

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT KETCHIKAN, ALASKA AIRPORT CREEK BRIDGE (USFS) PROJECT NO. Z682260000~06RO-1100100-129

NO.	DATE	REVISIONS	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL 'A' SHEETS
			ALASKA	Z682260000	2017	A1	4
						PLAN SET TOTAL	X

CDS ROUTE: - 291606 MILEPOINT: N/A
 LATITUDE: 55° 21' 22" LONGITUDE: 131° 43' 46"



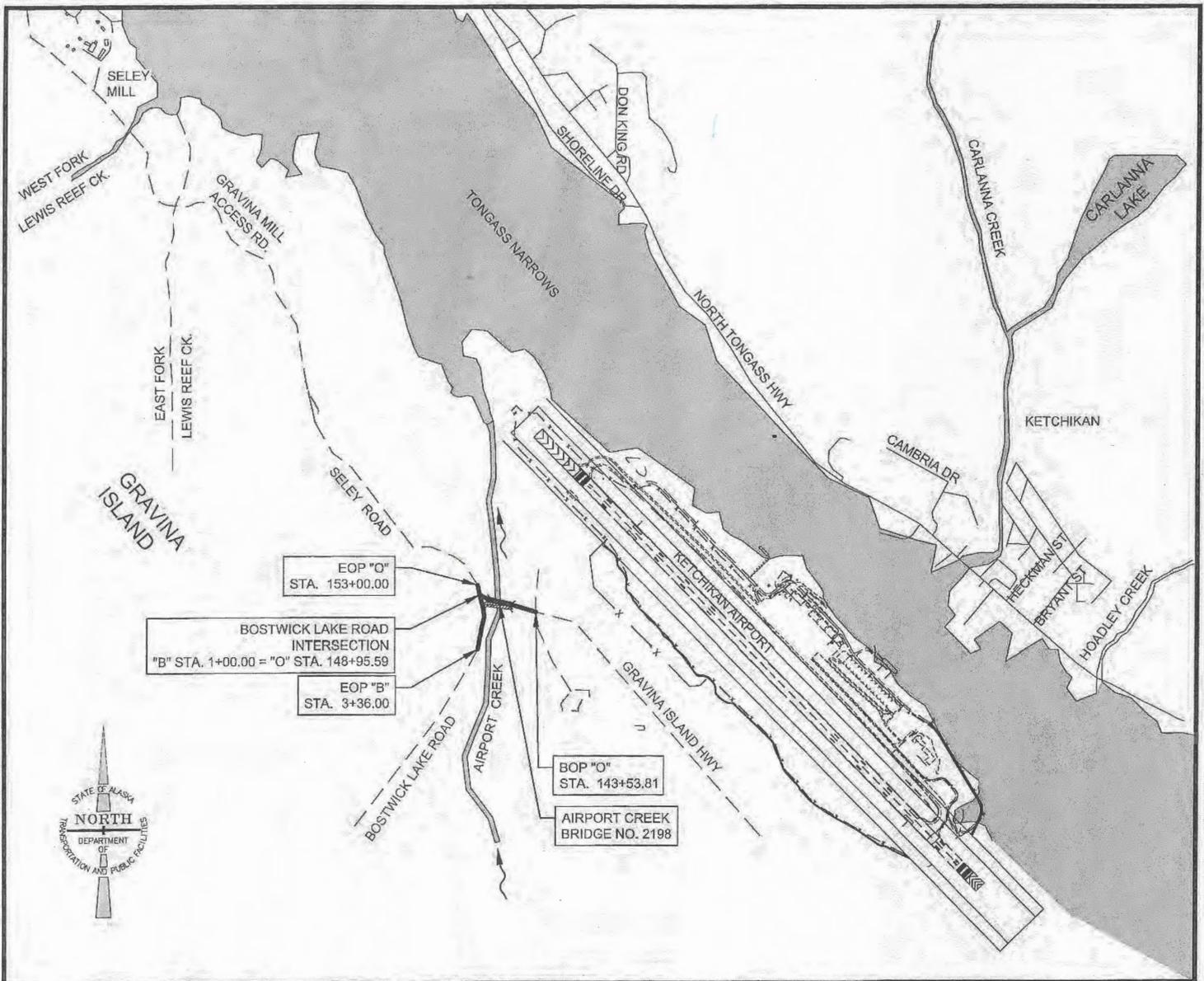
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 3/9/18

September 13, 2018

The undersigned hereby certifies that this duplicated document is an exact and true copy of the original.
Kami Bartness

PROJECT SUMMARY	
LEWIS REEF ROAD	
LENGTH OF PROJECT	0.18 MILES
WIDTH OF ROAD	36 FT
LENGTH OF BRIDGE	100 FT
BOSTWICK LAKE ROAD	
LENGTH OF PROJECT	0.04 MILES
WIDTH OF ROAD	VARIES 24-14 FT

DESIGN DESIGNATIONS	
PROJECT TYPE	LEWIS REEF ROAD/ AIRPORT CREEK BRIDGE REPLACEMENT
DESIGN YEAR (2093)	NEW CONSTRUCTION/RECONSTRUCTION
PRESENT A.D.T. (2018)	75 YEAR BRIDGE DESIGN LIFE
DESIGN YEAR A.D.T. (2093)	60
PERCENT COMMERCIAL TRUCKS	73
DIRECTIONAL DISTRIBUTION	14.6%
DESIGN SPEED	55/45
PAVEMENT DESIGN YEAR	40 M.P.H.
DESIGN VEHICLE	2037
FUNCTIONAL CLASSIFICATION	WB-50
	LOW-VOLUME LOCAL ROAD



PRINTED: 3/9/2018

USE THESE PLANS IN CONJUNCTION WITH THE STATE OF ALASKA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2017 EDITION AND THE PROJECT SPECIAL PROVISIONS.

STATE OF ALASKA
 DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
 6860 GLACIER HIGHWAY, JUNEAU, AK 99811
 (907) 465-1763

APPROVED: *[Signature]* 4-9-18
 REGIONAL PRECONSTRUCTION ENGINEER DATE
 PAT. CARROLL, P.E.

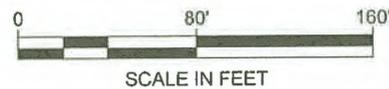
CONCUR: *[Signature]* 13 Jun 2018
 DIRECTOR, SOUTHCOAST REGION: DATE
 D. LANCE MEARIG, P.E.

FILE: \\DOTSERFS01\Projects\Ktn\68226\PlanSet\68226_A1_TshL.dwg DATE: 3/9/2018 13:52 LAYOUT: A1 CHECKED: DP DESIGNED: LS DRAFTED: RG

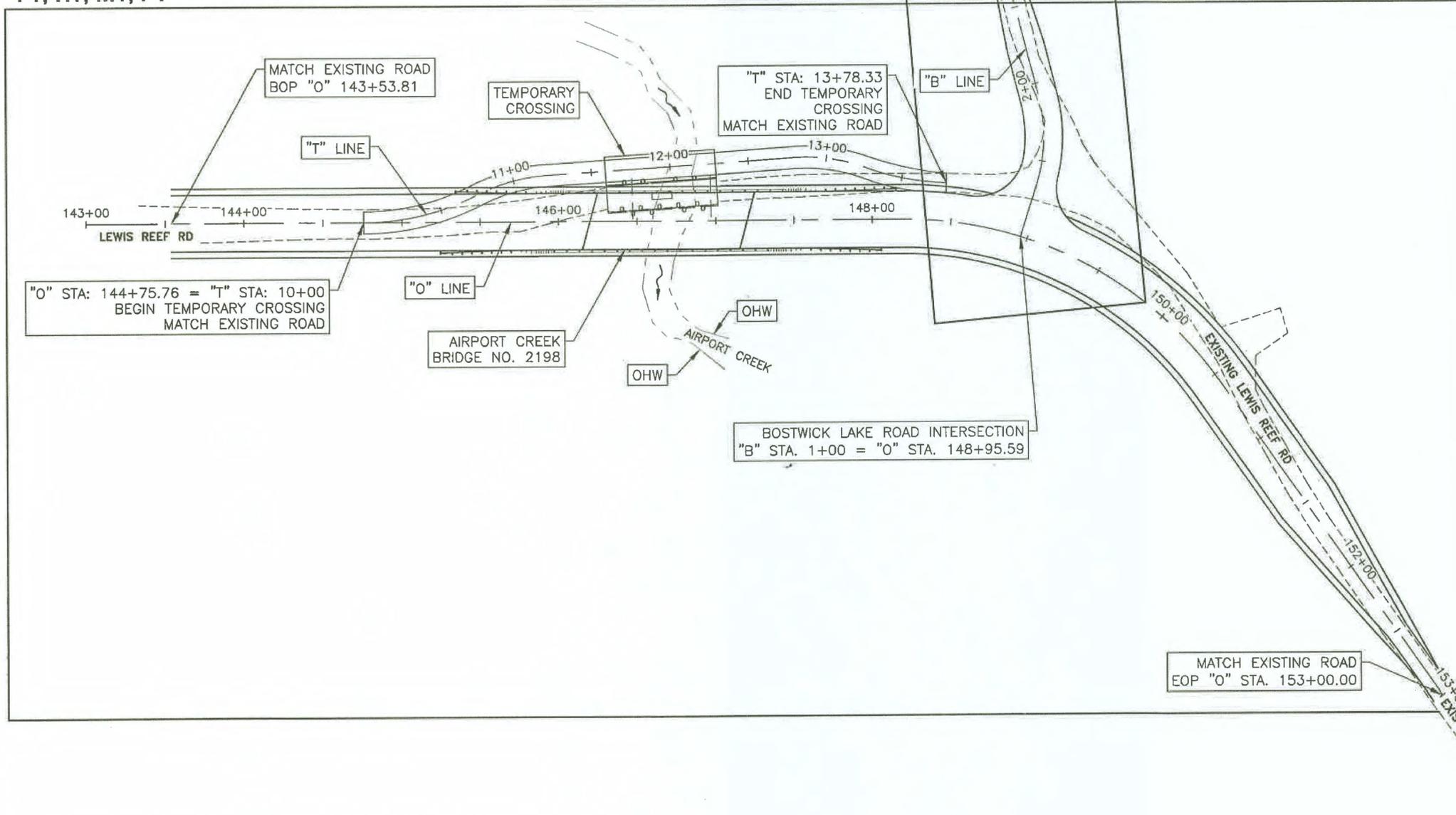
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
1	7/30/18	DELETED S-31.01 & ADDED S-32.04 AND STANDARD DRAWINGS	ALASKA	Z682260000	2018	A2	4

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 3/11/20

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A1	TITLE SHEET
A2	LAYOUT & INDEX OF SHEET
A3	LEGEND & SYMBOLS
A4	SURVEY CONTROL SHEET
B1	TYPICAL SECTIONS
C1	ESTIMATE OF QUANTITIES
D1	SUMMARIES
E1	CULVERT PLAN & SECTION
E2	GUARDRAIL PLAN
E3	GUARDRAIL DETAILS
F1	LEWIS REEF ROAD PLAN & PROFILE
F2	BOSTWICK LAKE ROAD PLAN & PROFILE
H1	SIGNING PLAN
M1	TEMPORARY CROSSING PLAN & PROFILE
N1-N12	BRIDGE PLANS
P1	EROSION & SEDIMENT CONTROL PLAN
P2	EROSION & SEDIMENT CONTROL DETAILS
T1	TRAFFIC CONTROL PLAN



F1, H1, M1, P1



THE FOLLOWING STANDARD DRAWINGS APPLY TO THIS PROJECT:

- | | | |
|---------|----------|--------------------------------|
| D-01.02 | G-00.03 | S-00.11 |
| D-04.21 | G-00.04 | S-01.01 |
| | G-05.00S | S-05.01 |
| | G-11.00 | S-20.18 |
| | G-30.01 | S-30.04 |
| | G-31.01 | USE CONCRETE FOUNDATION OPTION |



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 KTN - AIRPORT CREEK BRIDGE (USFS)

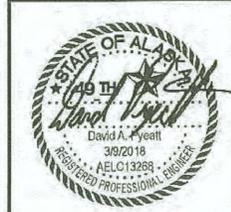
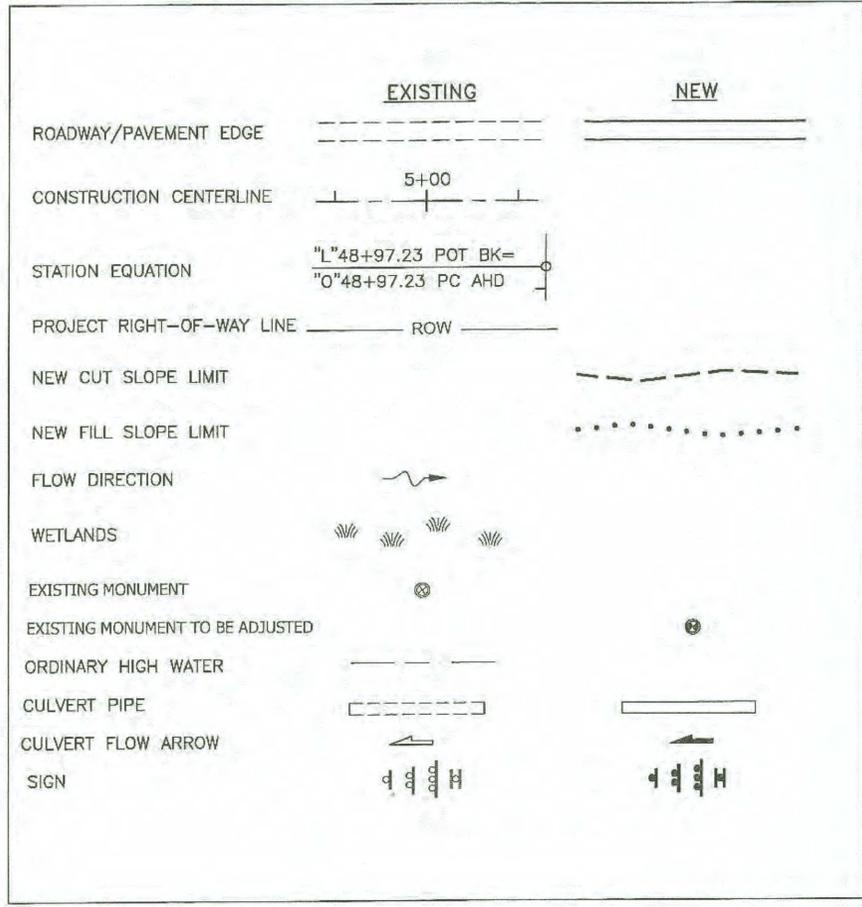
LAYOUT SHEET

FILE: \\DOTSERV\DOT\Projects\Ktn\68226\Phases\A2\Layout.dwg DATE: 7/30/2018 14:59 LAYOUT: A2 DESIGNED: LS CHECKED: DP DRAFTED: RC

FILE \\DOTSERV\FSC\Projects\Ktn\68226\Plmset\68226_A3_Layout.dwg DATE 3/9/2018 14:22 LAYOUT A3 DESIGNED LS CHECKED DP DRAFTED RG

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	A3	4

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 2/10/20



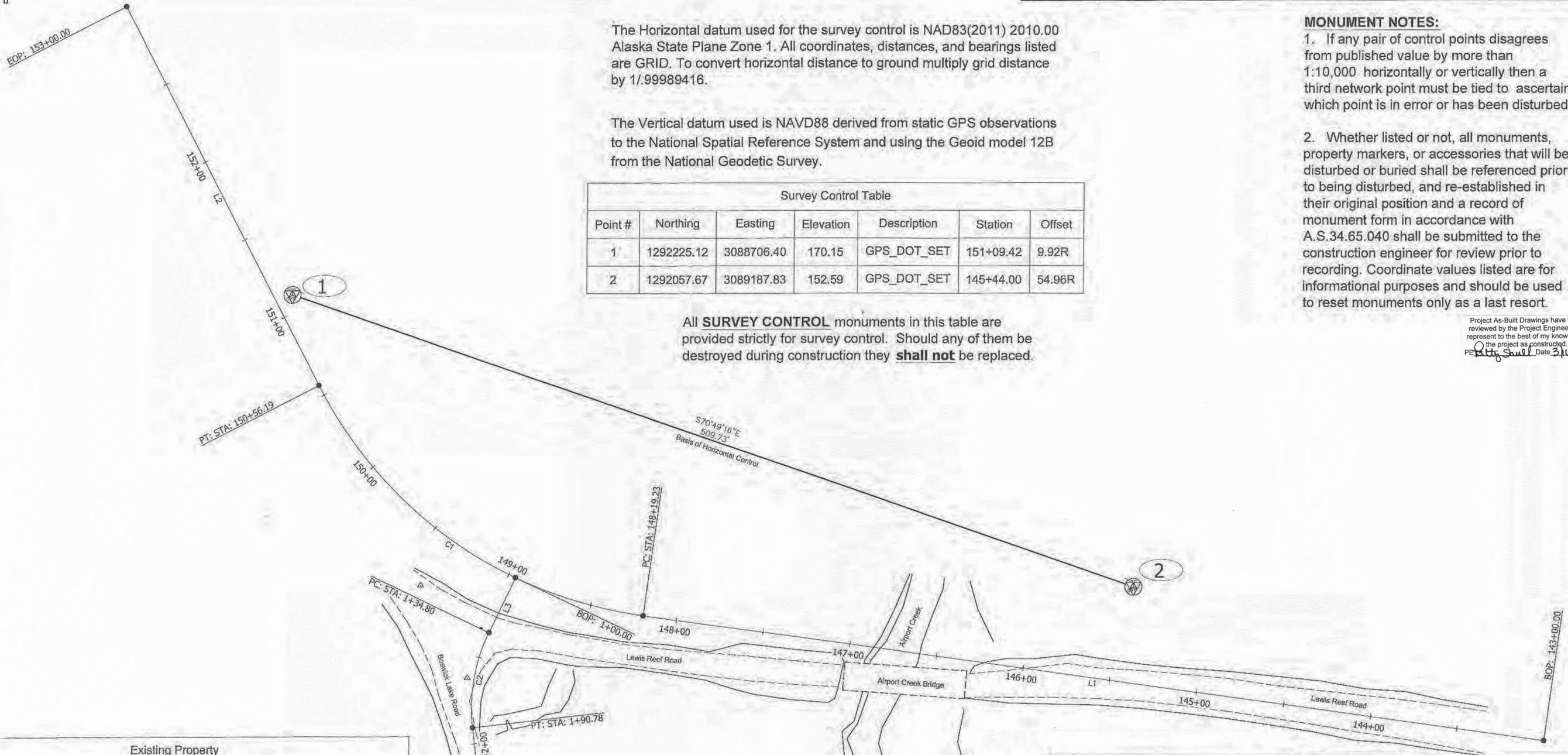
STATE OF ALASKA DEPARTMENT OF
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 AND PUBLIC FACILITIES
 6860 GLACIER HIGHWAY, JUNEAU, AK 99811
 (907) 465-1763
**KTN - AIRPORT CREEK
 BRIDGE (USFS)**

LEGEND / SYMBOLS

DESIGNED: J.PAPOI
 CHECKED: D.IGNATOV
 DRAFTED: J.PAPOI
 XREFS
 SCALE
 LAYOUT: A2
 DATE TIME: 8/29/2017 15:59
 DRAWING LOCATION: C:\K11\68226\SV\CD\BASEMAPS\68226_SCS_072817.dwg



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	A4	4



The Horizontal datum used for the survey control is NAD83(2011) 2010.00 Alaska State Plane Zone 1. All coordinates, distances, and bearings listed are GRID. To convert horizontal distance to ground multiply grid distance by 1/99989416.

The Vertical datum used is NAVD88 derived from static GPS observations to the National Spatial Reference System and using the Geoid model 12B from the National Geodetic Survey.

Point #	Northing	Easting	Elevation	Description	Station	Offset
1	1292225.12	3088706.40	170.15	GPS_DOT_SET	151+09.42	9.92R
2	1292057.67	3089187.83	152.59	GPS_DOT_SET	145+44.00	54.96R

All **SURVEY CONTROL** monuments in this table are provided strictly for survey control. Should any of them be destroyed during construction they **shall not** be replaced.

