

PROJECT
LOCATION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT

0A24033/Z607340000

RICHARDSON HIGHWAY MP 359 RAILROAD GRADE SEPARATED FACILITY

GRADING, DRAINAGE, PAVING, BRIDGES, WALLS, PATHWAY, SIGNING, & STRIPING

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	A1	127

CDS ROUTE: 190000 MILEPOINT: 360.21 TO 360.93

INDEX OF SHEETS

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THE FOLLOWING STANDARD PLANS APPLY TO THIS PROJECT:

C-04.12, C-05.20
D-01.02, D-04.22, D-06.10, D-09.00
E-09.00
F-01.04
G-00.05, G-05.11S, G-10.20, G-20.12, G-32.02, G-47.00
I-81.00
S-00.12, S-01.02, S-05.02, S-30.05, S-31.02, S-32.02
T-20.04, T-21.04, T-22.04, T-25.10



DESIGN DESIGNATIONS	
ADT (2019)	26,000
ADT (2045)	35,900
DHV (11.6%)	4165
PERCENT TRUCKS (T)	4.85%
DIRECTIONAL SPLIT (D)	35/65
DESIGN SPEED (V)	70 MPH
DESIGN EAL's (2037)	6,116,740

PROJECT SUMMARY	
WIDTH OF PAVEMENT	VARIABLES 76 TO 87 FT
LENGTH OF GRADING	0.68 MI
LENGTH OF PAVING	0.68 MI
LENGTH OF PROJECT	0.68 MI

COLLEEN M. ACKISS, P.E., PROJECT MANAGER
JAMES MCCURTAIN, P.E., DESIGN ENGINEER

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES	
APPROVED BY:	DATE _____
Sarah E. Schacher, P.E. Preconstruction Engineer, Northern Region	
ACCEPTED FOR CONSTRUCTION:	
Joseph P. Kemp, P.E. Acting Regional Director, Northern Region	

	RECOVERED	SET		EXISTING	PROPOSED		NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BLM MONUMENT			SANITARY SEWER (FLOW DIRECTION →)	—→—→ SS —	→— SS —					ALASKA	0A24033/Z607340000	2021	A2	A3
GLO MONUMENT			FUEL LINE	—→—→ O —	→— O —									
USC&GS MONUMENT			GAS LINE	—→—→ G —	→— G —									
PRIMARY MONUMENT			WATER LINE	—→—→ W —	→— W —									
CENTERLINE MONUMENT IN CASING			METER, VALVE, FIRE HYDRANT	↑—→— W ↑	↑— W ↑									
PRIMARY R.O.W. MONUMENT			EXISTING STORM DRAIN (FLOW DIRECTION →)	—→—→ SD —										
BEARING OBJECT			PROPOSED STORM DRAIN	(S-10) (S-11) (P-11) (P-10) MH										
MISCELLANEOUS MONUMENT			FIBER OPTIC LINE	--- FO ---										
LINE OF SIGHT MONUMENT			DIRECT BURIAL TELEPHONE CABLE	--- T ---	— T —									
CONCRETE R.O.W. MONUMENT			DIRECT BURIAL ELECTRIC CABLE	--- E ---	— E —									
BENCHMARK			ELECTRIC LINE (OVERHEAD)	---	—									
REBAR AND CAP			POWER POLE LINE	-[—]- -[—]-	[—] — [—]									
REBAR			JOINT USE POWER & TELEPHONE	-[—]- -[—]-	[—] — [—]									
IRON PIPE			TELEPHONE POLE LINE	-[—]- -[—]-	[—] — [—]									
PK NAIL			POLE ANCHOR	—	—									
SPIKE			STUB POLE (POWER OR TELEPHONE)	—	—									
HUB AND TACK			TELEPHONE DUCT	==== T ===	— T —									
CONSTRUCTION CENTERLINE	5+00		TELEPHONE PEDESTAL	▲	△									
MISCELLANEOUS CENTERLINE	10+00		BURIED CABLE MARKER	□	□									
STATION EQUATION	"L"48+97.23 POT BK= "O"48+97.23 PC AHD		Pipeline MARKER OR VALVE	□	□									
PROJECT RIGHT-OF-WAY LINE	R/W		CATCH BASIN OR DROP INLET	■■	■■									
EXISTING RIGHT-OF-WAY LINE			MANHOLE	○ MH	○ MH									
EXISTING PROPERTY LINE			SANITARY SEWER CLEAN OUT	○	○									
CONTROLLED ACCESS LINE		C/A	WELL OR MONITORING WELL	○ W										
UTILITY EASEMENT LINE		PUE	SEPTIC PIPE	○ S	○ W									
TEMPORARY EASEMENT LINE (TCP OR TCE)		TCP	FUEL TANK FILL PIPE/VENT	○ P										
ACCESS OR SECTION LINE EASEMENT		ACCESS EASEMENT	SATELLITE DISH	↗ SAT. DISH										
PROPOSED CUT SLOPE LIMIT			GRAVE	+										
PROPOSED FILL SLOPE LIMIT			THERMOSIPHON	●										
SECTION LINE														
1/4 SECTION LINE														
1/16 SECTION LINE														
TOWNSHIP & RANGE LINE	T. 2 N. T. 1 N.	E.												

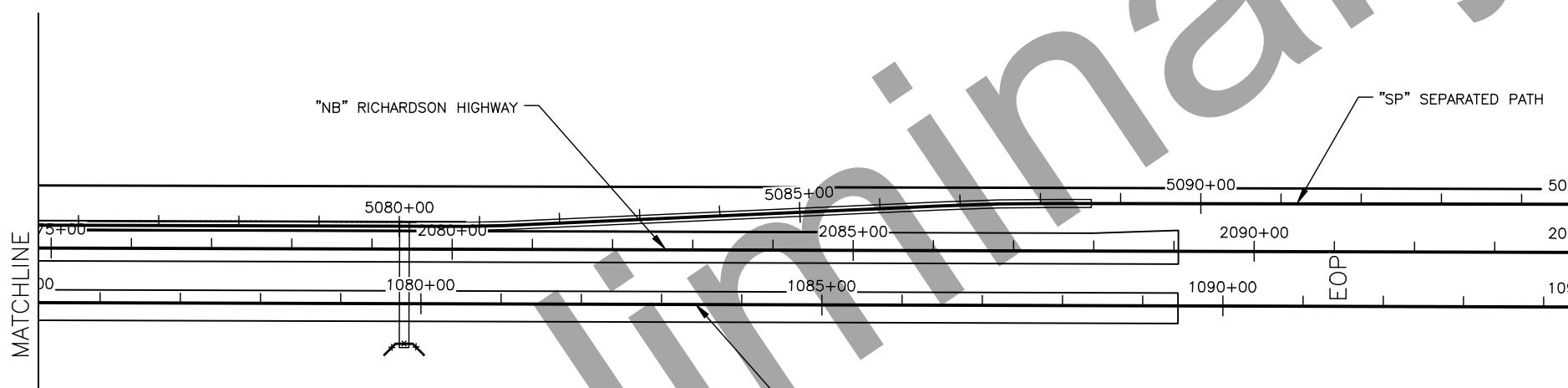
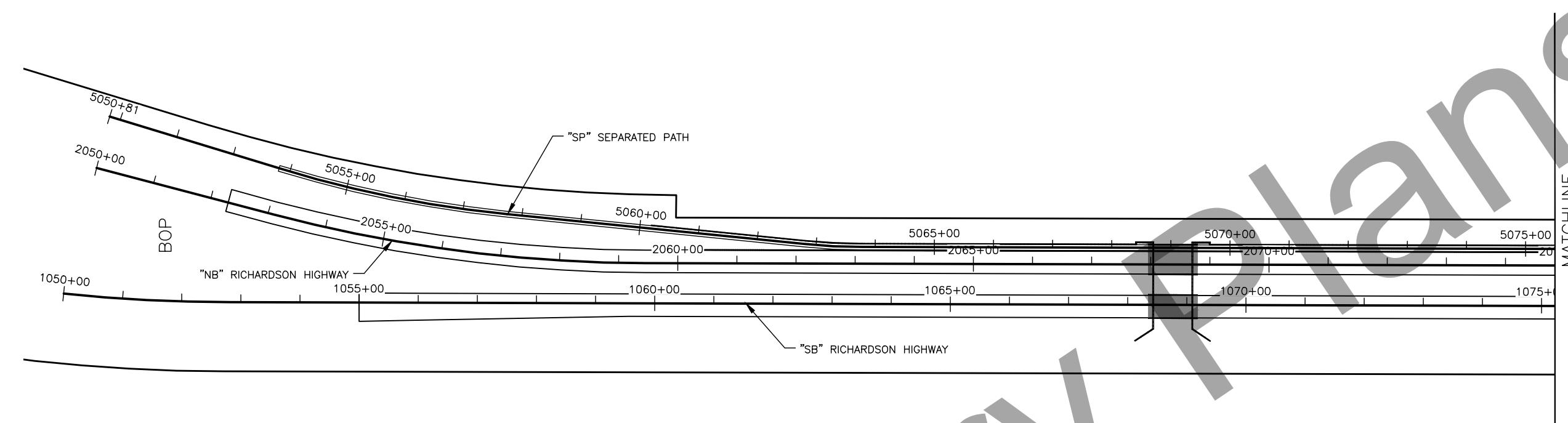
H = HOUSE
 G = GARAGE
 M = MERCHANT/STORE
 B = BARN
 S = SHED
 P = PRIVY
 SS = SERVICE STATION
 W = WAREHOUSE



PRELIMINARY
NOVEMBER
2021

LEGEND

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	A3	A3



ALIGNMENT CONTROL TABLE					
POINT #	DESCRIPTION	ALIGNMENT	STATION	NORTHING	EASTING
1	PI	"SP"	5050+81.15	188736.9036	687494.8182
2	PC	"SP"	5053+80.83	188606.6782	687764.7320
3	PT	"SP"	5057+74.08	188471.6965	688133.4080
4	PC	"SP"	5062+80.09	188345.3261	688623.3857
5	PT	"SP"	5063+77.79	188325.5603	688719.0236
6	PC	"SP"	5080+83.11	188061.9596	690403.8462
7	PT	"SP"	5081+31.70	188055.6088	690452.0121
8	PC	"SP"	5086+77.26	187997.3469	690994.4591
9	PT	"SP"	5088+20.60	187978.6433	691136.5598
10	PI	"SP"	5094+76.40	187877.8530	691784.5682
11	PI	"NB"	2050+00.00	188653.9591	687459.6333
12	PC	"NB"	2053+10.46	188530.4960	687744.4834
13	PT	"NB"	2059+44.94	188354.3501	688352.2534
14	PI	"NB"	2094+09.68	187818.7852	691775.3542
15	PC	"SB"	1050+00.00	188452.5032	687372.3159
16	PT	"SB"	1052+82.03	188395.6376	687648.4472
17	PI	"SB"	1094+48.48	187751.6067	691764.8162

NOTES:

- SEE RECORD OF SURVEY PLAT #2018-86-F.R.D. FOR BASIS CONTROL AND BEARINGS.

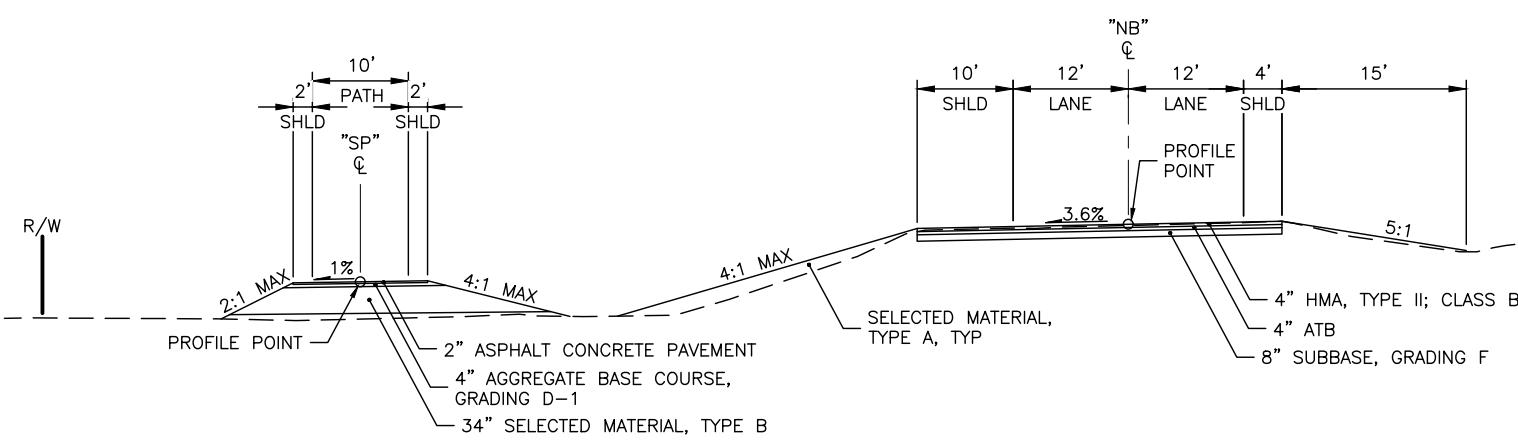
ALIGNMENT GUIDE

"NB" NORTHBOUND RICHARDSON HIGHWAY
 "SB" SOUTHBOUND RICHARDSON HIGHWAY
 "SP" SEPARATED PATH

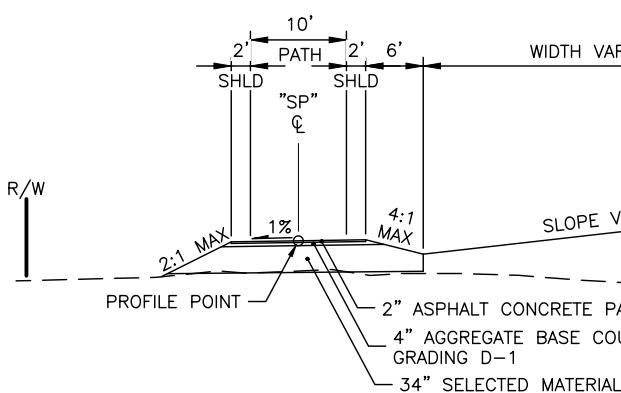
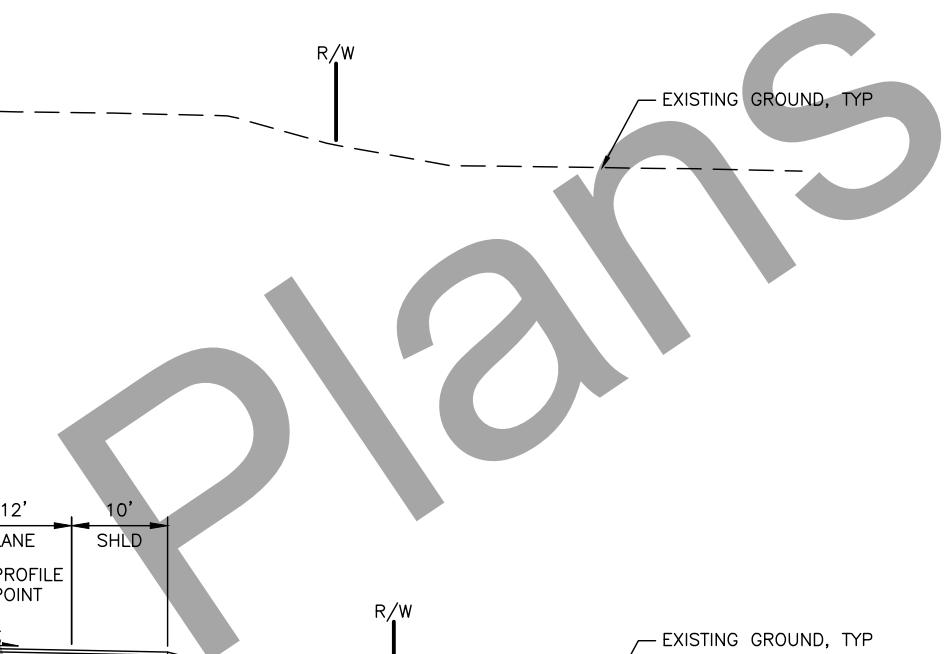
ALIGNMENT CONTROL
PLAN

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	B1	B2



RICHARDSON HIGHWAY TYPICAL SECTION



RICHARDSON HIGHWAY TYPICAL SECTION

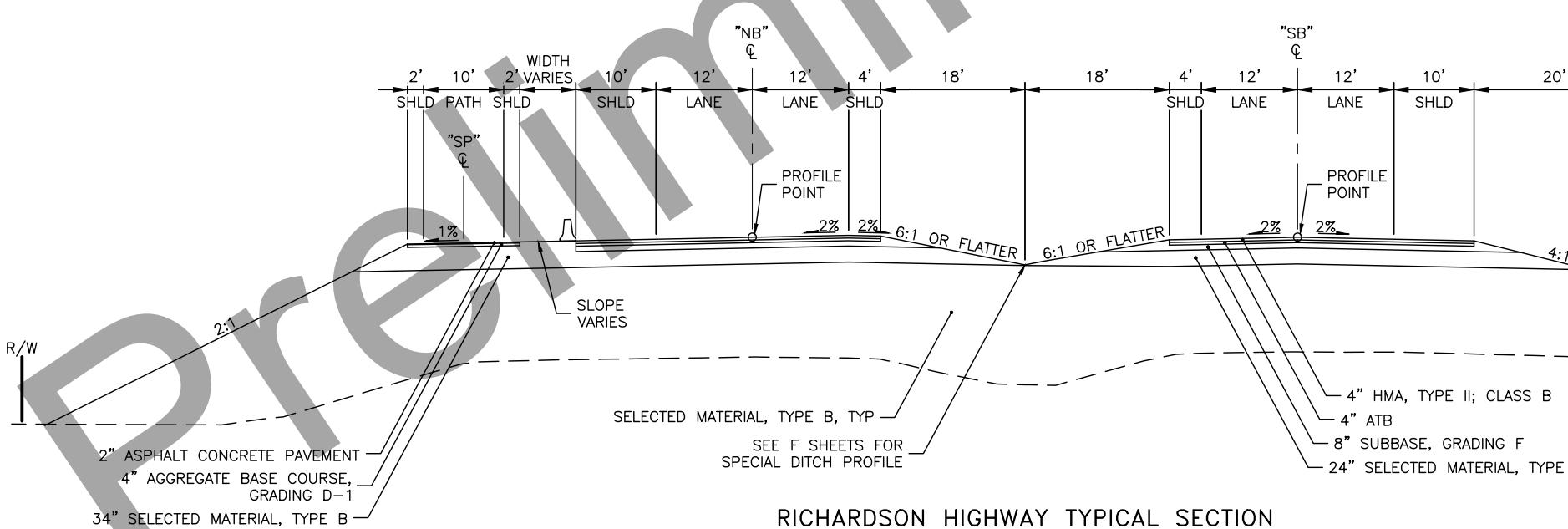
"SB" 1055+00 TO "SB" 1060+84
"SB" 1084+69 TO "SB" 1086+24
"NB" 2055+75 TO "NB" 2059+49
"NB" 2084+30 TO "NB" 2085+85
"SP" 5055+58 TO "SP" 5060+19
"SP" 5084+96 TO "SP" 5086+45

PAVEMENT LAYOUT TABLE

BEGIN STATION	WIDTH	END STATION	WIDTH	SIDE
"SB" 1055+00	31.6'	"SB" 1059+56.88	22.0'	RT
"NB" 2088+00	22.0'	"NB" 2089+05.40	26.0'	LT

NOTES:

1. SAWCUT ALL TRANSITIONS AND MATCH POINTS. APPLY STE-1 TACK COAT TO ALL SAWCUT FACES AND PRIOR TO PAVING. SAWCUTTING WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO 401 PAY ITEMS.
2. WITHIN TWO (2) DAYS AFTER PAVING, PLACE SUBBASE, GRADING F AGAINST PAVEMENT EDGE TO ENSURE THERE IS NO VERTICAL DROP AT THE EDGE OF PAVEMENT. USE APPROVED TRAFFIC CONTROL DEVICES IN THE INTERIM.
3. SEE TAPER TABLE FOR PAVEMENT WIDENING WIDTH, STATION, AND OFFSET INFORMATION. WIDTH IS MEASURED FROM CENTERLINE TO EDGE OF PAVEMENT.

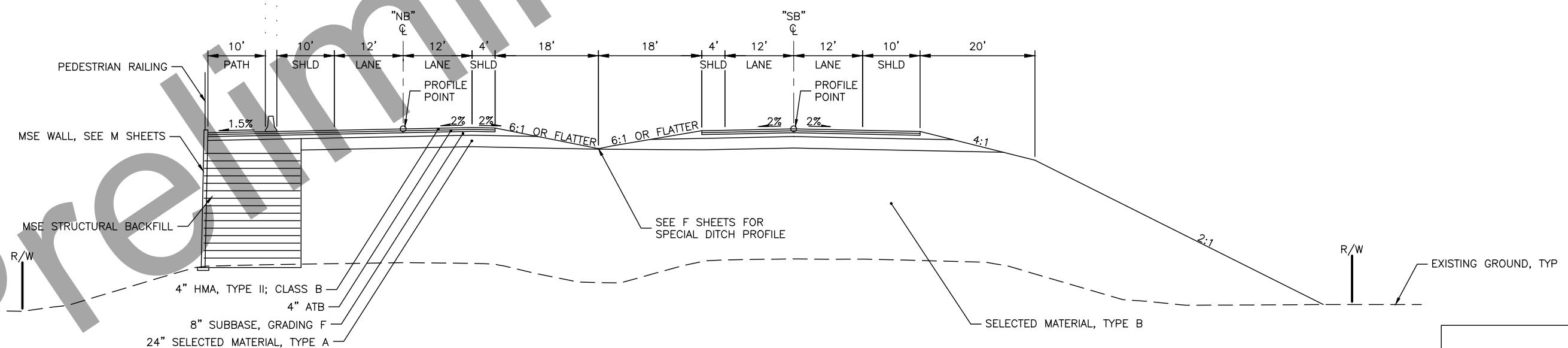
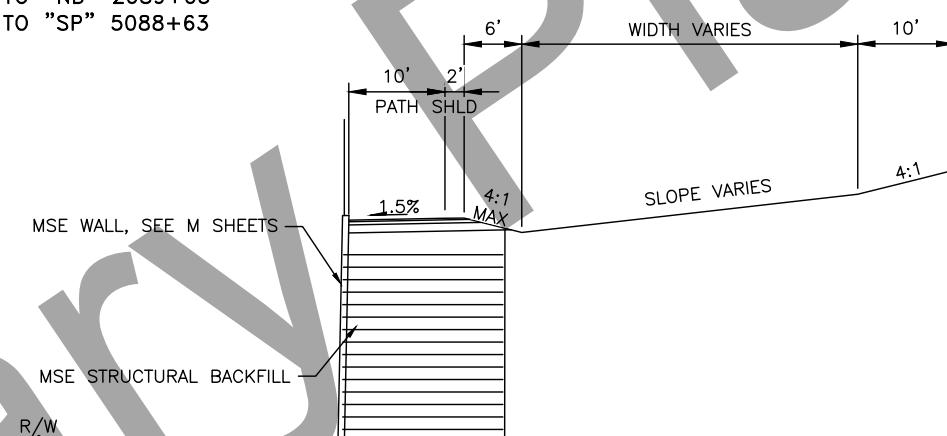
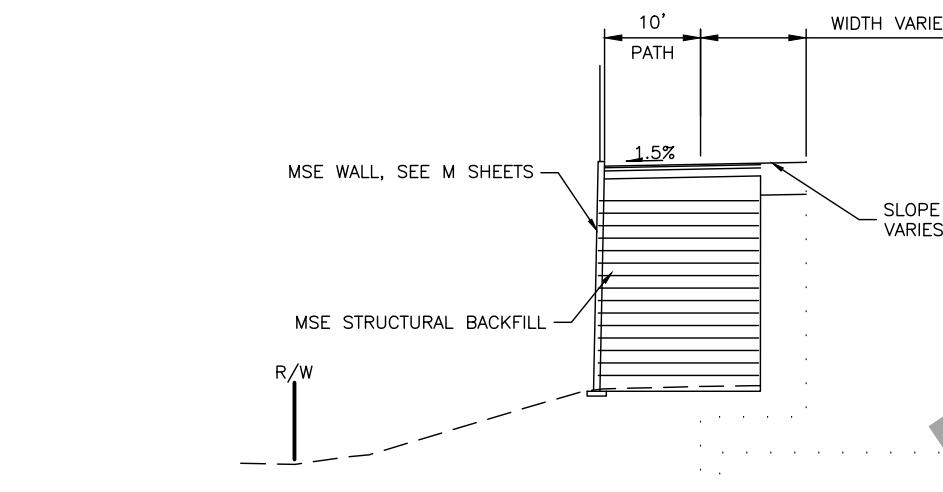
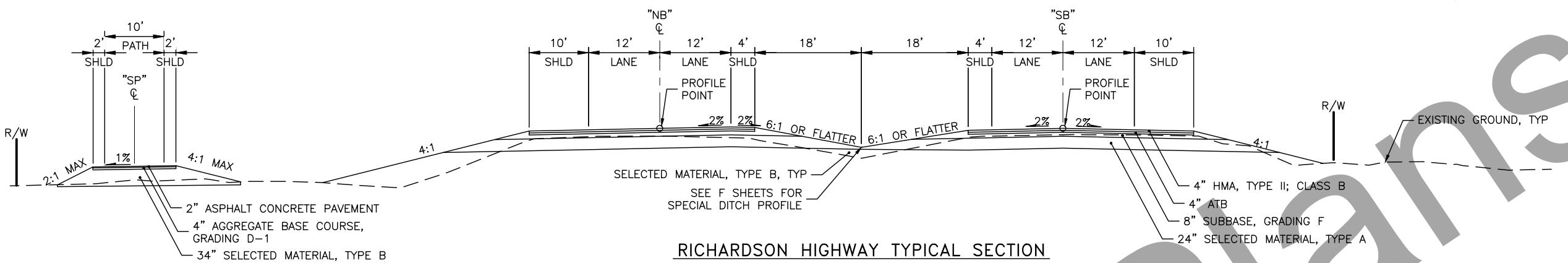


RICHARDSON HIGHWAY TYPICAL SECTION

TYPICAL SECTIONS

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	B2	B2



TYPICAL SECTIONS

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	C1	C2

ESTIMATE OF QUANTITIES			
ITEM NO.	PAY ITEM	PAY UNIT	QUANTITY
201.0009.0000	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED
202.0004.0000	REMOVAL OF CULVERT PIPE	LINEAR FOOT	73
202.0014.0000	REMOVAL OF PAVEMENT	LUMP SUM	ALL REQUIRED
203.0003.0000	UNCLASSIFIED EXCAVATION	CUBIC YARD	10,000
203.0006.0000	BORROW	TON	600,000
205.0006.0000	STRUCTURAL FILL	CUBIC YARD	1,400
301.0001.00D1	AGGREGATE BASE COURSE, GRADING D-1	TON	140
304.0001.000F	SUBBASE, GRADING F	TON	13,900
306.0001.0000	ATB	TON	7,350
306.0002.5228	ASPHALT BINDER, GRADE PG 52-28	TON	340
401.0001.002B	HMA, TYPE II; CLASS B	TON	7,050
401.0004.5240	ASPHALT BINDER, GRADE PG 52-40	TON	390
401.0008.002B	HMA PRICE ADJUSTMENT, TYPE II; CLASS B	CONTINGENT SUM	ALL REQUIRED
401.0009.0000	LONGITUDINAL JOINT DENSITY PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
401.0015.0000	ASPHALT MATERIAL PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
401.2010.0000	HMA, SIDEWALKS AND PATHS	TON	492
402.0001.STE1	STE-1 ASPHALT FOR TACK COAT	TON	30
406.0002.0000	RUMBLE STRIPS	STATION	136
501.0001.0000	CLASS A CONCRETE	LUMP SUM	ALL REQUIRED
501.0007.0000	PRECAST CONCRETE MEMBER, (3'-6" X 83' BULB TEE)	EACH	13
503.0001.0000	REINFORCING STEEL	LUMP SUM	ALL REQUIRED
503.0002.0000	EPOXY-COATED REINFORCING STEEL	LUMP SUM	ALL REQUIRED
505.0005.0000	FURNISH STRUCTURAL STEEL PILES, 2'-0" DIA. x 1/2" PIPE	LINEAR FOOT	2,800
505.0006.0000	DRIVE STRUCTURAL STEEL PILES, 2'-0" DIA. x 1/2" PIPE	EACH	28
507.0002.0000	PEDESTRIAN RAILING	LINEAR FOOT	1,950
507.0002.0000	PEDESTRIAN RAILING, RAILROAD PROTECTION FENCE	LINEAR FOOT	123
507.0004.0000	CONCRETE BRIDGE BARRIER	LINEAR FOOT	123
507.0004.0000	CONCRETE BRIDGE BARRIER, RAILROAD PROTECTION FENCE	LINEAR FOOT	369
507.0006.0000	CABLE SAFETY RAILING	LINEAR FOOT	436
508.0001.0000	WATERPROOFING MEMBRANE, SPRAY-APPLIED	LUMP SUM	ALL REQUIRED
511.0001.0000	MECHANICALLY STABILIZED EARTH WALL	SQUARE FOOT	65,100
511.2001.0000	WALL CAP COPING	LINEAR FOOT	2,400
602.2006.1507	ALUMINUM STRUCTURAL PLATE PIPE-ARCH 15'-7" SPAN, 15'-2" RISE	LINEAR FOOT	158
603.0001.0024	CSP 24 INCH	LINEAR FOOT	69
603.0003.0024	END SECTION FOR CSP 24 INCH	EACH	2
606.0001.0000	W-BEAM GUARDRAIL	LINEAR FOOT	890
606.0013.0000	PARALLEL GUARDRAIL TERMINAL	EACH	8
606.0016.0000	TRANSITION RAIL	EACH	8
607.0003.0000	CHAIN LINK FENCE	LINEAR FOOT	51
607.0006.0000	WALK GATE	EACH	2
611.0001.0001	RIPRAP, CLASS I	CUBIC YARD	750
613.0002.0000	CULVERT MARKER POST	EACH	2
614.0001.0000	CONCRETE BARRIER	LINEAR FOOT	2,350
615.0001.0000	STANDARD SIGN	SQUARE FOOT	317
615.0002.0000	REMOVE AND RELOCATE SIGN	EACH	11
615.0005.0000	DELINERATOR, FLEXIBLE	EACH	16
615.0006.0000	SALVAGE SIGN	EACH	12
616.0002.0050	THAW PIPE 1/2 INCH DIAMETER	EACH	1
618.0002.0000	SEEDING	POUND	720
630.0002.0001	GEOTEXTILE, STABILIZATION, CLASS 1	SQUARE YARD	1,400
631.0002.0001	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD	1,000
640.0001.0000	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
641.0001.0000	EROSION, SEDIMENT AND POLLUTION CONTROL ADMINISTRATION	LUMP SUM	ALL REQUIRED
641.0003.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
641.0004.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL ADDITIVES	CONTINGENT SUM	ALL REQUIRED
641.0006.0000	WITHHOLDING	CONTINGENT SUM	ALL REQUIRED
641.0007.0000	SWPPP MANAGER	LUMP SUM	ALL REQUIRED
642.0001.0000	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
642.0013.0000	THREE PERSON SURVEY PARTY	CONTINGENT SUM	ALL REQUIRED
643.0002.0000	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED

ESTIMATE OF QUANTITIES			
ITEM NO.	PAY ITEM	PAY UNIT	QUANTITY
643.0003.0000	PERMANENT CONSTRUCTION SIGNS	LUMP SUM	ALL REQUIRED
643.0023.0000	TRAFFIC PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
643.0025.0000	TRAFFIC CONTROL	CONTINGENT SUM	ALL REQUIRED
643.2005.0000	PUBLIC INFORMATION	LUMP SUM	ALL REQUIRED
643.2011.0000	TRAFFIC MAINTENANCE SETUP - STAGE 1A	LUMP SUM	ALL REQUIRED
643.2011.0000	TRAFFIC MAINTENANCE SETUP - STAGE 1B	LUMP SUM	ALL REQUIRED
643.2011.0000	TRAFFIC MAINTENANCE SETUP - STAGE 2	LUMP SUM	ALL REQUIRED
644.0001.0000	FIELD OFFICE	LUMP SUM	ALL REQUIRED
644.0006.0000	VEHICLES	LUMP SUM	ALL REQUIRED
644.0015.0000	NUCLEAR TESTING EQUIPMENT STORAGE SHED	EACH	1
645.0001.0000	TRAINING PROGRAM, 4 TRAINEES/APPRENTICES	LABOR HOUR	2,000
646.0001.0000	CPM SCHEDULING	LUMP SUM	ALL REQUIRED
669.2007.0000	AUTOMATIC VEHICLE CLASSIFICATION	LUMP SUM	ALL REQUIRED
670.2002.0000	MMA PAVEMENT MARKINGS, INLAID	LUMP SUM	ALL REQUIRED

ESTIMATING FACTORS		
ITEM NO.	DESCRIPTION	VALUES
203.0006.0000	BORROW	2 TONS/CY
304.2000.000F	SUBBASE, GRADING F	2 TONS/CY
301.0001.00D1	AGGREGATE BASE COURSE, GRADING D-1	2 TONS/CY
306.0001.0000	ATB	2 TONS/CY
306.0002.5228	ASPHALT BINDER, GRADE PG 52-28	4.5% of 306.0001.0000 WEIGHT
401.0001.002B	HMA, TYPE II; CLASS B	1.96 TONS/CY
401.0004.5240	ASPHALT BINDER, GRADE PG 52-40	5.5% of 401.0001.002B WEIGHT
401.2010.0000	HMA, SIDEWALKS AND PATHS	153 LBS/CF
402.0001.STE1	STE-1 ASPHALT FOR TACK COAT	0.0003 TONS/CY
618.0002.0000	SEEDING	2 LBS / 1000 SF

ESTIMATED LUMP SUM QUANTITIES		
ITEM NO.	DESCRIPTION	VALUES
201.0009.0000	CLEARING AND GRUBBING	9 ACRES
202.0002.0000	REMOVAL OF PAVEMENT	34,800 SQUARE YARDS

ESTIMATE OF QUANTITIES

PRELIMINARY
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NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	C2	C2

GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING AND OBTAINING APPROVAL FOR UNCLASSIFIED EXCAVATION DISPOSAL SITES.
2. EXCESS MATERIAL MAY NOT BE DISPOSED OF WITHIN THE RIGHT-OF-WAY UNLESS APPROVED BY THE ENGINEER.
3. BURIED AND OVERHEAD UTILITIES, TO THE EXTENT THEY ARE KNOWN, ARE SHOWN ON THE PLANS. BEFORE CONDUCTING ANY GROUND DISTURBING ACTIVITIES THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS BY CONTACTING THE DIGLINE OR THE UTILITY COMPANY. UTILITY COMPANIES WITHIN THE PROJECT LIMITS ARE LISTED IN SECTION 651 OF THE SPECIAL PROVISIONS.
4. PROTECT EXISTING FACILITIES UNLESS DESIGNATED FOR RELOCATION THROUGHOUT THE PROJECT.
5. TO MEET THE PROVISIONS OF THE CGP, SEEDING MAY REQUIRE MULTIPLE MOBILIZATIONS. ALL MOBILIZATIONS REQUIRED TO MEET THE CGP ARE SUBSIDIARY TO PAY ITEM 641.0003.0000.
6. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS OUTSIDE OF THE PROJECT LIMITS TO BETTER OR EQUAL TO EXISTING CONDITION AT THEIR EXPENSE, UNLESS OTHERWISE AGREED TO WITH DOT&PF.
7. CLEARING LIMITS SHALL BE 10-FT BEYOND THE SLOPE CATCH POINTS OR 5-FT INSIDE THE RIGHT-OF-WAY LINE, WHICHEVER IS LESS.

ABBREVIATIONS:

APPROX	APPROXIMATELY
ARRC	ALASKA RAILROAD CORPORATION
CL	CENTERLINE
CY	CUBIC YARD
E	EAST, EASTING
ELE,	ELEV ELEVATION
FT.	FOOT, FEET
H	HORIZONTAL
HW/D	HEADWATER TO DIAMETER RATIO
IE	INVERT ELEVATION
IN, "	INCH, INCHES
L	LENGTH OF CURVE
L.C.L	LEFT OF CENTERLINE
LT	LEFT
LVC	LENGTH OF VERTICAL CURVE
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH, NORTHING
NO.	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
PC	POINT OF CURVATURE
POT	POINT ON TANGENT
PST	PERFORATED STEEL TUBE
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
R.C.L	RIGHT OF CENTERLINE
RT	RIGHT
S	SOUTH
SHLD	SHOULDER
SQ. FT.	SQUARE FOOT
STA	STATION
T	TANGENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
TS	TUBE STEEL
TYP	TYPICAL
V	VERTICAL
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WEST
WWR	WELDED WIRE REINFORCEMENT
Ø	DIAMETER

Preliminary Plans

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	D1	D1

SUPERELEVATION SUMMARY

CURVE P.I.	RADIUS (FEET)	BEGIN TRANSITION	TRANSITION LENGTH(FEET)	CURVE P.C.	BEGIN FULL SUPERELEVATION	SUPERELEVATION RATE (%)	END FULL SUPERELEVATION	CURVE P.T.	TRANSITION LENGTH(FEET)	END TRANSITION	REMARKS
"NB" 2056+29.41	2500.00	"NB" 2052+30.00	120	"NB" 2053+10.46	"NB" 2053+50.00	5.80	"NB" 2059+05.00	"NB" 2059+44.94	42.66	"NB" 2060+25.00	MATCH BOP EXISTING CROSS SLOPE
-	-	"NB" 2066+76.00	120.00	-	"NB" 2067+96	2.00	"NB" 2068+79.00	-	120.00	"NB" 2069+99.00	TRANSITION TO MEET BRIDGE CROSS SLOPE
-	-	"SB" 1067+15.00	120.00	-	"SB" 1068+35.00	2.00	"SB" 1069+18.00	-	120.00	"SB" 1070.38.00	TRANSITION TO MEET BRIDGE CROSS SLOPE
-	-	"SP" 5068+32.00	30.00	-	"SP" 5068+62.00	2.00	"SP" 5069+45.00	-	30.00	"SP" 5069+75.00	TRANSITION TO MEET BRIDGE CROSS SLOPE

SUPERELEVATION NOTES:

1. THE SUPER ELEVATION ROTATION POINT IS CENTERLINE AT PROFILE GRADE POINT.
2. SEE STANDARD DRAWING I-81.00 FOR SUPERELEVATION TRANSITION DETAILS. THE TRANSITION LENGTHS GIVEN IN THE SUMMARY DO NOT INCLUDE THE 1/2 VERTICAL CURVE LENGTHS SHOWN ON EACH END OF THE TRANSITION.

406.0002.0000 – RUMBLE STRIP

BEGIN STATION	END STATION	LT/RT	LENGTH (STATION)	REMARKS
"NB" 2053+00	"NB" 2067+76	LT	15	
"NB" 2053+00	"NB" 2067+76	RT	15	
"NB" 2068+99	"NB" 2089+05	LT	20	
"NB" 2068+99	"NB" 2089+05	RT	20	
"SB" 1055+00	"SB" 1068+15	LT	13	
"SB" 1055+00	"SB" 1068+15	RT	13	
"SB" 1069+38	"SB" 1089+44	LT	20	
"SB" 1069+38	"SB" 1089+44	RT	20	
		TOTAL	136	

607.0003.0000 – CHAIN LINK FENCE

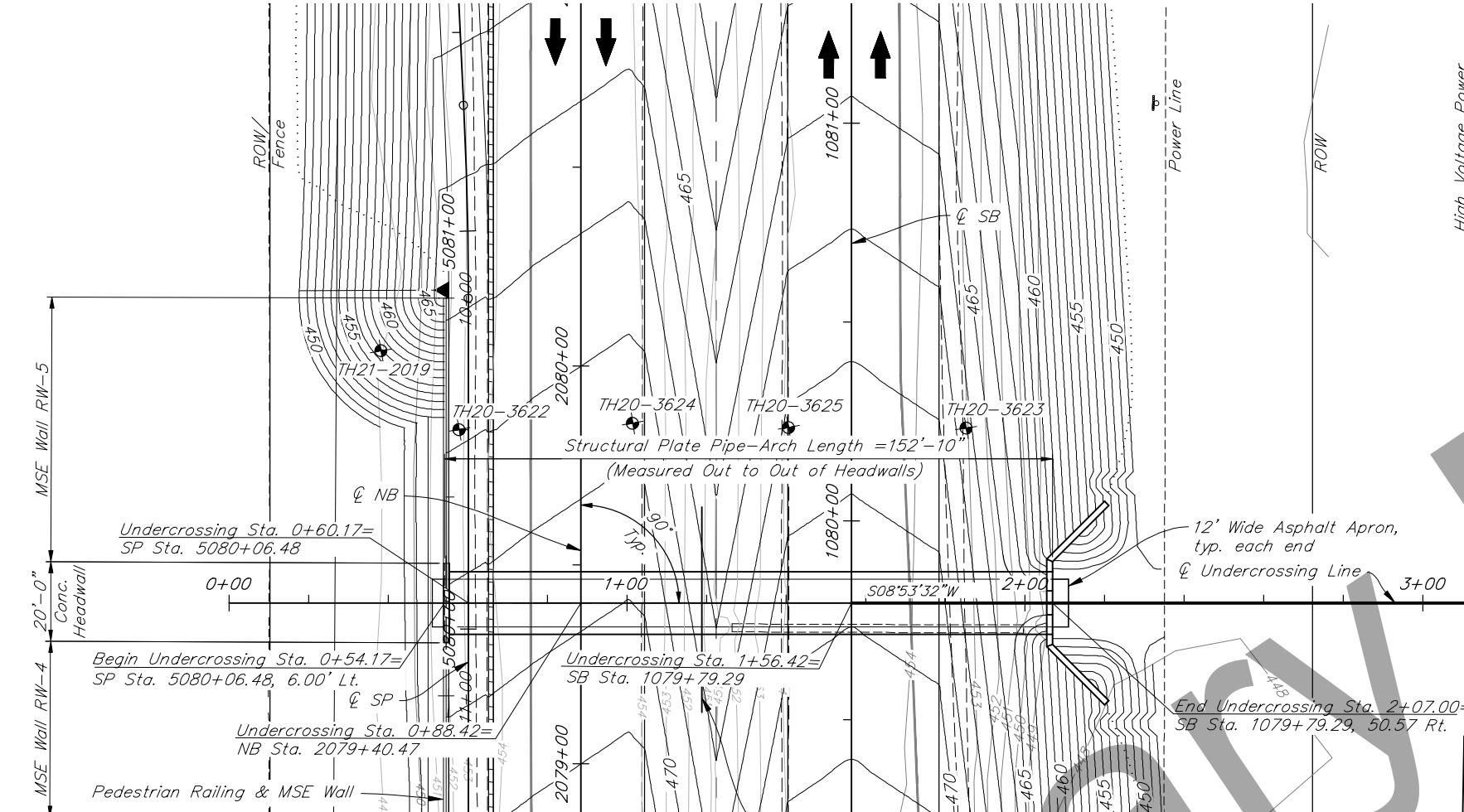
SHEET	FROM		TO		LENGTH (LF)	REMARKS
	STATION	OFFSET	STATION	OFFSET		
F3	"SB" 1079+57	53' RT	"SB" 1080+02	53' RT	51	SOUTH HEADWALL – UNDERCROSSING
				TOTAL	51	

607.0006.0000 – WALK GATE

SHEET	STATION	OFFSET	QUANTITY (EA)	REMARKS
F3	"SP" 5080+07	6' LT	1	NORTH HEADWALL – UNDERCROSSING
F3	"SB" 1079+79	51' RT	1	SOUTH HEADWALL – UNDERCROSSING
	TOTAL		2	

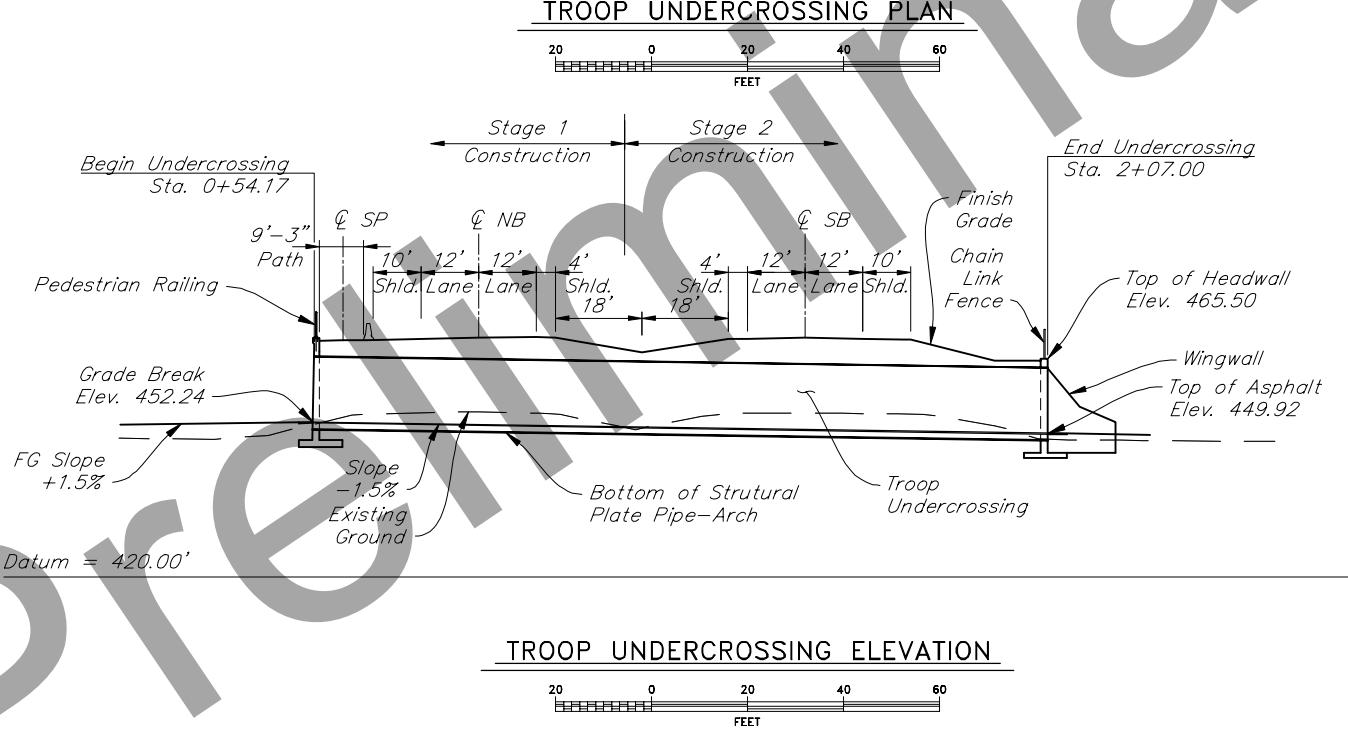
PRELIMINARY
NOVEMBER
2021

SUMMARY SHEETS



LEGEND

Bore Hole Location (with Hole #)
TH#



STATE	PROJECT DESIGNATION	YEAR	HEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	E1	E14

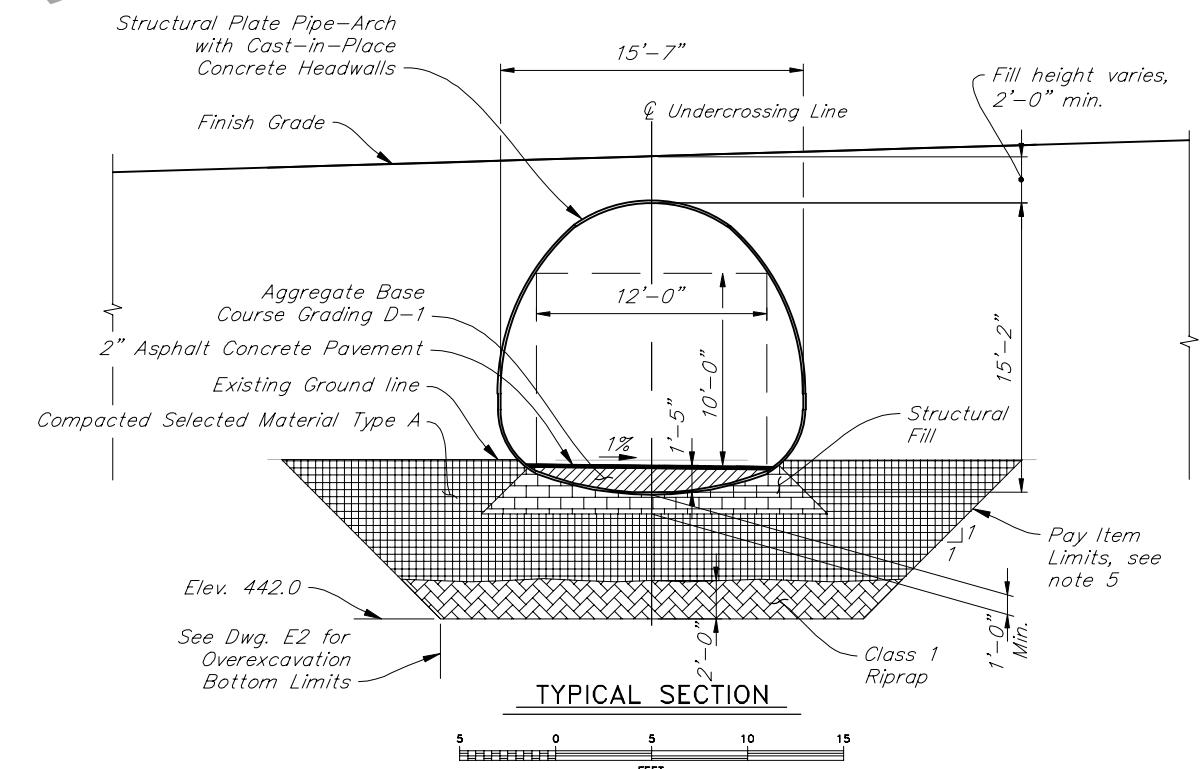
GENERAL NOTES:

- Design per AASHTO LRFD Bridge Design Specifications 2020 Edition, with latest interim specifications, Seismic Design per AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2011 Edition, with latest interim specifications.
- Live Load: HL-93
Earth Load - 130pcf moist unit weight vertical earth load
- Seismic Design Parameters:
PGA = 0.28 g
 F_{pgs} = 1.25
 A_s = 0.35 g
- Concrete: Class A f'_c = 4000 psi
Reinforcing Steel: AASHTO M31, Grade 60, f_y = 60,000 psi
Unless shown otherwise, concrete cover measured from the face of concrete to the face of any reinforcing steel shall be 2".
All reinforcing bar bends and standard hooks shall conform to ASHTO LRFD Bridge Design Specifications.
- Slope overexcavation as required for stability and shore excavation as required to contain ground surface disturbance within the ROW and accommodate construction staging.

TROOP UNDERCROSSING BASIS OF ESTIMATE

ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	QUANTITY
501.0001.0000	Class A Concrete	LS	CY	73
503.0001.0000	Reinforcing Steel	LS	LBS	8600
507.0002.0000	Pedestrian Railing	LF	LF	20
602.2006.1507	Aluminum Structural Plate Pipe-Arch, 15'-7" Span, 15'-2" Rise	LF	LF	153

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item.



DESIGNED BY: GF CONNER	CHECKED: JK STITH
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: Z XIE	CHECKED: B ROMANAGGI

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
TROOP UNDERCROSSING LAYOUT



BRIDGE NO.
DWG. NO. 1

DESIGNED BY: B ROMANAGGI	CHECKED: GF CONNER
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: Z XIE	CHECKED: B ROMANAGGI

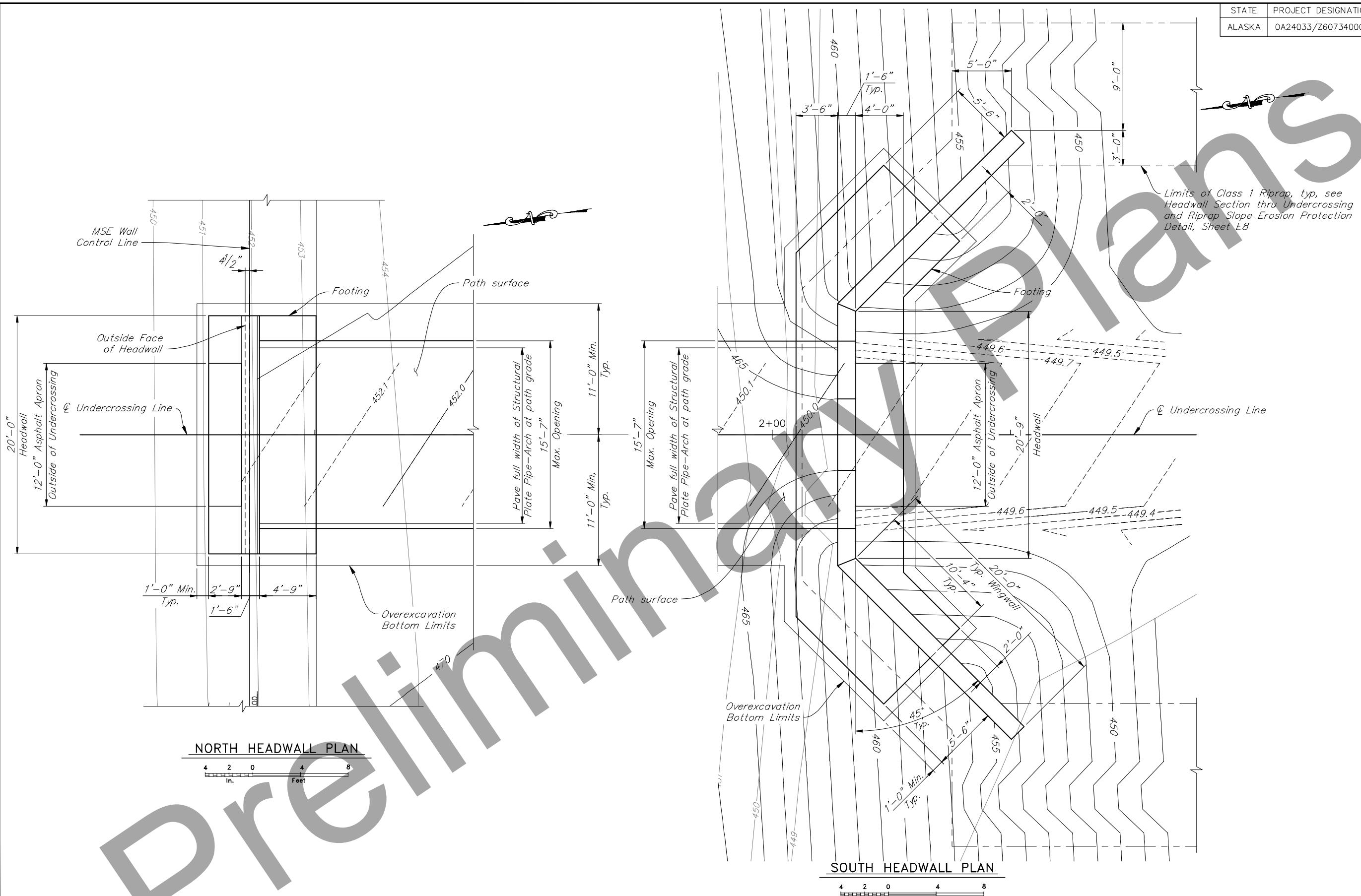
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

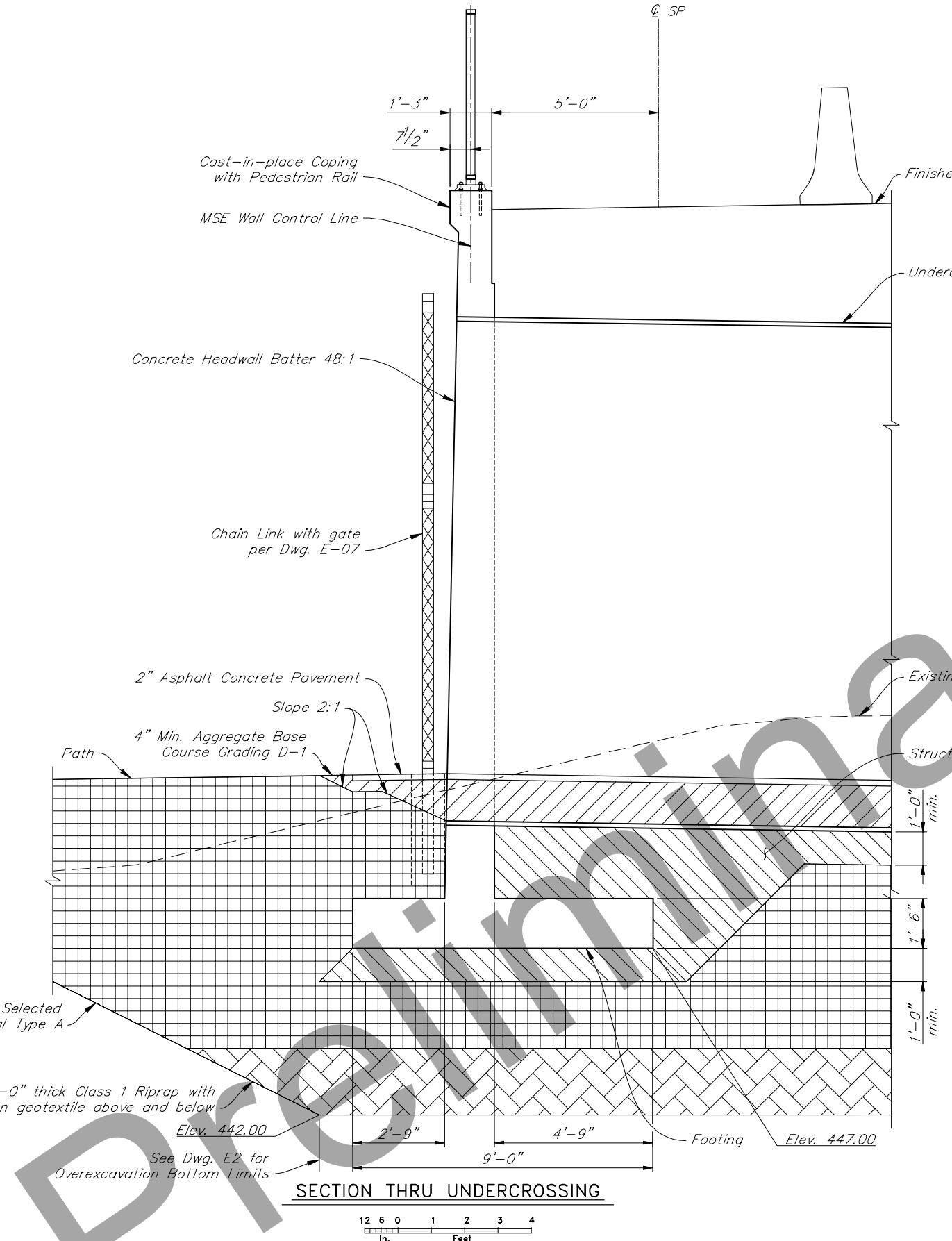
RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
TROOP UNDERCROSSING HEADWALL PLANS

BRIDGE NO.
DWG. NO. 2

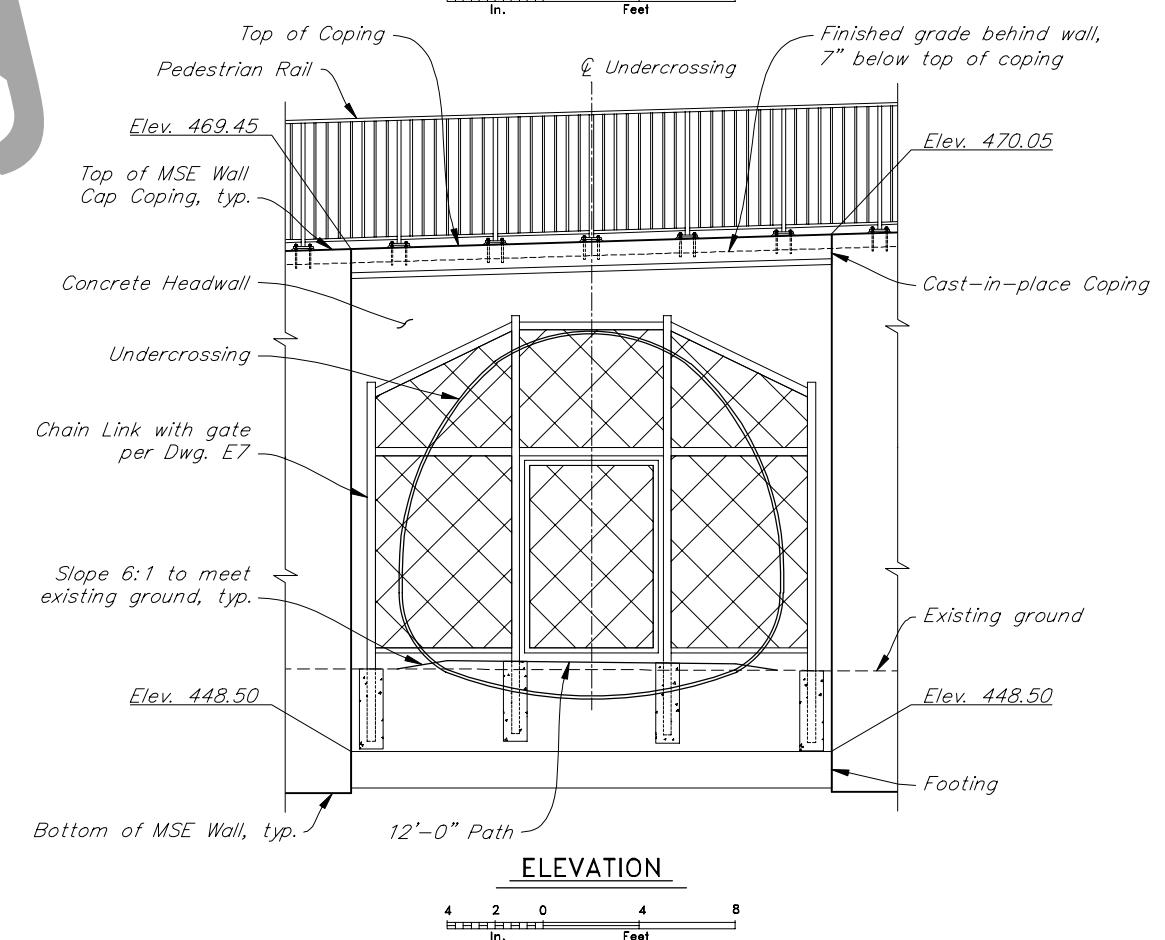
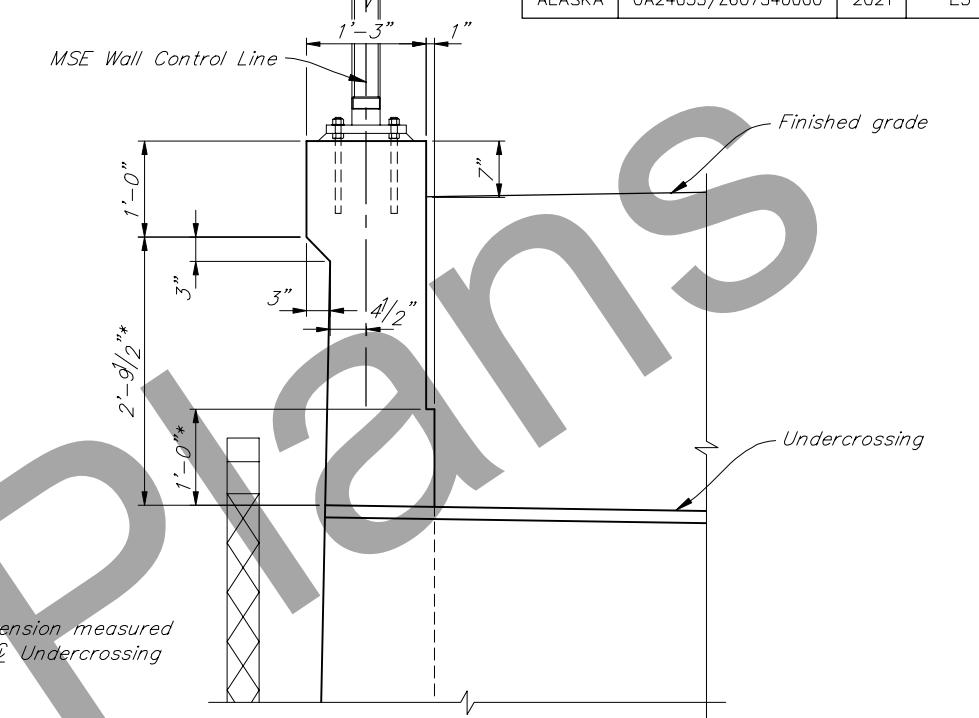
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	E2	E14



DESIGNED BY: JK STITH	CHECKED: GF CONNER
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: Z XIE	CHECKED: B ROMANAGGI



STATE	PROJECT DESIGNATION	YEAR	SHEET NO.
ALASKA	0A24033/Z607340000	2021	E3
		TOTAL SHEETS	
		E14	

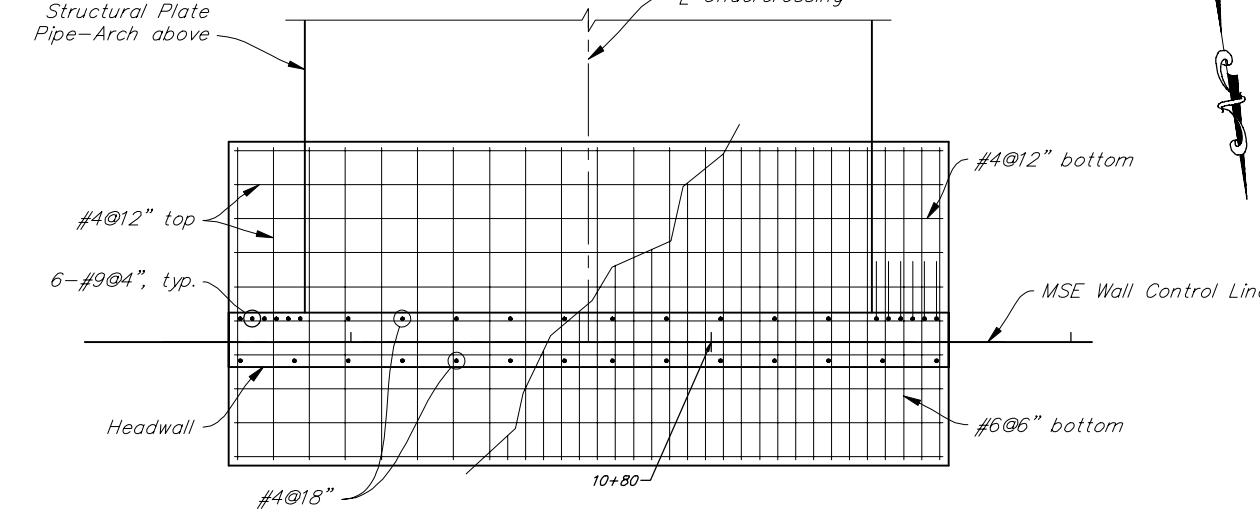


STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

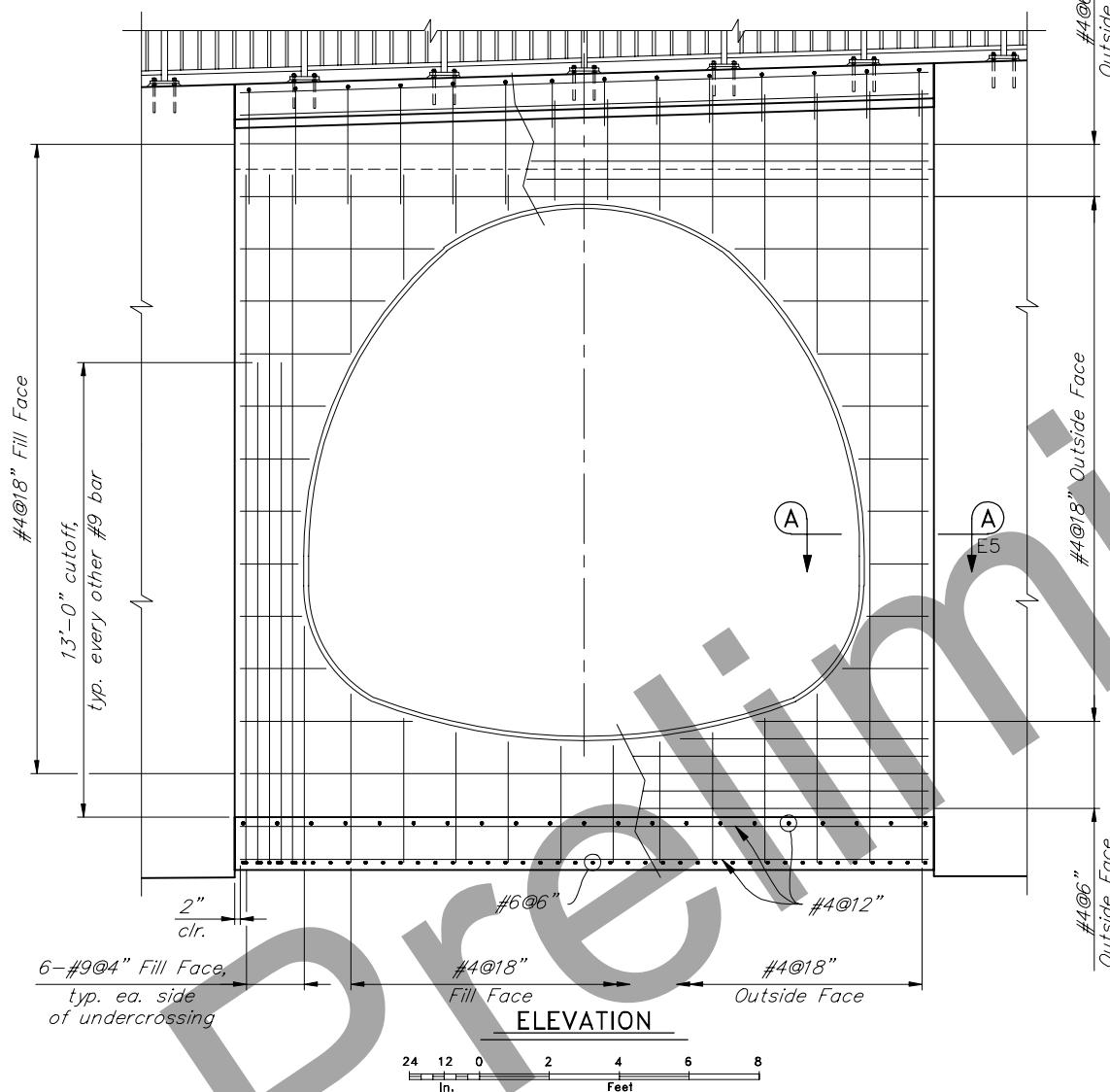
PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
TROOP UNDERCROSSING
NORTH HEADWALL DETAILS 1

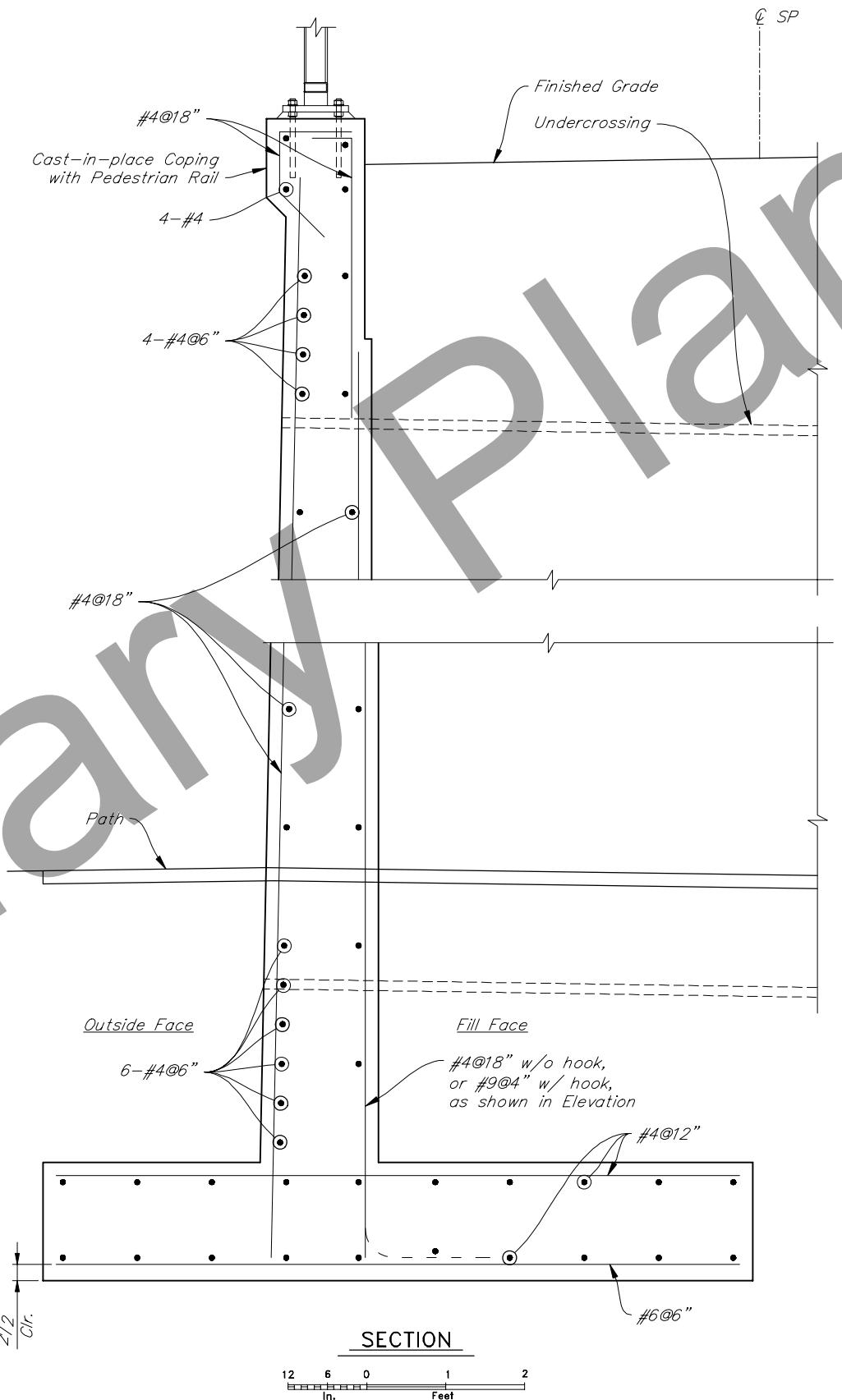
BRIDGE NO.
DWG. NO. 3



FOOTING PLAN



ELEVATION



SECTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	E4	E14

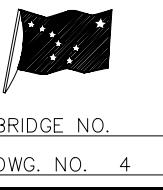
NOTES:
1. Chain Link with Gate not shown for clarity, see Dwg. E7.

DESIGNED BY: B ROMANAGGI	CHECKED: GF CONNER
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: Z XIE	CHECKED: B ROMANAGGI

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

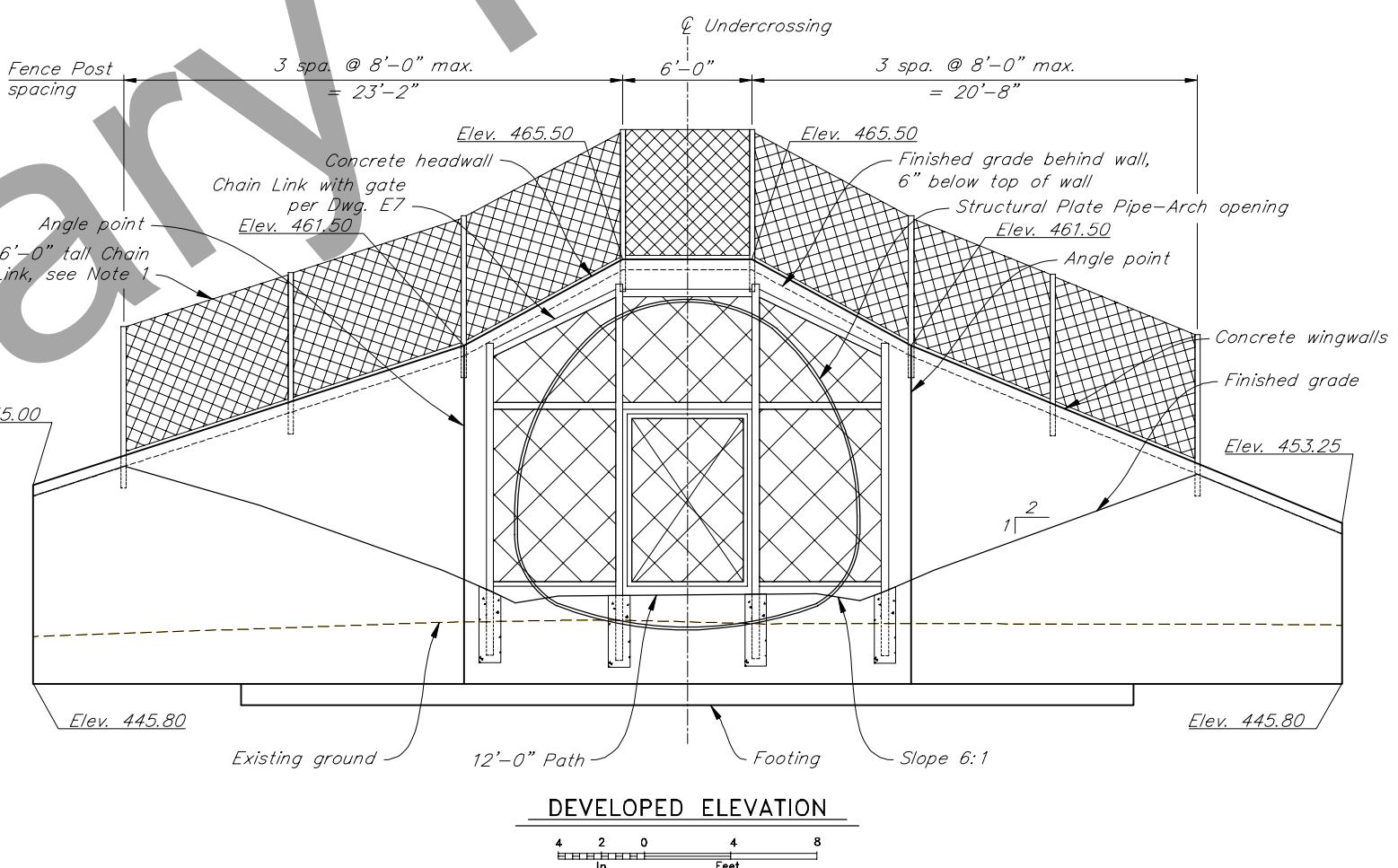
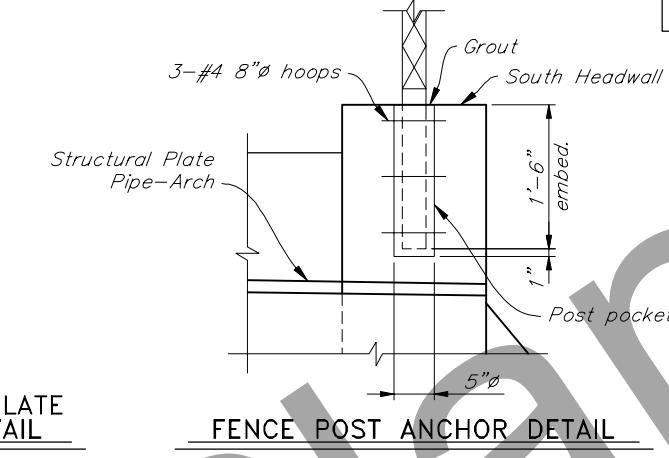
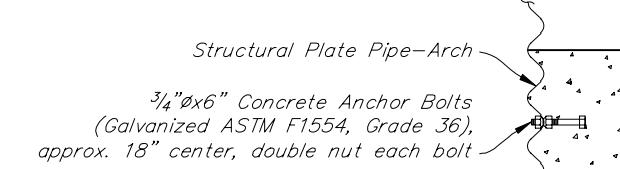
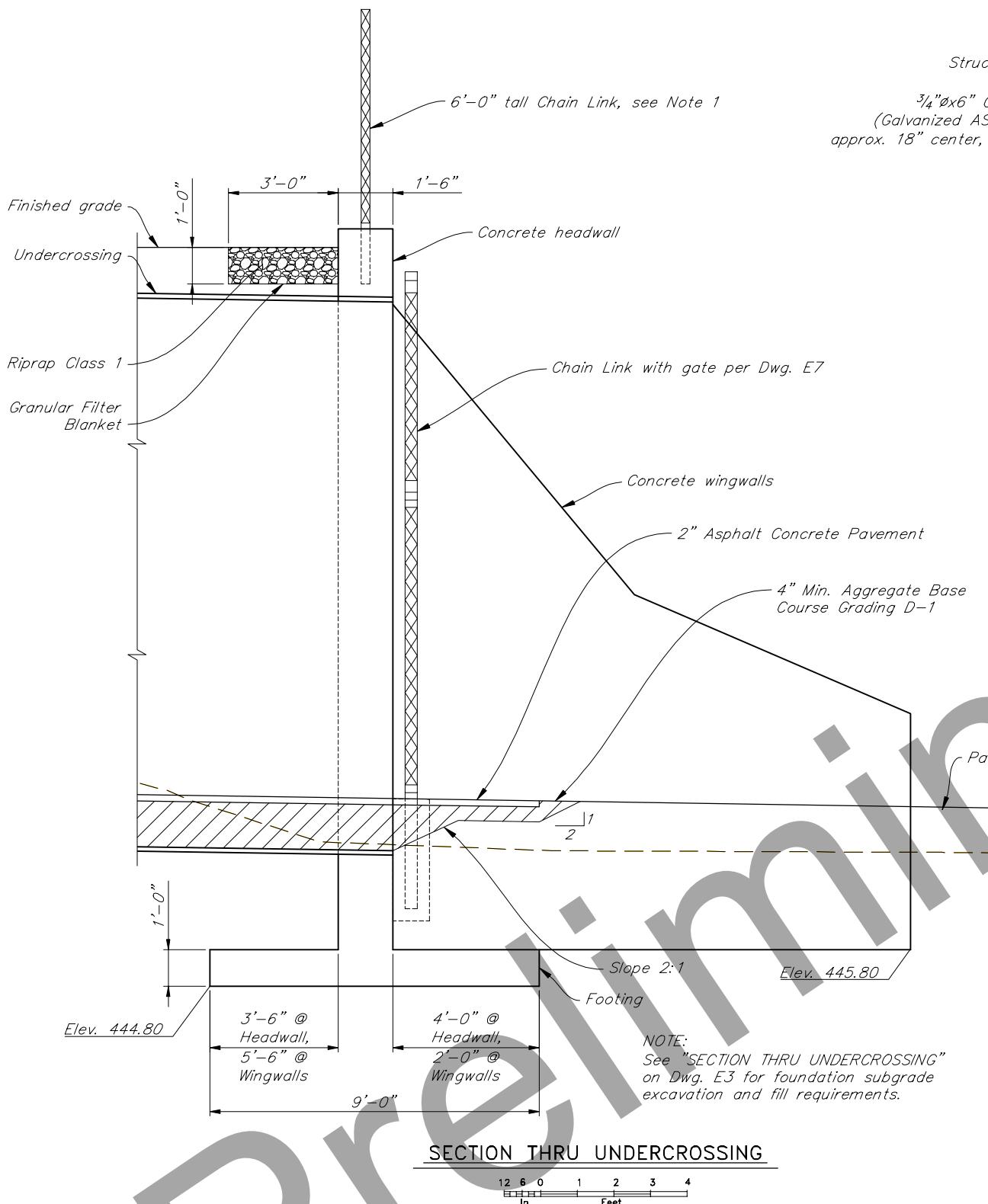
PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
TROOP UNDERCROSSING
NORTH HEADWALL DETAILS 2



DESIGNED BY: JK STITH	CHECKED: GF CONNER
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: Z XIE	CHECKED: B ROMANAGGI

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	E5	E14
RICHARDSON HIGHWAY MP359				
RAILROAD GRADE SEPARATED FACILITY				
RICHARDSON HIGHWAY				
TROOP UNDERCROSSING				
SOUTH HEADWALL DETAILS 1				
				
BRIDGE NO. _____				
DWG. NO. 5				



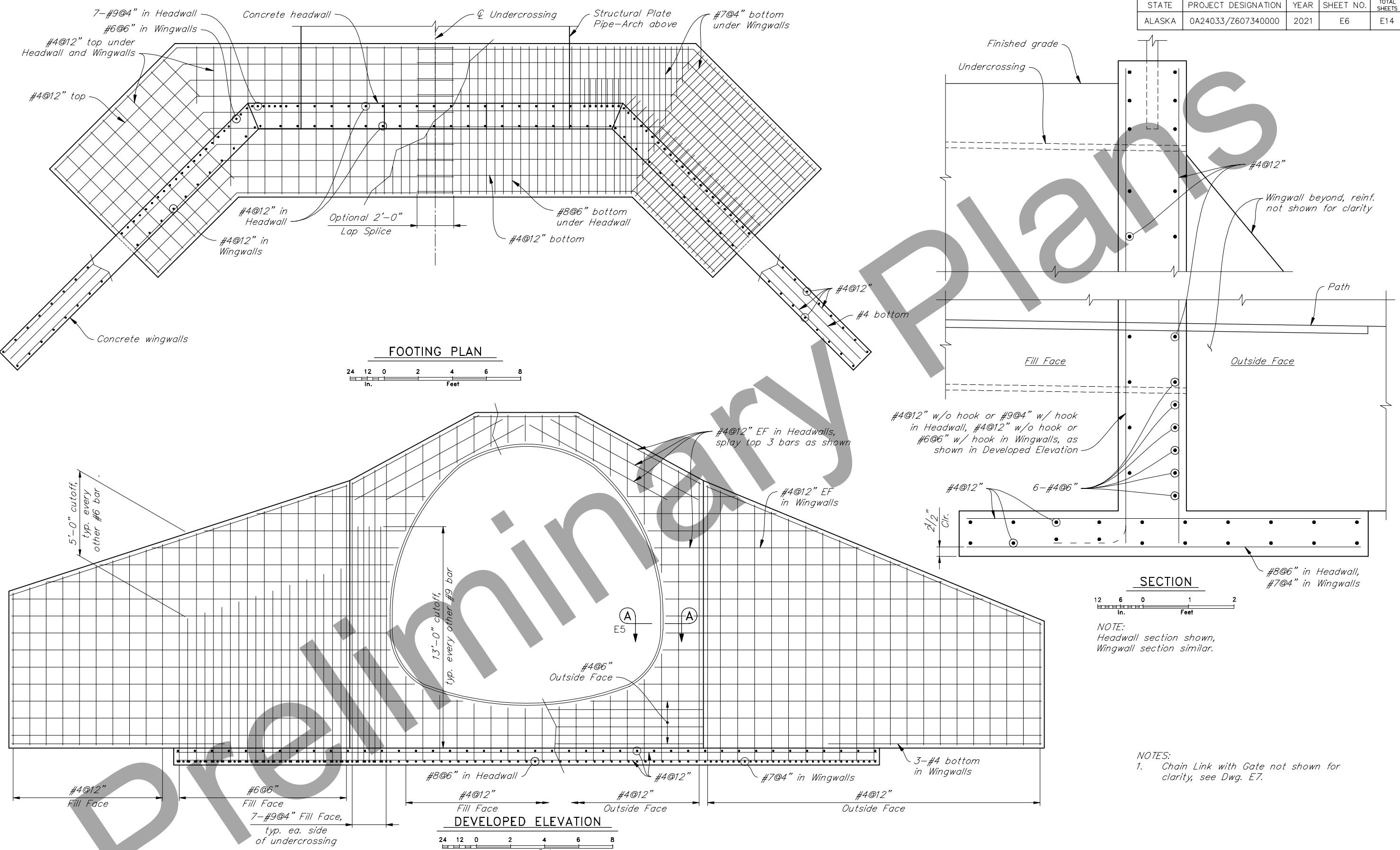
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
TROOP UNDERCROSSING
SOUTH HEADWALL DETAILS 1

BRIDGE NO. _____
DWG. NO. 5

NOTES:
1. For fence information not shown,
see Alaska DOT&PF standard plan
F-01.04 Chain Link Fence.

