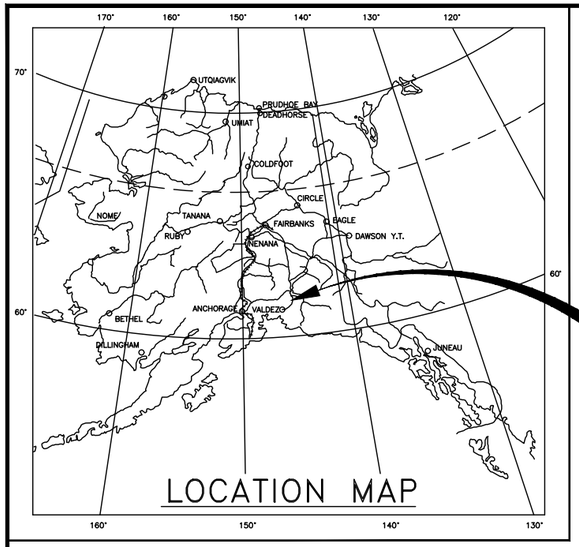
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	A1	42



PROJECT LOCATION

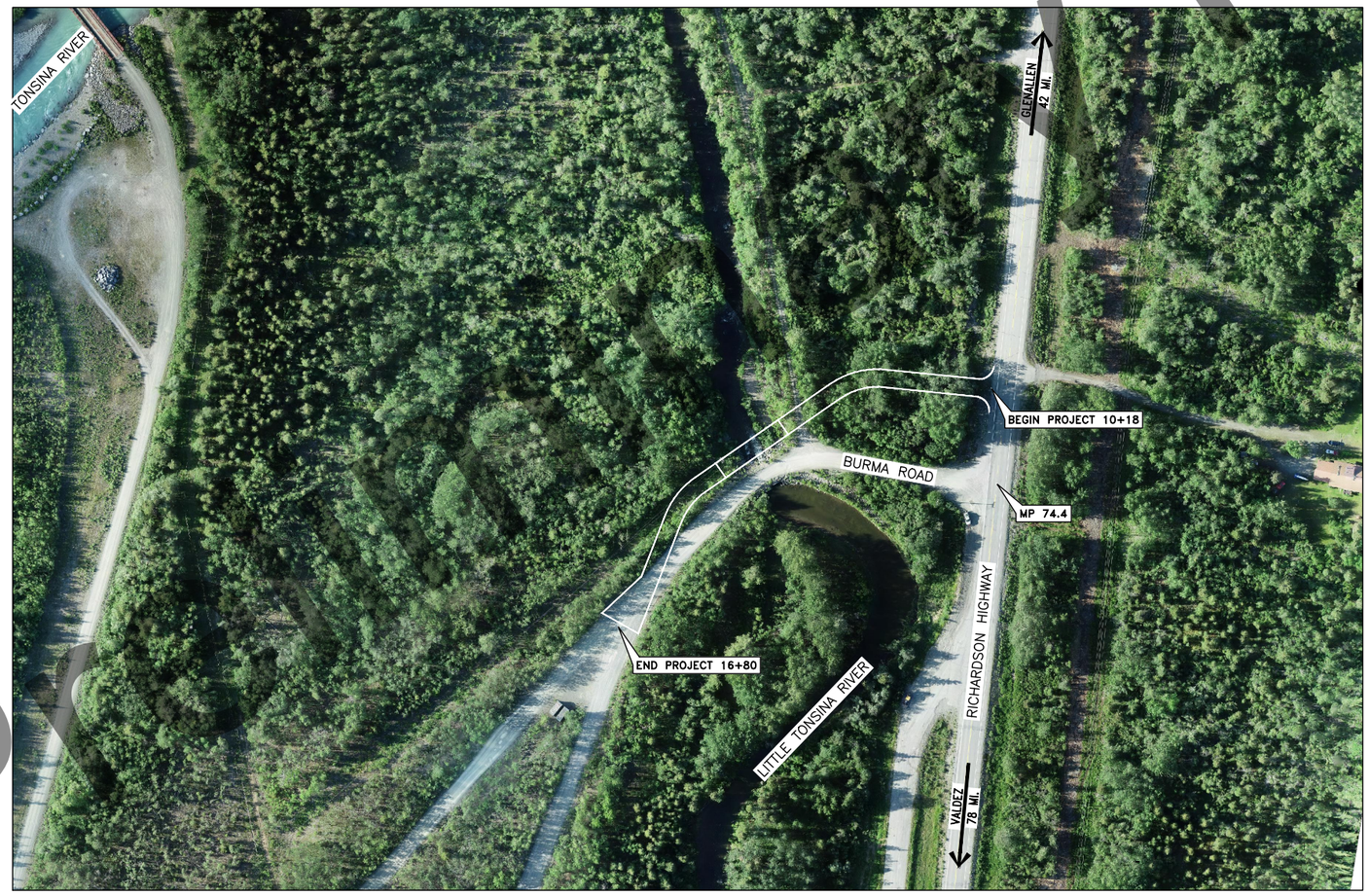
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT

NSHWY00479

BURMA PIT ROAD LITTLE TONSINA BRIDGE REPLACEMENT

GRADING, DRAINAGE, BRIDGE



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
A1	TITLE SHEET
A2	LEGEND
A3	ALIGNMENT CONTROL & SUPERELEVATION TABLE
A4	SITE PLAN
B1	TYPICAL SECTIONS
C1	ESTIMATE OF QUANTITIES
E1–E2	CULVERT SUMMARY AND DETAILS
F1–F2	PLAN & PROFILE
G1	APPROACH SUMMARY & DETAILS
H1	SIGN SUMMARY & DETAILS
L1–L2	BANK STABILIZATION PLANS
N1–N13	BRIDGE PLANS
Q1	EROSION SEDIMENT CONTROL PLANS
T1	TRAFFIC CONTROL DEVICES
V1–V13	STANDARD PLANS

THE FOLLOWING STANDARD PLANS APPLY TO THIS PROJECT:

D–01.02 D–04.22
M–20.15 M–23.13
S–00.12 S–01.02 S–05.02 S–20.10 S–30.05

DESIGN DESIGNATIONS

ADT (2020)	<400
ADT (2040)	<400
DHV (??%)	N/A
PERCENT TRUCKS (T)	N/A
DIRECTIONAL SPLIT (D)	50 / 50
DESIGN SPEED (V)	25 MPH
DESIGN EAL'S (?? YEARS)	

PROJECT SUMMARY

WIDTH OF PAVEMENT	N/A
LENGTH OF GRADING	662'
LENGTH OF PAVING	N/A
LENGTH OF PROJECT	662'

DAVID ARVEY, P.E., PROJECT MANAGER
TRAVIS A DONOVAN, P.E., DESIGN ENGINEER

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

APPROVED BY:

_____ DATE _____

Sarah E. Schacher, P.E.
Preconstruction Engineer, Northern Region

ACCEPTED FOR CONSTRUCTION:

_____ DATE _____

Ryan F. Anderson, P.E.
Regional Director, Northern Region

HWYS TITLE SHEET
C:\Users\tdonovan\Documents\Project\Little Tonsina\C3D\Title-Title Fri, Apr/09/21 08:07am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	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	O	O
GAS LINE	G	G
WATER LINE	W	W
METER, VALVE, FIRE HYDRANT	W	W
EXISTING STORM DRAIN (FLOW DIRECTION →)	SD	
PROPOSED STORM DRAIN		S-10, S-11, P-11, P-10, MH
FIBER OPTIC LINE	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	T	T
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	--X---X---X---X--	—X—X—X—X—
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	
POST OR BOLLARD		
WELL OR MONITORING WELL	W	
SEPTIC PIPE	S, VM	
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		

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

	EXISTING	PROPOSED
JUNCTION BOX, TYPE IA		5
JUNCTION BOX, TYPE II		6
JUNCTION BOX, TYPE III		3
SIGNAL FACE, VEHICULAR	42	42
SIGNAL FACE, BACKPLATE	42	42
SIGNAL FACE, LEFT TURN, BACKPLATE	43	43
SIGNAL FACE, PEDESTRIAN		
LOOP DETECTOR	33	73
VIDEO DETECTOR	2	2
RADAR DETECTOR	4	4A
OPTICOM DETECTOR	1	1
PEDESTRIAN PUSH BUTTON	1	1
SIGNAL POST W/O MAST ARM		1
SIGNAL POLE W/MAST ARM		4
SIGNAL CONTROLLER		
LOAD CENTER		
LUMINAIRE		122
RIGID METAL CONDUIT		

ABBREVIATIONS:

ADT	–	AVERAGE DAILY TRAFFIC
ASDS	–	ALASKA SIGN DESIGN SPECIFICATIONS
ASTM	–	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BOP	–	BEGINNING OF PROJECT
CGP	–	CONSTRUCTION GENERAL PERMIT
C/L	–	CENTERLINE
CFS	–	CUBIC FEET PER SECOND
COMM	–	COMMUNICATIONS
CS	–	CONTINGENT SUM
CSP	–	CORRUGATED STEEL PIPE
CY	–	CUBIC YARD
Δ	–	DEFLECTION ANGLE (DEG, MIN, SEC)
D	–	DEGREE OF CURVE
DEG or °	–	DEGREES
DIA	–	DIAMETER
DOT&PF	–	ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
ELEV	–	ELEVATION
EOP	–	END OF PROJECT
ESCP	–	EROSION & SEDIMENT CONTROL PLAN
FT or '	–	FEET
GALV	–	GALVANIZED
HMA	–	HOT MIX ASPHALT
IN or "	–	INCH
L	–	LENGTH OF CURVE
LF	–	LINEAR FEET
LS	–	LUMP SUM

ABBREVIATIONS (CONTINUED):

LT	–	LEFT
LVC	–	LENGTH OF VERTICAL CURVE
MAX	–	MAXIMUM
MIN	–	MINIMUM
MPH	–	MILES PER HOUR
MS	–	MATERIAL SITE
NO	–	NUMBER
NTS	–	NOT TO SCALE
OH	–	OVERHEAD
PI	–	POINT OF INTERSECTION
PT OR POT	–	POINT OF TANGENT
R	–	RADIUS
RT	–	RIGHT
R/W OR ROW	–	RIGHT OF WAY
SHT	–	SHEET
SQ MI	–	SQUARE MILE
SWPPP	–	STORMWATER POLLUTION PREVENTION PLAN
T	–	TANGENT DISTANCE
TYP	–	TYPICAL
VPI	–	VERTICAL POINT OF INTERSECTION
VPD	–	VEHICLES PER DAY

STATE OF ALASKA 49TH
STAMPY STAMPERTON
8675309
REGISTERED PROFESSIONAL ENGINEER

LEGEND

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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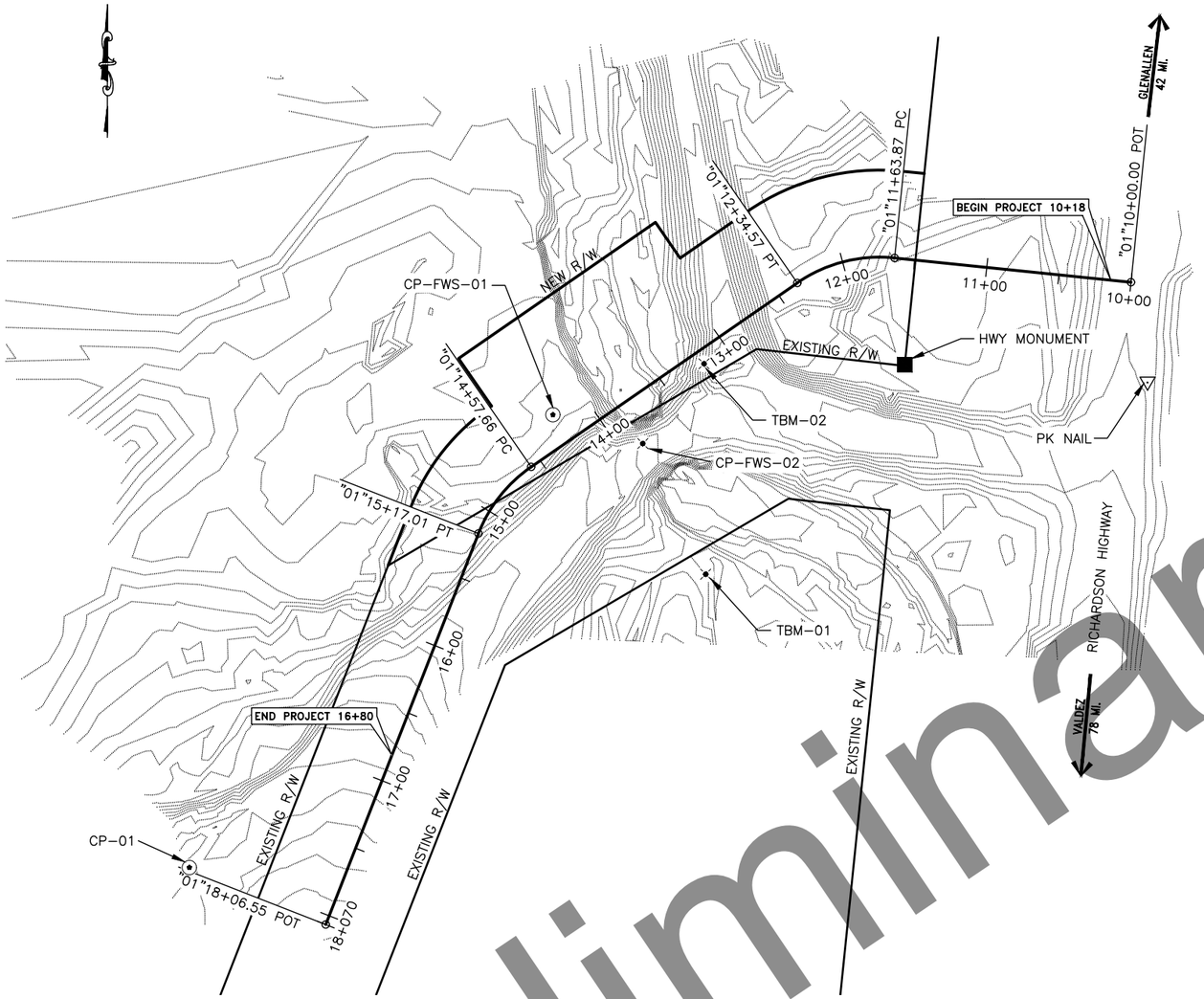
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	A3	A4



GENERAL NOTES:

1. REFERENCE WRANGELL MOUNTAIN TECHNICAL SERVICES TOPOGRAPHIC SURVEY SEALED 12/20/2018 FOR SURVEY CONTROL INFORMATION.
2. ALL BEARING AND ELEVATIONS BASED ON ALASKA STATE PLANE ZONE 3 ORIENTED TO OPUS SOLUTION ON CONTROL POINT 1 (CP-01).

"01" ALIGNMENT GEOMETRY POINT TABLE

STATION	DESCRIPTION	NORTHING	EASTING
"01" 10+00.00	POT	2775613.67980	1776017.03440
"01" 11+63.87	PC	2775630.38690	1775854.02050
"01" 12+34.57	PT	2775613.16510	1775786.95890
"01" 14+57.66	PC	2775486.29910	1775603.44690
"01" 15+17.01	PT	2775440.43510	1775567.17050
"01" 18+06.55	POT	2775170.74950	1775461.79750

SUPERELEVATION TABLE

DESCRIPTION	STATION	LEFT LANE & SHOULDER	RIGHT LANE & SHOULDER
CURVE 1 PI "01" 12+00.77			
END NORMAL CROWN	10+70.00	−3.00%	−3.00%
LEVEL CROWN	11+16.00	−3.00%	0.00%
REVERSE CROWN	11+62.00	−3.00%	3.00%
BEGIN FULL SUPER	11+87.00	−4.60%	4.60%
END FULL SUPER	12+14.00	−4.60%	4.60%
REVERSE CROWN	12+40.00	−3.00%	3.00%
REVERSE CROWN	12+56.00	−2.00%	2.00%
BRIDGE (TANGENT)			
BEGIN BRIDGE	13+21.00	−2.00%	2.00%
END BRIDGE	14+24.00	−2.00%	2.00%
CURVE 2 PI "01" 14+88.24			
REVERSE CROWN	14+39.00	−2.00%	2.00%
REVERSE CROWN	14+53.00	−3.00%	3.00%
BEGIN FULL SUPER	14+78.00	−4.80%	4.80%
END FULL SUPER	14+95.00	−4.80%	4.80%
REVERSE CROWN	15+20.00	−3.00%	3.00%
LEVEL CROWN	15+65.00	−3.00%	0.00%
LEVEL CROWN	15+65.00	−3.00%	0.00%
BEGIN NORMAL CROWN	16+10.00	−3.00%	−3.00%

CONTROL POINTS

PT ID	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP-01	REBAR W/ PLASTIC CAP	2775210.00	1775367.78	1682.45
CP-FWS-01	REBAR W/ PLASTIC CAP	2775522.27	1775618.49	1665.76
CP-FWS-02	SPIKE IN GRAVEL ROAD	2775502.42	1775680.44	1671.78
TBM-01	TBM SPIKE IN TREE	2775412.00	1775723.00	1668.50
HWY MONUMENT	HWY MONUMENT	2775556.79	1775861.13	1665.87
PK NAIL	PK NAIL IN ASPHALT	2775544.49	1776028.44	1668.89
TBM-02	TBM SPIKE IN TREE	2775557.00	1775722.00	1672.54

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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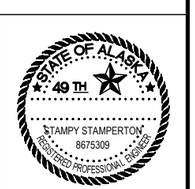
ALIGNMENT CONTROL & SUPERELEVATION TABLE



NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	A4	A4

SITE PLAN NOTES:

1. EXISTING WASHED OUT CULVERT DEBRIS TO BE REMOVED FROM RIVER AND BANKS. ACCESS TO THIS DEBRIS WILL BE THE DIKE ROAD. WORK TO BE PAID UNDER LUMP SUM ITEM 202.0018 REMOVAL OF CULVERT PIPE. SEE PHOTOS ON THIS PLAN SHEET.
2. REMOVE AND DISPOSE OF ALL EXISTING PAVEMENT ON EXISTING BURMA ROAD. SAWCUT TO MATCH EXISTING SHOULDER EDGE OF PAVMENT OF RICHARDSON HWY. SAWCUTTING IS SUBSIDIARY TO ITEM 202.0002.0000 REMOVAL OF PAVMENT.
3. CONSTRUCT BERM TO BLOCK ACCESS TO EXISTING BURMA ROAD ONCE NEW ROAD IS COMPLETE. EXISTING ROAD MUST BE MAINTAINED FOR ACCESS AT ALL TIMES DURING CONSTRUCTION UNTIL NEW BRIDGE AND ALIGNMENT ARE OPEN TO TRAFFIC.
4. EXISTING ALYESKA SIGN. RELOCATE TO NEW BURMA ROAD APPROACH. SEE SIGN SUMMARY FOR MORE INFORMATION.
5. TRANSITION NEW BURMA ROAD ALIGNMENT TYPICAL SECTION TO MATCH EXISTING ACCESS ROAD(S) FROM ~STA "01" 16+00 TO "01" 16+80 AS APPROVED BY THE ENGINEER. ENSURE POSITIVE DRAINAGE.
6. PROTECT EXISTING MAILBOXES. IF MAILBOXES ARE REMOVED TO FACILITATE CONSTRUCTION, REINSTALL TO ORIGINAL CONDITION AS APPROVED BY THE ENGINEER. THE REMOVAL IS SUBSIDIARY TO ITEM 202-0010.0000 SINGLE MAIL BOX INSTALLATION. REFERENCE STANDARD PLANS M-20.15 AND M-23.13 FOR MAILBOX DETAILS.

0 100 200 Feet

SITE PLAN

STATE OF ALASKA
49 TH
STAMPY STAMPERTON
8675309
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
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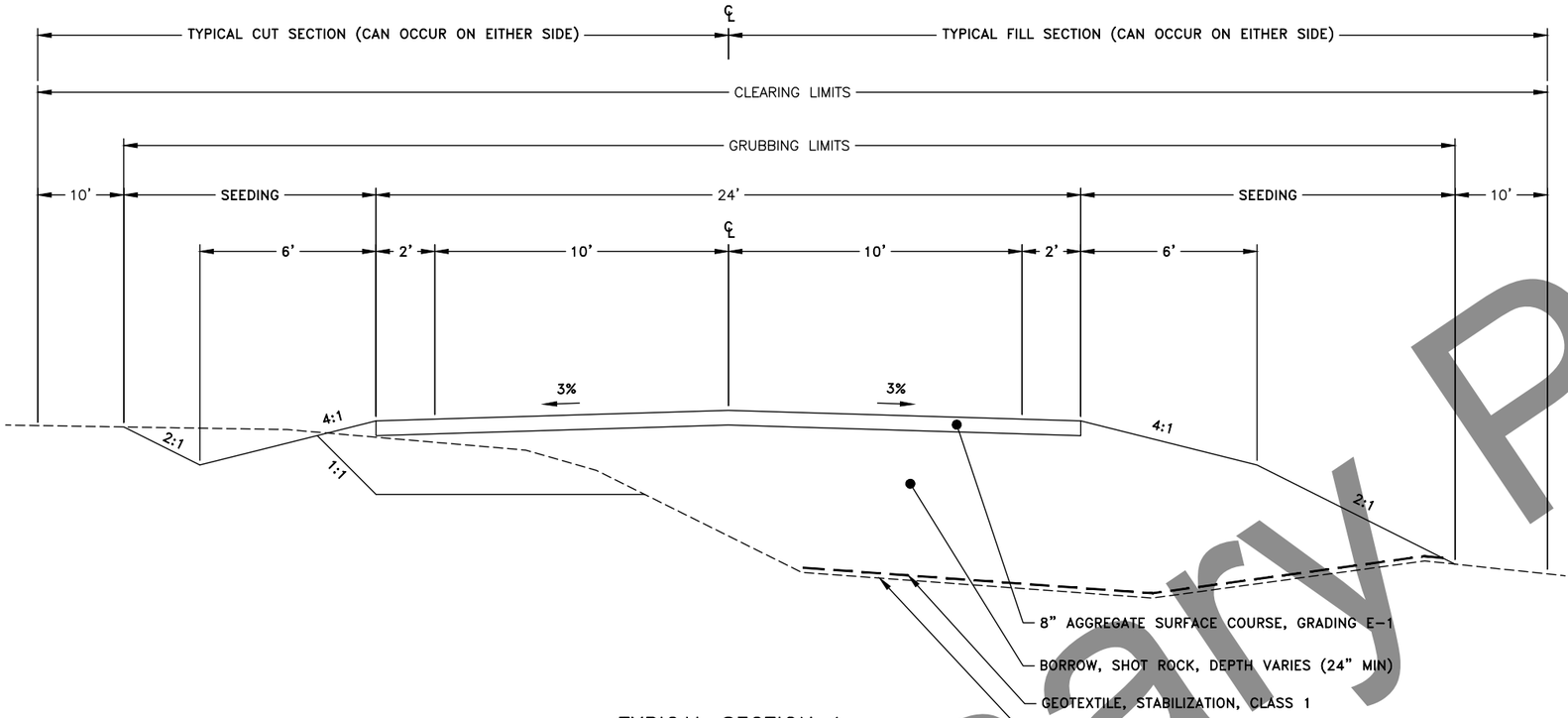
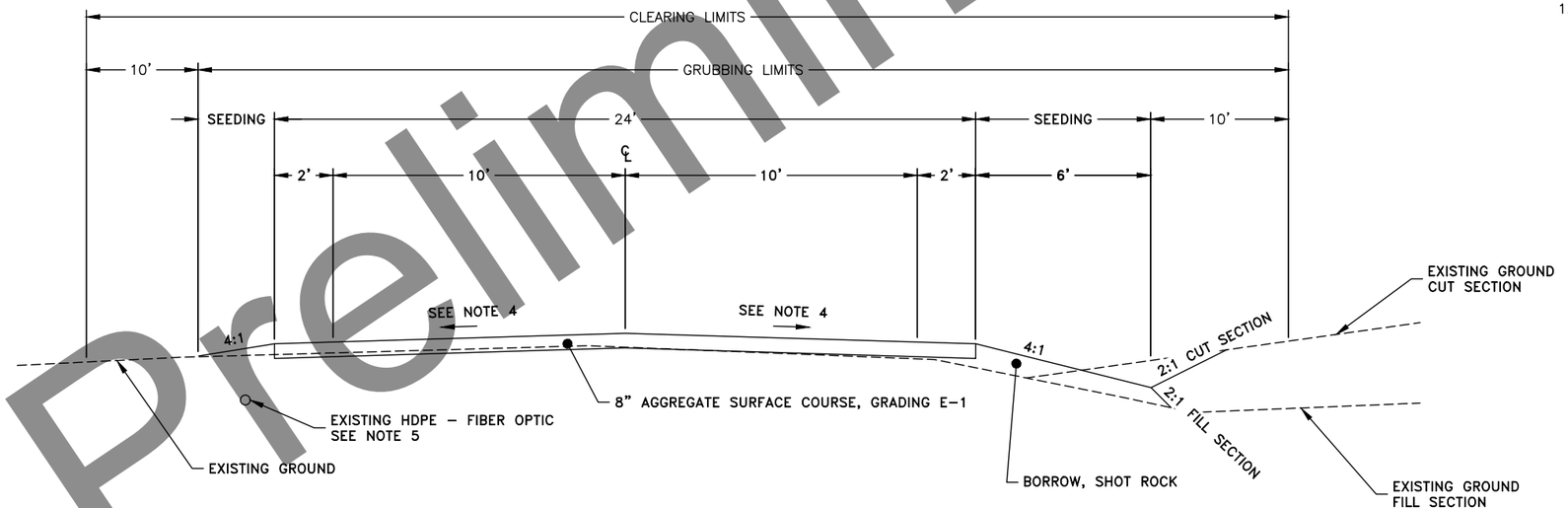
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	B1	B1



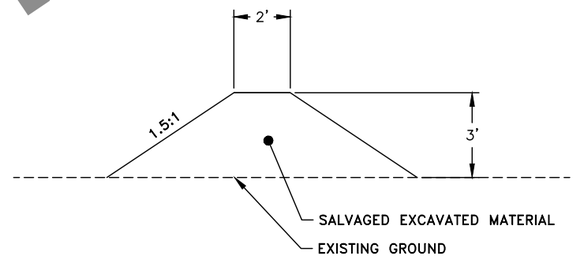
TYPICAL SECTION 1
BOP – "01" 16+00



TYPICAL SECTION 2
"01" 16+00 – EOP

TYPICAL SECTION NOTES:

1. SEE APPROACH DETAILS FOR CONSTRUCTION OF NEW APPROACH AT RICHARDSON HWY.
2. REFERENCE BRIDGE PLANS RIP RAP LAYOUT AND DETAILS TO TRANSITION TYPICAL SECTION EMBANKMENT INTO RIPRAP LAYOUT AT APPROXIMATE STATIONS "01" 13+00 AND "01" 14+50.
3. TRANSITION TYPICAL SECTION TO MATCH EXISTING ACCESS ROAD(S) FROM ~STA "01" 16+00 TO "01" 16+80 AS APPROVED BY THE ENGINEER. ENSURE POSITIVE DRAINAGE.
4. PLACE GEOTEXTILE STABILIZATION, CLASS 1 AFTER GRUBBING AND PRIOR TO EMBANKMENT CONSTRUCTION UNDER THE NEW EMBANKMENT WHERE PREVIOUSLY UNIMPROVED GROUND EXISTED.
5. EXISTING HDPE FIBER OPTIC EXISTS IN THIS LOCATION. MAINTAIN A MINIMUM OF 2 FT COVER OVER UTILITY DURING ALL CONSTRUCTION ACTIVITY.



BERM TYPICAL SECTION
NTS

BERM NOTES:

1. CONSTRUCT BERM AT EXISTING BURMA PIT ROAD APPROACH ONCE ACCESS IS NO LONGER REQUIRED. LOCATE BERM 40' FROM RICH HWY FOG LINE. LENGTH OF BERM WILL BE ~24'. THIS WORK IS SUBSIDIARY TO 203.0003.0000 UNCLASSIFIED EXCAVATION.