MONUMENT NOTES:

1. If any pair of control points disagrees from published value by more than 1:10,000 horizontally or vertically then a third network point must be tied to ascertain which point is in error or has been disturbed.
2. Whether listed or not, all monuments, property markers, or accessories that will be disturbed or buried shall be referenced prior to being disturbed, and re-established in their original position and a record of monument form in accordance with A.S.34.65.040 shall be submitted to the construction engineer for review prior to recording. Coordinate values listed are for informational purposes and should be used to reset monuments only as a last resort.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 Daniel M. Ignatov
 PE No. 11296
 Date 3/11/20

Point #	Northing	Easting	Description	Station	Offset
554	1291889.79	3088773.40	ALCAP2" WSI_VBAK	148+84.34	183.28L

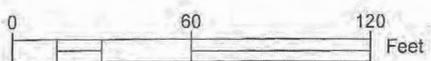
All **PROPERTY** monuments in this existing property table shall be preserved and referenced prior to disturbance and replaced at their original horizontal position. **A record of survey monument form in accordance with A.S.34.65.040 shall be submitted to DOT &PF project engineer for review prior to recording for each monument.**

Segment	Station	Northing	Easting	Station	Radius	Length	Delta
L1	143+00.00	1291969.61	3089421.93	148+19.23			
C1	148+19.23	1292041.15	3088907.65	150+56.19	247.00	236.96	54°58'00"
L2	150+56.19	1292173.22	3088721.83	153+00.00			

Segment	Station	Northing	Easting	Station	Radius	Length	Delta
L3	1+00.00	1292063.10	3088834.83	1+34.80			
C2	1+34.80	1292031.73	3088819.77	1+90.78	100.00	55.98	32°04'21"
L4	1+90.78	1291977.25	3088810.56	3+36.00			

COORDINATES LISTED ABOVE HOLD OVER DISTANCE AND BEARING

COORDINATES LISTED ABOVE HOLD OVER DISTANCE AND BEARING



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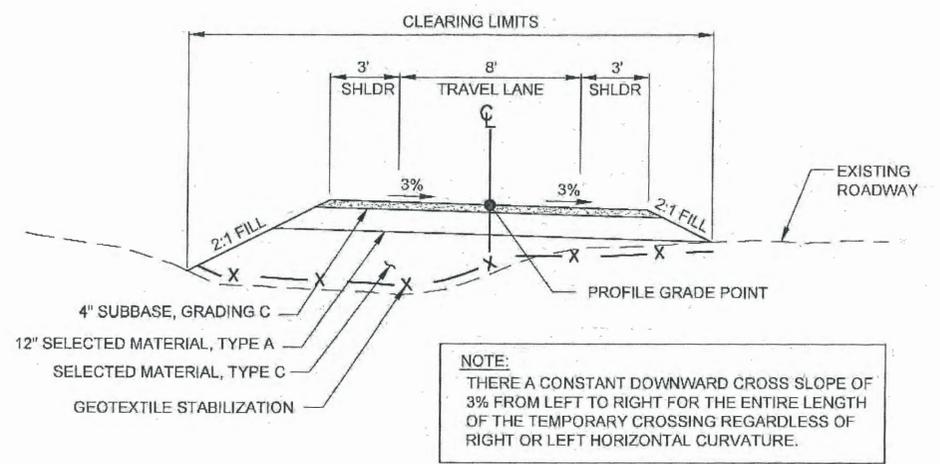
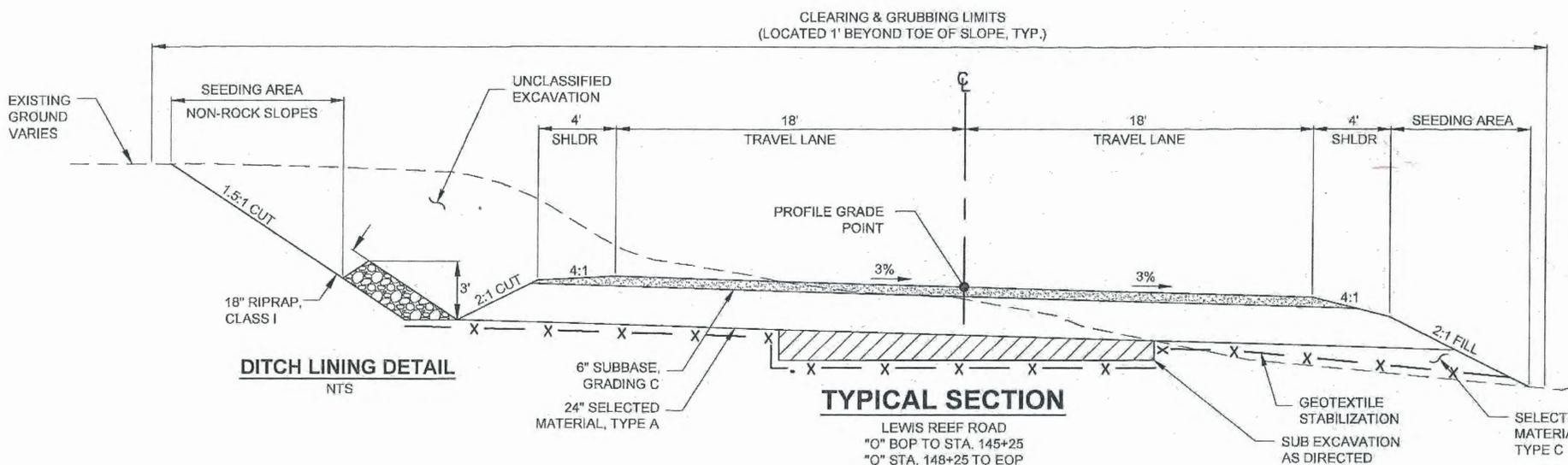
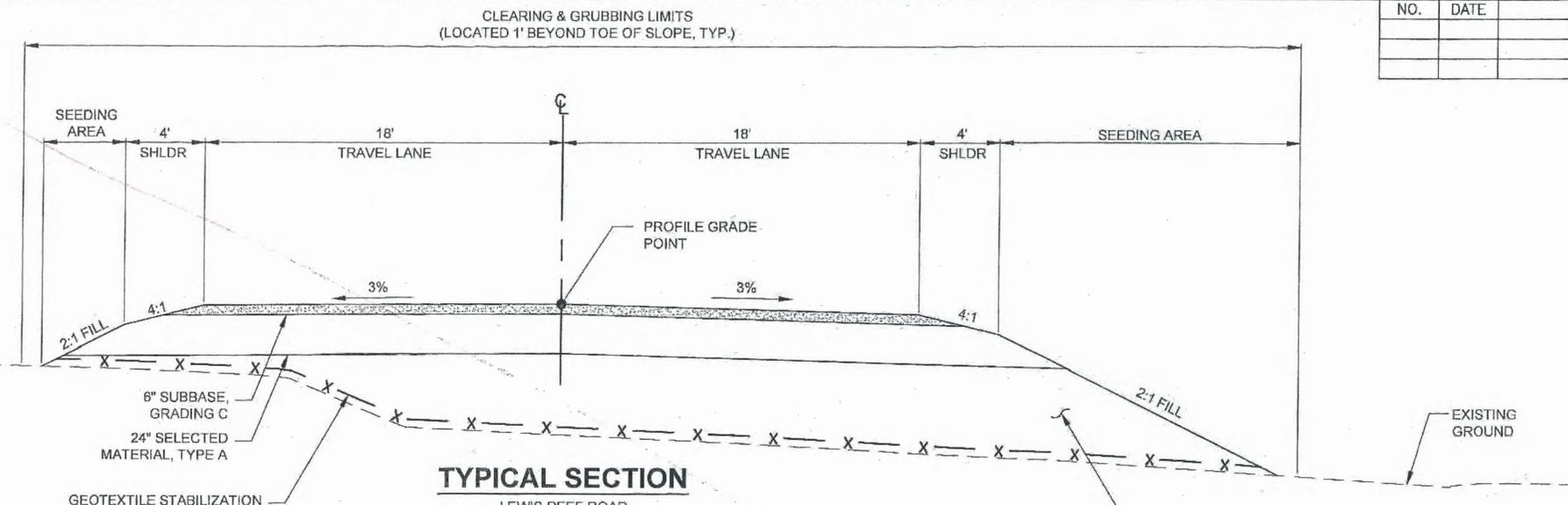
KTN-AIRPORT CREEK
 BRIDGE (USFS)
 SURVEY CONTROL

* SEE BACK FOR REVISED SHEET PER CO# 3 *

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	B1	1

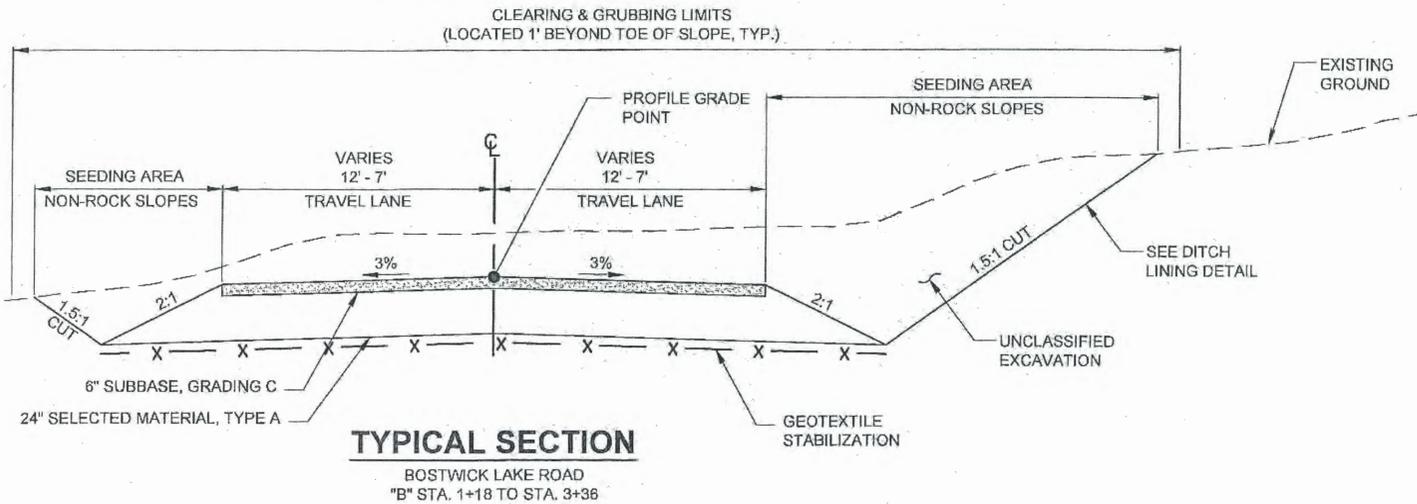
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 3/11/19

FILE: \\DOTSERVERS01\Projects\Ktn\68226\Planset\68226_B1_Typ.dwg
 DATE: 3/9/2018 14:22 LAYOUT: B1
 DESIGNED: LS
 CHECKED: DP
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- GENERAL NOTES:**
- CLEARING & GRUBBING LIMITS SHALL BE LOCATED 1' BEYOND TOP/TOE OF SLOPE AS ESTABLISHED BY THE GRADING LIMITS.
 - SEEDING AREA SHALL EXTEND FROM THE EDGE OF SUBBASE TO CLEARING & GRUBBING LIMIT AND SHALL INCLUDE ANY OTHER CONSTRUCTION DISTURBED AREAS OFF THE ROADWAY.
 - DITCH LINING SHALL BE PLACED AGAINST ERODIBLE, NON-ROCK SLOPES. CONSTRUCT DITCH LINING AS REQUIRED BY FIELD CONDITIONS. SHOW INSTALLED LOCATIONS ON AS-BUILT DRAWINGS.

- TYPICAL SECTION NOTES:**
- SEE "N" SHEET FOR BRIDGE TYPICAL SECTION.
 - SUPER ELEVATION ROTATES ABOUT THE ROADWAY CENTERLINE.



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KTN - AIRPORT CREEK BRIDGE (USFS)

TYPICAL SECTIONS

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
△	7/12/18	ADDED PARALLEL GUARDRAIL 606(13) TO ESTIMATE OF QUANTITIES	ALASKA	Z682260000	2018	C1	1

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 Date 3/11/20

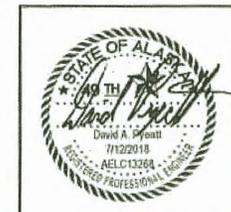
FILE \\D:\ISERP\501\Projects\Ktn\68226\Plan\ADD_NO1_08226_C1_Est.dwg DATE 7/12/2018 15:56 LAYOUT CI DESIGNED LS CHECKED DP DRAFTED RG

ESTIMATE OF QUANTITIES			
ITEM NO	ITEM DESCRIPTION	PAY UNIT	QUANTITY
201 (3B)	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED
201 (8)	INVASIVE PLANTS SURVEY	LUMP SUM	ALL REQUIRED
201 (9)	INVASIVE PLANT SPECIES CONTROL, REMOVAL, AND DISPOSAL	CONTINGENT SUM	ALL REQUIRED
202 (4)	REMOVAL OF CULVERT PIPE	LINEAR FOOT	60
202 (23)	REMOVAL OF BRIDGE (NO 2198)	LUMP SUM	ALL REQUIRED
203 (3)	UNCLASSIFIED EXCAVATION	CUBIC YARD	4700 4466
203 (6A)	BORROW, SELECTED MATERIAL TYPE A	TON	6750
203 (6C)	BORROW, SELECTED MATERIAL TYPE C	TON	9072 9443.91
203 (9)	OBLITERATION OF ROADWAY	SQUARE YARD	580
205 (6)	STRUCTURAL FILL	CUBIC YARD	1026 1011.30
304 (1)	SUBBASE, GRADING C	TON	1100 1189.48
501 (1)	CLASS A CONCRETE	LUMP SUM	ALL REQUIRED
501 (7)	PRECAST CONCRETE MEMBER (98.5' X 42' DECKED BULB-TEE)	EACH	6
503(1)	REINFORCING STEEL	LUMP SUM	ALL REQUIRED
503 (2)	EPOXY-COATED REINFORCING STEEL	LUMP SUM	ALL REQUIRED
505 (5)	FURNISH STRUCTURAL STEEL PILES (HP 12X74)	LINEAR FOOT	129.7
505 (101)	INSTALL STRUCTURAL STEEL PILES (HP 12X74)	EACH	6
506 (3)	TREATED TIMBER	MBM	45 4.4
506 (4)	UNTREATED TIMBER	MBM	335 3.45
507 (1)	STEEL BRIDGE RAILING	LINEAR FOOT	280
520 (1)	TEMPORARY CROSSING	LUMP SUM	ALL REQUIRED
608 (17-24)	24 INCH PIPE	LINEAR FOOT	65 100
608(13)	PARALLEL GUARDRAIL TERMINAL	EACH	4
608 (16)	TRANSITION RAILING	EACH	4
611 (1A)	RIPRAP, CLASS I	CUBIC YARD	274
611 (1B)	RIPRAP, CLASS III	CUBIC YARD	600 506.23
615 (1)	STANDARD SIGN	SQUARE FOOT	2075 4210
615 (2)	REMOVE AND RELOCATE EXISTING SIGN	EACH	1
618 (1)	SEEDING	ACRE	0.6
630 (2)	GEOTEXTILE, STABILIZATION	SQUARE YARD	8000 164680
640 (1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
640 (4)	WORKER MEALS AND LODGING, OR PER DIEM	LUMP SUM	ALL REQUIRED
641 (1)	EROSION, SEDIMENT AND POLLUTION CONTROL ADMINISTRATION	LUMP SUM	ALL REQUIRED
641 (3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	CONTINGENT SUM	ALL REQUIRED
641 (5)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL BY DIRECTIVE	CONTINGENT SUM	ALL REQUIRED
641 (6)	WITHOLDING	CONTINGENT SUM	ALL REQUIRED
642 (1)	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
642 (3)	THREE PERSON SURVEY PARTY	1 HOUR	20 25.80
643 (2)	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
644 (1)	FIELD OFFICE	LUMP SUM	ALL REQUIRED
644 (2)	FIELD LABORATORY	LUMP SUM	ALL REQUIRED
644 (10)	ENGINEERING COMMUNICATIONS	CONTINGENT SUM	ALL REQUIRED
680 (1)	ENVIRONMENTAL MONITOR	LUMP SUM	ALL REQUIRED
201 (7)	Invasive Plant Species Control, Removal, + Disposal	Square Yard	6 3

BASIS OF ESTIMATE		
ITEM NO.	ITEM	ESTIMATING FACTOR
201 (3B)	CLEARING AND GRUBBING	1.2 ACRE
203 (6A)	BORROW, SELECTED MATERIAL, TYPE A	1.81 TONS/CY
203 (6C)	BORROW, SELECTED MATERIAL, TYPE C	1.89 TONS/CY
304 (1)	SUBBASE, GRADING C	2.0 TONS/CY

NEW WORK ITEMS			
ITEM NO.	ITEM	PAY UNIT	QUANTITY / AMOUNT
203 (2A)	ROCK EXCAVATION EQUIVALENT ADJUSTMENT CO#5	LUMP SUM	ALL REQUIRED / \$ 50,911.84
203 (6A)	BORROW, SELECTED MATERIAL TYPE A CO#1	TON	6471.85 / \$ 84,134.05
501 (7A)	PILEUP AND PILEUP CORRECTIONS CO#5	LUMP SUM	ALL REQUIRED / \$ 710.91
501 (1A)	MODIFY STEEL BRIDGE RAILING CO#5	LUMP SUM	ALL REQUIRED / \$ 6,711.29
610 (4)	ROCK SLOPE ARMOR CO#2	LUMP SUM	ALL REQUIRED / \$ 3,000.00
615 (1A)	ROCK BEARING FOR SIGN POST INSTALLATION CO#5	LUMP SUM	ALL REQUIRED / \$ 2,215.02

**ADDENDUM NO.1
ATTACHMENT NO.3**



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 KTN - AIRPORT CREEK
 BRIDGE (USFS)

ESTIMATE OF QUANTITIES

FILE \\DOTSERFS01\Projects\Ktn\68226\Plans\68226_D1_Sums.dwg DATE 3/9/2018 14:15 LAYOUT D1 DESIGNED LS CHECKED DP DRAFTED RG

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	D1	1

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *David A. Yeatt* Date: 3/14/20

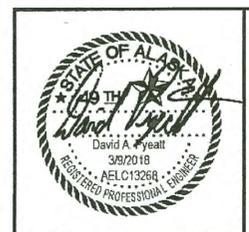
202 (4) REMOVAL OF CULVERT PIPE (LF)							
ALIGNMENT LABEL	STATION		OFFSET		DIAMETER (IN)	LENGTH (FT)	REMARKS
	FROM	TO	LEFT	RIGHT			
"O" LINE	148+53	148+46	23.83/50.64		18 CPP	28	CROSS CULVERT AT EXISTING LEWIS REEF ROAD
"B" LINE	2+07	2+11	10.4	21.2	18 CPP	32	CROSS CULVERT AT BOSWICK LAKE ROAD
					TOTAL =	60	

603 (17) CULVERT INSTALLATION SUMMARY												
PIPE	INLET			OUTLET			LENGTH (FT)	SIZE	APPROX GRADE	REMARKS		
	STATION	OFFSET	INVERT	STATION	OFFSET	INVERT						
P-1	"O" 148+62	28.3	LT	153.4	"O" 148+55	27.8	RT	153.0	57.0	24	0.7%	INSTALL NEW 24" INCH PIPE AT LEWIS REEF ROAD
P-2	"B" 1+44	19.9	RT	155.0	"B" 1+43	21.6	LT	154.5	42.0	24	1.2%	INSTALL NEW 24" INCH PIPE AT BOSWICK LAKE ROAD
								TOTAL	99.0			

615 (1) STANDARD SIGN SUMMARY											
SIGN #	LEGEND	STA.	OFFSET	ASDS CODE	WIDTH (IN)	HEIGHT (IN)	AREA (SF)	POST	SIGN FACING	REMARKS	
1	Airport Creek	146+10	RT	I-3	30	18	3.75	2.5" PST	W		
2	Airport Creek	147+16	LT	I-3	30	18	3.75	2.5" PST	E		
3	<=== Boswick Lake Rd	145+50	RT	D3-200L	42	8	13 2.88	2.5" PST	W		
5	STOP	148+57	LT	R1-1	30	30	6.25	2.5" PST	N		
6	Lewis Reef Rd	148+57	LT	D3-1	42	8	2352.88		N		
7	Boswick Lake Rd ==>	152+00	LT	D3-200R	42	8	13 2.88	2.5" PST	E	6" UC / 3" LC C-FONT; MOUNT ABOVE SIGN NO. 5	
							TOTAL =	20.75			

615 (2) REMOVE AND RELOCATE SIGN SUMMARY											
SIGN #	LEGEND	STA.	OFFSET	ASDS CODE	WIDTH (IN)	HEIGHT (IN)	AREA (SF)	POST	SIGN FACING	REMARKS	
4	SPEED LIMIT 35 MPH	148+00	LT	R2-1	30	36	7.50	2.5" PST	E	REMOVE AND RELOCATE EXISTING SIGN	
							TOTAL =	7.50			

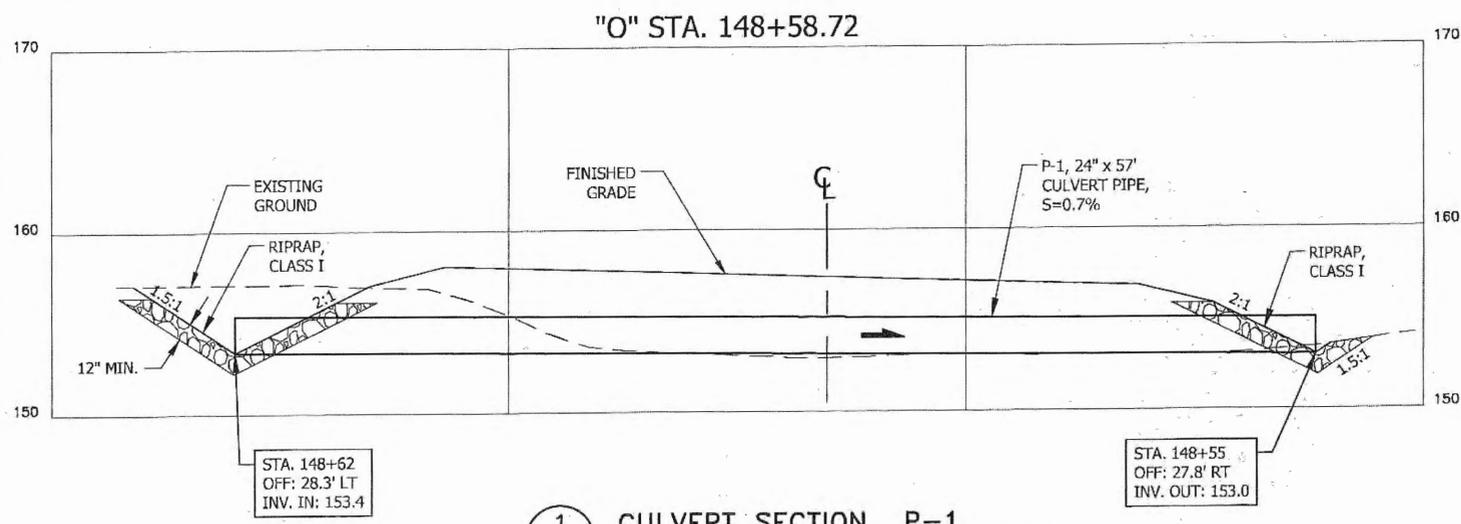
NOTE: THE SPEED LIMIT 35 EXISTING SIGN AT APPROXIMATELY 1,000 FT. FROM THE BOSTWICK LAKE ROAD INTERSECTION AS HEADING THE KETCHIKAN AIRPORT.



