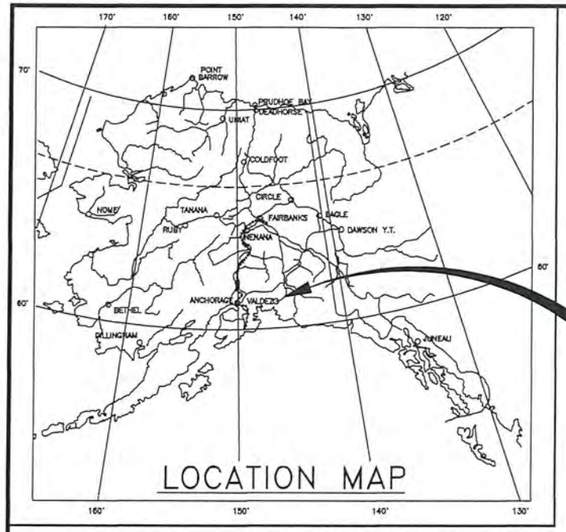
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	A1	90
CDS ROUTE: 190000	MILEPOINT: 44.0676 TO 56.1016			



PROJECT LOCATION

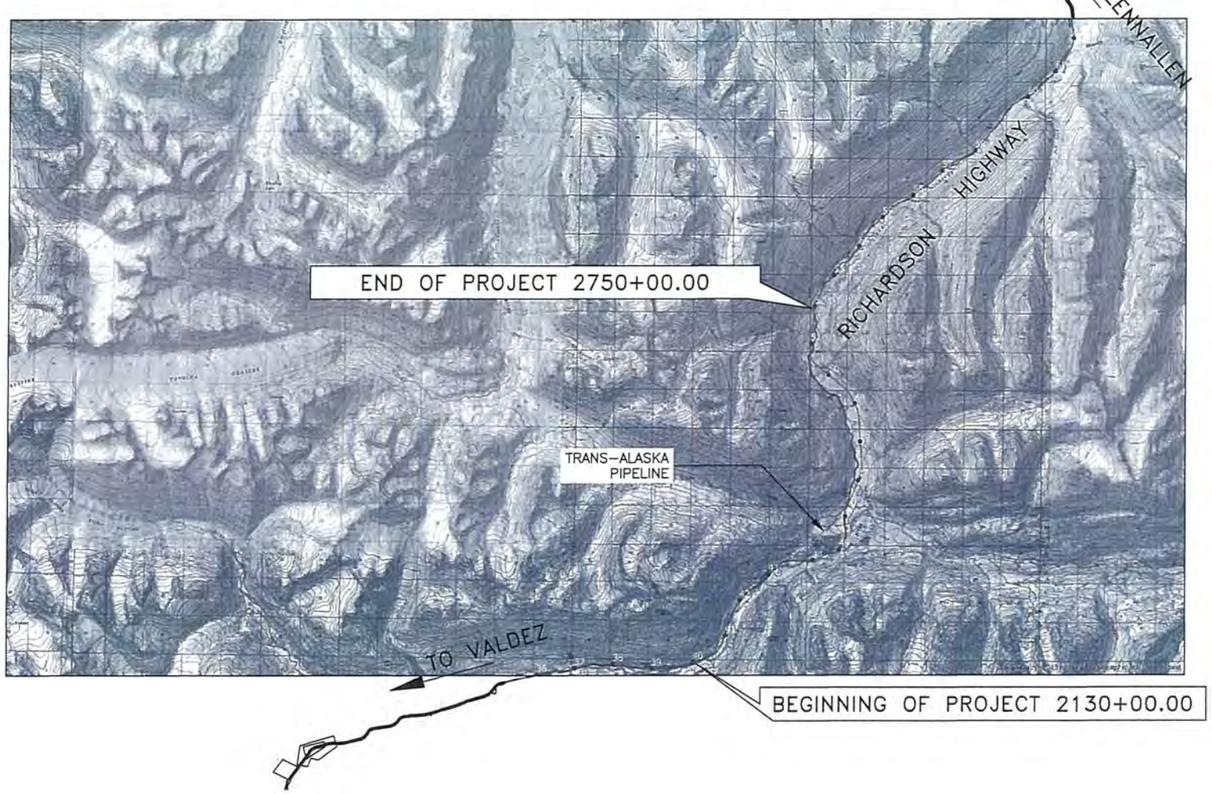
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT

0711082/NFHWY00694

RICHARDSON HIGHWAY MP 40–51 RESURFACING

GRADING, DRAINAGE, PAVING, GUARDRAIL, & BRIDGES



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A1	TITLE SHEET
A2	LEGEND & ABBREVIATIONS
A3–A4	SURVEY CONTROL
B1	TYPICAL SECTIONS
C1	ESTIMATE OF QUANTITIES & GENERAL NOTES
D1–D2	GUARDRAIL SUMMARY & DETAILS
E1–E11	CULVERT/DRAINAGE DETAILS & SUMMARY
F1–F11	PLAN OVER PLAN
G1–G3	APPROACH SUMMARY & DETAILS
H1–H5	SIGNING & STRIPING SUMMARY & DETAILS
L1–L5	AVALANCHE GATE & FOUNDATION DETAILS
N1–N8	BRIDGE PLANS
Q1–Q13	EROSION SEDIMENT CONTROL PLANS
T1–T3	TRAFFIC CONTROL PLANS
V1–V23	STANDARD PLANS

THE FOLLOWING STANDARD PLANS APPLY TO THIS PROJECT:
G–00.05, G–05.11S. G–10.20, G–20.12, G–29.00, G–32.02, G–47.00, I–81.00, L–03.11, S–01.02, S–05.02, S–30.05, T–21.04, T–25.10.

DESIGN DESIGNATIONS	
ADT (2015)	480
ADT (2035)	580
PERCENT TRUCKS (T)	30%
DESIGN SPEED (V)	60 MPH
DESIGN ESAL (16 YEARS)	474,384

PROJECT SUMMARY	
WIDTH OF PAVEMENT	36 FEET
LENGTH OF PAVING	60,500 FEET
LENGTH OF PROJECT	60,500 FEET

CONFORMED COPY
THE UNDERSIGNED HEREBY CERTIFIES THAT THIS INSTRUMENT IS AN EXACT AND TRUE COPY OF THE ORIGINAL
Stacy McSorley

COLLEEN M. ACKISS, P.E., PROJECT MANAGER
ALAN F. SKINNER, P.E., DESIGN ENGINEER

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

APPROVED BY: _____ DATE 3/30/2022
for Sarah E. Schacher, P.E.
Preconstruction Engineer, Northern Region

ACCEPTED FOR CONSTRUCTION: _____ DATE 3/30/2022
for Joseph P. Kemp, P.E.
Acting Regional Director, Northern Region

H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00130_RICH-35-51_TITLE-Title Wed, Mar/30/22 11:53am

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	A2	A4

	RECOVERED	SET
BLM MONUMENT	✠	
GLO MONUMENT	✠	
USC&GS MONUMENT	◬	
PRIMARY MONUMENT	✠	✠
CENTERLINE MONUMENT IN CASING	⊕	⊕
PRIMARY R.O.W. MONUMENT	⊕	◒
BEARING OBJECT	✳	
MISCELLANEOUS MONUMENT	⊗	
LINE OF SIGHT MONUMENT		⊕
CONCRETE R.O.W. MONUMENT	■	
BENCHMARK		(BM)
REBAR AND CAP	⊙	⊙
REBAR	⊙	⊙
IRON PIPE	●	
PK NAIL		▽
SPIKE		×
HUB AND TACK		⊡
CONSTRUCTION CENTERLINE	5+00	
MISCELLANEOUS CENTERLINE	10+00	
STATION EQUATION	"L"48+97.23 POT BK= / "O"48+97.23 PC AHD	
PROJECT RIGHT-OF-WAY LINE	R/W	
EXISTING RIGHT-OF-WAY LINE		
EXISTING PROPERTY LINE		
CONTROLLED ACCESS LINE	C/A	
UTILITY EASEMENT LINE	PUE	
TEMPORARY EASEMENT LINE (TCP OR TCE)	TCP	
ACCESS OR SECTION LINE EASEMENT	ACCESS EASEMENT	
PROPOSED CUT SLOPE LIMIT		
PROPOSED FILL SLOPE LIMIT		
SECTION LINE		
1/4 SECTION LINE		
1/16 SECTION LINE		
TOWNSHIP & RANGE LINE	T. 2 N. / T. 1 N. — T. 1 E. — T. 2 E.	

	EXISTING	PROPOSED
SANITARY SEWER (FLOW DIRECTION →)	SS	SS
FUEL LINE	F	F
GAS LINE	G	G
WATER LINE	W	W
METER, VALVE, FIRE HYDRANT		
EXISTING STORM DRAIN (FLOW DIRECTION →)	SD	
PROPOSED STORM DRAIN	S-10, S-11, P-11, MH, P-10	
FIBER OPTIC LINE	FO	FO
DIRECT BURIAL TELEPHONE CABLE	T	T
DIRECT BURIAL ELECTRIC CABLE	E	E
ELECTRIC LINE (OVERHEAD)		
POWER POLE LINE		
JOINT USE POWER & TELEPHONE		
TELEPHONE POLE LINE		
POLE ANCHOR		
STUB POLE (POWER OR TELEPHONE)		
TELEPHONE DUCT		
TELEPHONE PEDESTAL		
BURIED CABLE MARKER		
PIPELINE MARKER OR VALVE		
CATCH BASIN OR DROP INLET		
MANHOLE	MH	MH
SANITARY SEWER CLEAN OUT		

	EXISTING	PROPOSED
ROADWAY/PAVEMENT EDGE		
FENCE		
CURB AND GUTTER		
DETECTABLE WARNINGS		
GUARDRAIL		
CULVERT PIPE		
SIGN		
MAILBOX	MB	MB
RAILROAD TRACKS		
RAILROAD DEVICES	CROSS-BUCK, FLASHING LIGHT	CANTILEVER, SWITCH
TREE LINE		
WATER BOUNDARY		
ORDINARY HIGH WATER LINE		
FLOW CENTERLINE		
FLOW DIRECTION		
WETLANDS		
EXISTING BUILDINGS	H	H = HOUSE, G = GARAGE, M = MERCHANT/STORE, B = BARN, S = SHED, P = PRIVY, SS = SERVICE STATION, W = WAREHOUSE
POST OR BOLLARD		
WELL OR MONITORING WELL	W	
SEPTIC PIPE	S, MW	
FUEL TANK FILL PIPE/VENT	P	
SATELLITE DISH	SAT. DISH	
TEST HOLE	TH	
CONIFER TREE		
DECIDUOUS TREE		
GRAVE		
THERMOSIPHON		
PARKING METER		
VEHICLE PLUG-IN		
DELINEATOR/GUIDE MARKER		

	EXISTING	PROPOSED
JUNCTION BOX, TYPE IA		5
JUNCTION BOX, TYPE II		6
JUNCTION BOX, TYPE III		3
LOOP DETECTOR	33	73
LOAD CENTER		
RIGID METAL CONDUIT		

ABBREVIATIONS:

⌒	–	ARC LENGTH
ADT	–	AVERAGE DAILY TRAFFIC
ASDS	–	ALASKA SIGN DESIGN SPECIFICATIONS
ASTM	–	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BOP	–	BEGINNING OF PROJECT
C/L	–	CENTERLINE
CFS	–	CUBIC FEET PER SECOND
CSP	–	CORRUGATED STEEL PIPE
CSPA	–	CORRUGATED STEEL PIPE ARCH
D	–	DIAMETER
DEG/°	–	DEGREES
EAL'S	–	EQUIVALENT AXLE LOADINGS
EDH	–	ENHANCED HYDRAULIC DESIGN
ELEV	–	ELEVATION
EOP	–	END OF PROJECT
ESCP	–	EROSION & SEDIMENT CONTROL PLAN
FT/'	–	FEET
GPR	–	GROUND PENETRATING RADAR
HMA	–	HOT-MIX ASPHALT
IN/"	–	INCH
LF	–	LINEAR FEET
LT	–	LEFT
MAX	–	MAXIMUM
MIN	–	MINIMUM
MPH	–	MILES PER HOUR
MS	–	MATERIAL SITE
NO	–	NUMBER
NTS	–	NOT TO SCALE
RT	–	RIGHT
R/W ROW	–	RIGHT OF WAY
SHT	–	SHEET
SQ MI	–	SQUARE MILE
SSP	–	STRUCTURAL STEEL PIPE
SSPA	–	STRUCTURAL STEEL PIPE ARCH
TAPS	–	TRANS ALASKA PIPELINE SYSTEM
TYP	–	TYPICAL
VPD	–	VEHICLES PER DAY

STATE OF ALASKA 49TH — ALAN F. SKINNER — CE 12589 — REGISTERED PROFESSIONAL ENGINEER — 3-29-22

LEGEND & ABBREVIATIONS

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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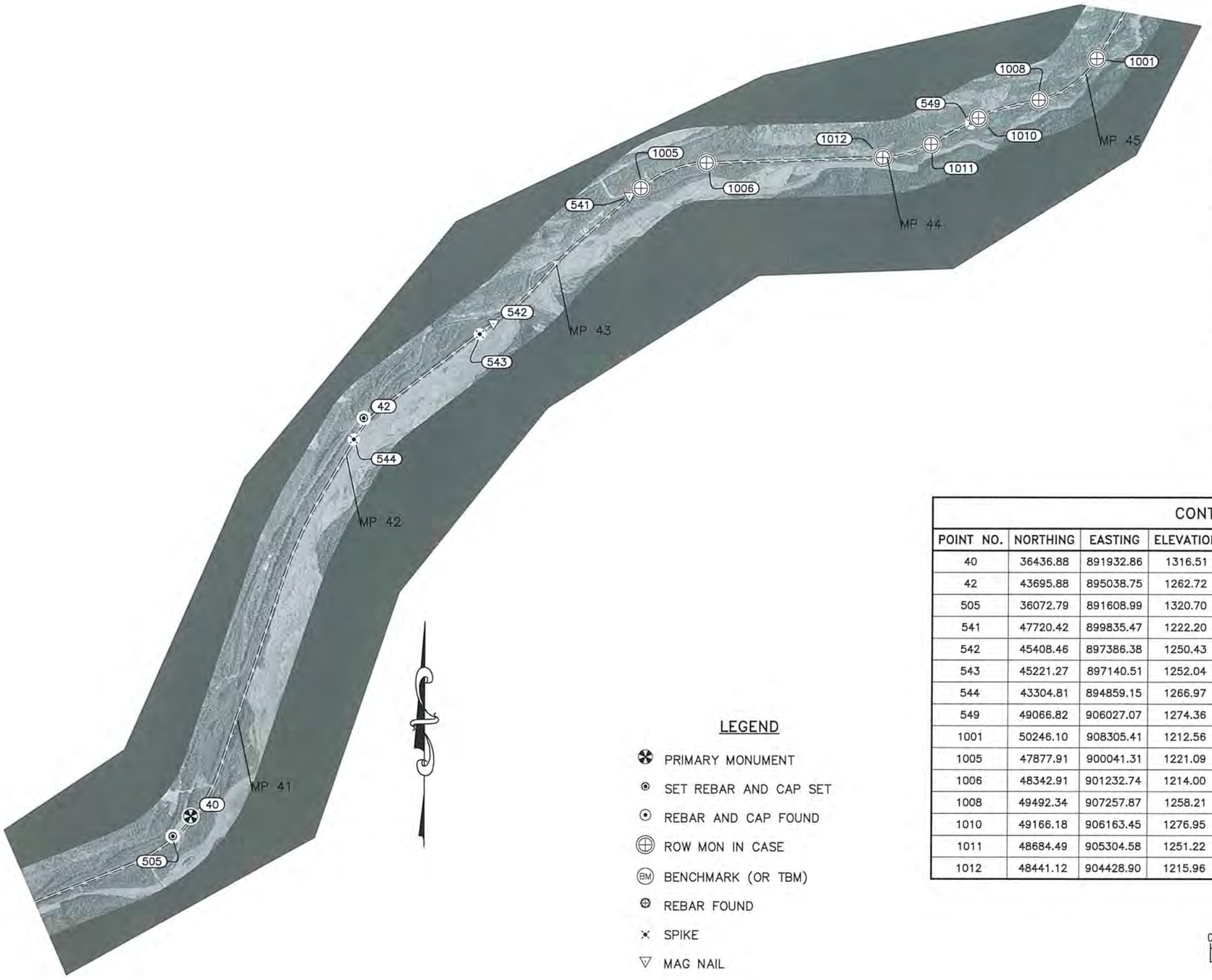
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	A3	A4



GENERAL NOTES

1. VERIFY HORIZONTAL AND VERTICAL CONTROL PRIOR TO USE. ON MULTI YEAR PROJECTS, VERIFY ALL CONTROL ON A SEASONAL BASIS.

2. BACKGROUND MAPPING IS SHOWN FOR ORIENTATION PURPOSES ONLY. THIS SHEET DOES NOT PURPORT TO DEPICT RIGHT OF WAY.

3. ALL DISTANCES SHOWN ARE GROUND DISTANCES, IN U.S. SURVEY FEET.

4. THIS PROJECT IS LOCATED ENTIRELY WITHIN THE RICH ZONE 3 LOW DISTORTION PROJECTION (LDP), A LOW DISTORTION PROJECTION CREATED BY THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES.

PARKS ZONE 1 LDP DEFINITION:
LINEAR UNIT: U.S. SURVEY FOOT (SFT)
DATUM: NAD83(2011)
PROJECTION: TRANSVERSE MERCATOR
LATITUDE OF GRID ORIGIN: 61°07'00"N
CENTRAL MERIDIAN: 144°46'00"W
FALSE NORTHING: 0 SFT
FALSE EASTING: 1,000,000 SFT
STANDARD PARALLEL SCALE: 1.000071 (EXACT)

5. THE BASIS OF COORDINATES IS THE NAD83(2011)(EPOCH:2010.0000) OPUS AVERAGED POSITION OF "MP 35", POINT #35.

6. BASIS OF BEARING IS RICH ZONE 3 LDP.

7. THE BASIS OF ELEVATIONS IS THE OPUS AVERAGED GEOID12A (NAVD88) ELEVATION OF 1622.65 FT AT "MP 35", POINT #35.

8. FIELD WORK FOR CONTROL WAS COMPLETED IN 2016.

LEGEND

- PRIMARY MONUMENT
- SET REBAR AND CAP SET
- REBAR AND CAP FOUND
- ROW MON IN CASE
- BENCHMARK (OR TBM)
- REBAR FOUND
- SPIKE
- MAG NAIL

CONTROL MONUMENTS

POINT NO.	NORTHING	EASTING	ELEVATION	LATITUDE	LONGITUDE	DESCRIPTION
40	36436.88	891932.86	1316.51	N61° 12' 53.7847"	W145° 22' 46.3576"	PRIM MON SET CP40
42	43695.88	895038.75	1262.72	N61° 14' 05.5379"	W145° 21' 44.3007"	REBAR CAP SET CP42
505	36072.79	891608.99	1320.70	N61° 12' 50.1700"	W145° 22' 52.8995"	REBAR CAP SET CP505
541	47720.42	899835.47	1222.20	N61° 14' 45.5834"	W145° 20' 07.0273"	PK SET
542	45408.46	897386.38	1250.43	N61° 14' 22.6080"	W145° 20' 56.6544"	PK SET
543	45221.27	897140.51	1252.04	N61° 14' 20.7433"	W145° 21' 01.6438"	SPIKE SET
544	43304.81	894859.15	1266.97	N61° 14' 01.6714"	W145° 21' 47.8966"	SPIKE SET
549	49066.82	906027.07	1274.36	N61° 14' 59.3539"	W145° 18' 00.7231"	SPIKE SET
1001	50246.10	908305.41	1212.56	N61° 15' 11.1458"	W145° 17' 14.3503"	IN CASE FND
1005	47877.91	900041.31	1221.09	N61° 14' 47.1516"	W145° 20' 02.8490"	IN CASE FND
1006	48342.91	901232.74	1214.00	N61° 14' 51.8312"	W145° 19' 38.5826"	IN CASE FND
1008	49492.34	907257.87	1258.21	N61° 15' 03.6418"	W145° 17' 35.6381"	IN CASE FND
1010	49166.18	906163.45	1276.95	N61° 15' 00.3431"	W145° 17' 57.9523"	IN CASE FND
1011	48684.49	905304.58	1251.22	N61° 14' 55.5312"	W145° 18' 15.4252"	IN CASE FND
1012	48441.12	904428.90	1215.96	N61° 14' 53.0638"	W145° 18' 33.2805"	IN CASE FND

0 2000 4000 Feet

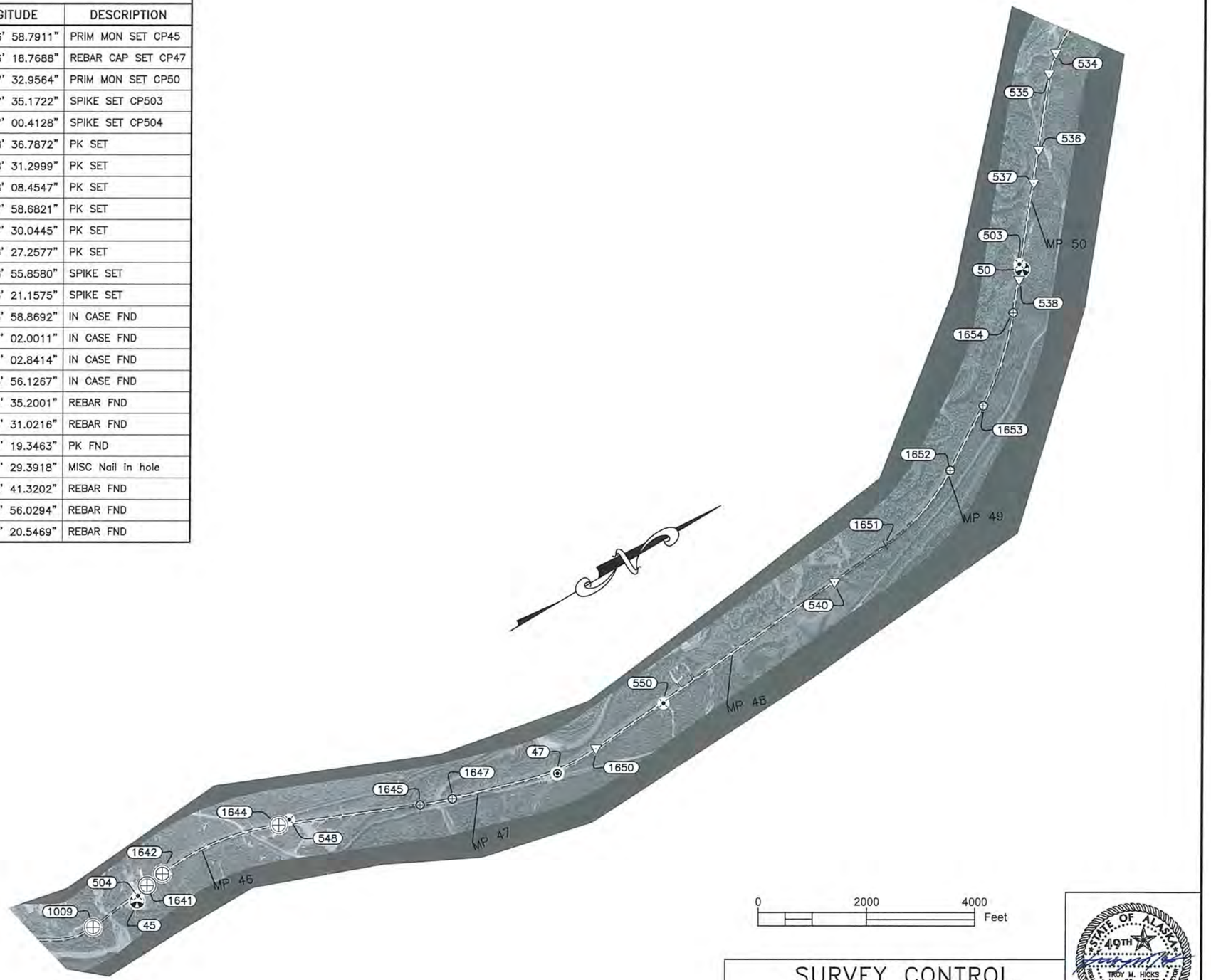
SURVEY CONTROL
(1 OF 2)

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
\\dotfpgnas.dot.aoa.alaska.gov\Imagery_Lidar\Richardson_Hwy\Survey\2016_Rich_30_33_35_65_DOT\Control\NFHWY00133_Control-A3 SURVEY CONTROL Tue, Mar 29, 2022 02:00pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	A4	A4

CONTROL MONUMENTS

POINT NO.	NORTHING	EASTING	ELEVATION	LATITUDE	LONGITUDE	DESCRIPTION
45	52920.67	909087.74	1151.85	N61° 15' 37.5405"	W145° 16' 58.7911"	PRIM MON SET CP45
47	60782.74	911106.09	1150.32	N61° 16' 55.1047"	W145° 16' 18.7688"	REBAR CAP SET CP47
50	72944.27	907577.83	1218.61	N61° 18' 54.5708"	W145° 17' 32.9564"	PRIM MON SET CP50
503	72949.50	907469.68	1222.43	N61° 18' 54.6138"	W145° 17' 35.1722"	SPIKE SET CP503
504	52987.60	909008.95	1155.10	N61° 15' 38.1934"	W145° 17' 00.4128"	SPIKE SET CP504
534	75544.27	904482.82	1246.00	N61° 19' 19.9203"	W145° 18' 36.7872"	PK SET
535	75238.36	904748.14	1244.81	N61° 19' 16.9301"	W145° 18' 31.2999"	PK SET
536	74347.56	905856.07	1237.87	N61° 19' 08.2496"	W145° 18' 08.4547"	PK SET
537	73951.39	906329.95	1235.64	N61° 19' 04.3871"	W145° 17' 58.6821"	PK SET
538	72790.55	907718.77	1218.18	N61° 18' 53.0685"	W145° 17' 30.0445"	PK SET
540	66983.68	910739.35	1177.73	N61° 17' 56.1302"	W145° 16' 27.2577"	PK SET
548	56103.00	909256.32	1163.53	N61° 16' 08.8863"	W145° 16' 55.8580"	SPIKE SET
550	63123.18	911007.46	1189.14	N61° 17' 18.1409"	W145° 16' 21.1575"	SPIKE SET
1009	51978.49	909076.48	1151.30	N61° 15' 28.2630"	W145° 16' 58.8692"	IN CASE FND
1641	53231.38	908933.20	1161.99	N61° 15' 40.5876"	W145° 17' 02.0011"	IN CASE FND
1642	53585.72	908894.90	1168.16	N61° 15' 44.0735"	W145° 17' 02.8414"	IN CASE FND
1644	55890.59	909241.50	1165.39	N61° 16' 06.7939"	W145° 16' 56.1267"	IN CASE FND
1645	58312.60	910283.69	1137.93	N61° 16' 30.7211"	W145° 16' 35.2001"	REBAR FND
1647	58878.16	910492.37	1137.35	N61° 16' 36.3056"	W145° 16' 31.0216"	REBAR FND
1650	61623.01	911084.36	1172.43	N61° 17' 03.3763"	W145° 16' 19.3463"	PK FND
1651	68133.76	910644.04	1192.37	N61° 18' 07.4465"	W145° 16' 29.3918"	MISC Nail in hole
1652	69884.58	910075.09	1215.37	N61° 18' 24.6410"	W145° 16' 41.3202"	REBAR FND
1653	71021.89	909365.68	1195.85	N61° 18' 35.7838"	W145° 16' 56.0294"	REBAR FND
1654	72385.06	908179.27	1209.26	N61° 18' 49.1124"	W145° 17' 20.5469"	REBAR FND



LEGEND

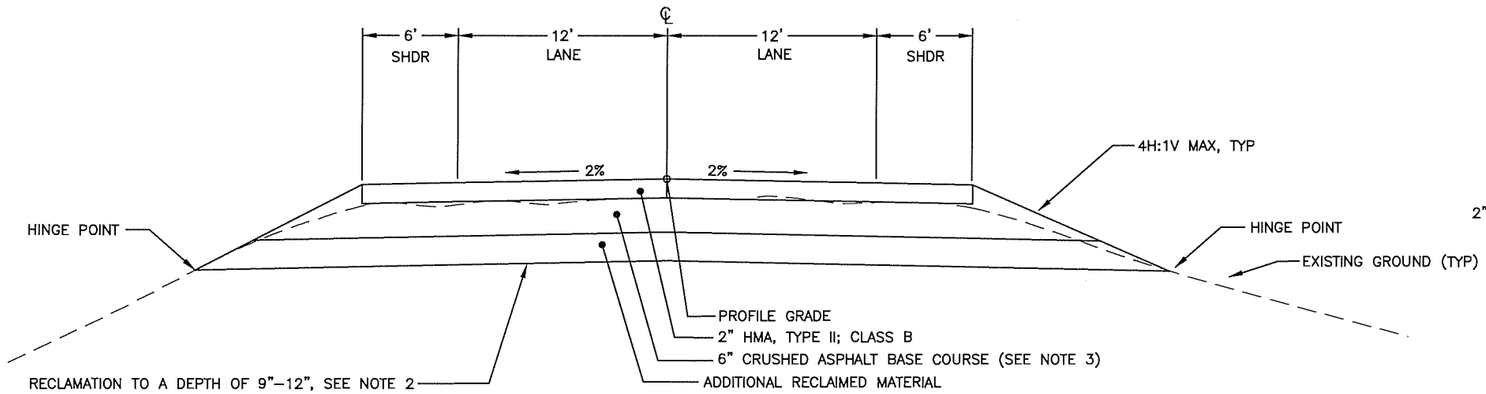
- PRIMARY MONUMENT
- SET REBAR AND CAP SET
- REBAR AND CAP FOUND
- ROW MON IN CASE
- BM BENCHMARK (OR TBM)
- REBAR FOUND
- SPIKE
- MAG NAIL

SURVEY CONTROL
(2 OF 2)

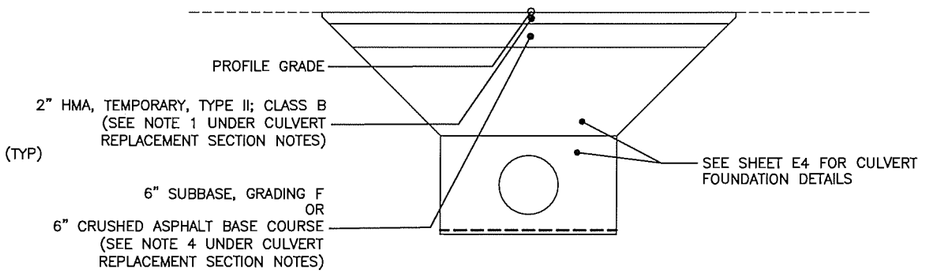
STATE OF ALASKA 49TH
TROY M. HICKS
Mar 29, 2022
LS-14471
REGISTERED PROFESSIONAL LAND SURVEYOR

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
\\dotfpgnas.dot.aoa.alaska.gov\Imagery_Lidar\Richardson_Hwy\Survey\2016_Rich_30_33_35_65_DOT\Control\NFHWY00133_Control-A4 SURVEY CONTROL Tue, Mar/29/22 02:00pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	B1	B1



RECLAMATION SECTION
1864+00 TO 2710+00



CULVERT REPLACEMENT SECTION

NOTES:

1. THE EXISTING ASPHALT CONCRETE PAVEMENT DEPTH VARIES AND IS DOCUMENTED IN GPR DATA COLLECTED DURING 2018 AND IN THE GEOTECHNICAL MEMO DATED DECEMBER 24, 2018; INCLUDED AS SUPPLEMENTAL INFORMATION. LOCATIONS AND DEPTHS ARE APPROXIMATE. ADDITIONAL RESURFACING WORK HAS OCCURRED SINCE THE AS–BUILTS DATED 1978, THERE ARE NO AS–BUILTS AVAILABLE FOR THE RESURFACING WORK.
2. MULTIPLE ASPHALT AND BASE COURSE LAYERS EXIST WITHIN THE ROAD EMBANKMENT. COBBLES OBSERVED IN GPR SURVEY AND DRILLING INVESTIGATIONS SUGGEST RECLAMATION WOULD NEED TO BE PERFORMED CAREFULLY AS A REHABILITATION STRATEGY DUE TO THE DEPTH OF COBBLES, TYPICALLY OBSERVED FROM 1 FOOT TO 4 FEET BELOW GROUND SURFACE. RECLAIM THE TOP 12 INCHES OF THE EXISTING PAVEMENT SECTION FOR ALL AREAS EXCEPT MP 39 TO MP 41. LIMIT DEPTH OF TREATMENT BETWEEN MP 39 AND MP 41 TO MAXIMUM 9 INCHES.
3. THE INTENT IS TO PROVIDE A SMOOTH, CROWNED DRIVING SURFACE. AT DRIVEWAY AND INTERSECTING ROADWAYS LOCATIONS, 2" OF CRUSHED ASPHALT BASE COURSE SHALL BE REMOVED TO MAINTAIN THE EXISTING GRADES FOR PRESERVATION OF THE EXISTING SIGHT DISTANCE AT THESE LOCATIONS. SEE PLAN SHEETS G2 AND G3 FOR DRIVEWAY AND INTERSECTING ROADWAY DETAILS.
4. SURPLUS CRUSHED ASPHALT BASE COURSE SHALL BE USED TO CONSTRUCT THE ROADWAY EMBANKMENT AS SHOWN.
5. SUPERELEVATION RATES AND TRANSITIONS ARE NOT PROVIDED. CONTRACTOR SHALL CROSS SECTION THE EXISTING SUPERELEVATION RATES AND TRANSITIONS PRIOR TO CONSTRUCTION SO THEY CAN BE REESTABLISHED IN THE FIELD.
6. RECONSTRUCTED EMBANKMENT SLOPE SHALL BE 4H:1V MAX. STEEPER SLOPES ARE PERMITTED TO CATCH AT HINGE POINT IF 4H:1V CANNOT BE CONSTRUCTED.
7. WHERE INDICATED ON THE PLANS, INSTALL GUARDRAIL USING CASE 5 ON SHEET V7. SHOULDER WIDENING IS NOT ALLOWABLE EXCEPT AT END TERMINAL LOCATIONS OR AS DIRECTED BY THE ENGINEER.
8. PROFILE GRADE IS SHOWN 2 INCHES ABOVE EXISTING GRADE. ADJUST PROFILE GRADE AS NECESSARY, BUT NO LOWER THAN 2 INCHES, TO REDUCE THE NEED FOR SUBBASE, GRADING F. TRANSITION AT A RATE OF 100:1 FOR CHANGES IN PAVING DEPTH.
9. STOCKPILING AND DOUBLE HANDLING OF CRUSHED ASPHALT MAY BE REQUIRED. THIS MATERIAL SHALL NOT BE CAST DOWN THE SLOPES BEYOND WHAT IS REQUIRED FOR SHOULDERING.

CULVERT REPLACEMENT SECTION NOTES:

1. CULVERT REPLACEMENT SHALL BE COMPLETED PRIOR TO WORK SHOWN IN THE RECLAMATION SECTION. DO NOT SKIP COMPLETED CULVERT REPLACEMENT AREAS WHEN RECLAIMING. COMPLETED CULVERT REPLACEMENT AREAS SHALL BE RECLAIMED UNIFORMLY WITH ADJACENT AREAS.
2. SAW CUT EXISTING PAVEMENT AT A LOCATION APPROVED BY ENGINEER PRIOR TO PAVING 2" HMA, TEMPORARY, TYPE II; CLASS B. THE INTENT OF THIS IS TO PROVIDE A CLEAN UNIFORM JOINT BETWEEN THE TEMPORARY PAVEMENT AND EXISTING PAVEMENT. THIS WORK IS SUBSIDIARY TO PAY ITEM 401.0005.002B HMA, TEMPORARY, TYPE II; CLASS B.
3. THE 2" OF HMA, TEMPORARY, TYPE II; CLASS B PAVEMENT IN THE CULVERT REPLACEMENT SECTIONS MUST BE PAVED WITHIN 10 DAYS OF PLACEMENT OF 6" OF SUBBASE, GRADING F (DURING FIRST SEASON OR PRIOR TO RECLAMATION) OR CRUSHED ASPHALT BASE COURSE (DURING SECOND SEASON). TEMPORARY PAVEMENT IS REQUIRED PRIOR TO WINTER SHUTDOWN.
4. FOR CULVERTS THAT ARE REPLACED IN THE SECOND SEASON, OTHER MATERIAL AS APPROVED BY ENGINEER MAY BE USED TO PROVIDE A SMOOTH, TRAVERSABLE, NON–PAVED SURFACE AS AN ALTERNATIVE TO THE 2" HMA, TEMPORARY, TYPE II; CLASS B.

TYPICAL SECTION

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451–2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35–51 Civil 3D\2 Drawings\00133_B1–TYPICAL SECTION Tue, Mar/29/22 03:42pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	C1	C1

ESTIMATE OF QUANTITIES

ITEM NUMBER	DESCRIPTION	PAY UNIT	QUANTITY
201.0003.0000	CLEARING AND GRUBBING	ACRE	3.9
202.0004.0000	REMOVAL OF CULVERT PIPE	LINEAR FOOT	3,037
204.2002.0000	EMBEDMENT MATERIAL	CUBIC YARD	3,650
301.0001.00D1	AGGREGATE BASE COURSE, GRADING D-1	TON	15,000
304.0001.000F	SUBBASE, GRADING F	TON	38,000
308.0001.0000	CRUSHED ASPHALT BASE COURSE	LUMP SUM	ALL REQUIRED
401.0001.002B	HMA, TYPE II; CLASS B	TON	27,830
401.0004.0000	ASPHALT BINDER, GRADE PG 52E-40	TON	1,670
401.0005.002B	HMA, TEMPORARY, TYPE II; CLASS B	TON	4,500
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
401.0010.0001	PAVEMENT SMOOTHNESS PRICE ADJUSTMENT, METHOD 1	CONTINGENT SUM	ALL REQUIRED
401.0015.0000	ASPHALT MATERIAL PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
401.0012.002B	HMA, DRIVEWAY, TYPE II; CLASS B	TON	165
401.0013.0000	JOB MIX DESIGN	EACH	1
406.0002.0000	RUMBLE STRIPS	STATION	605
507.2000.0000	STEEL BRIDGE RAILING REPLACEMENT, 2-TUBE	LINEAR FOOT	643
508.0001.0000	WATERPROOFING MEMBRANE, SPRAY-APPLIED	LUMP SUM	ALL REQUIRED
510.2001.0000	BRIDGE DECK REPAIR	CONTINGENT SUM	ALL REQUIRED
602.0001.0060	STRUCTURAL PLATE PIPE 60" DIAMETER, 10 GAUGE	LINEAR FOOT	100
602.0001.0072	STRUCTURAL PLATE PIPE 72" DIAMETER, 10 GAUGE	LINEAR FOOT	322
602.0001.0096	STRUCTURAL PLATE PIPE 96" DIAMETER, 10 GAUGE	LINEAR FOOT	259
602.0001.0108	STRUCTURAL PLATE PIPE 108" DIAMETER, 10 GAUGE	LINEAR FOOT	215
602.0002.0601	STRUCTURAL PLATE PIPE-ARCH 6'-1" SPAN, 4'-7" RISE, 10 GAUGE	LINEAR FOOT	76
602.0002.1606	STRUCTURAL PLATE PIPE-ARCH 16'-6" SPAN, 11'-0" RISE, 10 GAUGE	LINEAR FOOT	168
603.0001.0018	CSP 18 INCH	LINEAR FOOT	20
603.0001.0024	CSP 24 INCH	LINEAR FOOT	298
603.0001.0036	CSP 36 INCH	LINEAR FOOT	1,001
603.0001.0048	CSP 48 INCH	LINEAR FOOT	94
603.2016.0000	CLEAN CULVERT	EACH	28
606.0001.0000	W-BEAM GUARDRAIL	LINEAR FOOT	5,975
606.0006.0000	REMOVING AND DISPOSING OF GUARDRAIL	LINEAR FOOT	7,183
606.0013.0000	PARALLEL GUARDRAIL TERMINAL	EACH	19
606.0016.0000	TRANSITION RAIL	EACH	4
606.0016.0001	TRANSITION RAIL, MODIFICATION	EACH	8
607.2002.0000	GATE AND FOUNDATION	EACH	2
608.0001.0004	CONCRETE SIDEWALK, 4 INCHES THICK	SY	53.5
611.0001.0001	RIPRAP, CLASS I	CUBIC YARD	740
611.0001.0002	RIPRAP, CLASS II	CUBIC YARD	1,170
613.0002.0000	CULVERT MARKER POST	EACH	66
615.0001.0000	STANDARD SIGN	SQUARE FOOT	192.06
618.0001.0000	SEEDING	ACRE	3.9
628.2000.0000	FISH PASSAGE SUBSTRATE	LUMP SUM	ALL REQUIRED
630.0003.0002	GEOTEXTILE, REINFORCEMENT - TYPE 2	SQUARE YARD	2,350
631.0002.0001	GEOTEXTILE, EROSION CONTROL, CLASS I, NON-WOVEN	SQUARE YARD	3,250
639.0002.0000	DRIVEWAY, RESIDENTIAL	EACH	15
639.0003.0000	DRIVEWAY, COMMERCIAL	EACH	5
640.0001.0000	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
640.0004.0000	WORKER MEALS AND LODGING, OR PER DIEM	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
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
644.0001.0000	FIELD OFFICE	LUMP SUM	ALL REQUIRED
644.0006.0000	VEHICLE	LUMP SUM	ALL REQUIRED
644.0015.0000	NUCLEAR TESTING EQUIPMENT STORAGE SHED	EACH	1
645.0001.0000	TRAINING PROGRAM, 2 TRAINEES / APPRENTICES	LABOR HOUR	1,000

ESTIMATE OF QUANTITIES

ITEM NUMBER	DESCRIPTION	PAY UNIT	QUANTITY
652.0001.0000	INTERIM WORK PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
660.2010.0000	ROADWAY WEATHER INFORMATION SYSTEM COMPLETE, REPLACE EMBEDDED SENSORS	LUMP SUM	ALL REQUIRED
670.0001.0000	PAINTED TRAFFIC MARKINGS	LUMP SUM	ALL REQUIRED

ESTIMATING FACTORS

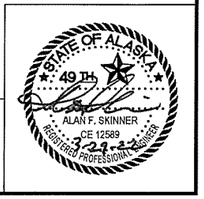
ITEM NO.	DESCRIPTION	FACTOR
301.0001.00D1	AGGREGATE BASE COURSE, GRADING D-1	2 TONS / CUBIC YARD
304.0001.000F	SUBBASE, GRADING F	2 TONS / CUBIC YARD
401.0001.002B	ASPHALT CONCRETE, TYPE II: CLASS B	150 LB / CF
401.0004.0000	ASPHALT CEMENT, GRADE 52E-40	6% OF TOTAL WEIGHT OF 401.0001.002B

TABLE OF LUMP SUM QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY
308.0001.0000	CRUSHED ASPHALT BASE COURSE	242,000 CY
628.2000.0000	FISH PASSAGE SUBSTRATE	3,000 CY
670.0001.0000	TRAFFIC PAINT	SEE SHEET H2

GENERAL NOTES:

1. ALL EXISTING MATERIAL EXCAVATED FOR THE CULVERT REPLACEMENTS SHALL BE DISPOSED OF OUTSIDE THE PROJECT LIMITS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING WASTE DISPOSAL SITES.
2. ALL EXISTING UTILITIES, OVERHEAD AND SUBSURFACE, SHALL REMAIN IN-PLACE AND IN-SERVICE DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO GROUND DISTURBING ACTIVITIES. UTILITIES IN THE AREA MAY INCLUDE BUT ARE NOT LIMITED TO: GCI, CVEA, CVTC, AND ALYESKA.
3. DO NOT DISTURB EXISTING MAILBOXES; THEY ARE TO REMAIN AS-IS.
4. ALL CONSTRUCTION ACTIVITIES ARE TO OCCUR WITHIN EXISTING RIGHT OF WAY.
5. THE RICHARDSON HIGHWAY SHALL HAVE A PAVED SURFACE WITH TRAFFIC MARKINGS PRIOR TO WINTER SHUTDOWN.



ESTIMATE OF QUANTITIES & GENERAL NOTES

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00130_RICH-35-51_TABLES-ESTIMATE OF QUANTITIES Tue, Mar/29/22 01:14pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	D1	D2

GUARDRAIL SUMMARY

*APPROX. BEGIN STATION	*APPROX. END STATION	APPROX. EXISTING LENGTH (LF)	LT/RT	**606.0006.0000 REMOVING AND DISPOSING OF GUARDRAIL (LF)	**606.0001.0000 W-BEAM GUARDRAIL (LF)	606.0013.0000 PARALLEL GUARDRAIL TERMINAL (EA)	REMARKS
2338+86	2359+36	2052	RT	2052	1937.5	2	
2380+32	2385+11	478	RT	478	362.5	2	
2390+93	2399+86	902	RT	902	787.5	2	
2404+79	2423+18	1856	RT	1856	1800	1	STUART CREEK BRIDGE
2422+56	2423+18	121	LT	121	0	1	STUART CREEK BRIDGE, ADD FILL TO CONSTRUCT STANDARD WIDENING
2423+99	2426+67	275	RT	275	225		STUART CREEK BRIDGE, INSTALL END ANCHOR
2423+99	2425+11	121	LT	121	62.5	1	STUART CREEK BRIDGE, ADD FILL TO CONSTRUCT STANDARD WIDENING
2488+32	2489+45	119	LT	119	62.5	1	TIEKEL RIVER BRIDGE
2488+36	2489+48	122	RT	122	62.5	1	TIEKEL RIVER BRIDGE
2490+68	2491+80	123	RT	123	62.5	1	TIEKEL RIVER BRIDGE
2490+71	2491+84	121	LT	121	62.5	1	TIEKEL RIVER BRIDGE
2691+09	2691+71	77	RT	77	12.5	1	TIEKEL RIVER BRIDGE
2691+22	2691+71	53	LT	53	0	1	TIEKEL RIVER BRIDGE
2694+90	2695+40	53	RT	53	0	1	TIEKEL RIVER BRIDGE
2694+90	2695+52	77	LT	77	12.5	1	TIEKEL RIVER BRIDGE
2697+65	2703+86	633	LT	633	525	2	
		PAY ITEM TOTALS		7,183	5975.0	19	

GENERAL GUARDRAIL NOTE:

* 1. BEGIN AND END STATIONS GIVEN INCLUDE END TREATMENTS.

** 2. PAY ITEM TOTALS AND LINEAR FEET FOR ITEMS 606.0001.0000 AND 606.0006.0000 W-BEAM GUARDRAIL RUNS DO NOT INCLUDE END TERMINALS. EXISTING END TERMINAL REMOVAL WILL NOT BE MEASURED AND IS SUBSIDIARY TO 606.0006.0000.

3. FILL MATERIAL TO IMPROVE WIDENINGS SHALL BE AGGREGATE BASE COURSE, GRADING D-1 AND PAID FOR UNDER 301.0001.00D1.

4. FOR PARALLEL GUARDRAIL TERMINALS, CONSTRUCT THE GUARDRAIL TERMINAL WIDENING IN ACCORDANCE WITH THE "STANDARD DETAIL" ON STANDARD PLAN G-20.12, SHEET V9. THE END OFFSET (X) SHALL BE 2 FEET.

5. INSTALL GUARDRAIL REFLECTORS AT THE INTERVALS NOTED ON THE PLANS AND STANDARD PLANS, STARTING WITH THE FIRST MID-SPAN HOLE BEYOND TERMINAL SECTIONS. THIS MODIFIES NOTE 1 UNDER SECTION 606-3.01. DO NOT INSTALL GUARDRAIL REFLECTORS WITHIN THE LIMITS OF PARALLEL GUARDRAIL TERMINALS OR AT POST LOCATIONS.

6. IN ADDITION TO THE GUARDRAIL REFLECTORS, INSTALL GUARDRAIL FLEXIBLE DELINEATORS AS SHOWN ON STANDARD PLAN G-00.05, SHEET V6.

7. LENGTHS LISTED TO EXTEND GUARDRAIL ARE INCLUDED IN W-BEAM GUARDRAIL 606.0001.0000.

8. COORDINATE GUARDRAIL POST INSTALLATIONS WITH EXISTING CULVERT LOCATIONS. ADJUST LOCATIONS AS NEEDED TO ENSURE POSTS DO NOT PIERCE CULVERTS.

9. STAKE EXISTING END TERMINAL LOCATIONS BEFORE REMOVING GUARDRAIL.

10. GUARDRAIL OFFSET SHALL BE STAKED IN THE FIELD AND APPROVED BY THE ENGINEER.

11. STATIONING MAY BE ADJUSTED BY THE ENGINEER.

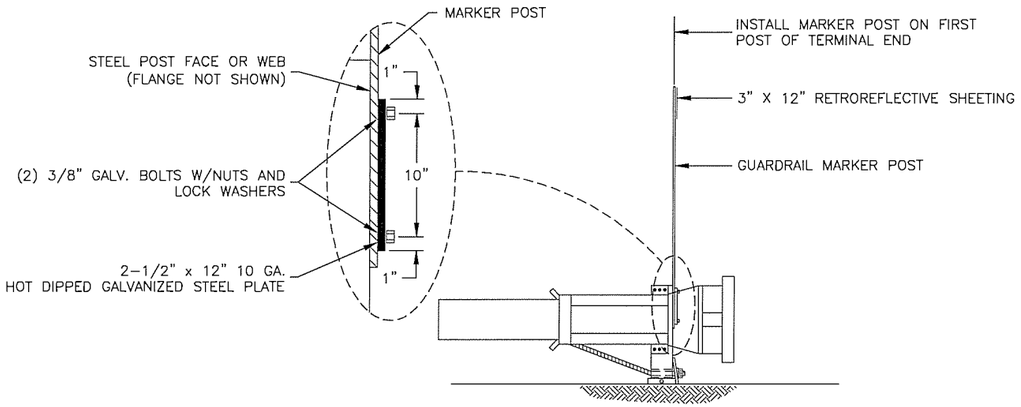
12. FILL AND COMPACT HOLES CREATED BY THE REMOVAL OF OLD POSTS.

GUARDRAIL SUMMARY

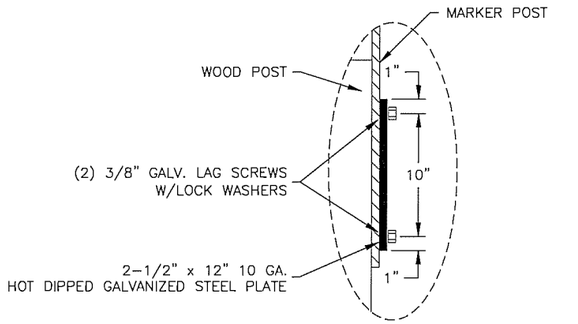
STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00130_RICH-35-51_TABLES-GUARDRAIL SUMMARY Tue, Mar/29/22 03:42pm

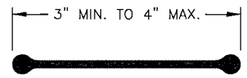
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	D2	D2



GUARDRAIL MARKER POST ATTACHMENT DETAIL
PARALLEL GUARDRAIL TERMINAL



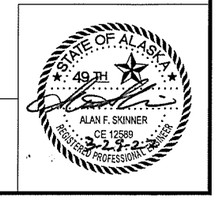
GUARDRAIL MARKER POST ATTACHMENT DETAIL
SHORT RADIUS GUARDRAIL



POST DETAIL
CROSS–SECTIONAL VIEW

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. ALL WORK AND MATERIAL REQUIRED TO INSTALL GUARDRAIL MARKER POSTS IS SUBSIDIARY TO 606 PAY ITEMS.



GUARDRAIL DETAILS

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_E_DET-D2 GUARDRAIL DETAILS Tue, Mar/29/22 03:42pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E1	E11

CULVERT SUMMARY

PROJECT STATION	EXISTING SIZE	NEW PIPE LENGTH (FT) 18"	24"	36"	48"	60"+	ARCH	REMOVE EXISTING	REMARKS	AS-BUILT LOCATIONS LATITUDE	LONGITUDE
2132+52	24"X68'			68				68	REPLACE WITH 36" CSP		
2134+51	24"X70'			70				70	REPLACE WITH 36" CSP		
2143+35	18"X30'		30					30	APPROACH RT REPLACE WITH 24" CSP		
2151+82	24"X116'			116				116	REPLACE WITH 36" CSP		
2166+69	18"X44'		44					44	APPROACH LT REPLACE WITH 24" CSP		
2172+82	48"x112'								CLEAN		
2242+32						105			NEW FISH PASS PIPE 108" SPP (10 GAUGE)		
2242+82	60"X90'								EXISTING TO REMAIN, FISH PASSAGE PIPE		
2275+88	48"X98'					98		98	REPLACE WITH FISH PASSAGE PIPE 72" SPP (10 GAUGE)		
2275+95	48"X98'					98		98	REPLACE WITH FISH PASSAGE PIPE 72" SPP (10 GAUGE)		
2309+62	24"X74'						76	74	REPLACE WITH 73" X 55" SPP ARCH, FISH PASSAGE PIPE (10 GAUGE)		
2328+28	24"X85'			85				85	REPLACE WITH 36" CSP		
2332+39	48"X94'				94			94	REPLACE		
2354+79	36"X82'			82				82	REPLACE		
2355+32	24"X72'			72				72	REPLACE WITH 36" CSP		
2364+91	36"X92'								CLEAN-REPAIR INLET		
2371+75	24"X76'		20					20	REPLACE 20' SECTION AT INLET AND CLEAN		
2379+92	34"X64'							64	REMOVE		
2396+31	34"X108'			108				108	REPLACE WITH 36" CSP		
2410+80	48"X108'								CLEAN		
2425+89	24"X20'							20	APPROACH LT REMOVE		
2426+69			56						NEW APPROACH LT		
2428+73	24"X20'								APPROACH LT CLEAN		
2430+61	24"X62'								APPROACH LT REPAIR BENT ENDS AND CLEAN		
2433+22	18"X36'								APPROACH RT CLEAN		
2435+59	18"X36'								APPROACH RT CLEAN		
2453+00	24"X62'		62					62	APPROACH RT		
2453+28	24"X32'								APPROACH LT CLEAN		
2455+29	18"X34'	20						20	APPROACH LT REPLACE 20' SECTION ON SOUTH END		
2462+42	18"X65'								APPROACH LT CLEAN		
2471+87	18"x41'								APPROACH LT CLEAN OUT		
2479+96	36"X112'			110				112	REPLACE		
2502+15	48"X270'							270	REMOVE		
2539+92	18"X50'		50					50	APPROACH LT REPLACE WITH 24" CSP		
2542+92	18"X58'								APPROACH LT CLEAN		
2552+01	120"X127'								CLEAN		
2552+29	159"X112"X114'								CLEAN		
2561+92	24"X88'			90				88	REPLACE WITH 36" CSP		
2577+88	24"X92'					110		92	108" SPP (10 GAUGE), FISH PASSAGE PIPE		
2583+08	48"X156'							156	REMOVE		
2585+42	24"X91'							91	REMOVE		
2591+76	24"X40'		36					40	APPROACH LT REPLACE		
2605+40	24"X72								CLEAN		
2621+89	24"X72'			80				72	REPLACE WITH 36" CSP		
2641+37	48"X175'							175	REMOVE		
2641+67						139			96" SPP (10 GAUGE) REDUCE SKEW ANGLE ON OUTLET SIDE, FISH PASSAGE PIPE		
2660+30	36"X126'					126		126	REPLACE WITH 72" SPP (10 GAUGE), FISH PASSAGE PIPE		
2662+92	36"X122'			120				122	REPLACE		
2666+17	36"X122'					120		122	REPLACE WITH 96" SPP (10 GAUGE), FISH PASSAGE PIPE		
2671+98	36"X109'								CLEAN		
2685+19	24"X97'					100		97	REPLACE WITH 60" SPP, FISH PASSAGE PIPE		
2704+57	36"X50'								APPROACH LT CLEAN		
2706+08	18"X48'								APPROACH RT CLEAN		
2726+61	95"X67"X140'								EXISTING TO REMAIN		
2727+28	159"X112"X154'						168	154	REPLACE WITH 198"X132" - BOULDER CREEK, FISH PASSAGE PIPE - DEADMAN AT INLET		
TOTAL UNITS		1	7	11	1	8	2	33			
TOTAL LENGTH		20	298	1001	94	877	244	3037			

CULVERT SUMMARY

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\B Drafting\NFHWY00130_RICH-35-51_TABLES-CULVERT SUMMARY E1 Tue, Mar/29/22 03:42am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E2	E11

GENERAL CULVERT NOTES:

1. CULVERT LENGTHS AND LOCATIONS ARE APPROXIMATE AND MAY NEED TO BE ADJUSTED IN THE FIELD. THE ENGINEER WILL NEED TO APPROVE ALL ADJUSTMENTS.
2. REMOVAL OF EXISTING CULVERTS AND MARKER POSTS BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT AND DISPOSED OF AT NO ADDITIONAL COST TO THE DEPARTMENT, UNLESS NOTED OTHERWISE.
3. HAND CLEAR A 10' RADIUS AROUND ALL EXISTING AND NEW CULVERT INLETS AND OUTLETS. THIS WORK IS SUBSIDIARY TO ITEM NUMBER 603.2016.0000 CLEAN CULVERT.
4. REPLACE ALL THE THAW PIPES MARKED IN THE CULVERT SUMMARY TABLE. REMOVED THAW PIPES BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE THE PROJECT LIMITS AT THE CONTRACTOR'S EXPENSE. THAW PIPE LENGTHS ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD. THE ENGINEER WILL NEED TO APPROVE ALL ADJUSTMENTS.
5. APPROACH CULVERT ENDS MAY BE CRUSHED OR TORN; RESHAPE AS NECESSARY TO ALLOW FOR POSITIVE DRAINAGE.
6. MINIMUM ALLOWABLE CULVERT CROSS SLOPE IS 0.5%, UNLESS NOTED OTHERWISE ON THE PLANS.
7. ALL CULVERTS SHALL HAVE A MINIMUM CAMBER EQUAL TO 1% OF THE LENGTH OF THE PIPE, UNLESS THE ENGINEER DIRECTS OTHERWISE.
8. THE CONTRACTOR SHALL ENTER AS-BUILT LOCATIONS FOR ALL CULVERTS IN THE CULVERT SUMMARY TABLE. COORDINATES SHALL BE LOCATED AT THE INTERSECTION OF THE CULVERT AND ROAD CENTERLINE. USE NAD 83 DATUM FORMATTED TO DECIMAL DEGREES TO A PRECISION OF 5 DECIMAL PLACES (DDD.DDDDD). THIS WORK IS SUBSIDIARY TO ITEM NUMBERS 602 AND 603.
9. ALL CULVERTS ARE CSP 12 GAUGE UNLESS OTHERWISE NOTED IN THE PLANS.
10. FOR CULVERT INSTALLATION WARP THE EMBANKMENT SLOPE AS SHOWN IN THE CULVERT SLOPE WARPING DETAIL SHOWN ON SHEET E4. THIS WORK IS SUBSIDIARY TO 602 AND 603 PAY ITEMS.
11. FOR CULVERT INSTALLATION FOLLOW THE CULVERT FOUNDATION DETAIL SHOWN ON SHEET E4.
12. FOLLOW MANUFACTURER'S INSTALLATION SPECIFICATION FOR ALL CULVERT INSTALLATIONS.
13. ALL CULVERTS SHALL BE INSTALLED IN EXCAVATIONS ABSENT OF STANDING WATER.
14. CULVERT BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 204.
15. STATIONING AND SKEW FOR CULVERTS ARE APPROXIMATE. STAKE CULVERTS TO FIT FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER.
16. CULVERT LENGTHS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. WHEN INSTALLING SKEWED CULVERTS, ENSURE THE FINAL LENGTH IS DETERMINED OFF THE NEAR EDGE, NOT THE CENTERLINE OF THE CULVERT.
17. IN AREAS OF POOR FOUNDATION, SUBEXCAVATE BENEATH CULVERTS 1 FOOT TO 3 FEET, OR GREATER TO PROVIDE ADEQUATE FOUNDATION, AS DIRECTED BY THE ENGINEER. THIS WORK IS SUBSIDIARY TO THE 602 AND 603 PAY ITEMS.
18. NO CULVERT SHALL BE PLACED UNTIL THE BED HAS BEEN APPROVED BY THE ENGINEER.
19. WHERE APRONS ARE NOT SPECIFIED, MINIMIZE DISTURBANCE TO THE VEGETATIVE MAT AROUND CULVERT ENDS, BUT CLEAR AND GRADE AS NEEDED TO ENSURE PROPER DRAINAGE. THIS WORK IS SUBSIDIARY TO 603 SERIES PAY ITEMS.
20. ESTABLISH RIPRAP APRONS AND FORESLOPES AS SOON AS POSSIBLE AS PERMANENT EROSION CONTROL.
21. EROSION CONTROL STRUCTURES ARE APPROXIMATE AND MAY BE FIELD ADJUSTED BY THE ENGINEER TO TAKE ADVANTAGE OF EXISTING BANKS AND OTHER CHANNEL FEATURES WITHIN THE PERMITTED CONSTRUCTION AREA.
22. PLACE GEOTEXTILE, EROSION CONTROL, CLASS I (NON-WOVEN), UNDER ALL RIPRAP. GEOTEXTILE SHALL BE TRIMMED SO THAT IT IS NOT VISIBLE UPON PROJECT COMPLETION.
23. ALL WORK FOR CULVERT ARMORING AND CULVERT RIPRAP APRONS, INCLUDING EXCAVATION AND CLEARING AND GRUBBING, IS SUBSIDIARY TO 611 PAY ITEMS. RIPRAP ARMORING AND APRONS ARE REQUIRED ON 48" OR GREATER ROUND DIAMETER CULVERTS AND ALL ARCH CULVERTS.
24. WARP EMBANKMENT SIDE SLOPES FROM VALUE SHOWN IN THE PROJECT SIDE SLOPE TABLE TO THOSE SHOWN IN THE CULVERT PLANS OVER 100 FEET AS MEASURED FROM THE EDGE OF RIPRAP LAYOUT OR AS DIRECTED BY THE ENGINEER.

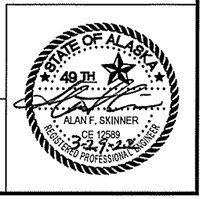
MAJOR CULVERT NOTES, 8-FOOT DIAMETER AND LARGER:

1. SET MAJOR CULVERTS AT STREAM GRADIENT.
2. CULVERT BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 204 OF THE SPECIFICATIONS.
3. PLACE GEOTEXTILE, EROSION CONTROL, CLASS I (NON-WOVEN), UNDER ALL RIPRAP. GEOTEXTILE SHALL BE TRIMMED SO THAT IT IS NOT VISIBLE UPON PROJECT COMPLETION.
4. CONDUCT AN AS-BUILT SURVEY TO ENSURE THAT CULVERTS WERE CONSTRUCTED PER DESIGN. INCLUDE ELEVATIONS OF CULVERT INVERTS, TOP OF RIPRAP APRON ELEVATIONS. COLLECT APPROPRIATE DATA AT CORRESPONDING PHASE OF INSTALLATION. IE: SURVEY TOP OF EXCAVATION PRIOR TO PLACING BEDDING.