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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TYPICAL SECTIONS

STATE OF ALASKA
49TH
STAMPY STAMPERTON
8675309
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	C1	C1

ESTIMATE OF QUANTITIES

ITEM NUMBER	PAY ITEM	PAY UNIT	QUANTITY
201.0009.0000	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED
202.0002.0000	REMOVAL OF PAVEMENT	SQUARE YARD	470.00
202.0010.0000	SINGLE MAIL BOX INSTALLATION	EACH	1.00
202.0018.0000	REMOVAL OF CULVERT PIPE	LUMP SUM	ALL REQUIRED
203.0003.0000	UNCLASSIFIED EXCAVATION	CUBIC YARD	20.00
203.0005.0000	BORROW SHOT ROCK	CUBIC YARD	5,000.00
204.2002.0000	EMBEDMENT MATERIAL	CUBIC YARD	60.00
205.0006.0000	STRUCTURAL FILL	CUBIC YARD	400.00
301.0004.00E1	AGGREGATE SURFACE COURSE, GRADING E-1	CUBIC YARD	355.00
401.0011.002B	HMA, DRIVEWAY, TYPE II; CLASS B	LUMP SUM	ALL REQUIRED
501.0001.0000	CLASS A CONCRETE	LUMP SUM	ALL REQUIRED
501.0007.0000	PRECAST CONCRETE MEMBER, 101'-6" DECKED BULB-TEE	EACH	5.00
503.0001.0000	REINFORCING STEEL	LUMP SUM	ALL REQUIRED
503.0002.0000	EPOXY-COATED REINFORCING STEEL	LUMP SUM	ALL REQUIRED
505.0005.1417	FURNISH STRUCTURAL STEEL PILES, HP 14X117	LINEAR FOOT	615.00
505.0006.1417	DRIVE STRUCTURAL STEEL PILES, HP 14X117	EACH	8.00
507.0001.0003	STEEL BRIDGE RAILING, 3-TUBE	LINEAR FOOT	266.00
603.0001.0036	CSP 36 INCH	LINEAR FOOT	73.00
611.0001.0001	RIPRAP, CLASS I	CUBIC YARD	275.00
611.0001.0002	RIPRAP, CLASS II	CUBIC YARD	200.00
611.0001.0003	RIPRAP, CLASS III	CUBIC YARD	2,000.00
613.0002.0000	CULVERT MARKER POST	EACH	2.00
615.0001.0000	STANDARD SIGN	SQUARE FOOT	36.00
616.0002.0050	THAW PIPE 1/2 INCH DIAMETER	EACH	1.00
618.0002.0000	SEEDING	POUND	115.00
619.2019.0000	BANK STABILIZATION	LUMP SUM	ALL REQUIRED
620.0001.0000	TOPSOIL	SQUARE YARD	365.00
621.2009.0000	VEGETATIVE MAT SALVAGE AND REPLANTING	LUMP SUM	ALL REQUIRED
630.0002.0001	GEOTEXTILE, STABILIZATION, CLASS 1	SQUARE YARD	2,215.00
639.2000.0000	APPROACH	EACH	1.00
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
641.0006.0000	WITHHOLDING	CONTINGENT SUM	ALL REQUIRED
641.0007.0000	SWPPP MANAGER	LUMP SUM	ALL REQUIRED
642.0001.0000	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
643.0002.0000	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
643.0003.0000	PERMANENT CONSTRUCTION SIGNS	LUMP SUM	ALL REQUIRED
643.0025.0000	TRAFFIC CONTROL	CONTINGENT SUM	ALL REQUIRED
644.0001.0000	FIELD OFFICE	LUMP SUM	ALL REQUIRED
644.0002.0000	FIELD LABORATORY	LUMP SUM	ALL REQUIRED
644.0003.0000	CURING SHED	LUMP SUM	ALL REQUIRED
644.0006.0000	VEHICLE	LUMP SUM	ALL REQUIRED
646.0001.0000	CPM SCHEDULING	LUMP SUM	ALL REQUIRED

ESTIMATING FACTORS

ITEM NO.	DESCRIPTION	REMARKS	VALUE
401.0011.002B	HMA, DRIVEWAY; TYPE II; CLASS B	HMA, TYPE II, CLASS B	150 LBS/CF
		ASPHALT BINDER PG52-28	5.5% TOTAL WEIGHT OF MIX

TABLE OF LUMP SUM ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	REMARKS	UNIT	VALUE
201.0009.0000	CLEARING AND GRUBBING	CLEARING AND GRUBBING	ACRE	0.89
		CLEARING ONLY	ACRE	0.31
202.0018.0000	REMOVAL OF CULVERT PIPE	EXISTING CROSSING 7' X 11' SPP	LF	90
		WASHED OUT CULVERTS	LF	120
		EXCAVATION TO FINISHED RIPRAP SURFACE	CY	1316
401.0011.002B	HMA, DRIVEWAY; TYPE II; CLASS B	HMA, TYPE II, CLASS B	TON	10.2
		ASPHALT BINDER PG52-28	TON	0.56

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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ESTIMATE OF QUANTITIES

STATE OF ALASKA 49TH
STAMPY STAMPERTON
8675309
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

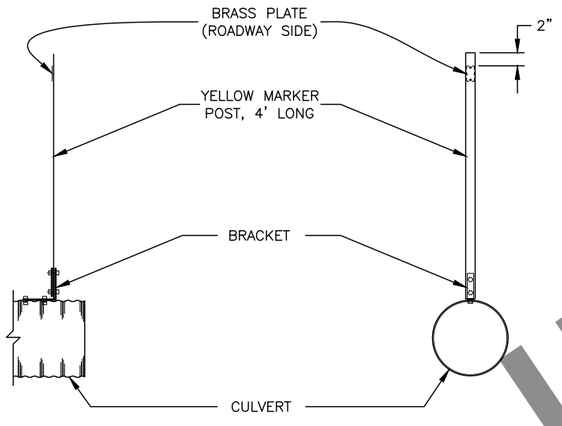
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	E1	E2

CULVERT SUMMARY

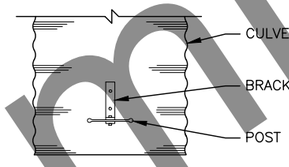
PIPE NO.	STATION	RT/LT/CL – DIST (FT)	INLET INVERT ELEVATION (FT), STA – OFFSET (FT)	OUTLET INVERT ELEVATION (FT), STA – OFFSET (FT)	603.0001.0036 36" CSP (FT)	202.0018.0000 REMOVAL OF CULVERT PIPE (FT)	SKEW ANGLE (°)	613.0002.0000 CULVERT MARKER POST (EACH)	616.0002.0050 THAW PIPE $\frac{1}{2}$" DIA (EACH)	REMARKS
P–01	"01" 13+87.00	LT – 36	1658.09, 13+89.72 – 59.19 LT	1657.60, 13+85.04 – 13.68 LT		46				7' x 11' ARCH
P–02	"01" 13+71.00	LT – 38	1659.43, 13+73.17 – 57.23 LT	1658.64, 13+69.12 – 18.72 LT		39				7' X 11' ARCH
P–03	"01" 12+29.00	CL	1665.00	1664.00	73		26	2	1	
P–04 THRU 07	DOWNSTREAM LITTLE TONSINA RIVER FROM BRIDGE	RT – VARIES 680 TO 1200				~120				~60 LF OF 12' DIA. ~60 LF OF 8' DIA.

GENERAL CULVERT NOTES:

1. PIPE NO.'S 04 THRU 07 ARE LARGE PIECES OF PREVIOUS PIPES THAT WASHED OUT IN FLOOD EVENTS. THESE PIPES SHALL BE REMOVED FROM SITE AND WILL BECOME THE PROPERTY OF THE CONTRACTOR FOR DISPOSAL. SEE SITE PLAN FOR APPROXIMATE LOCATIONS.
2. ALL NEW CULVERTS SHALL BE CIRCULAR 16 GAUGE UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS.



SIDE VIEW



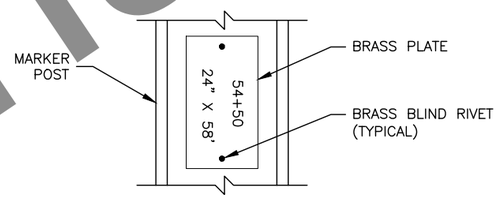
END VIEW

TOP VIEW

CULVERT MARKER POST DETAIL

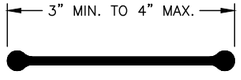
CULVERT MARKER POSTS NOTES:

1. MARKER POSTS ARE TO BE INSTALLED ON CROSS CULVERTS ONLY.
2. DRILL ALL BOLT HOLES. COAT HOLES WITH ZINC RICH PAINT. FLAME CUTTING SHALL NOT BE PERMITTED.
3. GASKET MATERIAL SHALL BE PLACED BETWEEN DISSIMILAR METALS. GASKET MATERIAL SHALL BE APPROVED PRIOR TO INSTALLATION.
4. HOT DIP GALVANIZE FLAT STEEL TO MEET AASHTO M 111. GALVANIZE AFTER BENDING.

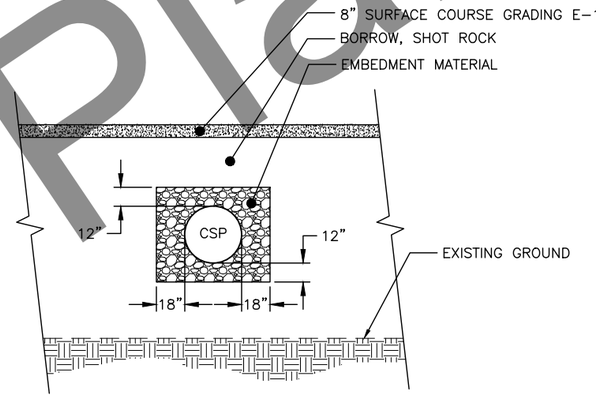


STAMP STATION AND PIPE SIZE, USING 3/8" HIGH MINIMUM LETTERS INTO A 2"X4"X 0.064" THICK BRASS PLATE. FASTEN PLATE TO THE SIDE FACING THE ROADWAY WITH TWO 1/8" BRASS BLIND RIVETS.

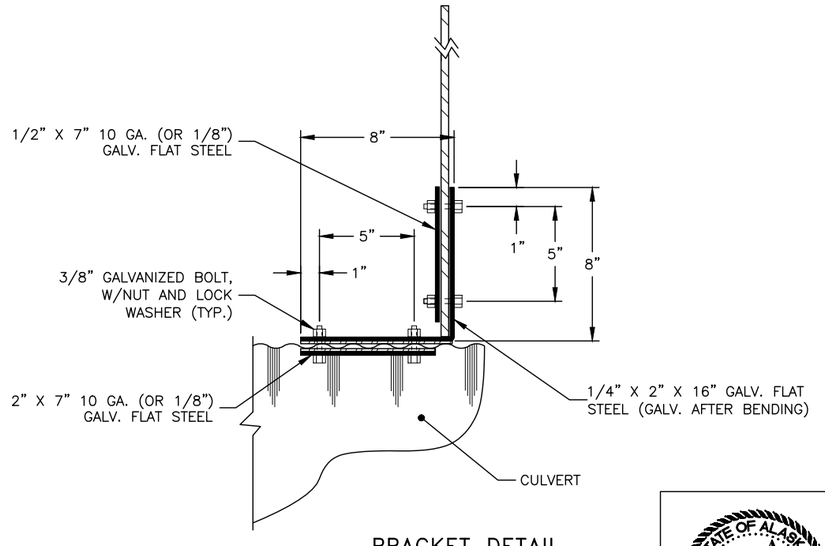
BRASS PLATE DETAIL



POST DETAIL
CROSS–SECTIONAL VIEW



CULVERT EMBEDMENT DETAIL



BRACKET DETAIL

CULVERT SUMMARY AND DETAILS

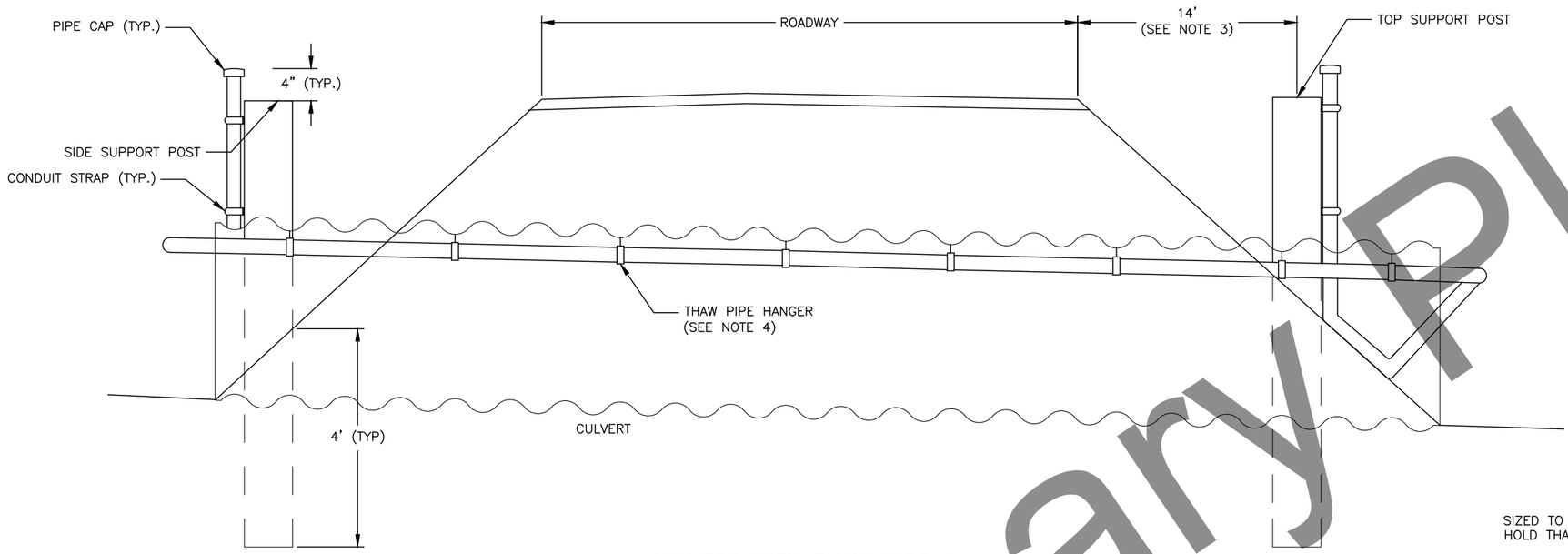
STATE OF ALASKA 49TH
STAMPY STAMPERTON
8675309
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451–2200
C:\Users\tadonovan\Documents\Project\Little Tonsina CSD\Title–Culvert Fri, Apr/09/21 08:07am

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	E2	E2

LOW FILL CONDITION
SIDE SUPPORT POST–ALIGN TOP WITH EDGE OF SHOULDER OR TO A MAXIMUM HEIGHT OF 5', WHICH EVER IS LESS.

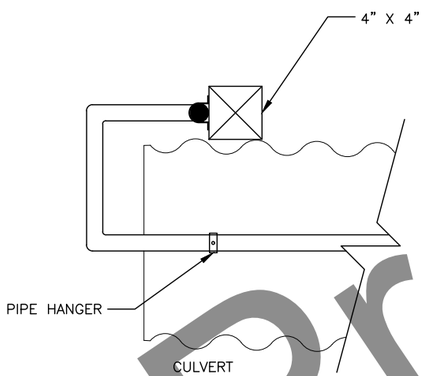
DEEP FILL CONDITION
TOP SUPPORT POST–ALIGN TOP WITH EDGE OF SHOULDER OR TO A MAXIMUM HEIGHT OF 5', WHICH EVER IS LESS.



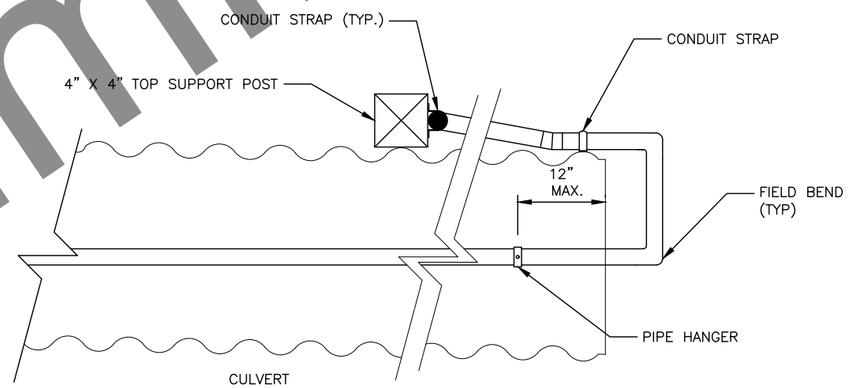
CULVERT WITH THAW PIPE

GENERAL NOTES:

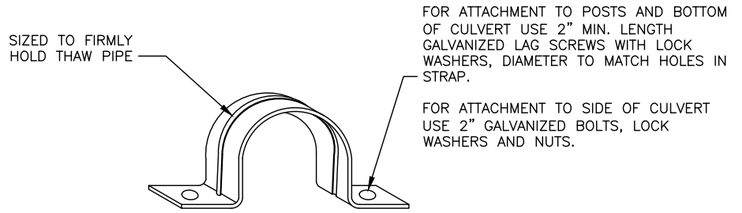
1. THESE THAW PIPES ARE INTENDED FOR USE IN STEAM THAWING.
2. USE ½" I.D. ASTM A53 GALVANIZED PIPE AND FITTINGS TO MATCH.
3. WHEN THE HEIGHT OF FILL ABOVE THE TOP OF CULVERT EXCEEDS 5' LOCATE THE SUPPORT POST ON THE SIDE SLOPE 14' FROM THE SHOULDER.
4. FASTEN THE THAW PIPE TO THE TOP OF THE CULVERT WITH THAW PIPE HANGERS ON 4' CENTERS MAX. THE MAXIMUM DISTANCE FROM END OF CULVERT TO FIRST PIPE HANGER IS12 INCHES.
5. 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.
6. 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.
7. FILL THAW PIPE WITH A MINUS 50° FAHRENHEIT MIX OF RV ANTIFREEZE AND WATER, THEN CAP. THIS WORK IS SUBSIDIARY TO 616.0002.0050 PAY ITEM.
8. DRILL ALL BOLT HOLES. COAT HOLES WITH ZINC RICH PAINT. FLAME CUTTING SHALL NOT BE PERMITTED.



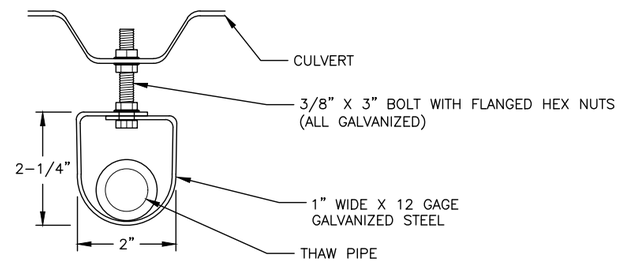
LOW FILL CONDITION
TOP VIEW



DEEP FILL CONDITION
TOP VIEW



GALVANIZED RIGID CONDUIT
STRAP DETAIL

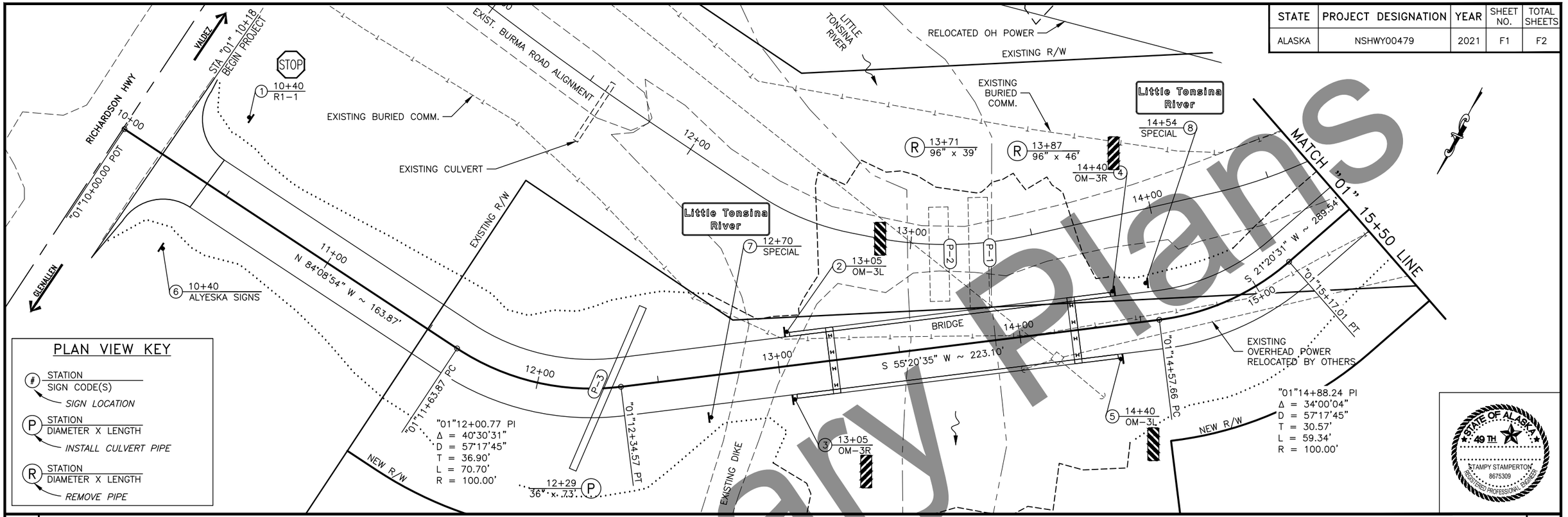


THAW PIPE HANGER DETAIL

CULVERT THAW PIPE

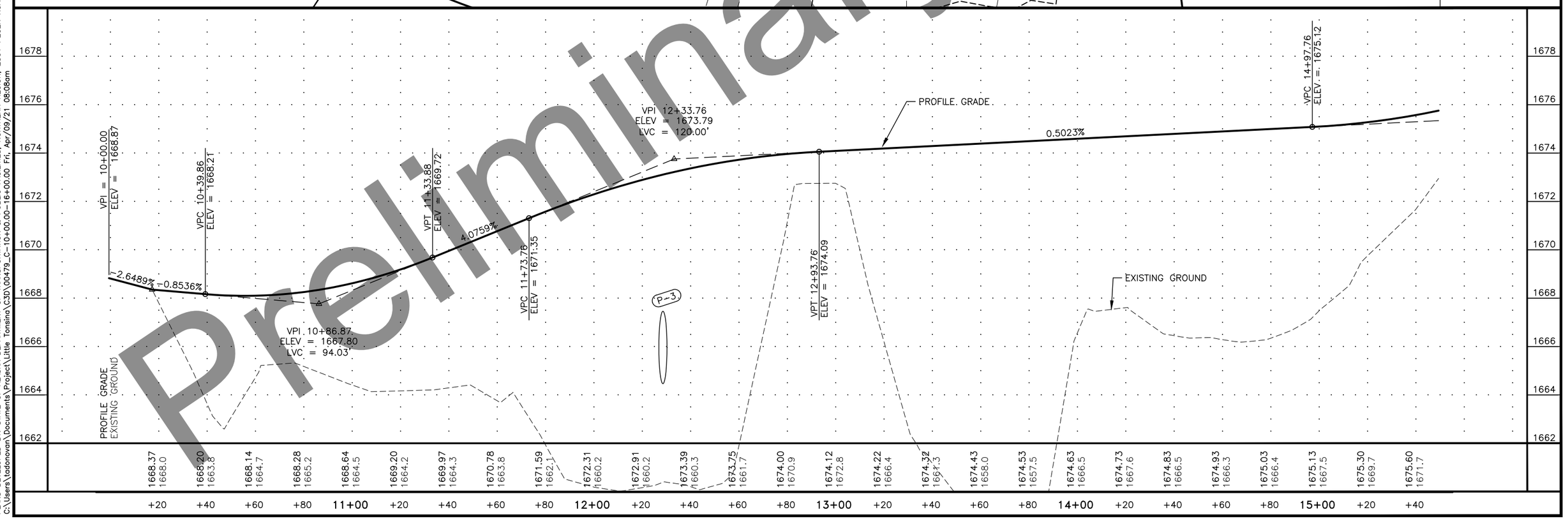
STATE OF ALASKA 49TH
STAMPY STAMPERTON
8675309
REGISTERED PROFESSIONAL ENGINEER

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	F1	F2



PLAN VIEW KEY

- (#) STATION / SIGN CODE(S) — *SIGN LOCATION*
- (P) STATION / DIAMETER X LENGTH — *INSTALL CULVERT PIPE*
- (R) STATION / DIAMETER X LENGTH — *REMOVE PIPE*



STATE OF ALASKA 49TH
STAMPY STAMPERTON
8675309
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
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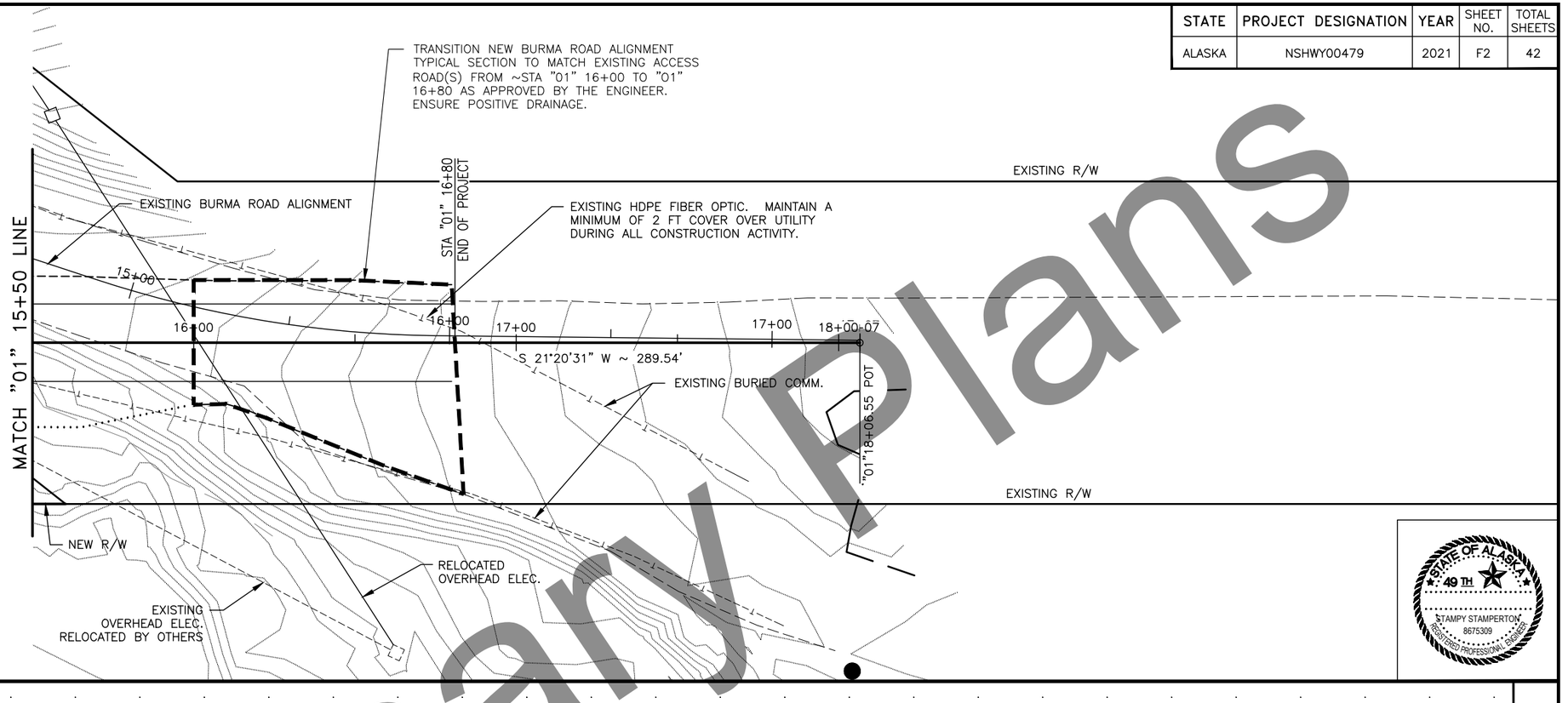
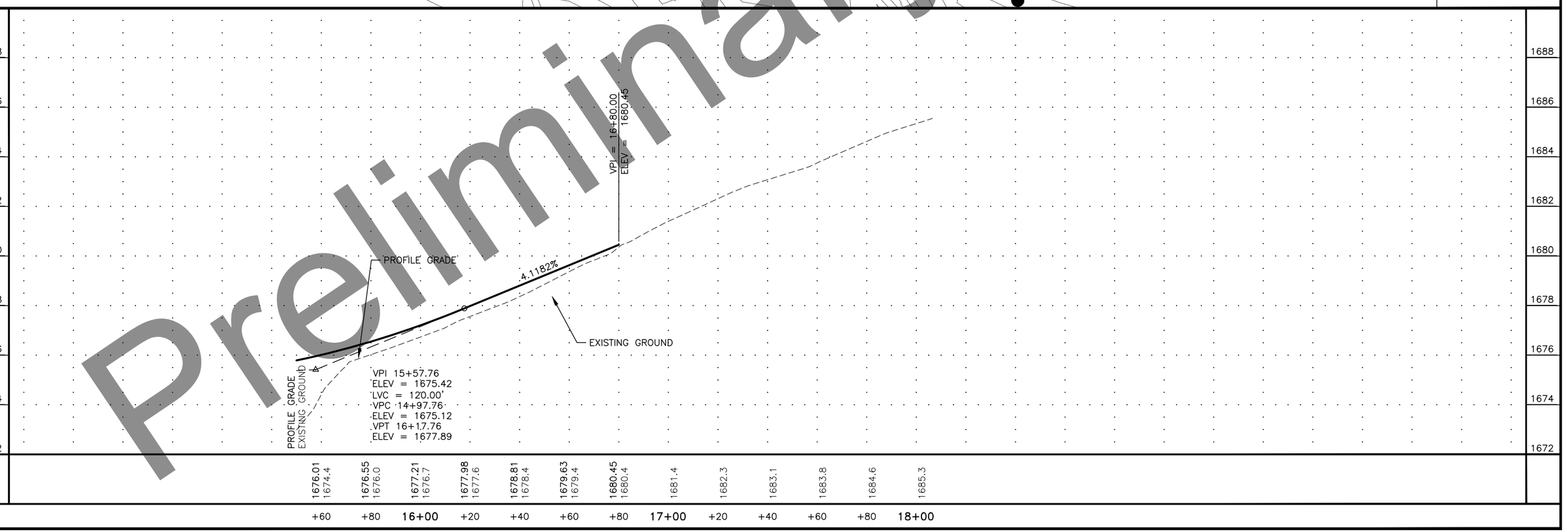
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	F2	42





STATE OF ALASKA
49 TH
STAMPY STAMPERTON
8675309
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
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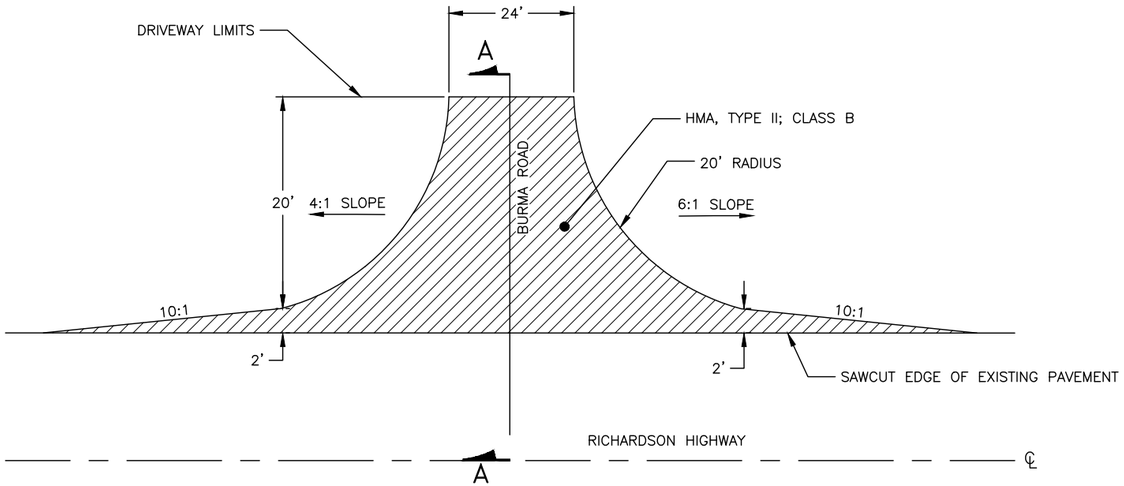
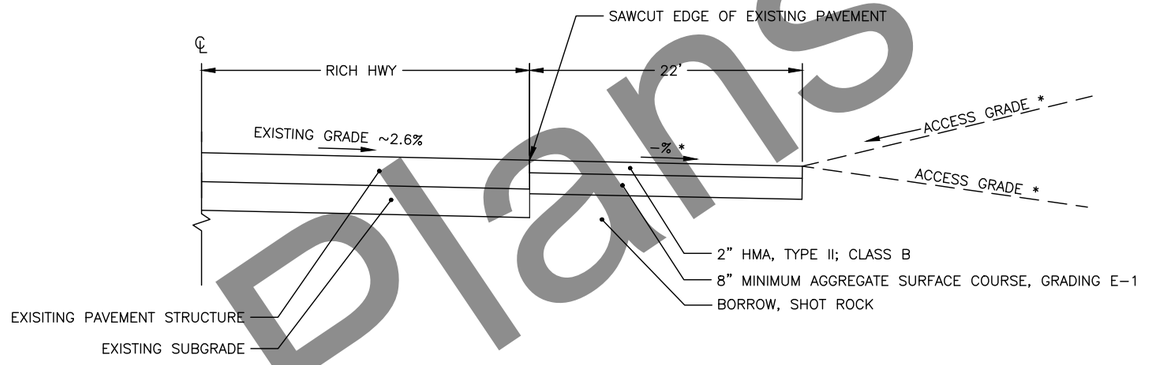
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	G1	G1



DRIVEWAY DETAIL



DRIVEWAY PROFILE A-A

* SEE PLAN AND PROFILE SHEETS

DRIVEWAY NOTES:

1. DRIVEWAY CONSTRUCTION SHALL BE PAID FOR UNDER 639.001.0000 DRIVEWAY.
2. GRADE OF DRIVEWAY MUST BE DIRECTED AWAY FROM THE ROADWAY TO ALLOW DRAINAGE INTO EXISTING DITCHES.
3. SAW CUT EDGE OF EXISTING PAVMENT TO PROVIDE CLEAN EDGE FOR NEW DRIVEWAY PAVEMENT. TACK THE CLEANED EDGE WITH STE-1 TACK COAT. SAWCUTTING AND TACK COAT ARE SUBSIDIARY TO ITEM 639.0001.000 DRIVEWAY.