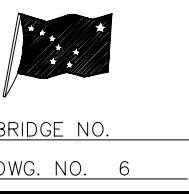


DESIGNED BY: B ROMANAGGI	CHECKED: GF CONNER
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: Z XIE	CHECKED: B ROMANAGGI

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
TROOP UNDERCROSSING
SOUTH HEADWALL DETAILS 2



DESIGNED BY: JK STITH	CHECKED: GF CONNER
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: Z XIE	CHECKED: B ROMANAGGI

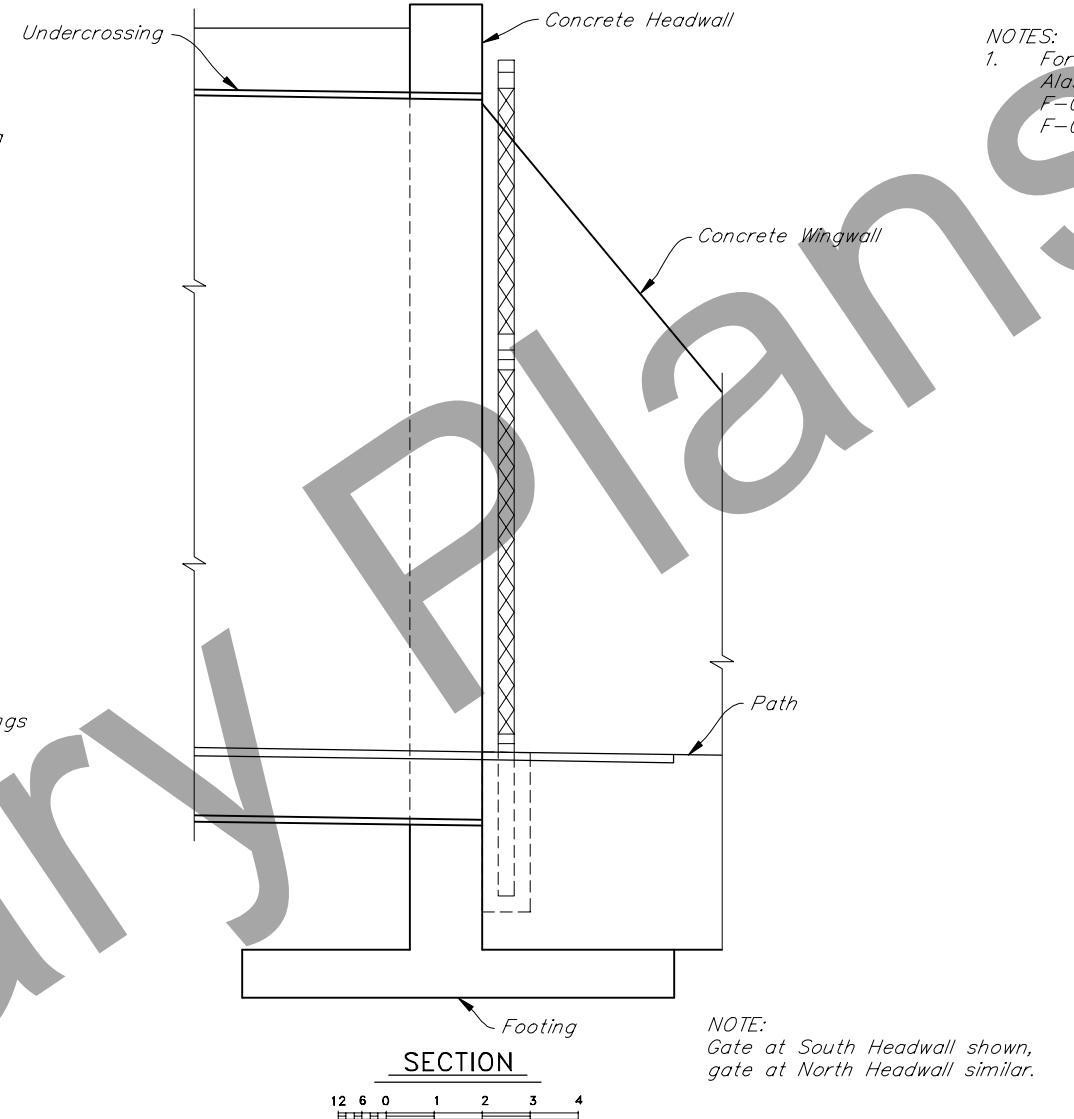
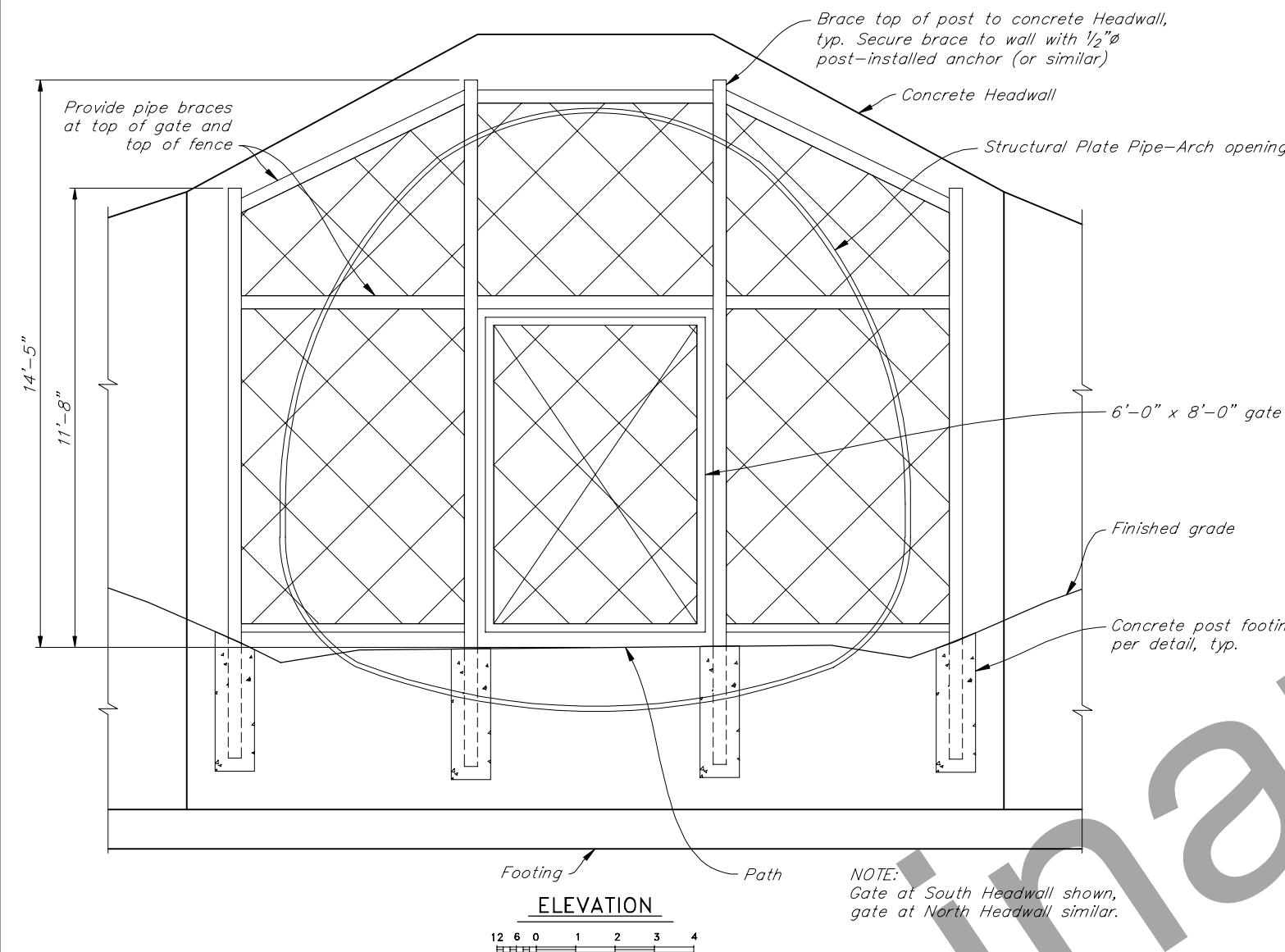
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	E7	E14

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

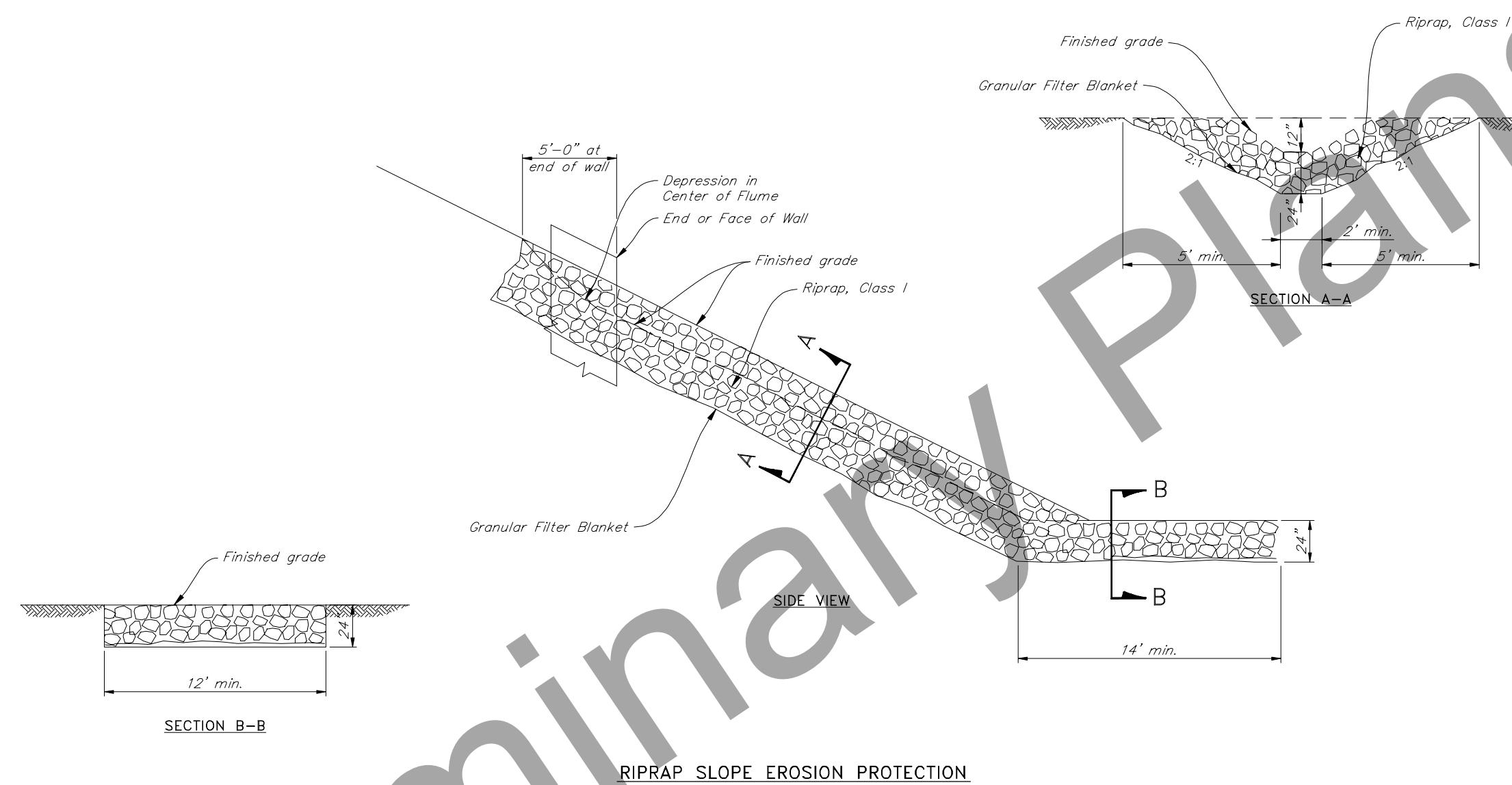
RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
TROOP UNDERCROSSING GATE DETAILS

BRIDGE NO.
DWG. NO. 7



NOTES:
1. For information not shown, see
Alaska DOT&PF standard plan
F-01.04 Chain Link Fence and
F-03.02 Chain Link Fence Gate.

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	E8	E14

**NOTES:**

1. Excavate to place rock so that the top of rock at sides are at final grade.
2. Shape the channel to proper grade and cross-section as shown in the plans.
3. Place Granular Filter Blanket prior to placement of riprap.
4. Install perpendicular to slope contours.
5. Extend the drain beyond the toe of the slope and provide riprap as shown.

DESIGNED BY: GF CONNER	CHECKED: JK STITH
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: GF CONNER	CHECKED: JK STITH

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

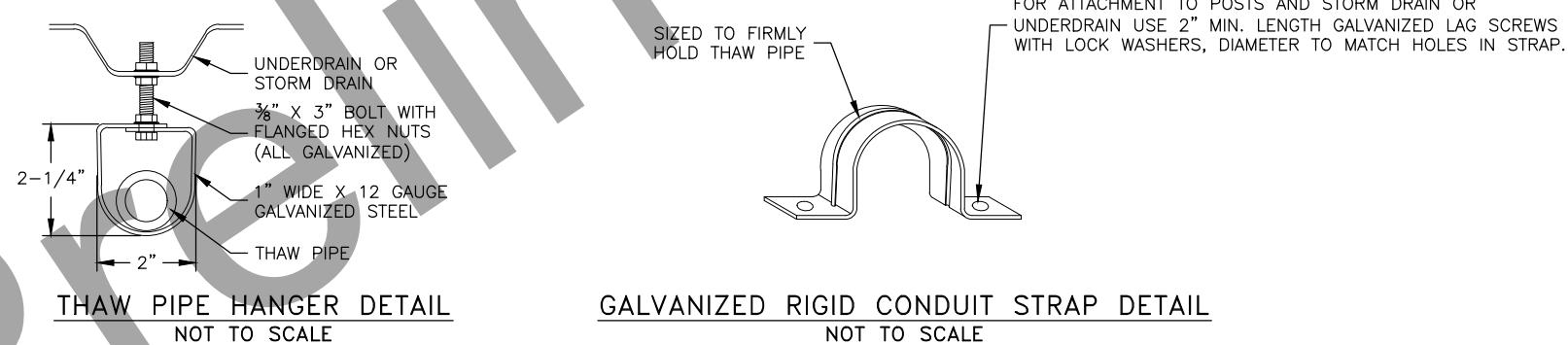
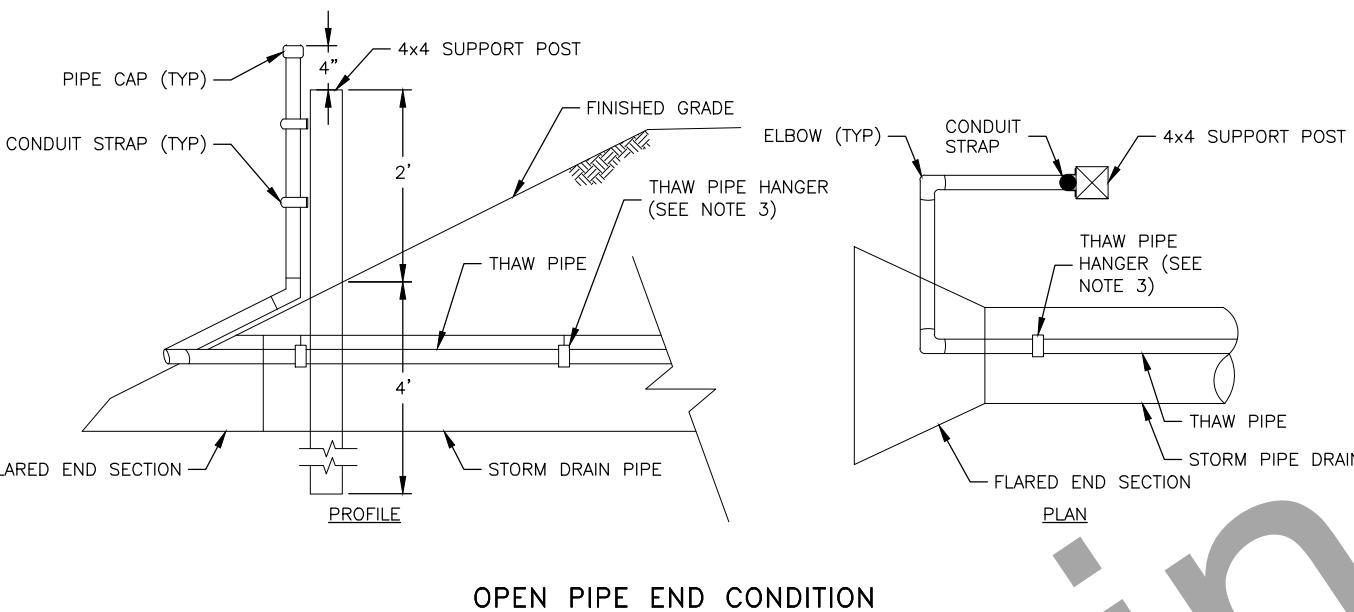
RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
WALL EROSION PROTECTION DETAILS

BRIDGE NO.
DWG. NO. 8

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	E10	E14

CULVERT SUMMARY

STATION	EXISTING CULVERT	202.004.0000 REMOVAL OF CULVERT PIPE (LF)	603.0001.0024 CSP 24 INCH (LF)	INVERT		603.0003.0024E ND SECTIONS (EA)	613.0002.0000 POSTS (EA)	616.0002.0050 1/2" DIA. THAW PIPE (EA)	REMARKS
				IN	OUT				
"SB" 1079+73	24" X 73' CSP	73							
"SB" 1084+90	-	-	69	451.5 N	450.4 S	2	2	1	
	TOTAL:	73	69			2	2	1	

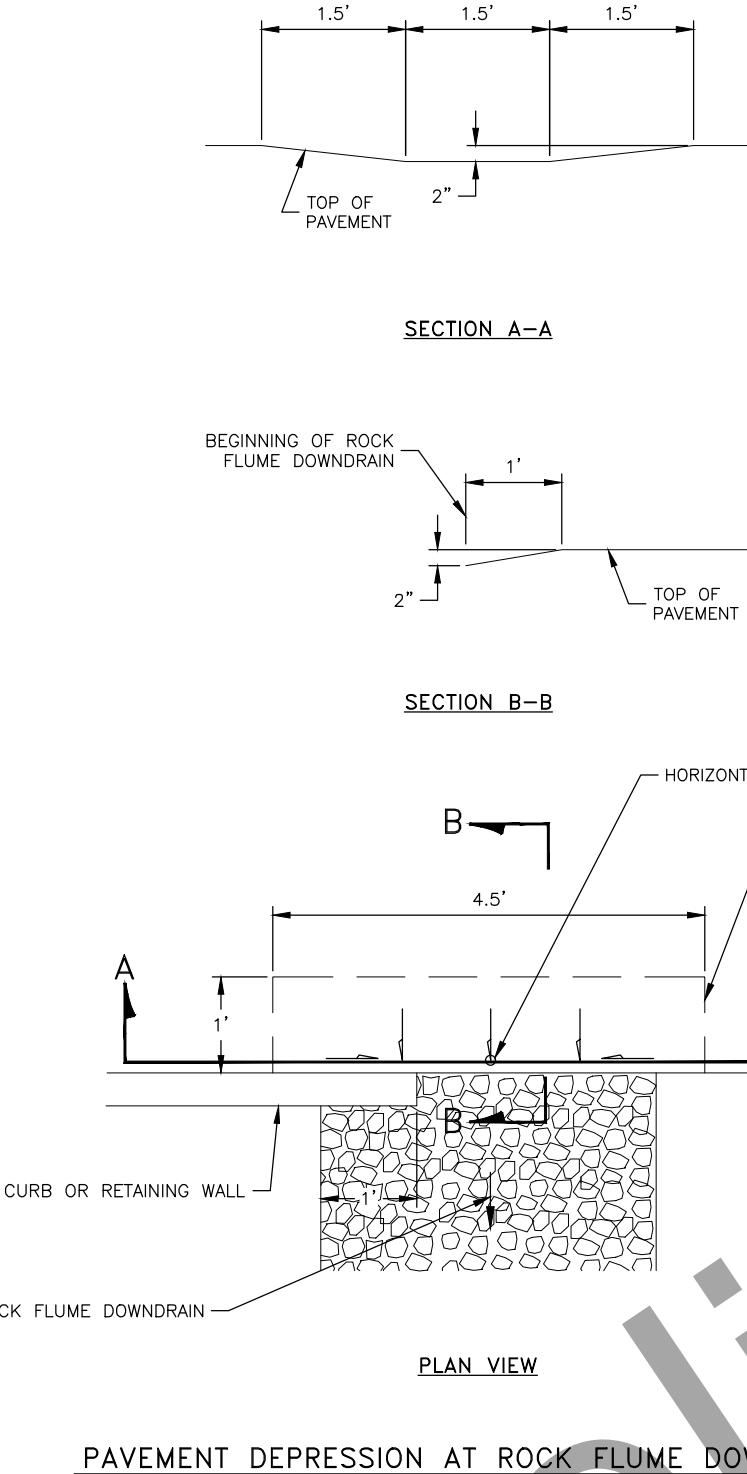


NOTES:

1. THESE THAW PIPES ARE INTENDED FOR USE IN STEAM THAWING.
2. USE $\frac{1}{2}$ " I.D. ASTM A53 GALVANIZED PIPE AND FITTINGS TO MATCH.
3. FASTEN THE THAW PIPE TO THE TOP OF THE STORM DRAIN OR UNDERDRAIN WITH THAW PIPE HANGERS ON 4' CENTERS MAX. THE MAXIMUM DISTANCE FROM END OF PIPE TO FIRST PIPE HANGER IS 12 INCHES.
4. USE PRESSURE TREATED SUPPORT POSTS OF HEM-FIR, NO. 2 OR BETTER. USE AMMONIACAL COPPER ZINC ARSENATE (ACZA) OR CHROMATED COPPER ARSENATE (CCA) PRESERVATIVES ON SUPPORT POSTS. PRESSURE TREAT IN ACCORDANCE WITH AASHTO M133.
5. FASTEN THAW PIPE TO SUPPORT POSTS WITH GALVANIZED RIGID CONDUIT STRAPS AND 2" LONG GALVANIZED HEX BOLTS AT 24" CENTERS, IF MORE THAN ONE IS REQUIRED. DRILL AND EPOXY GROUT BOLTS INTO SIDE OF INLET OR MANHOLE.
6. FASTEN THAW PIPE TO INLET OR MANHOLE WITH GALVANIZED RIGID CONDUIT STRAPS AND 2" LONG GALVANIZED HEX BOLTS AT 24" CENTERS, IF MORE THAN ONE IS REQUIRED. DRILL AND EPOXY GROUT BOLTS INTO SIDE OF INLET OR MANHOLE.
7. FILL THAW PIPE WITH A MINUS 50° FAHRENHEIT MIX OF RV ANTFREEZE AND WATER, THEN CAP.
8. PROVIDE PIPE ELBOWS OR FIELD BENDS AT UNDERDRAIN ELBOWS AS NECESSARY TO FIT UNDERDRAIN ALIGNMENT.

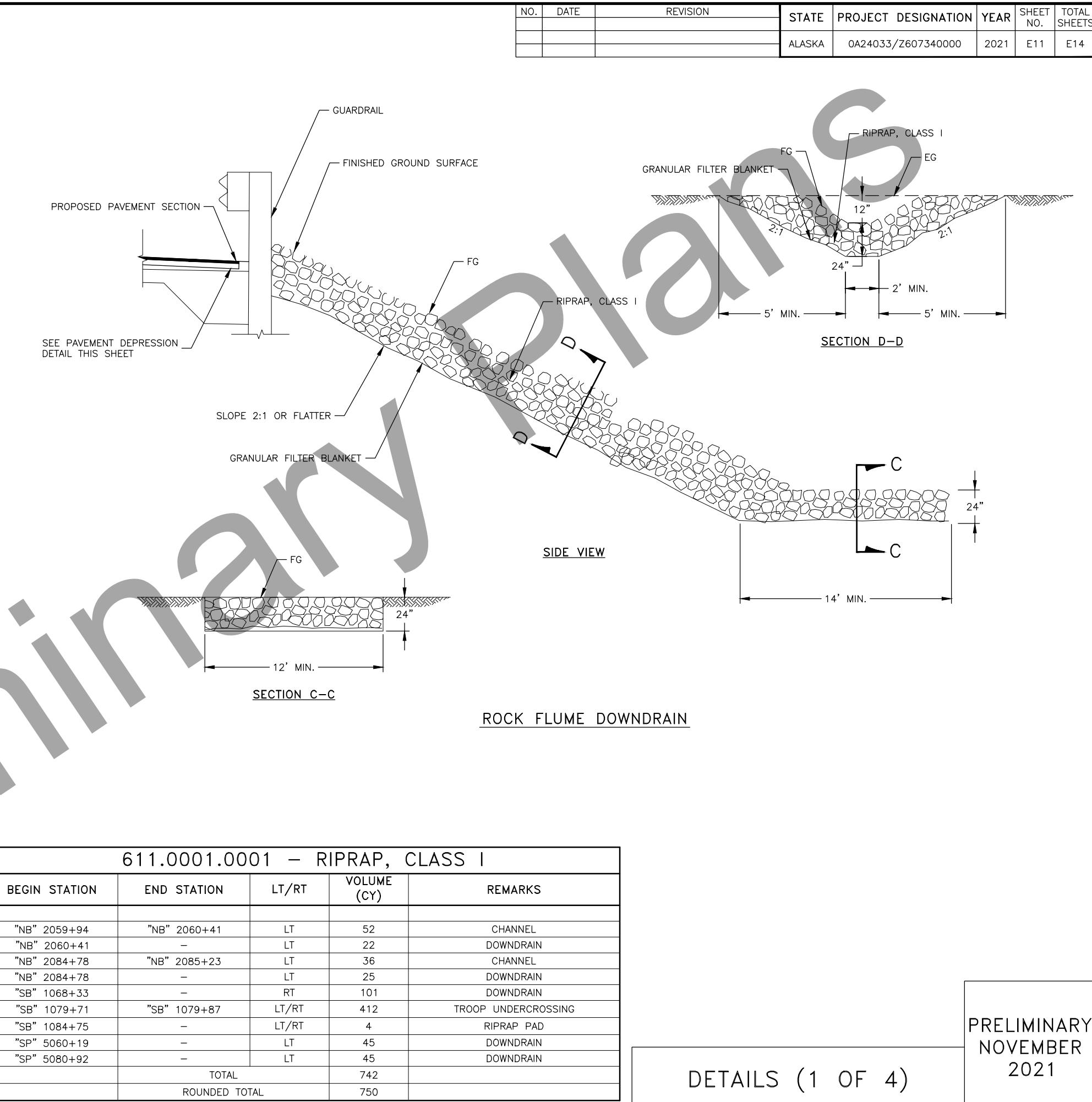
CULVERT SUMMARY AND DETAILS

PRELIMINARY
NOVEMBER
2021

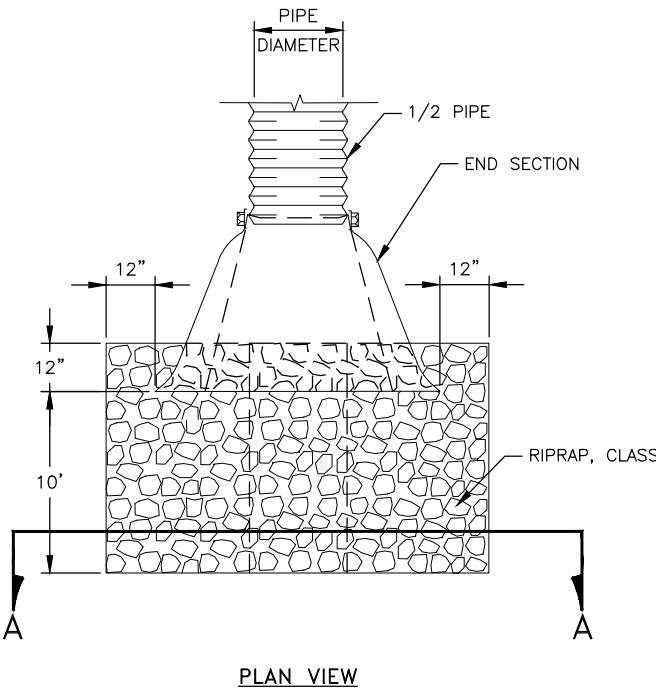


NOTES:

1. EXCAVATE TO PLACE ROCK SO THAT THE TOP OF FLUME SIDES ARE AT ORIGINAL OR FINAL GRADE.
2. SHAPE THE CHANNEL TO PROPER GRADE AND CROSS-SECTION AS SHOWN IN THE PLANS.
3. PLACE FILTER BLANKET PRIOR TO PLACEMENT OF RIPRAP.
4. INSTALL PERPENDICULAR TO SLOPE CONTOURS.
5. EXTEND THE DRAIN BEYOND THE TOE OF THE SLOPE AND PROVIDE RIPRAP AS SHOWN.



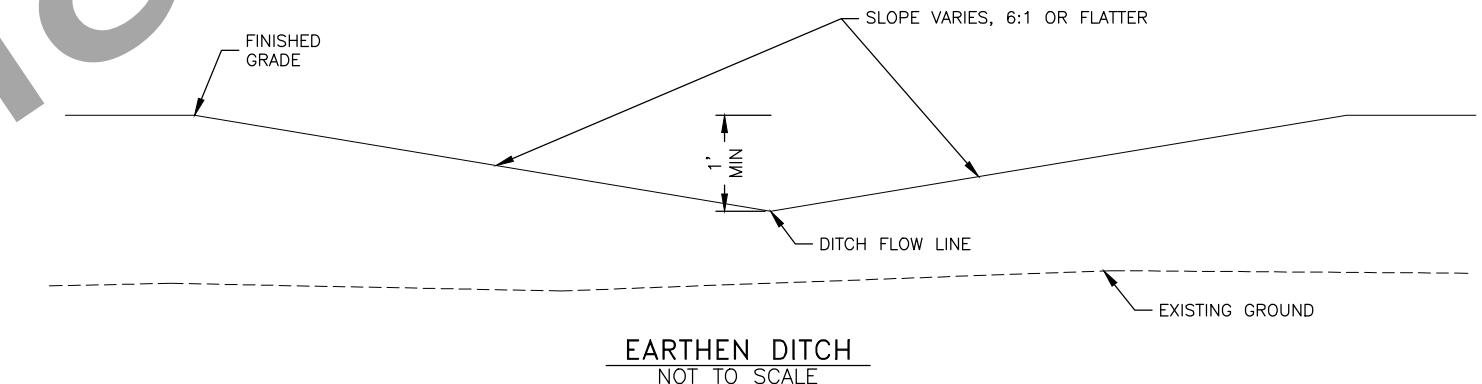
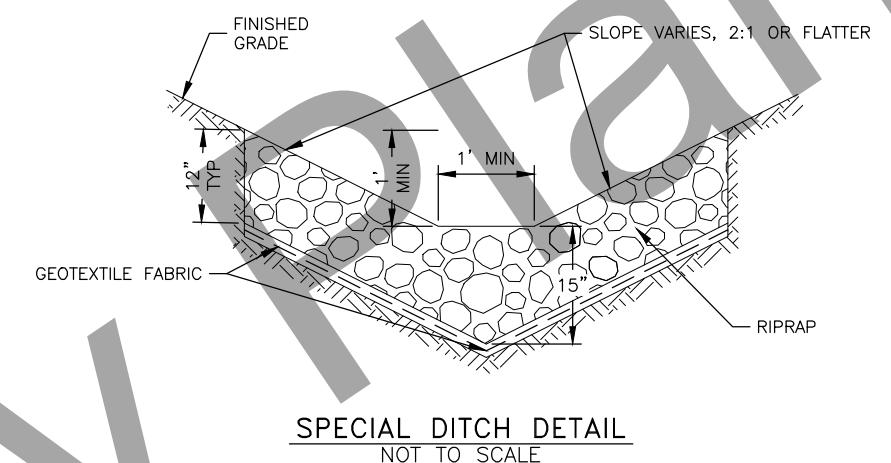
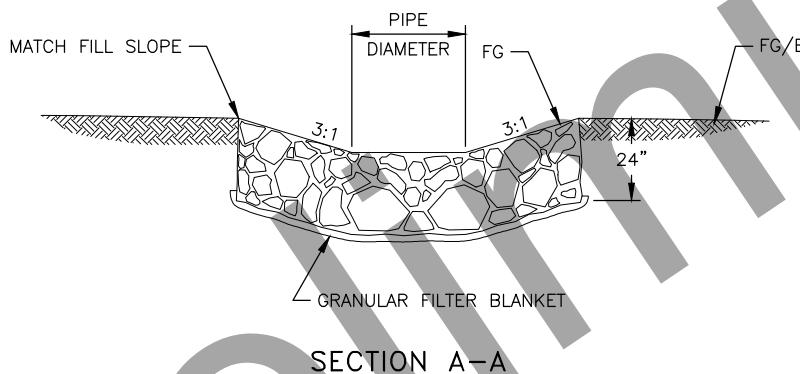
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	E12	E14



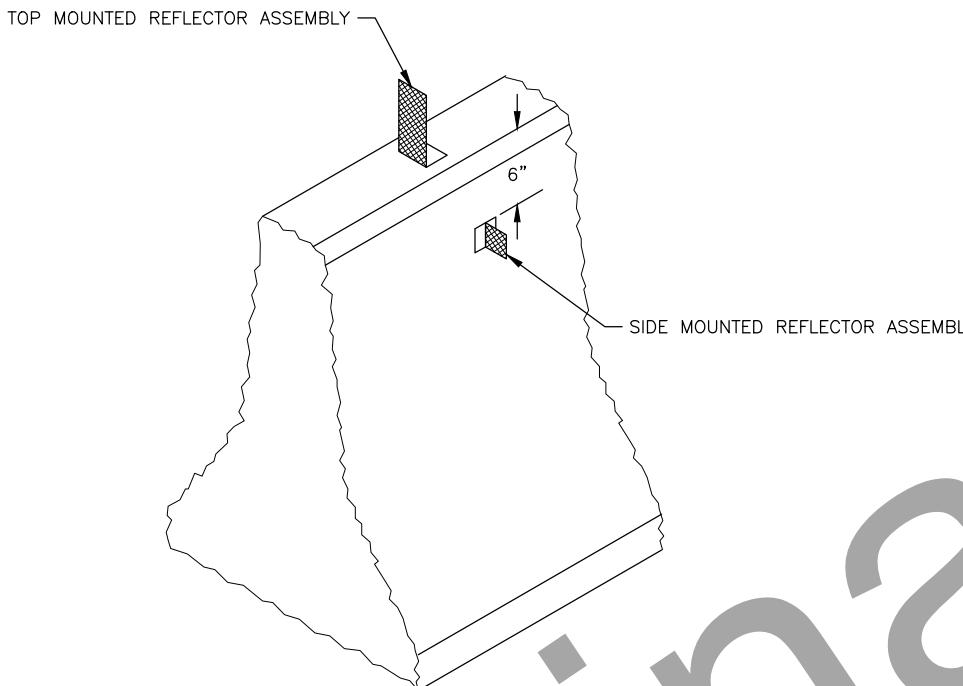
RIPRAP ENERGY DISSIPATER

RIPRAP NOTES:

- SEE STANDARD PLAN D-06.10 FOR ADDITIONAL GENERAL NOTES AND DIMENSIONS.
- THE MODIFIED END SECTION AND GEOTEXTILE SHALL BE SUBSIDIARY TO RIPRAP.



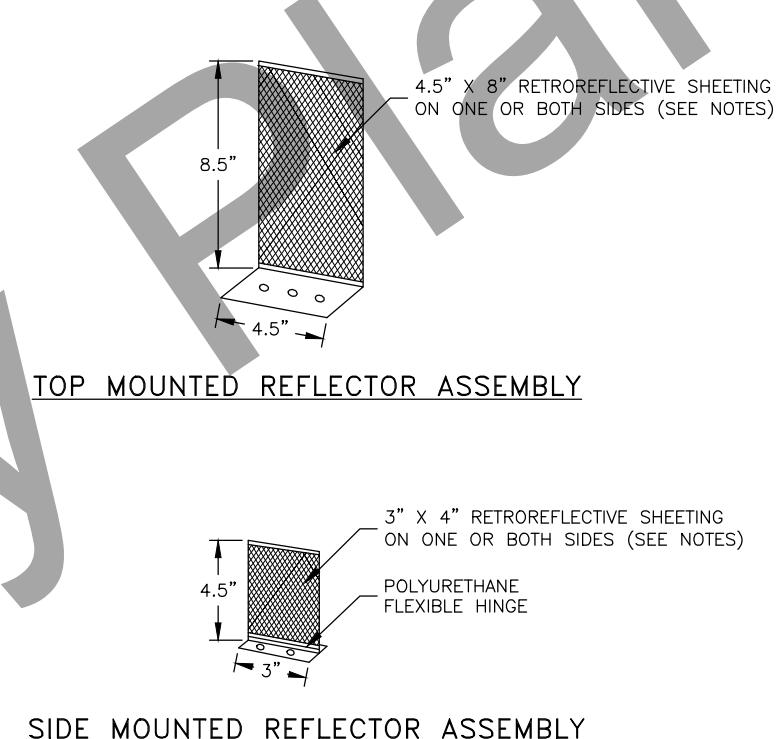
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	E13	E14



CONCRETE BARRIER REFLECTOR ASSEMBLIES

NOTES:

1. ATTACH REFLECTOR ASSEMBLIES AT 50' INTERVALS ON BOTH THE TOP AND SIDE. REFLECTOR ASSEMBLIES ARE REQUIRED ON BOTH SIDES OF MEDIAN BARRIERS.
2. INSTALL PEXCO'S DAVIDSON PCBM-36 FOR TOP MOUNTED AND PCBM-T12 FOR SIDE MOUNTED BARRIER REFLECTOR ASSEMBLIES OR APPROVED EQUIVALENT.
3. RETROREFLECTIVE SHEETING SHALL MEET ASTM D4956 REQUIREMENTS FOR TYPE VIII, IX OR XI.
4. COLOR OF THE RETROREFLECTIVE SHEETING SHALL MATCH THE COLOR OF THE ADJACENT EDGE LINE STRIPE. RETROREFLECTIVE SHEETING SHALL BE PLACED ON BOTH SIDES OF ALL ASSEMBLIES ON TWO WAY ROADS AND ON TOP MOUNTED ASSEMBLIES ON MEDIAN BARRIERS. SHEETING IS ONLY REQUIRED ON ONE SIDE OF ASSEMBLIES ON ONE WAY ROADS AND ON SIDE MOUNTED ASSEMBLIES ON DIVIDED HIGHWAYS.
5. TOP REFLECTOR ASSEMBLIES SHOULD BE MOUNTED FACING IN TOWARD TRAFFIC AT AN ANGLE OF 10 DEGREES OR AS RECOMMENDED BY THE MANUFACTURER. SINGLE SIDED SIDE REFLECTOR ASSEMBLIES SHOULD BE MOUNTED AT A SLIGHT BACKWARDS ANGLE TO ALLOW RAIN TO CLEAN THE REFLECTOR.

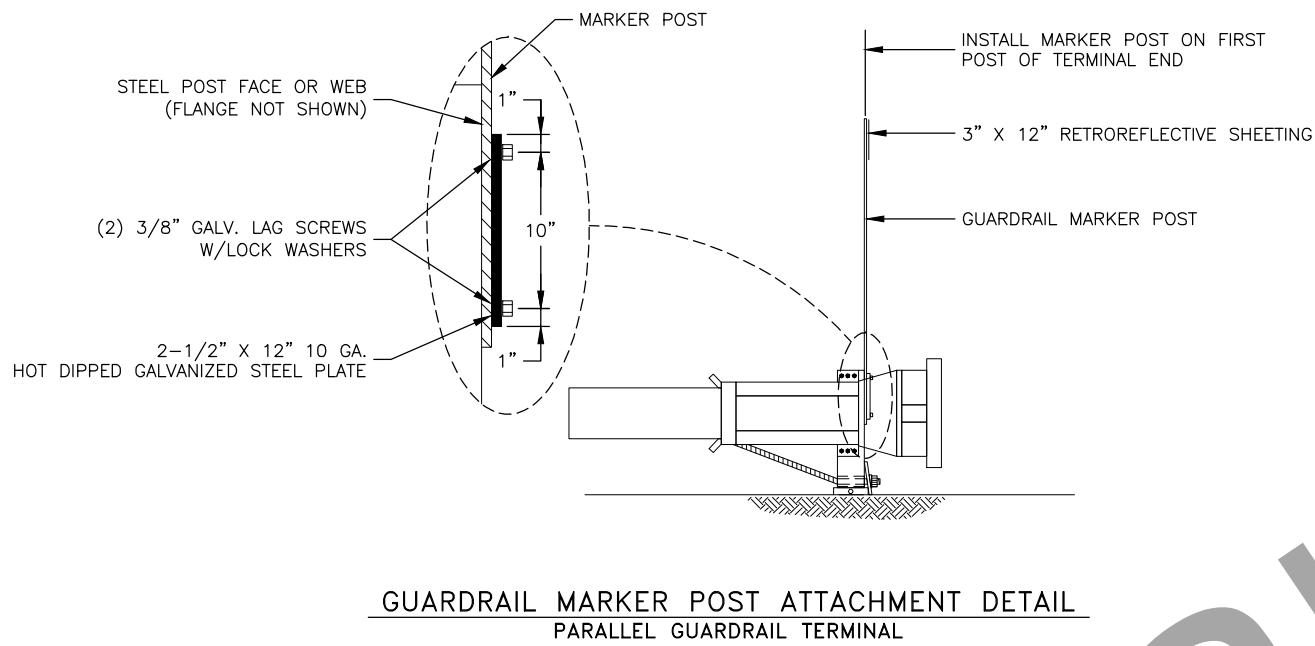


614.0001.0000 - CONCRETE BARRIER				
BEGIN STATION	END STATION	LT/RT	LENGTH (FEET)	REMARKS
"NB" 2060+45	"NB" 2067+76	LT	731	
"NB" 2068+99	"NB" 2084+75	LT	1577	
		TOTAL	2308	
		ROUNDED TOTAL	2350	

DETAILS (3 OF 4)

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	E14	E14



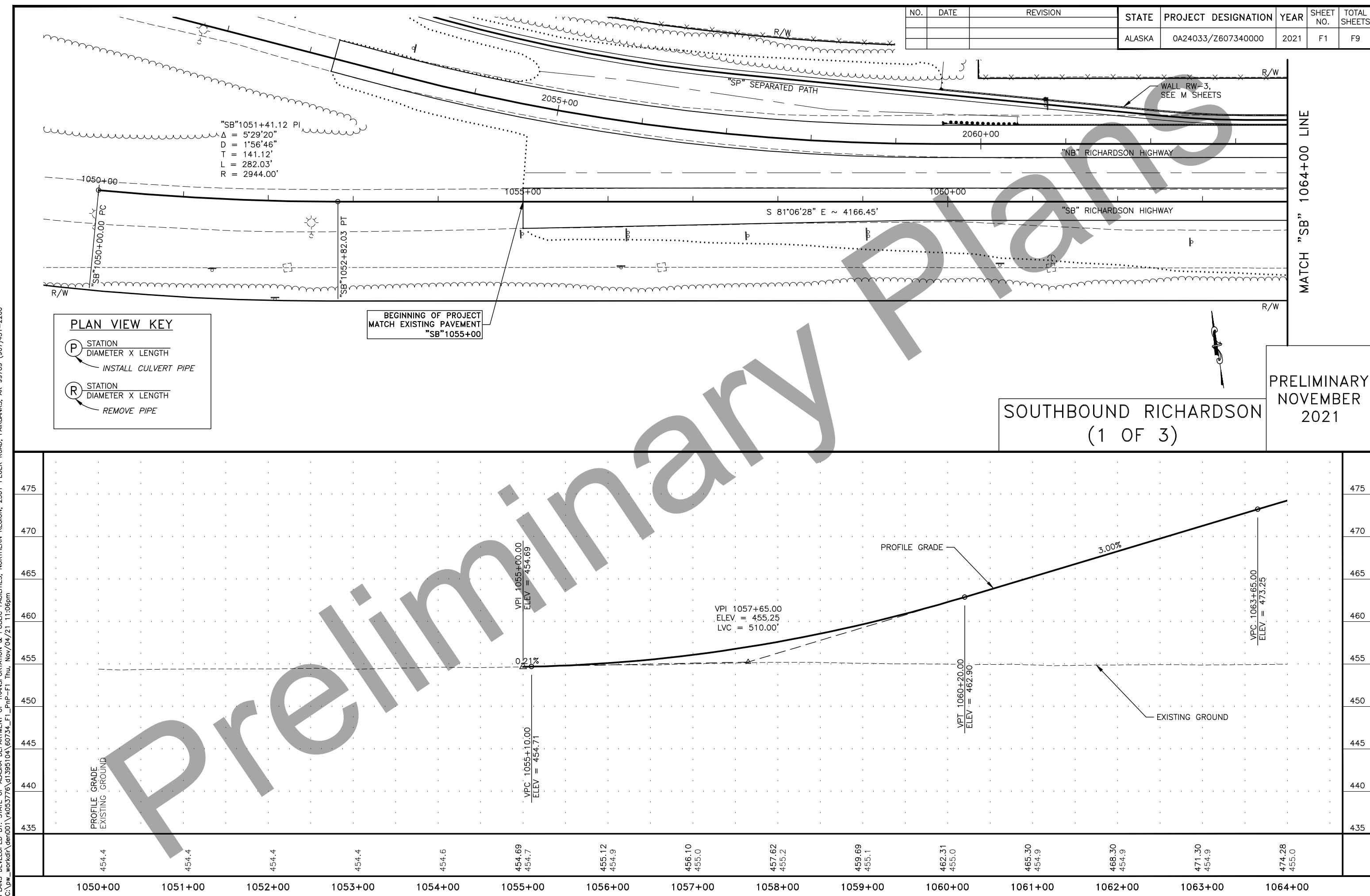
GUARDRAIL MARKER NOTES:

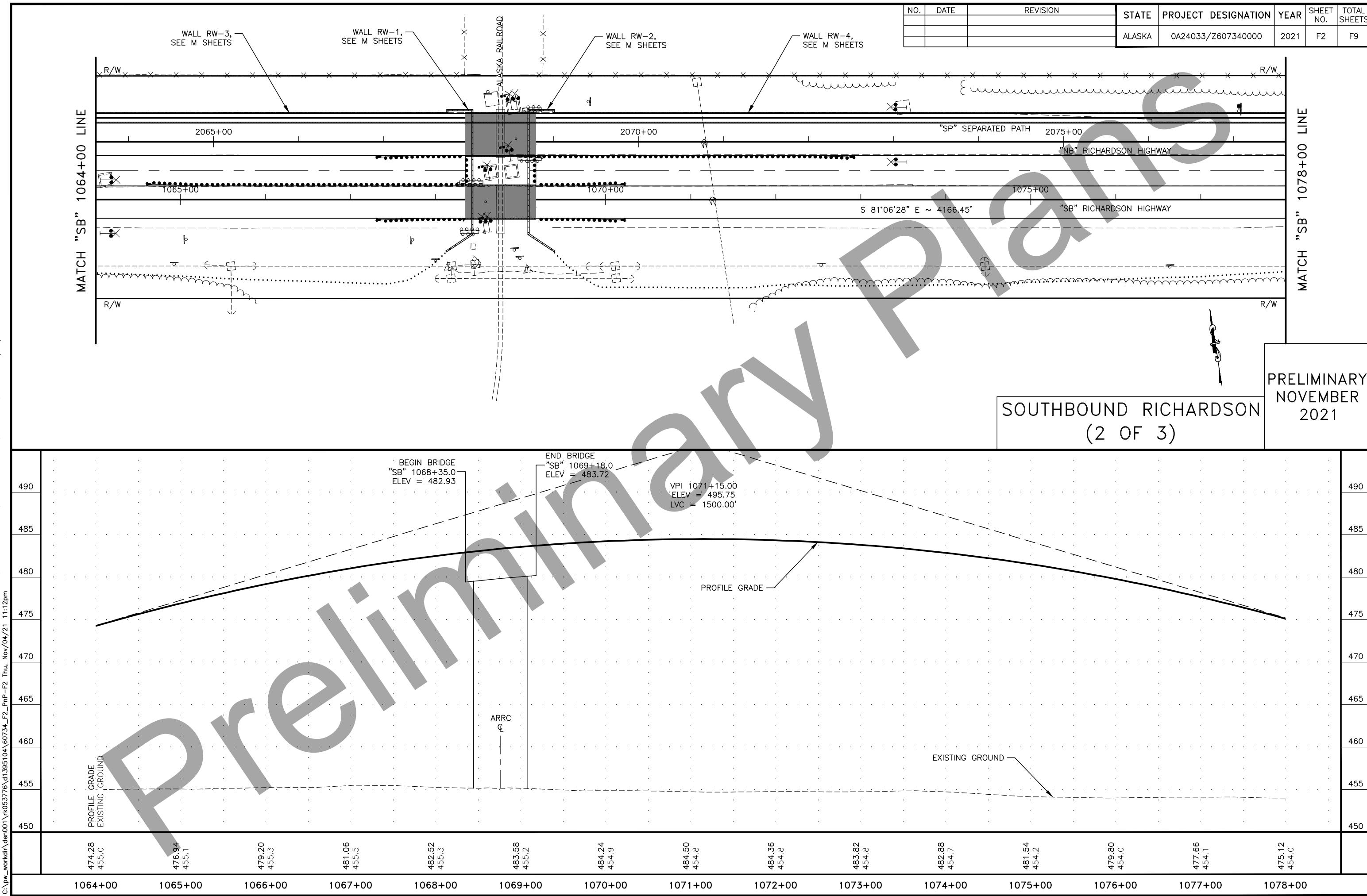
1. GUARDRAIL MARKER POSTS SHALL BE YELLOW AND AT LEAST 72" LONG. POSTS SHALL MEET THE REQUIREMENTS OF SECTION 730-2.05 FLEXIBLE DELINEATOR POSTS.
2. RETROREFLECTIVE SHEETING SHALL MEET ASTM D4956 REQUIREMENTS FOR TYPE VIII, IX, OR XI. COLOR OF RETROREFLECTIVE SHEETING SHALL MATCH COLOR OF ADJACENT EDGE LINE STRIPE. PLACE RETROREFLECTIVE SHEETING ON SIDE OF MARKER POST FACING TRAFFIC IN ADJACENT LANE.
3. DRILL ALL BOLT HOLES. COAT HOLES WITH ZINC RICH PAINT. FLAME CUTTING SHALL NOT BE PERMITTED.
4. ON SHORT RADIUS GUARDRAIL SECTIONS, ATTACH GUARDRAIL MARKER POST TO THE GUARDRAIL POST AT THE POINT OF TANGENCY (P.T.) SHOWN ON STANDARD DRAWING G-26.00.
5. ALL WORK AND MATERIAL REQUIRED TO INSTALL GUARDRAIL MARKER POSTS IS SUBSIDIARY TO 606 PAY ITEMS.

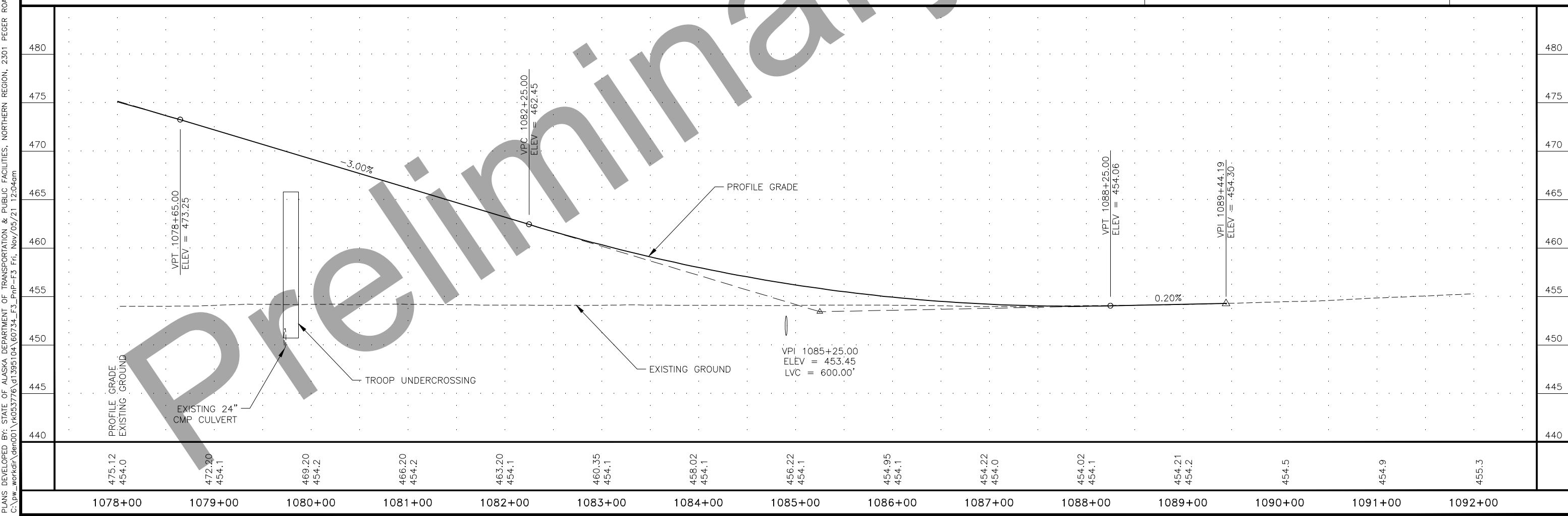
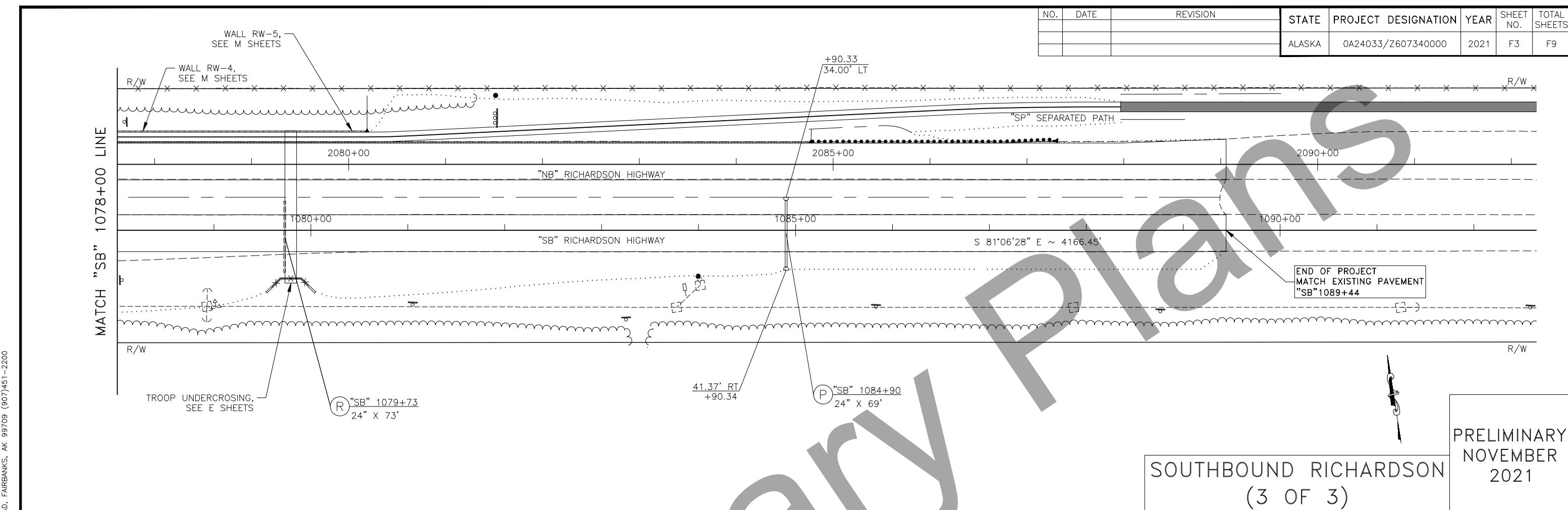
606 – GUARDRAIL SUMMARY					
BEGIN STATION	END STATION	LT/RT	606.0001.0000	606.0013.0000	606.0016.0000
			W-BEAM GUARDRAIL (LF)	PARALLEL GUARDRAIL TERMINAL (EA)	TRANSITION RAIL (EA)
"NB" 2060+10	"NB" 2060+27	LT	17	1	1
"NB" 2067+46	"NB" 2067+58	RT	12	1	1
"NB" 2067+96	–	RT	36	–	–
"NB" 2068+79	–	RT	36	–	–
"NB" 2069+17	"NB" 2071+99	RT	282	1	1
"NB" 2084+93	"NB" 2086+77	LT	184	1	1
"SB" 1065+15	"SB" 1067+97	LT	282	1	1
"SB" 1067+85	"SB" 1067+97	RT	12	1	1
"SB" 1069+56	"SB" 1069+68	LT	12	1	1
"SB" 1069+56	"SB" 1069+68	RT	12	1	1
PAY ITEM TOTALS			888	8	8
ROUNDED TOTALS			890	8	8

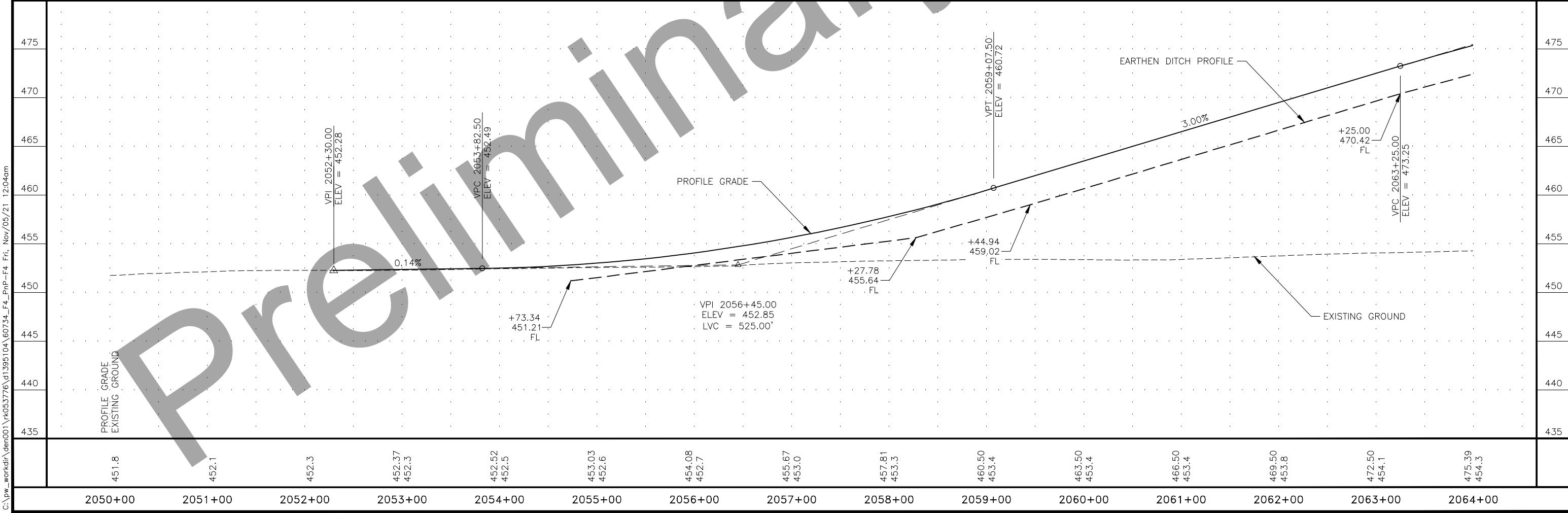
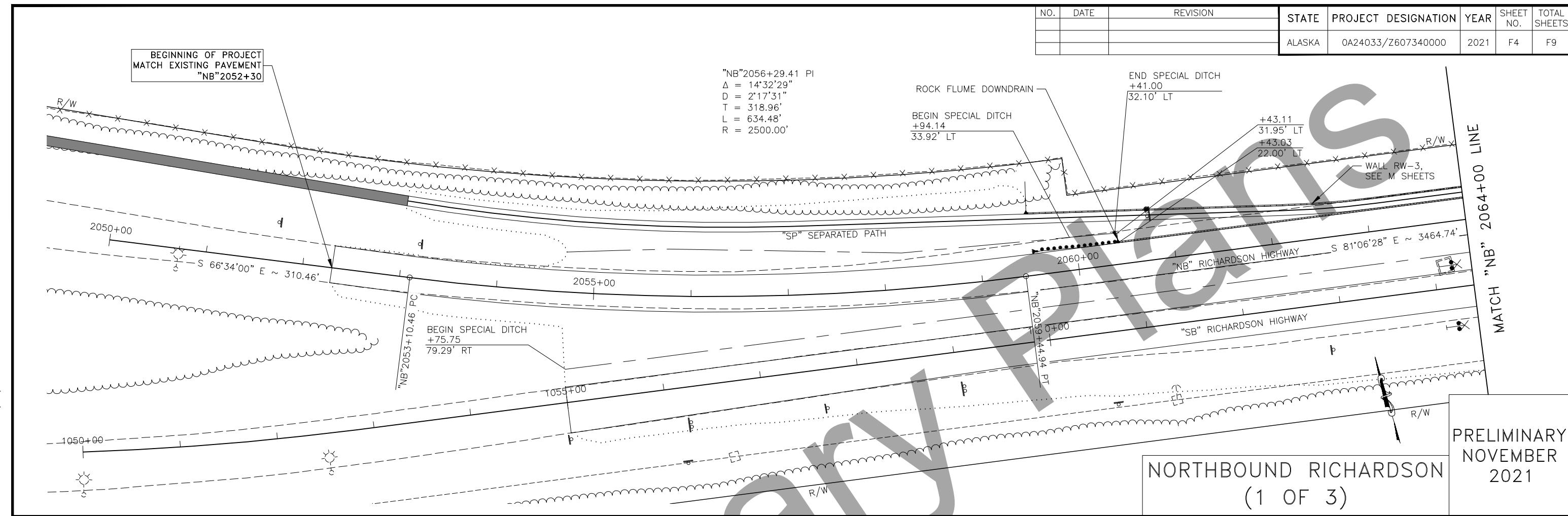
PRELIMINARY
NOVEMBER
2021

DETAILS (4 OF 4)

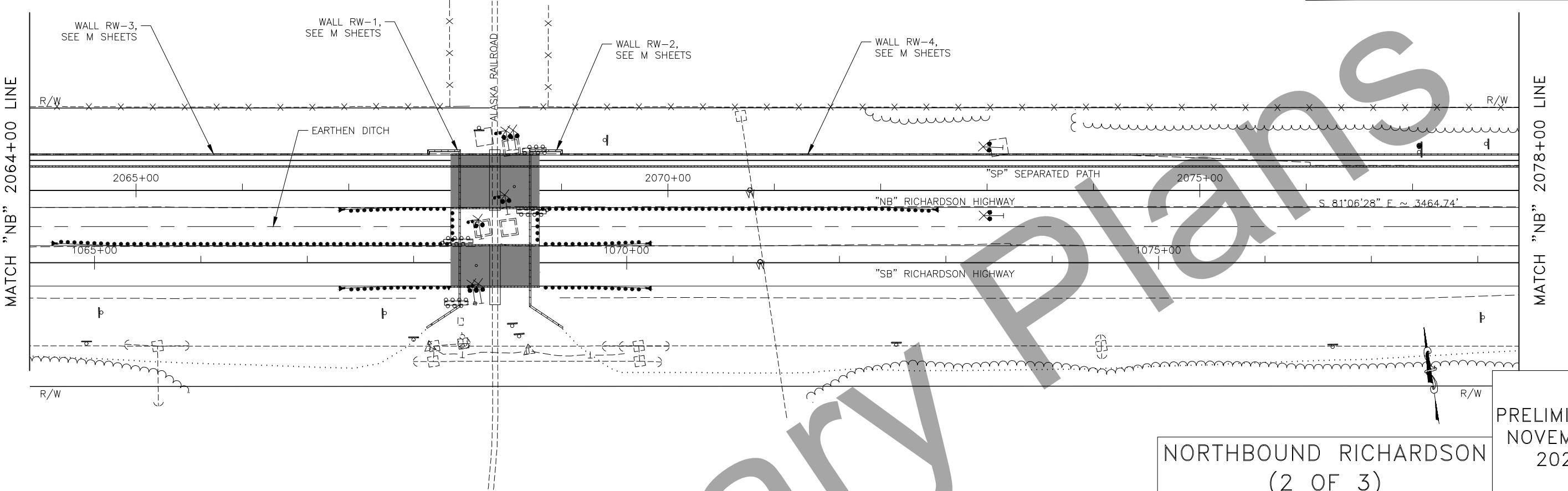




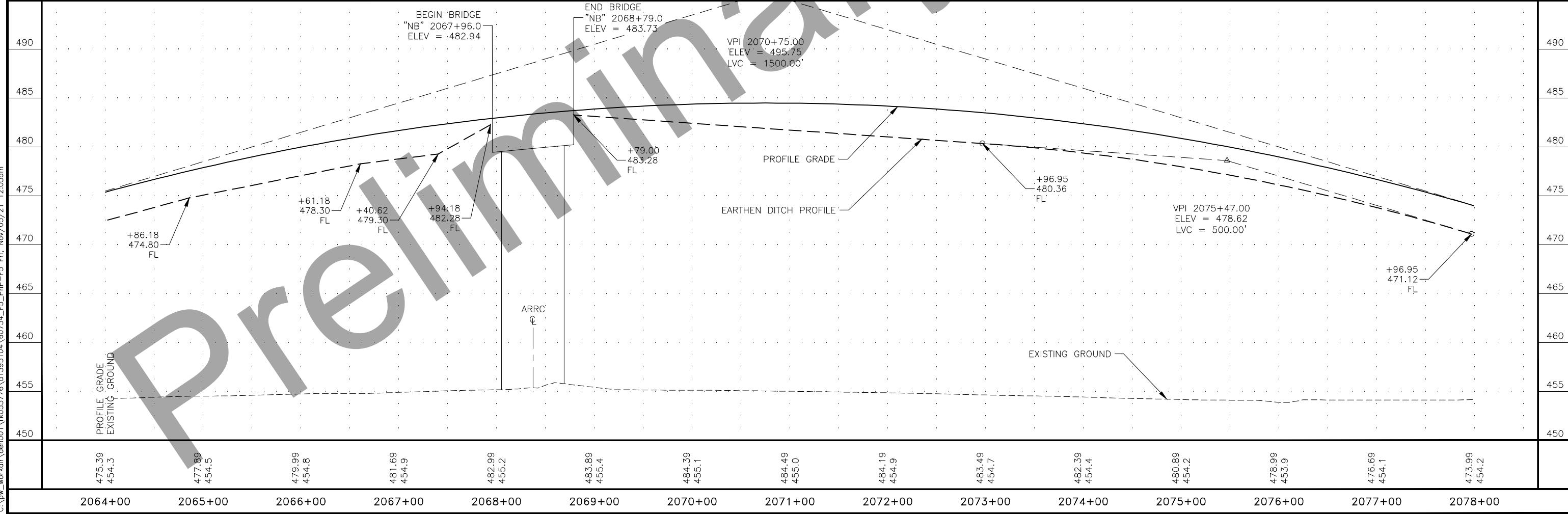


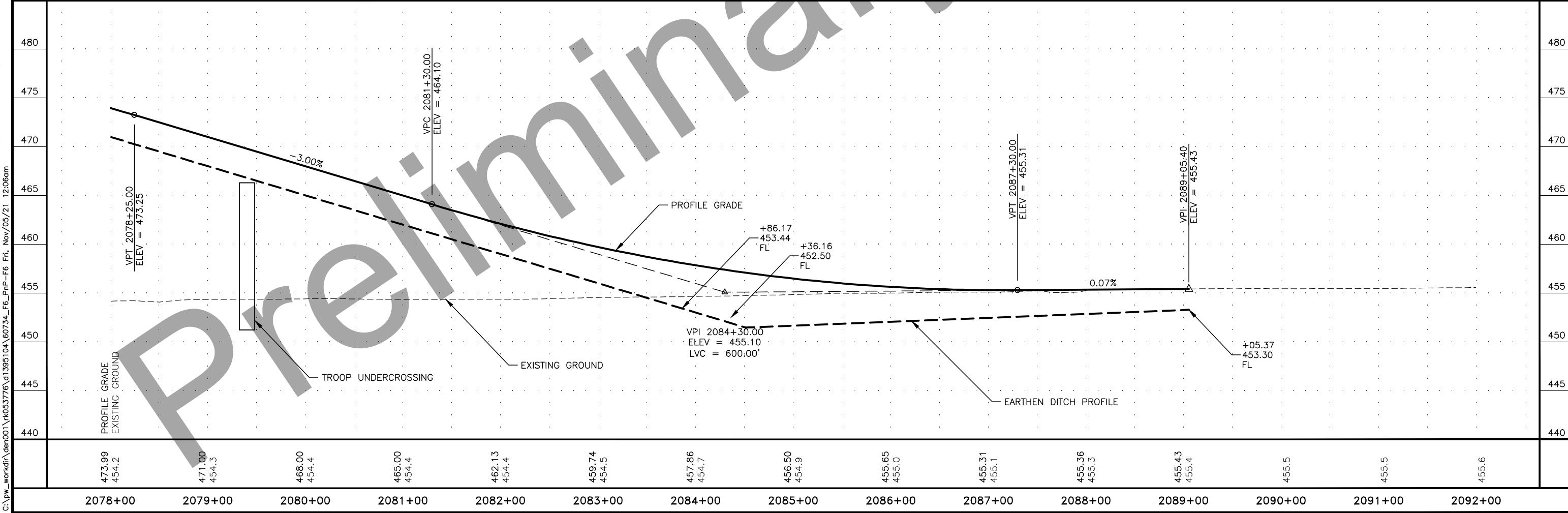
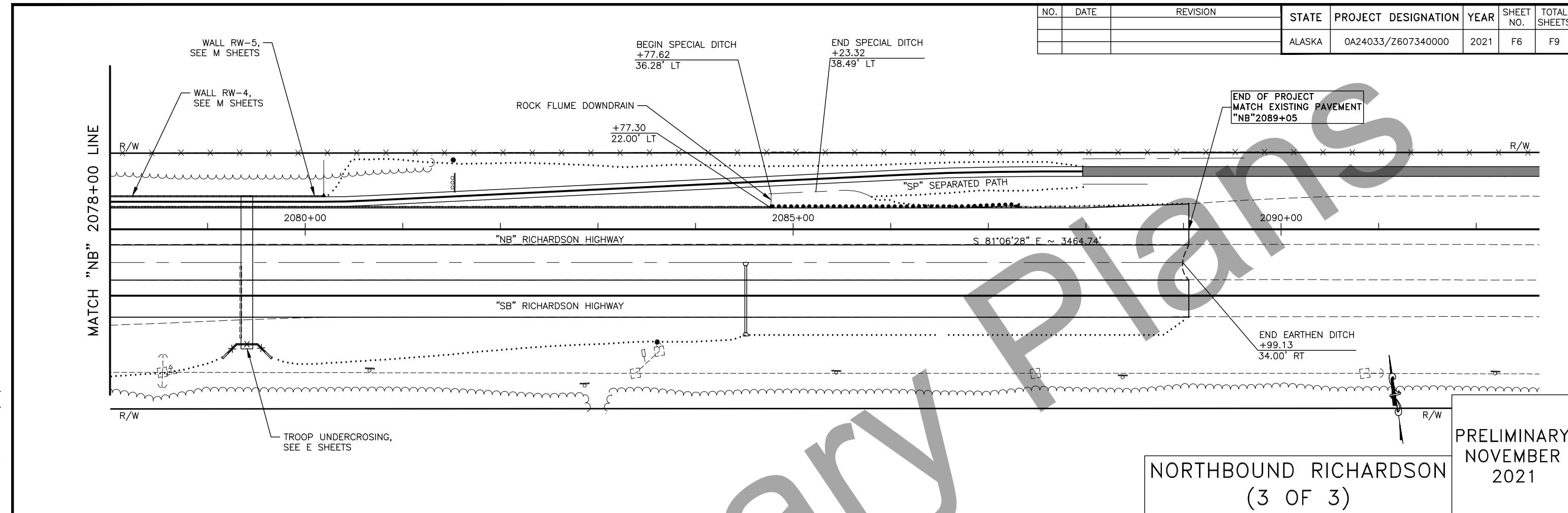


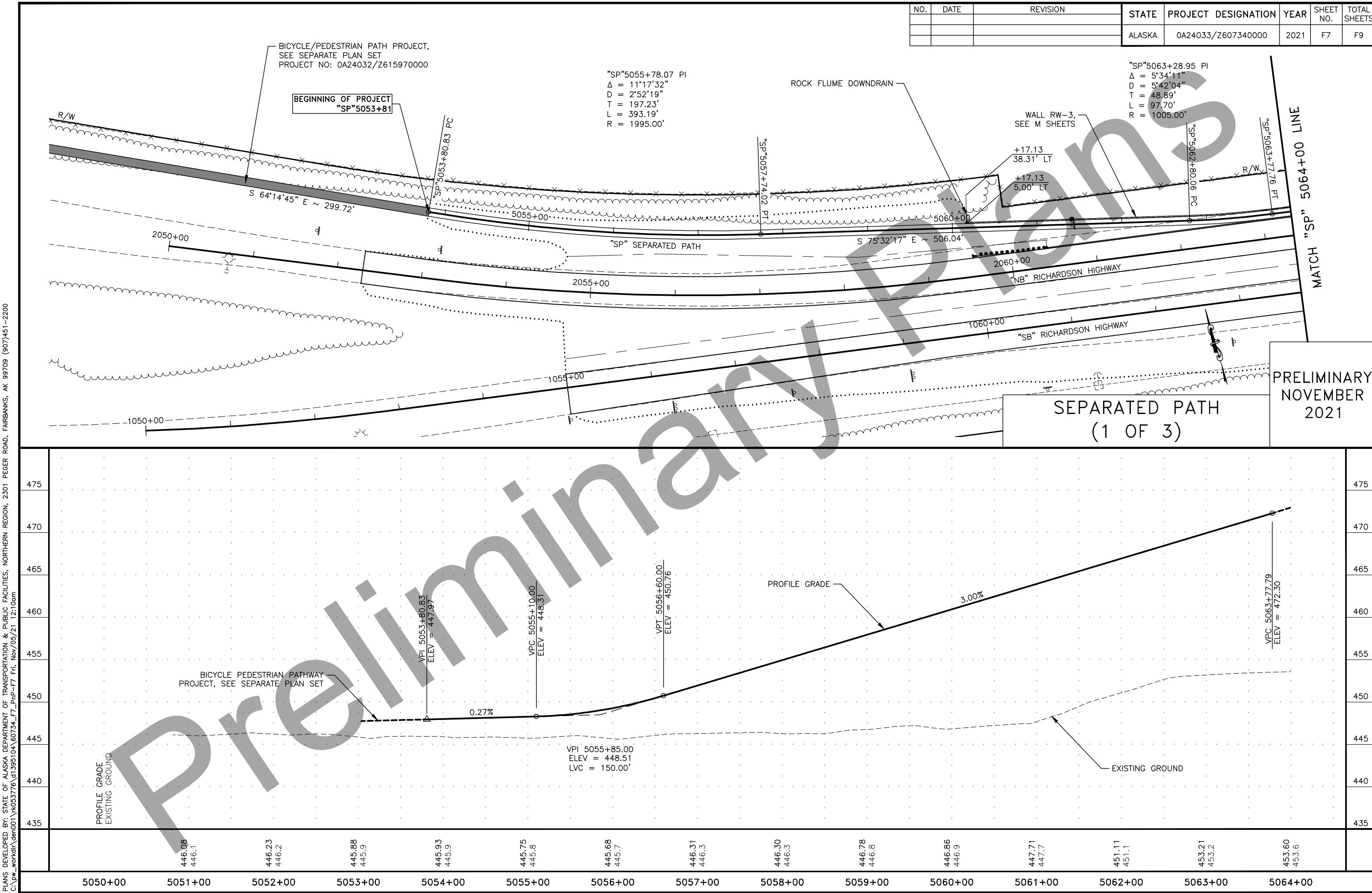
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	F5	F9



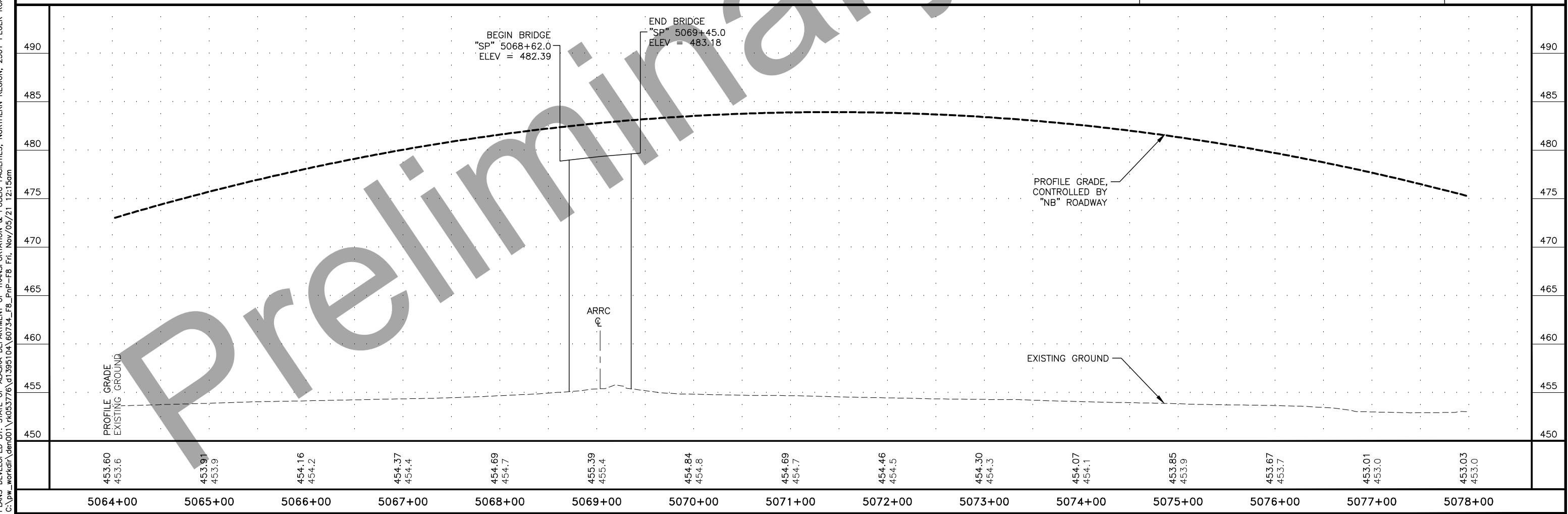
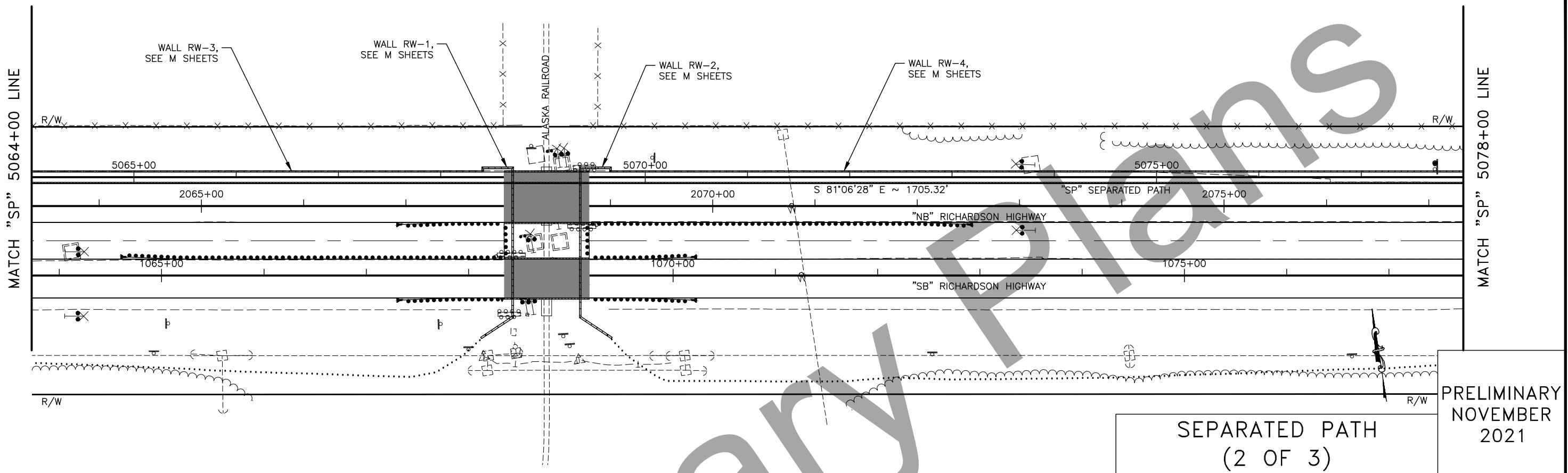
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
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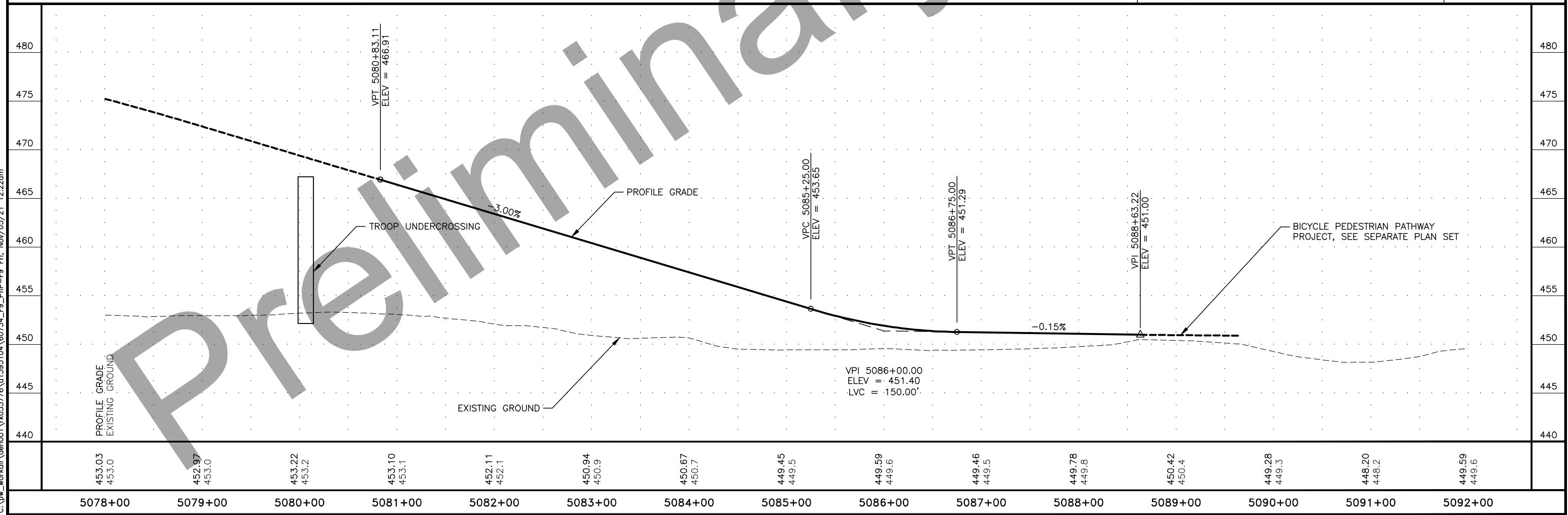
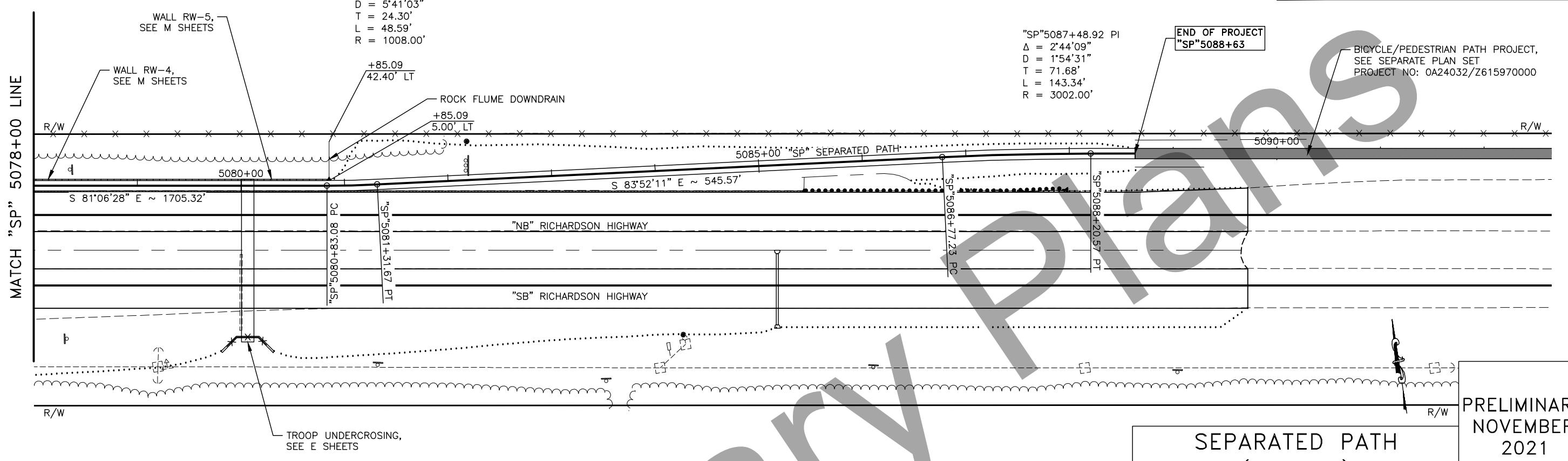


NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	F8	F9



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	F9	F9

C:\PWS\workdir\den001\1053776\d1395104\605734_F9_Pmp-FB Fri, Nov 05/21 12:22am
C:\PWS\workdir\den001\1053776\d1395104\605734_F9_Pmp-FB Fri, Nov 05/21 12:22am
TRANSPLANT UNION & PUBLIC FACILITIES, NORTHERN REGION, 2501 PEGER ROAD, FAIRBANKS, AK 99709 (90)451-2200



SIGNING SUMMARY														
LOC. NO.	STATION	LOCATION		ASDS CODE	LEGEND	SIZE H X V (INCHES)	BRACING/ FRAMING		MTG. HGT. (FT.)	DIR.	POST			REMARKS
		LT.	RT.				BRACED	FRAMED			AREA (SQ.FT.)	TYPE	SIZE (INCHES)	
1	"SB" 1055+03	X	R4-3		SLOWER TRAFFIC KEEP RIGHT	36 X 48			12.00		W	PST	2.5	1
2	"SB" 1056+26	X	D8-1		WEIGH STATION 1 MILE	78 X 60		X	32.50		W	TS	3.0	2 SEE NOTE 15
3	"SB" 1057+66	X	I-171		SCENIC BYWAY	36 X 48	X		12.00		W	PST	2.5	1
4	"NB" 2056+26	X	D2-1		FAIRBANKS 3	76 X 24		X	12.67		E	TS	3.0	2
5	"SB" 1062+88	X	M3-3 M1-5		SOUTH HIGHWAY 2	36 X 18 36 X 36	X		4.50 9.00		W	PST	2.5	2
6	"SB" 1065+07	X	W11-21		LARGE ANIMAL CROSSING - MOOSE	36 X 36	X		9.00		W	PST	2.5	1
7	"SB" 1078+05	X	D10-103 D14-100		MILE 359 ADOPT A HIGHWAY SPONSOR PLAQUE	12 X 48 30 X 24 30 X 12			4.00 5.00 2.50		W	PST	2.5	1
8	"NB" 2086+94	X	E2-12		OLD RICHARDSON HWY CUSHMAN BUSINESS AREA NEXT LEFT	342 X 90		X	213.75		E		W6X12	3 SEE NOTE 15. INSTALL SIGN POST PER STANDARD DRAWING S-32.00
TOTAL SIGN AREA = 317.00														

SIGN SALVAGE SUMMARY														
STATION	LOCATION		ASDS CODE	LEGEND	615.0002.0000 REMOVE AND RELOCATE SIGN (EA)		615.0006.0000 SALVAGE SIGN (EA)							
	LT.	RT.												
"SB" 1053+71	X			SIGN POST, NO SIGN										1
"SB" 1056+15	X		CUSTOM	MILITARY WARNING SIGNS										
"SB" 1059+07	X		R16-115	BUSES & HAZMAT VEHICLES USE RIGHT LANE										1
"SB" 1060+61	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1061+15	X			SIGN POST, NO SIGN										1
"SB" 1064+92	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1067+73	X		W10-100	BICYCLES USE CAUTION										1
"SB" 1068+00	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1068+99	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1069+80	X		W10-100	BICYCLES USE CAUTION										1
"SB" 1072+54	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1076+64	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1077+45	X			SIGN POST, NO SIGN										1
"SB" 1077+45	X		R16-115	BUSES & HAZMAT VEHICLES USE RIGHT LANE										1
"SB" 1078+08	X		D10-103 D14-100	MILE 359 ADOPT A HIGHWAY SPONSOR PLAQUE										1 1 1
"SB" 1081+05	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1081+90	X		SPECIAL	OLD RICHARDSON HWY CUSHMAN BUSINESS AREA NEXT LEFT										1
"SB" 1081+91	X			SIGN POST, NO SIGN										1
"SB" 1083+25	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1085+83	X		CUSTOM	MILITARY WARNING SIGNS		1								
"SB" 1088+76	X		CUSTOM	MILITARY WARNING SIGNS		1								
				PAY ITEM TOTALS		11								12

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	H1	H7

SIGNING NOTES:

1. REMOVE AND DISPOSE OF ALL EXISTING SIGNS AND SIGN FOUNDATIONS WITHIN THE PROJECT LIMITS, EXCEPT THOSE DESIGNATED FOR REINSTALLATION, SALVAGE, OR OTHERWISE NOTED.
2. MOUNTING HEIGHTS ARE PER STANDARD PLAN S-05.02 UNLESS OTHERWISE NOTED.
3. DETERMINE POST LENGTHS IN THE FIELD. DO NOT EXTEND POSTS ABOVE TOP OF SIGN.
4. INSTALL PST SIGN POSTS WITH SLEEVE TYPE CONCRETE FOUNDATIONS PER STANDARD PLAN S-30.05. ATTACH THE SIGN POST TO THE SLEEVE USING GALVANIZED $\frac{3}{8}$ " BOLT, NUT, SPLIT LOCK WASHERS AND TWO FLAT WASHERS.
5. INSTALL "TUBE POST SIGN BRACING" AS SHOWN ON STANDARD PLAN S-01.02 ON ALL SIGNS MOUNTED ON A SINGLE PST POST AND HAVING A HORIZONTAL DIMENSION OF 30 INCHES OR GREATER, EXCEPT D3-100 SERIES SIGNS. INSTEAD OF THE $\frac{3}{8}$ " GALVANIZED BOLTS AND NYLON LOCKING NUTS SHOWN ON STANDARD PLAN S-01.02, USE GALVANIZED $\frac{3}{8}$ " BOLT, SPLIT LOCK WASHERS AND NUTS. STAINLESS STEEL FASTENER HARDWARE MAY BE USED INSTEAD OF GALVANIZED $\frac{3}{8}$ " X 1 $\frac{1}{2}$ " ALUMINUM ALLOY 6061-T6 BAR MAY ALSO BE USED TO FABRICATE SIGN BRACES.
6. ATTACH ALL SIGNS TO THEIR SUPPORTS WITH $\frac{3}{8}$ " BOLTS, EXCEPT ATTACH UNFRAMED SIGNS TO PST POSTS WITH ALUMINUM DRIVE RIVETS. WIND WASHERS ARE NOT REQUIRED WITH DRIVE RIVETS. INCLUDE SPLIT LOCK WASHERS WHEN BOLTS ARE USED.
7. ALL FASTENER HARDWARE SHALL MEET THE REQUIREMENTS OF THE "FASTENER SPECIFICATION TABLE" ON SHEET H3.
8. SIGNS TO BE INSTALLED ON LIGHT POLES MAY REQUIRE TEMPORARY INSTALLATION ON 2-1/2 INCH PST UNTIL THE LIGHT POLES ARE IN PLACE. THIS WORK IS SUBSIDIARY TO PAY ITEM 615.0001.0000.
9. MAINTAIN EXISTING SIGNS UNTIL NEW SIGNS ARE INSTALLED. DO NOT LEAVE DUPLICATE OR CONFLICTING SIGNING UP AT ANY TIME.
10. ALL LETTERING THAT INCLUDES UPPER AND LOWER CASE LETTERS SHALL BE SERIES E-MODIFIED AS NOTED IN APPENDIX C OF THE ASDS, EXCEPT FOR D3-1 AND D3-100 SIGNS WHICH ARE SERIES 2000 LETTERS.
11. LOCATE AND PROTECT ALL NEW AND EXISTING UNDERGROUND UTILITIES, INCLUDING BUT NOT LIMITED TO: PIPELINES, INTERCONNECT CABLES, SIGNAL SYSTEMS, LIGHTING SYSTEMS, STORM AND SANITARY SEWERS, WATER SYSTEMS, AND TELEPHONE AND ELECTRICAL CABLES, PRIOR TO INSTALLING SIGN POSTS. NOT ALL EXISTING UTILITIES MAY BE SHOWN ON THE PLANS.
12. DELIVER ALL SALVAGED SIGNS TO THE FAIRBANKS MAINTENANCE YARD LOCATED AT 2301 PEGER ROAD.
13. CLEARING MAY BE REQUIRED TO ENSURE ADEQUATE VISIBILITY OF SIGNS, THIS WORK IS SUBSIDIARY TO PAY ITEM 615.0001.0000.
14. INSTALL WEATHER TIGHT CAPS ON ALL PIPE AND TUBE POSTS, EXCEPT PERFORATED STEEL TUBE.
15. INSTALL FRANGIBLE COUPLING BASES IN ACCORDANCE WITH STANDARD PLAN S-31.02.
16. HINGED JOINTS WITH FRANGIBLE FUSE PLATES ARE REQUIRED ON ALL MULTIPLE POST SIGNS WITH FRANGIBLE COUPLING SYSTEMS. THE HINGE LOCATION ON ALL POSTS SHALL BE THE SAME DISTANCE BELOW THE SIGN, INSTEAD OF THE 6" MINIMUM SHOWN ON STANDARD PLAN S-31.02. MANUFACTURERS TYPICALLY SPECIFY THE HINGE LOCATION TO BE 3 $\frac{1}{4}$ " BELOW THE BOTTOM OF THE SIGN.
17. THE 4" MOUNTING AREA ON MILEPOST SIGNS (D10-100 SERIES) SHALL BE BARE ALUMINUM. THIS ELIMINATES THE OPTION OF INSTALLING GREEN REFLECTIVE SHEETING IN THIS AREA AS NOTED IN THE ASDS.
18. CONTRACTOR RESPONSIBLE FOR REPLACING SIGNS BROKEN/DAMAGED DURING CONSTRUCTION ACTIVITIES.
19. DO NOT DISTURB SIGN DURING CONSTRUCTION. IF DISTURBANCE OF SIGN IS UNAVOIDABLE SALVAGE AND REINSTALL WITH SLEEVE TYPE CONCRETE FOUNDATION.
20. INSTALL WEATHER TIGHT CAPS ON ALL PIPE AND TUBE POST (EXCEPT PERFORATED TUBING).
21. INSTALL SIGNS WITH TOP OF POST, MOUNTING BRACKETS, ETC. WITH A MINIMUM OF 3" BELOW TOP OF SIGN.