FISH PASSAGE CULVERT NOTES:

1. FISH PASSAGE SUBSTRATE CONSISTS OF RIPRAP WITH VOIDS FILLED WITH AGGREGATE SURFACE COURSE, E-1, AS SPECIFIED IN SPECIAL PROVISION 628.
2. BACKFILL ALONG THE ENTIRE CULVERT INVERT WITH FISH PASSAGE SUBSTRATE TO THE CHANNEL ELEVATION PER SPECIAL PROVISION 628.
3. PLACE FISH PASSAGE SUBSTRATE IN RIPRAP APRON INLET & OUTLET POOL/CHANNELS AS SPECIFIED ON THE FISH PASSAGE CULVERT DETAIL SHEETS AND PER SPECIAL PROVISION 628. SHAPE INLET & OUTLET CHANNELS TO MATCH EXISTING CREEK CHANNEL CROSS SECTION, OR AS SPECIFIED ON THE PLANS.
4. EXTEND FORESLOPE RIPRAP 3.0 FEET ABOVE THE CULVERT, OR TO THE SHOULDER ELEVATION, WHICHEVER IS LESS ON THE INLET SIDE, AND TO THE TOP OF THE CULVERT ON THE OUTLET SIDE, UNLESS NOTED OTHERWISE ON THE PLANS.
5. CONDUCT AN AS-BUILT SURVEY TO ENSURE THAT FISH PASSAGE CULVERTS WERE CONSTRUCTED PER DESIGN. INCLUDE ELEVATIONS OF CULVERT INVERTS, TOP OF FISH PASSAGE SUBSTRATE ELEVATIONS AND RIPRAP APRON ELEVATIONS. COLLECT APPROPRIATE DATA AT CORRESPONDING PHASE OF INSTALLATION. EG: SURVEY TOP OF EXCAVATION PRIOR TO PLACING BEDDING.
6. ADDITIONAL REQUIREMENTS FOR FISH PASSAGE CULVERTS MAY BE CONTAINED IN THE ADF&G HABITAT PERMITS.

CULVERT NOTES

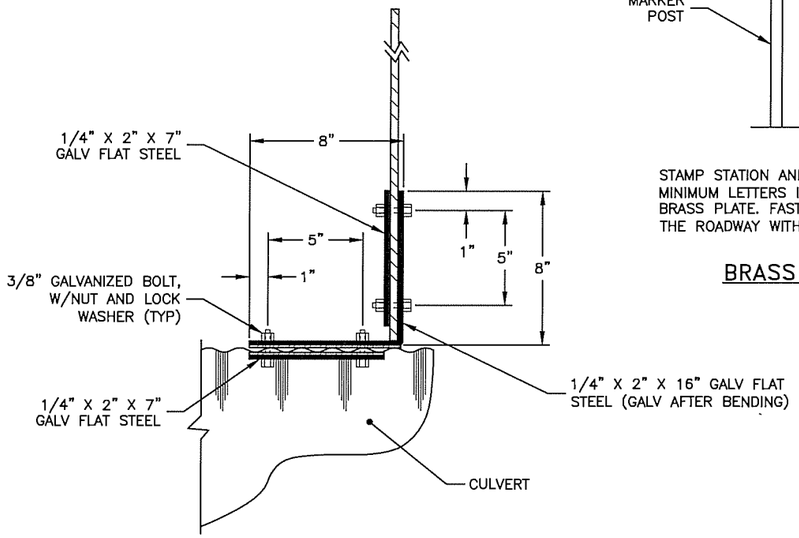


PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\B Drafting\Hydro-MP 35-51 project packet\Culvert Notes-CULVERT NOTES Tue, Mar/29/22 03:42pm

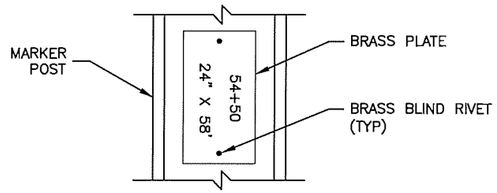
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E3	E11

CULVERT MARKER POSTS NOTES:

1. MARKER POSTS ARE TO BE INSTALLED ON CROSS CULVERTS ONLY.
2. IF CULVERTS ARE CLOSELY SPACED, MARK ONLY THE FIRST AND LAST CULVERT IN SERIES AS APPROVED BY THE ENGINEER.
3. DRILL ALL BOLT HOLES. COAT HOLES WITH ZINC RICH PAINT. FLAME CUTTING SHALL NOT BE PERMITTED.
4. GASKET MATERIAL SHALL BE PLACED BETWEEN DISSIMILAR METALS. GASKET MATERIAL SHALL BE APPROVED PRIOR TO INSTALLATION.

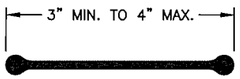


BRACKET DETAIL

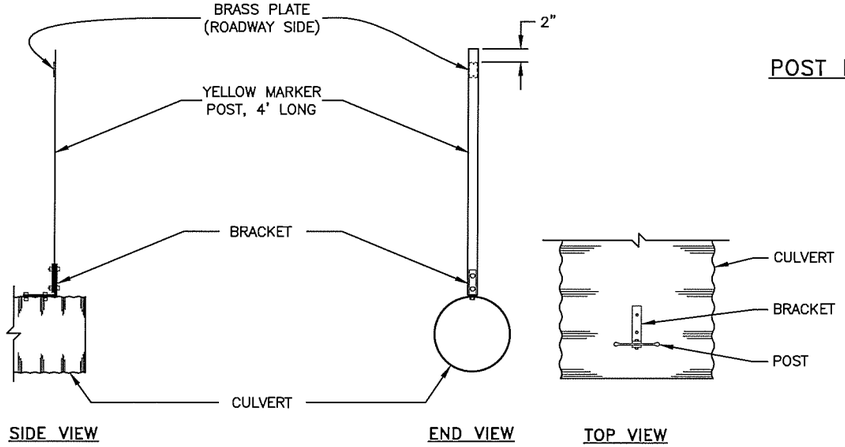


STAMP STATION AND PIPE SIZE, USING 3/8" HIGH MINIMUM LETTERS INTO A 2" X 4" X 0.064" THICK BRASS PLATE. FASTEN PLATE TO THE SIDE FACING THE ROADWAY WITH TWO 1/8" BRASS BLIND RIVETS.

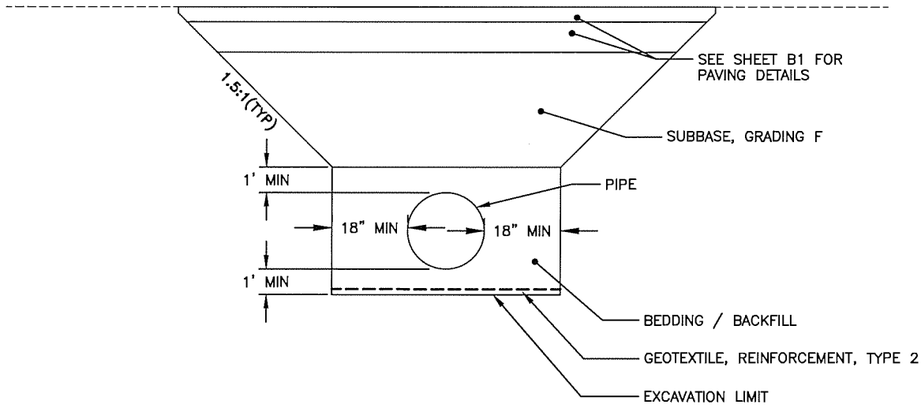
BRASS PLATE DETAIL



POST DETAIL



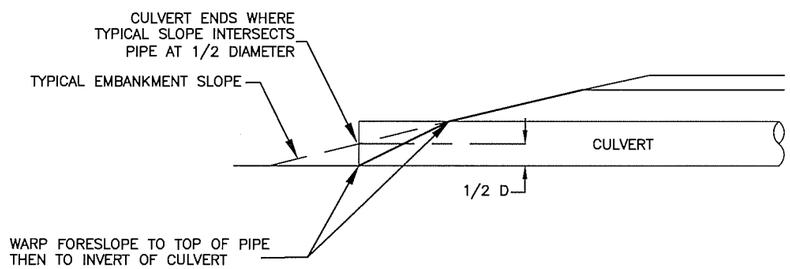
CULVERT MARKER POST DETAIL



CULVERT FOUNDATION DETAIL

CULVERT BEDDING NOTES:

1. INSTALL MATERIAL LAYERS AS SHOWN ON TYPICAL SECTIONS.
2. BEDDING/BACKFILL MATERIAL IS SUBSIDIARY TO 602 AND 603 PAY ITEMS.
3. USABLE EXCAVATION FROM EXISTING EMBANKMENT MAY BE USED IN LIEU OF SUBBASE, GRADING F PROVIDED IT MEETS SELECTED MATERIAL, TYPE C SPECIFICATIONS.

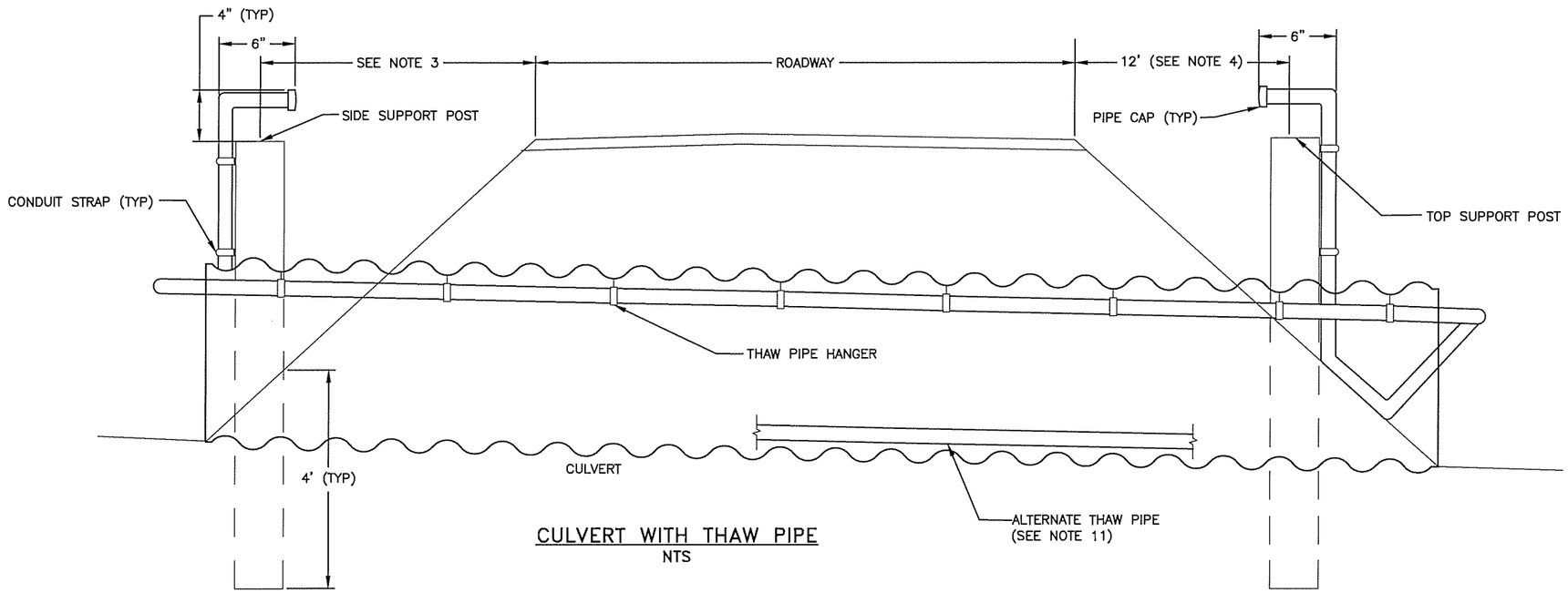


CULVERT SLOPE WARPING DETAIL
2:1 OR FLATTER FORESLOPES

CULVERT DETAILS

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

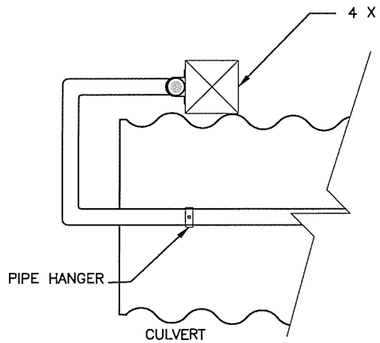
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E4	E11



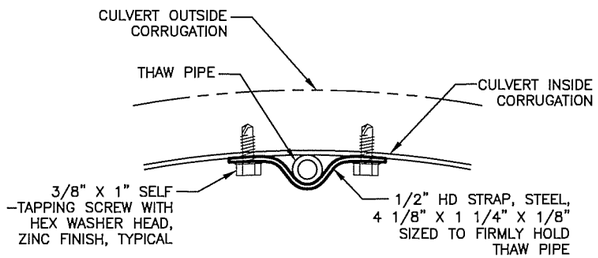
CULVERT WITH THAW PIPE
NTS

GENERAL NOTES:

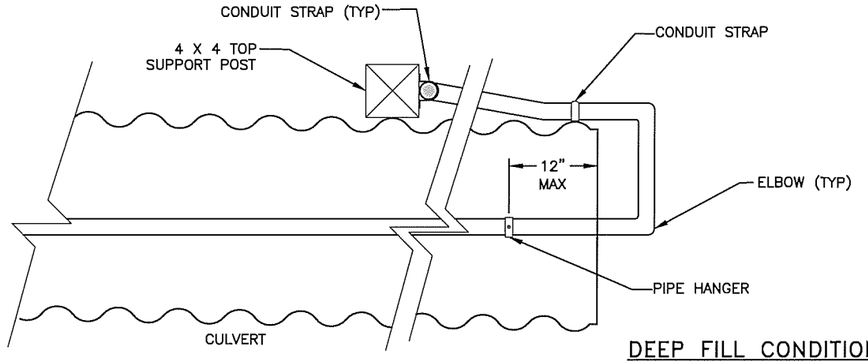
1. THESE THAW PIPES ARE INTENDED FOR USE IN STEAM THAWING.
2. USE ½" ID PIPE AND FITTINGS.
3. WHEN THE HEIGHT OF FILL IS LESS THAN 5', LOCATE SUPPORT POST AT THE TOE OF SLOPE.
4. WHEN THE HEIGHT OF FILL EXCEEDS 5' LOCATE THE SUPPORT POST ON THE SIDE SLOPE 12' FROM THE SHOULDER.
5. FASTEN THE THAW PIPE TO THE TOP OF THE CULVERT WITH THAW PIPE HANGERS ON 4' CENTERS MAX. THE MAXIMUM DISTANCE FROM END OF CULVERT TO FIRST PIPE HANGER IS 12 INCHES.
6. WHEN 2 THAW PIPES ARE CALLED FOR IN THE PLANS, INSTALL AT 10 O'CLOCK AND 2 O'CLOCK.
7. 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.
8. ALIGN THE TOP OF THE SUPPORT POST WITH THE EDGE OF SHOULDER, OR TO A MAXIMUM HEIGHT OF 5'.
9. FASTEN THAW PIPE TO SUPPORT POSTS WITH GALVANIZED RIGID CONDUIT STRAPS AND 3" LONG GALVANIZED LAG SCREWS AT MAX. 12" CENTERS, IF MORE THAN ONE IS REQUIRED.
10. FILL THAW PIPE WITH A MINUS 50° FAHRENHEIT MIX OF RV ANTIFREEZE AND WATER, THEN CAP.
11. PLACE THAW PIPES IN THE BOTTOM OF THE CULVERT, IF DIRECTED BY THE ENGINEER. ATTACH PIPES TO POSTS AS SHOWN.
12. COLD BEND ALL PIPE CORNERS WITH AN EMT RIGID CONDUIT BENDER. DO NOT USE ANY COUPLINGS OR CONNECTION HARDWARE WITHIN 2' OF A CORNER.



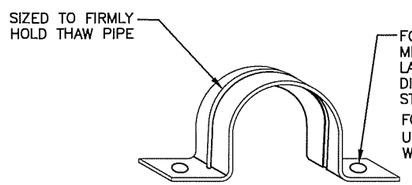
LOW FILL CONDITION
TOP VIEW (NTS)



THAW PIPE HANGER DETAIL



DEEP FILL CONDITION
TOP VIEW (NTS)

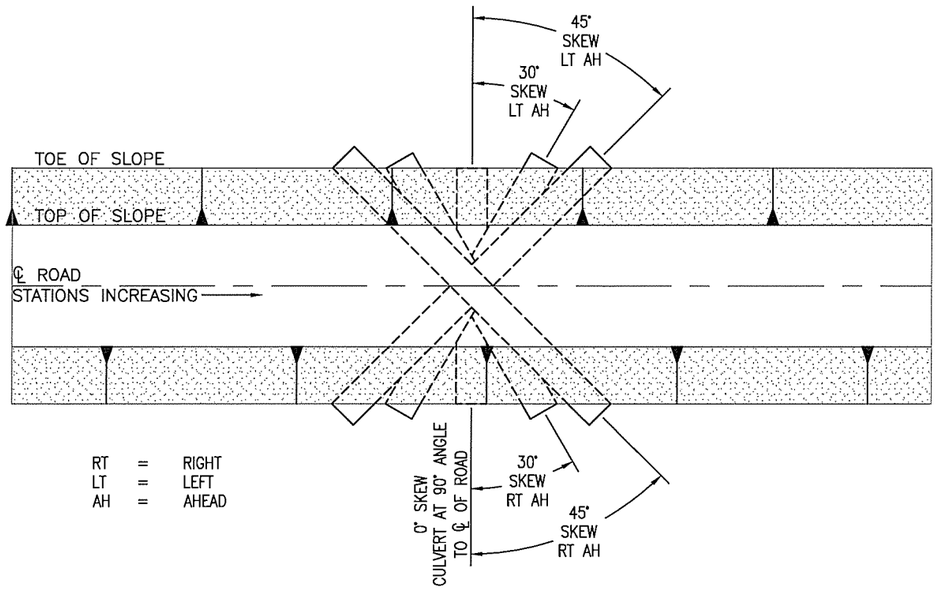


GALVANIZED RIGID CONDUIT STRAP DETAIL

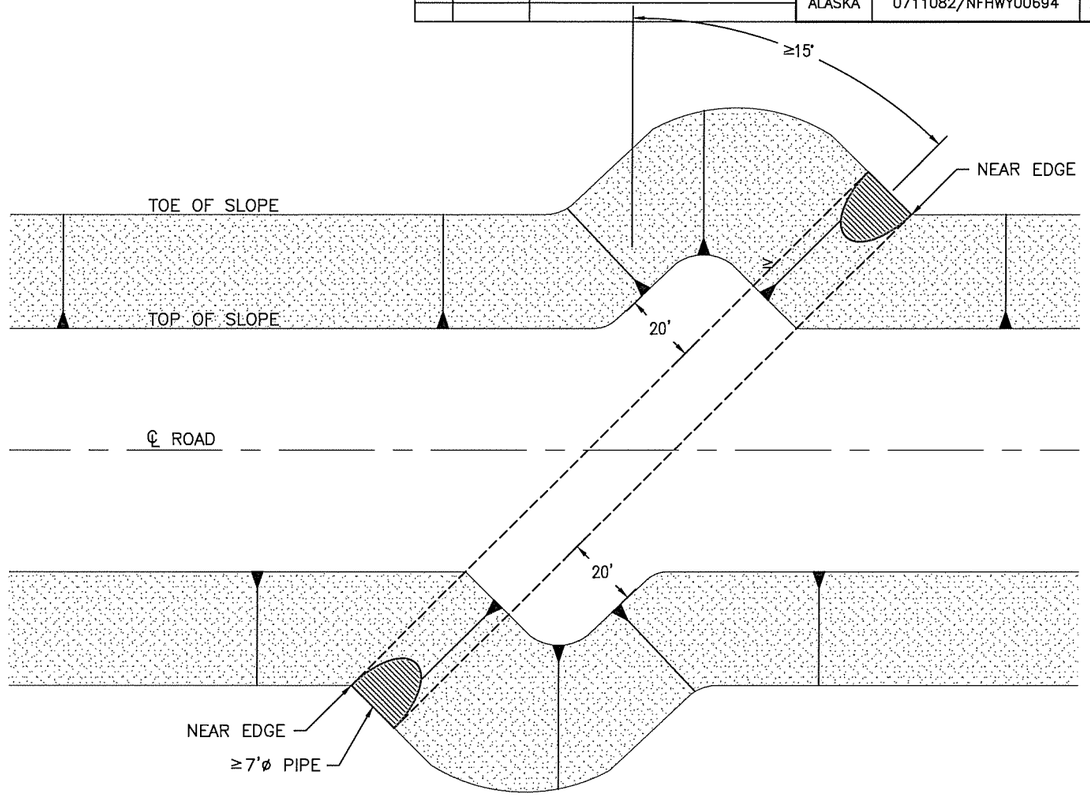
CULVERT THAW PIPES

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\Hydro-MP 35-51 project packet\Thaw Pipe-CULVERT THAW PIPES Tue, Mar/29/22 03:43am

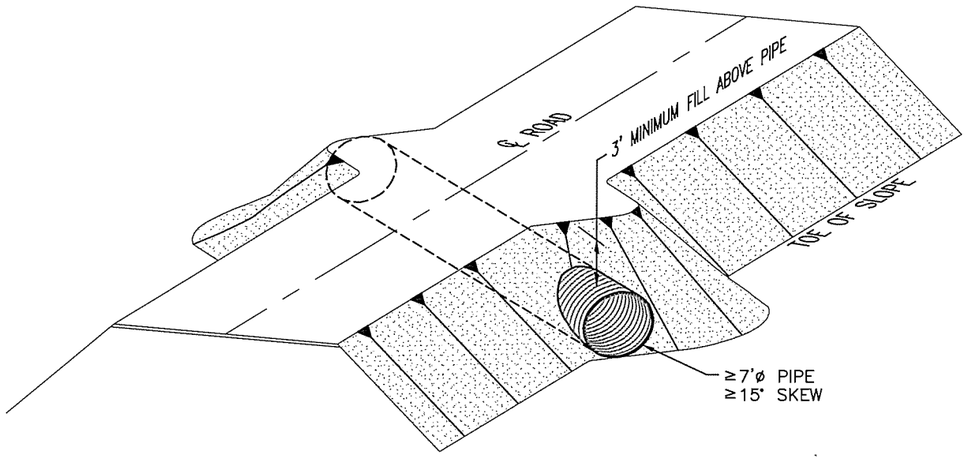
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E5	E11



CULVERT SKEW



EMBANKMENT WIDENING FOR SKEWED CULVERTS PLAN



EMBANKMENT WIDENING FOR SKEWED CULVERTS OBLIQUE

NOTES:

1. WHEN INSTALLING NEW, OR EXTENDING EXISTING, SKEWED CULVERTS, ENSURE THE FINAL LENGTH IS DETERMINED OFF THE NEAR EDGE, NOT THE CENTERLINE OF THE CULVERT.
2. CULVERTS, 7' AND LARGER, WITH SKEWS GREATER THAN 15 DEGREES, SHALL HAVE FORESLOPES WIDENED ON THE OUTSIDE TO PROVIDE BALANCED FILL PRESSURE ON BOTH SIDES OF THE CULVERT ENDS. EXTENT OF WIDENING CAN BE LIMITED TO A FILL HEIGHT 3' ABOVE TOP OF CULVERT AND EXTENDING TO THE LIMIT OF FORESLOPE RIPRAP BEYOND THE OUTER SIDE OF THE CULVERT.

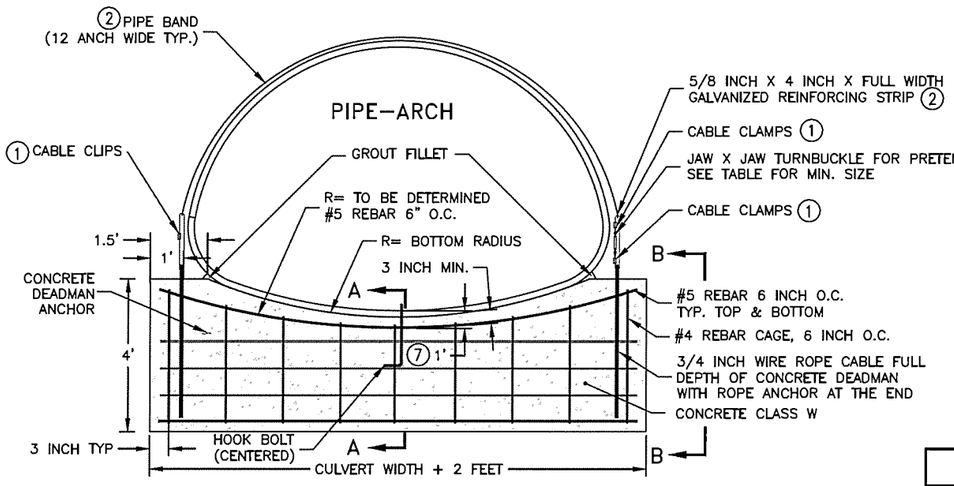
CULVERT EMBANKMENT SKEW DETAILS

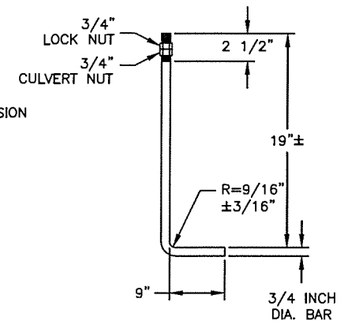
STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12559
3-29-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\Hydro-MP 35-51 project pocket\Skew-CULVERT EMBANKMENT SKEW DETAILS Tue, Mar/29/22 03:43pm

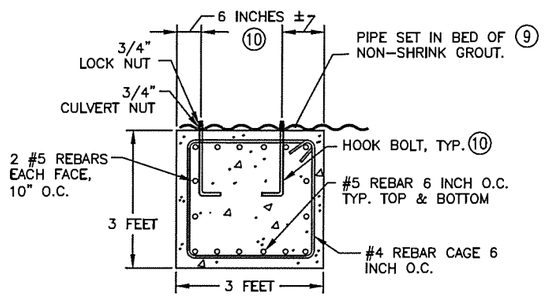
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\Hydro-MP 35-51 project packet\Deadman Round and Arch with Table-DEADMAN DETAIL Fri, Mar/18/22 03:06pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E6	E11



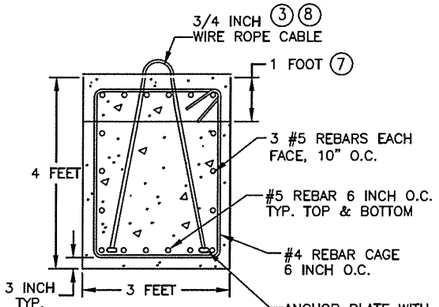


HOOK BOLT (4)



SECTION A-A

NOTE:
REBAR SIZES ARE MINIMUMS.

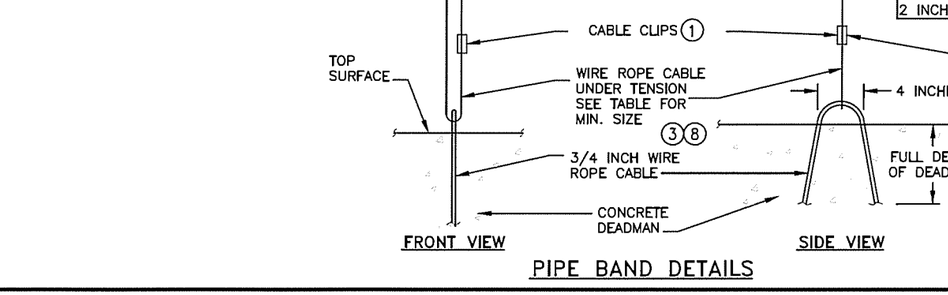


SECTION B-B

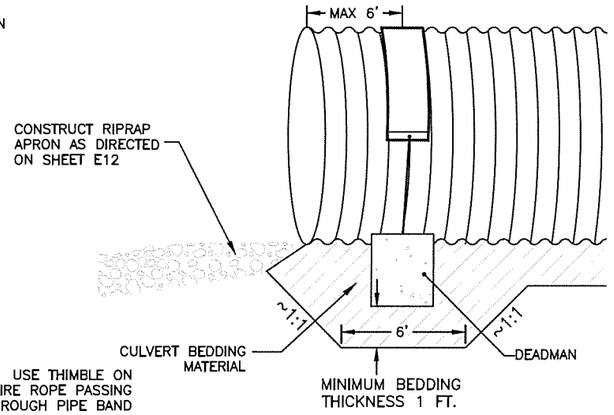
CONCRETE DEADMAN ANCHOR DETAILS

MINIMUM HARDWARE SIZE

CULVERT DIA./SPAN (FT)	WIRE ROPE DIA. (IN)	TURNBUCKLE DIA. (IN)	MINIMUM WIRE ROPE TUNRBACK/SPLICE (IN)	U-BOLT NUT TORQUE (FT-LB)
2.00 TO 6.00	5/16	7/8	5 1/2	30
6.01 TO 10.00	3/8	1	6 1/4	45
10.01 TO 16.00	7/16	1 1/4	7	65
16.01 TO 19.99	1/2	1 1/2	11	65



DEADMAN DETAIL



DEADMAN BEDDING DETAIL

PIPE BAND DETAILS

WIRE ROPE CLAMPS
ENLARGED VIEW

NOTES:

(1) IF DROP FORGED U-BOLT TYPE CLIPS ARE USED, THEY SHOULD BE INSTALLED USING THE FOLLOWING:

AMT. WIRE ROPE TO TURN BACK OR SPLICE: SEE TABLE.
TORQUE REQUIRED TO REACH HOLDING POWER: SEE TABLE.
SPACING: DIAMETER OF THE ROPE (INCHES) TIMES 6. THE BASE OF THE CLAMPS AND NUTS MUST BE ON THE LIVE END OF THE WIRE. INSTALL THIMBLE.

(2) THE LENGTH OF THE PIPE BANDS SHALL BE A MINIMUM OF HALF THE CIRCUMFERENCE OF THE ROUND CULVERT OR SHALL EXTEND TO WITHIN 6" OF THE SPRINGLINE ON PIPE ARCH CULVERT. THE PIPE BANDS SHALL BE A MINIMUM THICKNESS OF 1/16" GALVANIZED ASTM A1011 SS GRADE 36 OR MINIMUM THICKNESS 0.109" GALVANIZED AASHTO M218. THE REINFORCING STRIP SHALL BE GALVANIZED ASTM A36.

(3) WIRE ROPE SHALL BE 6X19 IWRC, EIPS & GALVANIZED AND MEET AASHTO M30 TYPE II REQUIREMENTS OR APPROVED EQUAL.

(4) ALL HARDWARE SHALL BE GALVANIZED TO MEET AASHTO M232.

(5) CLASS W CONCRETE SHALL BE USED TO CONSTRUCT THE CONCRETE DEADMAN ANCHOR. REINFORCEMENT SHALL BE ASTM A615 GRADE 40.

(6) ALL WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION AND INSTALLATION OF THE DEADMAN SHALL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO 602.0002.1606 PAY ITEMS.

(7) CONCRETE DEADMAN SHALL BE CAST TO CONFORM TO THE OUTER RADIUS OF THE CULVERT.

(8) USE A SPREADER BEAM/BAR WHEN LIFTING DEADMAN TO AVOID BENDING OF TIE-DOWN/LIFTING LOOP.

(9) THE PIPE SHALL BE SET IN A BED OF NON-SHRINK GROUT OF SUFFICIENT THICKNESS TO FULLY FILL THE CORRUGATIONS AFTER TENSIONING OF THE ANCHOR BOLTS AND TIE-DOWN BAND. THE DEADMAN SURFACE SHALL BE PROPERLY PREPARED FOR BEST BONDING WITH GROUT - CLEAN, DUST FREE, SATURATED SURFACE DRY (SSD) CONDITION. BOTTOM OF PIPE SHALL BE AS CLEAN AND DUST FREE AS PRACTICABLE. GROUT SHALL BE FILLETED/CROWNED ALONG SIDES OF PIPE AT THE DEADMAN/PIPE SEAM IN ORDER TO REDUCE WATER INFILTRATION INTO THE GROUTED AREA.

(10) PENETRATE CULVERT INVERT HOOK BOLTS IN A CORRUGATION VALLEY TO PROTECT NUT. ANCHOR BOLT HOLES SHALL BE DRILLED, NOT CUT WITH A TORCH, AND COATED WITH APPROPRIATE ZINC RICH PAINT PRIOR TO INSTALLATION. AFTER INSTALLATION AND ANCHOR BOLT NUTS HAVE BEEN TIGHTENED, COAT THE ANCHOR BOLT AND SURROUNDING AREA WITH ZINC RICH PAINT.

(11) SEE SHEET V4 FOR ROPE ANCHOR DETAILS.

3-29-22

STATE OF ALASKA 49TH
JEFFREY P. STUTZKE, CE 11357
REGISTERED PROFESSIONAL ENGINEER

DEADMAN DETAIL

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	E7	E11

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 42.06 – STATION 2242+82

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
2.05	124.0	201.0	403.0	471.0

HEADWATER ELEVATION @Q50 IS 1262.14FT, HEADWATER ELEVATION @Q100 IS 1263.06FT

ROAD OVERTOPS AT APPROXIMATELY 650.82 CFS, Hw/D@1 = 436.30 CFS (D=RISE=5.5FT.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 42.70 – STATION 2275+88, 2275+95

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
0.85	49.6	85.2	182.0	216.0

HEADWATER ELEVATION @Q50 IS 1244.36FT, HEADWATER ELEVATION @Q100 IS 1245.13FT

ROAD OVERTOPS AT APPROXIMATELY 386.10 CFS, Hw/D@1 = 199.36 CFS (D=RISE=3.5FT.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 43.33 – STATION 2309+62

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
0.40	20.9	37.9	87.0	104.0

HEADWATER ELEVATION @Q50 IS 1222.68FT, HEADWATER ELEVATION @Q100 IS 1223.11FT

ROAD OVERTOPS AT APPROXIMATELY 134.81 CFS, Hw/D@1 = 95.70 CFS (D=RISE=43IN.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 43.77 – STATION 2332+39

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
0.72	34.1	60.5	134.0	160.0

HEADWATER ELEVATION @Q50 IS 1202.74FT, HEADWATER ELEVATION @Q100 IS 1203.77FT

ROAD OVERTOPS AT APPROXIMATELY 317.74 CFS, Hw/D@1 = 147.40 CFS (D=RISE=5FT.)

CULVERT PURPOSE: CROSS DRAINAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 43.85 – STATION 2355+32

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
0.40	16.2	30.1	71.4	86.2

HEADWATER ELEVATION @Q50 IS 1207.20FT, HEADWATER ELEVATION @Q100 IS 1207.98FT

ROAD OVERTOPS AT APPROXIMATELY 167.07 CFS, Hw/D@1 = 79.20 CFS (D=RISE=4FT.)

CULVERT PURPOSE: CROSS DRAINAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 48.52 – STATION 2577+88

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
2.05	63.5	111.0	241.0	286.0

HEADWATER ELEVATION @Q50 IS 1171.61FT, HEADWATER ELEVATION @Q100 IS 1172.88FT

ROAD OVERTOPS AT APPROXIMATELY 354.80 CFS, Hw/D@1 = 263.80 CFS (D=RISE=5.5FT.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 49.72 – STATION 2641+67

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
1.41	44.6	79.3	177.0	211.0

HEADWATER ELEVATION @Q50 IS 1206.69FT, HEADWATER ELEVATION @Q100 IS 1208.23FT

ROAD OVERTOPS AT APPROXIMATELY 418.48 CFS, Hw/D@1 = 194.36 CFS (D=RISE=5FT.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 50.06 – STATION 2660+30

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
0.66	23.7	43.4	101.0	121.0

HEADWATER ELEVATION @Q50 IS 1269.83FT, HEADWATER ELEVATION @Q100 IS 1270.85FT

ROAD OVERTOPS AT APPROXIMATELY 293.25 CFS, Hw/D@1 = 111.27 CFS (D=RISE=3.5FT.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 50.18 – STATION 2666+17

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
0.66	22.7	41.8	97.5	117.0

HEADWATER ELEVATION @Q50 IS 1215.43FT, HEADWATER ELEVATION @Q100 IS 1216.57FT

ROAD OVERTOPS AT APPROXIMATELY 423.56 CFS, Hw/D@1 = 107.57 CFS (D=RISE=5FT.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HIGHWAY MILE 50.53 – STATION 2685+19

BASIN AREA (SQ. MI)	50% (Q2) CFS	20% (Q5) CFS	2% (Q50) CFS	1% (Q100) CFS
0.40	12.1	23.2	56.9	69.2

HEADWATER ELEVATION @Q50 IS 1230.39FT, HEADWATER ELEVATION @Q100 IS 1231.71FT

ROAD OVERTOPS AT APPROXIMATELY 162.49 CFS, Hw/D@1 = 63.49 CFS (D=RISE=3FT.)

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HWY MILE 51.34 – STATION 2727+28 – BOULDER CREEK

BASIN AREA (SQ. MI)	QFISH (CFS)	Q2 (CFS)	Q5 (CFS)	Q50 (CFS)	Q100 (CFS)
9.6	63.8	253	439	1200	1580

HEADWATER ELEVATION @Q50 IS 1336.82 FT, @Q100 IS 1339.00 FT

HW/D @ 1= 1220 CFS, ROAD OVERTOPS AT APPROXIMATELY 1490 CFS

CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

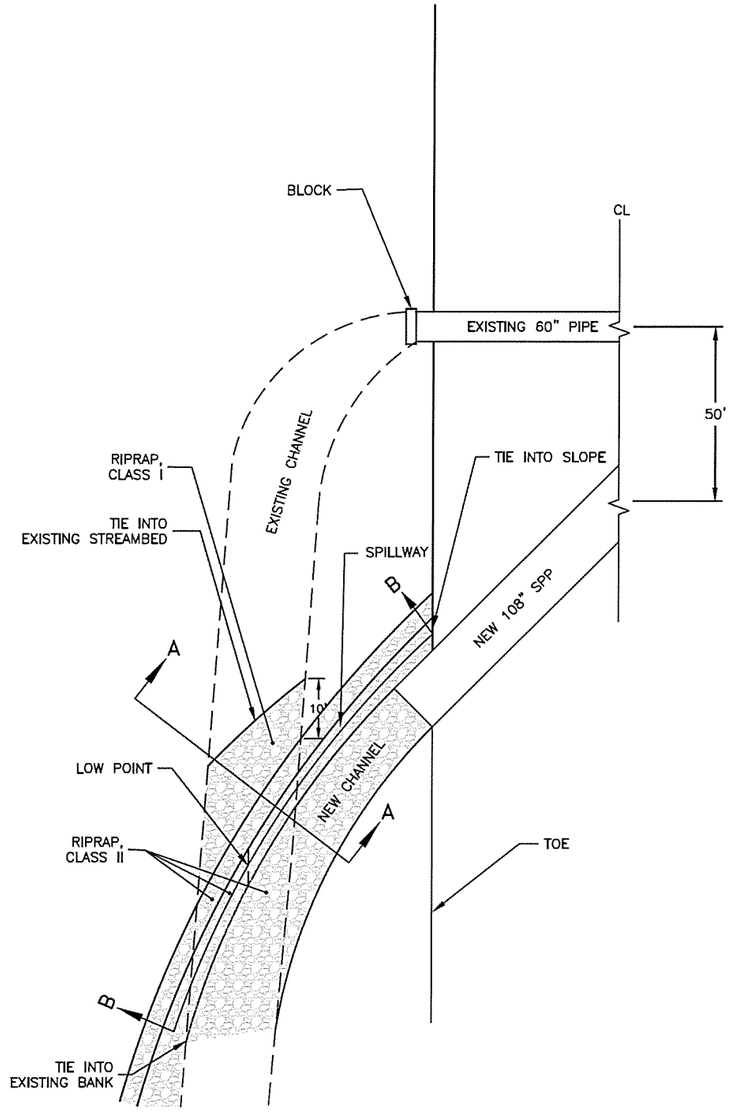
NOTE:
1. SEE SHEET E12 FOR BOULDER CREEK DETAILS.

LARGE DIAMETER AND FISH PASS CULVERT H&H SUMMARIES

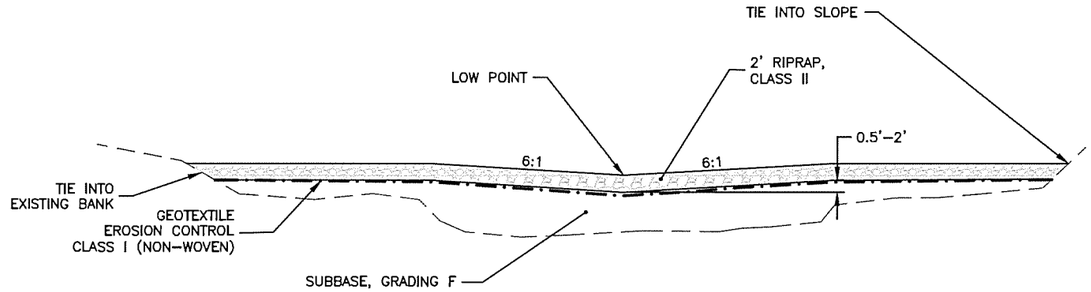
STATE OF ALASKA
49TH
ALAN F. SKINNER
CE 12585
3.24.22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\Hydro-MP 35-51 project packet\Enhanced Hydraulic Design-FISH PASS CULVERT H&H SUMMARIES Tue, Mar/29/22 03:43am

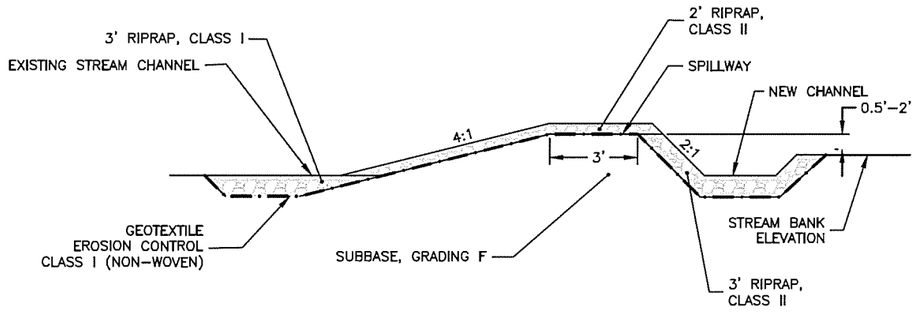
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E8	E11



PLAN VIEW FOR FISH PIPE @ STA. 2242+82



B–B DETAIL



A–A DETAIL

NOTES:

1. INSTALL A SPILLWAY TO PREVENT NORMAL FLOW FROM USING THE EXISTING CULVERT. ALL MATERIALS AND WORK FOR THE SPILLWAY IS SUBSIDIARY TO PAY ITEM NUMBER 602.0001.0108.
2. INSTALL A CEMENT BLOCK APPROXIMATELY 1' ABOVE EXISTING 5' CULVERT INVERT FULL WIDTH TO A DEPTH OF 2' BELOW INVERT AND 6" THICK. ABUT BLOCK AGAINST INLET TO PREVENT FLOW AROUND BLOCK. THIS WORK IS SUBSIDIARY TO PAY ITEM NUMBER 602.0001.0108.
3. AT THE OUTLET LEAVE AT A MINIMUM 6' BETWEEN THE EXISTING PIPE AND NEW PIPE.

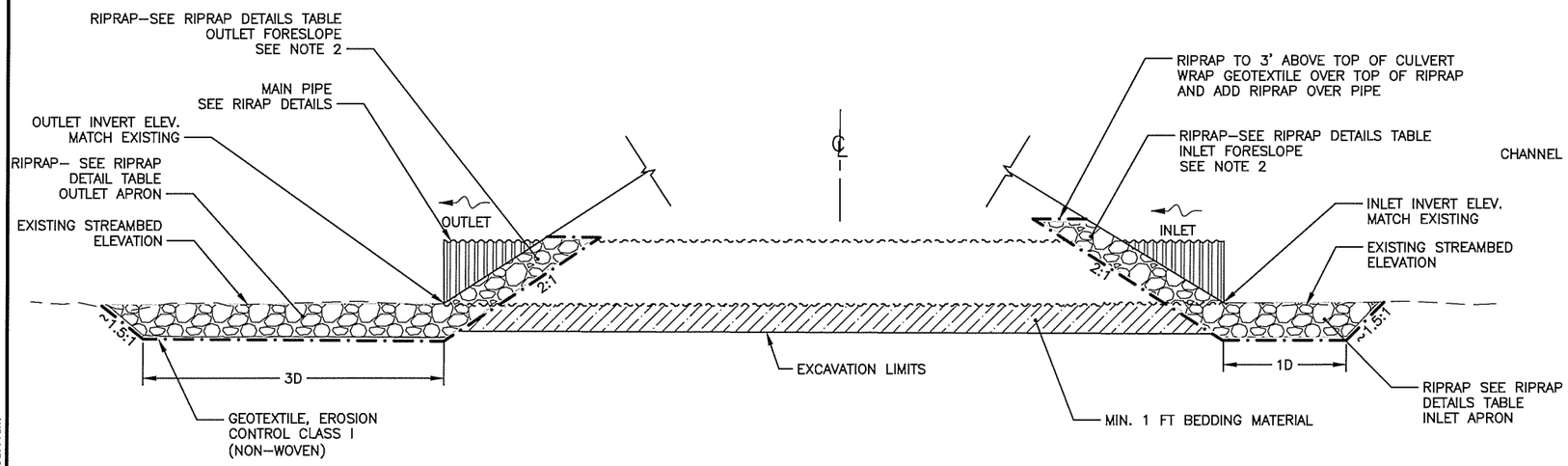
3-29-22

STATE OF ALASKA
JEFFREY P. STUTZKE
CE 11357
REGISTERED PROFESSIONAL ENGINEER

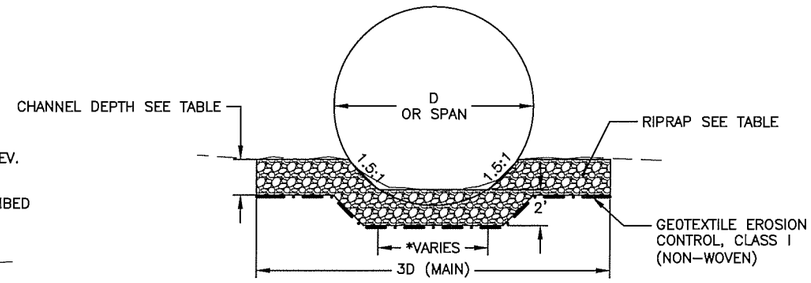
DETAIL FISH CULVERT STA. 2242+82

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\Hydro-MP 35-51 project packet\NFHWY00133-E-MISC-DETAILS-DETAIL FISH CULVERT STA. 2242+82 Fri, Mar/18/22 03:06pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E9	E11



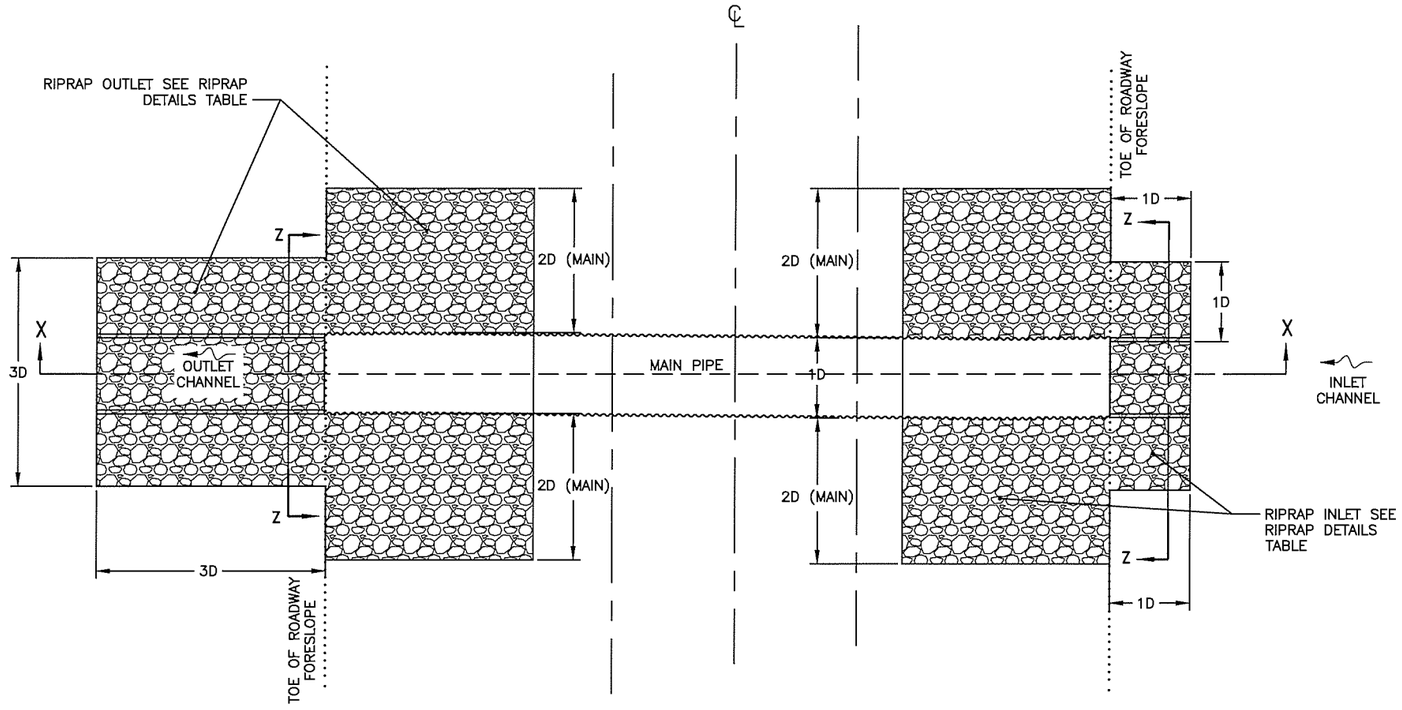
SECTION X–X



SECTION Z–Z
INLET AND OUTLET CHANNEL RIPRAP

RIPRAP DETAILS TABLE

MILEPOST	STATION	DESCRIPTION	RIPRAP DEPTH (FT)	RIPRAP CLASS
43.77	2332+39	60" CSP	2	I
43.85	2355+32	48" CSP	2	I

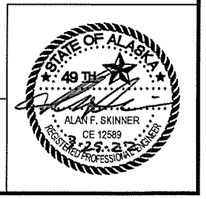


PLAN VIEW

NOTES:

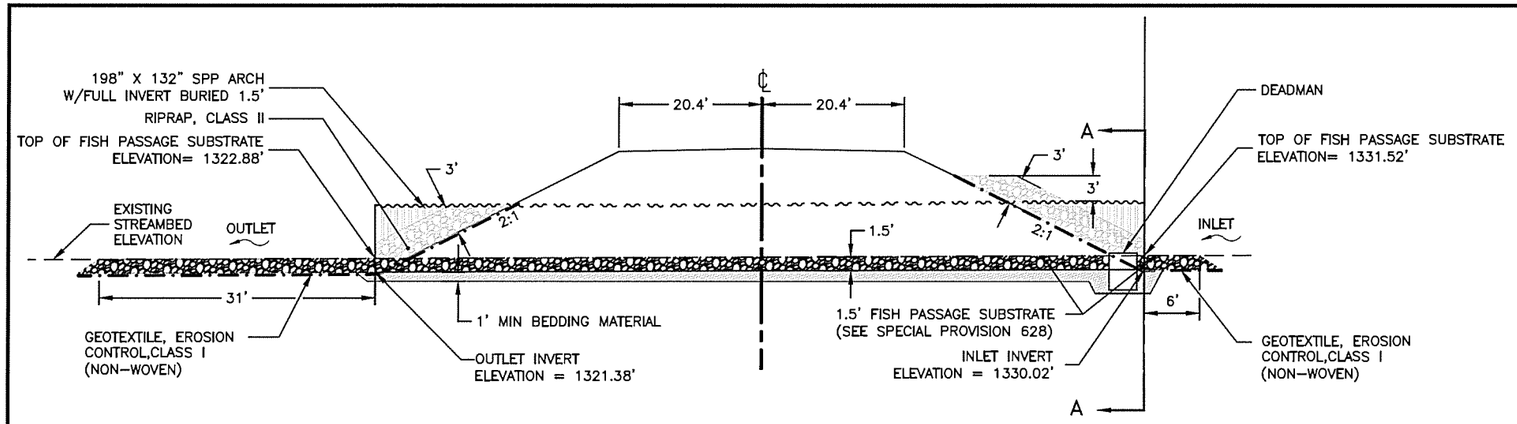
1. SEE CULVERT NOTES ON SHEET E3.
2. RIPRAP SHALL BE INSET INTO THE ROADWAY TYPICAL PRISM.
3. CULVERT INSTALLATION TABLES AND H&H SUMMARY TABLES ON SHEET E7.
4. SALVAGE EXISTING RIPRAP AND USE FOR SLOPE ARMORING AS DIRECTED BY THE ENGINEER.

LARGE DIAMETER CULVERT DETAILS



PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\Hydro–MP 35–51 project packet\00133_E_Culv_PP–LARGE DIAMETER CULVERT DETAILS Tue, Mar/29/22 03:44am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E10	E11



SECTION B–B

NOTES:

1. THIS CULVERT WAS DESIGNED TO PROVIDE FISH PASSAGE.
2. SEE GENERAL AND FISH PASSAGE CULVERT NOTES ON SHEET E3.
3. INSTALL A 198" X 132" STRUCTURAL PLATE ARCH WITH THE FULL INVERT DEPRESSED 1.5 FEET INTO THE CHANNEL BOTTOM.
4. INSTALL RETENTION SILLS AT A HEIGHT OF 1.5' STARTING 10' FROM THE INLET AND SPACED 10' THE LENGTH OF THE CULVERT WITH AN ADDITIONAL SILL LOCATED 1–2' FROM THE OUTLET. THIS IS SUBSIDIARY TO 602.0002.1606.
5. DEADMAN WILL NOT BE MEASURED AND IS SUBSIDIARY TO 602.0002.1606.

HYDROLOGIC & HYDRAULIC SUMMARY

RICHARDSON HWY MILE 51.34 – STATION 2727+28 – BOULDER CREEK

BASIN AREA (SQ. MI)	QFISH (CFS)	Q2 (CFS)	Q5 (CFS)	Q50 (CFS)	Q100 (CFS)
9.6	63.8	253	439	1200	1580

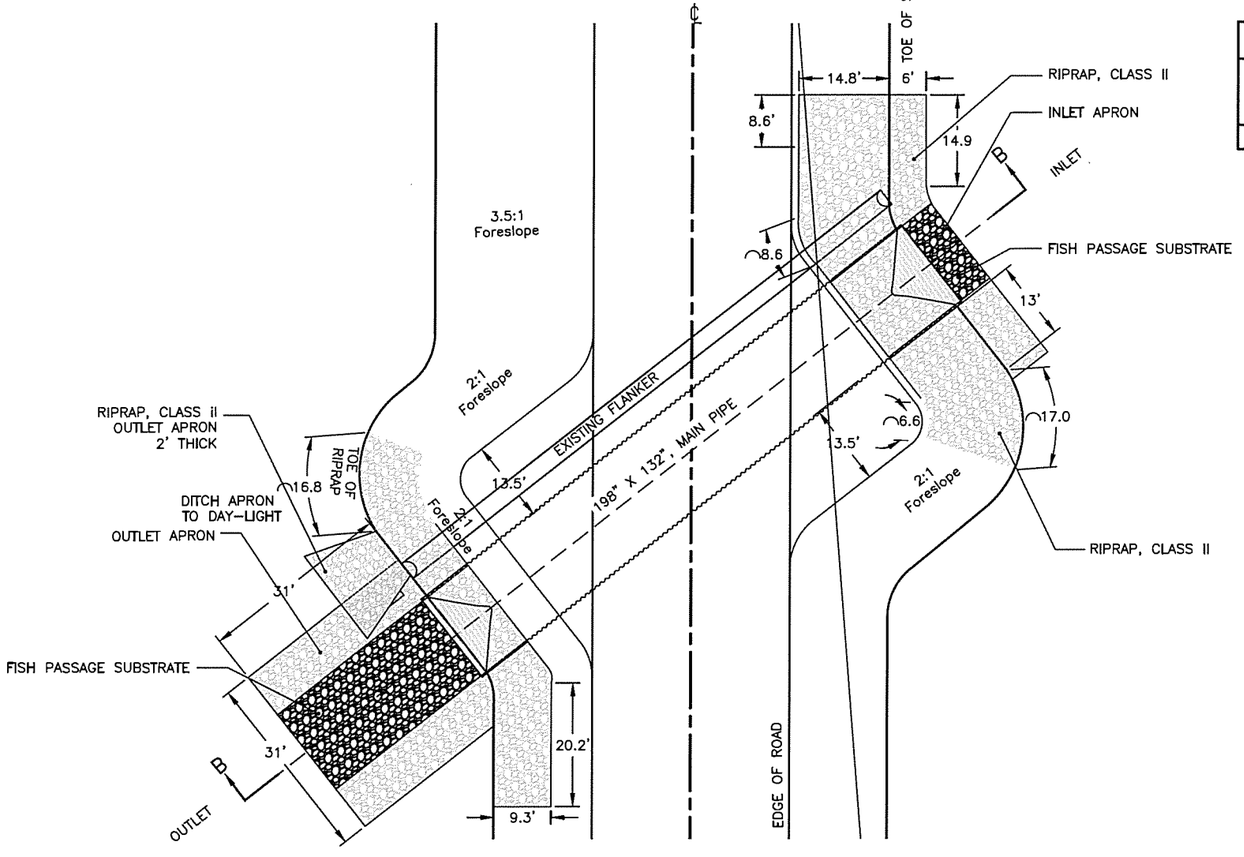
HEADWATER ELEVATION @Q50 IS 1336.82 FT, @Q100 IS 1339.00 FT

HW/D @ 1= 1220 CFS, ROAD OVERTOPS AT APPROXIMATELY 1490 CFS

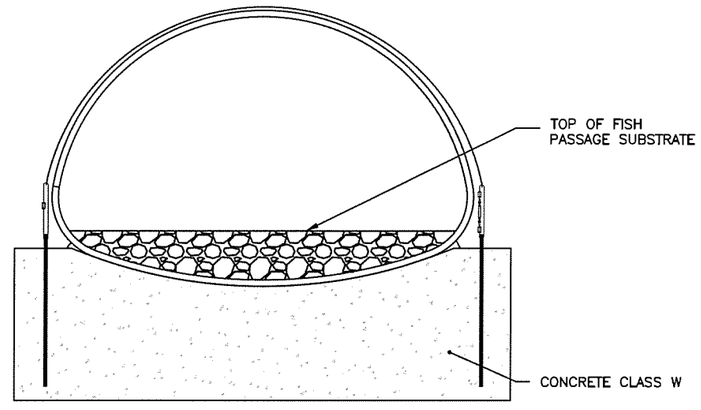
CULVERT PURPOSE: CROSS DRAINAGE / FISH PASSAGE

FISH PASSAGE CULVERT SUMMARY MILE 51.34 – BOULDER CREEK

DESCRIPTION	MATERIAL	LOCATION	DIAMETER OR SPAN X RISE (IN)	LENGTH (FT)	SKEW	ELEVATIONS (FT)	
						INLET INVERT	OUTLET INVERT
MAIN PIPE	8 GAGE SPP ARCH	2727+28	198" X 132"	168	48 DEG RT. AHD.	1330.02	1321.38



CULVERT APRON PLAN VIEW



SPP ARCH
SECTION A–A

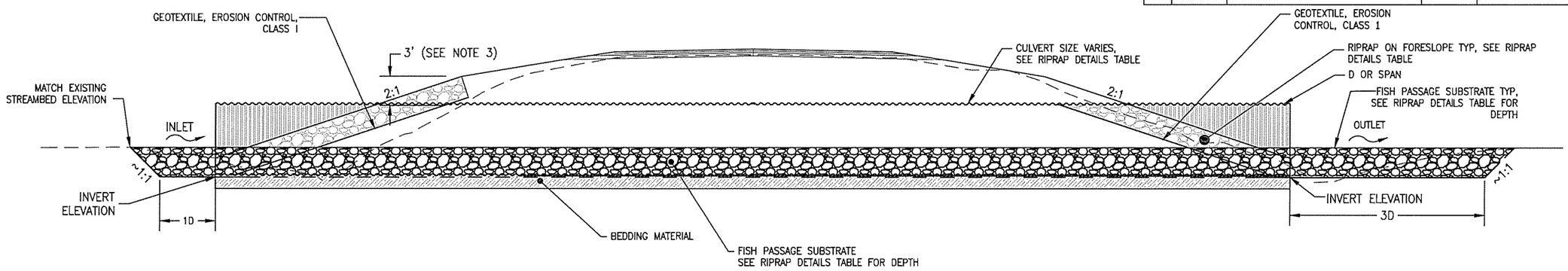
3-29-22

STATE OF ALASKA
49TH
JEFFREY P. STUTZKE
CE 11357
REGISTERED PROFESSIONAL ENGINEER

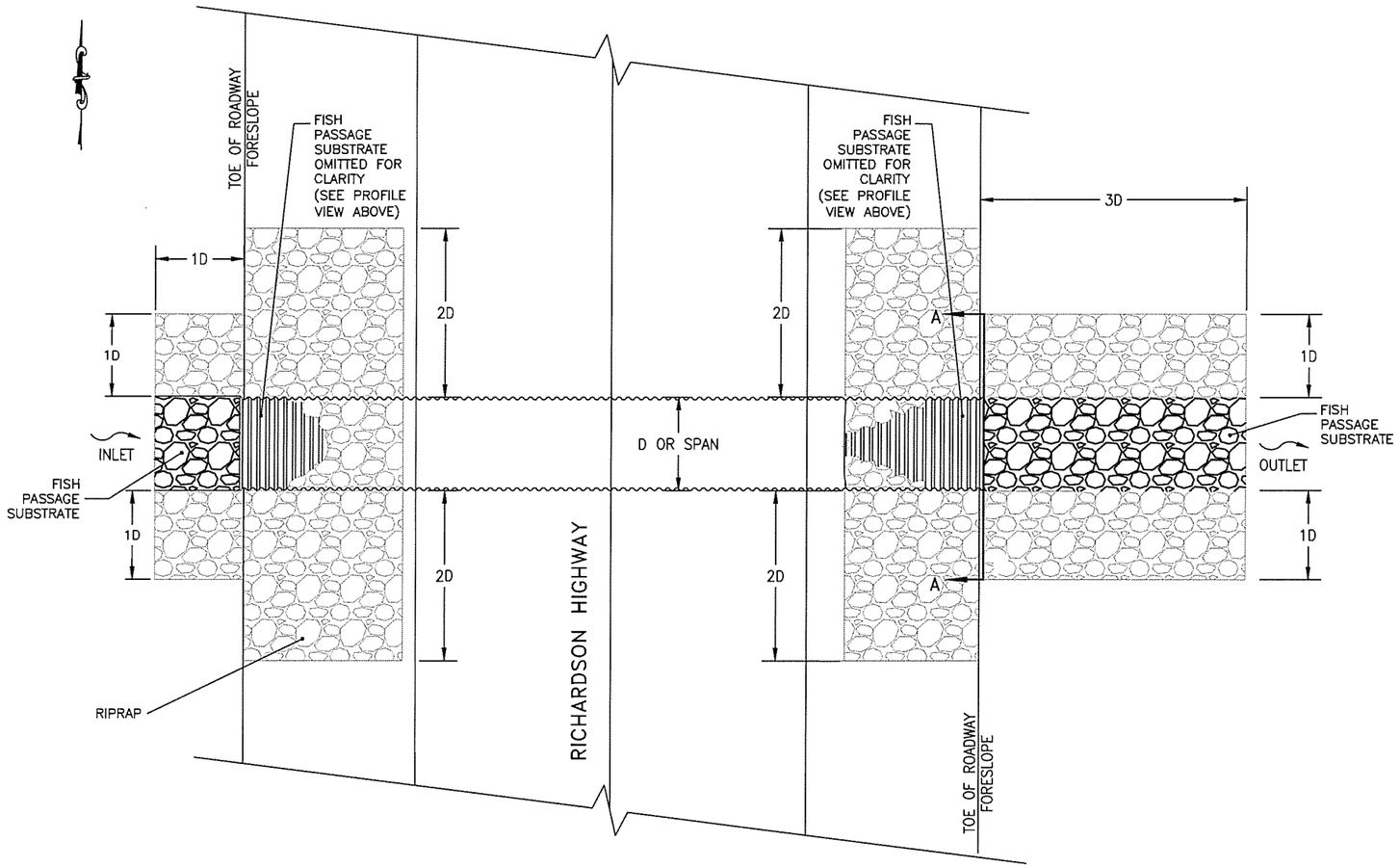
RICH HWY MP 51.3
BOULDER CREEK DETAILS

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\Hydro-MP 35-51 projecet pocket\Tier I Box Skewed-RICH HWY MP 51.3 BOULDER CREEK DETAILS Fri, Mar/18/22 03:09pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	E11	E11



CULVERT APRON PROFILE VIEW



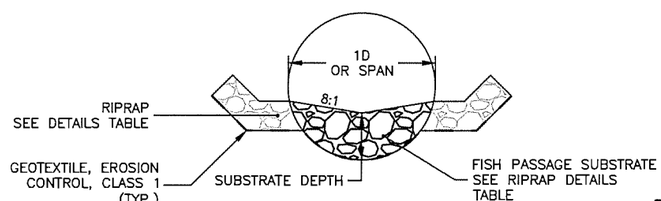
CULVERT APRON PLAN VIEW

RIPRAP DETAILS TABLE

MILEPOST	STATION	DESCRIPTION	SUBSTRATE DEPTH (FT)	RIPRAP DEPTH (FT)	RIPRAP CLASS
42.06	2242+82	108" SPP	3.5	3	II
42.70	2275+88	72" SPP	2.5	2	I
42.70	2275+95	72" SPP	2.5	2	I
43.33	2309+62	73"X55" SPPA	1.0	2	I
48.52	2577+88	108" SPP	3.5	3	II
49.72	2641+11	96" SPP	3.0	2	I
50.06	2660+30	72" SPP	2.5	2	I
50.18	2666+17	96" SPP	3.0	3	II
50.53	2685+19	60" SPP	2.0	2	I
51.34	2727+28	198"X132" SPPA	SEE SHEET E10		

NOTES:

1. SEE CULVERT SUMMARY FOR LENGTHS.
2. REMOVE AND DISPOSE OF EXISTING PIPES, THAW PIPES, MARKER POSTS, CONCRETE HEADWALLS, ETC. PRIOR TO NEW PIPE INSTALLATIONS.
3. EXTEND RIPRAP 3 FT ABOVE THE PIPE ON THE INLET FORESLOPE. EXTEND RIPRAP TO THE TOP OF PIPE ON THE OUTLET FORESLOPE.
4. FISH PASSAGE SUBSTRATE CONSISTS OF RIPRAP WITH VOIDS FILLED WITH FILLER MATERIAL, AS SPECIFIED IN SPECIAL PROVISION 628.
5. OUTLET APRONS AND ASSOCIATED FISH PASSAGE SUBSTRATE MAY NOT BE REQUIRED FOR STREAMS THAT DISCHARGE DIRECTLY INTO ADJACENT RIVERS. COORDINATE WITH ENGINEER.