DRIVEWAY DETAILS

STATE OF ALASKA
49TH
STAMPY STAMPERTON
8675309
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
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NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	H1	H2

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
1	"01" 10+40.17	X		R1-1	STOP	30 X 30	X		6.25		W	PST	2.5	1	
2	"01" 13+05.00	X		OM-3L	OBJECT MARKER	12 X 36			3.00	1.5	E	PST	2.5	1	SEE NOTE 13
3	"01" 13+05.00		X	OM-3R	OBJECT MARKER	12 X 36			3.00	1.5	E	PST	2.5	1	SEE NOTE 13
4	"01" 14+40.00	X		OM-3L	OBJECT MARKER	12 X 36			3.00	1.5	W	PST	2.5	1	SEE NOTE 13
5	"01" 14+40.00		X	OM-3R	OBJECT MARKER	12 X 36			3.00	1.5	W	PST	2.5	1	SEE NOTE 13
6	"01" 39+30.00	X			EXISING ALYESKA SIGNS	X					E	PST	2.5	1	EXISTING ALYESKA SIGN. REMOVE AND RELOCATE SEE NOTE 14
7	"01" 12+70.00		X	SPECIAL	LITTLE TONSINA RIVER	48 X 18	X		6.00		E	PST	2.5	1	
8	"01" 14+54	X		SPECIAL	LITTLE TONSINA RIVER	48 X 18	X		6.00		W	PST	2.5	1	
						SUBTOTAL =	30.25								

POST TYPE LEGEND:

PST = PERFORATED STEEL TUBE

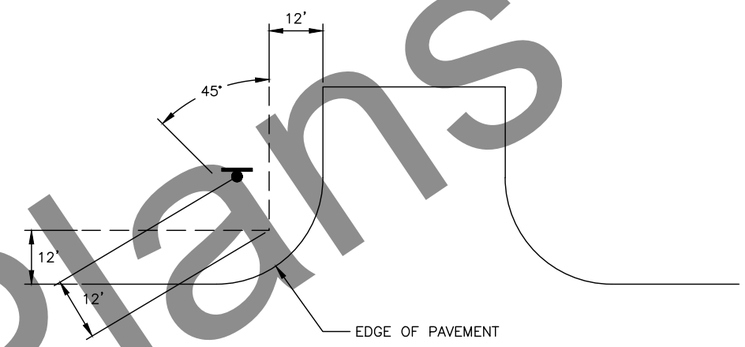
FASTENER SPECIFICATION TABLE

FASTENERS	STEEL	STAINLESS STEEL
BOLTS	ASTM A 307	ASTM F 593
NUTS	ASTM A 563	ASTM F 594
WASHERS	ASTM F 844	ASTM A 480

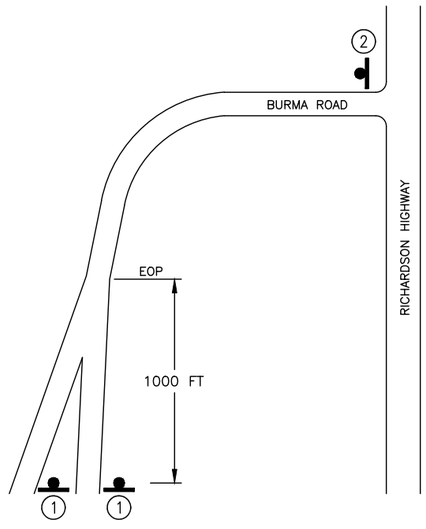
THESE SPECIFICATIONS APPLY TO ALL SIGN FASTENER HARDWARE ON THE PROJECT.

SIGNING NOTES:

1. REMOVE AND DISPOSE OF ALL EXISTING SIGNS AND SIGN FOUNDATIONS WITHIN THE PROJECT LIMITS, EXCEPT THOSE DESIGNATED FOR REINSTALLATION, SALVAGE OR OTHERWISE NOTED.
2. MOUNTING HEIGHTS ARE PER STANDARD PLAN S-05.02 UNLESS OTHERWISE NOTED.
3. DETERMINE POST LENGTHS IN THE FIELD. DO NOT EXTEND POSTS ABOVE TOP OF SIGN.
4. INSTALL PST SIGN POSTS WITH SLEEVE TYPE CONCRETE FOUNDATION. EMBED PST IN SLEEVE 12"-24" PER STANDARD PLAN S-30.05. ATTACH THE SIGN POST TO THE SLEEVE USING GALVANIZED 3/8" BOLT, NUT, SPLIT LOCK WASHER AND TWO FLAT WASHERS.
5. 1/4" X 1 1/2" ALUMINUM ALLOY 6061-T6 BAR MAY ALSO BE USED TO FABRICATE SIGN BRACES AS SHOWN ON STANDARD PLAN S-01.02.
6. 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.
7. ALL FASTENER HARDWARE SHALL MEET THE REQUIREMENTS OF THE "FASTENER SPECIFICATION TABLE" ON THIS SHEET.
8. STOP (R1-1) AND YIELD (R1-2) SIGN LOCATIONS, ESPECIALLY THOSE AT LARGE RADIUS INTERSECTIONS, MAY NEED ADJUSTMENT IN THE FIELD. THE ENGINEER WILL APPROVE FINAL LOCATIONS.
9. MAINTAIN EXISTING SIGNS UNTIL NEW SIGNS ARE INSTALLED. DO NOT LEAVE DUPLICATE OR CONFLICTING SIGNING UP AT ANY TIME.
10. ALL SIGNS NOTED FOR REMOVAL AND REINSTALLATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE IF THEY ARE DAMAGED DURING THE RELOCATION EFFORT.
11. LOCATE AND PROTECT ALL NEW AND EXISTING UNDERGROUND UTILITIES, INCLUDING BUT NOT LIMITED TO: PIPELINES, INTERCONNECT CABLES, SIGNAL SYSTEMS, LIGHTING SYSTEMS, STORM AND SANITARY SEWERS, WATER SYSTEMS, AND TELEPHONE AND ELECTRICAL CABLES, PRIOR TO INSTALLING SIGN POSTS. NOT ALL EXISTING UTILITIES MAY BE SHOWN ON THE PLANS.
12. CLEARING, AS DIRECTED BY THE ENGINEER, MAY BE REQUIRED TO ENSURE ADEQUATE VISIBILITY OF SIGNS. THIS WORK IS SUBSIDIARY TO PAY ITEM 615.0001.0000.
13. INSTALL OM-3 OBJECT MARKERS 1 FOOT IN ADVANCE OF THE END OF THE BRIDGE RAILING. MOUNT THE SIGN PANEL SO THAT THE NEAR EDGE LINES UP WITH THE ROADSIDE FACE OF THE BRIDGE RAILING.
14. REMOVE AND RELOCATE EXISTING ALYESKA SIGN PANELS WITH NEW CONCRETE FOUNDATION PER NOTE #4. REPLACE WITH NEW PST POST AND FOUNDATION AS NECESSARY. LOCATE AND INSTALL THE SIGN TO NEW BURMA ROAD APPROACH AS DIRECTED BY THE ENGINEER. NO SQUARE FOOTAGE WILL BE PAID FOR THESE REUSED SIGN PANELS. THIS WORK IS SUBSIDIARY TO OTHER 615.0001.0000 ITEMS.

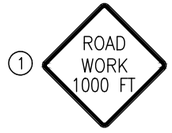


STOP SIGN PLACEMENT DETAIL



PERMANENT CONSTRUCTION SIGN LEGEND

CW20-100B



48" X 48"

CW20-100F

48" X 48"

643.0003.0000 PERMANENT CONSTRUCTION SIGNS

INSTALL PERMANENT CONSTRUCTION SIGNS ON WOOD POSTS.

SIGN SUMMARY

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	H2	H2

Panel Style: I-3.ssi
M.U.T.C.D.: 2009 Edition

SPECIAL SIGN DETAIL
SIGN LOCATIONS NO. 7 AND NO. 8

SIGN DETAILS

STATE OF ALASKA 49TH
STAMPY STAMPERTON
8675309
REGISTERED PROFESSIONAL ENGINEER

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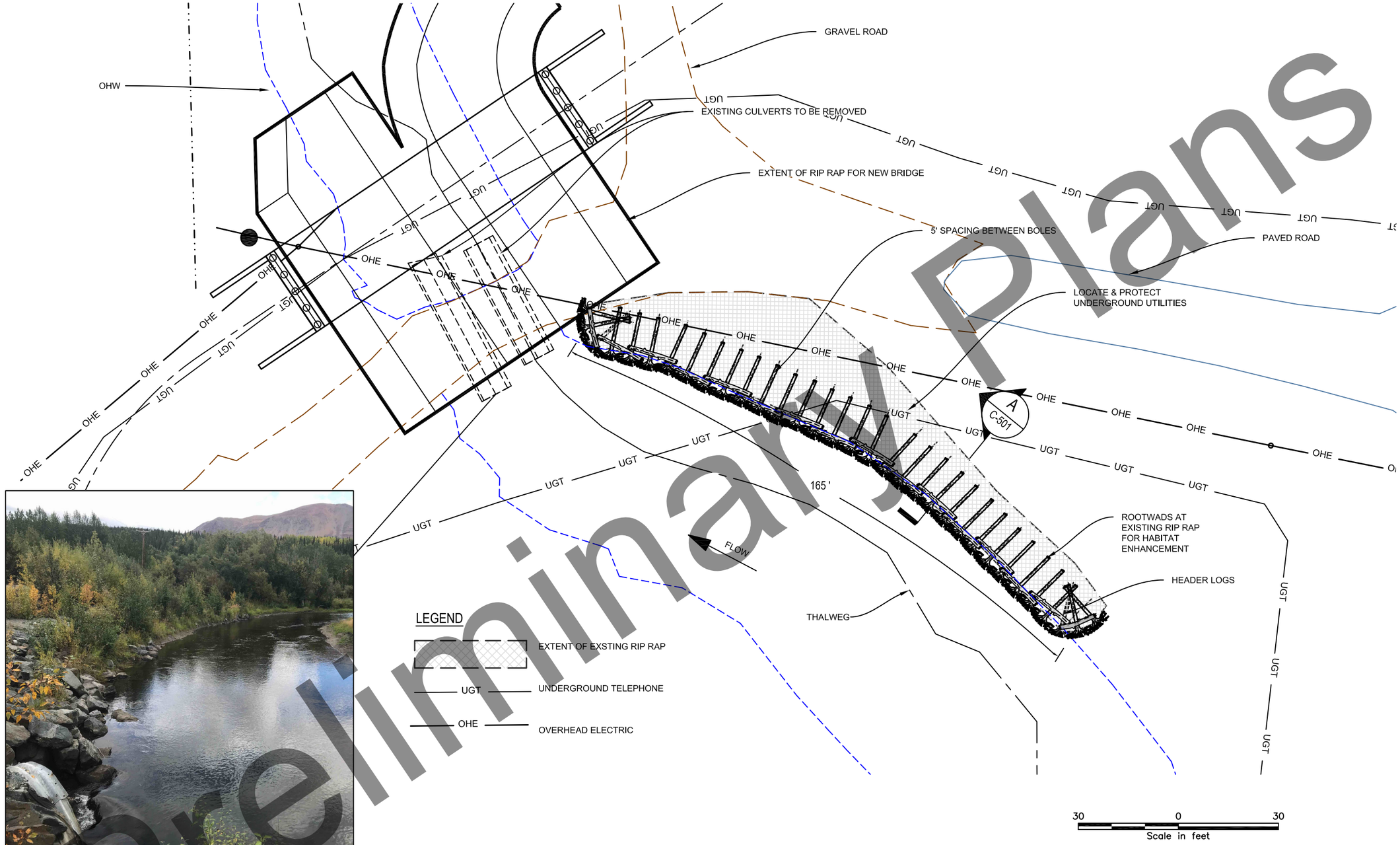


VIEW OF BANK TO RECEIVE ROOTWADS - LOOKING UPSTREAM.

LEGEND

- EXTENT OF EXSTING RIP RAP
- UGT — UNDERGROUND TELEPHONE
- OHE — OVERHEAD ELECTRIC

N

This project was designed by Region 7 of the US Fish and Wildlife Service. The initials or signatures and registration designations of individuals appear on these project documents within the scope of their employment.

U.S. FISH AND WILDLIFE SERVICE
ANCHORAGE CONSERVATION OFFICE
4700 BLM ROAD
ANCHORAGE, AK 99507
907-271-2888

Revision No.	Description	Date

Designed: H. HANSON
Drawn: J. STRAUB
Checked: H. HANSON
Date: 12/22/2020

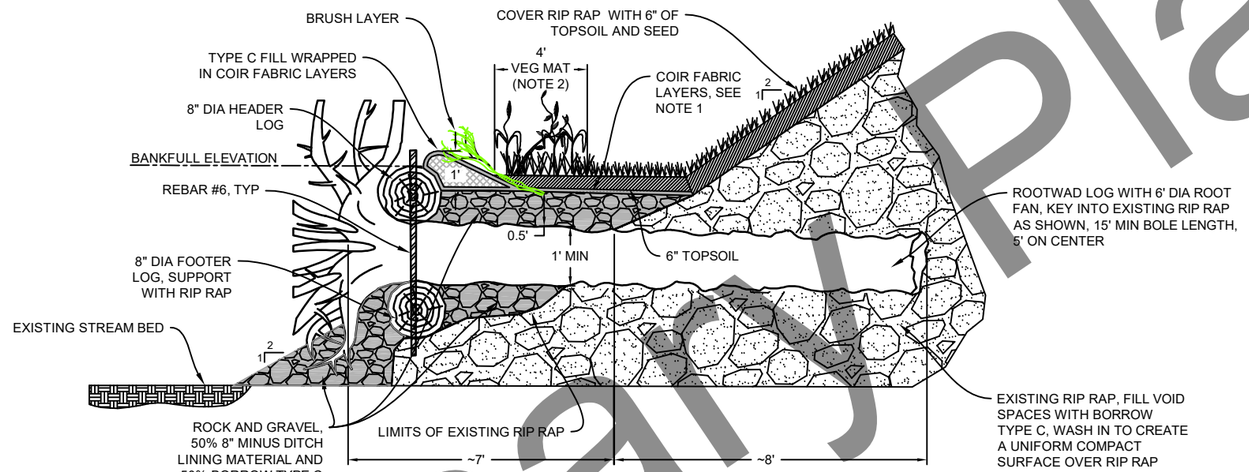
STATE OF ALASKA 49TH — REGISTERED PROFESSIONAL ENGINEER

FISH PASSAGE IMPROVEMENT

LITTLE TONSINA & ALYESKA
ACCESS ROAD,
MP 74.2 RICHARDSON HWY

ROOTWAD PLAN

Drawing Number:
C-102



SECTION A - TYPICAL ROOTWAD

(NOT TO SCALE)

NOTES:
1. COIR FABRIC LAYERS SHALL CONSIST OF 1 LAYER C125BN AND 1 LAYER C700BN FABRIC BY NORTH AMERICAN GREEN, OR EQUAL.

2. VEGETATIVE MAT SHALL BE HARVESTED AT THE PROJECT SITE N A LOCATION APPROVED BY THE ENGINEER. HARVEST 9" THICK SOD MAT INCLUDING TOPSOIL. REPLANT HARVEST AREAS WITH APPROVED SEED MIX.

3. STREAM SUBSTRATE MATERIAL SHALL BE A MIXTURE OF 50% 8" MINUS DITCH LINING MATERIAL AND 50% BORROW TYPE C.

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ANCHORAGE CONSERVATION OFFICE
4700 BLM ROAD
ANCHORAGE, AK 99507
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Drawn: J. STRAUB
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STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER

FISH PASSAGE IMPROVEMENT

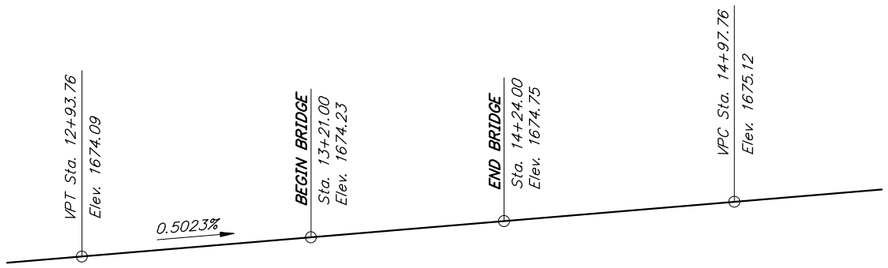
LITTLE TONSINA & ALYESKA ACCESS ROAD, MP 74.2 RICHARDSON HWY

SECTIONS

Drawing Number: C-501

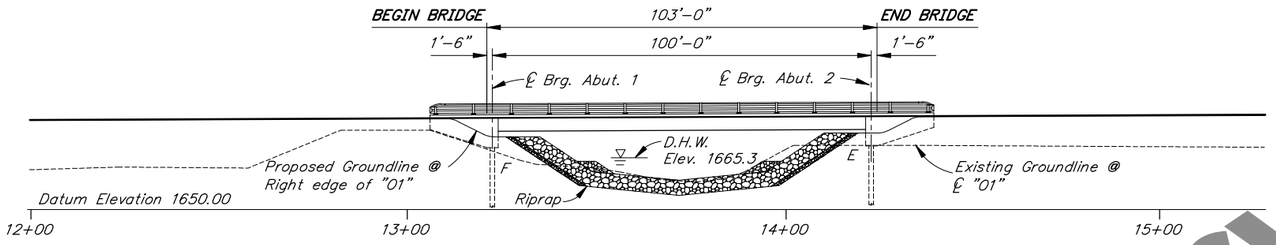
User: HSHANSON Dec 22, 2020 - 9:18am
Drawing: C:\Users\HSHANSON\Documents\Projects\GRNP\ALYESKA ACCESS ROAD & LITTLE TONSINA\AUTOCAD\ROOTWAD DETAIL.DWG - Layout: C-501
Xrefs: FHS-22630-FULL.DWG - Images: HEATHER HANSON SIGNATURE.JPG USFWS_LOGO.JPG

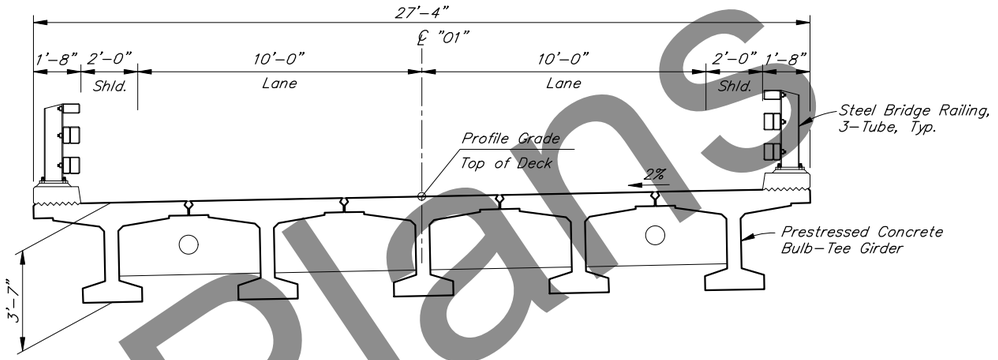
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	NI	N13



PROFILE GRADE DATA

No Scale



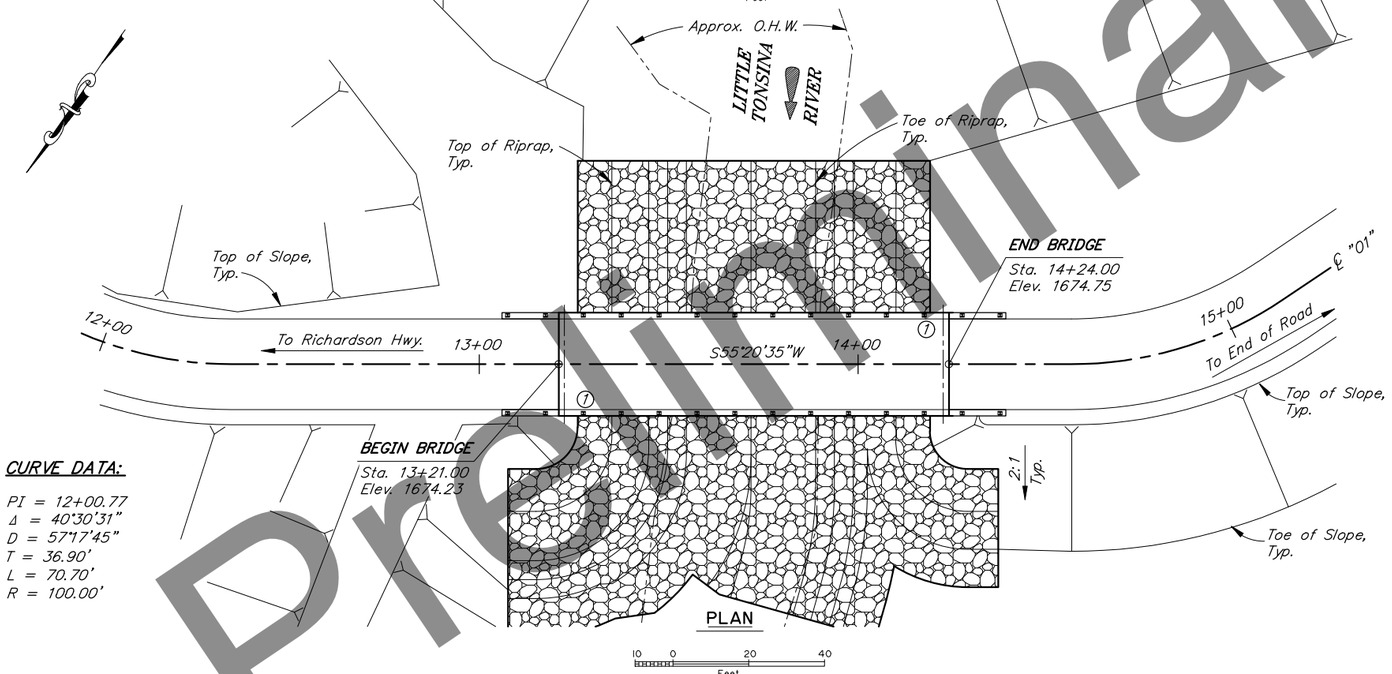


TYPICAL SECTION

2 0 1 2 3 4
In. Feet

ELEVATION

10 0 20 40
Feet



PLAN

10 0 20 40
Feet

CURVE DATA:

PI = 12+00.77
Δ = 40°30'31"
D = 57°17'45"
T = 36.90'
L = 70.70'
R = 100.00'

CURVE DATA:

PI = 14+88.24
Δ = 34°00'04"
D = 57°17'45"
T = 30.57'
L = 59.34'
R = 100.00'

BRIDGE DRAWING INDEX

TITLE	DWG. NO.
GENERAL LAYOUT	1
SITE PLAN	2
RIPRAP LAYOUT	3
RIPRAP SECTIONS	4
ABUTMENT 1	5
ABUTMENT 2	6
WINGWALLS	7
FRAMING PLAN AND TYPICAL SECTION	8
GIRDERS	9
STEEL BRIDGE RAILING, 3-TUBE	10
TEST HOLE LOGS AND LOCATIONS	11-13

NOTES:

① *Approximate location of Bridge Number Plate.*

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

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

LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

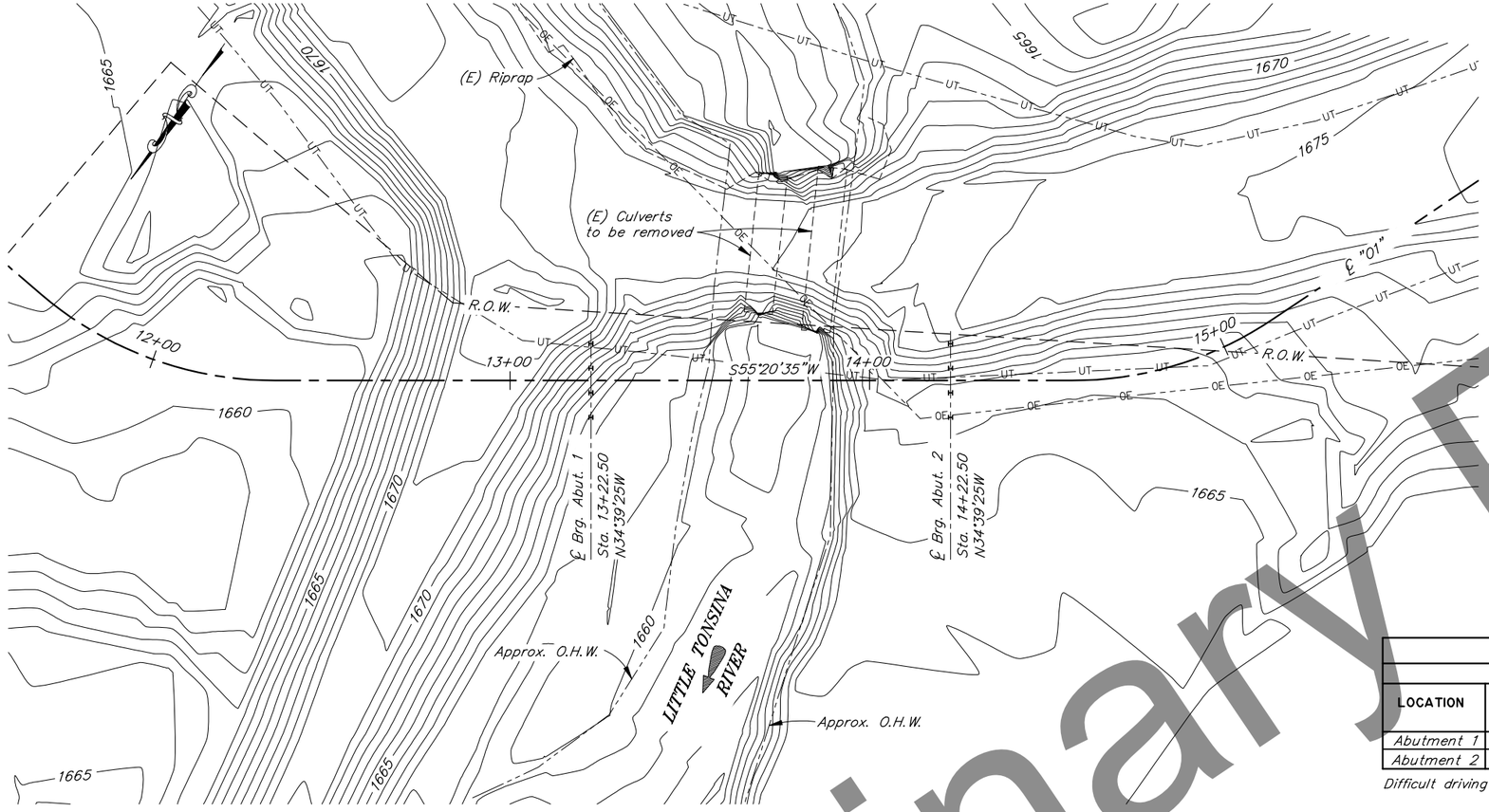
GENERAL LAYOUT

BRIDGE NO. 568

DWG. NO. 1

R:\cad\568\568-1 Wed, Apr/07/21 03:27pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N2	N13



SITE PLAN

10 0 20 40
Feet

GENERAL NOTES

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

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

LIVE LOAD: HL-93

DEAD LOAD: Includes 50 psf for all wearing surfaces.

SEISMIC PARAMETERS:
PGA = 0.35
Ss = 0.79
S1 = 0.30
Site Class = C
Liquefaction Potential = Low
AASHTO 7% probability of exceedance in 75 years.

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

PRESTRESSED CONCRETE: See "GIRDERS" Dwg.

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

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

STRUCTURAL STEEL PILING: ASTM A709, GR50T3, Fy = 50,000 psi.
Pile Tip reinforcing is required.

