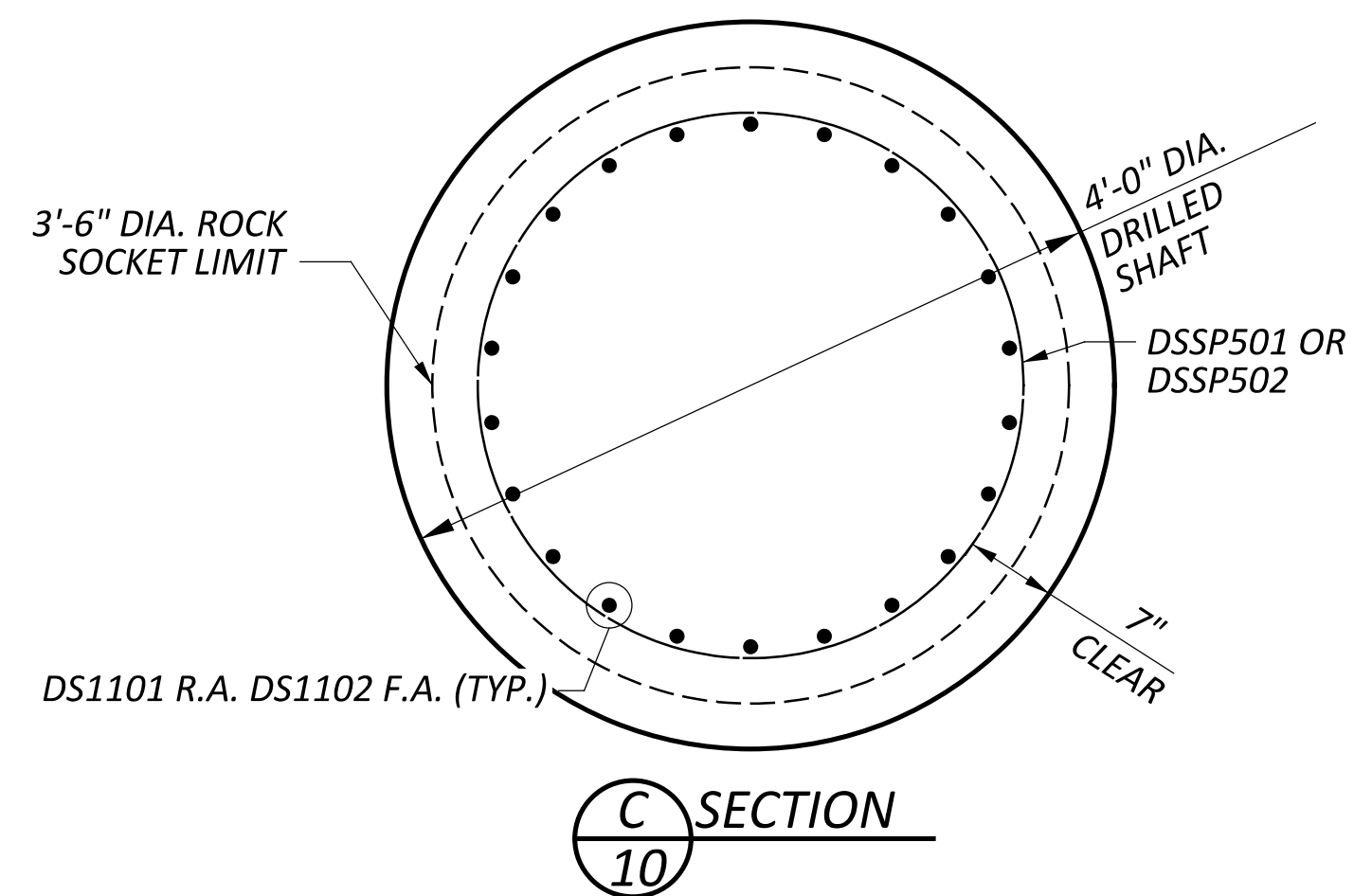
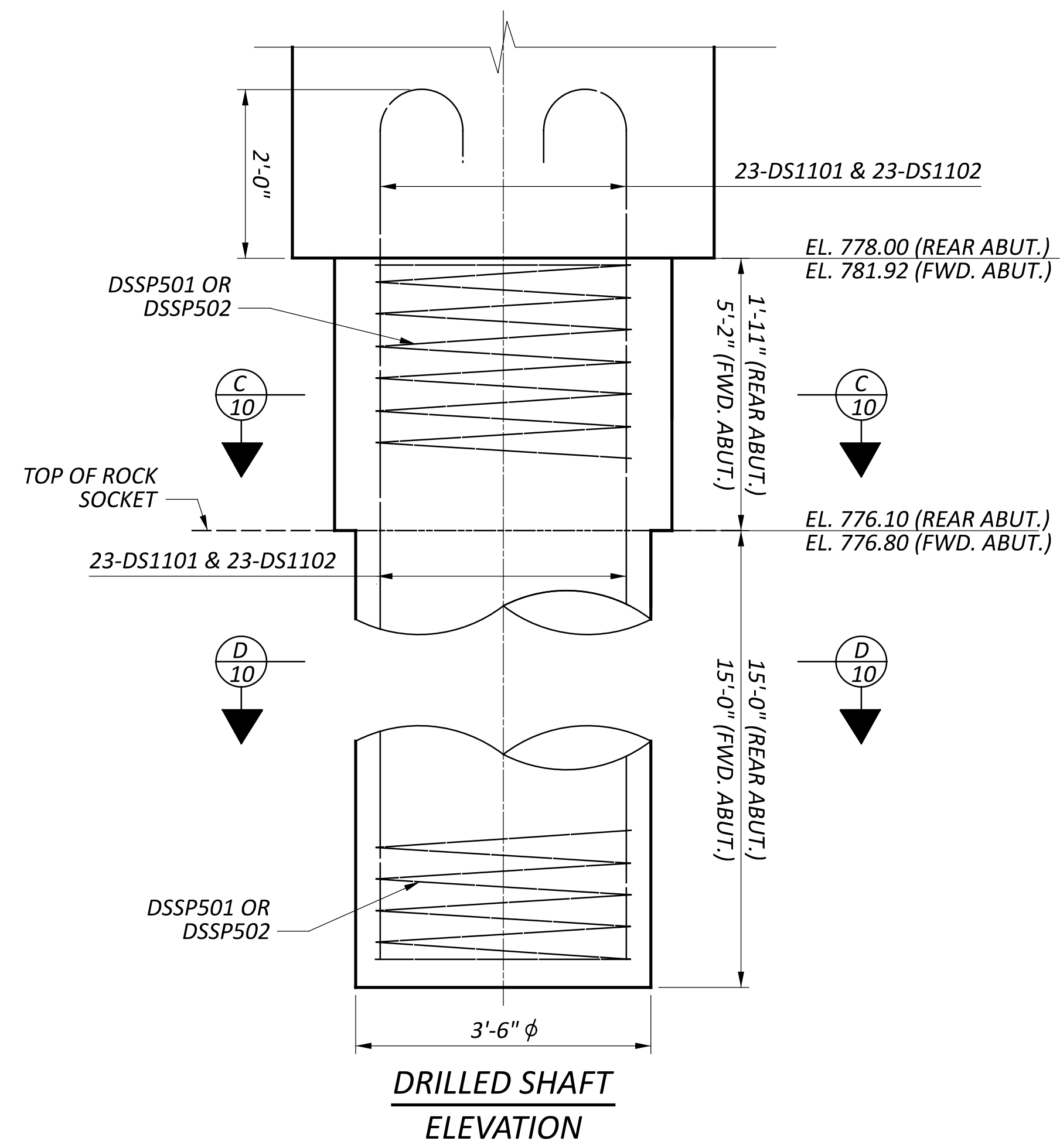
**FORWARD ABUTMENT ELEVATION**

**NOTES:**

1. FOR FORWARD ABUTMENT SECTION AND DETAILS, SEE SHEET 32.
2. FOR ABUTMENT FOUNDATION PLAN SEE SHEET 25.
3. FOR DRILLED SHAFT REINFORCING SEE SHEETS 31 & 32.
4. SEE STANDARD SICD-2-14 FOR ADDITIONAL DIAPHRAGM GUIDE DETAILS.
5. PROVIDE TYPE 2 WATERPROOFING AT ALL CONSTRUCTION JOINTS ABOVE THE FOOTING ADJACENT TO BACKFILL.
6. PLACE ALL DIAPHRAGM REINFORCING STEEL PARALLEL WITH BEAMS.
7. THE MINIMUM LAP LENGTHS ARE AS FOLLOWS:  
 #5 - 3'-1" (HORIZONTAL)  
 #6 - 3'-7" (VERTICAL)  
 #8 - 4'-9" (HORIZONTAL)  
 #9 - 5'-10" (VERTICAL)