POST TYPE LEGEND:

PST = PERFORATED STEEL TUBE
TS = TUBE STEEL (SQUARE STRUCTURAL STEEL TUBING)
W_X_ = WIDE FLANGE

PRELIMINARY
NOVEMBER
2021

SIGN SUMMARY

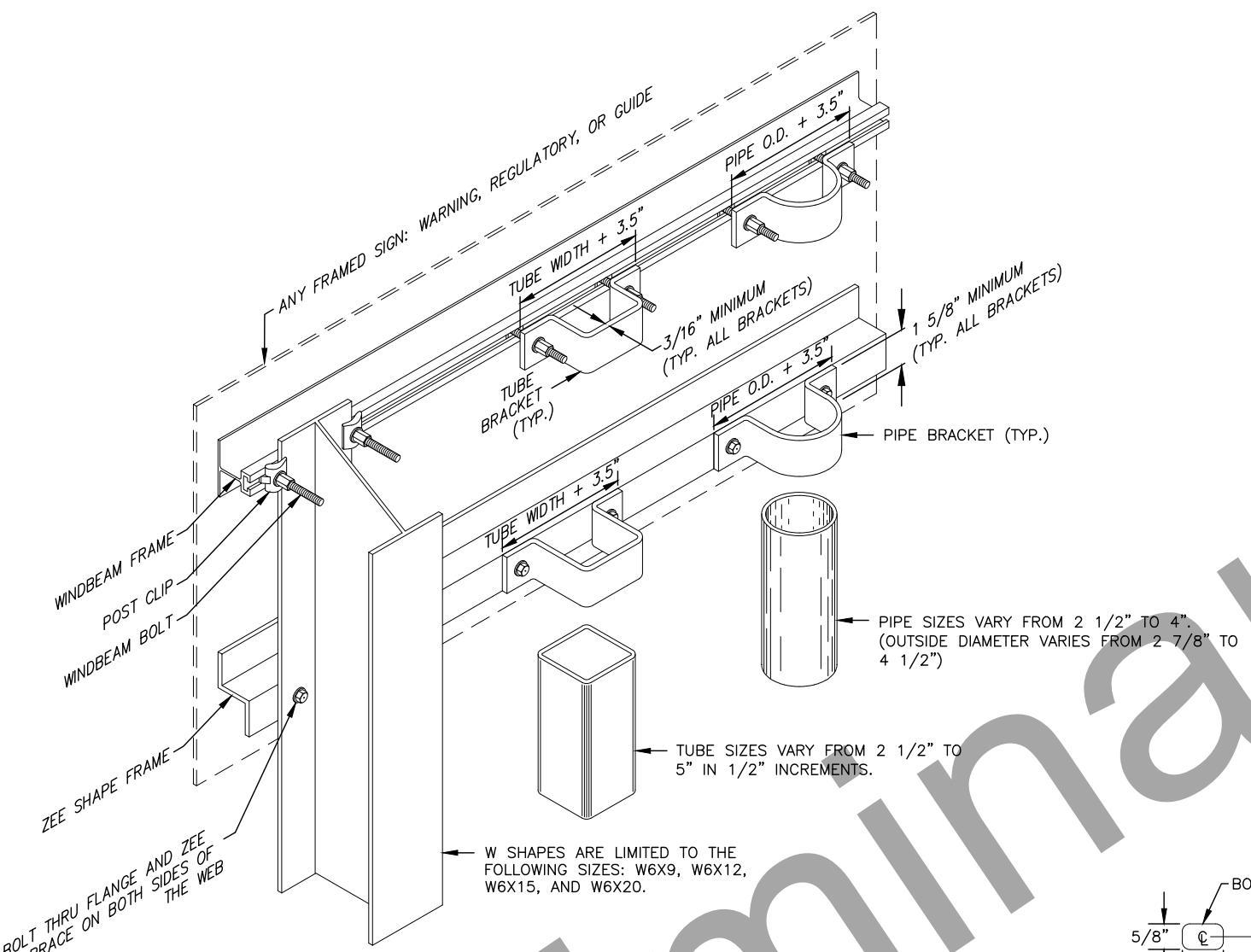
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	H2	H7



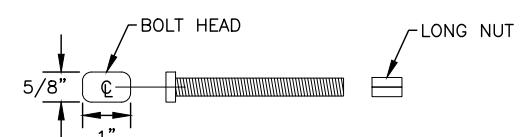
SIGN DETAIL LOCATIONS
NO. 4 & 8

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	H3	H7



FRAMED SIGN ATTACHMENT BRACKETS



3/8" WINDBEAM BOLT AND LONG NUT

NOTES:

- ATTACH FRAMED SIGNS TO POSTS WHEREVER THE FRAMES CROSS THE POSTS. AT EACH CROSSING, ATTACH THE SIGN USING TWO POST CLIPS ON W-SHAPE POSTS, A U-SHAPED BRACKET ON PIPES OR A BRACKET WITH SQUARE CORNERS ON TUBES.
- THE TUBE BRACKETS USED ON EVEN INCH SIZE TUBES MAY ALSO BE USED ON TUBES 1/2" SMALLER IN SIZE.
- THE BRACKET DETAILS SHOWN INDICATE GENERAL DESIGNS ONLY. DESIGNS MAY VARY BY MANUFACTURER.
- ALUMINUM ALLOY 6061-T6 SHALL BE USED FOR ZEE SHAPE FRAMING AND RIVETS.

FASTENER SPECIFICATION TABLE		
FASTENERS	STEEL	STAINLESS STEEL
BOLTS	ASTM A 307	ASTM F 593
NUTS	ASTM A 563	ASTM F 594
WASHERS	ASTM F 844	ASTM A 580

THESE SPECIFICATIONS APPLY TO ALL SIGN FASTENER HARDWARE ON THE PROJECT.

PRELIMINARY
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2021

SIGN DETAILS

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	H4	H7

615.0005.0000 – DELINEATOR, FLEXIBLE

ALIGNMENT	START STATION	END STATION	OFFSET	QUANTITY (EA)	STYLE	REMARKS
"SB"	1055+00	1059+57	RT	5	STANDARD	TAPER
"SB"	1059+57	1067+30	RT	1	STANDARD	TANGENT
"SB"	1070+23	1089+44	RT	4	STANDARD	TANGENT
"NB"	2053+00	2059+55	LT	4	DOUBLE	CURVE
"NB"	2083+75	2087+98	LT	1	STANDARD	TANGENT
"NB"	2087+98	2089+05	LT	1	STANDARD	TAPER
	STANDARD	TOTAL		12	EACH	
	DOUBLE	TOTAL		4	EACH	
		GRAND TOTAL		16	EACH	

Preliminary Plans

DELINEATOR SUMMARY

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	H5	H7

NOTES:

- EXISTING SIGNS ARE SHOWN FOR REFERENCE. SEE SHEET H1 FOR REMOVAL REQUIREMENTS.
- TRANSITION STRIPING SHALL NOT EXCEED A MAX RATE OF 100:1 AND THE CONTRACTOR SHALL RECEIVE STRIPING LAYOUT APPROVAL FROM THE ENGINEER PRIOR TO STRIPING COMMENCING.
- FIELD FIT STRIPING TO MATCH EXISTING STRIPING CONDITIONS.

TRAFFIC MARKINGS SUMMARY

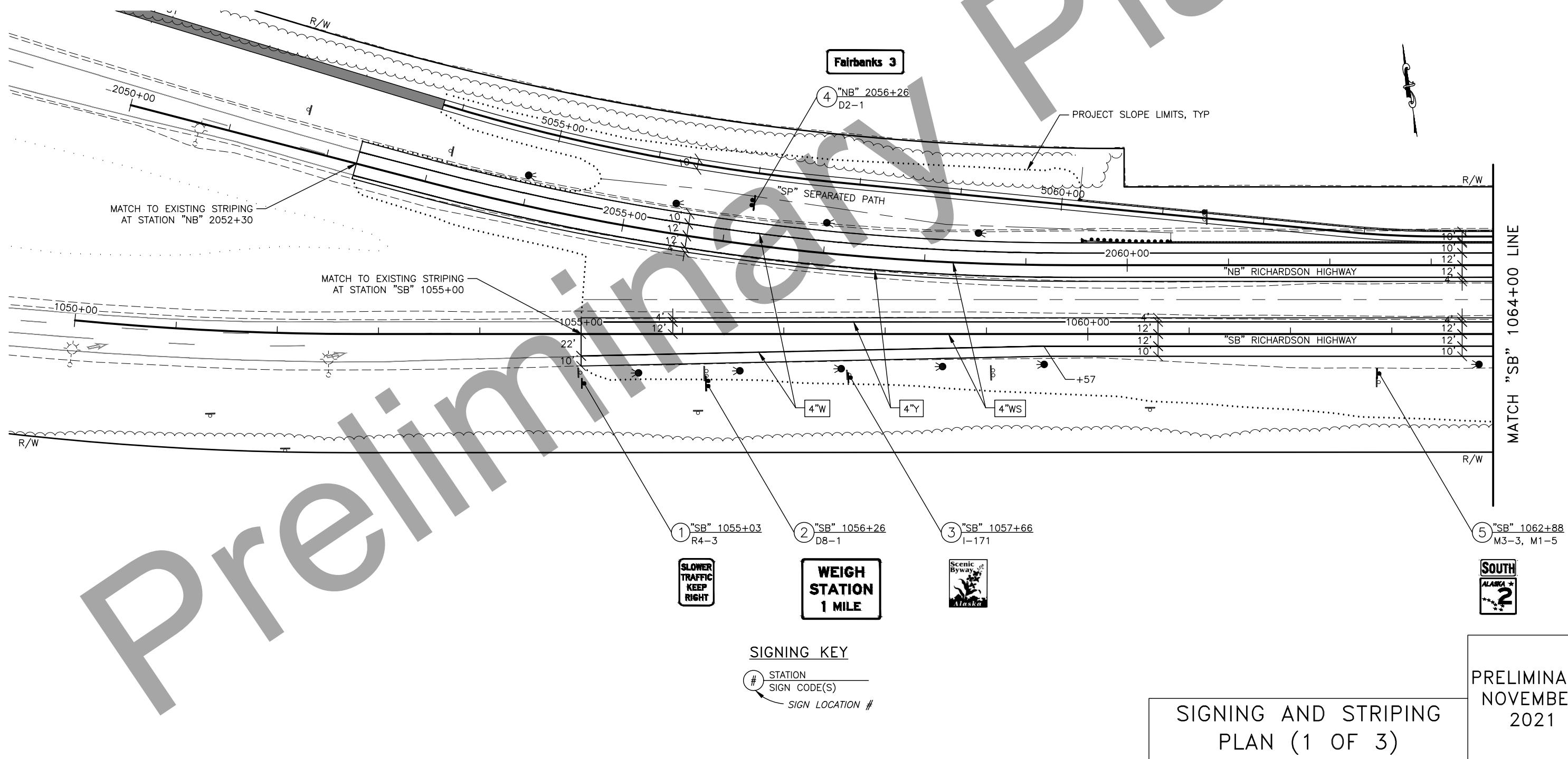
DESCRIPTION	QUANTITY	REMARKS
4" Y	7123	LF
4" W	7117	LF
4" WS	7120	LF
TOTAL	21360	INCLUDES GAP BETWEEN SKIPS

TRAFFIC MARKING KEY

4"W	4" WHITE LINE
4"WS	4" WHITE SKIP LINE (10' STRIPE/30' SKIP PATTERN)
4"Y	4" YELLOW LINE
STD	SEE STANDARD DRAWING

NOTE:

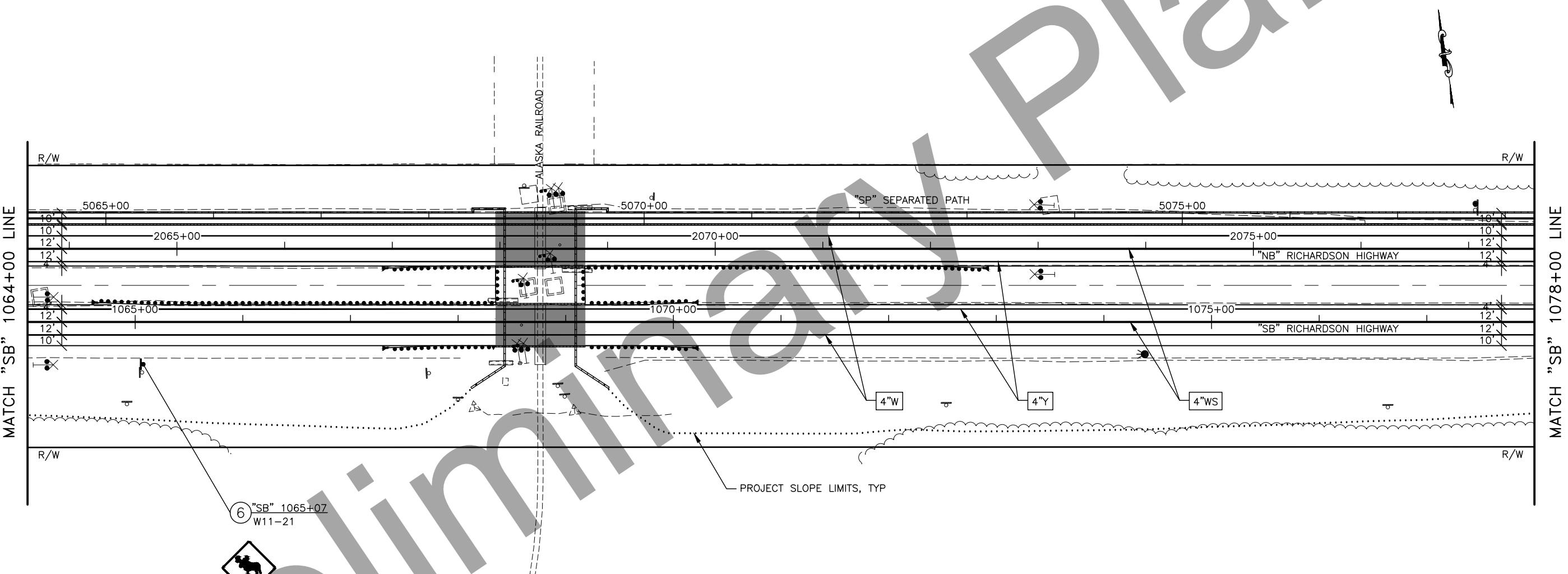
DIMENSIONS ARE TO CENTER OF STRIPE OR STRIPE GROUP.



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	H6	H7

NOTES:

1. EXISTING SIGNS ARE SHOWN FOR REFERENCE. SEE SHEET H1 FOR REMOVAL REQUIREMENTS.
2. TRANSITION STRIPING SHALL NOT EXCEED A MAX RATE OF 100:1 AND THE CONTRACTOR SHALL RECEIVE STRIPING LAYOUT APPROVAL FROM THE ENGINEER PRIOR TO STRIPING COMMENCING.
3. FIELD FIT STRIPING TO MATCH EXISTING STRIPING CONDITIONS.

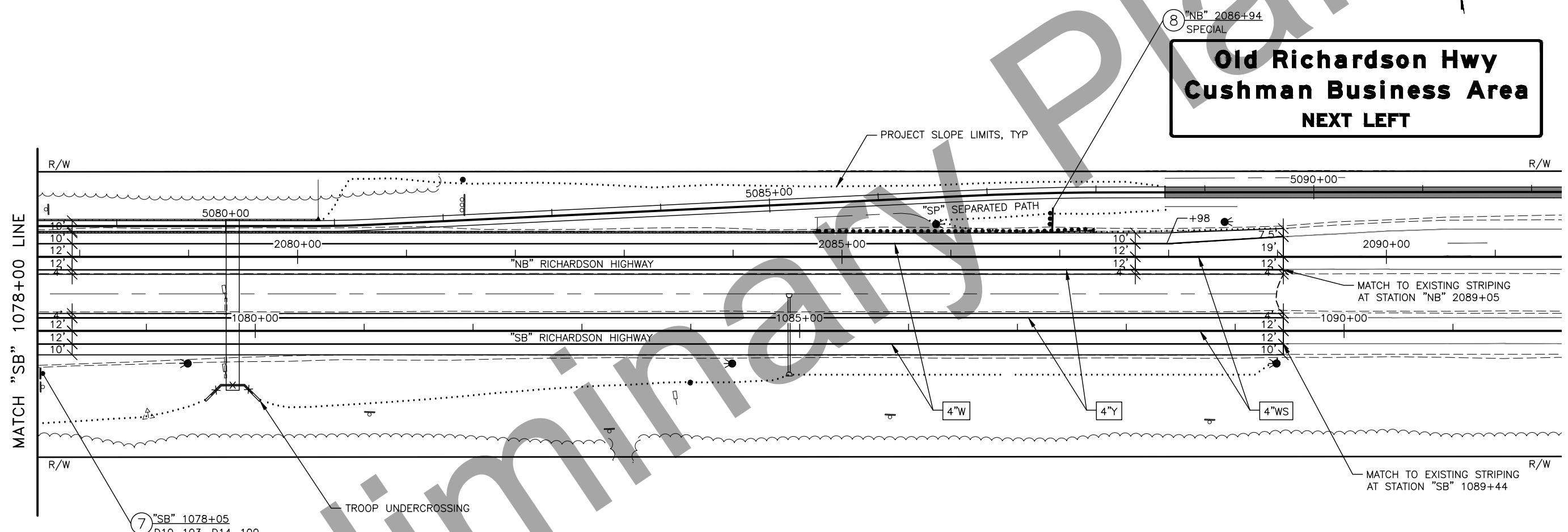


NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	OA24033/Z607340000	2021	H7	H7

NOTES:

1. EXISTING SIGNS ARE SHOWN FOR REFERENCE. SEE SHEET H1 FOR REMOVAL REQUIREMENTS.
 2. TRANSITION STRIPING SHALL NOT EXCEED A MAX RATE OF 100:1 AND THE CONTRACTOR SHALL RECEIVE STRIPING LAYOUT APPROVAL FROM THE ENGINEER PRIOR TO STRIPING COMMENCING.
 3. FIELD FIT STRIPING TO MATCH EXISTING STRIPING CONDITIONS.

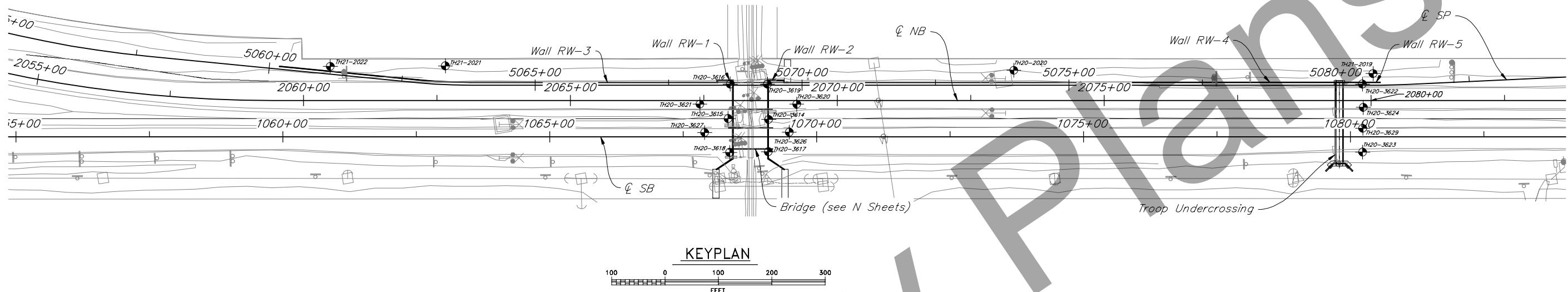
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
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SIGNING AND STRIPING PLAN (3 OF 3)

PRELIMINARY
NOVEMBER
2021

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M1	M10

ABBREVIATIONS

£	= Centerline	Lt.	= left
&	= and	max.	= maximum
@	= at	min.	= minimum
Ø	= diameter	MSE	= Mechanically Stabilized Earth
Abut.	= Abutment	No.	= number
Clr.	= Clear, Clearance	NPS	= nominal pipe size
const.	= construction	o.c.	= on center
CSK	= countersunk	O-O	= out to out
ctrs.	= centers	pcf	= pounds per cubic foot
dia.	= diameter	PE	= polyethylene
Dwg.	= drawing	PI	= Point of Intersection
Ea.	= each	psi	= pounds per square inch
Elev.	= Elevation	psf	= pounds per square foot
eq.	= equal	pt.	= point
exist.	= existing	Rt.	= right
FG	= Finish grade	ROW	= right of way
galv.	= galvanized	spa.	= space, spaces
Grd.	= girder	Sta.	= Station
ID	= Identification	Std.	= standard
Hwy.	= Highway	sf	= square foot
inv.	= invert elevation	temp.	= temperature
j-box	= junction box	TCE	= Temporary Construction Easement
jt.	= joint	TCP	= Temporary Construction Permits
k	= thousand pounds	TH#	= Test Hole Number
LF	= linear feet	Typ.	= typical
longit.	= longitudinal	VPI	= Vertical Point of Intersection

LEGEND

Retaining Wall (see Wall Sheets)

Bore Hole Location
(with Hole #)

DRAWING INDEX	
TITLE	DWG. NO.
WALL KEYPLAN	1
WALL RW-1 PLAN & ELEVATION	2
WALL RW-2 PLAN & ELEVATION	3
WALL RW-3 PLAN & ELEVATION 1	4
WALL RW-3 PLAN & ELEVATION 2	5
WALL RW-4 & 5 PLAN & ELEVATION 1	6
WALL RW-4 & 5 PLAN & ELEVATION 2	7
MSE WALL DETAILS	8
RW-1 & 2 WALL COPING & RAIL DETAILS	9
RW-3, 4 & 5 WALL COPING DETAILS	10

DESIGNED BY: GF CONNER	CHECKED: JK STITH
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: GF CONNER	CHECKED: JK STITH

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

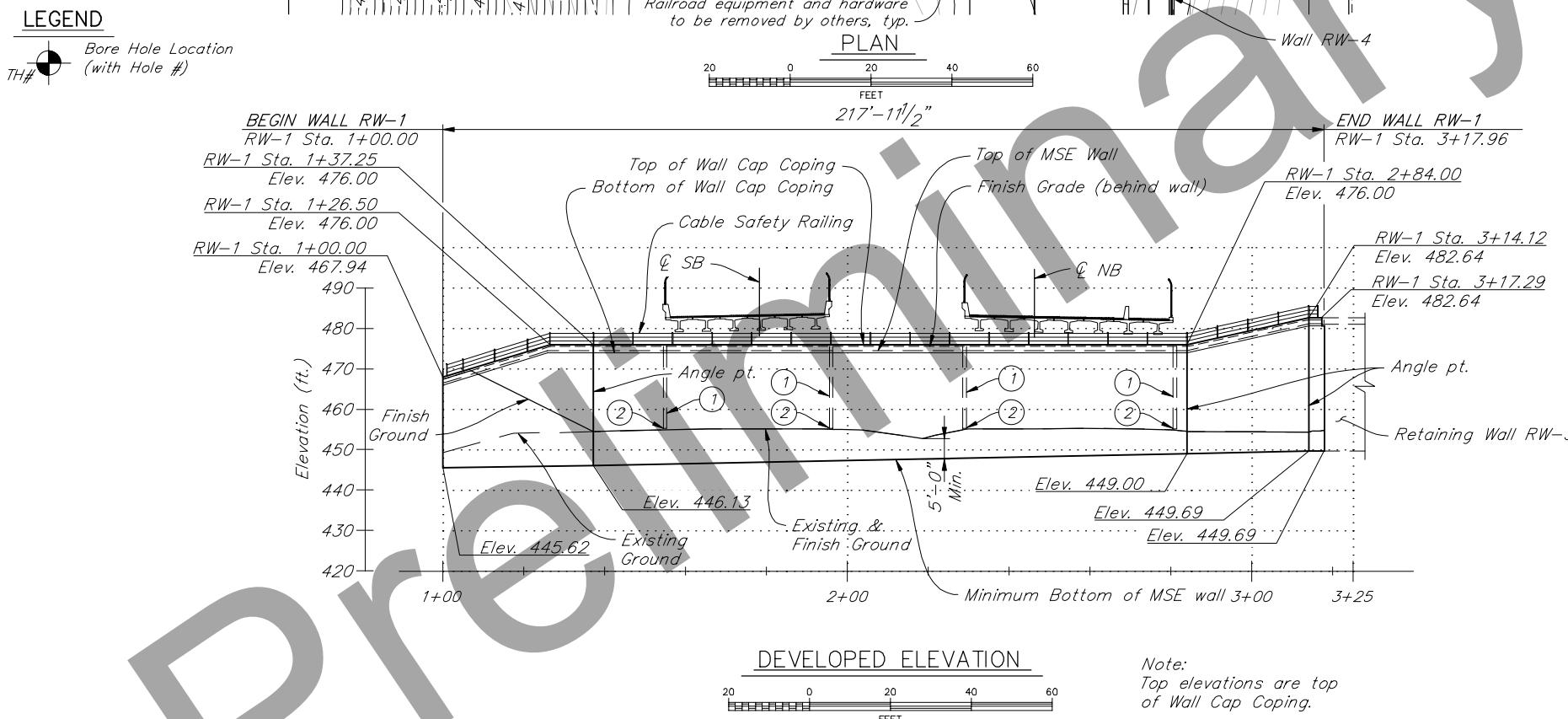
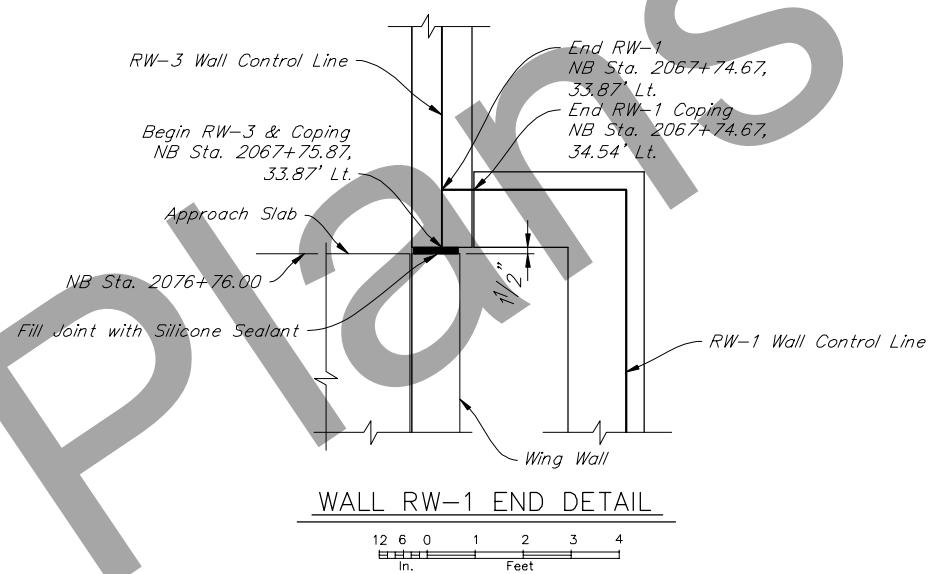
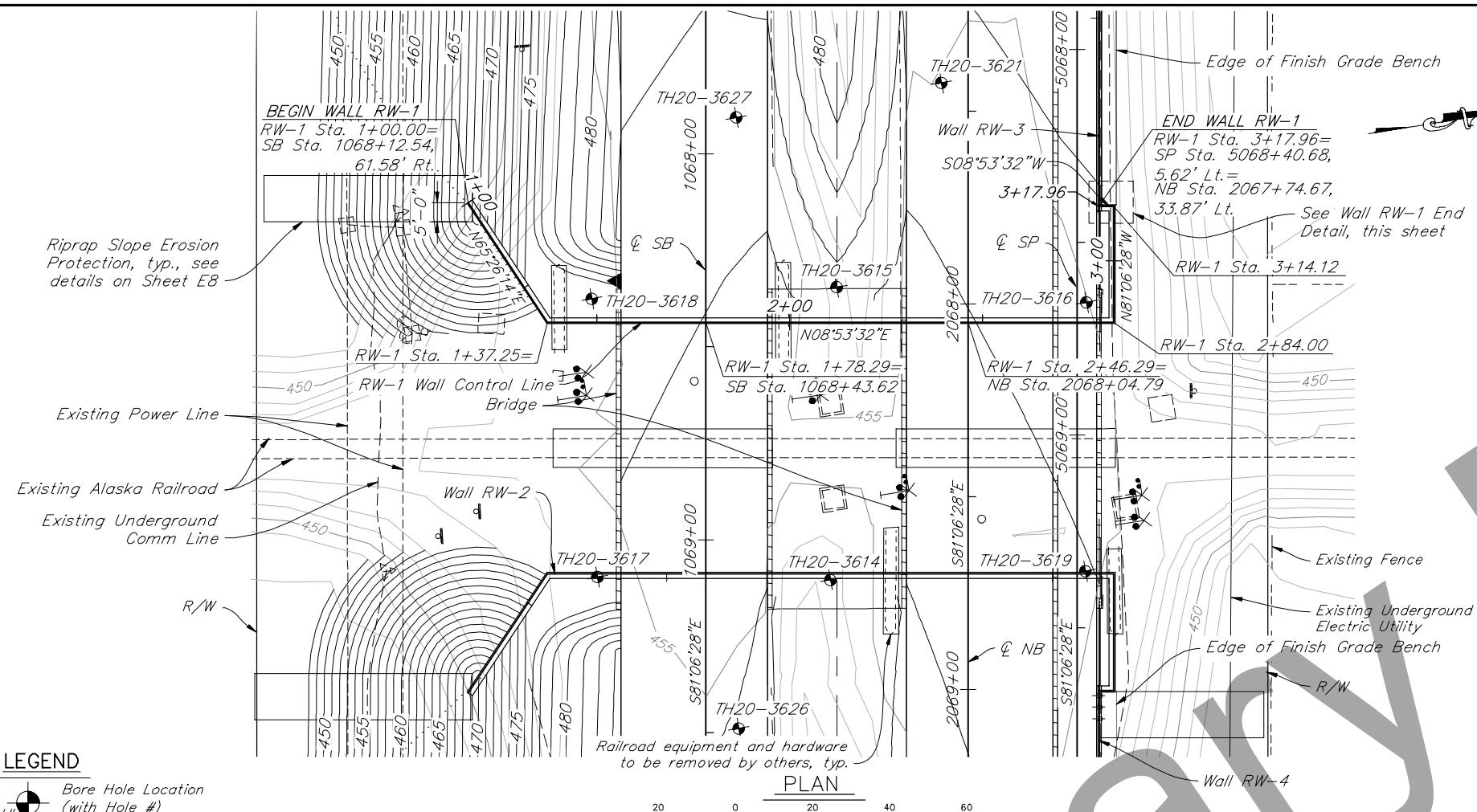
PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
WALL KEYPLAN



BRIDGE NO.
DWG. NO. 1

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M2	M10



Note:
Top elevations are top
of Wall Cap Coping.

Notes:
① 10" Corrugated polyethylene drain pipe with
grate at top. See Dwg. M9. Locate at:
RW-1 Station
1+55.00
1+96.00
2+29.00
2+81.00

② Provide elbow and extend pipe to face of wall at 3" above finish grade. Construct 2'-0"x2'-0"x9" deep Class 1 riprap splash pad centered under outlet.

RETAINING WALL RW-1 BASIS OF ESTIMATE

ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	QUANTITY
507.0006.0000	Cable Safety Railing	LF	LF	218
511.0001.0000	Mechanically Stabilized Earth Wall	SF	SF	5893
511.2001.0000	Wall Cap Coping	LF	LF	218

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item.

DESIGNED BY: <i>GF CONNER</i>	CHECKED: <i>JK STITH</i>
DRAWN BY: <i>DL MONK</i>	CHECKED: <i>JK STITH</i>
QUANTITIES BY: <i>GF CONNER</i>	CHECKED: <i>JK STITH</i>

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

*RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
WALL RW-1 PLAN & ELEVATION*



BRIDGE NO.

CERTIFICATE OF AUTHORIZATION NUMBER: AECC666

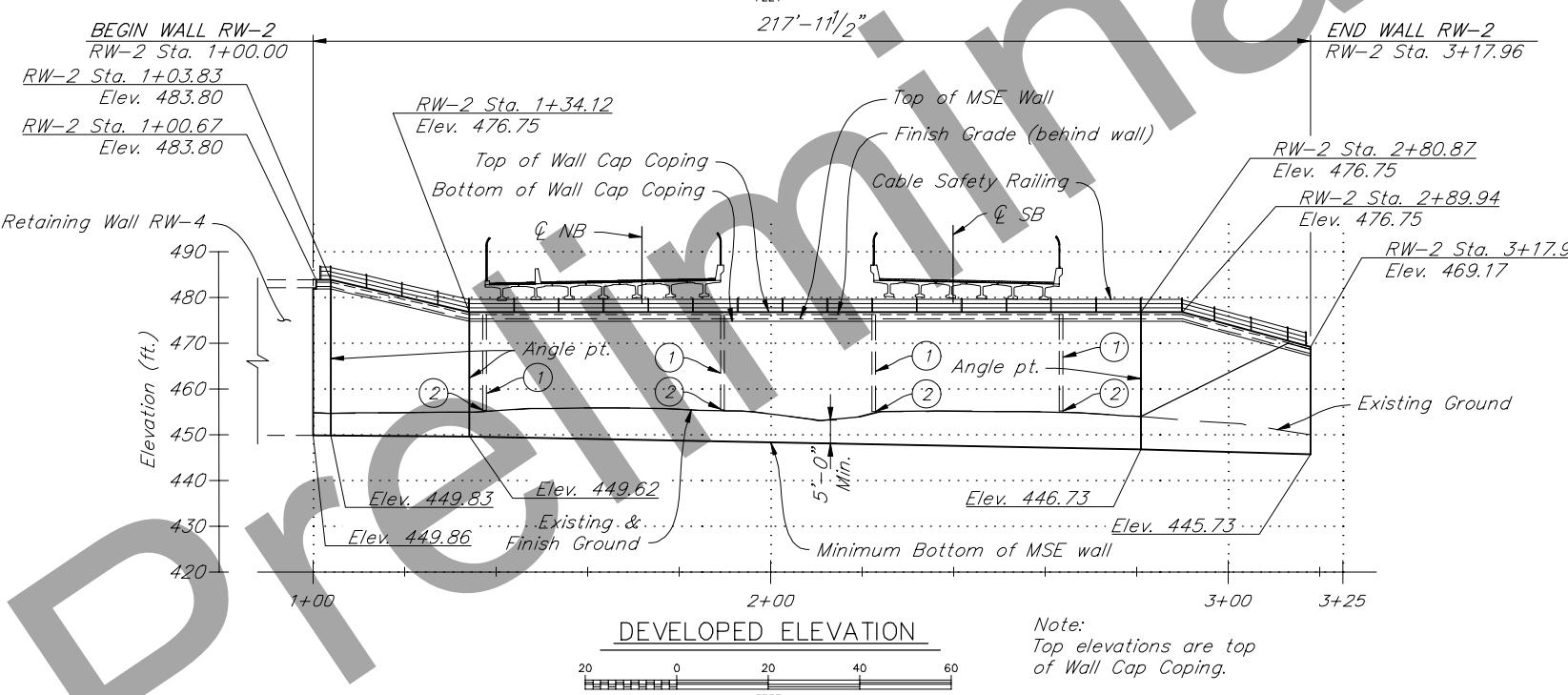
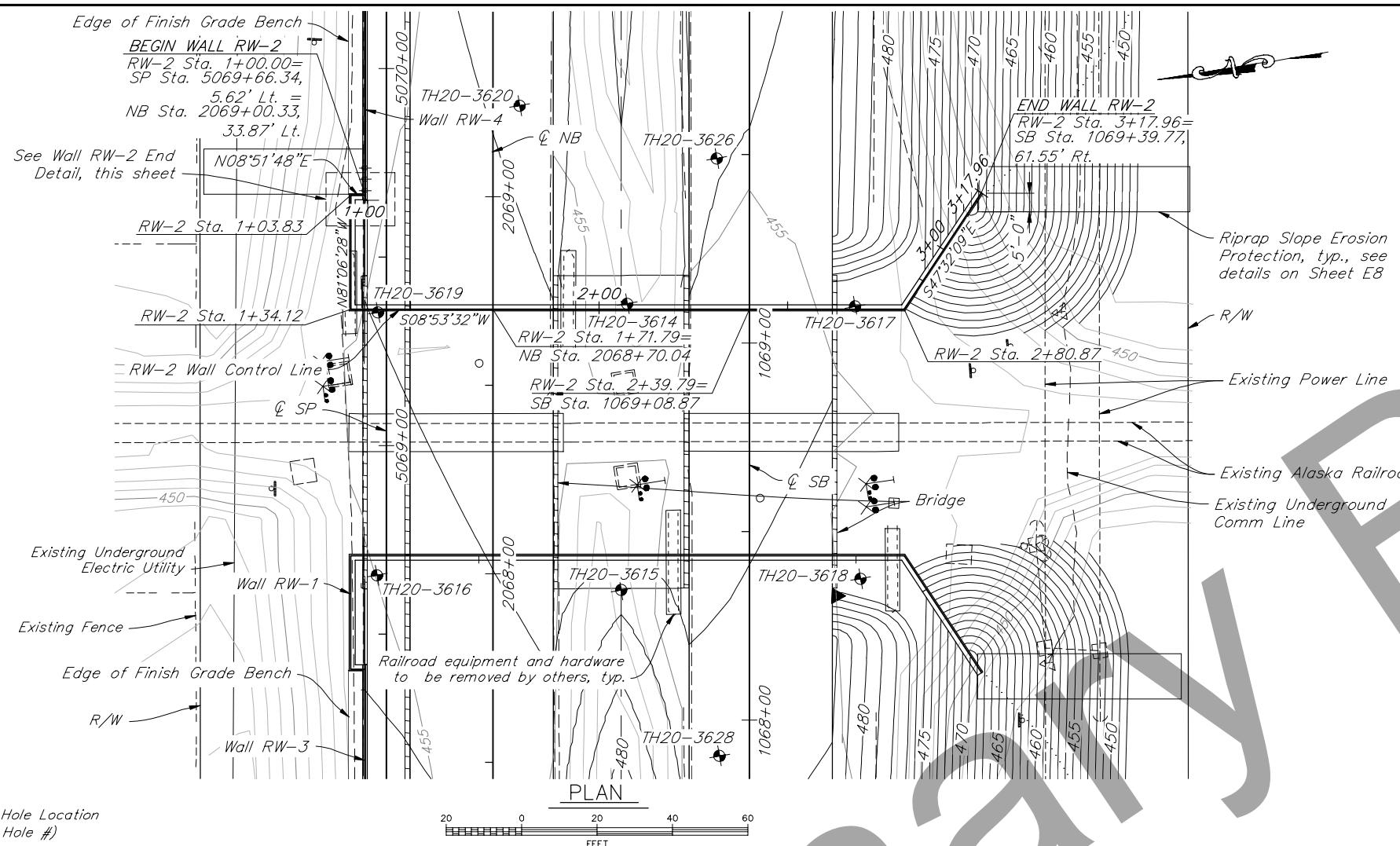
PHONE: (907) 762-1500

6 GROUP, INC ADDRESS: 949 E. 36TH AVENUE, SUITE 500, ANCHORAGE, AK 99508
05/20/2021 - 1:44pm

WING GROUP, INC

PLANS DEVELOPED BY: JACOB
BROWN 139410 60731 M3 dwg

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M3	M10



STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

RETAINING WALL RW-2 BASIS OF ESTIMATE

ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	QUANTITY
507.0006.0000	Cable Safety Railing	LF	LF	218
511.0001.0000	Mechanically Stabilized Earth Wall	SF	SF	5947
511.2001.0000	Wall Cap Coping	LF	LF	218

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item.

DESIGNED BY:
GF CONNER
DRAWN BY:
DL MONK
QUANTITIES BY:
GF CONNER

	CHECKED: JK STITH
	CHECKED: JK STITH
	CHECKED: JK STITH

*RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY*
*RICHARDSON HIGHWAY
WALL RW-2 PLAN & ELEVATION*



BRIDGE NO.

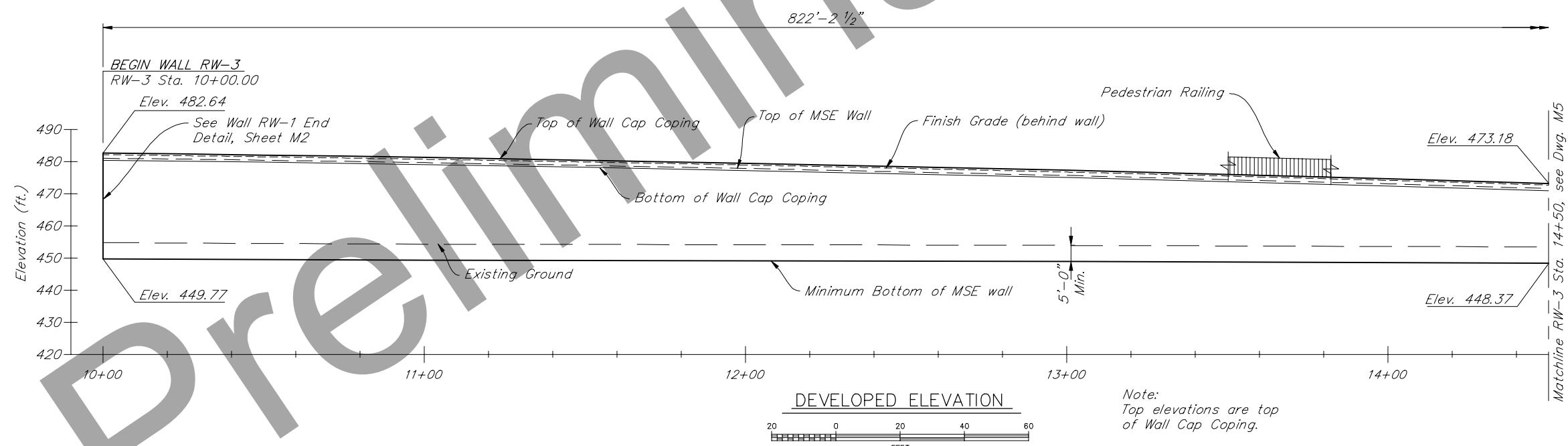
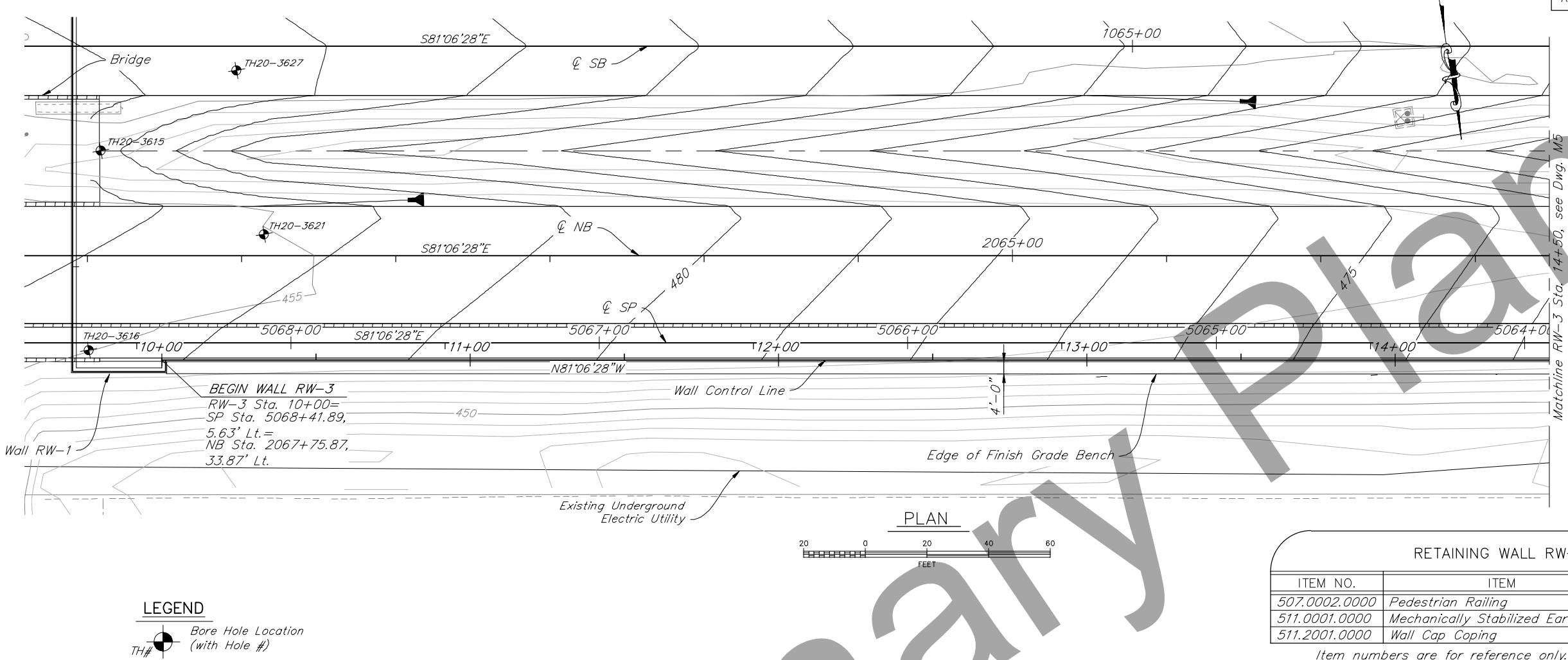
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M4	M10

CERTIFICATE OF AUTHORIZATION NUMBER: AECC666

PHONE: (907) 762-1500

ADDRESS: 949 E. 36TH AVENUE, SUITE 500, ANCHORAGE, AK 99508

Nov 05, 2021 - 2:13pm

PLANS DEVELOPED BY: JACOBS ENGINEERING GROUP, INC
PW_429410 60734_M4.dwg

DESIGNED BY: GF CONNER	CHECKED: JK STITH
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: GF CONNER	CHECKED: JK STITH

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

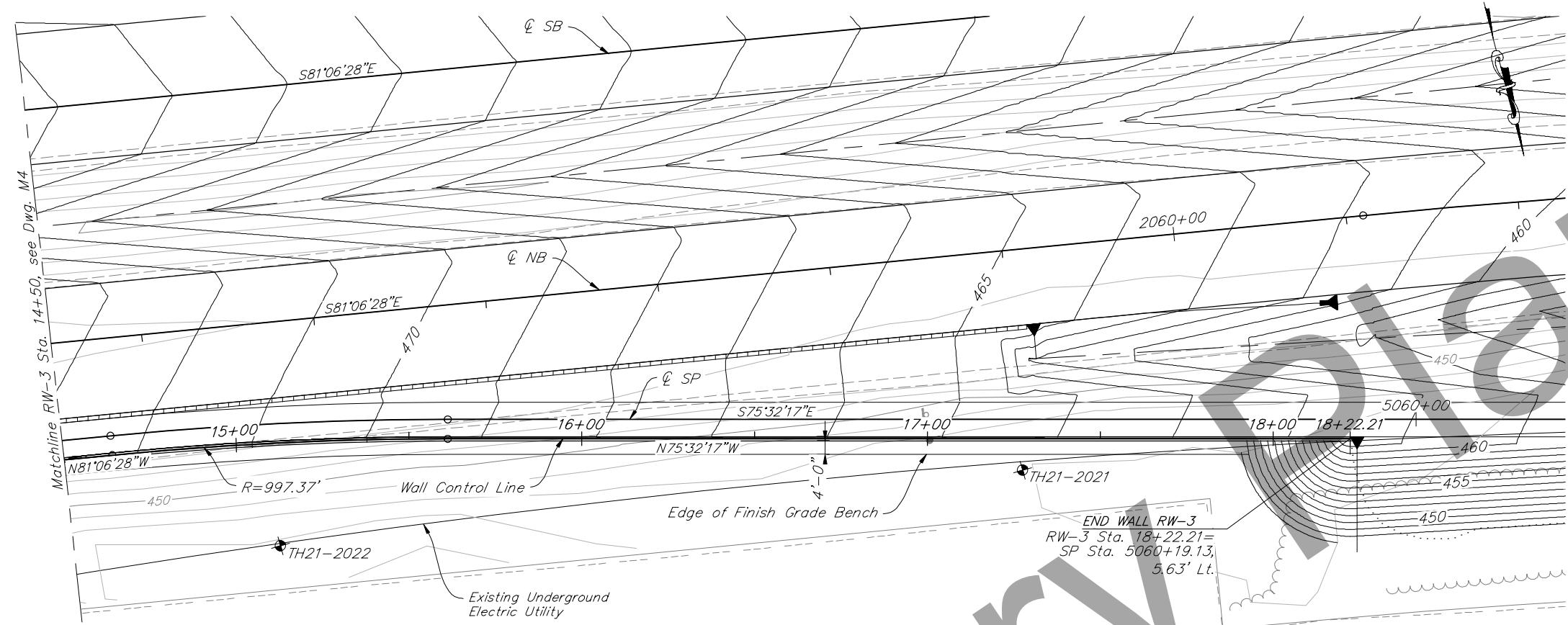
PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
WALL RW-3 PLAN & ELEVATION 1 OF 2

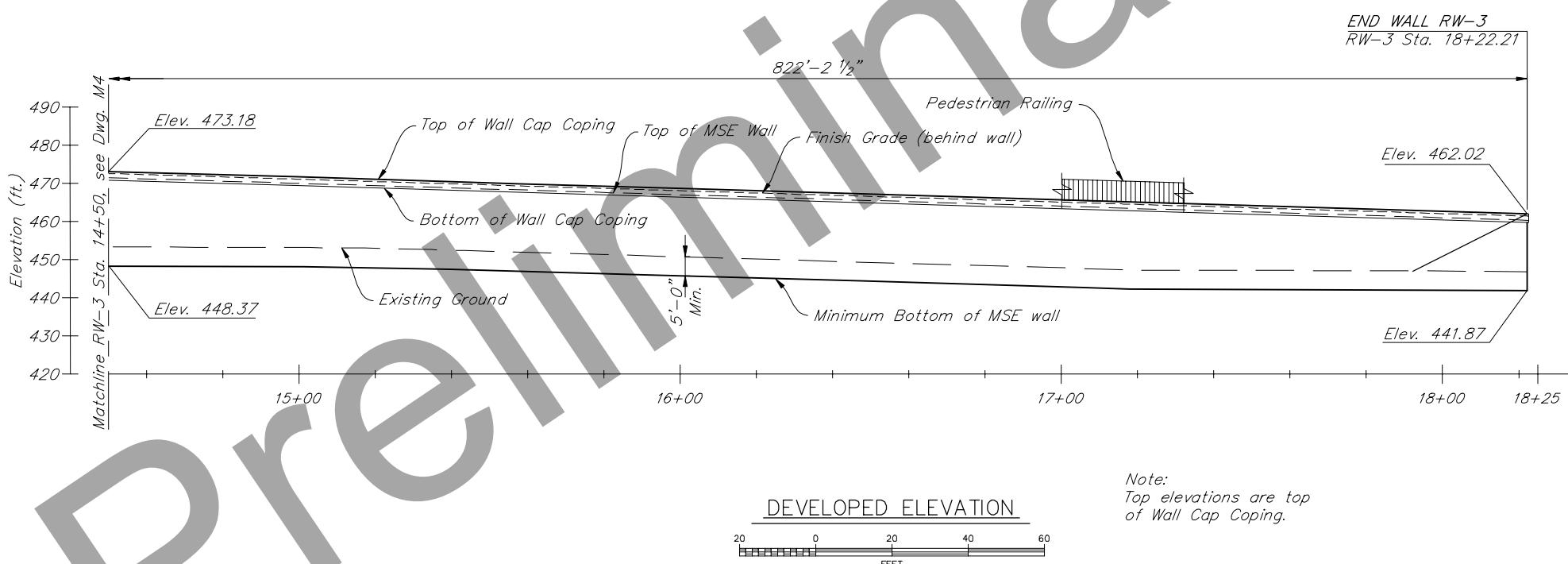


BRIDGE NO.
DWG. NO. 4

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M5	M10

**LEGEND**

Bore Hole Location (with Hole #)
TH#



DESIGNED BY: GF CONNER	CHECKED: JK STITH
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: GF CONNER	CHECKED: JK STITH

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
WALL RW-3 PLAN & ELEVATION 2 OF 2



BRIDGE NO.
DWG. NO. 5

CERTIFICATE OF AUTHORIZATION NUMBER: AECC6666

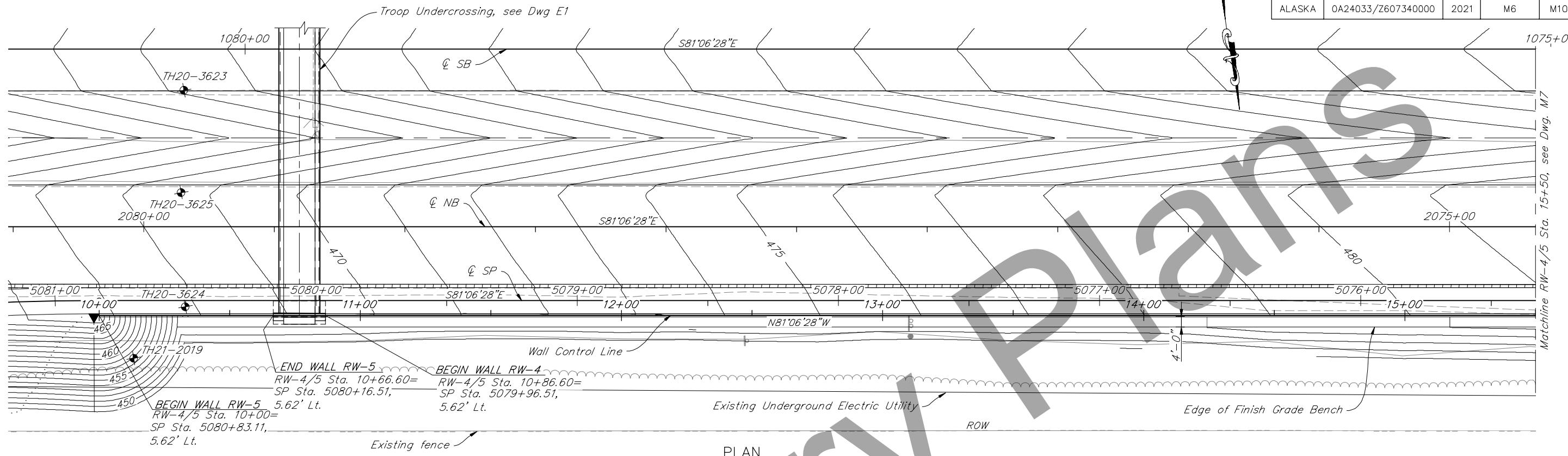
PHONE: (907) 762-1500

ORAGE, AK 99508

ADD

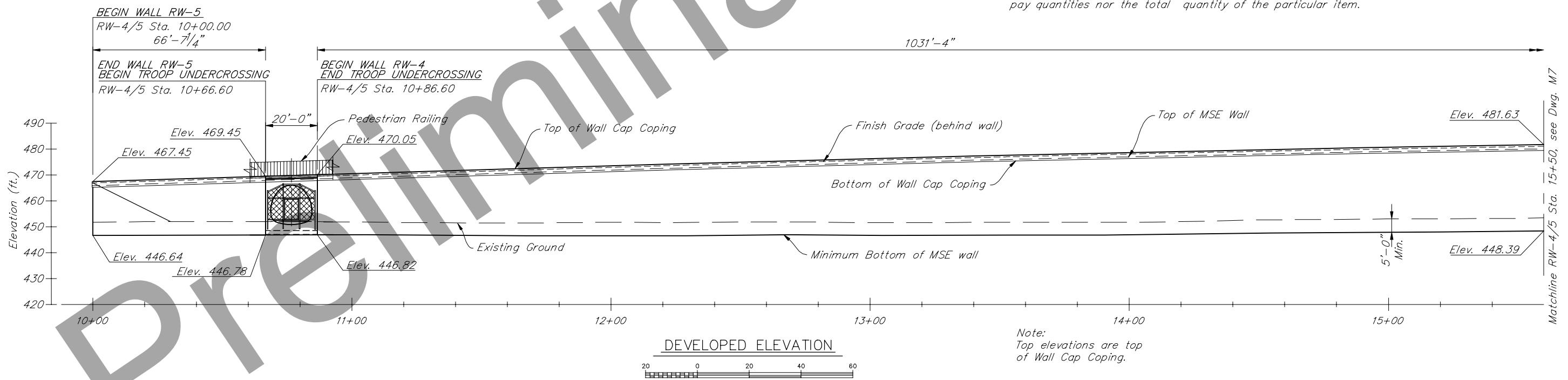
PLANS DEVELOPED BY: JACOB

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M6	M10



LEGEND

 Bore Hole Location
(with Hole #)



RETAINING WALL RW-5 BASIS OF ESTIMATE				
ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	QUANTITY
507.0002.0000	<i>Pedestrian Railing</i>	LF	LF	67
511.0001.0000	<i>Mechanically Stabilized Earth Wall</i>	SF	SF	1335
511.2001.0000	<i>Wall Cap Coping</i>	LF	LF	67

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item.

BY: ER	CHECKED: JK STITH			FEET		RICHARDSON HIGHWAY MP359 RAILROAD GRADE SEPARATED FACILITY RICHARDSON HIGHWAY WALL RW-4/5 PLAN & ELEVATION 1 OF 2	
ES BY: ER	CHECKED: JK STITH		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES BRIDGE SECTION	PRELIMINARY NOVEMBER 2021			BRIDGE NO. DWG. NO. 6

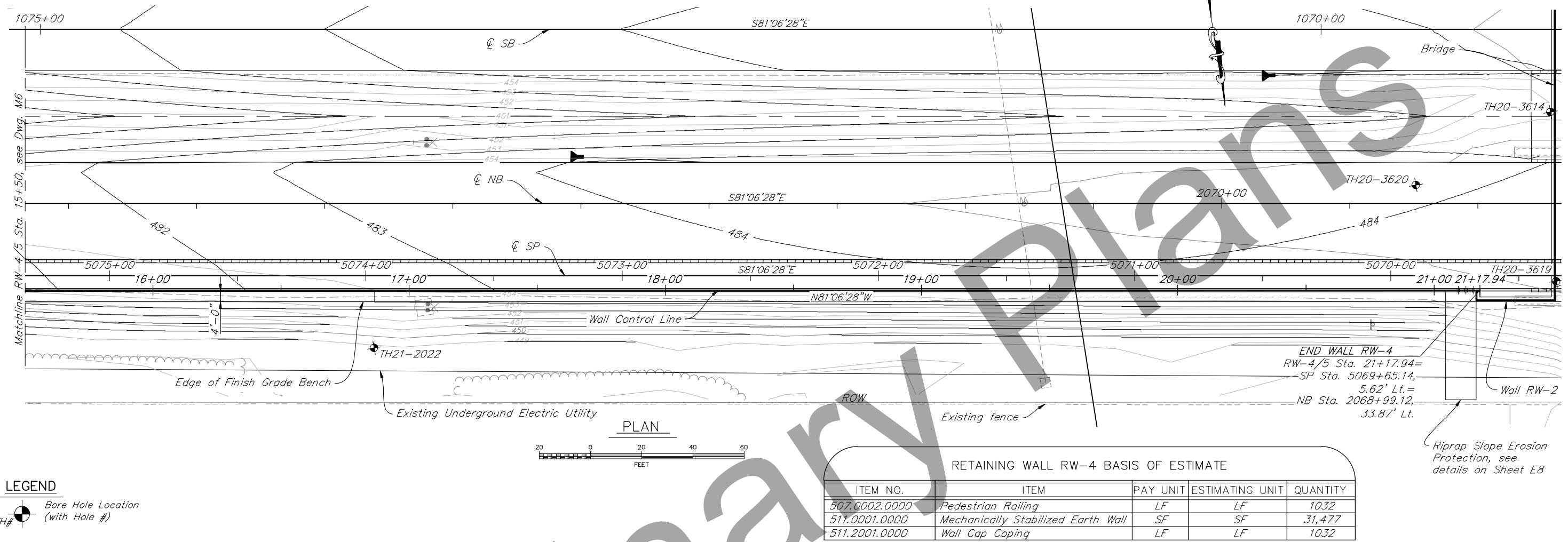
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M7	M10

CERTIFICATE OF AUTHORIZATION NUMBER: AECC666

PHONE: (907) 762-1500

ADDRESS: 949 E. 36TH AVENUE, SUITE 500, ANCHORAGE, AK 99508

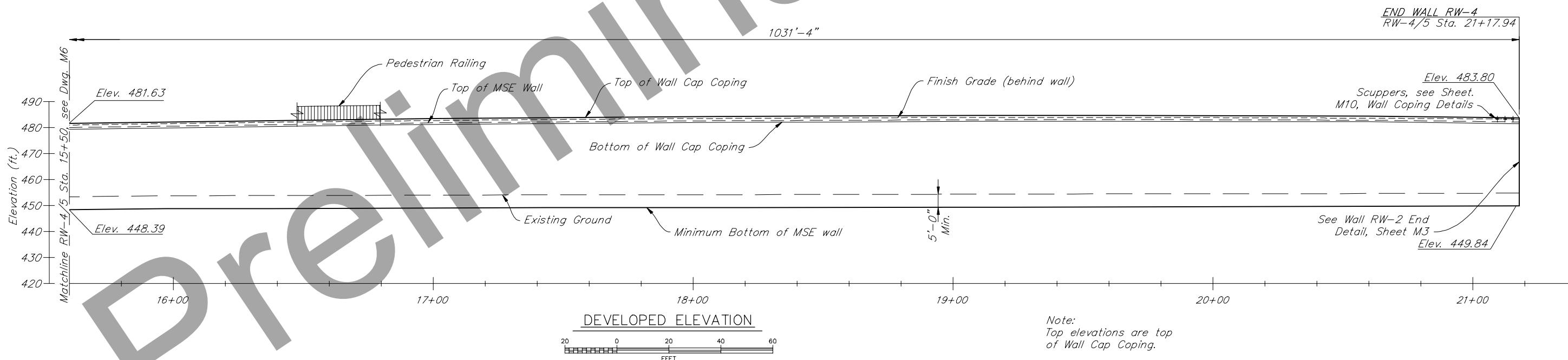
Nov 05, 2021 - 2:22pm

PLANS DEVELOPED BY: JACOBS ENGINEERING GROUP, INC
PW_429410 60734_M7.dwg

RETAINING WALL RW-4 BASIS OF ESTIMATE

ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	QUANTITY
507.0002.0000	Pedestrian Railing	LF	LF	10.32
511.0001.0000	Mechanically Stabilized Earth Wall	SF	SF	31,477
511.2001.0000	Wall Cap Coping	LF	LF	10.32

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item.

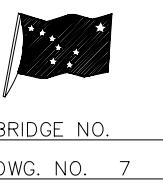


DESIGNED BY: GF CONNER	CHECKED: JK STITH
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: GF CONNER	CHECKED: JK STITH

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
WALL RW-4/5 PLAN & ELEVATION 2 OF 2



GENERAL NOTES:

All Material and Workmanship Shall Conform to the 2020 Standard Specifications for Highway Construction of the Alaska Department of Transportation and Public Facilities and Supplemental Project Special Provisions.

Design Shall Conform to the Requirements for Load and Resistance Factor Design of the 2020 AASHTO LRFD Bridge Design Specifications.

Peak Ground Acceleration Modified for Site Class Equal to 0.35g (1,000 Year Return Period.) Design Horizontal Ground Acceleration Equal to 0.17g (~½ of PGA) for Seismic Lateral Earth Loads.

Provide a Minimum Service Life of 75 Years for All Components.

Retaining Wall Designed for the Following Soil Property Values:

	Density, γ pcf	Angle of Internal Friction 36°	c psf	Ka
MSE Structure Backfill	135	36°	0	0.26
Foundation Material	125	35°	0	N/A

Retained Material 125 34° 0 0.28

Load Factors:

Apply Load Factors per AASHTO LRFD Specifications.

Resistance factors:

Sliding 1.0

Limiting Eccentricity Location of Resultant of Reaction Forces as per Section 11.6.3.3 of 2012 AASHTO LRFD Specifications.

Bearing Capacity 0.65

Estimated Differential Settlement = 1/100

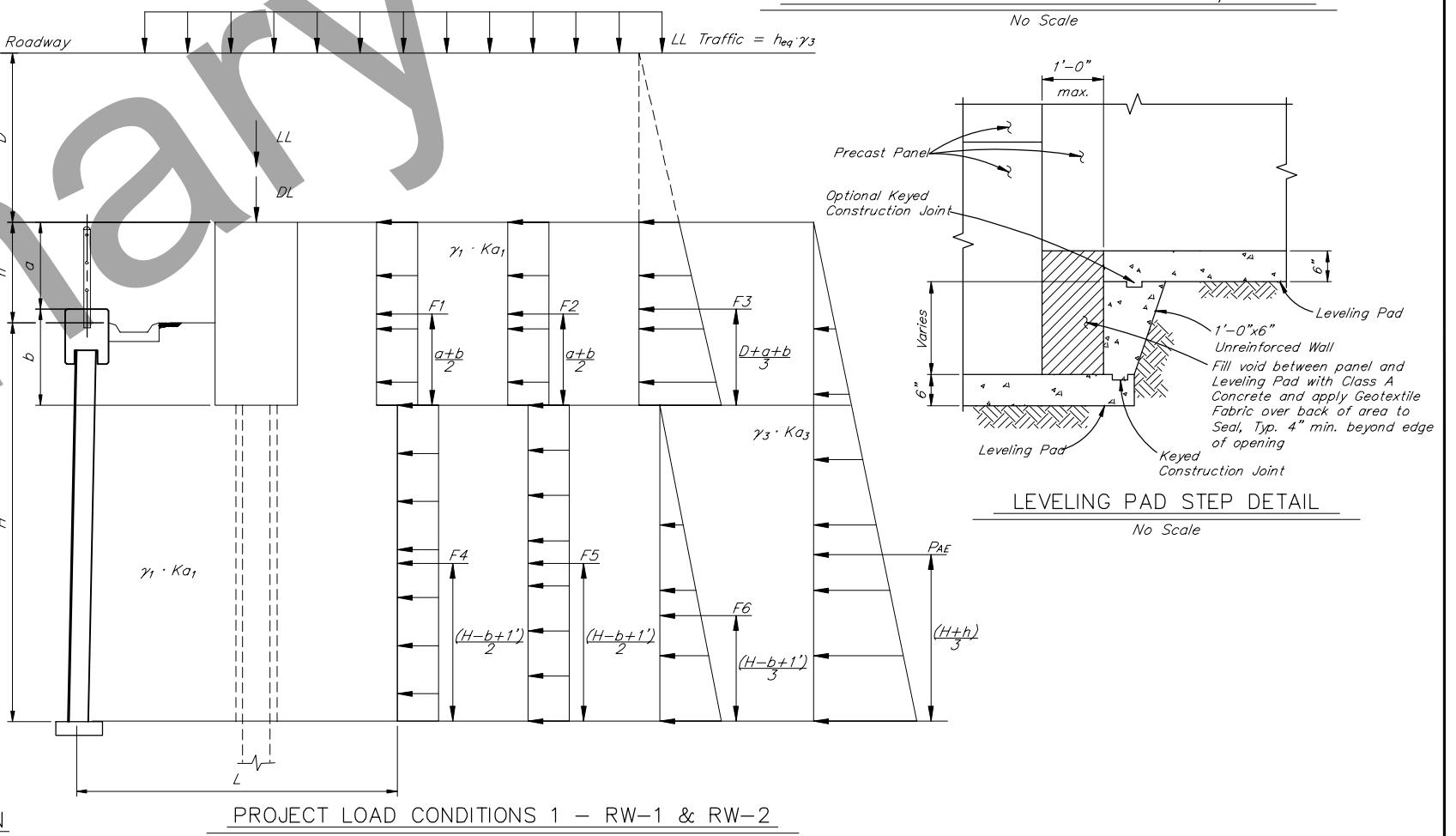
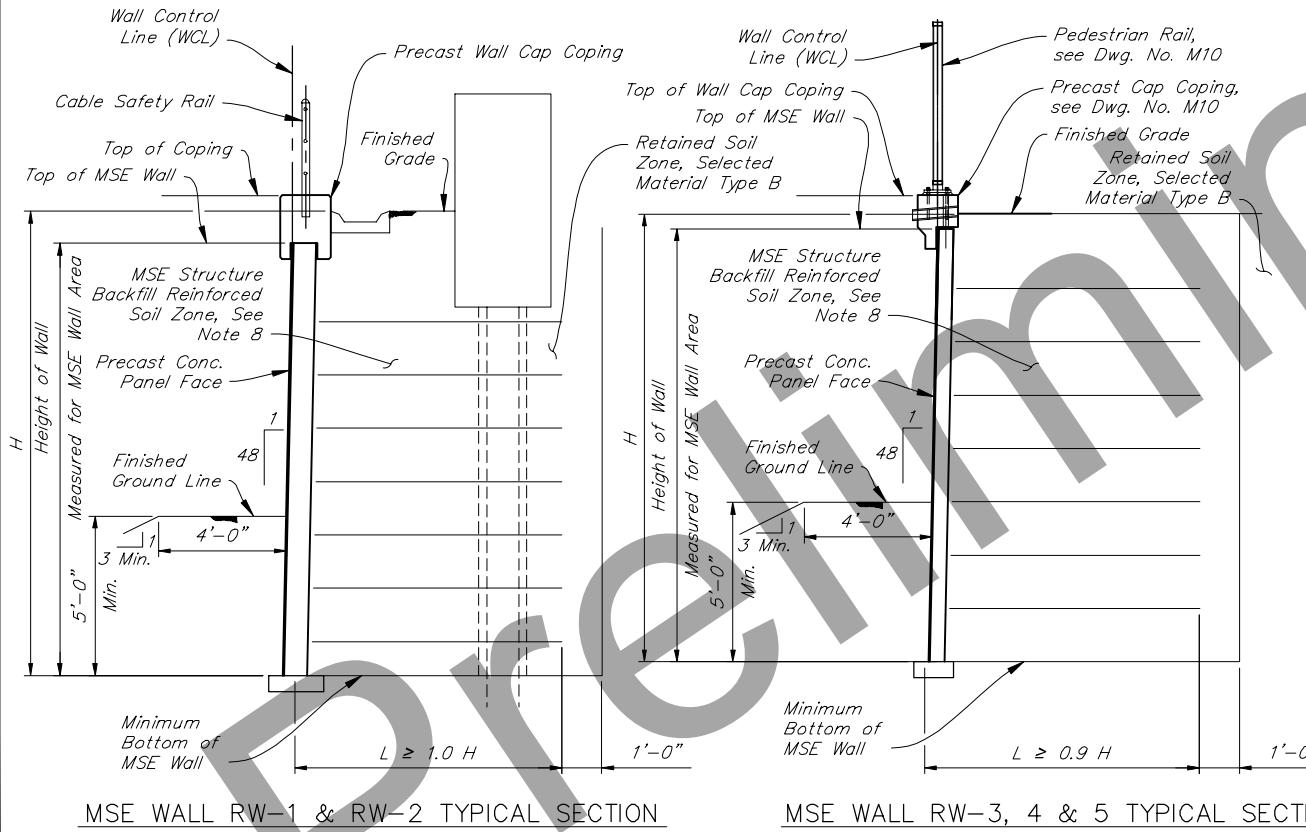
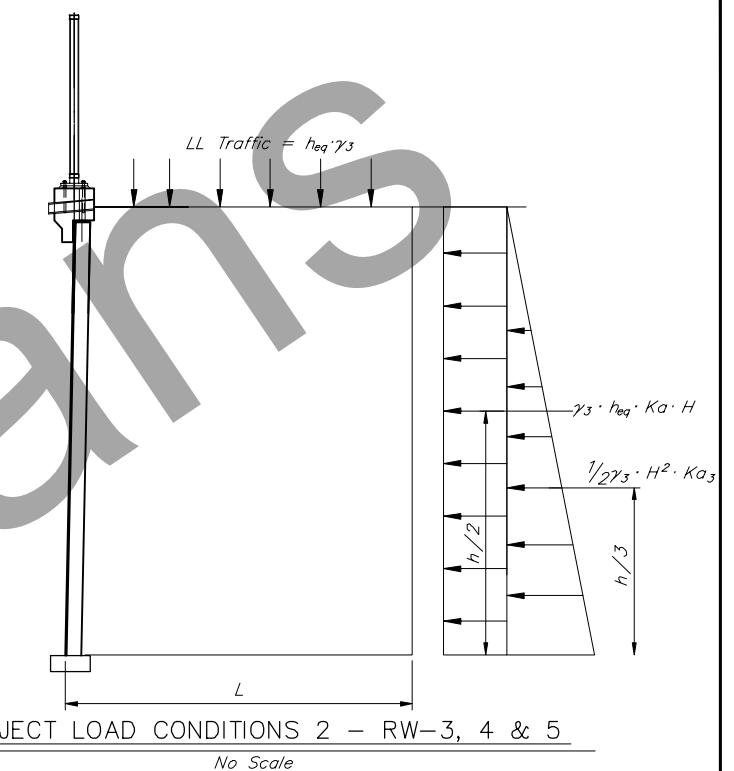
MSE Wall Designer shall Accommodate Metal Pipe Casings for Piling in the MSE Reinforcement Layout.

Minimum Reinforcement Length Shown on These Contract Plans is Based on the Overall Stability Requirements of the Material and Conditions Surrounding the Reinforced Soil Zone. An L Greater Than Shown May Be Required to Satisfy External and Internal Stability Requirements.

WALL	MAX HEIGHT, H (FT)	REQUIRED LENGTH, L' (FT)	L/H	EXTERNAL STABILITY			STATIC -GLOBAL FACTOR OF SAFETY ³	SEISMIC - GLOBAL FACTOR OF SAFETY ⁴
				LIMITING ECCENTRICITY SATISFIED?	SLIDING ²	BEARING CAPACITY ²		
RW-1	31	31	1.0	YES	1.6	1.8	1.5	1.1
RW-2	32	32	1.0	YES	1.6	1.9	1.5	1.1
RW-3	33	30	0.9	YES	1.5	1.8	1.5	1.1
RW-4	35	32	0.9	YES	1.5	1.8	1.5	1.1
RW-5	23	21	0.9	YES	1.5	1.8	1.5	1.1

NOTES:

1. Minimum Reinforcement Length L is $0.9 * H$ or 8 Feet, whichever is greater.
2. Minimum Capacity Demand Ratio (CDR) for External Stability is 1.0.
3. Minimum Factor of Safety for Static Global Stability is 1.5.
4. Minimum Factor of Safety for Seismic Stability is 1.1.
5. Project Load Conditions 1 – Load Calculations
 $F_1 = \gamma_1 \cdot h_{eq} \cdot K_a \cdot (a + b)$
 $F_2 = \gamma_1 \cdot D \cdot K_a \cdot (a + b)$
 $F_3 = \frac{1}{2}\gamma_1 \cdot (a + b + D)^2 \cdot K_a - \frac{1}{2}\gamma_1 \cdot (D)^2 \cdot K_a$
 $F_4 = \gamma_1 \cdot h_{eq} \cdot K_a \cdot (H - b + 1')$
 $F_5 = \gamma_1 \cdot (a + b) \cdot K_a \cdot (H - b + 1')$
 $F_6 = \frac{1}{2}\gamma_3 \cdot (H - b + 1')^2 \cdot K_a$
 $F_{AE} = \frac{1}{2}\gamma_3 \cdot (H + h)^2 \cdot K_{AE}$
6. The MSE Wall Designer Shall Include a Perforated Drainage Pipe System at the Wall Toe Behind the Facing at the Approximate Final Grade Elevation to Prevent Potential Buildup of Hydrostatic Forces Behind the Wall Facing. Minimum Pipe Slope Shall Be 0.5 Percent. The Drainage Pipe System Shall Discharge at Wall Beginning and End. Wall Drainage Piping Design is Subject to Engineer Review and Approval.
7. Cover all joints at wingwalls on back side of walls with geotextile fabric. Apply adhesive coating on concrete only and not on geotextile fabric. Do not apply adhesive within 2" of joints.
8. MSE Structure Backfill in accordance with Section 511 of the Specifications is included in Pay Item No. 511.0001.0000 and is not quantified separately in these drawings.

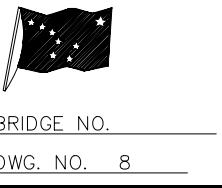


DESIGNED BY: G FISCHER	CHECKED: JK STITH
DRAWN BY: DL MONK	CHECKED: JK STITH
QUANTITIES BY: GF CONNER	CHECKED: JK STITH

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
OCTOBER
2021

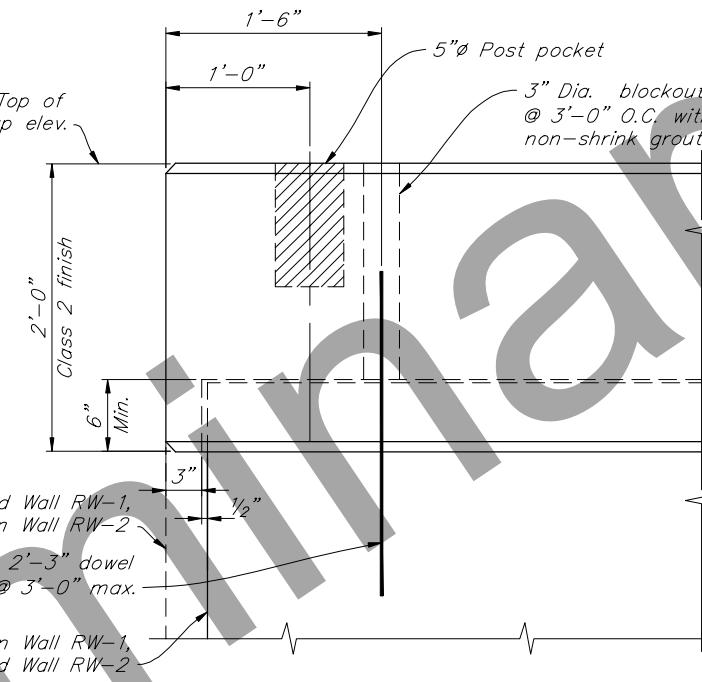
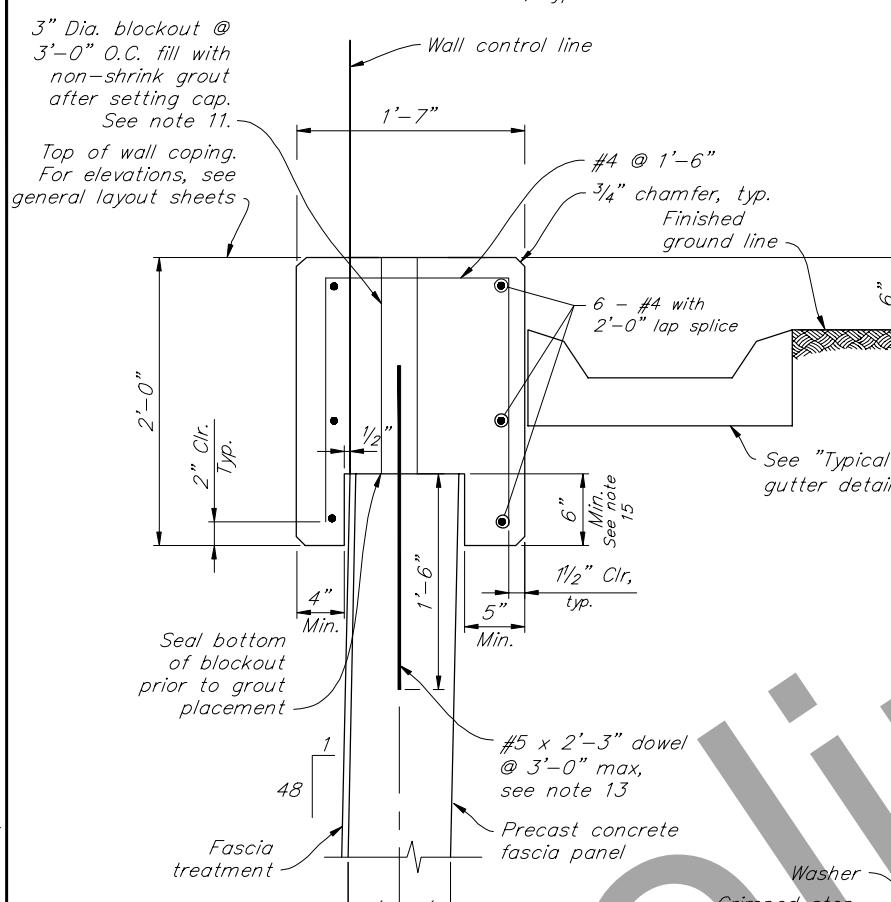
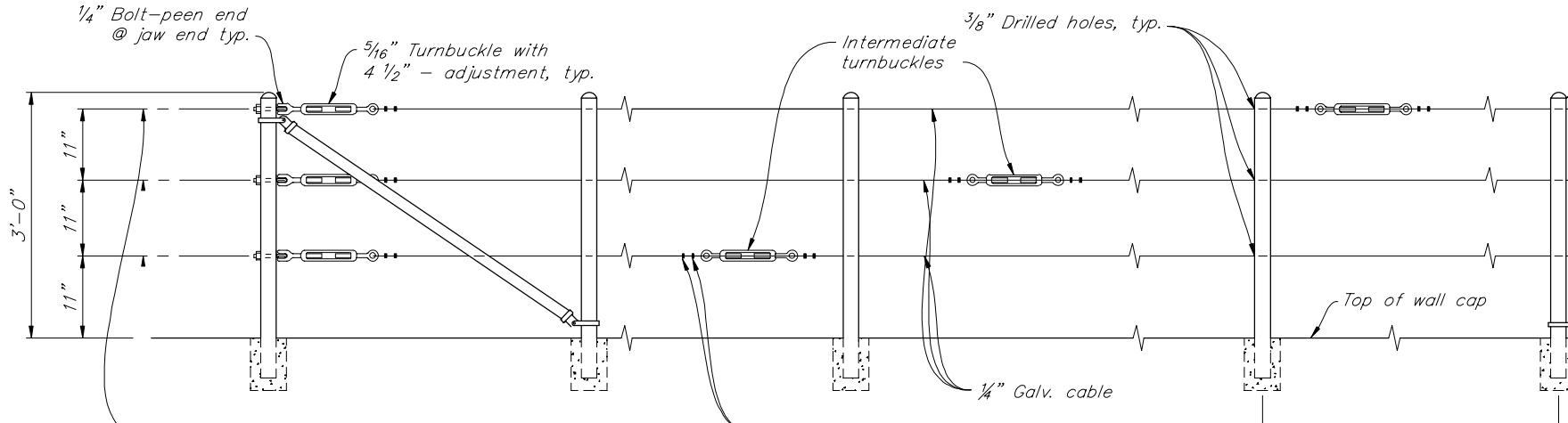
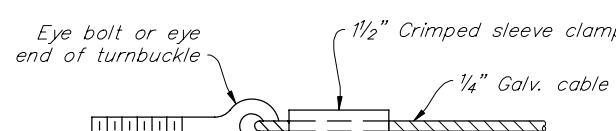
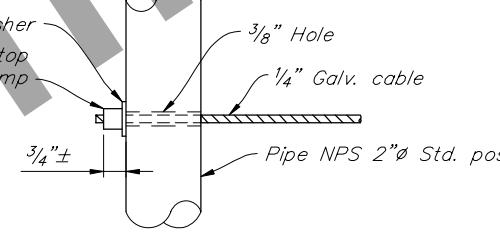
RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
MSE WALL DETAILS



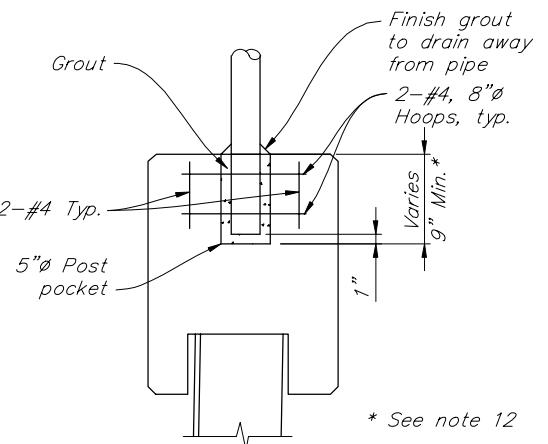
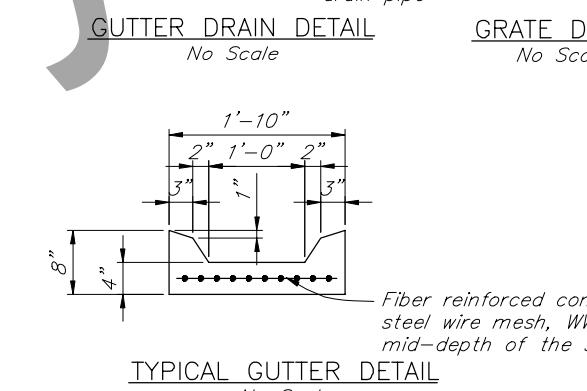
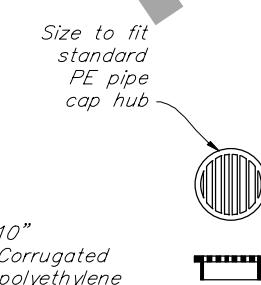
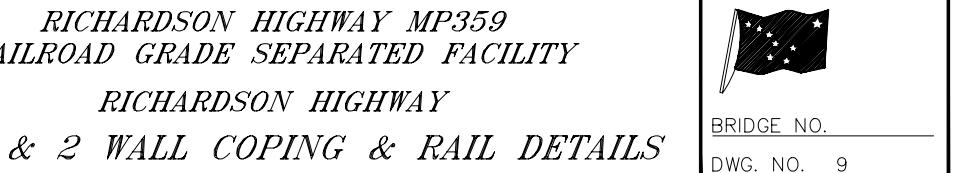
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M9	M10

NOTES:

1. Intermediate turnbuckles to be placed in adjacent spans.
2. Do not splice cable between intermediate turnbuckles and end posts.
3. All posts, cable and hardware to be galvanized steel conforming to AASHTO M181.
4. Posts to be plumb.
5. Alignment of holes in posts may vary to conform to slope of top of retaining wall.
6. Verify all controlling dimensions in the field before ordering or fabricating any material.
7. Brace posts with diagonal braces at each end, each change in direction and at each change in slope.
8. Post pockets to be centered in top of wall cap.
9. Provide thimbles at all cable loops.
10. Do not place post directly beneath girder bottom flanges.
11. Space 3"Ø block outs to avoid post pockets.
12. In locations where top of wall cap is not level, angle post pocket in the wall cap so that post can be installed plumb.
13. Place dowels to avoid reinforcement in wall panels.
14. Tighten turnbuckle to remove slack from cable.
15. 6" used for RW-1 and RW-2 MSE wall area quantities.
16. Precast Coping Joints shall be located at MSE Wall Panel locations, less than 1/2" clear opening, and 6'-0" minimum on center.