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 SUMMARIES

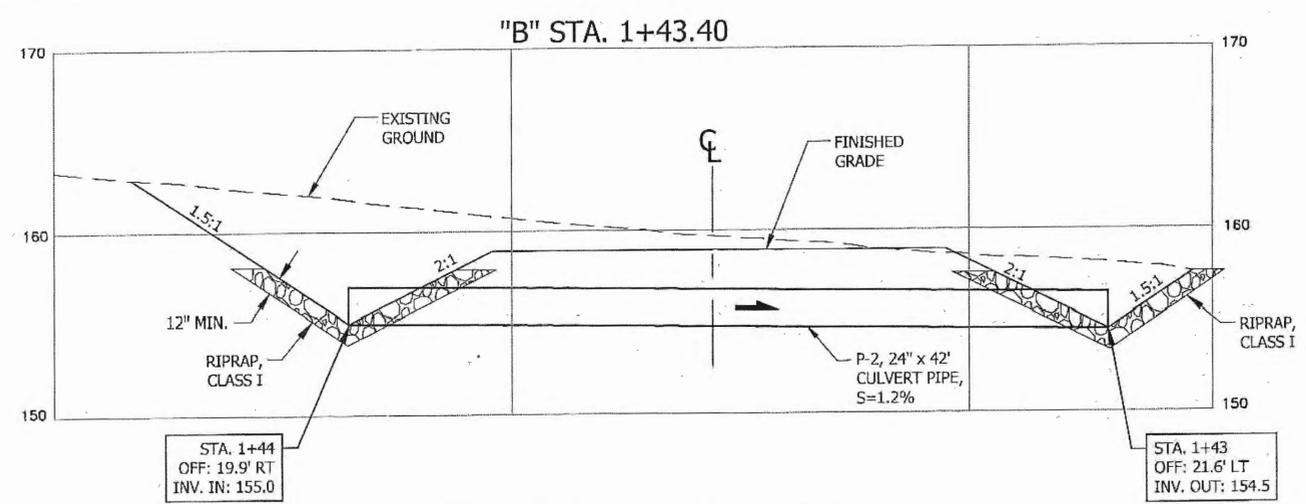
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	E1	1

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *David A. Yeatt* Date: 3/16/20

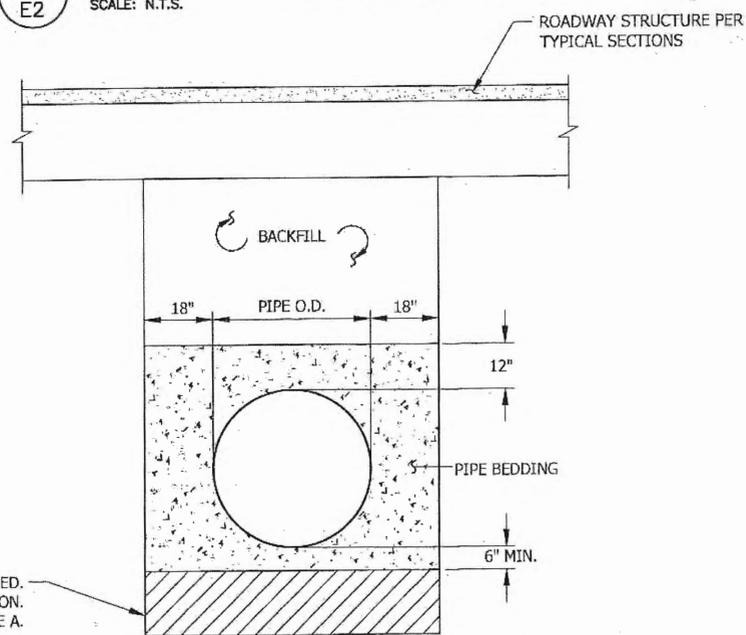


1 CULVERT SECTION P-1
 E2 SCALE: N.T.S.

NOTE: EXTEND RIPRAP, CLASS I 1 FOOT ABOVE CULVERT.

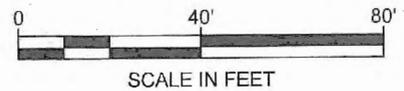
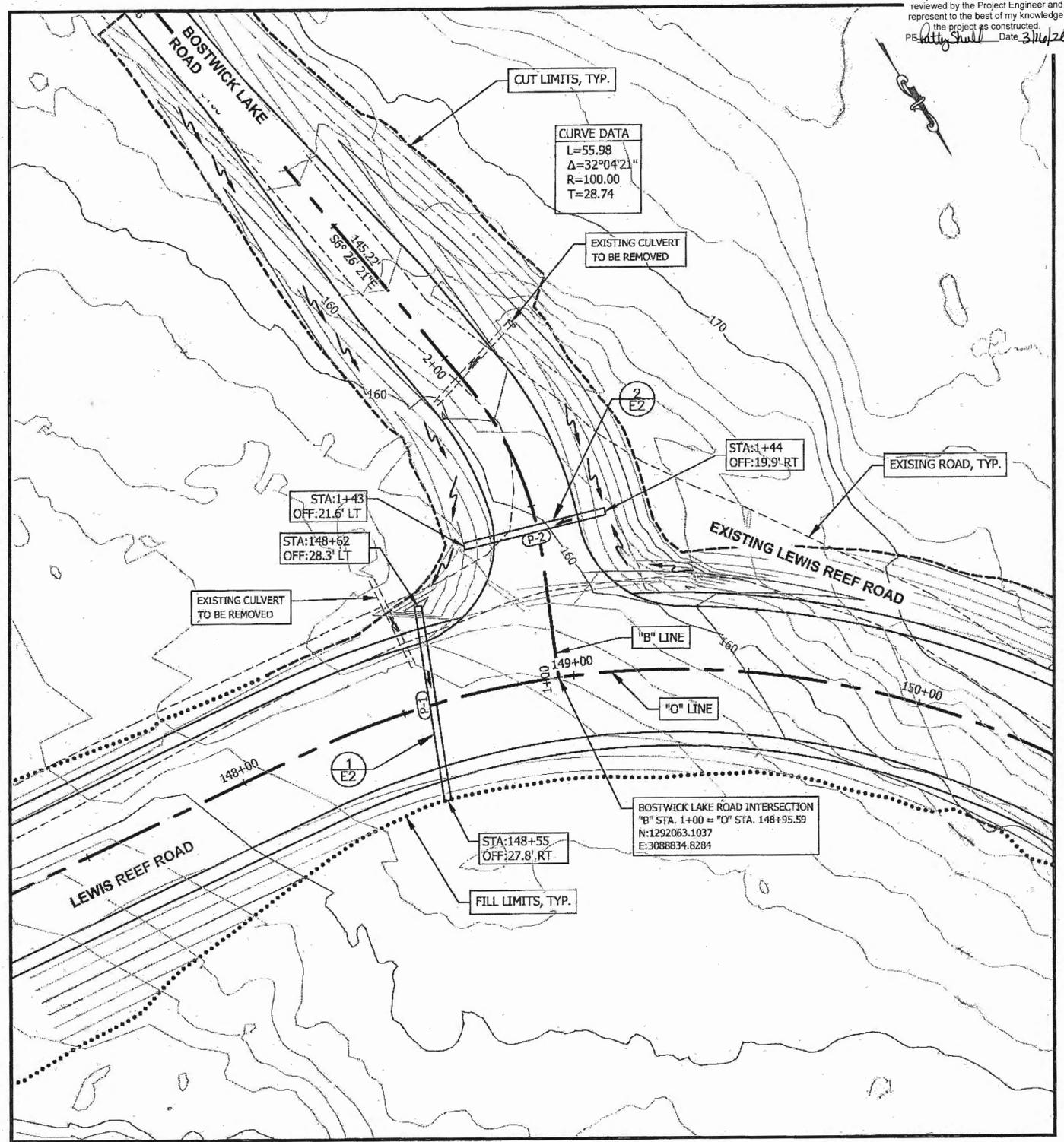


2 CULVERT SECTION P-2
 E2 SCALE: N.T.S.

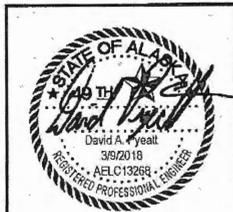


CULVERT BEDDING/BACKFILL DETAIL
 N.T.S.

REMOVE UNSUITABLE MATERIAL WHEN AUTHORIZED. PAID FOR AS UNCLASSIFIED EXCAVATION. REPLACE WITH SELECTED MATERIAL, TYPE A.



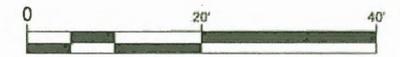
PLAN VIEW



STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
 6860 GLACIER HIGHWAY, JUNEAU, AK 99811
 (907) 465-1763
KTN - AIRPORT CREEK BRIDGE (USFS)
CULVERT PLAN & SECTION

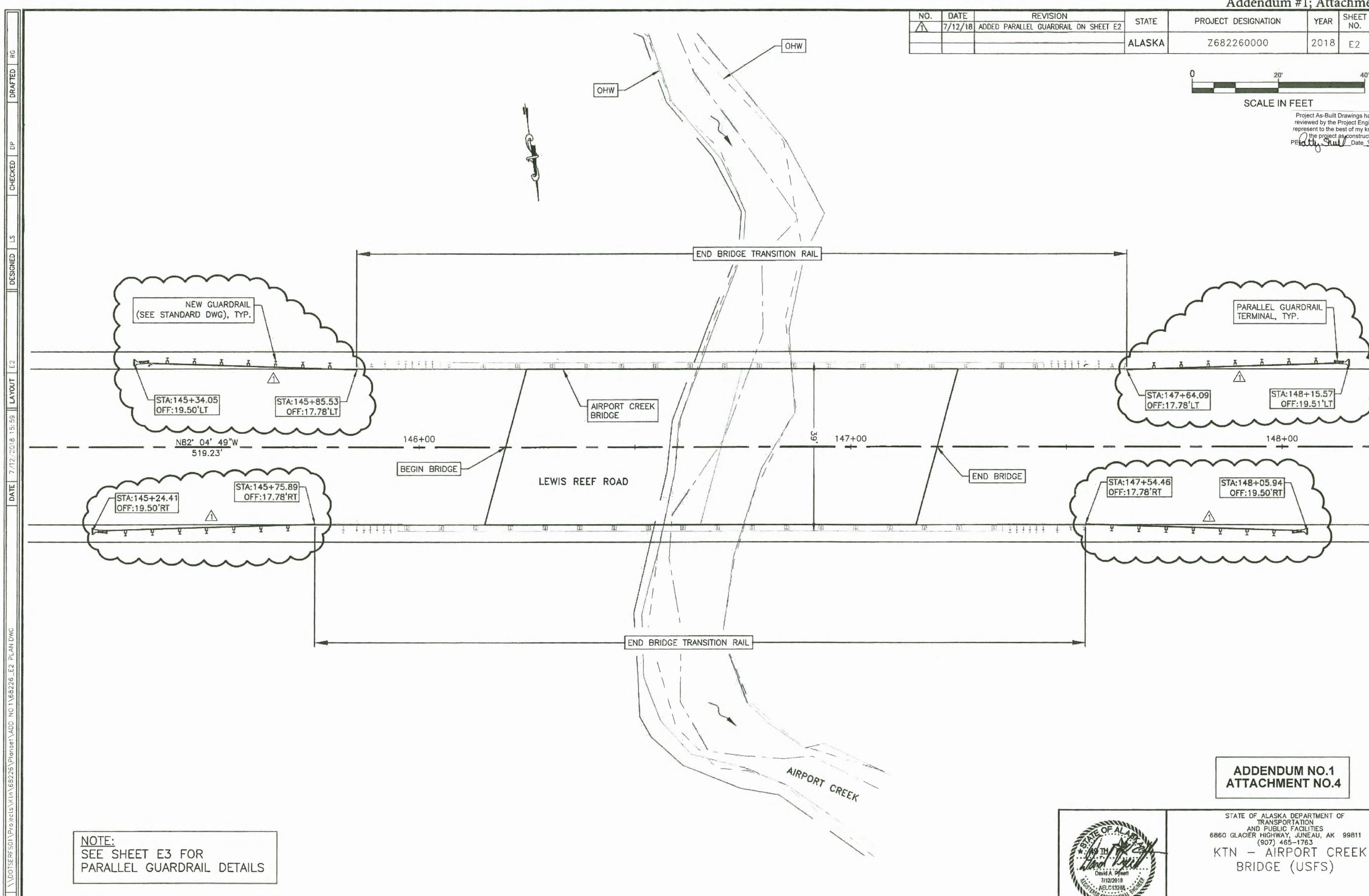
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 CHECKED: DP
 DRAFTED: RG

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
1	7/12/18	ADDED PARALLEL GUARDRAIL ON SHEET E2	ALASKA	Z682260000	2018	E2	3



SCALE IN FEET

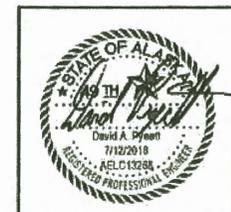
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 Date 3/14/20



FILE \\D:\SE\RSO1\Projects\KIN\68226\Planes\ADD_NC_1\68226_E2_PLAN.DWG DATE 7/12/18 15:55 LAYOUT E2 DESIGNED LS CHECKED DP DRAFTED RG

NOTE:
 SEE SHEET E3 FOR
 PARALLEL GUARDRAIL DETAILS

**ADDENDUM NO.1
 ATTACHMENT NO.4**

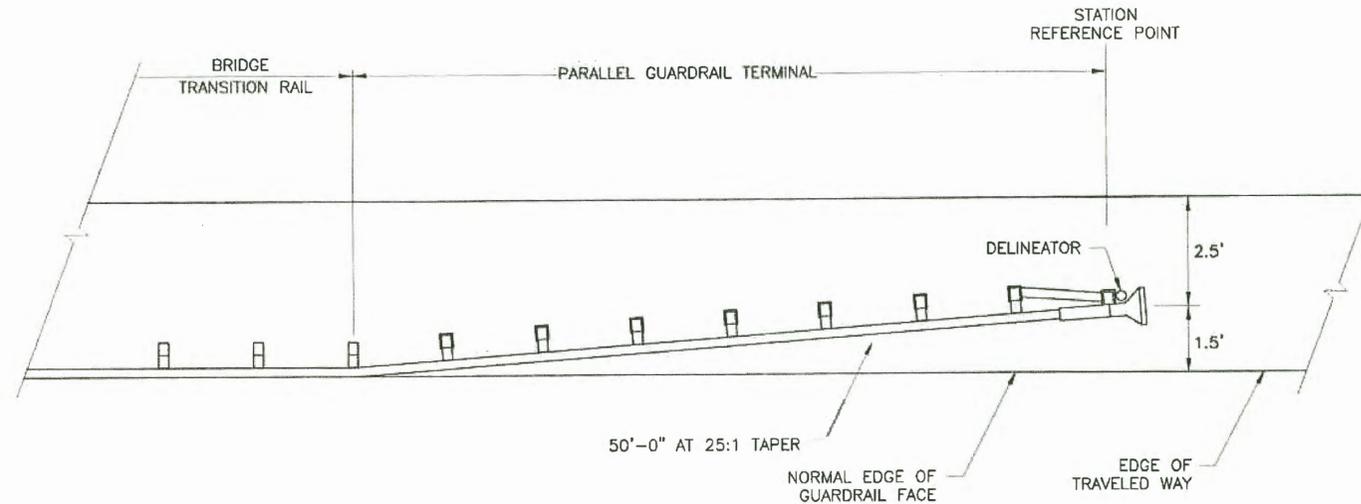


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 BRIDGE (USFS)

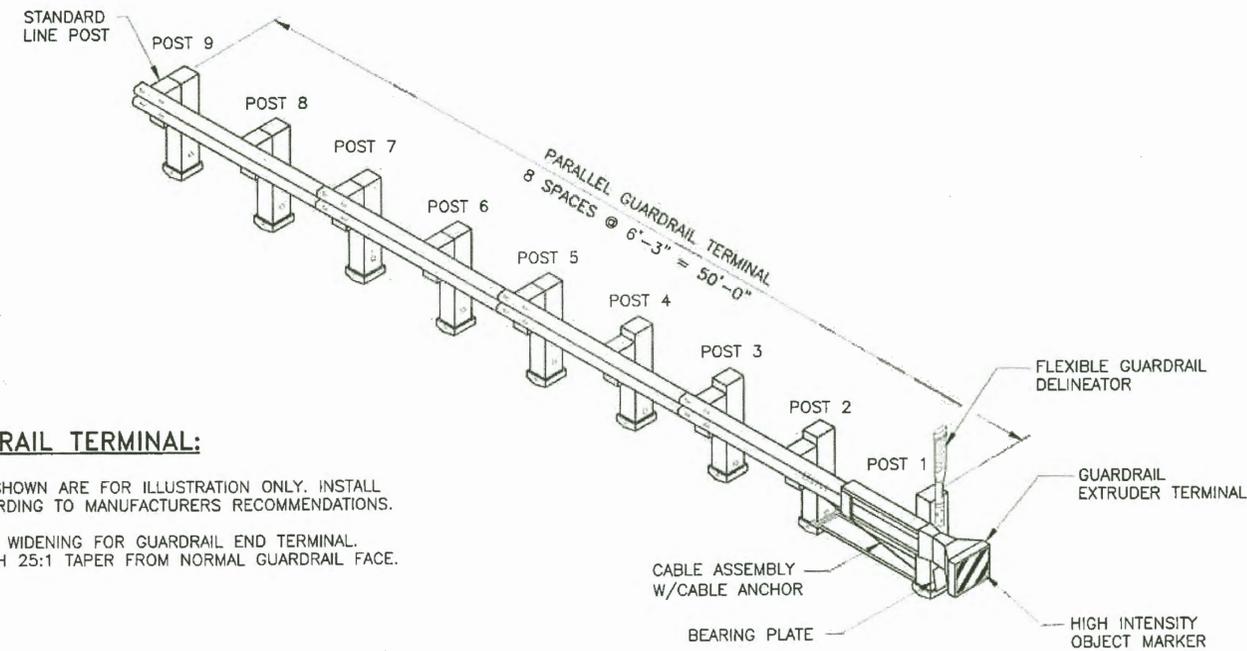
GUARDRAIL PLAN

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
▲	7/12/18	ADDED PARALLEL GUARDRAIL DETAIL SHEET E3	ALASKA	Z682260000	2018	E3	3

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *Atty Shall* Date: 3/14/20



PARALLEL GUARDRAIL TERMINAL INSTALLATION WIDENING DETAILS
 NTS

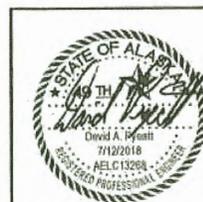


PARALLEL GUARDRAIL TERMINAL:

1. THE TERMINAL DETAILS SHOWN ARE FOR ILLUSTRATION ONLY. INSTALL TERMINAL SECTIONS ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. SEE STD DWG. G-20.11 WIDENING FOR GUARDRAIL END TERMINAL. CONSTRUCT TERMINAL WITH 25:1 TAPER FROM NORMAL GUARDRAIL FACE.

PARALLEL GUARDRAIL TERMINAL
 NTS

**ADDENDUM NO.1
 ATTACHMENT NO.5**



STATE OF ALASKA DEPARTMENT OF
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 AND PUBLIC FACILITIES
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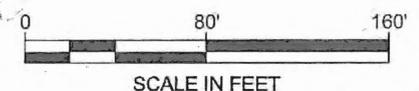
PARALLEL GUARDRAIL DETAILS

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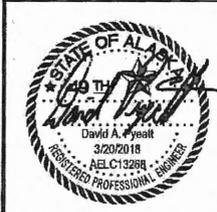
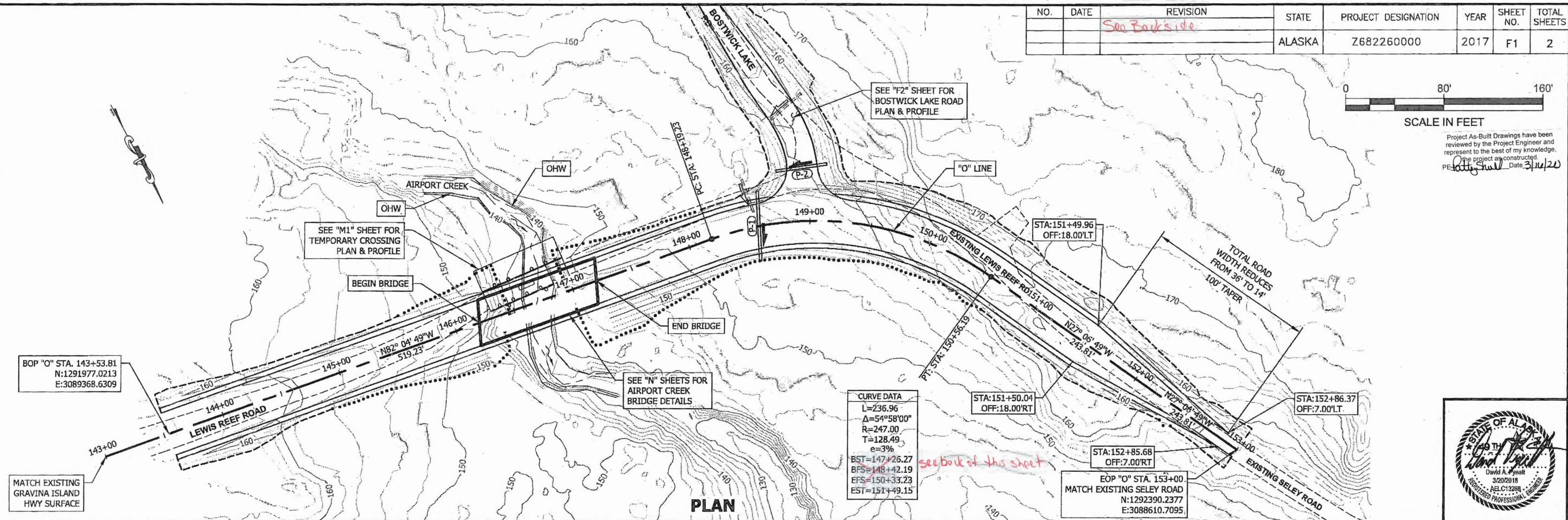
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NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
		See Backside	ALASKA	Z682260000	2017	F1	2