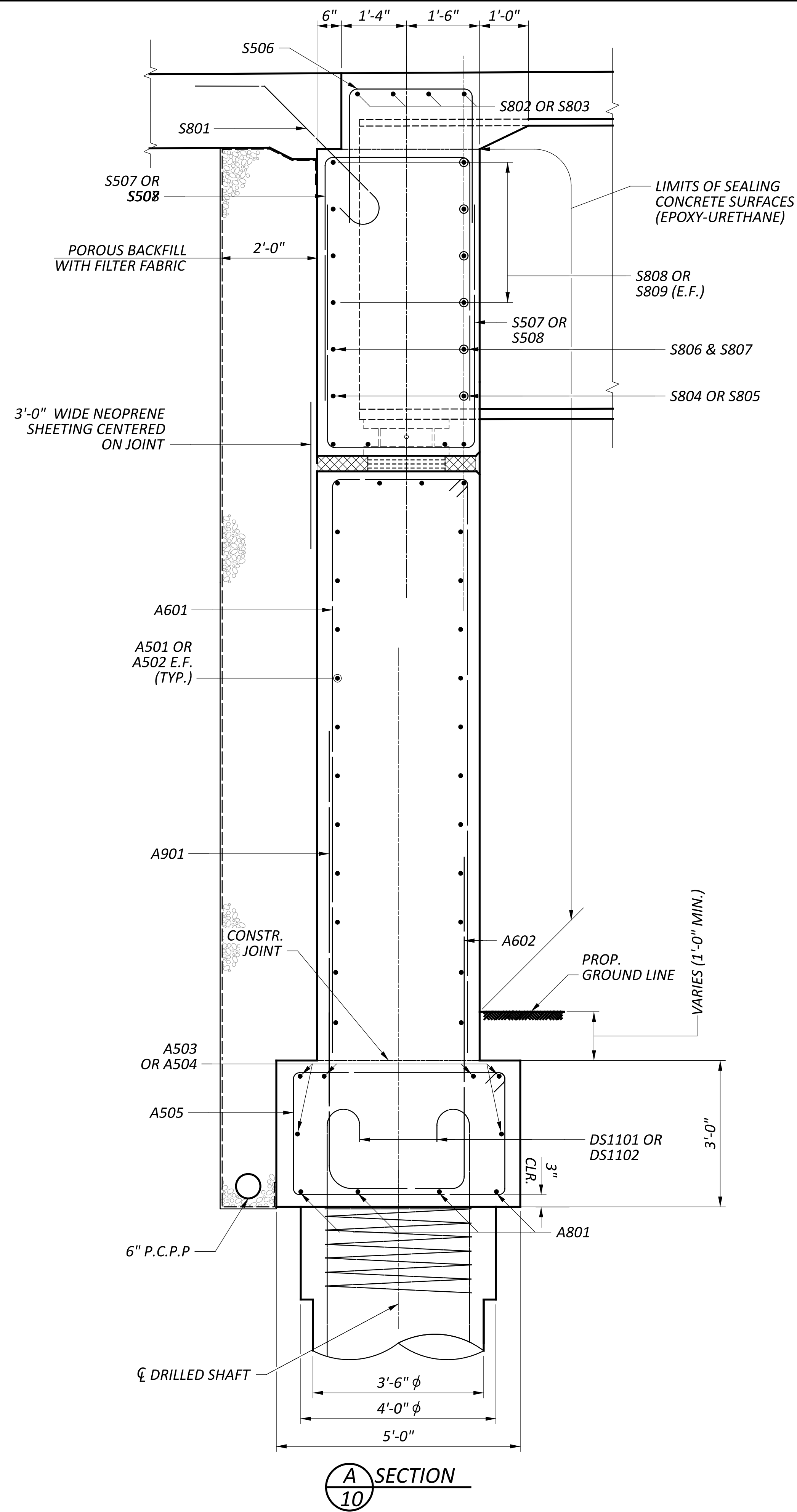
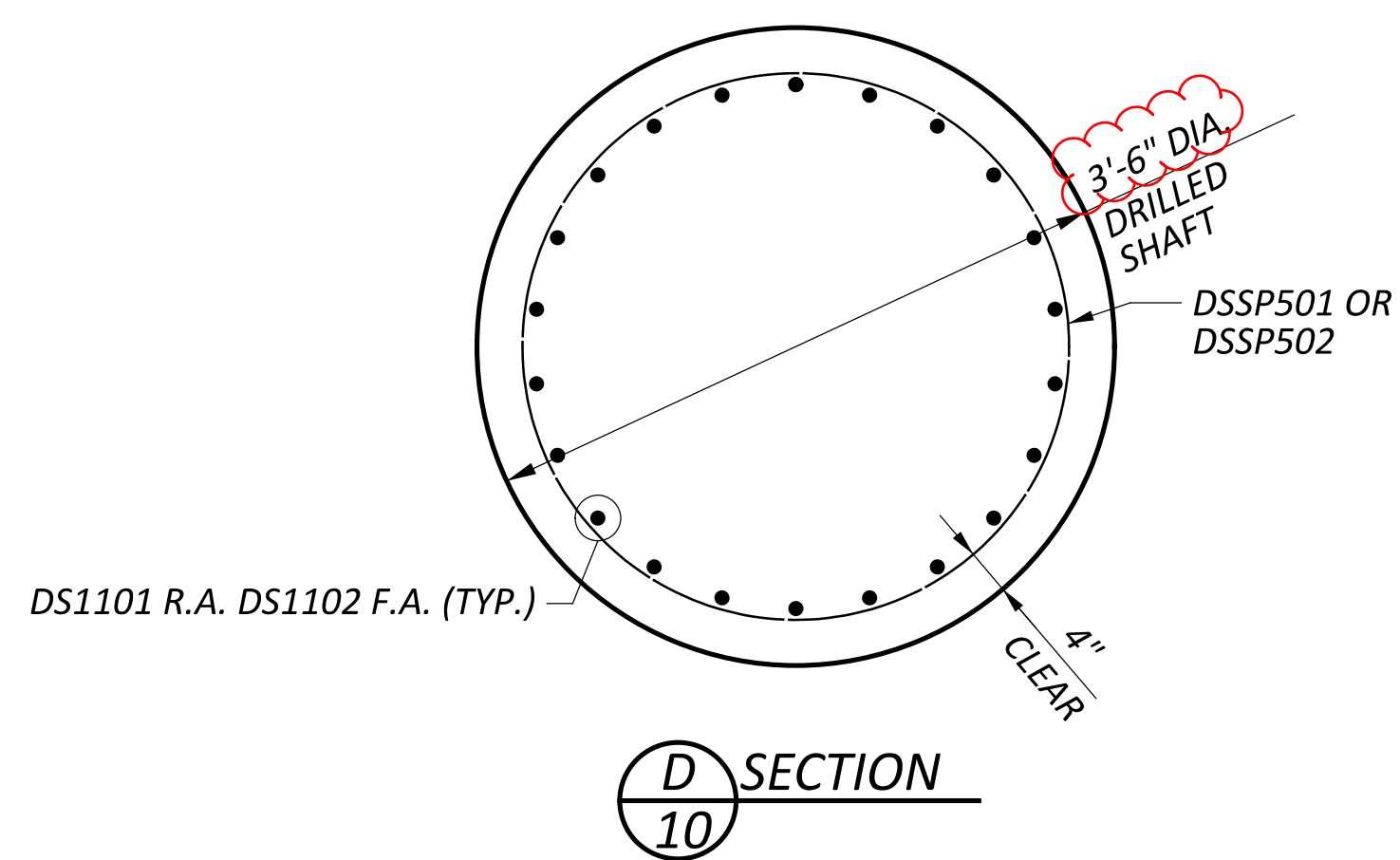
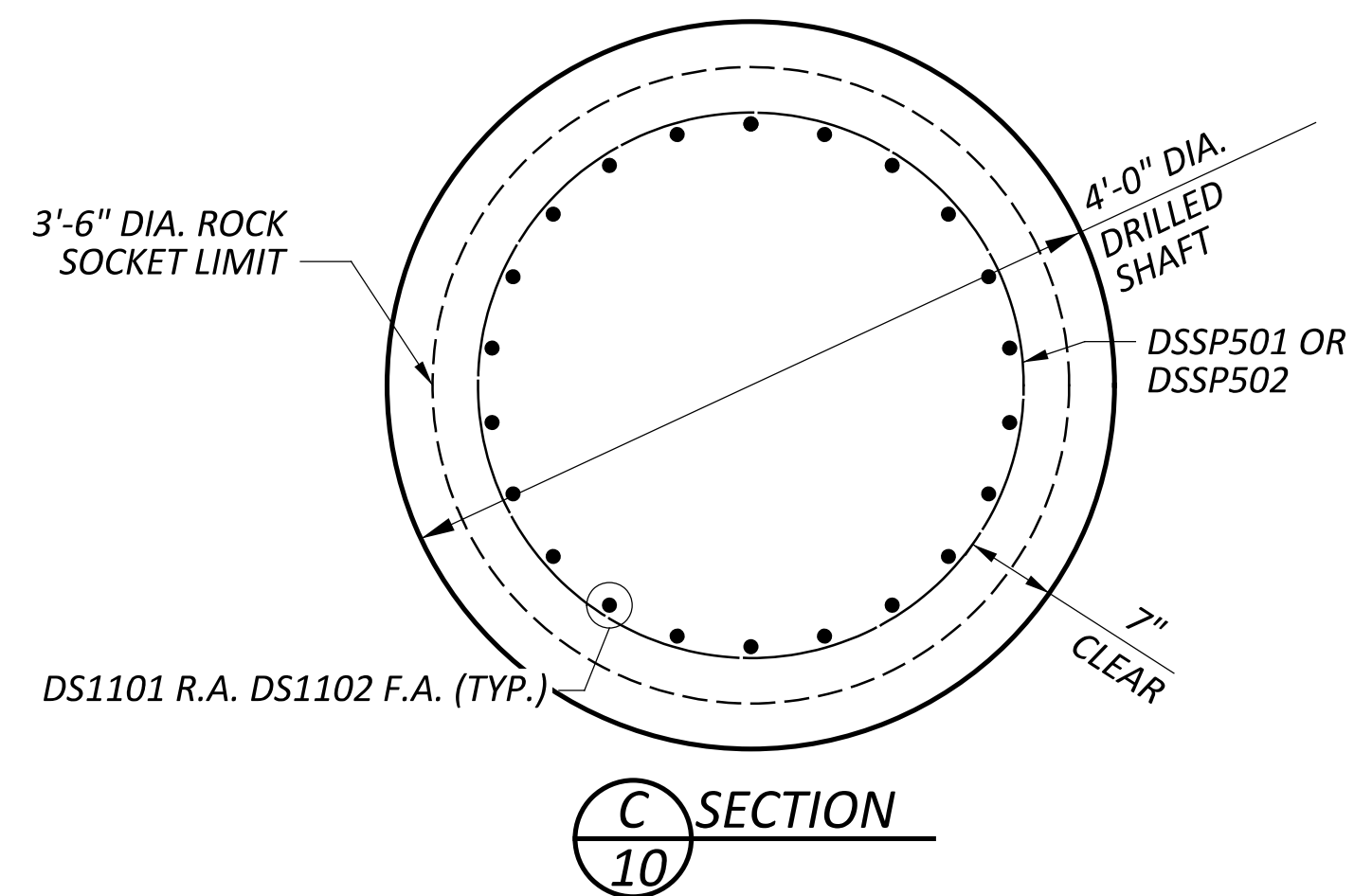
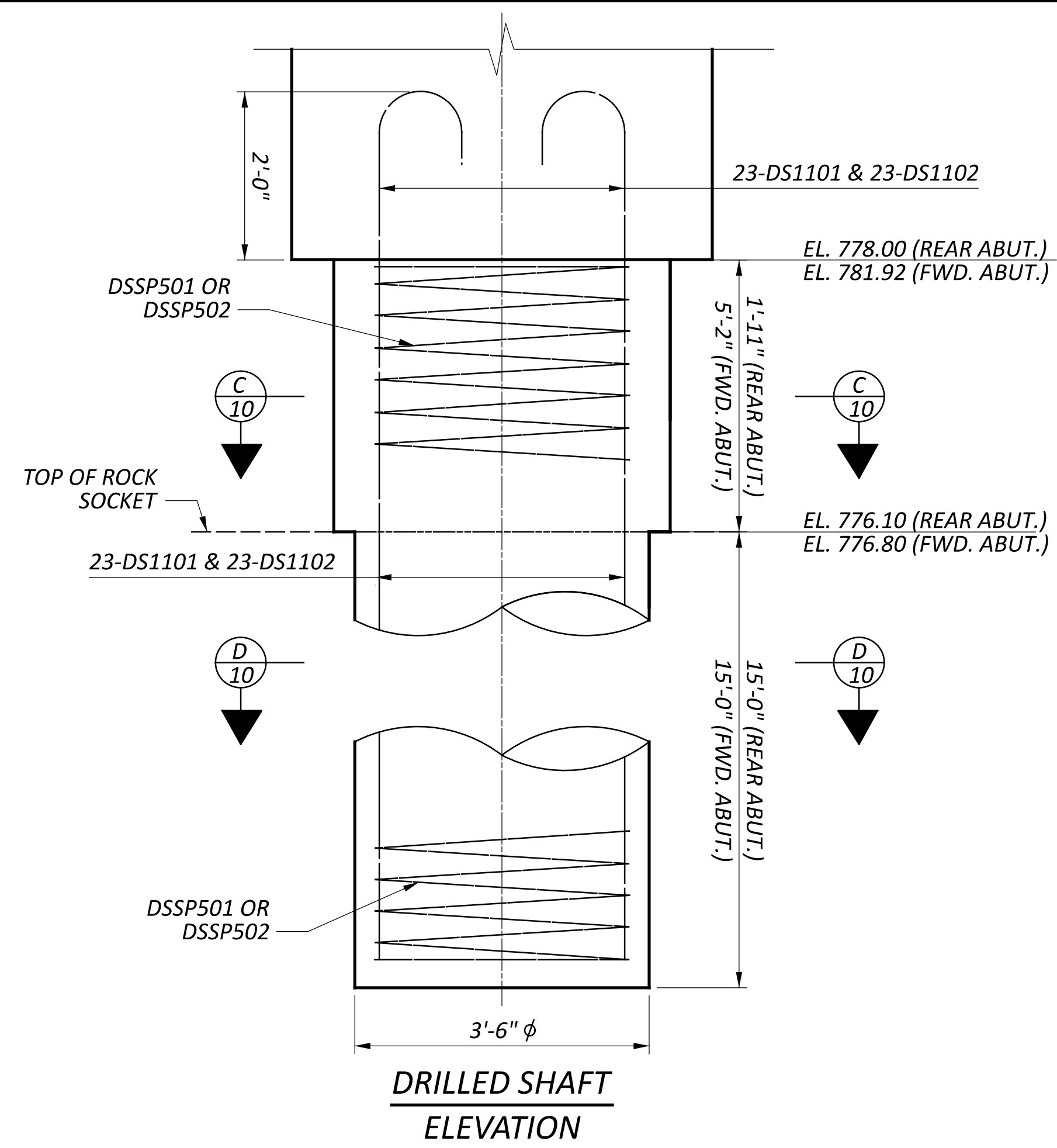