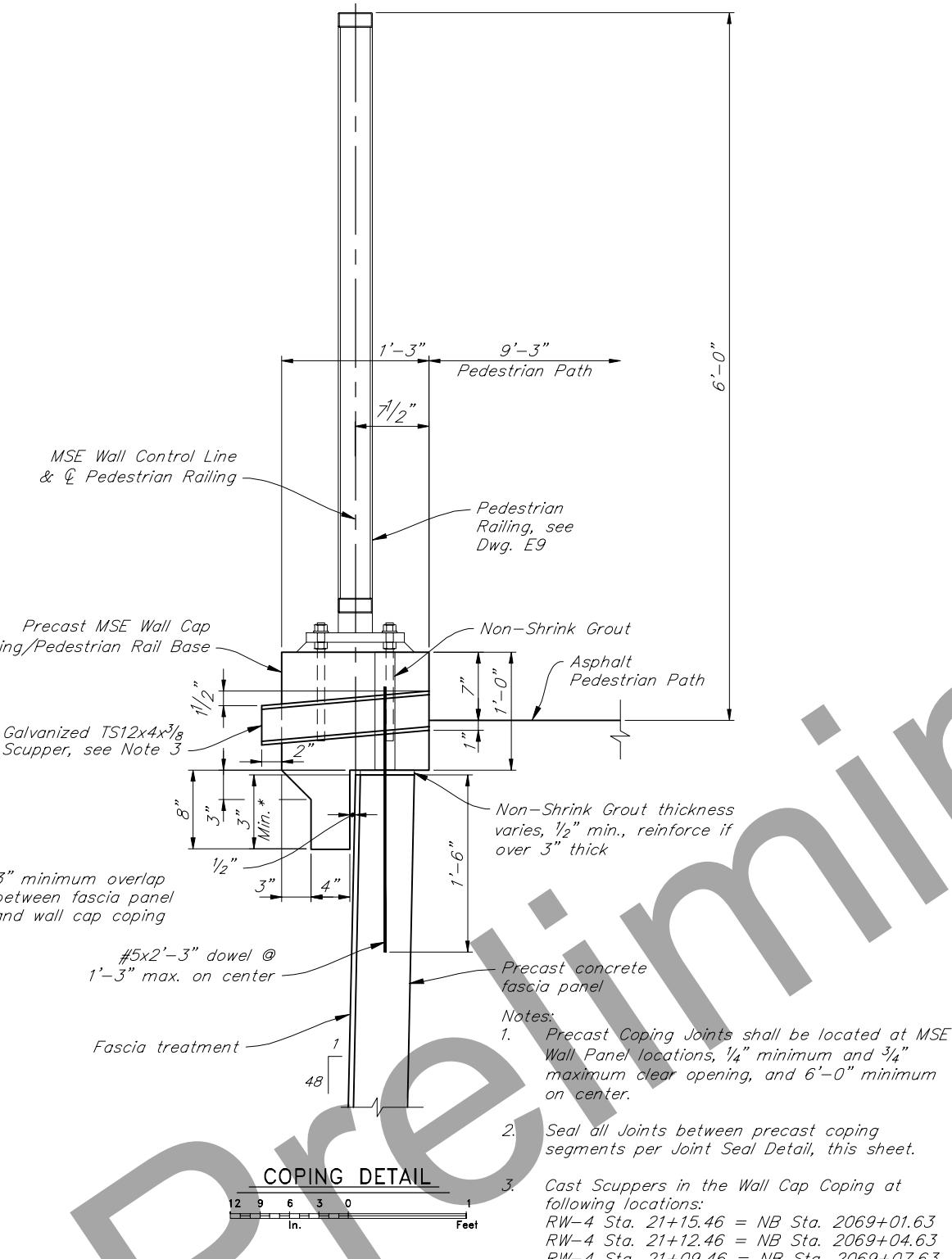
ALTERNATIVE DEAD END ANCHORAGE
No ScaleALTERNATIVE CABLE CONNECTION
No Scale

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
RW-1 & 2 WALL COPING & RAIL DETAILS



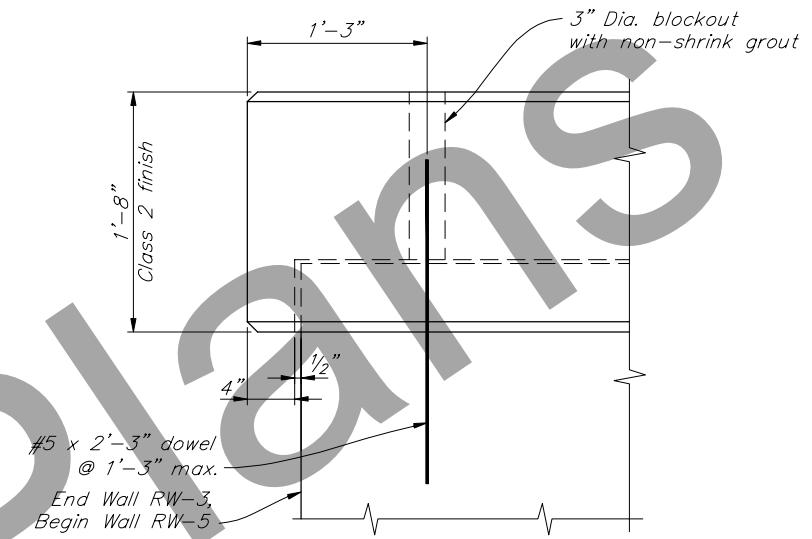
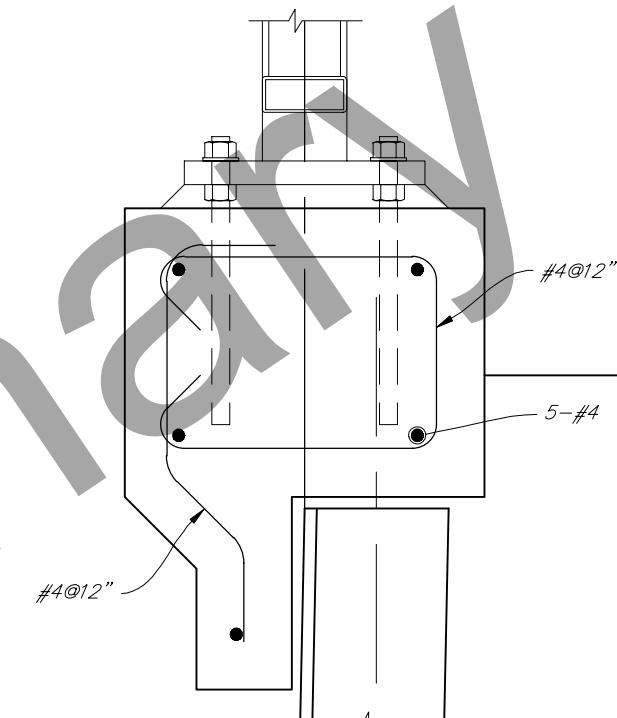
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

PRELIMINARY
NOVEMBER
2021



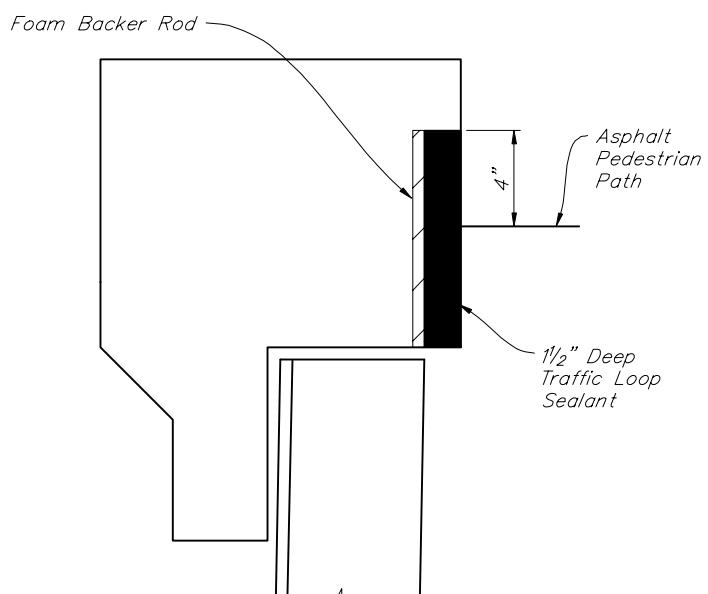
WALL CAP COPING REINFORCING DETAIL

6 3 0
In. Feet



COPING OVERHANG DETAIL

No Scale



JOINT SEAL DETAIL

No Scale

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION

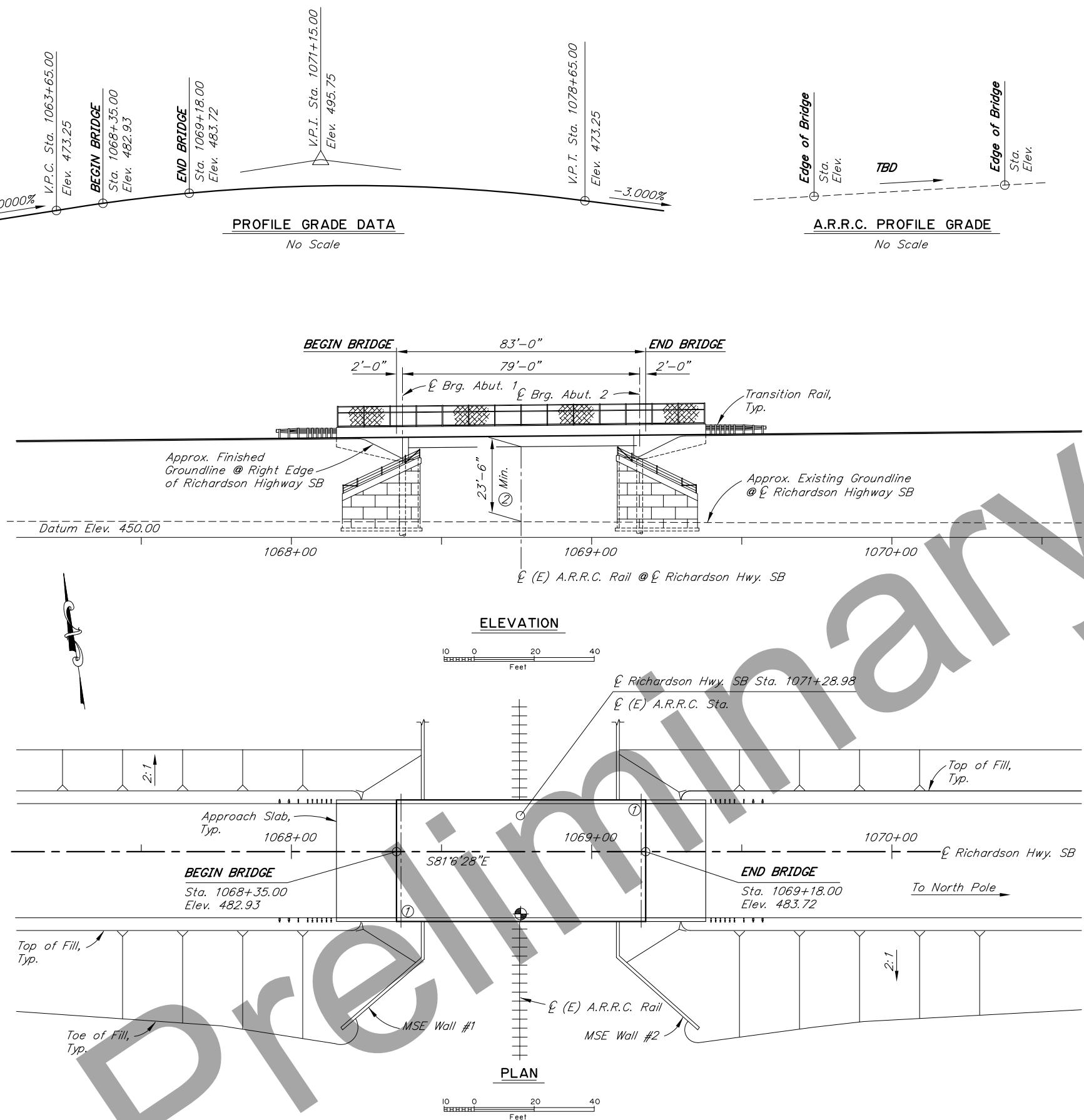
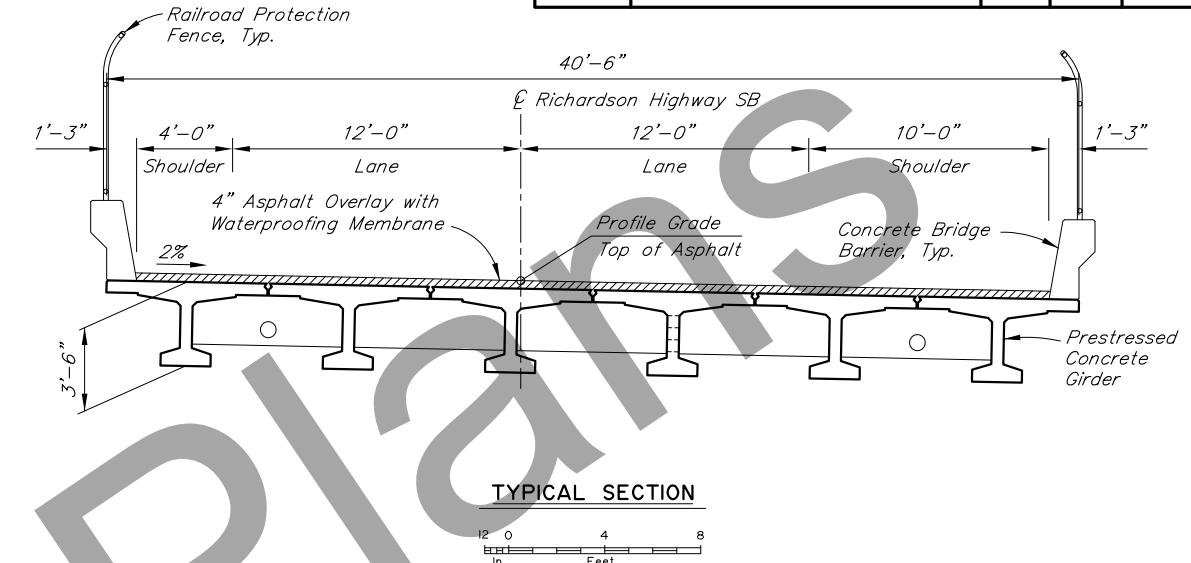
PRELIMINARY
NOVEMBER
2021

RICHARDSON HIGHWAY MP359
RAILROAD GRADE SEPARATED FACILITY
RICHARDSON HIGHWAY
RW-3, 4 & 5 WALL COPING DETAILS

BRIDGE NO.
DWG. NO. 10

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0A24033/Z607340000	2021	M10	M10

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z607340000	2022	N1	TtlShs



BRIDGE DRAWING INDEX	
TITLE	DWG. NO.
GENERAL LAYOUT	I
SITE PLAN	2
ABUTMENT 1	3
ABUTMENT 2	4
ABUTMENT DETAILS	5
WINGWALLS	6
FRAMING PLAN AND TYPICAL SECTION	7
GIRDERS	8
GIRDER DETAILS	9
APPROACH SLABS	10
CONCRETE BRIDGE BARRIER	II
RAILROAD PROTECTION FENCE	I2
THRIE BEAM TRANSITION	I3
LOG OF TEST BORINGS	I4-

① Approximate location of Bridge Number Plate.

② Vertical clearance between Top of rail and lowest girder.

③ Minimum vertical clearance.

PRELIMINARY PLAN

RICHARDSON HIGHWAY OVERHEAD
MP 359 SOUTHBOUND
RICHARDSON HIGHWAY
GENERAL LAYOUT

DESIGNED BY:	Ben Still	CHECKED:	Checker	LAYOUT BY:	Ben Still	CHECKED BY:	Checker
DRAWN BY:	Sam Sollie	CHECKED:	Ben Still	SPECIFICATIONS BY:	Ben Still	P S & E COMPARED:	Checker
QUANTITIES BY:	Ben Still	CHECKED:	Checker	APPROVAL RECOMMENDED BY:	Rich Pratt		

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975



BRIDGE NO. 2366
DWG. NO. 1

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z607340000	2022	N2	TtlShs

GENERAL NOTES

DESIGN:..... AASHTO LRFD Bridge Design Specifications, 2020 Edition, with latest interim specifications.

Seismic design per AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2011 with latest interim revisions.

LIVE LOAD:..... HL-93

DEAD LOAD:..... Includes 50 psf for all wearing surfaces.

SEISMIC PARAMETERS:..... PGA = 0.28
Ss = 0.65
S1 = 0.21
Site Class = D
Liquefaction Potential = High
AASHTO 7% probability of exceedance in 75 years.

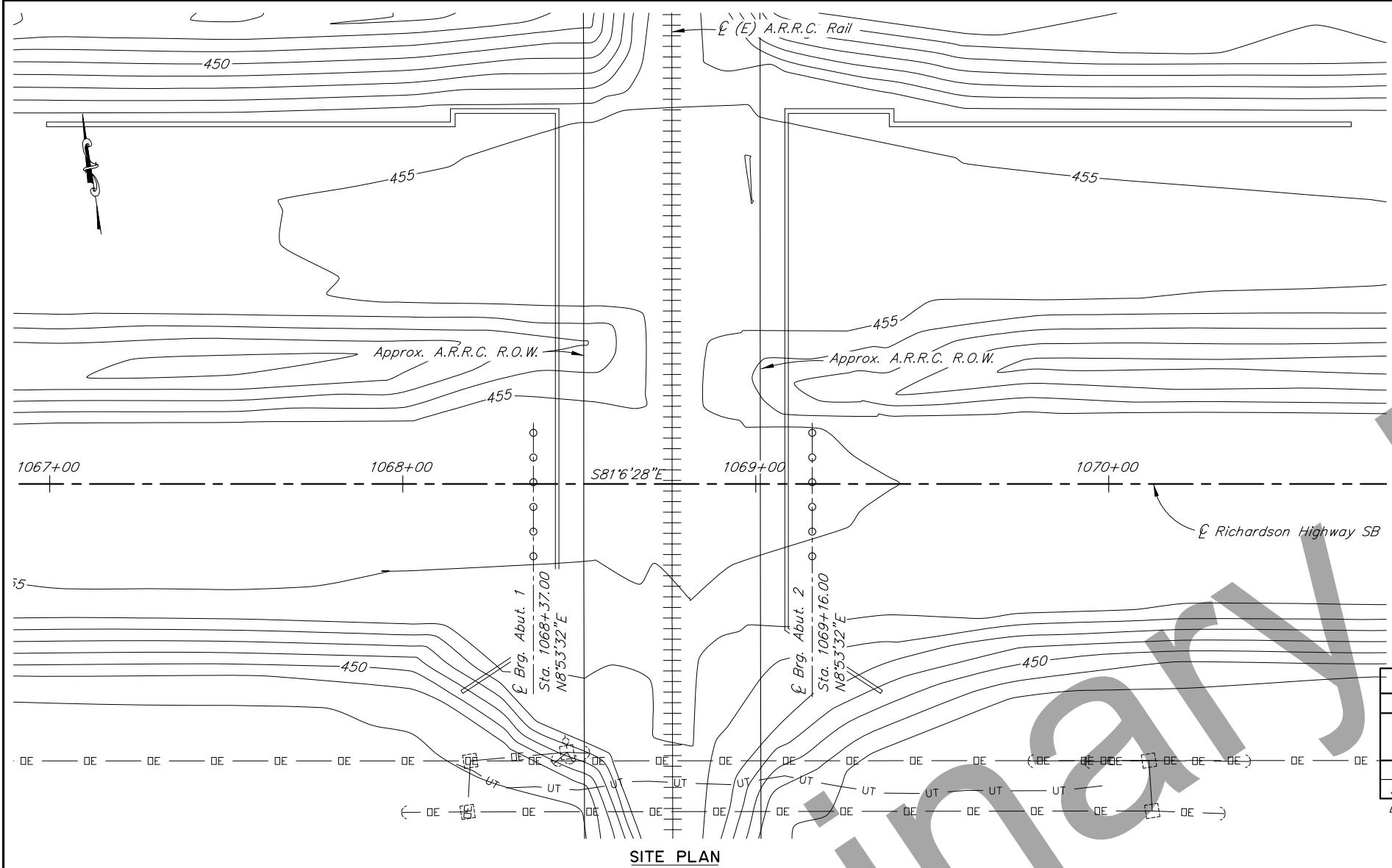
REINFORCEMENT:..... ASTM A706, Grade 60, Fy = 60,000 psi
ASTM A970 Headed bars, Class HA.
Space reinforcement evenly unless otherwise noted.

PRESTRESSED CONCRETE:..... See Girder Dwg.

CONCRETE:..... Class A Concrete unless otherwise noted, f'c = 4,000 psi

STRUCTURAL STEEL:..... ASTM A709, Grade 36T3, Fy = 36,000 psi
Galvanize structural steel in accordance with AASHTO M111 unless noted otherwise.

STRUCTURAL STEEL PILING:..... API 5L X52 PSL2, Fy = 52,000 psi or
ASTM A709, GR50T3, Fy = 50,000 psi.
Pile Tip reinforcing is required.



ESTIMATE OF QUANTITIES						
ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	SUBST.	SUPERST.	TOTAL QUANTITY
203.0003.0000	Unclassified Excavation	CY	CY			
205.0006.0000	Structural Fill	CY	CY	528	---	528
501.0001.0000	Class A Concrete	LS	CY	196.8	75.1	271.9
501.0007.0000	Precast Concrete Member, 81'-6" Decked Bulb-Tee	EA	EA	---	6	6
503.0001.0000	Reinforcing Steel	LS	LBS	21,003	---	21,003
503.0002.0000	Epoxy-Coated Reinforcing Steel	LS	LBS	---	3,230	3,230
505.0005.2405	Furnish Structural Steel Piles, 2'-0" Dia. x 1/2" Pipe	LF	LF	1,200	---	1,200
505.0006.2405	Drive Structural Steel Piles, 2'-0" Dia. x 1/2" Pipe	EA	EA	12	---	12
507.0004.0000	Concrete Bridge Barrier Railroad Protection Fence	LF	LF	---	246.0	246.0
508.0001.0000	Waterproofing Membrane, Spray-Applied	LS	SF	---	3,154	3,154
606.0016.0000	Transition Rail	EA	EA	---	4	4

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item.

DESIGNED BY:

Ben Still

CHECKED:

Checker

FOUNDATIONS REVIEWED BY:

Engineer

DRAWN BY:

Sam Sollie

CHECKED:

Ben Still

QUANTITIES BY:

Ben Still

CHECKED:

Checker

PRELIMINARY PLAN

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

**RICHARDSON HIGHWAY OVERHEAD
MP 359 SOUTHBOUND
RICHARDSON HIGHWAY
SITE PLAN**



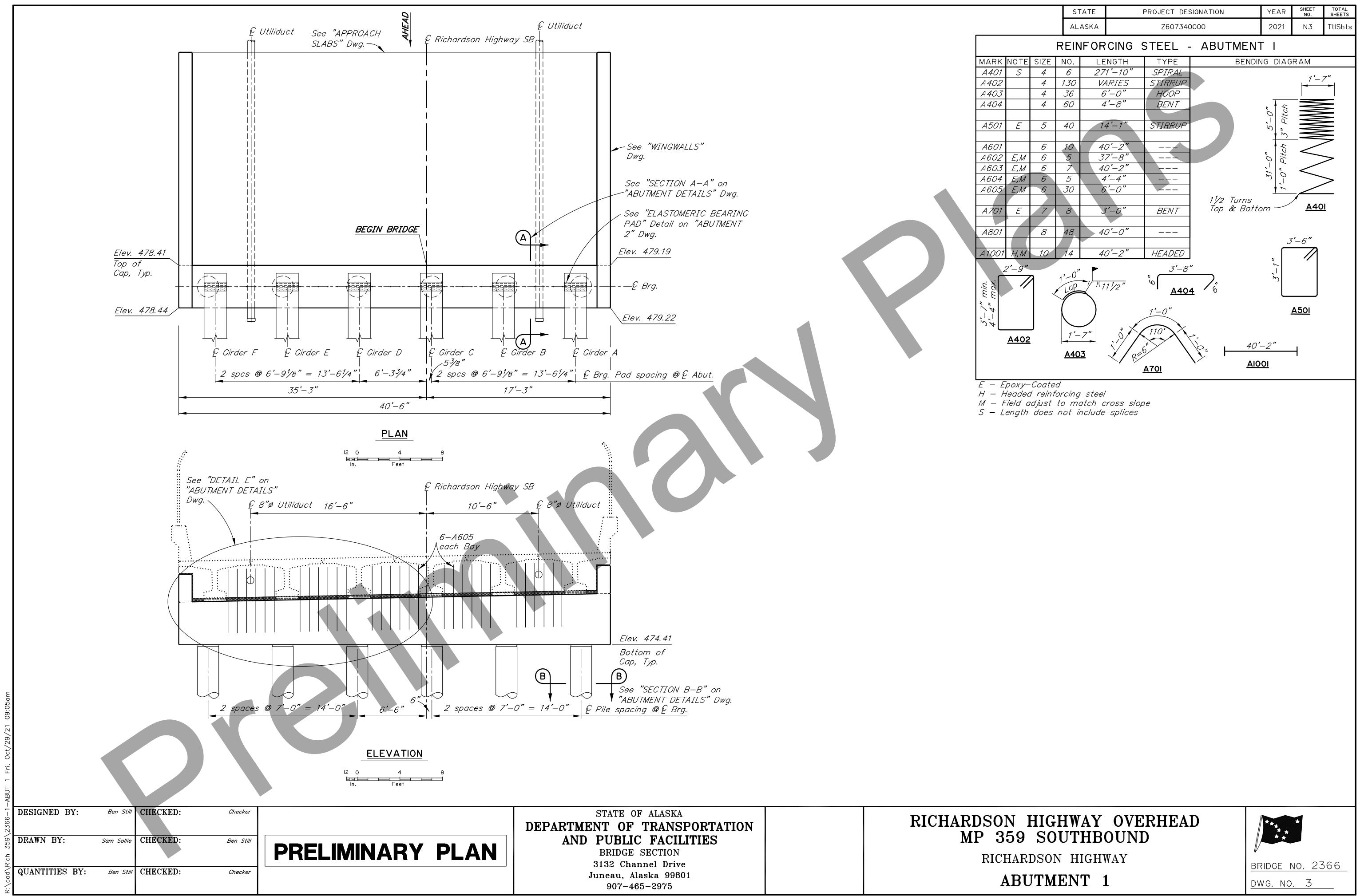
BRIDGE NO. 2366
DWG. NO. 2

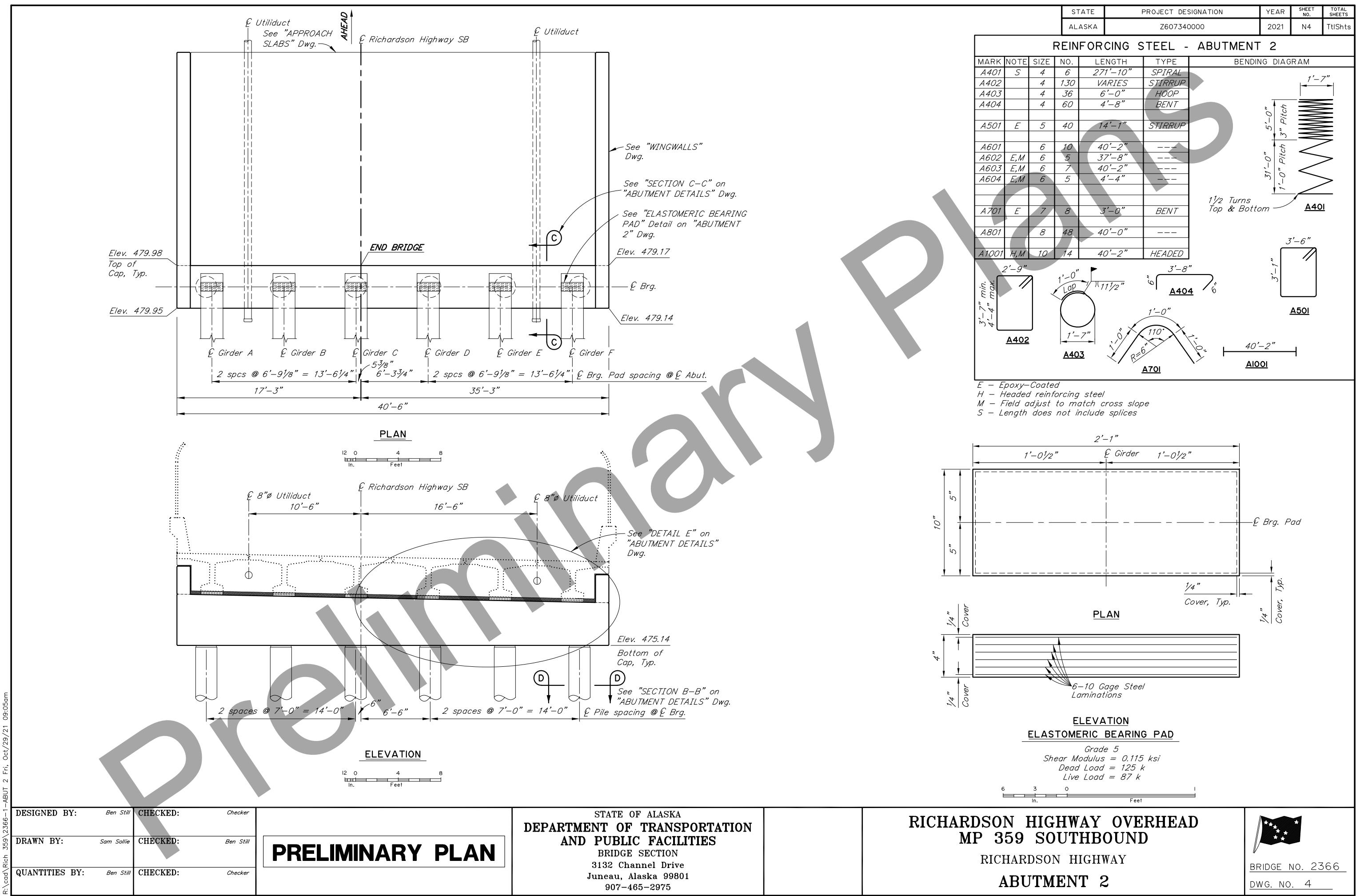
PILE DATA TABLE		DRIVING CRITERIA			DESIGN DATA		
LOCATION	PILE TYPE	MINIMUM PENETRATION (ft)	ESTIMATED PILE TIP ELEVATION	DRIVING RESISTANCE (K)	STRENGTH FACTORED LOAD (K)	NOMINAL RESISTANCE (K)	RESISTANCE FACTOR, φ
Abutment 1	2'-0"Øx1/2"	100	374.41	545	365	545	0.65
Abutment 2	2'-0"Øx1/2"	100	375.14	545	365	545	0.65

Difficult driving conditions are expected. Pilot bore hole required for each pile.

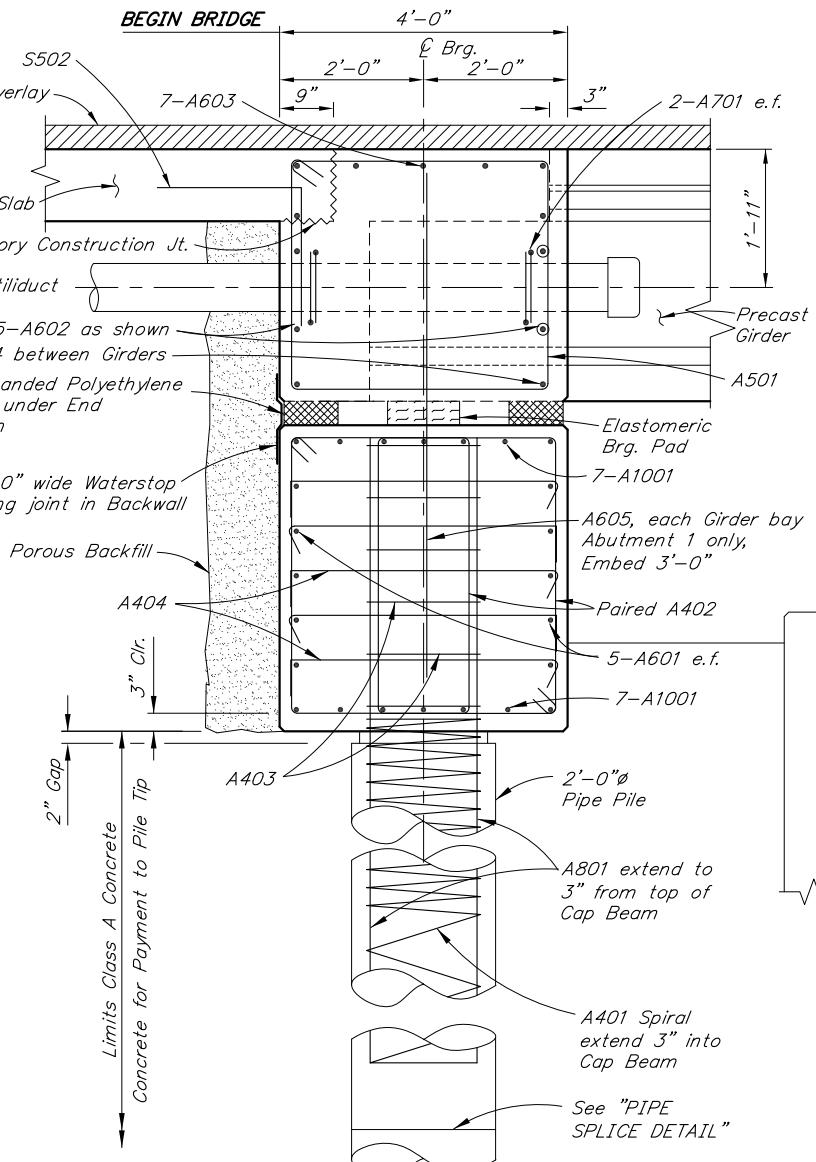
ABBREVIATIONS:

€	= centerline	e.w.	= each way	MSE	= mechanically stabilized earth
€	= plate	Ext.	= exterior	n.f.	= near face
&	= and	F	= fixed	No.	= number
@	= at	f.f.	= front/air face	o.c.	= on center
Ø	= diameter	f'c	= specified concrete compressive strength	O.H.W.	= ordinary high water
±	= approximate	f'ci	= specified concrete compressive strength at release	DE	= overhead electrical line
Abut.	= abutment	Ft.	= feet	pcf	= pounds per cubic foot
Approx.	= approximate	Fy	= yield stress	psf	= pounds per square foot
A.R.R.C.	= Alaska rail road company	Galv.	= galvanize	psi	= pounds per square inch
b.f.	= back/dirt face	H.S.	= high strength	R.	= radius
bot.	= bottom	Hwy.	= highway	R.O.W.	= right of way
Br.	= bridge	ID	= internal diameter	RT.	= right
btwn.	= between	Int.	= interior	Rd.	= road
Brg.	= bearings	Jt.	= joint	spcs.	= space, spaces
C.G.	= center of gravity	K	= kips	Sta.	= station
C.I.P.	= cast in place	ksf	= 1000 pounds per square foot	SF	= square feet
C.J.P.	= complete joint penetration	ksi	= 1000 pounds per square inch	SY	= square yard
Cir.	= clear, clearance	Lbs or lb	= pounds	Std.	= standard
CMP	= corrugated metal pipe	LF	= linear foot	Symm.	= symmetric
CY	= cubic yard	LS	= lump sum	ut	= underground telephone line
Cub.	= cubic	L.T.	= left	Typ.	= typical
dia.	= diameter	max.	= maximum	UT	= ultrasonic testing
Dia.	= diameter	min.	= minimum	V.P.C.	= point of vertical curve
Dwg.	= drawing			V.P.I.	= point of vertical intersection
E	= expansion			V.P.T.	= point of vertical tangent
(E)	= existing			w/	= with
EA	= each				
Elev.	= elevation				
e.f.	= each face				



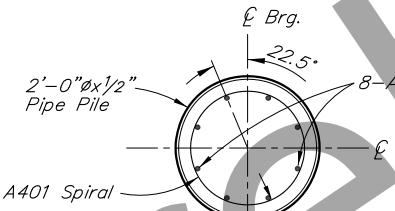


STATE	PROJECT DESIGNATION	YEAR	sheet no.	total sheets
ALASKA	Z607340000	2021	N5	TtlShs



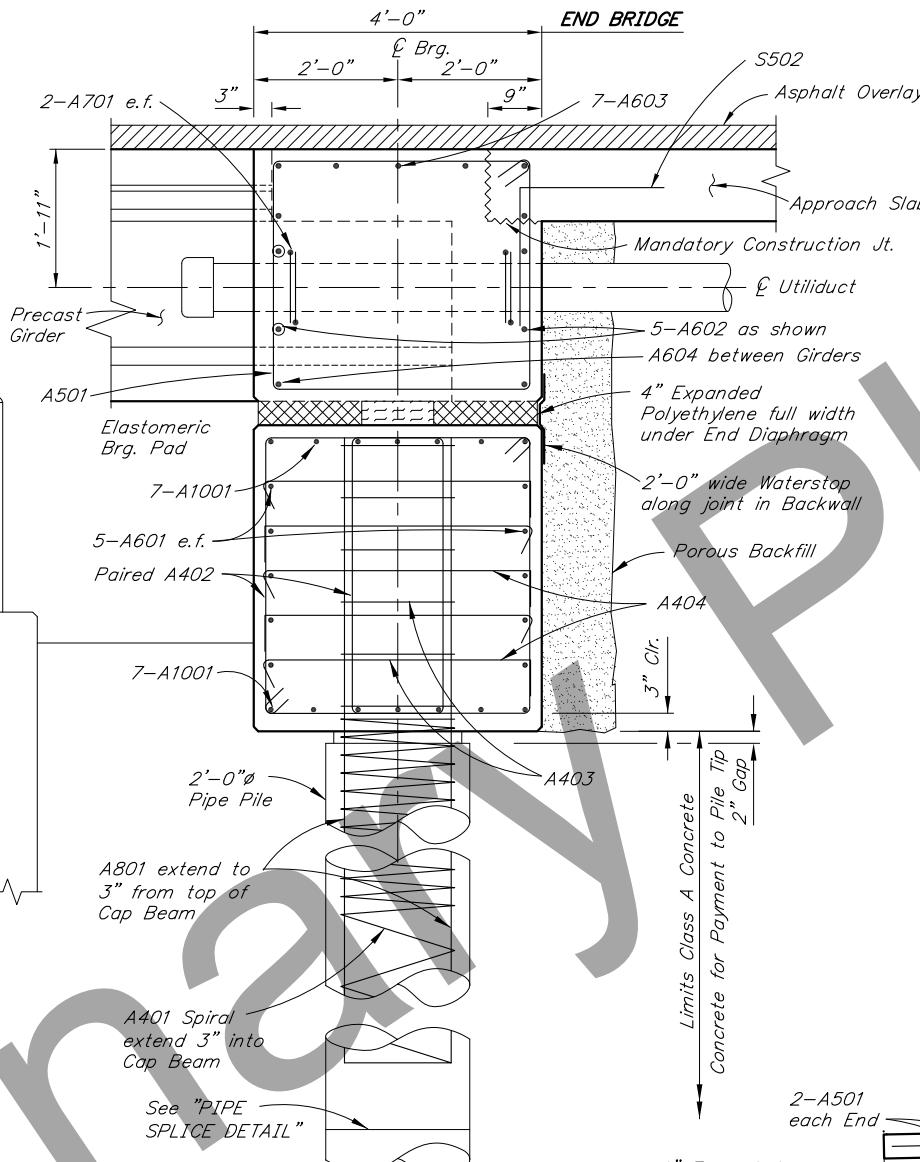
SECTION A-A

12 6 0 1 2 3
In. Feet



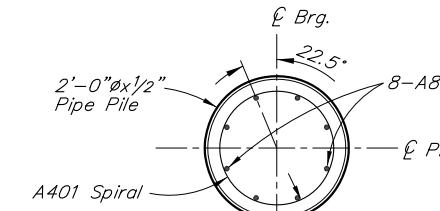
SECTION B-B

12 6 0 1 2 3
In. Feet



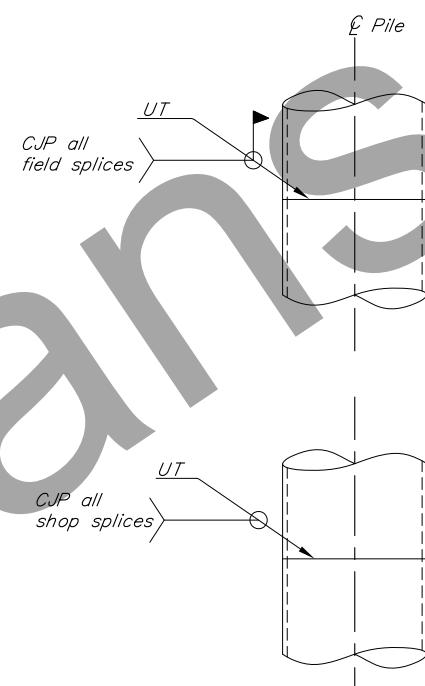
SECTION C-C

12 6 0 1 2 3
In. Feet



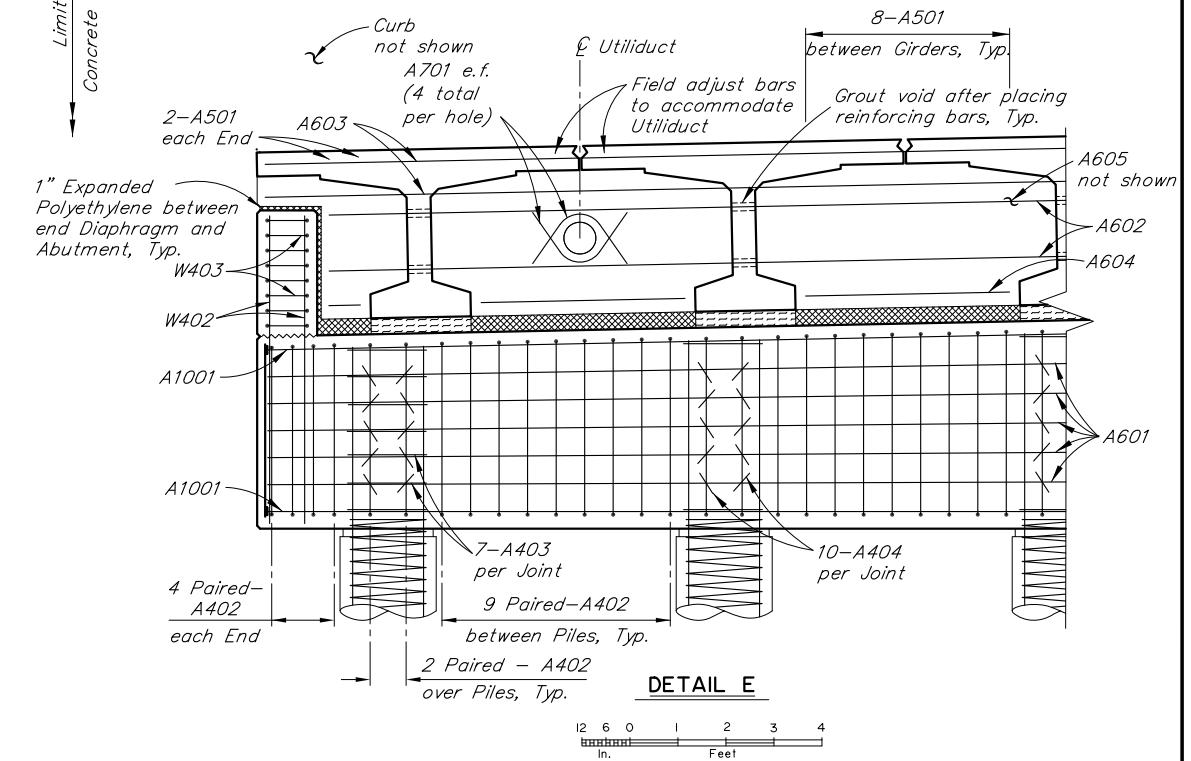
SECTION D-D

12 6 0 1 2 3
In. Feet



PIPE SPLICE DETAIL

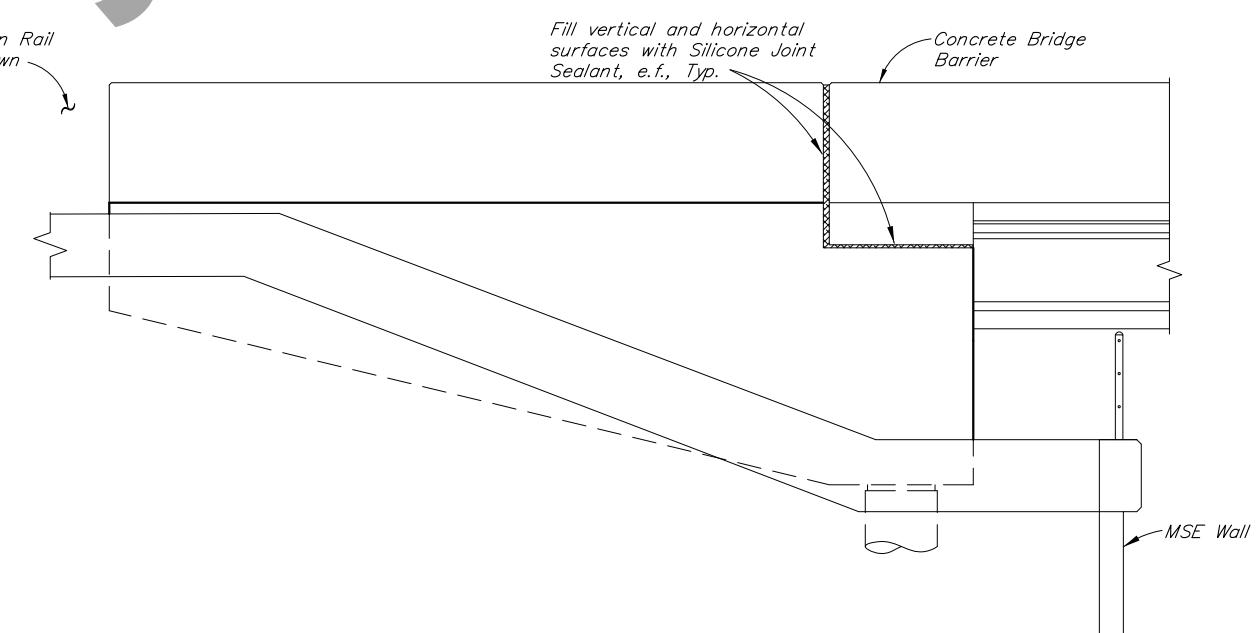
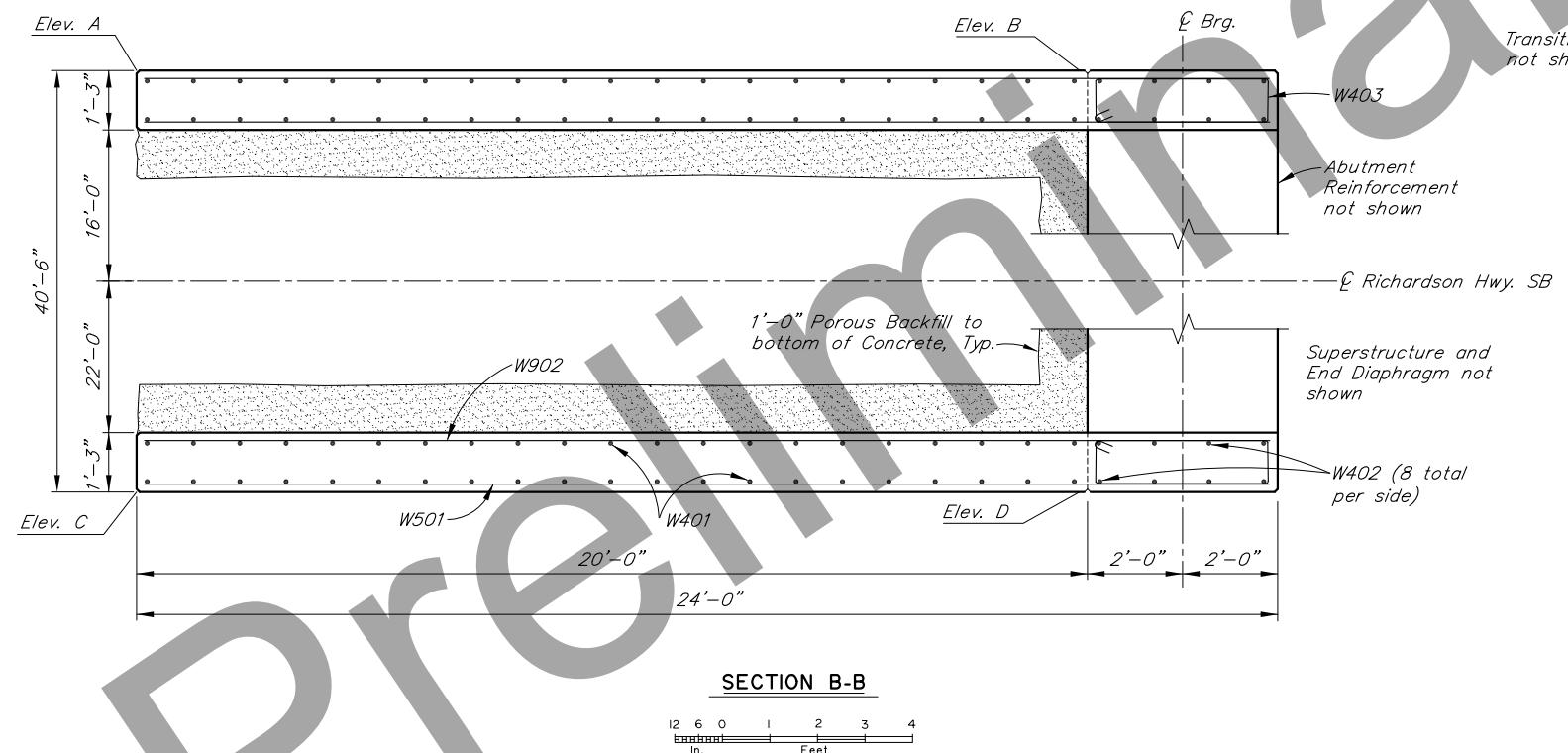
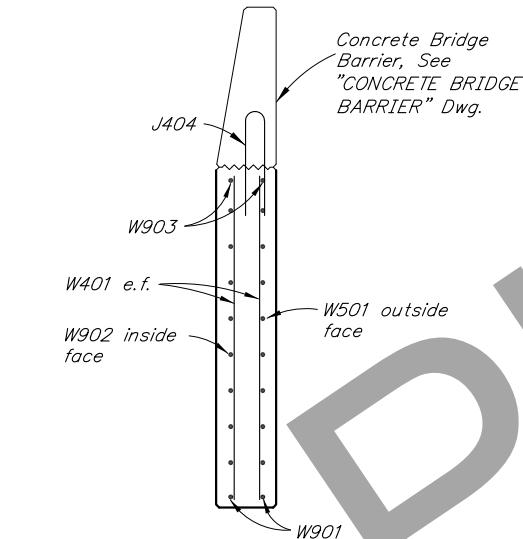
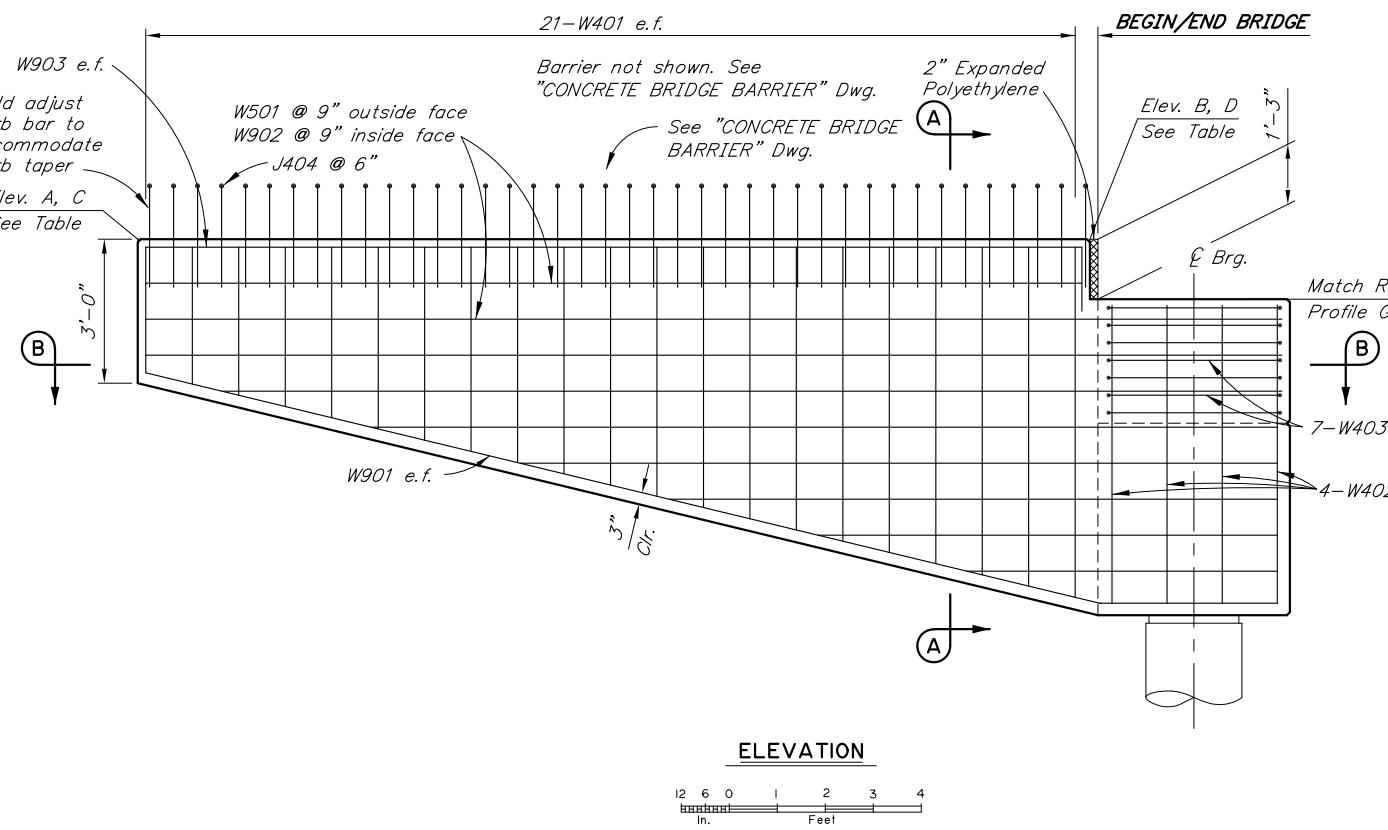
12 6 0 1 2 3
In. Feet



12 6 0 1 2 3 4
In. Feet



TOP OF WINGWALL ELEVATION TABLE (FT)				
LOCATION	A LEFT SIDE	B LEFT SIDE	C RIGHT SIDE	D RIGHT SIDE
ABUTMENT 1	482.23	482.28	482.11	482.16
ABUTMENT 2	483.11	483.07	482.99	482.95



DRAFT

DESIGNED BY:
DRAWN BY:
QUANTITIES BY:

PRELIMINARY PLAN

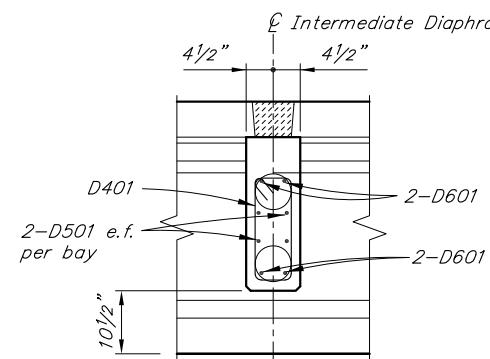
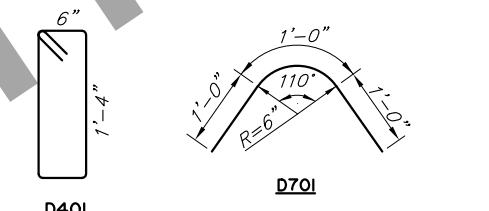
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

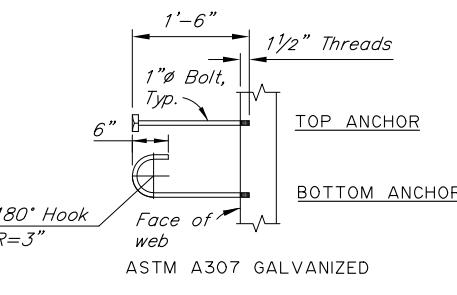
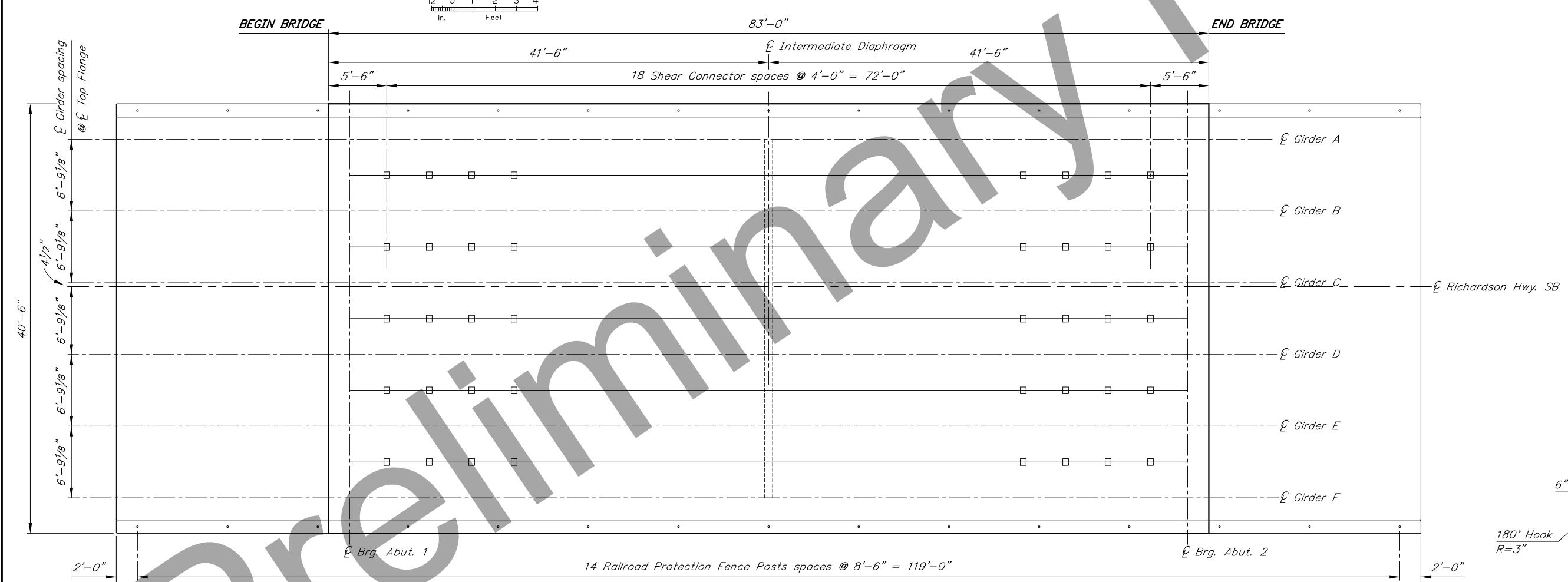
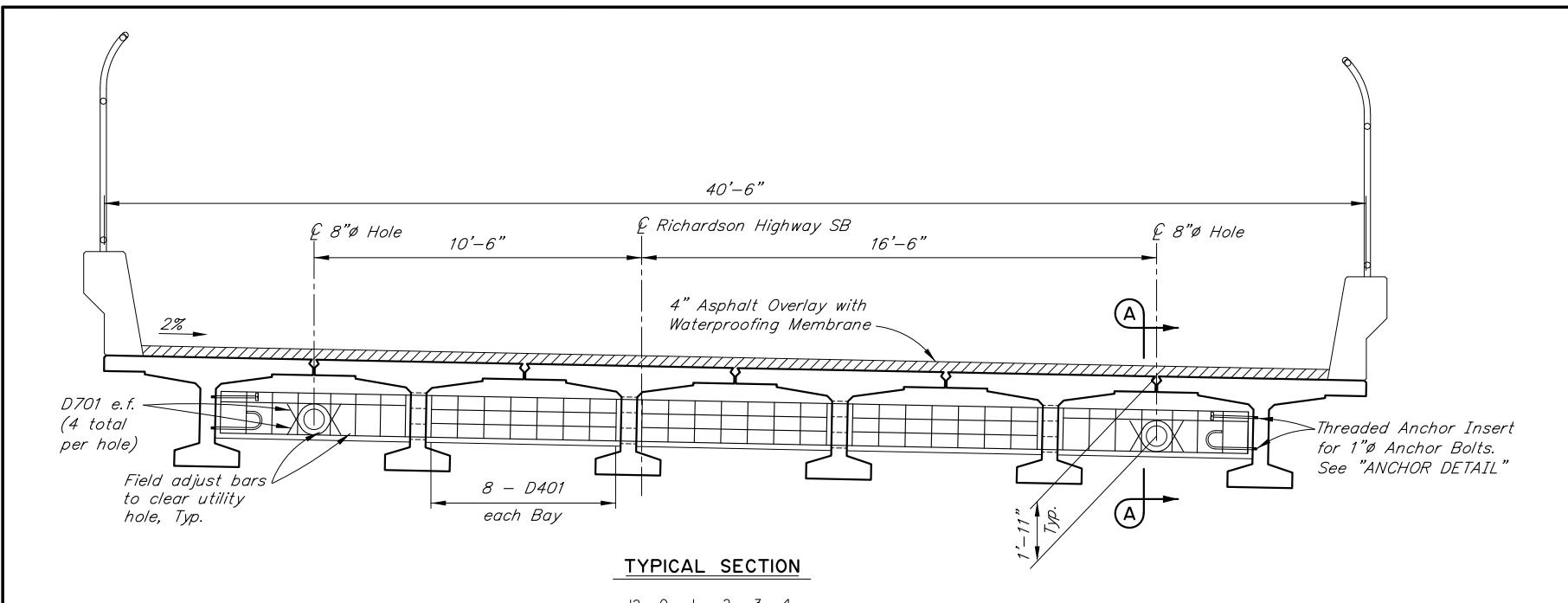
**RICHARDSON HIGHWAY OVERHEAD
MP 359 SOUTHBBOUND**

**RICHARDSON HIGHWAY
WINGWALLS**



BRIDGE NO. 2366
DWG. NO. 6

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z607340000	2021	N7	TtlShts
REINFORCING STEEL - ONE DIAPHRAGM				
MARK	NOTE	SIZE	NO.	LENGTH
D401	E	4	40	4'-5"
D501	E	5	24	5'-11"
D601	E,M	6	4	32'-11"
D701	E	7	8	3'-0"
BENDING DIAGRAM				
				
				
				
E - Epoxy-Coated M - Field adjust to match cross slope				



DESIGNED BY:	Ben Still	CHECKED:	Checker	PRELIMINARY PLAN	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES BRIDGE SECTION 3132 Channel Drive Juneau, Alaska 99801 907-465-2975	RICHARDSON HIGHWAY OVERHEAD MP 359 SOUTHBOUND RICHARDSON HIGHWAY FRAMING PLAN AND TYPICAL SECTION	BRIDGE NO. 2366 DWG. NO. 7
DRAWN BY:	Sam Sollie	CHECKED:	Ben Still				
QUANTITIES BY:	Ben Still	CHECKED:	Checker				

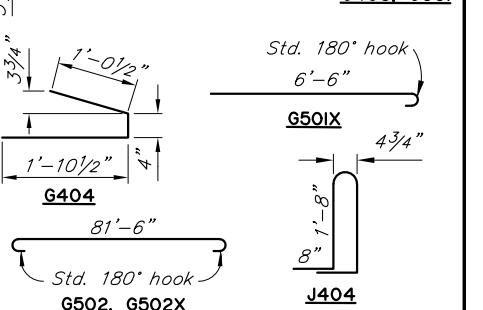
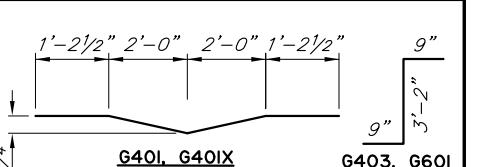
STATE	PROJECT DESIGNATION	YEAR	sheet no.	Total Sheets
ALASKA	Z607340000	2021	N8	TtlShts

REINFORCING STEEL-ONE GIRDER

MARK	NOTE	SIZE	NO.	LENGTH	TYPE
G401	E	4	143	6'-5"	BENT
G401X	E,X	4	169	6'-5"	BENT
G402	E,S	4	10	77'-4"	---
G402X	E,S,X	4	12	77'-4"	---
G403	E	4	288	4'-8"	BENT
G404	E	4	48	3'-3"	BENT

MARK	NOTE	SIZE	NO.	LENGTH	TYPE
G501	E	5	143	6'-5"	---
G501X	E,X	5	169	7'-1"	BENT
G502	E,S	5	10	82'-8"	BENT
G502X	E,S	5	12	82'-8"	BENT
G601	E	6	20	4'-8"	BENT
J404	E,L	4	167	4'-11"	BENT

BENDING DIAGRAM



E - Epoxy-Coated reinforcing steel
 L - Ship 4 loose per exterior girder
 S - Splices permitted. Length does not include splices. Minimum lap splice length for splices shall be 2'-0" for #4 bars and 2'-6" for #5 bars
 X - Exterior girders only

GIRDER NOTES:

Class P Concrete: at Stress Transfer..... $f_{ci} = 6,500$ psi
at 28 Days..... $f_c = 7,500$ psi

1/2" low-relaxation prestressing strands with an ultimate strength of 270 ksi and a cross sectional area of 0.153 in².

Steel stresses: Pretensioning – Jacking Stress 189 ksi
After initial losses 178 ksi
After all losses 139 ksi

One inch clear cover on reinforcing steel unless otherwise noted.

See "FRAMING PLAN AND TYPICAL SECTION" Dwg. for Shear Connector spacing.

Deflect forms to compensate for camber.

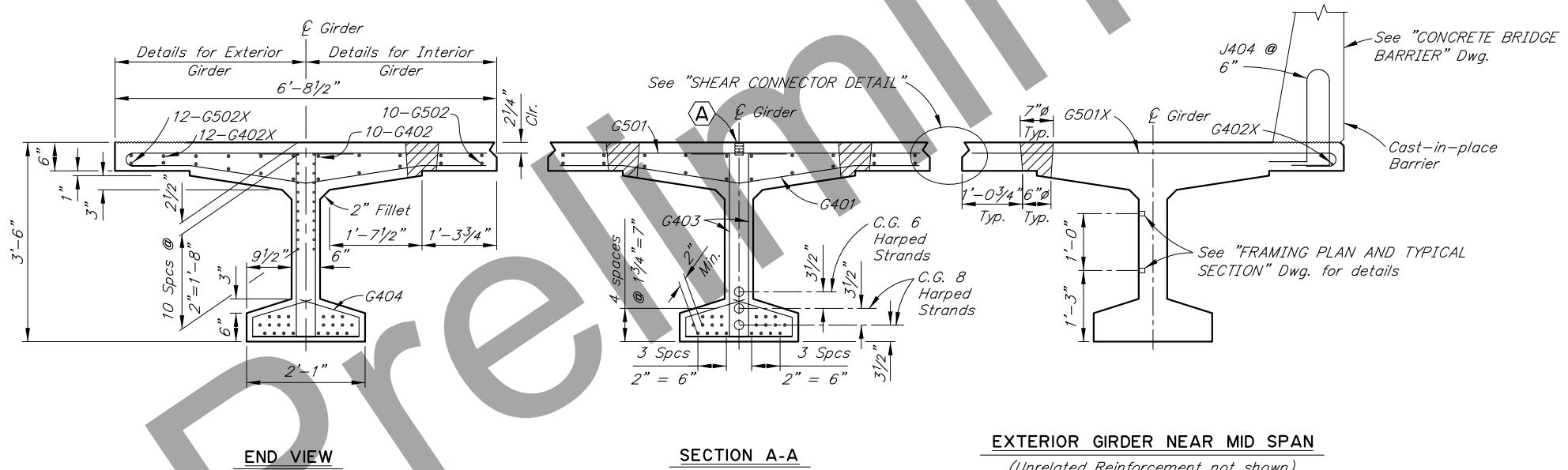
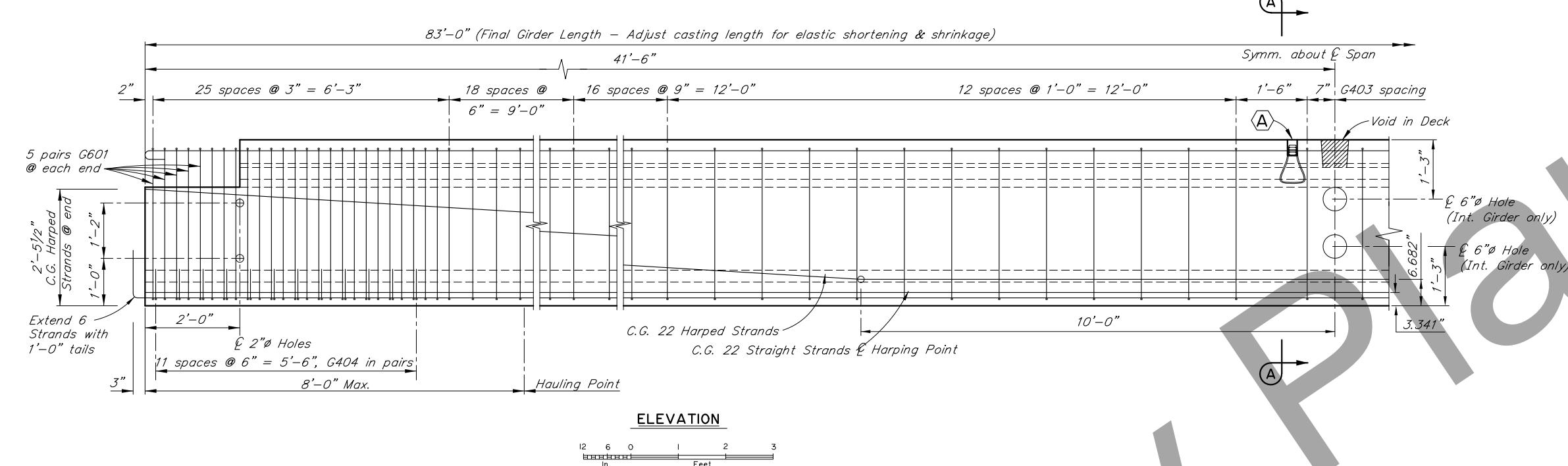
Galvanize structural steel embedded in girders except for shear connectors.

(A) 1"X1'-0" Coil Anchor Insert for vertical adjustment of girders. Recess 2". Prevent concrete from filling hole.

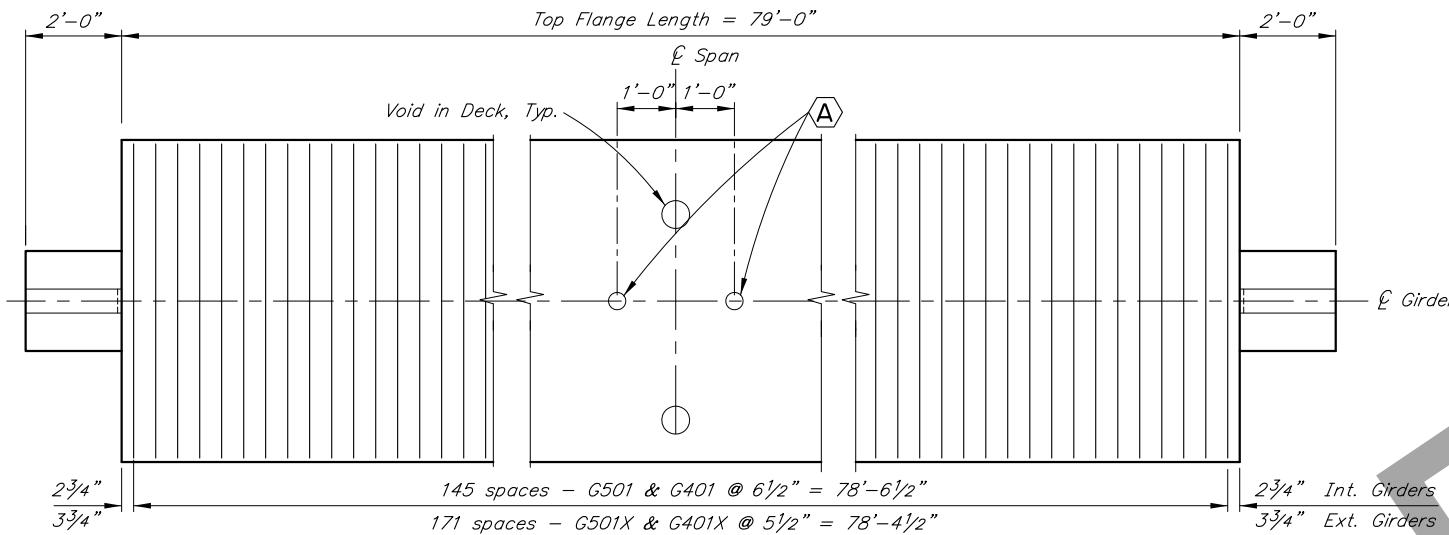
Omit Shear Key, Shear Key Connector and Deck Void in exterior face of exterior girders.

Cast ends of girders plumb with respect to roadway grade. Install web holes and web anchor inserts parallel to £ bearing.

Finish top flange with magnesium float. Roughen the surface under the Barrier.

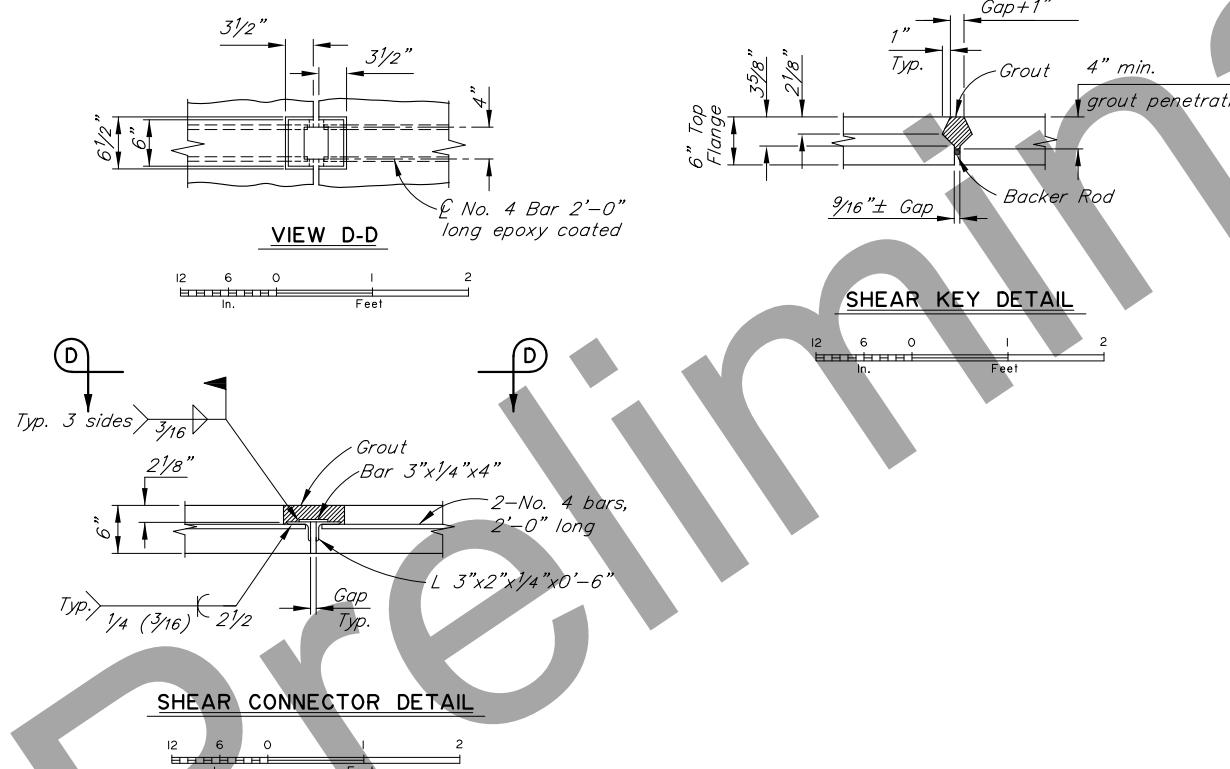


STATE	PROJECT DESIGNATION	YEAR	sheet no.	total sheets
ALASKA	Z607340000	2021	N9	TtlShs



PLAN

No Scale



DESIGNED BY: Ben Still

CHECKED: Checker

CHECKED: Ben Still

CHECKED: Ben Still

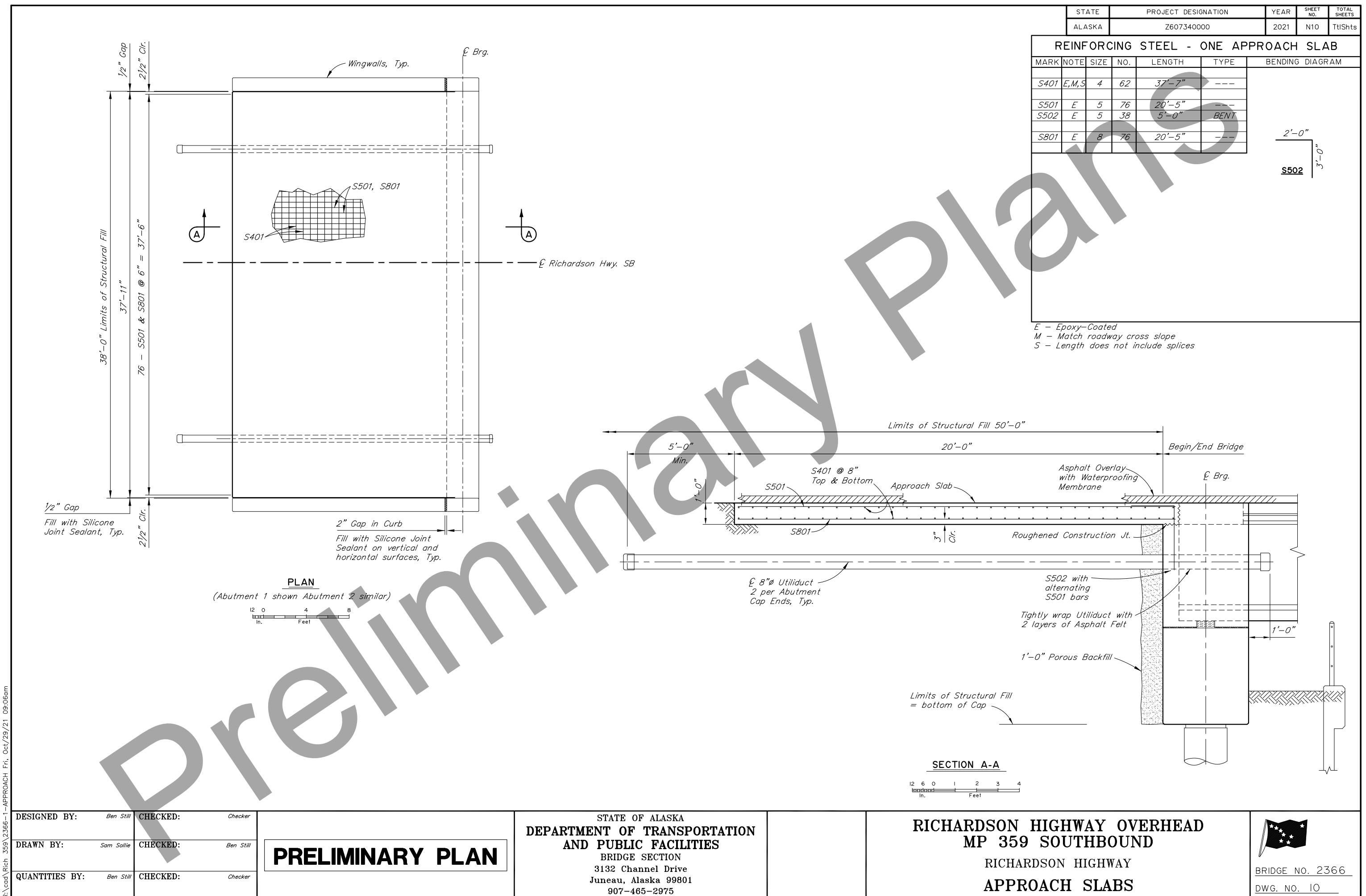
PRELIMINARY PLAN

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

RICHARDSON HIGHWAY OVERHEAD
MP 359 SOUTHBOUND
RICHARDSON HIGHWAY
GIRDER DETAILS



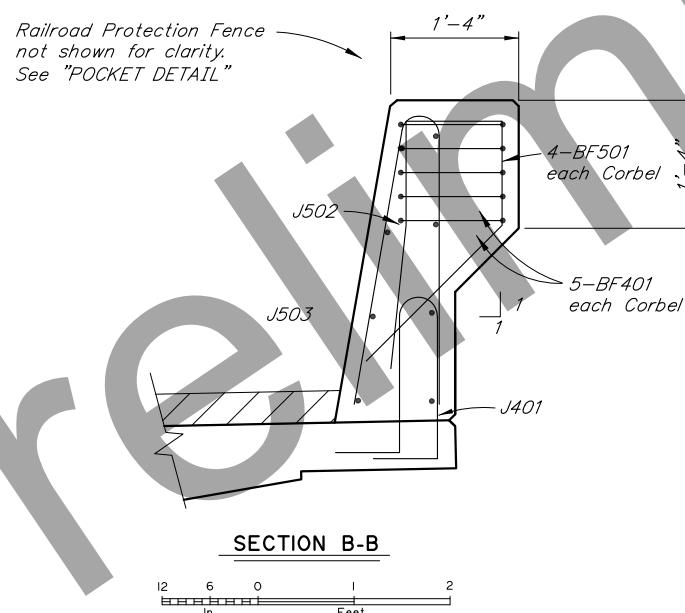
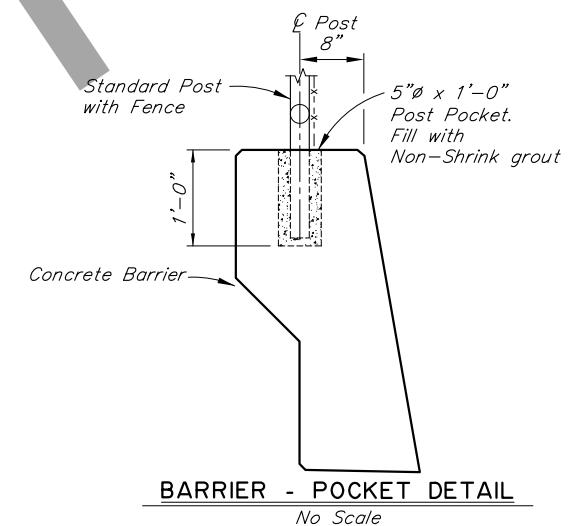
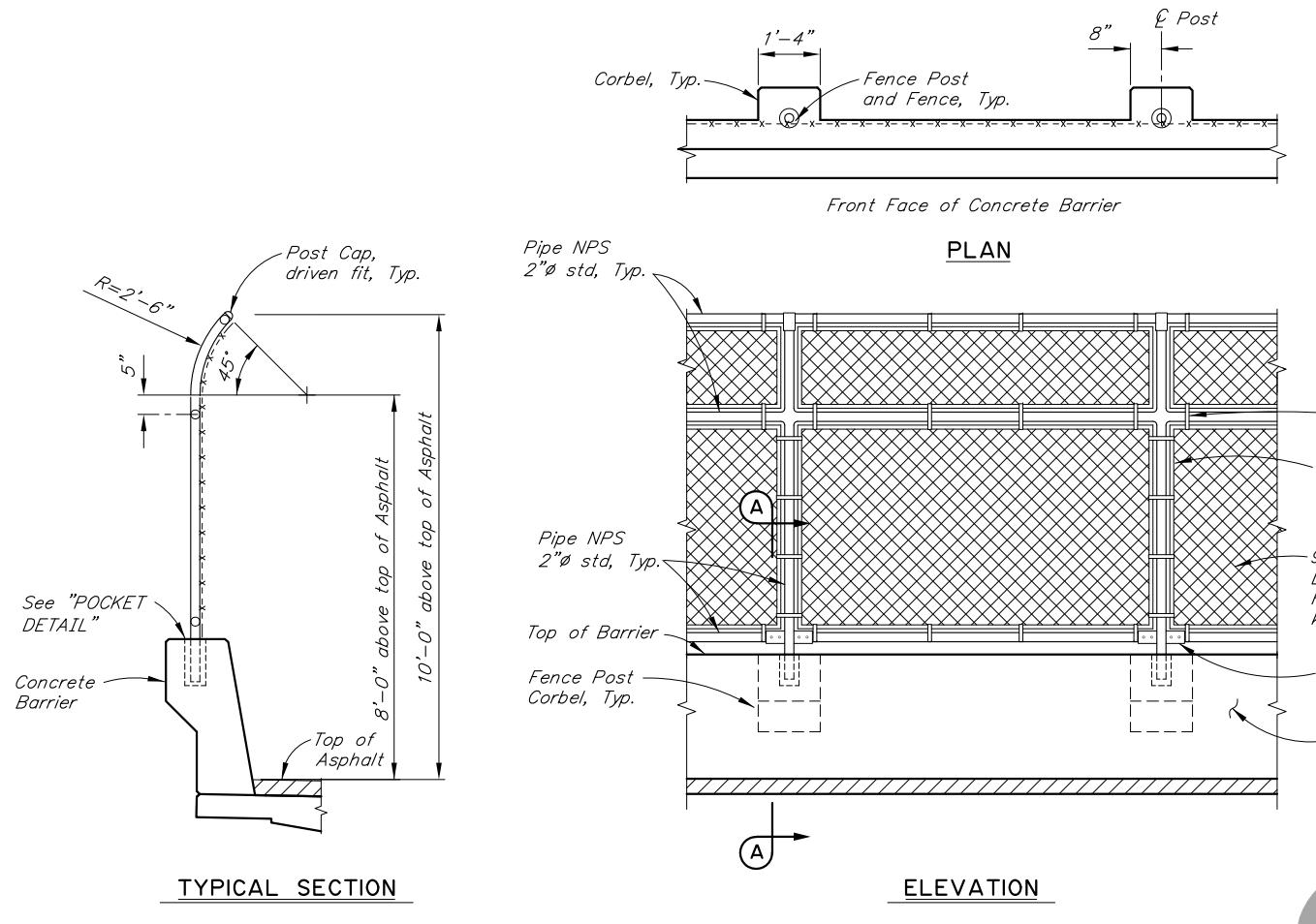
BRIDGE NO. 2366
DWG. NO. 9



STATE	PROJECT DESIGNATION	YEAR	sheet no.	total sheets
ALASKA	Z607340000	2021	N12	TtlShts

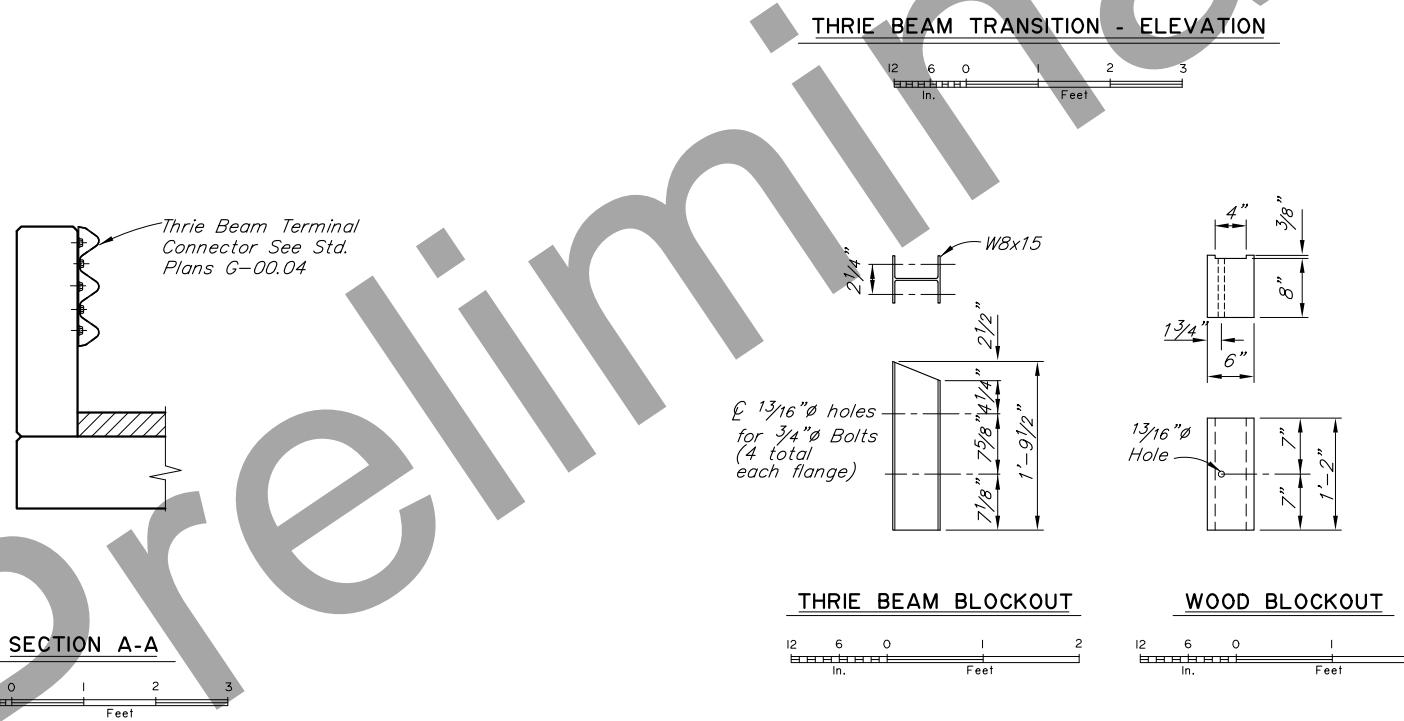
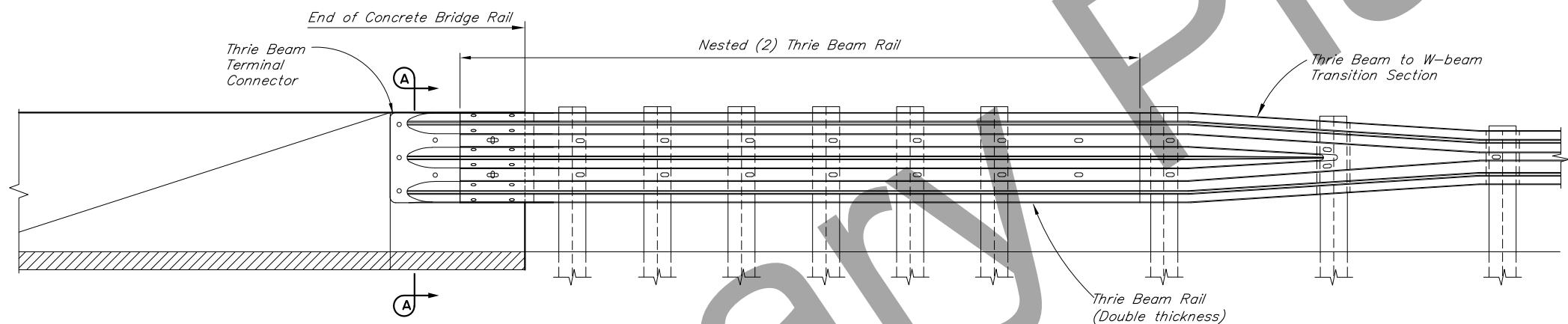
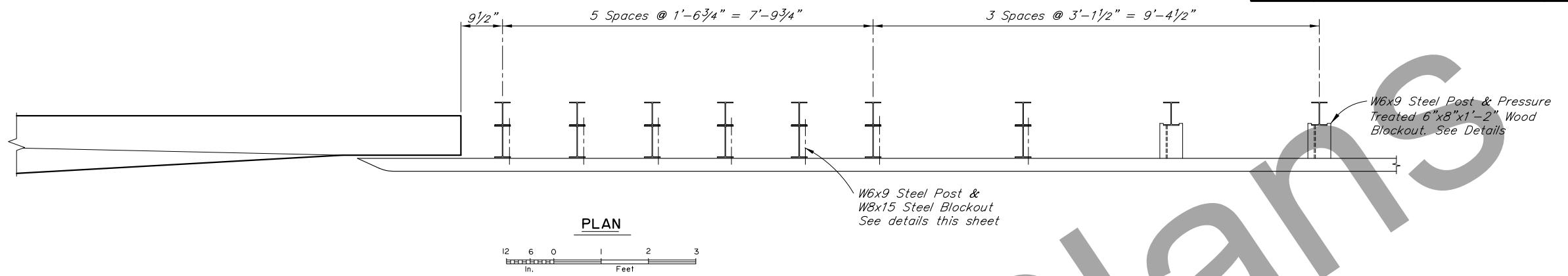
REINFORCING STEEL-ONE BRIDGE					
MARK	NOTE	SIZE	NO.	LENGTH	TYPE
BF401	E	4	340	4'-9"	BENT
BENDING DIAGRAM					
BF501	E	5	272	6'-8"	BENT

E - Epoxy-coated reinforcing steel



- NOTES:**
1. Galvanize all posts and hardware.
 2. Set posts plumb.
 3. See standard drawing F-01 for details not shown.