SECTION A–A

3-29-22

FISH PASSAGE CULVERT DETAILS

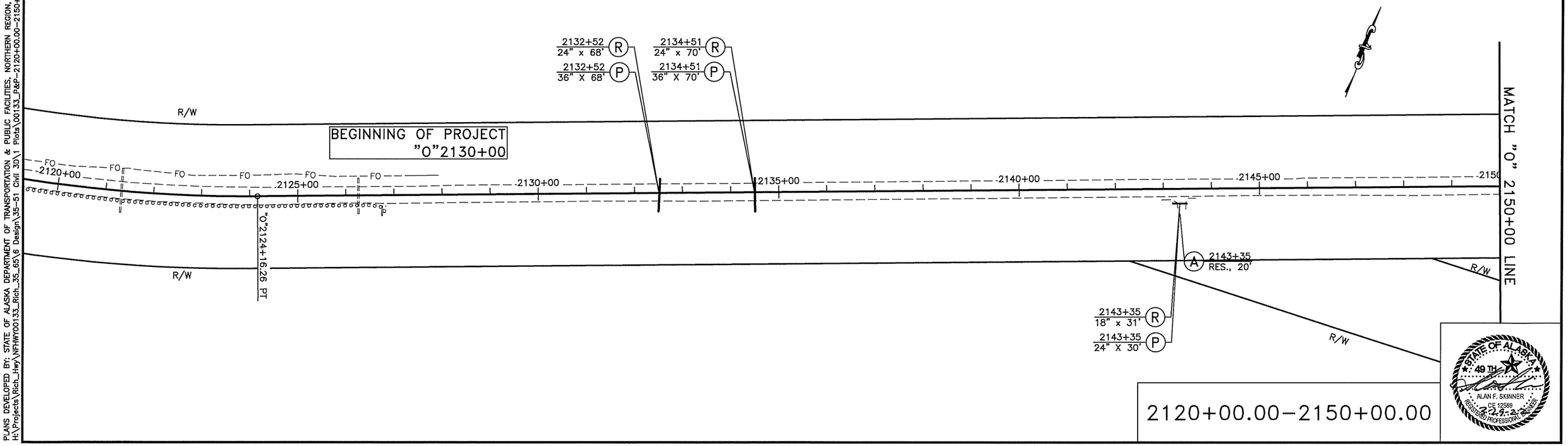
STATE OF ALASKA 49TH JEFFREY P. STUTZKE CE 11357 REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\E13-FISH-PASSAGE-CULVERT-DETAILS-FISH PASSAGE CULVERT DETAILS Fri, Mar/25/22 03:20pm

PLAN VIEW KEY

- (P) STATION / DIAMETER X LENGTH — *INSTALL CULVERT PIPE*
- (A) STATION / TYPE, WIDTH — *CONSTRUCT APPROACH*
- (R) STATION / DIAMETER X LENGTH — *REMOVE PIPE*
- (#) STATION / SIGN CODE(S) — *SIGN LOCATION*
- (C) STATION / DIAMETER X LENGTH — *CLEAN PIPE*
- (X) STATION / DIAMETER X LENGTH — *EXISTING PIPE TO REMAIN*

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F1	F11

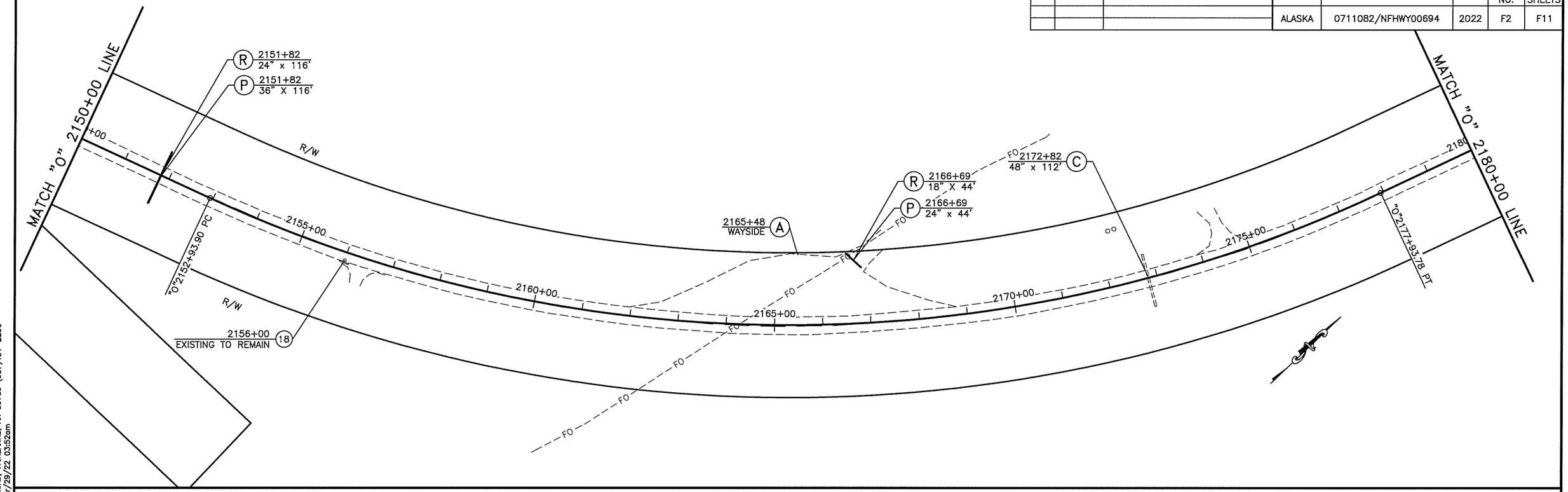


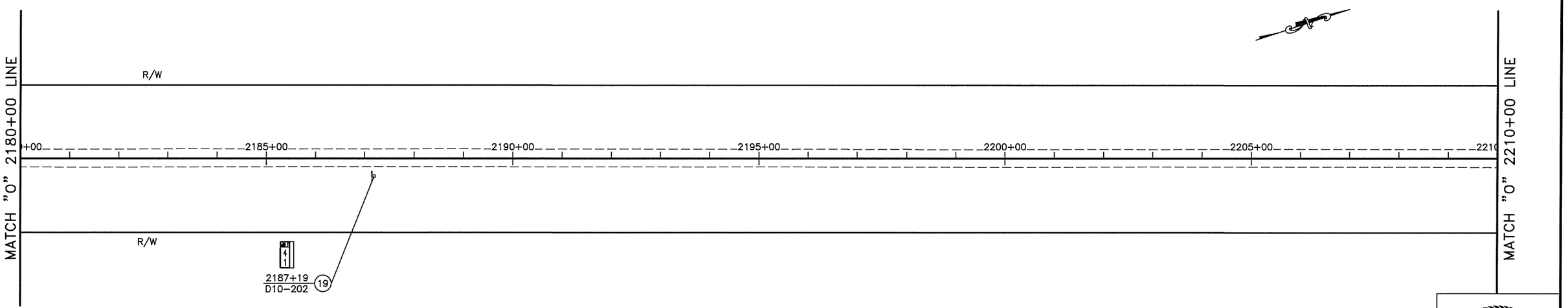
2120+00.00–2150+00.00

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
REGISTERED PROFESSIONAL ENGINEER
3-29-22

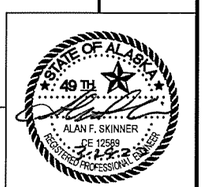
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2120+00.00-2150+00.00 Tue, Mar/29/22 03:50am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F2	F11



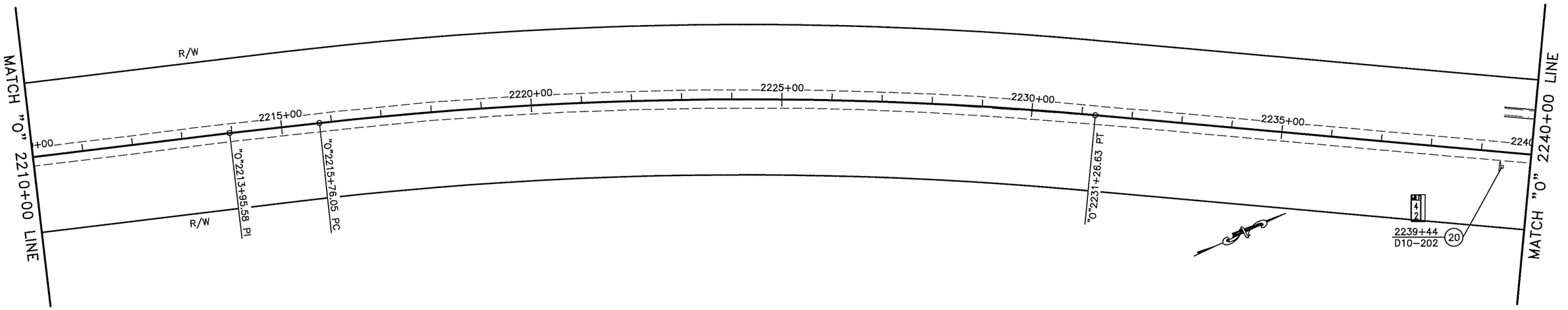


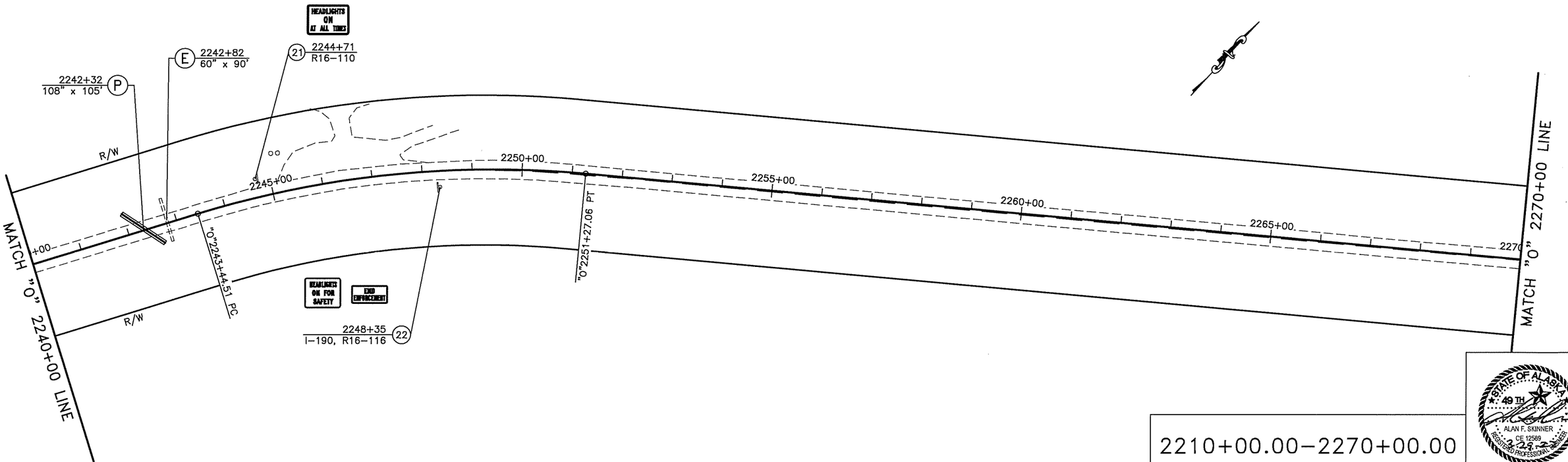
2150+00.00–2210+00.00



PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2150+00.00-2210+00.00 Tue, Mar/29/22 03:52am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F3	F11



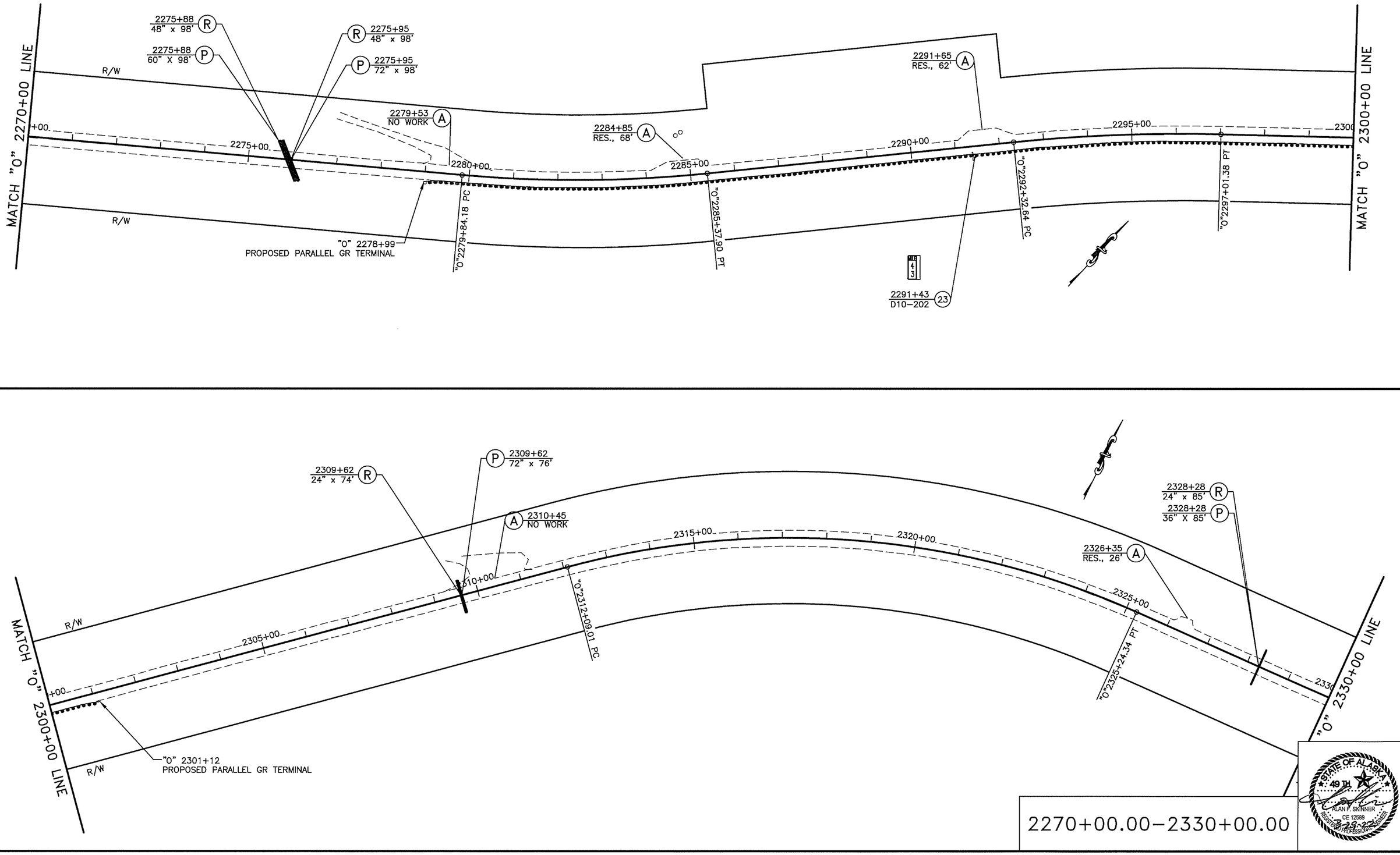


2210+00.00–2270+00.00

STATE OF ALASKA
49TH
ALAN F. SKINNER
CE 12589
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451–2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35–51 Civil 3D\1 Plots\00133_P&P–2210+00.00–2270+00.00 Tue, Mar/29/22 03:54am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F4	F11

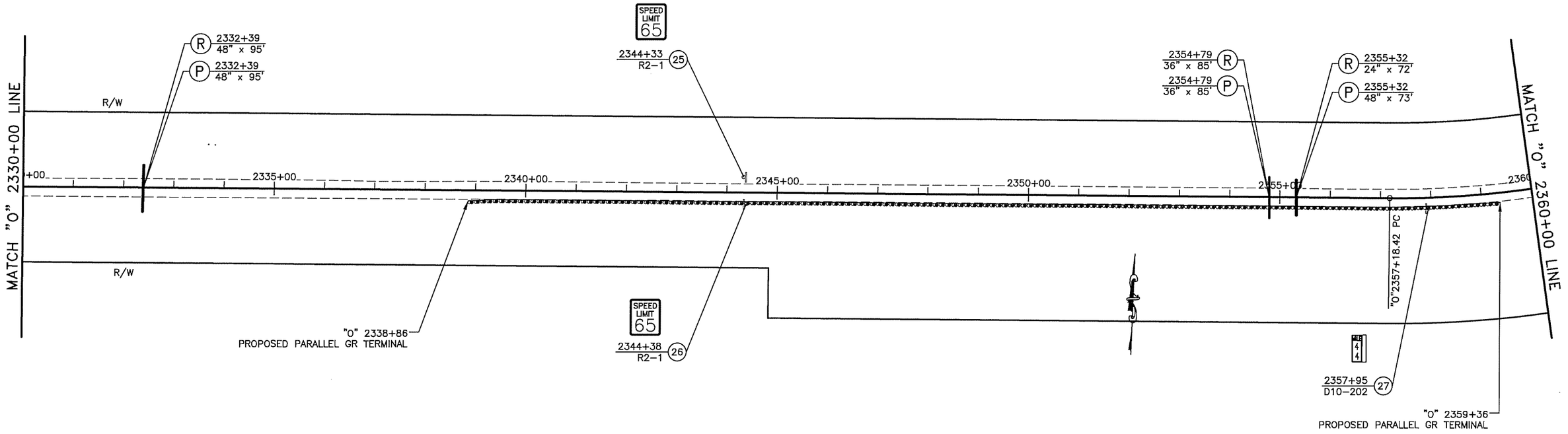


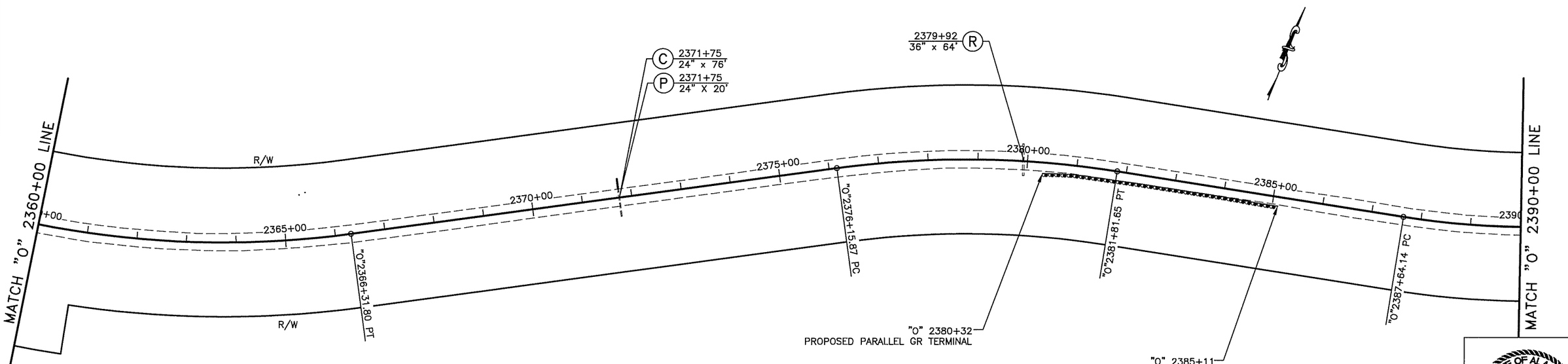
2270+00.00–2330+00.00

STATE OF ALASKA 49TH
ALAN P. SKINNER
CE 12589
REGISTERED PROFESSIONAL ENGINEER
3-29-22

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2270+00.00-2330+00.00 Tue, Mar/29/22 03:56am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F5	F11





2330+00.00–2390+00.00

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3.29.22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2330+00.00-2390+00.00 Tue, Mar/29/22 03:59am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F6	F11

MATCH "O" 2390+00 LINE

R/W

2396+31 34" x 108' (R)

2396+31 36" x 108' (P)

2395+00

2400+00

2405+00

2410+00

2415+00

2410+80 48" x 108' (C)

MATCH "O" 2420+00 LINE

"O" 2390+93
PROPOSED PARALLEL GR TERMINAL

2397+40 D10-202 (28)

MILE 45

2400+37 W16-111 (29)

"O"2400+92.72 PT

END AVALANCHE AREA

"O" 2399+86
PROPOSED PARALLEL GR TERMINAL

"O" 2404+79
PROPOSED PARALLEL GR TERMINAL

2410+68 W1-2L, W13-1 (30)

"O"2412+77.45 PC

55 MPH

Stuart Creek

2424+09 I-3 (33)

"O" 2425+11
PROPOSED PARALLEL GR TERMINAL

R 2425+89 24" x 20'

"O" 2425+89
AVALANCHE GATES, SEE L SHEETS

A 2426+69 COMM., 22'

P 2426+69 24" x 56'

A 2428+73 COMM., 12'

C 2428+73 24" x 20'

A 2430+61 COMM., 22'

C 2430+61 24" x 62'

2422+58 W1-2R, W13-1 (31)

"O" 2422+56
PROPOSED PARALLEL GR TERMINAL

"O"2420+33.96 PT

A 2429+08 WAYSIDE, 197'

"O" 2426+67
PROPOSED PARALLEL GR TERMINAL

"O" 2425+89
AVALANCHE GATES, SEE L SHEETS

Stuart Creek

2423+10 I-3 (32)

A 2433+22 RES., 15'

C 2433+22 18" x 36'

"O"2436+24.15 PC

C 2435+59 18" x 36'

A 2435+57 RES., 19'

ROAD CLOSED 500 FT

34 2434+55 W20-3

ROAD CLOSED 1000 FT

35 2439+26 W20-3

ROAD CLOSED 1500 FT

2444+09 W20-3 (36)

ROAD CLOSED AHEAD

2449+15 W20-3 (38)

2444+95 D10-202 (37)

MILE 46

MATCH "O" 2450+00 LINE

2435+00

2440+00

2445+00

FO

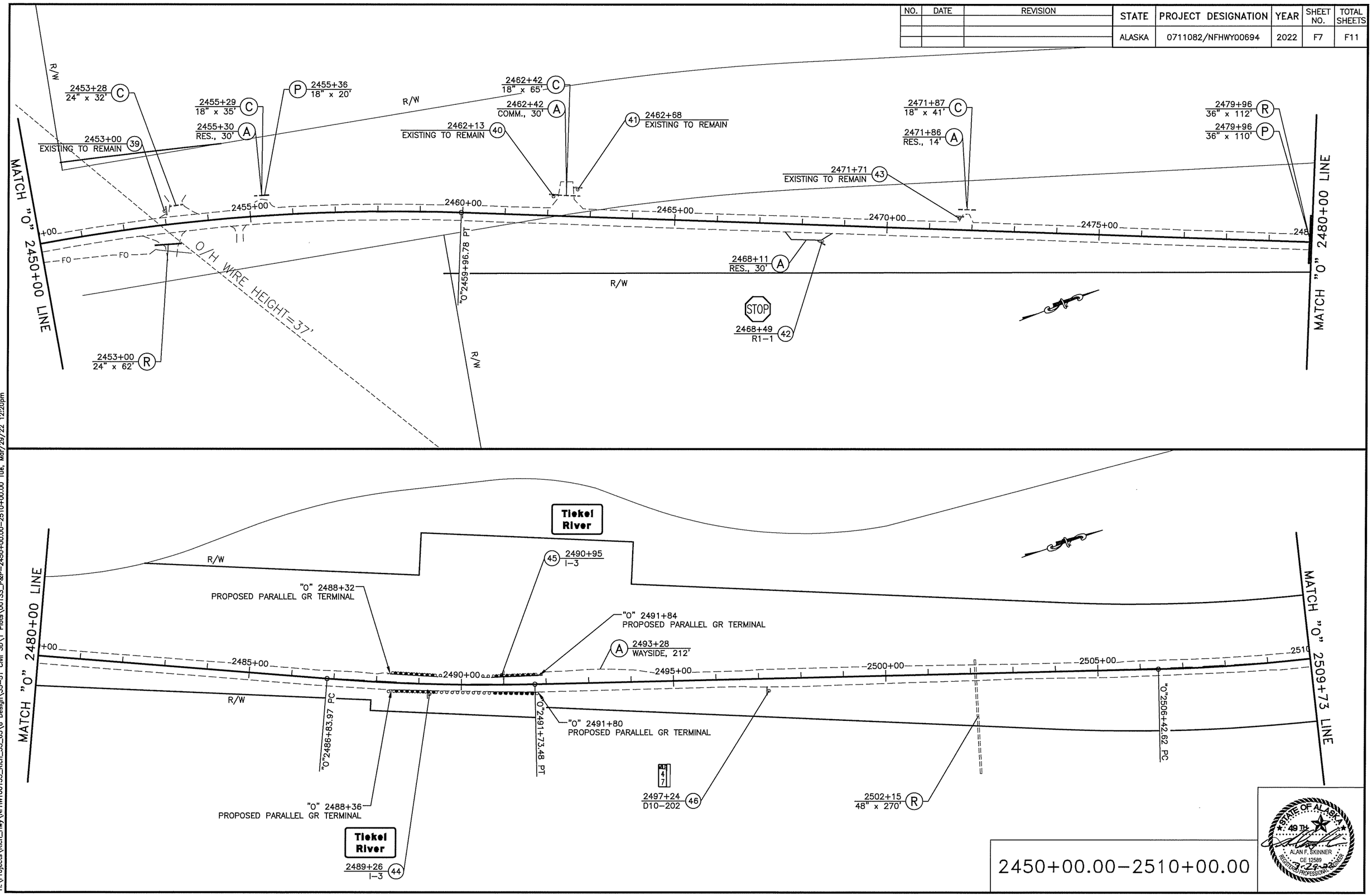
2390+00.00–2450+00.00

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE-12589
3-28-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_PAP-2390+00.00-2450+00.00 Tue, Mar/29/22 12:17pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	F7	F11



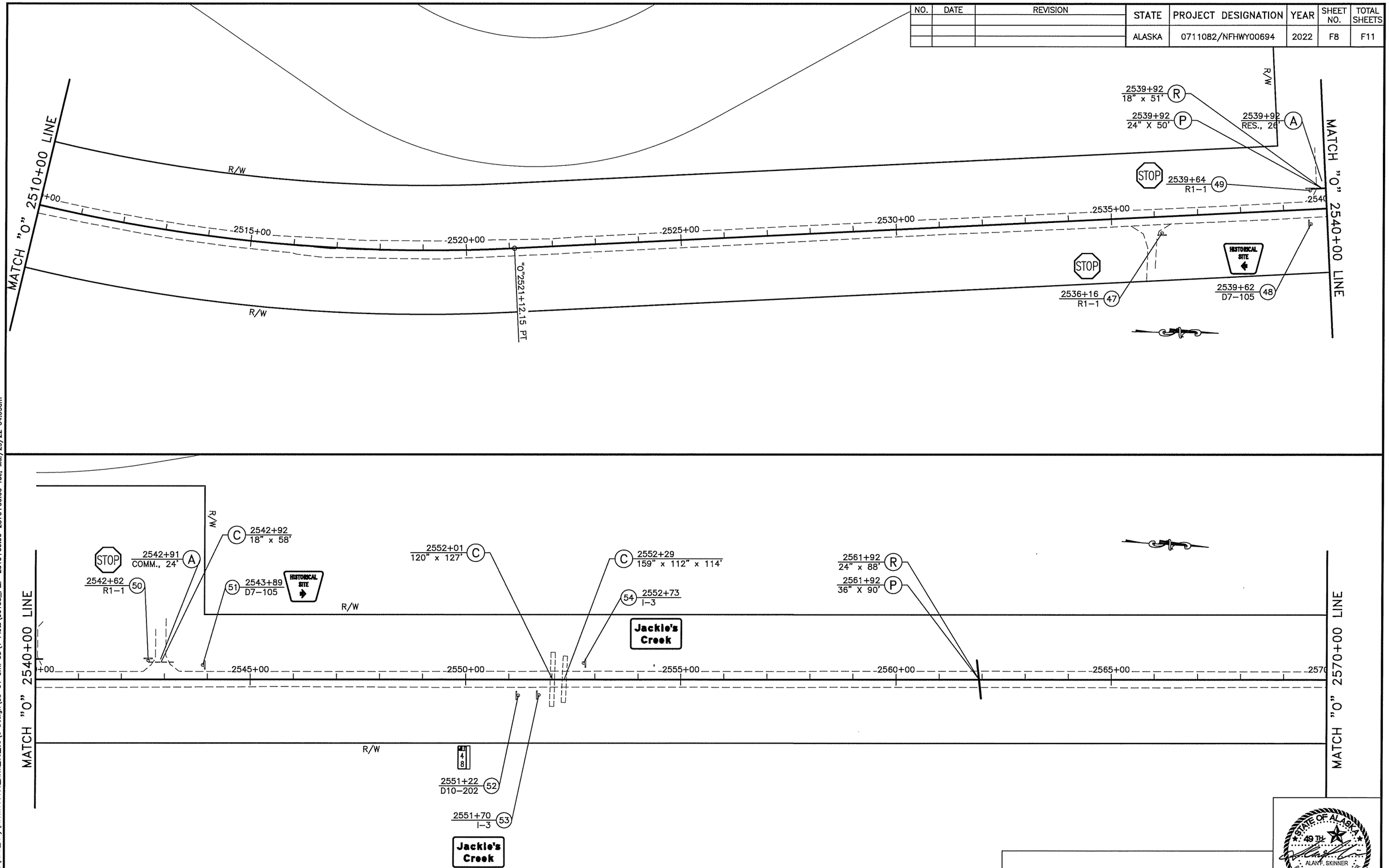
2450+00.00–2510+00.00

STATE OF ALASKA
49 TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2450+00.00-2510+00.00 Tue, Mar/29/22 12:20pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	F8	F11

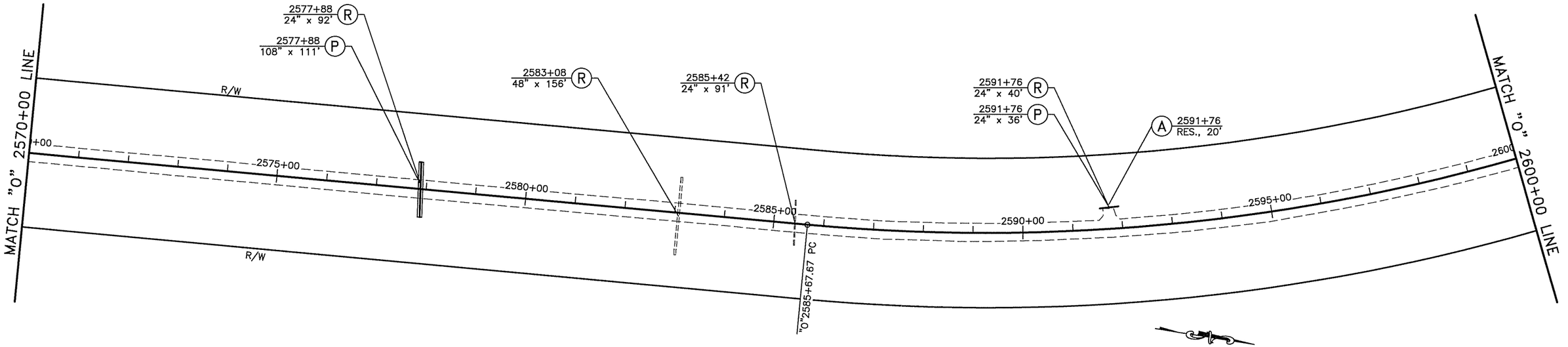


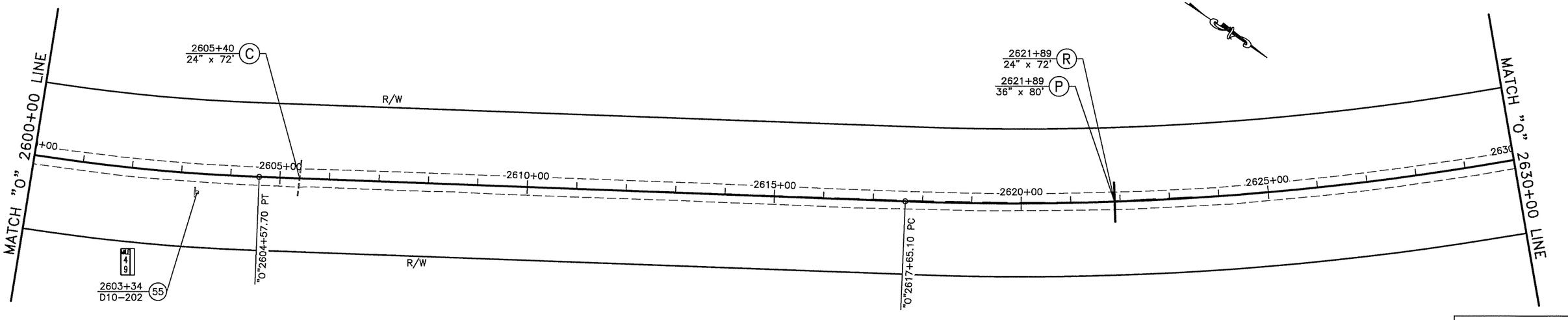
2510+00.00–2570+00.00

STATE OF ALASKA
49TH
ALAN F. SKINNER
CE 12588
3-29-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\Y00133_P&P-2510+00.00-2570+00.00 Tue, Mar/29/22 04:05am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F9	F11



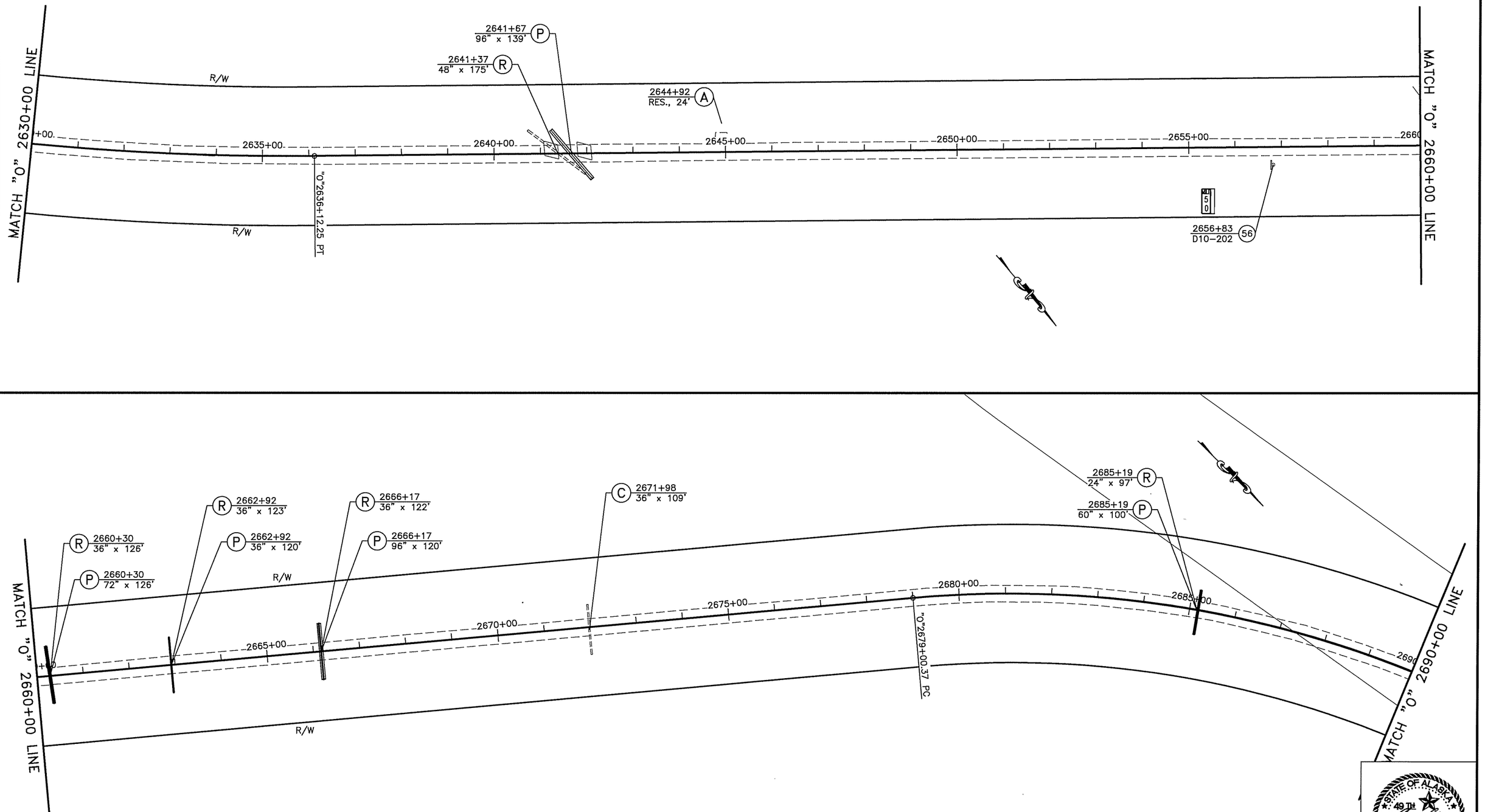


2570+00.00–2630+00.00

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
REGISTERED PROFESSIONAL ENGINEER
2-25-22

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35-65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2570+00.00-2630+00.00 Tue, Mar/29/22 04:07am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F10	F11

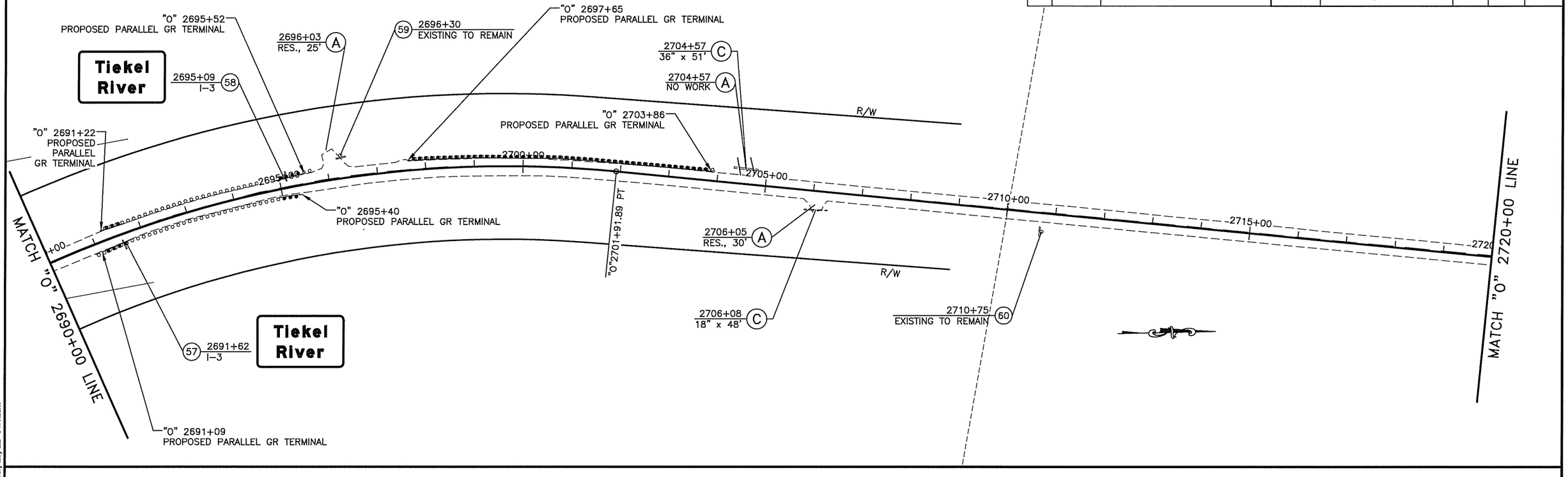


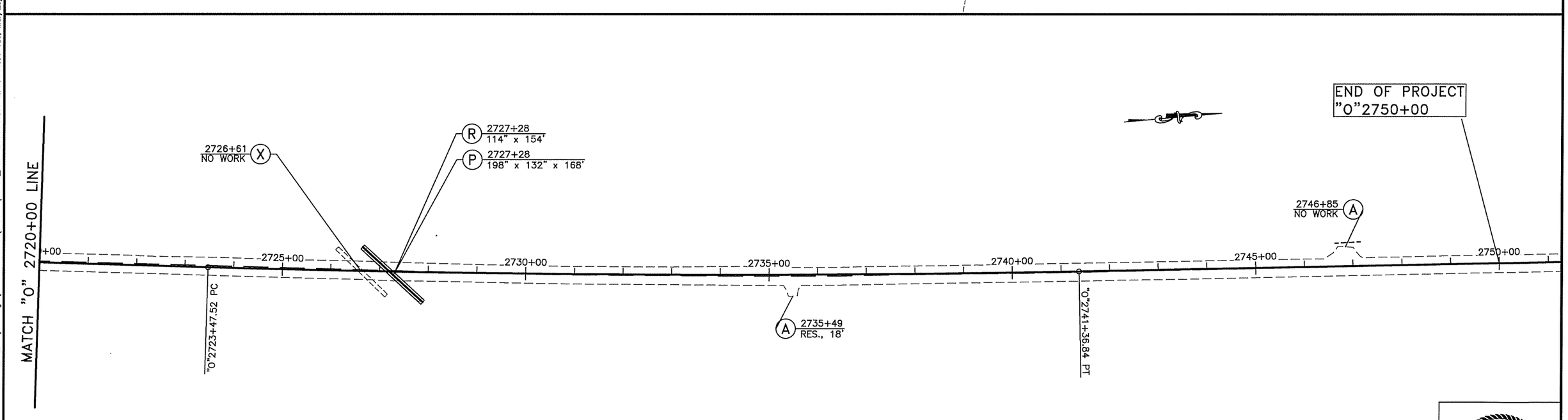
2630+00.00–2690+00.00

STATE OF ALASKA
49TH
ALAN F. SKINNER
CE 12589
3-23-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2630+00.00-2690+00.00 Tue, Mar/29/22 04:10am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	F11	F11





2690+00.00–2750+00.00

STATE OF ALASKA
49TH
ALAN F. SKINNER
CE 12588
3-24-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\1 Plots\00133_P&P-2690+00.00-2750+00.00 Tue, Mar/29/22 04:12am

APPROACH SUMMARY

STATION	LOCATION	TYPE		RETURN RADIUS	WIDTH	LANDING LENGTH	DESCRIPTION
		RESIDENTIAL	COMMERCIAL	(FEET)	(FEET)	(FEET)	
2143+35	RT	X		20	16	10	
2279+53	LT						NO WORK
2284+85	LT	X		20	68	10	
2291+65	LT	X		20	62	10	
2310+45	LT						NO WORK
2326+35	LT	X		20	26	10	
2426+69	LT		X	40	22	30	
2429+08	RT	X		0	197	10	WAYSIDE, PAVE WIDENING
2428+73	LT	X		20	12	10	
2430+61	LT		X	40	22	30	
2433+22	RT	X		20	15	10	
2435+57	RT	X		20	19	10	
2455+30	LT	X		20	30	10	
2462+42	LT		X	40	30	30	
2468+11	RT						NO WORK
2471+86	LT	X		20	14	10	
2493+28	LT	X		0	212	10	WAYSIDE, PAVE WIDENING
2539+92	LT	X		40	26	10	
2542+91	LT		X	40	24	30	
2591+76	LT	X		20	20	10	
2644+92	LT	X		20	24	10	
2696+03	LT	X		20 / 40	25	10	20' RADIUS UPSTATION, 40' RADIUS DOWNSTATION
2704+57	LT						MATERIAL SITE, NO WORK
2706+11	RT		X	30	19	30	
	TOTALS	15	5				

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	G1	G3

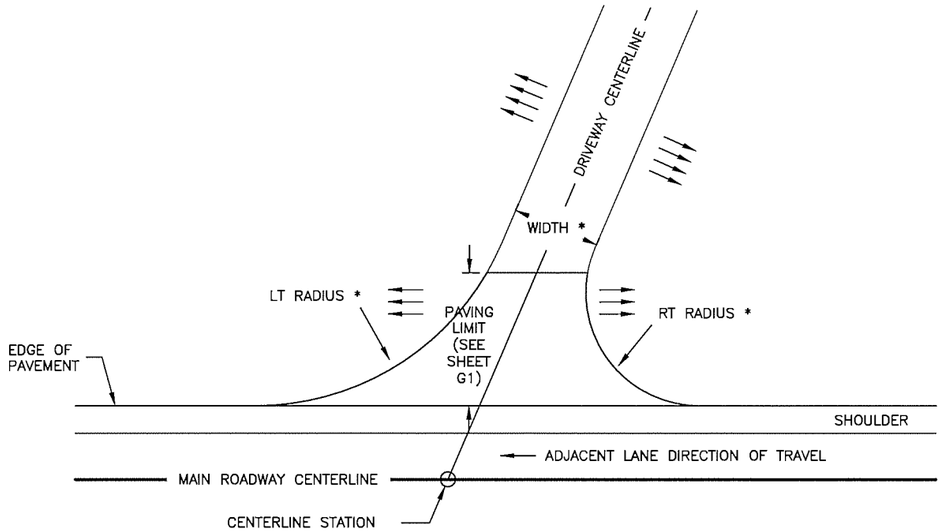
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00130_RICH-35-51_TABLES-APPROACH SUMMARY Tue, Mar/29/22 12:21pm

STATE OF ALASKA
49TH
ALAN F. SKINNER
OE 12589
REGISTERED PROFESSIONAL ENGINEER

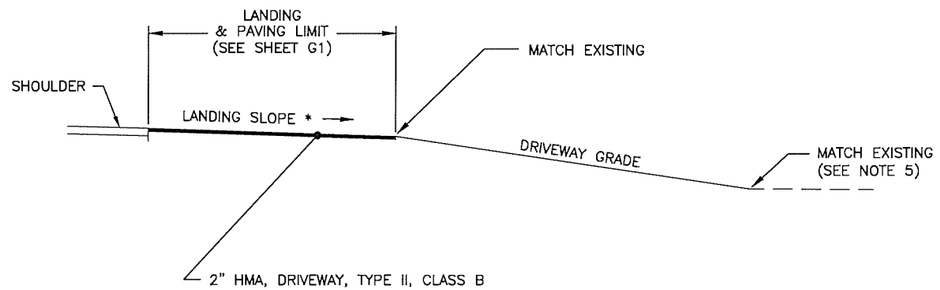
APPROACH SUMMARY & DETAILS 1 OF 3

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	G2	G3

* ACCORDING TO THE VALUES LISTED IN THE APPROACH SUMMARY



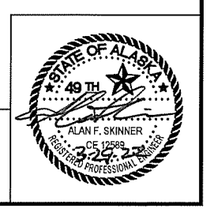
COMMERCIAL APPROACH DETAILS
PLAN VIEW



COMMERCIAL APPROACH DETAILS
PROFILE VIEW

COMMERCIAL APPROACH DETAIL NOTES:

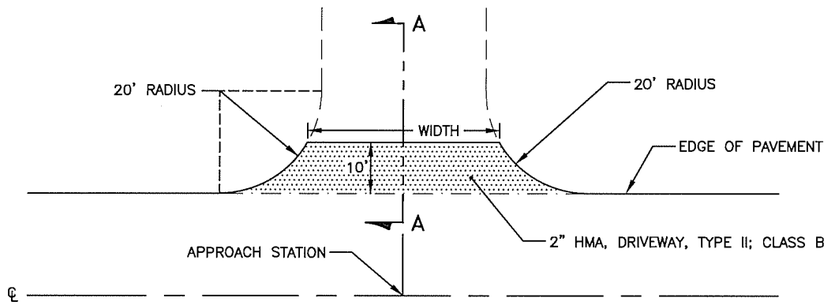
1. REMOVAL OF EXISTING APPROACH EMBANKMENT WILL NOT BE MEASURED FOR PAYMENT AND IS SUBSIDIARY TO THE APPROACH PAY ITEMS.
2. LANDING GRADE SHALL BE MINIMUM OF 0% TO MAXIMUM OF −2%. WILL NEED TO BE FIELD FIT BASED ON EXISTING CONDITIONS.
3. GRADE AND PAVE APPROACH LANDINGS TO MATCH NEW ROADWAY PAVEMENT.
4. BLEND AND GRADE FOR A SMOOTH TRANSITION BETWEEN THE DRIVEWAY AND THE EXISTING GROUND.
5. ENSURE POSITIVE DRAINAGE AWAY FROM THE ROADWAY AND DRIVEWAY EMBANKMENTS.
6. PAVE WAYSIDES, DESIGNATED AS COMMERCIAL APPROACHES, THE FULL WIDTH SHOWN IN THE APPROACH SUMMARY TABLE ON SHEET G1.



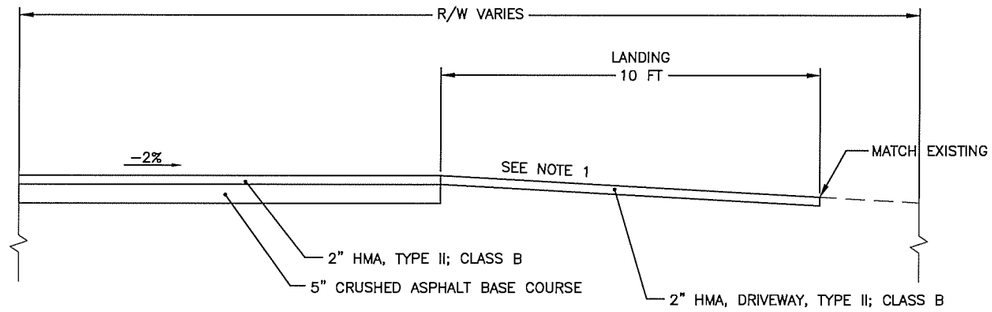
APPROACH SUMMARY & DETAILS 2 OF 3

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\B Drafting\NFHWY00130_RICH-35-51_TABLES-APPROACH SUMMARY (2) Tue, Mar/29/22 04:12am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	G3	G3



RESIDENTIAL APPROACH DETAIL



SECTION A-A TRANSITION DETAIL

RESIDENTIAL APPROACH NOTES:

1. LANDING GRADE WILL NEED TO BE FIELD FIT BASED ON EXISTING CONDITIONS.
2. MINIMAL WORK IS REQUIRED AT APPROACHES. REMOVE AND BLADE EXISTING MATERIAL WITHIN THE LANDING AREA IN ORDER TO PLACE 2" HMA AS SHOWN.
3. REMOVAL OF EXISTING APPROACH EMBANKMENT WILL NOT BE MEASURED FOR PAYMENT AND IS SUBSIDIARY TO THE APPROACH PAY ITEMS.
4. PAVE A 10' LANDING FOR WAYSIDES, DESIGNATED AS RESIDENTIAL APPROACHES, BETWEEN THE SHOULDER AND WAYSIDE. SAWCUT THE WAYSIDE EXISTING SURFACING VERTICALLY PRIOR TO PAVING THE LANDING.

APPROACH SUMMARY & DETAILS 3 OF 3

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\B Drafting\NFHWY00130_RICH-35-51_TABLES-APPROACH SUMMARY (3) Tue, Mar/29/22 04:12pm

SIGNING SUMMARY

LOC. NO.	STATION	LOCATION LT.	LOCATION RT.	ASDS CODE	LEGEND	SIZE H X V (INCHES)	BRACING/FRAMING BRACED	BRACING/FRAMING FRAMED	AREA (SQ.FT.)	MTG. HGT. (FT.)	DIR.	POST TYPE	POST SIZE (INCHES)	POST NO.	REMARKS
17	2126+80		X	D10–202	MILE 40	14 X 27			2.63		N/S	PST	2.5	1	
18	2156+00		X												EXISTING TO REMAIN
19	2187+19		X	D10–202	MILE 41	14 X 27			2.63		N/S	PST	2.5	1	
20	2239+44		X	D10–202	MILE 42	14 X 27			2.63		N/S	PST	2.5	1	
21	2244+71	X		R16–110	HEADLIGHTS ON AT ALL TIMES	42 X 30	X		8.75		N	PST	2.5	1	
22	2248+35		X	I–190	HEADLIGHTS ON FOR SAFETY	36 X 30	X		7.5		S	PST	2.5	1	
				R16–116	END ENFORCEMENT	36 X 18	X		4.5						
23	2291+43		X	D10–202	MILE 43	14 X 27			2.63		N/S	PST	2.5	1	
24	2309+80	X													EXISTING TO REMAIN
25	2344+33	X		R2–1	SPEED LIMIT 65	30 X 36	X		7.5		N	PST	2.5	1	
26	2344+38		X	R2–1	SPEED LIMIT 65	30 X 36	X		7.5		S	PST	2.5	1	
27	2357+95		X	D10–202	MILE 44	14 X 27			2.63		N/S	PST	2.5	1	
28	2397+40		X	D10–202	MILE 45	14 X 27			2.63		N/S	PST	2.5	1	
29	2400+37		X	W16–111	END AVALANCHE AREA	36 X 36	X		9		E	PST	2.5	1	
30	2410+68		X	W1–2L	LEFT CURVE WARNING SYMBOL	30 X 30	X		6.25		S	PST	2.5	1	
				W13–1	55 MPH	18 X 18	X		2.25						
31	2422+58	X		W1–2R	RIGHT CURVE WARNING SYMBOL	30 X 30	X		6.25		N	PST	2.5	1	
				W13–1	55 MPH	18 X 18	X		2.25						
32	2423+10		X	I–3	Stuart Creek	30 X 18	X		3.75		S	PST	2.5	1	
33	2424+09	X		I–3	Stuart Creek	30 X 18	X		3.75		N	PST	2.5	1	
34	2434+55	X		W20–3	ROAD CLOSED 500'	36 X 36	X		9		N	PST	2.5	1	HINGED HORIZONTALLY IN CENTER
35	2439+26	X		W20–3	ROAD CLOSED 1000'	36 X 36	X		9		N	PST	2.5	1	HINGED HORIZONTALLY IN CENTER
36	2444+09	X		W20–3	ROAD CLOSED 1500'	36 X 36	X		9		N	PST	2.5	1	HINGED HORIZONTALLY IN CENTER
37	2444+95		X	D10–202	MILE 46	14 X 27			2.63		N/S	PST	2.5	1	

POST TYPE LEGEND

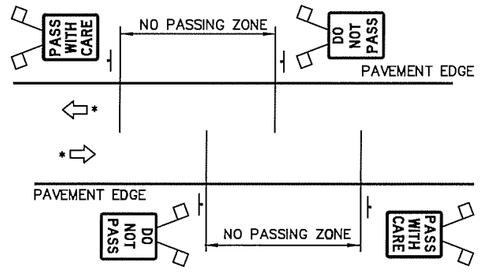
PST = PERFORATED STEEL TUBE

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	H1	H5

SIGNING NOTES:

1. SIGNS NUMBERED 1 – 16 NOT USED.
2. REMOVE EXISTING SIGNS AND INSTALL NEW SIGNS AT APPROXIMATELY THE SAME LOCATION, UNLESS OTHERWISE NOTED. STATIONING FOR SIGNS IS APPROXIMATE.
3. SEE SHEET H3 FOR MILEPOST DETAILS.
4. MOUNTING HEIGHTS ARE PER SHEET V16 UNLESS OTHERWISE NOTED.
5. DETERMINE POST LENGTHS IN THE FIELD. DO NOT EXTEND POSTS ABOVE TOP OF SIGN.
6. INSTALL PST SIGNS POSTS WITH SLEEVE TYPE CONCRETE FOUNDATION PER SHEET V18. ATTACH THE SIGN POST TO THE SLEEVE USING GALVANIZED 3/8" BOLT, NUT, SPLIT LOCK WASHER AND TWO FLAT WASHERS.
7. ATTACH ALL SIGNS TO THEIR SUPPORTS WITH 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.
8. 1/4"X 1 1/2" ALUMINUM ALLOY 6061-T6 BAR MAY ALSO BE USED TO FABRICATE SIGN BRACES AS SHOWN ON SHEET V15.
9. ALL FASTENER HARDWARE SHALL MEET THE REQUIREMENTS OF THE FASTENER SPECIFICATION TABLE IN SECTION 730–2.07.
10. 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.
11. SALVAGE ALL SIGNS AND POSTS. DELIVER ALL SALVAGE SIGNS AND POSTS TO THE TAZLINA MAINTENANCE YARD LOCATED AT 110 RICHARDSON HIGHWAY, GLENNALLEN, ALASKA 99588. PRIOR TO DELIVERING OF ALL SIGNS AND POSTS CONTACT CHAD HELLER, TAZLINA DISTRICT SUPERINTENDENT AT 907–822–3222.
12. CLEARING MAY BE REQUIRED TO ENSURE ADEQUATE VISIBILITY OF SIGNS. THIS WORK IS SUBSIDIARY TO ITEM NO. 615.0001.0000 STANDARD SIGN.
13. THE 4" MOUNTING AREA ON MILEPOST SIGNS (D10–200 SERIES) SHALL BE BARE ALUMINUM. THIS ELIMINATES THE OPTION OF INSTALLING GREEN REFLECTIVE SHEETING IN THIS AREA AS NOTED IN THE ASDS.
14. MAINTAIN EXISTING SIGNS UNTIL NEW SIGNS ARE INSTALLED. DO NOT LEAVE DUPLICATE OR CONFLICTING SIGNING UP AT ANY TIME.
15. ALL SIGNS NOTED TO REMAIN SHALL BE REPLACED AT THE CONTACTOR'S EXPENSE IF THEY ARE DAMAGED DURING CONSTRUCTION ACTIVITIES.
16. INSTALL INTERIM SIGNING, INSTEAD OF INTERIM PAVEMENT MARKINGS AS REQUIRED IN 670–3.01, AS SHOWN BELOW. INSTALL SIGNING PRIOR TO OPENING THE UNMARKED ROADWAY TO TRAFFIC. INTERIM SIGNING SHALL NOT BE USED FOR A DURATION LONGER THAN 30 DAYS. INTERIM SIGNING SHALL BE PAID FOR UNDER 643.0025.0000 TRAFFIC CONTROL. IF PERMANENT MARKINGS ARE NOT INSTALLED WITHIN 30 DAYS, THEN THE CONTRACTOR SHALL SUBMIT AN INTERIM PAVEMENT MARKING PLAN TO THE ENGINEER FOR APPROVAL. ALL WORK AND DEVICES NECESSARY TO IMPLEMENT AN INTERIM PAVEMENT MARKING PLAN WILL BE DONE AT THE CONTRACTOR'S EXPENSE.



INTERIM SIGNING WITHOUT PAVEMENT MARKINGS

SIGN LEGEND

G20–1

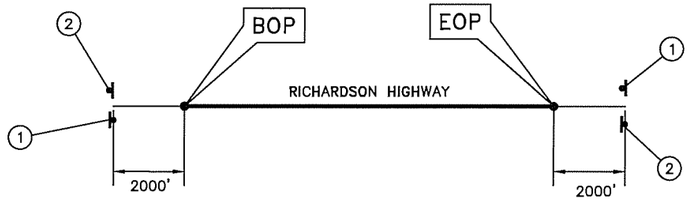
ROAD WORK NEXT 16 MILES

(1) 60" X 24"

G20–2

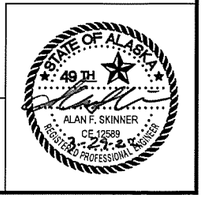
END ROAD WORK

(2) 48" X 24"



PERMANENT CONSTRUCTION SIGNS

NOTE: INSTALL ALL PERMANENT CONSTRUCTION SIGNS ON WOOD POSTS.