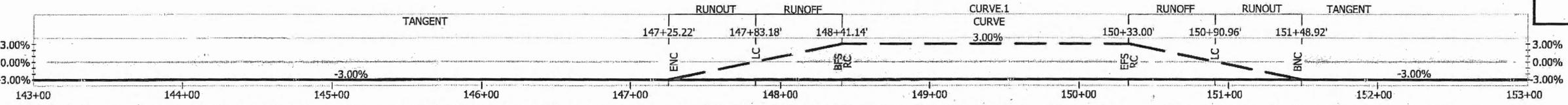
See CO#3



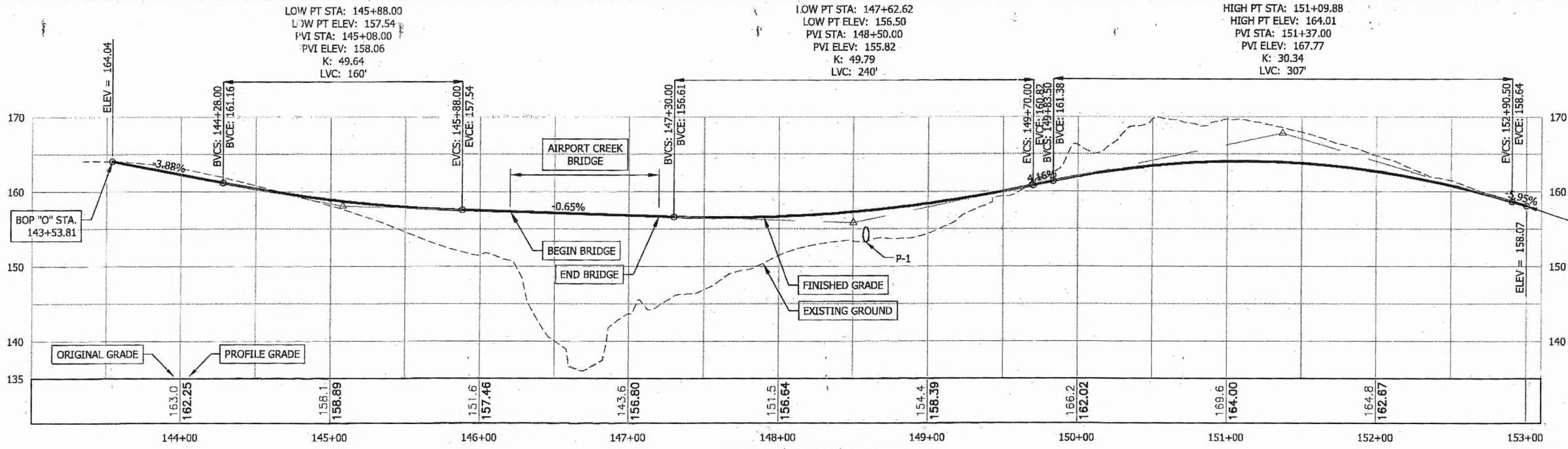
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: [Signature] Date: 3/14/20



SUPERELEVATION



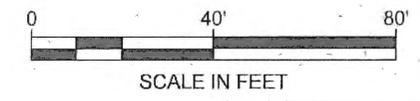
LEWIS REEF ROAD PLAN & PROFILE



'O' LINE PROFILE

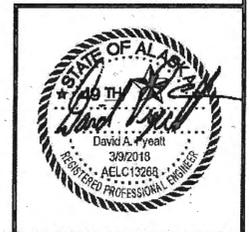
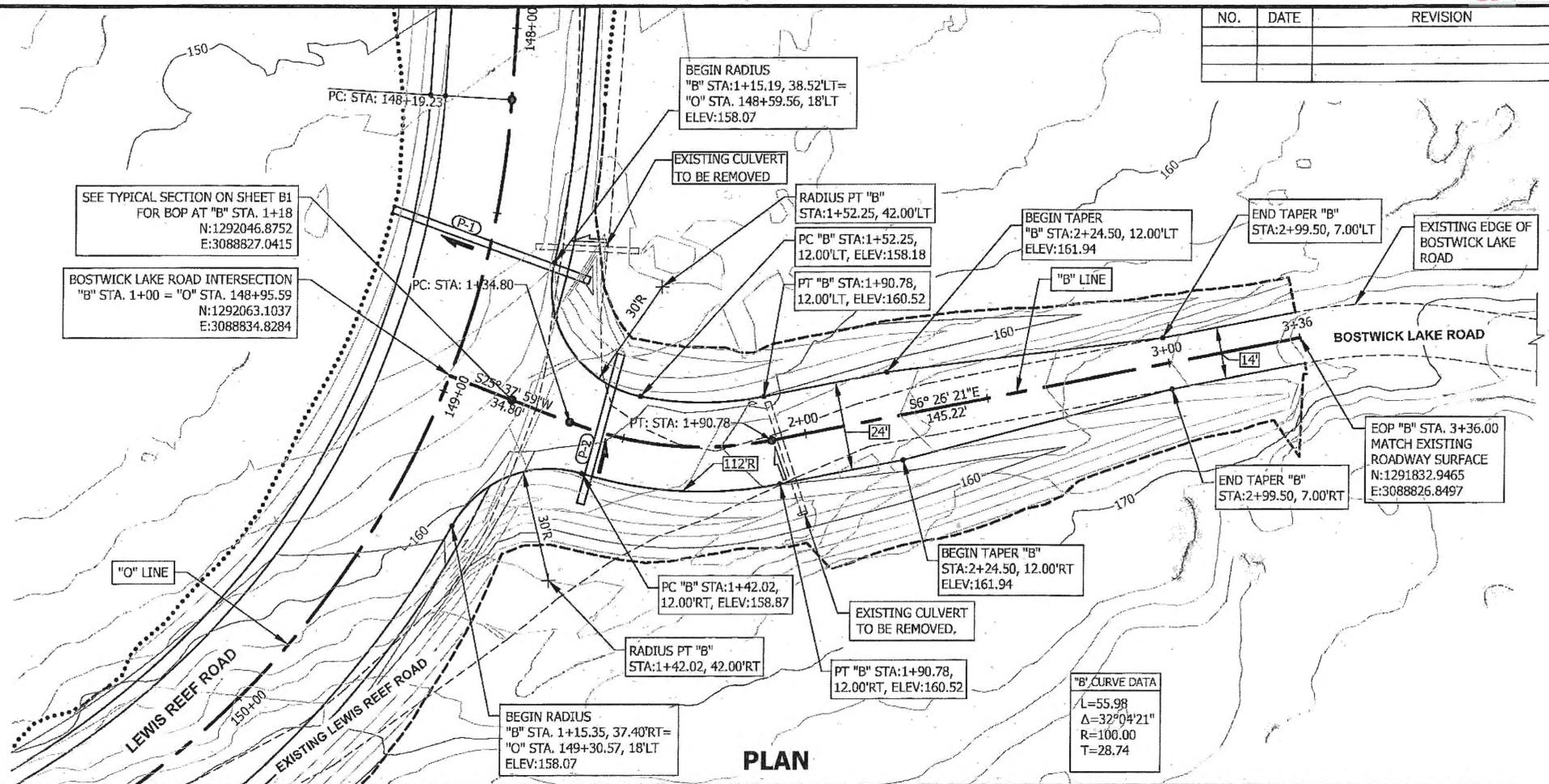
See CO# 3

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	F2	2

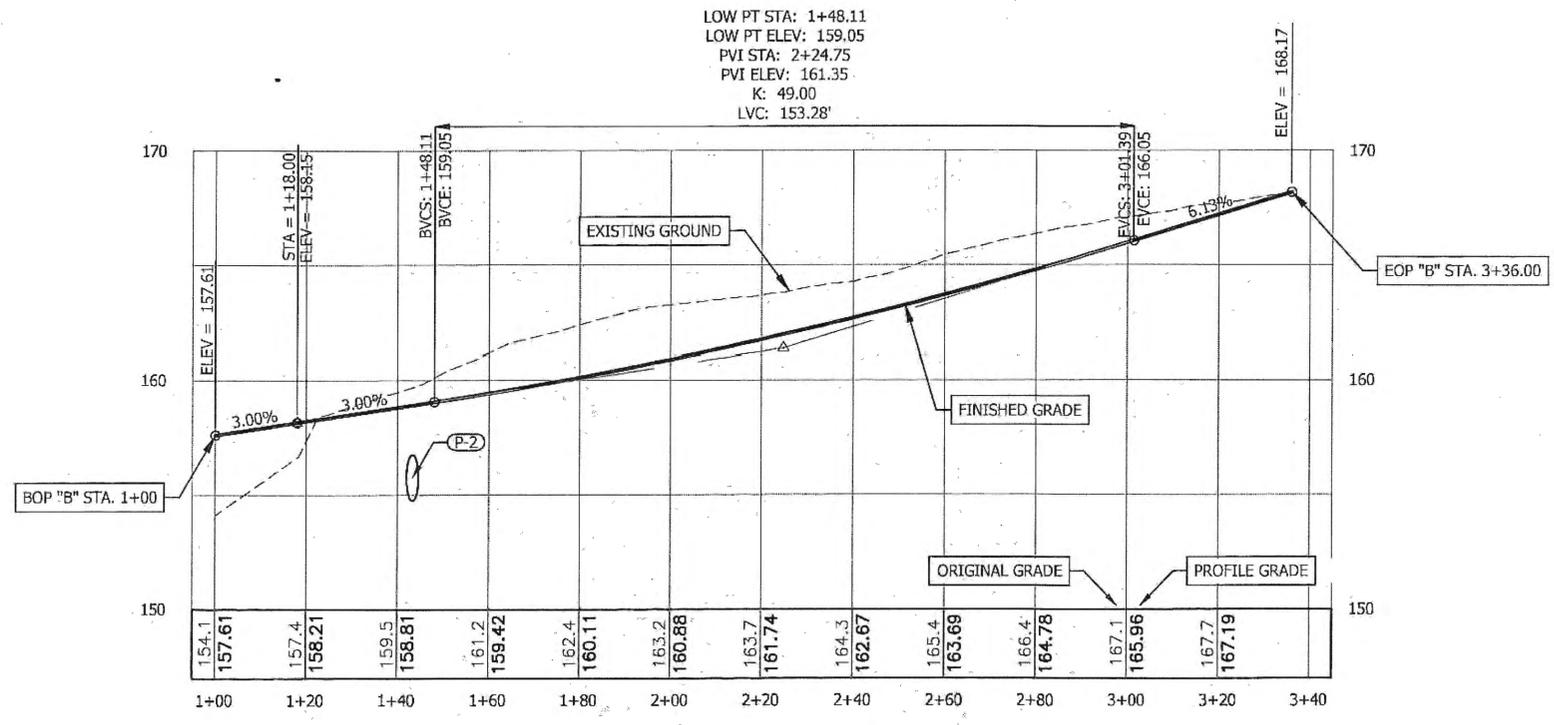


Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge the project as constructed.
 Date 3/11/20

culvert elevations were not changed



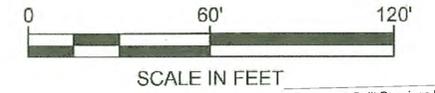
**BOSTWICK LAKE ROAD
 PLAN & PROFILE**



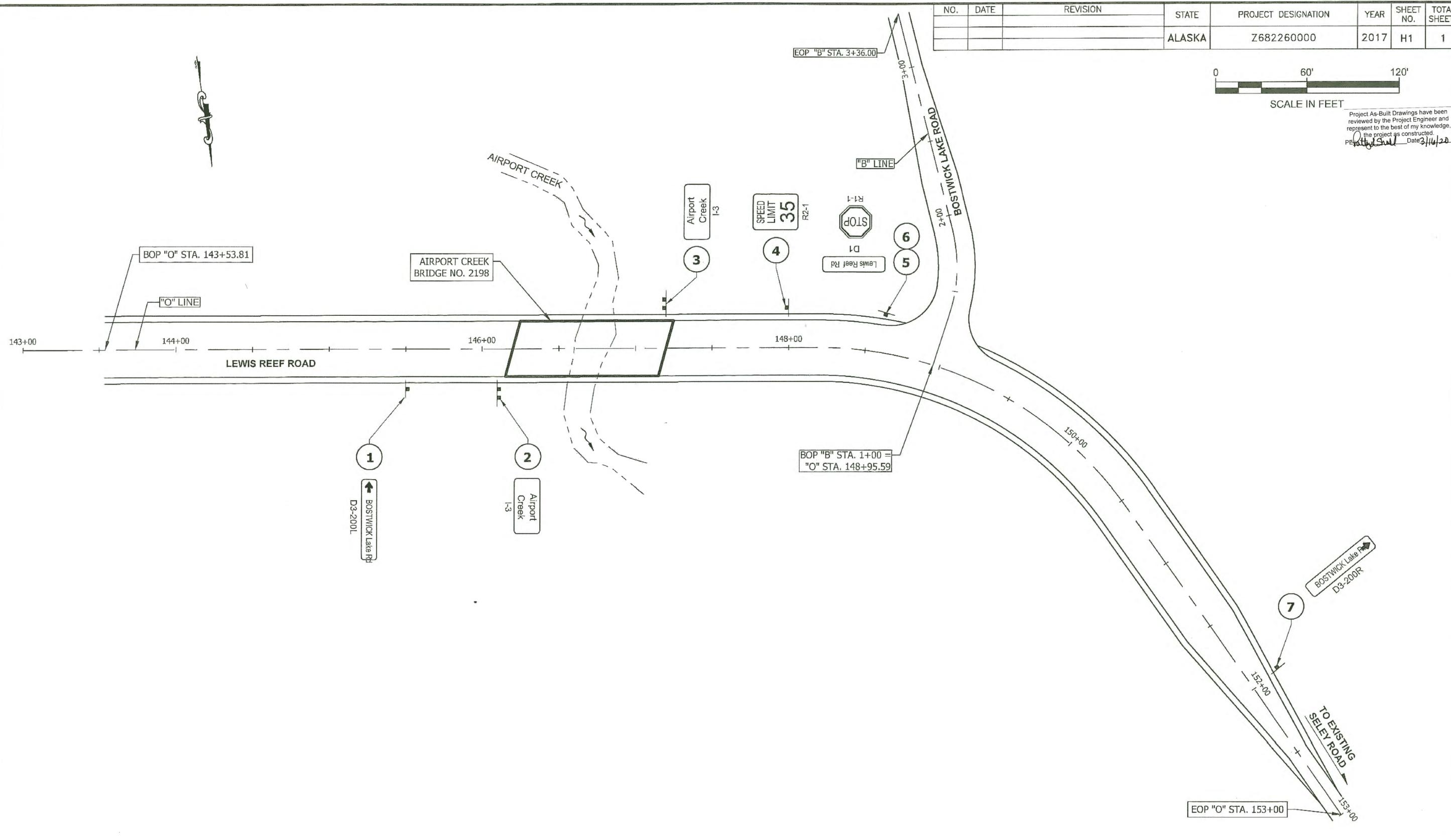
"B" LINE PROFILE

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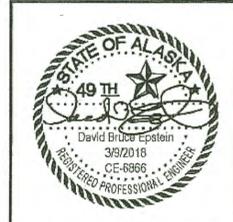
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	H1	1



Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: [Signature] Date: 2/11/20



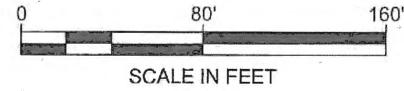
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KTN - AIRPORT CREEK BRIDGE (USFS)
 SIGNING PLAN

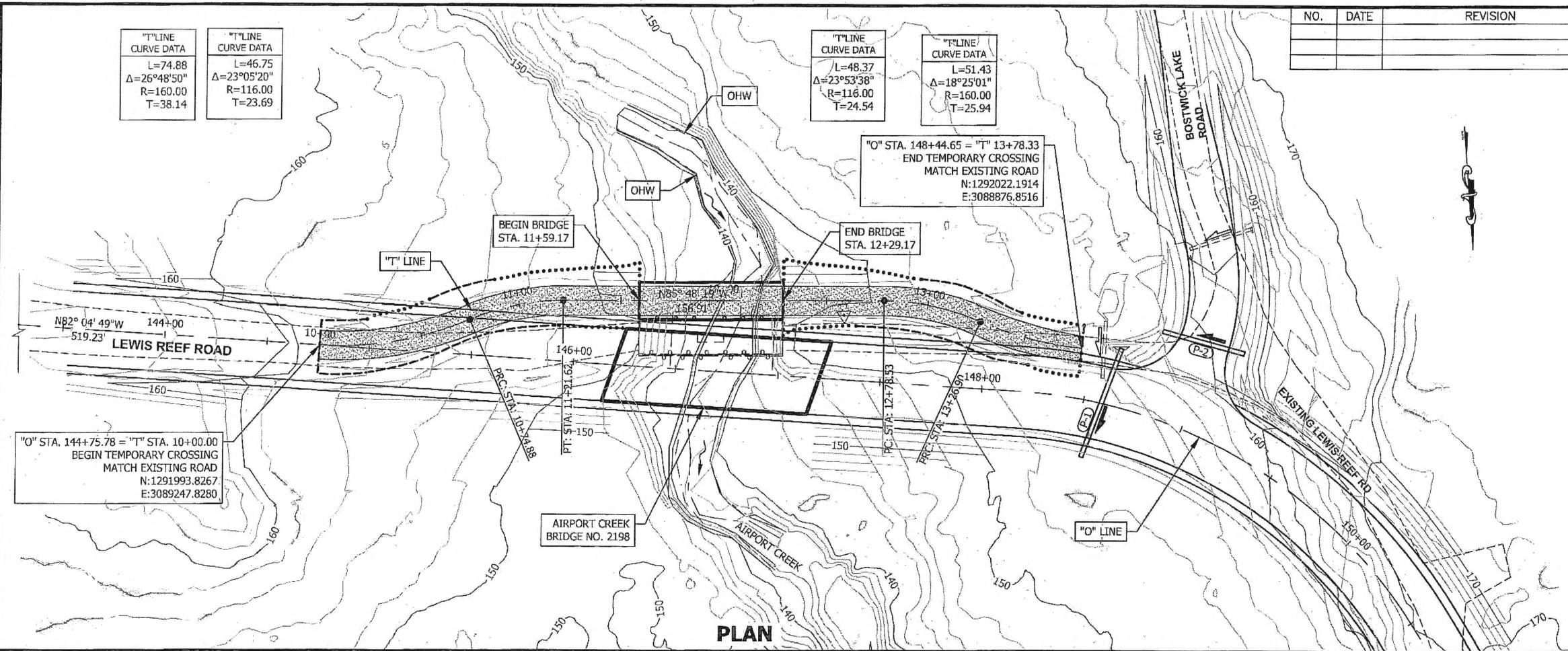
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 DESIGNED: LS CHECKED: DP DRAFTED: RG

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	M1	1

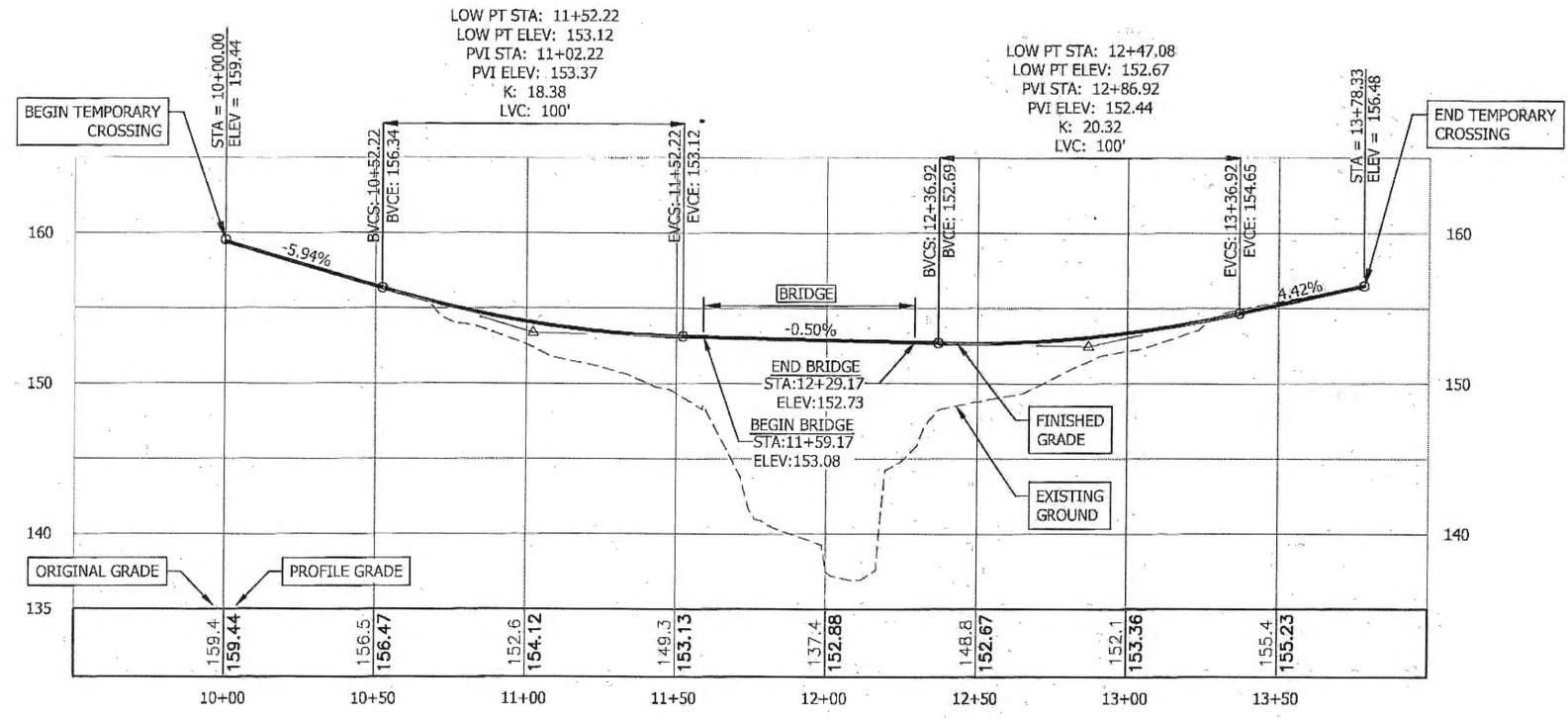


CONTRACTOR WILL DESCRIBE ALL BMP'S TO BE USED FOR TEMPORARY CROSSING DURING BRIDGE REPLACEMENT IN CONTRACTOR'S SWPPP.