SFN	
8306272	
DESIGN AGENCY	
DESIGNER	CHECKER
GTF	SRK
REVIEWER	
CAH	
PROJECT ID	
112975	
SUBSET	TOTAL
6	20
SHEET	TOTAL
27	50



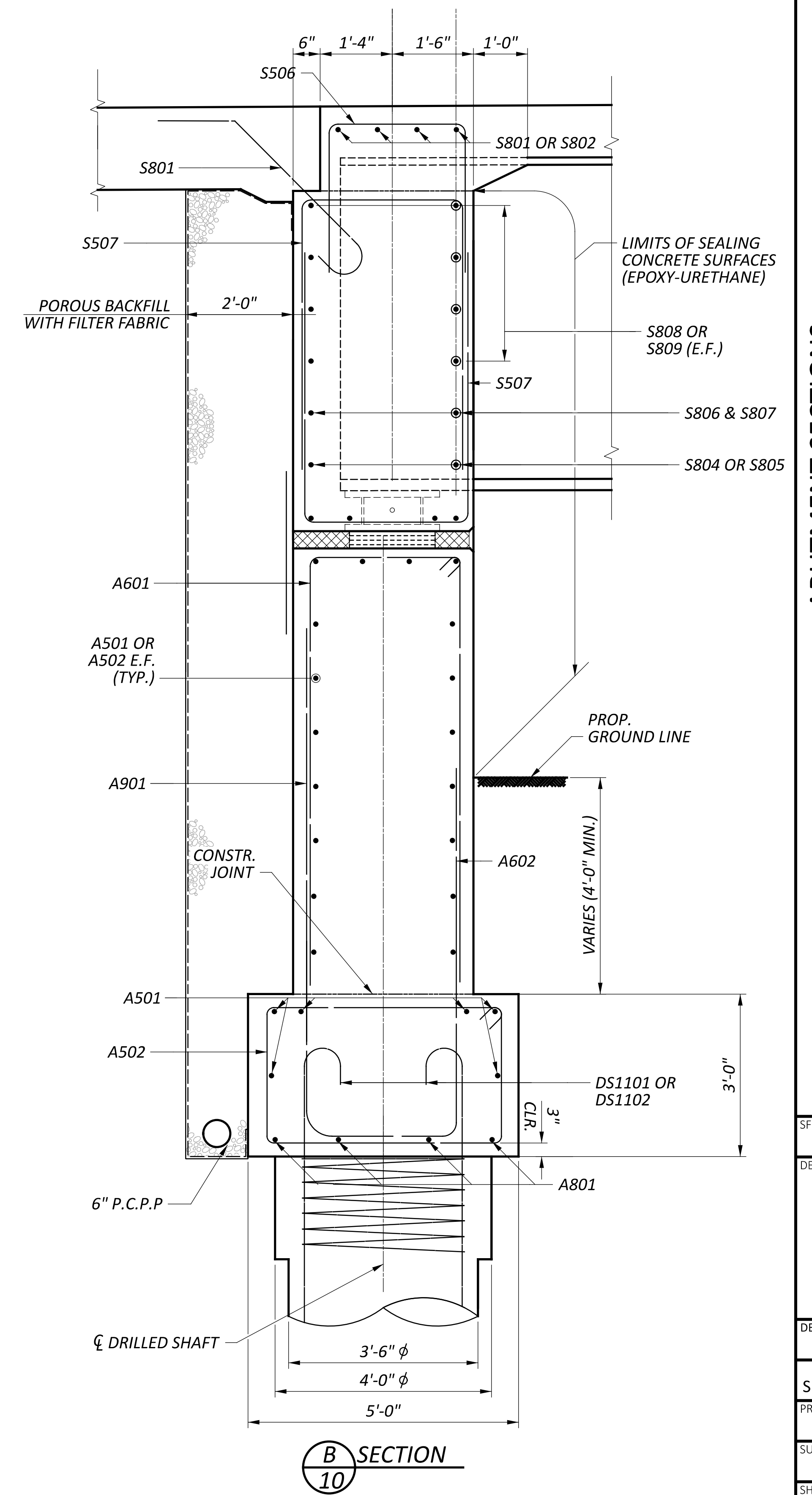
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DESIGN AGENCY	
DESIGNER	GTF
CHECKER	SRK
REVIEWER	
PROJECT ID	112975
SUBSET	TOTAL
10	20
SHEET	TOTAL
31	50