SIGNING SUMMARY & NOTES

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451–2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\B Drafting\NFHWY00130_RICH–35–51_TABLES–SIGN SUMMARY Tue, Mar/29/22 04:12am

SIGNING SUMMARY

LOC. NO.	STATION	LOCATION LT.	LOCATION RT.	ASDS CODE	LEGEND	SIZE H X V (INCHES)	BRACING/FRAMING BRACED	BRACING/FRAMING FRAMED	AREA (SQ.FT.)	MTG. HGT. (FT.)	DIR.	POST TYPE	POST SIZE (INCHES)	POST NO.	REMARKS
38	2449+15	X		W20-3	ROAD CLOSED AHEAD	36 X 36	X		9		N	PST	2.5	1	HINGED HORIZONTALLY IN CENTER
39	2453+00	X			STOP SIGN										EXISTING TO REMAIN
40	2462+13	X			STOP SIGN										EXISTING TO REMAIN
41	2462+68	X			STATE MAINTENANCE ENDS										EXISTING TO REMAIN
42	2468+49	X			STOP SIGN CLUSTER										EXISTING TO REMAIN
43	2471+71	X			STOP SIGN CLUSTER										EXISTING TO REMAIN
44	2489+26		X	I-3	Tiekel River	30 X 18	X		3.75		S	PST	2.5	1	
45	2490+95	X		I-3	Tiekel River	30 X 18	X		3.75		N	PST	2.5	1	
46	2497+24		X	D10-202	MILE 47	14 X 27			2.63		N/S	PST	2.5	1	
47	2536+16	X		R1-1	STOP	30 X 30	X		6.25		E	PST	2.5	1	APPROACH
48	2539+62		X	D7-105	HISTORICAL SITE <=	48/29 X 36	X		9.63		S	PST	2.5	1	
49	2539+64		X	R1-1	STOP	30 X 30	X		6.25		W	PST	2.5	1	APPROACH
50	2542+62		X	R1-1	STOP	30 X 30	X		6.25		W	PST	2.5	1	APPROACH
51	2543+89	X		D7-105	HISTORICAL SITE =>	48/29 X 36	X		9.63		N	PST	2.5	1	
52	2551+22		X	D10-202	MILE 48	14 X 27			2.63		N/S	PST	2.5	1	
53	2551+70		X	I-3	Jackie's River	30 X 18	X		3.75		S	PST	2.5	1	
54	2552+73	X		I-3	Jackie's River	30 X 18	X		3.75		N	PST	2.5	1	
55	2603+34		X	D10-202	MILE 49	14 X 27			2.63		N/S	PST	2.5	1	
56	2656+83		X	D10-202	MILE 50	14 X 27			2.63		N/S	PST	2.5	1	
57	2691+62		X	I-3	Tiekel River	30 X 18	X		3.75		S	PST	2.5	1	
58	2695+09	X		I-3	Tiekel River	30 X 18	X		3.75		N	PST	2.5	1	
59	2696+30		X		STATE MAINTENANCE ENDS										EXISTING TO REMAIN
60	2710+75		X		MILE 51										EXISTING TO REMAIN
							SIGN TOTAL		192.06	SF					

NO.	DATE	REVISION

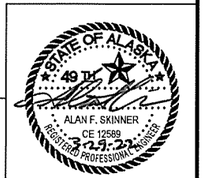
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	H2	H5

STRIPING SUMMARY

DESCRIPTION	LENGTH (FT)	REMARKS
4" WHITE	121,000	
4" DOUBLE YELLOW	24,200	
4" YELLOW	18,150	
4" YELLOW SKIP	36,300	

STRIPING NOTES:

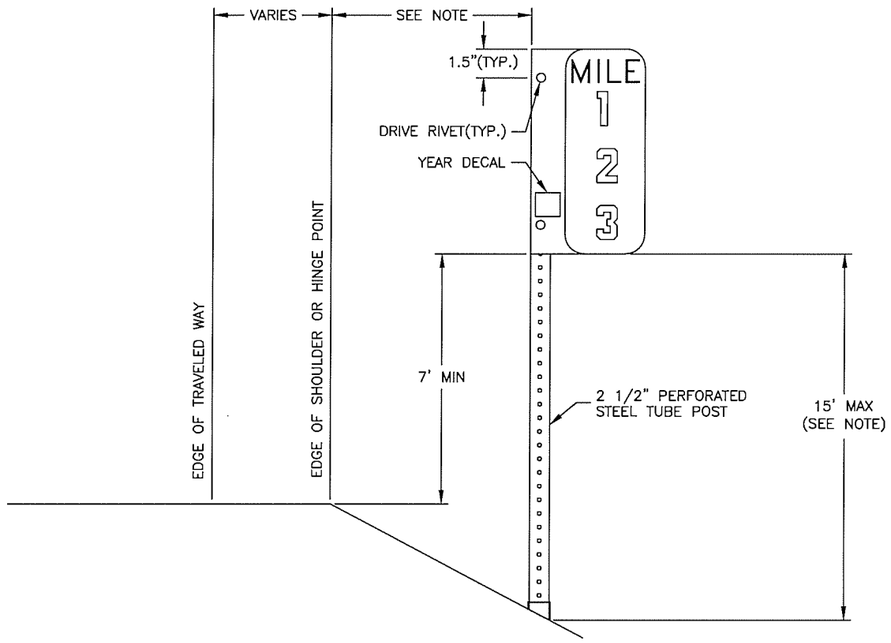
1. IF NEW AND EXISTING LONGITUDINAL MARKINGS ARE NOT ALIGNED AT THE MATCH LINE, TRANSITION BETWEEN THE TWO USING A 100:1 TAPER.
2. THE STRIPE/SKIP RATIO FOR THIS PROJECT WILL BE 10 FT/30 FT. THE PASS/NO-PASS ZONES WILL BE DETERMINED IN THE FIELD BY THE CONTRACTOR ACCORDING TO SECTION 670. THIS WORK IS SUBSIDIARY TO PAY ITEM 670.0001.0000 PAINTED TRAFFIC MARKINGS.
3. PAVEMENT MARKINGS WILL BE PLACED IN ACCORDANCE WITH SHEET V18 AND SECTION 670.
4. LENGTH OF 4" DOUBLE YELLOW IS BASED ON A CONTINUOUS 4" DOUBLE YELLOW STRIPE THROUGH 40 PERCENT OF THE LENGTH OF THE PROJECT. THE REMAINING PORTION OF STRIPING CONSISTS OF ONE-DIRECTION PROHIBITED AND TWO-LANE PERMITTED PASSING ZONES, DIVIDED EQUALLY AT 30 PERCENT EACH OF THE TOTAL LENGTH OF THE PROJECT. NO ADJUSTMENT WILL BE MADE TO ITEM NUMBER 670.0001.0000 FOR DIFFERENCES IN QUANTITY OF YELLOW STRIPE INSTALLED ACCORDING TO 670-3.05 PRELIMINARY SPOTTING.



SIGNING & STRIPING SUMMARY

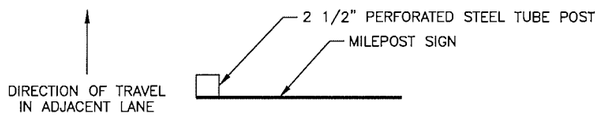
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00130_RICH-35-51_TABLES-SIGN SUMMARY (2) Tue, Mar/29/22 04:12am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	H3	H5



MILEPOST DETAIL

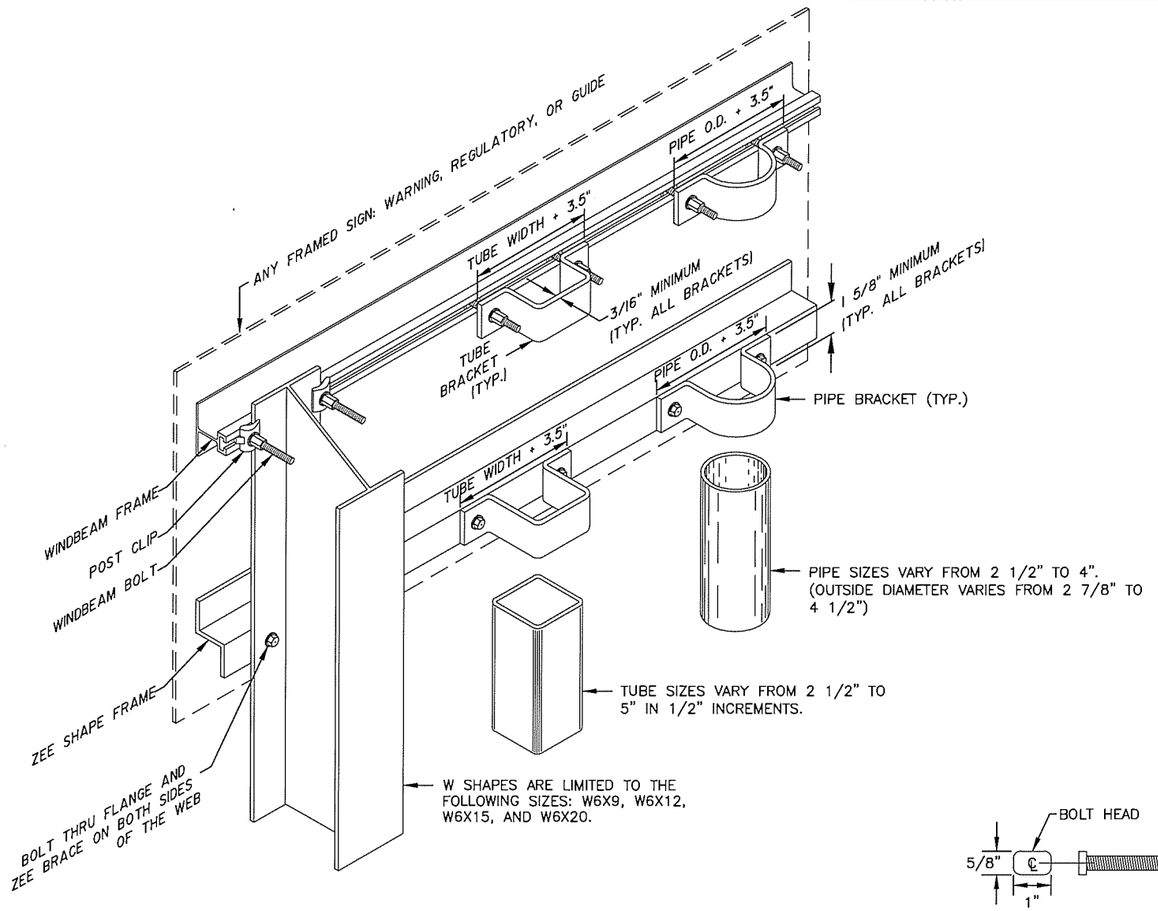
ALL ROADS EXCEPT DIVIDED ROADWAYS
(D10-201, D10-202, D10-203)



MILEPOST MOUNTING DETAIL

NOTE:

INSTALL MILEPOST SIGNS (D10 SERIES) WITH A 15 TO 30 FOOT OFFSET. REDUCE THE OFFSET AS NECESSARY SO THE BOTTOM OF THE SIGN IS NO MORE THAN 15 FEET ABOVE THE GROUND. THE SIGN OFFSET SHALL NOT BE LESS THAN THE OFFSETS SHOWN ON STANDARD DRAWING S-05.



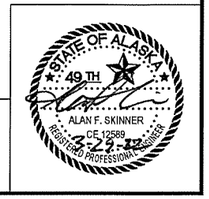
FRAMED SIGN ATTACHMENT BRACKETS

3/8" WINDBEAM BOLT

NOTES:

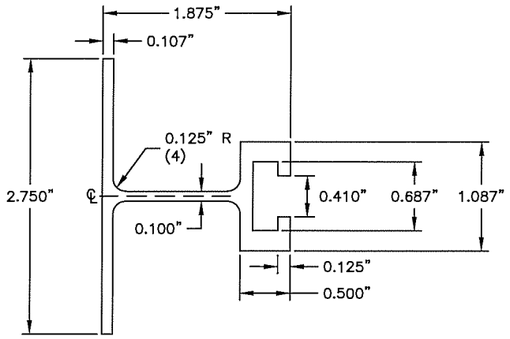
1. ATTACH FRAMED SIGNS TO POSTS WHEREVER THE FRAMES CROSS THE POSTS. AT EACH CROSSING, ATTACH THE SIGN USING TWO POST CLIPS ON W-SHAPE POSTS, A U-SHAPED BRACKET ON PIPES OR A BRACKET WITH SQUARE CORNERS ON TUBES.
2. THE TUBE BRACKETS USED ON EVEN INCH SIZE TUBES MAY ALSO BE USED ON TUBES 1/2" SMALLER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

SIGN DETAILS

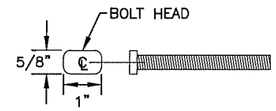


PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_Sign_Summary-SIGN DETAILS Tue, Mar/29/22 01:14pm

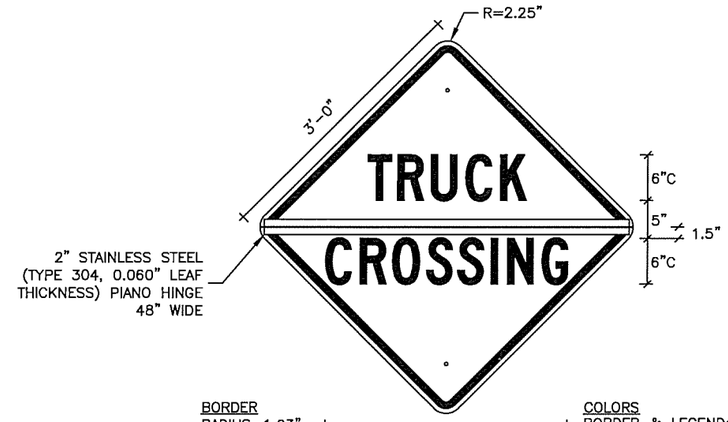
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	H4	H5



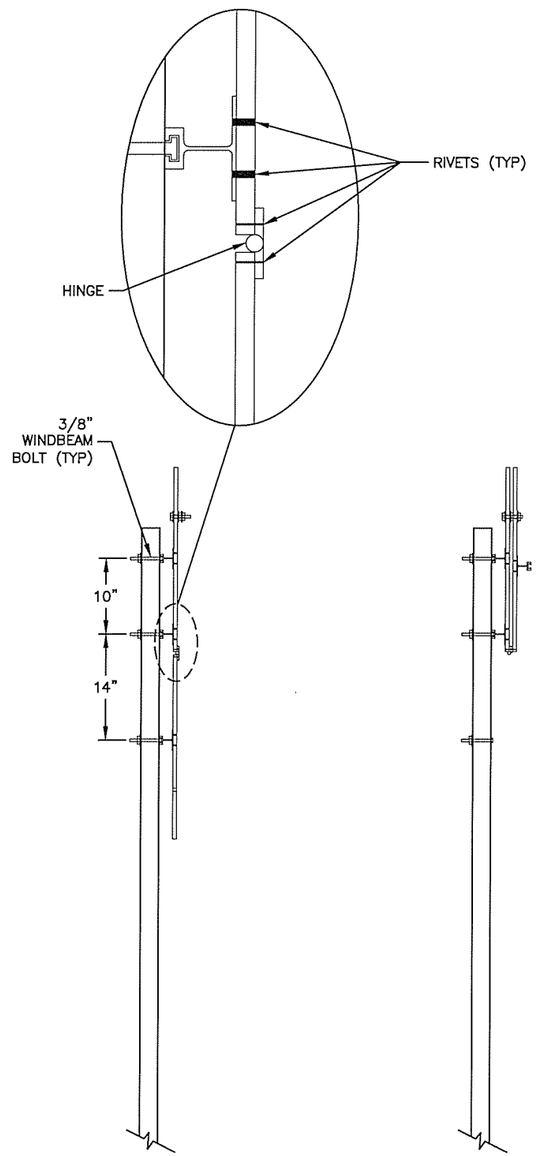
EXTRUDED ALUMINUM WINDBEAM



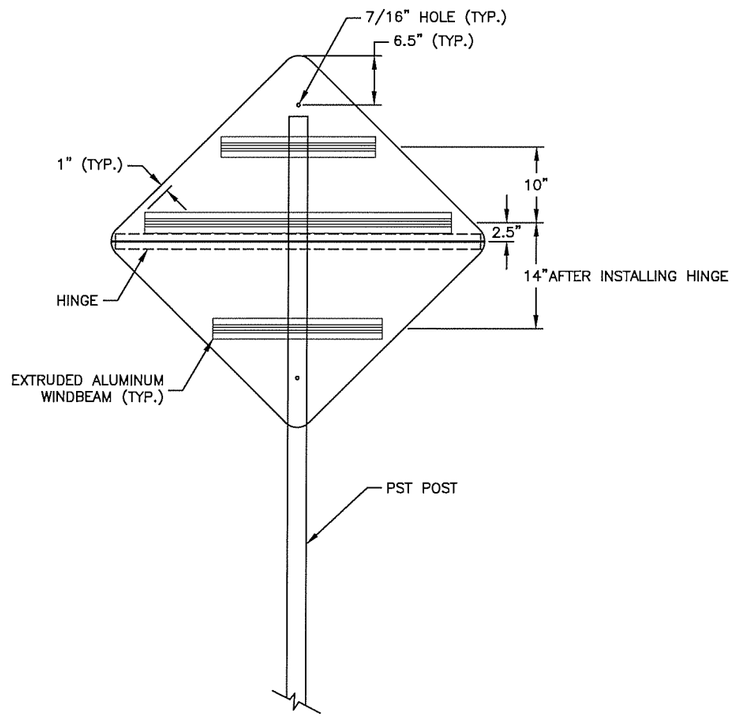
3/8" WINDBEAM BOLT



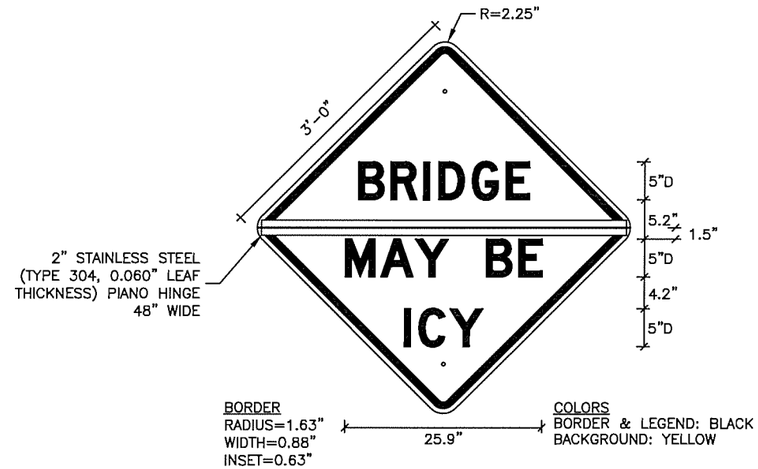
SPECIAL SIGN (FOLDING)
TRUCK CROSSING



SIDE VIEW
UNFOLDED & FOLDED



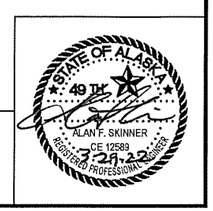
FRAMING DETAIL



SPECIAL SIGN (FOLDING)
BRIDGE MAY BE ICY

NOTES:

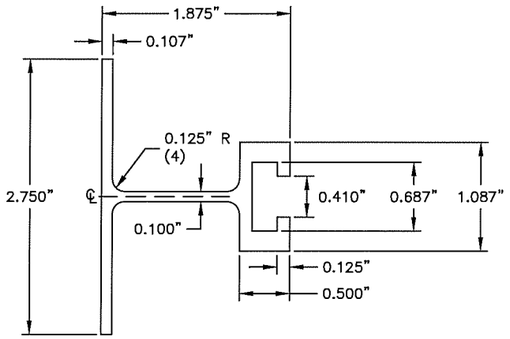
1. ALUMINUM ALLOY 6061–T6 SHALL BE USED FOR EXTRUDED WINDBEAM, AND RIVETS.
2. ATTACH SIGNS TO WINDBEAM WITH 3/16" RIVETS AT 4" STAGGERED SPACING.



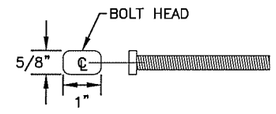
SIGN DETAIL

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\hinged sign detail-Hwy-Gen Tue, Mar/29/22 04:12am

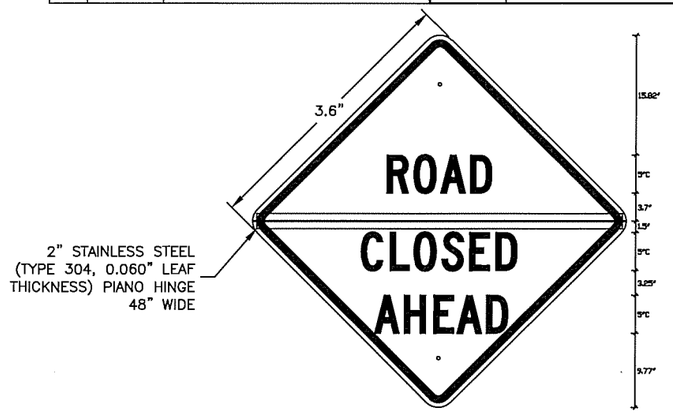
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	H5	H5



EXTRUDED ALUMINUM WINDBEAM



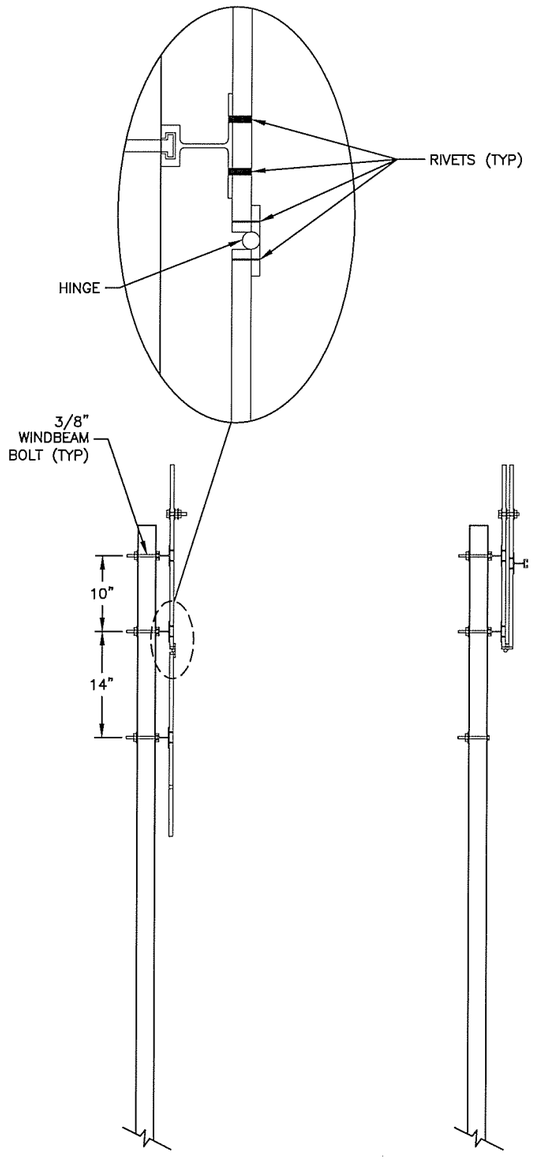
3/8" WINDBEAM BOLT



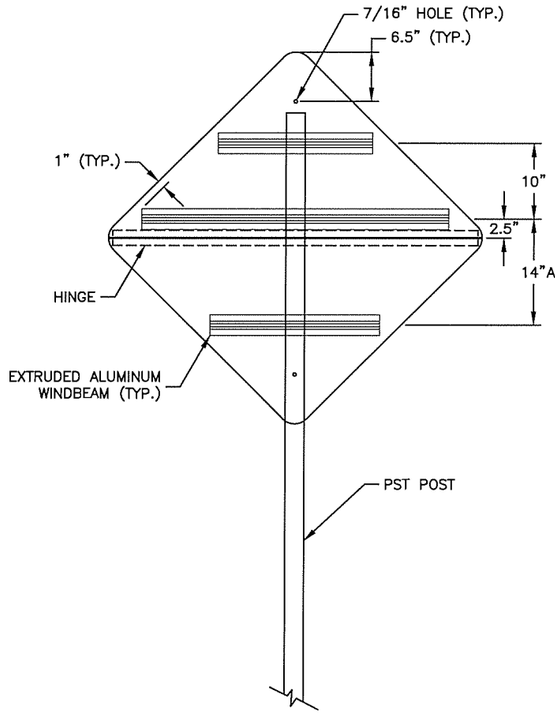
BORDER
RADIUS=1.625"
WIDTH=0.875"
INSET=0.625"

COLORS
BORDER & LEGEND: BLACK
BACKGROUND: ORANGE

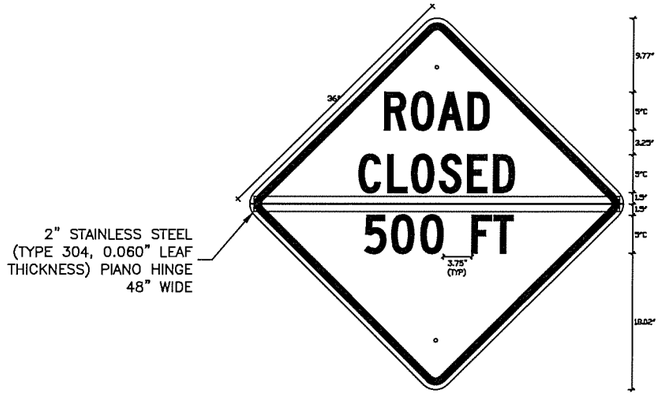
SPECIAL SIGN (FOLDING)
ROAD CLOSED AHEAD



SIDE VIEW
UNFOLDED & FOLDED



FRAMING DETAIL



BORDER
RADIUS=1.625"
WIDTH=0.875"
INSET=0.625"

COLORS
BORDER & LEGEND: BLACK
BACKGROUND: ORANGE

SPECIAL SIGN (FOLDING)
ROAD CLOSED (500 FT, 1000 FT, 1500 FT)

NOTES:

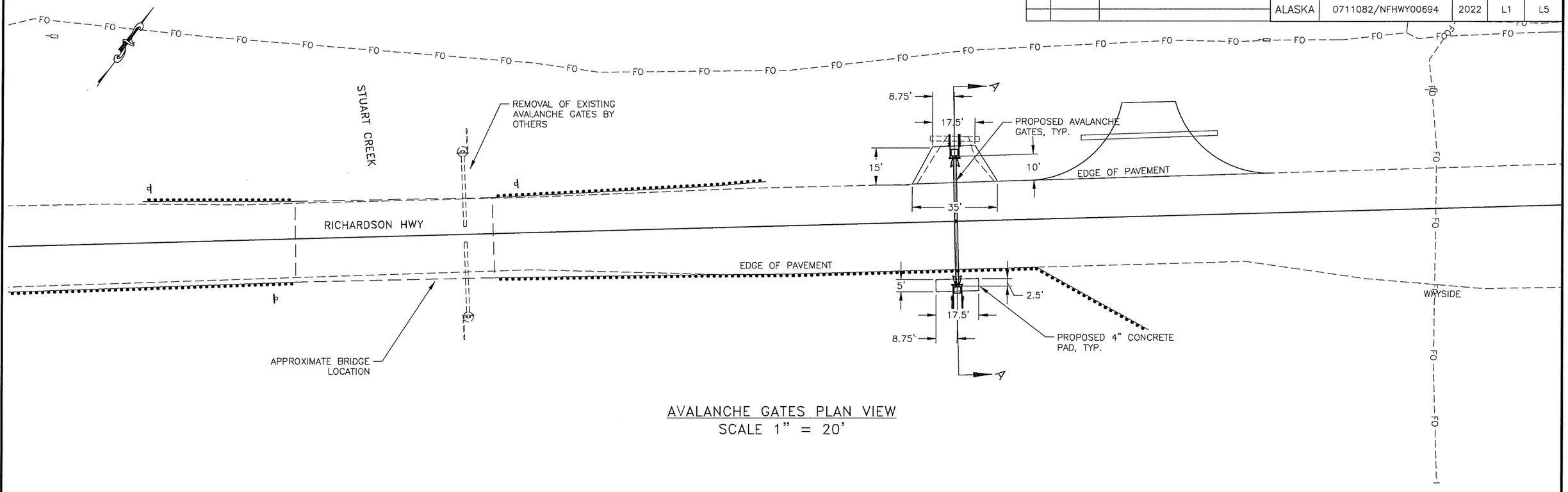
1. ALUMINUM ALLOY 6061–T6 SHALL BE USED FOR EXTRUDED WINDBEAM, AND RIVETS.
2. ATTACH SIGNS TO WINDBEAM WITH 3/16" RIVETS AT 4" STAGGERED SPACING.

STATE OF ALASKA
49TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

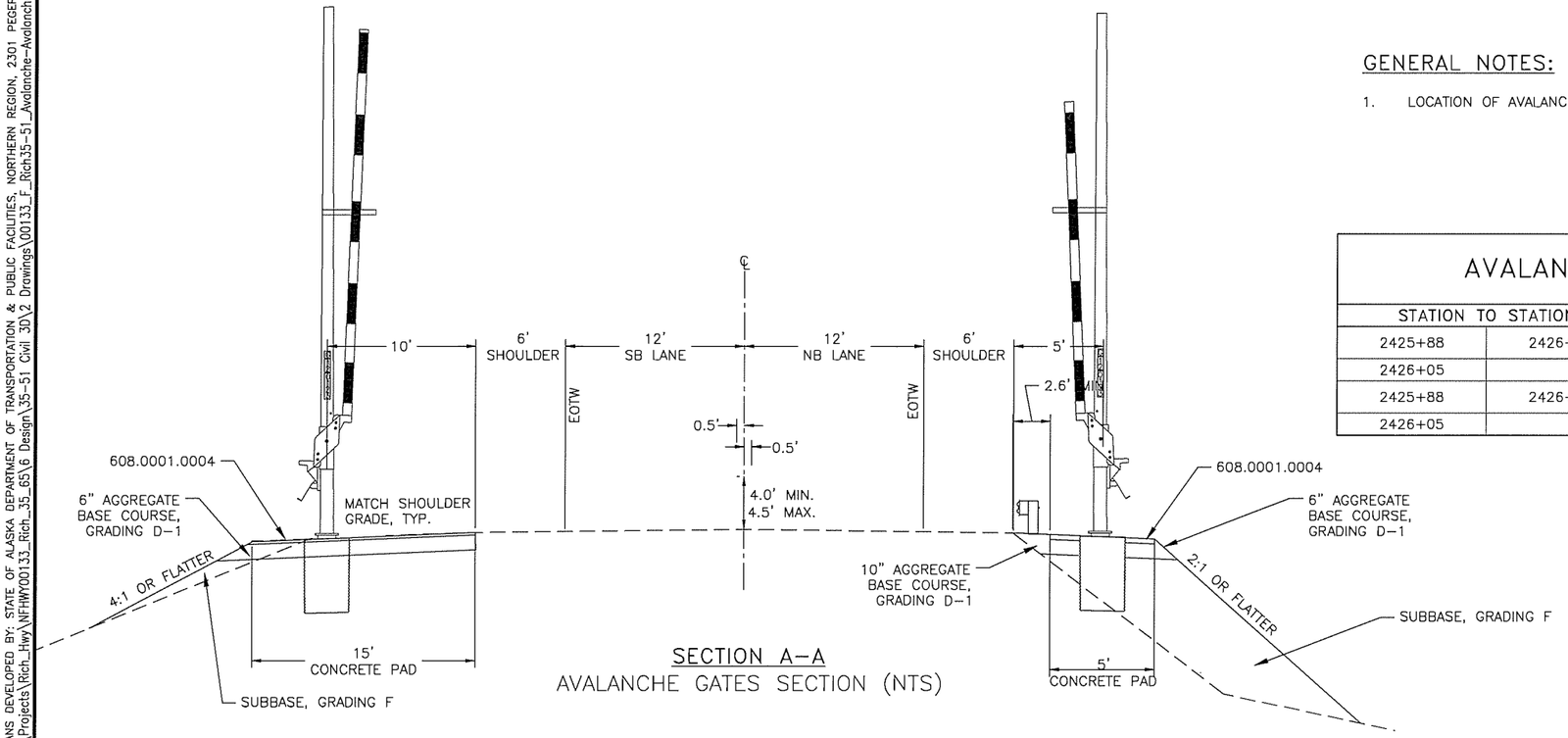
SIGN DETAIL

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\hinged sign detail-ROAD CLOSED Tue, Mar/29/22 04:13am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	L1	L5



AVALANCHE GATES PLAN VIEW
SCALE 1" = 20'



SECTION A-A
AVALANCHE GATES SECTION (NTS)

GENERAL NOTES:

1. LOCATION OF AVALANCHE GATE AND FOUNDATION TO BE APPROVED BY ENGINEER.

AVALANCHE GATES SUMMARY (EXCLUDING SIGN WORK)

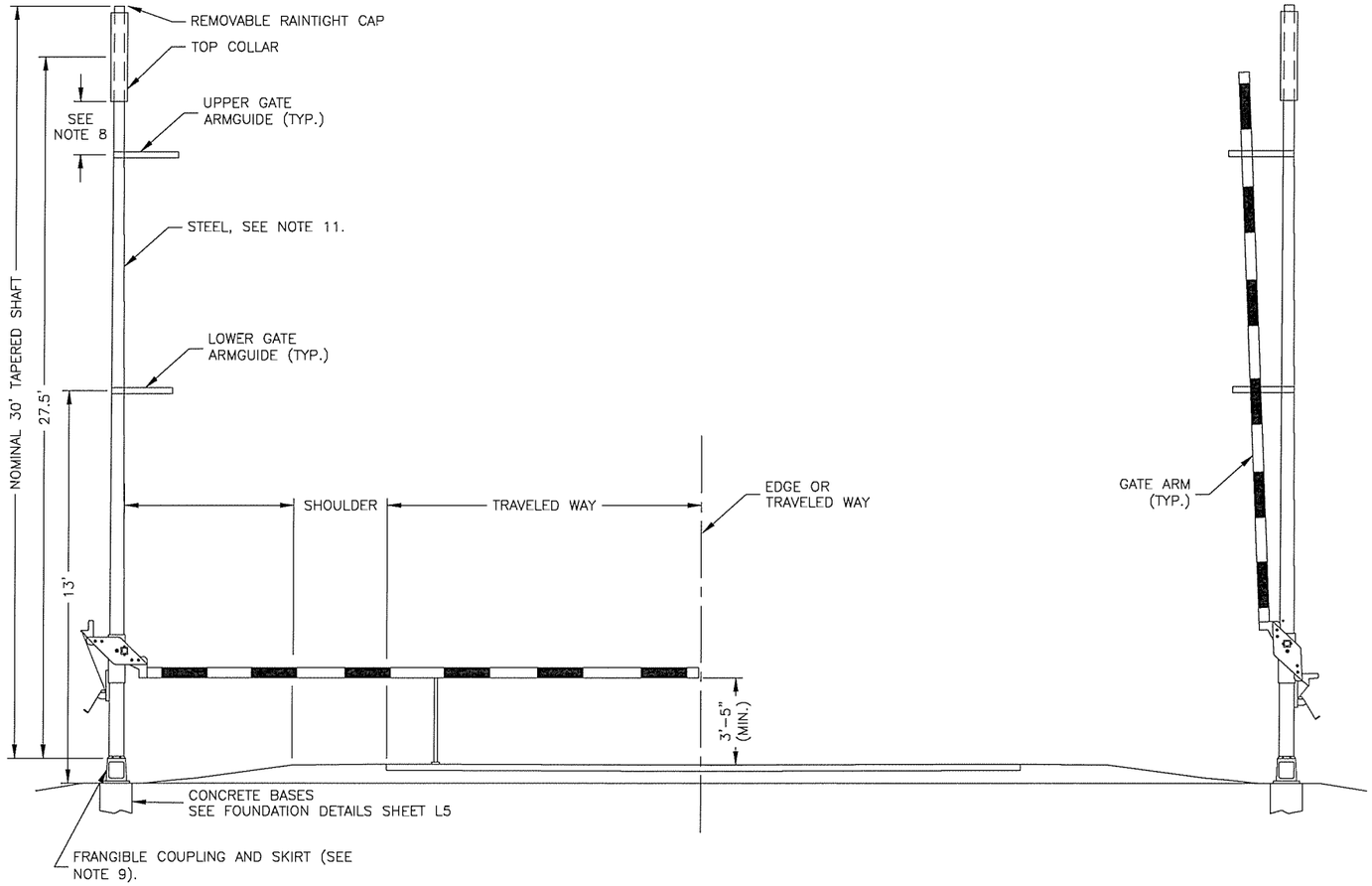
STATION TO STATION		CL REFERENCE	ITEM NUMBER	QUANTITY	DESCRIPTION OF WORK
2425+88	2426+23	RT	608.0001.0004	35 SY	CONCRETE PAD
2426+05		RT	607.2002.0000	1 EA	AVALANCHE GATE AND FOUNDATION
2425+88	2426+23	LT	608.0001.0004	35 SY	CONCRETE PAD
2426+05		LT	607.2002.0000	1 EA	AVALANCHE GATE AND FOUNDATION

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
REGISTERED PROFESSIONAL ENGINEER

GATE DETAILS (1 OF 4)

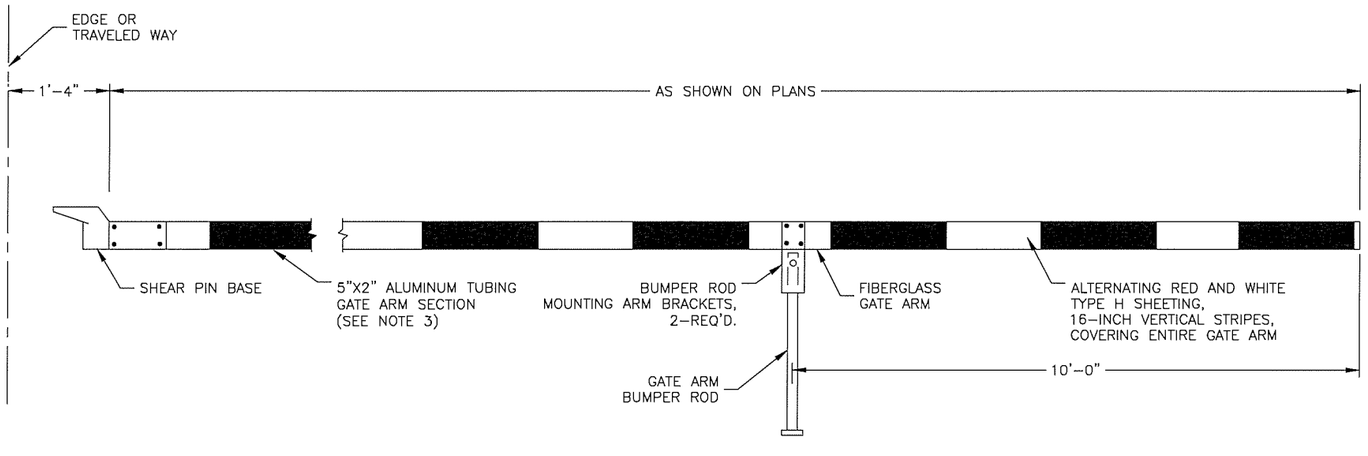
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_F_Rich35-51_Avalanche-Avalanche Gates Tue, Mar/29/22 02:08pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	L2	L5



TYPICAL LOWERED POSITION

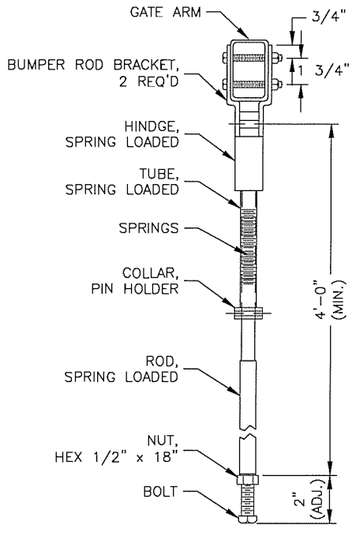
TYPICAL RAISED POSITION



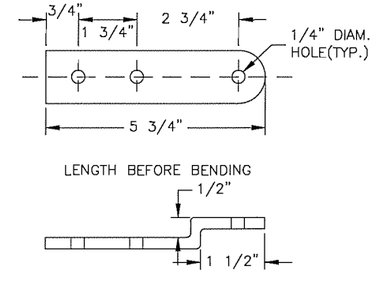
GATE DETAIL

GENERAL NOTES:

1. THE LOCATION OF AVALANCHE GATES AND MOUNTING HEIGHT OF GATE ARM PIVOT SHALL BE VERIFIED BY THE ENGINEER.
2. FIBERGLASS/ALUMINUM GATE ARM AND SHEAR PIN BASE SHALL BE SUPPLIED BY THE SAME VENDOR.
3. GATE ARM TO BE MOUNTED ON PROPOSED POLE AS INDICATED ON THE PLANS.
4. LOCATION OF THE CONCRETE BASE AND LENGTH OF THE GATE ARM WILL BE VERIFIED BY THE ENGINEER TO ENSURE ADEQUATE COVERAGE OF THE TRAVELED LANE.
5. GATE PIVOTS, SUPPORTS AND GUIDES, AND ALL ASSOCIATED HARDWARE SHALL BE GALVANIZED. ALL ROUGH EDGES AND BURRS SHALL BE GROUND SMOOTH PRIOR TO GALVANIZING.
6. ALL EXPOSED BOLT THREADS SHALL BE PAINTED WITH TWO COATS OF ZINC RICH PAINT CONFORMING WITH THE REQUIREMENTS OF ASTM A 780.
7. ANY FIELD DAMAGE TO THE GALVANIZING SHALL BE REPAIRED WITH TWO COATS OF ZINC RICH PAINT CONFORMING WITH THE REQUIREMENTS OF ASTM A 780.
8. UPPER GATE ARM GUIDE IS TO BE INSTALLED 6 TO 12-INCHES BELOW THE BOTTOM OF THE TOP COLLAR.
9. SEE SHEET L4 FOR ADDITIONAL FRANGIBLE COUPLING NOTES. USE 11 1/2-INCH BOLT CIRCLE.
10. POLE DIAMETER SHALL TAPER UNIFORMLY FROM THE TOP OF POLE TO THE BASE PLATE.
11. PROPOSED AVALANCHE GATE ASSEMBLY POLE SHALL COMPLY WITH SPECIFICATION SECTIONS 660 AND 740 AS IF IT WERE A LUMINARIE AND/OR LIGHTING STRUCTURE.



GATE ARM BUMPER ROD DETAIL



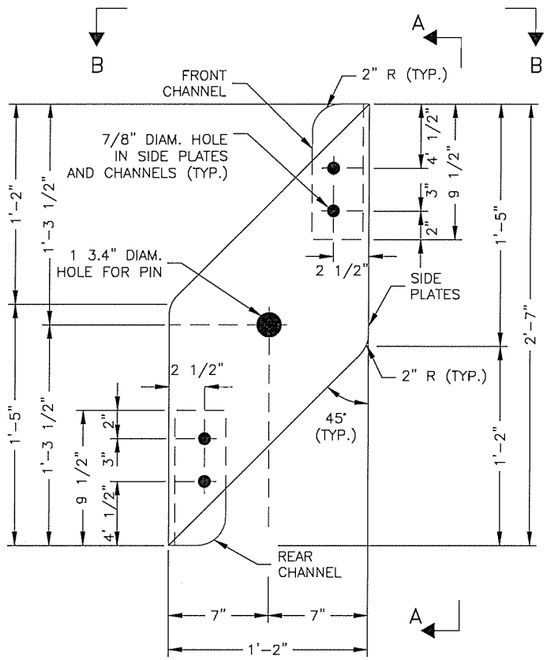
BUMPER ROD MOUNTING BRACKET DETAIL

GATE DETAILS (2 OF 4)

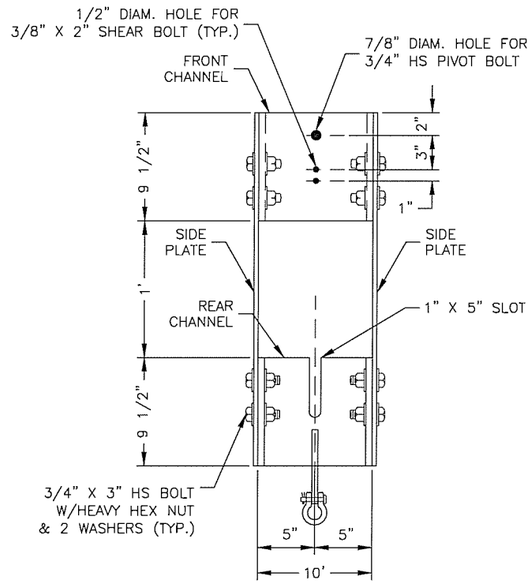
STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3-25-22
REGISTERED PROFESSIONAL ENGINEER

H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00649_L2-E1 Gate Details Tue, Mar/29/22 02:08pm

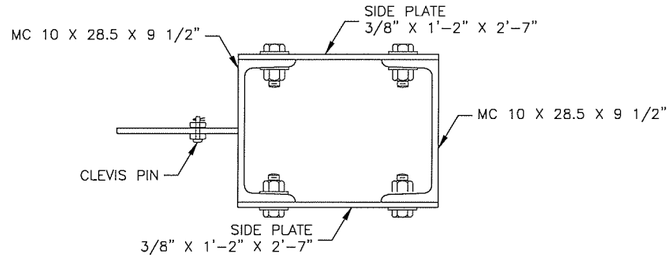
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	L3	L5



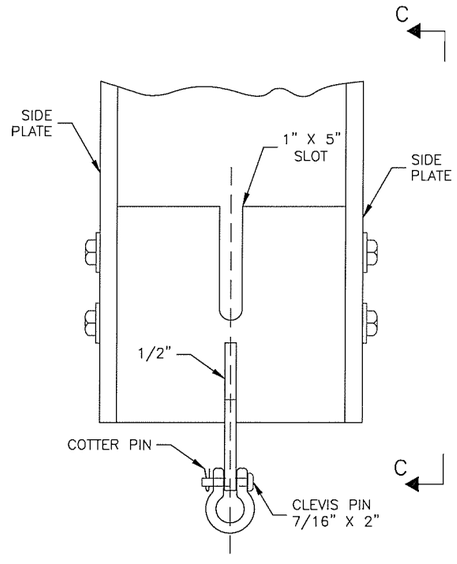
SIDE PLATE DETAIL



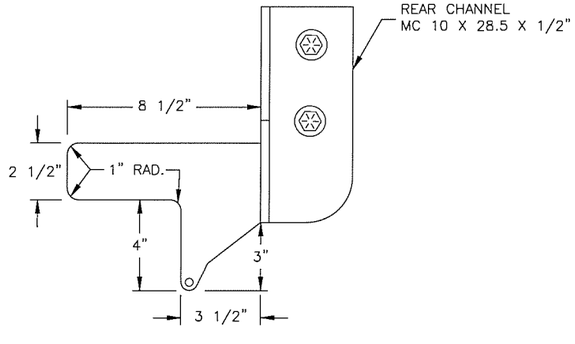
SECTION A–A



SECTION B–B

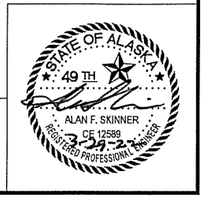


YOKE ASSEMBLY DETAIL



SECTION C–C

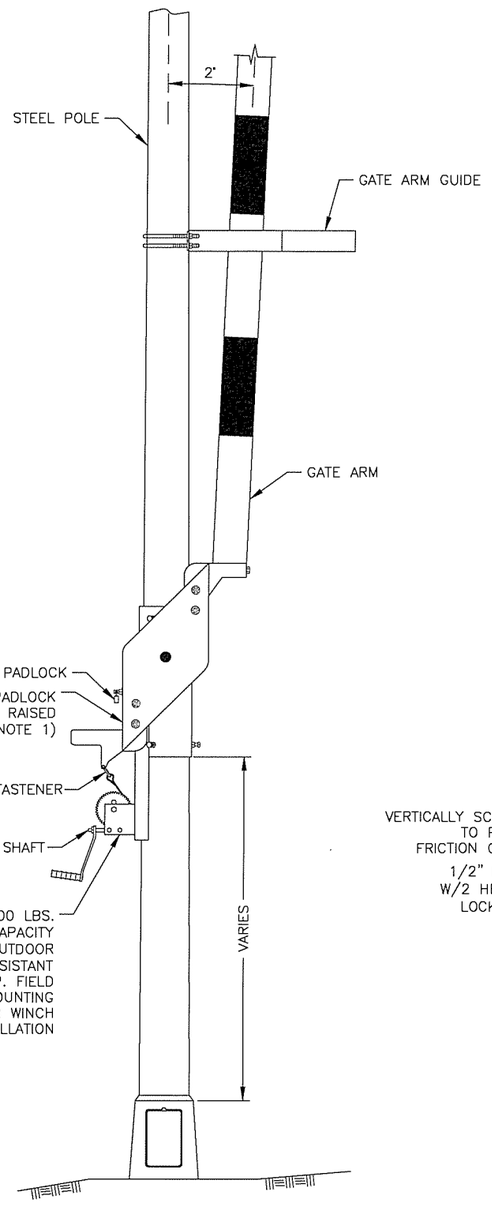
GATE DETAILS (3 OF 4)



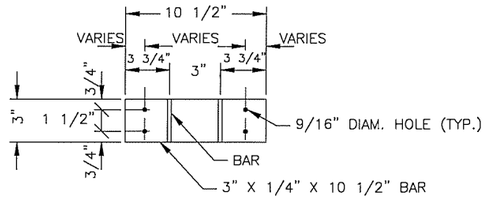
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	L4	L5

GENERAL NOTES:

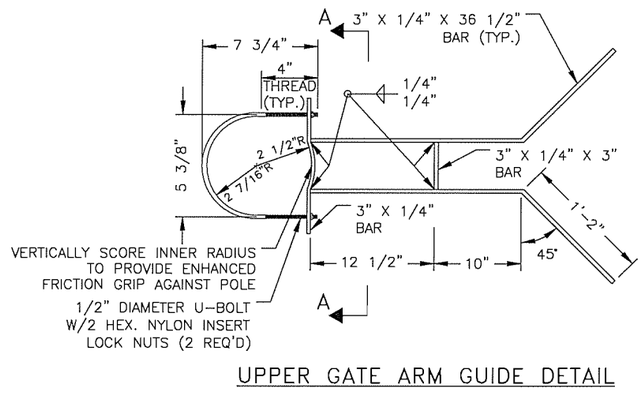
1. WHEN THE GATE IS FULLY RAISED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE OUTSIDE OF THE REAR CHANNEL AND PADLOCKED IN PLACE.
2. WHEN THE GATE IS FULLY LOWERED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE INSIDE OF THE REAR CHANNEL AND PADLOCKED INTO PLACE.
3. ANTI-SEIZE LUBRICATING MATERIAL SHALL BE USED ON ALL BOLT THREADS BEFORE INSTALLATION.
4. ALL BOLTS SHALL BE GALVANIZED AND CONFORM TO ASTM A307, GRADE A, UNLESS DESIGNATED AS HS (HIGH STRENGTH), WHICH SHALL CONFORM TO ASTM A325. BOLTS OF 1/2" NOMINAL DIAMTER OR LESS MAY BE STAINLESS STEEL.
5. TAG AND LABEL POLE ACCORDING TO TABLE 740-1 OF THE SPECIFICATIONS ACCORDING TO LUMINAIRE REQUIREMENTS.



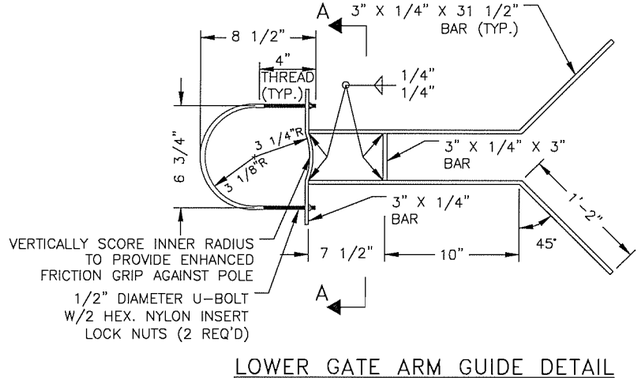
GATE PIVOT ASSEMBLY



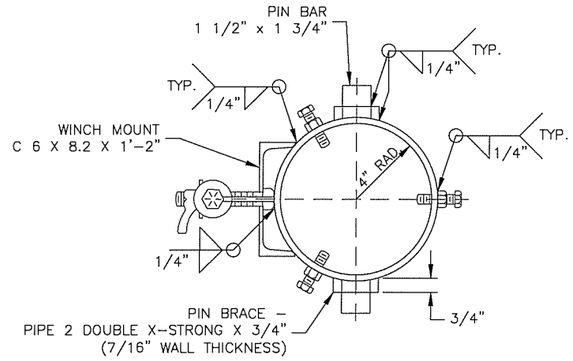
SECTION A-A
U-BOLTS NOT SHOWN



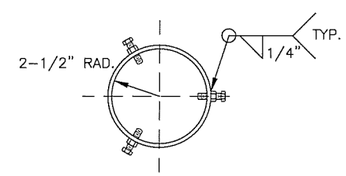
UPPER GATE ARM GUIDE DETAIL



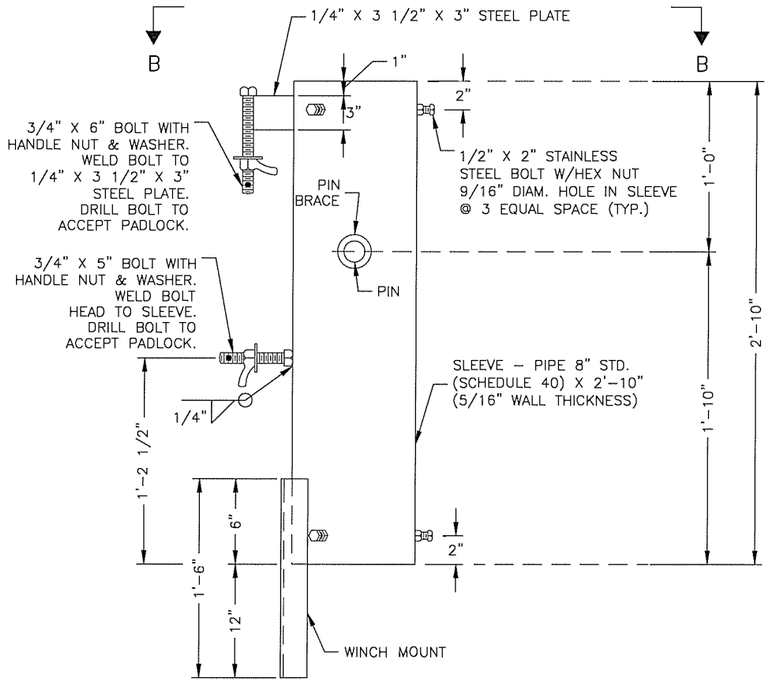
LOWER GATE ARM GUIDE DETAIL



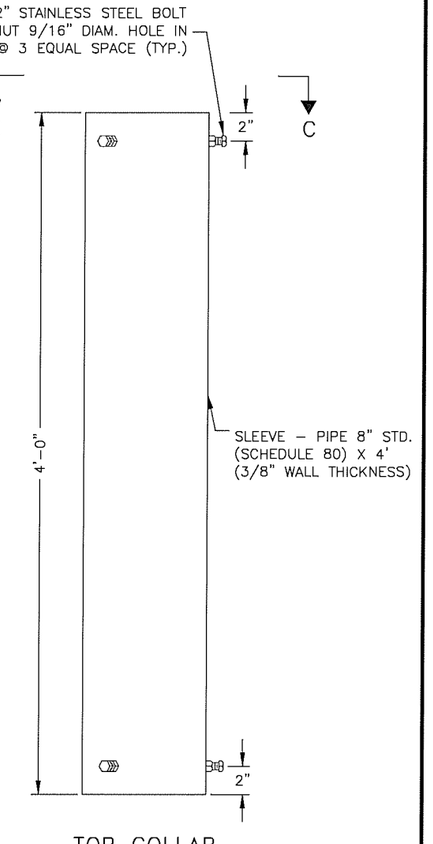
SECTION B-B



SECTION C-C



PIVOT SLEEVE DETAIL



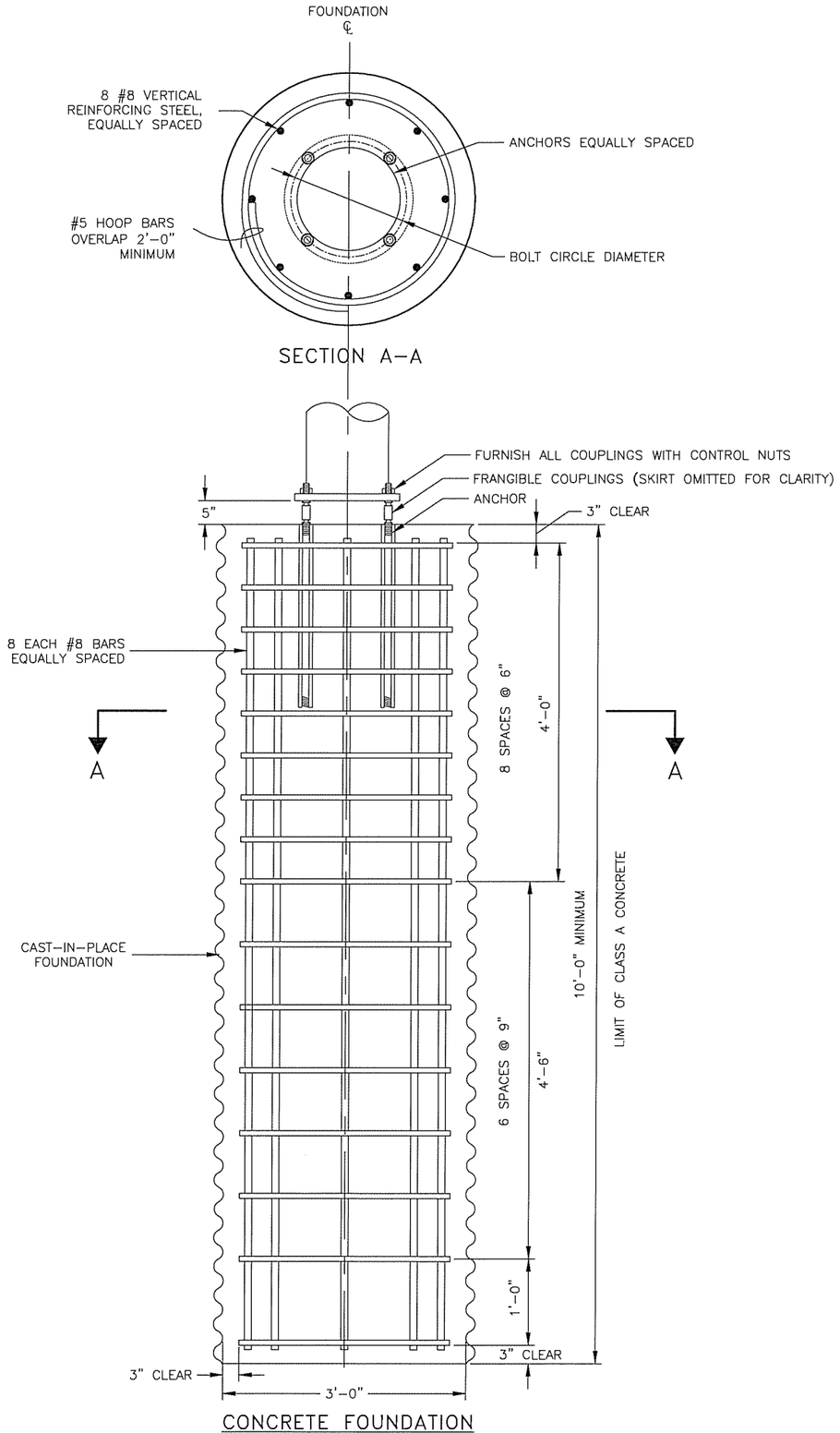
TOP COLLAR

GATE DETAILS (4 OF 4)

STATE OF ALASKA
49 TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 30\2 Drawings\00649_L4-E3 Gate Details Tue, Mar/29/22 02:09pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	L5	L5



CONCRETE FOUNDATION

FOUNDATION NOTES

DESIGN: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORT FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.

CONSTRUCTION: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 2020 EDITION.

WIND LOAD: 110 MPH

GATE SUPPORT DETAIL: FOUNDATION DESIGN BASED ON A MAXIMUM LENGTH OF 35 FOOT GATE ARM AND A 36 INCH MOUNTING HEIGHT.

MATERIALS PROPERTIES		
CONCRETE	CLASS A	f'c=4000 psi
CMP	AASHTO M218	14 ga.
REINFORCING STEEL	ASTM A615 GRADE 60	Fy=60 ksi
FRANGIBLE COUPLING	TRANSPO MODEL 5100 SERIES OR APPROVED EQUAL	Vu = 3.8–5.5 kips Tu = 49.8 kips
ANCHOR	TRANSPO TYPE B FEMALE ANCHOR OR APPROVED EQUAL	

NOTES:

1. CONTRACTOR SHALL VERIFY ALL GEOMETRICS AND ELEVATIONS PRIOR TO CONSTRUCTION.
2. PLACE FOUNDATIONS IN DRILLED OR EXCAVATED HOLE WITH CENTERLINE OF FOUNDATION LOCATIONS AS INDICATED IN THE PLANS.
3. FORM THE FOUNDATION IN CORRUGATED METAL PIPE CONFORMING TO SUBSECTION 707–2.01 OF THE SPECIFICATIONS.
4. COMPLETE ALL CONCRETE WORK IN CONFORMANCE WITH SECTIONS 501, 503 AND 660 OF THE SPECIFICATIONS.
5. BACKFILL AND COMPACT ACCORDING TO SUBSECTION 205, AND SUBSECTIONS 203–3.04 AND 660–3.01 OF THE SPECIFICATIONS. USE SELECT MATERIAL TYPE A OR SAND MIXTURE CONSISTING OF 2 SACKS OF PORTLAND CEMENT PER CUBIC YARD OF SOIL. ENSURE AREA BELOW FOUNDATION MEETS COMPACTION REQUIREMENTS AND IS FREE OF LOOSE MATERIAL AND DEBRIS PRIOR TO CONCRETE WORK.
6. USE FINISHED SLOPES AND A STRAIGHT EDGE TO DETERMINE THE TOP OF CONCRETE FOUNDATION. USE BLOCKS, IF NECESSARY, TO ALLOW FOR TOPSOIL THICKNESS.
7. OVERLAP ALL HOOP BARS 2'–0" MIN.
8. INSTALL ALL ANCHORS ACCORDING TO THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. ANCHORS SHALL BE INSTALLED PLUMB. ANCHORS GREATER THAN 1:40 OUT–OF–PLUMB WILL RESULT IN FOUNDATION REJECTION.
9. FRANGIBLE COUPLINGS HAVE NO MEASURED TORQUE REQUIREMENT. INSTALL FRANGIBLE COUPLINGS INTO FLUSH MOUNTED FEMALE ANCHORS SO THAT NO FIXED HARDWARE EXTENDS ABOVE THE FOUNDATION TOP.
10. INSTALL ALL COMPONENTS OF THE BREAKAWAY SUPPORT SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
11. SEE STANDARD PLAN L–03.11, SHEET V14, FOR SKIRT DETAILS AND NOTES. THE ASSEMBLED SKIRT MEASURES ABOUT 10" SQUARE.

CONCRETE FOUNDATION SUMMARY		
LOCATION (SITE)	FOUNDATION DIAMETER	FOUNDATION DEPTH
RICHARDSON HIGHWAY		
STUART CREEK	3'–0"	10'–0"

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

FOUNDATION DETAIL

H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00649_L5-E4 Foundation Detail Tue, Mar/29/22 02:09pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N1	N8

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	STUART CREEK #565	TIEKEL RIVER LOWER XING #1221	TIEKEL RIVER UPPER XING #1222	TOTAL
507.2001.0002	Steel Bridge Railing, 2-Tube	LF	LF			643	643
508.0001.0000	Waterproofing Membrane, Spray-Applied	LS	SF			10,914	10,914
510.2001.0000	Bridge Deck Repair	CS	SF			218	218
606.0016.0000	Transition Rail	EA	EA			4	4
606.0016.0001	Transition Rail, Modififcation	EA	EA	4	4		8

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

GENERAL NOTES

DESIGN:..... AASHTO LRFD Bridge Design Specifications, 2017 Edition, with latest interim specifications.