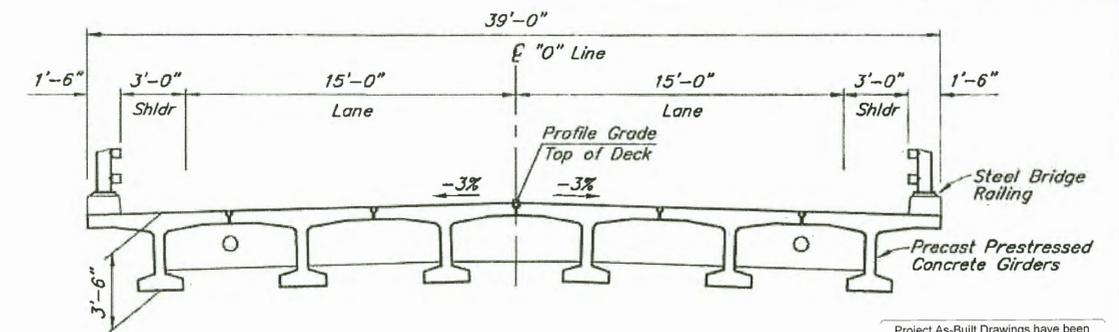
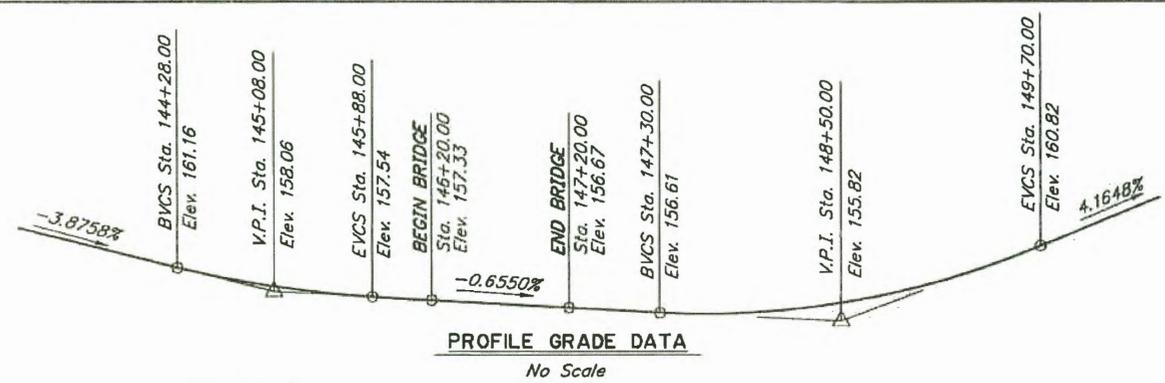
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 01/31/20



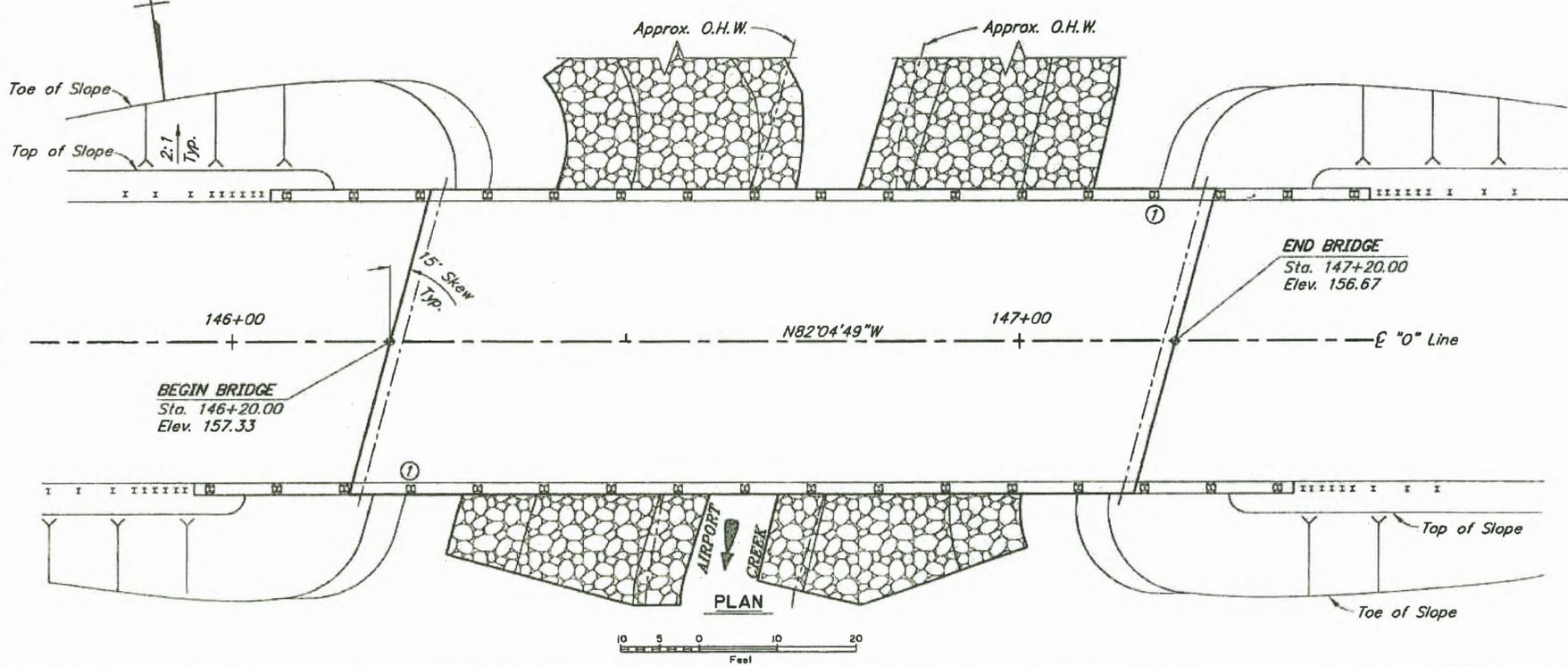
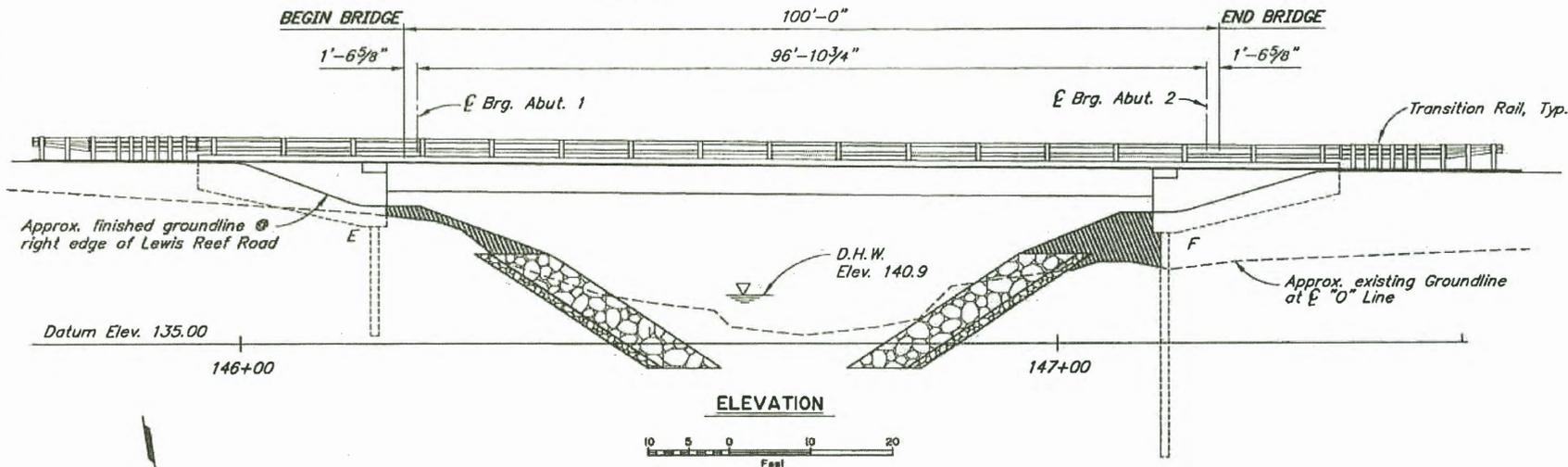
**TEMPORARY CROSSING
 PLAN & PROFILE**



STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z682260000	2017	N1	N12



Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 Date 3/14/20
 P. Kelly Smith



ADDENDUM NO.2
 ATTACHMENT NO.1

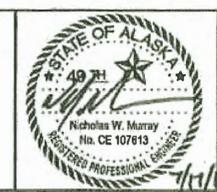
BRIDGE DRAWING INDEX	
TITLE	DWG. NO.
GENERAL LAYOUT	1
SITE PLAN	2
RIPRAP LAYOUT	3
ABUTMENT 1	4
ABUTMENT 2	5
WINGWALLS	6
FRAMING PLAN AND TYPICAL SECTION	7
GIRDERS	8
STEEL BRIDGE RAILING	9
TRANSITION RAIL	9A
TEST HOLE LOGS AND LOCATIONS	10-12

NOTES:
 ① Denotes location of Bridge No. Plate.

R:\cadd\2198\2198-GENERAL LAYOUT.Tbx, Jul/17/18, 08:19am

DESIGNED BY: Nick Murray	CHECKED: Elmer Marx	LAYOUT BY: Nick Murray	CHECKED BY: Elmer Marx
DRAWN BY: Sam Saffie	CHECKED: Nick Murray	SPECIFICATIONS BY: Nick Murray	P S & E COMPARED: Elmer Marx
QUANTITIES BY: Nick Murray	CHECKED: Elmer Marx	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



AIRPORT CREEK BRIDGE
 LEWIS REEF ROAD
 GENERAL LAYOUT

BRIDGE NO. 2198
 DWG. NO. 1

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z682260000	2017	N2	N12

GENERAL NOTES

DESIGN:..... AASHTO LRFD Bridge Design Specifications, 2014 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 = 0.09
 S_s = 0.19
 S_i = 0.14
 Site Class = C
 Liquefaction Potential = Low
 AASHTO 7% probability of exceedance in 75 years.

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

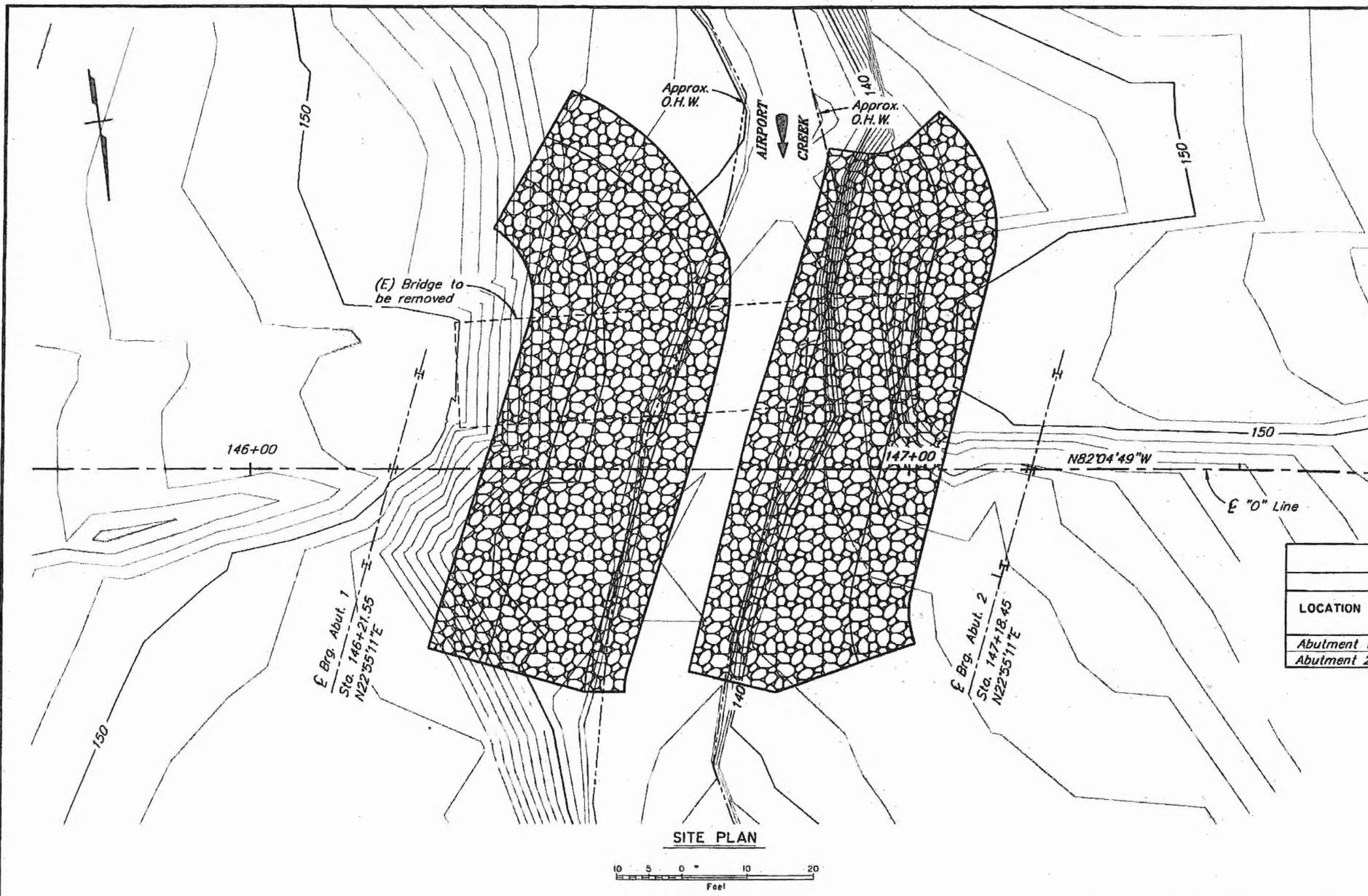
PRESTRESSED CONCRETE:..... See "GIRDERS" Dwg.

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

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

STRUCTURAL STEEL PILING:..... ASTM A709, Grade 50T3, F_y = 50,000 psi

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 Date: 3/14/20



LOCATION	SHAFT TYPE	INSTALLATION CRITERIA			DESIGN DATA		
		TIP ELEVATION (ft.)	MINIMUM ROCK SOCKET LENGTH (ft.)	MINIMUM TOP OF ROCK SOCKET ELEVATION (ft.)	STRENGTH I FACTORED LOAD (k)	NOMINAL RESISTANCE (k)	RESISTANCE FACTOR, φ
Abutment 1	HP 12x74	136	2.0	138	525	> 1050	0.50
Abutment 2	HP 12x74	121	2.0	123	525	> 1050	0.50

ABBREVIATIONS:

- ℄ = centerline
- ℄ = plate
- & = and
- @ = at
- ∅ = diameter
- ± = approximate
- Abut. = abutment
- Approx. = approximate
- b.f. = back/dirt face
- bot. = bottom
- Br. = bridge
- btwn. = between
- Brg. = Bearings
- BVCS = begin vertical curve station
- C.I.P. = cast in place
- Clr. = clear, clearance
- CY = cubic yard
- dia. = diameter
- Dwg. = drawing
- E = expansion
- (E) = existing
- EA = each
- Elev. = elevation
- e.f. = each face
- EVCS = end vertical curve station
- e.w. = each way
- F = fixed
- f.f. = front/air face
- f'_c = specified concrete compressive strength
- F_y = yield stress
- Galv. = galvanize
- H.S. = high strength
- Hwy. = highway
- ksf = 1000 pounds per square foot
- LB = pound
- LF = linear foot
- LS = lump sum
- Lt. = left
- max. = maximum
- min. = minimum
- n.f. = near face
- No. = number
- o.c. = on center
- O.H.W. = ordinary high water
- pcf = pounds per cubic foot
- psf = pounds per square foot
- psi = pounds per square inch
- VPI = point of vertical intersection
- Rt. = right
- Rd. = road
- spc. = space, spaces
- Sta. = station
- SF = square feet
- Symm. = symmetric
- Typ. = typical
- w/ = with

BRIDGE BASIS OF ESTIMATE

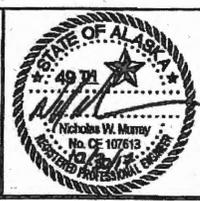
ITEM NO.	ITEM	PAY UNIT	ESTIMATING UNIT	SUBST.	SUPERST.	TOTAL
202(23)	Removal of Bridge No. 2198	LS	LS	All Req'd	All Req'd	All Req'd
205(6)	Structural Fill	CY	CY	1,026	---	1,026
501(1)	Class A Concrete	LS	CY	63.1	30.7	93.8
501(7)	Precast Concrete Member (98.5'x42" Decked Bulb- Tee)	EA	EA	---	6	6
503(1)	Reinforcing Steel	LS	LBS	12,125	---	12,125
503(2)	Epoxy-Coated Reinforcing Steel	LS	LBS	80	3,477	3,557
505(5)	Furnish Structural Steel Piles (HP 12x74)	LF	LF	129.7	---	129.7
505(101)	Install Structural Steel Pile (HP 12x74)	EA	EA	6	---	6
507(1)	Steel Bridge Railing	LF	LF	---	280	280
606(16)	Transition Rail	EA	EA	---	4	4
611(1A)	Riprap, Class I	CY	CY	150	---	150
611(1B)	Riprap, Class III	CY	CY	600	---	600

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

R:\cadd\2198\2198-SITE PLAN Mon, Oct/30/17 10:03am

DESIGNED BY: Nick Murray	CHECKED: Elmer Marx	FOUNDATIONS REVIEWED BY: Dave Hemstreet
DRAWN BY: Sam Solite	CHECKED: Nick Murray	
QUANTITIES BY: Nick Murray	CHECKED: Elmer Marx	

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

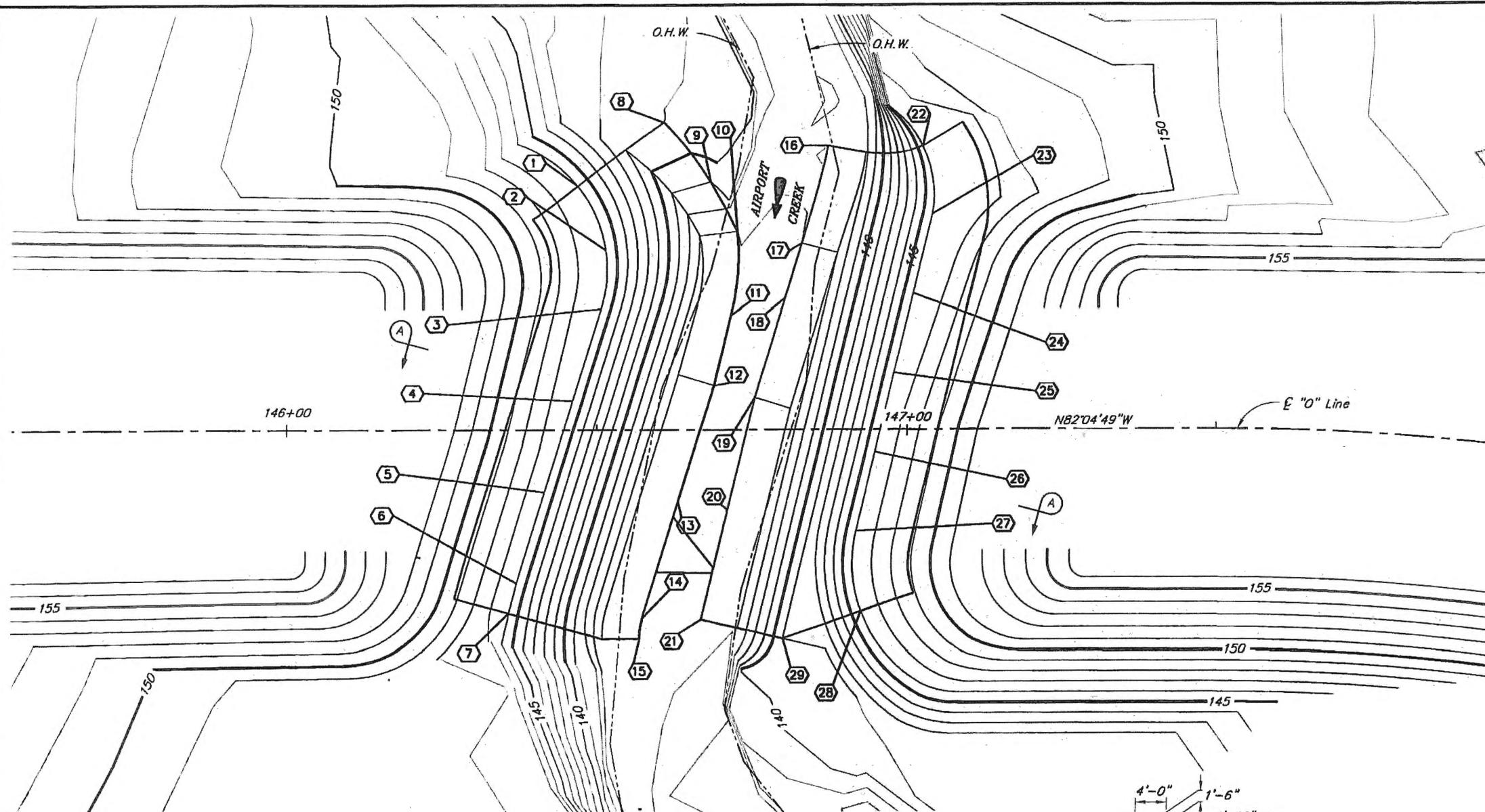


AIRPORT CREEK BRIDGE
 LEWIS REEF ROAD
 SITE PLAN

BRIDGE NO. 2198
 DWG. NO. 2

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z682260000	2017	N3	N12

RIPRAP TABLE				
POINT	STATION	OFFSET	ELEVATION	
1	146+46.7	39.3' Left	146.0'	
2	146+51.2	29.0' Left	146.0'	
3	146+50.6	19.5' Left	146.0'	
4	146+46.0	4.6' Left	146.0'	
5	146+41.6	10.0' Right	146.0'	
6	146+37.1	24.7' Right	146.0'	
7	146+35.9	29.5' Right	146.0'	
8	146+60.4	49.6' Left	137.0'	
9	146+68.0	40.0' Left	135.0'	
10	146+72.3	31.9' Left	133.0'	
11	146+71.4	18.4' Left	132.5'	
12	146+68.8	7.2' Left	132.0'	
13	146+63.1	11.6' Right	132.0'	
14	146+57.4	30.3' Right	132.0'	
15	146+56.9	33.7' Right	132.0'	
16	146+86.9	45.8' Left	133.5'	
17	146+82.7	30.0' Left	133.0'	
18	146+80.1	21.2' Left	132.7'	
19	146+75.3	5.2' Left	132.0'	
20	146+71.0	12.9' Right	132.0'	
21	146+66.8	30.6' Right	132.0'	
22	147+02.2	45.7' Left	146.0'	
23	147+03.8	34.7' Left	146.0'	
24	147+00.8	21.9' Left	146.0'	
25	146+97.8	9.2' Left	146.0'	
26	146+94.8	3.6' Right	146.0'	
27	146+91.8	16.3' Right	146.0'	
28	146+92.5	29.3' Right	146.0'	
29	146+80.0	33.7' Right	141.0'	

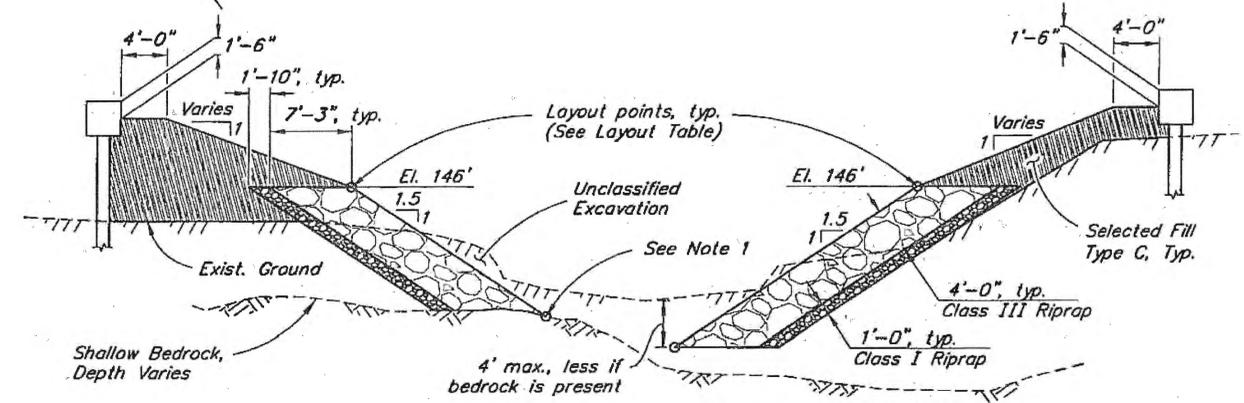


GRADING PLAN

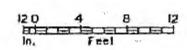


HYDRAULIC & HYDROLOGIC SUMMARY, BRIDGE NO. 2198			
Flood Frequency (Yr.)	50	100	500
Exceedance Probability (%)	2	1	0.2
Discharge (cfs)	500	530	700
Water Surface Elevation (ft)	140.9	141.1	141.8
Anticipated Add'l Backwater (ft)	0	0	0
Contraction Scour (ft)	0	0	0
Abutment Scour (ft)		n.c.	
Long-Term Degradation (ft)		3	

Drainage Area: 0.75 square miles
 The hydraulic capacity is >> Q500.
 Riprap installed to counter abutment scour potential and bedrock is observable along channel bottom near the bridge site.