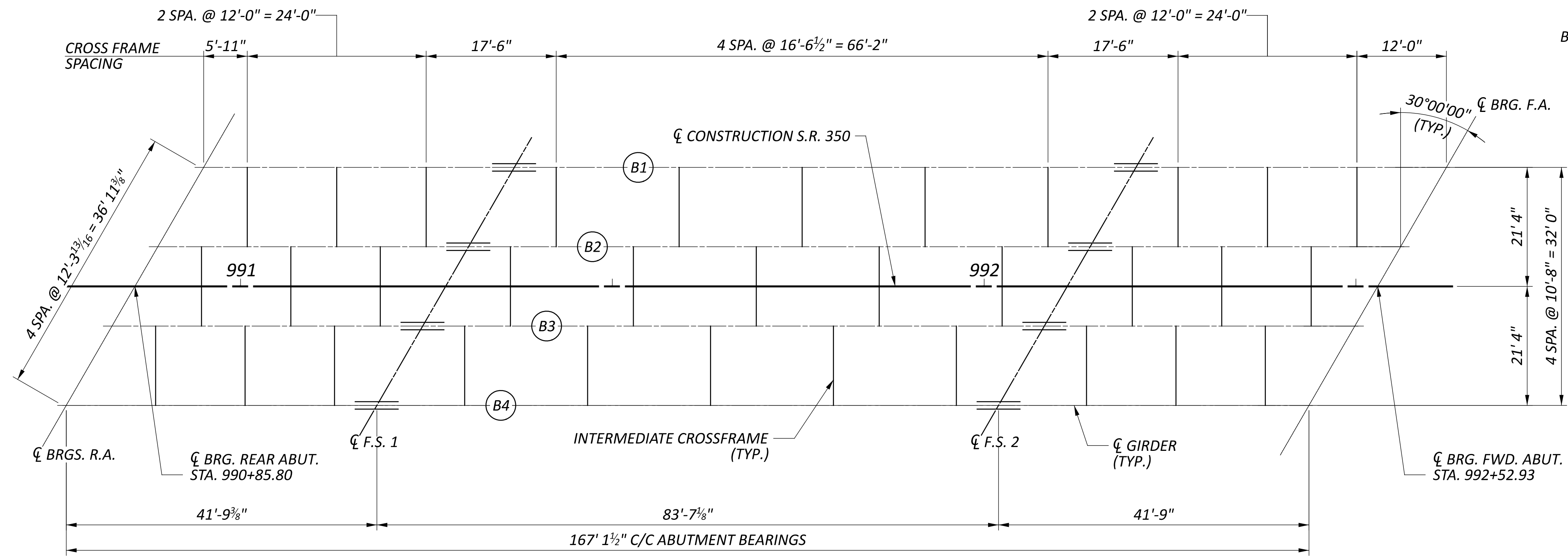


**NOTES:**

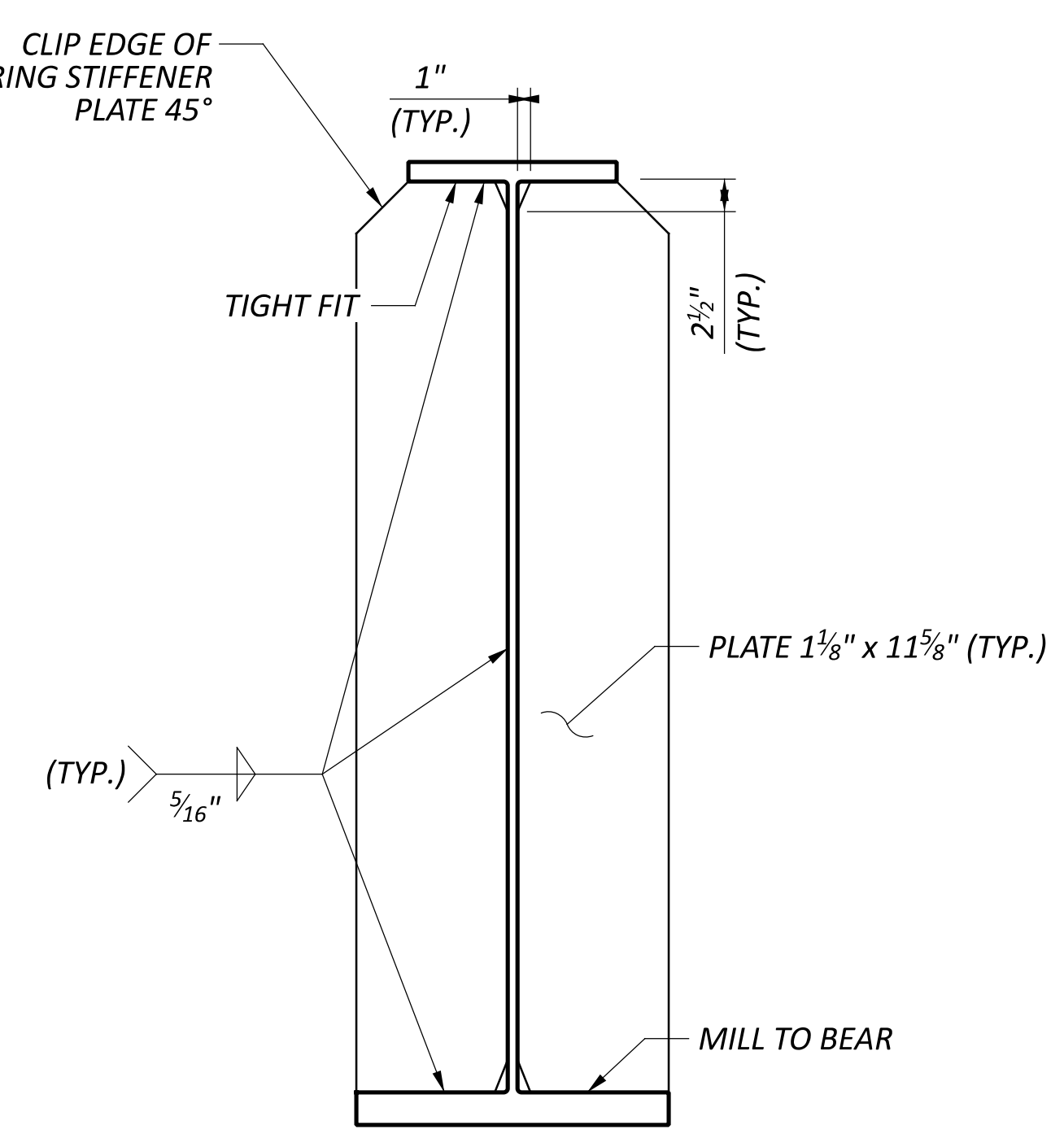
1. FOR ABUTMENT NOTES, SEE SHEETS 26 & 27.
2. DO NOT APPLY EPOXY-URETHANE SEALER TO THE CONCRETE SURFACES UNDER THE BEARINGS.
3. POROUS BACKFILL WITH FILTER FABRIC SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO THE BOTTOM OF THE APPROACH SLAB, AND Laterally TO THE ENDS OF WINGWALLS.