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

REINFORCEMENT:..... ASTM A706, Grade 60, Fy = 60,000 psi
Space reinforcement evenly unless otherwise noted.

CONCRETE:.....Class A Concrete unless otherwise noted, f'c = 4000 psi

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

Existing stations, elevations and dimensions are based on as-built plans, and those plans may not show existing dimensions and conditions. Where dimensions of the proposed work depend on the existing bridge dimensions, field-verify the controlling dimensions and adjust proposed dimensions of the work to fit existing conditions.

ABBREVIATIONS:

℄	= centerline
℗	= plate
&	= and
@	= at
ø	= diameter
±	= Approximate Dimension, verify controlling field dimensions.
Abut.	= abutment
Approx.	= approximate
b.f.	= back/dirt face
bot.	= bottom
Br.	= bridge
btwn.	= between
Brg.	= bearings
C.I.P.	= cast in place
Clr.	= clear, clearance
CLSM	= controlled law strength material
CS	= contingent sum
CY	= cubic yard
DHW	= design high water
dia.	= diameter
Dwg.	= drawing
E	= expansion
(E)	= existing
EA	= each
Elev.	= elevation
e.a.	= each face
e.w.	= each way
F	= fixed
f.f.	= front/air face
f'c	= specified concrete compressive strength
Fy	= yield stress
Galv.	= galvanize
Hwy.	= highway
ksf	= 1000 pounds per square foot
LB	= pound
LF	= linear foot
LS	= lump sum
Lt.	= left
max.	= maximum
min.	= minimum
n.f.	= near face
No.	= number
o.c.	= on center
O.H.W.	= ordinary high water
pcf	= pounds per cubic foot
psf	= pounds per square foot
psi	= pounds per square inch
PVC	= point of vertical curve
PVI	= point of vertical intersection
PVT	= point of vertical tangent
req'd	= required
R.O.W.	= right of way
Rt.	= right
Rd.	= road
shld.	= shoulder
spc.	= space, spaces
Sta.	= station
SF	= square feet
Symm.	= symmetric
Typ.	= typical
w/	= with

REHABILITATION

DESIGNED BY: Ben Still	CHECKED: Jesse Escamilla III	LAYOUT BY: Ben Still	CHECKED BY: Jesse Escamilla III
DRAWN BY: Javier De Leon	CHECKED: Ben Still	SPECIFICATIONS BY: Ben Still	P S & E COMPARED: Jesse Escamilla III
QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III	APPROVAL RECOMMENDED BY: Richard Pratt	

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

STATE OF ALASKA 49TH
Benjamin A. Still
03-08-2022
No. CE 171129
REGISTERED PROFESSIONAL ENGINEER

RICHARDSON MP 40-51 REHABILITATION

RICHARDSON HIGHWAY

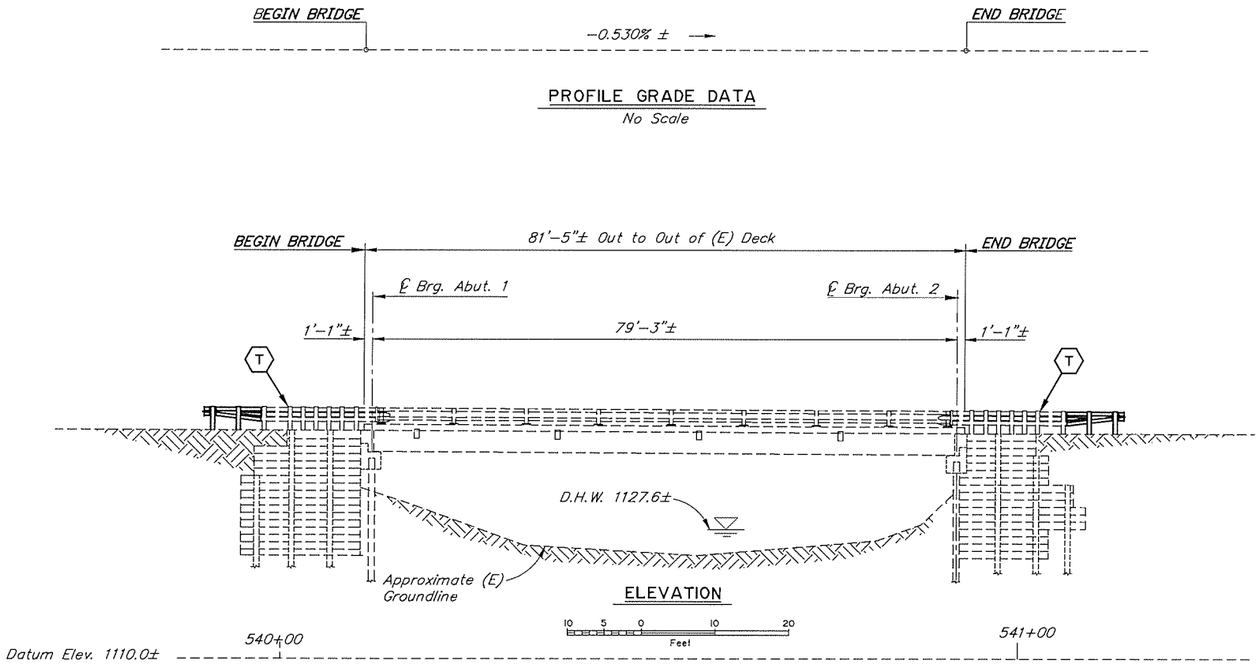
BASIS OF ESTIMATE

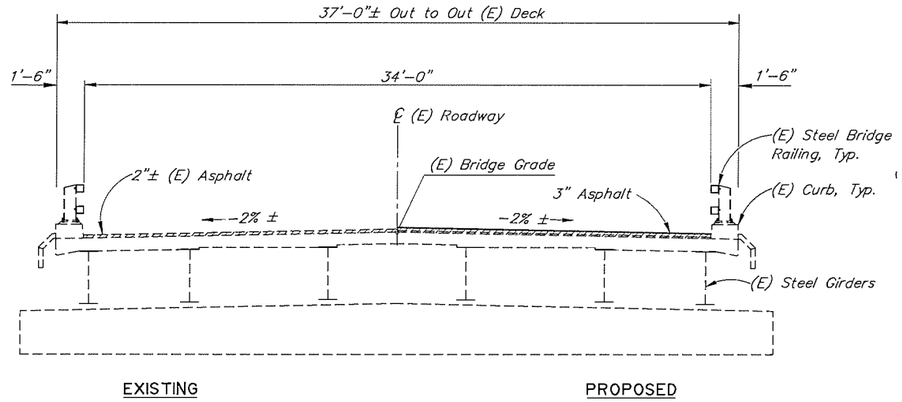
BRIDGE NO.

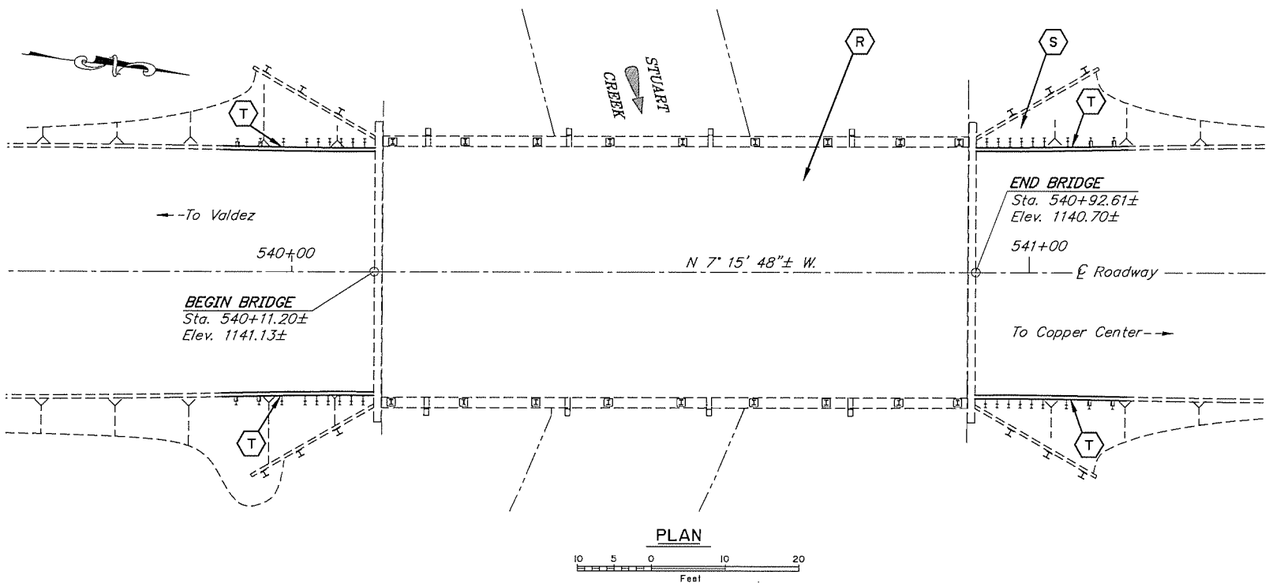
DWG. NO.

R:\cad\Rich 35-51\564-ESTIMATE Tue, Mar/08/22 3:21pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N2	N8







REHABILITATION

BRIDGE DRAWING INDEX

TITLE	DWG. NO.
GENERAL LAYOUT	1
TRANSITION RAIL	2

LEGEND

- (R) – Remove 1" of (E) asphalt and replace w/ 2" of asphalt, 3" total.
- (S) – Install object markers and Name Place Signs
- (T) – Remove (E) Transition Rail and Install MASH Compliant Asymmetric Transition Rail.

NOTES:

(E) = Existing
- - - - - - = Existing
——— = Proposed

Elevations, Benchmarks and Dimensions are based on "AS-BUILT" plans. Verify all controlling field dimensions before ordering or fabricating any material.

DESIGNED BY: Ben Still	CHECKED: Jesse Escamilla III	LAYOUT BY: Ben Still	CHECKED BY: Jesse Escamilla III
DRAWN BY: Javier De Leon	CHECKED: Ben Still	SPECIFICATIONS BY: Ben Still	P S & E COMPARED: Jesse Escamilla III
QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III	APPROVAL RECOMMENDED BY: Richard Pratt	

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
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STATE OF ALASKA 49TH
Benjamin A. Still
03-08-2022
No. CE 17112
REGISTERED PROFESSIONAL ENGINEER

STUART CREEK BRIDGE

RICHARDSON HIGHWAY

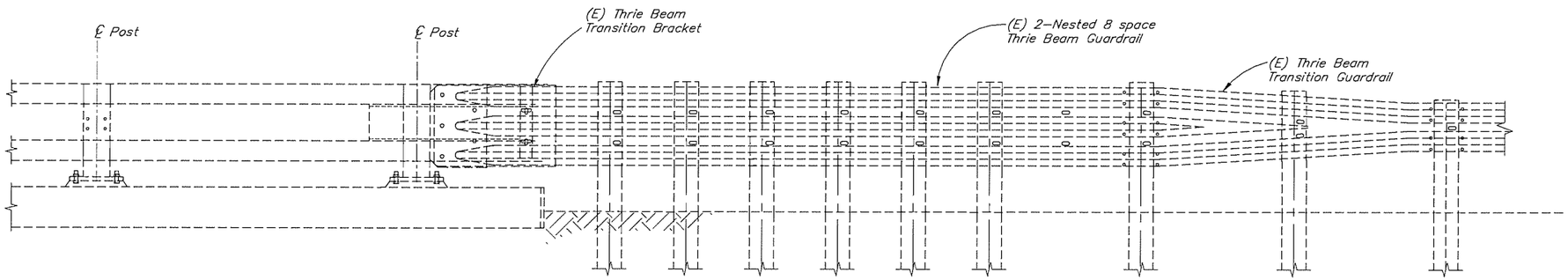
GENERAL LAYOUT

BRIDGE NO. 565

DWG. NO. 1

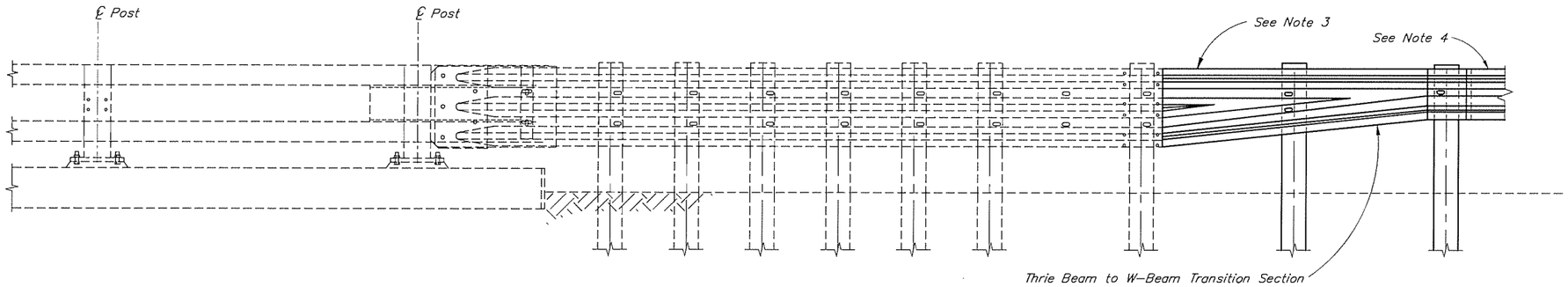
R:\cad\Rich 35-51\565-GEN Tue, Mar/08/22 03:21pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N3	N8



EXISTING ELEVATION

No Scale



PROPOSED ELEVATION

No Scale

NOTES:

(E) = Existing

– – – – – = Existing

——— = Proposed

1. All guardrail and guardrail connection hardware to conform to AASHTO M 180. Use H.S. Bolts conforming to ASTM F1325, Grade A325. All other steel conforms to ASTM A709 Grade 36.
2. Conform to Alaska Standard Plans G–00.04 and G–05.11S for guardrail details not shown.
3. Lap approach guardrail to prevent snags from oncoming traffic.
4. Match height of existing or new rail elements and end treatments. See Roadway plans.
5. Verify controlling field dimensions before ordering or fabricating any material.

DESIGNED BY: Ben Still	CHECKED: Jesse Escamilla III
DRAWN BY: Javier De Leon	CHECKED: Ben Still
QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III

REHABILITATION

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

STATE OF ALASKA 49 TH
Benjamin A. Still
03-08-2022
No. CE 17129
REGISTERED PROFESSIONAL ENGINEER

STUART CREEK BRIDGE

RICHARDSON HIGHWAY

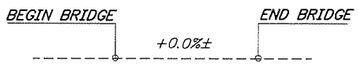
TRANSITION RAIL

BRIDGE NO. 565

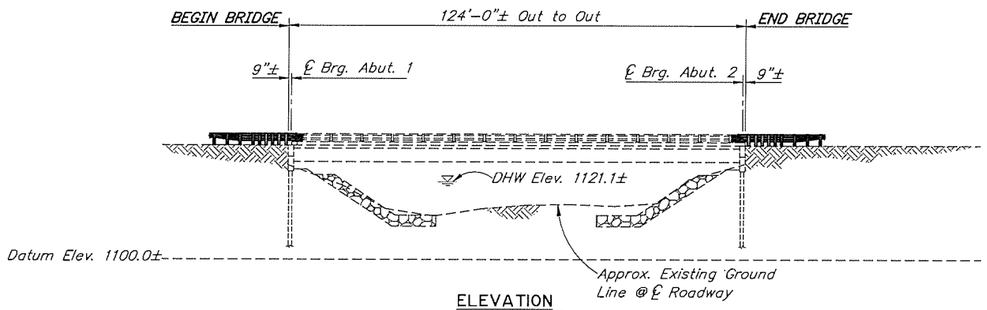
DWG. NO. 2

R:\cad\Rich 35-51\565-TRANSITION Tue, Mar/08/22 03:21pm

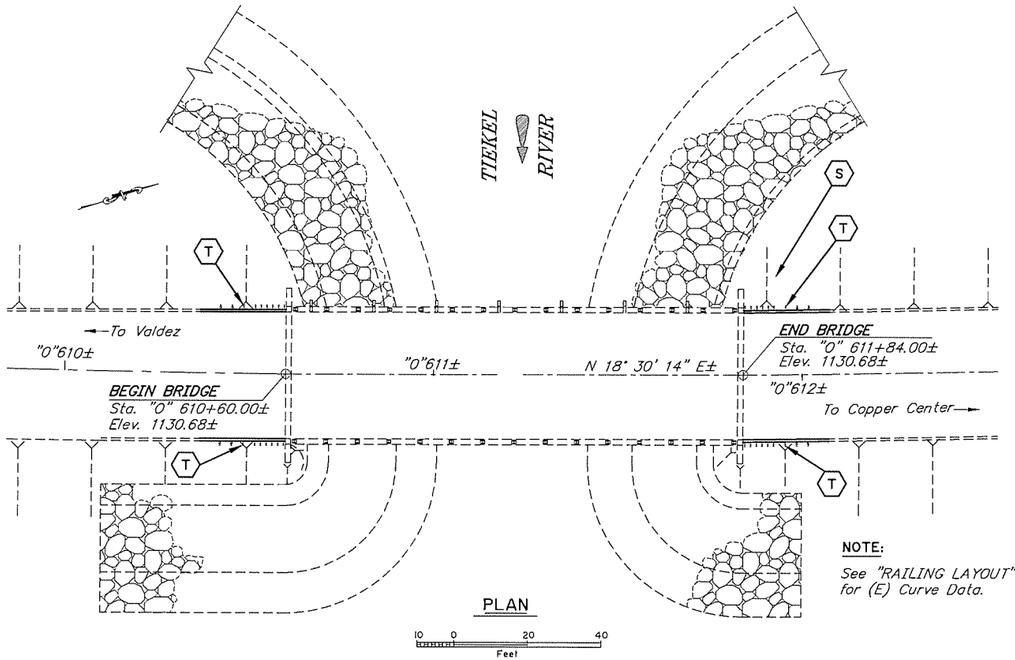
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N4	N8



PROFILE GRADE DATA
No Scale

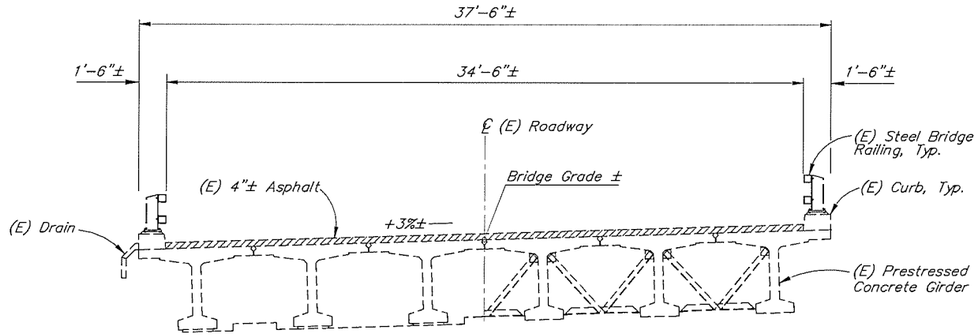


ELEVATION



NOTE:
See "RAILING LAYOUT" Dwg. for (E) Curve Data.

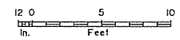
PLAN



AT ABUTMENTS

AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION



REHABILITATION

BRIDGE DRAWING INDEX

TITLE	DWG. NO.
GENERAL LAYOUT	1
WINGWALLS	2
TRANSITION RAIL	3

LEGEND

(S) – *Install object markers and Name Place Signs*

(T) – *Remove (E) Transition Rail and Install MASH Compliant Transition Rail.*

NOTES:

(E) = Existing

- - - - - = Existing

——— = Proposed

Elevations, Benchmarks and Dimensions are based on "AS-BUILT" plans. Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

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QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III	APPROVAL RECOMMENDED BY: Richard Pratt	

STATE OF ALASKA
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3132 Channel Drive
Juneau, Alaska 99801
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STATE OF ALASKA 49TH
Benjamin A. Still
03-08-2022
No. CE 171129
REGISTERED PROFESSIONAL ENGINEER

TIEKEL RIVER LOWER XING

RICHARDSON HIGHWAY

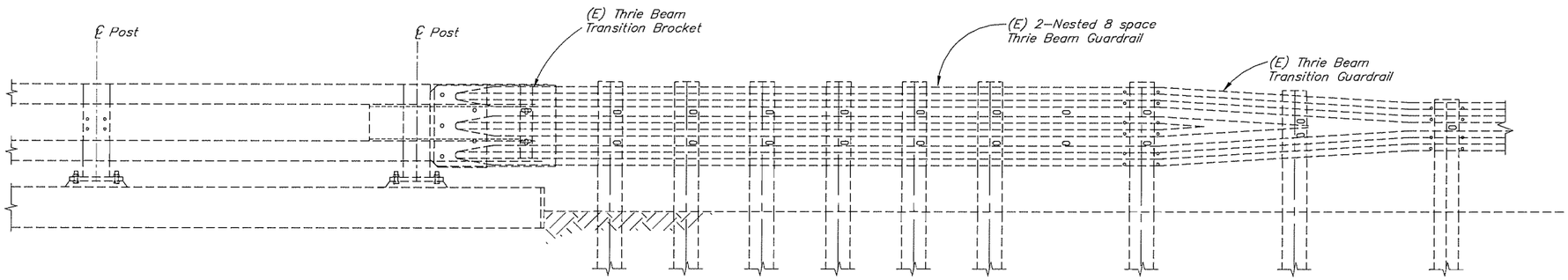
GENERAL LAYOUT

BRIDGE NO. 1221

DWG. NO. 1

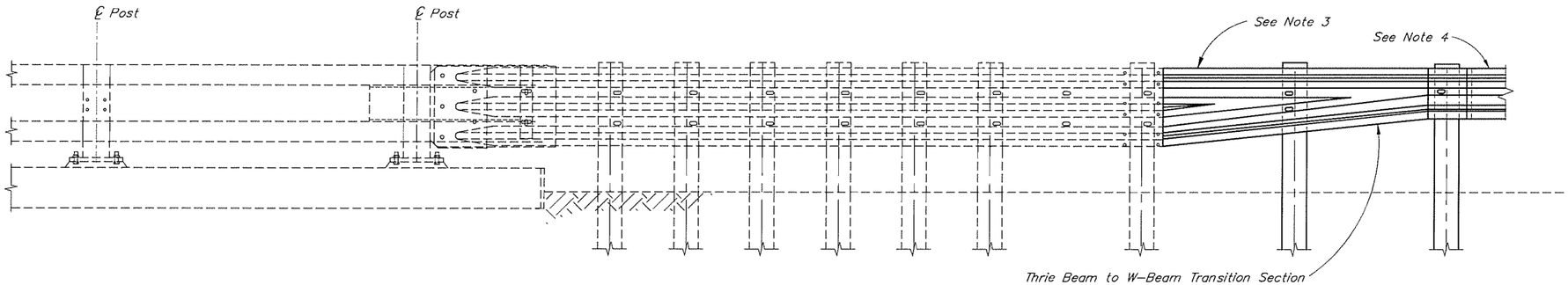
R:\cad\Rich 35-51\1221-GEN Tue, Mar/08/22 03:21pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N5	N8



EXISTING ELEVATION

No Scale



PROPOSED ELEVATION

No Scale

NOTES:

(E) = Existing

– – – – – = Existing

——— = Proposed

1. All guardrail and guardrail connection hardware to conform to AASHTO M 180. Use H.S. Bolts conforming to ASTM F1325, Grade A325. All other steel conforms to ASTM A709 Grade 36.
2. Conform to Alaska Standard Plans G–00.04 and G–05.11S for guardrail details not shown.
3. Lap approach guardrail to prevent snags from oncoming traffic.
4. Match height of existing or new rail elements and end treatments. See Roadway plans.
5. Verify controlling field dimensions before ordering or fabricating any material.

R:\cad\Rich 35-51\1221-TRANSITION Tue, Mar/08/22 03:22pm

DESIGNED BY: Ben Still	CHECKED: Jesse Escamilla III
DRAWN BY: Javier De Leon	CHECKED: Ben Still
QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III

REHABILITATION

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

STATE OF ALASKA 49 TH Benjamin A. Still 03-08-2022 No. CE 17112 REGISTERED PROFESSIONAL ENGINEER

TIEKEL RIVER LOWER XING

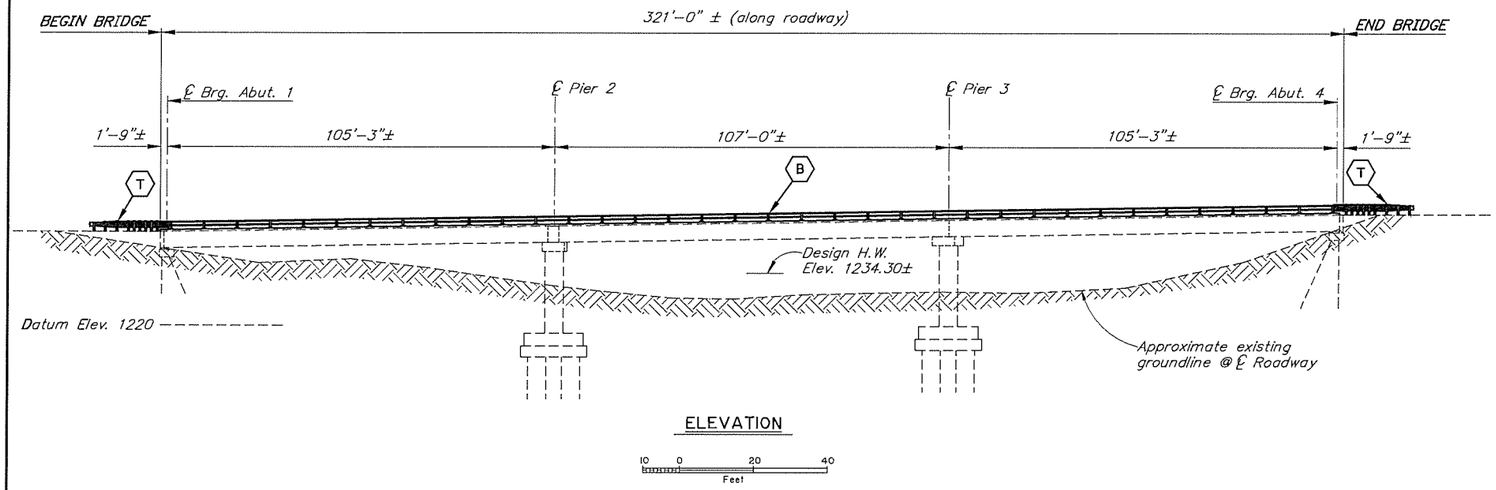
RICHARDSON HIGHWAY

PROPOSED THRIE BEAM TRANSITION

BRIDGE NO. 1221

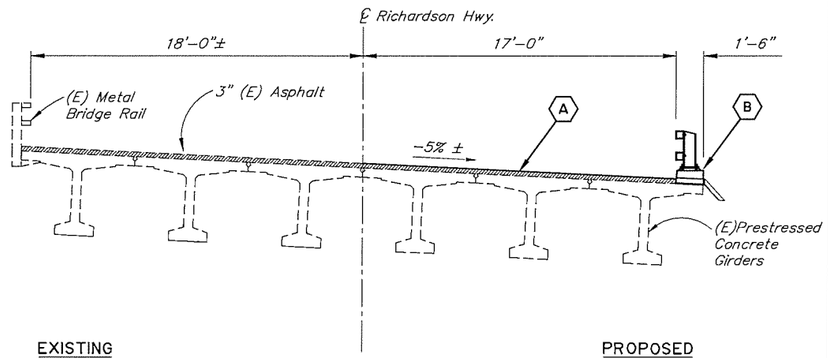
DWG. NO. 2

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N6	N8



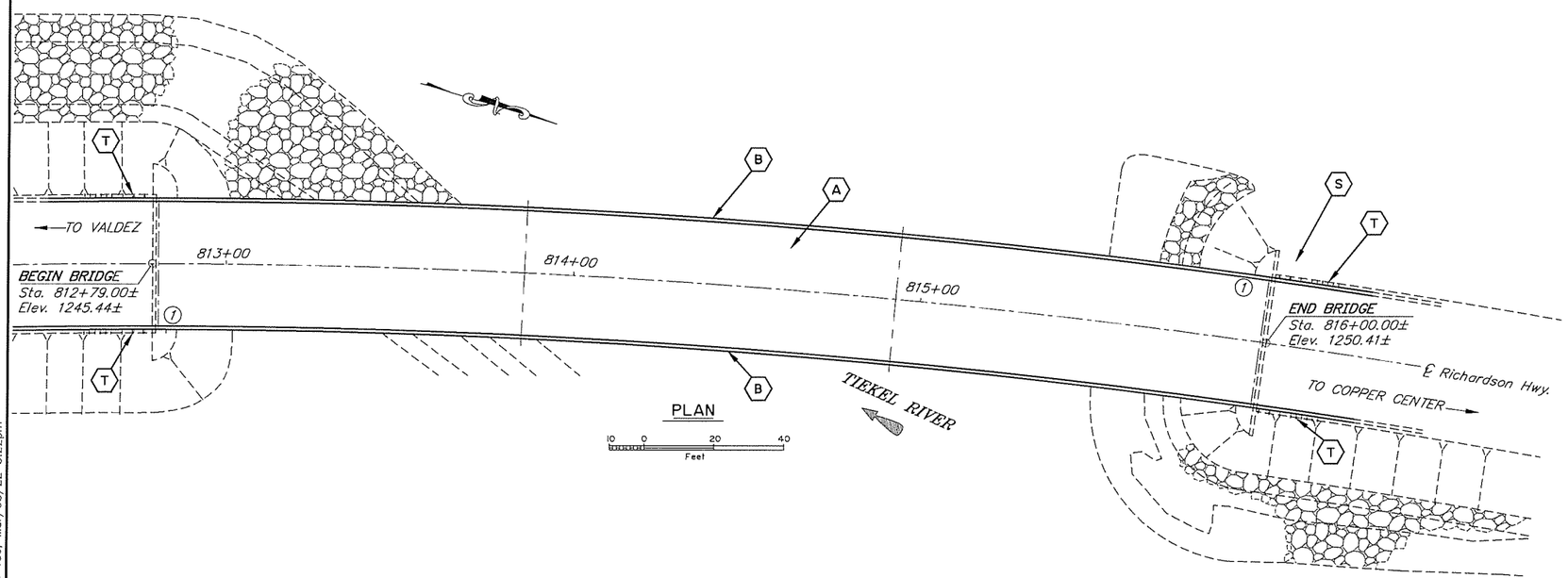
ELEVATION

10 0 20 40
Feet



TYPICAL SECTION

12 0 4 8
In. Feet



PLAN

10 0 20 40
Feet

REHABILITATION

BRIDGE DRAWING INDEX

TITLE	DWG. NO.
GENERAL LAYOUT	1
BRIDGE RAIL LAYOUT	2
BRIDGE RAIL	3

LEGEND

- (A) – Remove (E) 3"± Asphalt and install 3" Asphalt w/ Spray-Applied Waterproofing Membrane.
- (B) – Remove (E) Bridge Rail and Install MASH Compliant Bridge Rail.
- (S) – Install object markers and Name Place Signs
- (T) – Remove (E) Transition Rail and Install MASH Compliant Transition Rail.

NOTES:

(E) = Existing

– – – – – = Existing

——— = Proposed

Elevations, Benchmarks and Dimensions are based on "AS-BUILT" plans. Verify all controlling field dimensions before ordering or fabricating any material.

(1) Approximate location of Bridge Number Plate.

DESIGNED BY: Ben Still	CHECKED: Jesse Escamilla III	LAYOUT BY: Ben Still	CHECKED BY: Jesse Escamilla III
DRAWN BY: Javier De Leon	CHECKED: Ben Still	SPECIFICATIONS BY: Ben Still	P S & E COMPARED: Jesse Escamilla III
QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III	APPROVAL RECOMMENDED BY: Richard Pratt	

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
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Juneau, Alaska 99801
907-465-2975

STATE OF ALASKA 49 TH
Benjamin A. Still
03-08-2022
No. CE 17129
REGISTERED PROFESSIONAL ENGINEER

TIEKEL RIVER UPPER XING

RICHARDSON HIGHWAY

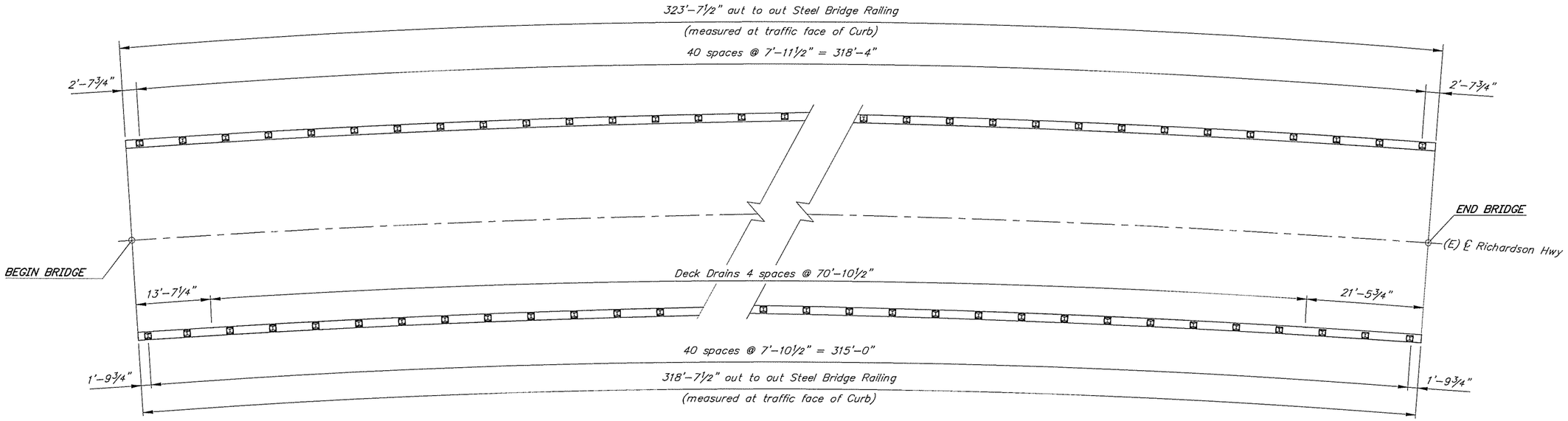
GENERAL LAYOUT

BRIDGE NO. 1222

DWG. NO. 1

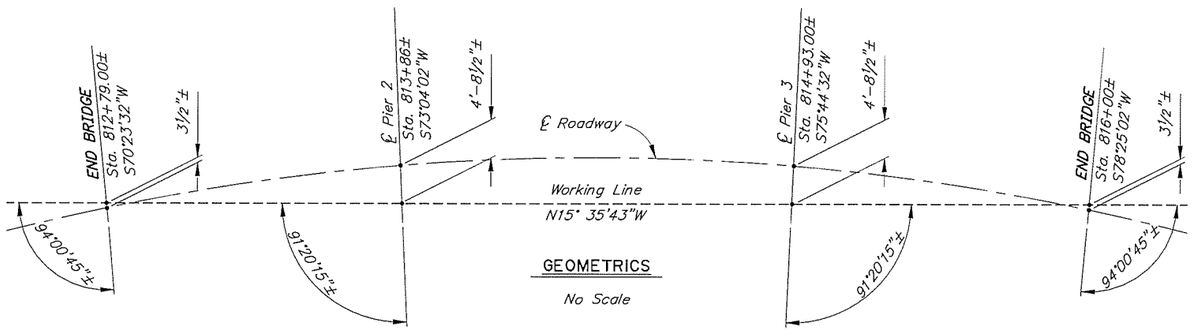
R:\ead\Rich 35-51\1222-GEN Tue, Mar/08/22 3:22pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N7	N8



RAILPOST LAYOUT

10 5 0 10 20
Feet



GEOMETRICS

No Scale

CURVE DATA

Δ = 56°50'00"± Rt.
D = 2°30'±
T = 1240.05'±
R = 2291.83'
L = 2273.33'±
S = 0.05±
PC = Sta. 800+16.26±

NOTES:

(E) = Existing
- - - - - - = Existing
——— = Proposed

Existing Elevations, Benchmarks and Dimensions are based on "AS-BUILT" plans. Verify all controlling field dimensions before ordering or fabricating any material.

DESIGNED BY: Ben Still	CHECKED: Jesse Escamilla III
DRAWN BY: Javier De Leon	CHECKED: Ben Still
QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III

REHABILITATION

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

STATE OF ALASKA 49TH
Benjamin A. Still
03-08-2022
No. CE 171129
REGISTERED PROFESSIONAL ENGINEER

TIEKEL RIVER UPPER XING

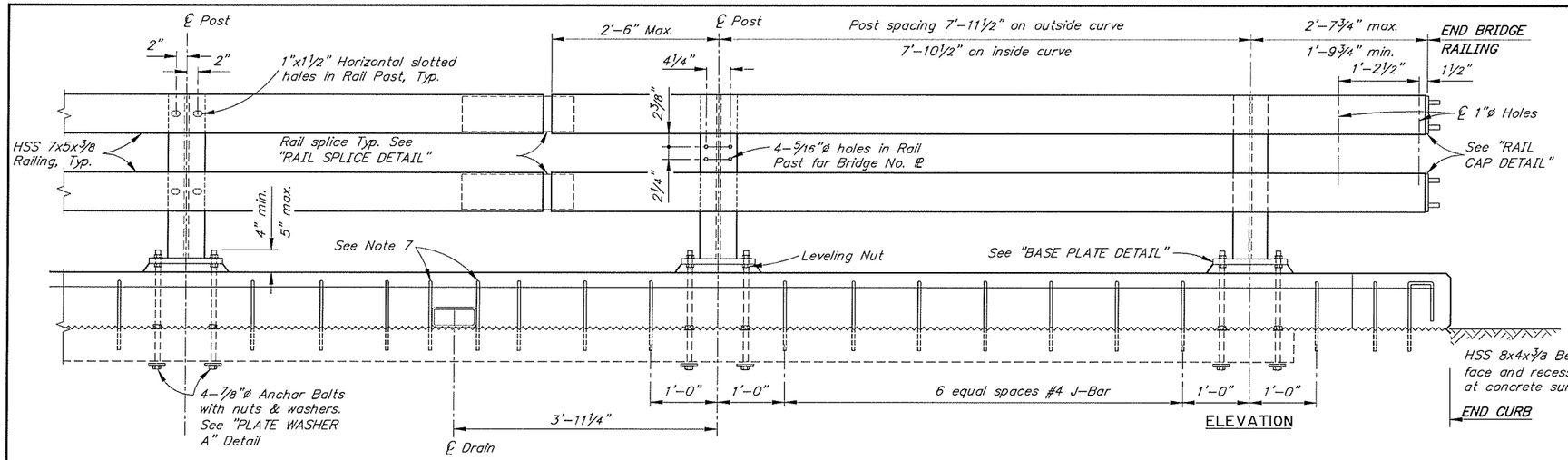
RICHARDSON HIGHWAY

BRIDGE RAIL LAYOUT

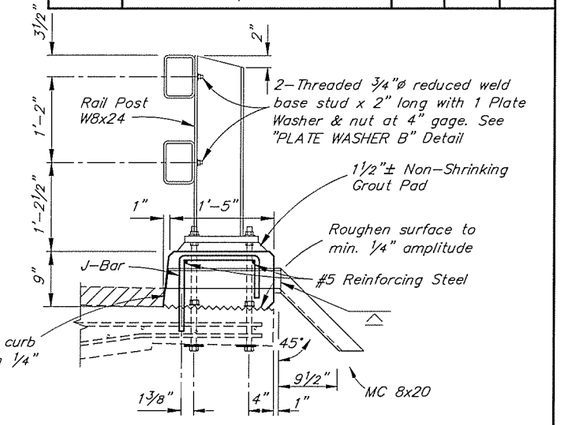
BRIDGE NO. 1222
DWG. NO. 2

R:\cad\Rich 35-51\1222-RAIL LAYOUT Tue, Mar/08/22 3:22pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	N8	N8



ELEVATION



TYPICAL SECTION

TYPICAL POST ELEVATION

RAIL SPLICE DETAIL

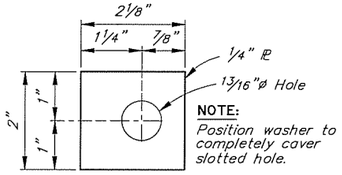
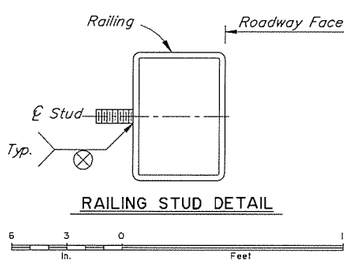
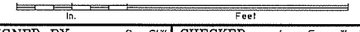


PLATE WASHER B

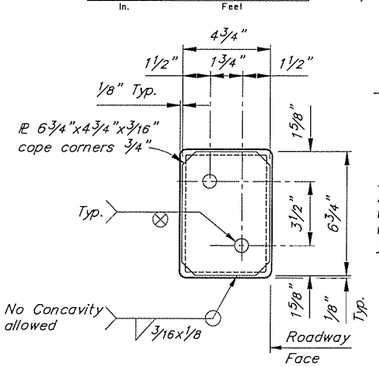
No Scale



RAILING STUD DETAIL



EXPANSION JOINT



RAIL CAP DETAIL

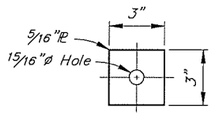


PLATE WASHER A

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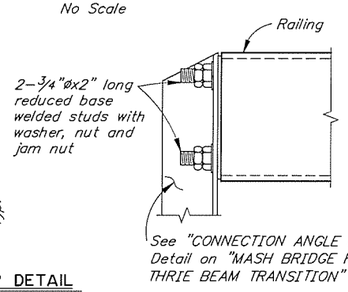
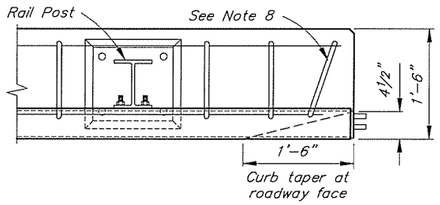
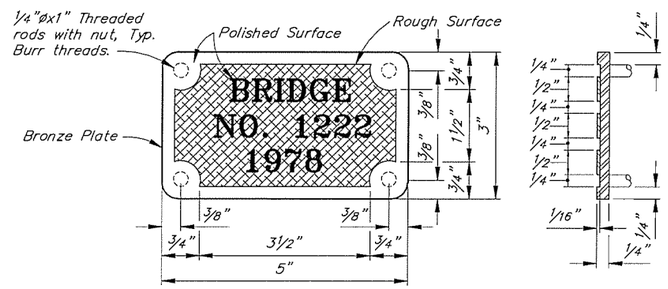




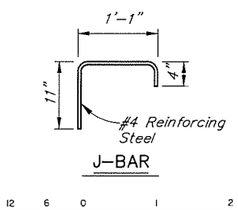
PLAN

END POST DETAIL

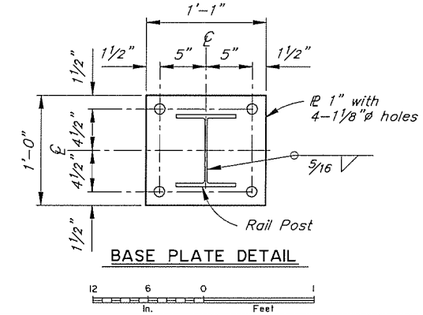


BRONZE BRIDGE NO. PLATE

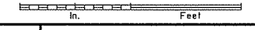
No Scale



J-BAR



BASE PLATE DETAIL



NOTES:

1. Remove existing bridge number plates. Install bridge number plates onto new steel bridge railing posts. Use studs and nuts that conform to UNS C65100 or UNS C65500. Braze ¼"ø threaded rod to back of plate with nut – 4 required. Use tamper proof nuts.
2. Locate bridge number plates on right hand side of approaching traffic near each end as shown on "GENERAL LAYOUT" Dwg. (2 total).
3. Provide railing expansion joints at 50'-0" maximum intervals. Railing shall be continuous over 2 posts minimum. Railing expansion joints are required in rail panels that span bridge expansion joints.
4. See "RAILING LAYOUT AND TYPICAL SECTION" Dwg. for rail post spacing.
5. Install bridge rail posts plumb.
6. Core and bond anchor bolts through the existing deck and existing rail hardware. Drill and bond J-Bars 4" into the existing deck. Adjust J-Bar spacing to avoid existing reinforcing and existing rail hardware.
7. Adjust J-Bar spacing as needed to avoid TS drains.
8. Adjust reinforcing to accommodate curb taper.
9. Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
10. Use grout with a minimum 24-hour f'c of 3,000 psi in single placement.
11. See Standard Plan G-32.03 for "MASH BRIDGE RAIL THRIE BEAM TRANSITION" Dwg.

DESIGNED BY: Ben Still	CHECKED: Jesse Escamilla III		
DRAWN BY: Javier De Leon	CHECKED: Ben Still		
QUANTITIES BY: Ben Still	CHECKED: Jesse Escamilla III		

REHABILITATION

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

STATE OF ALASKA 49 TH Benjamin A. Still 03-08-2022 No. CE 17129 REGISTERED PROFESSIONAL ENGINEER

TIEKEL RIVER UPPER XING

RICHARDSON HIGHWAY

BRIDGE RAIL

BRIDGE NO. 1222

DWG. NO. 3

R:\cad\Rich 35-51\1222-BRIDGE RAIL Tue, Mar/08/22 3:22pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	Q1	Q13

PROJECT SITE-SPECIFIC CONDITIONS

ESCP GENERAL NOTES

GENERAL

1. THIS ESCP IS A GENERAL PLAN FOR GUIDING THE DEVELOPMENT OF THE CONTRACTOR'S SWPPP. THE CONTRACTOR IS EXPECTED TO PROVIDE ADDITIONAL DETAILS AND BMP'S BASED ON THE CONTRACTORS ACTUAL SCHEDULE AND CONSTRUCTION METHODS, AS REQUIRED TO COMPLY WITH THE 2021 CONSTRUCTION GENERAL PERMIT (CGP) AND SECTION 641 OF THE PROJECT SPECIFICATIONS. SEE ESCP NARRATIVE IN APPENDIX B.
2. INITIATE EROSION AND SEDIMENT CONTROLS PRIOR TO EARTH DISTURBING ACTIVITIES.
3. RE-VEGETATE ALL DISTURBED GROUND CAPABLE OF SUPPORTING VEGETATION FOR FINAL STABILIZATION. COVER ERODIBLE AREAS (NOT RE-VEGETATED) BY ROCK OR OTHER NON-ERODIBLE MATERIAL. ATTAINMENT OF FINAL STABILIZATION WILL BE AS APPROVED BY THE ENGINEER.
4. ALL IN-WATER WORK MUST BE ISOLATED FROM FLOWING WATER. ISOLATION METHODS INCLUDE:
   a. SILT CURTAINS
   b. COFFERDAMS
   c. OTHER METHODS APPROVED BY ENGINEER
5. CONSTRUCTION ENTRANCES/EXITS MUST BE ESTABLISHED TO MINIMIZE OFF-SITE IMPACTS. DUST CONTROL AND OTHER MEASURES TO MINIMIZE OFF-SITE IMPACTS IS REQUIRED AT CONSTRUCTION ENTRANCES/EXITS TO THE PROJECT. COST-EFFICIENT MITIGATION MEASURES (E.G., WASH EQUIPMENT) ARE RECOMMENDED TO MINIMIZE THE TRANSPORT OF PROPAGULES OFF-SITE. PREVENTION MEASURES TO REDUCE THE RISK OF INTRODUCING ADDITIONAL SPECIES INCLUDE USING CERTIFIED WEED-FREE SEED MIXES FOR REVEGETATION AND WASHING EQUIPMENT.
6. RECLAIM STOCKPILE AND STAGING AREAS TO THEIR ORIGINAL CONDITION AS APPROVED BY THE ENGINEER.
7. AREAS OF DISTURBANCE, TEMPORARY AND PERMANENT STABILIZATION, WILL BE MARKED ON THE SWPPP SITE MAPS AND TABLES AS WORK PROCEEDS.
8. REFER TO APPENDIX A OF THE CONTRACT FOR ENVIRONMENTAL PERMIT INFORMATION.
9. THERE ARE NO PUBLIC WATER PROTECTION AREAS THAT INTERSECT WITH THE BOUNDARY.
10. TEMPORARY BMPS WON'T BE MEASURED FOR PAYMENT AND ARE SUBSIDIARY TO ITEM 641.0003.0000.
11. USE A PUMPED STREAM DIVERSION OR TEMPORARY DIVERSION CONVEYANCE BMP APPROVED BY THE ENGINEER TO REDUCE SEDIMENT POLLUTION FROM CULVERT CONSTRUCTION WORK.
12. CONTRACTOR RESPONSIBLE TO COMPLY WITH ALL REQUIREMENTS OUTLINED IN SECTION 641 AND CGP WITH MAINTAINING MATERIAL SITES.

PERIMETER CONTROL

13. VEGETATIVE BUFFER IS THE PREFERRED PERIMETER PROTECTION FOR THIS PROJECT.
14. INSTALL PERIMETER CONTROL BMP WHEN WORKING WITHIN 25 FEET OF SURFACE WATERS AND ALONG WETLANDS WHERE A 25 FOOT VEGETATIVE BUFFER IS NOT RETAINED.

HAULING

15. ENSURE LOADS ARE STABLE OR COVERED SO MATERIAL ESCAPEMENT DOESN'T OCCUR DURING HAULING ACTIVITIES.

STOCKPILE PROTECTION

16. PROTECT ALL ERODIBLE STOCKPILES WITH EROSION AND SEDIMENT BMPS.
17. EROSION AND SEDIMENT CONTROL BMPS MAY REQUIRE REMOVAL AND RE-INSTALLATION EACH SHIFT.

IN-WATER WORK

18. ALL IN-WATER WORK WILL BE ISOLATED FROM FLOWING WATER.

TIMING OF BMPS INSTALLATION

19. INSTALL TEMPORARY PERIMETER CONTROL BMPS BEFORE UP-GRADIENT SOIL DISTURBANCE OCCURS.

WINTER SHUTDOWN

20. IF FINAL STABILIZATION IS NOT ACHIEVED BEFORE WINTER SHUTDOWN, EXPOSED GROUND, INCLUDING BUT NOT LIMITED TO EMBANKMENT SLOPES AND STOCKPILES, MUST BE TEMPORARILY STABILIZED FOR SPRING BREAK-UP AND UNTIL PERMANENT STABILIZATION IS ACHIEVED THE NEXT SEASON. ALL STABILIZATION AND OTHER EROSION CONTROL MEASURES NECESSARY FOR WINTER SHUTDOWN ARE SUBSIDIARY TO ITEM 641.0003.0000.

WETLAND AREAS

21. PROTECTED WETLANDS: RESTRICTED USE AREA; REFER TO ENVIRONMENTAL PERMITS FOR ADDITIONAL INFORMATION REGARDING RESTRICTIONS AND REQUIREMENTS WHEN WORKING ADJACENT TO PROTECTED WETLAND AREAS. FOR THIS PROJECT, ALL WETLANDS BEYOND THE EXISTING AND TEMPORARY RIGHT-OF-WAY ARE PROTECTED WETLANDS.
22. TEMPORARY WETLAND IMPACT AREAS: LIMITED USE AREA; REFER TO ENVIRONMENTAL PERMITS FOR ADDITIONAL INFORMATION REGARDING TERMS OF USE, RESTRICTIONS AND REQUIREMENTS.
23. WETLAND MAPPING: WETLAND LOCATIONS ILLUSTRATED IN THE ESCP HAVE BEEN DETERMINED USING AVAILABLE AERIAL PHOTOGRAPHY, IMAGERY, AND FIELD DELINEATION. THE WETLANDS ILLUSTRATIONS ARE INTENDED FOR USE IN BIDDING AND SWPPP PREPARATION. THE CONTRACTOR SHALL FIELD CERTIFY WETLAND LOCATIONS PRIOR TO ANY EARTH DISTURBING ACTIVITIES. WETLAND MAPPING IS SUBSIDIARY TO SECTION 641.

GENERAL SITE INFORMATION

- SITE FUNCTION: ROAD
- AVERAGE ANNUAL TOTAL PRECIPITATION: 12.65 INCHES (SOURCE: WESTERN REGIONAL CLIMATE CENTER WEBSITE FOR STATION NUMBER 50-9385)
- 2-YEAR 24-HOUR PRECIPITATION: 1.26 INCHES (SOURCE: https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_ak.html)
- PROJECT AREAS ARE LISTED BELOW:

PROJECT INFORMATION TABLE	
TOTAL PROJECT AREA (ACRE)	580.0
DISTURBED AREA RICHARDSON HIGHWAY (ACRE)	70.0
DISTURBED AREA MS 71-1-006-5 (ACRE)	19.0
DISTURBED AREA MS 71-1-008-5 (ACRE)	8.0
DISTURBED AREA MS 71-1-029-5 (ACRE)	26.0
PRE-CONSTRUCTION IMPERVIOUS AREA (ACRE)	30%
POST-CONSTRUCTION IMPERVIOUS AREA (ACRE)	30%
PRE-CONSTRUCTION RUNOFFF COEFFICIENT	0.5
POST-CONSTRUCTON RUNOFF COEFFICIENT	0.5

ENVIRONMENTAL INFORMATION

- RECEIVING WATER BODIES: STUART CREEK, TIEKEL RIVER, JACKIE'S CREEK, TONSINA RIVER, BOULDER CREEK. THERE ARE WETLANDS WITHIN 2500 FEET OF THE CORRIDOR THROUGHOUT THE ENTIRE PROJECT.
- IMPAIRED WATER BODIES: NONE
- TOTAL MAXIMUM DAILY LOAD (TMDL) WATERS: NONE
- THREATENED AND ENDANGERED SPECIES: NONE
- HISTORIC & CULTURAL RESOURCE PRESENCE: NONE
- FISH AND WILDLIFE ESSENTIAL HABITAT: NONE
- STAKE PERMIT BOUNDARIES IN ACCORDANCE WITH SECTION 642 TO ENSURE ALL WORK IS WITHIN PERMIT BOUNDARIES.
- MIGRATORY BIRD TREATY: ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE MIGRATORY BIRD TREATY ACT. MECHANIZED LAND/VEGETATION CLEARING WILL BE AVOIDED DURING THE MIGRATORY BIRD NESTING SEASON (BETWEEN MAY 1 TO JULY 15) TO COMPLY WITH USFWS MIGRATORY BIRD TREATY ACT TIMING RECOMMENDATIONS UNLESS A MITIGATIVE WORK PLAN IS SUBMITTED BY THE CONTRACTOR AND APPROVED BY DOT&PF.
- REFER TO APPENDIX A FOR PROJECT-SPECIFIC PERMIT INFORMATION AND ENVIRONMENTAL COMMITMENTS.
- CONTACT THE DOT&PF PROJECT ENGINEER WITH ADDITIONAL QUESTIONS/CONCERNS REGARDING ENVIRONMENTAL ISSUES OR PERMIT INFORMATION.
- REFER TO THE DOT&PF ALASKA STORMWATER POLLUTION PREVENTION PLAN GUIDE FOR ADDITIONAL SWPPP GUIDANCE, INCLUDING BMPS AND CONDITIONS FOR THEIR USE.

EROSION CONTROL

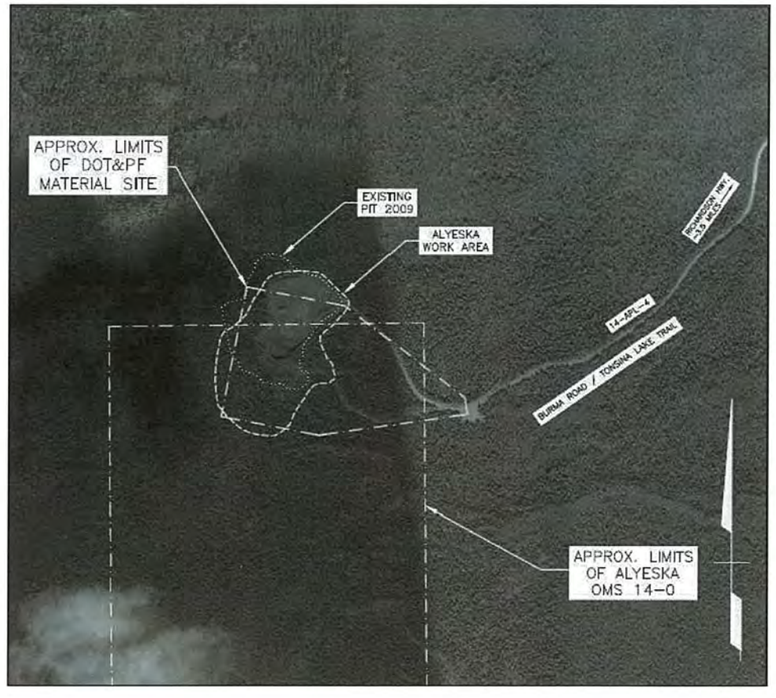
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00133_RICH-35-51_ESCP-NFHWY00130_RICH-51-65_ESCP - ESCP 1 (2) Tue, Mar/29/22 04:14am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	Q2	Q13

MS 71-1-029-5

MS 71-1-008-5

MS 71-1-006-5



NOTES:

1. BE SURE TO MINE ALL AVAILABLE MATERIAL IN ONE AREA BEFORE MOVING TO A NEW LOCATION WITHIN EITHER MATERIAL SITE.
2. BOTH MATERIAL SITES MS-71-1-029-5 AND MS 71-1-008-5 ARE AVAILABLE BUT NOT MANDATORY.
3. SEE SHEET Q1 FOR ADDITIONAL ESCP NOTES.
4. MS 71-1-006-5 ONLY AVAILABLE FOR RIPRAP.
5. ACCESS TO MS 71-1-008-5 REQUIRES CROSSING TAPS AND WILL LIKELY NEED A LETTER OF NON-OBJECTION FROM ALYESKA PIPELINE SERVICE CO., WHICH MAY INCLUDE LIMITS ON LOADS.

EROSION CONTROL

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00133_RICH-35-51_ESCP_MS-ESCP SEASON 1 Tue, Mar/29/22 04:15pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	Q3	Q13

KEY:

- WETLANDS
- APPROACH
- CULVERT
- RIPRAP
- REVEGETATIVE EFFORT
- PERIMETER CONTROL
- INLET PROTECTION
- OUTLET PROTECTION

FO

2125+00 2130+00 2135+00 2140+00 2145+00 2150

"O"2124+16.26 PT

CONSTRUCTION ENTRANCE / EXIT

MATCH "O" 2150+00 LINE

NOTE: CONTOURS REPRESENT 2 FT INCREMENTS.