SECTION A-A



- RIPRAP NOTES:
1. Shallow bedrock along the channel bottom might prevent installation of riprap to the elevation listed in the layout table.
 2. Riprap installation slope will vary from 1.5H:1V at the upstream and downstream layout limits as shown on the grading plan.
 3. The bedrock depths shown on the detail do not reflect actual depths.

DESIGNED BY: Michael Knapp	CHECKED:
DRAWN BY: Sam Sallie	CHECKED: Michael Knapp
QUANTITIES BY: Michael Knapp	CHECKED:

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



AIRPORT CREEK BRIDGE
 LEWIS REEF ROAD
 RIPRAP LAYOUT

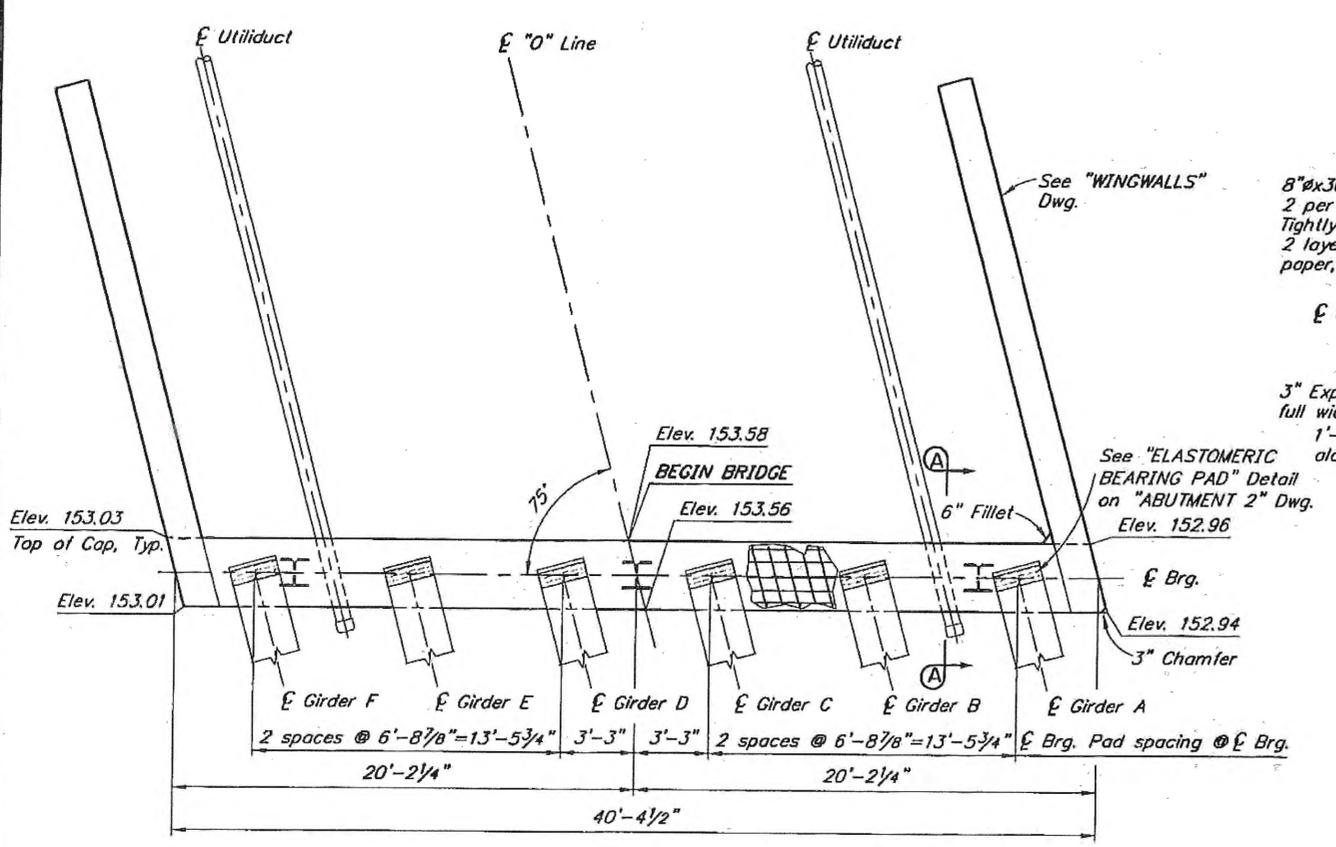
BRIDGE NO. 2198
 DWG. NO. 3

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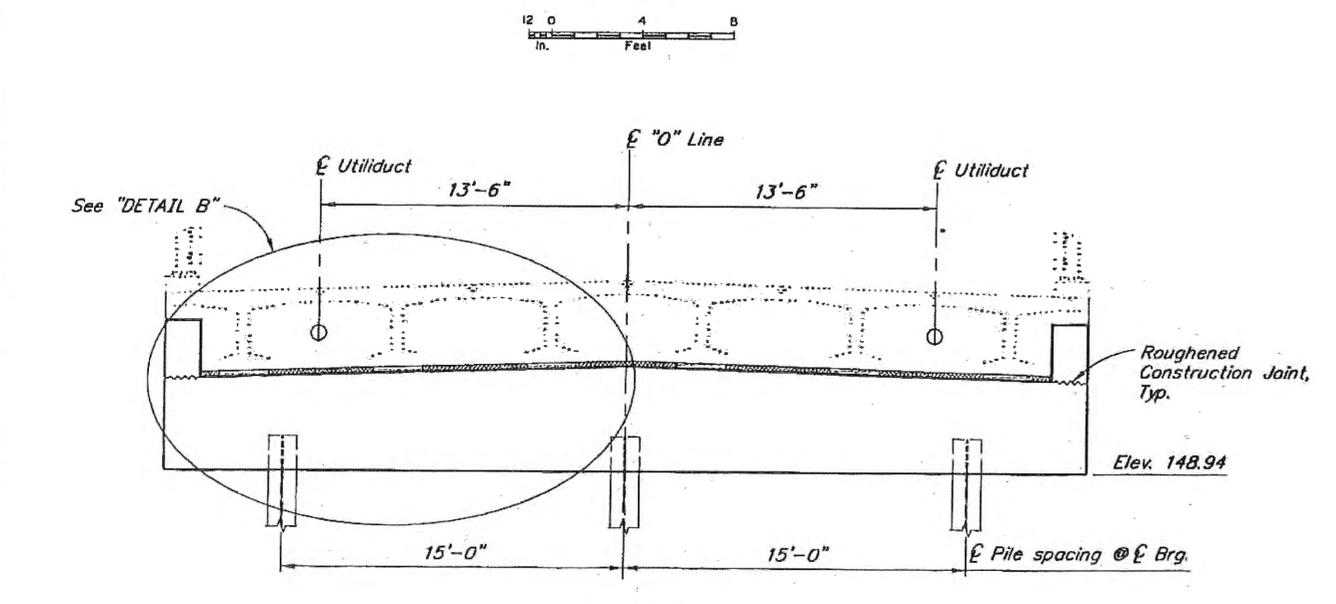
REINFORCING STEEL - ABUTMENT 1						
MARK	NOTE	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAM
A401		4	104	12'-3"	STIRRUP	
A402	M	4	4	29'-0"	---	
A403		4	59	5'-9"	TIE	
A501	E	5	44	12'-3"	STIRRUP	
A601		6	10	40'-0"	---	
A602	E	6	5	4'-2"	---	
A603	E,M	6	10	36'-10"	---	
A604	E,M	6	5	40'-0"	---	
A701	E	7	8	3'-0"	BENT	
A1001		10	5	40'-0"	---	
A1002	H	10	5	39'-11"	HEADED	
C401	E	4	4	4'-11"	BENT	

E - Epoxy-Coated
H - Headed reinforcing steel
M - Field adjust to match cross slope

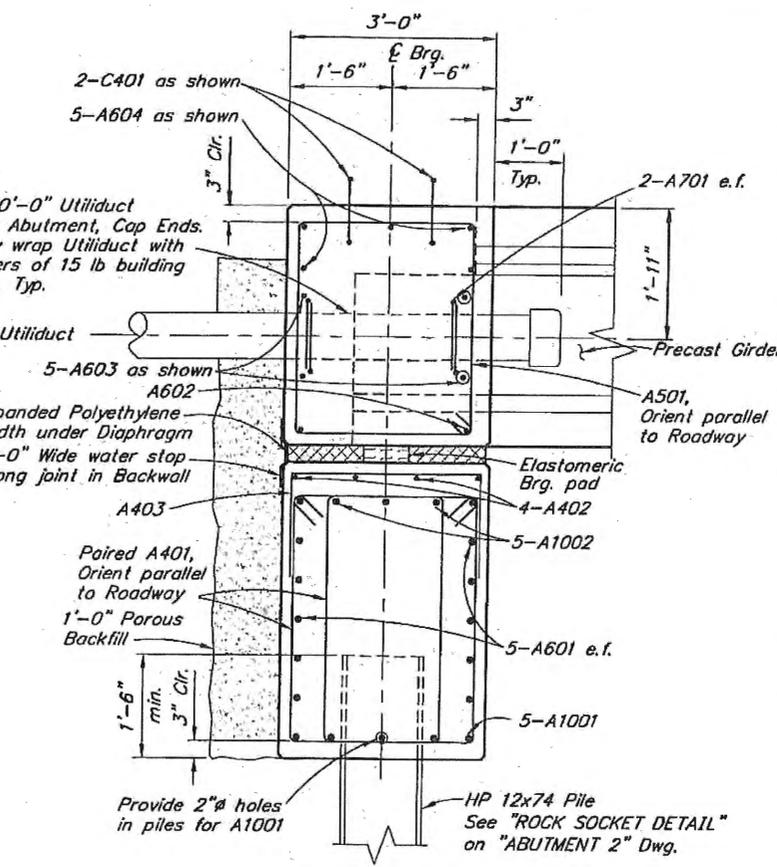
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Patty Swell Date 3/16/20



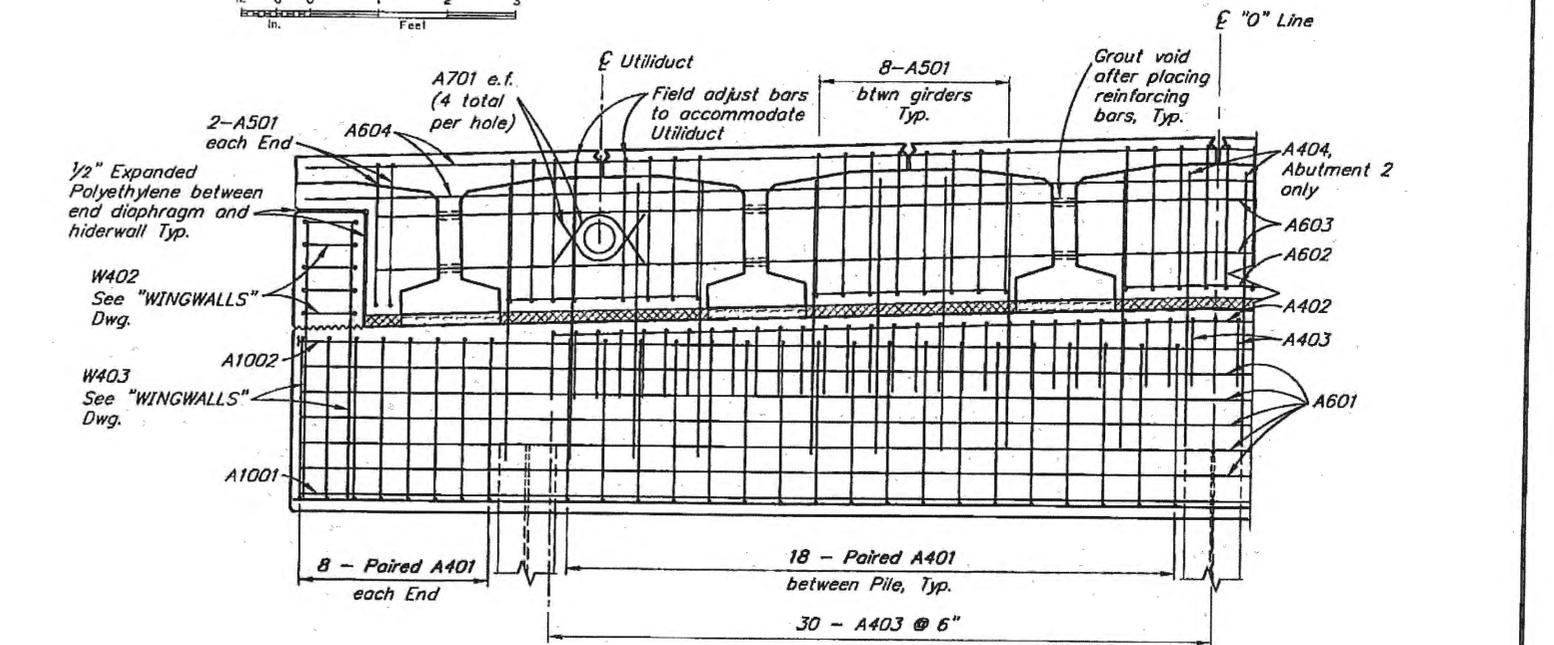
PLAN



ELEVATION
(Looking back on station)



SECTION A-A

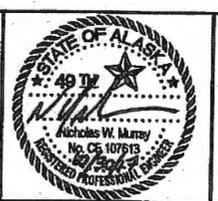


DETAIL B

R:\road\2198\2198-1-ABUTMENT 1 Mon, Oct/30/17 10:03am

DESIGNED BY: Nick Murray	CHECKED: Elmer Marx
DRAWN BY: Sam Sallie Jr	CHECKED: Nick Murray
QUANTITIES BY: Nick Murray	CHECKED: Elmer Marx

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-485-2875



AIRPORT CREEK BRIDGE
LEWIS REEF ROAD
ABUTMENT 1

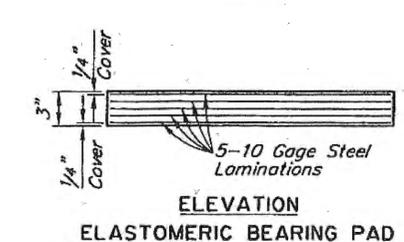
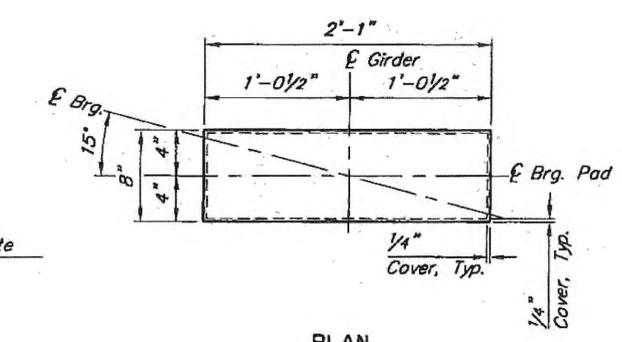
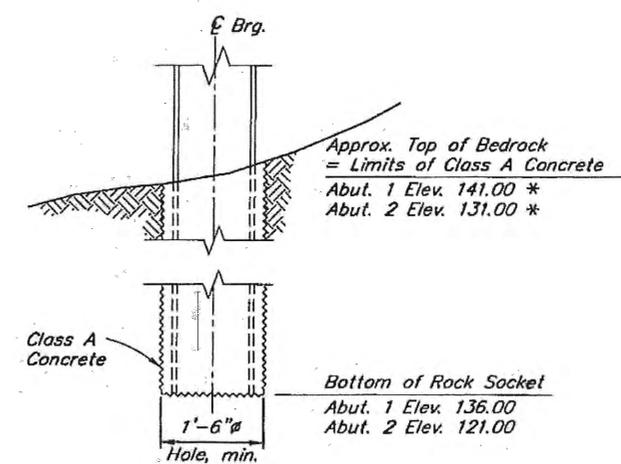
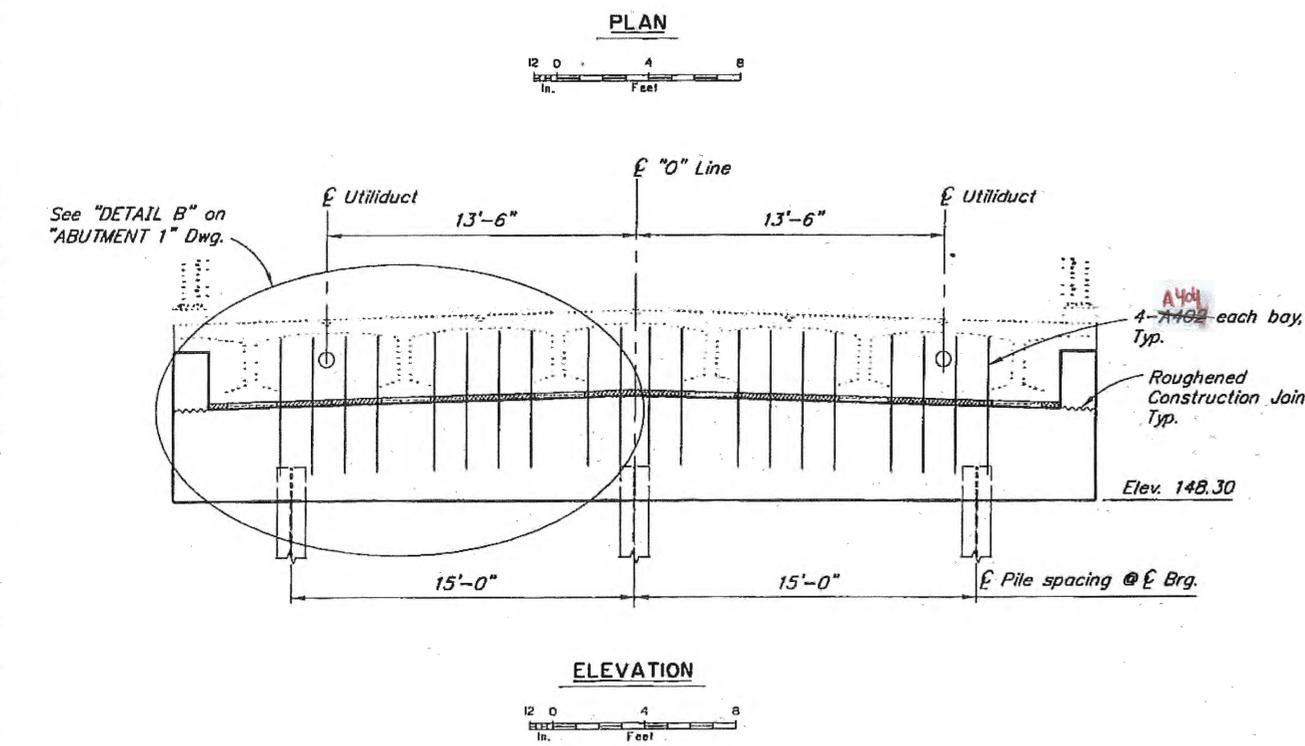
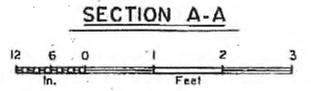
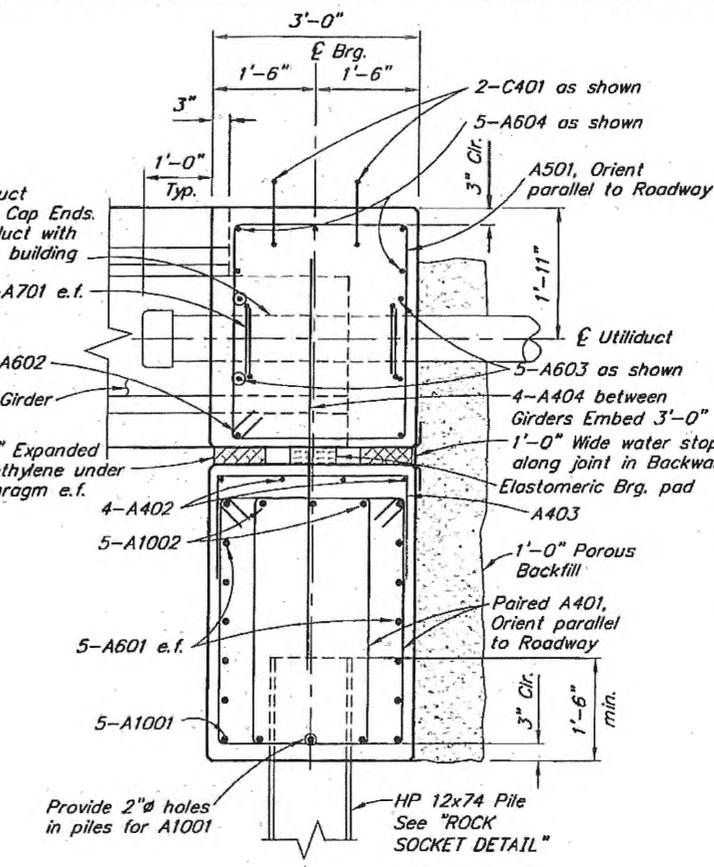
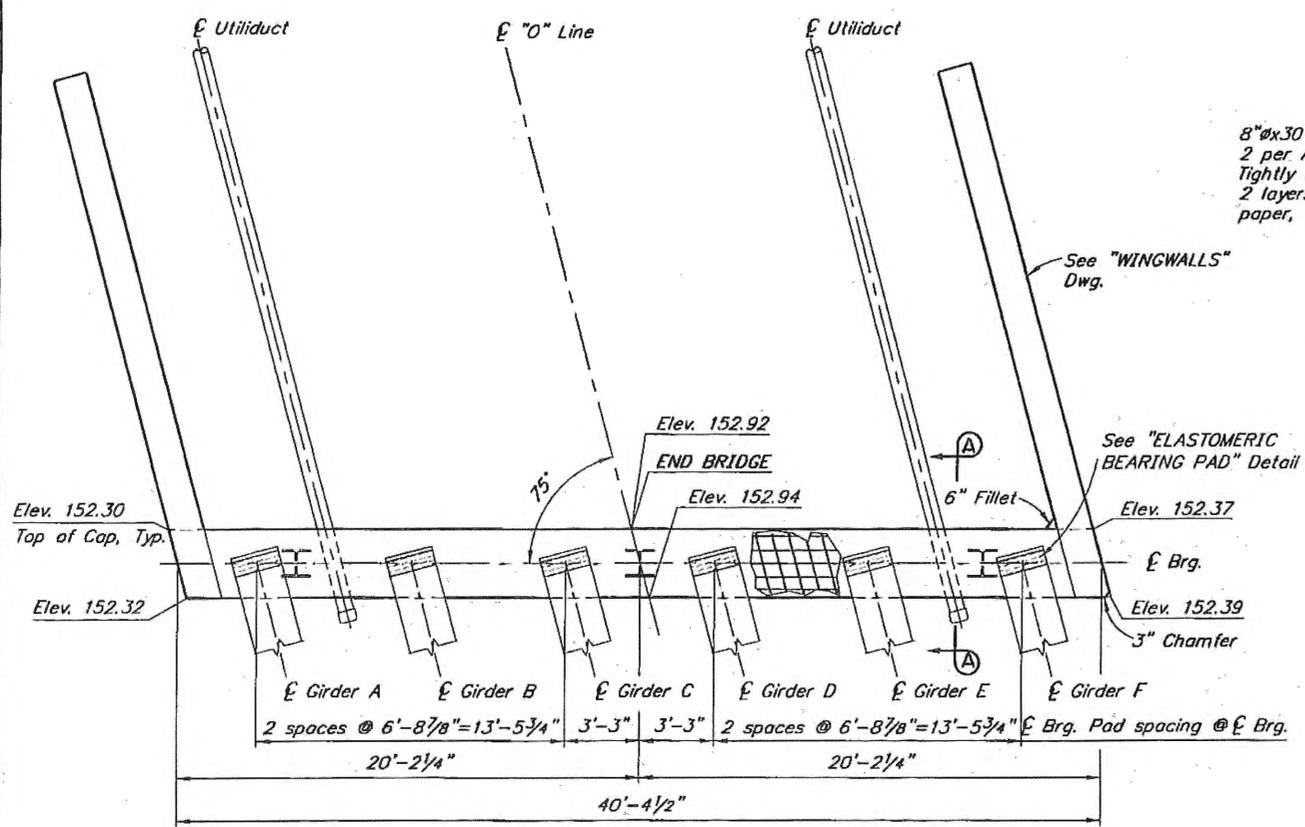
BRIDGE NO. 2198
DWG. NO. 4