STATE	PROJECT DESIGNATION	YEAR	sheet no.	total sheets
ALASKA	Z607340000	2021	N13	TtlShts



R:\cad\Rich 359\2366-1-TRANSITION Fri, Oct/29/21 09:06am

DESIGNED BY: Ben Still CHECKED: Checker

PRELIMINARY PLAN

DRAWN BY: Sam Sollie CHECKED: Ben Still

QUANTITIES BY: Ben Still CHECKED: Checker

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

RICHARDSON HIGHWAY OVERHEAD
MP 359 SOUTHBOUND
RICHARDSON HIGHWAY
THRIE BEAM TRANSITION



BRIDGE NO. 2366
DWG. NO. 13

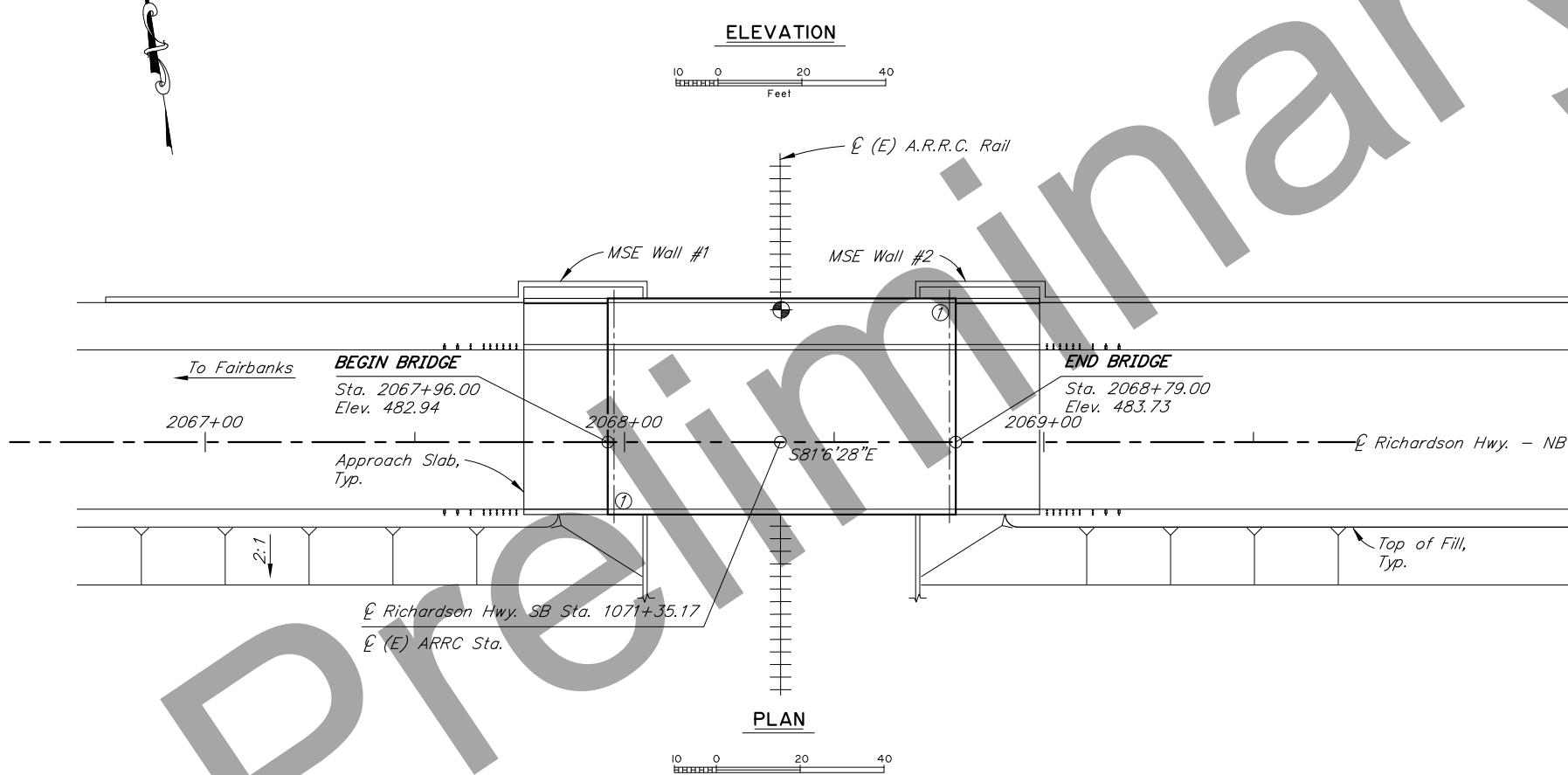
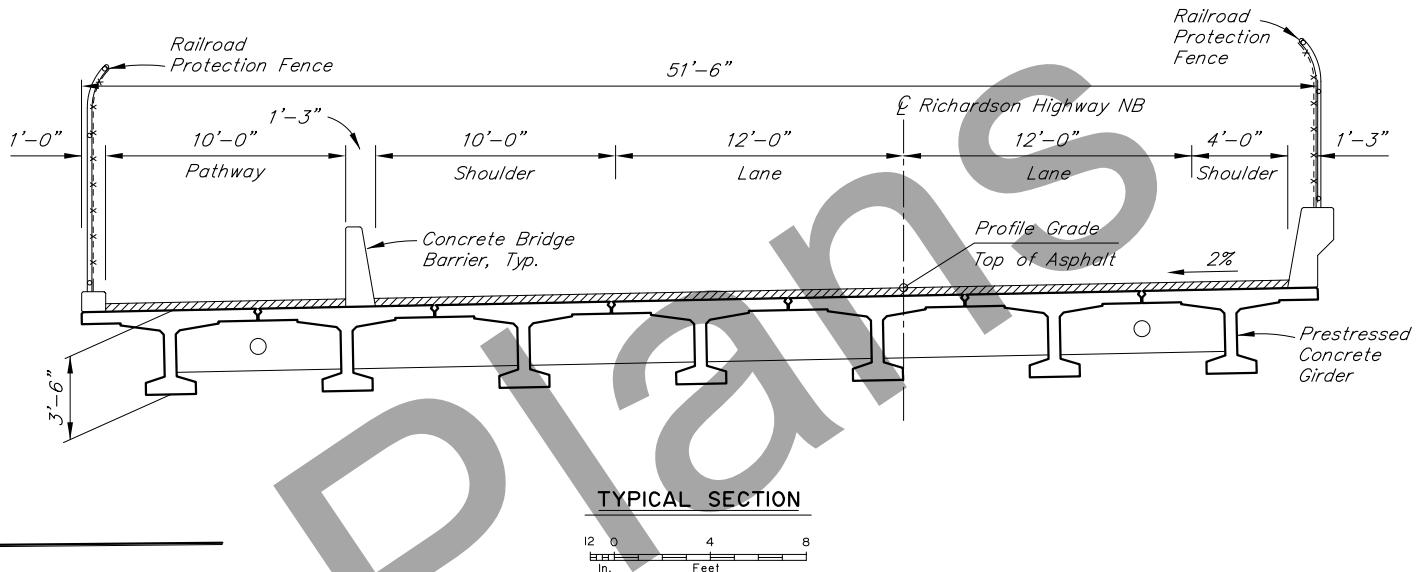
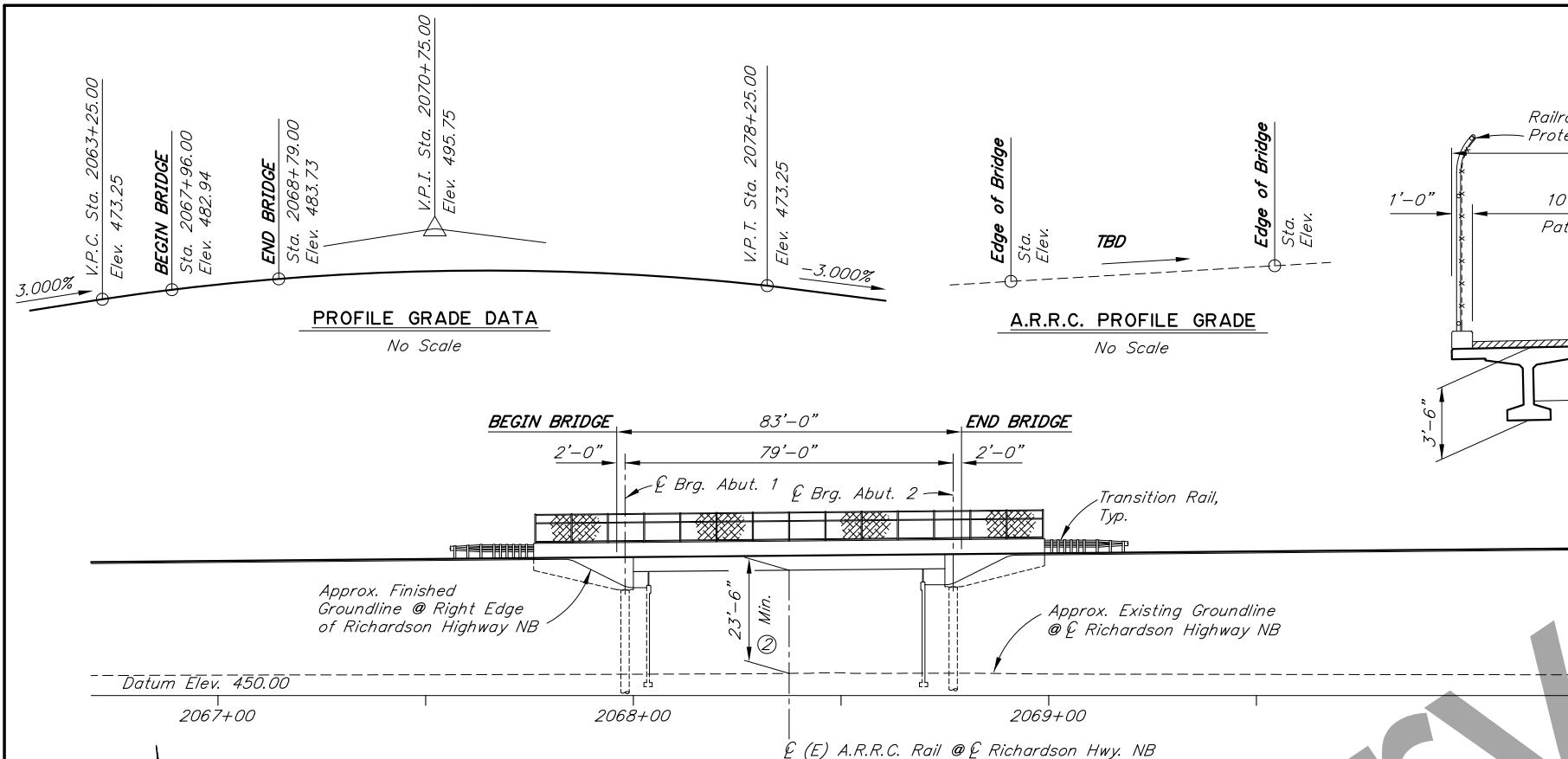
NOTES:

Conform to G-00, G-04, G-09, and G-10 for all guardrail details not shown.

Lap approach guardrail to prevent snags from oncoming traffic.

Provide 4" horizontal slot in approach guardrail. Adjust guardrail bolts for sliding fit.

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z607340000	2022	N1	TtlShs



BRIDGE DRAWING INDEX	
TITLE	DWG. NO.
GENERAL LAYOUT	1
STAGE CONSTRUCTION	2
SITE PLAN	3
ABUTMENT 1	4
ABUTMENT 2	5
ABUTMENT DETAILS	6
WINGWALLS	7
FRAMING PLAN AND TYPICAL SECTION	8
GIRDERS	9
GIRDER DETAILS	10
APPROACH SLABS	II
CONCRETE BRIDGE BARRIER	12
RAILROAD PROTECTION FENCE	13
THRIE BEAM TRANSITION	14
LOG OF TEST BORINGS	15-XX

(1) Approximate location of Bridge Number Plate.

(2) Vertical clearance between Top of rail and lowest girder.

(3) Minimum vertical clearance.

PRELIMINARY PLAN

**RICHARDSON HIGHWAY OVERHEAD
MP 359 NORTHBOUND
RICHARDSON HIGHWAY
GENERAL LAYOUT**

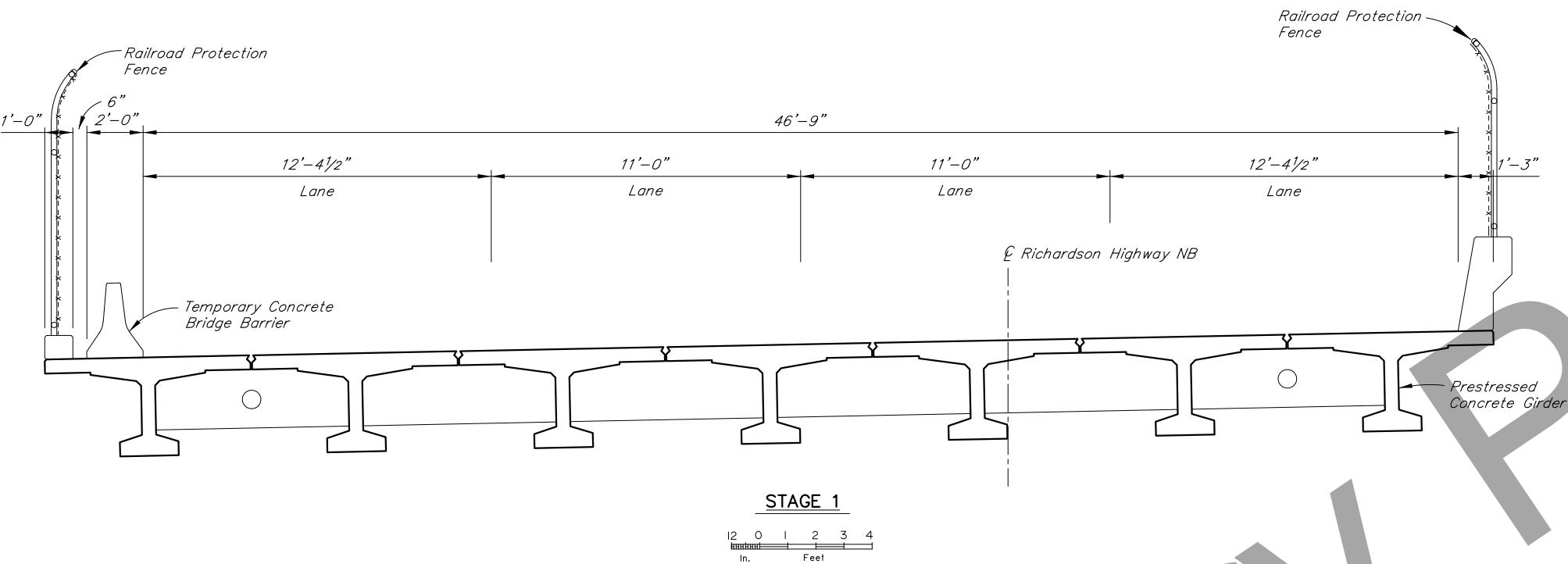
DESIGNED BY:	Ben Still	CHECKED:	Checker	LAYOUT BY:	Ben Still	CHECKED BY:	Checker
DRAWN BY:	Sam Sollie	CHECKED:	Ben Still	SPECIFICATIONS BY:	Ben Still	P S & E COMPARED:	Checker
QUANTITIES BY:	Ben Still	CHECKED:	Checker	APPROVAL RECOMMENDED BY:	Rich Pratt		

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975



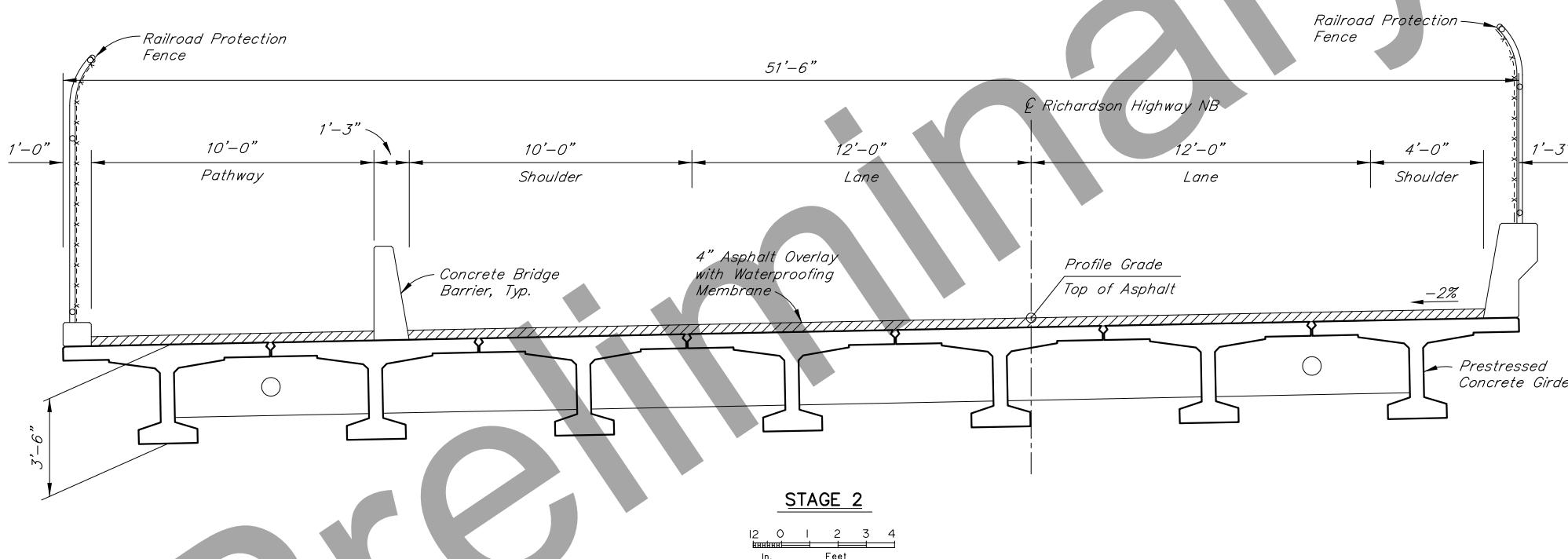
BRIDGE NO. 2367
DWG. NO. 1

STATE	PROJECT DESIGNATION	YEAR	sheet no.	total sheets
ALASKA	Z607340000	2022	N	TtlShs



STAGED CONSTRUCTION NOTES

1. Cast all Diaphragms before applying loads to bridge.
2. Pin temporary concrete barriers to the bridge deck. After remaining temporary concrete barriers. Fill all holes with "Epoxy for Bonding Dowels".
3. Do not cast approach slabs or concrete bridge barriers until after completing Stage 2 portion of the bridge.



DESIGNED BY:	Ben Still	CHECKED:	Checker
DRAWN BY:	Sam Sollie	CHECKED:	Ben Still
QUANTITIES BY:	Ben Still	CHECKED:	Checker

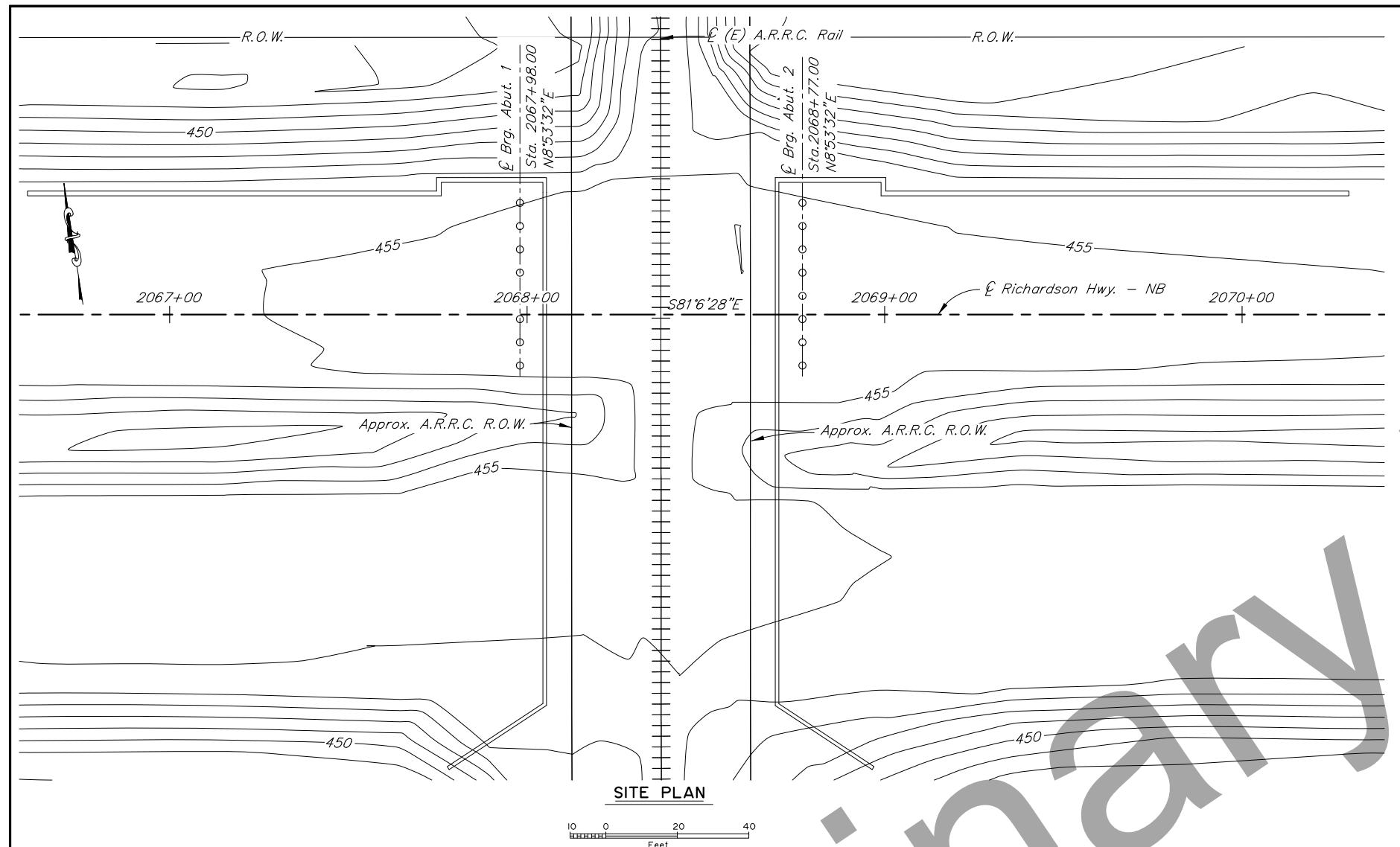
PRELIMINARY PLAN

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

RICHARDSON HIGHWAY OVERHEAD
MP 359 NORTHBOUND
RICHARDSON HIGHWAY
STAGE CONSTRUCTION



BRIDGE NO. 2367
DWG. NO. 2



ESTIMATE OF QUANTITIES						
ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	SUBST.	SUPERST.	TOTAL QUANTITY
205.0006.0000	Structural Fill	CY	CY	651	---	651
501.0001.0000	Class A Concrete	LS	CY	252.1	96.3	348.4
501.0007.0000	Precast Concrete Member, 81'-6" Decked Bulb-Tee	EA	EA	---	7	7
503.0001.0000	Reinforcing Steel	LS	LBS	31,416	---	31,416
503.0002.0000	Epoxy-Coated Reinforcing Steel	LS	LBS	---	3,664	3,664
505.0005.2405	Furnish Structural Steel Piles, 2'-0" Dia. x 1/2" Pipe	LF	LF	1,600	---	1,600
505.0006.2405	Drive Structural Steel Piles, 2'-0" Dia. x 1/2" Pipe	EA	EA	16	---	16
507.0002.0000	Pedestrian Railing Railroad Protection Fence	LF	LF	---	123.0	123.0
507.0004.0000	Concrete Bridge Barrier	LF	LF	---	123.0	123.0
507.0004.0000	Concrete Bridge Barrier Railroad Protection Fence	LF	LF	---	123.0	123.0
508.0001.0000	Waterproofing Membrane, Spray-Applied	LS	SF	---	3,964	3,964
606.0016.0000	Transition Rail	EA	EA	---	4	4

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item.

DESIGNED BY: Ben Still
DRAWN BY: Sam Sollie
QUANTITIES BY: Ben Still

CHECKED: Checker
CHECKED: Ben Still
CHECKED: Checker

FOUNDATIONS REVIEWED BY: Engineer
PRELIMINARY PLAN

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

RICHARDSON HIGHWAY OVERHEAD
MP 359 NORTHBOUND
RICHARDSON HIGHWAY
SITE PLAN

BRIDGE NO. 2367
DWG. NO. 3

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z607340000	2022	N	TtlShs

GENERAL NOTES

DESIGN:..... AASHTO LRFD Bridge Design Specifications, 2022 Edition, with latest interim specifications.
Seismic design per AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2011 with latest interim revisions.

LIVE LOAD:..... HL-93
DEAD LOAD:..... Includes 50 psf for all wearing surfaces.

SEISMIC PARAMETERS:..... PGA = 0.28
Ss = 0.65
S1 = 0.21
Site Class = C
Liquefaction Potential = Low
AASHTO 7% probability of exceedance in 75 years.

REINFORCEMENT:..... ASTM A706, Grade 60, Fy = 60,000 psi
ASTM A970 Headed bars, Class HA.
Space reinforcement evenly unless otherwise noted.

PRESTRESSED CONCRETE:..... See Girder Dwg.

CONCRETE:..... Class A Concrete unless otherwise noted, f'c = 4,000 psi

STRUCTURAL STEEL:..... ASTM A709, Grade 36T3, Fy = 36,000 psi
Galvanize structural steel in accordance with AASHTO M111 unless noted otherwise.

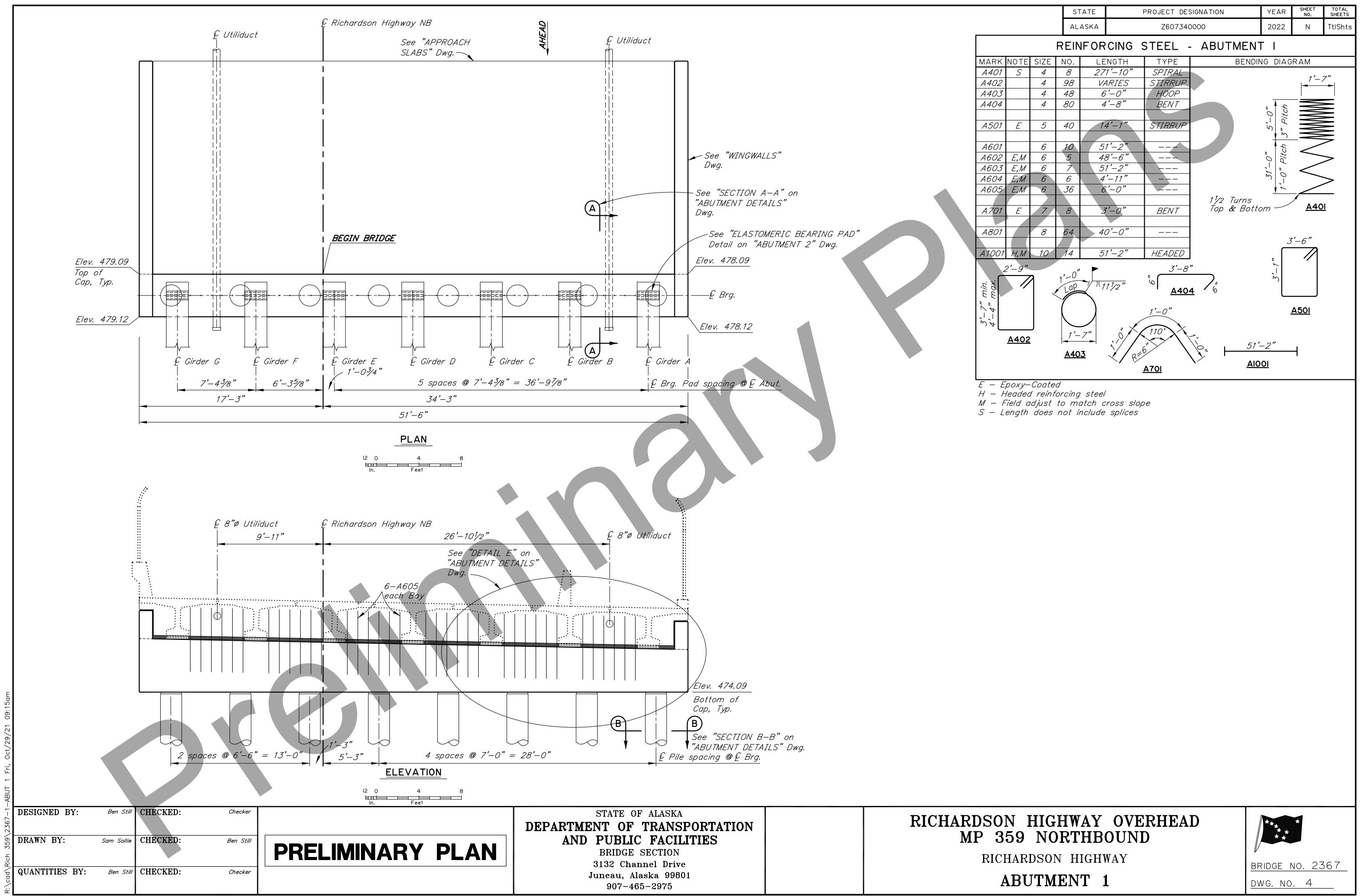
STRUCTURAL STEEL PILING:..... API 5L X52 PSL2, Fy = 52,000 psi or
ASTM A709, GR50T3, Fy = 50,000 psi.
Pile Tip reinforcing is required.

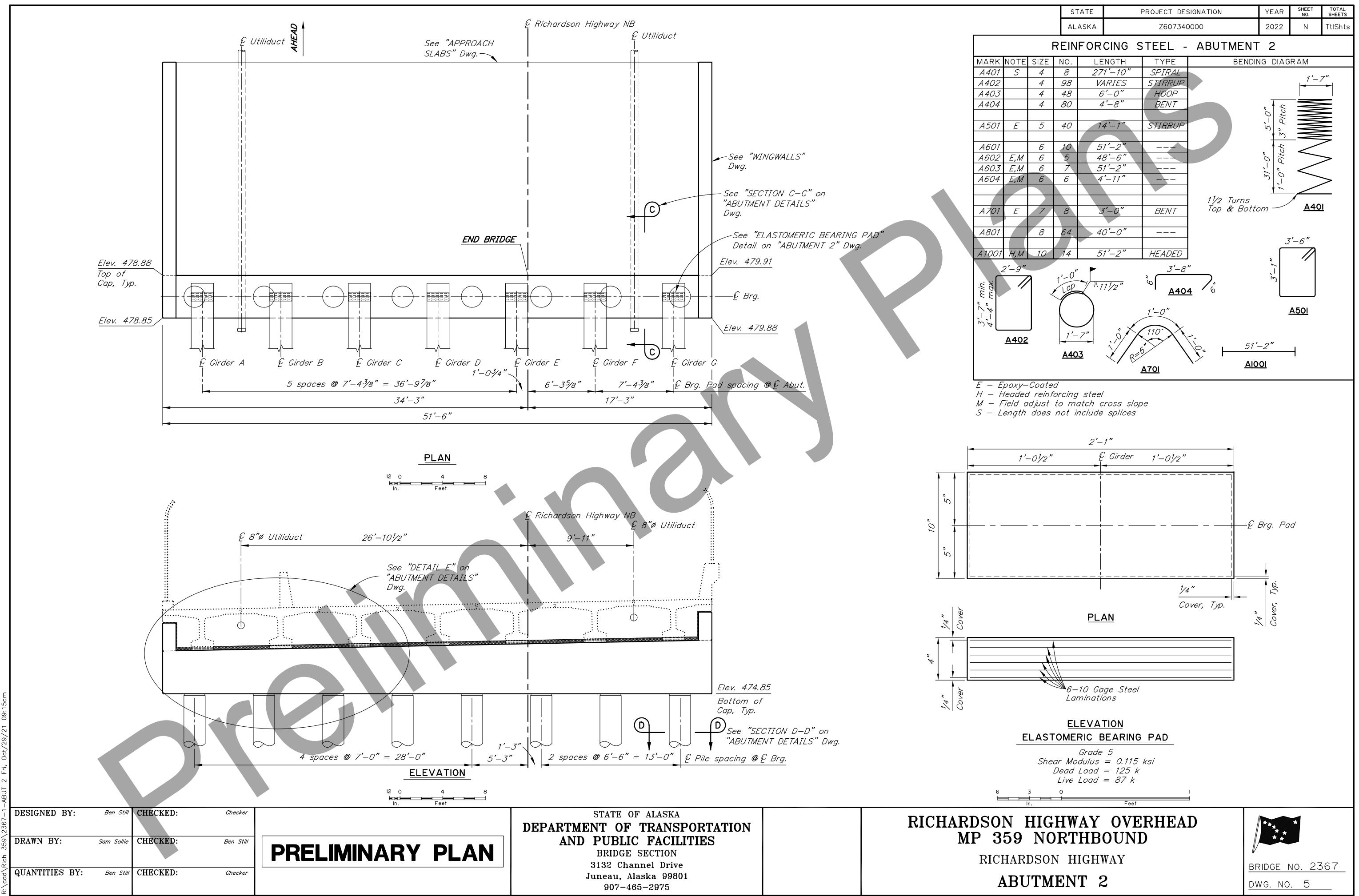
PILE DATA TABLE							
DRIVING CRITERIA		DESIGN DATA					
LOCATION	PILE TYPE	MINIMUM PENETRATION (ft)	ESTIMATED PILE TIP ELEVATION	DRIVING RESISTANCE (k)	STRENGTH I FACTORED LOAD (k)	NOMINAL RESISTANCE (k)	RESISTANCE FACTOR, φ
Abutment 1	2'-0"Øx1/2"	99	374.09	540	359	540	0.65
Abutment 2	2'-0"Øx1/2"	99	374.88	540	359	540	0.65

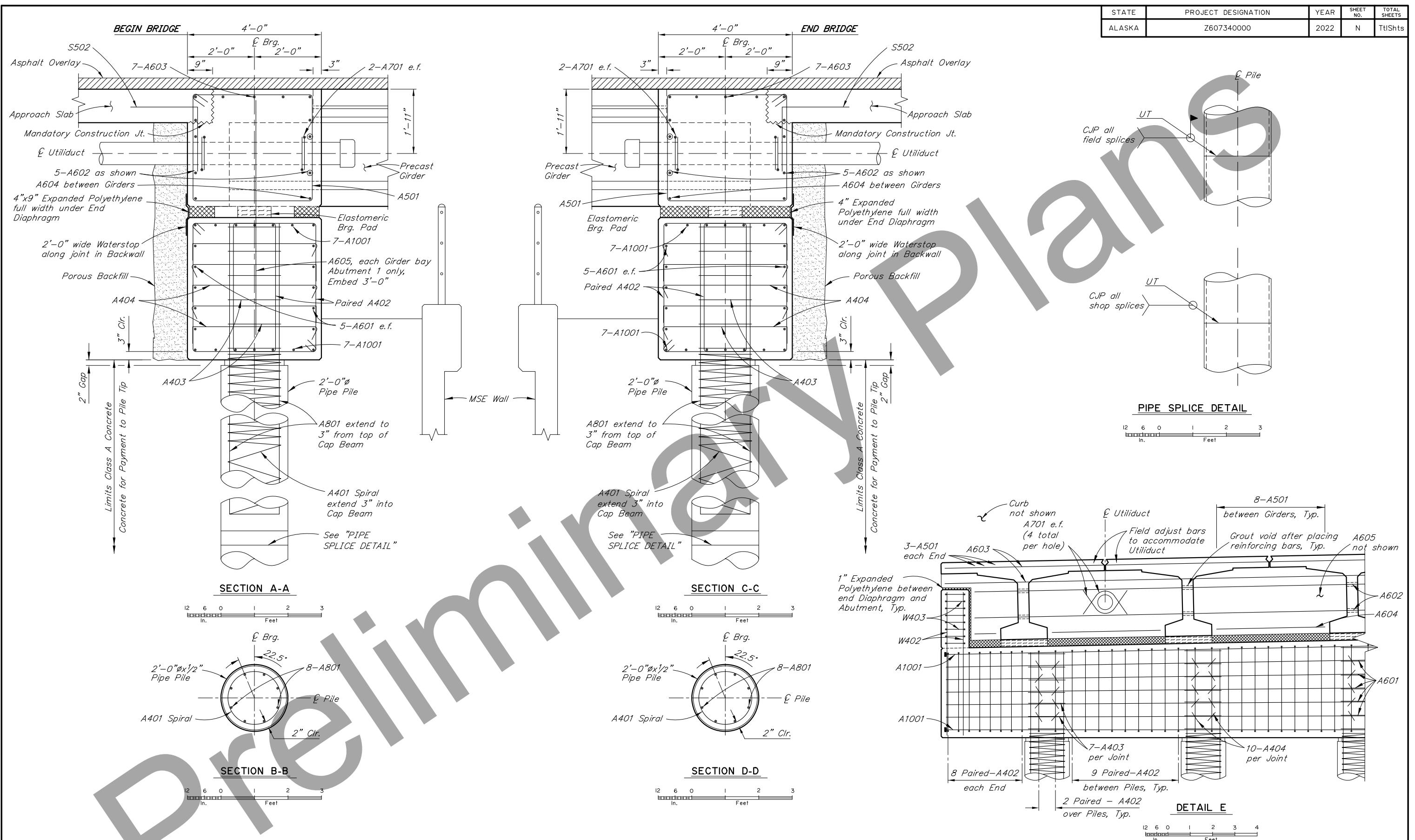
Difficult driving conditions are expected. Pilot bore hole required for each pile.

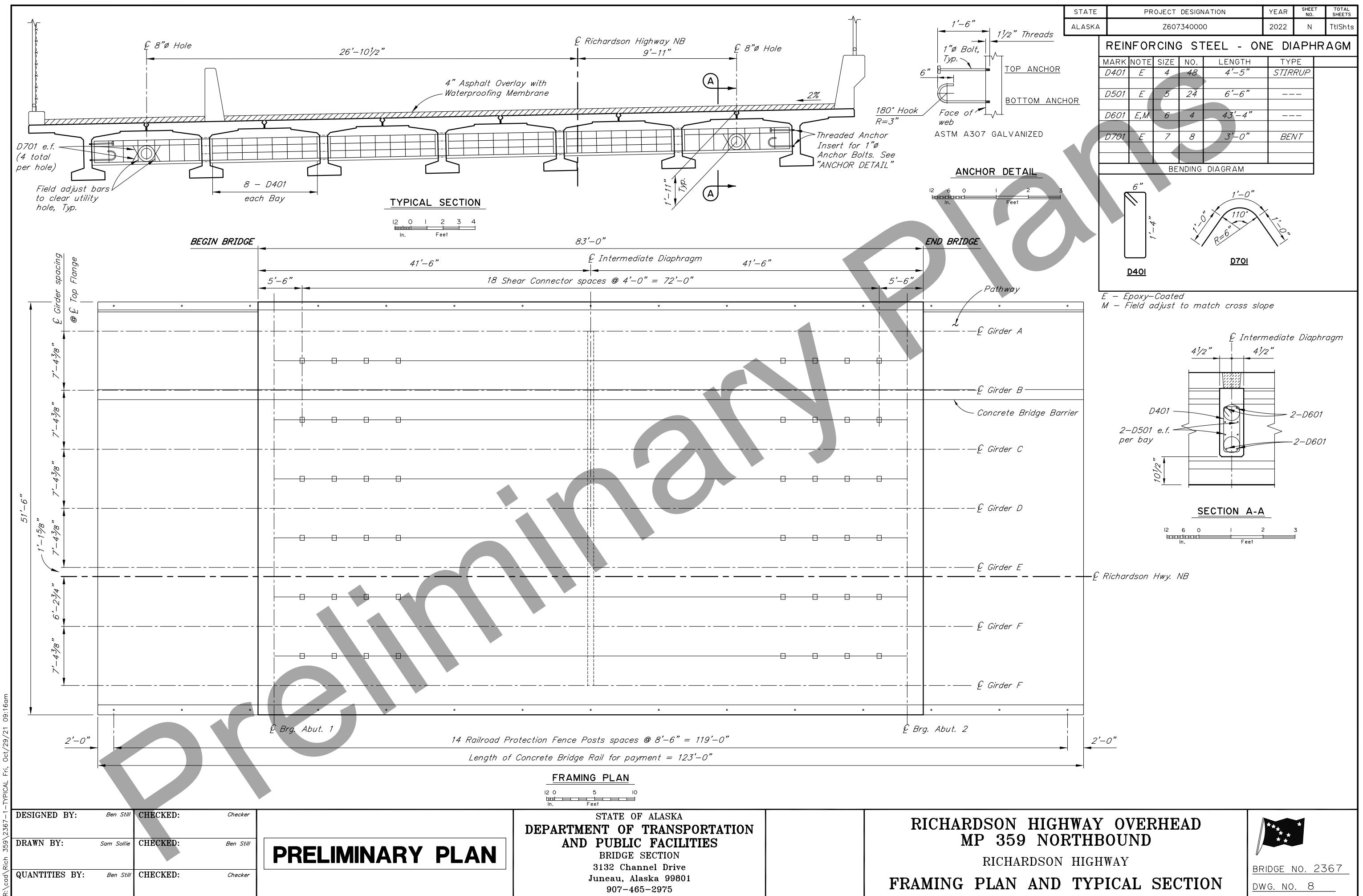
ABBREVIATIONS:

€	= centerline	e.f.	= each face	m.n.	= minimum
¶	= plate	e.w.	= each way	MSE	= mechanically stabilized earth
&	= and	Ext.	= exterior	n.f.	= near face
@	= at	F	= fixed	No.	= number
Ø	= diameter	f.f.	= front/air face	o.c.	= on center
±	= approximate	f'c	= specified concrete compressive strength	O.H.W.	= ordinary high water
Abut.	= abutment	f'ci	= specified concrete compressive strength at release	pcf	= pounds per cubic foot
Approx.	= approximate	Ft.	= feet	psf	= pounds per square foot
A.R.R.C.	= Alaska rail road company	Fy	= yield stress	psi	= pounds per square inch
b.f.	= back/dirt face	Glav.	= galvanize	R	= radius
bot.	= bottom	H.S.	= high strength	R.O.W.	= right of way
Br.	= bridge	Hwy.	= highway	R.T.	= right
btwn.	= between	ID	= internal diameter	Rd.	= road
Brg.	= bearings	Int.	= interior	spcs.	= space, spaces
C.G.	= center of gravity	Jt.	= joint	Sta.	= station
C.I.P.	= cast in place	K	= kips	SF	= square feet
C.J.P.	= complete joint penetration	ksf	= 1000 pounds per square foot	SY	= square yard
Clr.	= clear, clearance	ksi	= 1000 pounds per square inch	Std.	= standard
CMP	= corrugated metal pipe	LBS or lb	= pounds	Symm.	= symmetric
CY	= cubic yard	LF	= linear foot	Typ.	= typical
Dia.	= diameter	LS	= lump sum	UT	= ultrasonic testing
Dwg.	= drawing	LT.	= left	V.P.C.	= point of vertical curve
E	= expansion	max.	= maximum	V.P.I.	= point of vertical intersection
(E)	= existing			V.P.T.	= point of vertical tangent
EA	= each			w/	= with
Elev.	= elevation				

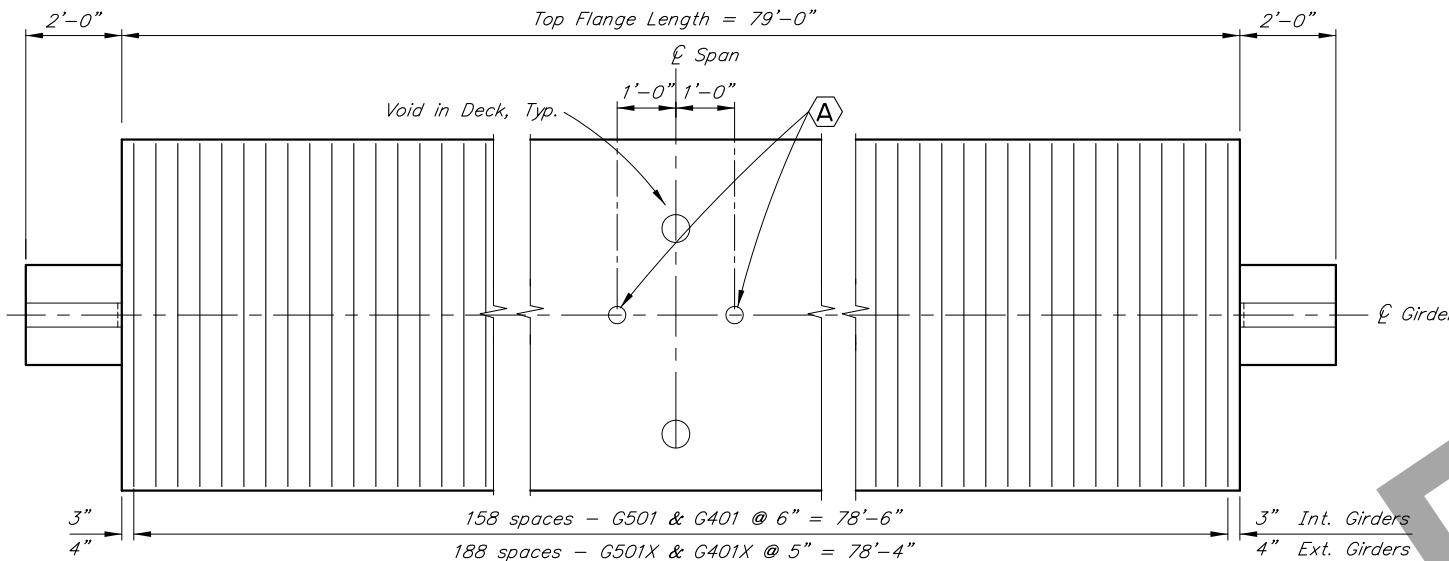






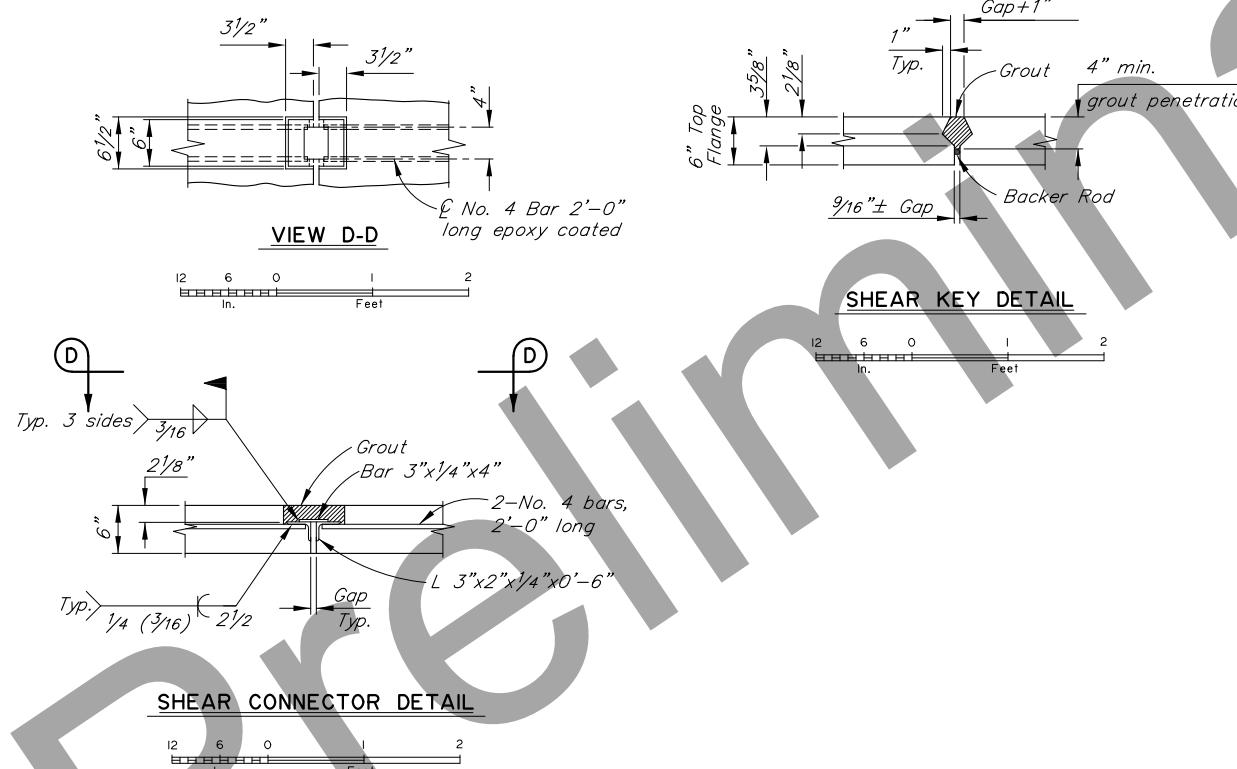


STATE	PROJECT DESIGNATION	YEAR	sheet no.	total sheets
ALASKA	Z607340000	2022	N	TtlShs



PLAN

No Scale



DESIGNED BY: Ben Still

CHECKED: Checker

DRAWN BY: Sam Sollie

CHECKED: Ben Still

QUANTITIES BY: Ben Still

CHECKED: Checker

PRELIMINARY PLAN

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

**RICHARDSON HIGHWAY OVERHEAD
MP 359 NORTHBOUND
RICHARDSON HIGHWAY
GIRDER DETAILS**



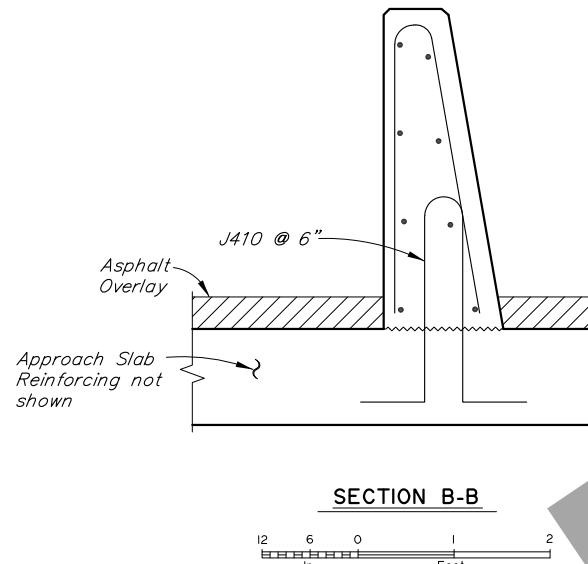
BRIDGE NO. 2367
DWG. NO. 10

STATE: ALASKA PROJECT DESIGNATION: Z607340000 YEAR: 2022 SHEET NO.: N TOTAL SHEETS: TtlShts

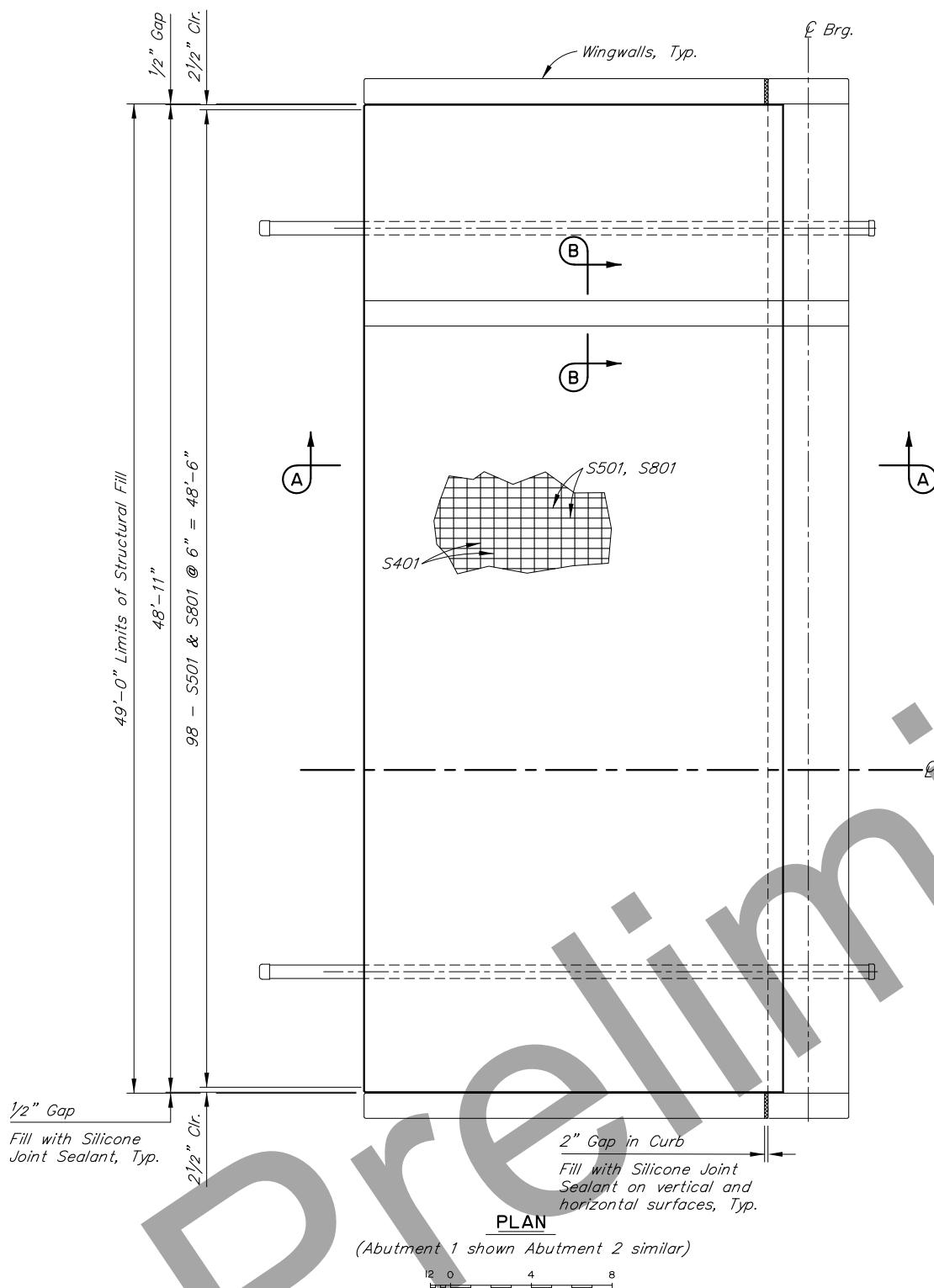
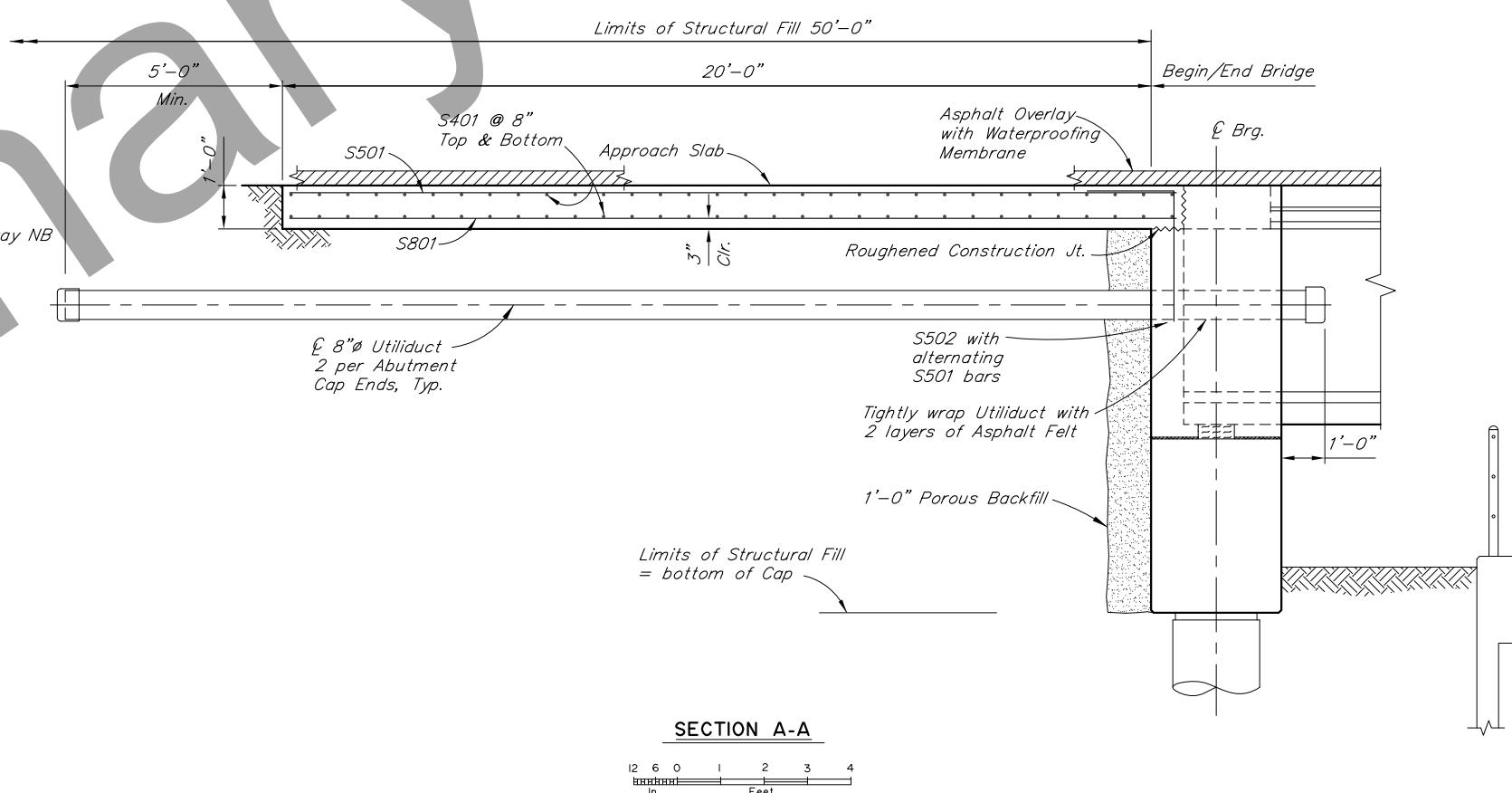
REINFORCING STEEL - ONE APPROACH SLAB

MARK	NOTE	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAM
S401	E,M,S	4	62	37'-7"	---	
S501	E	5	76	20'-5"	---	
S502	E	5	38	5'-0"	BENT	
S801	E	8	76	20'-5"	---	
J410	E	4	40	5'-11 1/4"	BENT	

2'-0"
S502
3'-0"



E - Epoxy-Coated
M - Match roadway cross slope
S - Length does not include splices



DESIGNED BY: Ben Still

CHECKED: Checker

CHECKER: Ben Still

DRAWN BY: Sam Sollie

CHECKED: Ben Still

CHECKER: Ben Still

QUANTITIES BY: Ben Still

CHECKED: Checker

CHECKER: Ben Still

PRELIMINARY PLAN

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

**RICHARDSON HIGHWAY OVERHEAD
MP 359 NORTHBOUND
RICHARDSON HIGHWAY
APPROACH SLABS**



BRIDGE NO. 2367
DWG. NO. II

R:\cad\Rich 359\2367-1-RAIL Fri, Oct 29, 2021 09:16am

TYPICAL CONCRETE BRIDGE BARRIER TRANSITION - PLAN

Bridge Number Plate, See Note 2

Asphalt Overlay

Backwall

Expansion Joint

Bottom of Concrete Bridge Barrier

End of Wingwall

Bridge Deck

Concrete Bridge Barrier

Wingwall

Bridge Number Plate, See Note 2

Asphalt Overlay

Backwall

Expansion Joint

Bottom of Concrete Bridge Barrier

End of Wingwall

Bridge Deck

Concrete Bridge Barrier

Wingwall

REINFORCING STEEL - ALL BARRIERS

MARK	NOTE	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAM
J401	E	4			---	
J402	E	4			---	
J403	E	4		6'-11"	BENT	
J405	E	4		4'-6"	BENT	
J409	E	4		7'-1"	BENT	

MIDSPAN EXPANSION JOINT

Locate at Midspan
No Scale

WEAKENED PLANE JOINT

Joint may be formed with $\frac{1}{8}$ " hardboard and cut back to the root of the chamfer

Locate at $\frac{1}{4}$ Span
No Scale

SECTION A-A

SECTION B-B

SECTION C-C

NOTES

1. Construct concrete bridge barrier plumb.
2. Furnish and install two bronze bridge number plates. Use "CENTURY" type style. Studs to be $\frac{1}{4}$ " bronze threaded rods brazed to back of plate. Epoxy bond rods into $\frac{3}{8}$ " holes in concrete bridge barrier blockout. Use epoxy suitable for exterior application and compatible with materials to be bonded. Follow epoxy manufacturer's instructions.

DESIGNED BY: Ben Still

CHECKED: Checker

DRAWN BY: Sam Sollie

CHECKED: Ben Still

QUANTITIES BY: Ben Still

CHECKED: Checker

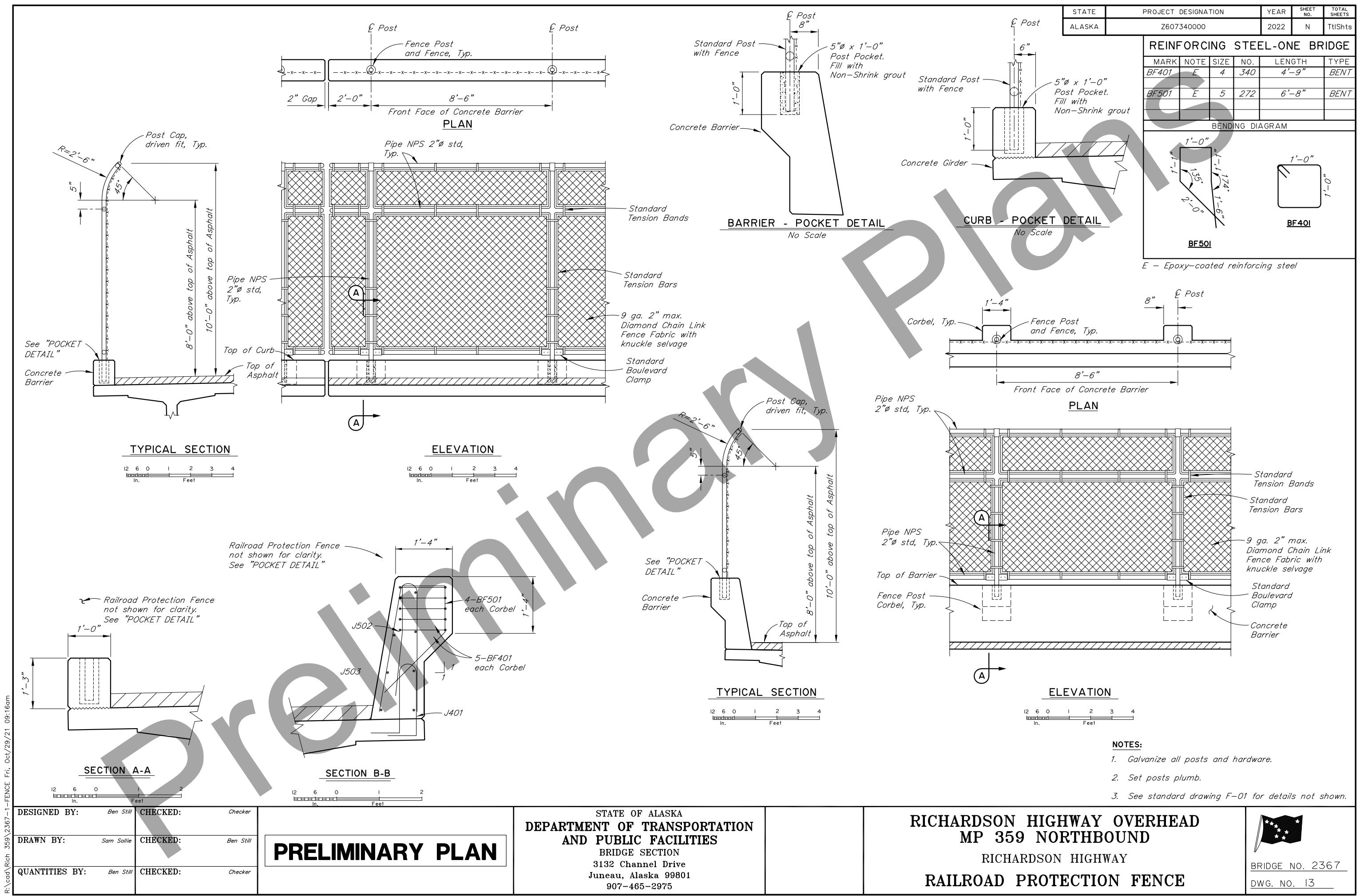
PRELIMINARY PLAN

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-465-2975

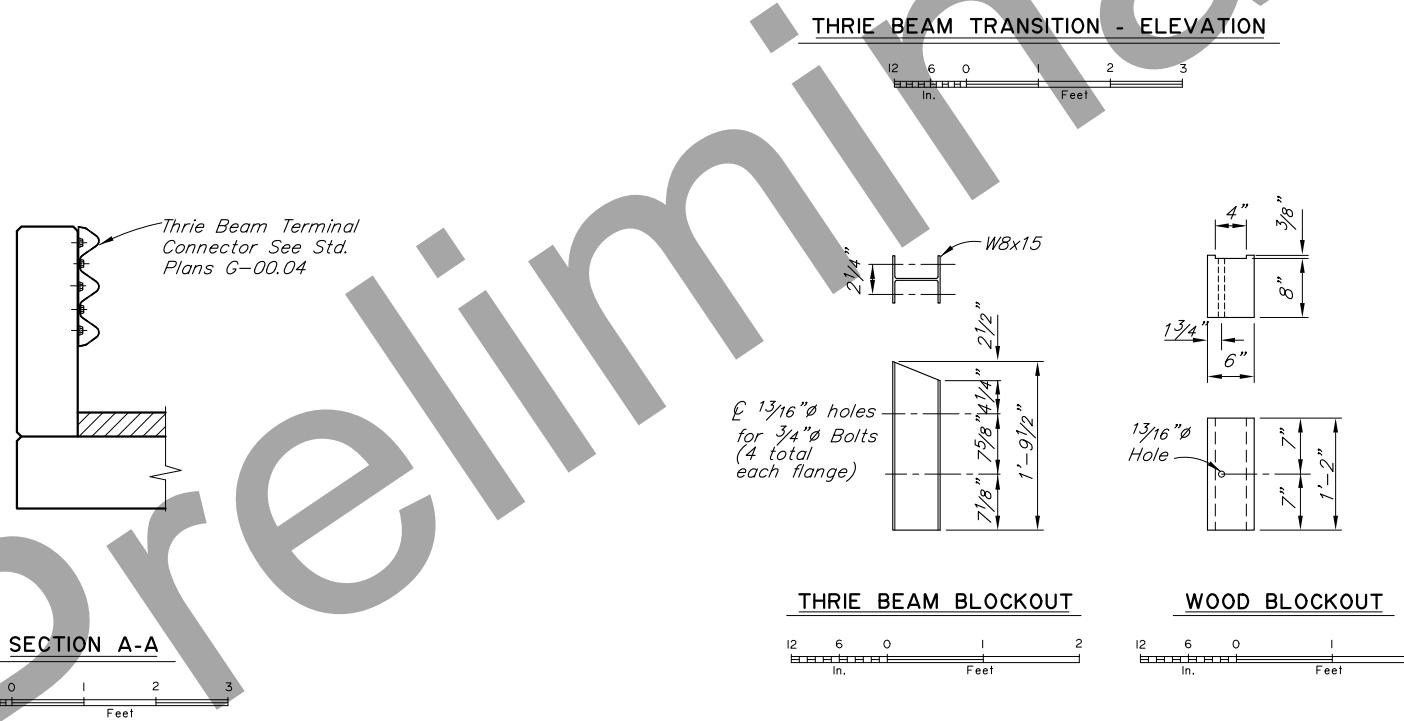
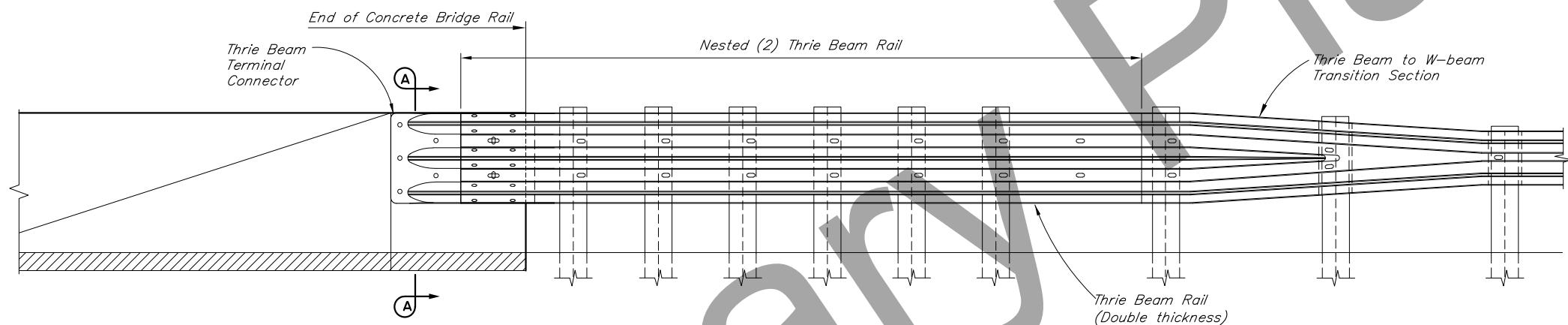
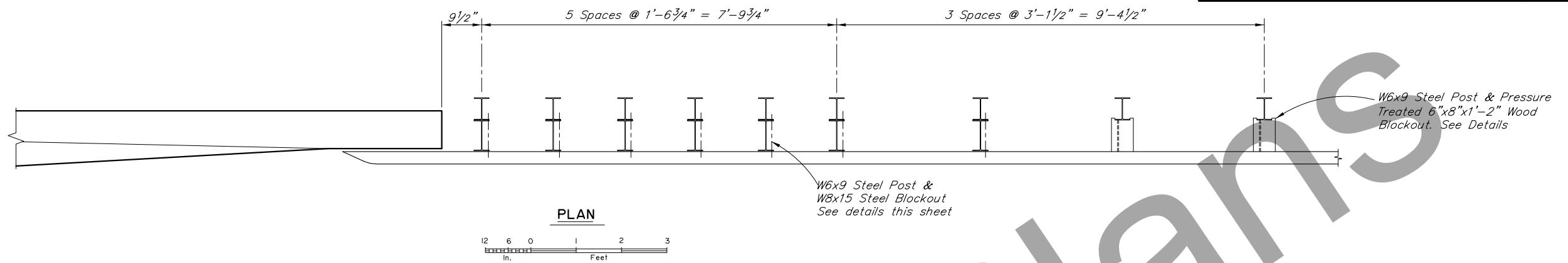
RICHARDSON HIGHWAY OVERHEAD MP 359 NORTHBOUND RICHARDSON HIGHWAY CONCRETE BRIDGE BARRIER

BRIDGE NO. 2367

DWG. NO. 12



STATE	PROJECT DESIGNATION	YEAR	sheet no.	total sheets
ALASKA	Z607340000	2022	N	TtlShts



NOTES:

Conform to G-00, G-04, G-09, and G-10 for all guardrail details not shown.

Lap approach guardrail to prevent snags from oncoming traffic.

Provide 4" horizontal slot in approach guardrail. Adjust guardrail bolts for sliding fit.

PRELIMINARY PLAN



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	Q1	Q4

GENERAL SITE INFORMATION

1. SITE FUNCTION: ROAD AND SEPARATED PATH
2. 2-YEAR, 24-HOUR RAINFALL EVEN 1.10 TO 2.00 INCHES (SOURCE: http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_ak.html)
3. AVERAGE ANNUAL PRECIPITATION: 11.16 INCHES RAINFALL (SOURCE: WESTERN REGIONAL CLIMATE CENTER) FOR NORTH POLE, ALASKA
4. STOCKPILE AND STAGING AREAS: CONTRACTOR MUST SEEK LOCATIONS FOR STOCKPILING MATERIAL AND STAGING AND STORAGE OF EQUIPMENT. STOCKPILE AND EQUIPMENT AREAS MUST COMPLY WITH THE CGP, SWPPP, SECTION 641, SECTION 107-1.11 AND ALL PERMITS.
5. PROJECT AREAS ARE LISTED BELOW (MATERIAL SITES NOT INCLUDED):

PROJECT INFORMATION TABLE	
PROJECT AREA (ACRE)	23.1 ACRES
DISTURBED AREA (ACRE)	17.1 ACRES
PRE-CONSTRUCTION IMPERVIOUS AREA (%)	31%
POST-CONSTRUCTION IMPERVIOUS AREA (%)	30%
PRE-CONSTRUCTION RUNOFF COEFFICIENT	.7145
POST-CONSTRUCTION RUNOFF COEFFICIENT	.708

6. LANDSCAPE TOPOGRAPHY: RELATIVELY LEVEL
7. DRAINAGE PATTERNS: WATER FLOWS TO THE CLUSTER OF PONDS SOUTH OF THE PROJECT AREA.
8. SOILS: GRAVEL, SAND, AND SILT. FROST-SUSCEPTIBLE SOILS ARE PRESENT.
9. EXISTING VEGETATION: SHRUB BOGS ARE PRIMARILY FOUND HERE
10. APPROXIMATE GROWING SEASON: MAY 2 TO OCTOBER 4 (SOURCE: USACE WETLANDS DELINEATION MANUAL: ALASKA REGION (VERSION 2))
11. HISTORIC SITE CONTAMINATION: THE CONTAMINATED SITES DATABASE INDICATED NO CONTAMINATED SITES WITHIN THE PROJECT CORRIDOR. (SOURCE: <https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search>)

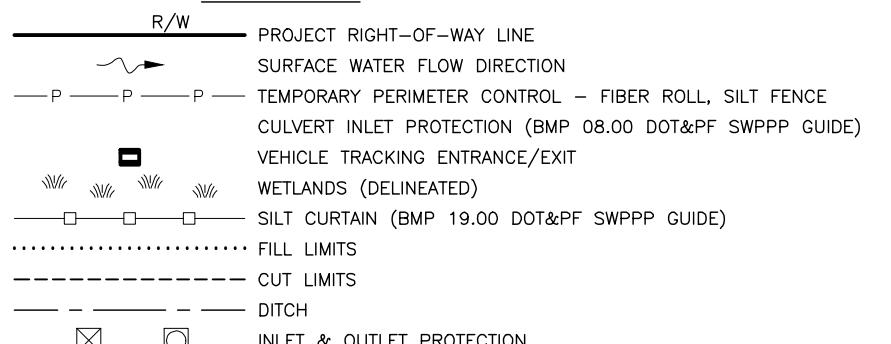
ENVIRONMENTAL INFORMATION

1. RECEIVING WATERS: THERE ARE WETLANDS PRESENT WITHIN 2500 FEET OF THE CORRIDOR THROUGHOUT THE ENTIRE PROJECT. THERE IS A SMALL IMPACT TO WETLANDS AROUND STATION "SB" 1064+00.
2. IMPAIRED WATER BODIES: NONE
3. TMDL: NONE
4. STORM SEWER/DRAINAGE SYSTEMS: ROADSIDE DITCHES LEADING TO NATURAL CHANNELS LEADING TO THE PONDS TO THE SOUTH OF THE PROJECT.
5. THREATENED AND ENDANGERED SPECIES: NONE
6. HISTORICAL & CULTURAL RESOURCE PRESENCE: NO KNOWN HISTORIC SITES. IF CULTURAL RESOURCES ARE DISCOVERED DURING CONSTRUCTION, CEASE WORK IMMEDIATELY AND NOTIFY THE PROJECT ENGINEER.
7. FISH & WILDLIFE HABITAT PRESENCE: NONE
8. WETLANDS: THERE ARE WETLANDS WITHIN 2500 FEET THROUGHOUT THE ENTIRE PROJECT CORRIDOR.
9. CONTACT THE PROJECT ENGINEER WITH QUESTIONS/CONCERNs REGARDING ENVIRONMENTAL ISSUES OR PERMIT INFORMATION.
10. ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE MIGRATORY BIRD TREATY ACT TO PREVENT THE KILLING OR TAKING OF MIGRATORY BIRDS OR ANY PART, NEST, OR EGGS. SEE THE US FISH AND WILDLIFE SERVICES "LAND CLEARING TIMING GUIDANCE FOR ALASKA" FOR MORE INFORMATION.
11. NO EXISTING PUBLIC WATER SYSTEM (PWS) DRINKING WATER PROTECTION AREAS (DWPA) INTERSECT THE BOUNDARY OF THE PROPOSED PROJECT. (SOURCE: ADEC DRINKING WATER PROTECTION MAP)

GENERAL NOTES:

1. THIS PROJECT WILL RESULT IN GROUND DISTURBANCE OF GREATER THAN 1 ACRE, AND WILL REQUIRE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
2. THE CONTRACTOR SHALL COMPLY WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 641 OF THE PROJECT SPECIFICATIONS.
3. EROSION AND SEDIMENT CONTROL FEATURES MUST BE BASED ON THE DOT&PF MANUAL ALASKA STORM WATER POLLUTION PREVENTION PLAN GUIDE (MARCH 2017 OR LATEST VERSION) AND LATEST BMPs.
4. INITIATE EROSION AND SEDIMENT CONTROLS PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
5. STOCKPILE AND STAGING LOCATIONS MUST BE RECLAIMED TO THEIR ORIGINAL CONDITION. STOCKPILES AND/OR STAGING AREAS ARE NOT ALLOWED IN WETLANDS.
6. ENSURE LOADS ARE STABLE OR COVERED SO THAT NO MATERIAL ESCAPES DURING HAULING ACTIVITIES.
7. CONTRACTOR WILL WATER EXPOSED SOILS TO MITIGATE FUGITIVE DUST AS NECESSARY.
8. EMBANKMENT HEIGHT AND SIDESLOPES ARE SHOWN IN THE PROJECT CROSS SECTIONS AND ARE AVAILABLE FOR THE CONTRACTOR'S USE.
9. IF EXCAVATION DEWATERING WILL OCCUR ON THE PROJECT, THE CONTRACTOR MUST COMPLY WITH THE EXCAVATION DEWATERING GENERAL PERMIT AND SUBMIT A NOI AND A CERTIFIED BMP PLAN TO ADEC FOR APPROVAL BEFORE DEWATERING CAN BEGIN.
10. VEGETATIVE BUFFER IS THE PREFERRED METHOD OF PERIMETER CONTROL FOR THIS PROJECT. WHERE VEGETATION IS NOT 25 FEET WIDE, THEN A BMP MUST BE INSTALLED FOR PERIMETER CONTROL.
11. SWEEP CLEAN STABILIZED CONSTRUCTION EXISTS EACH SHIFT OR AS DIRECTED BY THE ENGINEER.

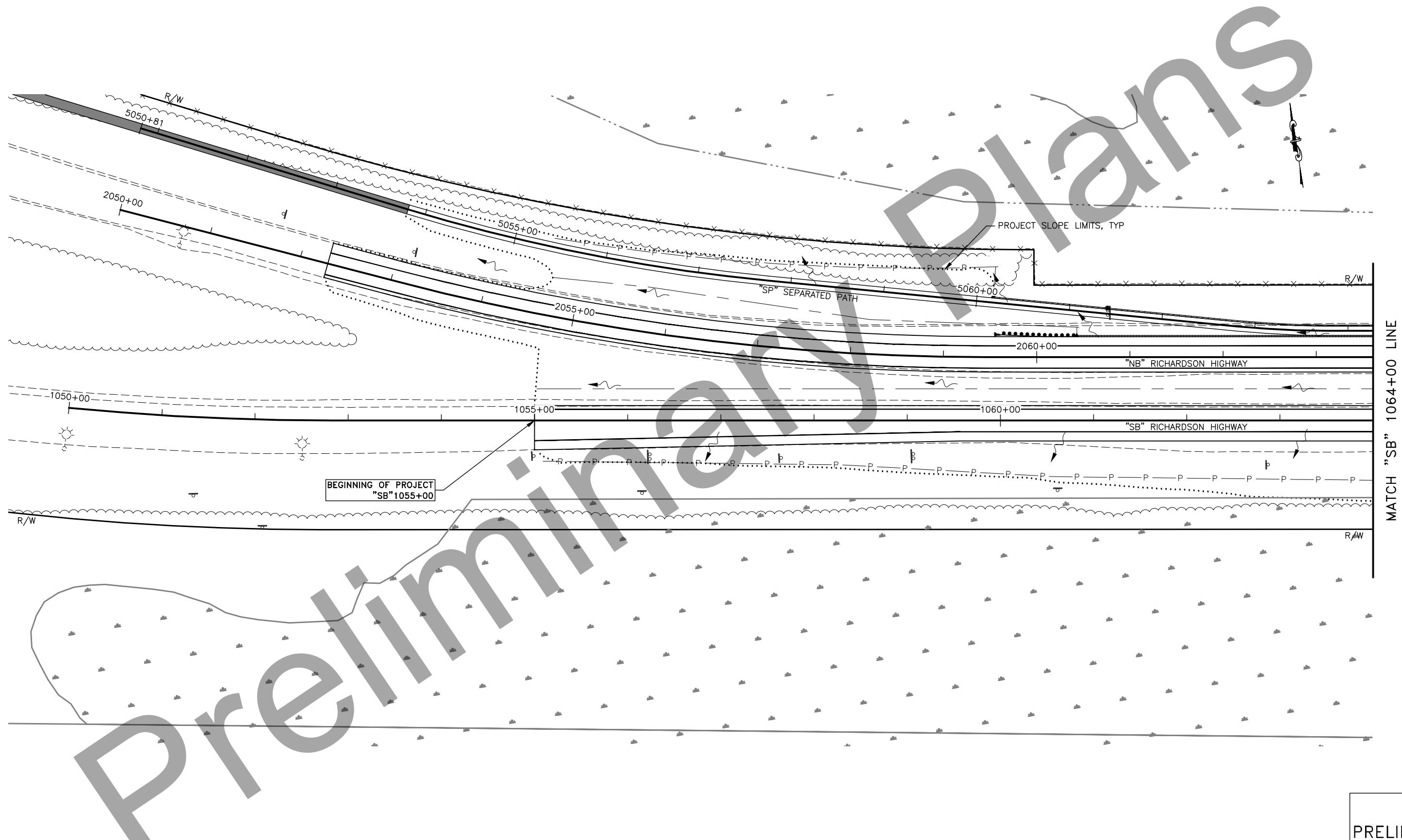
ESCP LEGEND:



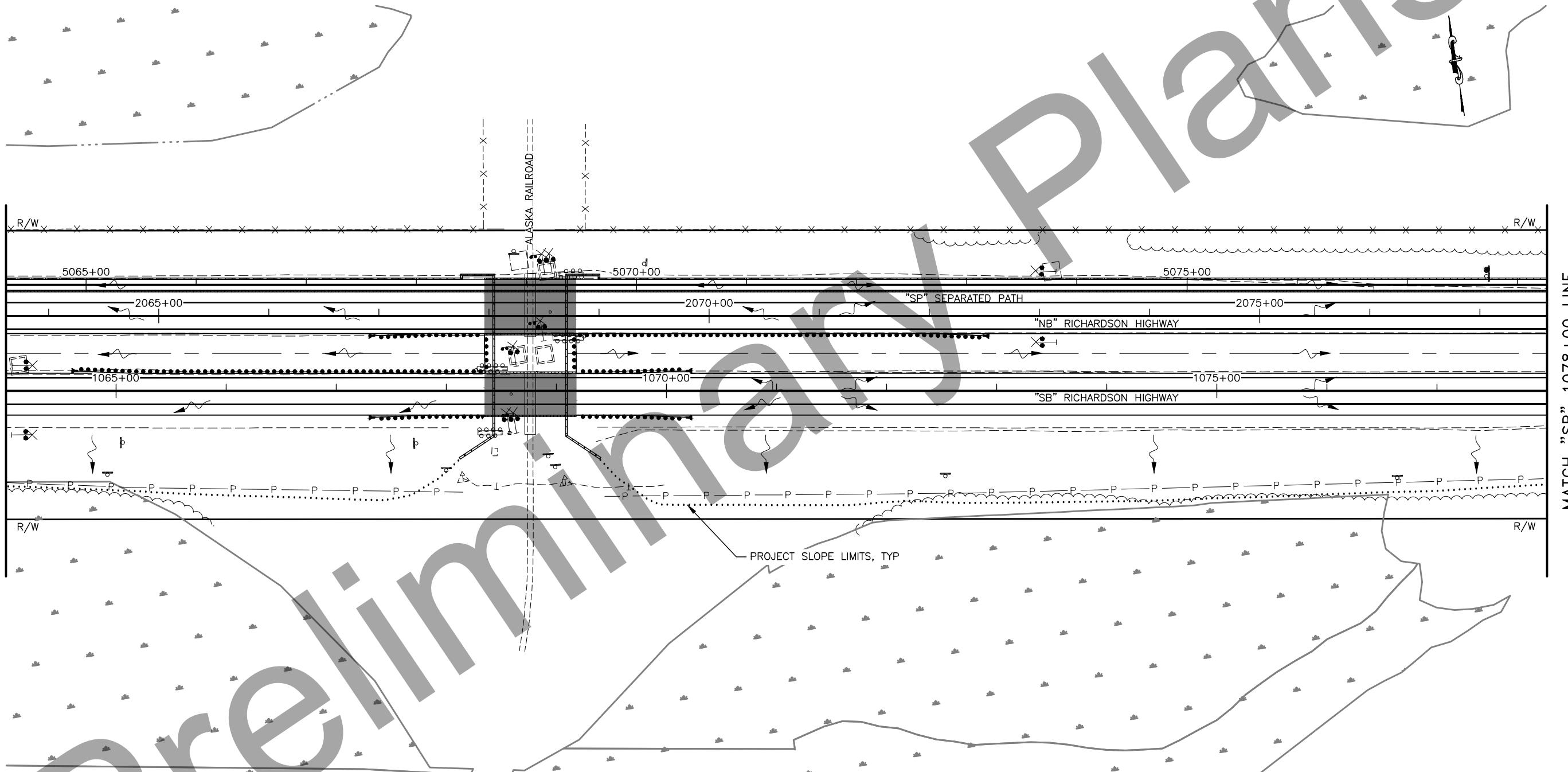
EROSION AND SEDIMENT CONTROL
PLAN NOTES & DETAILS

PRELIMINARY
NOVEMBER
2021

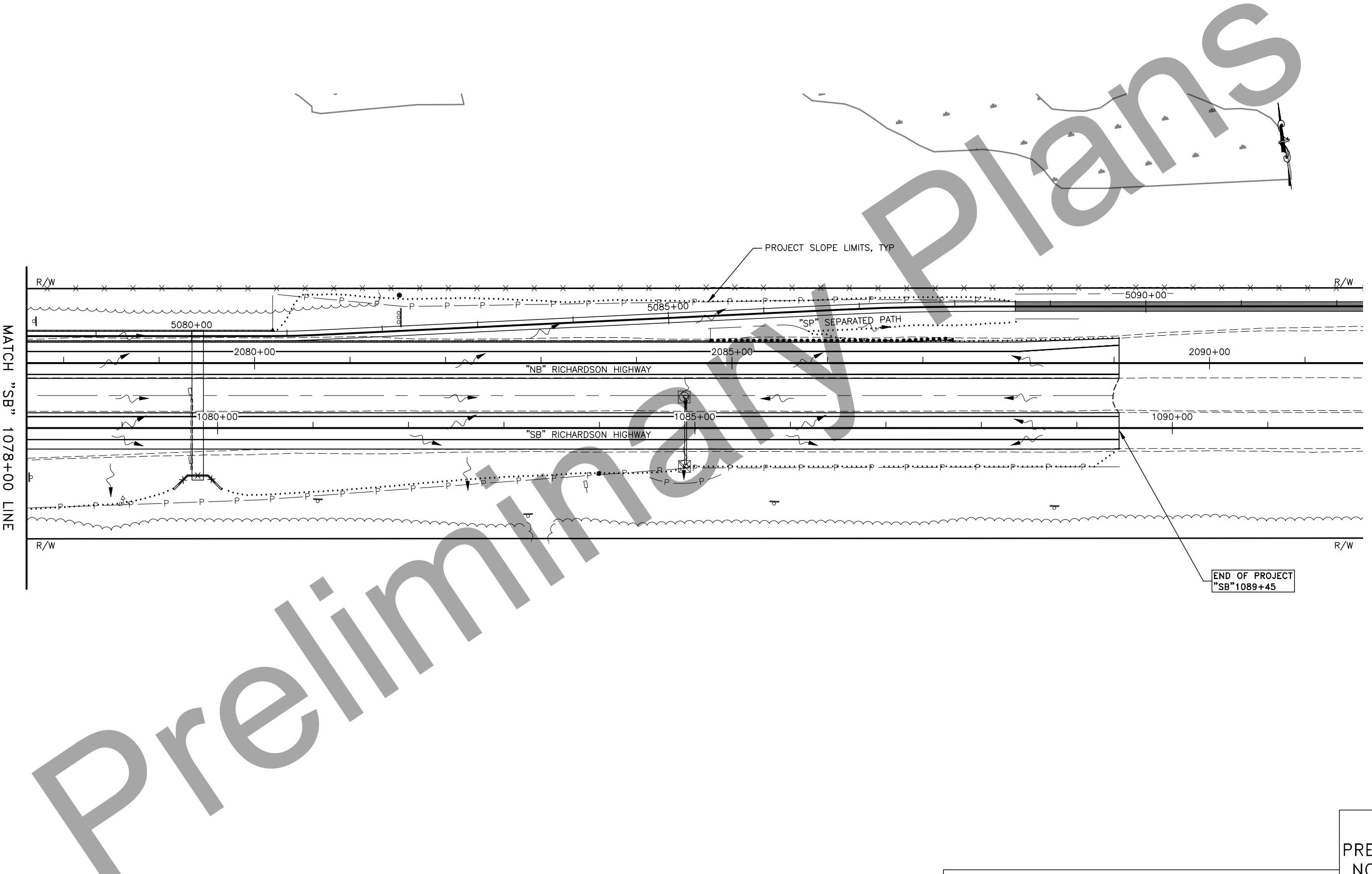
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	Q2	Q4



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	Q3	Q4



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	Q4	Q4



GENERAL TRAFFIC CONTROL NOTES

1. ALL TEMPORARY TRAFFIC CONTROL PLANS MUST BE IN ACCORDANCE WITH THE CURRENT ALASKA TRAFFIC MANUAL (ATM) COMPOSED OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE ALASKA TRAFFIC MANUAL SUPPLEMENT AND A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED AND APPROVED PRIOR TO IMPLEMENTATION.
2. ALL SIGNS AND BARRICADES SHALL MEET REQUIREMENTS OF THE CURRENT ATM, WITH THE ALASKA SIGN DESIGN GUIDE(ASDS).
3. MAINTAIN EXISTING REGULATORY SIGNS WITHIN THE WORK ZONE. EXISTING SPEED LIMIT SIGNS MUST BE COVERED OR REMOVED WHERE SPEED REDUCTIONS ARE IN EFFECT.
4. INSTALL PERMANENT CONSTRUCTION SIGNS ON WOOD POSTS.
5. TRAFFIC CONTROL SIGNS MAY NOT BE PLACED ON PORTABLE SIGN SUPPORTS FOR MORE THAN THREE CONSECUTIVE CALENDAR DAYS. SIGNS INSTALLED FOR LONGER THAN THIS PERIOD MUST BE MOUNTED ON A PERMANENT SIGN POST. PEDESTRIAN TRAFFIC CONTROL SIGNS AND SIGNS MOUNTED ON A TYPE III BARRICADE ARE EXEMPT FROM THIS AND MAY BE INSTALLED ON PORTABLE SIGN SUPPORTS FOR THE DURATION OF THEIR INSTALLATION.
6. EXISTING SIGNS WHICH CONFLICT WITH CONSTRUCTION SIGNING SHALL BE COVERED.
7. ALL CHANNELIZING DEVICES SHALL HAVE OPERABLE FLASHING LIGHT EXCEPT IN A TAPER WHERE ONLY THE FIRST TWO LIGHTS SHALL FLASH (TYPE "A"), ALL TANGENT CHANNELIZATION DEVICES SHALL FLASH (TYPE "A") AND THE REMAINDER SHALL BE STEADY BURN (TYPE "C").
8. MAINTAIN ACCESS AT ALL TIMES FOR THE PASSAGE OF EMERGENCY VEHICLES THROUGH THE PROJECT.
9. TYPE "A" FLASHING WARNING LIGHTS SHALL BE USED TO MARK TYPE III BARRICADES, ROAD CLOSURES, AND ADVANCE DETOUR SIGNING AT NIGHT.
10. PUBLIC NOTICE OF ROAD CLOSURES MUST BE MADE IN ACCORDANCE WITH SECTION 643.
11. ALL SIGNS SHALL BE SUPPLEMENTED WITH HIGH LEVEL WARNING DEVICES.
12. ALL SPECIAL CONSTRUCTION SIGNS SHALL BE FABRICATED OF MATERIALS CONFORMING TO SECTION 615 OF THE SPECIFICATIONS AND SHALL HAVE A BLACK LEGEND ON ORANGE BACKGROUND.
13. TEMPORARY STRIPING SHALL BE EITHER TEMPORARY RAISED PAVEMENT MARKERS OR PERFORMED PAVEMENT MARKING TAPE. SEE STANDARD PLAN C-05.20 FOR INTERIM PAVEMENT MARKING APPLICATION GUIDELINES.
14. THE SPACING BETWEEN CHANNELIZING DEVICES MUST NOT EXCEED A DISTANCE IN FEET EQUAL TO 1.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TANGENT CHANNELIZATION.