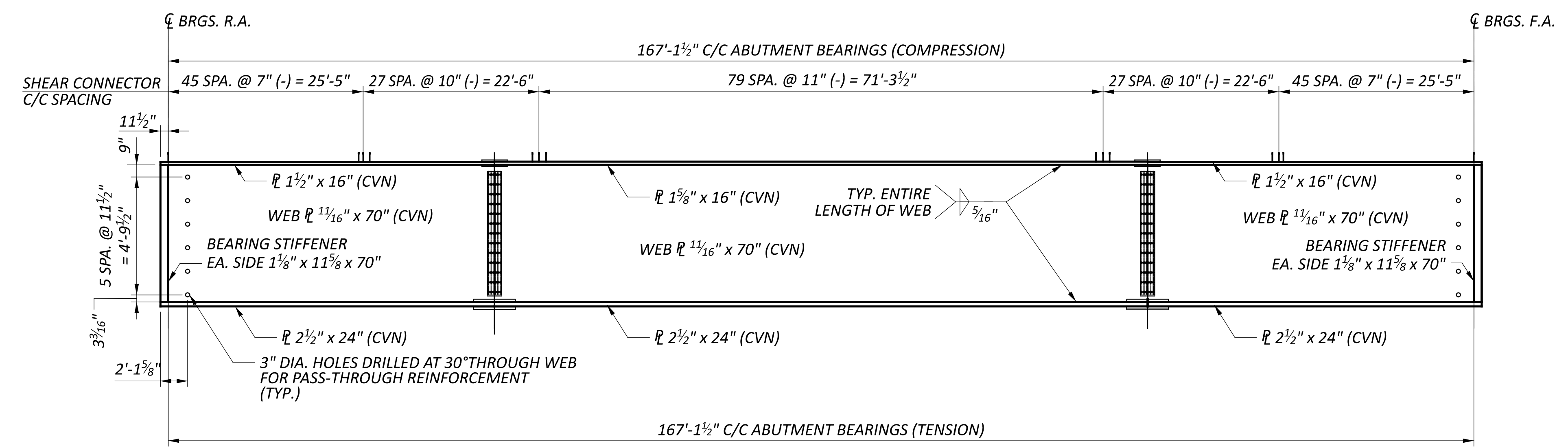
SFN	8306272
DESIGN AGENCY	
DESIGNER	CHECKER
GTF	CAH
SRK	REVIEWER
PROJECT ID	112975
SUBSET	TOTAL
11	20
SHEET	TOTAL
32	50