REINFORCING STEEL - ABUTMENT 1

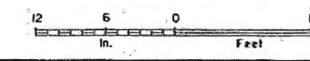
MARK	NOTE	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAM
A401		4	104	12'-3"	STIRRUP	
A402	M	4	4	29'-0"	---	
A403		4	59	5'-9"	TIE	
A404	E	4	20	6'-0"	---	
A501	E	5	44	12'-3"	STIRRUP	
A601		6	10	40'-0"	---	
A602	E	6	5	4'-2"	---	
A603	E,M	6	10	36'-10"	---	
A604	E,M	6	5	40'-0"	---	
A701	E	7	8	3'-0"	BENT	
A1001		10	5	40'-0"	---	
A1002	H	10	5	39'-11"	HEADED	
C401	E	4	4	4'-11"	BENT	

E - Epoxy-Coated
H - Headed reinforcing steel
M - Field adjust to match cross slope

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Patricia Swill Date: 2/14/20



Grade 5
Shear Modulus = 0.115 ksi
Dead Load = 82 k
Live Load = 81 k



NOTE:
* Bedrock elevation varies. Highest expected bedrock elevation shown.

R:\cadd\2198\2198-1-ABUTMENT 2 Mon, Oct/30/17 09:57am

DESIGNED BY: <i>Nick Murray</i>	CHECKED: <i>Elmer Morr</i>
DRAWN BY: <i>Sam Sallie Jr</i>	CHECKED: <i>Nick Murray</i>
QUANTITIES BY: <i>Nick Murray</i>	CHECKED: <i>Elmer Morr</i>

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
BRIDGE SECTION
3132 Channel Drive
Juneau, Alaska 99801
907-485-2875



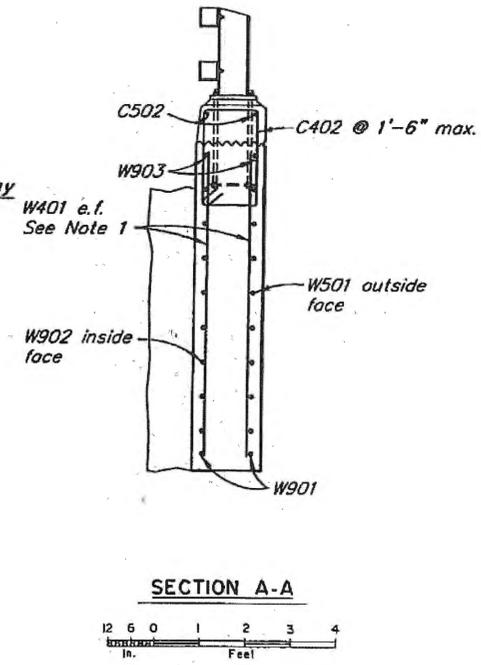
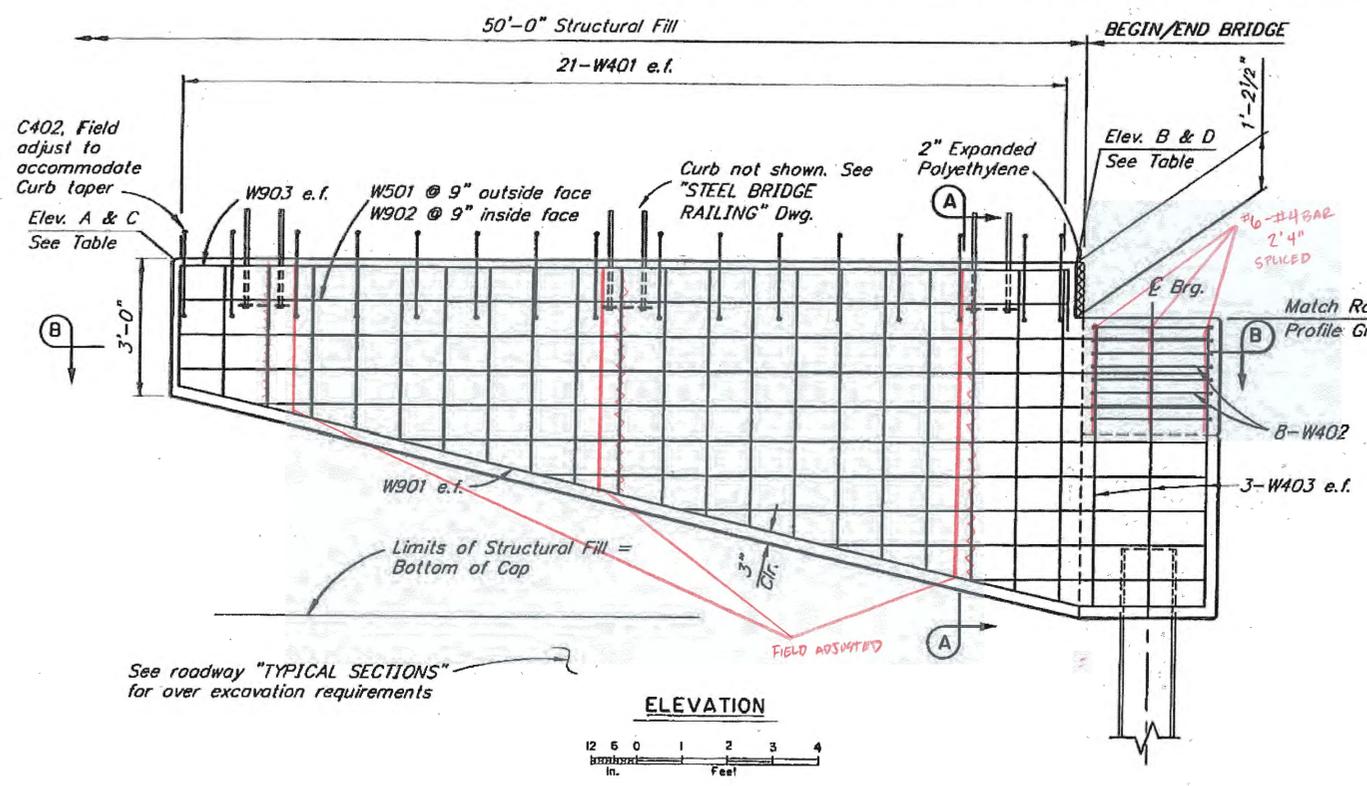
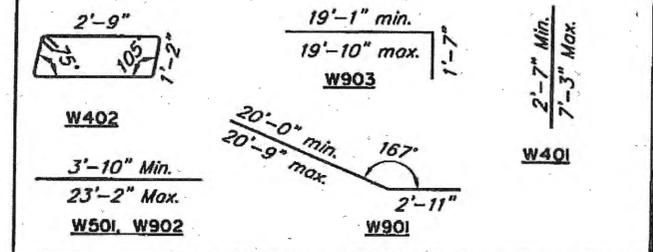
AIRPORT CREEK BRIDGE
LEWIS REEF ROAD
ABUTMENT 2


BRIDGE NO. 2198
DWG. NO. 5

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z682260000	2017	N6	N12

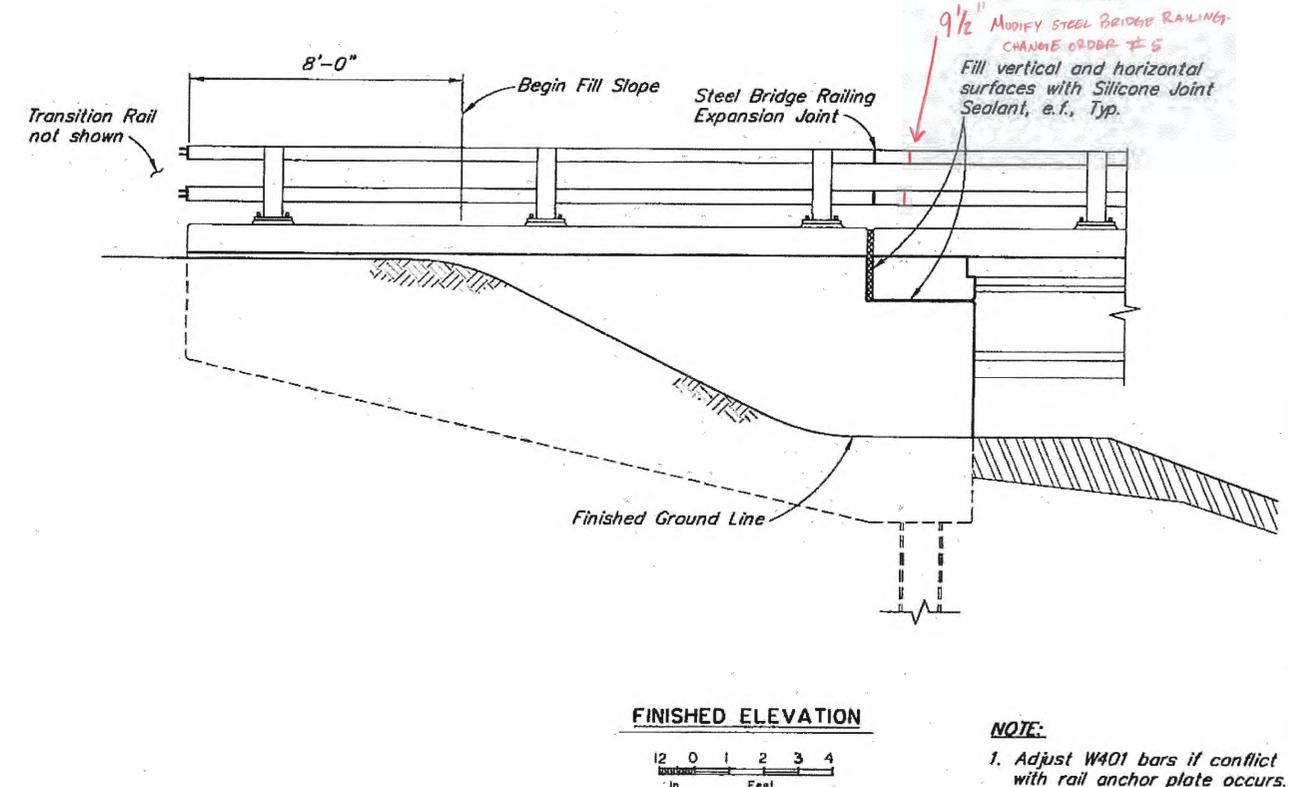
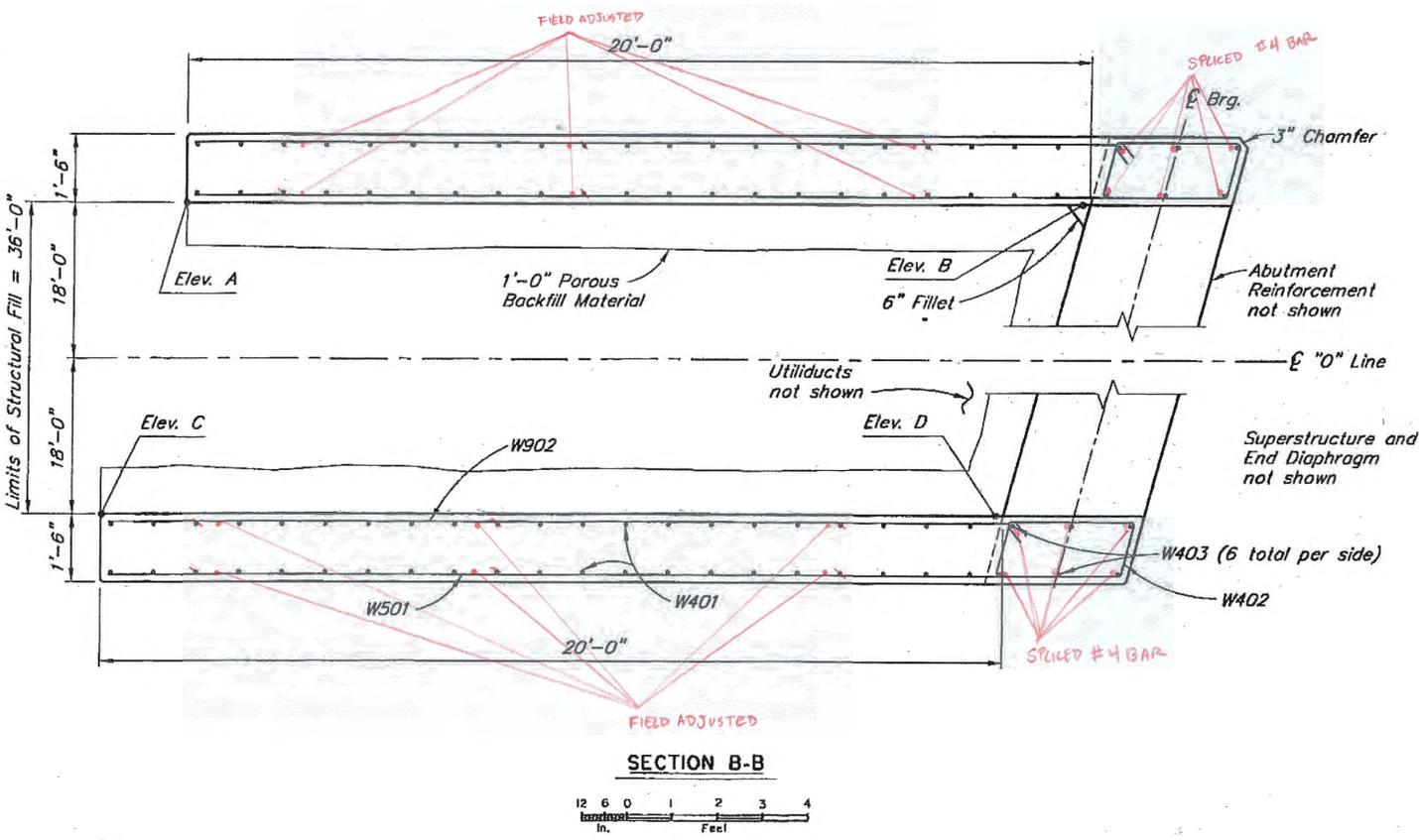
REINFORCING STEEL - ONE ABUTMENT

MARK	NOTE	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAM
W401		4	84	VARIES	---	
W402		4	16	8'-7"	STIRRUP	
W403		4	12	6'-1"	---	
W501		5	18	VARIES	---	
W901		9	4	VARIES	BENT	
W902		9	18	VARIES	---	
W903		9	4	VARIES	BENT	
C402	E	4	32	7'-7"	STIRRUP	
C502	E	5	4	VARIES	---	



TOP OF WINGWALL ELEVATION TABLE (FT)

LOCATION	A UPSTREAM	B UPSTREAM	C DOWNSTREAM	D DOWNSTREAM
ABUTMENT 1	156.89	156.75	156.95	156.82
ABUTMENT 2	156.16	156.10	156.03	156.16

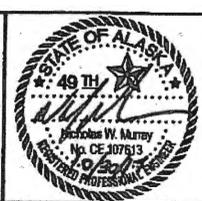


NOTE:
1. Adjust W401 bars if conflict with rail anchor plate occurs.

R:\cod\2198-1-WINGWALLS Mon, Oct/30/17 10:04am

DESIGNED BY: Nick Murray	CHECKED: Ehmer Morz
DRAWN BY: Sam Saffie Jr	CHECKED: Nick Murray
QUANTITIES BY: Nick Murray	CHECKED: Ehmer Morz

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
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907-465-2875



AIRPORT CREEK BRIDGE
LEWIS REEF ROAD
WINGWALLS

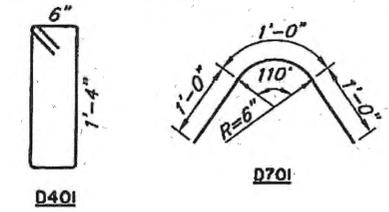

BRIDGE NO. 2198
DWG. NO. 6

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z6B2260000	2017	N7	N12

REINFORCING STEEL - ONE DIAPHRAGM

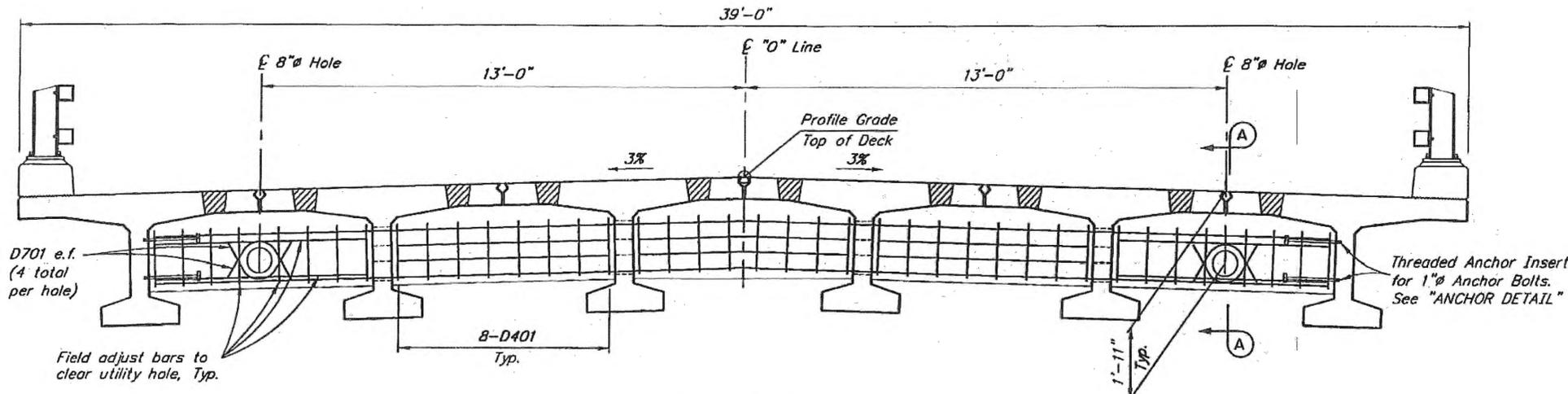
MARK	NOTE	SIZE	NO.	LENGTH	TYPE
D401	E	4	40	4'-5"	STIRRUP
D501	E	5	20	5'-8"	---
D601	E,M	6	4	32'-8"	---
D701	E	7	8	3'-0"	BENT

BENDING DIAGRAM

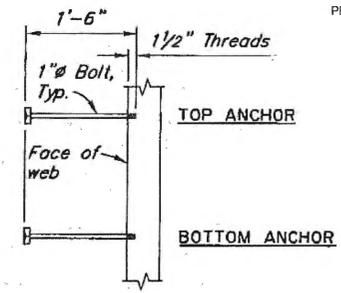
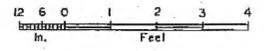