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T1	T9

Preliminary Plans

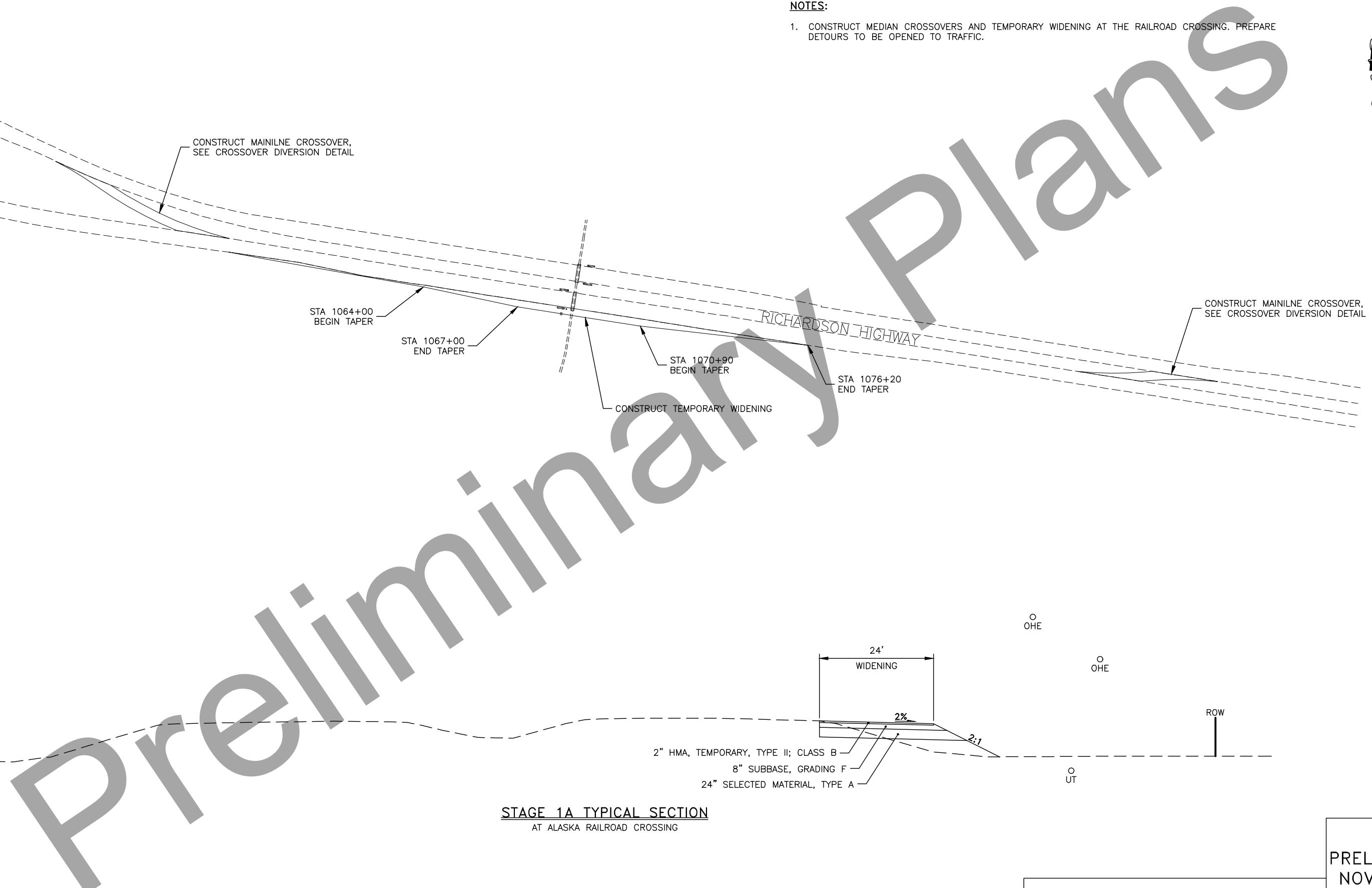
GENERAL NOTES AND CONSTRUCTION SIGNS

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T2	T9

NOTES:

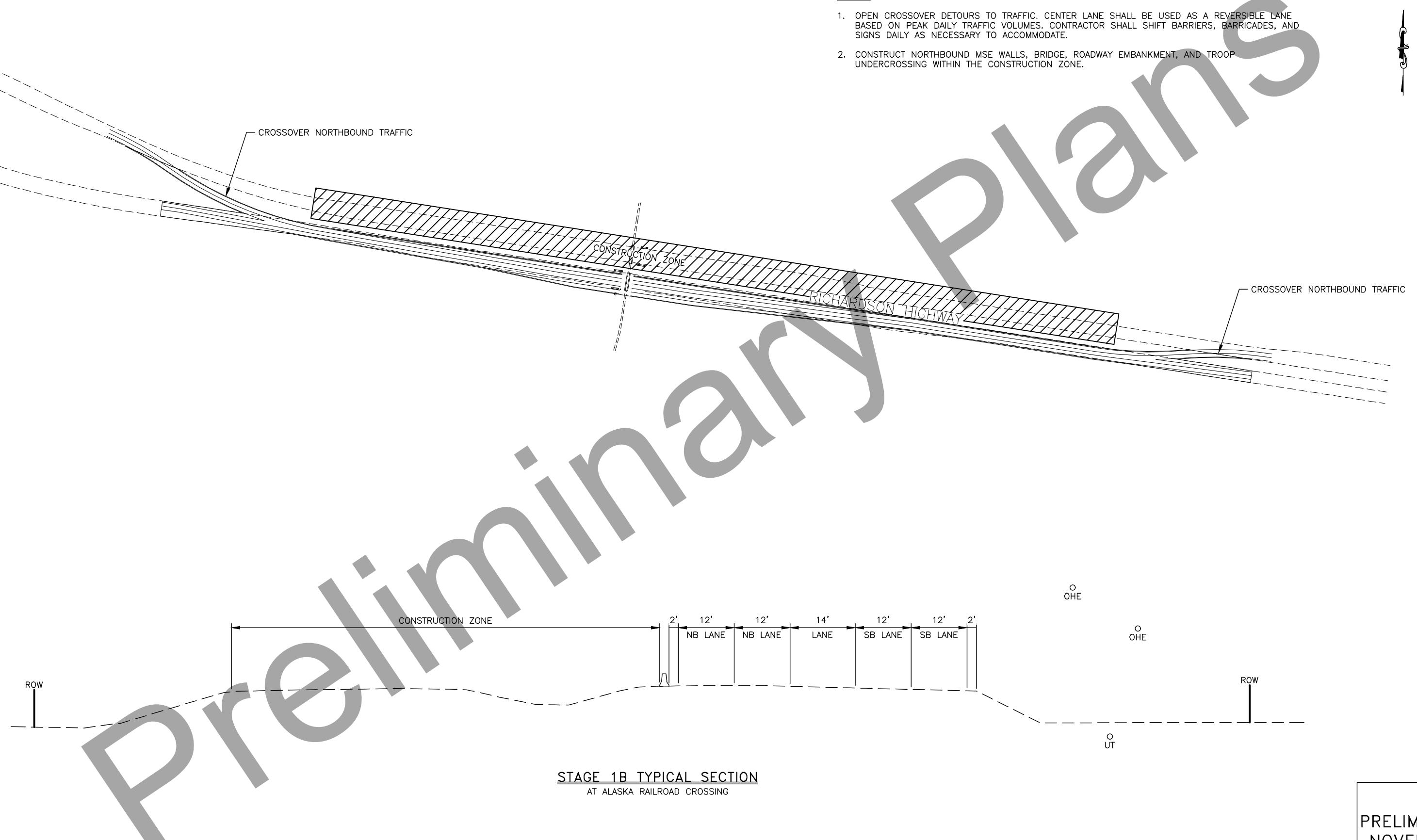
1. CONSTRUCT MEDIAN CROSSOVERS AND TEMPORARY WIDENING AT THE RAILROAD CROSSING. PREPARE DETOURS TO BE OPENED TO TRAFFIC.



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T3	T9

NOTES:

1. OPEN CROSSOVER DETOURS TO TRAFFIC. CENTER LANE SHALL BE USED AS A REVERSIBLE LANE BASED ON PEAK DAILY TRAFFIC VOLUMES. CONTRACTOR SHALL SHIFT BARRIERS, BARRICADES, AND SIGNS DAILY AS NECESSARY TO ACCOMMODATE.
2. CONSTRUCT NORTHBOUND MSE WALLS, BRIDGE, ROADWAY EMBANKMENT, AND TROOP UNDERCROSSING WITHIN THE CONSTRUCTION ZONE.



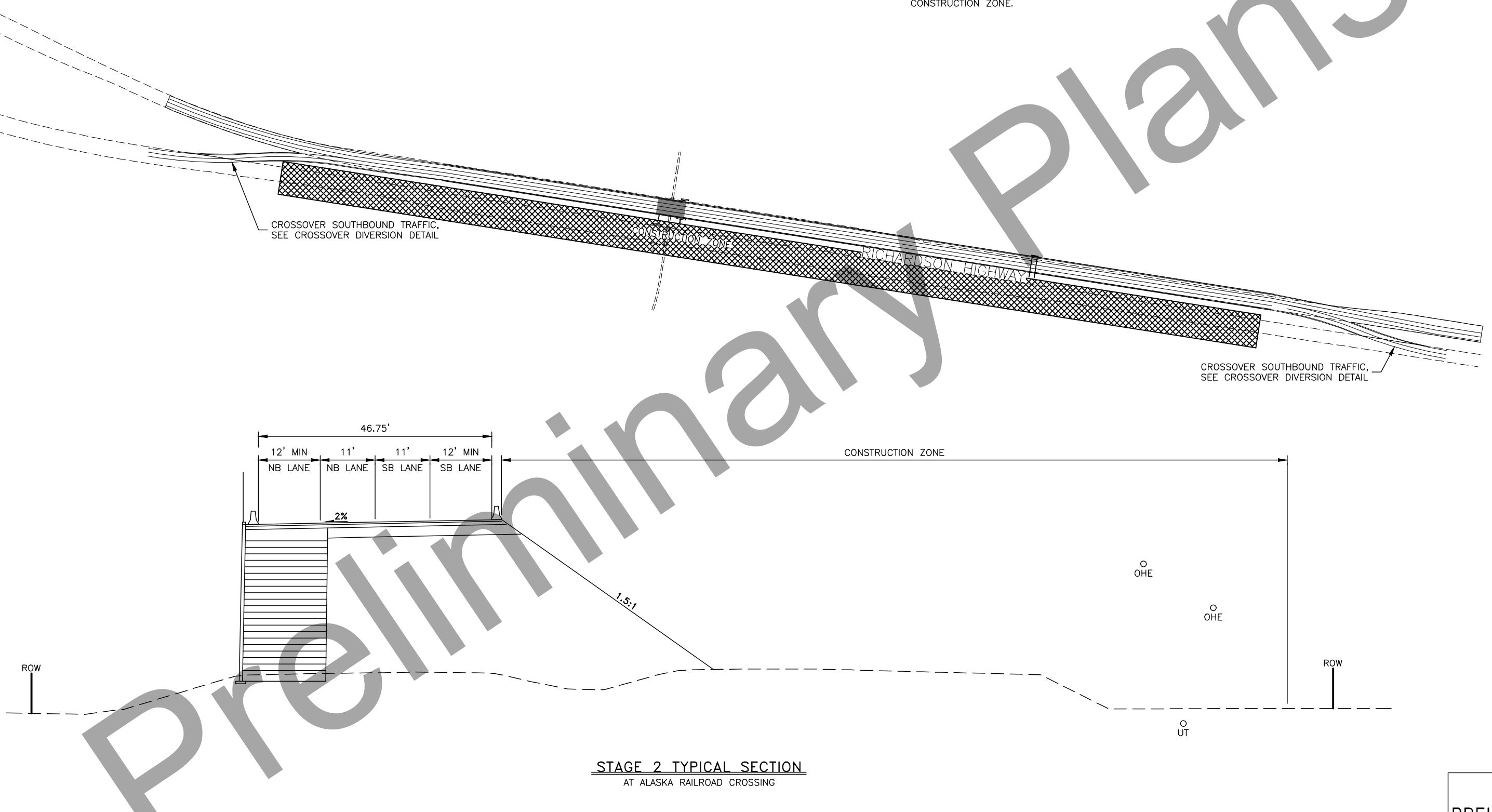
CONSTRUCTION STAGING

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T4	T9

NOTES:

1. CONSTRUCT MEDIAN CROSSOVERS. PREPARE DETOURS AND OPEN TO TRAFFIC. STEP DOWN SIGNING TO 35 MPH WILL BE REQUIRED. A TEMPORARY SPEED ZONE ORDER WILL NEED TO BE APPROVED PRIOR TO IMPLEMENTATION.
2. CONSTRUCT SOUTHBOUND BRIDGE, ROADWAY EMBANKMENT, AND TROOP UNDERCROSSING WITHIN THE CONSTRUCTION ZONE.



STAGE 2 TYPICAL SECTION
AT ALASKA RAILROAD CROSSING

CONSTRUCTION STAGING

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T5	T9

NOTES:

1. CONSTRUCT THE FINAL LIFT OF ASPHALT, STRIPING, AND PERMANENT BARRIERS.
2. CONSTRUCT PATHWAY CONNECTIONS TO SEPARATE PROJECT ON NORTH AND SOUTH PROJECT LIMITS.

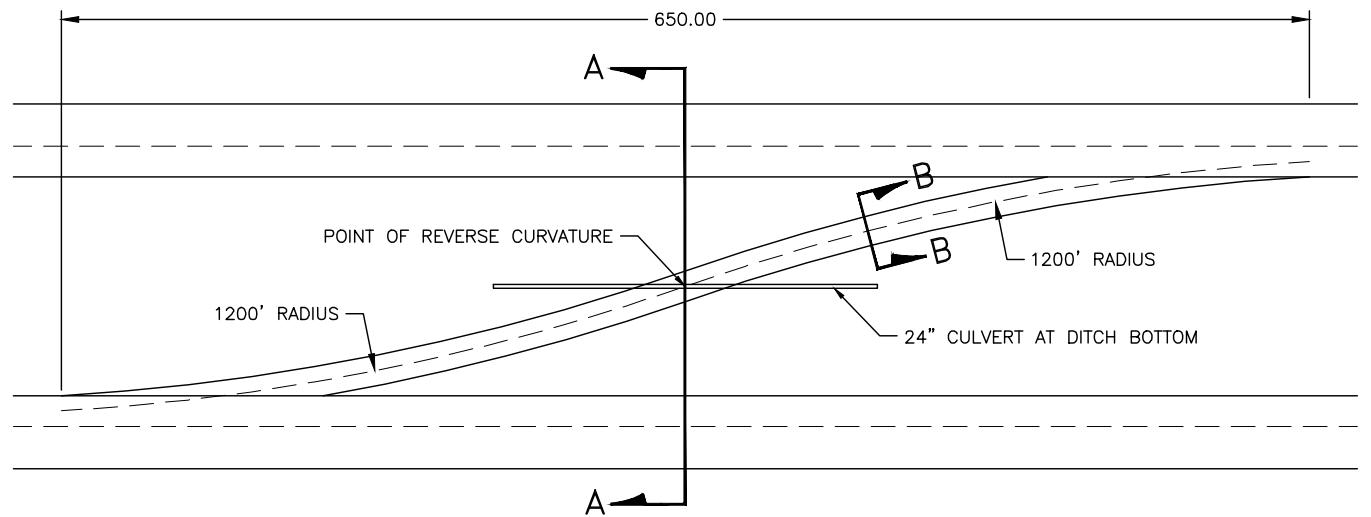
Preliminary Plans

STAGE 3 TYPICAL SECTION
AT ALASKA RAILROAD CROSSING

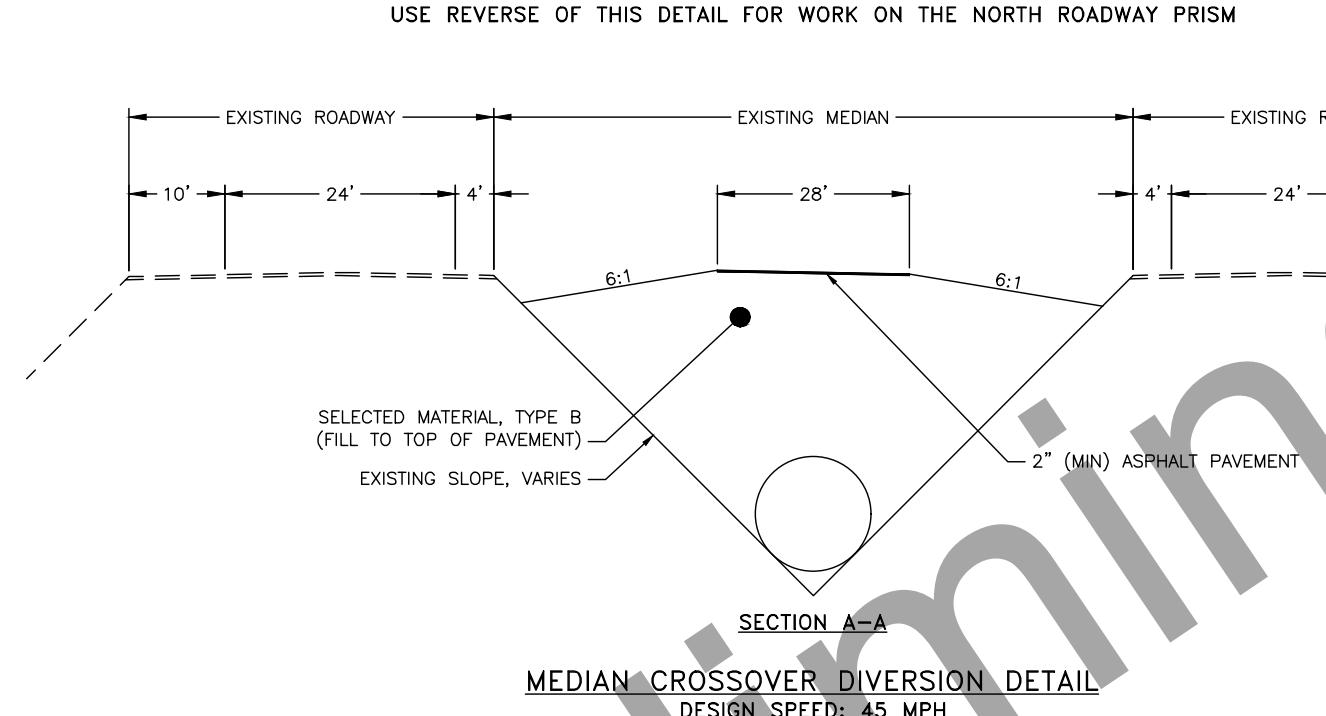
CONSTRUCTION STAGING

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T6	T9



MEDIAN CROSSOVER PLAN VIEW
USE REVERSE OF THIS DETAIL FOR WORK ON THE NORTH ROADWAY PRISM



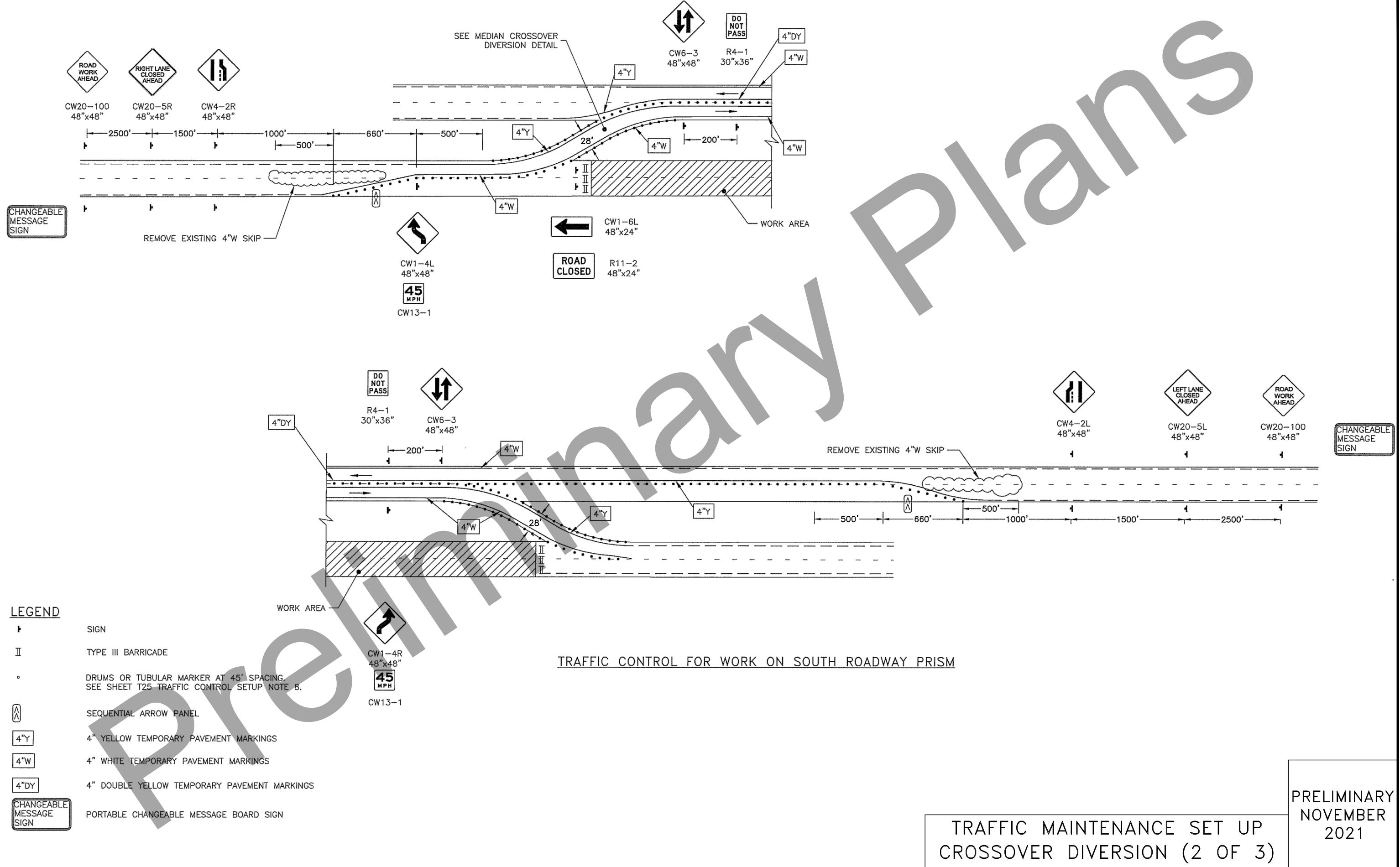
NOTES:

1. THIS DRAWING IS A GRAPHICAL REPRESENTATION ONLY. AND NOT ALL DEVICES ARE SHOWN. INSTALL ALL NECESSARY DEVICES ACCORDING TO THE ATM.
2. CROSSOVERS SHALL BE DESIGNED TO 45 MPH DESIGN SPEED.
3. DO NO ROUTE TRAFFIC OVER RUMBLE STRIPS. REMOVE AND RE-PAVE AS NEEDED TO ACCOMMODATE TRAFFIC.
4. USE HIGH LEVEL WARNING FLAGS ON ALL SIGNS.
5. REMOVE, PROTECT AND REPLACE SIGNS AS NECESSARY TO PLACE FILL FOR INSTALLATION OF MEDIAN CROSSOVER DIVERSION.
6. REMOVE OR COVER CONFLICTING OR NON-APPLICABLE PAVEMENT MARKINGS. REMOVAL OF PERMANENT PAVEMENT MARKINGS ON THE FINAL PAVED SURFACE WILL NOT BE ALLOWED. CONFLICTING OR NON-APPLICABLE PAVEMENT MARKINGS INCLUDE, BUT ARE NOT LIMITED TO, YELLOW LINES TO THE RIGHT OF TRAFFIC, WHITE SKIP LINES BETWEEN TWO WAY TRAFFIC AND AUXILIARY LANE MARKINGS.
7. REMOVE TEMPORARY PAVEMENT, BORROW AND CULVERTS WHEN THE CROSSOVER IS NO LONGER NEEDED. ALL MATERIALS USED FOR THE CROSSOVERS AND TEMPORARY ACCESES BECOMES THE PROPERTY OF THE CONTRACTOR, DISPOSE OF OFF-SITE ACCORDING TO LOCAL REGULATIONS. RESTORE THE MEDIAN TO ITS ORIGINAL CONDITION. RESTORE ORIGINAL PAVEMENT MARKINGS AS NECESSARY.
8. USE DRUMS IN TAPERS AND TUBULAR MARKERS IN TANGENTS, TUBULAR MARKERS PLACED BETWEEN TRAFFIC ON OPPOSING DIRECTIONS SHALL BE AFFIXED TO THE PAVEMENT.
9. PORTIONS OF THE DIVERSION ARE OUTSIDE THE PAVING LIMITS. PREFORMED MARKING TAPE IS REQUIRED FOR TEMPORARY PAVEMENT MARKINGS OUTSIDE OF PAVING LIMITS.

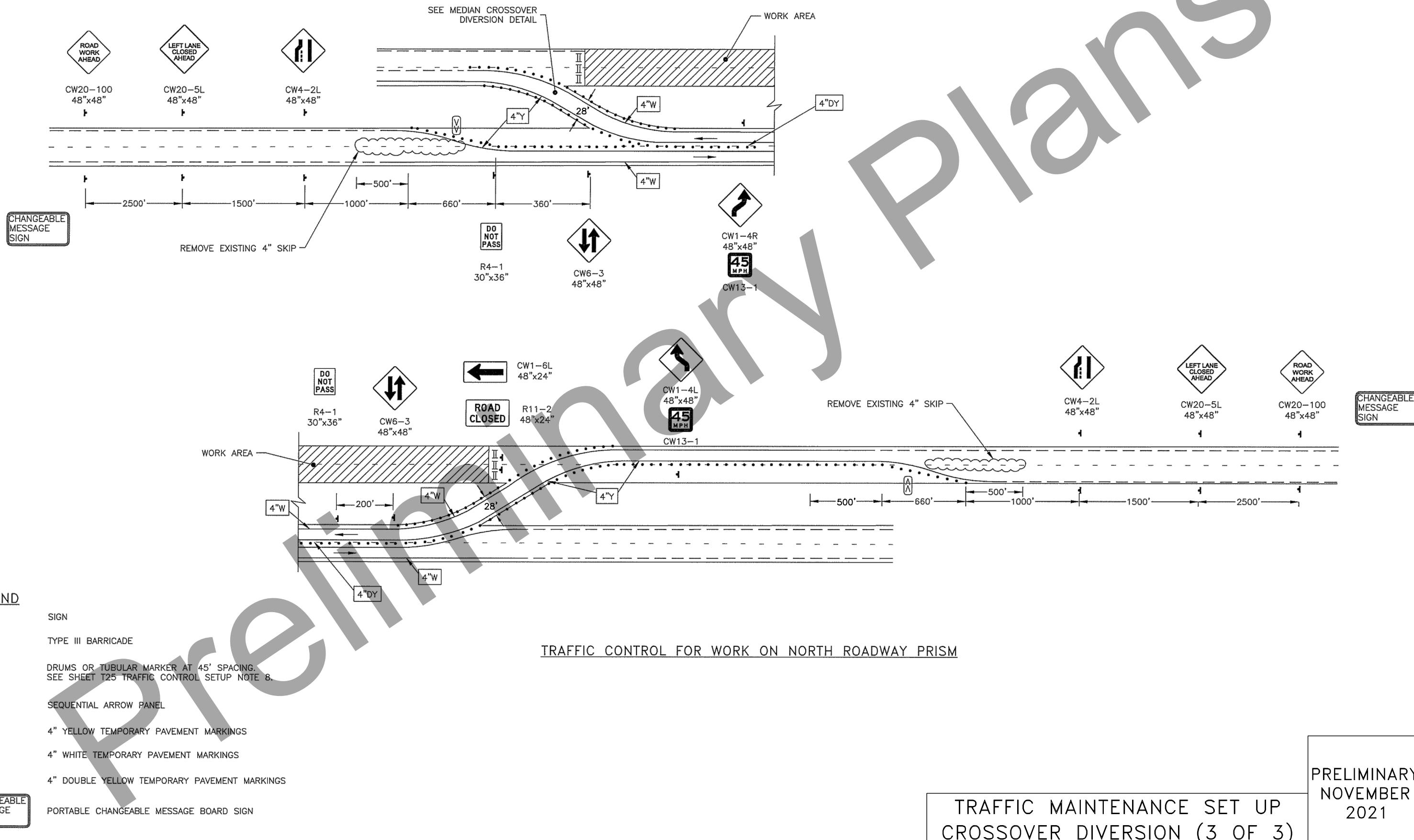
TRAFFIC MAINTENANCE SET UP
CROSSOVER DIVERSION (1 OF 3)

PRELIMINARY
NOVEMBER
2021

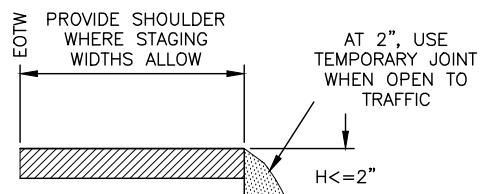
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T7	T9



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	T8	T9



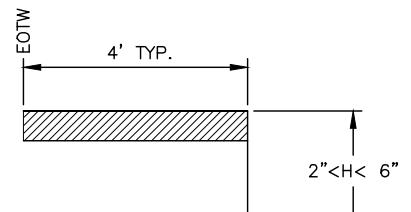
VERTICAL DROP-OFFS



CASE A

DROP-OFFS \leq 2 INCHES
(PAVED SURFACES ONLY)

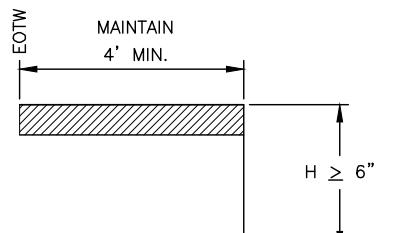
1. USE "UNEVEN LANES" (W8-11) SIGNS FOR ALL DROP-OFFS IN BETWEEN TRAFFIC LANES
2. LEAVE NO DROP-OFFS $>$ 1.5" IN THE TRAFFIC LANE OR ACTIVE WHEEL TRACK



CASE B

2" < DROP-OFFS < 6"
(ALL ROADWAY SURFACES)

1. PLACE CONES OR CANDLES FOR DROP-OFFS \geq 4 FEET AND \leq 30 FEET FROM EOTW.
2. USE DRUMS OR TYPE II BARRICADES FOR DROP-OFFS $<$ 4 FEET FROM THE EOTW.



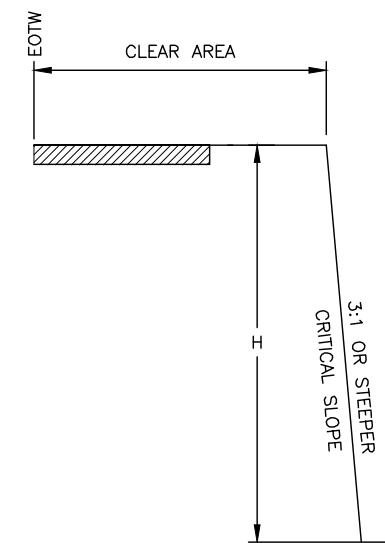
CASE C

DROP-OFFS \geq 6"
(ALL ROADWAY SURFACES
AND ROADSIDE SLOPES)

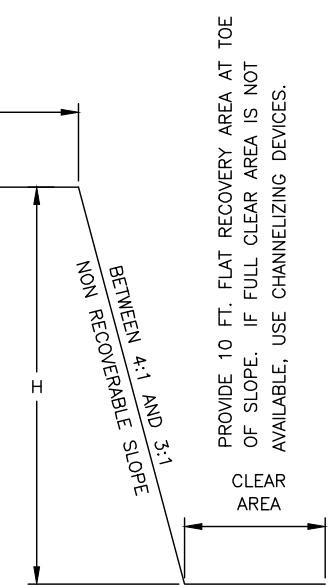
1. PLACE DRUMS OR TYPE II BARRICADES FOR DROP-OFFS \leq 24" WITHIN THE CLEAR AREA.
2. PROVIDE PORTABLE CONCRETE BARRIERS FOR DROP-OFFS $>$ 24" WITHIN 15 FEET OF THE EOTW. USE DRUMS OR TYPE II BARRICADES IF BEYOND 15 FEET.

FILL SLOPES

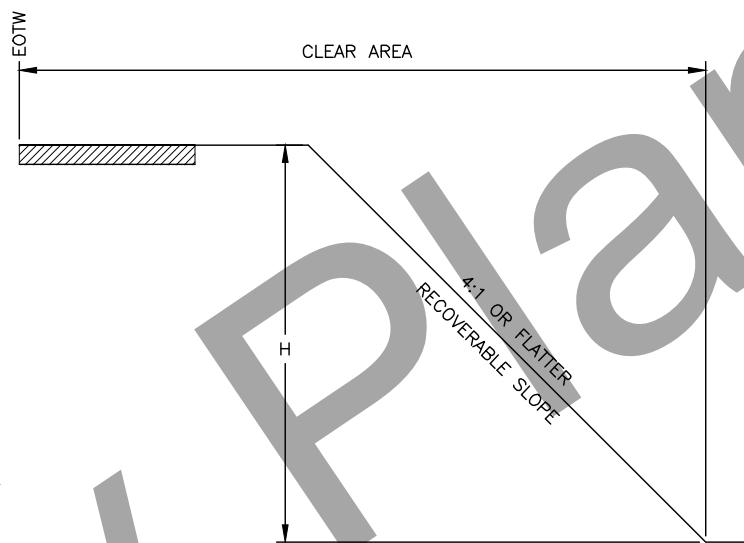
STEEPER THAN OR EQUAL TO 3:1



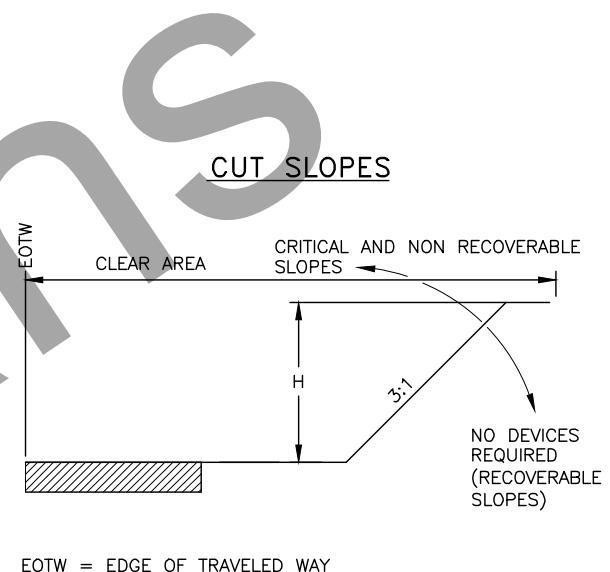
BETWEEN 4:1 AND 3:1



PROVIDE 10 FT. FLAT RECOVERY AREA AT TOE OF SLOPE. IF FULL CLEAR AREA IS NOT AVAILABLE, USE CHANNELIZING DEVICES.



FLATTER THAN OR EQUAL TO 4:1



EOTW = EDGE OF TRAVELED WAY

CLEAR AREA REQUIREMENTS

	LOW SPEED $<= 35$ MPH	INTERMEDIATE SPEED 40 MPH TO 45 MPH	HIGH SPEED ≥ 50 MPH
RURAL	15'	24'	30'
URBAN	10' DITCH CONDITIONS, OR 2' BEHIND CURB	15' DITCH CONDITIONS, OR 2' BEHIND CURB	15' DITCH CONDITIONS, OR 2' BEHIND CURB

CHANNELIZING DEVICE REQUIREMENTS FOR SLOPES 3:1 OR STEEPER WITHIN THE CLEAR AREA

	H \leq 15'	H $>$ 15'
< 2000 VPD LOW VOLUME	CANDLES OR CONES	TYPE II BARRICADES OR DRUMS
> 2000 VPD	TYPE II BARRICADE OR DRUMS	PORTABLE CONCRETE BARRIER OR TEMPORARY GUARDRAIL

TRAFFIC CONTROL NOTES:

1. USE THE EXISTING CROSS-SECTION (PRIOR TO CONSTRUCTION) AS A BASIS FOR DETERMINING WHEN CHANNELIZING DEVICES ARE NEEDED.
2. INSTALL CHANNELIZING DEVICES WHEN THE HORIZONTAL OR VERTICAL CURVATURE IS MADE MORE SEVERE.
3. INSTALL FLEXIBLE DELINEATORS WHEN ALL VEGETATION OVER 4 FEET HIGH IS CLEARED FROM FILL SLOPES THAT ARE 3:1 OR STEEPER IN THE CLEAR AREA.
4. USE PORTABLE CONCRETE BARRIER FOR WARRANTING CONDITIONS WHICH LAST LONGER THAN 3 DAYS. FOR CONDITIONS LASTING LESS THAN 3 DAYS, OTHER CHANNELIZING DEVICES MAY BE INSTALLED.
5. TERMINATE RUNS OF PORTABLE CONCRETE BARRIER USING THE FOLLOWING METHODS:
 - A) CONNECT TO A PORTABLE CRASH CUSHION, OR
 - B) PROVIDE A CONCRETE BARRIER WITH THRIE BEAM TRANSITION TO W-BEAM GUARDRAIL, TREATED WITH A PARALLEL TERMINAL (SEE SECTION 710).
 - C) FLARE THE ENDS OF THE PORTABLE CONCRETE BARRIER AWAY FROM THE ROADWAY AT A RATE OF 6:1 ON A COMPACTED SLOPE OF 6:1 OR FLATTER, OUTSIDE OF THE CLEAR AREA. INSTALL A SLOPING PORTABLE CONCRETE BARRIER END TREATMENT, OR
 - D) BURY IN THE BACKSLOPE.

6. TERMINATE THE RUNS OF TEMPORARY W-BEAM GUARDRAIL USING THE FOLLOWING METHODS:
 - A) PROVIDE A PARALLEL TERMINAL (SEE SECTION 710)
 - B) FLARE THE ENDS OF THE TEMPORARY GUARDRAIL AWAY FROM THE ROADWAY AT A RATE OF 6:1 ON A COMPACTED SLOPE OF 6:1 OR FLATTER OUTSIDE OF THE CLEAR AREA, TERMINATE WITH A STANDARD W-BEAM END SECTION, OR
 - C) BURY IN THE BACKSLOPE.

WINTER SHUTDOWN NOTES:

1. WHEN REQUIRED, USE CHANNELIZING DEVICES WHICH CAN BE MAINTAINED OVER WINTER.
2. NO CHANNELIZING DEVICES ARE REQUIRED IF:
 - A) CONSTRUCTION SLOPES ARE RECOVERABLE, AND
 - B) SLOPES ARE SMOOTH AND COMPACTED, AND
 - C) REQUIRED CLEAR AREA IS PROVIDED

EQUIPMENT NOTES:

1. WHEN THERE IS ACTIVE, NONMOBILE CONSTRUCTION EQUIPMENT WITHIN THE CLEAR AREA, DELINATE THE ROADSIDE WITH TRAFFIC CONES.
2. SEPARATE PROCEDURES ARE REQUIRED FOR MOBILE WORK ZONE OPERATIONS AND SHORT DURATION WORK OF LESS THAN 12 HOURS.

REVISIONS

DESCRIPTION	BY	DATE
CREATED	GG	11/20/03
CLARIFIED DETAILS	CA	01/31/06
UPDATED ET-PLUS NOMENCLATURE	CFJ	02/02/10
UPDATED 6A	CMA	07/18/11
NATIONAL CAD STDS	SP	02/13/15
NOTE TO DESIGNERS & MINOR CHANGES	SP	12/05/18

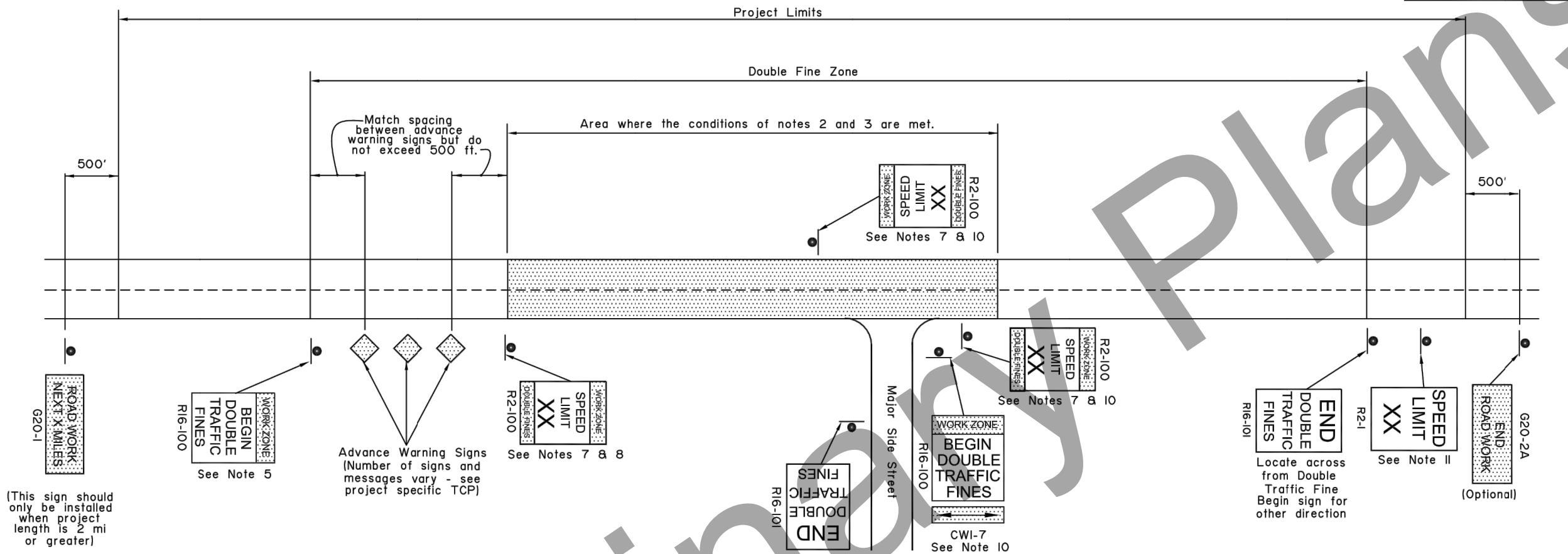
PRELIMINARY
NOVEMBER
2021

TRAFFIC CONTROL DEVICES

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V1	V39

C-04.12

SHEET
1 of 1



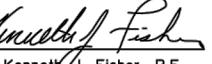
GENERAL NOTES

1. Signs are shown for one direction only (with one exception). Signs for the other direction mirror those shown.
2. Double fine signs shall be used only where one or more of the following conditions exist:
 - a. Active work areas (where road workers and/or machines are presently working on or adjacent to a road)
 - b. Detours on new temporary roads built for that purpose (this does not include detours on existing streets)
 - c. Sections of paved roads where pavement has been removed.
 - d. Roads being paved where unmatched asphalt lifts result in a vertical lip between lanes.
3. Double fine signs shall be confined to the areas where the above conditions exist, with the following exceptions:
 - a. If the project is 2 miles or shorter in length, the entire project may be posted for double fines when the above conditions exist on any part of the project.
 - b. When the above conditions exist at multiple locations separated by less than 2 miles, the locations and the intervening segments may be posted as a single double fine zone.
4. Double fine signs shall be removed or covered when work activity ceases for more than two days and conditions b, c, or d of note 2 are not met.
5. The RI6-100 "BEGIN" sign may be used in place of the first advance warning sign. However, when this is done, the appropriate advance warning sign must be reinstalled when the double fine sign is taken down or covered.
6. When a double fine zone is longer than 2 miles, work zone speed limit signs shall be posted at spacings not greater than 2 miles within the double fine zone.
7. "Work zone speed limit signs", as used here, refer either to 1) R2-100 signs or 2) standard R2-1 regulatory speed limit signs with CW20-102 "DOUBLE FINES" plates mounted below.
8. The limit shown on work zone speed limit signs shall be either the existing limit before construction or, if a work zone speed limit order has been approved in accordance with ADOT&PF Procedure 05.05.020 PDR, a reduced limit.
9. All existing regulatory speed limit signs within double fine zones shall either be replaced with R2-100 signs or supplemented with CW20-102 plates.

10. Signs shall be installed at major intersections within the double fine zone to warn entering drivers of double fines. This may be done with a RI6-100 sign with a CWI-7 arrow panel on the side street or with two work zone speed limit signs on the main street on either side of the intersection. Use of RI6-100 signs on side streets eliminates the need for "Road Work Ahead" signs on those streets. If the speed limit has been reduced, the two work zone speed limit signs are mandatory.
- II. At the end of each double fine zone, install an R2-1 sign showing the speed limit for the road beyond the double fine zone.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

LOCATION OF DOUBLE TRAFFIC FINE SIGNS

Adopted as an Alaska Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer
Adoption Date: 02/08/2019

Last Code and Stds. Review By: Date:
Next Code and Standards Review date: 02/08/2029

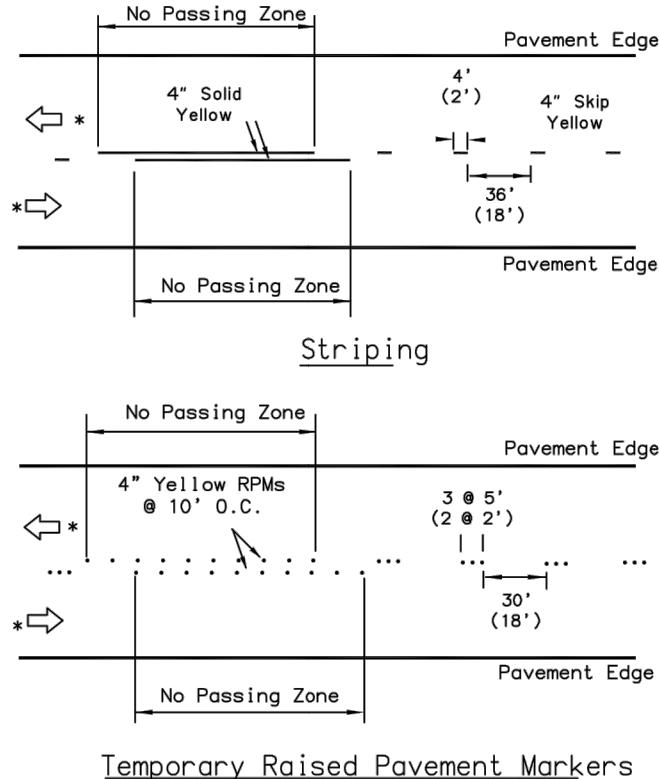
PRELIMINARY NOVEMBER 2021

STANDARD PLAN
C-04.12

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V2	V39

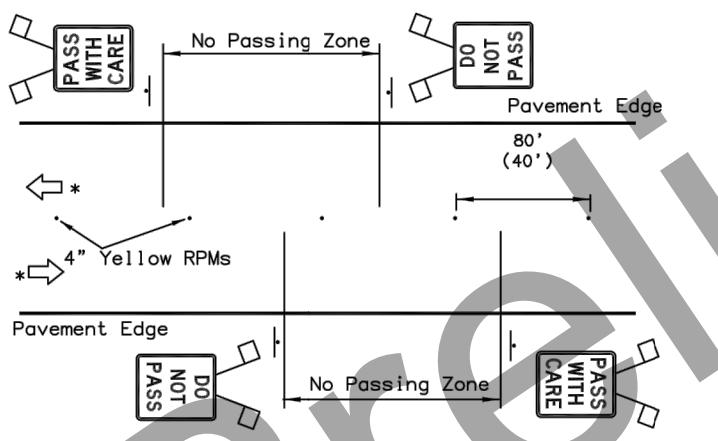
C-05.20

SHEET
1 of 1



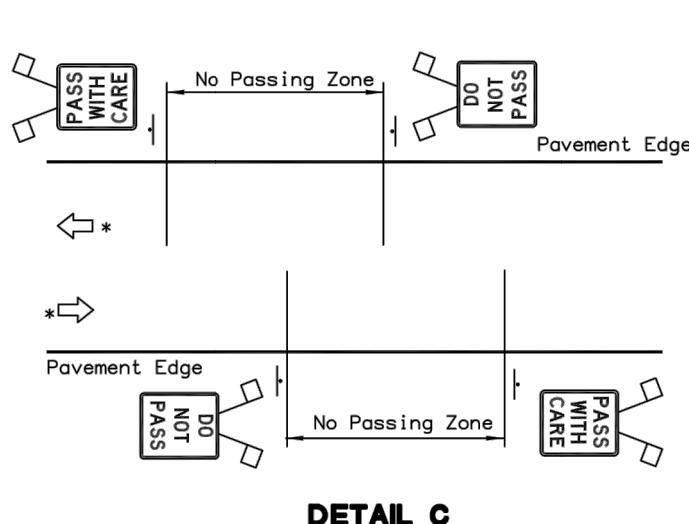
DETAIL A

Two-lane road: No Passing Zones indicated with pavement markings.



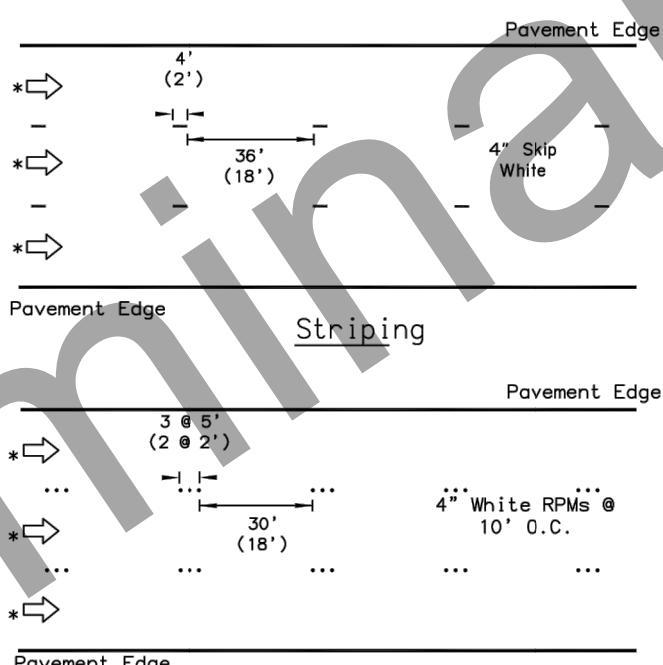
DETAIL B

Two-lane road: No Passing Zones indicated by signs only. Raised pavement markers for centerline delineation.



DETAIL C

Two-lane road: No Passing Zones indicated by signs only (see Note 2c). No centerline delineation.



DETAIL D

Multilane one-way road:
Lane dividing lines

* Direction of Travel

GENERAL NOTES:

- Final pavement markings conforming to Part 3 of the Alaska Traffic Manual should be installed before paved roads are open to public travel. If that is not practical, install interim pavement markings as shown on this drawing. Maintain interim pavement markings until final pavement markings are installed.
- No interim pavement markings are required:
 - on projects that will not have permanent markings when finished.
 - in work zones that are open to public travel for no more than one work shift during daytime or for no more than one hour at night.
 - where DO NOT PASS and PASS WITH CARE signs are installed on two lane roads as shown in Detail C, no pavement markings are required:
 - for 3 days if seasonal ADT is above 2000, or
 - for 1 month if seasonal ADT is below 2000.
- Interim pavement markings should not be in place longer than 14 calendar days before being replaced with permanent markings conforming to Part 3 of the Alaska Traffic Manual unless the Engineer provides written approval.
- Where R4-1 DO NOT PASS signs are used, install at the beginning of no passing zones and at no more than 1500' spacings within no passing zones.
- Install high level warning devices on all DO NOT PASS and PASS WITH CARE signs.
- Offset temporary markings 8"-12" from the future location of permanent markings if applied on the same lift of pavement.
- Dimensions in parenthesis apply to curves with a radius of 1000 feet or less or where posted speed limit is 30 mph or less.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

INTERIM PAVEMENT MARKINGS

Adopted as an Alaska Standard Plan by:
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: Date:
Next Code and Standards Review date: 02/08/2029

C-05.20

STANDARD PLAN
C-05.20

PRELIMINARY
NOVEMBER
2021

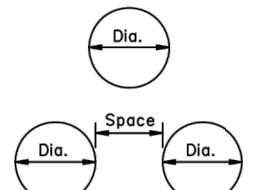
D-01.02

SHEET
1 of 1

GENERAL NOTES:

1. Sidefill shall be placed and compacted with care under haunches of pipe and shall be brought up evenly and simultaneously on both sides of pipe to 1 foot above the top of the full length of the pipe.
2. Alternate installation methods may only be used when specified or approved by the Engineer.

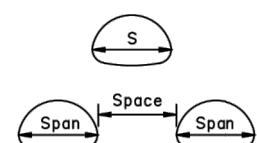
D = Nominal Pipe Diameter



MULTIPLE INSTALLATIONS

Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Dia. of pipe or 3', whichever is less.

S = Nominal Pipe Arch Span



MULTIPLE INSTALLATIONS

Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Span of pipe arch or 3', whichever is less.

**State of Alaska DOT&PF
ALASKA STANDARD PLAN
CULVERT PIPE & ARCH
INSTALLATION DETAILS**

Adopted as an Alaska Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer
Adoption Date: 02/08/2019

Last Code and Stds. Review
By: Date:
Next Code and Standards Review date: 02/08/2029

D-01.02

**PRELIMINARY
NOVEMBER
2021**

**STANDARD PLAN
D-01.02**

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V4	V39

D-04.22

SHEET
1 of 4

GENERAL NOTES:

- All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
- The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
- No more than one type of pipe may be used on any single installation or installation grouping.
- All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
- See Standard Plan D-01 "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
- Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the bottom of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflection.
- These tables have been developed for an HL-93 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section I2 of the 2017 AASHTO "LRFD Bridge Design Specifications".

Minimum & Maximum Cover for 2 2/3" X 1/2" Aluminum Pipe					
Gage	16	14	12	10	8
Thickness	0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (Ft)	Max. (Ft)	Min. (Ft)	Max. (Ft)	Max. (Ft)
12	12	100+	100+	100+	100+
15	12	100	100+	100+	100+
18	12	83	100+	100+	100+
21	12	71	89	100+	100+
24	12	62	78	100+	100+
27	12		69	97	100+
30	12		62	87	100+
36	12		51	73	94
42	12			62	80
48	12			54	70
54	15			48	65
60	15			62	76
66	18			66	72
72	18		23	29	41
78	21			27	38
84	21				51
90	24				61
96	24				66
102	24				72
108	24				78
114	24				84
120	24				90

Minimum & Maximum Cover for 3" x 1" Aluminum Pipe					
Gage	16	14	12	10	8
Thickness	0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (Ft)	Max. (Ft)	Min. (Ft)	Max. (Ft)	Max. (Ft)
30	12	57	72	100+	100+
36	12	47	60	84	100+
42	12	40	51	72	96
48	12	35	44	62	84
54	15	31	39	55	74
60	15	28	35	50	67
66	18	25	32	45	61
72	18	23	29	41	56
78	21		27	38	51
84	21			35	48
90	24			33	44
96	24			31	41
102	24				49
108	24				39
114	24				43
120	24				36

Minimum & Maximum Cover for 9" X 2 1/2" Aluminum Structural Plate Pipe*			
Thickness		0.125	0.150
84	18	31	
90	18	27	
96	18	27	
102	18	24	
108	18	24	
114	18	21	
120	24	21	
126	24	19	
132	30	19	
138	30	18	
144	30	18	
150	30		22
156	30		22
162	36		20
168	36		20

*5.33 - 3/4" dia. steel bolts per foot.

CORRUGATED CIRCULAR ALUMINUM PIPE

CORRUGATED ALUMINUM PIPE-ARCH

Minimum & Maximum Cover for 2 2/3"X 1/2" Aluminum Pipe-Arch					
			2 Tons/Sf Corner Bearing Pressure		
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	Max. Cover (Ft)
17	13	3 4/8	16 (0.060)	12	13
21	15	4 1/8	16 (0.060)	12	12
24	18	4 7/8	16 (0.060)	12	12
28	20	5 4/8	14 (0.075)	12	12
35	24	6 7/8	14 (0.075)	12	12
42	29	8 2/8	12 (0.105)	12	12
49	33	9 5/8	12 (0.105)	15	12
57	38	11	10 (0.135)	15	12
64	43	12 3/8	10 (0.135)	18	12
71	47	13 6/8	8 (0.164)	18	12

Minimum & Maximum Cover for 3" x 1" Aluminum Pipe-Arch					
			2 Tons/Sf Corner Bearing Pressure		
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	Max. Cover (Ft)
60	46	18 6/8	14 (0.075)	15	20
66	51	20 6/8	14 (0.075)	18	20
73	55	22 7/8	14 (0.075)	21	20
81	59	20 7/8	12 (0.105)	21	16
87	63	22 7/8	12 (0.105)	24	16
95	67	24 3/8	12 (0.105)	24	16
103	71	26 1/8	10 (0.135)	24	16
112	75	27 6/8	8 (0.164)	24	16

Minimum & Maximum Cover for 9" X 2 1/2" Aluminum Multiple Pipe-Arch*						
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	2 Tons/Sf Corner Bearing Pressure	Max. Cover (Ft)
6-7	5-8	31.75	0.125	24	24	
6-II	5-9	31.75	0.125	24	24	
7-3	5-II	31.75	0.125	24	18	
7-9	6-0	31.75	0.125	24	18	
8-5	6-3	31.75	0.125	24	16	
9-3	6-5	31.75	0.125</			

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V6	V39

D-04.22

SHEET
3 of 4

GENERAL NOTES

1. All materials and workmanship shall be in accordance with the State of Alaska Standard Specifications for Highway Construction.
2. For foundation and structural backfill details see Standard Plan D-01 "Culvert Pipe & Arch Installation Details".
3. Pipe cover height is measured from top of the pipe to top of rigid pavement, or to the bottom of subgrade for flexible pavement. In all cases the minimum cover shall be no less than 2 ft. Where loads traverse the culvert during construction minimum cover shall be no less than 4 ft.

Maximum Cover for Type S Corrugated Polyethylene Pipe	
Size (in)	Max. Cover (ft)
12	24
15	25
18	24
24	20
30	20
36	18
42	16
48	17

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

Adopted as an Alaska Standard Plan by: *Carolyn Morehouse*
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLH Date: 7/8/2020
Next Code and Standards Review date: 7/8/2030

D-04.22

PRELIMINARY
NOVEMBER
2021

STANDARD PLAN
D-04.22 (3 OF 4)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V7	V39

D-04.22

SHEET
4 of 4

GENERAL NOTES

- I. All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2. The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3. No more than one type of pipe may be used on any single installation or installation grouping.
4. All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5. See Standard Plan D-01 "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6. Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the bottom of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflection.
7. These tables have been developed for an HL-93 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section I2 of the 2017 AASHTO "LRFD Bridge Design Specifications".

Minimum & Maximum Cover for Aluminum Spiral Rib Circular Pipe*					
Gage	16	14	12	10	
Thickness	0.064	0.079	0.109	0.138	
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
18	12	43	61		
21	12	38	52	84	
24	12	33	45	73	
30	15	26	36	58	
36	18	21	30	49	69
42	21		25	41	59
48	24			36	51
54	24			32	46
60	24			29	41
66	24				37
72	30				34

*¾ x ¾ x 7½ in. Corrugations

Minimum & Maximum Cover for Aluminum Spiral Rib Pipe-Arch*					
Gage	16	14	12	10	
Thickness	0.060	0.075	0.105	0.135	
Span (Ft.-In.)	Rise (Ft.-In.)	Min. Cover (In)	Max. Cover (Ft)		
20	16	12	16		
23	19	12	15		
27	21	15	13		
33	26	18	13	13	
40	31	21	13	13	
46	36	24		13	13
53	41	24		13	13
60	46	24		13	13
66	51	24			13

*¾ x ¾ x 7½ in. Corrugations

ALUMINUM SPIRAL RIB PIPE

STEEL SPIRAL RIB PIPE

Minimum & Maximum Cover for Steel and Aluminized Steel Spiral Rib Circular Pipe*					
Gage	16	14	12	10	
Thickness	0.064	0.079	0.109	0.138	
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
18	12	91			
24	12	68	95	100+	
30	12	54	76	100+	
36	12	45	63	100+	
42	12	38	54	90	
48	12	33	47	79	
54	18	30	42	70	
60	18	27	38	63	92
66	18	24	34	57	83
72	18		31	52	76
78	24		29	48	70
84	24		27	45	65
90	24			42	61
96	24			39	56
102	30			36	50
108	30			32	45

*¾ x ¾ x 7½ in. Corrugations.

Minimum & Maximum Cover for Steel Spiral Rib Pipe-Arch*					
2 Tons/Sf Corner Bearing Pressure					
Thickness	0.064	0.079	0.109		
Span (Ft.-In.)	Rise (Ft.-In.)	Min. Cover (In)	Max. Cover (Ft)		
20	16	12	13		
23	19	12	13		
27	21	12	11		
33	26	12	11		
40	31	12	11		
46	36	12	11		
53	41	18		11	
60	46	18		19	
66	51	18		19	
73	55	18		18	
81	59	18		15	
87	63	18		15	
95	67	18		15	

*¾ x ¾ x 7½ in. Corrugations

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

Adopted as an Alaska Standard Plan by:

Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLH Date: 7/8/2020

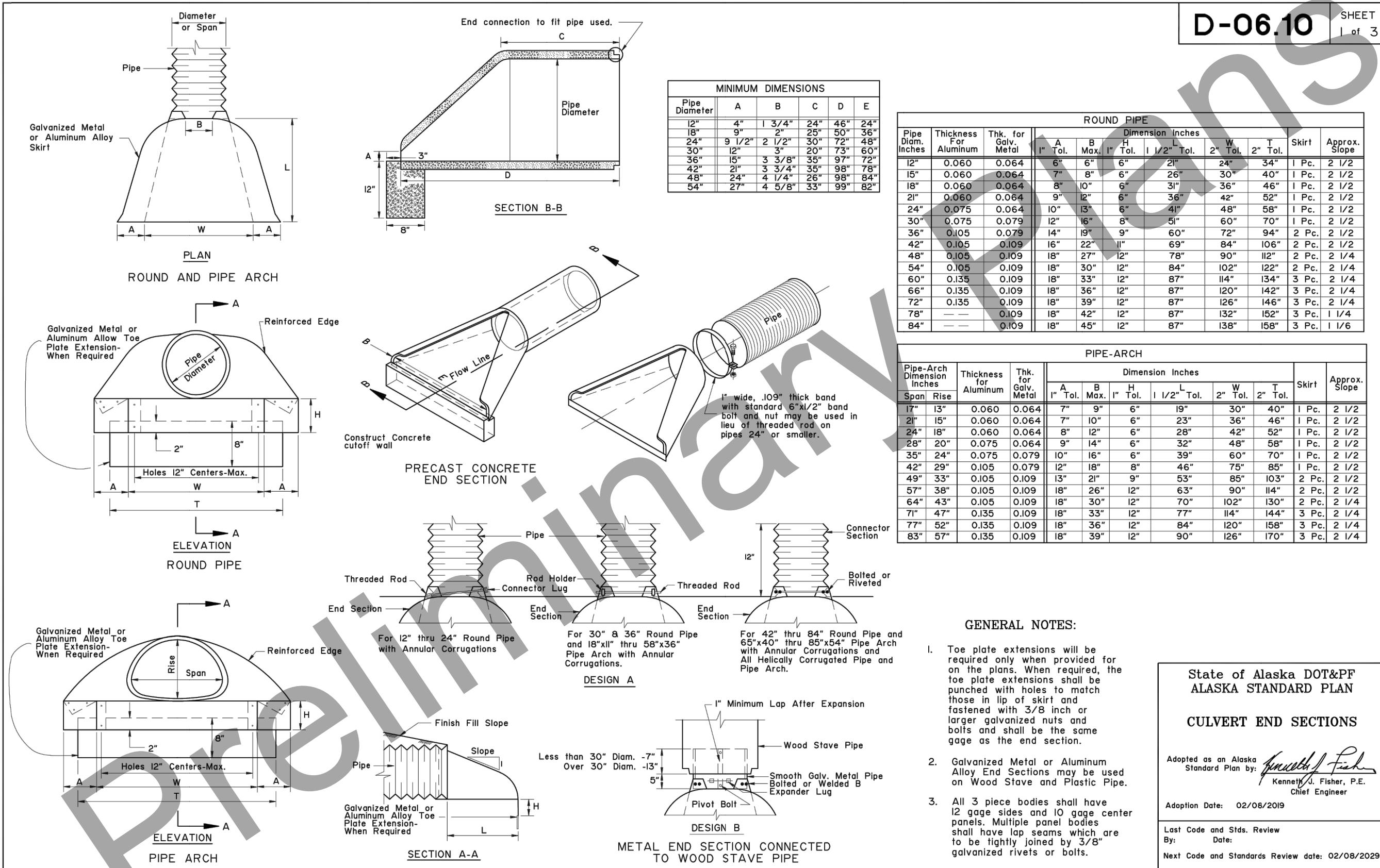
Next Code and Standards Review date: 7/8/2030

STANDARD PLAN
D-04.22 (4 OF 4)

PRELIMINARY
NOVEMBER
2021

D-04.22

D-06.10

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D-06.10

STANDARD PLAN
D-06.10 (1 OF 3)

PRELIMINARY
NOVEMBER
2021

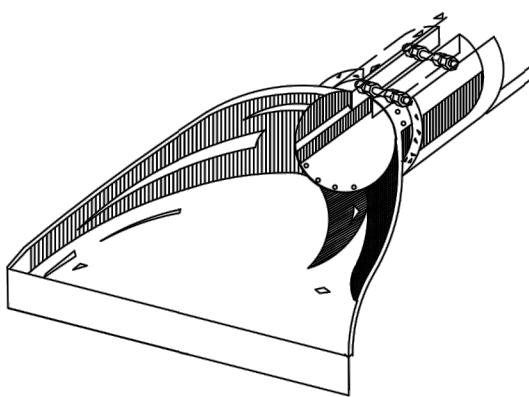
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V9	V39

D-06.10

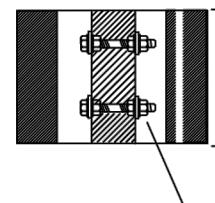
SHEET
2 of 3

GENERAL NOTES

1. See general notes on sheet 1 of 3.
2. See sheet 1 of 3 for metal end section dimensions.
3. Insert bolts, washers and rivets shall be galvanized. Insert thickness is the same as the end section.
4. Use culvert inserts only at inlet.



FOR CONNECTING CONCRETE PIPE OR CORRUGATED POLYETHYLENE PIPE TO METAL END SECTION.



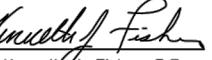
SEE NOTE 2

5/8" GALV.BOLTS

METAL INSERTS FOR USE WITH CORRUGATED PLASTIC PIPE AND METAL END SECTIONS

State of Alaska DOT&PF
ALASKA STANDARD PLAN

CULVERT END SECTIONS

Adopted as an Alaska Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: Date:
Next Code and Standards Review date: 02/08/2029

D-06.10

STANDARD PLAN
D-06.10 (2 OF 3)

PRELIMINARY
NOVEMBER
2021

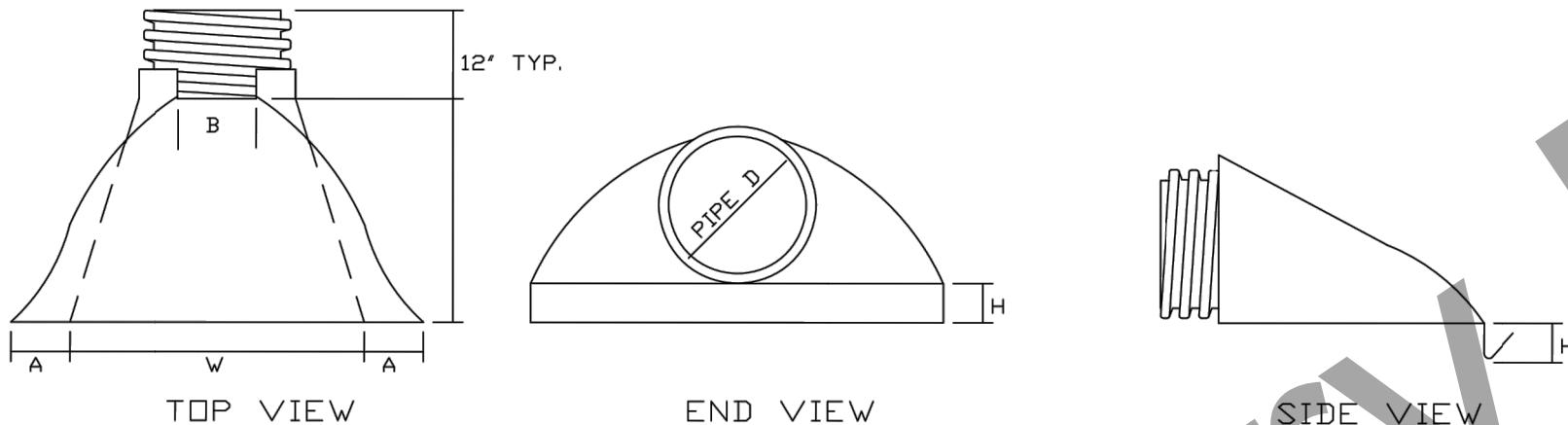
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			ALASKA	0A24033/Z607340000	2021	V10	V39

D-06.10

SHEET
3 of 3

GENERAL NOTES

1. Plastic flared end sections may be used with HDPE corrugated culvert pipes where noted in project plans or approved by project engineer.
2. Consult manufacturer's recommendations for proper sizing and coupling devices. Recommended fasteners may include connecting bands or cinch ties. Fittings across dimension B may include threaded rods with wing nuts or bolts and washers. plastic welds may be recommended.
3. Align coupling to accomodate pipe corrugations.
4. Metal components e.g. bolts or washers must be galvanized.
5. Attachment of end section should preserve culvert alignment and not impair pipe function. Use end sections only on culvert inlet.
6. Toe plate extensions will be required only when designated on the plans.
7. End sections will not be used on HDPE culvert pipes larger than 36" unless indicated by project plans or approved by the Engineer.



TOP VIEW

END VIEW

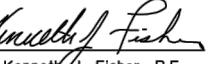
SIDE VIEW

PIPE DIAMETER	DIMENSIONS IN MILLIMETERS				
	A<1"> _±	B MAX	H<1±>	L<1/2"> _±	W<2±>
12" and 15"	6 1/2"	10"	6 1/2"	25"	29"
18"	7 1/2"	15"	6 1/2"	32"	35"
24"	7 1/2"	18"	6 1/2"	36"	45"
30"	10 1/2"	N/A	7"	53"	68"
36"	10 1/2"	N/A	7"	53"	68"

PLASTIC END SECTION FOR CORRUGATED PLASTIC PIPE

State of Alaska DOT&PF
ALASKA STANDARD PLAN

CULVERT END SECTIONS

Adopted as an Alaska Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: Date:
Next Code and Standards Review date: 02/08/2029

D-06.10

STANDARD PLAN
D-06.10 (3 OF 3)

PRELIMINARY
NOVEMBER
2021

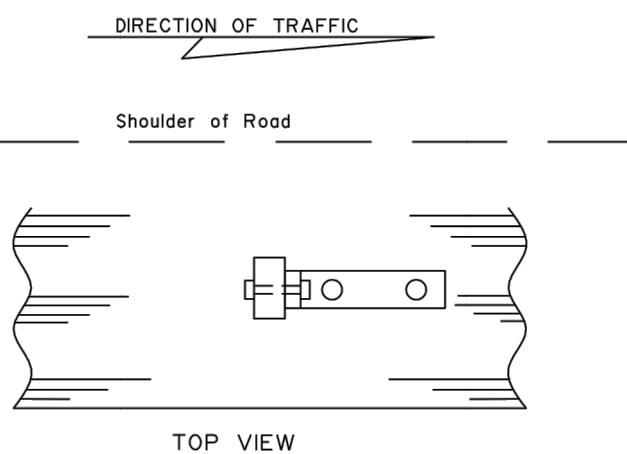
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			ALASKA	0A24033/Z607340000	2021	V11	V39

D-09.00

SHEET
1 of 1

GENERAL NOTES:

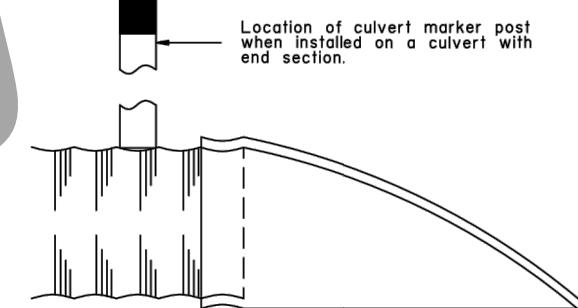
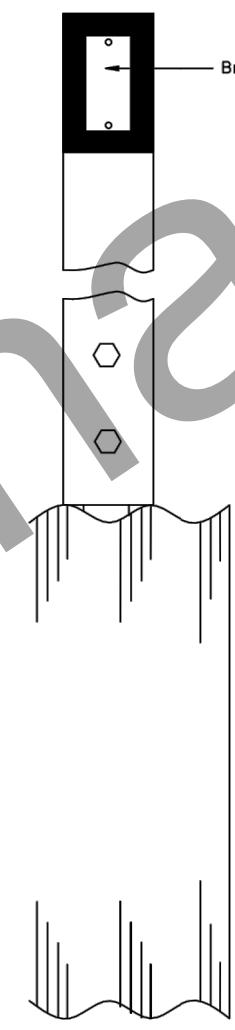
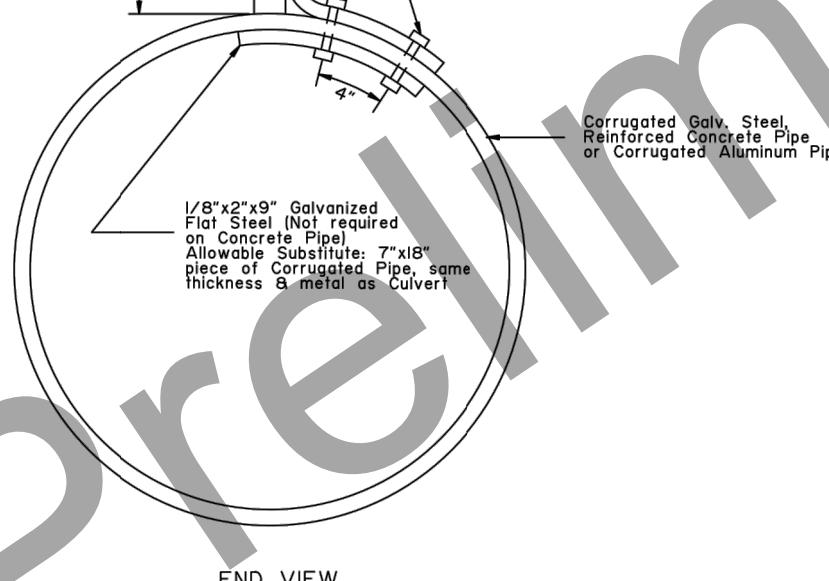
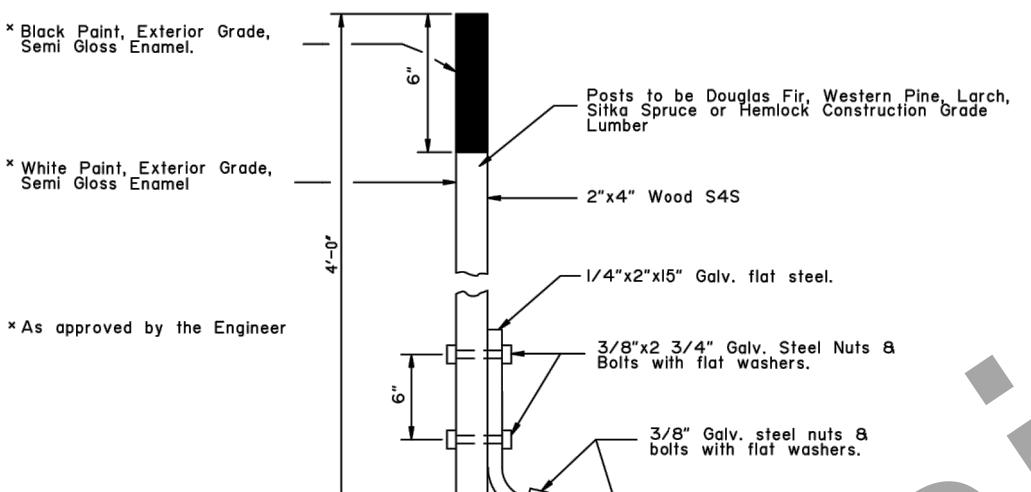
- I. Culvert marker post shall be installed with galvanized steel hardware meeting the following requirements: Galvanizing for nuts and washers shall meet the requirements of ASTM A-153, Class C. Galvanizing for steel mounting supports shall meet the requirements of MIL-P-26915A, or ASTM A-153, Class C.



23 + 45
18' x 48'

Sta. and size of Culvert to be stamped into a 2"x4"x0.064" thick brass plate, fastened, with No. 8 round head brass screws, to the marker post as shown. Plate to be on side of post facing traffic.

TOP VIEW



State of Alaska DOT&PF
ALASKA STANDARD PLAN

CULVERT MARKER POST

Adopted as an Alaska Standard Plan by: Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review By: Date:
Next Code and Standards Review date: 02/08/2029

STANDARD PLAN
D-09.00

PRELIMINARY
NOVEMBER
2021

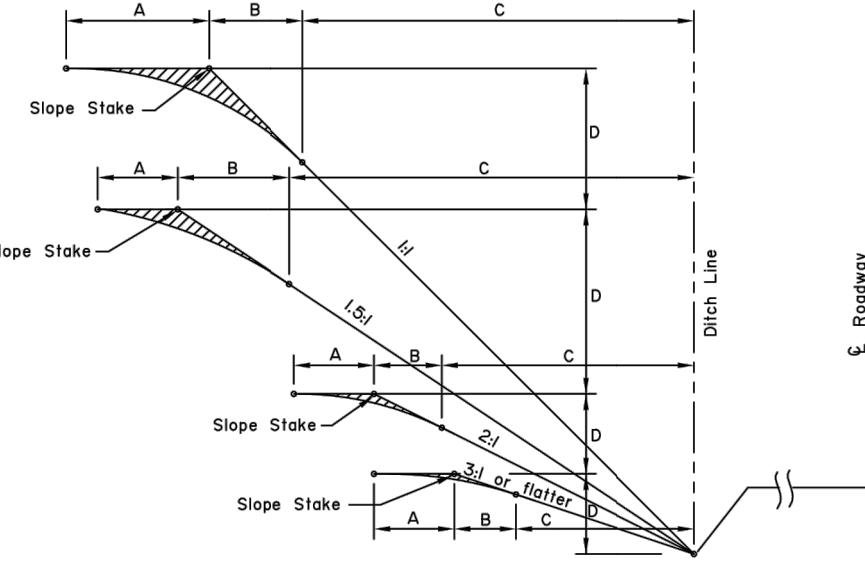


FIG. 1
TYPICAL SECTION OF ROUNDED SLOPES

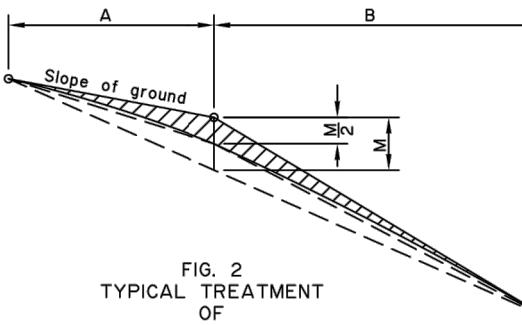


FIG. 2
TYPICAL TREATMENT
OF
POSITIVE SLOPE INTERSECTION

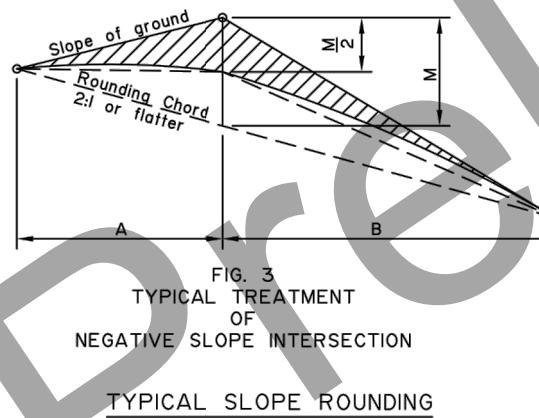


FIG. 3
TYPICAL TREATMENT
OF
NEGATIVE SLOPE INTERSECTION

TYPICAL SLOPE ROUNDING

TABLE OF ROUNDING DIMENSIONS

Rate of Slope	A		B	
	When B's 5.0' or less	When B is more than 5.0'	When D's 15.0' or less	When D is more than 15.0'
3:1 or flatter	B	5.0'	5.0'	5.0'
2:1	B	5.0'	5.0'	D/3
1.5:1	B	5.0'	5.0'	D/3
1:1	B	D/3, Max. 10.0'		D/3

GENERAL NOTES

- Cut and fill slopes shall be rounded as shown in fig. 1, 2, and 3 when required by the plans or special provisions. Rounding of fill slopes shall be done in the same manner as shown for cut slopes.
- Intersections of cut and fill slopes shall be warped as shown in fig. 4 and 5 when required by the plans or special provisions.
- Warping of cut and fill slopes is for the purpose of obtaining a more pleasing appearance and to promote the growth of natural vegetation by causing the fill slope to flow smoothly into the cut slope. The length of slope warping is relatively proportional to the character of the topography, the distance between end limits of warped surfaces being lessened as the terrain steepens and lengthened as the topography flattens out. The procedure as outlined herein is typical and shall be varied to meet special conditions and shall be as staked by the Engineer.
- SUGGESTED PROCEDURE FOR WARPING SLOPING**
 - A--Select end points for warping to fit specified slope ratios as follows:
 - (a) The dimensions A, B, and C shall all be constant throughout the full length of warping, E.
 - (b) When the average depth of cut or fill is such that the dimension B+C exceeds 10 feet, the ends of warping shall be at points where B+C is 10 feet, provided the warping distance E does not exceed 100 feet. That is, as shown in fig. 4 and 5, warping shall begin at a cut or fill depth of 6.7 feet for 1.5:1 slopes, at 50 feet for 2:1 slopes, etc. if the dimension E exceeds 100 feet, the dimension B+C shall be reduced until the intersections of the prescribed slopes with the natural ground are 100 feet apart.
 - (c) When the average depth of cut or fill is such that the distance B+C is between 5 feet and 10 feet, the ends of warping shall be at points where C is 0 feet, but such points shall not be more than 150 feet apart.
 - (d) When the average depth of cut or fill is such that the dimension B is less than 5 feet, the ends of warping shall be 200 feet apart.
 - B--Set slope stakes at end of warping.
 - C--Set additional slope stakes at various intervals between end stakes and at the same distance from centerline.
 - D--Flatten and round warped slopes as shown in figure 4 for each section.
- A layer of earth overlying a rock cut shall be rounded as far as possible as though the total height of slope were in earth cut.