PILE DATA TABLE

LOCATION	PILE TYPE	DRIVING CRITERIA: MINIMUM PENETRATION (ft)	DRIVING CRITERIA: ESTIMATED PILE TIP ELEVATION (ft)	DRIVING CRITERIA: DRIVING RESISTANCE (K)	DESIGN DATA: STRENGTH I FACTORED LOAD (K)	DESIGN DATA: NOMINAL RESISTANCE (K)	DESIGN DATA: RESISTANCE FACTOR, ϕ
Abutment 1	HP14x117	35	1,591	445	290	445	0.65
Abutment 2	HP14x117	35	1,591	445	290	445	0.65

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

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	SUBST.	SUPERST.	TOTAL QUANTITY
205.0006.0000	Structural Fill	CY	CY	400	---	400
501.0001.0000	Class A Concrete	LS	CY	41.3	20.3	61.6
501.0007.0000	Precast Concrete Member, 101'-6" Decked Bulb-Tee	EA	EA	---	5	5
503.0001.0000	Reinforcing Steel	LS	LBS	8,745	---	8,745
503.0002.0000	Epoxy-Coated Reinforcing Steel	LS	LBS	---	2,075	2,075
505.0005.1417	Furnish Structural Steel Piles, HP14x117	LF	LF	615.0	---	615.0
505.0006.1417	Drive Structural Steel Piles, HP14x117	EA	EA	8	---	8
507.0001.0003	Steel Bridge Railing, 3-Tube	LF	LF	---	266.0	266.0
611.0001.0001	Riprap, Class I	CY	CY	275	---	275
611.0001.0002	Riprap, Class II	CY	CY	200	---	200
611.0001.0003	Riprap, Class III	CY	CY	2,000	---	2,000

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

ABBREVIATIONS:

℄	= centerline	e.w.	= each way	n.f.	= near face
℗	= plate	Ext.	= exterior	No.	= number
&	= and	F	= fixed	o.c.	= on center
@	= at	f.f.	= front/air face	O.H.W.	= ordinary high water
ø	= diameter	f'c	= specified concrete compressive strength	---- OE ----	= overhead electrical line
±	= approximate	f'ci	= specified concrete compressive strength at release	pcf	= pounds per cubic foot
Abut.	= abutment	Ft.	= feet	psf	= pounds per square foot
Approx.	= approximate	Fy	= yield stress	psi	= pounds per square inch
b.f.	= back/dirt face	Galv.	= galvanize	R	= radius
bot.	= bottom	H.S.	= high strength	R.O.W.	= right of way
Br.	= bridge	Hwy.	= highway	RT.	= right
btwn.	= between	ID	= internal diameter	Rd.	= road
Brg.	= bearings	Int.	= interior	spcs.	= space, spaces
C.G.	= center of gravity	Jt.	= joint	Sta.	= station
C.I.P.	= cast in place	K	= kips	SF	= square feet
CJP	= complete joint penetration	ksf	= 1000 pounds per square foot	SY	= square yard
Clr.	= clear, clearance	ksi	= 1000 pounds per square inch	Std.	= standard
CMP	= corrugated metal pipe	LBS or lb	= pounds	Symm.	= symmetric
CY	= cubic yard	LF	= linear foot	Typ.	= typical
Dia.	= diameter	LS	= lump sum	---- UT ----	= undergound telephone
Dwg.	= drawing	LT.	= left	UT	= ultrasonic testing
E	= expansion	max.	= maximum	VPC	= point of vertical curve
(E)	= existing	min.	= minimum	VPI	= point of vertical intersection
EA	= each	MSE	= mechanically stabilized earth	VPT	= point of vertical tangent
Elev.	= elevation			w/	= with
e.f.	= each face				

DESIGNED BY: Elmer Marx	CHECKED: Ben Still	FOUNDATIONS REVIEWED BY: Dave Hemstreet	
DRAWN BY: Sam Sollie	CHECKED: Elmer Marx		
QUANTITIES BY: Elmer Marx	CHECKED: Ben Still		

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
BRIDGE SECTION
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907-465-2975

LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

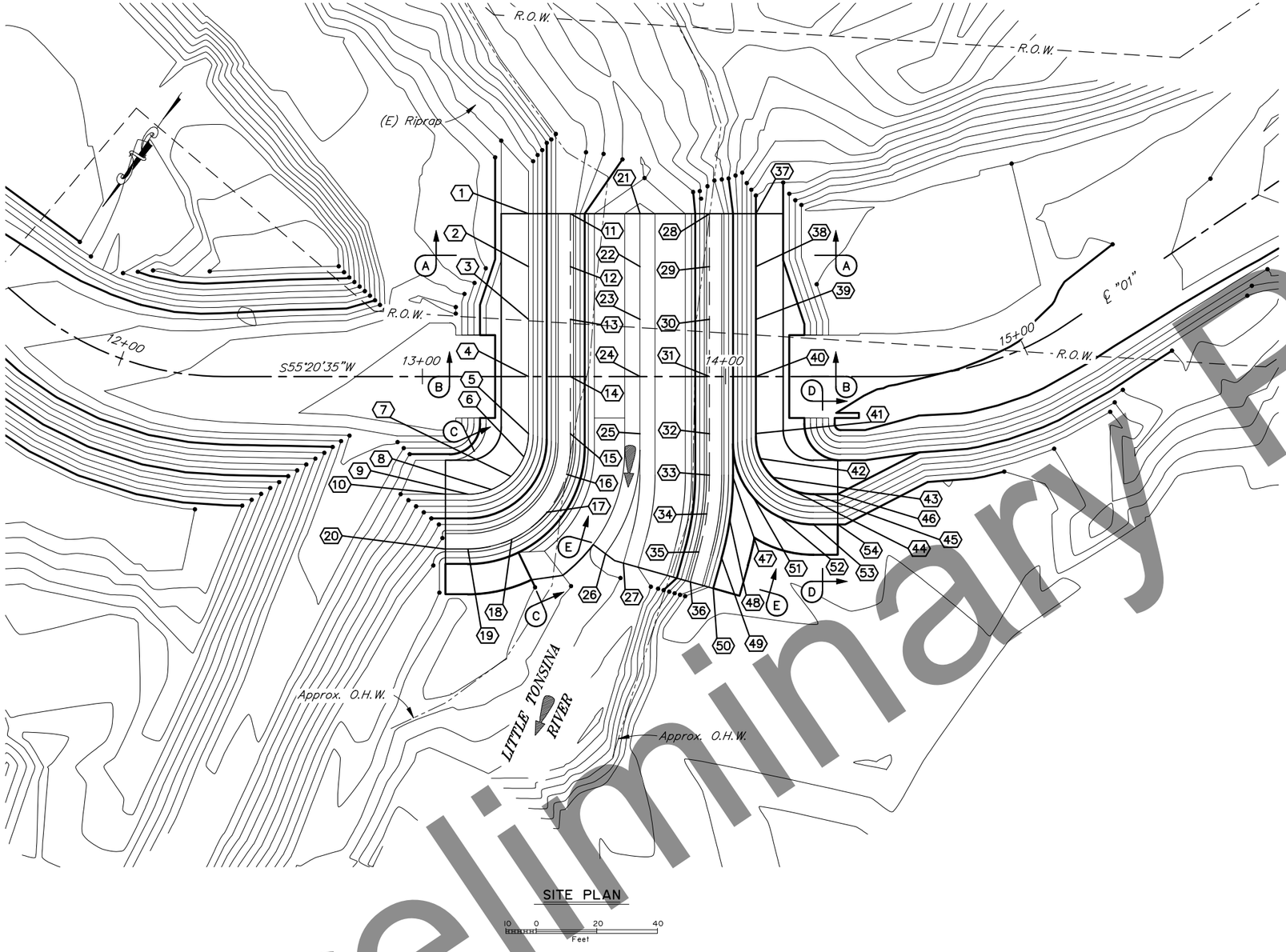
SITE PLAN

BRIDGE NO. 568

DWG. NO. 2

R:\cad\568\568-2 Wed, Apr/07/21 03:27pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N3	N13



SITE PLAN

10 0 20 40
Feet

RIPRAP LAYOUT TABLE

POINT	STATION	OFFSET	ELEVATION	POINT	STATION	OFFSET	ELEVATION
1	13+35.0	53.7' Left	1669.0	28	13+94.7	53.7' Left	1659.8
2	13+35.0	36.3' Left	1669.0	29	13+94.7	36.3' Left	1659.8
3	13+35.0	18.8' Left	1669.0	30	13+94.7	18.8' Left	1659.8
4	13+35.0	0.0' Left	1669.0	31	13+94.7	0.0' Left	1659.8
5	13+35.0	18.8' Right	1669.0	32	13+94.7	18.8' Right	1659.8
6	13+33.5	26.5' Right	1669.0	33	13+94.7	32.6' Right	1659.8
7	13+29.2	33.0' Right	1669.0	34	13+93.8	45.4' Right	1659.8
8	13+22.7	37.3' Right	1669.0	35	13+91.2	57.9' Right	1659.8
9	13+15.0	38.8' Right	1669.0	36	13+88.4	67.8' Right	1659.8
10	13+07.6	38.8' Right	1669.0	37	14+10.0	53.7' Left	1670.0
11	13+48.8	53.7' Left	1659.8	38	14+10.0	36.3' Left	1670.0
12	13+48.8	36.3' Left	1659.8	39	14+10.0	18.9' Left	1670.0
13	13+48.8	18.8' Left	1659.8	40	14+10.0	0.0' Left	1670.0
14	13+48.8	0.0' Left	1659.8	41	14+10.0	18.8' Right	1670.0
15	13+48.8	18.8' Right	1659.8	42	14+11.4	27.1' Right	1670.0
16	13+47.6	32.3' Right	1659.8	43	14+15.6	33.3' Right	1670.0
17	13+41.0	44.8' Right	1659.8	44	14+21.7	37.4' Right	1670.0
18	13+29.5	53.8' Right	1660.0	45	14+29.0	38.8' Right	1670.0
19	13+15.0	57.0' Right	1660.0	46	14+37.0	38.8' Right	1670.0
20	13+07.6	57.0' Right	1660.0	47	14+02.5	33.2' Right	1665.0
21	13+71.8	53.7' Left	1657.5	48	14+01.4	47.5' Right	1665.0
22	13+71.8	36.3' Left	1657.5	49	13+98.7	60.0' Right	1665.0
23	13+71.8	18.8' Left	1657.5	50	13+95.9	69.9' Right	1665.0
24	13+71.8	0.0' Right	1657.5	51	14+09.0	39.8' Right	1665.0
25	13+71.8	18.9' Right	1657.5	52	14+18.0	46.4' Right	1665.0
26	13+60.4	58.5' Right	1657.5	53	14+29.0	48.8' Right	1665.0
27	13+66.3	61.6' Right	1657.5	54	14+37.0	48.8' Right	1665.0

HYDRAULIC & HYDROLOGIC SUMMARY, BRIDGE NO. 568

Flood Frequency (Yr.)	50	100	500
Exceedance Probability (%)	2	1	0.2
Discharge (cfs)	2,970	3,410	4,460
Water Surface Elevation (ft)	1,665.3	1,665.8	1,666.9
Anticipated Add'l Backwater (ft)	0	0	0
Contraction Scour (ft)	0	0	0
Abutment Scour (ft)	0	0	0
Long-Term Degradation (ft)		3'	

Drainage Area: 86 square miles
The hydraulic capacity is roughly 10,000 cfs in ice-free and debris-free channel conditions. The riprap and gradient controls prevent abutment scour and contraction potential.

NOTE:

1. See "RIPRAP SECTIONS" drawing for "SECTION A-A", "SECTION B-B", "SECTION C-C", "SECTION D-D", "SECTION E-E".
2. Existing culverts not shown.

DESIGNED BY: Michael Knapp	CHECKED: Dane Palmer	
DRAWN BY: Sam Sollie	CHECKED: Michael Knapp	
QUANTITIES BY: Michael Knapp	CHECKED: Dane Palmer	

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
BRIDGE SECTION
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LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

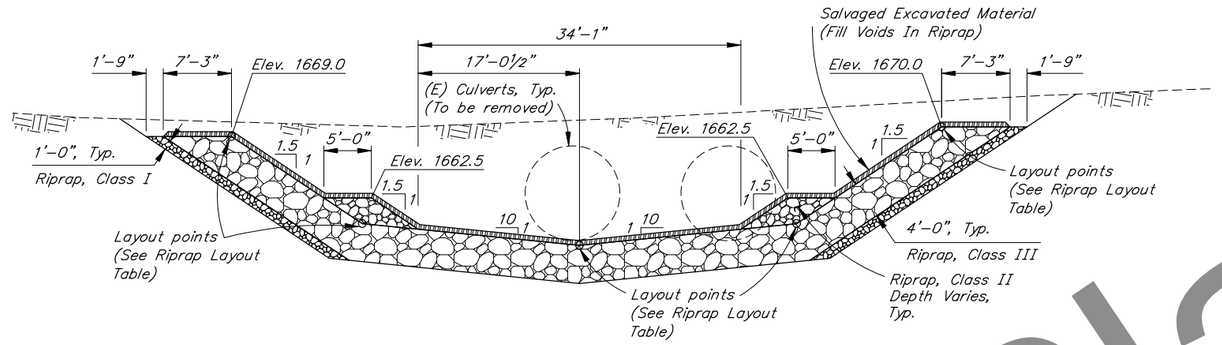
RIPRAP LAYOUT

BRIDGE NO. 568

DWG. NO. 3

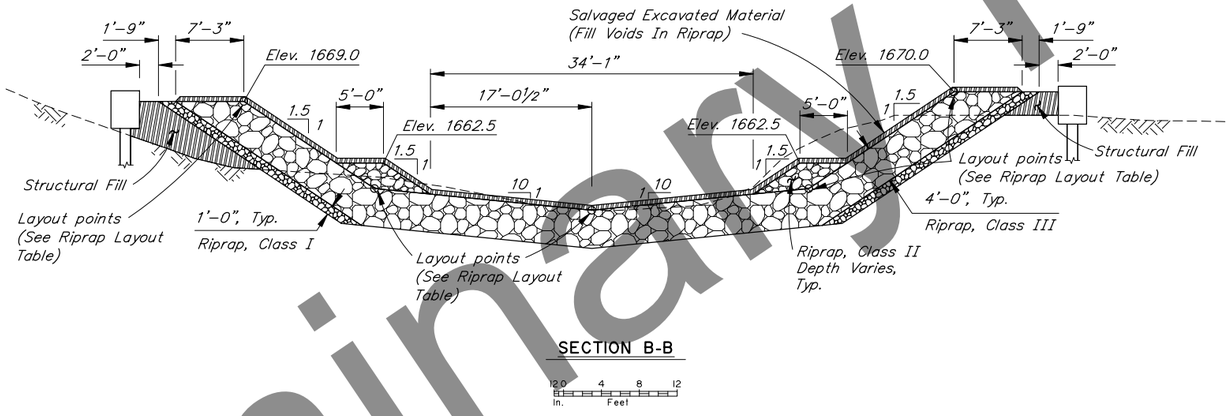
R:\cad\568\568-3 Wed, Apr/07/21 03:28pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N4	N13



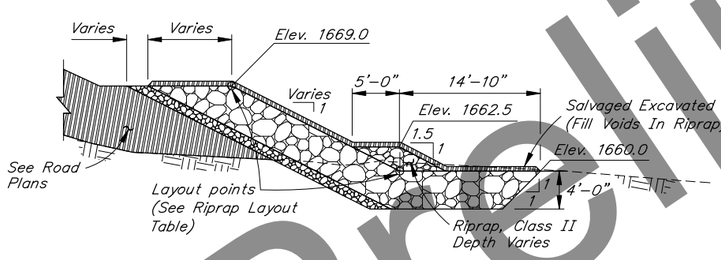
SECTION A-A

12 0 4 8 12
In. Feet



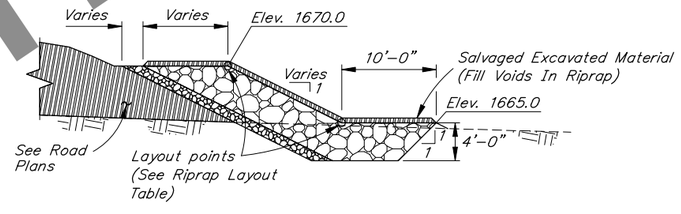
SECTION B-B

12 0 4 8 12
In. Feet



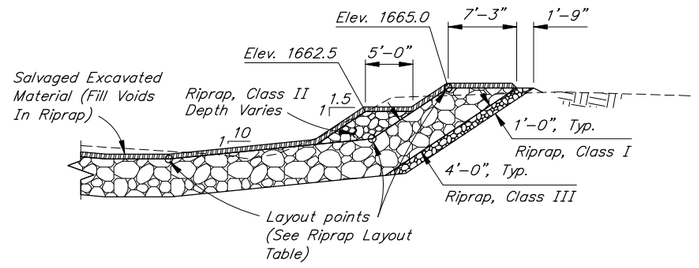
SECTION C-C

12 0 4 8 12
In. Feet



SECTION D-D

12 0 4 8 12
In. Feet



SECTION E-E

12 0 4 8 12
In. Feet

DESIGNED BY: Michael Knapp	CHECKED: Dane Palmer		
DRAWN BY: Sam Sollie	CHECKED: Michael Knapp		
QUANTITIES BY: Michael Knapp	CHECKED: Dane Palmer		

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

LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

RIPRAP SECTIONS

BRIDGE NO. 568
DWG. NO. 4

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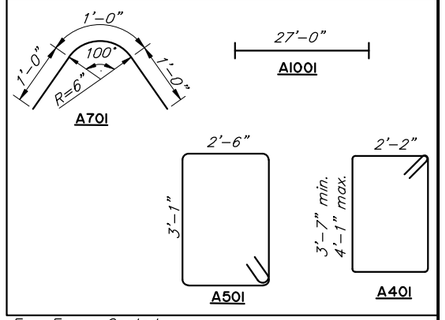
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N5	N13

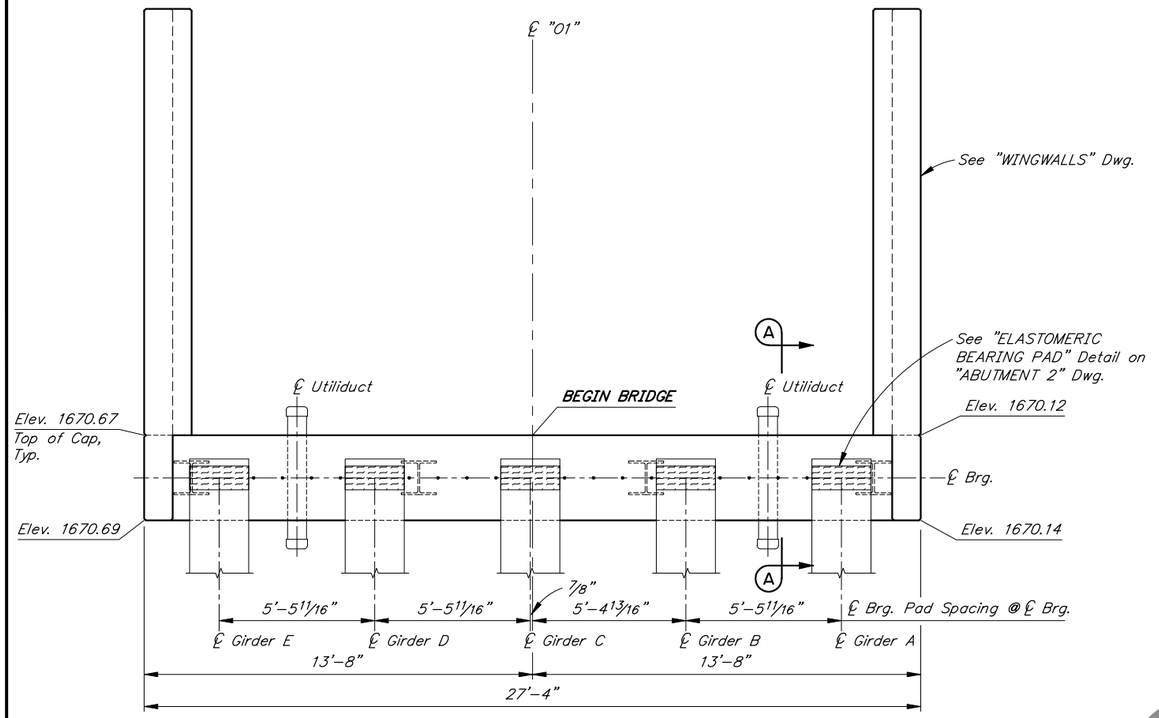
REINFORCING STEEL - ABUTMENT 1

MARK	NOTE	SIZE	NO.	LENGTH	TYPE
A401		4	90	VARIES	BENT
A501	E	5	26	12'-1"	BENT
A601		6	10	27'-0"	---
A602	E	6	5	24'-10"	---
A603	E	6	7	27'-0"	---
A604	E	6	4	3'-0"	---
A701	E	7	8	3'-0"	BENT
A801		8	16	6'-0"	---
A1001	H	10	10	27'-0"	HEADED

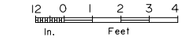
BENDING DIAGRAM

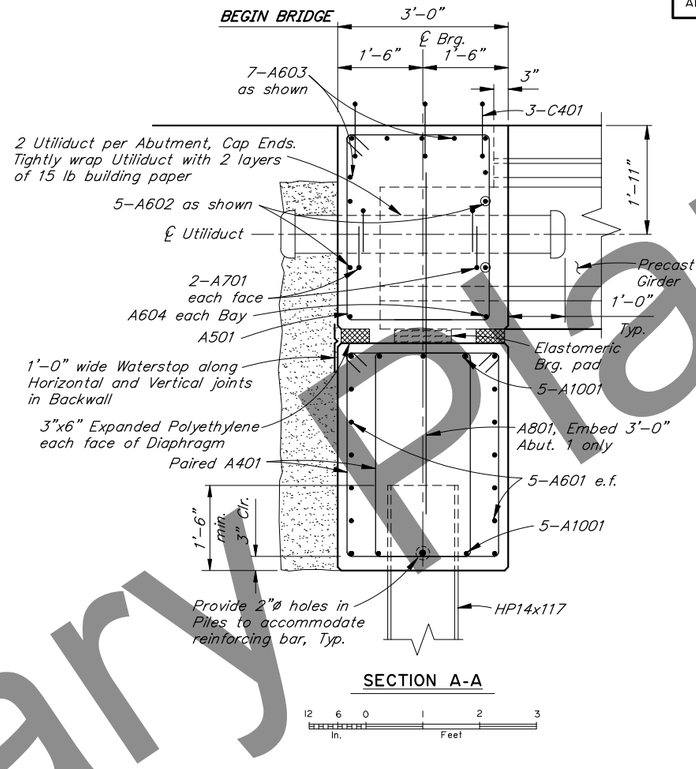


E = Epoxy-Coated
H = Headed reinforcing steel

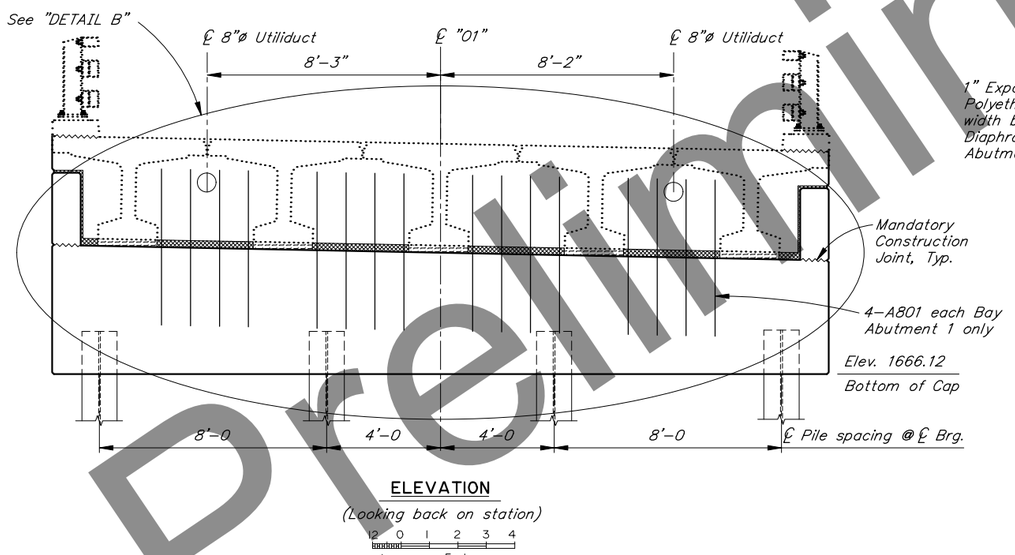


PLAN

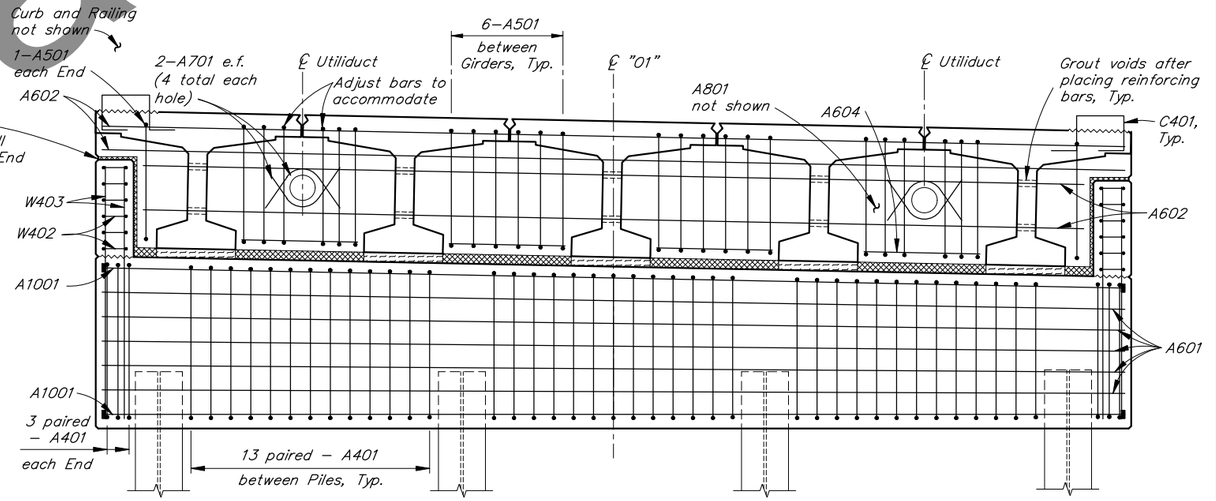




SECTION A-A



ELEVATION
(Looking back on station)



DETAIL B

DESIGNED BY: Elmer Marx	CHECKED: Ben Still
DRAWN BY: Sam Sollie	CHECKED: Elmer Marx
QUANTITIES BY: Elmer Marx	CHECKED: Ben Still

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
BRIDGE SECTION
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LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

ABUTMENT 1

BRIDGE NO. 568
DWG. NO. 5

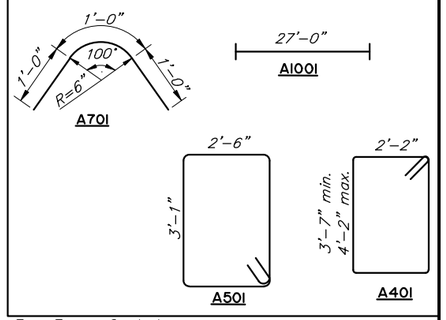
R:\cad\568\568-1-5 Wed, Apr/07/21 03:26pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N6	N13

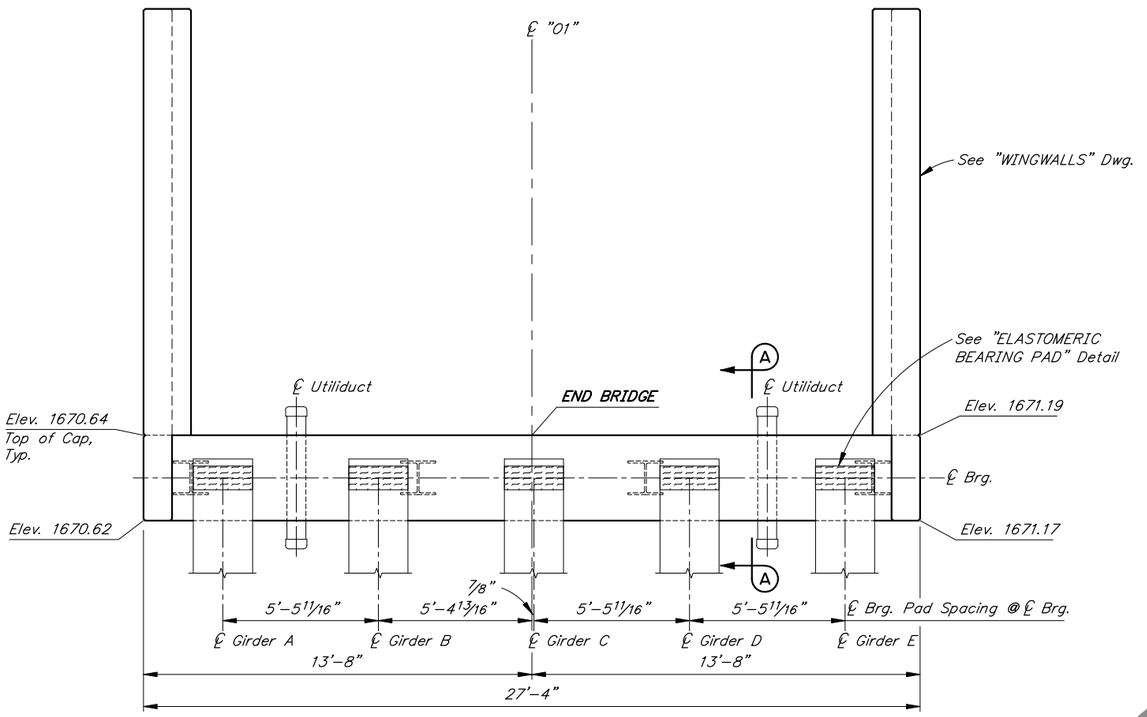
REINFORCING STEEL - ABUTMENT 2

MARK	NOTE	SIZE	NO.	LENGTH	TYPE
A401		4	90	VARIES	BENT
A501	E	5	26	12'-1"	BENT
A601		6	10	27'-0"	---
A602	E	6	5	24'-10"	---
A603	E	6	7	27'-0"	---
A604	E	6	4	3'-0"	---
A701	E	7	8	3'-0"	BENT
A1001	H	10	10	27'-0"	HEADED

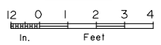
BENDING DIAGRAM

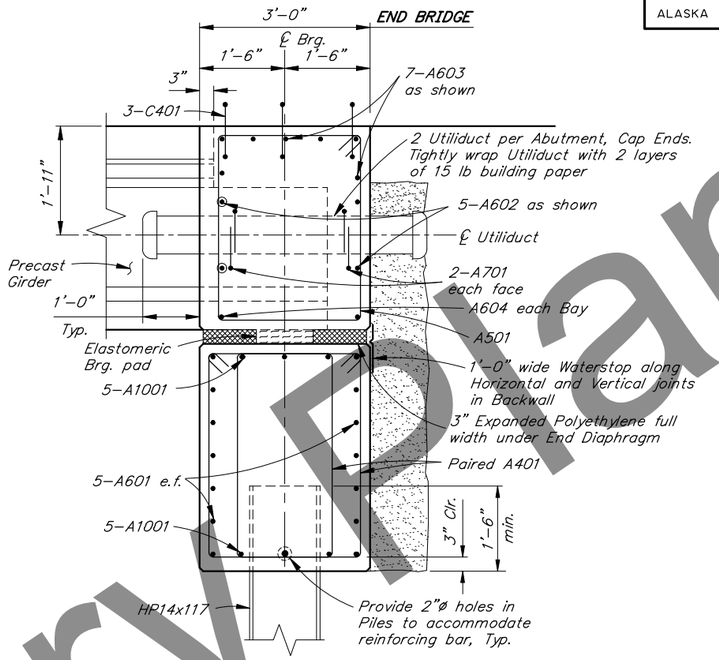


E = Epoxy-Coated
H = Headed reinforcing steel

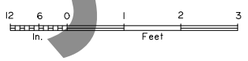


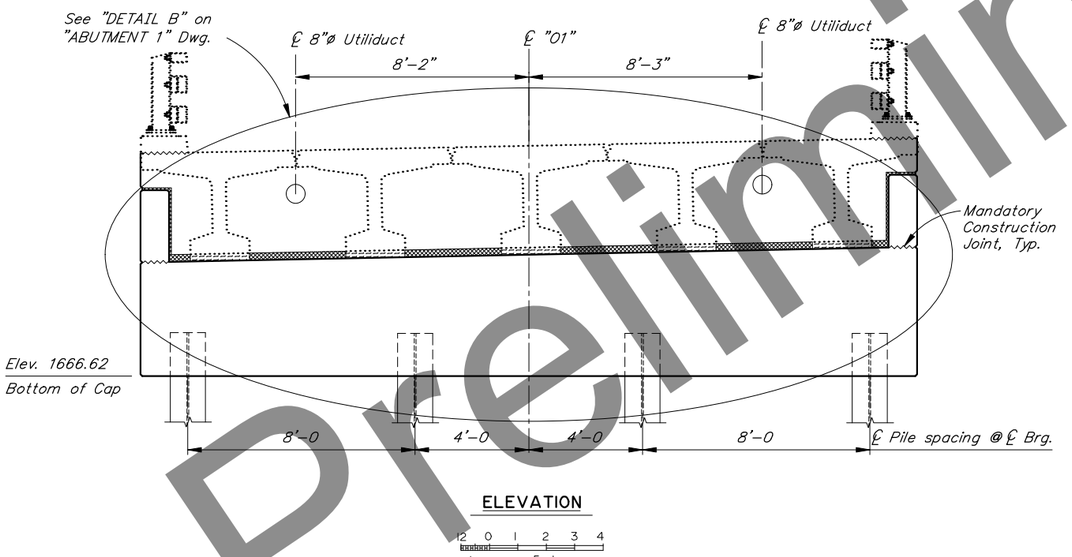
PLAN



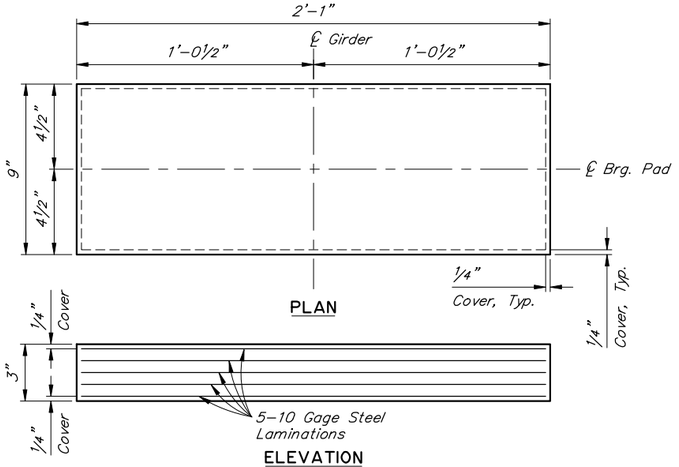


SECTION A-A





ELEVATION



ELASTOMERIC BEARING PAD

Grade 5
Dead Load = 76 k
Live Load = 63 k
Shear Modulus = 115 psi

DESIGNED BY: Elmer Marx	CHECKED: Ben Still		
DRAWN BY: Sam Sollie	CHECKED: Elmer Marx		
QUANTITIES BY: Elmer Marx	CHECKED: Ben Still		