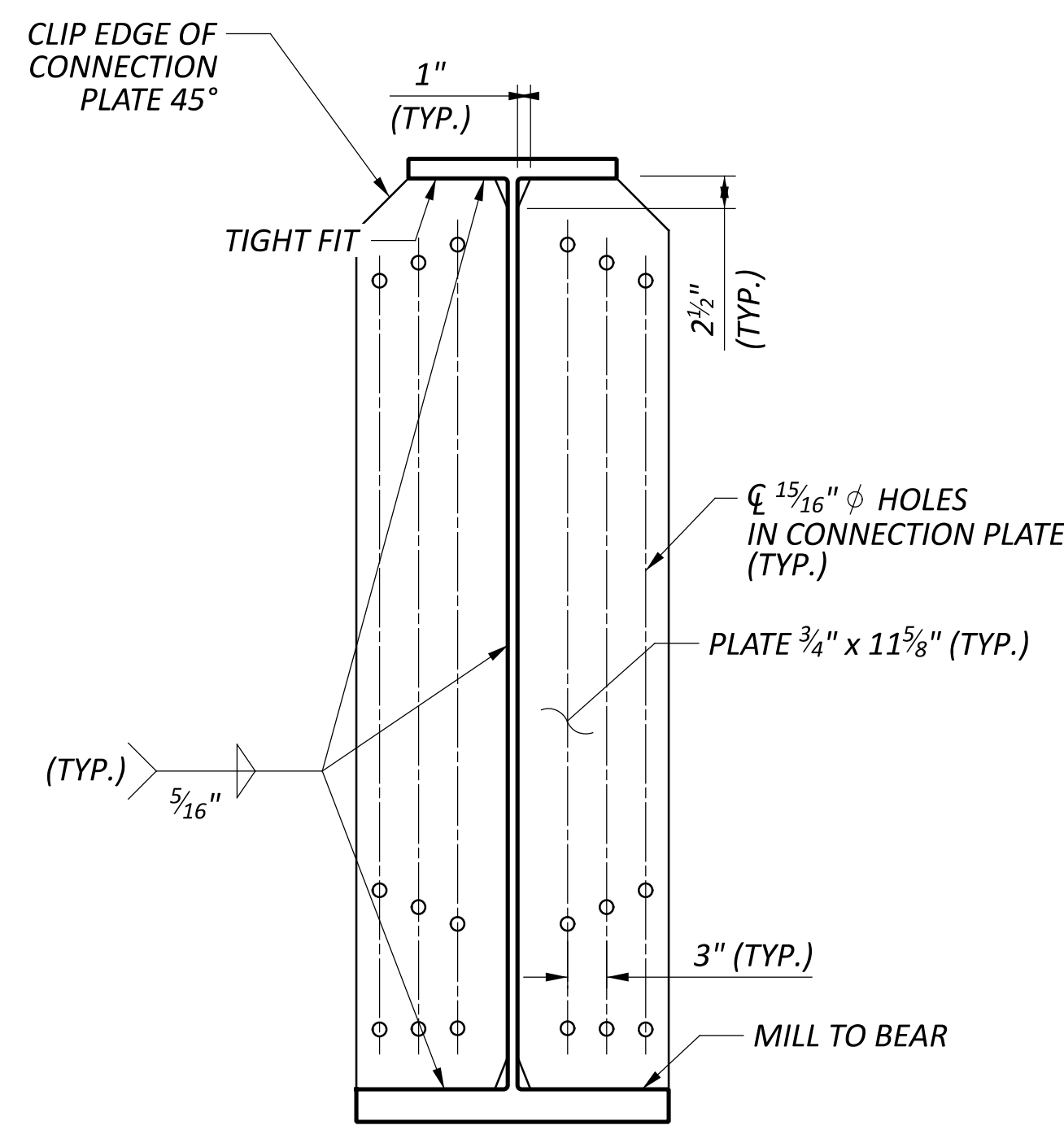
**FRAMING PLAN**



**BEARING STIFFENER DETAIL**

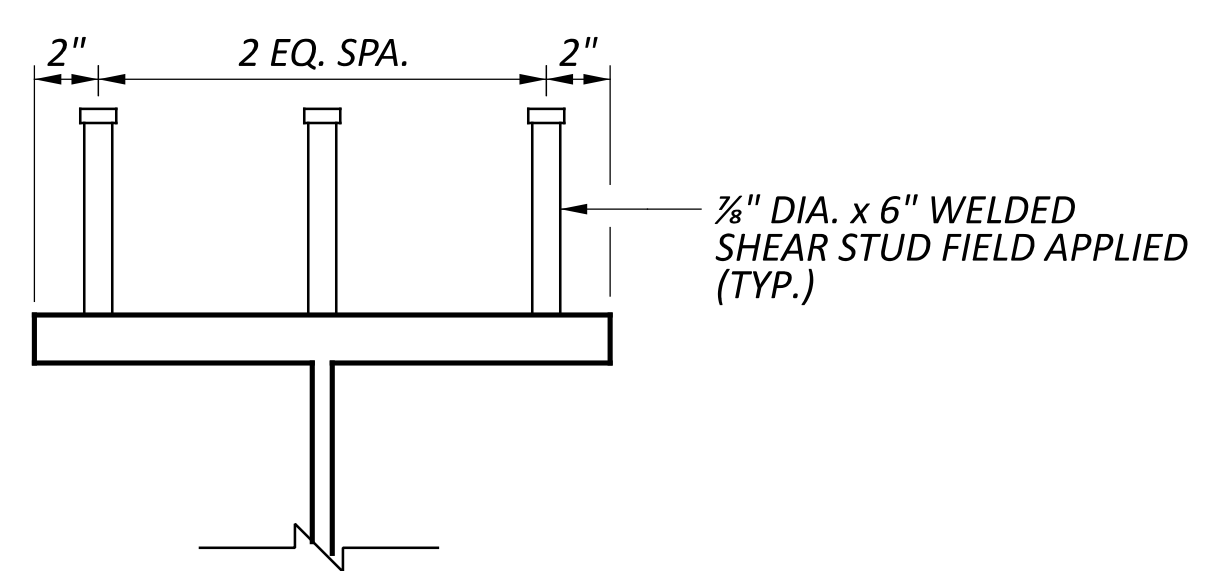


**GIRDER ELEVATION**

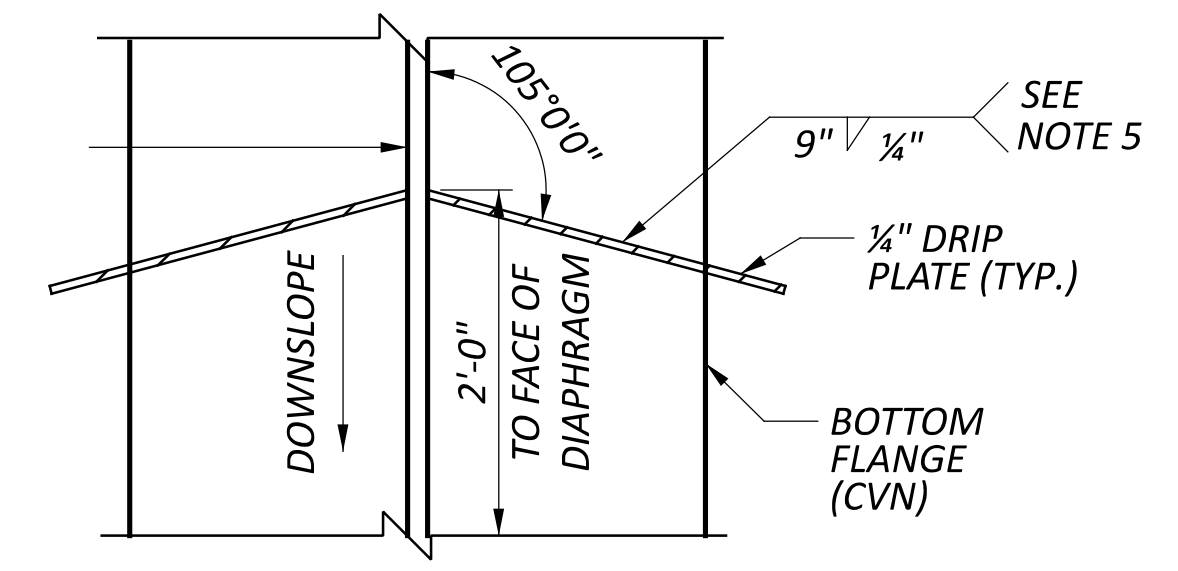


**INTERMEDIATE STIFFENER AT CROSSFRAME DETAIL**

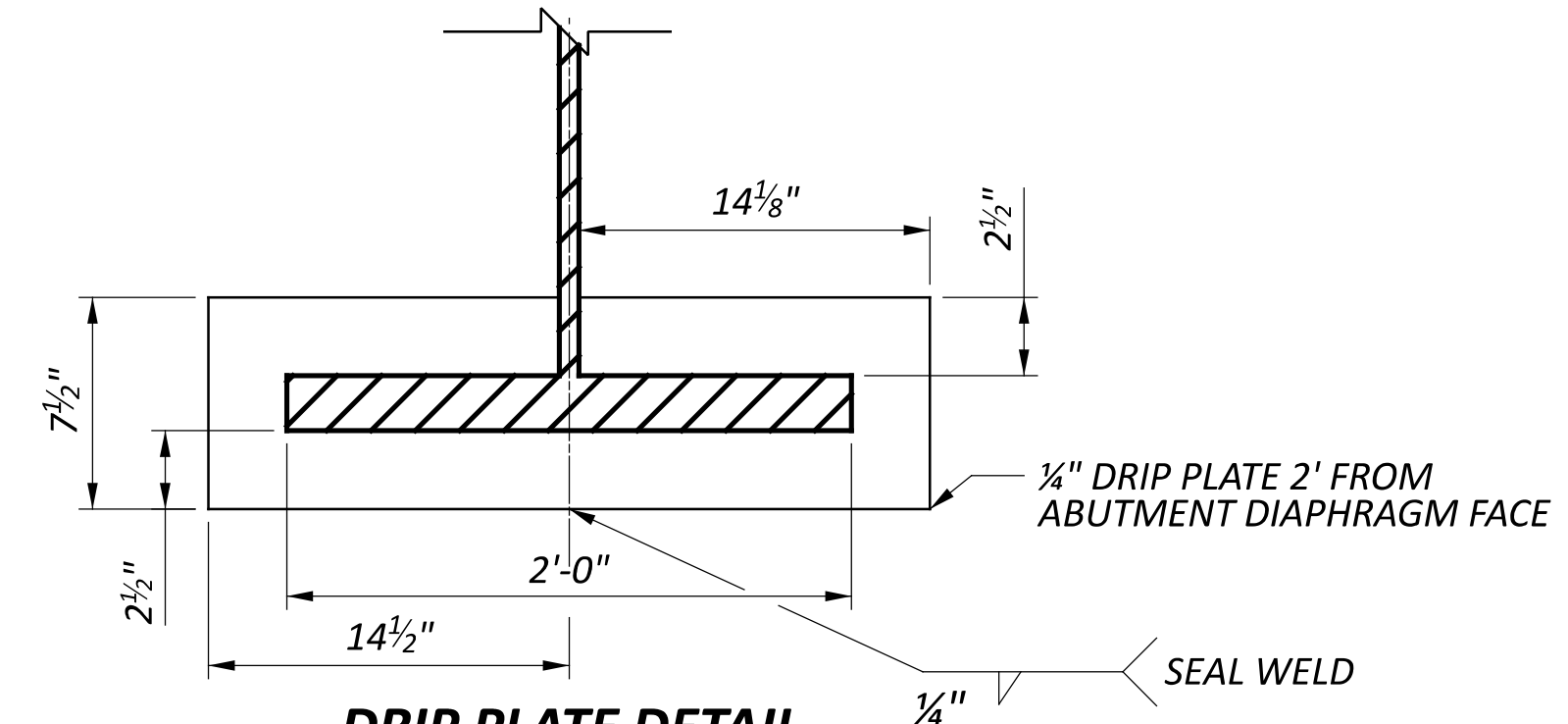
- NOTES:
1. ALL DIMENSIONS ARE HORIZONTAL.
  2. SEE ODOT STANDARD DRAWING GSD-1-19 FOR INTERMEDIATE CROSSFRAME DETAILS. THE CONTRACTOR SHALL UTILIZE THE TYPE C INTERMEDIATE CROSSFRAME SHOWN ON THE ODOT STANDARD DRAWING GSD-1-19.
  3. SEE SHEET 37 FOR INTERMEDIATE CROSSFRAME DETAILS.