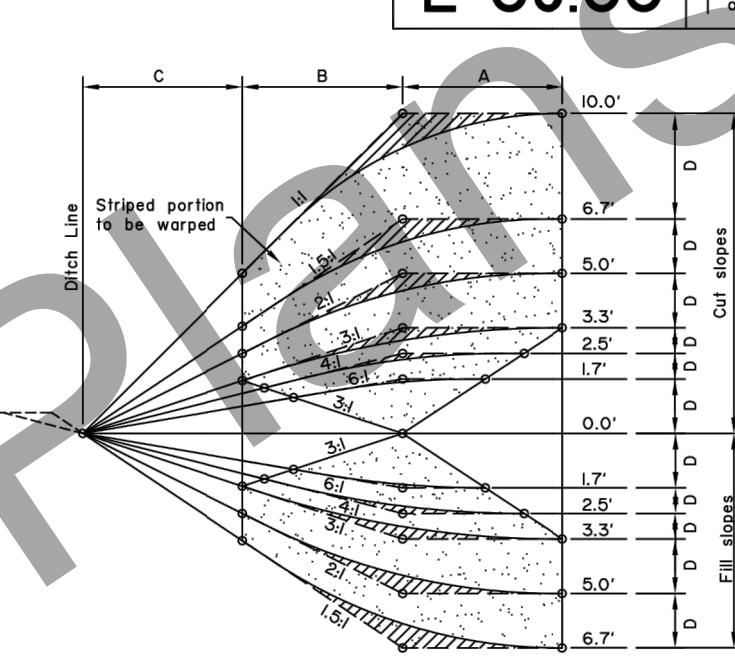


FIG. 4
TYPICAL GRADING FOR WARPING SLOPES

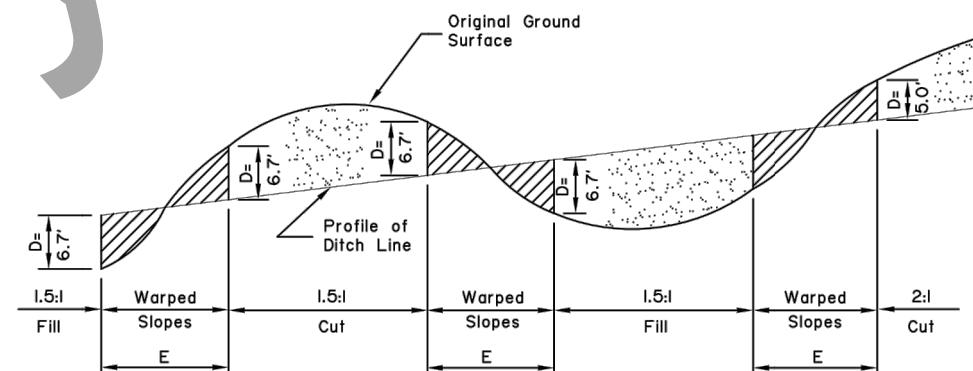
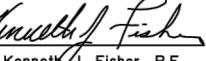


FIG. 5
TYPICAL PROFILE OF WARPED SLOPES

TYPICAL SLOPE WARPING

**State of Alaska DOT&PF
ALASKA STANDARD PLAN
SLOPE
ROUNDING AND WARPING**

Adopted as an Alaska Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: _____ Date: _____

Next Code and Standards Review date: 02/08/2029

STANDARD PLAN
E-09.00

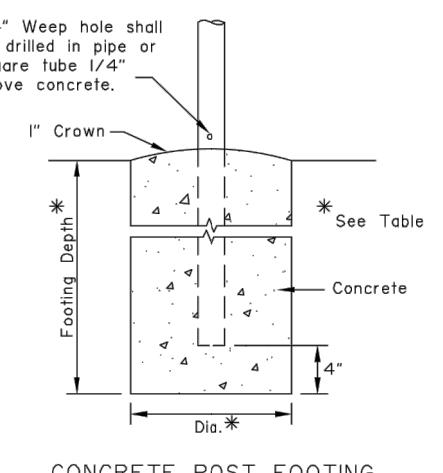
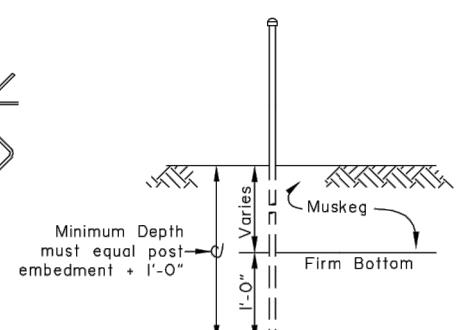
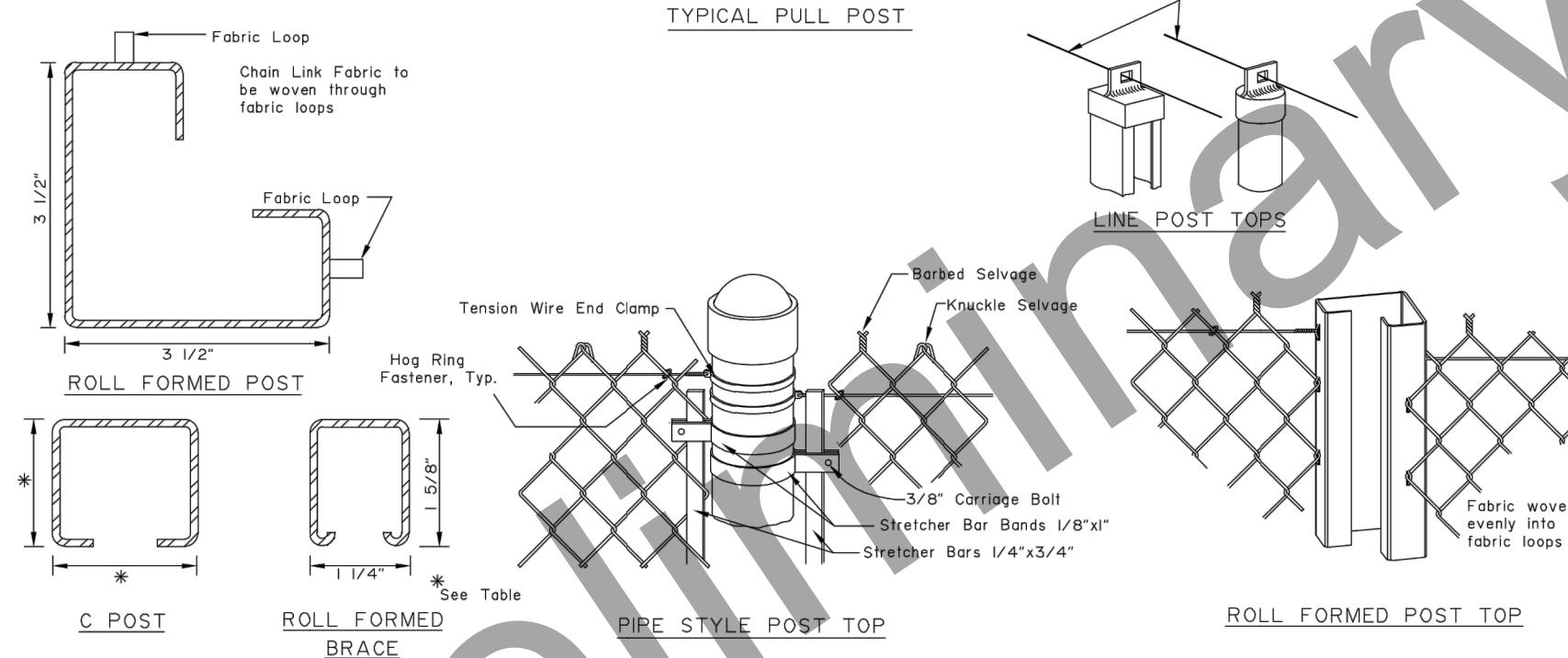
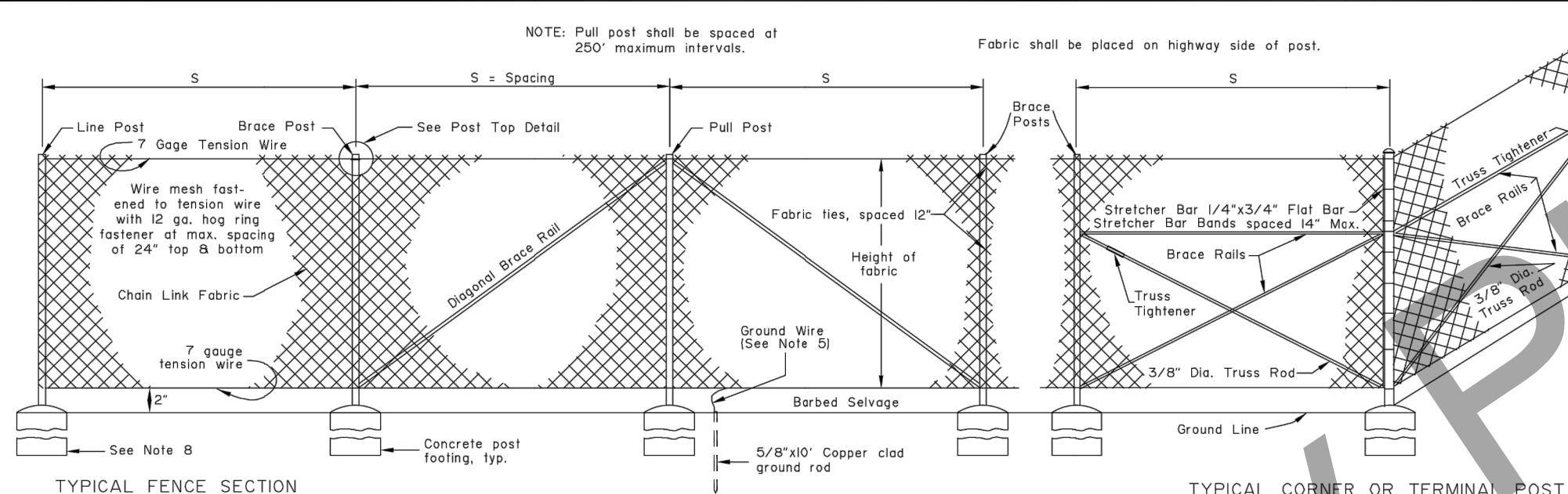
PRELIMINARY
NOVEMBER
2021

F-01.04

SHEET
1 of 1

GENERAL NOTES:

1. Use equal pole spacing (S). Maximum pole spacing is 10 feet unless directed otherwise by the Engineer.
2. Securely fasten post tops to post.
3. Securely fasten brace rails and truss rods to post with brace bands.
4. Provide truss rods with a tensioning adjusting mechanism.
5. Attach ground wire to fence fabric with a split bolt.
6. Stretch fabric to a smooth uniform appearance.
7. Details shown indicate general design and dimensions may vary among manufacturers.
8. Set line, pull, corner, and terminal posts in concrete footings unless in muskeg or shown otherwise in the plans.



State of Alaska DOT&PF ALASKA STANDARD PLAN

CHAIN LINK FENCE

Adopted as an Alaska Standard Plan by: *Carolyne Morehouse*

Carolyne Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLH Date: 7/8/2020

Next Code and Standards Review date: 7/8/2030

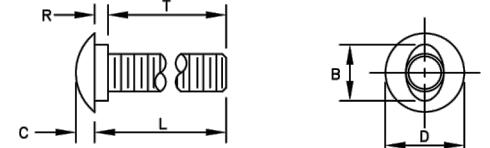
FABRIC HEIGHT	POST								TOP OR BRACE RAIL								ALTERNATE POST					
	END-CORNER-PULL				LINE-BRACE				C POST				FOOTING				PIPE	ROLL FORMED	H POST	LINE-BRACE		
	PIPE	SQUARE TUBE	ROLL FORMED	FOOTING	PIPE	C POST	FOOTING	PIPE	ROLL FORMED	H POST	SIZE	WT/FT.	DEPTH	DIA.	SIZE	WT/FT.	SIZE	WT/FT.	SIZE	WT/FT.		
3'	2"	3.65 #	2" x 2"	4.31 #	3 1/2"x3 1/2"	4.84 #	40"	10"	1 1/2"	2.72 #	1 7/8"x1 5/8"	2.28 #	28"	10"	1 1/4"	2.27 #	1 5/8"	1.35 #	1 1/2"x1 5/16"	2.27 #	1 7/8"x1 5/8"	2.72 #
4'	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
5'	2"	3.65 #	2" x 2"	4.31 #	3 1/2"x3 1/2"	4.84 #	40"	10"	1 1/2"	2.72 #	1 7/8"x1 5/8"	2.28 #	28"	10"	"	"	"	"	"	1 7/8"x1 5/8"	2.72 #	
6'	2 1/2"	5.79 #	2 1/2"x2 1/2"	5.59 #	3 1/2"x3 1/2"	4.84 #	48"	15"	2"	3.65 #	2 1/4"x1 45/64"	2.64 #	40"	12"	"	"	"	"	"	2 1/4"x2"	4.1 #	
7'	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
8'	2 1/2"	5.79 #	2 1/2"x2 1/2"	5.59 #	3 1/2"x3 1/2"	4.84 #	48"	15"	2"	3.65 #	2 1/4"x1 45/64"	2.64 #	40"	12"	"	"	"	"	"	2 1/4"x2"	4.1 #	

STANDARD PLAN
F-01.04

PRELIMINARY
NOVEMBER
2021

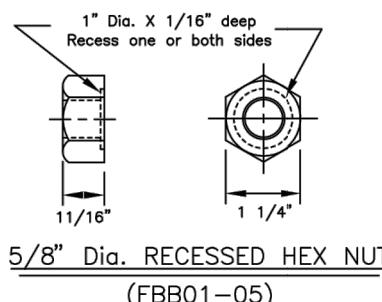
G-00.05

SHEET
1 of 5



B	C	D	L (Length)	R	T (Thread Length)
15/16"	5/16"	1 5/16" or 1 7/16"	As Required	7/32"	As Required

5/8" BUTTONHEAD BOLT
(FBB01-05)

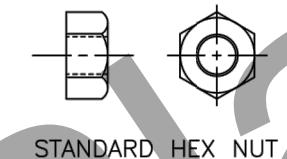


5/8" Dia. RECESSED HEX NUT
(FBB01-05)

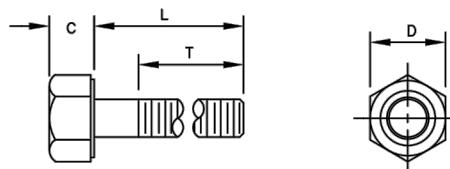


B	C	D	L (Length)	R	T (Thread Length)
5/8"	5/16"	1 5/16"	As Required	3/16"	As Required

5/8" Dia. CARRIAGE BOLT
(FBC10-20)

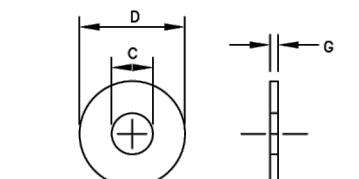


STANDARD HEX NUT



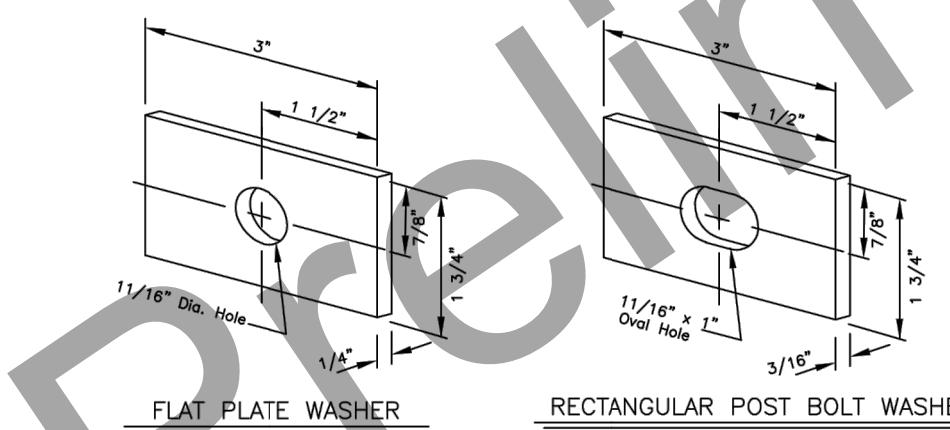
Bolt Size	C	D	L (Length)	T (Thread Length)
5/16"	—	—	1 1/2"	7/8"
5/16"	—	—	1"	1"
3/8"	—	—	7 1/2"	1 1/2"
1/2"	—	—	1 1/2"	1 1/2"
1/2"	—	—	1 1/4"	1 1/4"
5/8" H.S.	5/16"	7/8"	8"	1 1/2"
5/8"-11	—	—	1 1/2"	1 1/2"
3/4"	—	—	1 1/2"	1 1/2"
3/4"	—	—	As Required	2"
3/4" H.S.	15/32"	1 1/4"	2"	1 1/2"

STANDARD HEX BOLTS



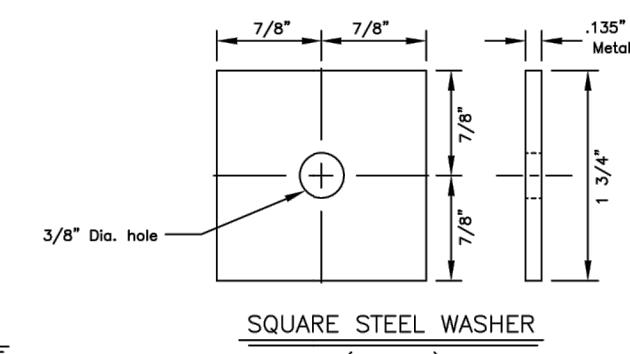
For Bolt #	C	D	G
3/8"	7/16"	1"	5/64"
1/2"	17/32"	1 1/16"	3/32"
1/2" H.S.	17/32"	1 1/16"	3/32"
5/8"	11/16"	1 3/4"	9/64"
3/4"	13/16"	1 15/32"	9/64"
3/4" H.S.	13/16"	2"	5/32"
1"	1 1/16"	2"	9/64"

STANDARD STEEL WASHERS



FLAT PLATE WASHER

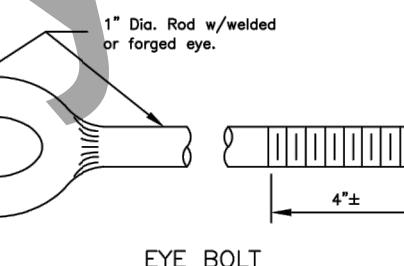
RECTANGULAR POST BOLT WASHER
(FWR03)



SQUARE STEEL WASHER
(FWR01)

GENERAL NOTES:

- All covered hardware shall comply with the Task Force 13 (TF13) Guide to Standardized Roadside Safety Hardware online publication. Designators given when possible in parentheses.



EYE BOLT

State of Alaska DOT&PF
ALASKA STANDARD PLAN

STANDARD GUARDRAIL
HARDWARE
(NUTS, BOLTS & WASHERS)

Adopted as an Alaska Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK Date: 7/8/2020

Next Code and Standards Review Date: 7/8/2030

G-00.05

STANDARD PLAN
G-00.05 (1 OF 5)

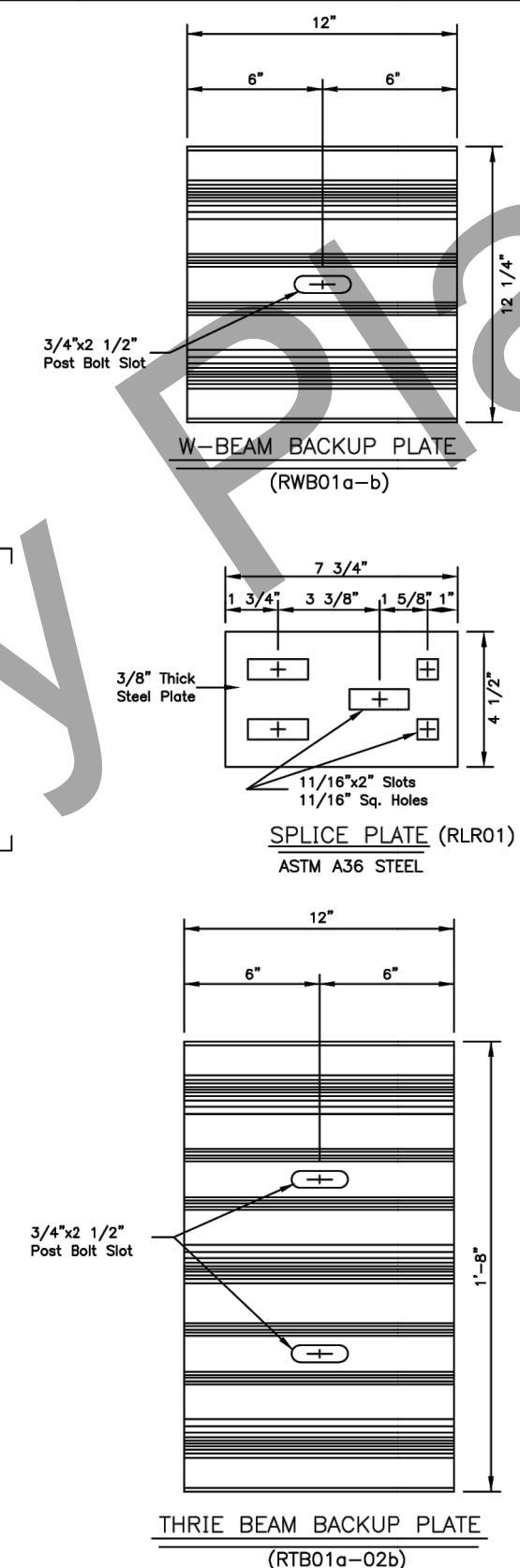
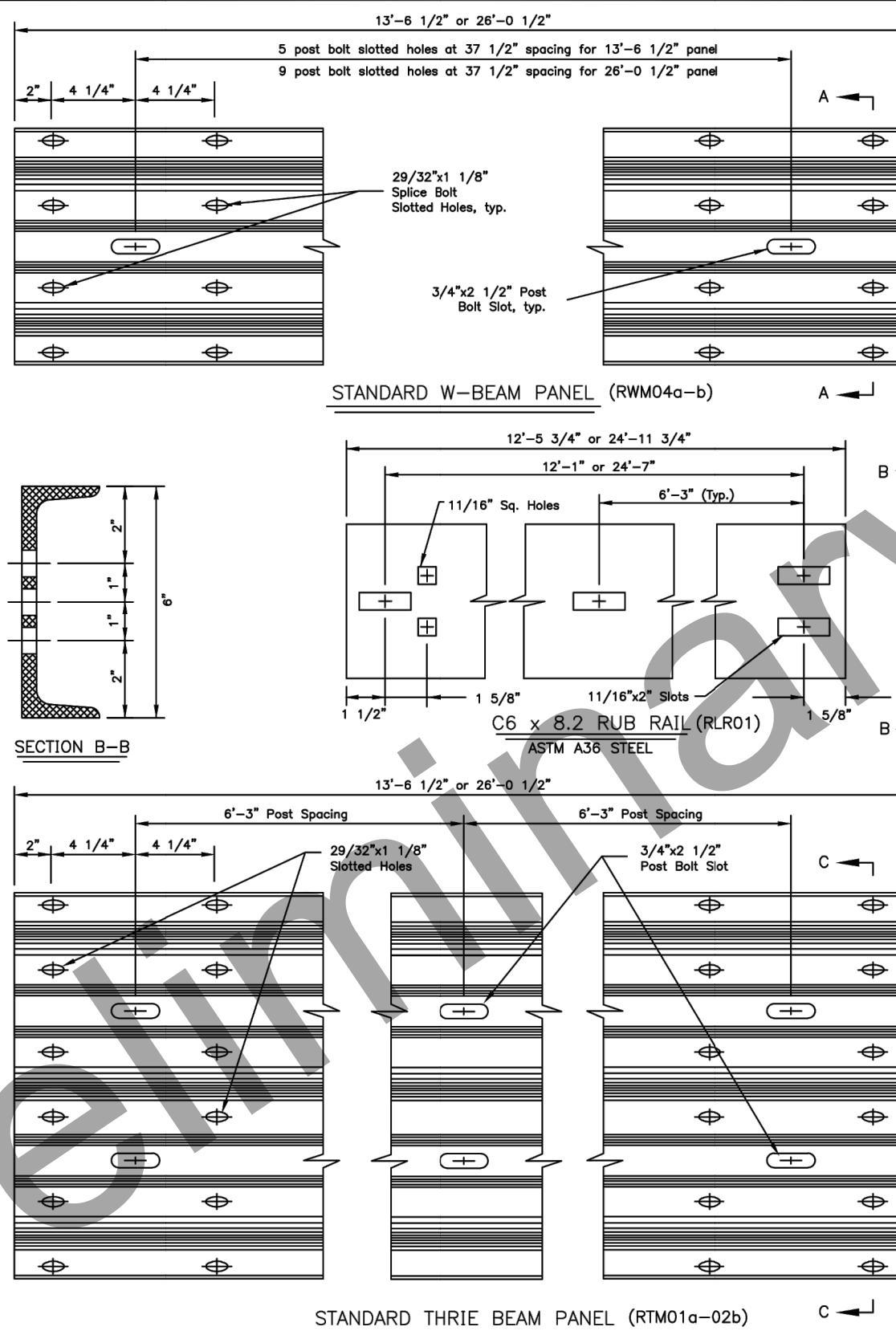
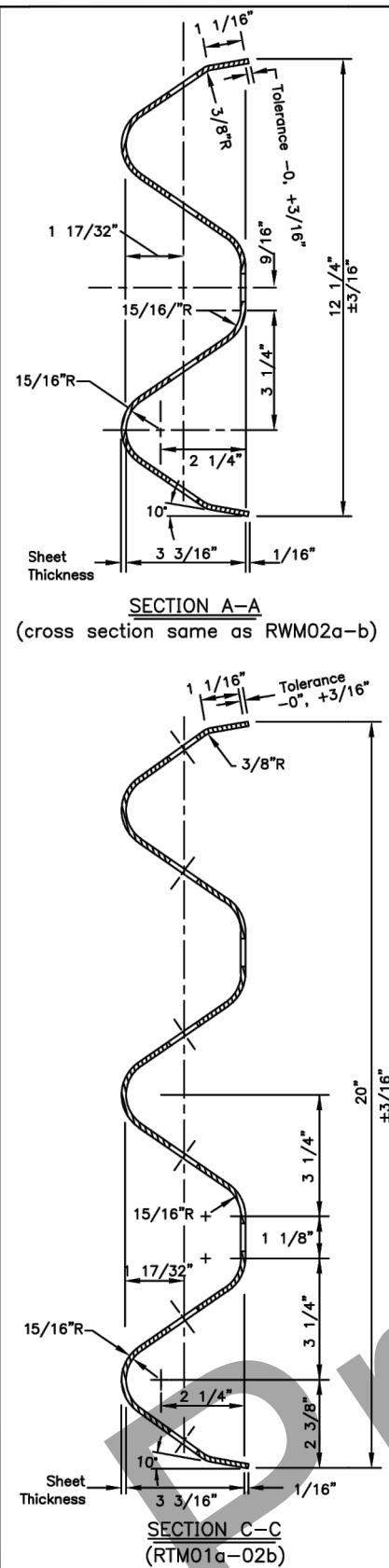
PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V15	V39

G-00.05 SHEET
2 of 5

GENERAL NOTES:

- All covered hardware shall comply with the Task Force 13 (TF13) Guide to Standardized Roadside Safety Hardware online publication. Designators given when possible in parentheses.
- Install back-up plates between blockouts and w-beam or thrie-beam rail at intermediate (non-splice) posts when steel blockouts are used but not with wood, rubber, plastic, or other approved blockouts.



State of Alaska DOT&PF
ALASKA STANDARD PLAN
STANDARD GUARDRAIL HARDWARE (RAILS AND SPLICES)
Adopted as an Alaska Standard Plan by:
Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer
Adoption Date: 7/17/2020
Last Code and Stds. Review By: KLK Date: 7/8/2020
Next Code and Standards Review Date: 7/8/2030

G-00.05

STANDARD PLAN
G-00.05 (2 OF 5)

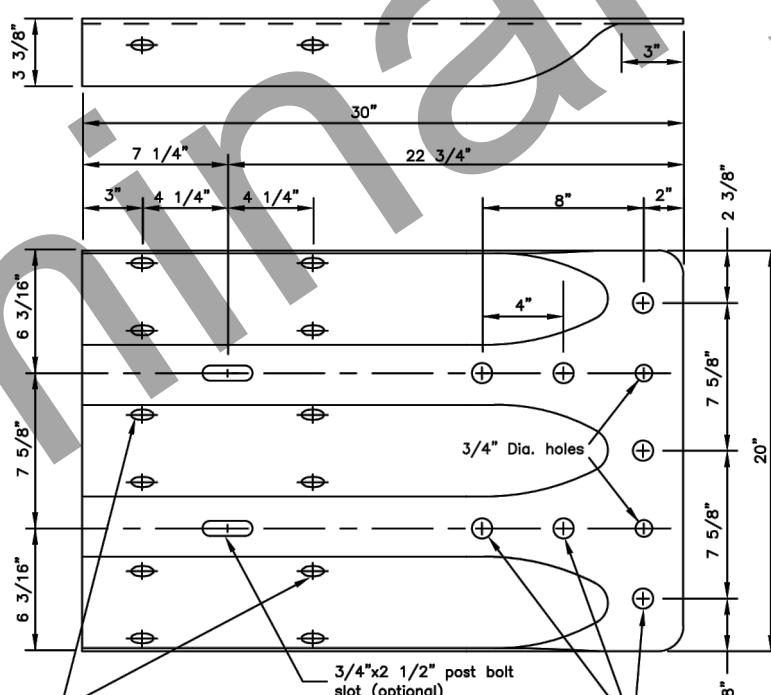
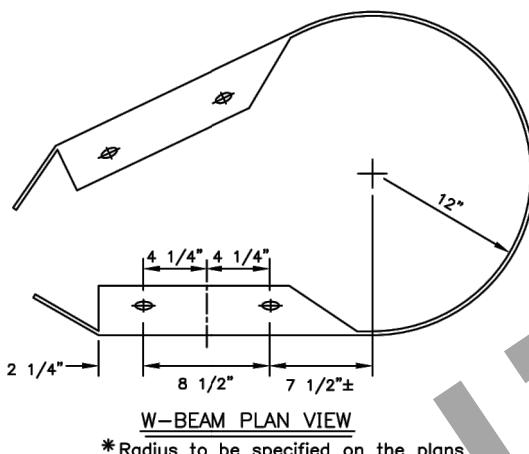
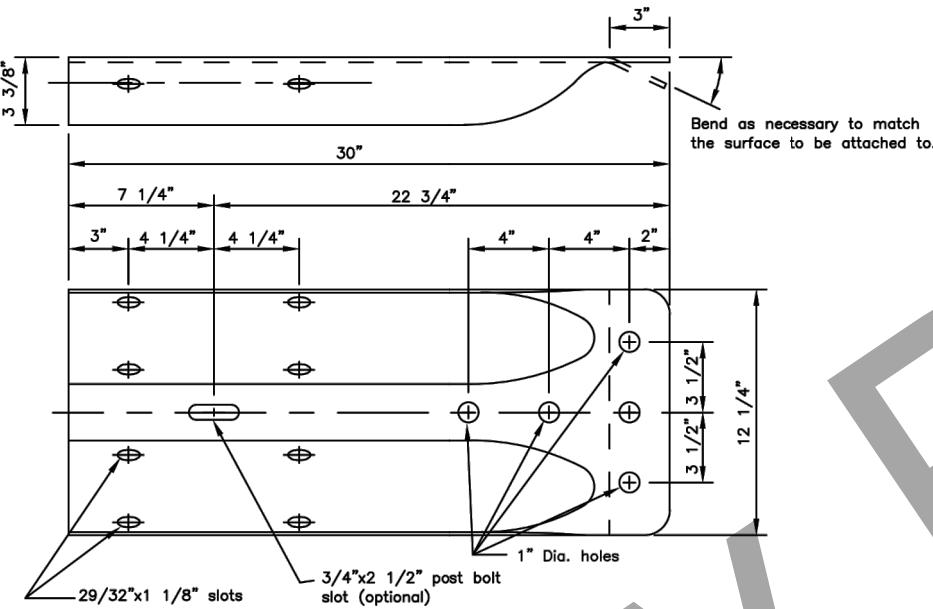
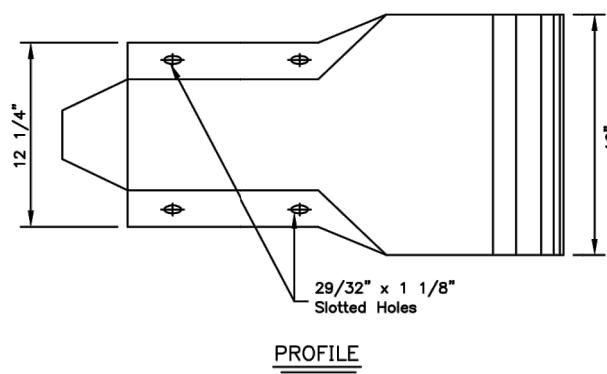
PRELIMINARY
NOVEMBER
2021

G-00.05

SHEET
3 of 5

GENERAL NOTES:

1. W-Beam and Thrie Beam Terminal Connectors shall conform to AASHTO M 180, Class B, Type II.
2. W-Beam end sections shall conform to AASHTO M 180, Class A, Type II.
3. All covered hardware shall comply with the Task Force 13 (TF13) Guide to Standardized Roadside Safety Hardware online publication. Designators given when possible in parentheses.



State of Alaska DOT&PF
ALASKA STANDARD PLAN

STANDARD GUARDRAIL
HARDWARE
(TERMINAL CONNECTORS)

Adopted as an Alaska Standard Plan by: Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK Date: 7/8/2020

Next Code and Standards Review Date: 7/8/2030

G-00.05

STANDARD PLAN
G-00.05 (3 OF 5)

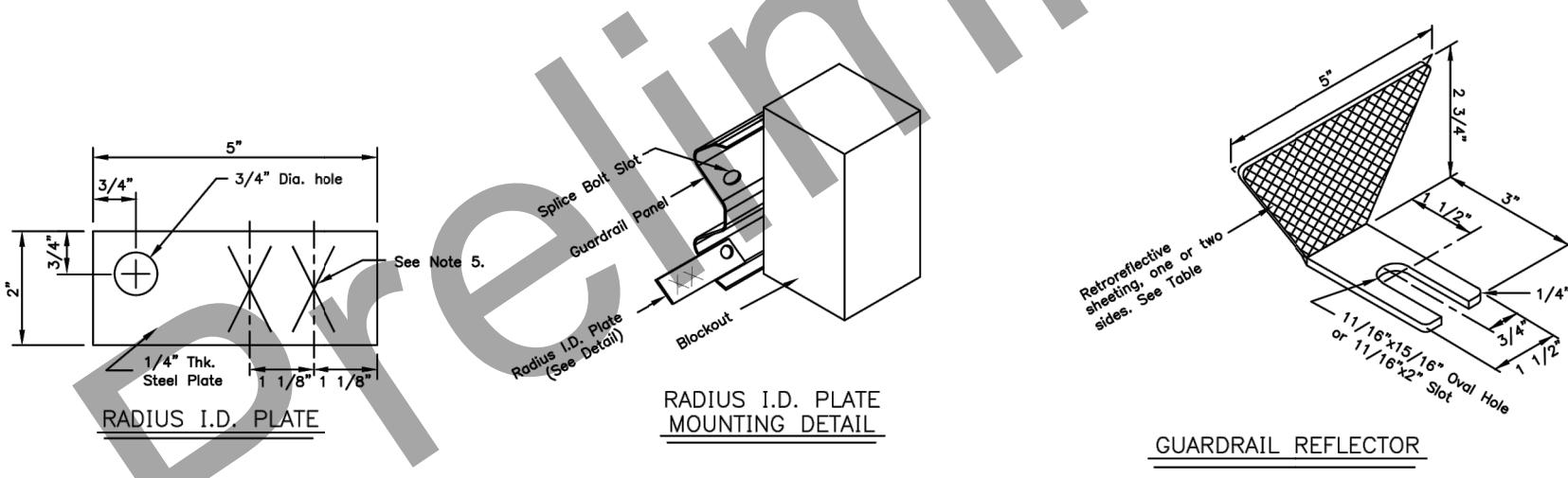
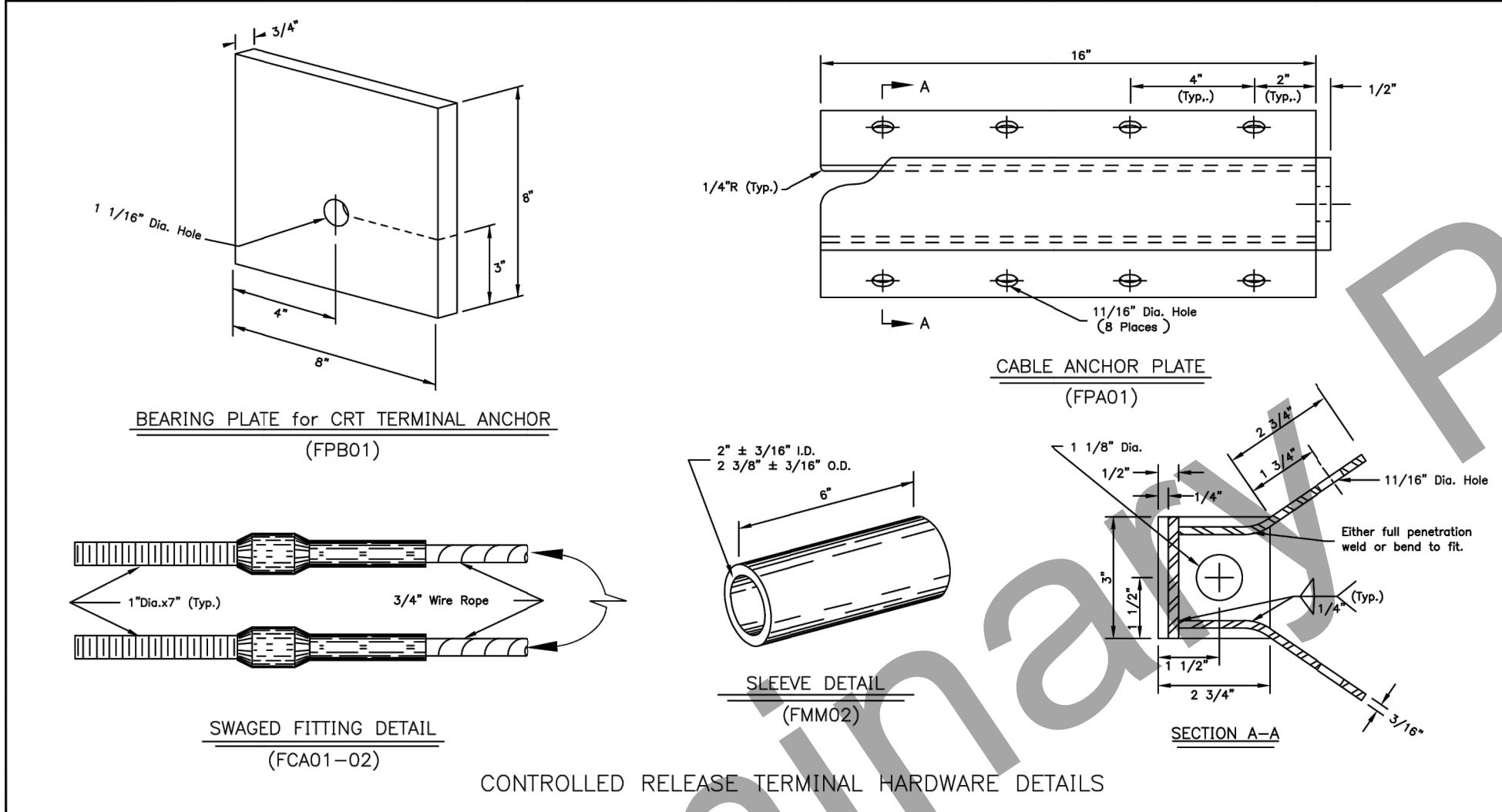
PRELIMINARY
NOVEMBER
2021

G-00.05

SHEET
4 of 5

GENERAL NOTES:

1. Cable Anchor Plate may be formed in single unit or welded fabrication.
2. Anchor Cable Assembly must conform to AASHTO M 30 with Type II Wire Rope.
3. Provide Sleeve for Wood Posts meeting the requirements of ASTM A53 and made of 2-inch galvanized standard pipe. Sleeve shall be a tight, pressed fit in post.
4. Attach radius ID plates to all shop-bent guardrail sections. Bolt the ID plates to the back side of the guardrail panel with the lower splice bolt nearest the P.C. of the radius.
5. Show the Rail bend radius, in feet, as "XX" on the radius ID plate. Digits shall be etched or stamped and have a min. height of 1 1/2" and a max. width of 3/4". Galvanize the plate after the digits are marked.
6. All covered hardware shall comply with the Task Force 13 (TF13) Guide to Standardized Roadside Safety Hardware online publication. Designators given when possible in parentheses.



Guardrail Reflector Table		
Type	Color	ReflectORIZED
A	White	Front & Rear
B	White	Front
C	Yellow	Front
D	Yellow	Front & Rear

Adopted as an Alaska Standard Plan by: Carolyn Morehouse, P.E. Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review By: KLK Date: 7/8/2020

Next Code and Standards Review Date: 7/8/2030

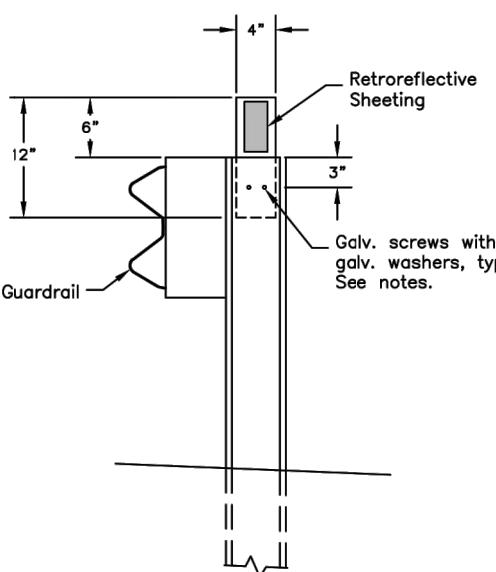
STANDARD PLAN
G-00.05 (4 OF 5)

Preliminary
November
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V18	V39

G-00.05

SHEET
5 of 5



GUARDRAIL FLEXIBLE DELINEATOR DETAIL

(Steel post shown – similar for wood post)

CONSTRUCTION NOTES

1. Install guardrail flexible delineators where shown on the plans.
2. Install guardrail flexible delineators at 50 foot spacing, unless otherwise noted on the plans. Install not less than 2 delineators per guardrail run.
3. Use 3" x 5" white/yellow/red retroreflective sheeting as required per Standard Plan T-05. Install retroreflective sheeting on both sides of delineator on two-way roads.
4. Attach 4" x 12" flexible delineators to the top of new guardrail posts, on the trailing side of the posts relative to the adjacent lane's direction of travel.
5. Use 2 each 1/4" dia. x 1-1/2" long galvanized lag screws for attaching to wood posts and 2 each 1/4" dia. x 3/4" long galvanized self-drilling fasteners for steel posts. Install a galvanized washer between the fastener head and the flexible delineator.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

STANDARD GUARDRAIL
HARDWARE
(FLEXIBLE DELINEATORS)

Adopted as an Alaska Standard Plan by:
Carolyne Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK Date: 7/8/2020
Next Code and Standards Review Date: 7/8/2030

G-00.05

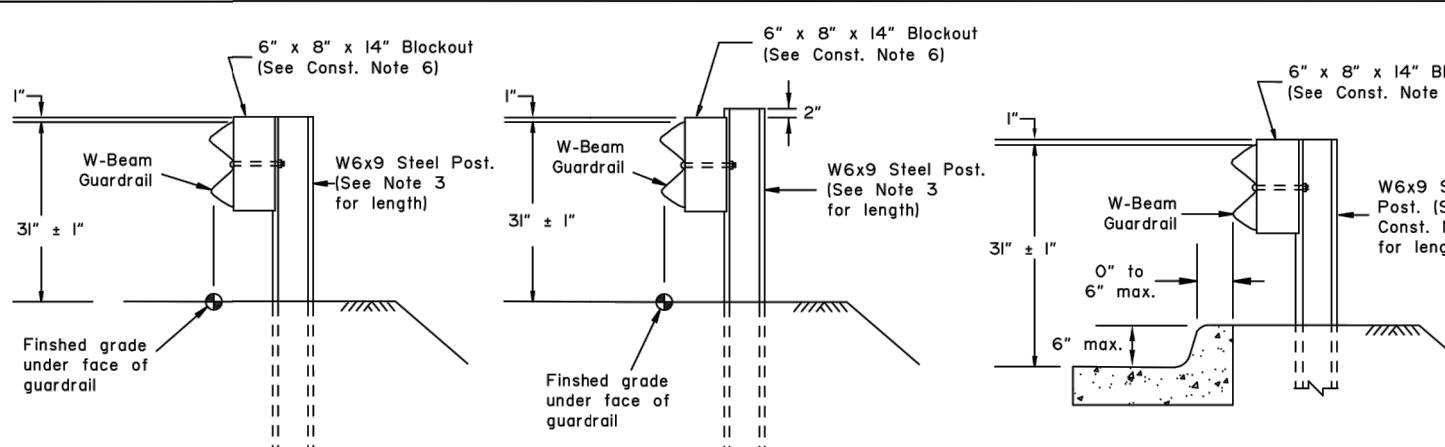
PRELIMINARY
NOVEMBER
2021

STANDARD PLAN
G-00.05 (5 OF 5)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V19	V39

G-05.11S

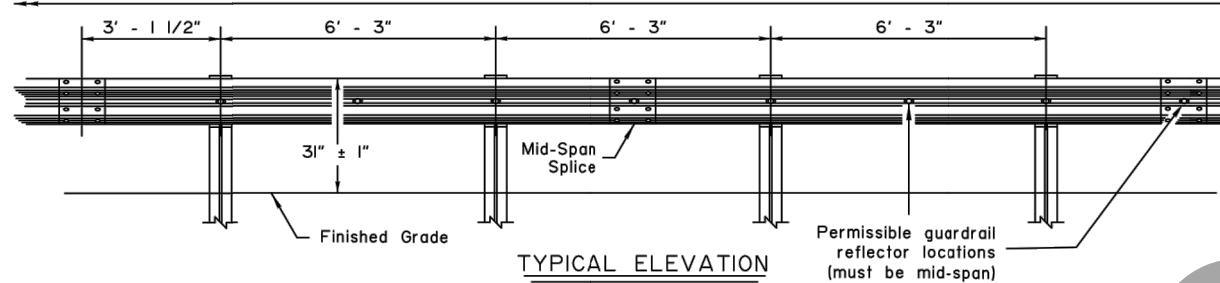
SHEET
1 of 1



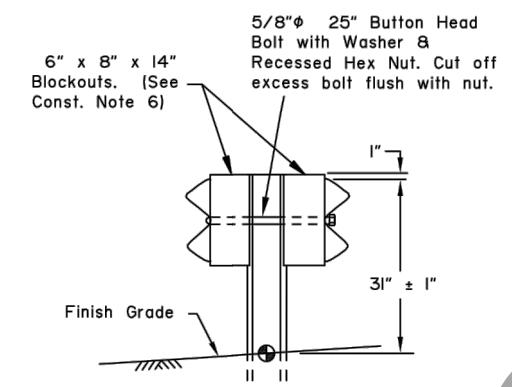
TYPE III POST INSTALLATION

TYPE I POST INSTALLATION
(Facilitates raising rail for future overlays.)

W31 GUARDRAIL



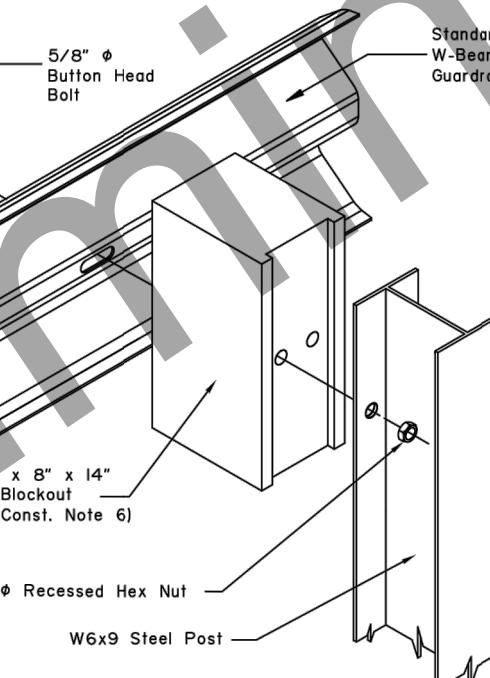
TYPICAL ELEVATION



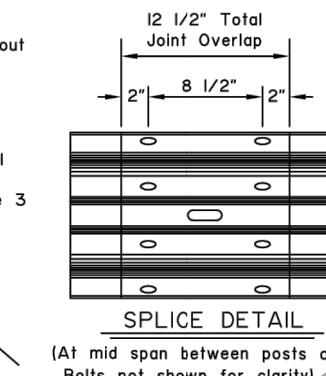
TYPE IV DOUBLE SIDED INSTALLATION

GUARDRAIL REFLECTOR
(See Const. Note 5)

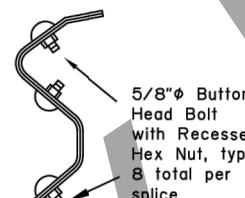
GUARDRAIL REFLECTOR
(See Const. Note 5)



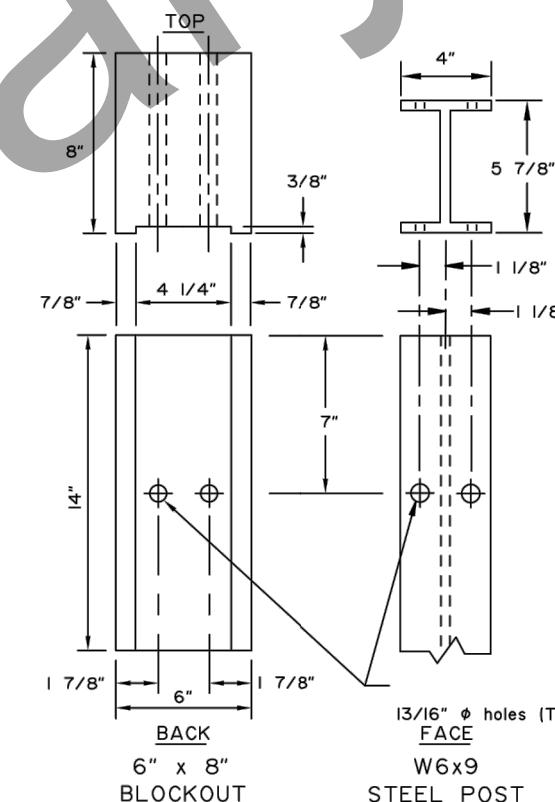
ASSEMBLY DETAIL
(Type I post shown)



SPLICE DETAIL
(At mid span between posts only.
Bolts not shown for clarity)



SPLICE CROSS-SECTION



W6x9 STEEL POST

6" x 8" BLOCKOUT

BACK

FACE

State of Alaska DOT&PF ALASKA STANDARD PLAN

STEEL POST W31 GUARDRAIL

Adopted as an Alaska Standard Plan by:

Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 05/15/2019

Last Code and Stds. Review
By: LRG Date: 5/15/2019

Next Code and Standards Review date: 5/15/2029

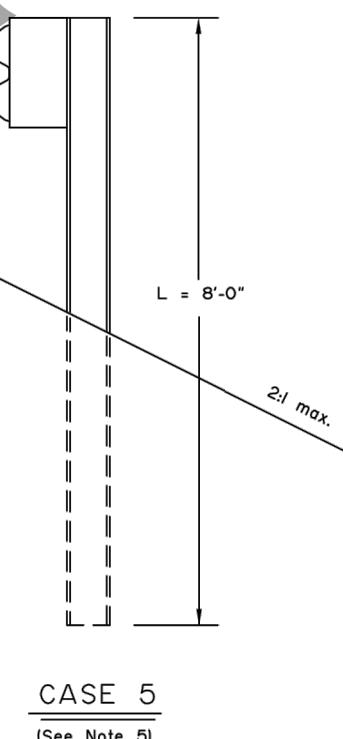
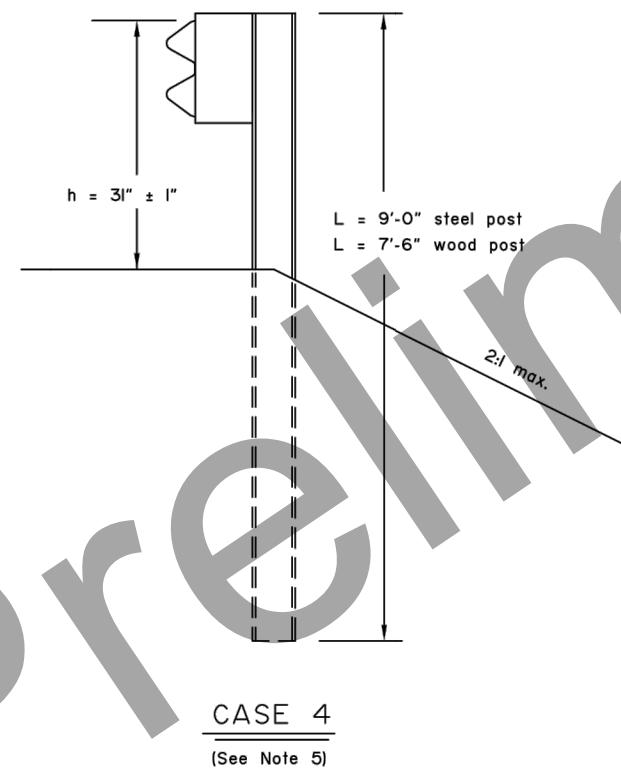
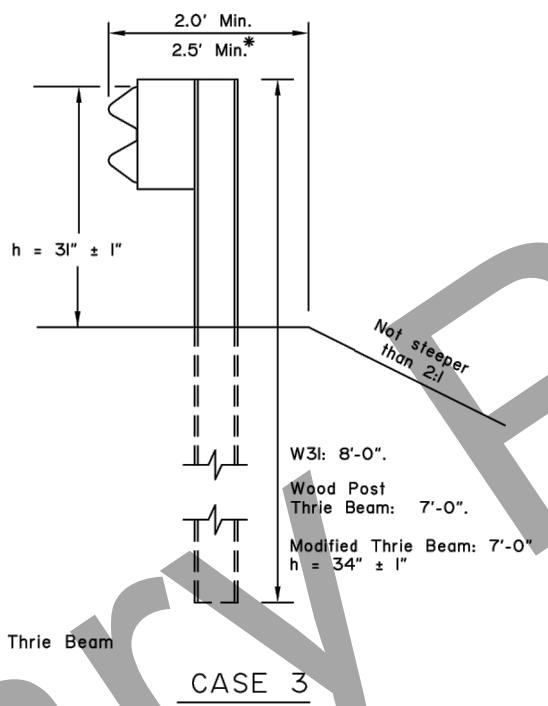
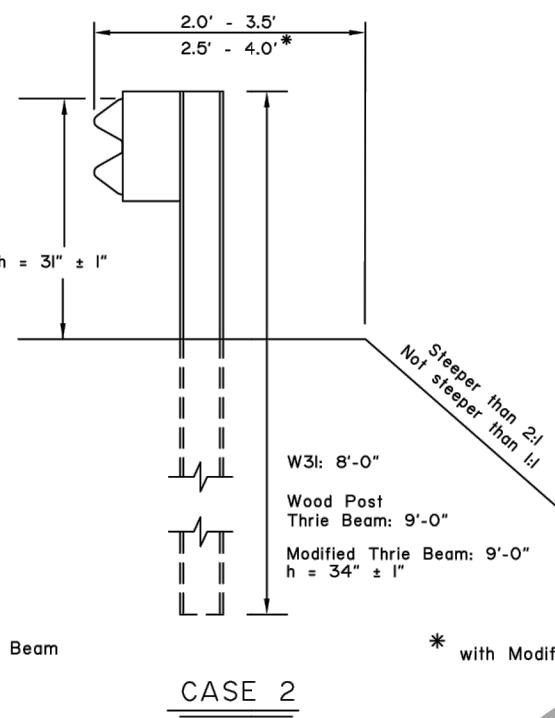
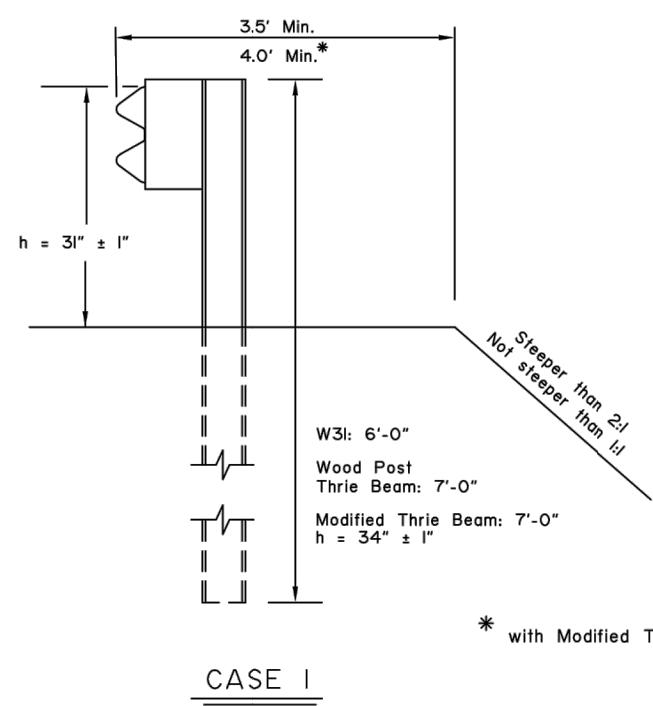
**STANDARD PLAN
G-05.11S**

**Preliminary
November
2021**

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V20	V39

G-10.20

SHEET
1 of 1



CONSTRUCTION NOTES:

1. This drawings is to be used for post length determination only. See Plans for slopes and behind-post embankment widths.
2. To determine post length, identify the case that matches site conditions and read the length corresponding to the pertinent guardrail type.
3. These dimensions apply to both curbed and uncurbed section.
4. Case 1, 2 and 3 are shown with steel posts. Wood posts may be substituted when allowed by specifications. Wood Post Thrie Beam installations must use wood posts only.
5. Case 4 and 5 apply to W3l guardrail only.

DESIGN NOTES:

1. No fixed objects allowed within 36" of the back of post for Cases 1, 2 & 3.
2. No fixed objects allowed within 48" of the back of post for Cases 4 & 5.

State of Alaska DOT&PF
ALASKA STANDARD PLAN
**GUARDRAIL
POST INSTALLATION**

Adopted as an Alaska Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: _____ Date: _____

Next Code and Standards Review date: 02/08/2029

G-10.20

**STANDARD PLAN
G-10.20**

**PRELIMINARY
NOVEMBER
2021**

G-20.12

SHEET
1 of 1

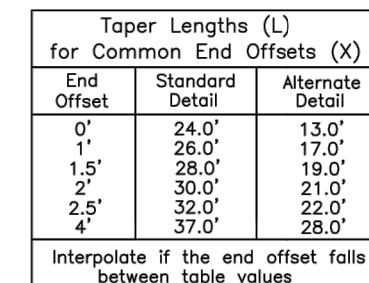
GENERAL NOTES

1. This Std. Dwg. applies to all MASH approved guardrail end terminals (GETs). The alternate detail may only be used with parallel or tangent GETs. The terminal details shown are for illustration only – see manufacturer's drawings for actual post, rail, strut, etc. configuration and layout.
 2. Use this Std. Widening Detail for all GETs except when limited right-of-way or limiting site conditions make the use of the Std. Widening Detail infeasible. In that case, the alternate detail is permissible.
 3. Construct the shaded areas to match the slope of the adjacent shoulder. The slope may be increased to 10:1 if identified in the plans or when approved by the engineer. Match the slope when the shoulder slopes toward the road as well as away from the road.
 4. On paved roads, the shaded areas shall be paved. On gravel roads, surface the shaded areas with the same materials used to surface the travel lanes.
 5. From point \textcircled{Y} to point \textcircled{Z} make the side slope match the approaching side slope except where it is flatter than 4:1. In that case, the slope may be steepened to 4:1.
 6. Attach a flexible marker at the beginning of each GET.
 7. The max. allowable height for foundation tubes or other steel components of terminal post breakaway systems is 4" above the surrounding grade.
 8. The details on this sheet do not apply to W31 Downstream End Anchors (Std Dwg G-14).
 9. The details on this sheet apply to GETs on both the approach and downstream ends on two-way undivided roads and to any downstream MASH compliant GETs.
 10. Some MASH GET systems have an additional post/anchor at the approximate location shown. If this post/anchor is present do not pave the diagonally hatched area. If not present, pave the diagonally hatched area also.

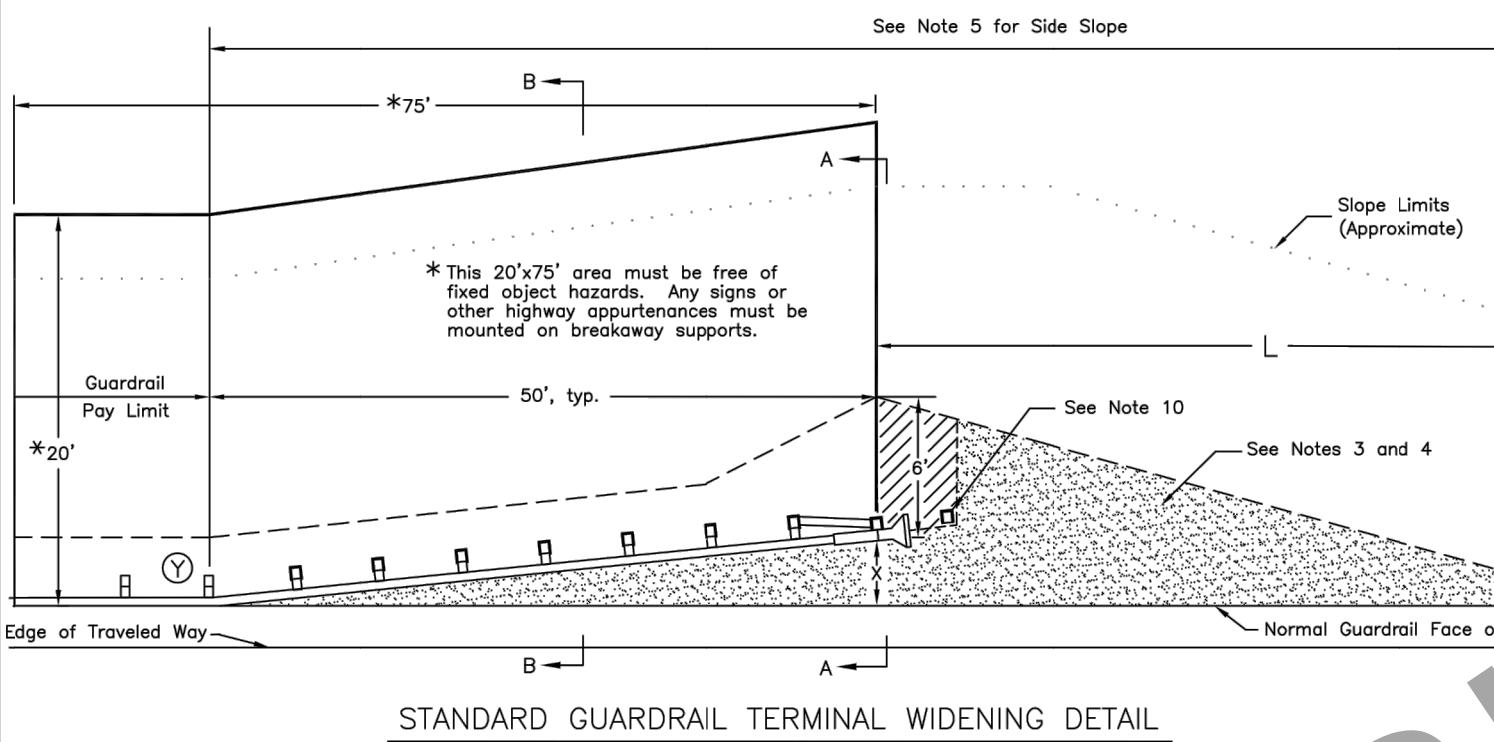
State of Alaska DOT&PF
ALASKA STANDARD PLAN

Adopted as an Alaska
Standard Plan by: Kenneth J. Fisher
Kenneth J. Fisher, P.E.
Chief Engineer

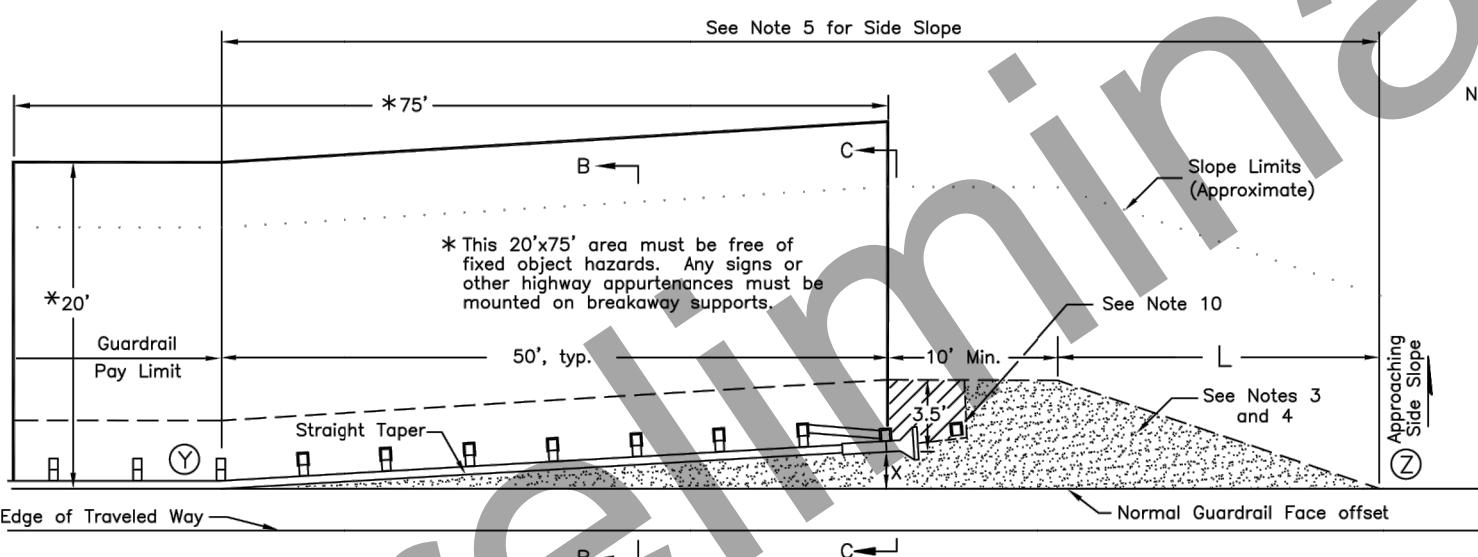
Last Code and Stds. Review
By: Date:
Next Code and Standards Review date:02/08/2029



X=End offset. See manufacturer's information for the range of acceptable end offsets for each MASH compliant terminal.



STANDARD GUARDRAIL TERMINAL WIDENING DETAIL



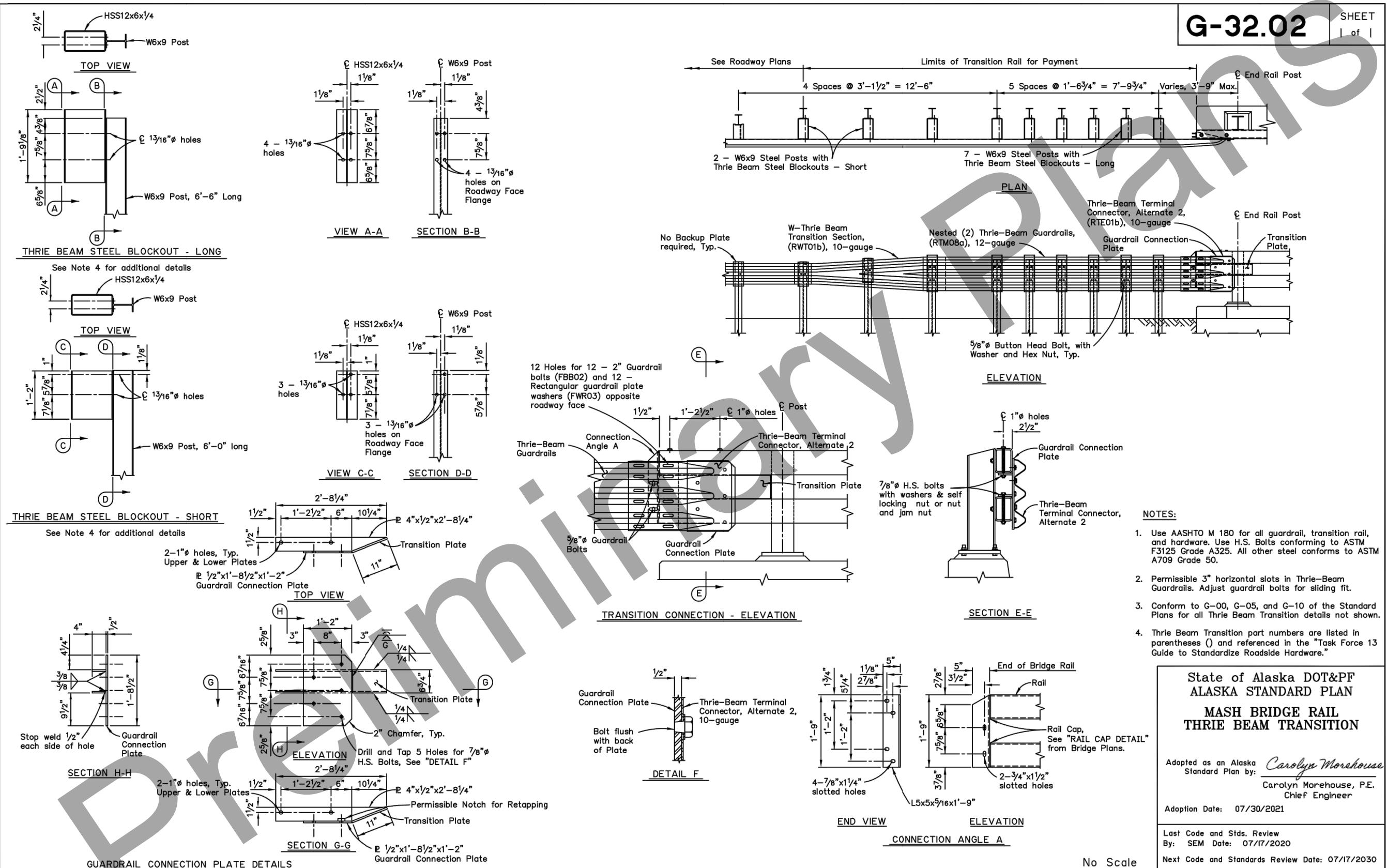
ALTERNATE GUARDRAIL TERMINAL WIDENING DETAIL

(USE ONLY WHEN LIMITED RIGHT-OF-WAY OR LIMITING SITE CONDITIONS MAKE THE STANDARD DETAIL INFEASIBLE)

STANDARD PLAN G-20.12

G-32.02

SHEET
1 of 1

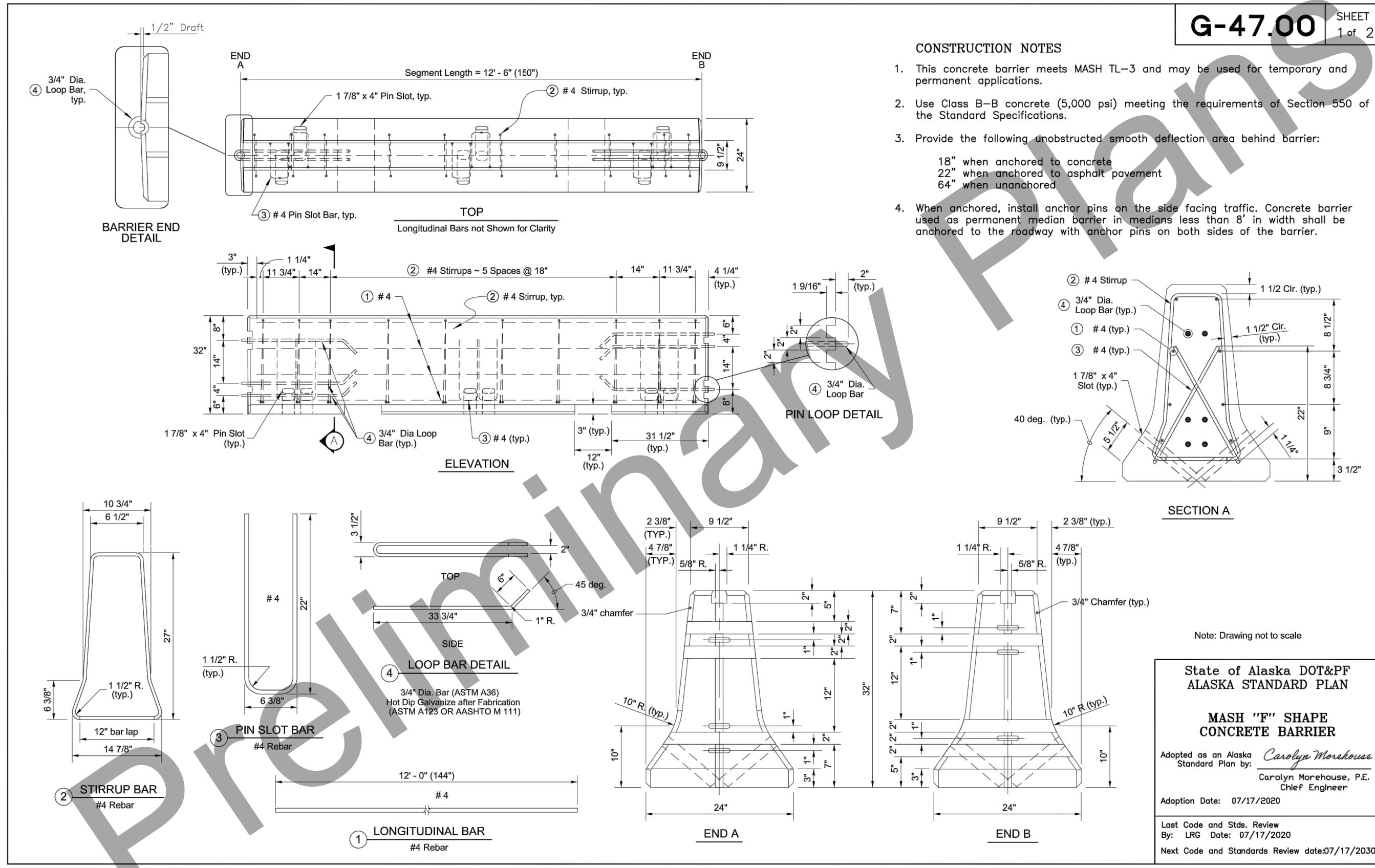


**STANDARD PLAN
G-32.02**

**PRELIMINARY
NOVEMBER
2021**

G-32.02

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
C:\pw\workdir\den001\ch2mill\lcf065226\d16030365\60734_V23_DETAILS\~V23 Mon, Nov/08/21 11:53 am



STANDARD PLAN
G-47.00 (1 OF 2)

PRELIMINARY
NOVEMBER
2021

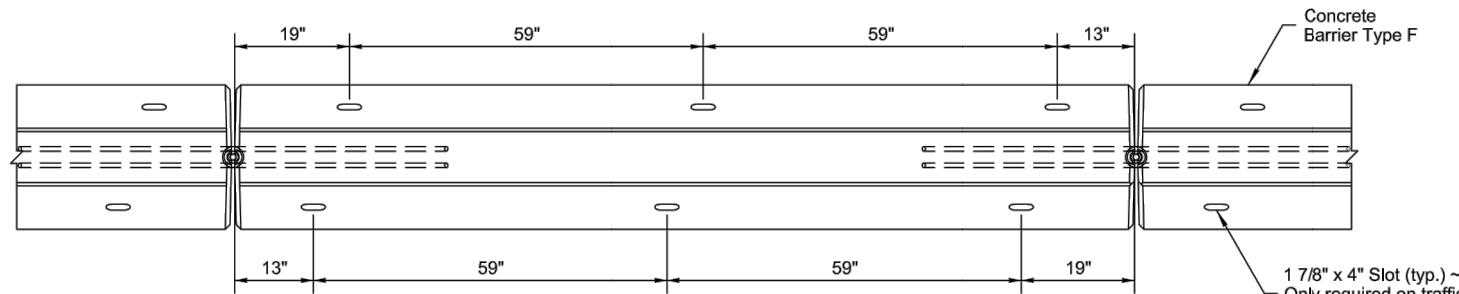
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V24	V39

G-47.00

SHEET
2 of 2

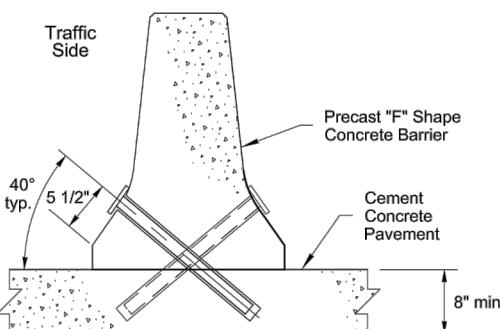
CONSTRUCTION NOTES

- When this barrier is used as a temporary traffic control device, provide retroreflective tabs or stripes meeting the requirements of Section 643 of the Standard Specifications.
- When this barrier is used in a permanent application, provide reflector assemblies meeting the requirements of Section 614 of the Standard Specifications.

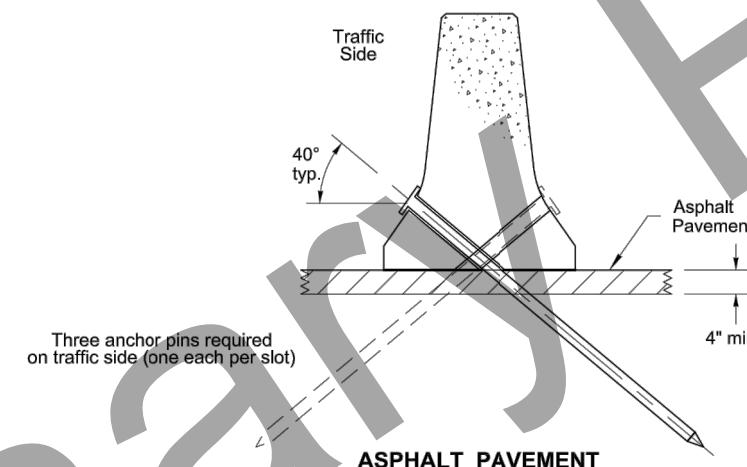


ANCHOR PIN SLOT LOCATIONS

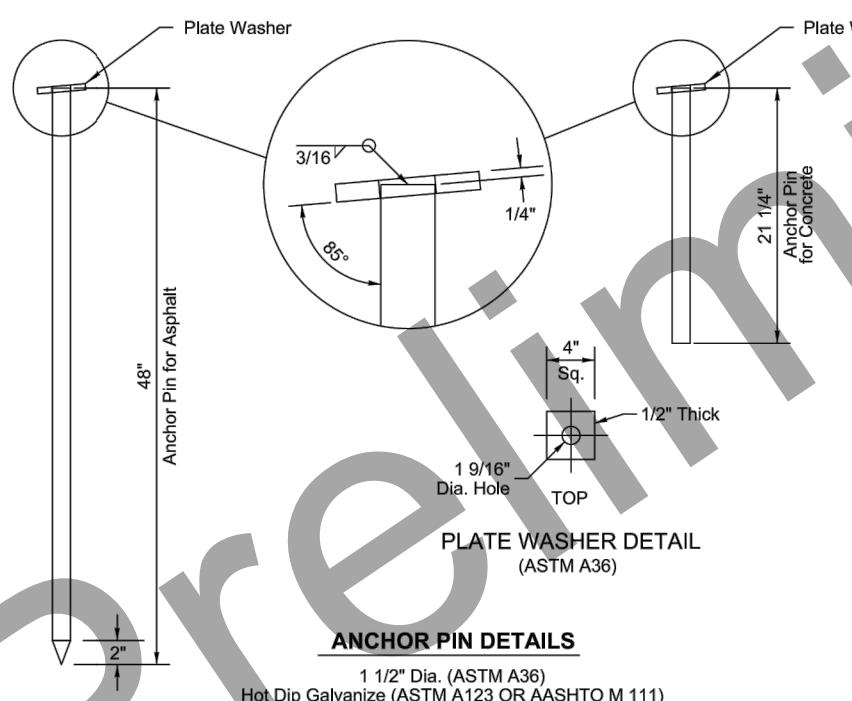
Reinforcing steel not shown for clarity



CONCRETE ANCHOR PIN DETAILS

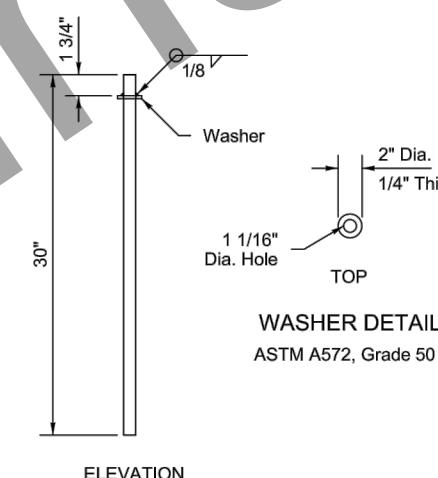


ASPHALT PAVEMENT
ANCHOR PIN LOCATIONS



ANCHOR PIN DETAILS

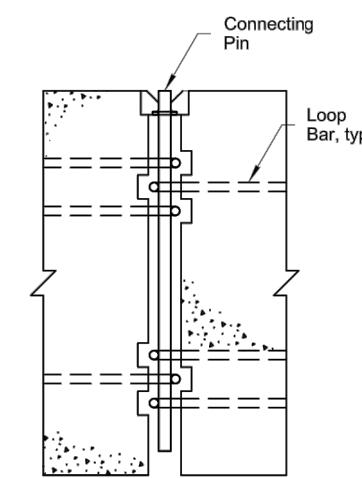
1 1/2" Dia. (ASTM A36)
Hot Dip Galvanize (ASTM A123 OR AASHTO M 111)



WASHER DETAIL
ASTM A572, Grade 50

CONNECTING PIN DETAILS

1" Dia. - ASTM A449
Hot Dip Galvanize



BARRIER CONNECTION DETAIL

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

MASH "F" SHAPE CONCRETE BARRIER

Adopted as an Alaska Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer
Adoption Date: 07/17/2020
Last Code and Stds. Review
By: LRG Date: 07/17/2020
Next Code and Standards Review date: 07/17/2030

Sheet 2 of 2
G-47.00

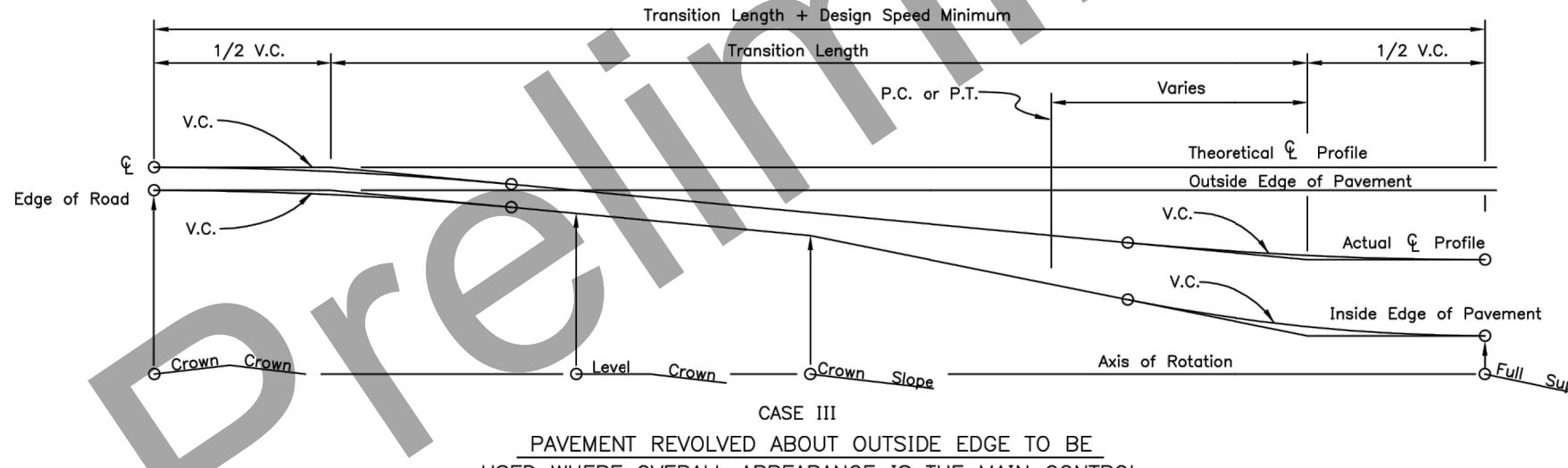
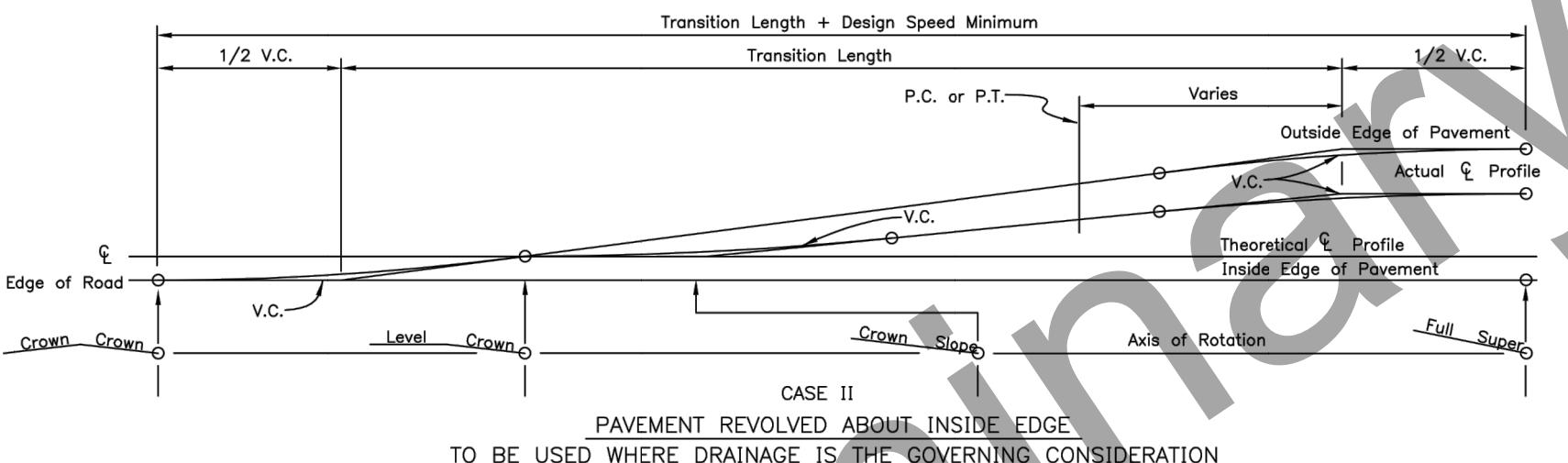
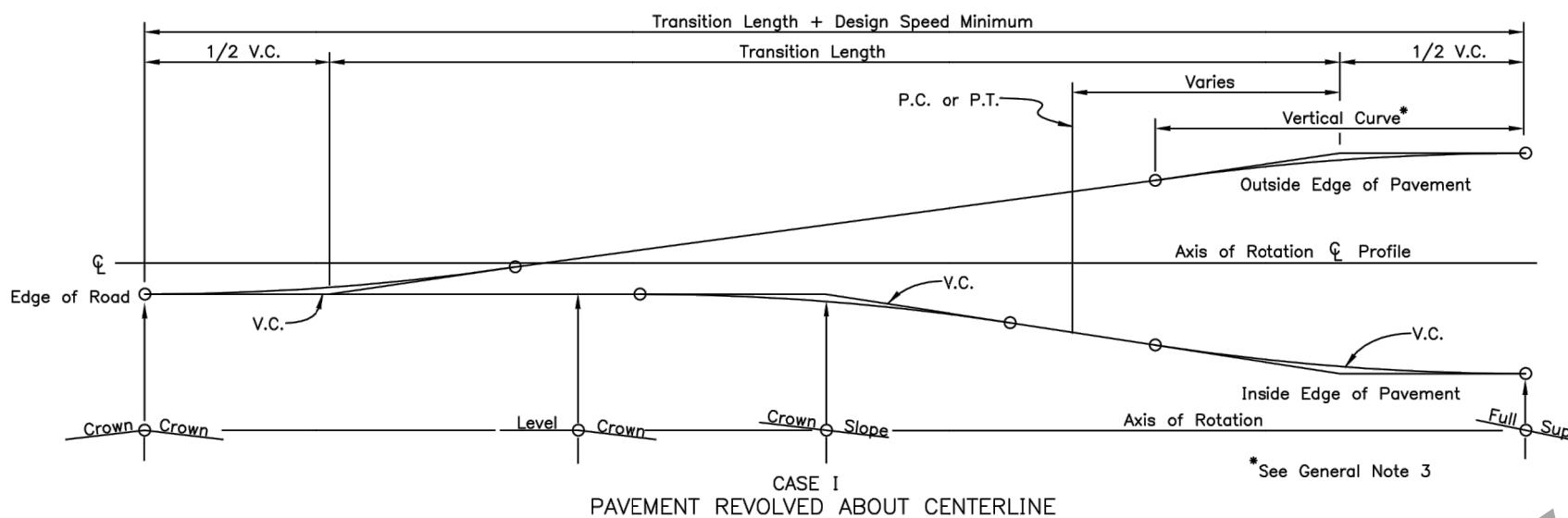
STANDARD PLAN
G-47.00 (2 OF 2)

PRELIMINARY
NOVEMBER
2021

I-81.00 SHEET
1 of 1

GENERAL NOTES:

1. Location of transition length relative to horizontal curves will be shown on the plans or as directed by the Engineer.
 2. Widening for guardrail or curvature will not change the location of the axis of rotation.
 3. Minimum vertical curve length in feet shall be the numerical value of the design speed in M.P.H.
 4. Superelevation shall be built into the subgrade and carried through the shoulders.