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LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

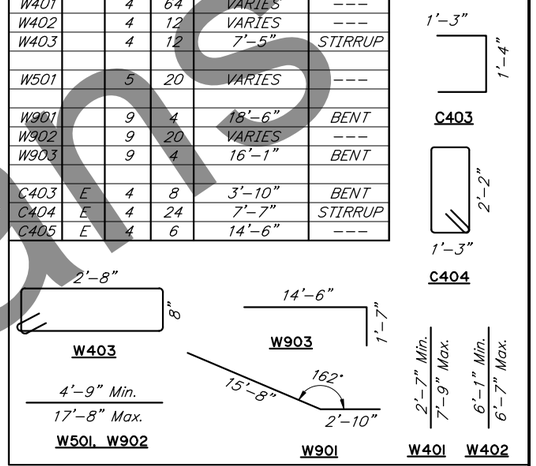
ABUTMENT 2

BRIDGE NO. 568
DWG. NO. 6

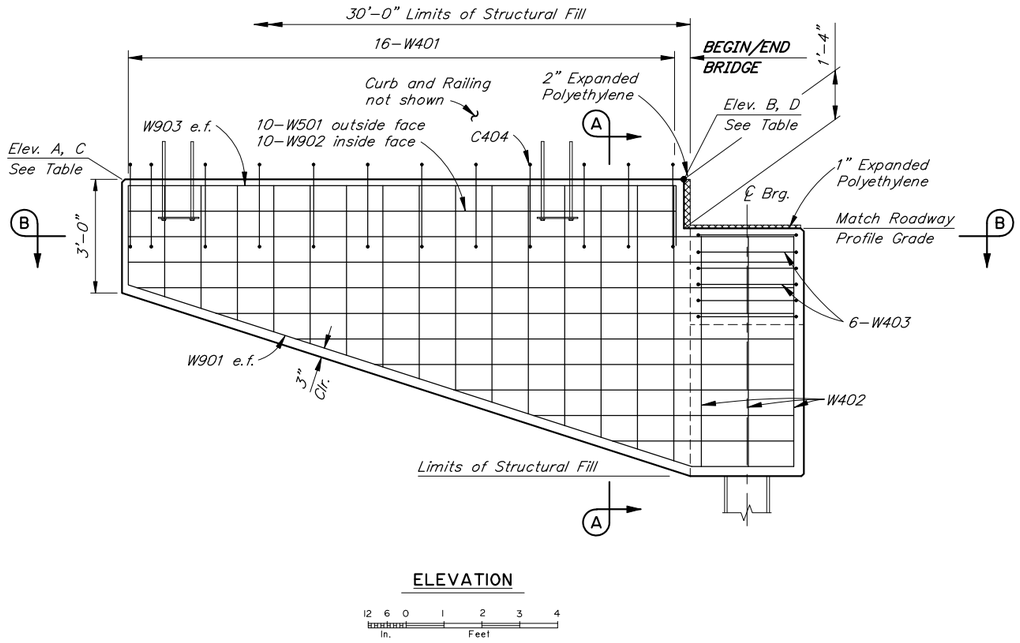
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N7	N13

REINFORCING STEEL - ONE ABUTMENT

MARK	NOTE	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAM
W401		4	64	VARIES	---	
W402		4	12	VARIES	---	
W403		4	12	7'-5"	STIRRUP	
W501		5	20	VARIES	---	
W901		9	4	18'-6"	BENT	
W902		9	20	VARIES	---	
W903		9	4	16'-1"	BENT	
C403	E	4	8	3'-10"	BENT	
C404	E	4	24	7'-7"	STIRRUP	
C405	E	4	6	14'-6"	---	

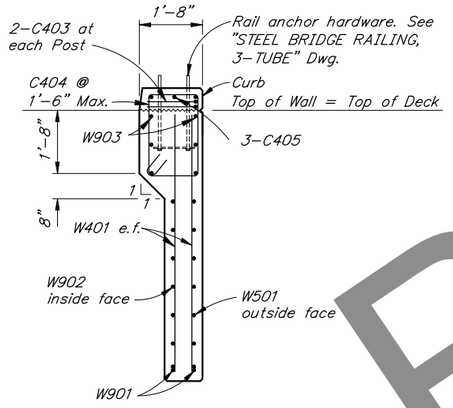


E – Epoxy-Coated



ELEVATION

12 6 0 1 2 3 4 In. Feet

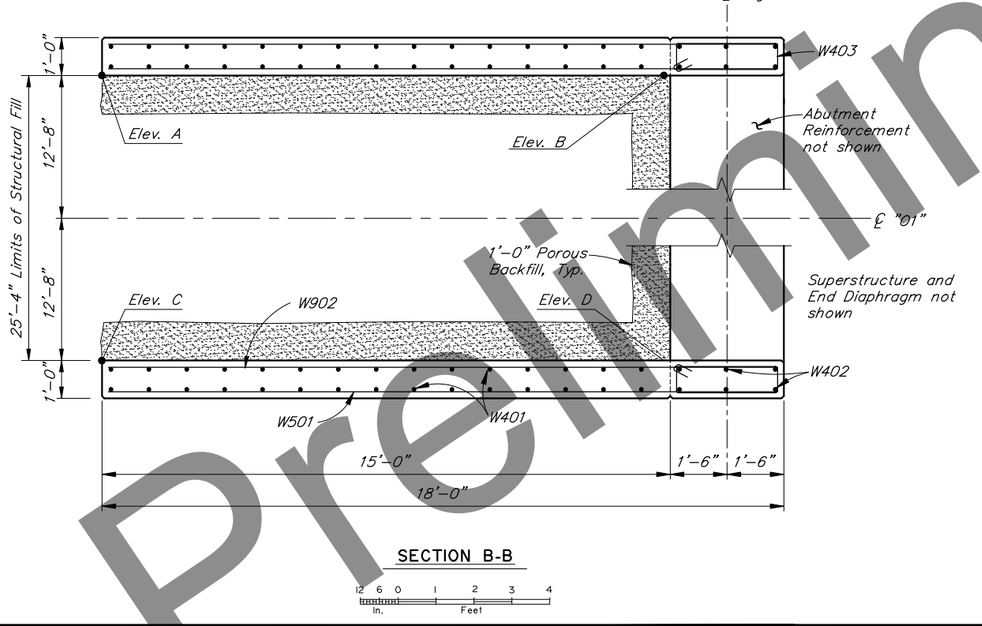


SECTION A-A

12 6 0 1 2 3 4 In. Feet

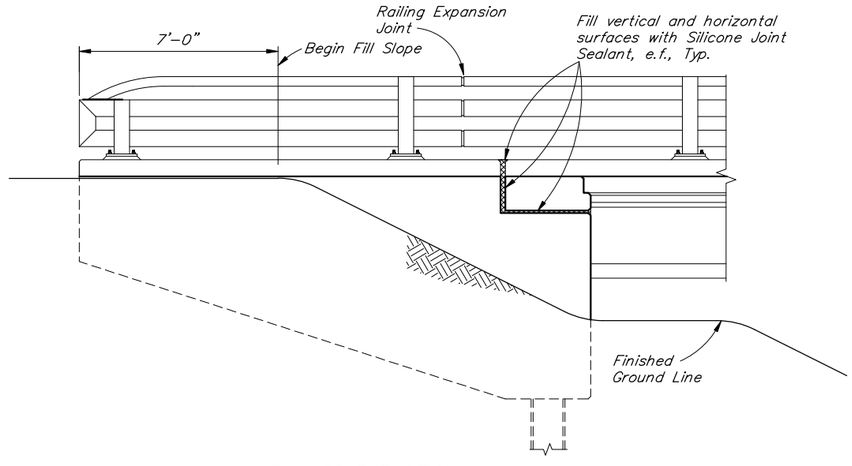
TOP OF WINGWALL ELEVATION TABLE (FT)

LOCATION	A UPSTREAM	B UPSTREAM	C DOWNSTREAM	D DOWNSTREAM
ABUTMENT 1	1673.92	1673.99	1674.40	1674.47
ABUTMENT 2	1674.59	1674.51	1675.07	1674.99



SECTION B-B

12 6 0 1 2 3 4 In. Feet



FINISHED ELEVATION

12 0 1 2 3 4 In. Feet

DESIGNED BY: Elmer Marx	CHECKED: Ben Still		
DRAWN BY: Sam Sollie	CHECKED: Elmer Marx		
QUANTITIES BY: Elmer Marx	CHECKED: Ben Still		

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

LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

WINGWALLS

BRIDGE NO. 568

DWG. NO. 7

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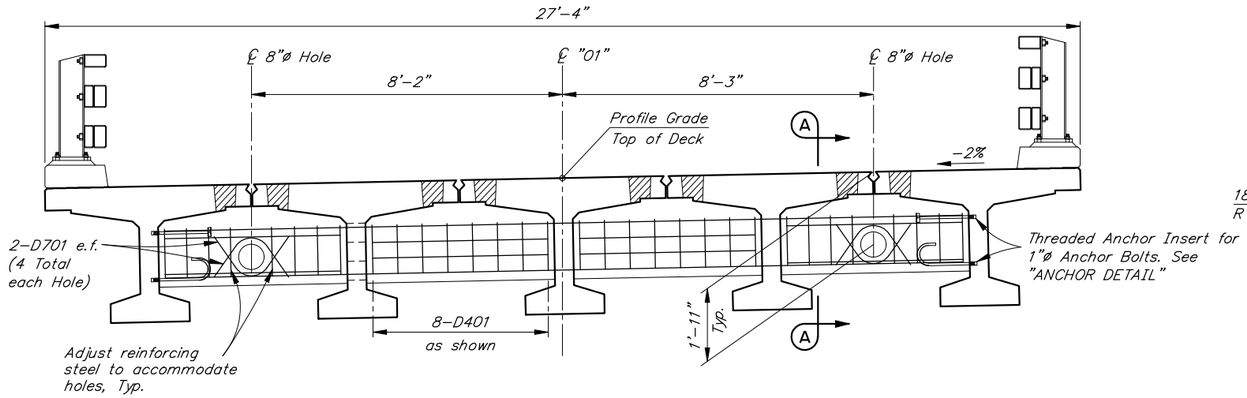
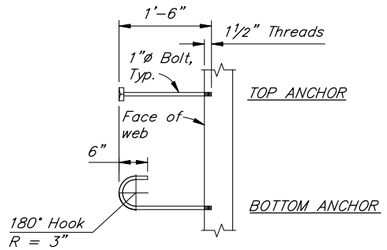


TYPICAL SECTION

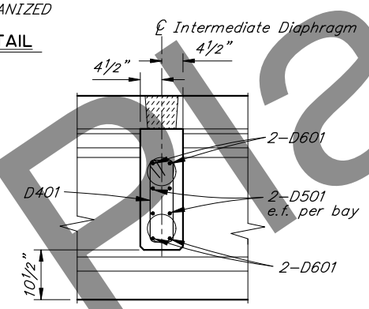
12 6 0 1 2 3 4
In. Feet



ASTM A307 GALVANIZED

ANCHOR DETAIL

No Scale



SECTION A-A

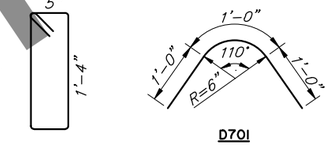
12 6 0 1 2 3
In. Feet

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N8	N13

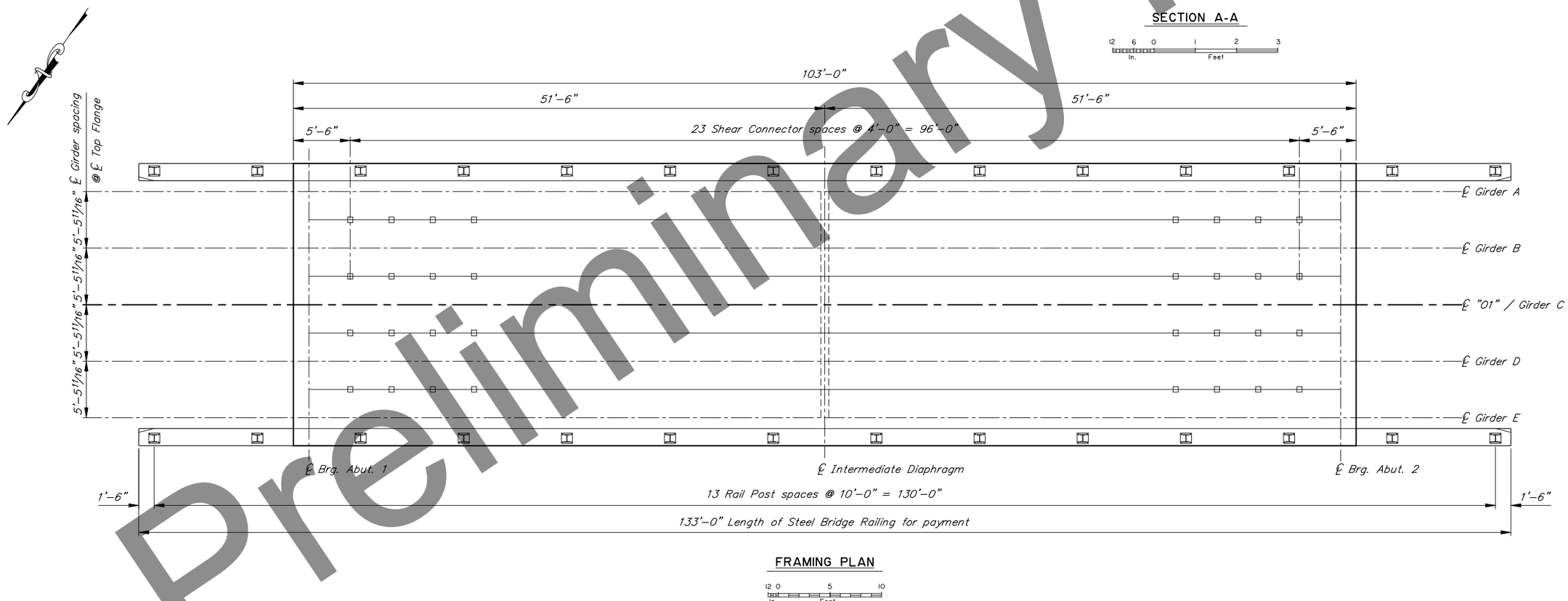
REINFORCING STEEL - ONE DIAPHRAGM

MARK	NOTE	SIZE	NO.	LENGTH	TYPE
D401	E	4	32	4'-3"	STIRRUP
D501	E	5	16	4'-7"	---
D601	E	6	4	21'-0"	---
D701	E	7	8	3'-0"	BENT

BENDING DIAGRAM



E = Epoxy-Coated



FRAMING PLAN

12 0 5 10
In. Feet

DESIGNED BY:	Elmer Marx	CHECKED:	Ben Still
DRAWN BY:	Sam Sollie	CHECKED:	Elmer Marx
QUANTITIES BY:	Elmer Marx	CHECKED:	Ben Still

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

LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

FRAMING PLAN AND TYPICAL SECTION

BRIDGE NO. 568
DWG. NO. 8

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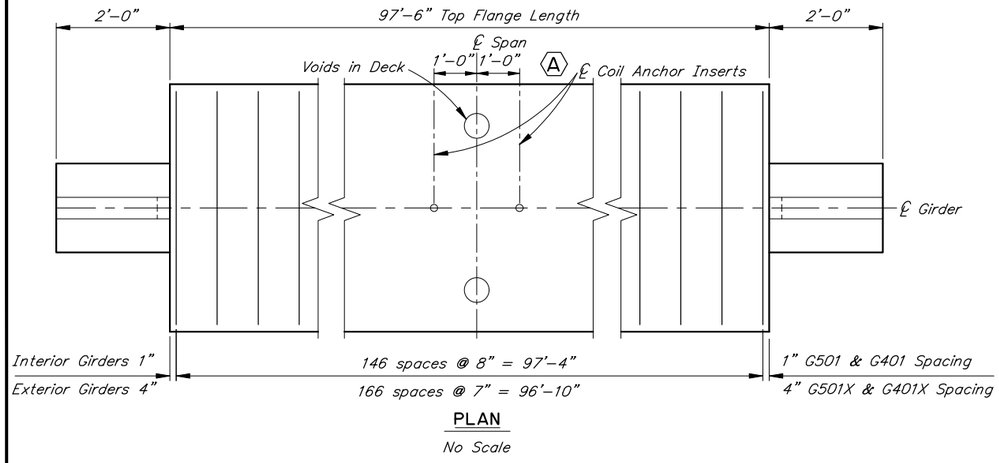
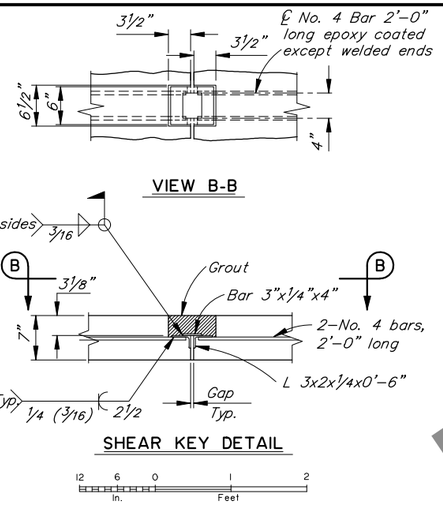
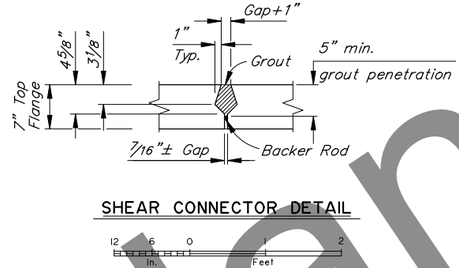
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N9	N13

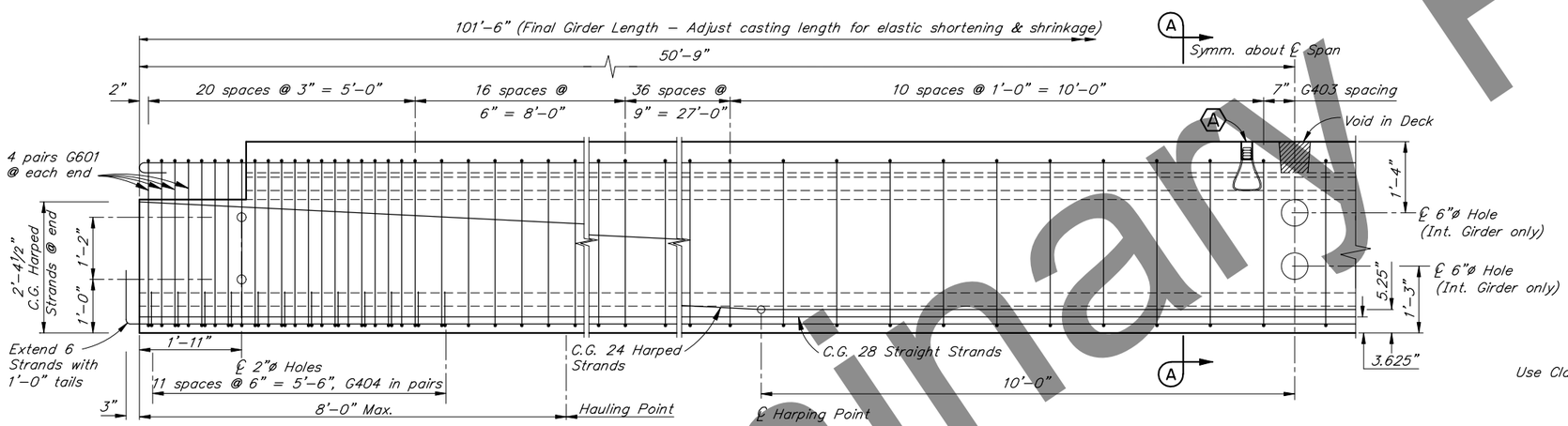


PLAN

No Scale

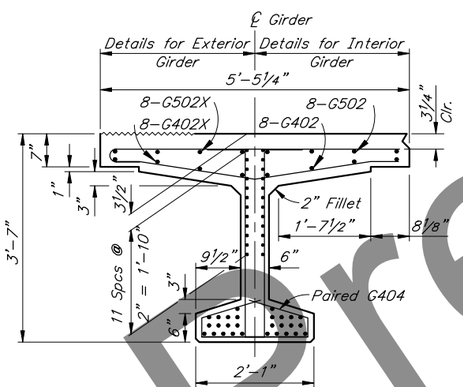




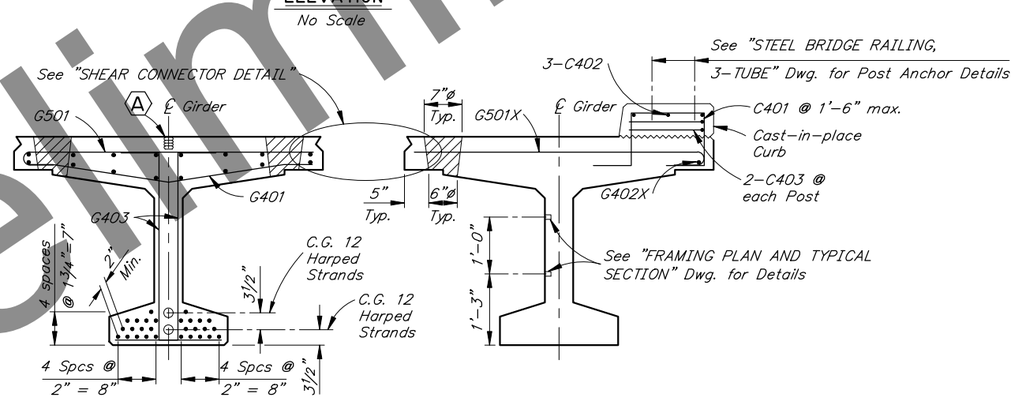


ELEVATION

No Scale



END VIEW



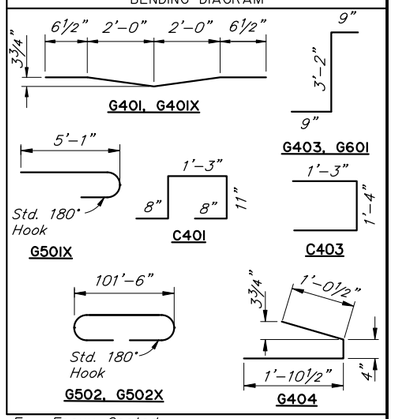
SECTION A-A

MIDSPAN SECTION

REINFORCING STEEL-ONE GIRDER

MARK	NOTE	SIZE	NO.	LENGTH	TYPE
G401	E	4	147	5'-2"	BENT
G401X	E	4	167	5'-2"	BENT
G402	E,L	4	8	97'-2"	---
G402X	E,L	4	8	97'-2"	---
G403	E	4	316	4'-8"	BENT
G404	E	4	48	3'-3"	BENT
G501	E	5	147	5'-0"	---
G501X	E	5	167	5'-8"	BENT
G502	E,L	5	8	102'-8"	BENT
G502X	E,L	5	8	102'-8"	BENT
G601	E	6	16	4'-8"	BENT
C401	E,S	4	71	4'-5"	BENT
C402	E,L	4	3	102'-8"	---
C403	E,L	4	20	3'-10"	BENT

BENDING DIAGRAM



E – Epoxy-Coated
L – Length does not include splices
S – Ship 6 loose for diaphragms
X – Exterior Girders only

GIRDER NOTES

Use Class P concrete with the following strengths:
At Stress Transfer f'ci = 6,500 psi
At 28 days f'c = 8,000 psi

Use ½" round low relaxation strands with an ultimate strength of 270 ksi and a cross section area of 0.153 in².

Design is based on the following steel stresses:
Pretensioning – Jacking Stress 189 ksi
After initial losses – 169 ksi
After all losses – 139 ksi

Deflect forms to compensate for camber and roadway grade.

Galvanize all steel embedded in girders except for shear connectors.

1" clear on all reinforcing except as noted.

Finish top flange surface with heavy broom finish. Roughen the surface under the curb.

Omit Shear Key, Shear Connector, and Deck Voids on outside of exterior girders.

Cast Girder ends plumb with respect to roadway grade. Install web holes and web anchor inserts parallel to ℄ bearing.

(A) *1"x1'-0" Coil Anchor Insert for vertical adjustment of girders. Recess 2". Prevent concrete from filling hole.*

See "FRAMING PLAN AND TYPICAL SECTION" Dwg. for shear connector spacing.

DESIGNED BY: Elmer Marx	CHECKED: Ben Still	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES BRIDGE SECTION 3132 Channel Drive Juneau, Alaska 99801 907-465-2975	LITTLE TONSINA RIVER BRIDGE BURMA ROAD GIRDERS
DRAWN BY: Sam Sollie	CHECKED: Elmer Marx		BRIDGE NO. 568 DWG. NO. 9
QUANTITIES BY: Elmer Marx	CHECKED: Ben Still		

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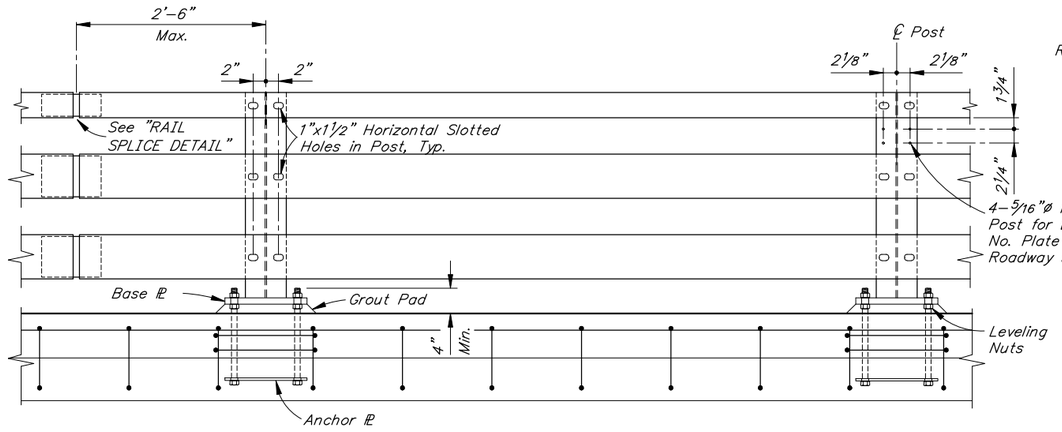
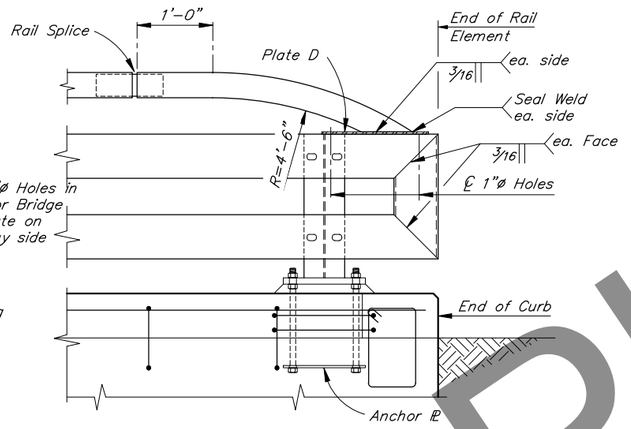
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2022	N10	N13

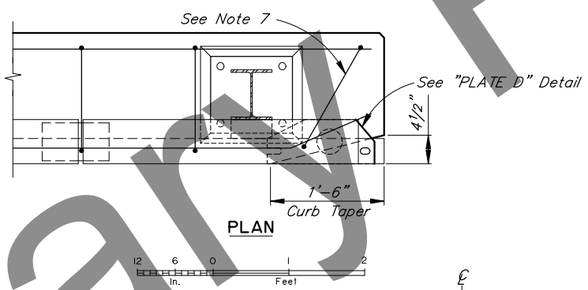


EXPANSION JOINT

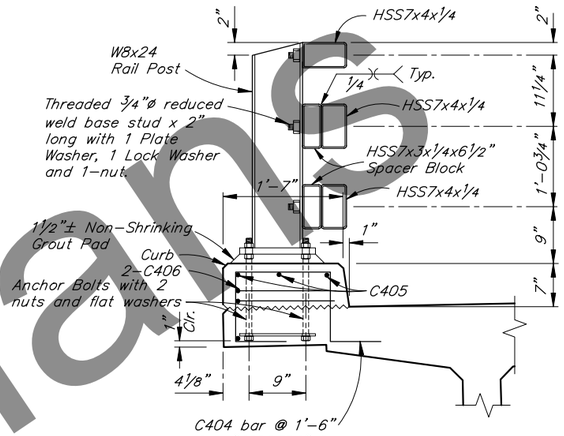
TYPICAL POST ELEVATION



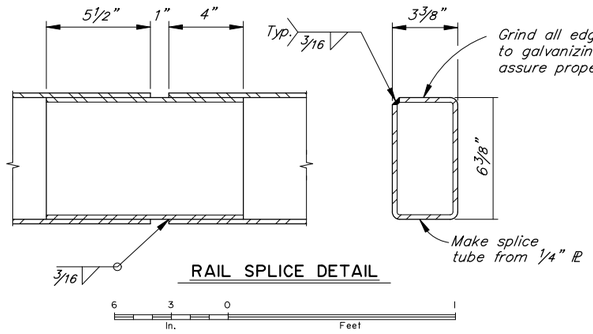
END POST - ELEVATION



PLAN



TYPICAL SECTION



RAIL SPLICE DETAIL

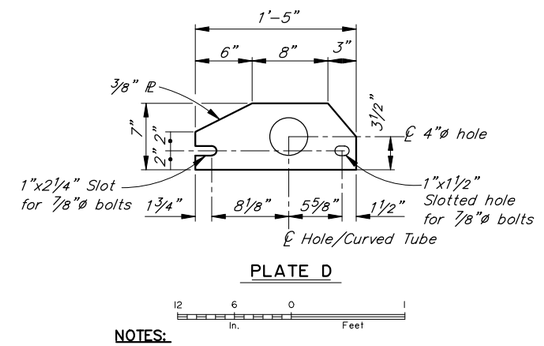
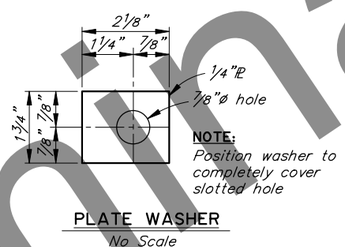


PLATE D

NOTES:

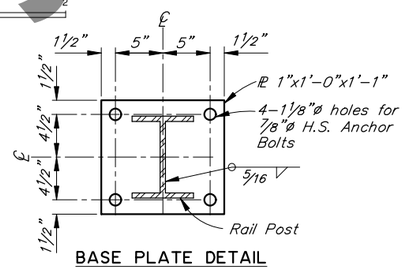
1. Locate bridge number plates on right hand side of approaching traffic near each end as shown on "GENERAL LAYOUT" Dwg. (2 total).
2. Furnish bridge number plates. Use "Century" type style lettering. Use studs and nuts that conform to UNS C65100 or C65500. Braze ¼"ø threaded rod to back of plate with nut – 4 required. Use tamper proof nuts.
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. Use grout with a minimum 24-hour f'c of 3000 psi in single placement.
5. See "FRAMING PLAN AND TYPICAL SECTION" Dwg. for rail post spacing.
6. Install bridge rail posts plumb.
7. Adjust reinforcing to accommodate curb taper.