**SHEAR CONNECTOR DETAIL**



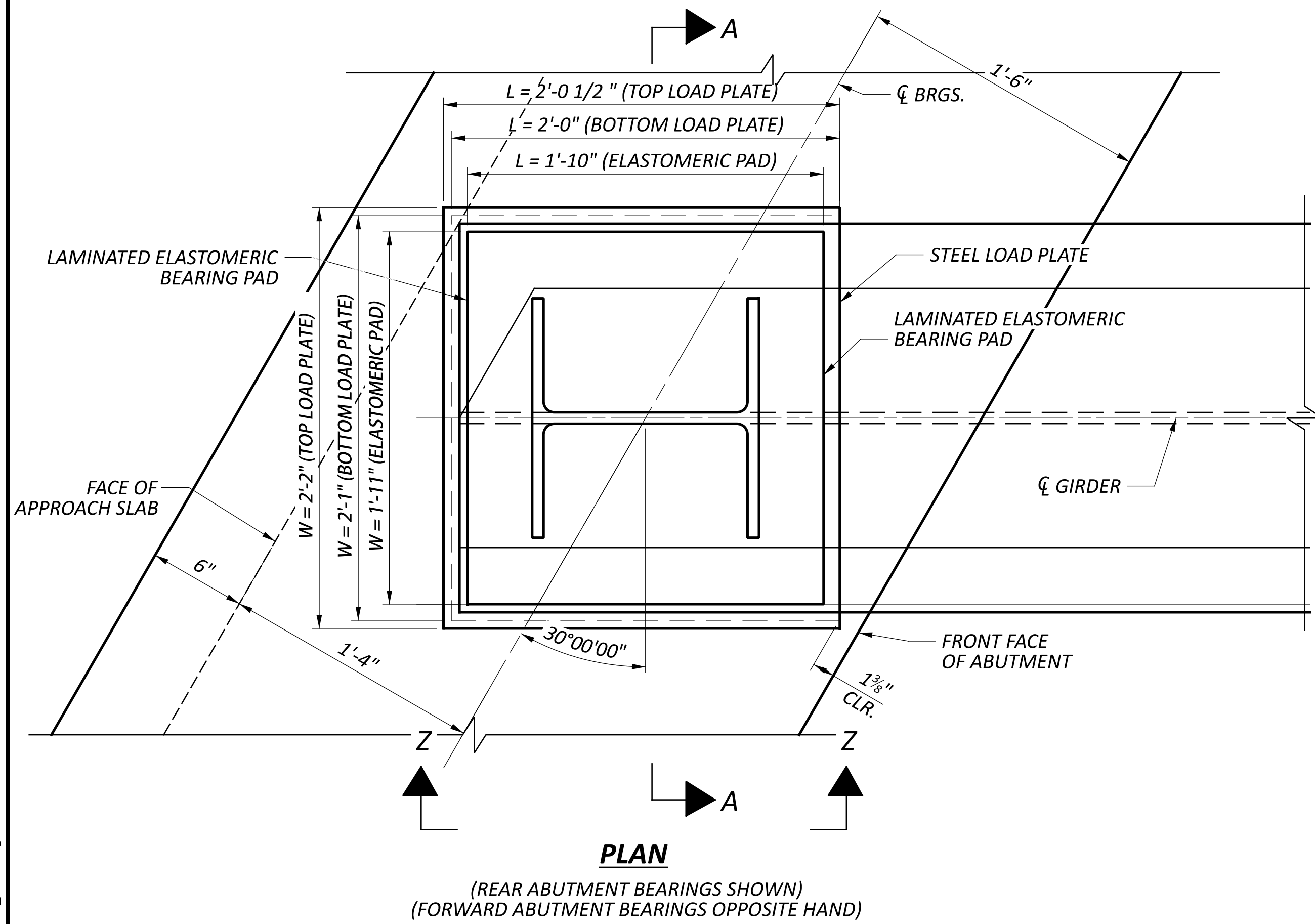
**PLAN VIEW - DRIP DETAIL**



**DRIP PLATE DETAIL**

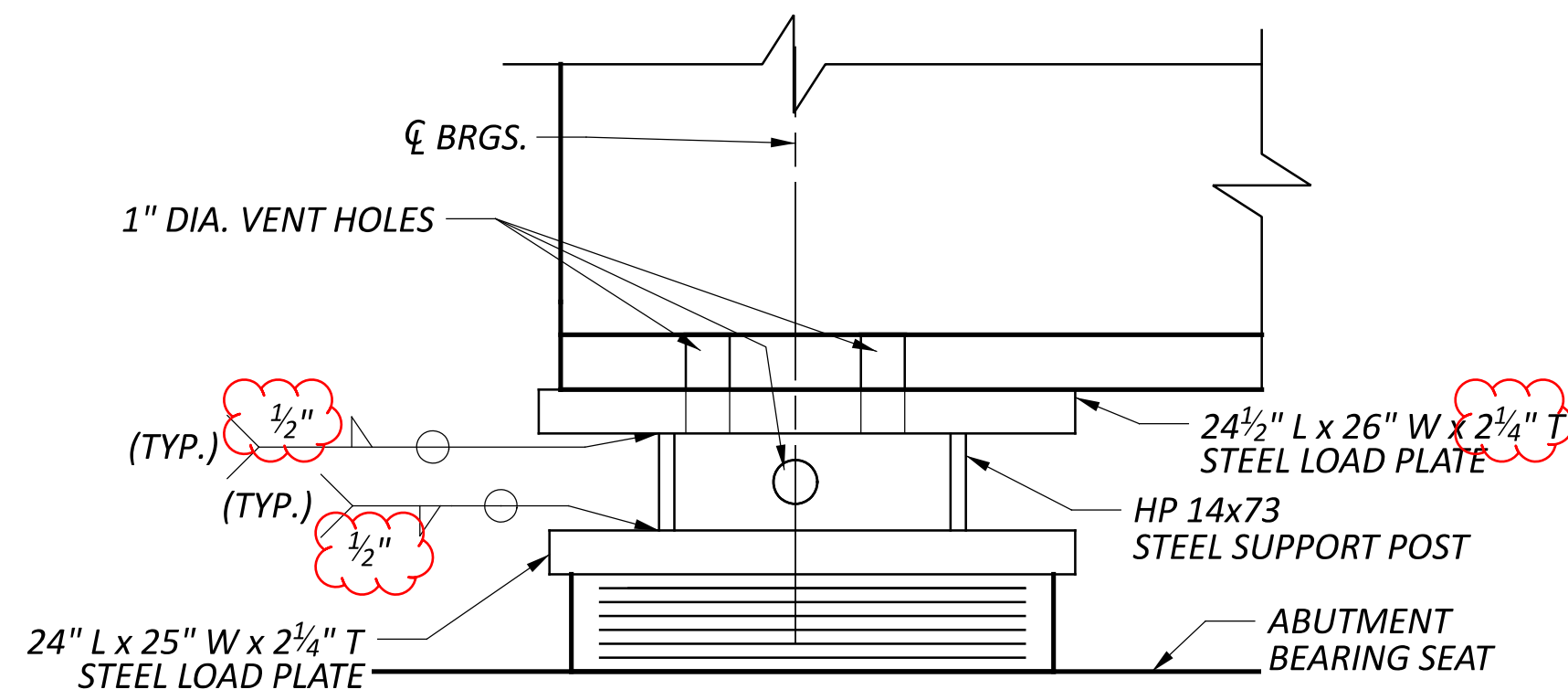
SFN	8306272
DESIGN AGENCY	CAH
DESIGNER	GTF
CHECKER	SRK
REVIEWER	
PROJECT ID	112975
SUBSET	12
TOTAL	12
SHEET	33
TOTAL	50



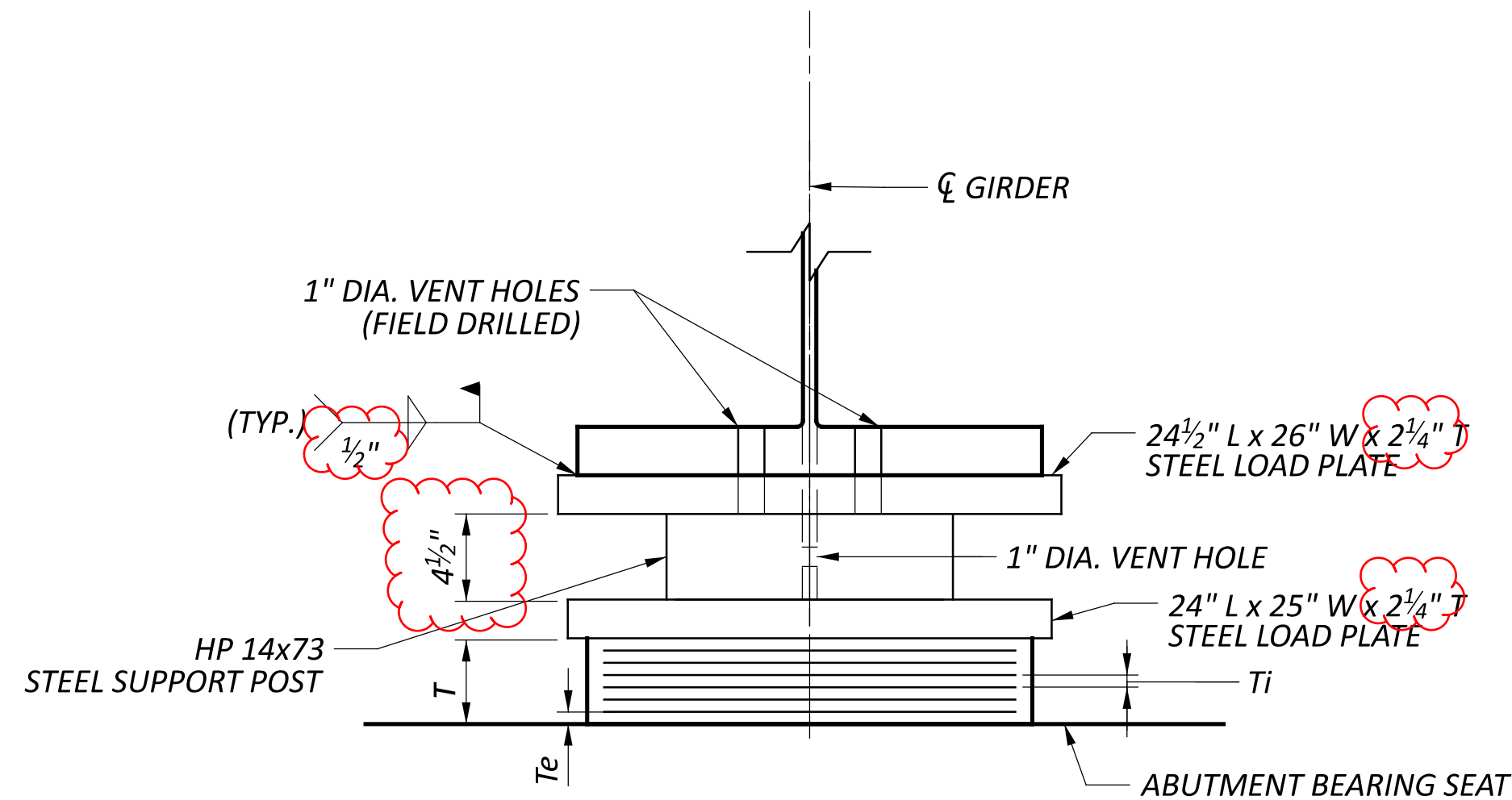


**PLAN**

(REAR ABUTMENT BEARINGS SHOWN)  
 (FORWARD ABUTMENT BEARINGS OPPOSITE HAND)