State of Alaska DOT&PF
ALASKA STANDARD PLAN

SUPERELEVATION TRANSITION

Adopted as an Alaska
Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Last Code and Stds. Review
By:KLK Date: 7/8/2020
Next Code and Standards Review Date: 7/8/2030

I-81.00

STANDARD PLAN I-81.00

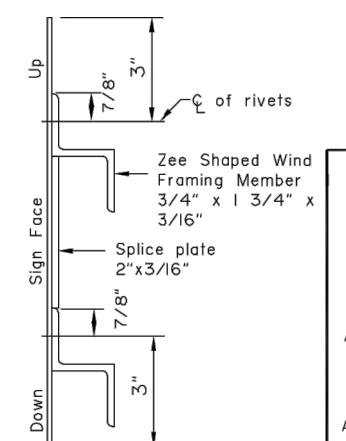
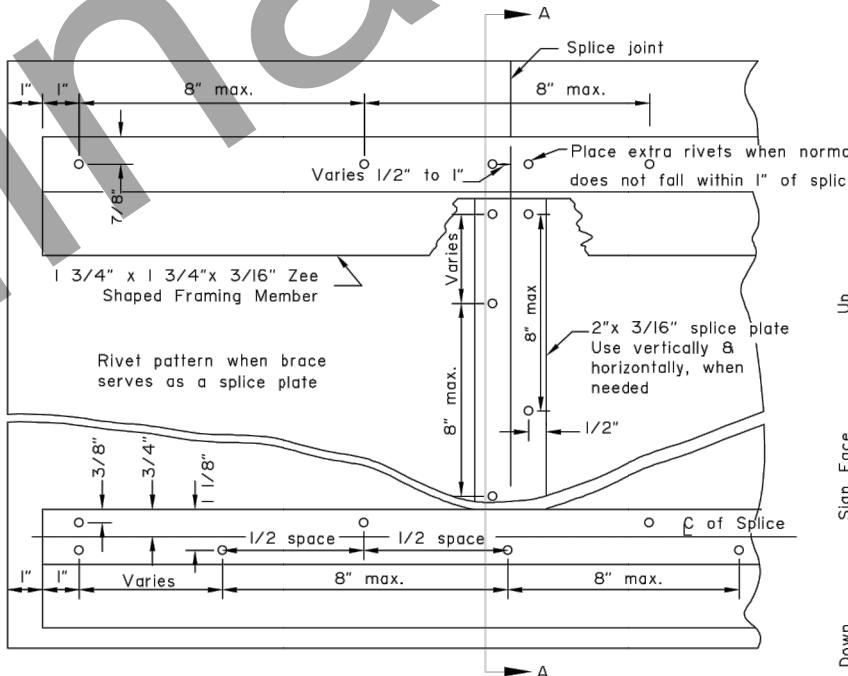
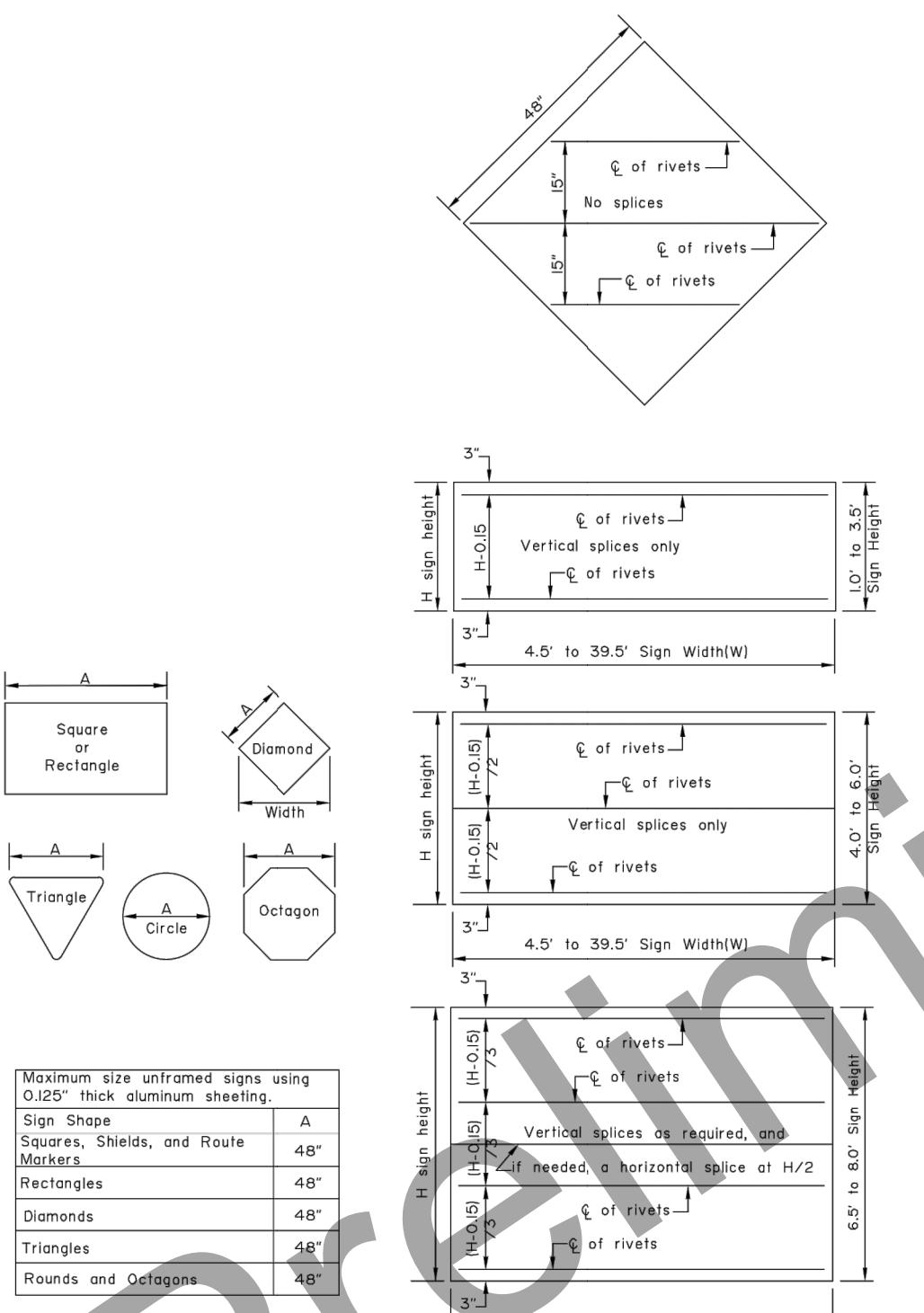
PRELIMINARY
NOVEMBER
2021

S-00.12

SHEET
1 of 1

GENERAL NOTES

- See the standard specifications for the aluminum alloys that you may use for sign sheeting and wind framing members.
- Fabricate all signs from 0.125" thick aluminum sheeting.
- Sign fabricators may use alternates to the zee shaped framing member with approval of the engineer, if the frame manufacturer certifies their design equals or exceeds the strength of the zee shaped design.
- Install one piece wind framing members on all signs up to 23.5' wide. Use one splice in each wind frame on all signs wider than 23.5'. Locate splices at least 18" from all posts and panel edges. Stagger splices in adjacent framing members at least 8.0' apart.
- Attach wind framing members with rivets or with an engineer approved, double sided, high strength, adhesive tape. Clean and handle sheeting and framing members and apply tape in accordance with the tape manufacturer's written instructions. Install two rivets in both ends of each framing member.
- Use 3/16" diameter rivets conforming to aluminum alloy 6061-T6 for cold driven rivets, or aluminum alloy 6061-T43 for hot driven rivets.
- Sign fabricators may use sign panels extruded with integral framing with approval of the engineer, if the manufacturer certifies their design equals or exceeds the strength of the 0.125" thick panel with framing attached to it.
- Frame all signs taller than 8.0' with five wind framing members located $(H-0.15)/4$ spaces. If needed, make a horizontal splice at the middle wind frame.
- Do not use round pipes for sign supports.



**State of Alaska DOT&PF
ALASKA STANDARD PLAN
SIGN FRAMING**

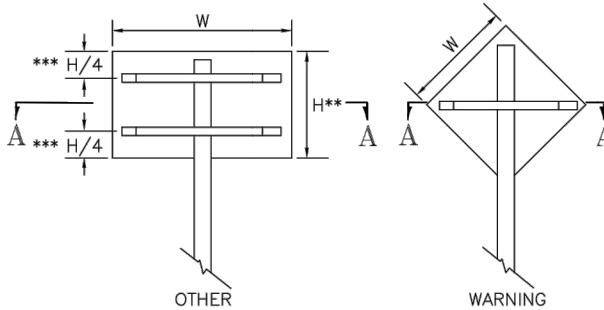
Adopted as an Alaska Standard Plan by: *Carolyn Morehouse*
Carolyn Morehouse, P.E.
Chief Engineer
Adoption Date: 7/17/2020

Last Code and Stds. Review
By: WTH Date: 7/8/2020
Next Code and Standards Review date: 7/8/2030

**STANDARD PLAN
S-00.12**

**PRELIMINARY
NOVEMBER
2021**

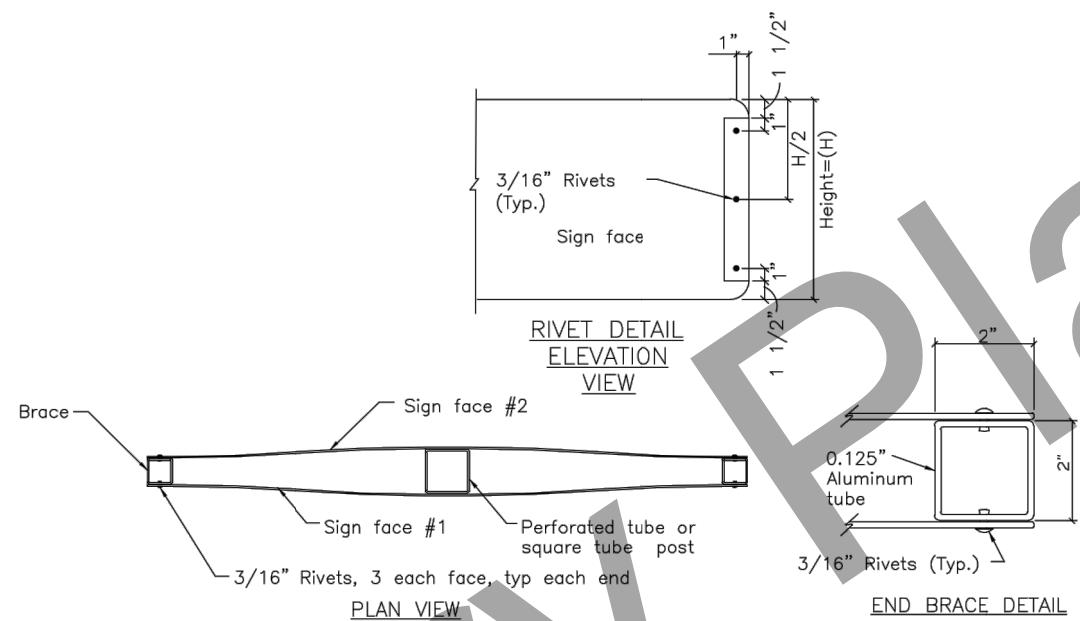
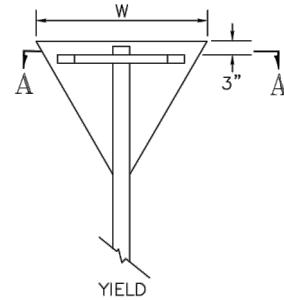
S-01.02

SHEET
1 of 1

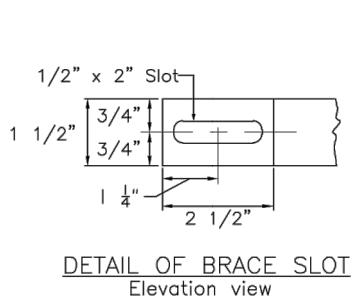
*** Use one brace when $H \leq 18"$
 Use two braces when $18" < H < 48"$
 Use three braces when $H \geq 48"$

** Position of brace may be varied to match
 Predrilled mounting holes in panel

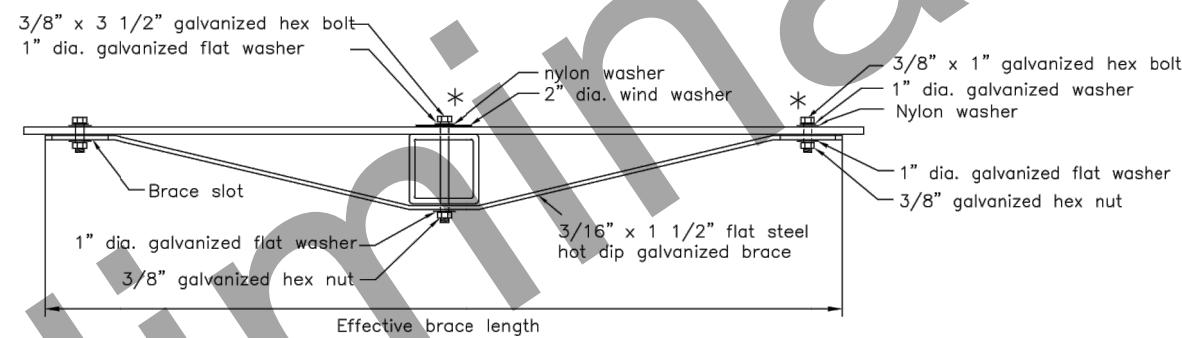
SIGN BRACING PLACEMENT



SMALL STREET NAME SIGN (D3-1, D3-1A, D3-1D) BRACING DETAILS



DETAIL OF BRACE SLOT
Elevation view



TUBE POST SIGN BRACING SECTION A-A
Plan view

Sign Width(W)	Effective Brace Length		
	Warning	Yield	Other
30"	36"	24"	24"
36"	42"	30"	30"
42"	48"	—	36"
48"	Two posts	36"	42"

< 30" No bracing required and use square tube

Note: Drawing not to scale

* Adjust location of bracing so that bolts and washers will miss the sign legend

State of Alaska DOT&PF
ALASKA STANDARD PLAN

BRACING FOR SIGNS MOUNTED ON SINGLE POST

Adopted as an Alaska Standard Plan by:

Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: WTH Date: 7/8/2020

Next Code and Standards Review date: 7/8/2030

S-01.02

STANDARD PLAN
S-01.02

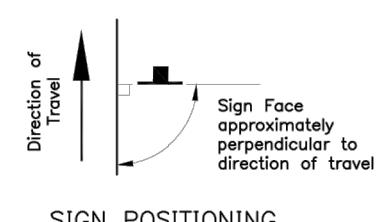
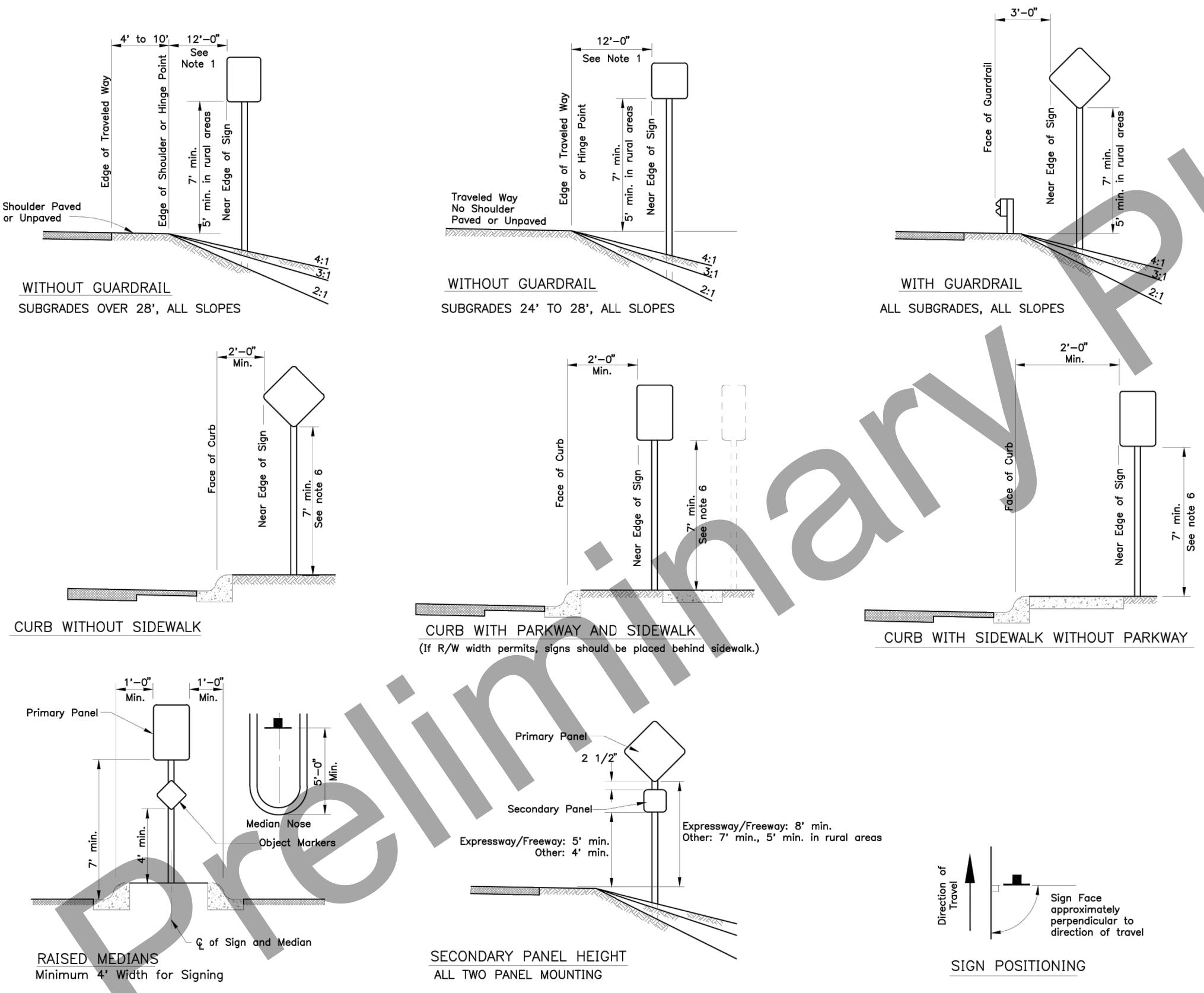
PRELIMINARY
NOVEMBER
2021

S-05.02

SHEET
1 of 1

GENERAL NOTES

- Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6' where shoulder width is 6' or greater.
- Add 6" to mounting height on unpaved roads.
- If signs extend over bike paths, the minimum vertical clearance is 8' 0".
- When signs are placed 30' or more from the edge of traveled way, mount them with the bottom of the sign at least 5' above the road surface at the near edge of the road.
- When multiple hinged sign supports are used, mount hinges at least 7' above the ground.
- Minimum mounting height is 7'-0" where parking or pedestrian movements are likely to occur, or where signs extend over sidewalks.
- For construction signs in rural areas, mounting height shall be 7' minimum.



State of Alaska DOT&PF
ALASKA STANDARD PLAN

POST MOUNTED SIGN OFFSET AND HEIGHT

Adopted as an Alaska Standard Plan by *Carolyn Morehouse*
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK Date: 7/8/2020

Next Code and Standards Review Date: 7/8/2030

S-05.02

**PRELIMINARY
NOVEMBER
2021**

**STANDARD PLAN
S-05.02**

S-30.05

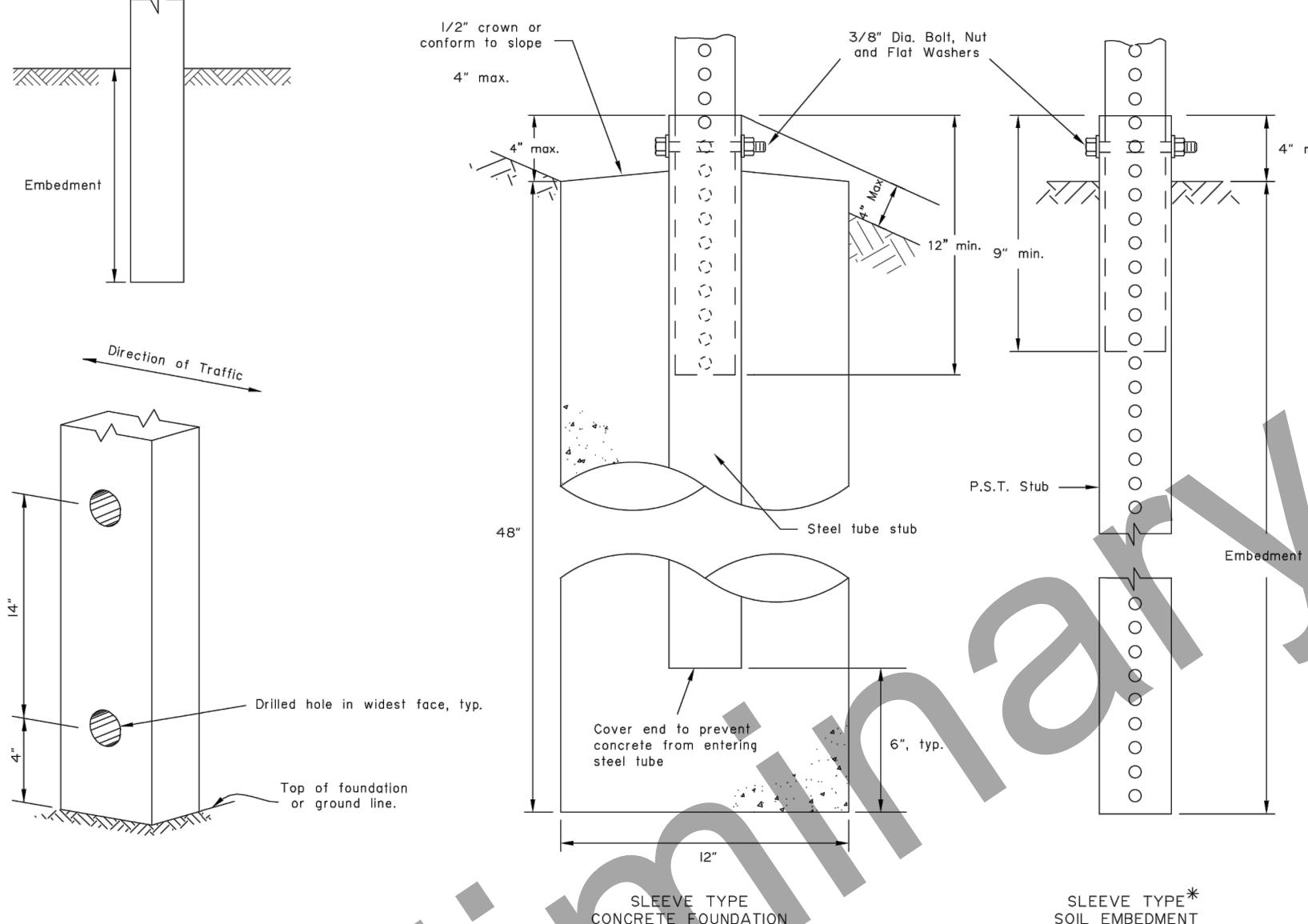
SHEET
1 of 1

GENERAL NOTES:

1. Sign shall be placed symmetrically around posts and refer to Standard Plan S-00 for sign framing details.
2. See plans for type of post, size and embedment type.
3. To maintain crashworthiness, install no more than the number of P.S.T.s or wood posts specified in the tables within 7' of each other.
4. Concrete shall be class B.
5. Do not use the supports on this drawing for multiple support signs if supports are separated by more than 7 feet.
6. Treat all field cuts and field drilled holes in wood posts in accordance with Section 730-2.04 of the Standard Specifications.

SIGN POST SPACING NOTES:

1. Install sign support in accordance with the table below, unless otherwise required by plans or specifications.
2. Exceptions:
 - a. Use one post for all E5-1 gore signs, regardless of width.
 - b. Use one 2.5" P.S.T. for all STOP signs, with or without street name signs.
3. Supports placed within 7' of each other must be acceptable for that use. See tables below for the sizes of wood posts and P.S.T.s that may be used within 7'. See Manufacturer's documentation for breakaway couplings and tubes that may be used within 7'.
4. See Standard Plan S-31 for frangible couplings, hinges, and foundations for tube and W-shape sign supports.



WOOD SIGN POSTS			
SIZE	HOLE DIA.	EMBEDMENT*	NO. OF POSTS WITHIN 7 Ft. PATH
4"x4"	NONE	4'-1"	2
4"x6"	1 1/2"	5'-3"	2
6"x6"	1 1/2"	4'-9"	1
6"x8"	3"	4'-9"	1

* Embedment depth applies in both strong and weak soil.

PERFORATED STEEL TUBES (P.S.T.)			
POST SIZE	Embedment Depth	No. of P.S.T.s permitted within 7 ft path	
1 1/2" x 1 1/2"	4'-8"	2	
1 3/4" x 1 3/4"	4'-6"	2	
2" x 2"	4'-3"	2	
2 1/4" x 2 1/4"	5'-0"	1	
2 1/2" x 2 1/2"	4'-6"	1	

* Use 3"x3"x3/16" Stub for 2 1/2"x2 1/2" PST Applications.

WOOD POSTS

PERFORATED STEEL TUBE (PST) POSTS

Sign Width (feet)	No. of Posts	Distance Between Posts	Sign Overhang	Post Type				Notes
				P.S.T.	Wood	Steel Tube	W-Shape	
0.5 to 4.0	1	-	0.5W	X	X	X		See Note 2.
4.5 to 10.0	2	0.6W	0.2W	X	X	X		See Note 3.
10.5 to 11.0	2	6	Varies	X	X	X		See Note 3.
11.5 to 13.0	2	8	Varies				X	
13.5 to 20.0	2	0.6W	0.2W				X	
20.5 to 22.5	3	8	Varies				X	
23.0 to 29.5	3	0.35W	0.15W				X	
30.0 to 31.5	4	8	Varies				X	
32.0 to 40.0	4	0.25W	0.125W				X	

TUBE SIGN POST SPACING

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

LIGHT SIGN STRUCTURE
POST EMBEDMENT

Adopted as an Alaska Standard Plan by:
Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: WTH Date: 7/8/2020

Next Code and Standards Review date: 7/8/2030

S-30.05

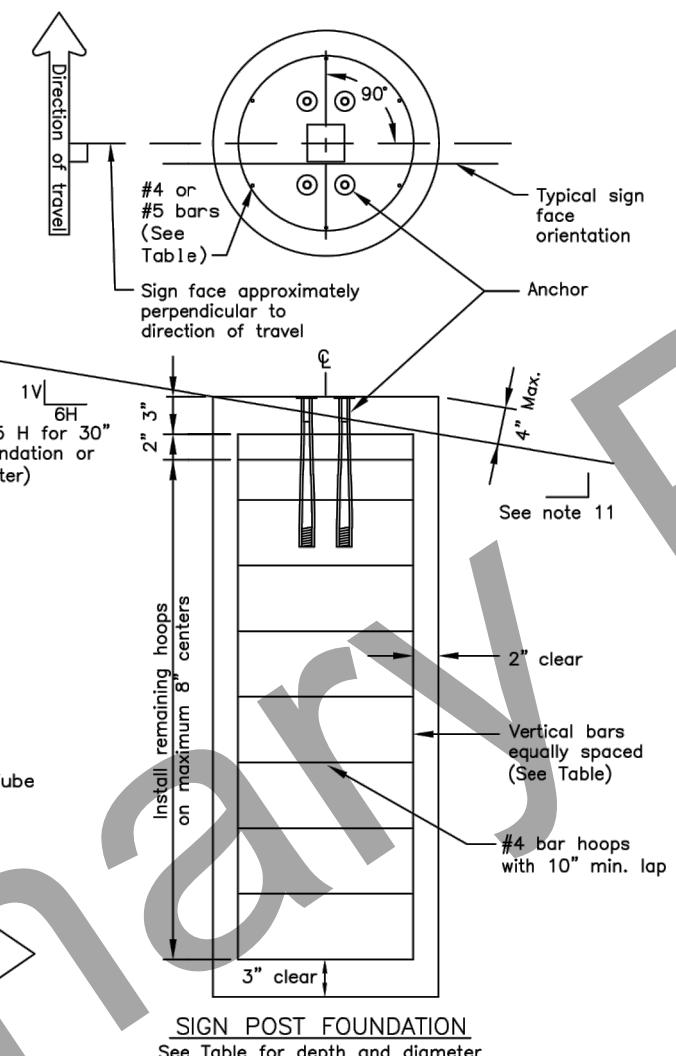
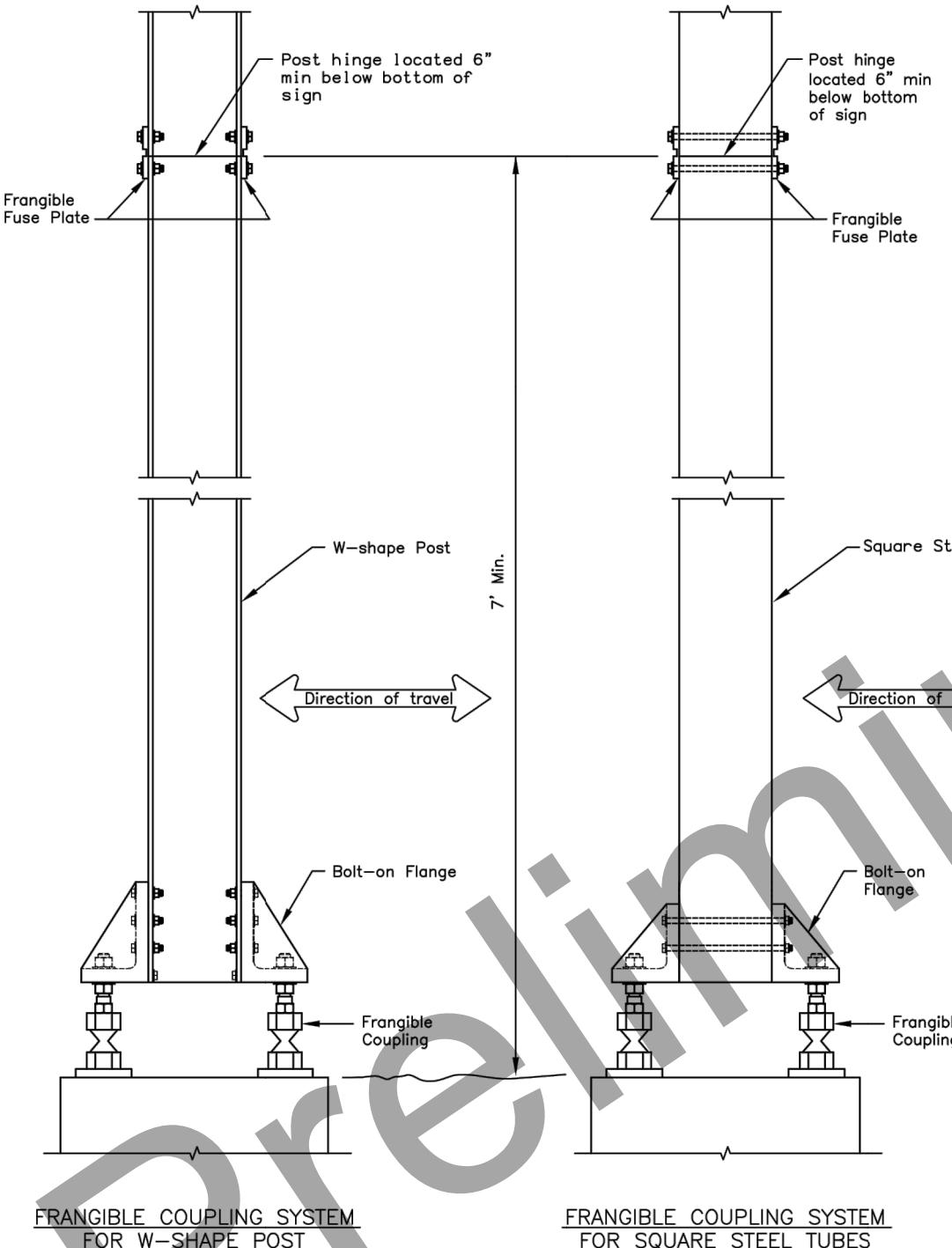
STANDARD PLAN
S-30.05

PRELIMINARY
NOVEMBER
2021

S-31.02

SHEET
1 of 1

NOTE:
Install hinges when more than one post is used to support a sign. Do not install hinges on single post installations.



SIGN POST FOUNDATION
See Table for depth and diameter

POST SIZE & TYPE	FOUNDATION *			REINFORCEMENT					
	DIA.	MIN. DEPTH	CY ³ CONC.	VERTICAL BARS QTY.	SIZE	LGH.	QTY.	SIZE	DIA.
2 1/2" TUBE	1'-6"	6'-0"	0.39	7	#5	5'-6"	10	#4	1'-2"
3" TUBE	1'-6"	6'-0"	0.39	7	#5	5'-6"	10	#4	1'-2"
3 1/2" TUBE	1'-6"	6'-0"	0.39	7	#5	5'-6"	10	#4	1'-2"
4" TUBE	2'-6"	6'-0"	1.09	8	#8	5'-6"	10	#4	2'-2"
4 1/2" TUBE	2'-6"	6'-0"	1.09	8	#8	5'-6"	10	#4	2'-2"
5" TUBE	2'-6"	6'-0"	1.09	8	#8	5'-6"	10	#4	2'-2"
W6 x 9	2'-6"	6'-0"	1.09	8	#8	5'-6"	10	#4	2'-2"
W6 x 12	2'-6"	6'-0"	1.09	8	#8	5'-6"	10	#4	2'-2"
W6 x 15	3'-0"	6'-0"	1.70	8	#11	6'-0"	12	#4	2'-8"
W6 x 30	3'-0"	7'-6"	1.96	8	#11	7'-0"	13	#4	2'-8"

FOUNDATION TABLE

* Foundations sized for use where there are no loose, high moisture, or fine grained soils.

GENERAL NOTES

- Furnish sign posts with NCHRP 350 compliant frangible couplings designed to break away safely when struck from any direction. There is no MASH compliant device at this time. See SPDR report for more info.
- Furnish frangible coupling systems with bolt-on flanges.
- Details on this sheet illustrate only the general components of a frangible coupling system, and are not intended to specify a particular product.
- Install frangible fuse plates as specified by the manufacturer and hinged joints when multiple posts are used to support a sign. Do not use round pipes.
- Install the components of the breakaway system, including hinges, in accordance with the written instructions of the system manufacturer.
- Use Class A, B or W concrete conforming to Sections 501 or 550 of the Standard Specifications. Furnish ASTM A615 grade 60 steel bars for concrete reinforcement conforming to AASHTO M31.
- Spiral reinforcing steel may be substituted for hoops in concrete foundation. Spiral option shall consist of #3 plain spiral with 6" pitch with three flat turns at the top and one flat turn at the bottom.
- Install the concrete anchors using a rigid template. Locate the anchors on centers and within tolerances specified by the manufacturer.
- Install the anchors in fresh concrete as recommended by the manufacturer. Adjust the template's final position until it is level. Remove and replace all foundations that need more than 2 shims under any 1 coupling or more than a total of 3 shims under any pair of couplings to plumb the post.
- Drill the holes for attaching brackets before the sign posts are hot dip galvanized. Test fit templates in the holes to ensure the brackets can be installed square to the posts.
- Special grading detail and/or shielding may be required to maintain 4" maximum clear distance.

**State of Alaska DOT&PF
ALASKA STANDARD PLAN
SIGN POST BASE AND FOUNDATION**

Adopted as an Alaska Standard Plan by:
Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK, MJM Date: 7/8/2020
Next Code and Standards Review Date: 7/8/2030

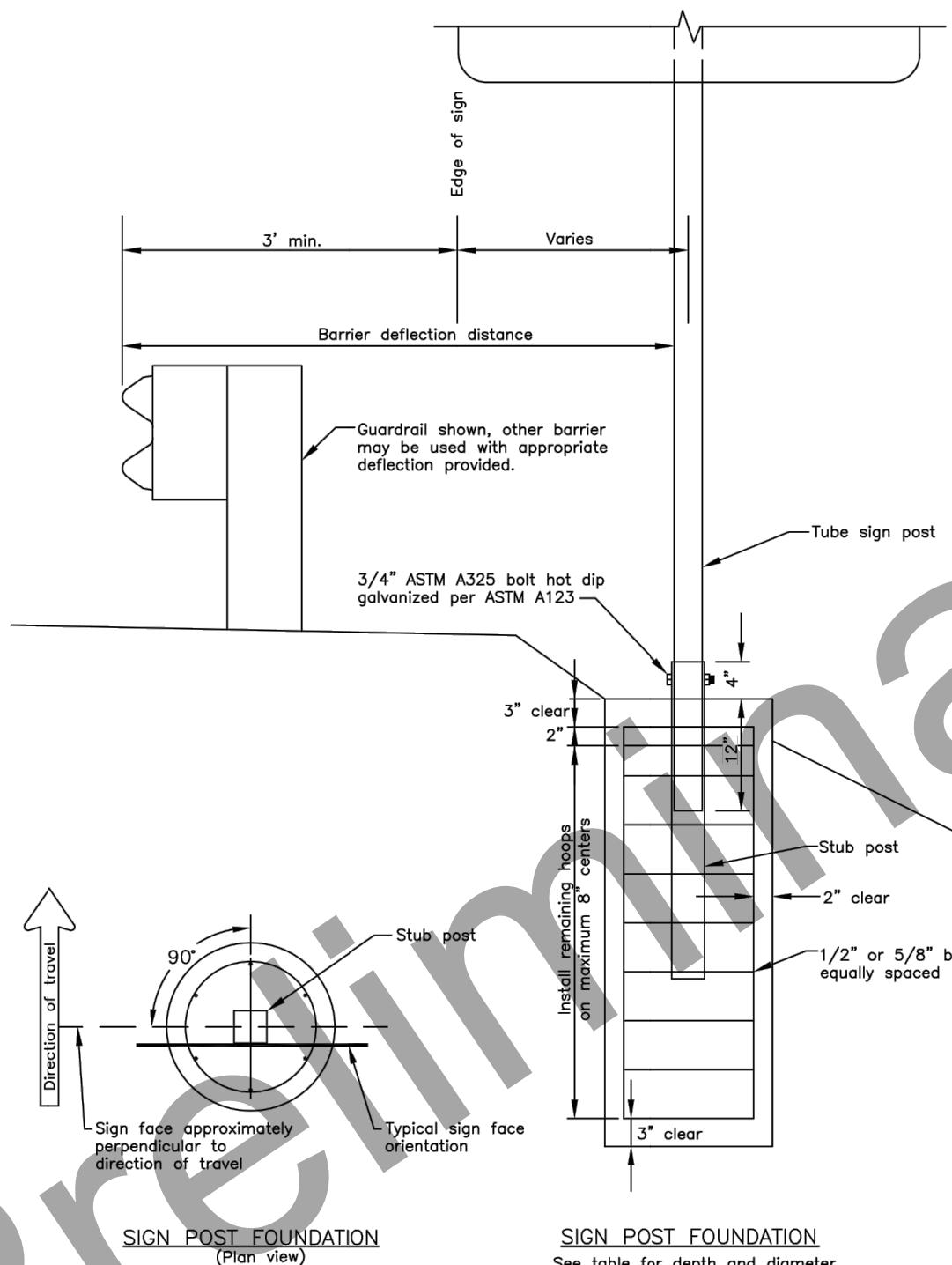
S-31.02

**STANDARD PLAN
S-31.02**

**PRELIMINARY
NOVEMBER
2021**

S-32.02

SHEET
1 of 1



GENERAL NOTES

1. This is a non-crashworthy sign support. It may only be used at locations shielded by a guardrail, barrier, or wall. It may not be used if the sign post is within 20' of the rail and is closer than 75' from the guardrail end post (measured along the rail). For this case use a breakaway sign support. See Standard Plan G-20.
2. Furnish steel tube sign post and stub post that conform to ASTM A500, grade B, and meet ASTM A123 for hot dip galvanizing.
3. Install tubes and stub post with a 0.1875" wall thickness.
4. For Perforated Tubes use Standard Plan S-30.
5. Spiral reinforcing steel may be substituted for hoops in concrete foundation. Spiral option shall consist of No. 3 plain spiral with 6" pitch with three flat turns at the top and one flat turn at the bottom.
6. Use Class A, B or W concrete.

POST SIZE & TYPE	FOUNDATION *			REINFORCEMENT				STUB POST	
	DIA.	MIN. DEPTH	C.Y. CONC.	VERTICAL BARS HOOPS			SLEEVE	SIZE	LGTH.
2 1/2" TUBE	1'-0"	4'-6"	0.13	6	#4	4'-0"	#4	8"	3"
3" TUBE	1'-6"	4'-0"	0.25	7	#5	3'-6"	#4	1'-2"	3 1/2" 3'
3 1/2" TUBE	1'-6"	4'-6"	0.27	7	#5	4'-0"	#4	1'-2"	4" 3'
4" TUBE	2'-6"	4'-0"	0.69	8	#8	3'-6"	#4	2'-2"	4 1/2" 3'
4 1/2" TUBE	2'-6"	4'-6"	0.78	8	#8	4'-0"	#4	2'-2"	5" 3'

* Foundation sized for use where there are no loose, high moisture, or fine grained soil.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

SIGN POST BASE AND FOUNDATION BEHIND BARRIER

Adopted as an Alaska Standard Plan by:

Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK Date: 7/8/2020

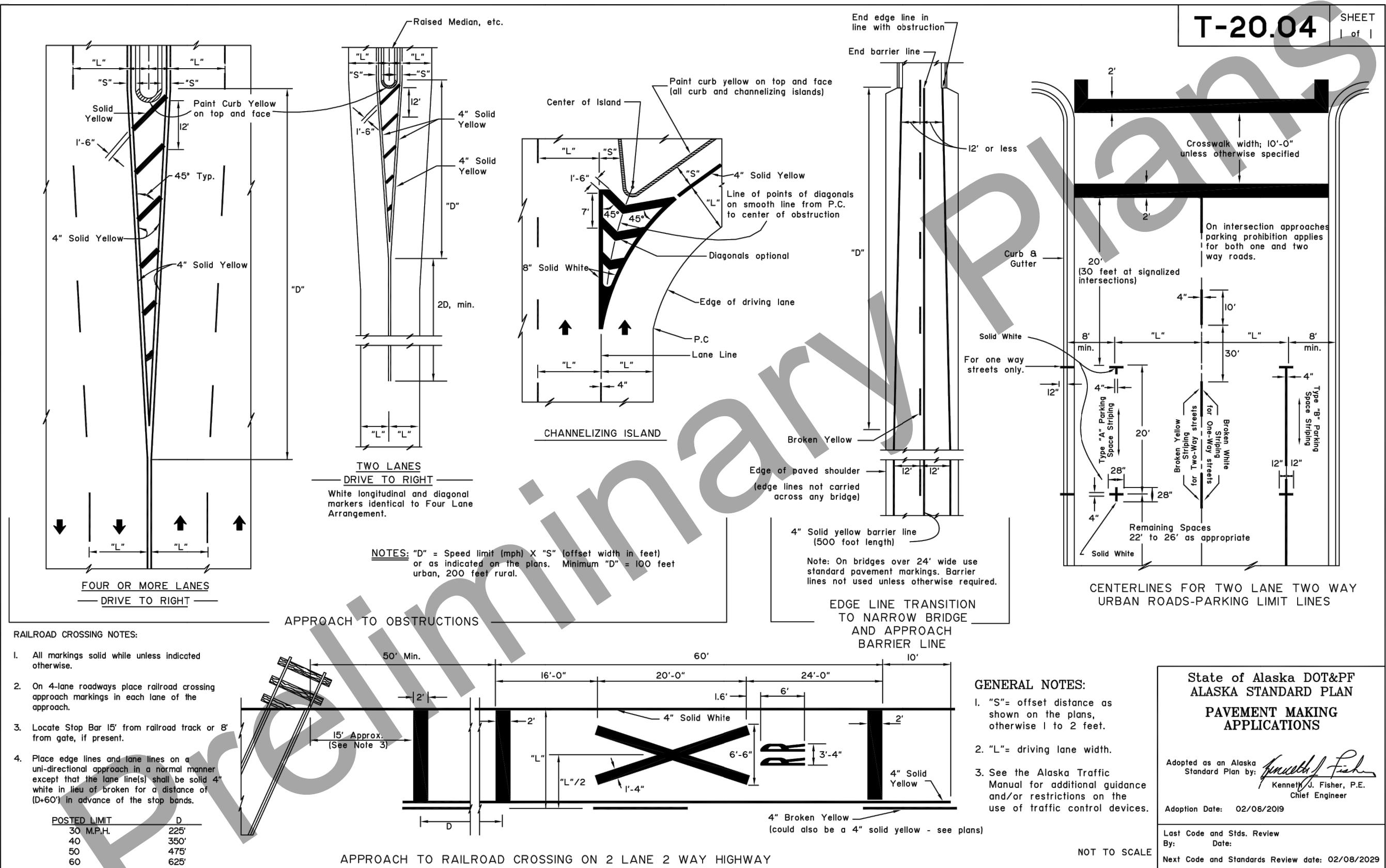
Next Code and Standards Review Date: 7/8/2030

S-32.02

STANDARD PLAN
S-31.02

PRELIMINARY
NOVEMBER
2021

T-20.04

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STANDARD PLAN
T-20.04

PRELIMINARY
NOVEMBER
2021

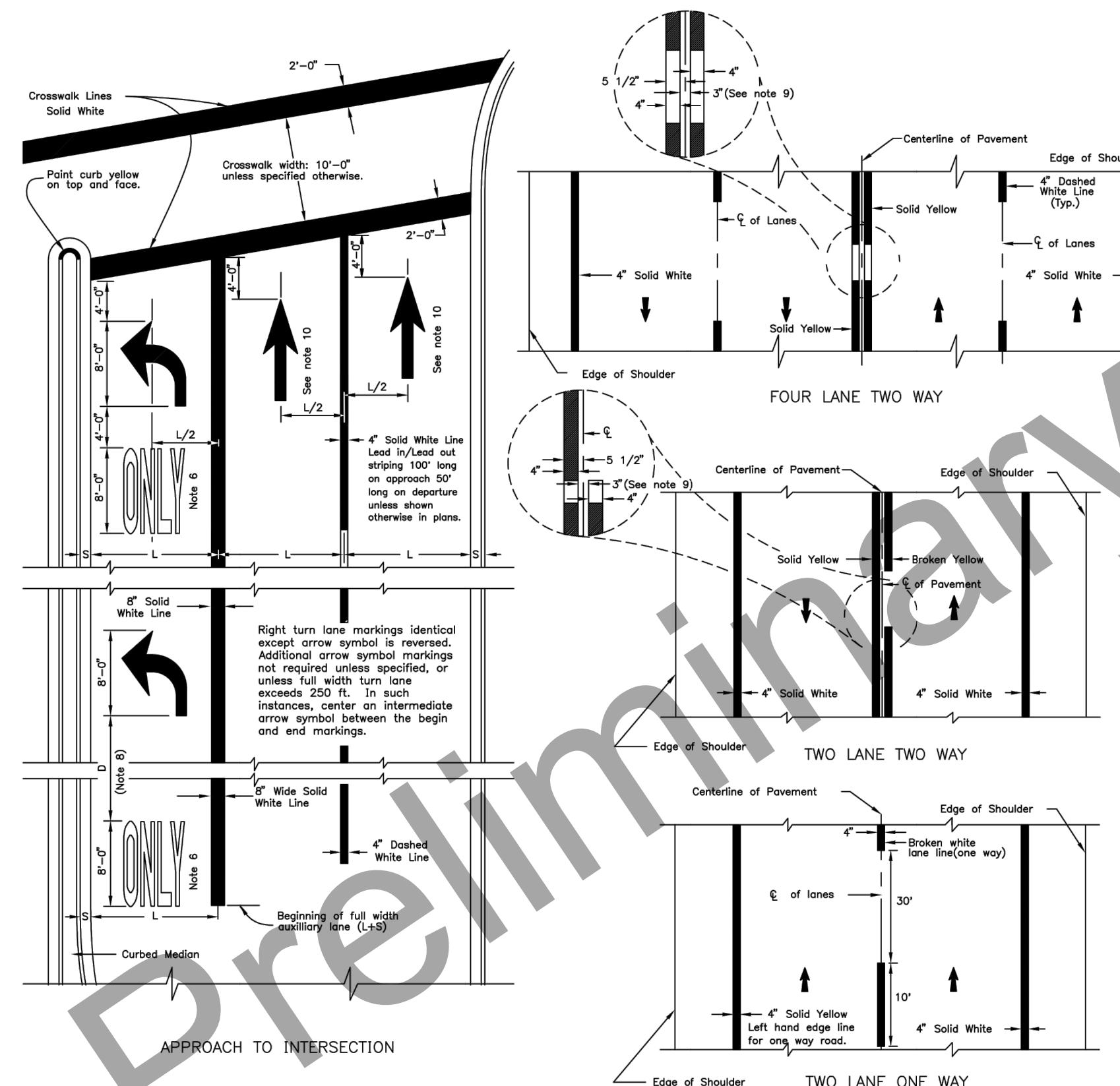
T-21.04

SHEET
1 of 1

GENERAL NOTES:

- All markings white unless indicated otherwise.
- Lengths of stripe and gap for lane and center lines identical.
- Lane lines for auxiliary lanes are unbroken solid lines.
- "L" = driving lane width.
- "S" = shy distance as shown on plans, otherwise 1 to 2 feet.
- ONLY markings are required where through lanes change to turn lanes. In other cases, apply ONLY markings as indicated on plans.
- See ALASKA TRAFFIC MANUAL for additional instruction on the use of TRAFFIC CONTROL DEVICES.
- Adjust distance D between ONLY and Turn Arrow based on SPEED vs. D table. Table may be used for spacing between pairs of TWLT markings.
- Adjust centerline spacing from 3" up to 5" where recessed pavement markers are required.
- Arrows and symbols are used for through lanes only when the lane layout deviates from the normal intersection rules, and shall only be used where indicated in the plans.

SPEED	D
25 or less	35'
30	45'
35	50'
40	60'
45	65'
50	75'
55 or more	80'



State of Alaska DOT&PF
ALASKA STANDARD PLAN

PAVEMENT MARKING APPLICATIONS

Adopted as an Alaska Standard Plan by:
Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK Date: 7/8/2020
Next Code and Standards Review Date: 7/8/2030

STANDARD PLAN
T-21.04

PRELIMINARY
NOVEMBER
2021

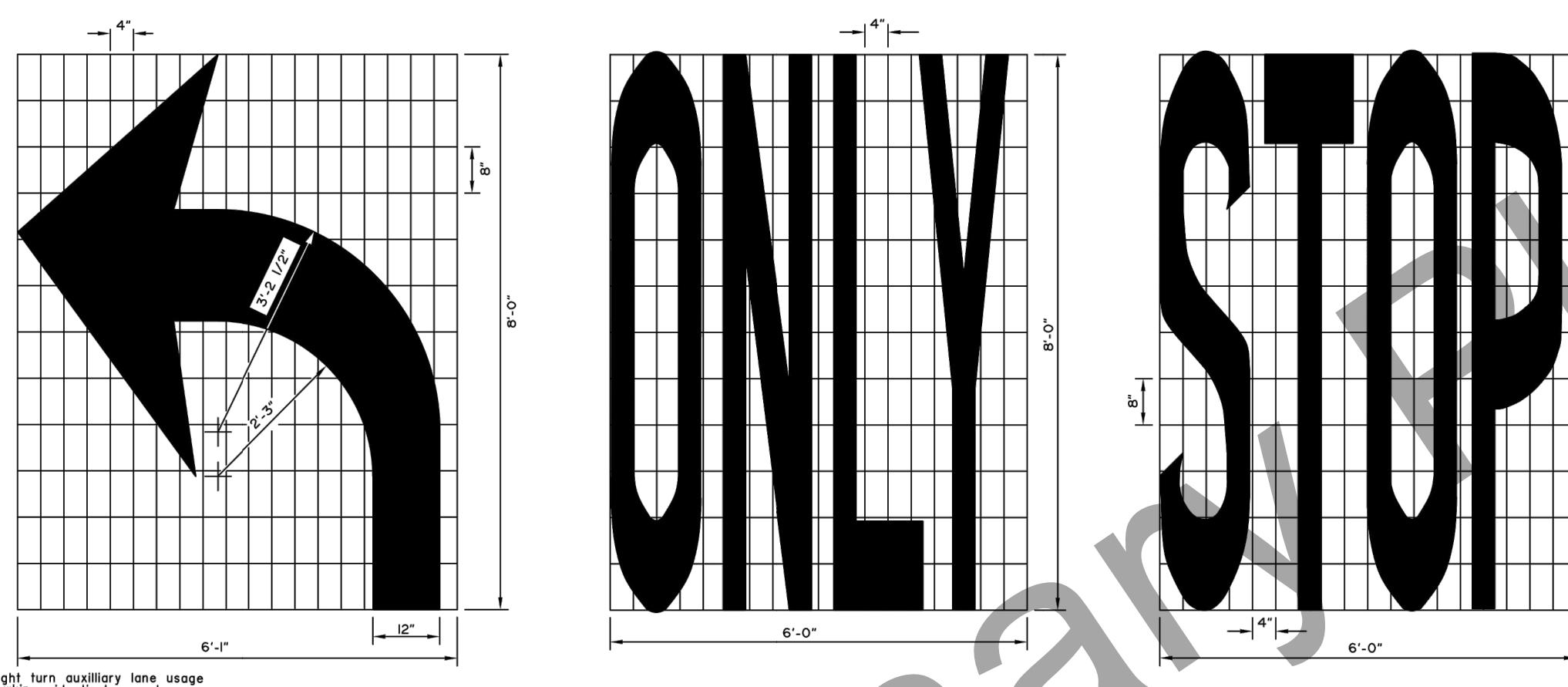
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T-22.04

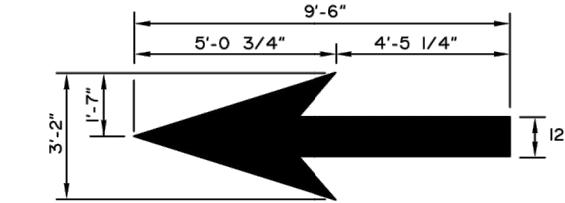
SHEET
1 of 1

GENERAL NOTES:

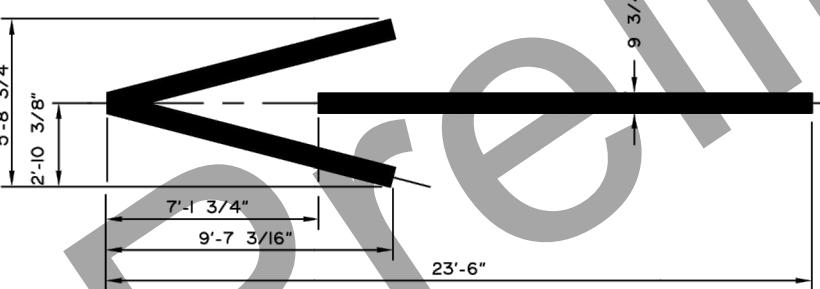
1. All symbols shown shall be white and reflectorized in accordance with the Special Provisions.
2. See the Alaska Sign Design Specifications (ASDS) for lettering and symbols for pavement marking details not provided on this drawing.



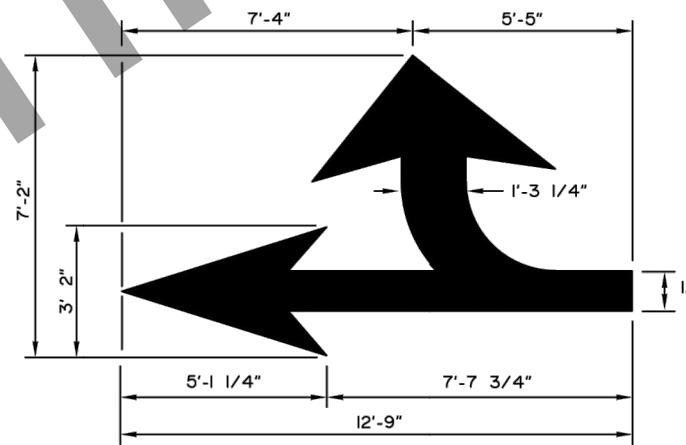
LAYOUT TEMPLATES FOR STENCILS



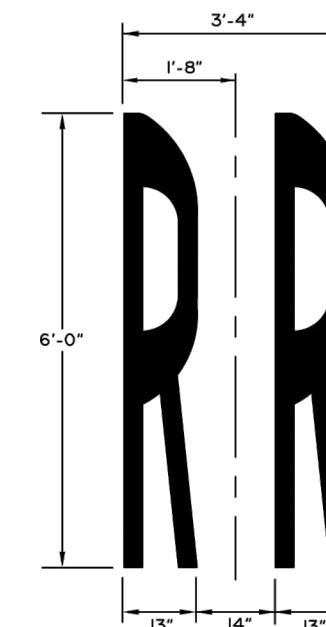
STRAIGHT AHEAD ARROW



WRONG WAY ARROW

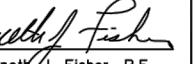


COMBINATION ARROW



RAILROAD SYMBOL

State of Alaska DOT&PF
ALASKA STANDARD PLAN
PAVEMENT MARKING SYMBOL DIMENSIONS

Adopted as an Alaska Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: Date:
Next Code and Standards Review date: 02/08/2029

T-22.04

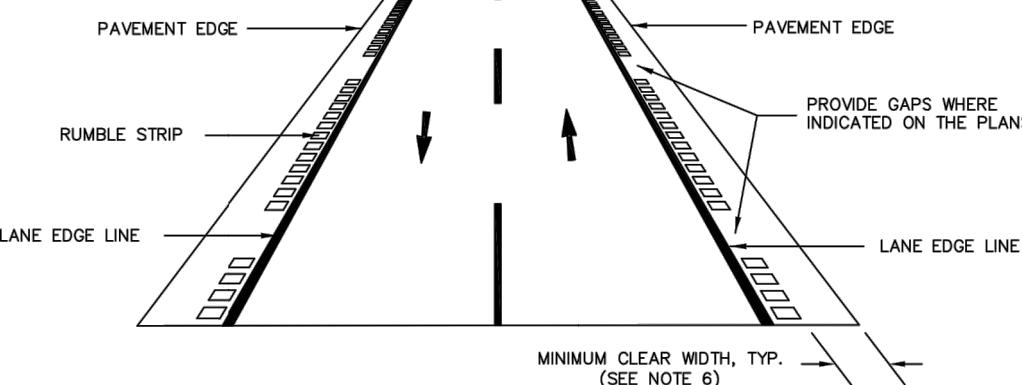
STANDARD PLAN
T-22.04

PRELIMINARY
NOVEMBER
2021

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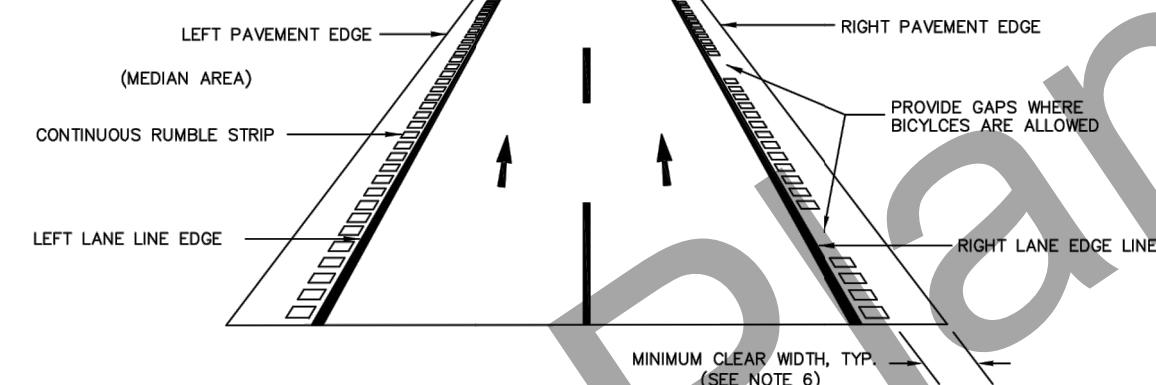
T-25.10

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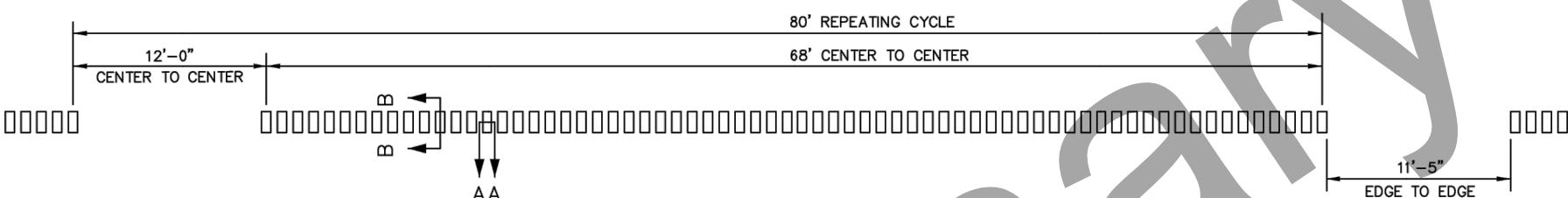
TYPICAL SHOULDER INSTALLATION – TWO-WAY
PERSPECTIVE VIEW

APPLIES TO TWO-WAY OPERATION
WHERE BICYCLES ARE ALLOWED

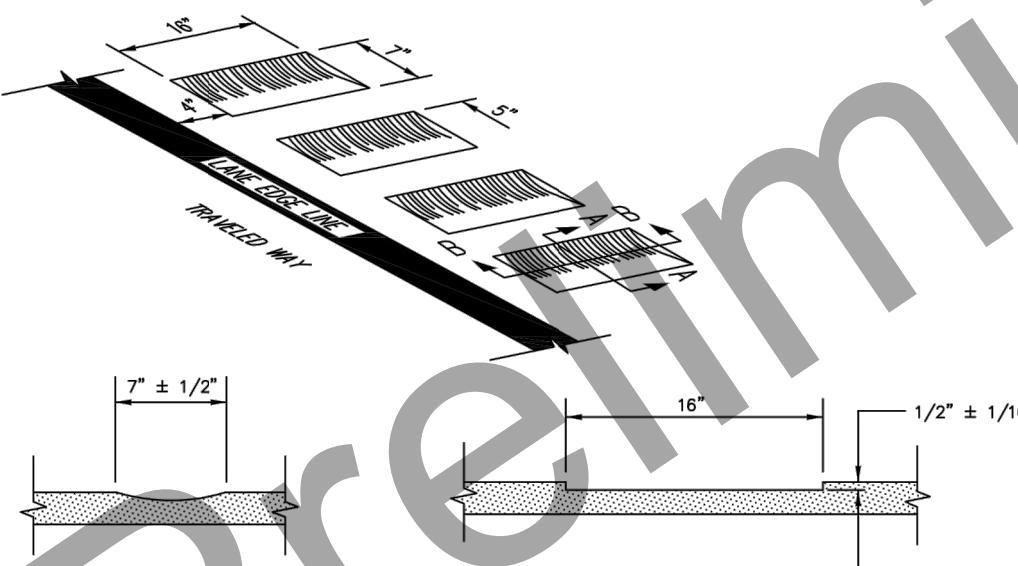


TYPICAL SHOULDER INSTALLATION – ONE-WAY DIVIDED
PERSPECTIVE VIEW

APPLIES TO ONE-WAY DIVIDED HIGHWAYS
WHERE BICYCLES ARE ALLOWED



GAPS AND SPACING FOR BICYCLE USE ON SHOULDER



SHOULDER RUMBLE STRIP NOTES:

1. PERFORM ALL STAKING AS NECESSARY TO INSTALL RUMBLE STRIPS IN ACCORDANCE WITH THE PLANS, THESE DETAILS, AND THE FOLLOWING NOTES:
2. DO NOT INSTALL RUMBLE STRIPS IN THE FOLLOWING INSTANCES:
 - A. BRIDGE DECKS
 - B. BRIDGE APPROACH SLABS
 - C. PAVEMENT LESS THAN 2 INCHES THICK
 - D. PAVEMENT THAT HAS ALLIGATORING, FATIGUE, CRACKING, OR IN POOR CONDITION
 - E. PAVEMENT JOINTS
 - F. INTO LANE EDGE LINE STRIPING
3. USE CENTERLINE OR LANE LINE DIVIDING LINES, RATHER THAN LANE EDGE LINES, FOR RUMBLE STRIP ALIGNMENT CONTROL WHENEVER POSSIBLE.
4. WHERE BICYCLES ARE ALLOWED ON THE FACILITY, SHOULDER RUMBLE STRIP GAPS (68' RUMBLE STRIP, 12' GAP CENTER TO CENTER, 11'-5" GAP, EDGE TO EDGE) SHOULD BE CONTINUOUS.
5. ON DIVIDED HIGHWAYS, PROVIDE CONTINUOUS RUMBLE STRIP ON THE INSIDE (LEFT) SHOULDER.
6. MINIMUM REQUIRED CLEAR WIDTHS AFTER INSTALLATION ARE AS FOLLOWS:
 - A. AT LEAST 4' WHERE NO GUARDRAIL IS PRESENT (6.0' INITIAL SHOULDER WIDTH).
 - B. AT LEAST 5' (TO FACE OF GUARDRAIL) WHERE GUARDRAIL IS PRESENT ($\geq 7.0'$ AT INITIAL SHOULDER WIDTH).
 - C. NO MINIMUM WHERE BICYCLES ARE PROHIBITED.

Note: Drawing not to scale

**State of Alaska DOT&PF
ALASKA STANDARD PLAN
MILLED RUMBLE STRIPS
SHOULDER DETAILS**

Adopted as an Alaska Standard Plan by:
Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer
Adoption Date: 07/17/2020

Last Code and Stds. Review
By: LRG Date: 07/17/2020
Next Code and Standards Review date: 07/17/2030

**STANDARD PLAN
T-25.10 (1 OF 5)**

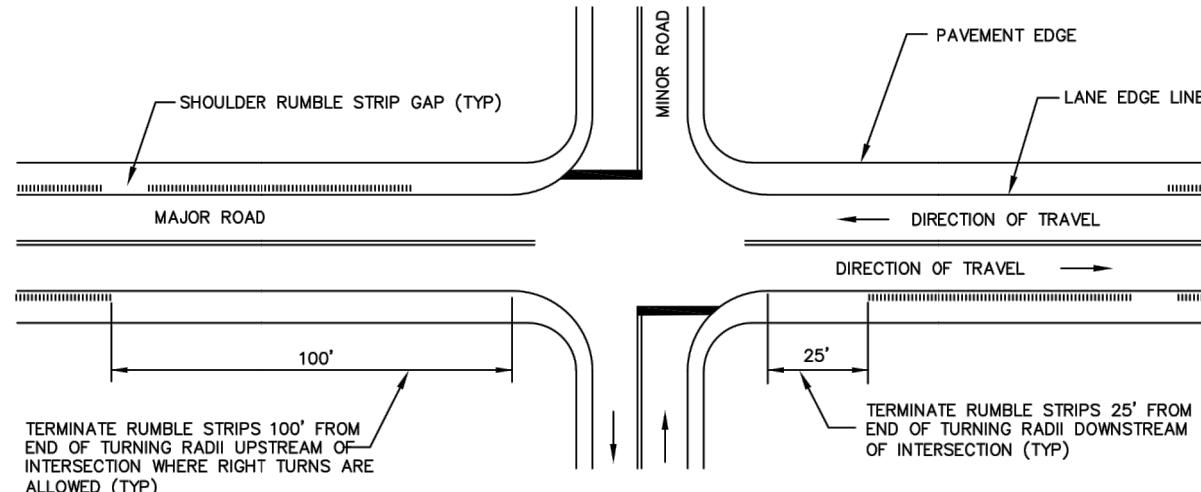
T-25.10 Sheet 1 of 5

**PRELIMINARY
NOVEMBER
2021**

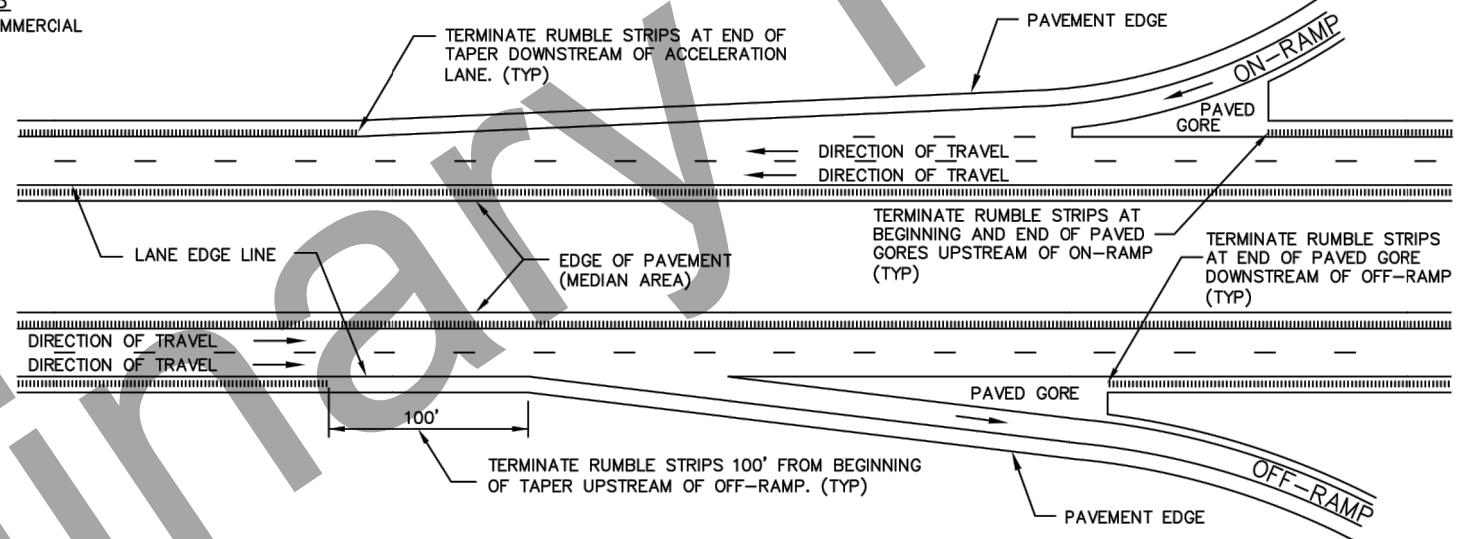
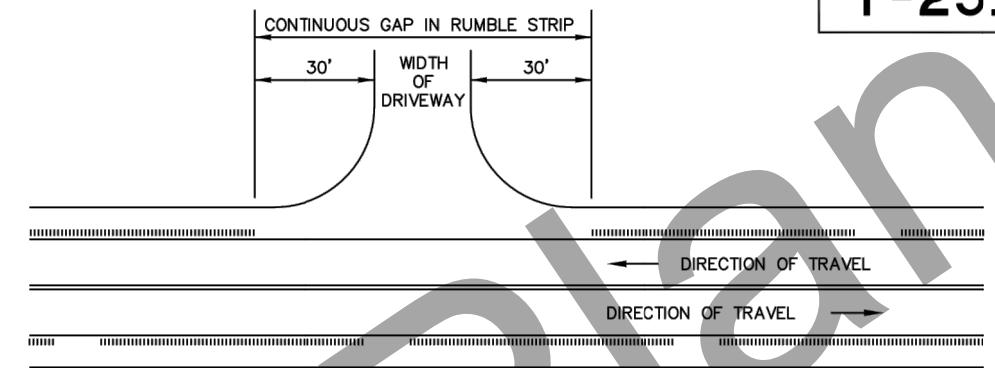
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T-25.10

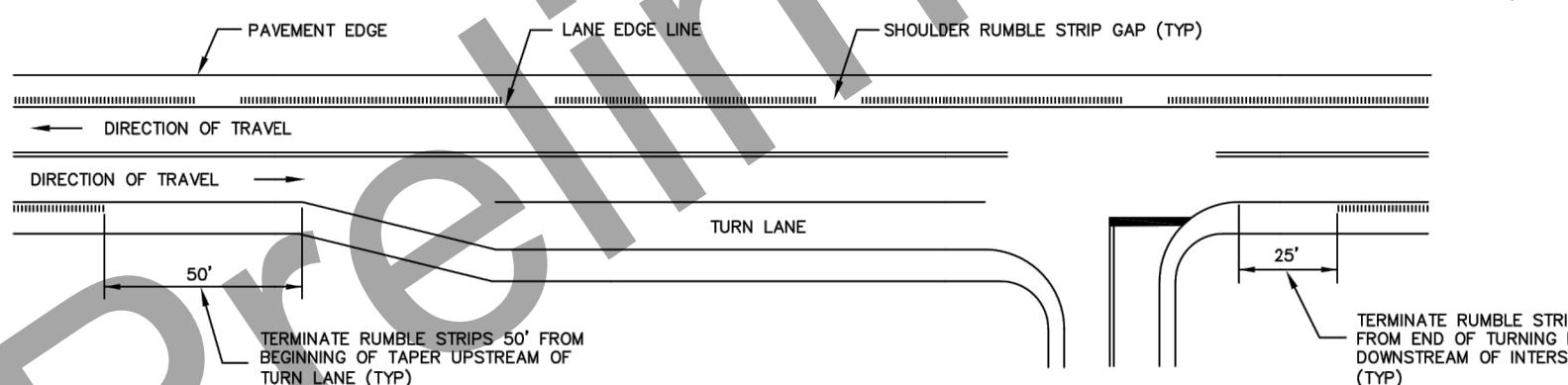
SHEET
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RUMBLE STRIP LAYOUT AT INTERSECTIONS
APPLIES TO ALL SIDE ROAD INTERSECTIONS, PUBLIC TURNOUTS, COMMERCIAL ROAD APPROACHES, AND GANG MAILBOX TURNOUTS (WHERE BICYCLES ARE ALLOWED)



RUMBLE STRIP LAYOUT AT FREEWAY ON- AND OFF-RAMPS
THIS DRAWING APPLIES TO BOTH PARALLEL AND TAPERED LANES (WHERE BICYCLES ARE ALLOWED)



RUMBLE STRIP LAYOUT AT RIGHT TURN LANES
(WHERE BICYCLES ALLOWED)

Note: Drawing not to scale

**State of Alaska DOT&PF
ALASKA STANDARD PLAN
MILLED RUMBLE STRIPS
SHOULDER DETAILS**

Adopted as an Alaska Standard Plan by: *Carolyn Morehouse*
Carolyn Morehouse, P.E.
Chief Engineer
Adoption Date: 07/17/2020

Last Code and Stds. Review
By: LRG Date: 07/17/2020
Next Code and Standards Review date: 07/17/2030

**STANDARD PLAN
T-25.10 (2 OF 5)**

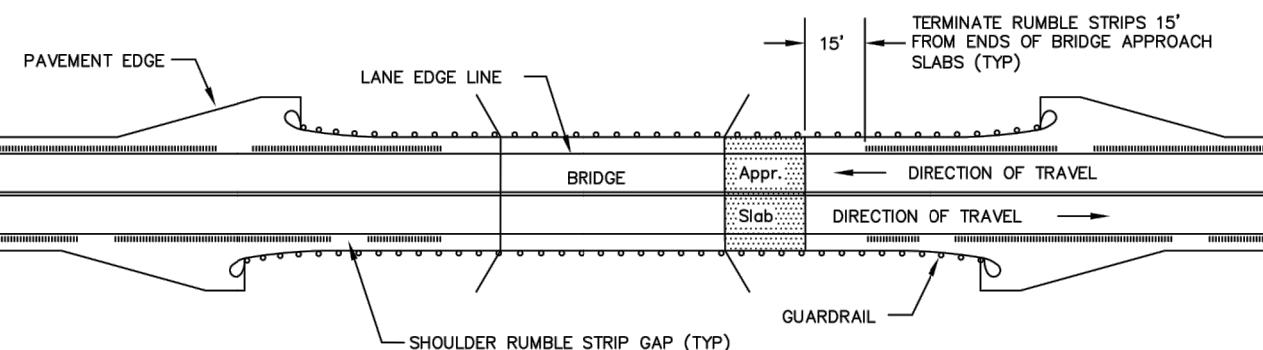
T-25.10 Sheet 2 of 5

Preliminary Plans
PRELIMINARY NOVEMBER 2021

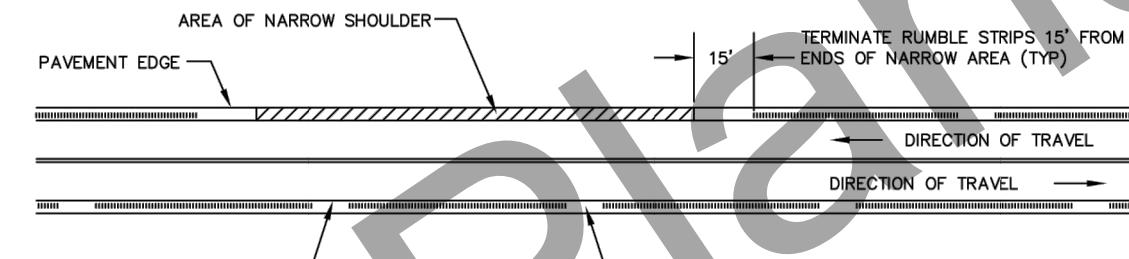
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T-25.10

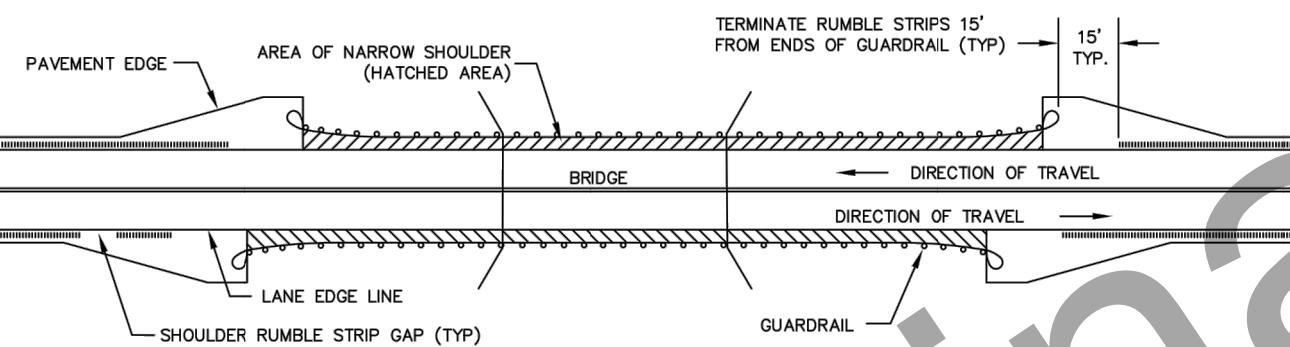
SHEET
3 of 5



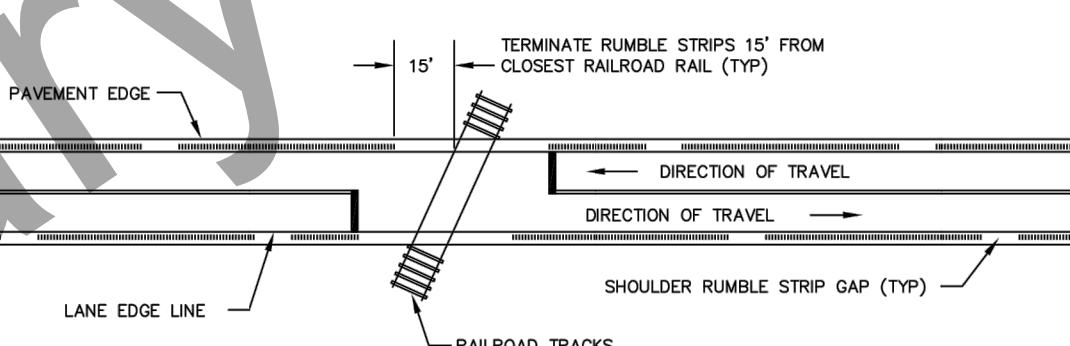
RUMBLE STRIP LAYOUT AT BRIDGES WITH ADEQUATE SHOULDER
(WHERE BICYCLES ARE ALLOWED)



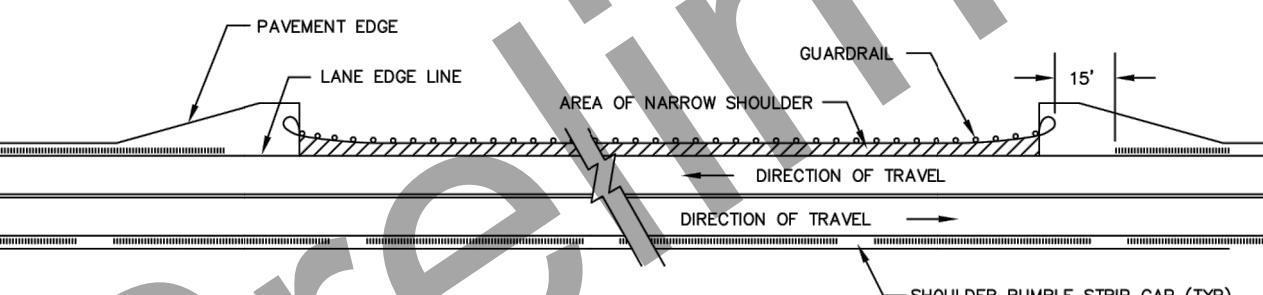
RUMBLE STRIP LAYOUT IN AREAS WITH NARROW SHOULDER
(WHERE BICYCLES ARE ALLOWED)
(SEE NARROW SHOULDER WIDTH NOTES THIS SHEET)



RUMBLE STRIP LAYOUT AT BRIDGES WITH NARROW SHOULDER
(WHERE BICYCLES ARE ALLOWED)
(SEE NARROW SHOULDER WIDTH NOTES THIS SHEET)



RUMBLE STRIP LAYOUT AT RAILROAD CROSSINGS
(WHERE BICYCLES ARE ALLOWED)



RUMBLE STRIP LAYOUT IN AREAS WITH GUARDRAIL AND NARROW SHOULDER
(WHERE BICYCLES ARE ALLOWED)
(SEE NARROW SHOULDER WIDTH NOTES THIS SHEET)

NARROW SHOULDER WIDTH NOTES:

A SIX INCH TOLERANCE IS ALLOWED (FOR DISTANCES OF 100 FT. OR LESS) FOR THE FOLLOWING MINIMUM REQUIRED CLEAR WIDTHS:

- AT LEAST 4' WHERE NO GUARDRAIL IS PRESENT.
- AT LEAST 5' (TO FACE OF GUARDRAIL) WHERE GUARDRAIL IS PRESENT.
- NO MINIMUM WHERE BICYCLES ARE PROHIBITED.

Note: Drawing not to scale

**State of Alaska DOT&PF
ALASKA STANDARD PLAN
MILLED RUMBLE STRIPS
SHOULDER DETAILS**

Adopted as an Alaska Standard Plan by:

Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 07/17/2020

Last Code and Stds. Review
By: LRG Date: 07/17/2020

Next Code and Standards Review date: 07/17/2030

T-25.10 Sheet 3 of 5

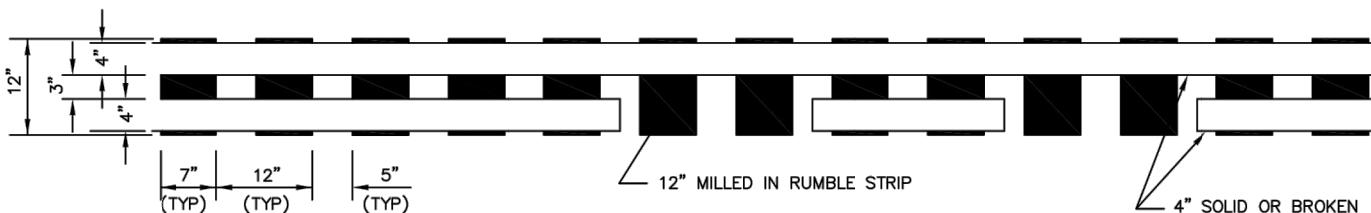
STANDARD PLAN
T-25.10 (3 OF 5)

PRELIMINARY
NOVEMBER
2021

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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T-25.10

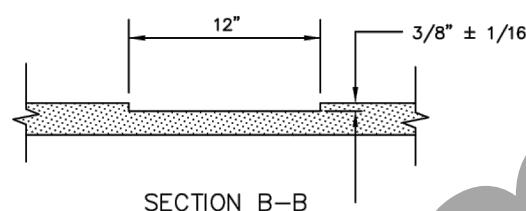
SHEET
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CENTERLINE RUMBLE STRIP PLAN VIEW



SECTION A-A



SECTION B-B

CENTERLINE RUMBLE STRIP NOTES:

1. PERFORM ALL STAKING AS NECESSARY TO INSTALL RUMBLE STRIPS IN ACCORDANCE WITH THE PLANS, THESE DETAILS, AND THE FOLLOWING NOTES.
2. DO NOT INSTALL RUMBLE STRIPS IN THE FOLLOWING INSTANCES:
 - A. BRIDGE DECKS
 - B. BRIDGE APPROACH SLABS
 - C. PAVEMENT LESS THAN 2 INCHES THICK
 - D. PAVEMENT THAT HAS ALLIGATORING, FATIGUE, CRACKING, OR IN POOR CONDITION
 - E. PAVEMENT JOINTS
 - F. INTO LANE EDGE LINE STRIPING
3. WHERE INSTALLED, CENTERLINE RUMBLE STRIPS SHALL BE CONTINUOUS REGARDLESS OF CENTERLINE STRIPING CONFIGURATION. BOTH PASSING AND NO-PASSING PORTIONS OF ROADWAY WITHIN THE LIMITS OF THE CENTERLINE RUMBLE STRIP INSTALLATION SHALL BE MILLED.
4. CENTERLINE RUMBLES MAY BE EXTENDED INTO PAINTED MEDIANES WHERE A DOUBLE YELLOW STRIPE SEPARATES OPPOSING TRAFFIC. WHERE CENTERLINES SPLIT TO CREATE A LEFT TURN LANE ALONG A RURAL HIGHWAY, THE RUMBLES SHOULD BE PLACED ALONG BOTH PORTIONS OF THE CENTERLINE.
5. DO NOT INSTALL CENTERLINE RUMBLE STRIPS IN A TWO-WAY LEFT TURN LANE.
6. DO NOT INSTALL CENTERLINE RUMBLES WHEN THE COMBINED LANE AND SHOULDER WIDTH IN EACH DIRECTION IS LESS THAN 14'.
7. BREAK CENTERLINE RUMBLES FOR ALL SIDE STREET AND COMMERCIAL ROAD INTERSECTIONS WHERE THERE ARE LEFT TURN LANES.
8. CENTERLINE STRIPING SHALL BE RE-ESTABLISHED FOLLOWING MILLING OPERATIONS IN ACCORDANCE WITH SECTION 670, "TRAFFIC MARKINGS". 60 MIL SURFACE APPLIED METHYL METHACRYLATE PAVEMENT MARKINGS SHALL BE INSTALLED ON ALL AREAS FOLLOWING CENTERLINE RUMBLE STRIP INSTALLATION WHERE CENTERLINE RUMBLE STRIPS ARE APPLIED.

Note: Drawing not to scale

**State of Alaska DOT&PF
ALASKA STANDARD PLAN
MILLED RUMBLE STRIPS
CENTERLINE DETAILS**

Adopted as an Alaska Standard Plan by:
Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer
Adoption Date: 07/17/2020

Last Code and Stds. Review
By: LRG Date: 07/17/2020
Next Code and Standards Review date: 07/17/2030

T-25.10 Sheet 4 of 5

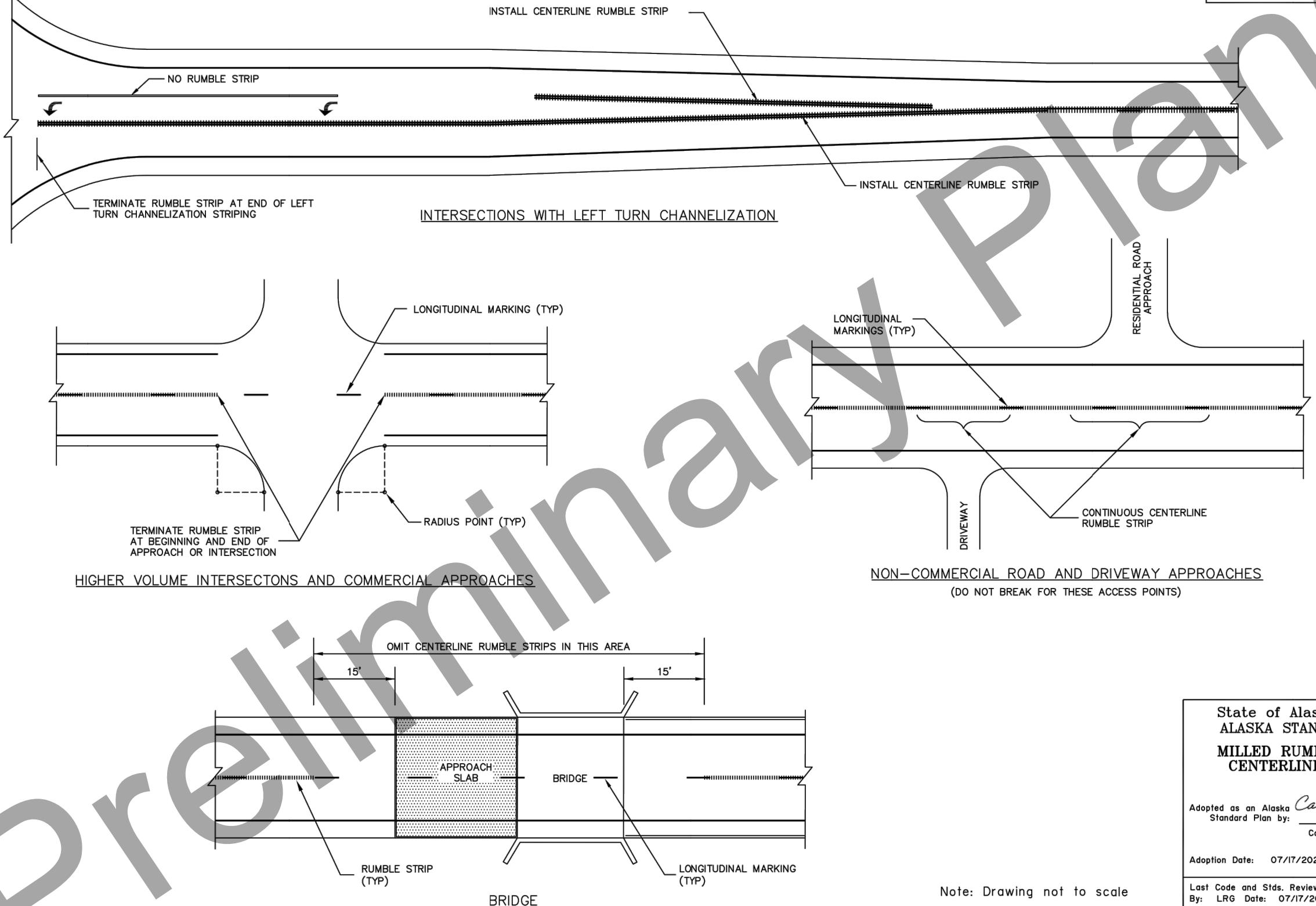
**STANDARD PLAN
T-25.10 (4 OF 5)**

**PRELIMINARY
NOVEMBER
2021**

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0A24033/Z607340000	2021	V39	V39

T-25.10

SHEET
5 of 5



Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN
**MILLED RUMBLE STRIPS
CENTERLINE DETAILS**

Adopted as an Alaska Standard Plan by:
Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 07/17/2020

Last Code and Stds. Review
By: LRG Date: 07/17/2020

Next Code and Standards Review date: 07/17/2030

STANDARD PLAN
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PRELIMINARY
NOVEMBER
2021