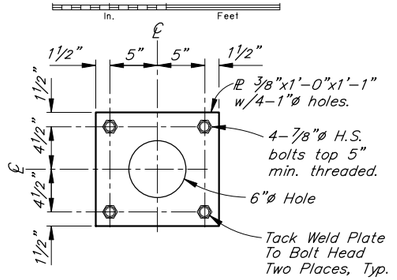
NOTE: Position washer to completely cover slotted hole

PLATE WASHER

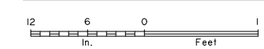
No Scale

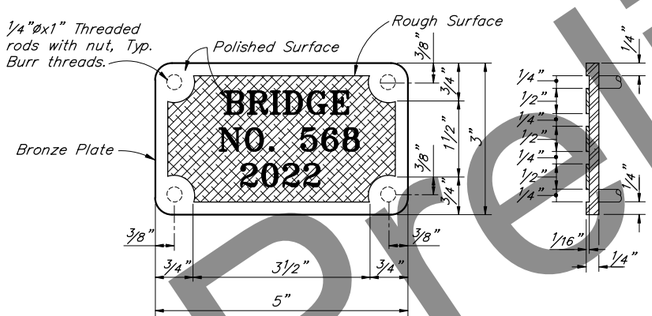


BASE PLATE DETAIL



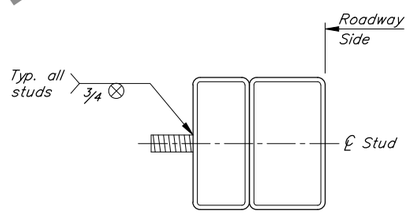
ANCHOR PLATE DETAIL





BRONZE BRIDGE NO. PLATE

No Scale



RAILING STUD DETAIL

(Lower rail shown, upper rail similar)

No Scale

DESIGNED BY: Elmer Marx	CHECKED: Ben Still
DRAWN BY: Sam Sollie	CHECKED: Elmer Marx
QUANTITIES BY: Elmer Marx	CHECKED: Ben Still

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

LITTLE TONSINA RIVER BRIDGE

BURMA ROAD

STEEL BRIDGE RAILING, 3-TUBE

BRIDGE NO. 568

DWG. NO. 10

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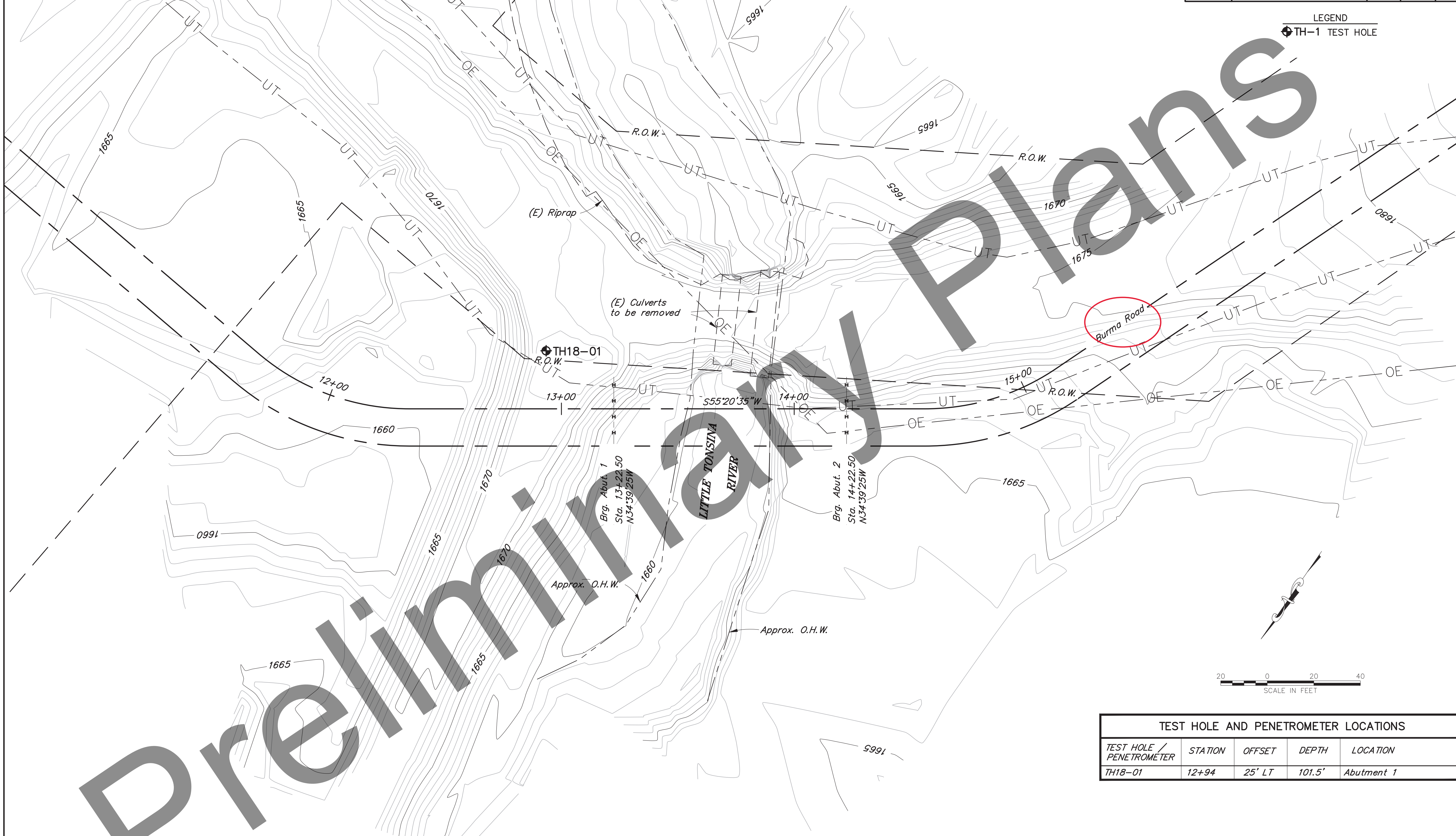
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2020	N11	N13

LEGEND

⊕TH–1 TEST HOLE



TEST HOLE AND PENETROMETER LOCATIONS

TEST HOLE / PENETROMETER	STATION	OFFSET	DEPTH	LOCATION
TH18–01	12+94	25' LT	101.5'	Abutment 1

DESIGNED BY: Designed	CHECKED: Engineer	
DRAWN BY: Drafter	CHECKED: Engineer	
QUANTITIES BY: Engineer	CHECKED: Engineer	

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
STATEWIDE MATERIALS

LITTLE TONSINA BRIDGE

BURMA ROAD

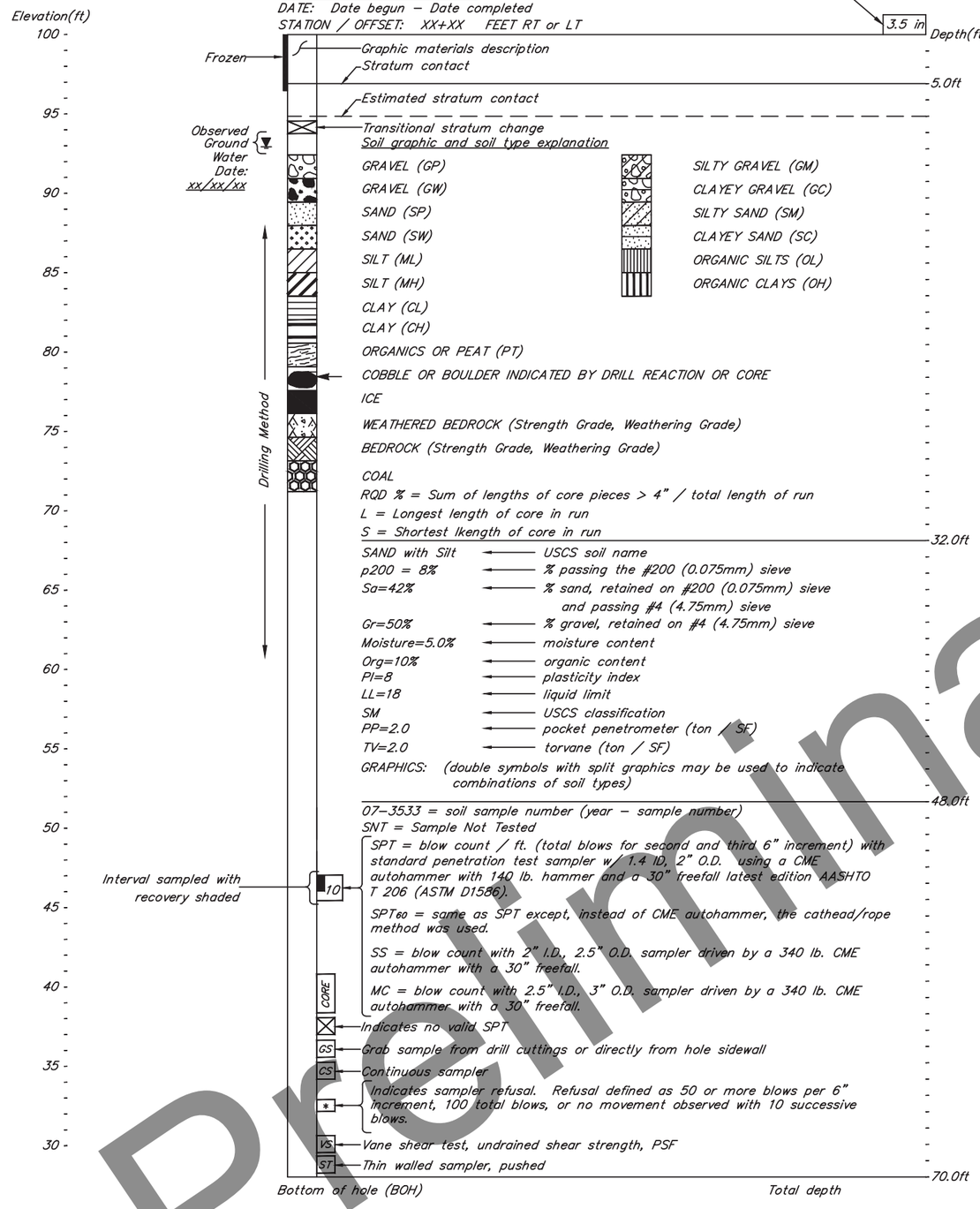
TEST HOLE & PENETROMETER LOCATION

BRIDGE NO. 0568

DWG. NO. 11

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2020	N12	N13

TYPICAL TEST HOLE LOG

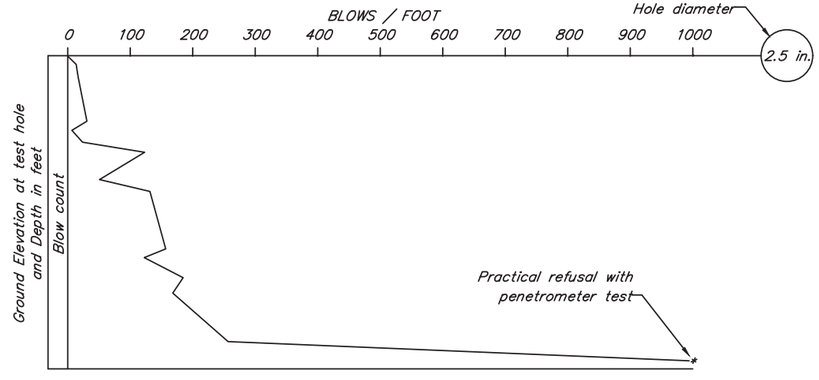


NOTES:

1) The test hole logs depicted graphically in these drawings are distillations of the original field logs, based on post-field investigation review and analysis. These drafted logs include changes made to field descriptions based upon laboratory test data, review and analysis. Detailed field observations of rock and soil sampled during the drilling program are not reproduced in the drafted logs.
2) Description of soils follows Alaska Geotechnical Procedures manual.
   Classification of soils follows Unified Soil Classification System (ASTM D2487).
3) The test hole logs from these sheets are an integral part of the Foundation Geology Report. See Construction Contract Bid Documents - invitation to bid/notice to bidders. Important information about the test hole logs and the foundation investigation is contained in the report. The test hole logs are not severable from and cannot be completely and correctly interpreted without reference to the Foundation Geology Report.

TYPICAL PENETROMETER TEST LOG

DATE: Date begun - Date completed
STATION / OFFSET: XX+XX / RT or LT (feet)



Bottom of hole (BOH)

NOTES:
Penetrometer W/2.5" O.D., with a CME AUTOMATIC Hammer using a 340 lb. weight and a 30" freefall

DESIGNED BY: Designer	CHECKED: Engineer		
DRAWN BY: Drafter	CHECKED: Engineer		
QUANTITIES BY: Engineer	CHECKED: Engineer		

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
STATEWIDE MATERIALS

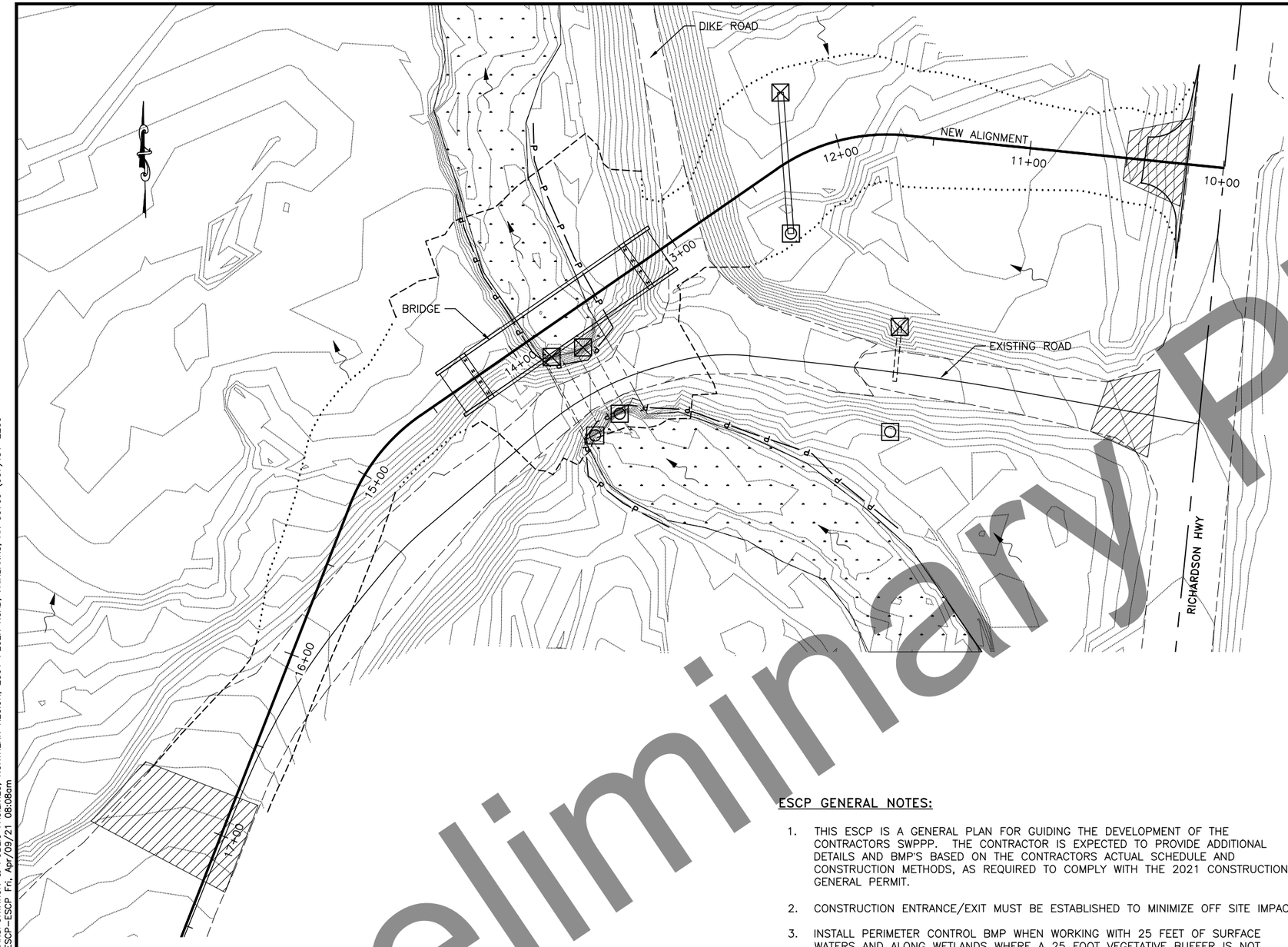
LITTLE TONSINA BRIDGE

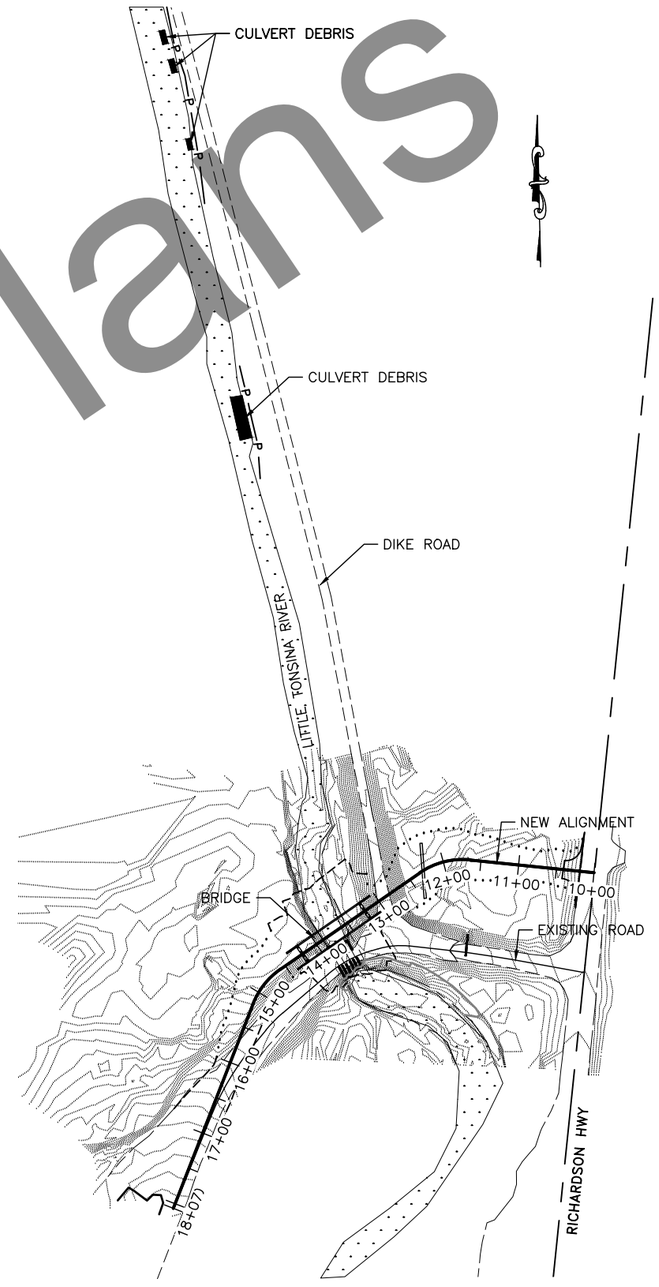
BURMA ROAD

TEST HOLE & PENETROMETER LEGEND

BRIDGE NO. 0568
DWG. NO. 12

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	Q1	Q1





LEGEND

- SURFACE FLOW DIRECTION
- PERIMETER CONTROL (P — P)
- WETLANDS
- INLET & OUTLET CONTROLS
- NEW CULVERT
- EXISTING CULVERT
- FILL SLOPES
- CUT SLOPES
- RIGHT OF WAY/PROJECT BOUNDARY
- CONSTRUCTION ENTRANCE/EXIT

ESCP GENERAL NOTES:

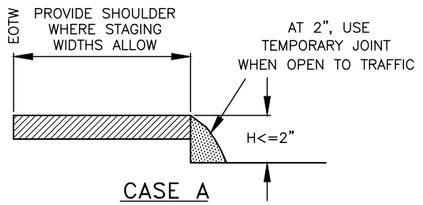
1. THIS ESCP IS A GENERAL PLAN FOR GUIDING THE DEVELOPMENT OF THE CONTRACTORS SWPPP. THE CONTRACTOR IS EXPECTED TO PROVIDE ADDITIONAL DETAILS AND BMP'S BASED ON THE CONTRACTORS ACTUAL SCHEDULE AND CONSTRUCTION METHODS, AS REQUIRED TO COMPLY WITH THE 2021 CONSTRUCTION GENERAL PERMIT.
2. CONSTRUCTION ENTRANCE/EXIT MUST BE ESTABLISHED TO MINIMIZE OFF SITE IMPACTS.
3. INSTALL PERIMETER CONTROL BMP WHEN WORKING WITH 25 FEET OF SURFACE WATERS AND ALONG WETLANDS WHERE A 25 FOOT VEGETATIVE BUFFER IS NOT RETAINED.
4. ALL IN-WATER WORK MUST BE ISOLATED FROM FLOWING WATER
5. AREAS OF DISTURBANCE, TEMPORARY AND PERMANENT STABILIZATION, WILL BE MARKED AS WORK PROCEEDS AND ADDED TO THE LEGEND.
6. REFER TO APPENDIX A OF THE CONTRACT FOR ENVIRONMENTAL PERMIT INFORMATION.
7. THERE ARE NO PUBLIC WATER PROTECTION AREAS THAT INTERSECT WITH THE BOUNDARY
8. IF THE DEPARTMENT PROVIDES AN AREA FOR A SUPPORT ACTIVITY (E.G. AVAILABLE MATERIAL SITE, STAGING AREA, ETC.), PROVIDE A MAP SHOWING ALL REQUIREMENTS LISTED IN SECTION 5.3.5 OF THE CGP.
9. REFER TO APPENDIX C OF THE CONTRACT FOR THE ESCP TEMPLATE.

EROSION SEDIMENT CONTROL PLAN

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
C:\Users\todonovan\Documents\Project\Little Tonsina\C3D\ESCP-ESCP Fri, Apr/09/21 08:08am

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	T1	T1

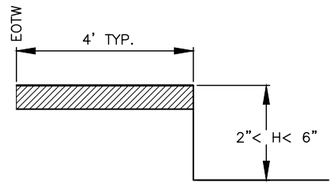
VERTICAL DROP-OFFS



CASE A

DROP-OFFS ≤2 INCHES
(PAVED SURFACES ONLY)

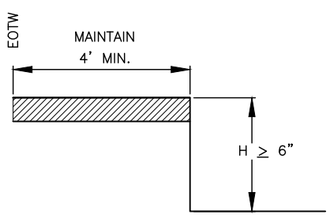
1. USE "UNEVEN LANES" (CW8-11) SIGNS FOR ALL DROP-OFFS IN BETWEEN TRAFFIC LANES.
2. LEAVE NO DROP-OFFS > 1.5" IN THE TRAFFIC LANE OR ACTIVE WHEEL TRACK.



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.



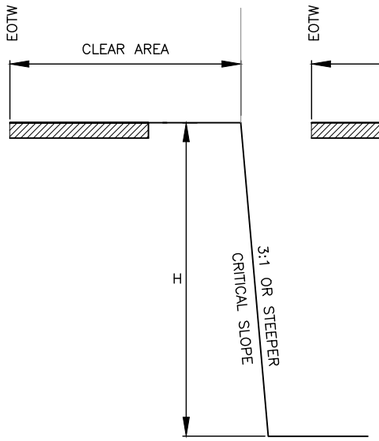
CASE C

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

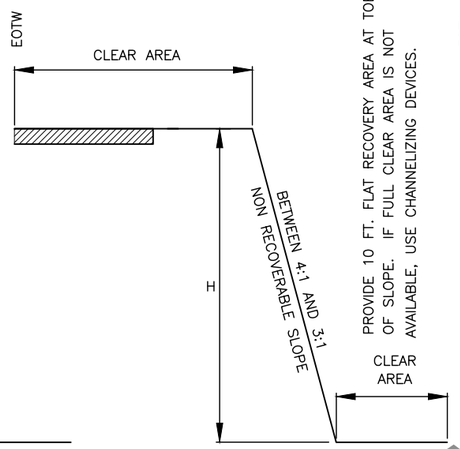
1. PLACE DRUMS OR TYPE II BARRICADES FOR DROP-OFFS ≤ 24" WITHIN THE CLEAR AREA.
2. PROVIDE PORTABLE CONCRETE BARRIER FOR DROP-OFFS >24" WITHIN 15 FEET OF THE EOTW. USE DRUMS OR TYPE II BARRICADES IF BEYOND 15 FEET.

FILL SLOPES

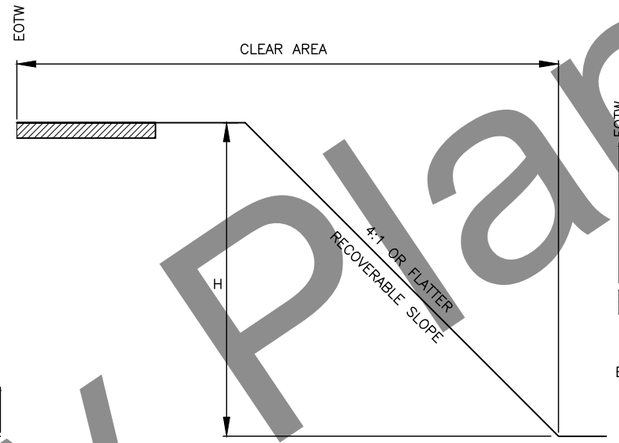
STEEPER THAN OR EQUAL TO 3:1



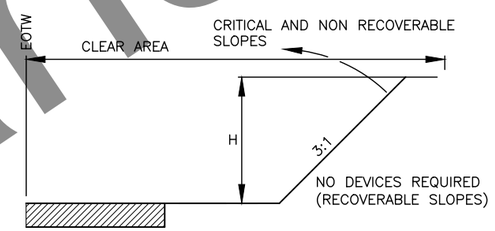
BETWEEN 4:1 AND 3:1



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

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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STATE OF ALASKA 49TH
STAMPY STAMPERTON
8675309
REGISTERED PROFESSIONAL ENGINEER

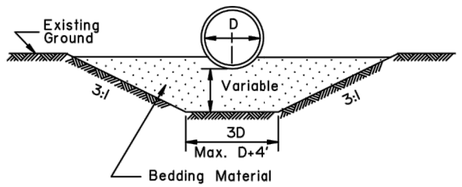
TRAFFIC CONTROL DEVICES

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V1	V13

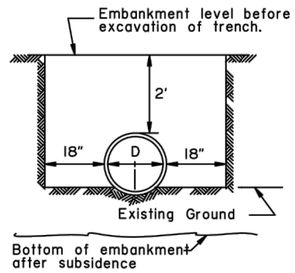
D-01.02

SHEET | of |

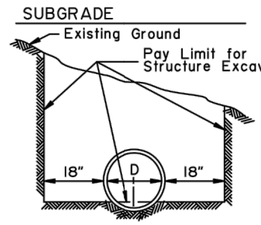


TYPE "A"
FOUNDATION STABILIZATION

To be used in unstable areas as directed by the Engineer.



TYPE "B"



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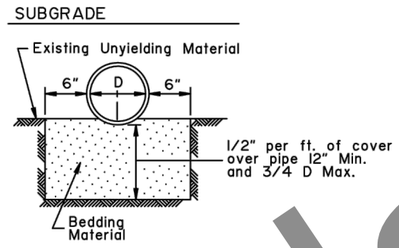
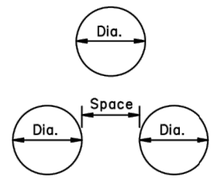


TYPE "D"
ROCK OR UNYIELDING MATERIAL

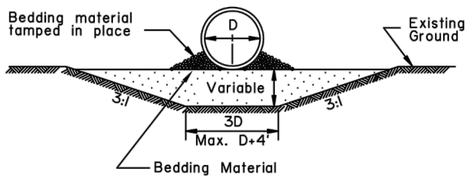
GENERAL NOTES:

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

D = Nominal Pipe Diameter

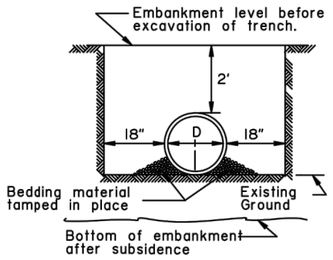


MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Dia. of pipe or 3', whichever is less.



'ALTERNATE'
TYPE "A"
FOUNDATION STABILIZATION

To be used in unstable areas as directed by the Engineer.



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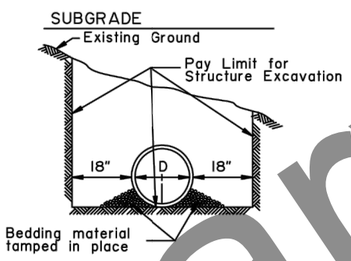

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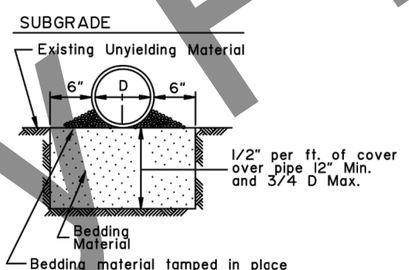
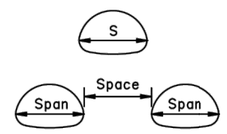


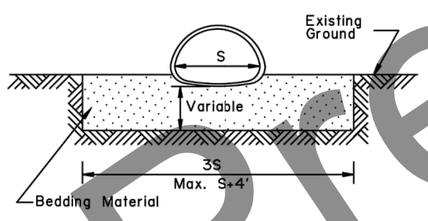
'ALTERNATE' TYPE "D"
ROCK OR UNYIELDING MATERIAL

S = Nominal Pipe Arch Span



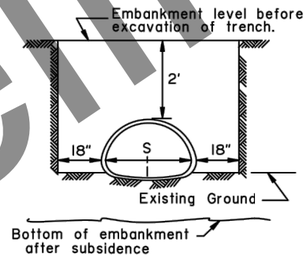
MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Span of pipe arch or 3', whichever is less.