**VIEW Z-Z**



**SECTION A-A**

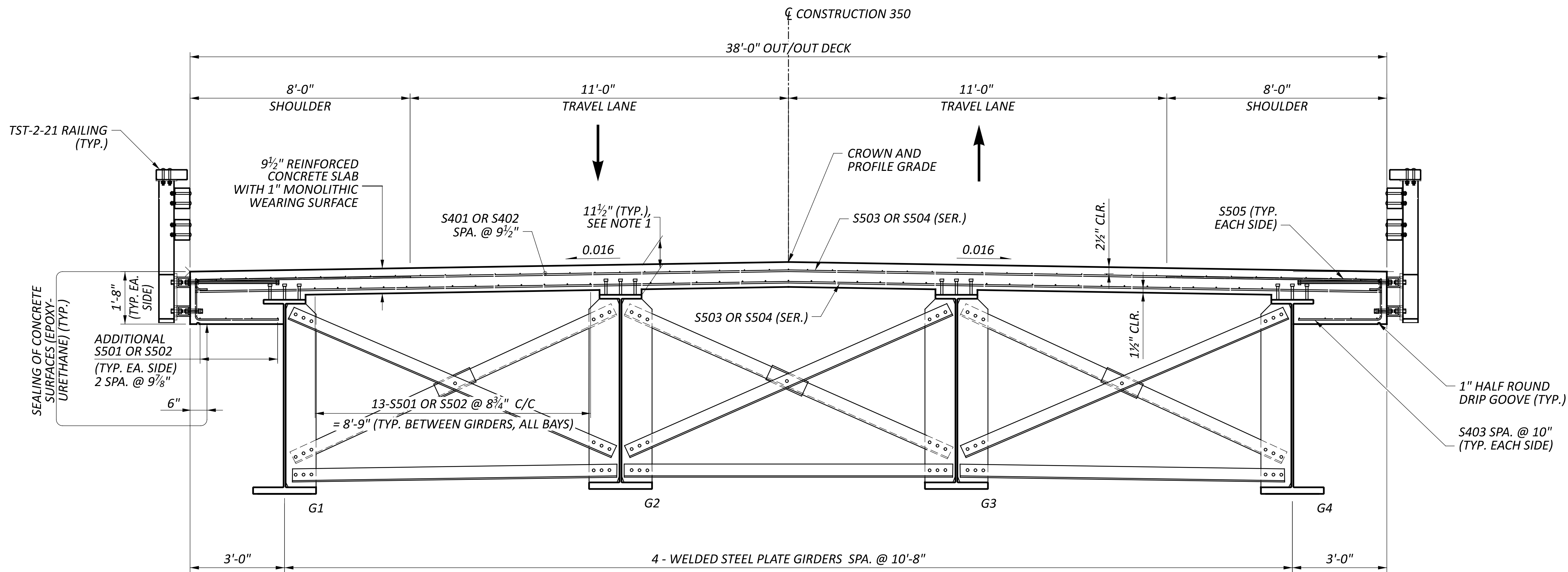
**NOTES:**

1. THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONG-TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
2. STEEL LOAD PLATES SHALL BE THE SAME MATERIAL AS THE ATTACHED STRUCTURAL STEEL (A709, GRADE 50).
3. SHOP MARK THE LOAD PLATES WITH THE FOLLOWING INFORMATION: TOP, UPSTATION DIRECTION, GIRDER LINE, AND SUBSTRUCTURE LOCATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
4. THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. WELDING OF THE LOAD PLATE TO THE SUPERSTRUCTURE SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE SHALL NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
5. THE LOAD PLATES, HP SUPPORTS, AND ALL OTHER STEEL ITEMS IN THE ABUTMENT BEARING SYSTEMS, SHALL BE PRIME PAINTED OR METALLIZED AS DESCRIBED IN CMS 516.03.
6. IF STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80° F OR LOWER THAN 40° F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/5 OF THE BEARING HEIGHT AT 60° F (±) 10° F, THE BEAMS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60° F (±) 10° F

FORWARD AND REAR ABUTMENT ELASTOMERIC PAD DATA FOR EXISTING BEAMS												
	SUB-STRUCTURE	ELASTOMERIC PAD						REACTIONS				
		T	NO. OF INTER. LAYERS	ti	te	STEEL LAMINATES		TYPE	DEAD LOAD (KIPS)	LIVE* LOAD (KIPS)	MAXIMUM DESIGN LOAD (K)	
						NO.	THICK.					
WAR-350-0873	ABUTMENTS	4.428"	5	0.600"	0.400"	6	0.1046"	EXP.	277.74	156.31	434.05	

ti = THICKNESS OF INTERNAL ELASTOMER LAYER, te = THICKNESS OF EXTERNAL ELASTOMER LAYER  
 \* W/O IMPACT

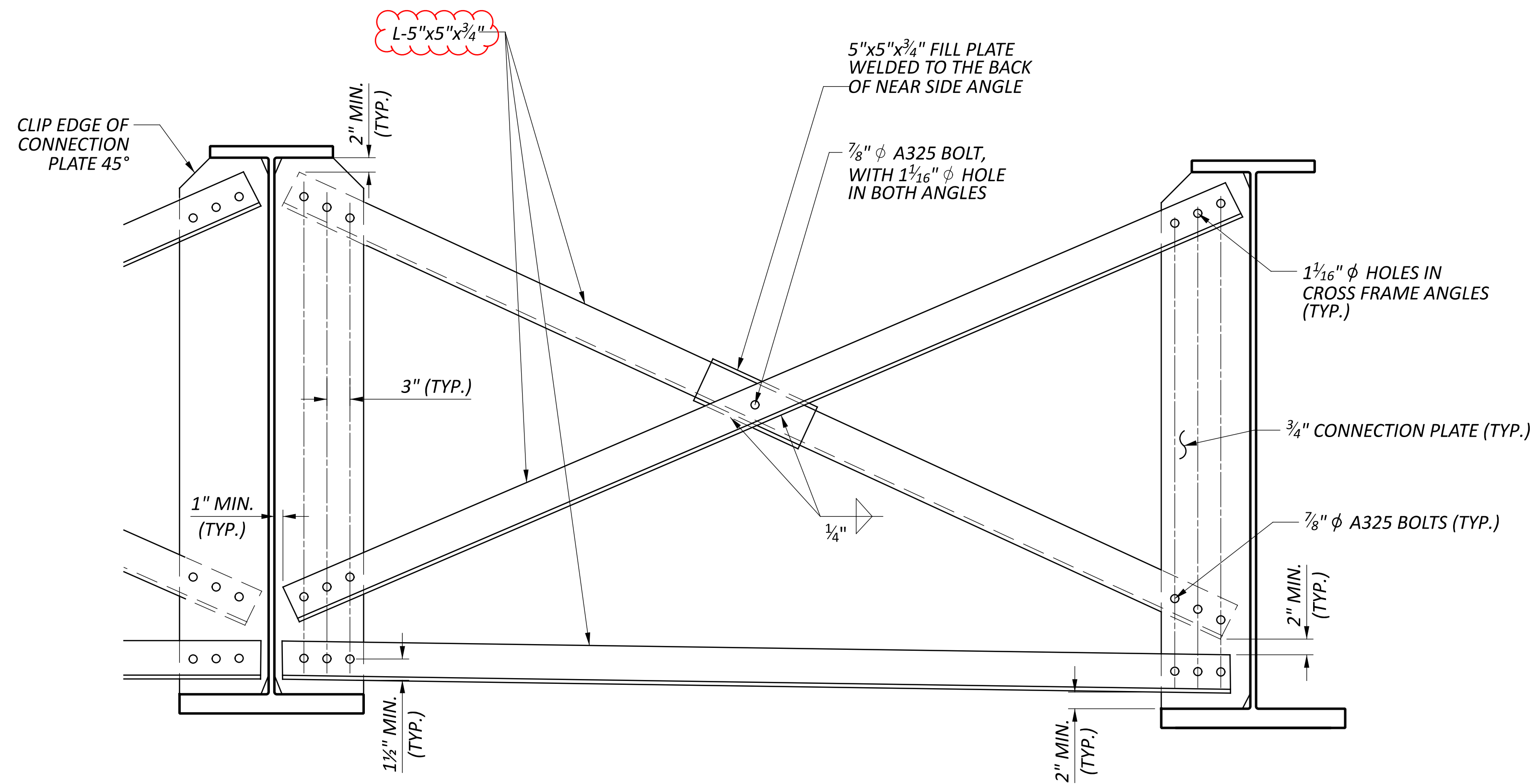




TRANSVERSE SECTION

**NOTES**

- SEE SCD TST-2-21 FOR ADDITIONAL BRIDGE RAILING DETAILS.
- THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 3 5/8" INCHES AND A HAUNCH WIDTH EQUAL TO THE TOP FLANGE WIDTH. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE.  
  
THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED PER CMS 511.23.
- COVER OVER REINFORCING STEEL SHALL BE 2" TO SURFACES OF CONCRETE UNLESS OTHERWISE NOTED.



INTERMEDIATE CROSSFRAME DETAIL

TRANSVERSE SECTION  
 BRIDGE No.: WAR-350-0873  
 STATE ROUTE 350 OVER TODD'S FORK

SFN  
 8306272

DESIGN AGENCY



DESIGNER: GTF  
 CHECKER: SRK

REVIEWER

CAH

PROJECT ID

112975

SUBSET TOTAL

16 16

SHEET TOTAL

37 50