MATCH "O" 2150+00 LINE

+00 2155+00 2160+00 2165+00 2170+00 2175+00 2180

"O"2152+93.90 PC

"O"2177+93.78 PT

MATCH "O" 2180+00 LINE

2130+00.00–2180+00.00

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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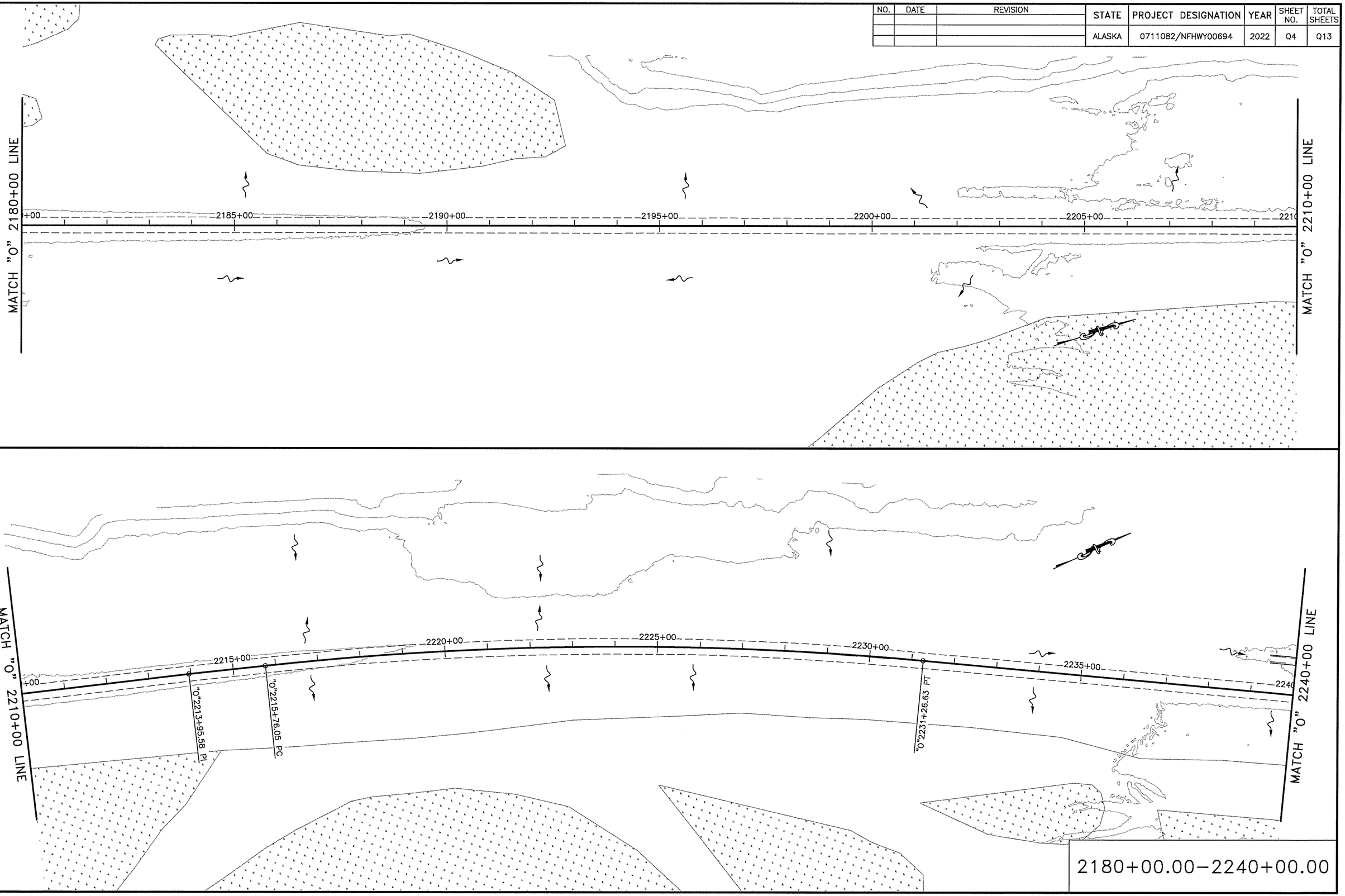
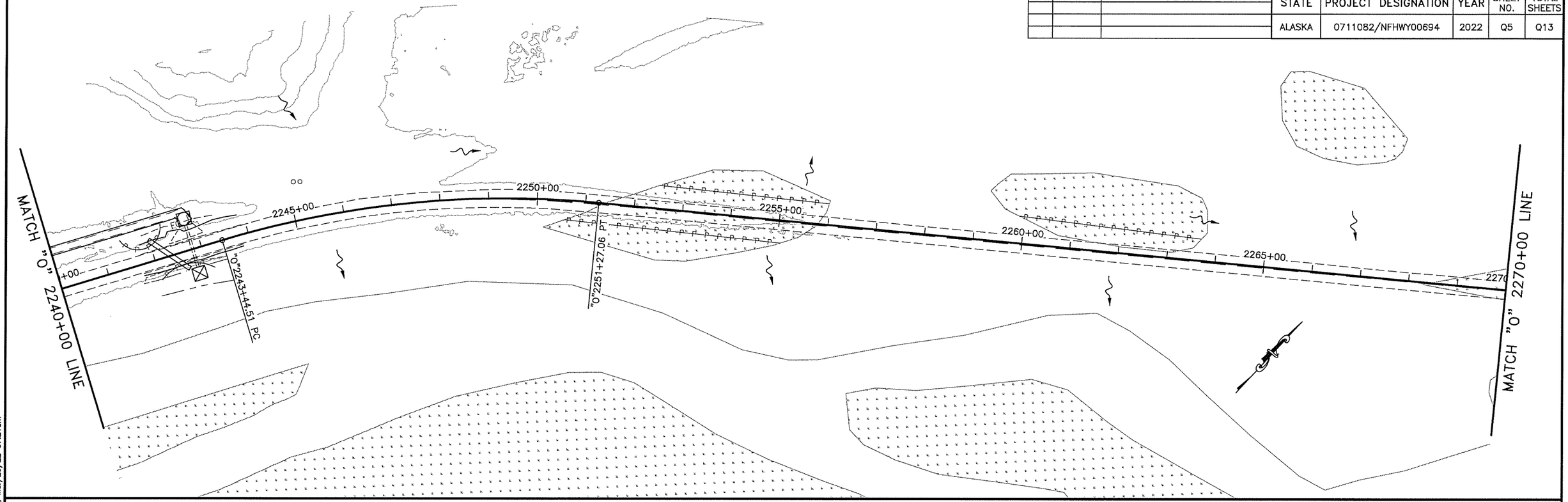
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	Q4	Q13

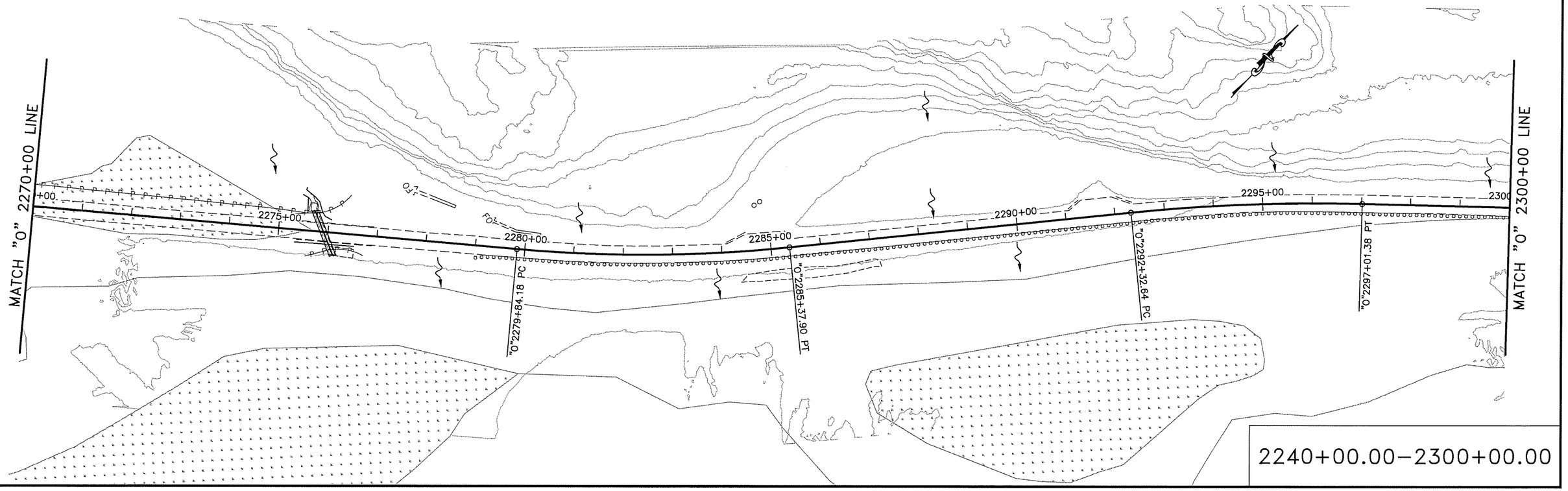


2180+00.00–2240+00.00

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_ESCP-2180+00.00-2240+00.00 Tue, Mar/29/22 07:21am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	Q5	Q13

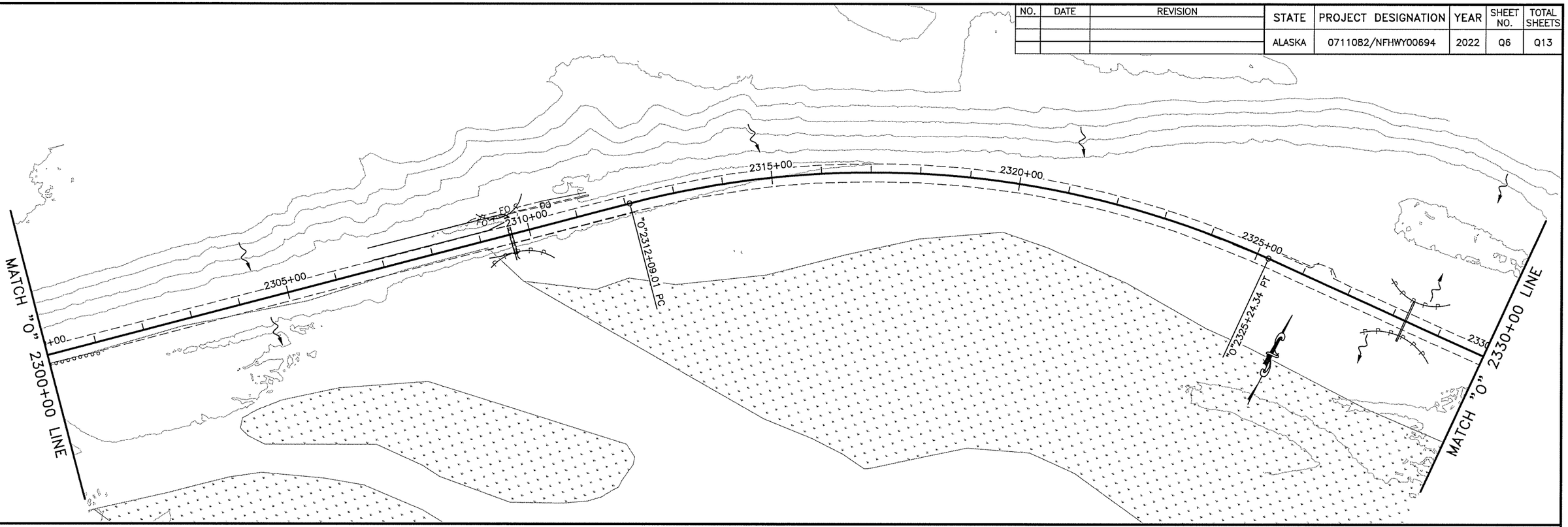


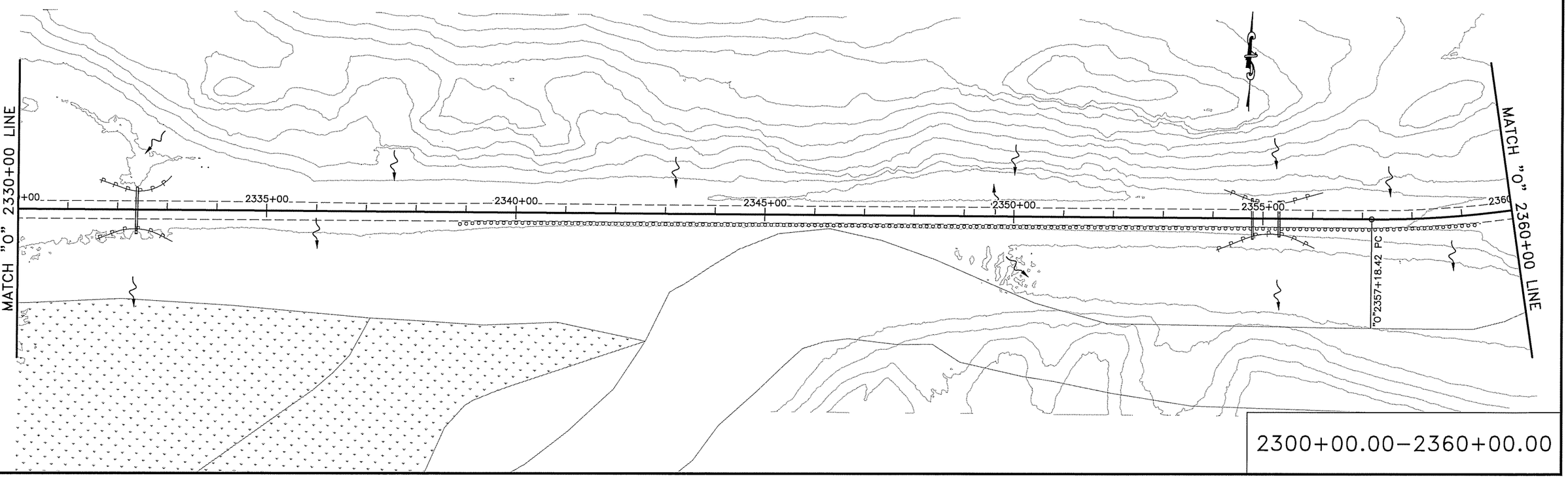


2240+00.00–2300+00.00

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_ESCP-2240+00.00-2300+00.00 Tue, Mar/29/22 07:21am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	Q6	Q13

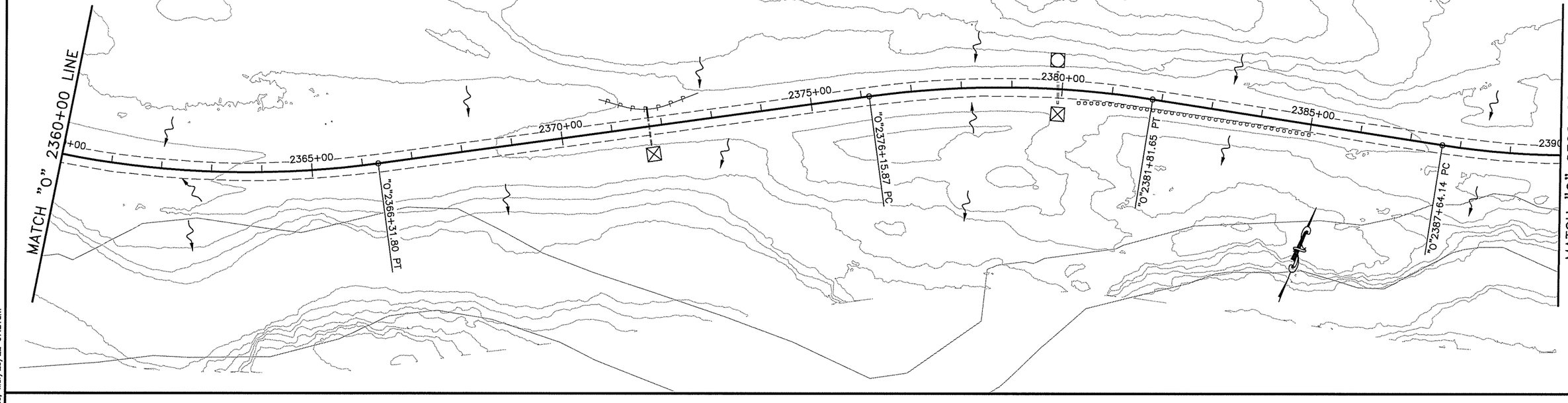


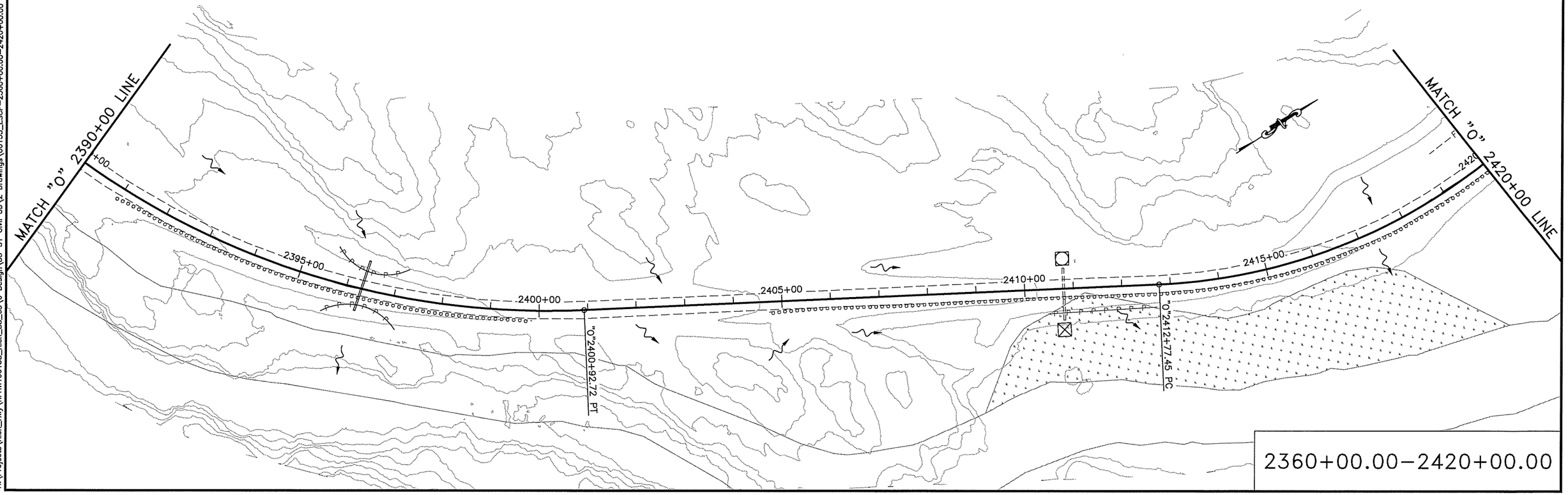


2300+00.00–2360+00.00

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	Q7	Q13

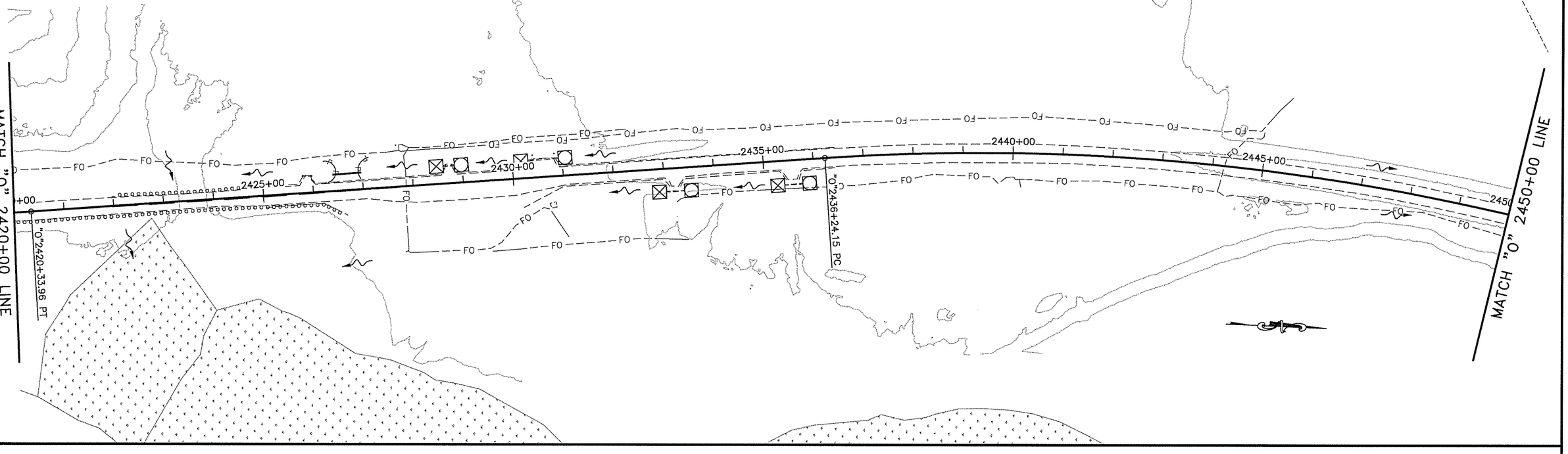


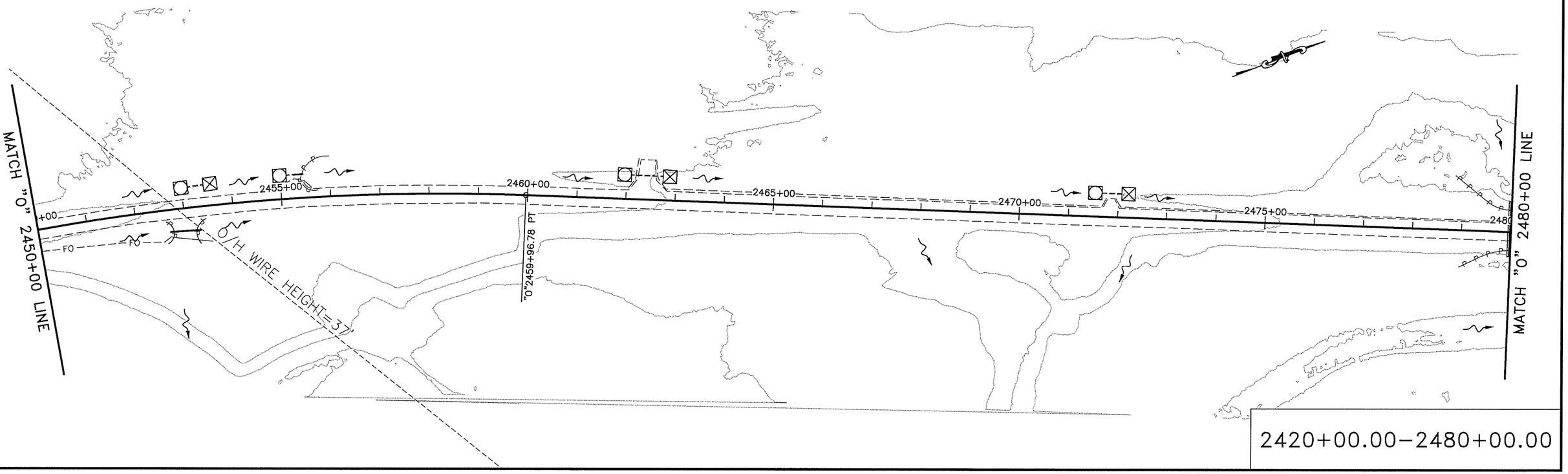


2360+00.00–2420+00.00

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_ESCP-2360+00.00-2420+00.00 Tue, Mar/29/22 07:21am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	Q8	Q13





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PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_ESOP-2420+00.00-2480+00.00 Tue, Mar/29/22 07:21am

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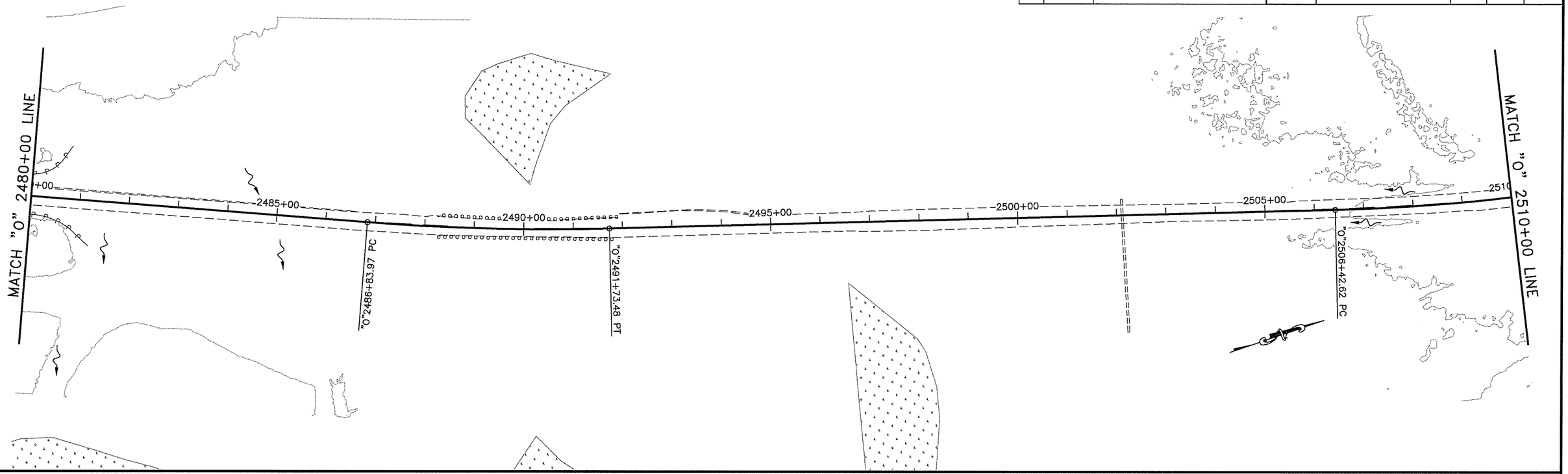
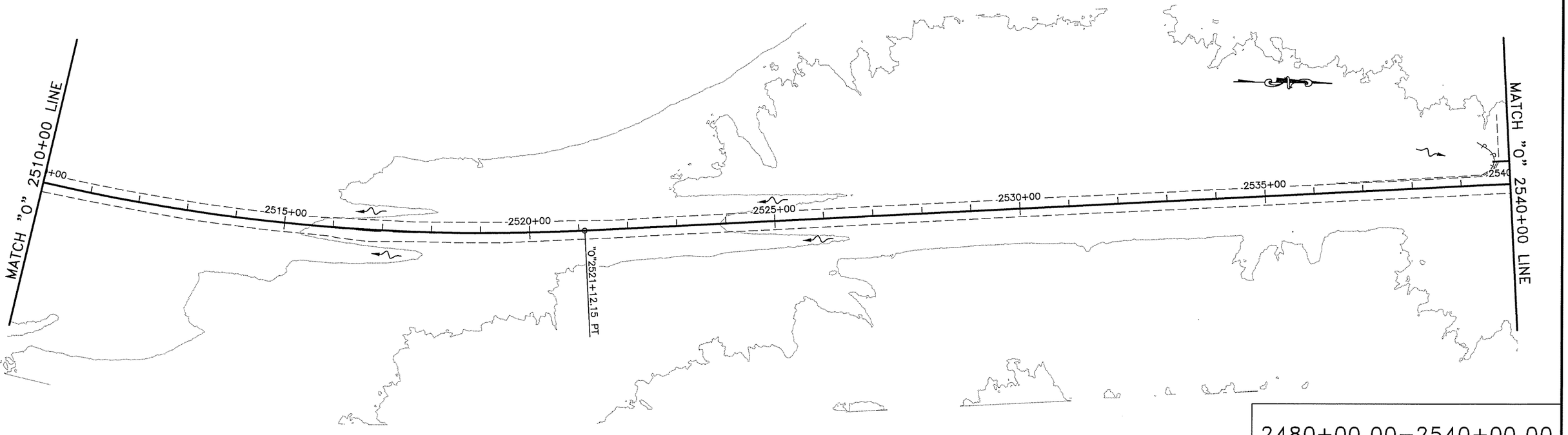
			ALASKA	0711082/NFHWY00694	2022	Q9	Q13





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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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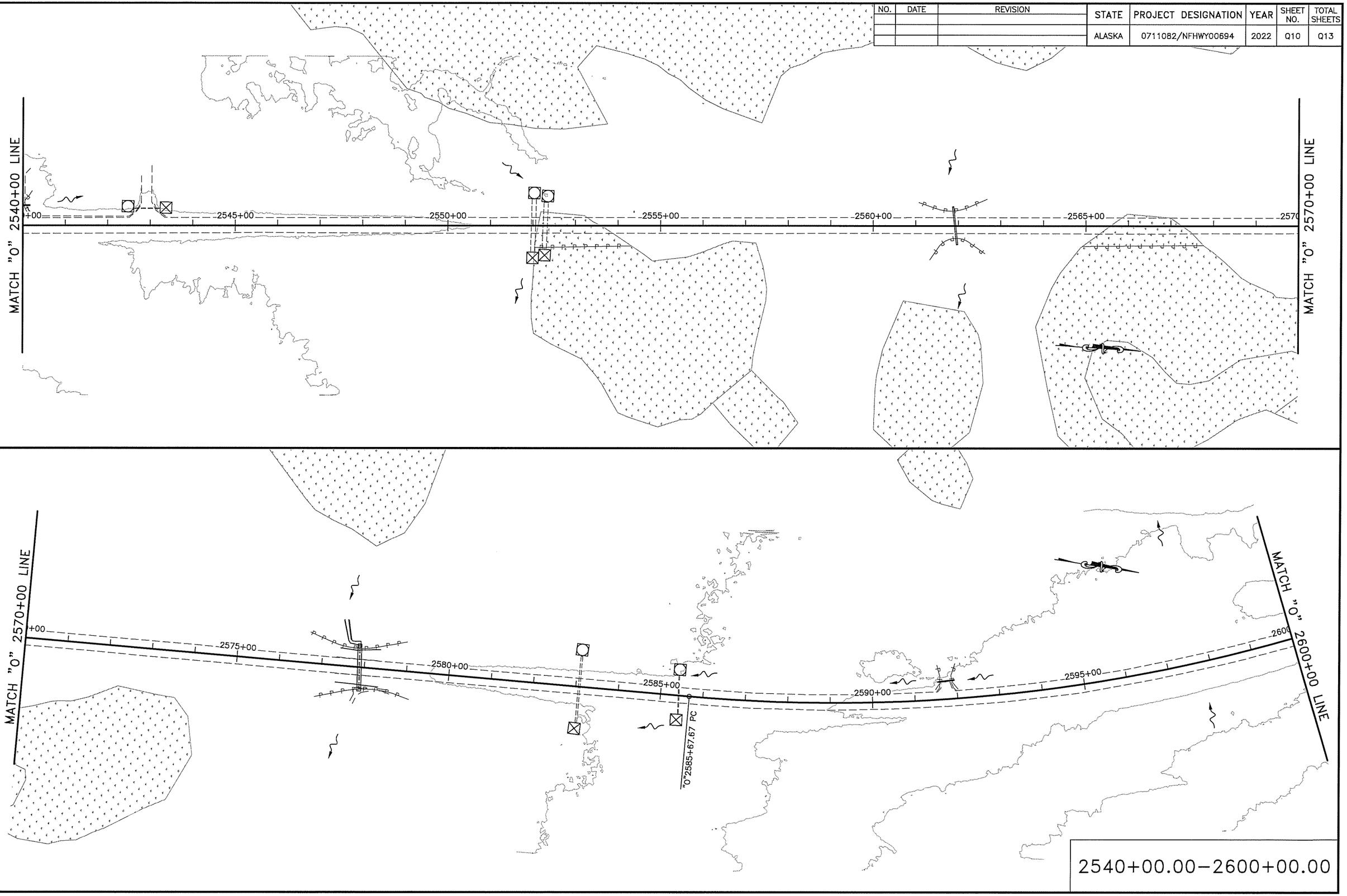
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	Q10	Q13



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PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_ESCP-2540+00.00-2600+00.00 Tue, Mar/29/22 07:22am

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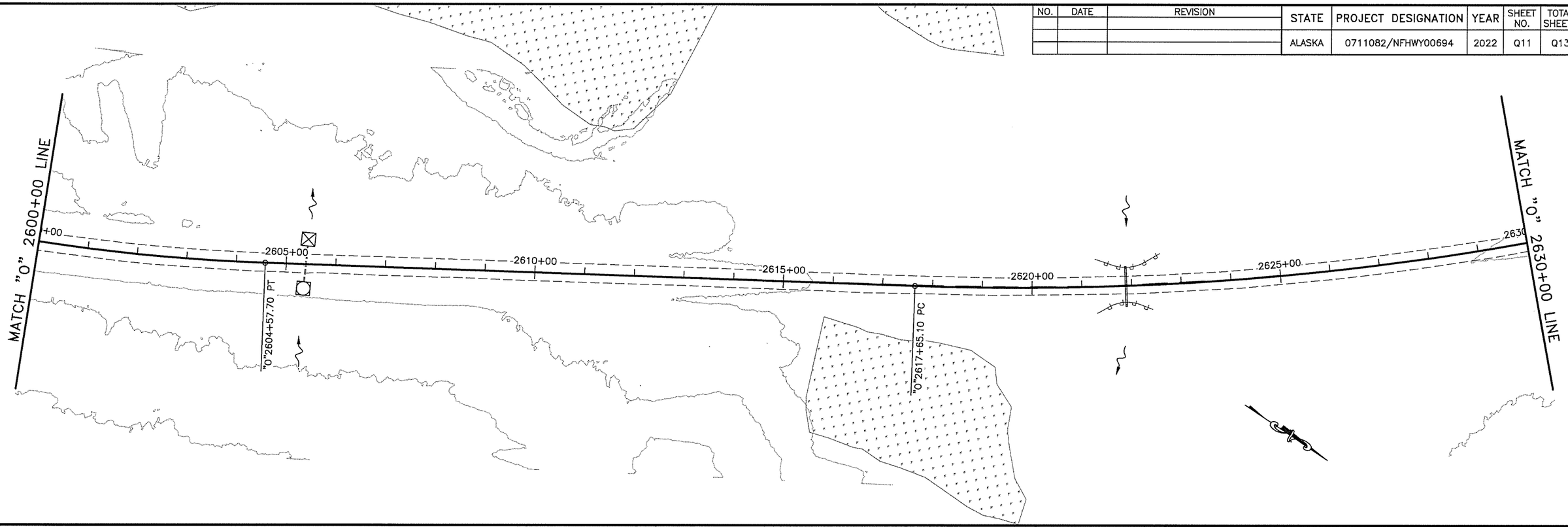

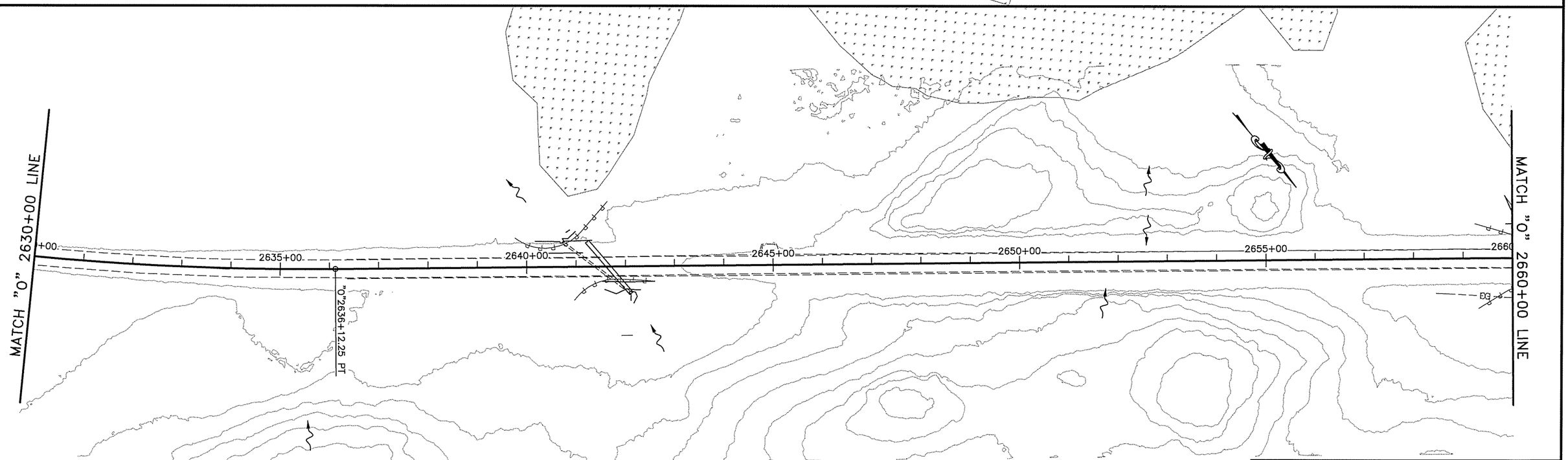

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PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
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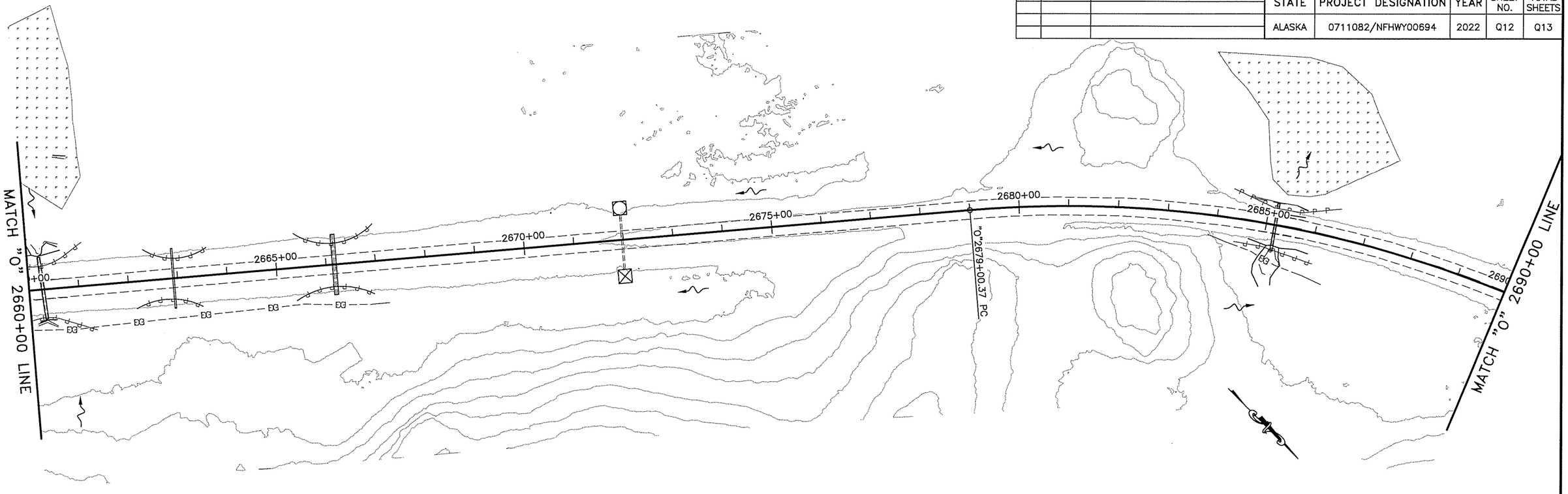

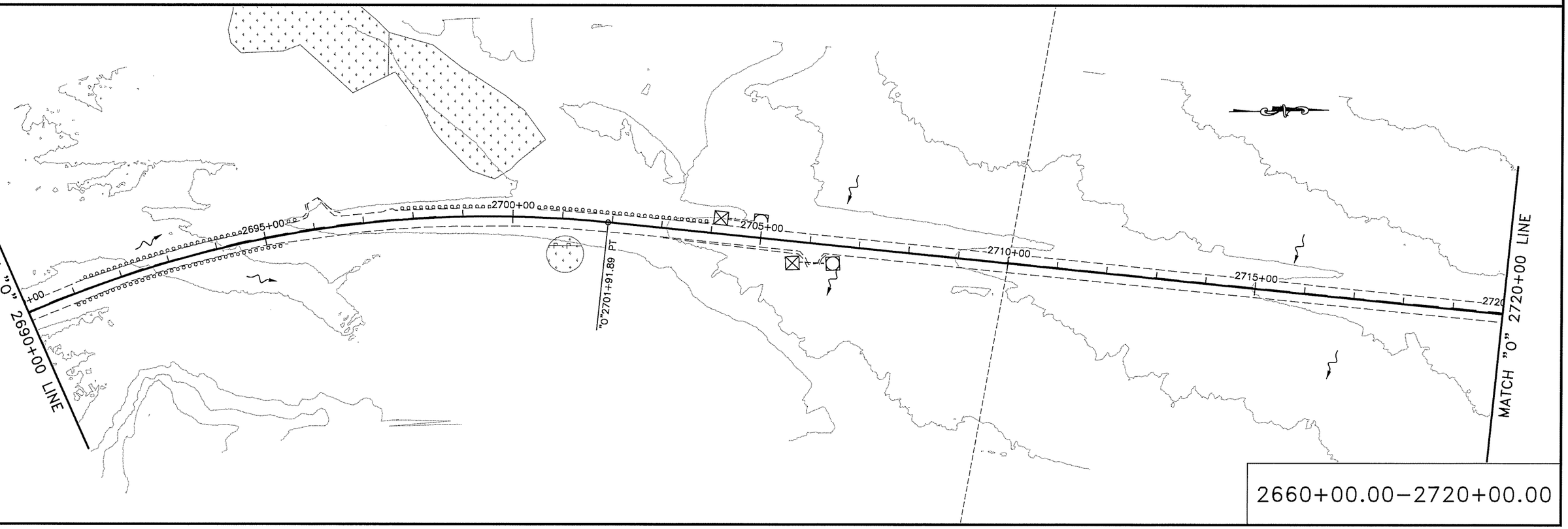

2660+00.00–2720+00.00

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_ESCP-2660+00.00-2720+00.00 Tue, Mar/29/22 07:22am

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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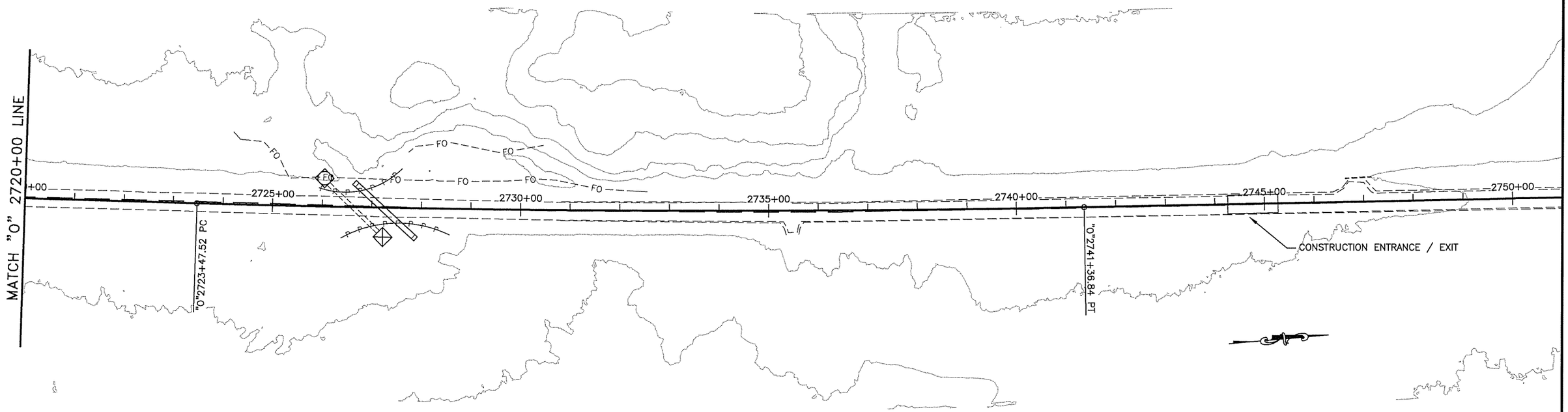


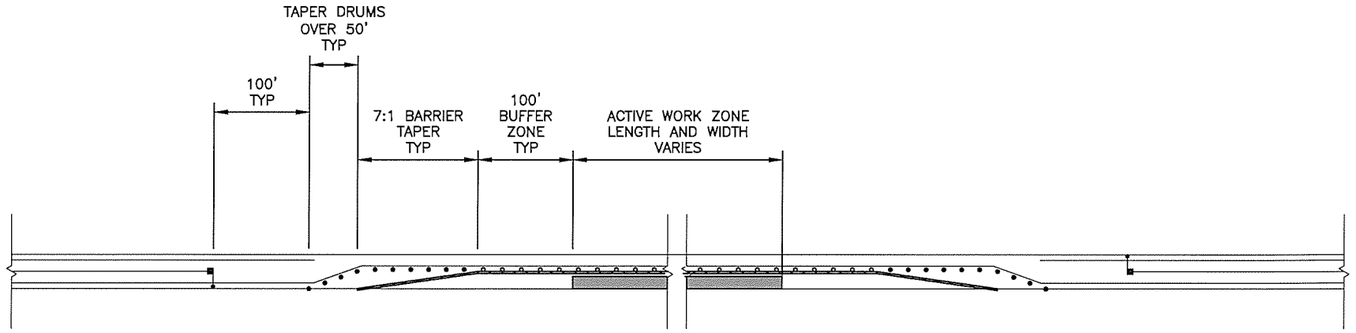
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\00133_ESCP-2720+00.00-2750+00.00 Tue, Mar/29/22 07:22am

2720+00.00–2750+00.00

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0711082/NFHWY00694	2022	T1	T3

NOTES:

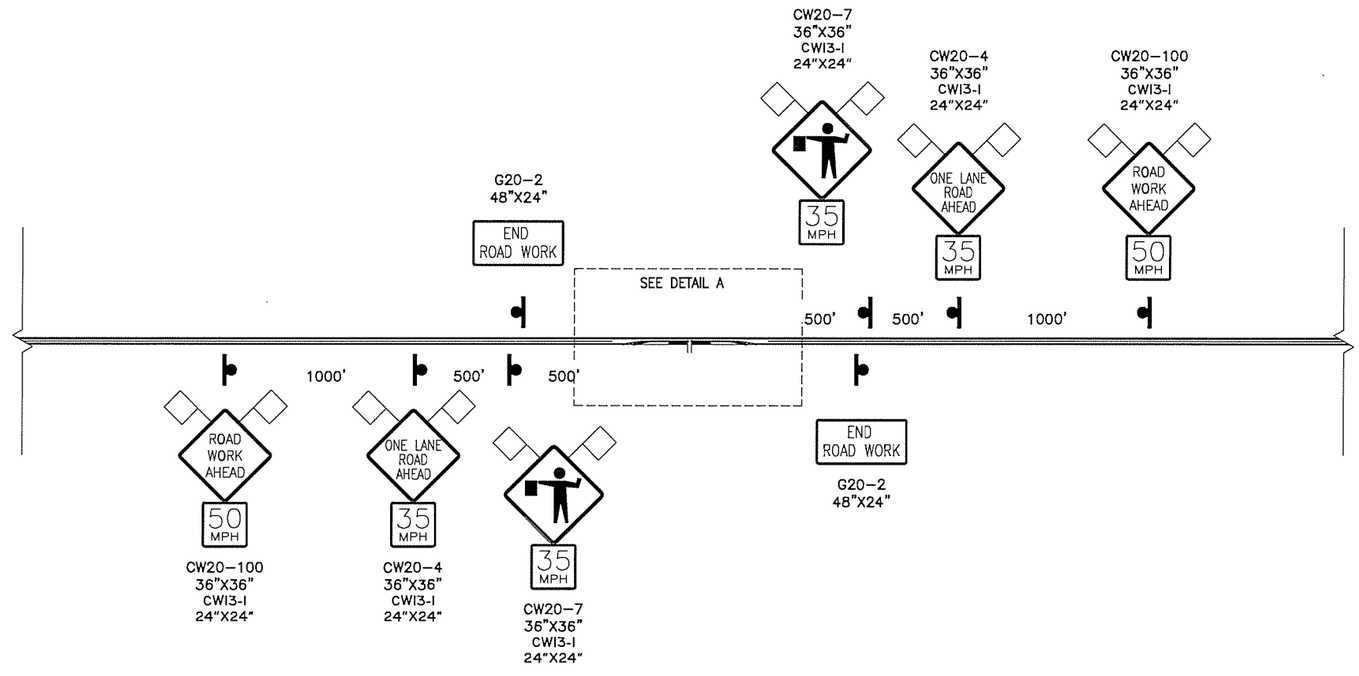
1. THIS TCP IS SCHEMATIC AND MAY VARY DEPENDING ON ACTUAL FIELD CONDITIONS. MODIFY AND ADJUST DISTANCES SHOWN ACCORDING TO SITE CONDITIONS. THIS TCP IS USED FOR ONE LANE ROAD DIVERSIONS.
2. MAINTAIN A MINIMUM OF 16' OF TRAVELED WAY OPEN TO THE PUBLIC, UNLESS DIRECTED BY THE ENGINEER. PROVIDE EMERGENCY VEHICLES WITH ACCESS THROUGH THE PROJECT AT ALL TIMES. PROVIDE ACCESS FOR PERMITTED OVERSIZE VEHICLES. SEE SECTION 643.
3. MOUNT CONSTRUCTION SIGNS AT 7' HEIGHT ON 4" X 4" WOOD POST IN ACCORDANCE WITH STANDARD PLAN SHEETS V18 AND V19 UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. ALL TEMPORARY TRAFFIC CONTROL SIGNS SHALL HAVE HIGH LEVEL WARNING DEVICES.
5. USE WARNING LIGHTS TO MARK BARRICADES AND OTHER CHANNELIZING DEVICES AT NIGHT. EQUIP THE FIRST DEVICE, FACING THE DIRECTION OF TRAFFIC WITH TYPE A FLASHING WARNING LIGHTS; EQUIP ALL OTHERS WITH STEADY-BURN WARNING LIGHTS.
6. FOR LANE CLOSURES ANTICIPATED TO BE LESS THAN FOUR DAYS, USE FLAGGERS AND THE OTHER TRAFFIC CONTROL DEVICES SHOWN.
7. FOR LANE CLOSURES ANTICIPATED TO BE FOUR DAYS OR LONGER, USE A PILOT CAR IN ADDITION TO THE OTHER TRAFFIC CONTROL DEVICES SHOWN.



DETAIL A

LEGEND

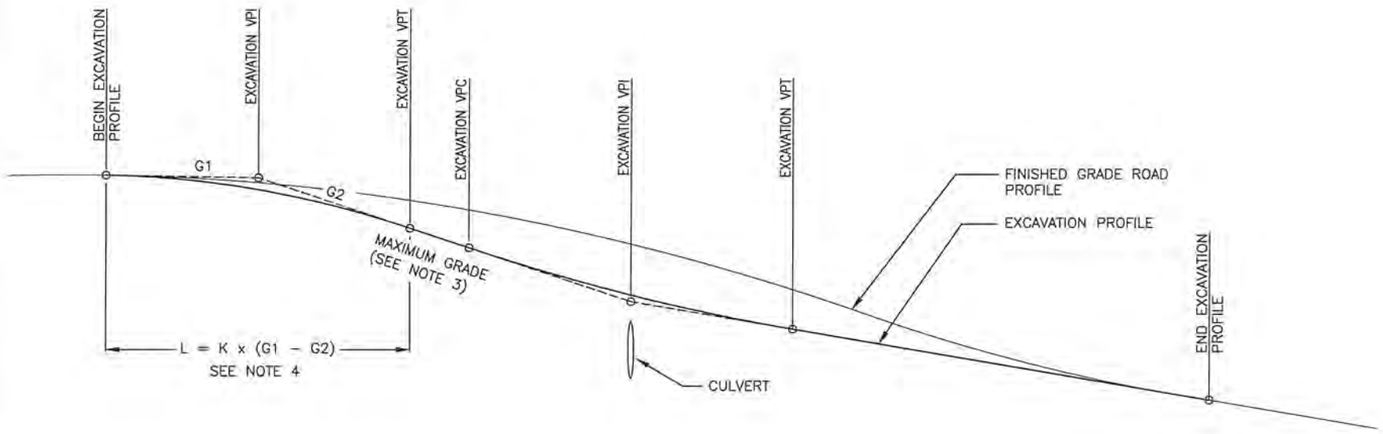
- WORK AREA
- CONSTRUCTION SIGN
- DRUM
- CANDLE
- PRECAST CONCRETE "F" SHAPE BARRIER
- FLAGGER
- HIGH LEVEL WARNING DEVICE (FLAGS)



ONE LANE TRAFFIC CONTROL PLAN

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\6 Design\35-51 Civil 3D\2 Drawings\T1 TRAFFIC CONTROL PLAN-T2 ONE LANE TRAFFIC CONTROL PLAN Tue, Mar/29/22 04:18am

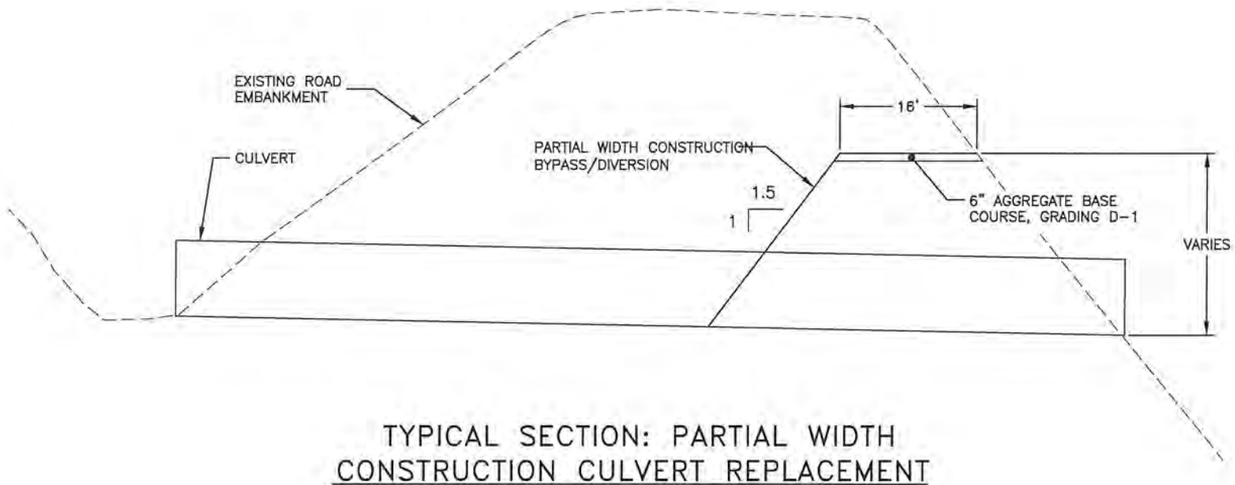
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	T2	T3



CULVERT EXCAVATION PROFILE

CULVERT EXCAVATION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING THE EXCAVATION PROFILE AND HORIZONTAL ALIGNMENT TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING CULVERT EXCAVATION WORK.
2. HORIZONTAL AND VERTICAL GEOMETRY MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER
3. THE MAXIMUM ALLOWABLE VERTICAL GRADE IS 10%
4. DETERMINE THE MINIMUM ALLOWABLE LENGTH OF VERTICAL CURVE (L) BY MULTIPLYING THE ALGEBRAIC DIFFERENCE IN GRADES (G1–G2) BY THE APPLICABLE RATE OF VERTICAL CURVATURE RATE (K) GIVEN BELOW:
   - 4.1. FOR CREST VERTICAL CURVES K = 19
   - 4.2. FOR SAG VERTICAL CURVES K = 37
5. MAINTAIN 2 FEET OR GREATER OF COVER OVER THE TOP OF CULVERTS
6. OBTAIN THE ENGINEER'S APPROVAL ON ALL TRAFFIC CONTROL PLANS PRIOR TO EXCAVATING FOR NEW CULVERTS
7. ALL WORK AND RESOURCES REQUIRED TO DEVELOP AND CONSTRUCT EXCAVATION PROFILES AND HORIZONTAL ALIGNMENTS ARE SUBSIDIARY TO 602 AND 603 SERIES PAY ITEMS. AFTER THE NEW CULVERT IS INSTALLED, RE–ESTABLISH THE ROADWAY PROFILE WITH EXISTING FORESLOPE. SEE CULVERT FOUNDATION DETAILS ON SHEET E2 FOR MATERIALS REQUIREMENTS. BACKFILL WITH USABLE EXCAVATION MATERIAL ARE SUBSIDIARY TO 602 AND 603 SERIES PAY ITEMS. ANY USE OF SUBBASE, GRADING F AND AGGREGATE BASE COURSE, GRADING D–1 WILL BE PAID UNDER THE RESPECTIVE ITEMS LISTED IN THE BID SCHEDULE.
8. AGGREGATE BASE COURSE, GRADING D–1 REQUIRED FOR CULVERT AND STRUCTURAL PLATE PIPE REPLACEMENTS IS PAID UNDER ITEM 301.0001.00D1 AGGREGATE BASE COURSE, GRADING D–1.



TYPICAL SECTION: PARTIAL WIDTH CONSTRUCTION CULVERT REPLACEMENT

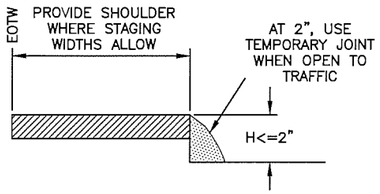
TYPICAL SECTION–PARTIAL WIDTH CONSTRUCTION CULVERT REPLACEMENT

STATE OF ALASKA 49TH
ALAN F. SKINNER
CE 12589
3-29-22
REGISTERED PROFESSIONAL ENGINEER

H:\Projects\Rich_Hwy\NFHWY00133_Rich_35_65\8 Drafting\NFHWY00130_RICH-35-51_TSM107-TYPICAL SECTION-PARTIAL WIDTH Tue, Mar/29/22 04:19am

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0711082/NFHWY00694	2022	T3	T3

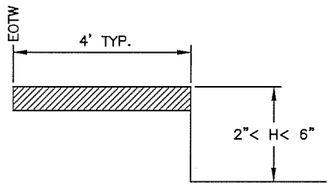
VERTICAL DROP–OFFS



CASE A

DROP–OFFS ≤2 INCHES
(PAVED SURFACES ONLY)

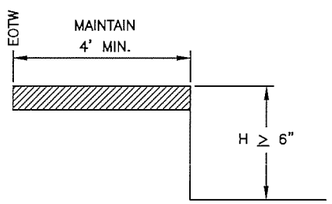
1. USE "UNEVEN LANES" (CW8–11) SIGNS FOR ALL DROP–OFFS IN BETWEEN TRAFFIC LANES.
2. LEAVE NO DROP–OFFS > 1.5" IN THE TRAFFIC LANE OR ACTIVE WHEEL TRACK.



CASE B

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

1. PLACE CONES OR CANDLES FOR DROP–OFFS ≥ 4 FEET AND ≤ 30 FEET FROM THE EOTW.
2. USE DRUMS OR TYPE II BARRICADES FOR DROP–OFFS < 4 FEET FROM THE EOTW.



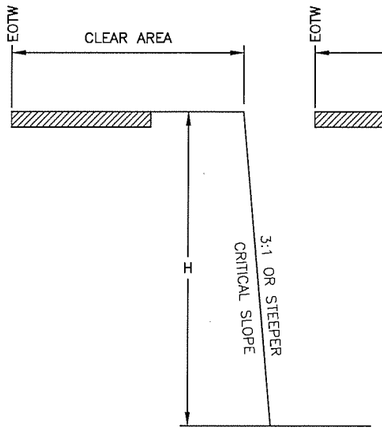
CASE C

DROP–OFFS ≥6"
(ALL ROADWAY SURFACES
AND ROADSIDE SLOPES)

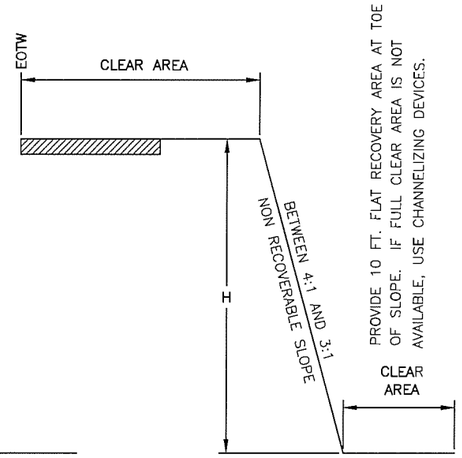
1. PLACE DRUMS OR TYPE II BARRICADES FOR DROP–OFFS ≤ 24" WITHIN THE CLEAR AREA.
2. PROVIDE PORTABLE CONCRETE BARRIER FOR DROP–OFFS >24" WITHIN 15 FEET OF THE EOTW. USE DRUMS OR TYPE II BARRICADES IF BEYOND 15 FEET.

FILL SLOPES

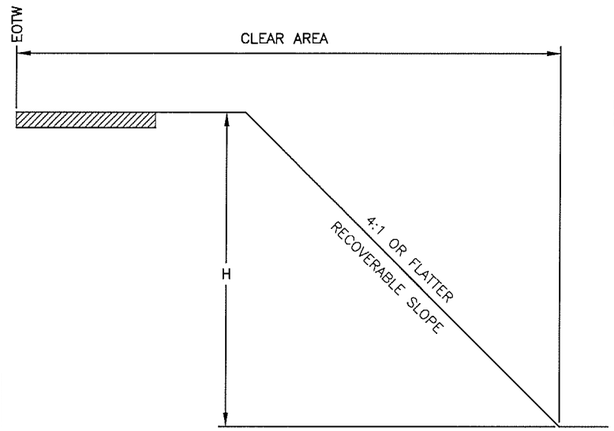
STEEPER THAN OR EQUAL TO 3:1



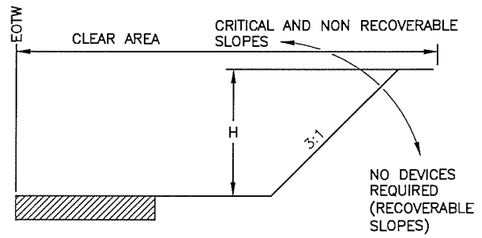
BETWEEN 4:1 AND 3:1



FLATTER THAN OR EQUAL TO 4:1



CUT SLOPES



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 SECTIONS, 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 <= 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:

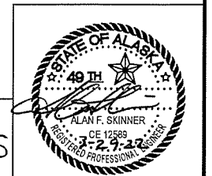
1. USE THE EXISTING CROSS–SECTION (PRIOR TO CONSTRUCTION) AS A BASIS FOR DETERMINING WHEN CHANNELIZING DEVICES ARE NEEDED.
2. INSTALL CHANNELIZING DEVICES WHEN THE HORIZONTAL OR VERTICAL CURVATURE IS MADE MORE SEVERE.
3. INSTALL FLEXIBLE DELINEATORS WHEN ALL VEGETATION OVER 4 FEET HIGH IS CLEARED FROM 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 7:1 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.

EQUIPMENT NOTES:

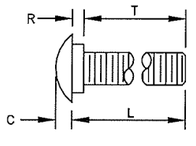
1. WHEN THERE IS ACTIVE, NONMOBILE CONSTRUCTION EQUIPMENT WITHIN THE CLEAR AREA, DELINEATE THE ROADSIDE WITH TRAFFIC CONES.
2. SEPARATE PROCEDURES ARE REQUIRED FOR MOBILE WORK ZONE OPERATIONS AND SHORT DURATION WORK OF LESS THAN 12 HOURS.