CULVERT PIPE



TYPE "A"
FOUNDATION STABILIZATION

To be used in unstable areas as directed by the Engineer.



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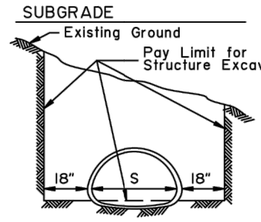

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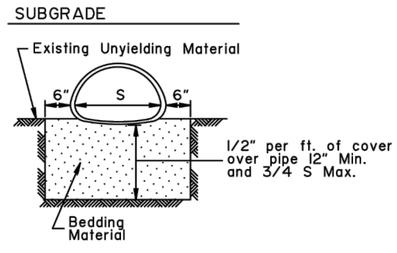

TYPE "D"
ROCK OR UNYIELDING MATERIAL

ARCH

State of Alaska DOT&PF
ALASKA STANDARD PLAN

CULVERT PIPE & ARCH INSTALLATION DETAILS

Adopted as an Alaska Standard Plan by:

Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: Date:

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

D-01.02

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	NSHWY00479	2021	V2	V13

D-04.22

CORRUGATED CIRCULAR ALUMINUM PIPE

CORRUGATED ALUMINUM PIPE-ARCH

Minimum & Maximum Cover for 2 2/3"X 1/2" Aluminum Pipe

Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
12	12	100+	100+	100+	100+	100+
15	12	100	100+	100+	100+	100+
18	12	83	100+	100+	100+	100+
21	12	71	89	100+	100+	100+
24	12	62	78	100+	100+	100+
27	12		69	97	100+	100+
30	12		62	87	100+	100+
36	12		51	73	94	100+
42	12			62	80	100+
48	12			54	70	85
54	15			48	62	76
60	15				52	64
66	18					52
72	18					43

Minimum & Maximum Cover for 3" x 1" Aluminum Pipe

Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
30	12	57	72	100+	100+	100+
36	12	47	60	84	100+	100+
42	12	40	51	72	96	100+
48	12	35	44	62	84	99
54	15	31	39	55	74	88
60	15	28	35	50	67	79
66	18	25	32	45	61	72
72	18	23	29	41	56	66
78	21		27	38	51	61
84	21			35	48	56
90	24			33	44	52
96	24			31	41	49
102	24				39	46
108	24				37	43
114	24					39
120	24					36

Minimum & Maximum Cover for 9" X 2 1/2" Aluminum Structural Plate Pipe*

Thickness		0.125	0.150
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)
84	18	31	
90	18	27	
96	18	27	
102	18	24	
108	18	24	
114	18	21	
120	24	21	
126	24	19	
132	30	19	
138	30	18	
144	30	18	
150	30		22
156	30		22
162	36		20
168	36		20

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

Minimum & Maximum Cover for 2 2/3"X 1/2" Aluminum Pipe-Arch

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

Minimum & Maximum Cover for 3" x 1" Aluminum Pipe-Arch

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

Minimum & Maximum Cover for 9" x 2 1/2" Aluminum Multiplate Pipe-Arch*

Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	2 Tons/Sf Corner Bearing Pressure Max. Cover (Ft)
6-7	5-8	31.75	0.125	24	24
6-11	5-9	31.75	0.125	24	24
7-3	5-11	31.75	0.125	24	18
7-9	6-0	31.75	0.125	24	18
8-5	6-3	31.75	0.125	24	16
9-3	6-5	31.75	0.125	24	15
10-3	6-9	31.75	0.125	30	13
10-9	6-10	31.75	0.125	30	13
11-5	7-1	31.75	0.125	30	13
12-7	7-5	31.75	0.125	30	11
12-11	7-6	31.75	0.125	30	11
13-1	8-2	31.75	0.125	30	11
13-11	8-5	31.75	0.125	36	10
14-8	9-8	31.75	0.125	36	9
15-4	10-0	31.75	0.150	36	8
16-1	10-4	31.75	0.150	36	8
16-9	10-8	31.75	0.150	42	7
17-3	11-0	31.75	0.150	42	7
18-0	11-4	31.75	0.175	42	7
18-8	11-8	31.75	0.175	42	7

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

GENERAL NOTES:

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

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

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

Adoption Date: 7/17/2020

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

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

D-04.22

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	NSHWY00479	2021	V3	V13

D-04.22 SHEET 2 of 4

Minimum & Maximum Cover for 2 2/3" x 1/2" Steel Pipe

Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
12	12	100+	100+	100+	100+	100+
15	12	100+	100+	100+	100+	100+
18	12	100+	100+	100+	100+	100+
21	12	100+	100+	100+	100+	100+
24	12	100+	100+	100+	100+	100+
30	12	83	100+	100+	100+	100+
36	12	69	86	100+	100+	100+
42	12	59	74	100+	100+	100+
48	12	51	64	91	100+	100+
54	12		57	80	100+	100+
60	12			72	93	100+
66	12			66	85	100+
72	12				78	95
78	12					84
84	12					73

Minimum & Maximum Cover fo 3" x 1" Steel Pipe

Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
36	12			100+	100+	100+
42	12			100+	100+	100+
48	12		74	100+	100+	100+
54	12	53	66	93	100+	100+
60	12	47	59	83	100+	100+
66	12	43	54	76	98	100+
72	12	39	49	69	89	100+
78	12	36	45	64	82	100+
84	12	33	42	59	77	94
90	12	31	39	55	71	87
96	12	29	37	52	67	82
102	18	27	34	49	63	77
108	18		32	46	59	73
114	18		31	43	56	69
120	18		29	41	53	65
126	18			39	51	62
132	18			37	48	59
138	18			36	46	57
144	18				44	54

Minimum & Maximum Cover for 5" x 1" Steel Pipe

Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
36	12	71	88	100+	100+	100+
42	12	60	76	100+	100+	100+
48	12	53	66	93	100+	100+
54	12	47	59	82	100+	100+
60	12	42	53	74	96	100+
66	12	38	48	67	87	100+
72	12	35	44	62	79	97
78	12	32	40	57	73	90
84	12	30	37	53	68	83
90	12	28	35	49	63	78
96	12	26	33	46	59	73
102	18	24	31	43	56	69
108	18		29	41	53	65
114	18		27	39	50	61
120	18		26	37	47	58
126	18			35	45	55
132	18			33	43	53
138	18			32	41	50
144	18				39	48

Minimum & Maximum Cover for 6" x 2" Steel Multiplate Pipe*

Gage		12	10	8	7	5	3	1
Thickness		0.111	0.140	0.170	0.188	0.218	0.249	0.280
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
60	12	46	67	87	100	100+	100+	100+
66	12	42	60	79	91	100+	100+	100+
72	12	38	55	73	83	100+	100+	100+
78	12	35	51	67	77	93	100+	100+
84	12	32	47	62	71	86	100+	100+
90	12	30	44	58	67	80	95	100+
96	12	28	41	54	62	75	89	97
102	18	27	39	51	59	71	84	91
108	18	25	37	48	55	67	79	86
114	18	24	35	45	52	63	75	82
120	18	22	33	43	50	60	71	77
126	18	21	31	41	47	57	68	74
132	18	20	30	39	45	54	64	70
138	18	19	28	37	43	52	62	67
144	18	18	27	36	41	50	59	64

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

GENERAL NOTES

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

CORRUGATED CIRCULAR STEEL PIPE

CORRUGATED STEEL PIPE-ARCH

Minimum & Maximum Cover for 2 2/3"X 1/2"Steel Pipe-Arch

			2 Tons/Sf Corner Bearing Pressure		
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	Max. Cover (Ft)
17	13	3 4/8	16 (0.060)	12	11
21	15	4 1/8	16 (0.060)	12	11
24	18	4 7/8	16 (0.060)	12	11
28	20	5 4/8	16 (0.060)	12	11
35	24	6 7/8	16 (0.060)	12	11
42	29	8 2/8	16 (0.060)	12	11
49	33	9 5/8	14 (0.075)	12	11
57	38	11	12 (0.109)	12	11
64	43	12 3/8	12 (0.109)	12	11
71	47	13 6/8	10 (0.138)	12	11
77	52	15 1/8	10 (0.138)	12	11
83	57	16 4/8	8 (0.168)	12	11

Minimum & Maximum Cover for 3"X 1"Steel Pipe-Arch

			2 Tons/Sf Corner Bearing Pressure		
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	Max. Cover (Ft)
53	41	10 2/8	14 (0.079)	12	10
60	46	18 6/8	14 (0.079)	15	29
66	51	20 6/8	14 (0.079)	15	29
73	55	22 7/8	14 (0.079)	18	18
81	59	20 7/8	14 (0.079)	18	15
87	63	22 7/8	14 (0.079)	18	15
95	67	24 3/8	14 (0.079)	18	15
103	71	26 1/8	14 (0.079)	18	14
112	75	27 6/8	14 (0.079)	21	14
117	79	29 4/8	12 (0.109)	21	14
128	83	31 2/8	10 (0.138)	24	14
137	87	33	10 (0.138)	24	14
142	91	34 6/8	10 (0.138)	24	13
150	96	36	10 (0.138)	30	13
157	96	38	10 (0.138)	30	13
164	105	40	10 (0.138)	30	14
171	110	41	10 (0.138)	30	13

Minimum & Maximum Cover for 5"X 1"Steel Pipe-Arch

			2 Tons/Sf Corner Bearing Pressure		
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	Max. Cover (Ft)
53	41	10 2/8	14 (0.079)	12	10
60	46	18 6/8	14 (0.079)	15	29
66	51	20 6/8	14 (0.079)	15	29
73	55	22 7/8	14 (0.079)	18	18
81	59	20 7/8	14 (0.079)	18	15
87	63	22 7/8	14 (0.079)	18	15
95	67	24 3/8	14 (0.079)	18	15
103	71	26 1/8	14 (0.079)	18	14
112	75	27 6/8	14 (0.079)	21	14
117	79	29 4/8	12 (0.109)	21	14
128	83	31 2/8	10 (0.138)	24	14
137	87	33	10 (0.138)	24	14
142	91	34 6/8	10 (0.138)	24	13
150	96	36	10 (0.138)	30	13
157	96	38	10 (0.138)	30	13
164	105	40	10 (0.138)	30	14
171	110	41	10 (0.138)	30	13

Minimum & Maximum Cover for Steel Multiplate Pipe-Arch 6" x 2" *

				2 Tons/Sf Corner Bearing Pressure	
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Gage (In)	Min. Cover (In)	Max. Cover (Ft)
6-1	4-7	18	12 (0.111)	12	14
7-0	5-1	18	12 (0.111)	12	12
7-11	5-7	18	12 (0.111)	12	10
8-10	6-1	18	12 (0.111)	18	9
9-9	6-7	18	12 (0.111)	18	8
10-11	7-1	18	12 (0.111)	18	6
11-10	7-7	18	12 (0.111)	18	5
12-10	8-4	18	12 (0.111)	24	5
13-3	9-4	31	10 (0.140)	24	11
14-2	9-10	31	10 (0.140)	24	10
15-4	10-4	31	10 (0.140)	24	9
16-3	10-10	31	10 (0.140)	30	8
17-2	11-4	31	10 (0.140)	30	8
18-1	11-10	31	10 (0.140)	30	7
19-3	12-4	31	10 (0.140)	30	7
19-11	12-10	31	10 (0.140)	30	6
20-7	13-2	31	10 (0.140)	36	6

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

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

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

Adoption Date: 7/17/2020

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

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

D-04.22

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	NSHWY00479	2021	V4	V13

D-04.22

GENERAL NOTES

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

1. All materials and workmanship shall be in accordance with the State of Alaska Standard Specifications for Highway Construction.

2. For foundation and structural backfill details see Standard Plan D-01 "Culvert Pipe & Arch Installation Details".

3. Pipe cover height is measured from top of the pipe to top of rigid pavement, or to the bottom of subgrade for flexible pavement. In all cases the minimum cover shall be no less than 2 ft. Where loads traverse the culvert during construction minimum cover shall be no less than 4 ft.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

Adopted as an Alaska Standard Plan by: Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

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

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

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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	NSHWY00479	2021	V5	V13

D-04.22

GENERAL NOTES

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

Minimum & Maximum Cover for Aluminum Spiral Rib Circular Pipe*

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

*¾ x ¾ x 7½ in. Corrugations

Minimum & Maximum Cover for Aluminum Spiral Rib Pipe-Arch*

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

*¾ x ¾ x 7½ in. Corrugations

ALUMINUM SPIRAL RIB PIPE

STEEL SPIRAL RIB PIPE

Minimum & Maximum Cover for Steel and Aluminized Steel Spiral Rib Circular Pipe*

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

*¾ x ¾ x 7½ in. Corrugations.

Minimum & Maximum Cover for Steel Spiral Rib Pipe-Arch*

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

*¾ x ¾ x 7½ in. Corrugations

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

Adopted as an Alaska Standard Plan by: Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

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

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

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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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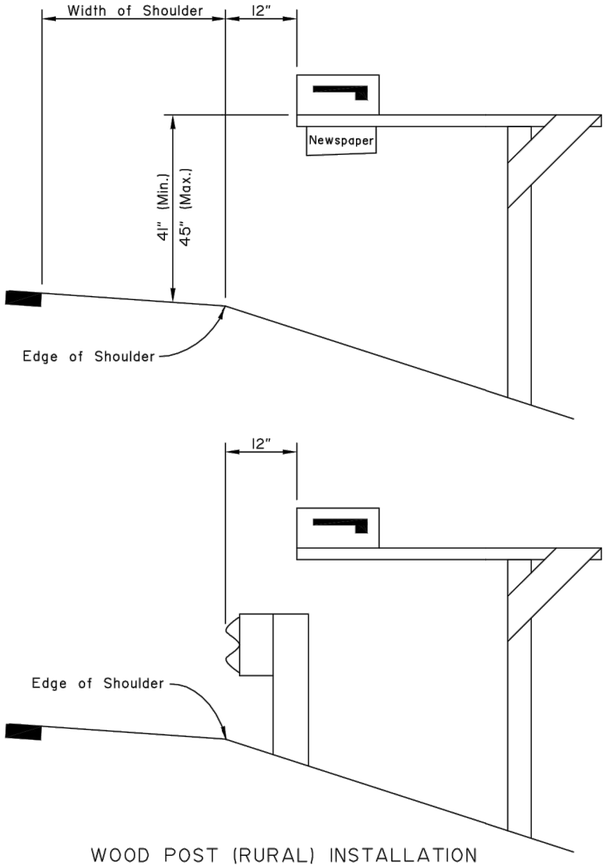
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V6	V13

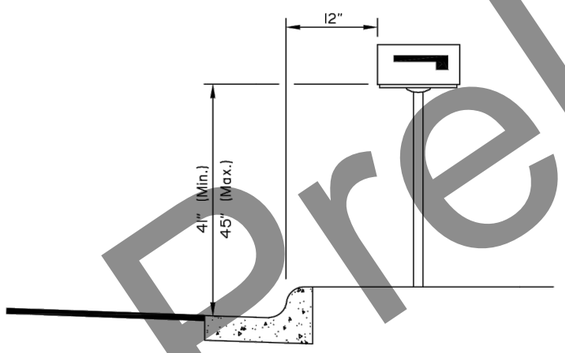
M-20.15

SHEET | of |



WOOD POST (RURAL) INSTALLATION

Single or Double Box



METAL POST (URBAN) INSTALLATION

Single or Double Box

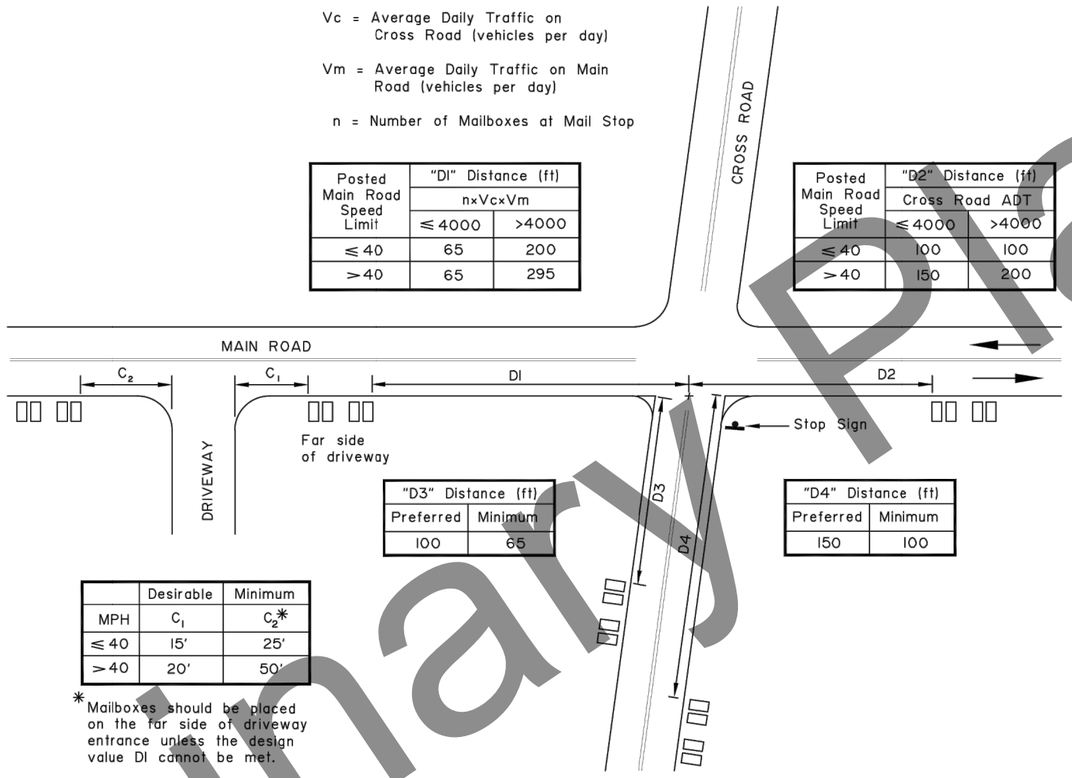
Vc = Average Daily Traffic on Cross Road (vehicles per day)

Vm = Average Daily Traffic on Main Road (vehicles per day)

n = Number of Mailboxes at Mail Stop

Posted Main Road Speed Limit	"D1" Distance (ft) n×Vc×Vm	
	≤ 4000	>4000
≤ 40	65	200
> 40	65	295

Posted Main Road Speed Limit	"D2" Distance (ft) Cross Road ADT	
	≤ 4000	>4000
≤ 40	100	100
> 40	150	200



"D3" Distance (ft)	
Preferred	Minimum
100	65

"D4" Distance (ft)	
Preferred	Minimum
150	100

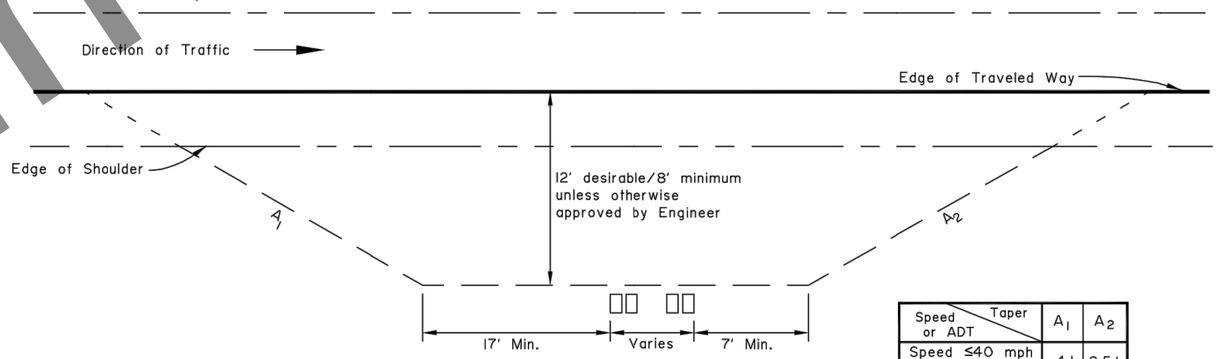
	Desirable	Minimum
MPH	C_1	C_2*
≤ 40	15'	25'
> 40	20'	50'

*Mailboxes should be placed on the far side of driveway entrance unless the design value D1 cannot be met.

MAILBOX LOCATION AT INTERSECTIONS AND DRIVEWAYS

GENERAL NOTES:

1. Install mailboxes conforming to U.S. Postal Service requirements.
2. Mailbox supports shall not present a rigid, unyielding impact resistant hazard to road traffic, but shall be flexible and yielding to vehicular impact. Install crashworthy supports in accordance with Standard Plan M-23.
3. Installation shall be on the right side of roadway in the direction of mail carrier travel with the exception of one-way streets where they may be placed on either side.
4. Locate mailboxes to minimize dangers to road traffic, carriers and postal recipients.
5. Provide a minimum shoulder width of 8' unless otherwise approved by Engineer. Install single and double mailbox supports separated by at least 3', and desirably 4', from each other. More than two boxes on a single support is allowable only as shown on Standard Plan M-23.
6. Newspaper receptacles shall conform to the same setback and support regulations as mailboxes. Where newspaper receptacles and mailboxes are to be mounted together, the newspaper receptacle may be mounted beneath the mailbox or on the side of the mailbox support opposite the reflecting marker.



TURNOUTS FOR GROUPED BOXES

Speed or ADT \ Taper	A_1	A_2
Speed ≤40 mph and ADT ≤400	4:1	2.5:1
Speed >40 mph or ADT >400	20:1	12:1

TURNOUT TAPERS

State of Alaska DOT&PF
ALASKA STANDARD PLAN

MAILBOX LOCATION

Adopted as an Alaska Standard Plan by: Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

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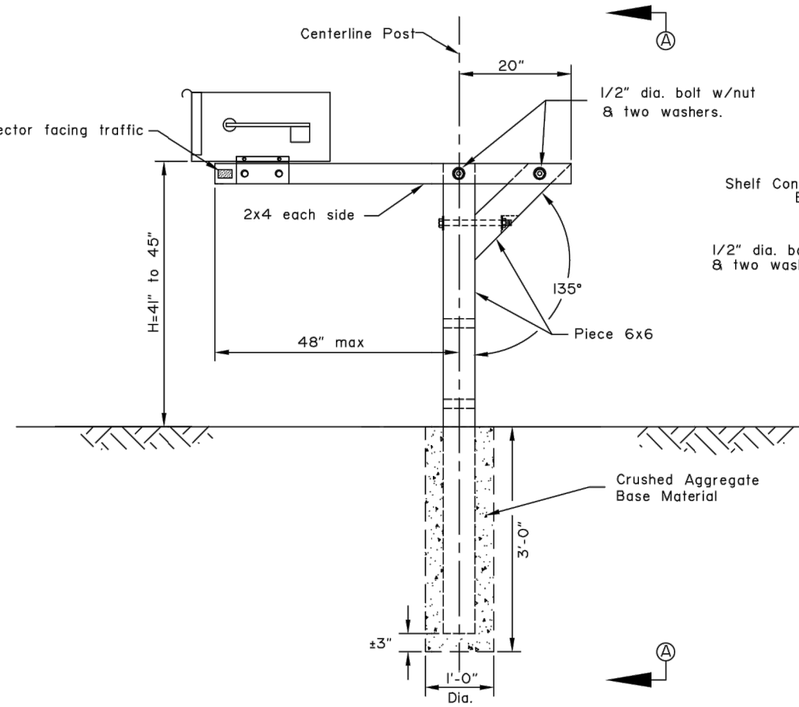
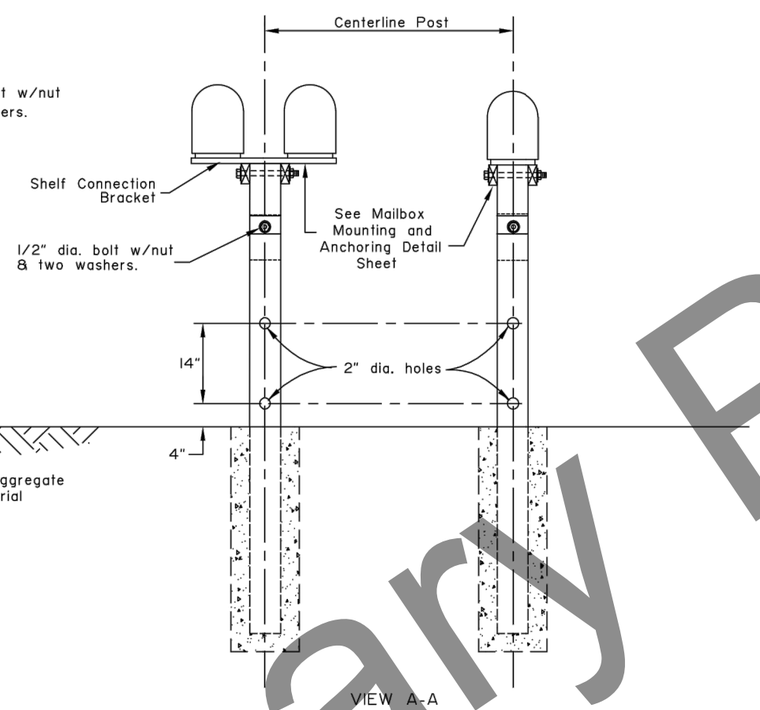
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V7	V13

M-23.13

SHEET 1 of 2



TYPICAL WOOD CANTILEVER INSTALLATION



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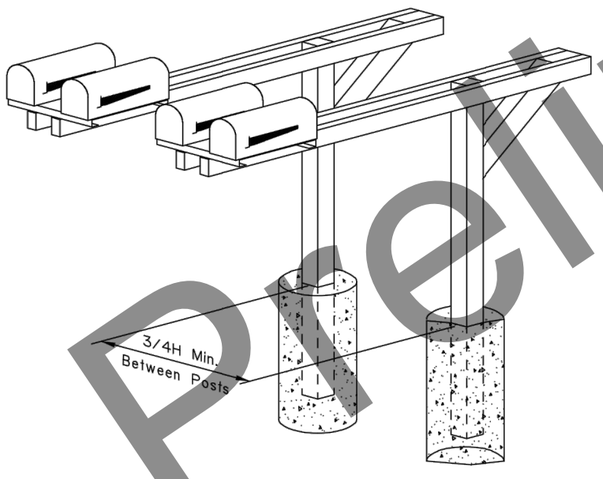
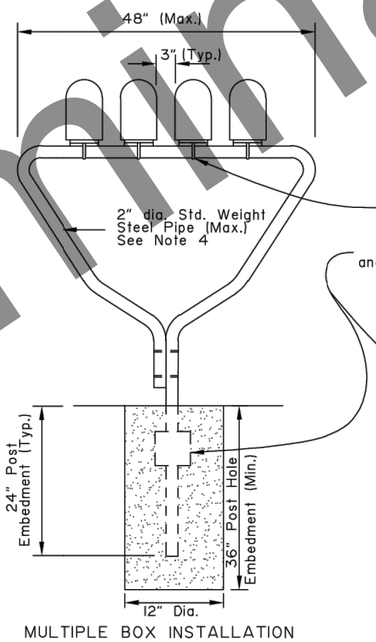
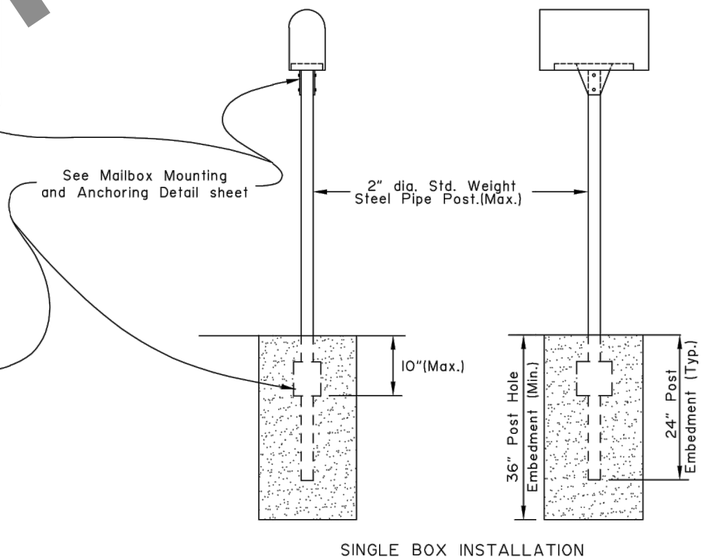


TYPICAL GANG BOX INSTALLATION



MULTIPLE BOX INSTALLATION
(U.S.P.S. Approved)



SINGLE BOX INSTALLATION

METAL POST SUPPORTS (URBAN ONLY)

GENERAL NOTES:

1. See Standard Plan M-20 for locating posts and boxes along roadway.
2. Posts shall be 6"x6" Treated Wood Post S4S or 2" (Max.) Standard Weight Steel Pipe.
3. Each support structure shall not accomodate more than two mailboxes unless the support structure conforms to the requirements of the U.S. Postal Service and is approved by the Engineer.
4. Other steel or aluminum structural sections may be used except, the stiffness properties equivalent to the 2" dia. standard weight steel pipe shall not be exceeded.
5. Reflectors shall have a minimum area of 4.5 sq. in.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

MAILBOX INSTALLATION

Adopted as an Alaska Standard Plan by: Carolyn Morehouse

Carolyn Morehouse, P.E.
Chief Engineer

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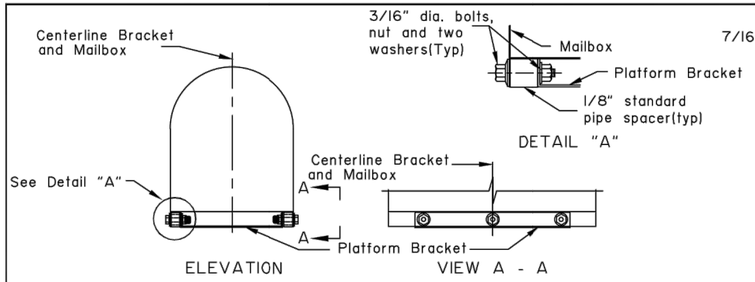
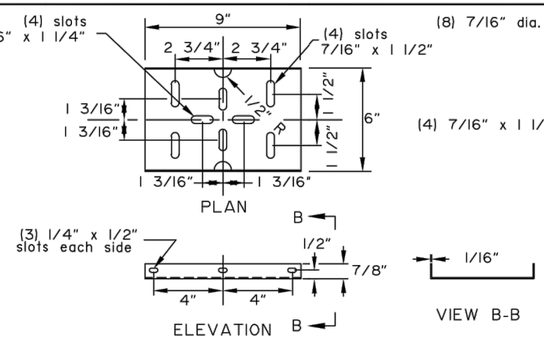
ALASKA	NSHWY00479	2021	V8	V13