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

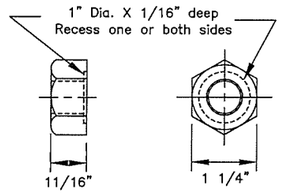


TRAFFIC CONTROL DEVICES

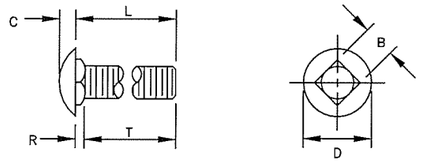


B	C	D	L (Length)	R	T (Thread Length)
15/16"	5/16"	1 5/16" or 1 7/16"	As Required	7/32"	As Required

5/8" BUTTONHEAD BOLT
(FBB01-05)

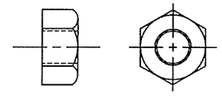


5/8" Dia. RECESSED HEX NUT
(FBB01-05)

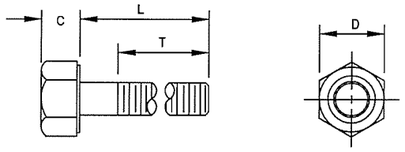


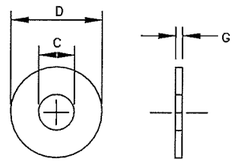
B	C	D	L (Length)	R	T (Thread Length)
5/8"	5/16"	1 5/16"	As Required	3/16"	As Required

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



STANDARD HEX NUT



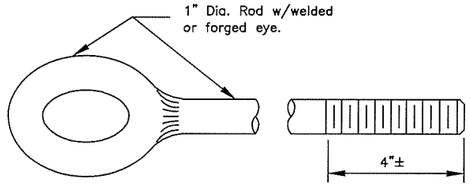


Bolt Size	C	D	L (Length)	T (Thread Length)
5/16"	——	——	1 1/2"	7/8"
5/16"	——	——	1"	1"
3/8"	——	——	7 1/2"	1 1/2"
1/2"	——	——	1 1/2"	1 1/2"
1/2"	——	——	1 1/4"	1 1/4"
5/8" H.S.	5/16"	7/8"	8"	1 1/2"
5/8"-11	——	——	1 1/2"	1 1/2"
3/4"	——	——	1 1/2"	1 1/2"
3/4"	——	——	As Required	2"
3/4" H.S.	15/32"	1 1/4"	2"	1 1/2"

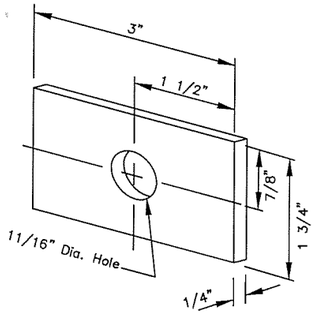
STANDARD HEX BOLTS

For Bolt ø	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"

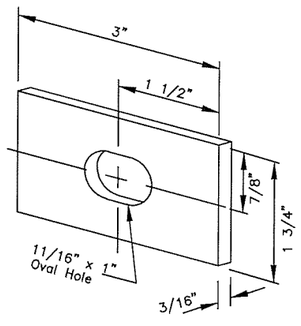
STANDARD STEEL WASHERS



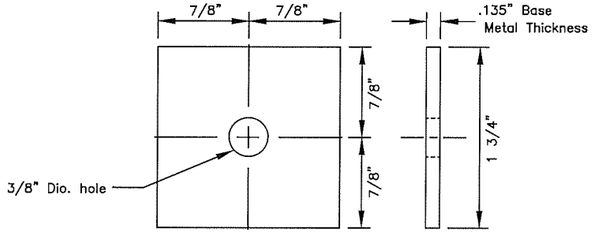
EYE BOLT



FLAT PLATE WASHER



RECTANGULAR POST BOLT WASHER
(FWR03)



SQUARE STEEL WASHER
(FWR01)

GENERAL NOTES:

1. 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
(NUTS, BOLTS & WASHERS)

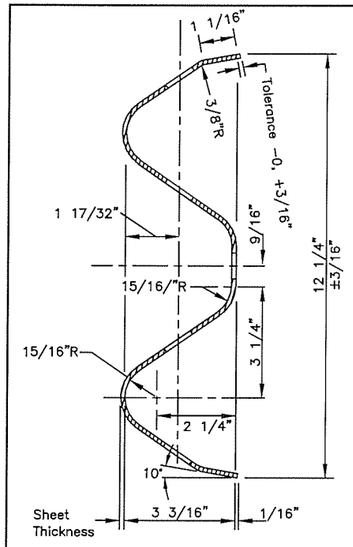
Adopted as an Alaska Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

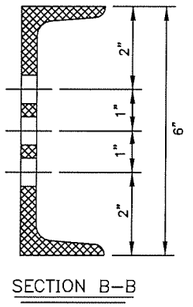
Last Code and Stds. Review
By: KLK Date: 7/8/2020

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

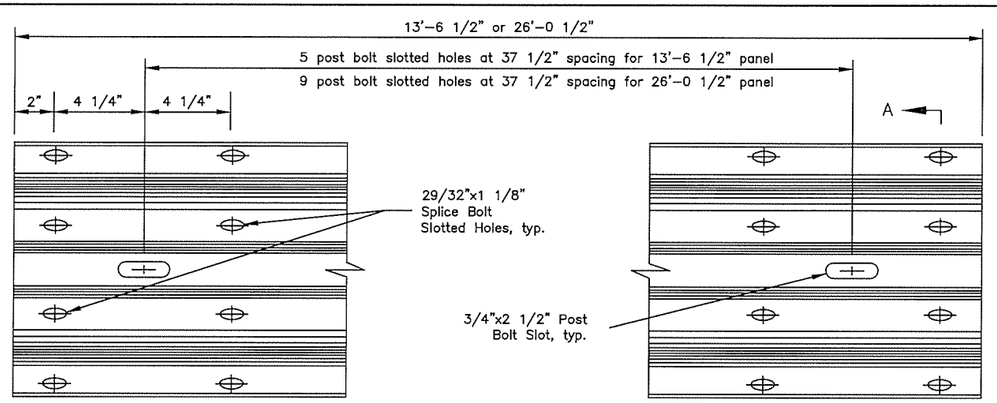
G-00.05



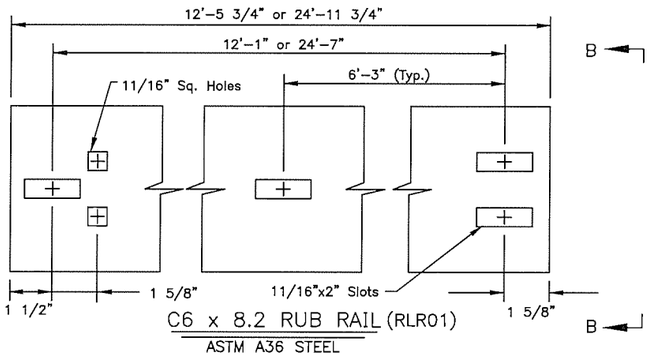
SECTION A–A
(cross section same as RWM02a–b)



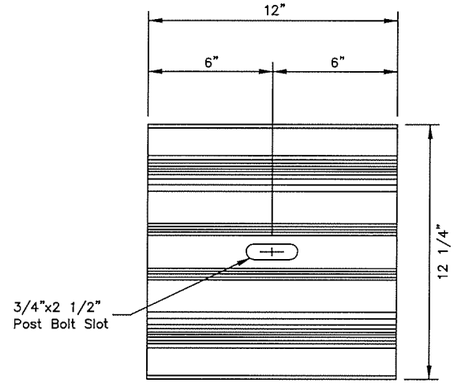
SECTION B–B



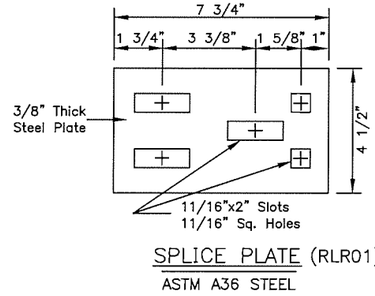
STANDARD W–BEAM PANEL (RWM04a–b)



C6 x 8.2 RUB RAIL (RLR01)
ASTM A36 STEEL

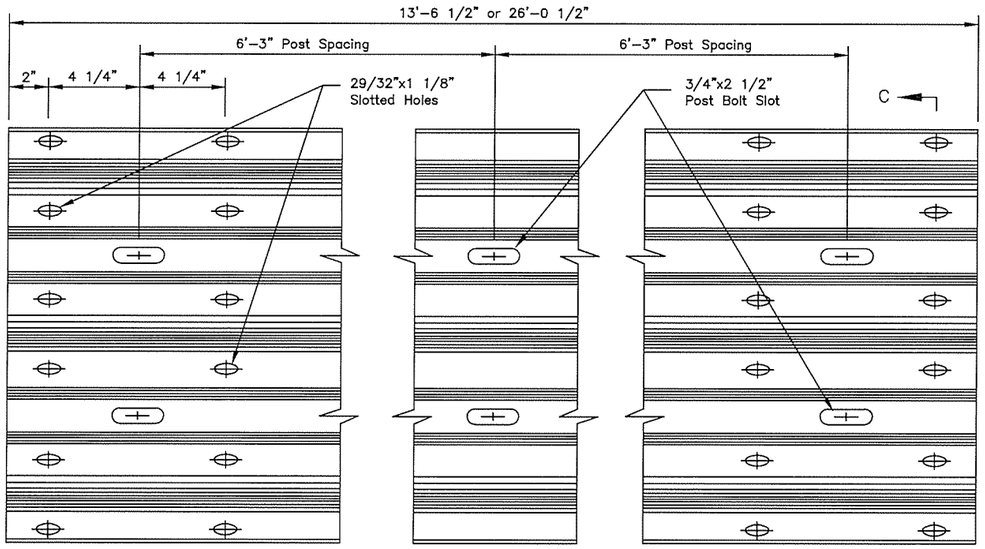


W–BEAM BACKUP PLATE
(RWB01a–b)

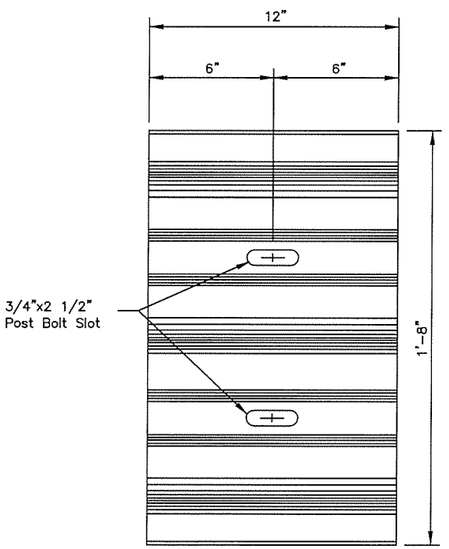


SPLICE PLATE (RLR01)
ASTM A36 STEEL

SECTION C–C
(RTM01a–02b)



STANDARD THRIE BEAM PANEL (RTM01a–02b)



THRIE BEAM BACKUP PLATE
(RTB01a–02b)

GENERAL NOTES:

1. 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.
2. 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

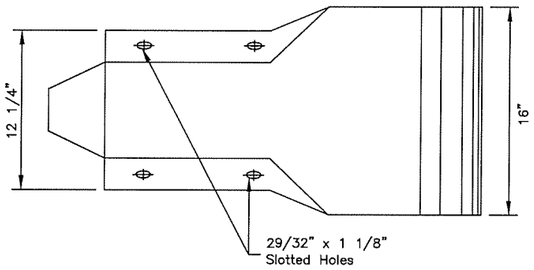
Adoption Date: 7/17/2020

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

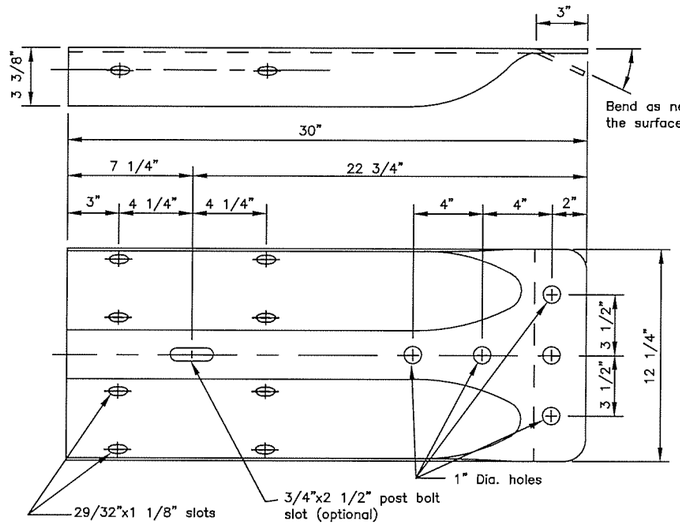
Next Code and Standards Review Date: 7/8/2030

G–00.05

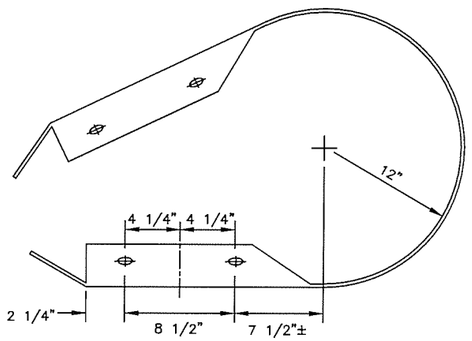
G-00.05 SHEET 3 of 5



PROFILE

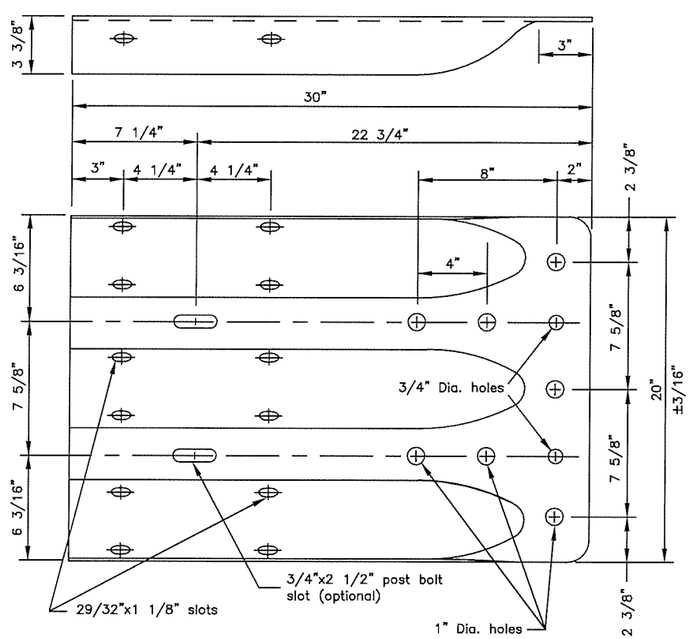


STANDARD W-BEAM TERMINAL CONNECTOR
(RWE02)



W-BEAM PLAN VIEW
*Radius to be specified on the plans

STANDARD W-BEAM END SECTION
(RWE06)



STANDARD THRIE BEAM TERMINAL CONNECTOR
(RTE01b)

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

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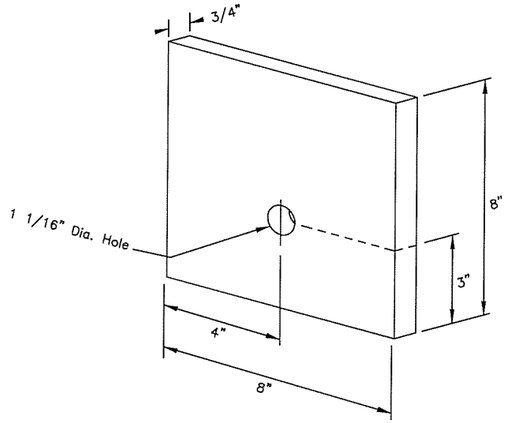
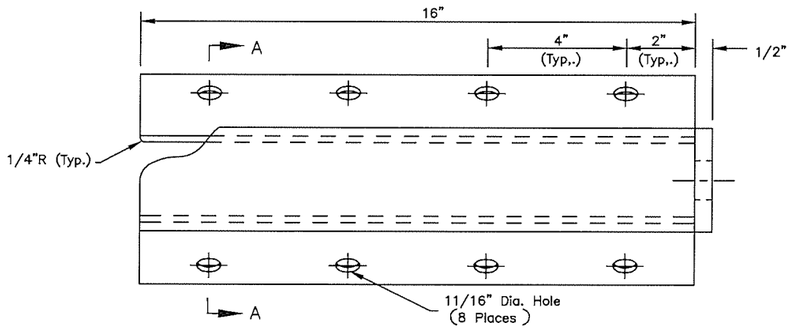
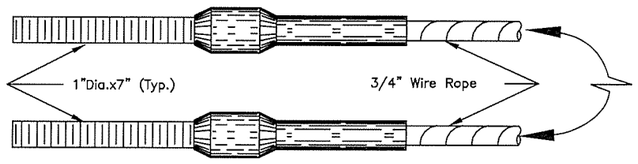
G-00.05



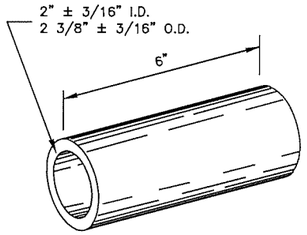
BEARING PLATE for CRT TERMINAL ANCHOR
(FPB01)



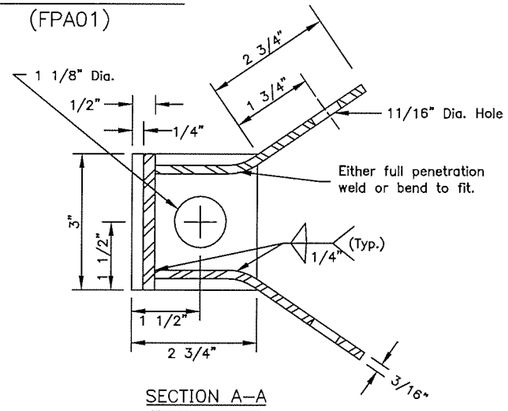
CABLE ANCHOR PLATE
(FPA01)



SWAGED FITTING DETAIL
(FCA01–02)



SLEEVE DETAIL
(FMM02)

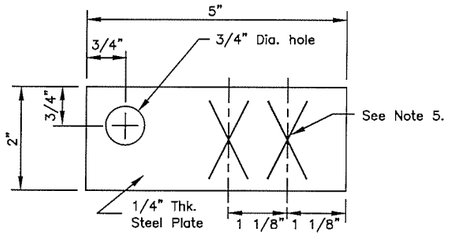


SECTION A–A

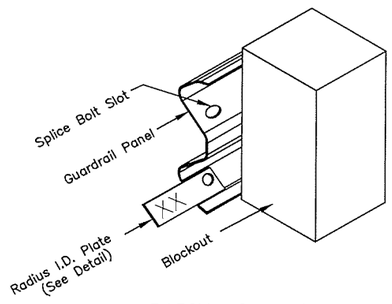
CONTROLLED RELEASE TERMINAL HARDWARE DETAILS

GENERAL NOTES:

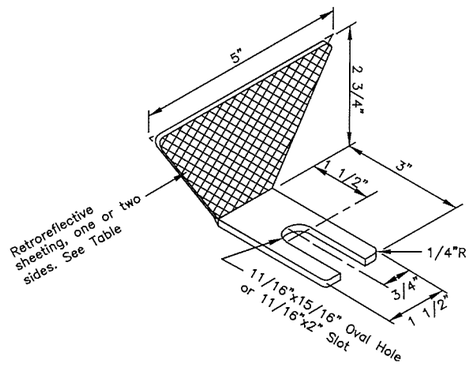
1. Cable Anchor Plate may be formed in single unit or welded fabrication.
2. Anchor Cable Assembly must conform to AASHTO M 30 with Type II Wire Rope.
3. Provide Sleeve for Wood Posts meeting the requirements of ASTM A53 and made of 2–inch galvanized standard pipe. Sleeve shall be a tight, pressed fit 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.



RADIUS I.D. PLATE



RADIUS I.D. PLATE MOUNTING DETAIL



GUARDRAIL REFLECTOR

Guardrail Reflector Table

Type	Color	Reflectorized
A	White	Front & Rear
B	White	Front
C	Yellow	Front
D	Yellow	Front & Rear

State of Alaska DOT&PF
ALASKA STANDARD PLAN

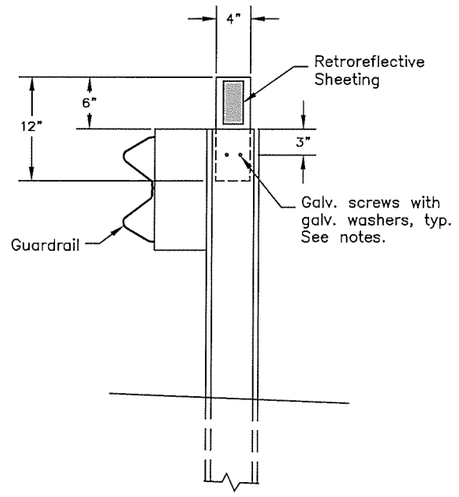
STANDARD GUARDRAIL HARDWARE (MISCELLANEOUS)

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



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: Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

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

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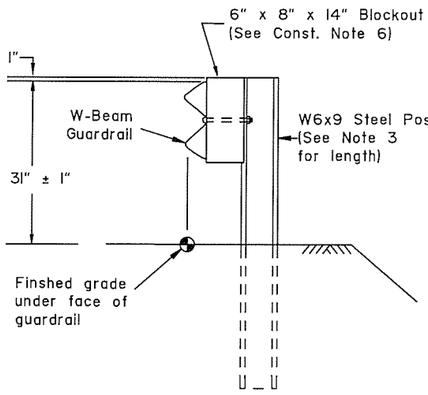
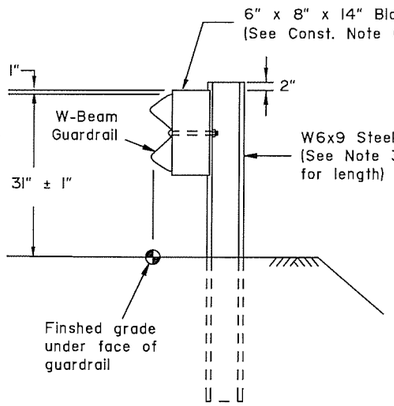
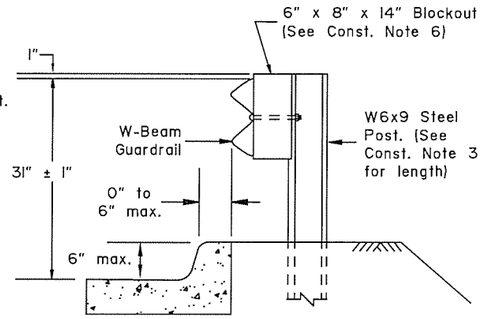


TYPE I POST INSTALLATION

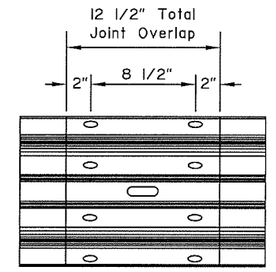


TYPE II POST INSTALLATION

(Facilitates raising rail for future overlays.)

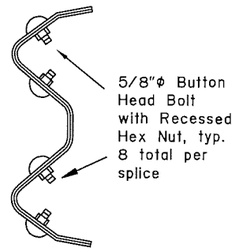


TYPE III POST INSTALLATION

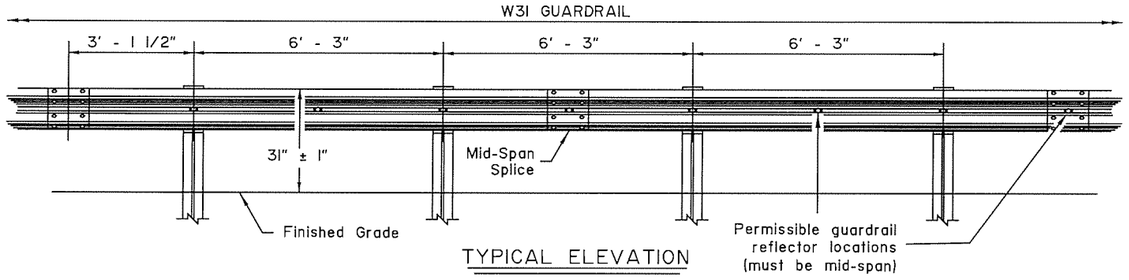


SPLICE DETAIL

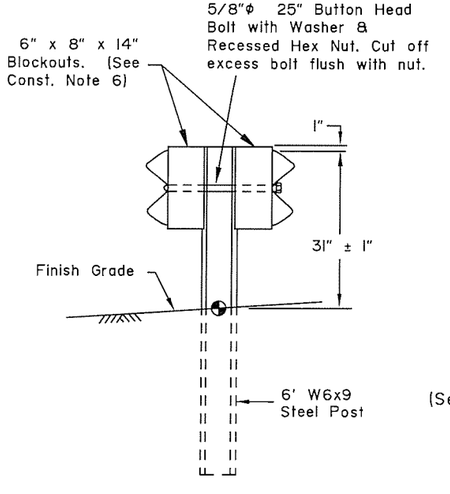
(At mid span between posts only. Bolts not shown for clarity)



SPLICE CROSS-SECTION



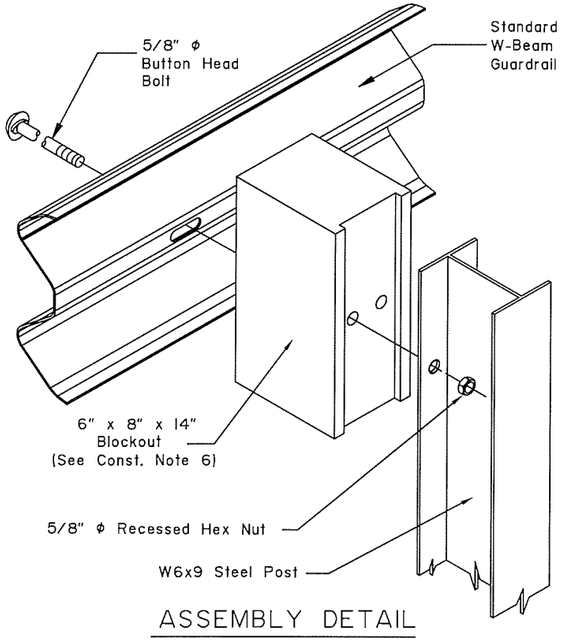
TYPICAL ELEVATION



TYPE IV DOUBLE SIDED INSTALLATION

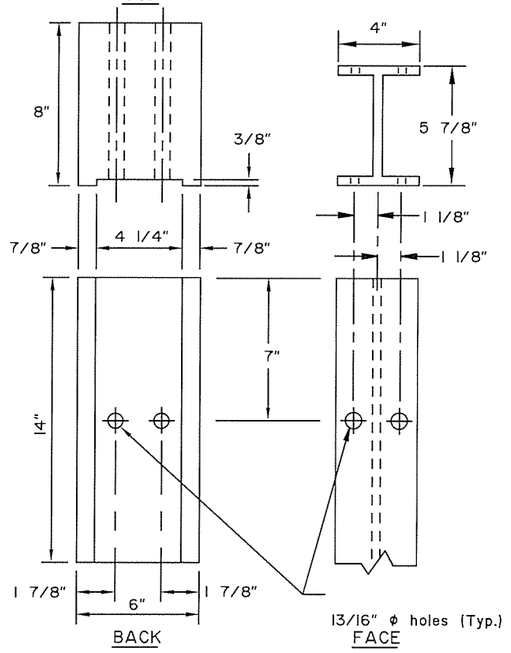
GUARDRAIL REFLECTOR

(See Const. Note 5)



ASSEMBLY DETAIL

(Type I post shown)



CONSTRUCTION NOTES:

1. Provide hardware compliant with the Task Force 13 (TF13) Guide to Standardized Roadside Safety Hardware.
2. See Standard Plan G-00 for hardware details not shown on this drawing.
3. See Standard Plan G-10 for post lengths corresponding to different combinations of slope and behind-post embankment width.
4. Typical post spacing is 6'-3" center to center.
5. Attach guardrail reflector to guardrail using a 5/8" button head bolt with 5/8" recessed head hex nut and steel washer at location shown in the Typical Elevation. Install reflectors every 25' on tangents and every 12.5' on curves starting 100' before the P.C. and ending 100' after the P.T.
6. Use wood or synthetic blockouts designed, tested, and passed per MASH for use with steel posts. Either bolt hole on the blockout may be used for attachment.
7. Use a 25 linear foot transition to match differing height of existing or new rail elements and end treatments - see Standard Plan G-11.
8. W6x8.5 steel post may be substituted for W6x9 steel post.
9. Install flexible delineators on guardrail posts when called for in the contract. See Standard Plan G-00 for guardrail flexible delineator details.

DESIGN NOTES:

1. No fixed objects allowed within 36" of the back side of guardrail post.
2. This barrier is acceptable under MASH Tests 3-10 and 3-11.

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

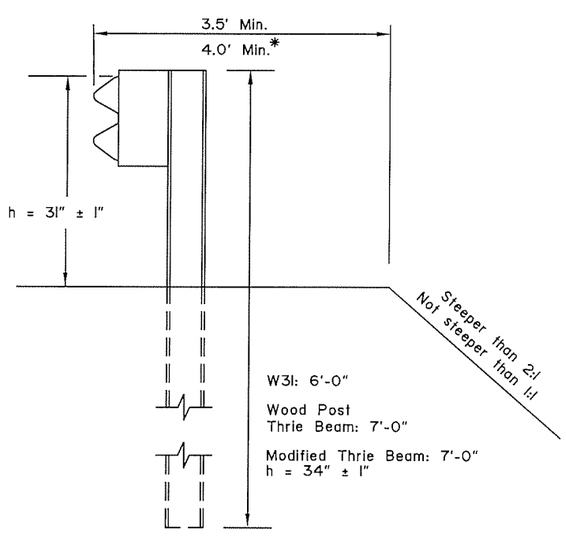
Adoption Date: 05/15/2019

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

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

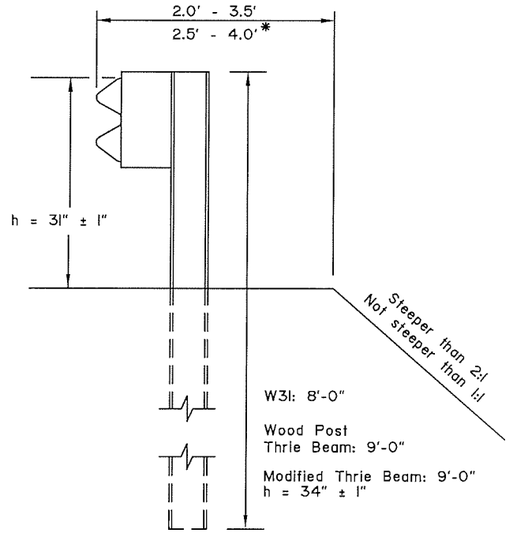
G-05.11S

G-10.20 | SHEET | of |



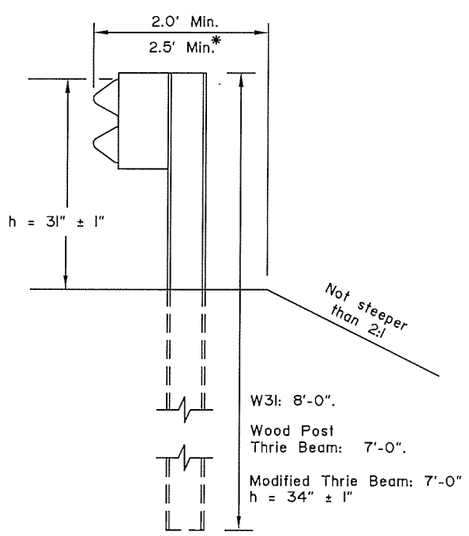
* with Modified Thrie Beam

CASE 1

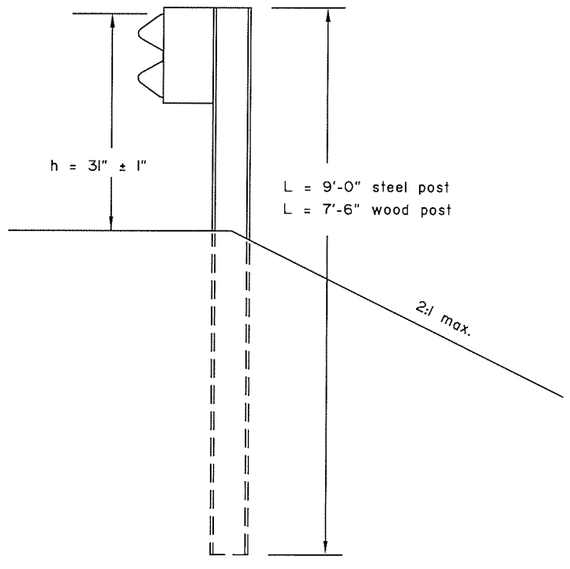


* with Modified Thrie Beam

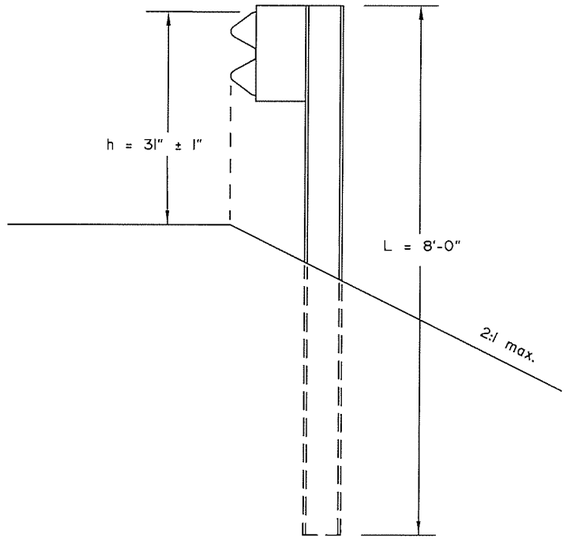
CASE 2



CASE 3



CASE 4
(See Note 5)



CASE 5
(See Note 5)

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 W31 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

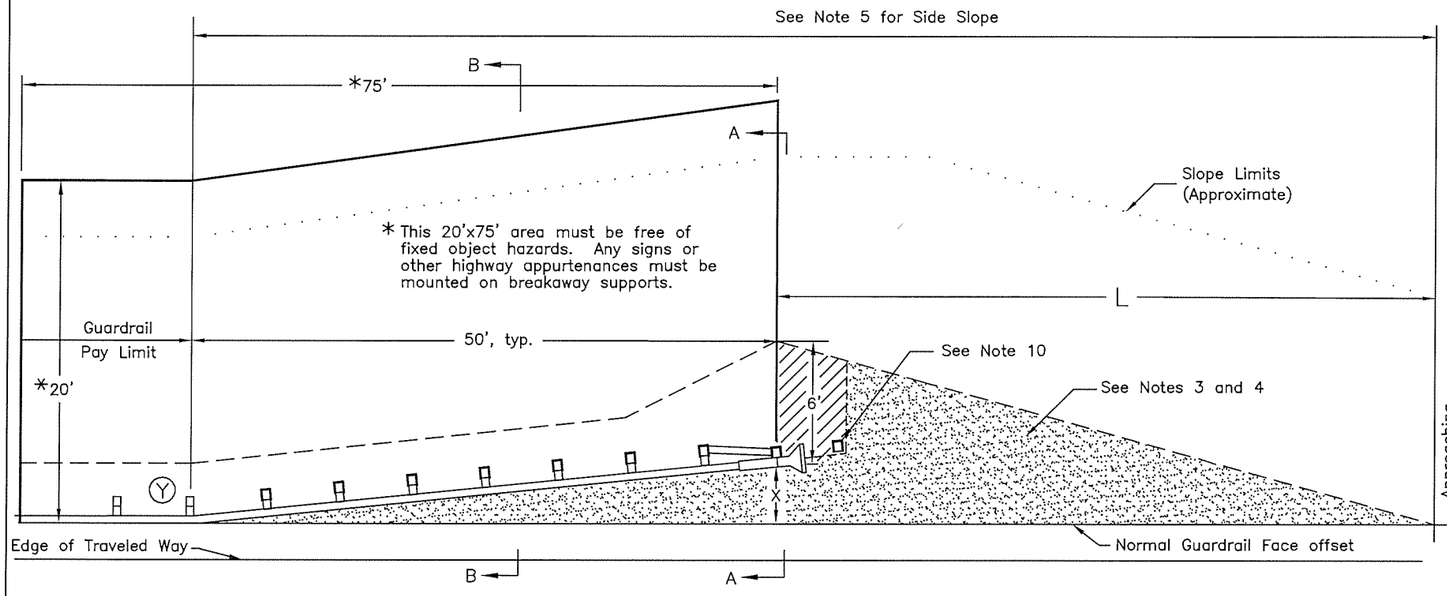
Last Code and Stds. Review
By: Date:

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

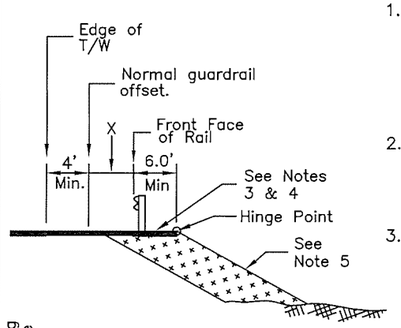
G-10.20

G-20.12

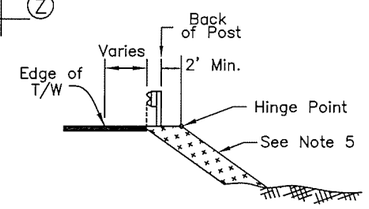
SHEET 1 of 1



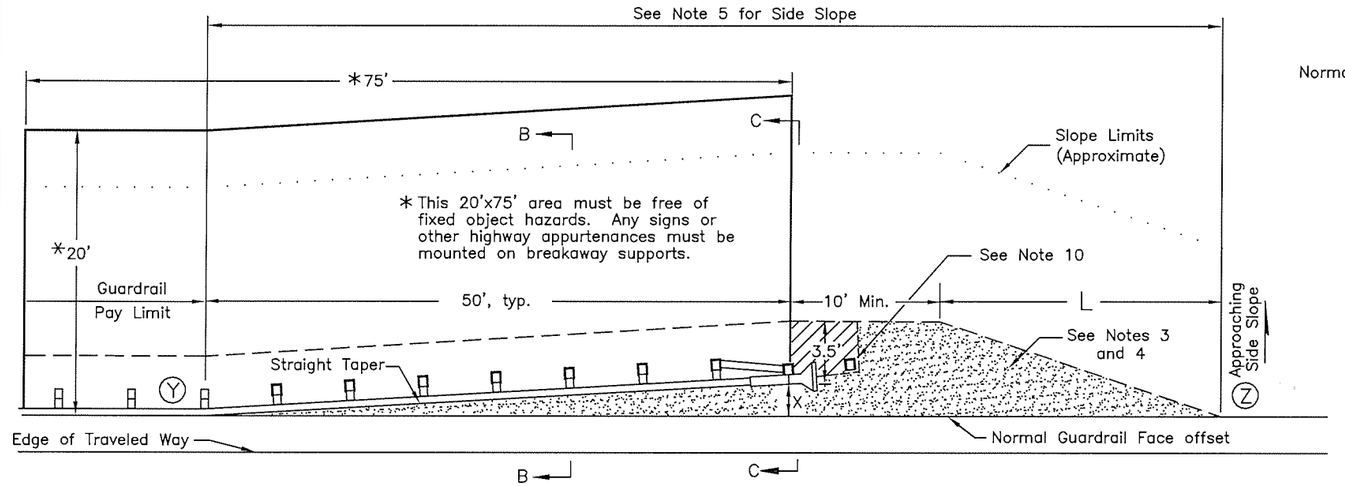
STANDARD GUARDRAIL TERMINAL WIDENING DETAIL



SECTION A–A

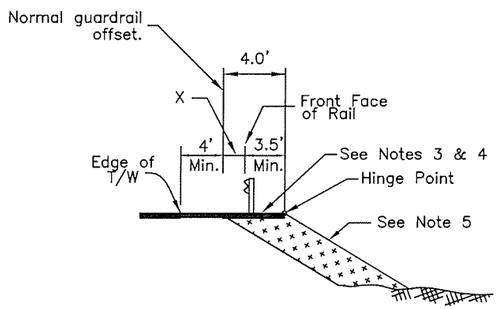


SECTION B–B
(Applies to both details)



ALTERNATE GUARDRAIL TERMINAL WIDENING DETAIL

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



SECTION C–C

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

Taper Lengths (L) for Common End Offsets (X)		
End Offset	Standard Detail	Alternate Detail
0'	24.0'	13.0'
1'	26.0'	17.0'
1.5'	28.0'	19.0'
2'	30.0'	21.0'
2.5'	32.0'	22.0'
4'	37.0'	28.0'
Interpolate if the end offset falls between table values		

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 permissable.
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 Ⓨ to point Ⓩ 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

WIDENING FOR GUARDRAIL END TERMINALS

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

Adoption Date: 02/08/2019

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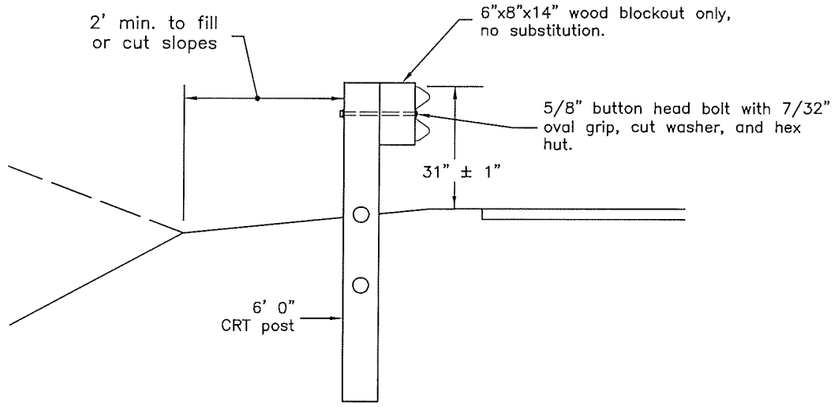
G-20.12

G-29.00

SHEET 1 of 1



SECTION A–A

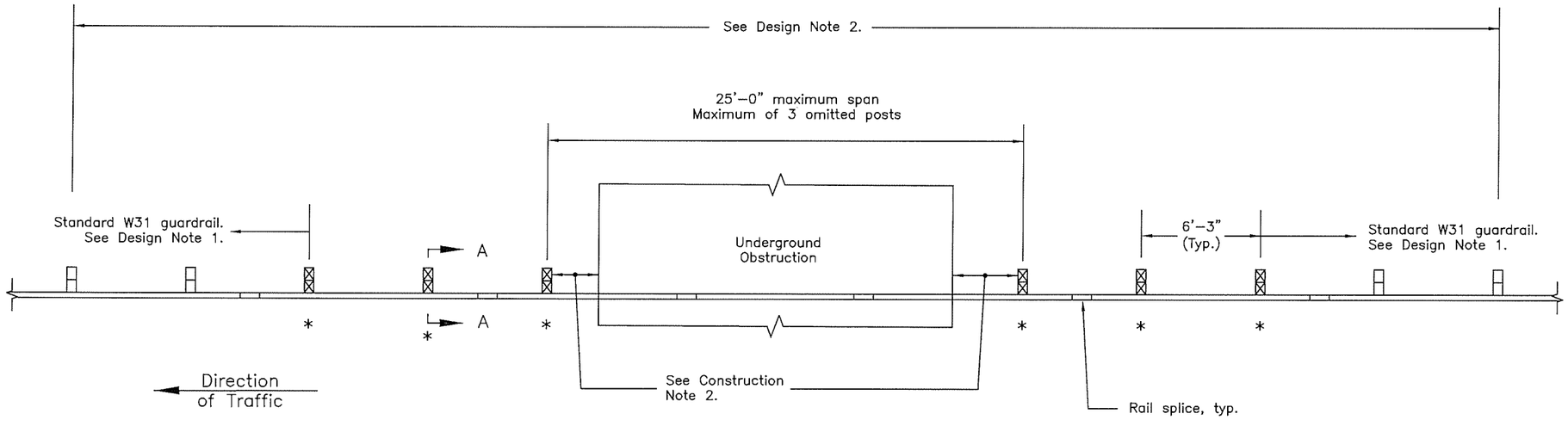
Typical for all CRT post locations shown in the plan view

CONSTRUCTION NOTES

1. See Standard Drawings G–00 and G–05 for additional guardrail and guardrail hardware details. See G–26 Sheet 1 of 3 for CRT post details.
2. Provide 1' minimum lateral clearance between posts and underground obstruction.
3. Nesting of rail elements in the long span area is not allowed.

DESIGN NOTES

1. Total installed length of guardrail and end anchorage (including end terminals, downstream anchors, etc.) shall not be less than 62.5' measured from the outermost CRT post on both the upstream and downstream ends.
2. No fixed objects allowed within 9'–0" from the back of posts where post are omitted. This is the crash–tested lateral deflection of the long span section.
3. Do no install curb in the long span area – this includes the area of CRT posts.



*–Designates CRT post location

LONG SPAN GUARDRAIL PLAN

State of Alaska DOT&PF
ALASKA STANDARD PLAN

LONG SPAN
W31 GUARDRAIL

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

Adoption Date: 02/08/2019

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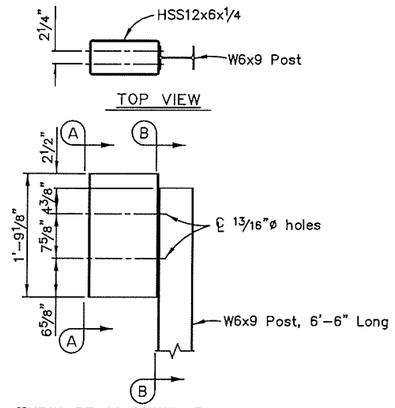
By: Date:

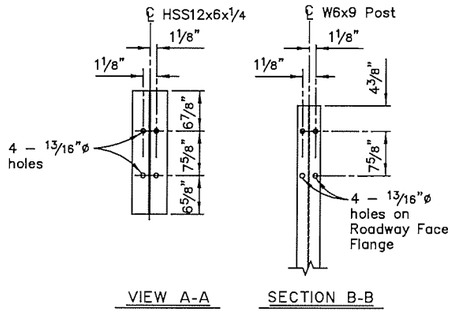
Next Code and Standards Review date:02/08/2029

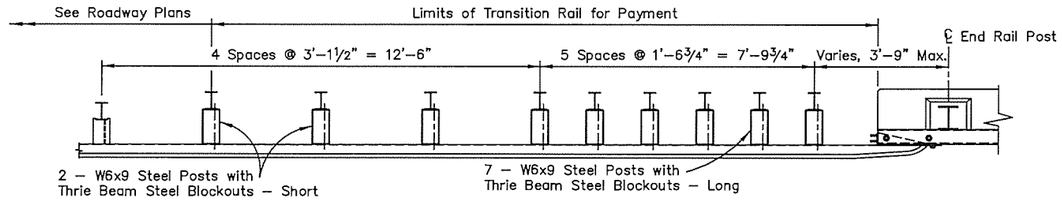
G-32.02

SHEET | of |

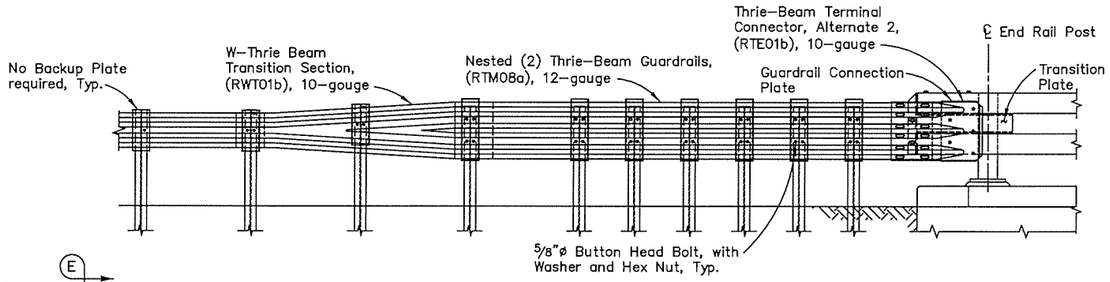


THRIE BEAM STEEL BLOCKOUT - LONG



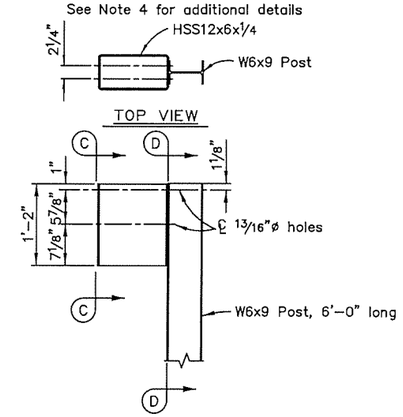


PLAN



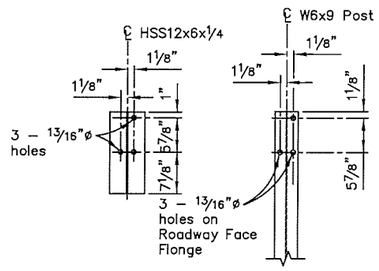
ELEVATION

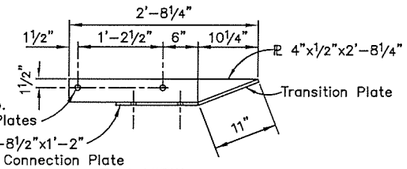
See Note 4 for additional details

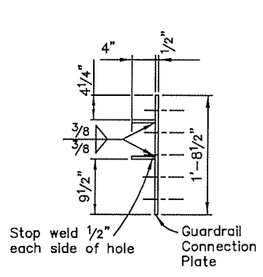


THRIE BEAM STEEL BLOCKOUT - SHORT

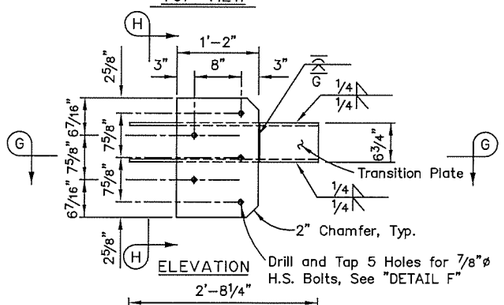
See Note 4 for additional details

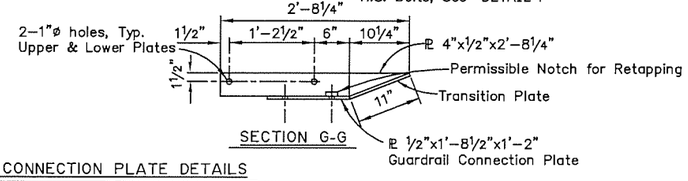




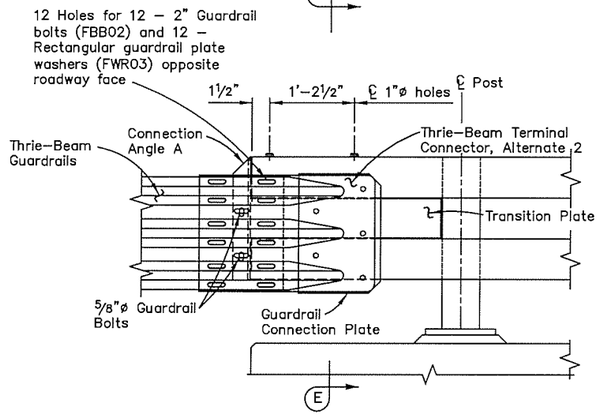


SECTION H-H

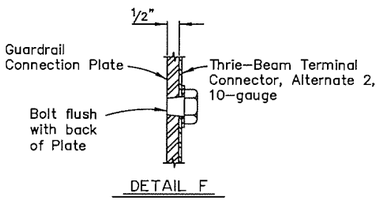




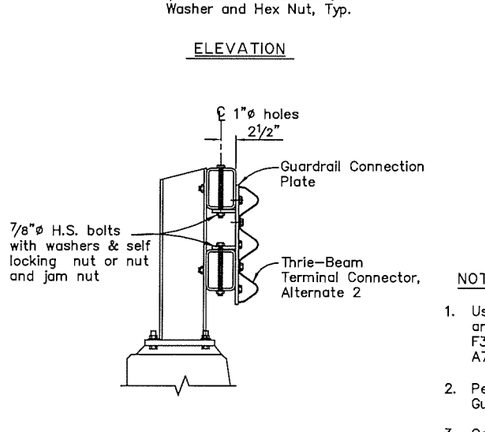
GUARDRAIL CONNECTION PLATE DETAILS



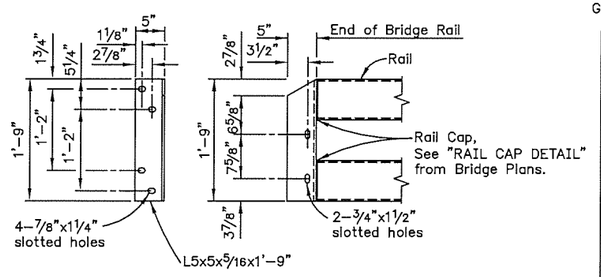
TRANSITION CONNECTION - ELEVATION



DETAIL F



SECTION E-E



END VIEW ELEVATION

CONNECTION ANGLE A

NOTES:

1. Use AASHTO M 180 for all guardrail, transition rail, and hardware. Use H.S. Bolts conforming to ASTM F3125 Grade A325. All other steel conforms to ASTM A709 Grade 50.
2. Permissible 3" horizontal slots in Thrie–Beam Guardrails. Adjust guardrail bolts for sliding fit.
3. Conform to G–00, G–05, and G–10 of the Standard Plans for all Thrie Beam Transition details not shown.
4. Thrie Beam Transition part numbers are listed in parentheses () and referenced in the "Task Force 13 Guide to Standardize Roadside Hardware."

No Scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

MASH BRIDGE RAIL THRIE BEAM TRANSITION

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

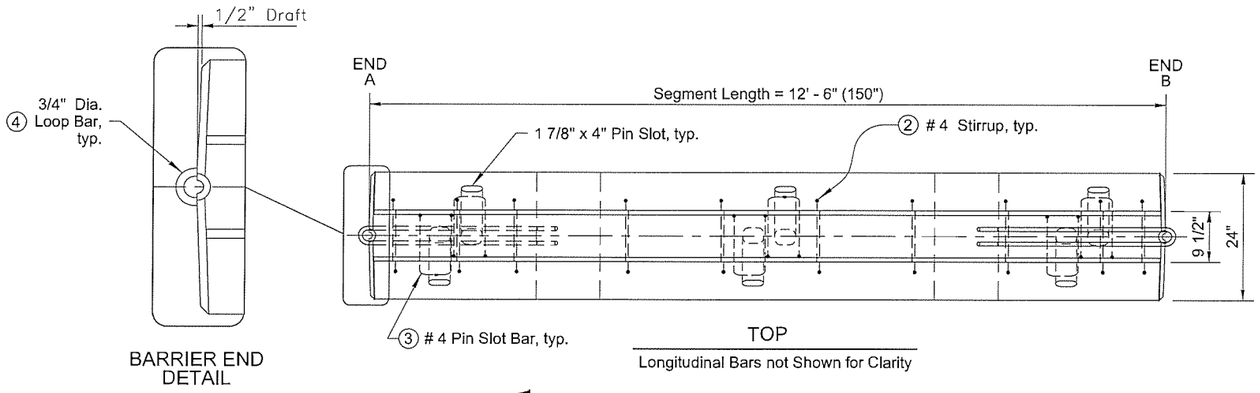
Adoption Date: 07/30/2021

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

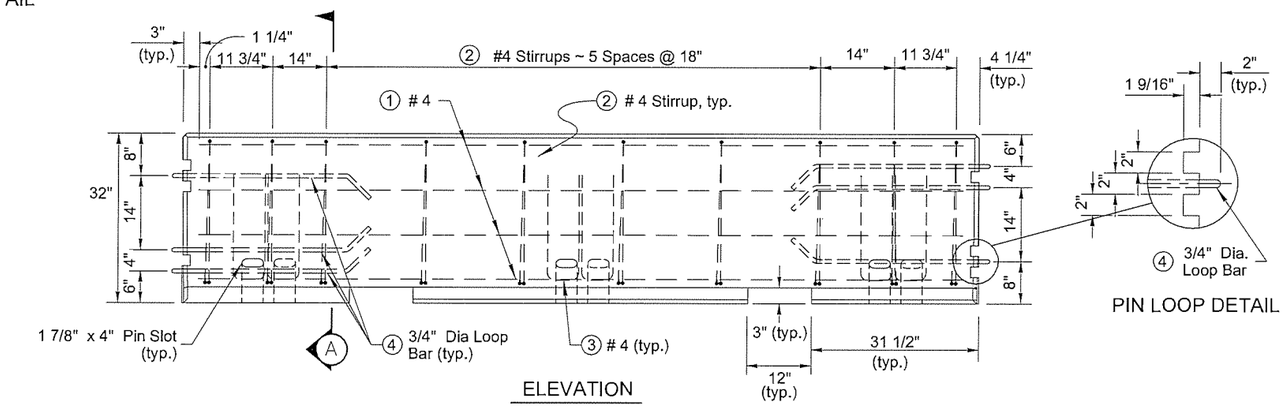
Next Code and Standards Review Date: 07/17/2030

G-32.02

G-47.00



BARRIER END DETAIL



ELEVATION

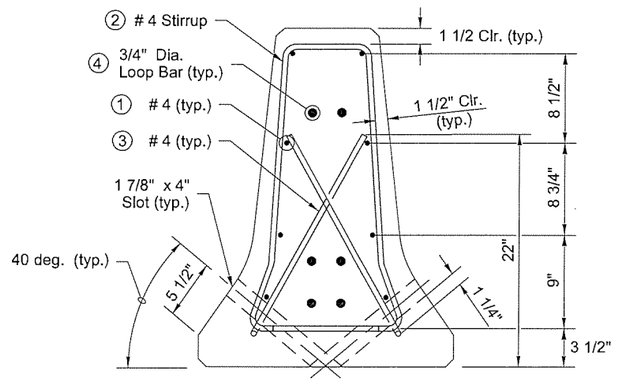
PIN LOOP DETAIL

CONSTRUCTION NOTES

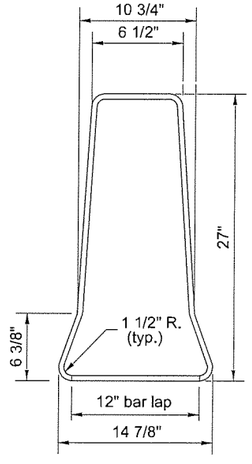
1. This concrete barrier meets MASH TL–3 and may be used for temporary and permanent applications.
2. Use Class B–B concrete (5,000 psi) meeting the requirements of Section 550 of the Standard Specifications.
3. Provide the following unobstructed smooth deflection area behind barrier:

   18" when anchored to concrete
   22" when anchored to asphalt pavement
   64" when unanchored

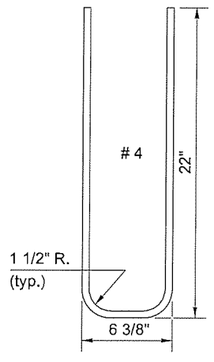
4. When anchored, install anchor pins on the side facing traffic. Concrete barrier used as permanent median barrier in medians less than 8' in width shall be anchored to the roadway with anchor pins on both sides of the barrier.