M-23.13

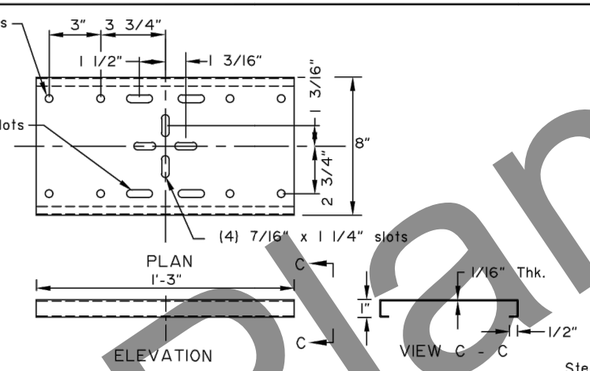
SHEET 2 of 2



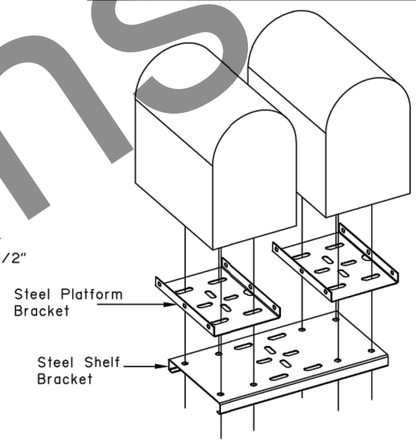
MAILBOX SUPPORT PLATFORM ASSEMBLY



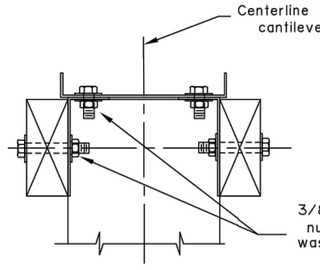
STEEL PLATFORM BRACKET



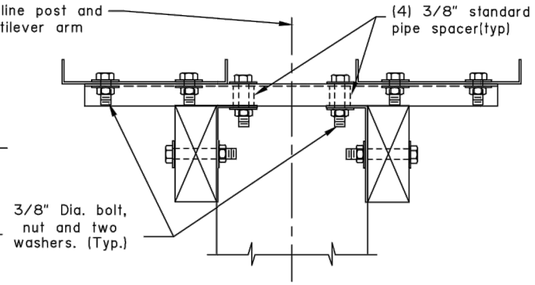
STEEL SHELF BRACKET



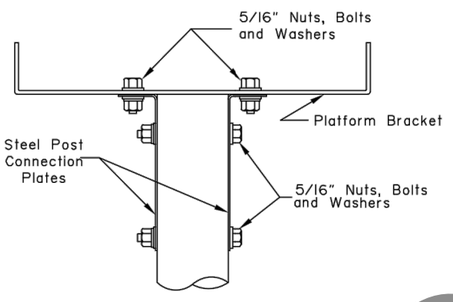
MAILBOX CONNECTION DETAIL



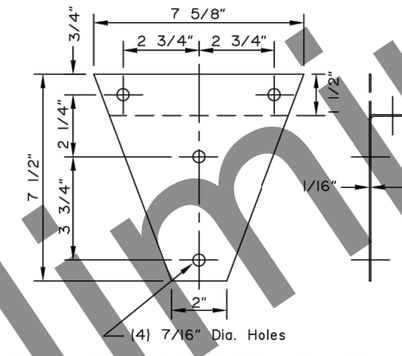
WOOD CANTILEVER ARM PLATFORM CONNECTION



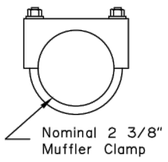
WOOD CANTILEVER ARM SHELF CONNECTION



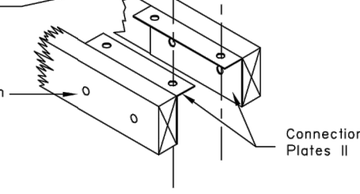
BRACKET ASSEMBLY DETAIL



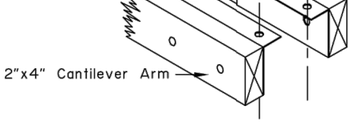
STEEL POST CONNECTION PLATES for STEEL PIPE POST



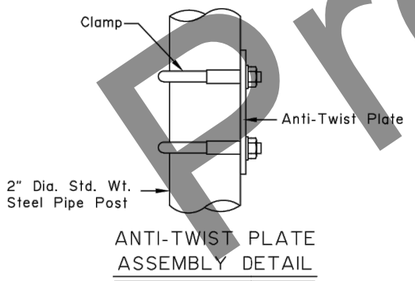
CLAMP



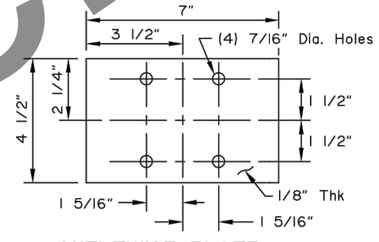
SHELF BRACKET CONNECTION DETAIL



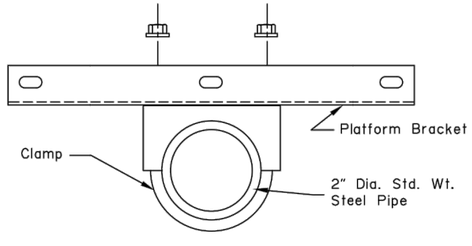
PLATFORM BRACKET CONNECTION DETAIL



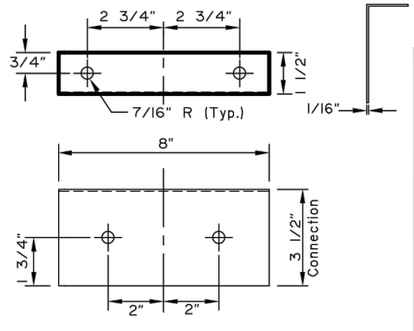
ANTI-TWIST PLATE ASSEMBLY DETAIL



ANTI-TWIST PLATE for STEEL PIPE POST



MULTIPLE BOX CLAMP ASSEMBLY DETAIL



CONNECTION PLATES for WOOD CANTILEVER ARM

State of Alaska DOT&PF
ALASKA STANDARD PLAN

MAILBOX MOUNTING AND ANCHORING DETAILS

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

Adoption Date: 7/17/2020

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

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

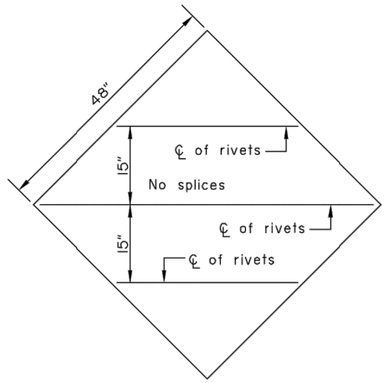
M-23.13

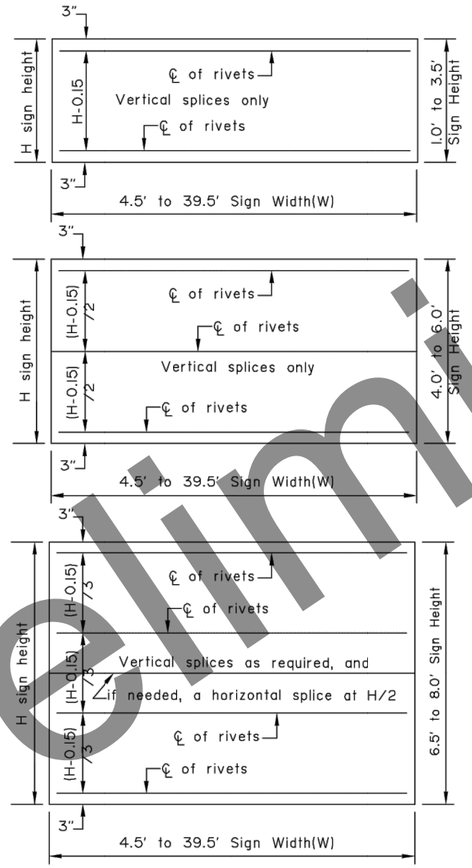
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
C:\Users\tdonovan\Documents\Project\Little Tonsina\C3D\StandardPlans-M-23.13-2 Fri, Apr/09/21 10:04am

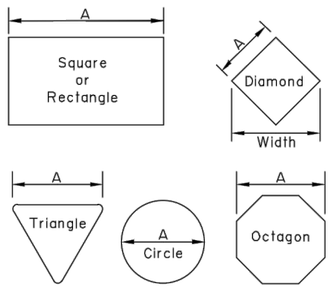
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V9	V13

S-00.12 SHEET | of |





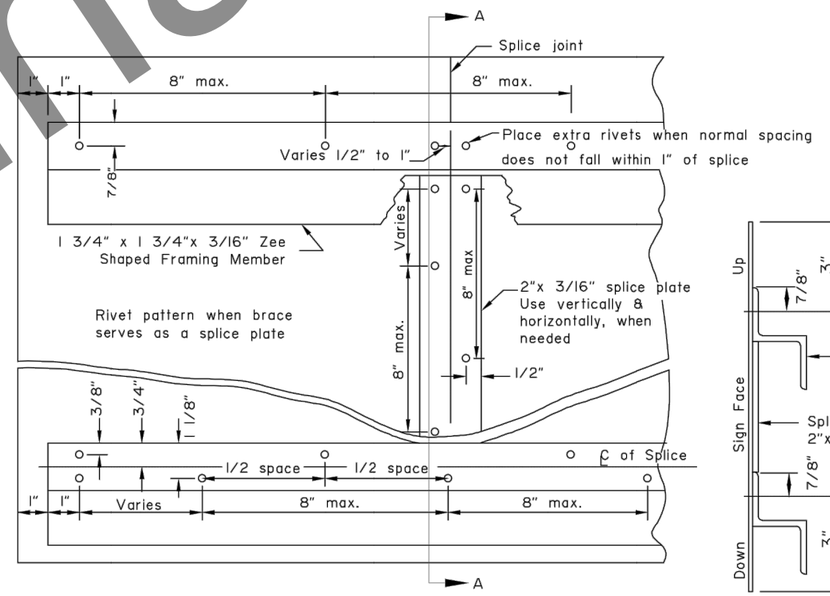


Maximum size unframed signs using 0.125" thick aluminum sheeting.	
Sign Shape	A
Squares, Shields, and Route Markers	48"
Rectangles	48"
Diamonds	48"
Triangles	48"
Rounds and Octagons	48"

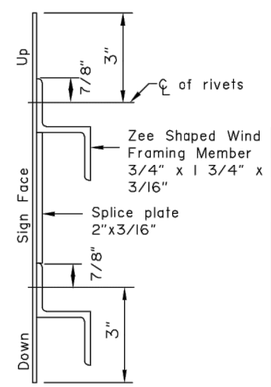
Install wind framing on all signs that exceed the dimensions listed.

LIGHT SIGNS

WIND FRAMING LOCATIONS



RIVET DETAIL FOR ZEE SHAPED WIND FRAMING & SPLICE PLATE



SECTION A-A

Note: Drawing not to scale

GENERAL NOTES

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

State of Alaska DOT&PF
ALASKA STANDARD PLAN

SIGN FRAMING

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

Adoption Date: 7/17/2020

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

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

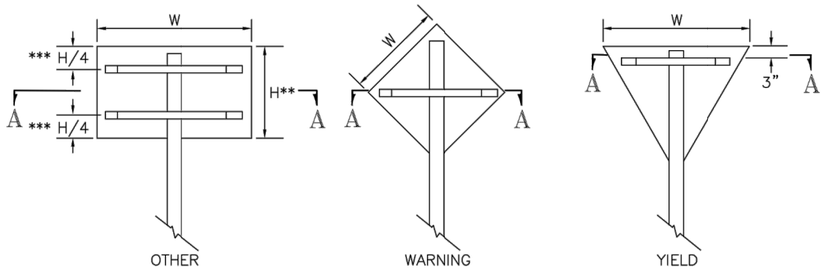
S-00.12

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
C:\Users\tedonovan\Documents\Project\Little Tonsina\C3D\StandardPlans-S-00.12 Fri, Apr/09/21 10:04am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V10	V13

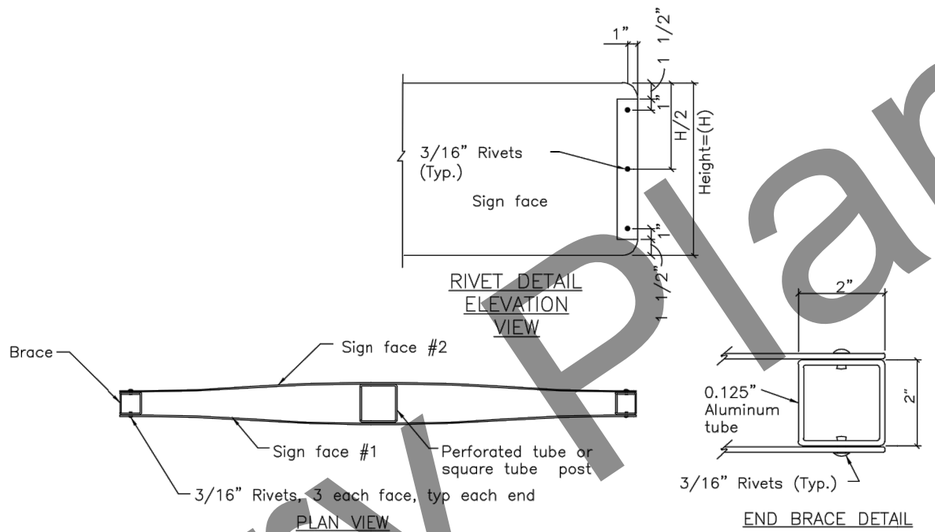
S-01.02 SHEET | of |



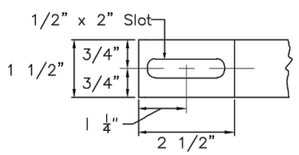
*** Use one brace when H ≤ 18"
Use two braces when 18"< H < 48"
Use three braces when H ≥ 48"

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

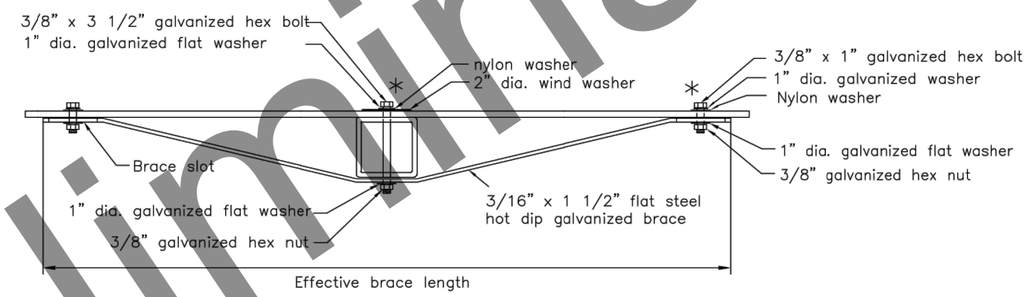
SIGN BRACING PLACEMENT



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

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

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

< 30" No bracing required and use square tube

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

BRACING FOR SIGNS MOUNTED ON SINGLE POST

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

Adoption Date: 7/17/2020

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

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

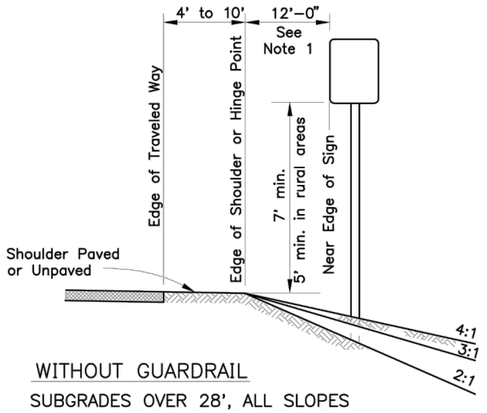
S-01.02

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
C:\Users\tadonovan\Documents\Project\Little Tonsina\C3D\StandardPlans-S-01.02 Fri, Apr/09/21 10:04am

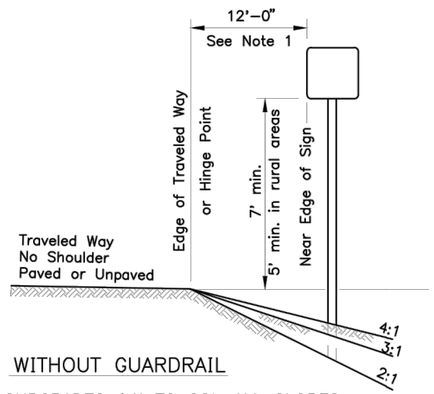
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V11	V13

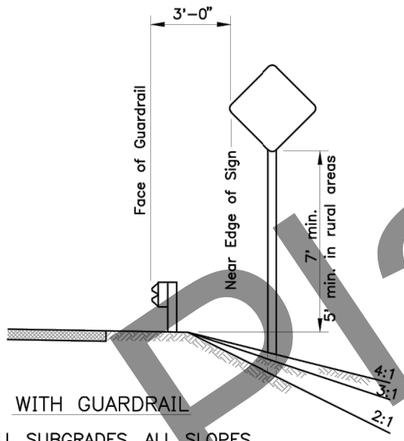
S-05.02 SHEET 1 of 1



WITHOUT GUARDRAIL
SUBGRADES OVER 28', ALL SLOPES



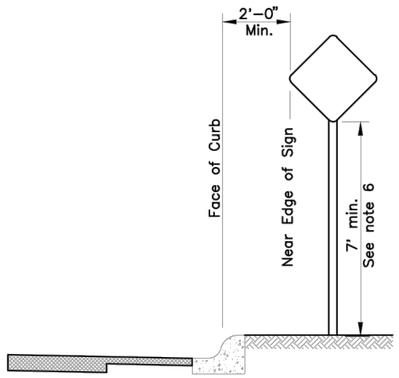
WITHOUT GUARDRAIL
SUBGRADES 24' TO 28', ALL SLOPES



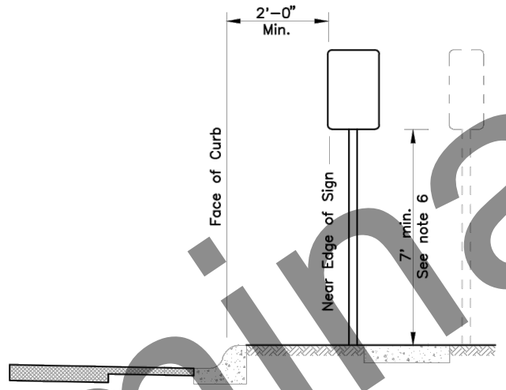
WITH GUARDRAIL
ALL SUBGRADES, ALL SLOPES

GENERAL NOTES

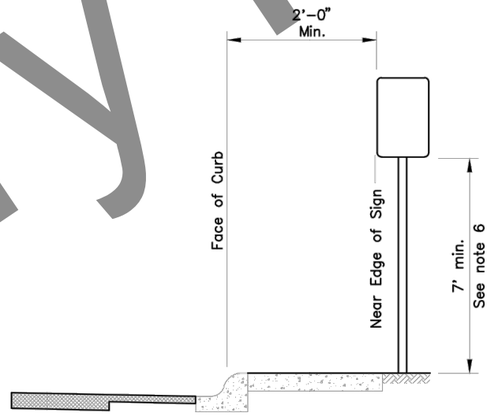
1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6' where shoulder width is 6' or greater.
2. Add 6" to mounting height on unpaved roads.
3. If signs extend over bike paths, the minimum vertical clearance is 8' 0".
4. When signs are placed 30' or more from the edge 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.



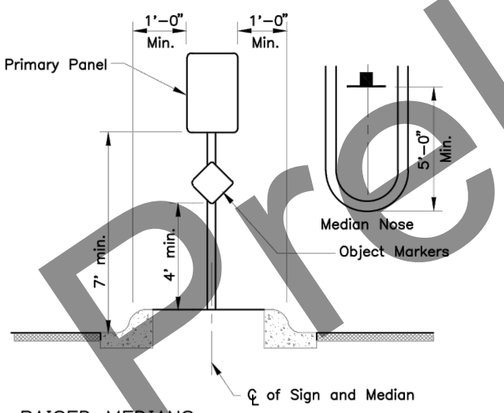
CURB WITHOUT SIDEWALK



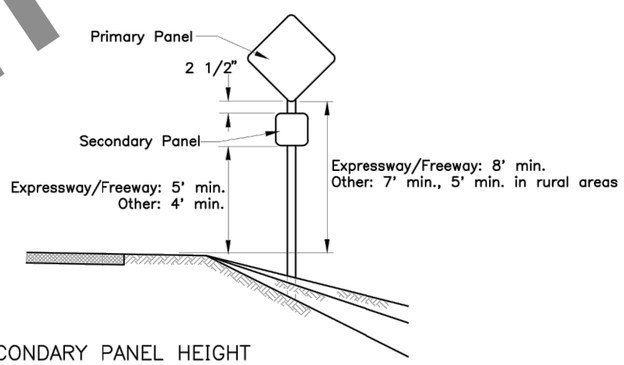
CURB WITH PARKWAY AND SIDEWALK
(If R/W width permits, signs should be placed behind sidewalk.)



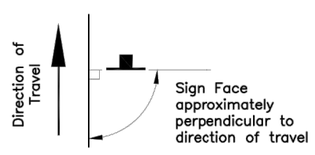
CURB WITH SIDEWALK WITHOUT PARKWAY



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

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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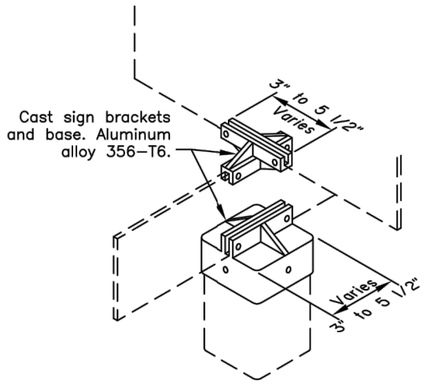
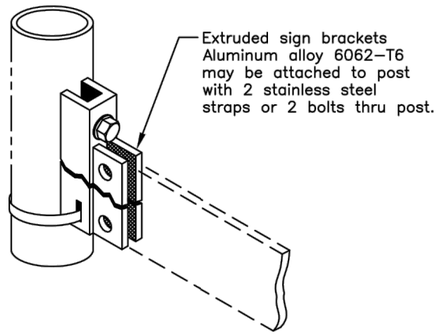
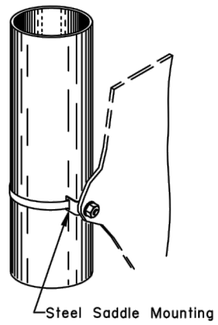
NO.	DATE	REVISION

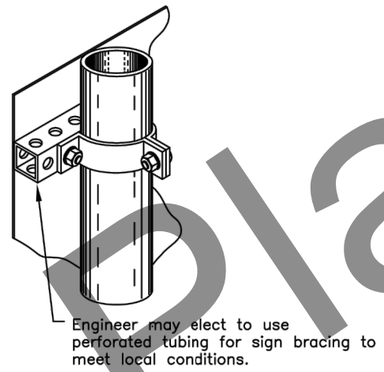
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V12	V13

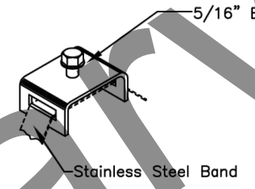
S-20.10 SHEET | of |

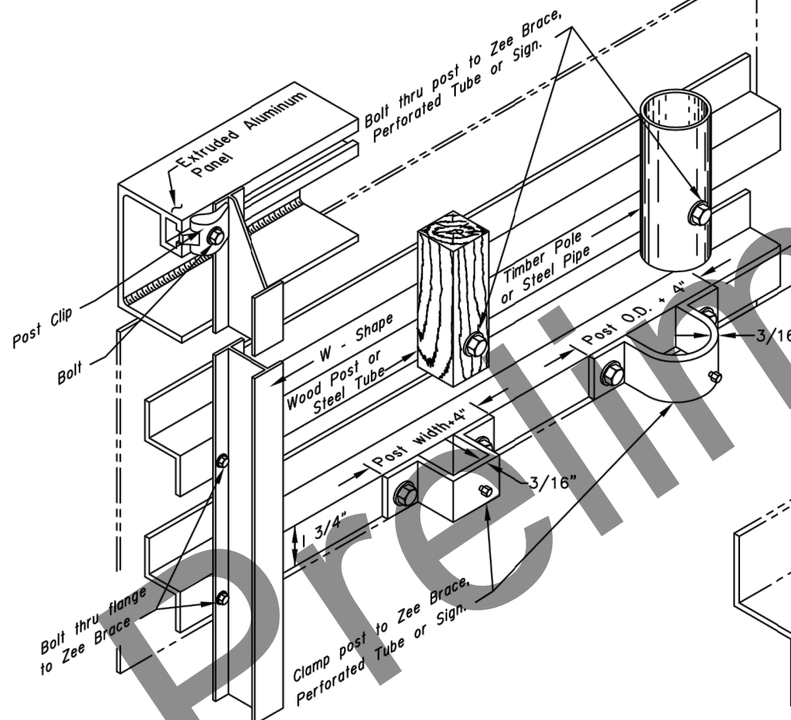


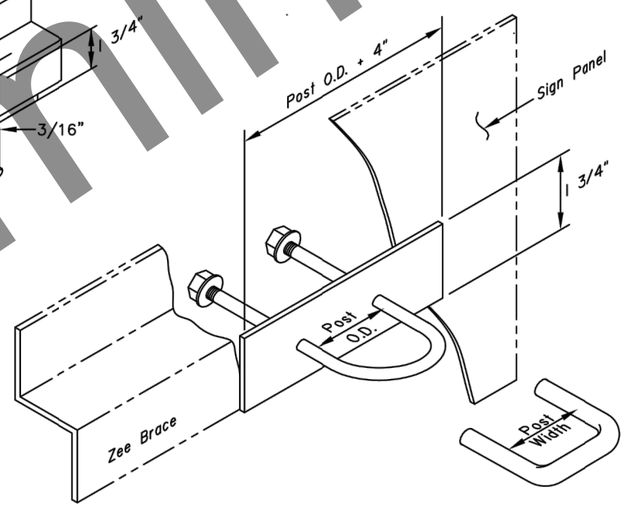


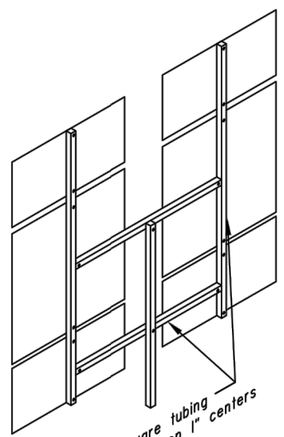












GENERAL NOTES

1. Details shown indicate general design only. Dimensions and design may vary among the manufacturers.
2. Install weather tight caps on all pipe and tube post (except perforated tubing).
3. Protect sign posts installed using driving methods with drive caps during installation.
4. Bolt braces to posts at each point where they cross posts.
5. Install signs with top of post, mounting brackets, etc. with a minimum of 3" below top of sign.
6. Paint all sign mounting fasteners on sign face a color closely matching the sign face.
7. Attach all signs, zees and braces mounted to the posts with 5/16" bolts.
8. Furnish all aluminum nuts, bolts and washers with anodized finish.

FASTENER SPECIFICATION TABLE				
FASTENERS		ALUMINUM	STEEL	STAINLESS STEEL
BOLTS	MACHINE CARRIAGE "U"	2024–T4	A–307	A–276
NUTS	REGULAR	6061–T6	A–307	A–276
	LOCK	2017–T4		
WASHERS		2024–T4	A–36	A–276
POST CLIP		356–T6		

State of Alaska DOT&PF
ALASKA STANDARD PLAN

SIGN TO SIGN POST CONNECTION

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

S-20.10

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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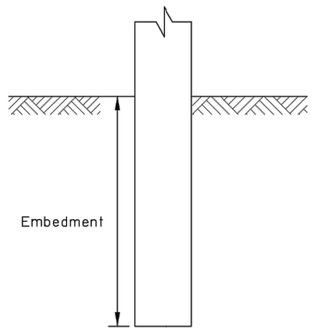
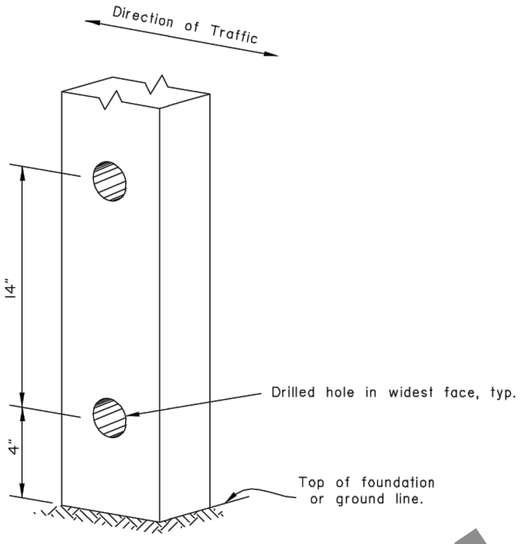
NO.	DATE	REVISION

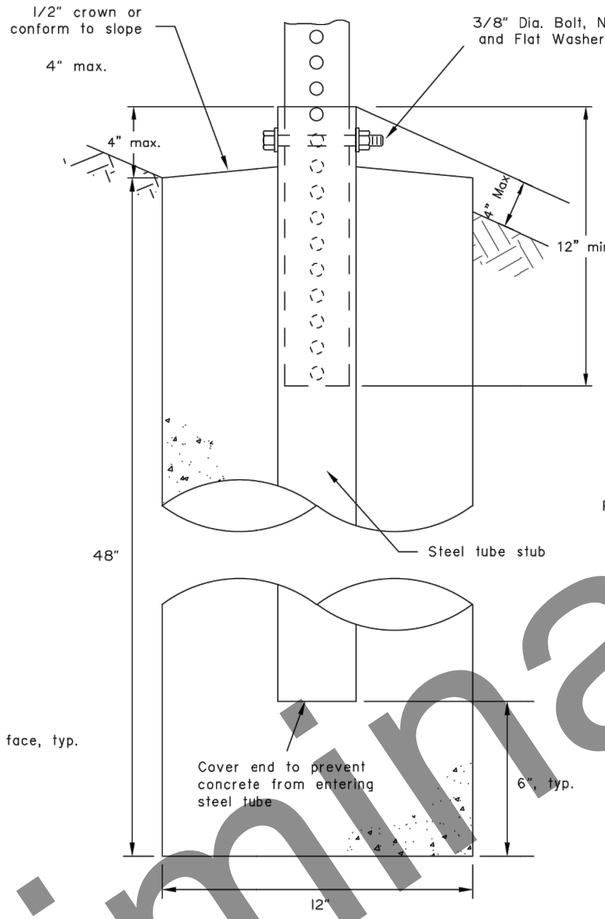
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	NSHWY00479	2021	V13	V13

S-30.05

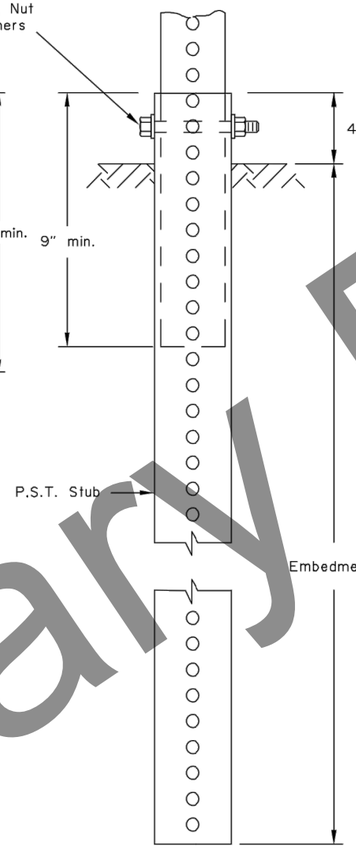
SHEET 1 of 1







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

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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

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