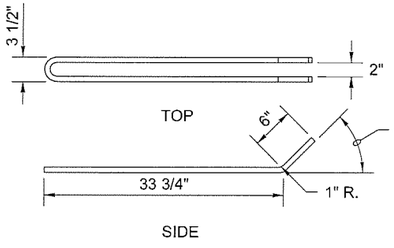
SECTION A



② STIRRUP BAR
#4 Rebar

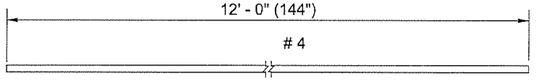


③ PIN SLOT BAR
#4 Rebar

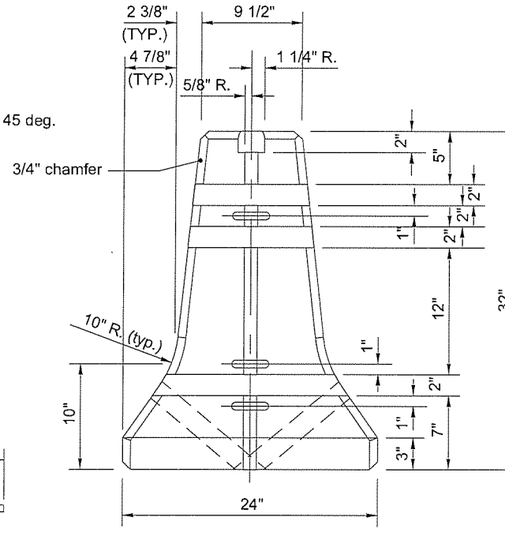


④ LOOP BAR DETAIL

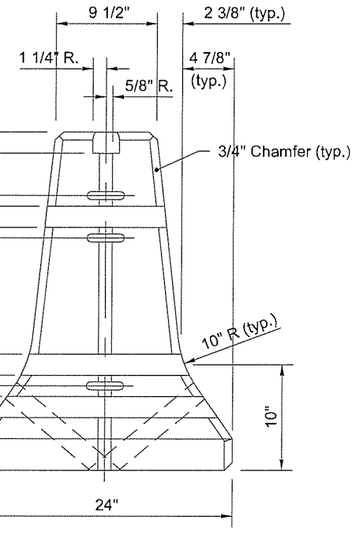
3/4" Dia. Bar (ASTM A36)
Hot Dip Galvanize after Fabrication
(ASTM A123 OR AASHTO M 111)



① LONGITUDINAL BAR
#4 Rebar



END A



END B

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

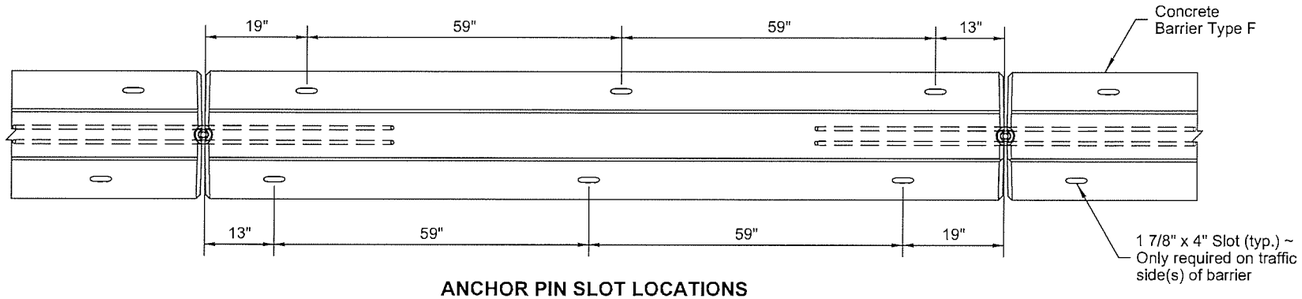
MASH "F" SHAPE
CONCRETE BARRIER

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

Adoption Date: 07/17/2020

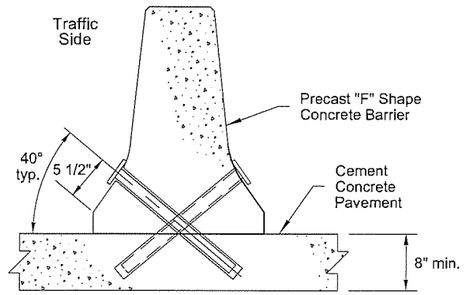
Last Code and Stds. Review
By: LRG Date: 07/17/2020

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

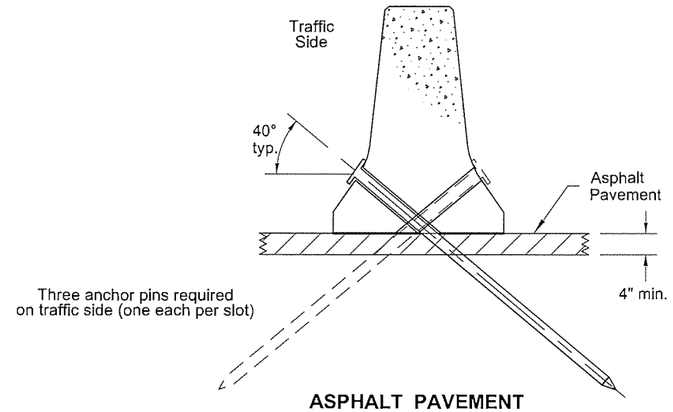


ANCHOR PIN SLOT LOCATIONS

Reinforcing steel not shown for clarity



CONCRETE ANCHOR PIN DETAILS



ASPHALT PAVEMENT ANCHOR PIN LOCATIONS

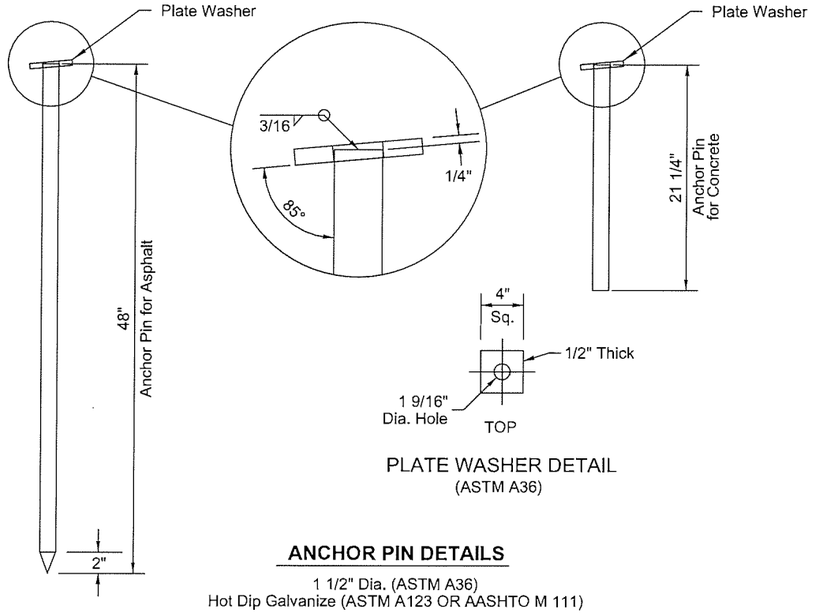
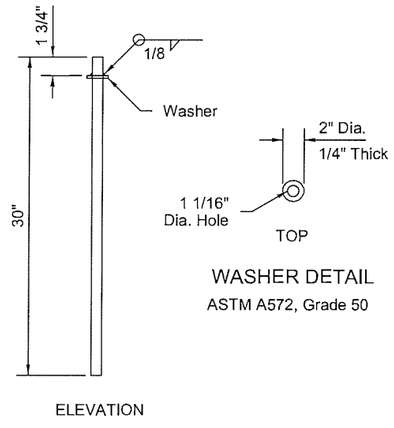


PLATE WASHER DETAIL
(ASTM A36)

ANCHOR PIN DETAILS

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

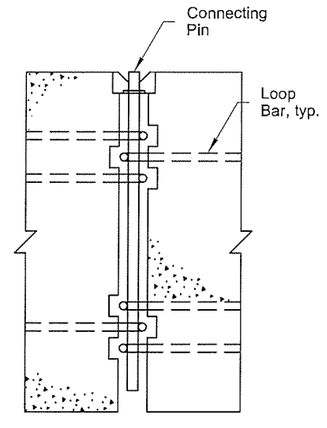


ELEVATION

WASHER DETAIL
ASTM A572, Grade 50

CONNECTING PIN DETAILS

1" Dia. - ASTM A449
Hot Dip Galvanize



BARRIER CONNECTION DETAIL

CONSTRUCTION NOTES

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

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

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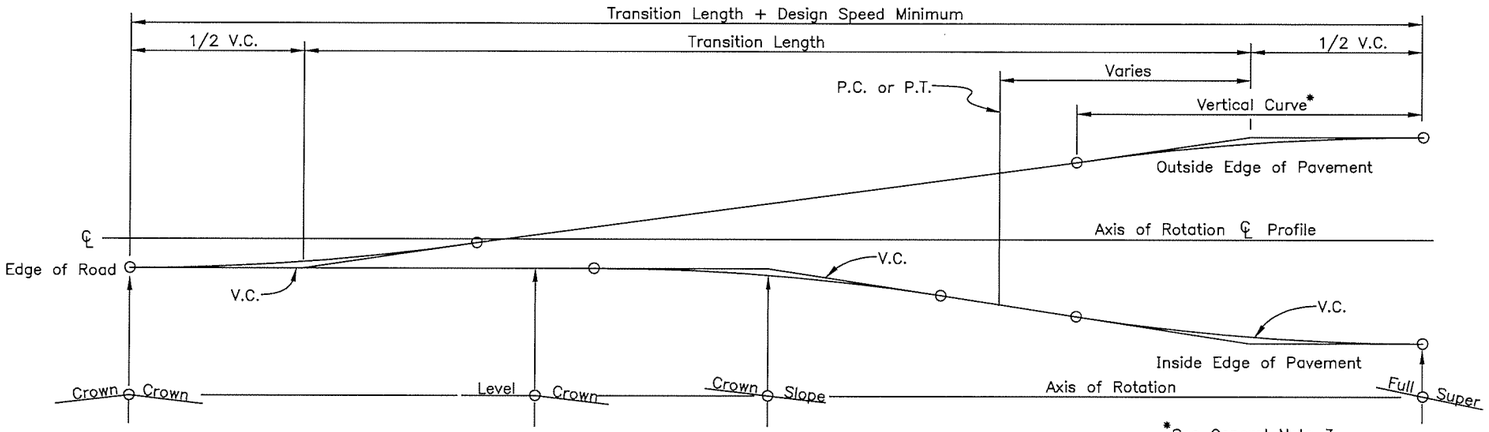
By: LRG Date: 07/17/2020

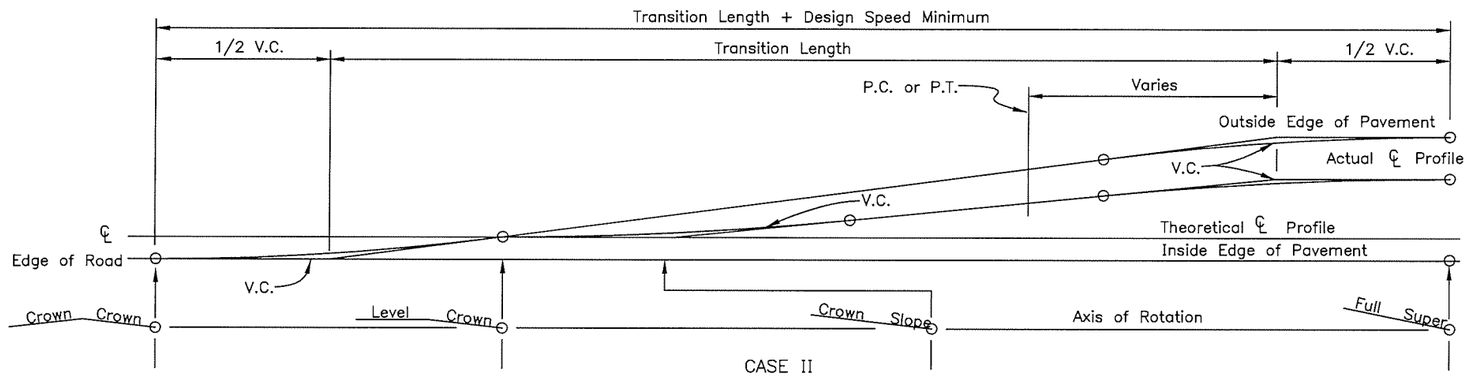
Next Code and Standards Review date:07/17/2030

G-47.00 Sheet 2 of 2

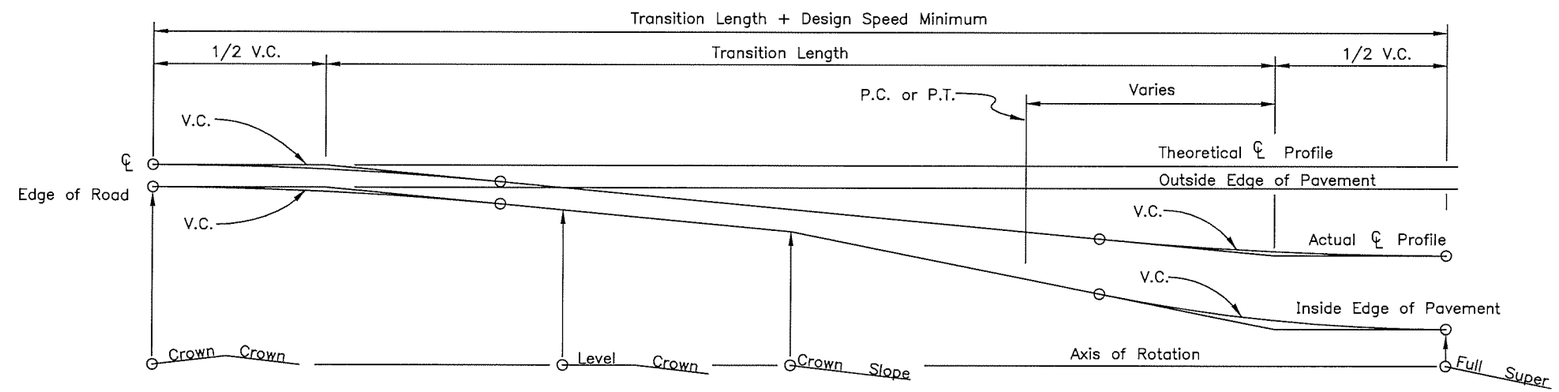
I-81.00 | SHEET 1 of 1



CASE I
PAVEMENT REVOLVED ABOUT CENTERLINE



CASE II
PAVEMENT REVOLVED ABOUT INSIDE EDGE
TO BE USED WHERE DRAINAGE IS THE GOVERNING CONSIDERATION



CASE III
PAVEMENT REVOLVED ABOUT OUTSIDE EDGE TO BE
USED WHERE OVERALL APPEARANCE IS THE MAIN CONTROL

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

Adoption Date: 7/17/2020

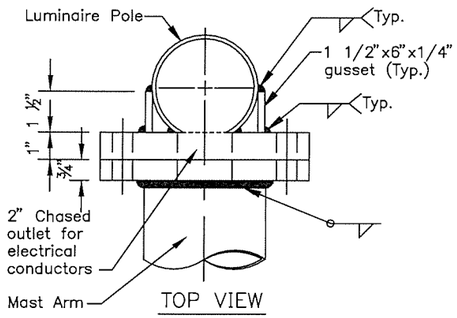
Last Code and Stds. Review
By: KLK Date: 7/8/2020

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

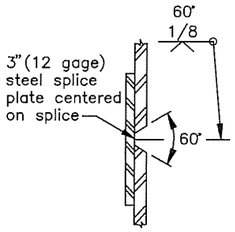
I-81.00

L-03.11

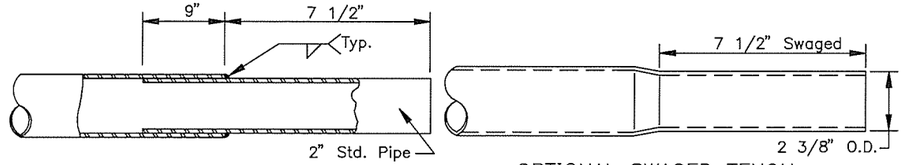
SHEET 1 of 1



TOP VIEW

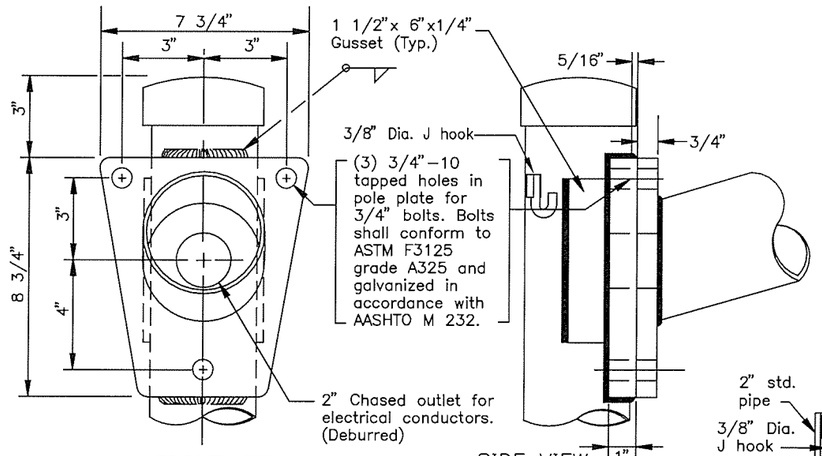


SPLICE DETAILS



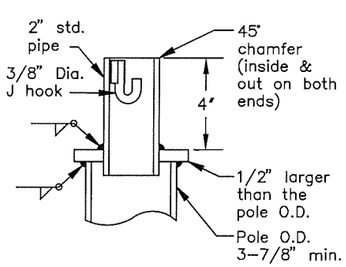
TENON OPTIONAL SWAGED TENON

END OF MAST ARM DETAIL

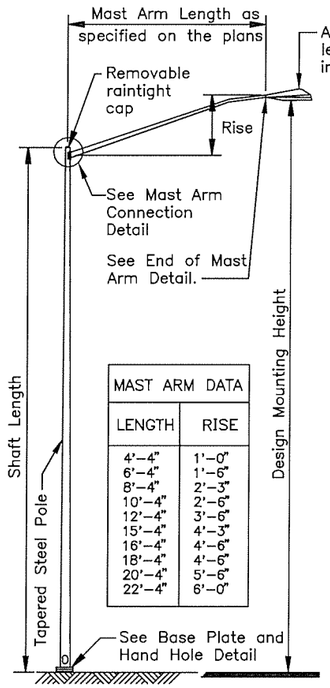


FRONT VIEW SIDE VIEW

MAST ARM CONNECTION DETAIL

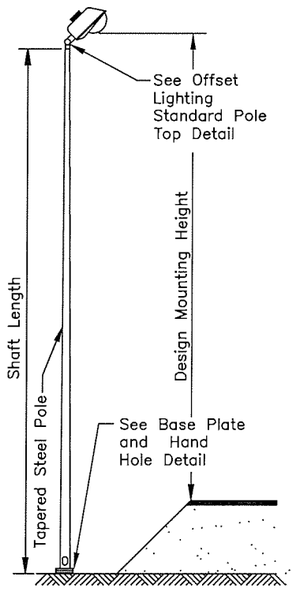


OFFSET LIGHTING STANDARD POLE TOP DETAIL
(CUTAWAY FOR CLARITY)

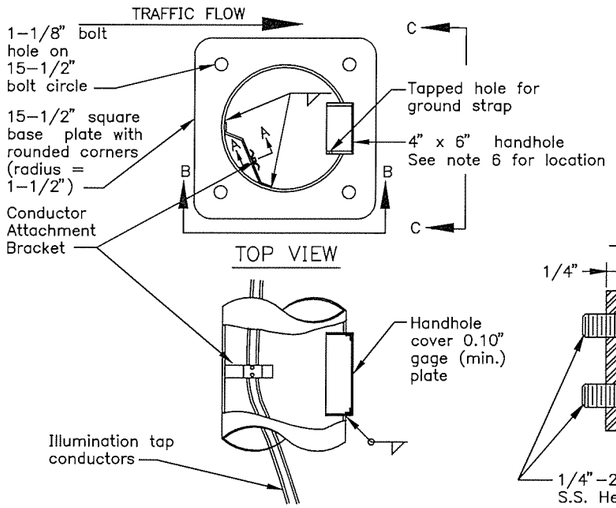


MAST ARM DATA	
LENGTH	RISE
4'–4"	1'–0"
6'–4"	1'–6"
8'–4"	2'–3"
10'–4"	2'–6"
12'–4"	3'–6"
15'–4"	4'–3"
16'–4"	4'–6"
18'–4"	4'–6"
20'–4"	5'–6"
22'–4"	6'–0"

ELECTROLIER ELEVATION
COBRA HEAD

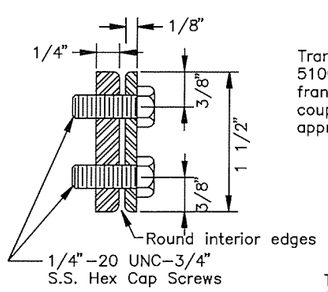


ELECTROLIER ELEVATION
OFFSET

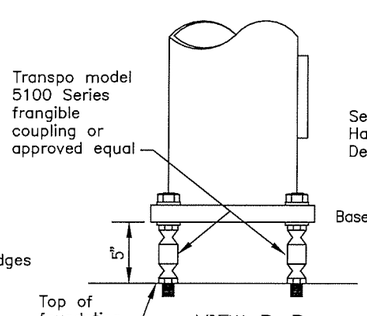


TOP VIEW

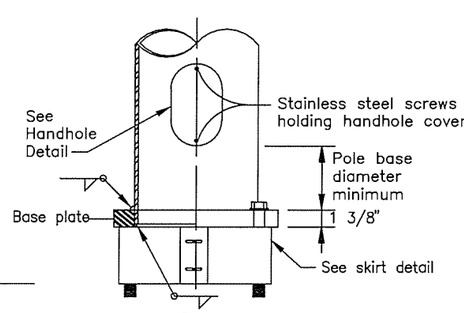
BASE PLATE AND HAND HOLE DETAIL



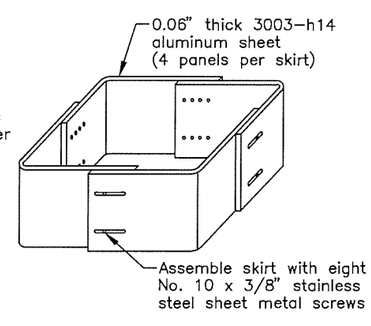
SECTION A–A



VIEW B–B



VIEW C–C



SKIRT DETAIL

GENERAL NOTES

1. Design and fabricate all shafts to support a mast arm 22' long with luminaire. Assume each offset fixture weighs 60 lbs. and has an effective projected area of 2.8 SF. Assume each Cobra head weighs 55 lbs. and has an effective projected area of 1.2 square feet. With this dead load, limit the angular rotation of the pole top to 1° 40' maximum.
2. Weld size to be determined by manufacturer.
3. Mounting height, if specified in the plans, refers to the height of luminaire above the finished roadway surface. Adjust each pole's shaft length to maintain this difference in elevation whenever slope and/or offset varies.
4. Minimum outside diameter at the top of pole equals 3–7/8". Pole diameter shall taper uniformly from the top of pole to the base plate, with a maximum taper rate of 0.15" per foot.
5. Mast arm rise may vary ±0.5ft from the values listed in the table.
6. Locate the handhole at 90 degrees to the mast arm on the side of pole downstream from traffic flow.
7. Furnish all poles with a j–hook to support the illumination tap conductors. Furnish all mast arm poles with a removable raintight cap.
8. Frangible couplings shall be NCHRP 350, Test Level 3 compliant and installed in accordance with the manufacturers written instructions. A MASH compliant device does not exist at this time. See SPDR for more info.
9. Frangible couplings shall be installed into flush mounted female anchors so that no fixed hardware extends above the foundation top.
10. Install all components of the breakaway support system in accordance with the manufacturer's written instructions.
11. Fabricate the skirt from four pieces of 0.06" thick 3003 h–14 aluminum sheet. Bend each plate to provide corners with a 3/4" radius. Assemble the skirt with #10 x 3/8" self tapping stainless screws or pop rivets. The assembled skirt measures about 12–7/8" square.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

LIGHTING STANDARDS

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

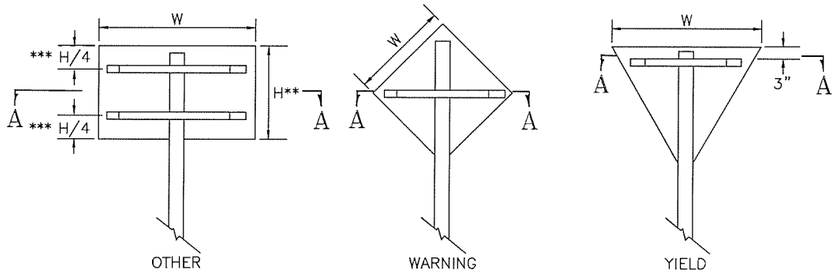
Adoption Date: 7/17/2020

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

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

L–03.11

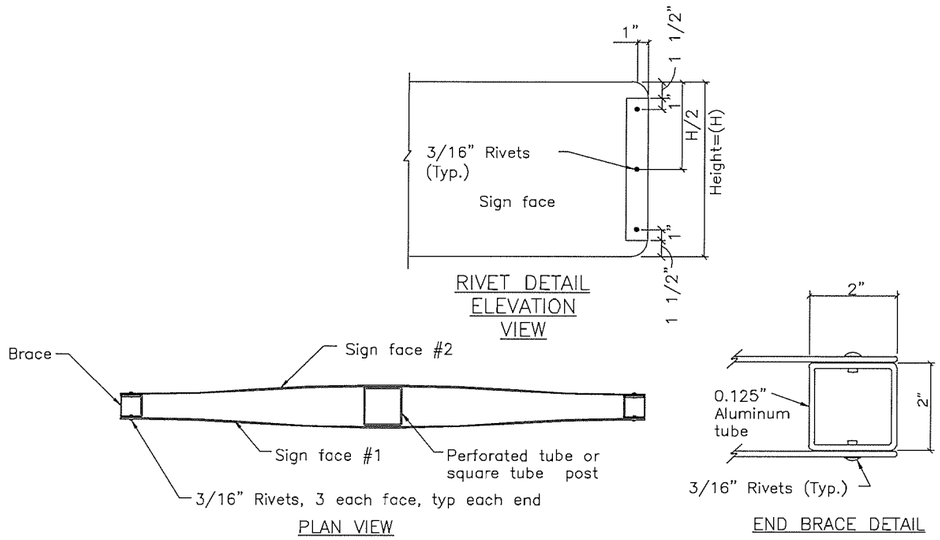
S-01.02 | SHEET | of |



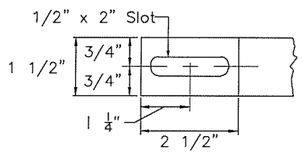
*** Use one brace when H ≤ 18"
Use two braces when 18"< H < 48"
Use three braces when H ≥ 48"

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

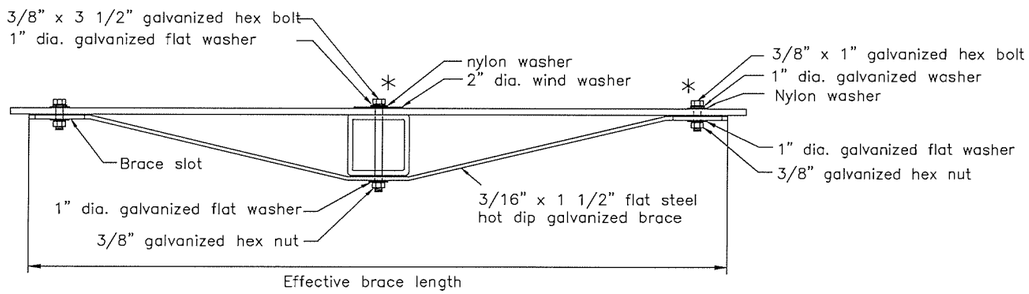
SIGN BRACING PLACEMENT



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

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

Note: Drawing not to scale

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

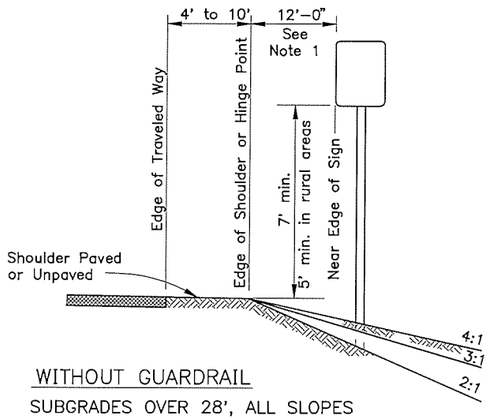
Adaption Date: 7/17/2020

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

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

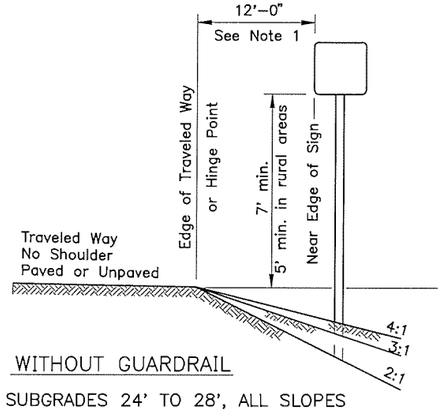
S-01.02

S-05.02 SHEET 1 of 1



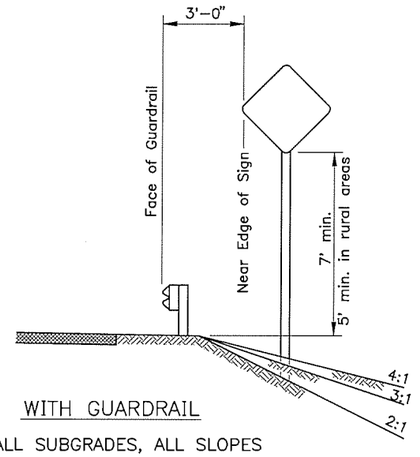
WITHOUT GUARDRAIL

SUBGRADES OVER 28', ALL SLOPES



WITHOUT GUARDRAIL

SUBGRADES 24' TO 28', ALL SLOPES

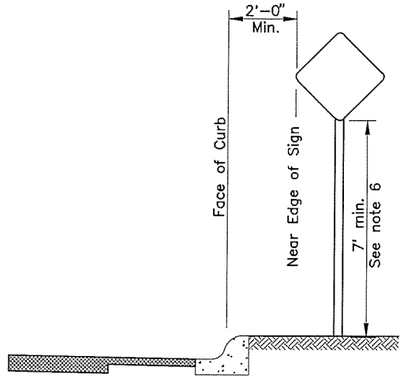


WITH GUARDRAIL

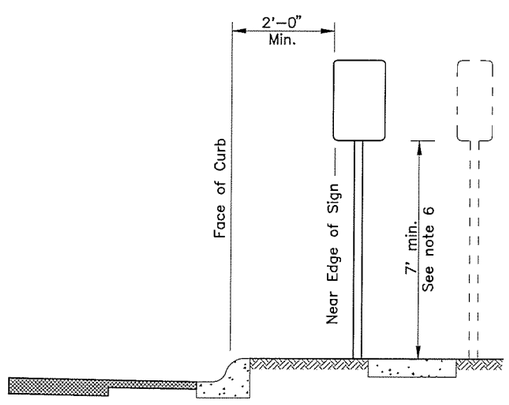
ALL SUBGRADES, ALL SLOPES

GENERAL NOTES

1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6' where shoulder width is 6' or greater.
2. Add 6" to mounting height on unpaved roads.
3. If signs extend over bike paths, the minimum vertical clearance is 8' 0".
4. 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.
5. When multiple hinged sign supports are used, mount hinges at least 7' above the ground.
6. Minimum mounting height is 7'-0" where parking or pedestrian movements are likely to occur, or where sings extend over sidewalks.
7. For construction signs in rural areas, mounting height shall be 7' minimum.

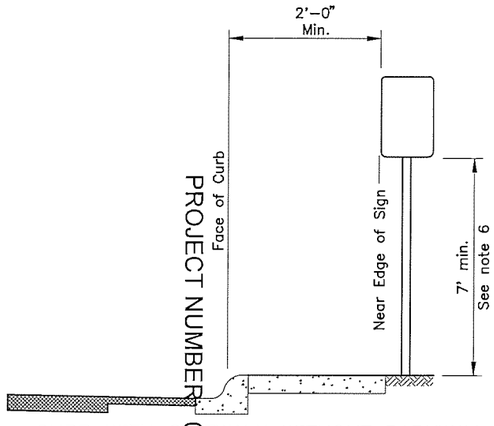


CURB WITHOUT SIDEWALK

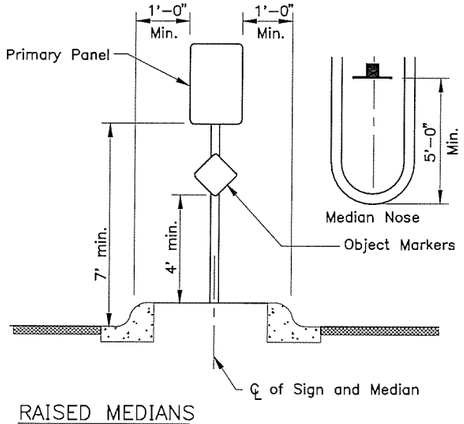


CURB WITH PARKWAY AND SIDEWALK

(If R/W width permits, signs should be placed behind sidewalk.)

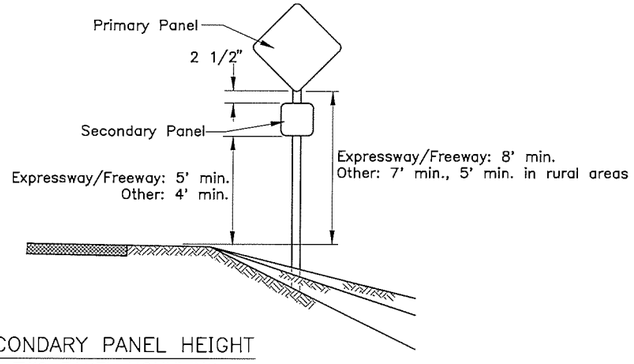


CURB WITH SIDEWALK WITHOUT PARKWAY



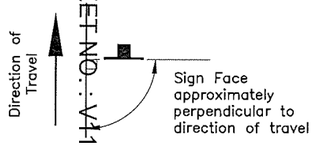
RAISED MEDIANS

Minimum 4' Width for Signing



SECONDARY PANEL HEIGHT

ALL TWO PANEL MOUNTING



SIGN POSITIONING

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

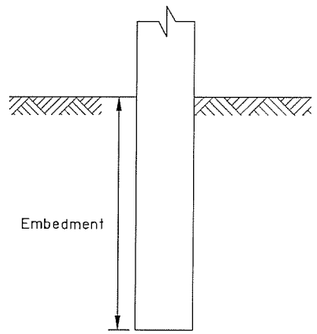
Last Code and Stds. Review
By: KLK Date: 7/8/2020

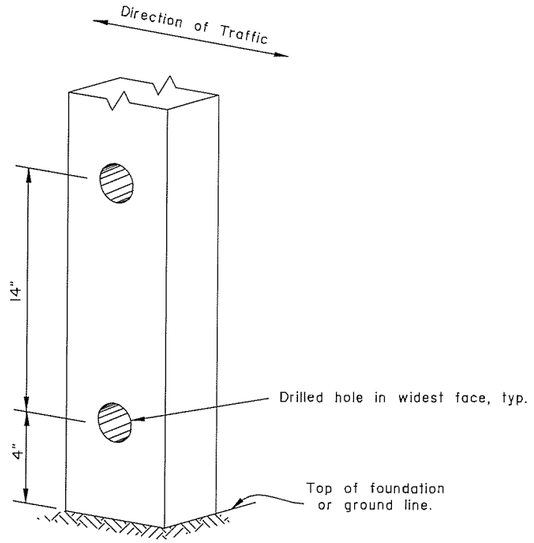
Next Code and Standards Review Date: 7/8/2030

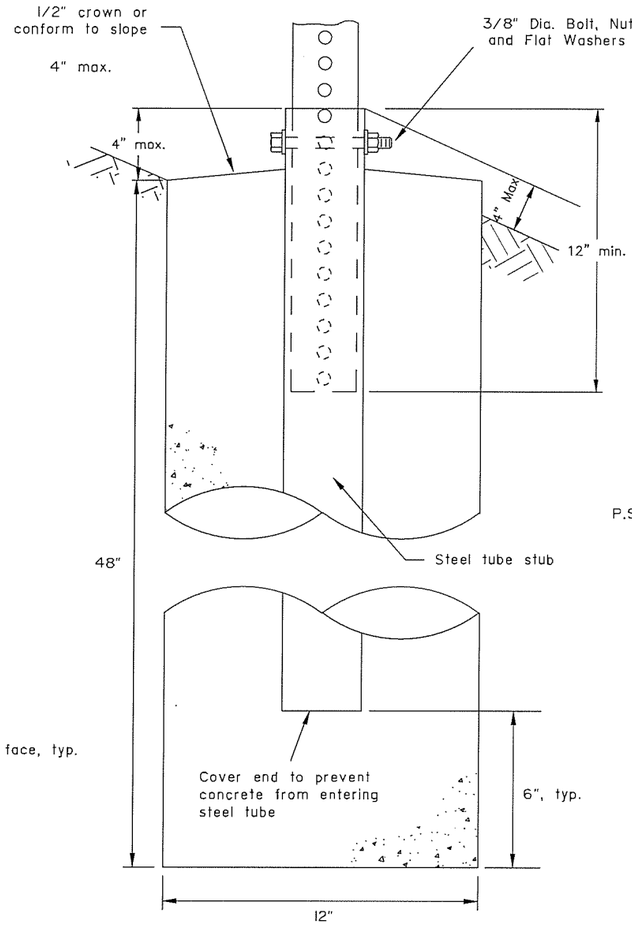
S-05.02

S-30.05

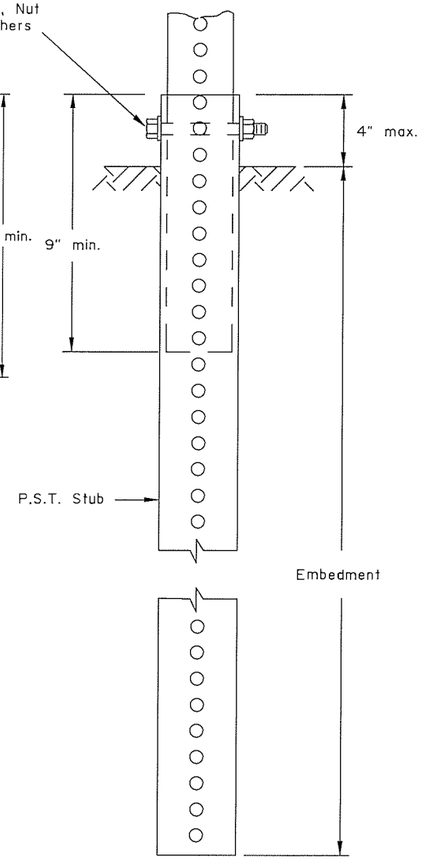
SHEET 1 of 1







SLEEVE TYPE
CONCRETE FOUNDATION



SLEEVE TYPE*
SOIL EMBEDMENT

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.

WOOD POSTS

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.

PERFORATED STEEL TUBE (PST) POSTS

TUBE SIGN POST SPACING								
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

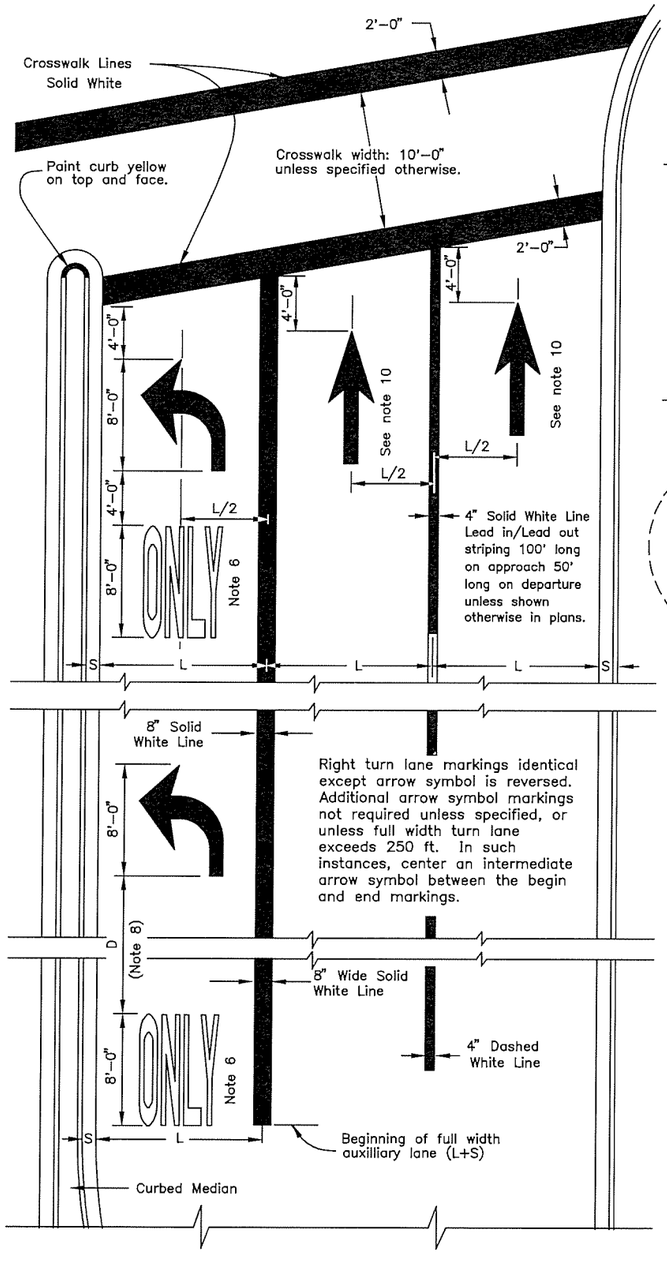
Adoption Date: 7/17/2020

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

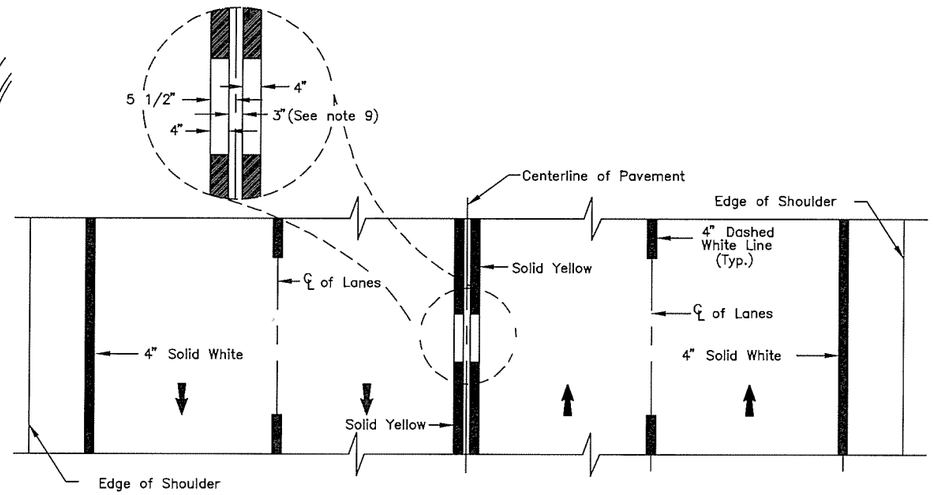
Next Code and Standards Review date: 7/8/2030

S-30.05

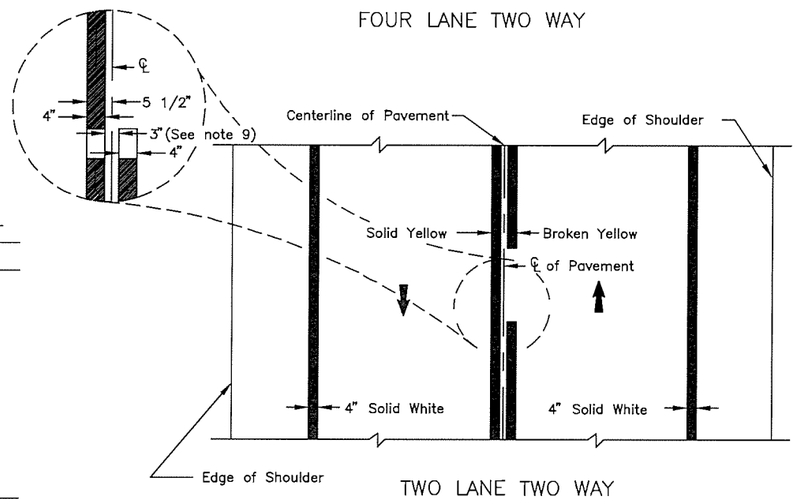
T-21.04 SHEET 1 of 1



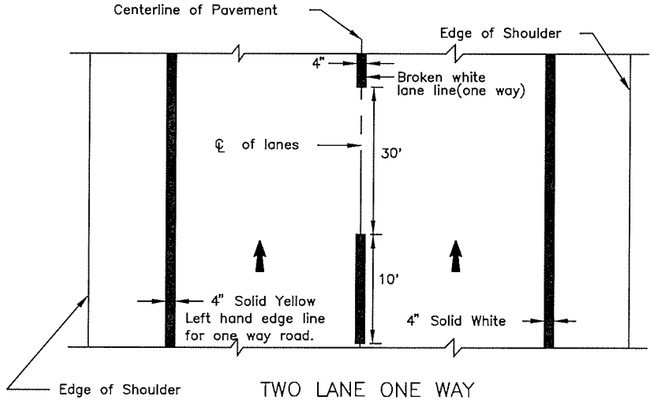
APPROACH TO INTERSECTION



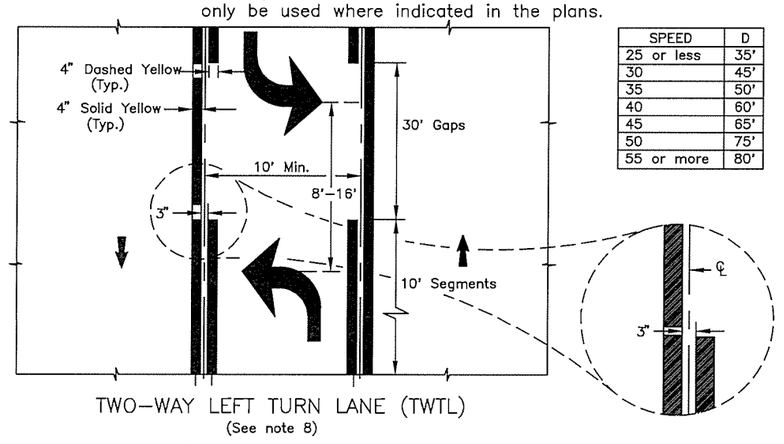
FOUR LANE TWO WAY



TWO LANE TWO WAY

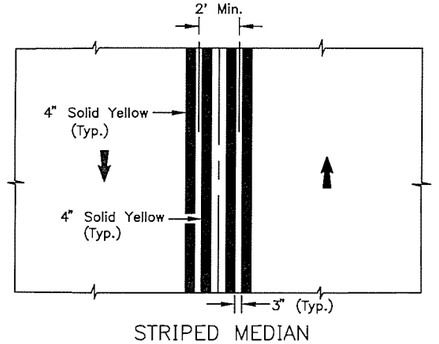


TWO LANE ONE WAY



TWO-WAY LEFT TURN LANE (TWTL)
(See note 8)

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



STRIPED MEDIAN

GENERAL NOTES:

1. All markings white unless indicated otherwise.
2. Lengths of stripe and gap for lane and center lines identical.
3. Lane lines for auxiliary lanes are unbroken solid lines.
4. "L" = driving lane width.
5. "S" = shy distance as shown on plans, otherwise 1 to 2 feet.
6. ONLY markings are required where through lanes change to turn lanes. In other cases, apply ONLY markings as indicated on plans.
7. See ALASKA TRAFFIC MANUAL for additional instruction on the use of TRAFFIC CONTROL DEVICES.
8. 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.
9. Adjust centerline spacing from 3" up to 5" where recessed pavement markers are required.
10. 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.

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

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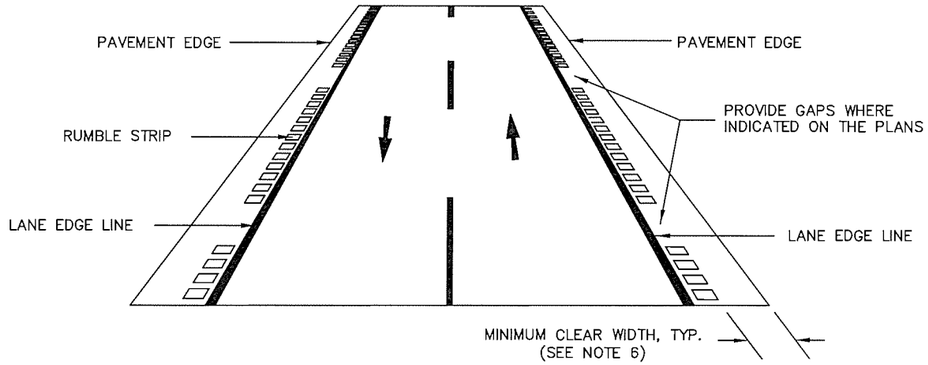
Next Code and Standards Review Date: 7/8/2030

T-21.04

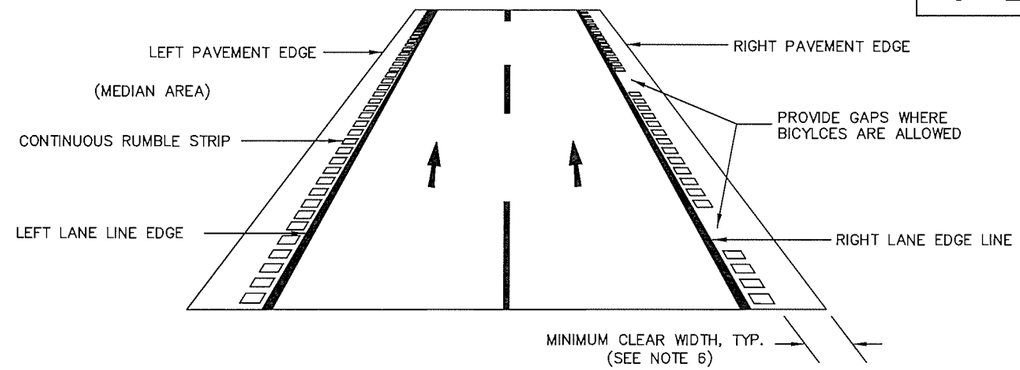
T-25.10 SHEET 1 of 5



TYPICAL SHOULDER INSTALLATION – TWO–WAY

PERSPECTIVE VIEW

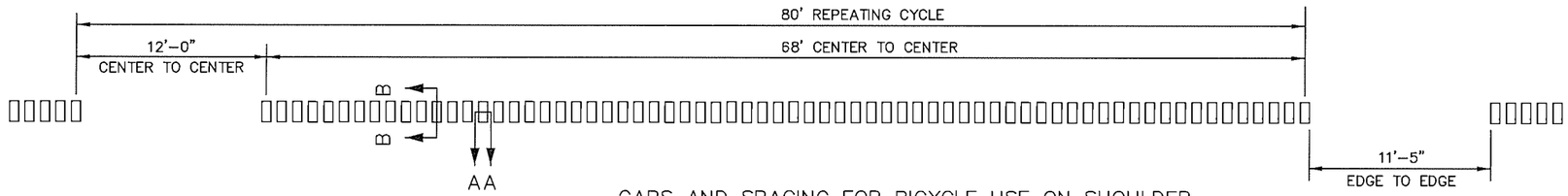
APPLIES TO TWO–WAY OPERATION WHERE BICYCLES ARE ALLOWED



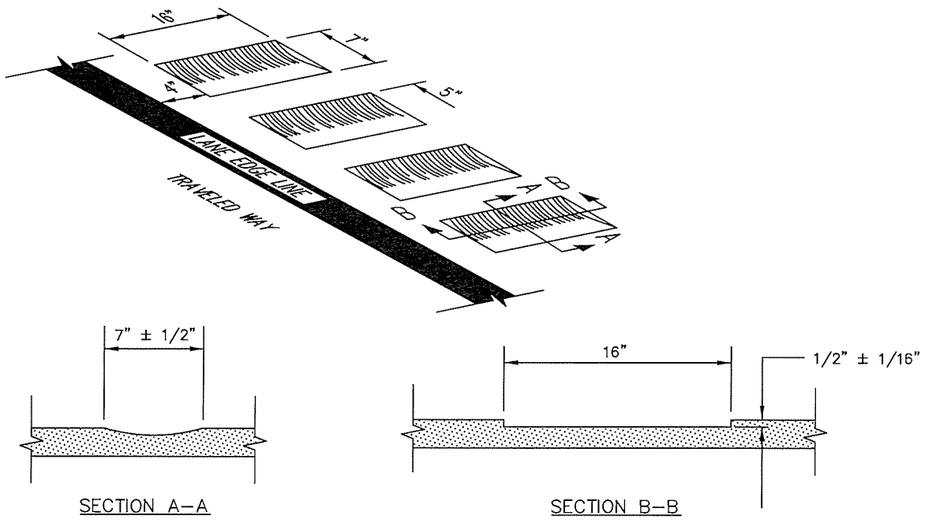
TYPICAL SHOULDER INSTALLATION – ONE–WAY DIVIDED

PERSPECTIVE VIEW

APPLIES TO ONE–WAY DIVIDED HIGHWAYS WHERE BICYCLES ARE ALLOWED



GAPS AND SPACING FOR BICYCLE USE ON SHOULDER



TYPICAL SHOULDER INSTALLATION DETAIL

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 (≥ 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

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Carolyn Morehouse, P.E.
Chief Engineer

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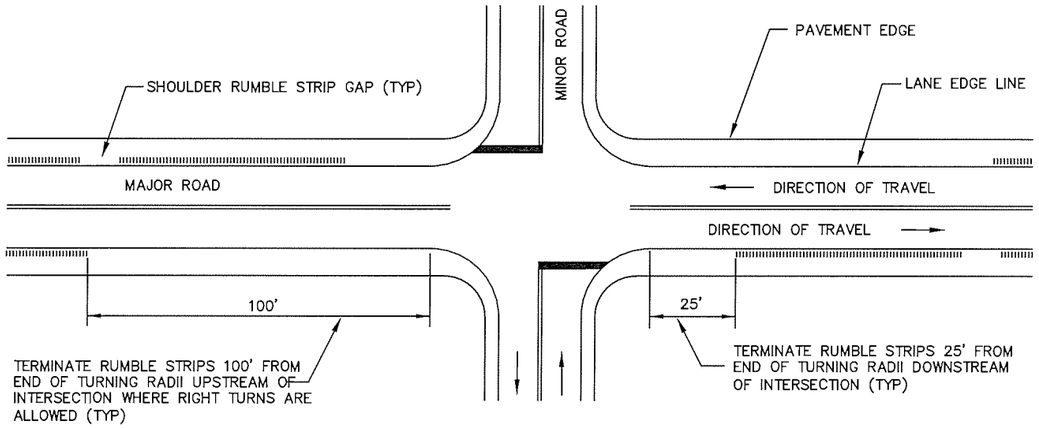
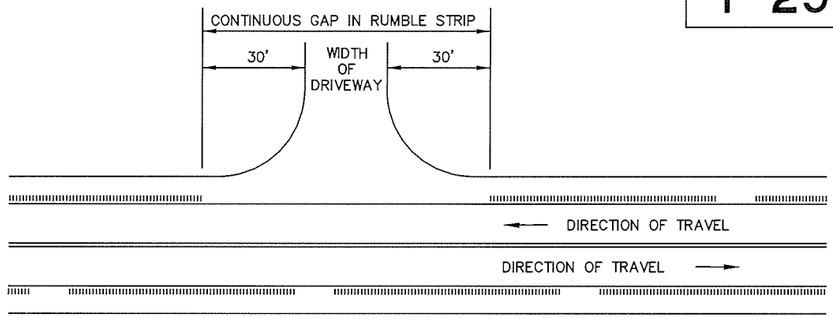
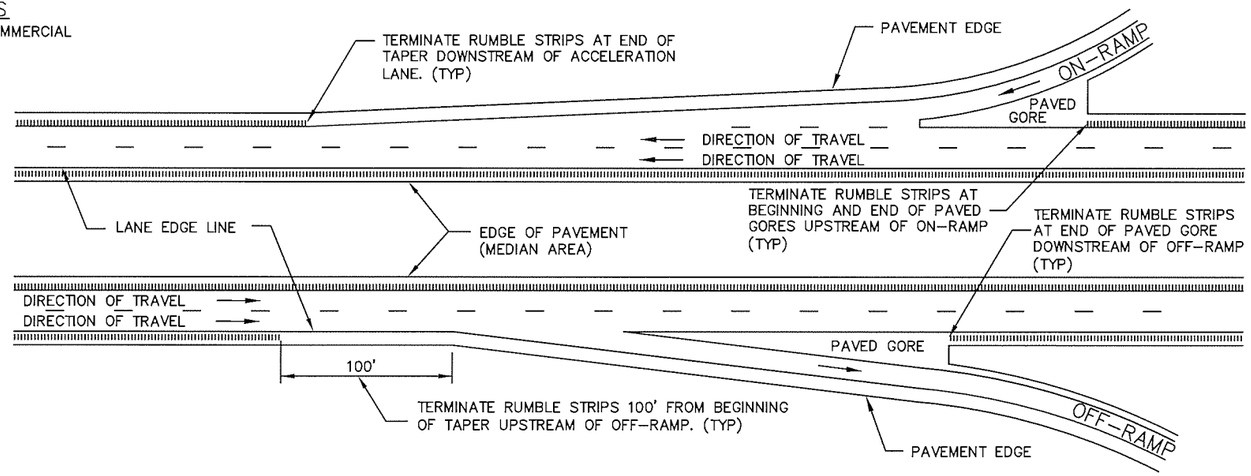


RUMBLE STRIP LAYOUT AT INTERSECTIONS

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

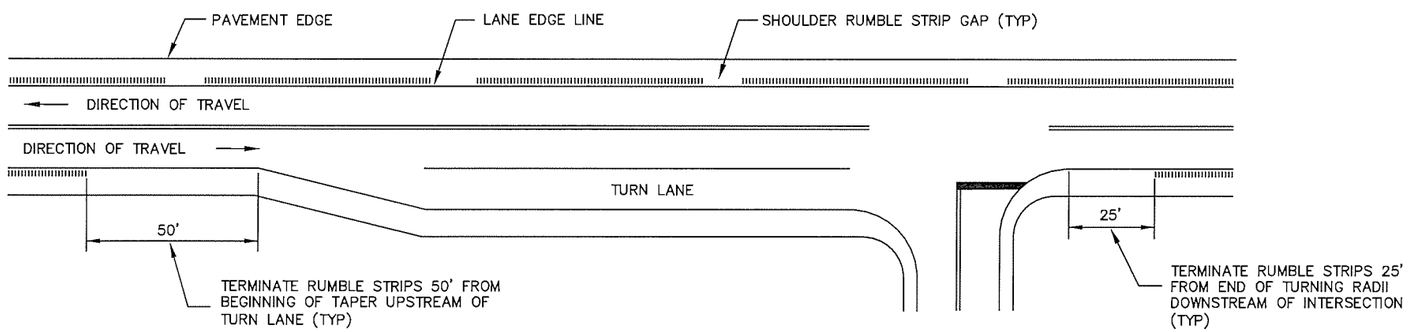


RUMBLE STRIP LAYOUT AT RESIDENTIAL DRIVEWAYS



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

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MILLED RUMBLE STRIPS
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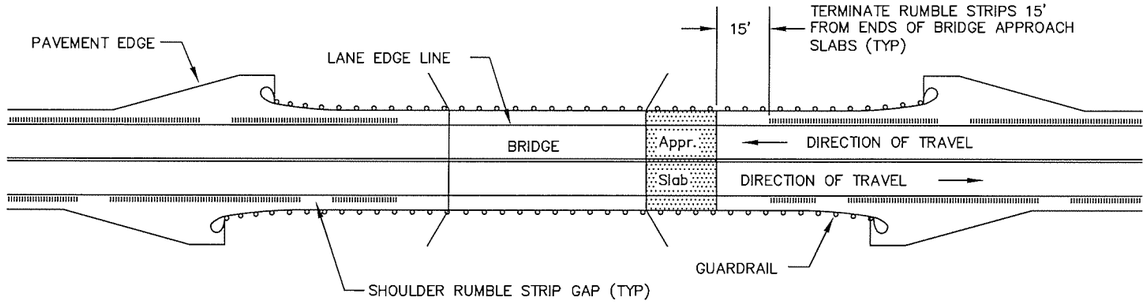
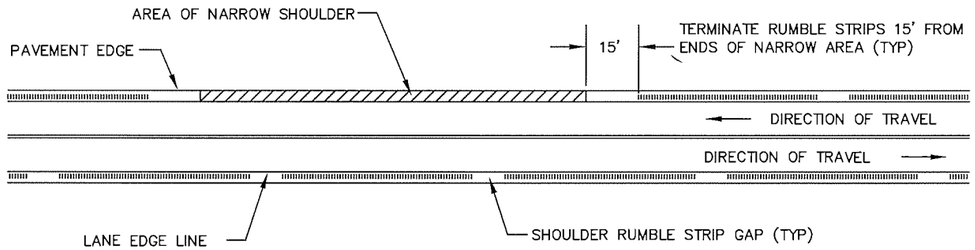
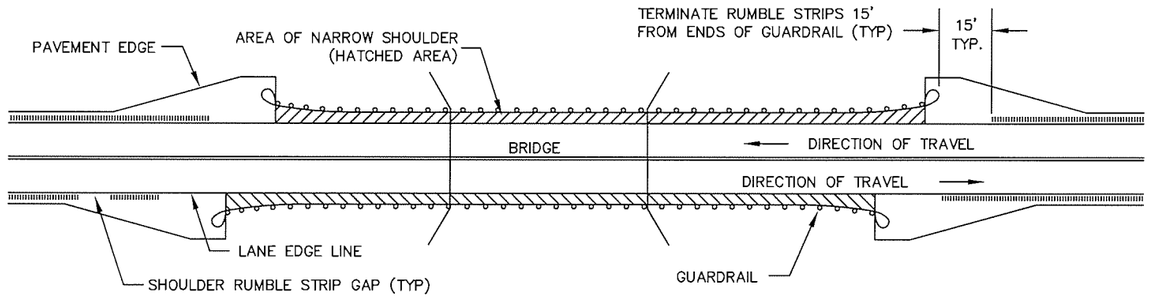


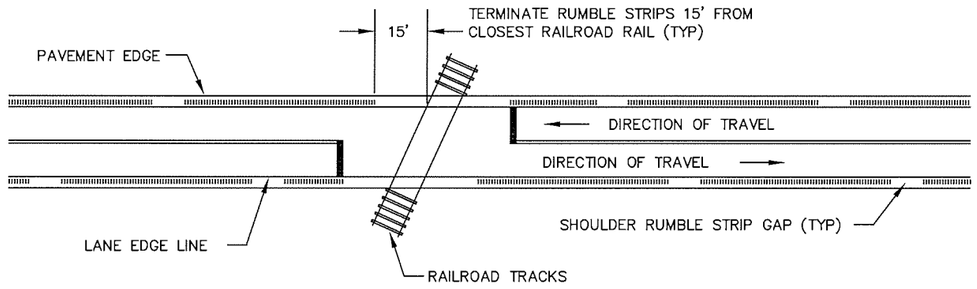
RUMBLE STRIP LAYOUT AT BRIDGES WITH ADEQUATE SHOULDER
(WHERE BICYCLES ARE ALLOWED)



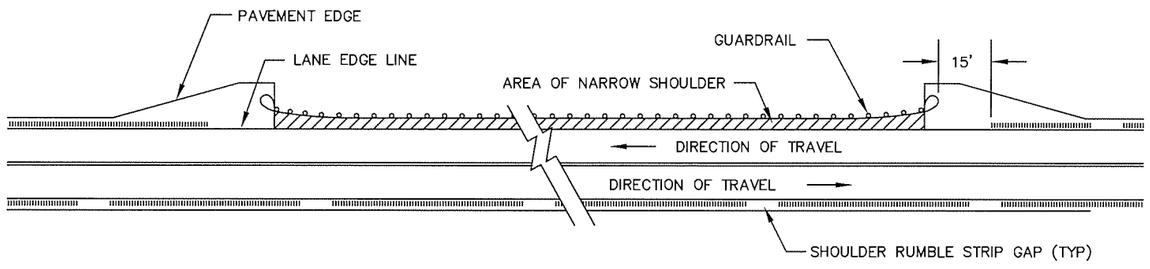
RUMBLE STRIP LAYOUT IN AREAS WITH NARROW SHOULDER
(WHERE BICYCLES ARE ALLOWED)
(SEE NARROW SHOULDER WIDTH NOTE THIS SHEET FOR DEFINITIONS AND TOLERANCES)



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:

a. AT LEAST 4' WHERE NO GUARDRAIL IS PRESENT.

b. AT LEAST 5' (TO FACE OF GUARDRAIL) WHERE GUARDRAIL IS PRESENT.

c. NO MINIMUM WHERE BICYCLES ARE PROHIBITED.

Note: Drawing not to scale

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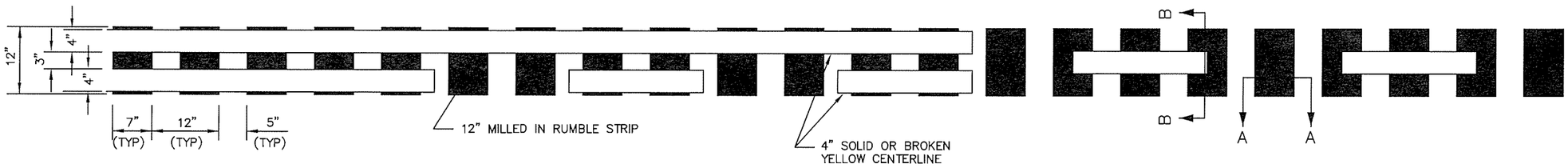
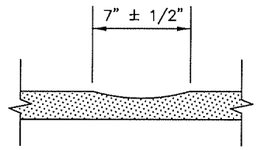
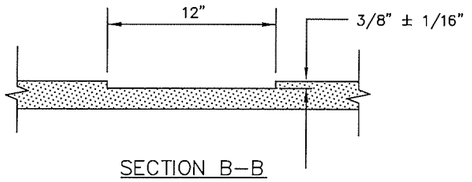


CENTERLINE RUMBLE STRIP PLAN VIEW



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 MEDIANS 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

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CENTERLINE DETAILS

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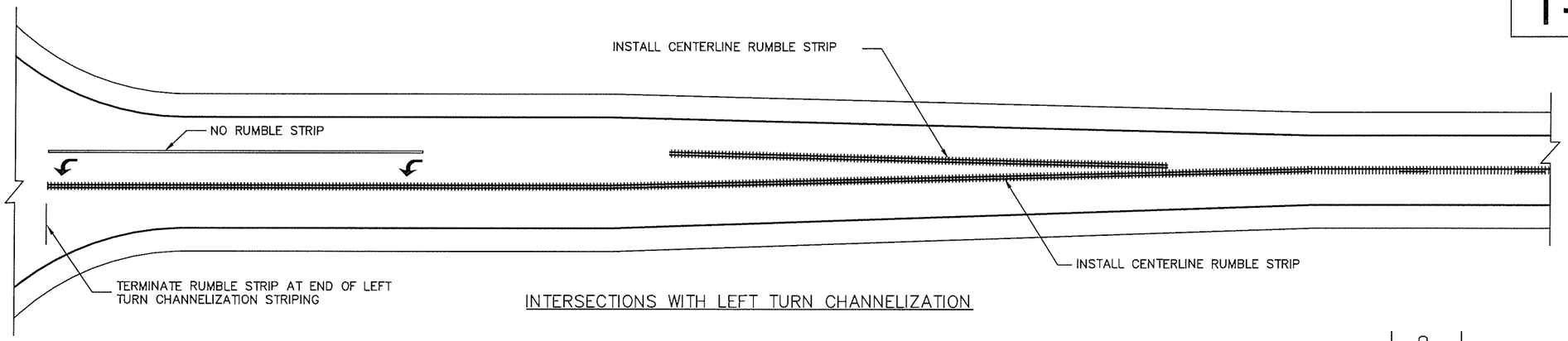
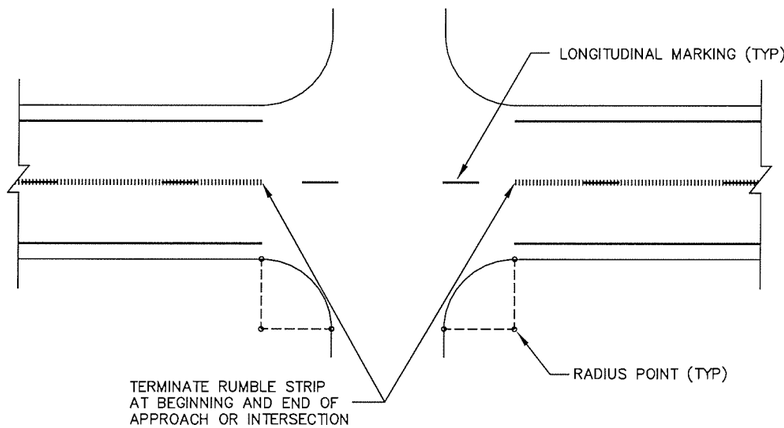
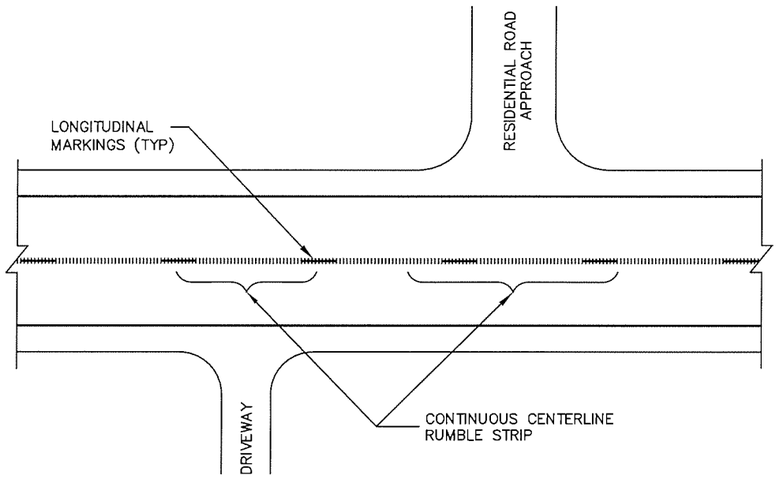


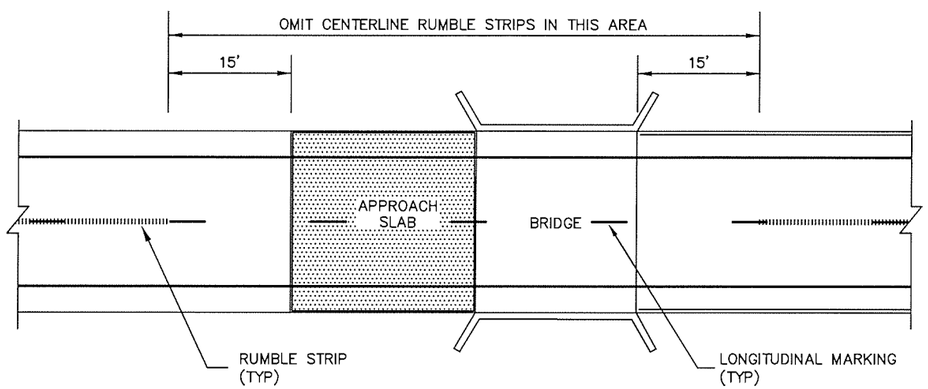
INTERSECTIONS WITH LEFT TURN CHANNELIZATION



HIGHER VOLUME INTERSECTONS AND COMMERCIAL APPROACHES



NON–COMMERCIAL ROAD AND DRIVEWAY APPROACHES
(DO NOT BREAK FOR THESE ACCESS POINTS)



BRIDGE

Note: Drawing not to scale

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