E - Epoxy-Coated
M - Field adjust to match cross slope

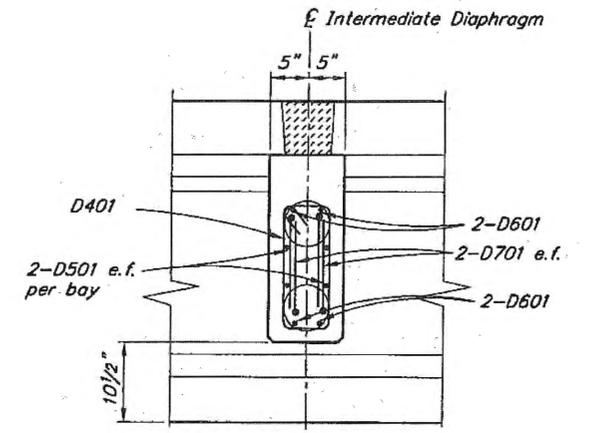
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Date: 3/11/20



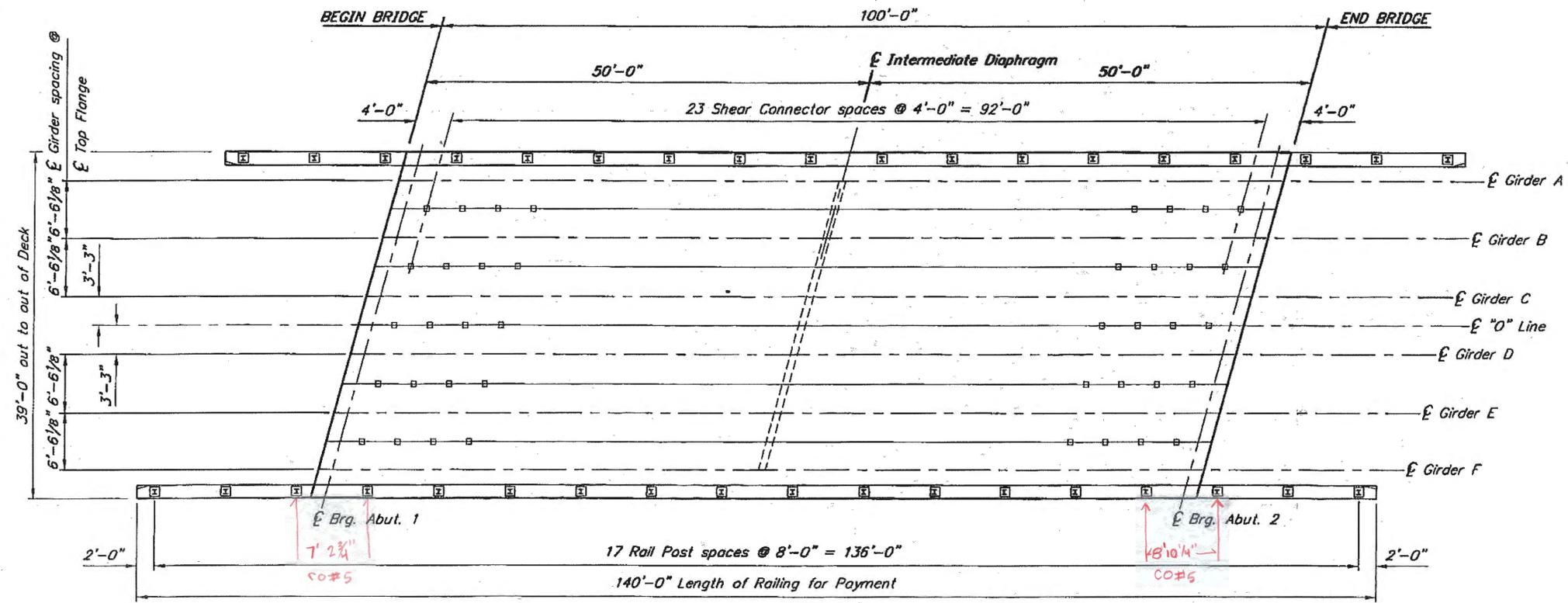
TYPICAL SECTION



ASTM A307 GALVANIZED ANCHOR DETAIL



SECTION A-A



FRAMING PLAN



DESIGNED BY: Nick Murray	CHECKED: Emer Marx
DRAWN BY: Sam Solite	CHECKED: Nick Murray
QUANTITIES BY: Nick Murray	CHECKED: Emer Marx

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



AIRPORT CREEK BRIDGE
LEWIS REEF ROAD
FRAMING PLAN AND TYPICAL SECTION

BRIDGE NO. 2198
DWG. NO. 7

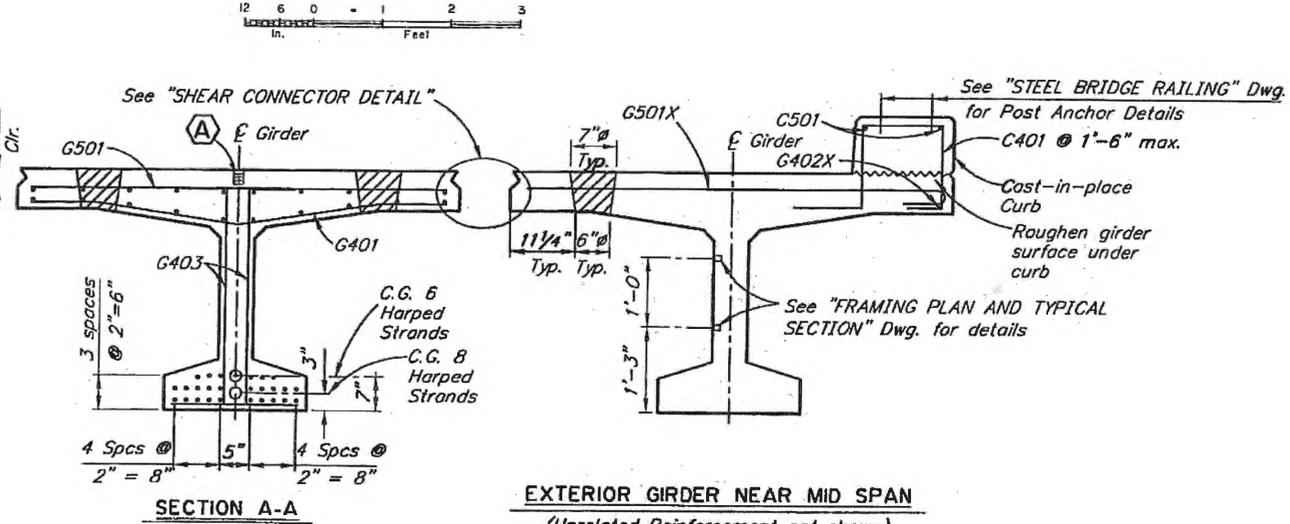
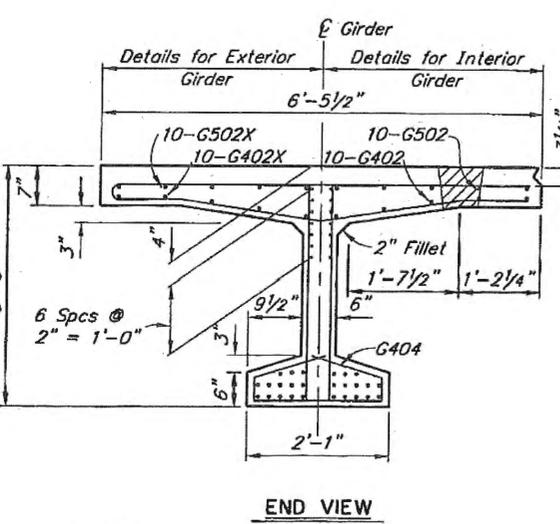
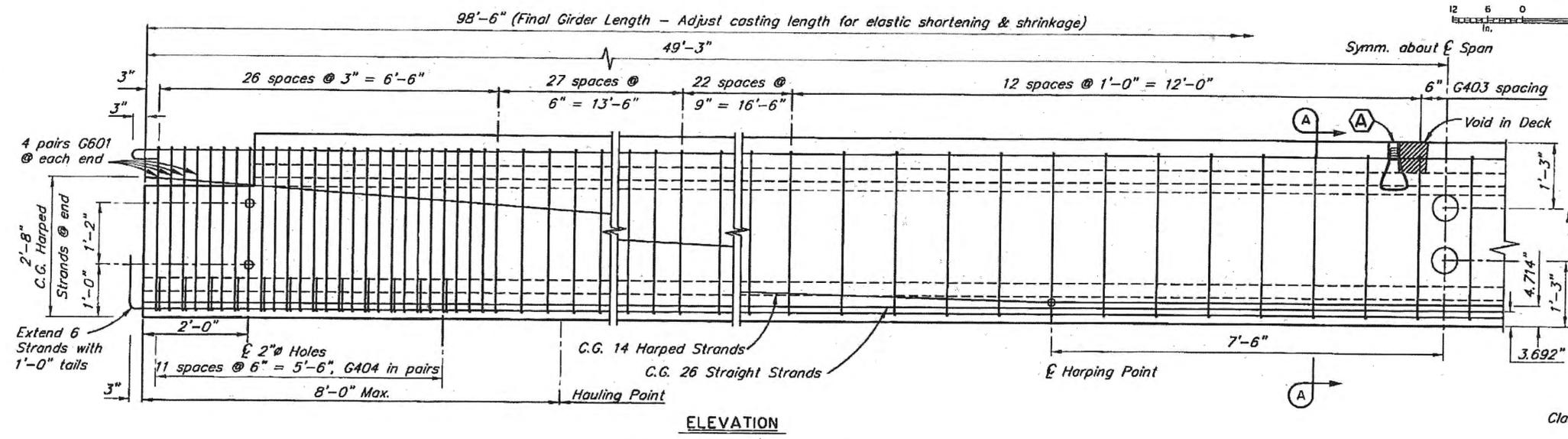
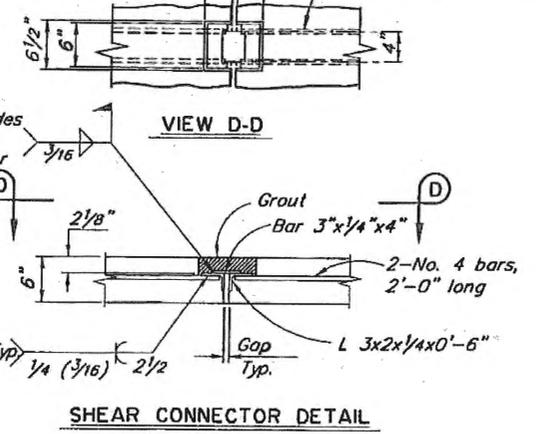
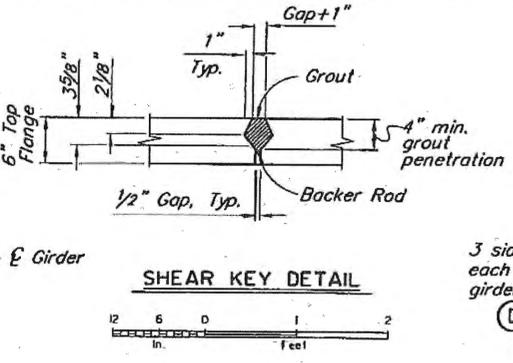
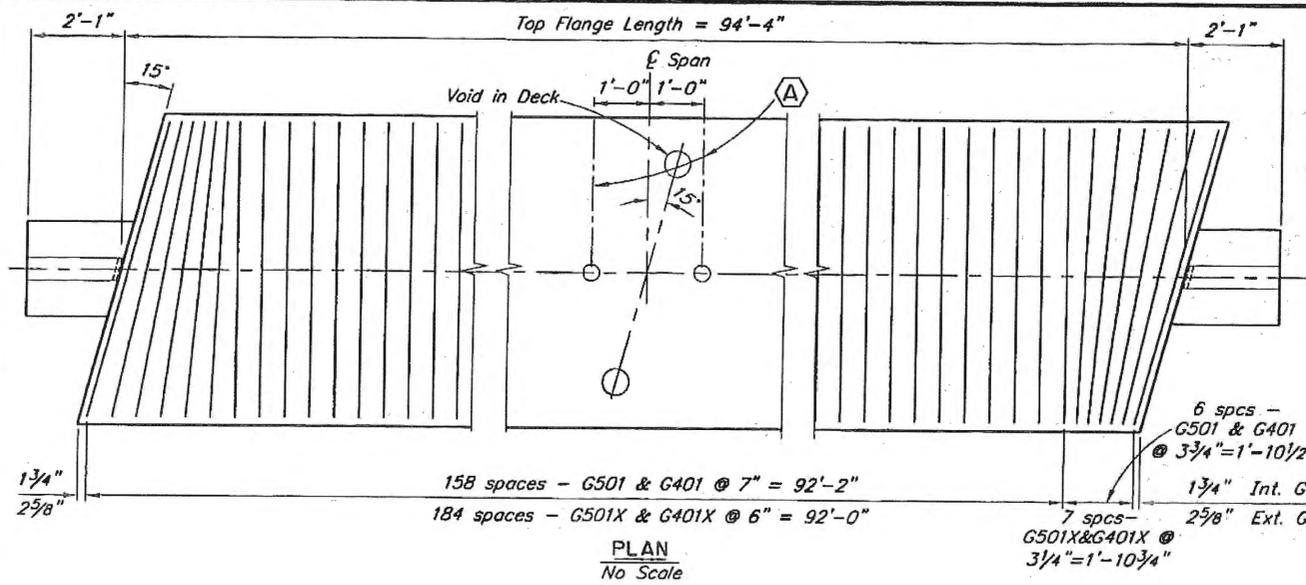
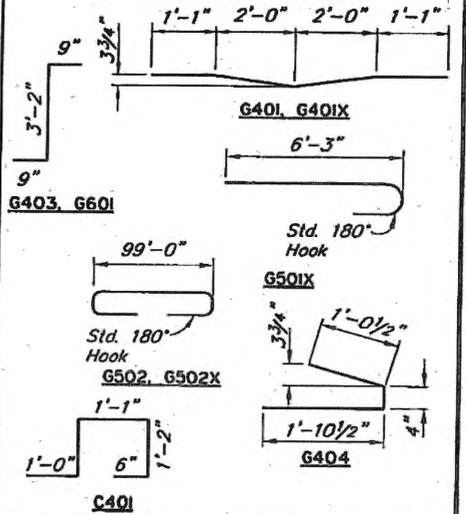
R:\cad\2198\2198-1-FRAMING Mon, Oct/30/17 10:06am

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z682260000	2017	N8	N12

REINFORCING STEEL-ONE GIRDER

MARK	NOTE	SIZE	NO.	LENGTH	TYPE
G401	E	4	165	6'-2"	BENT
G401X	E	4	192	6'-2"	BENT
G402	E,S	4	10	94'-2"	---
G402X	E,S	4	10	94'-2"	---
G403	E	4	336	4'-8"	BENT
G404	E	4	48	3'-3"	BENT
G501	E	5	165	6'-0"	---
G501X	E	5	192	6'-10"	BENT
G502	E,S	5	10	100'-2"	BENT
G502X	E,S	5	10	100'-2"	BENT
G601	E	6	16	4'-8"	BENT
C401	E	4	72	4'-11"	BENT
C501	E,S	5	2	99'-8"	---

BENDING DIAGRAM



GIRDER NOTES

- E - Epoxy-Coated reinforcing steel
- S - Splices permitted. Length does not include splices. Minimum lap splice length for splices shall be 2'-0" for #4 bars and 2'-6" for #5 bars
- X - Exterior girders only
- Class P Concrete: at Stress Transfer..... $f'ci = 7,500$ psi
at 28 Days..... $f'c = 8,500$ psi
- 0.60" low-relaxation prestressing strands with an ultimate strength of 270 ksi and a cross sectional area of 0.217 in².
- Steel stresses: Pretensioning - Jacking Stress 189 ksi
After initial losses 167 ksi
After all losses 139 ksi
- One inch clear cover on reinforcing steel unless otherwise noted.
- See "FRAMING PLAN AND TYPICAL SECTION" Dwg. for Shear Connector spacing.
- Deflect forms to compensate for camber.
- Galvanize structural steel embedded in girders except for shear connectors.
- (A) 1"X1'-0" Coil Anchor Insert for vertical adjustment of girders. Recess 2". Prevent concrete from filling hole.
- Omit Shear Key, Shear Key Connector and Deck Void in exterior face of exterior girders.
- Cast ends of girders plumb with respect to roadway grade. Install web holes and web anchor inserts parallel to ϵ bearing.
- Finish top flange with rough broom finish.

Project As-Built Drawings have been reviewed by the Project Engineer and represent the best of my knowledge, the project as constructed.
Date 3/14/20

R:\cadd\2198\2198-1-GIRDER Mon. Oct/30/17 10:04am

DESIGNED BY: Nick Murray	CHECKED: Elmer Morz
DRAWN BY: Sam Sallie Jr	CHECKED: Nick Murray
QUANTITIES BY: Nick Murray	CHECKED: Elmer Morz

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
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BRIDGE SECTION
3132 Channel Drive
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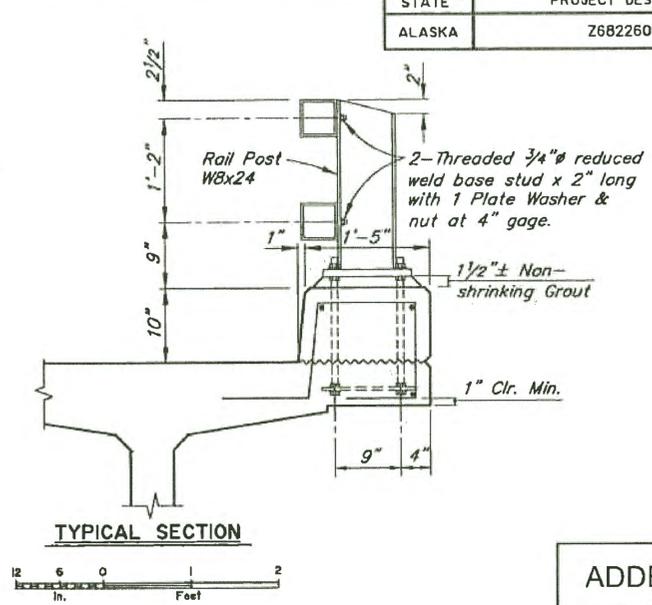
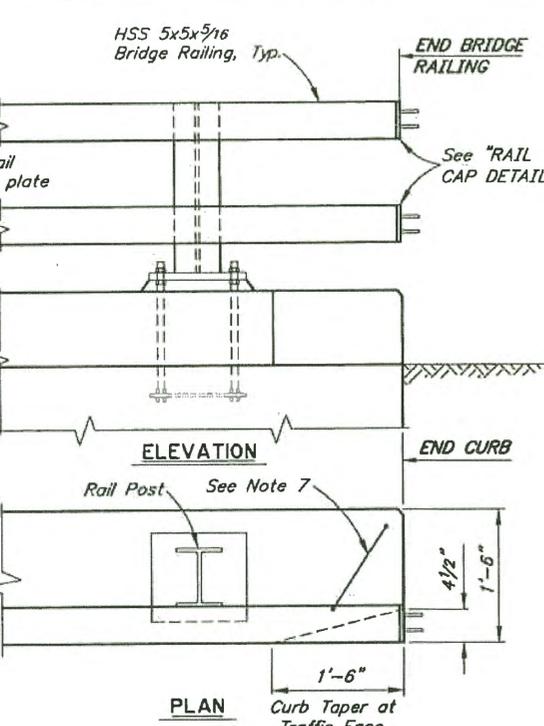
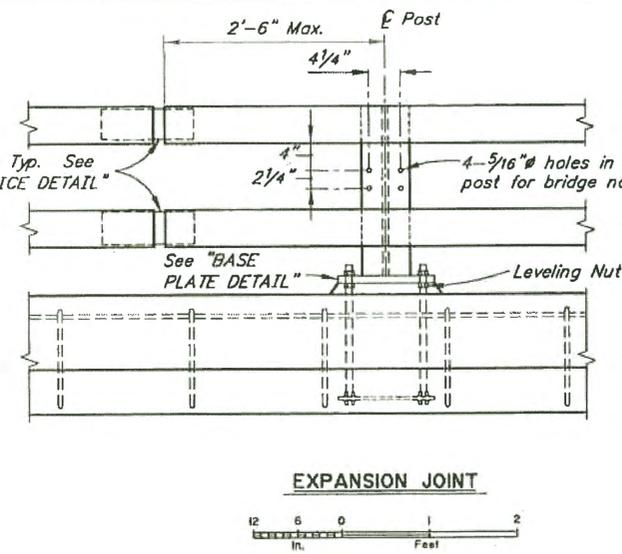
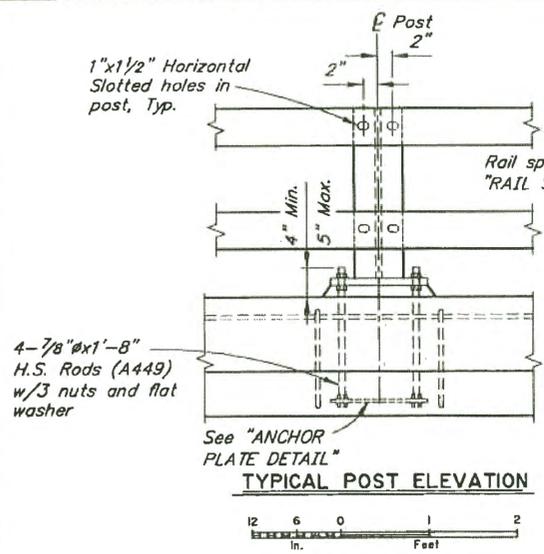


AIRPORT CREEK BRIDGE
LEWIS REEF ROAD
GIRDERS

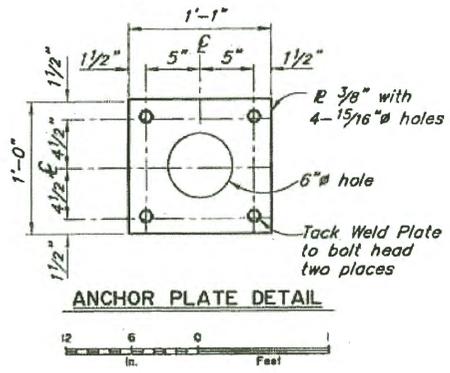
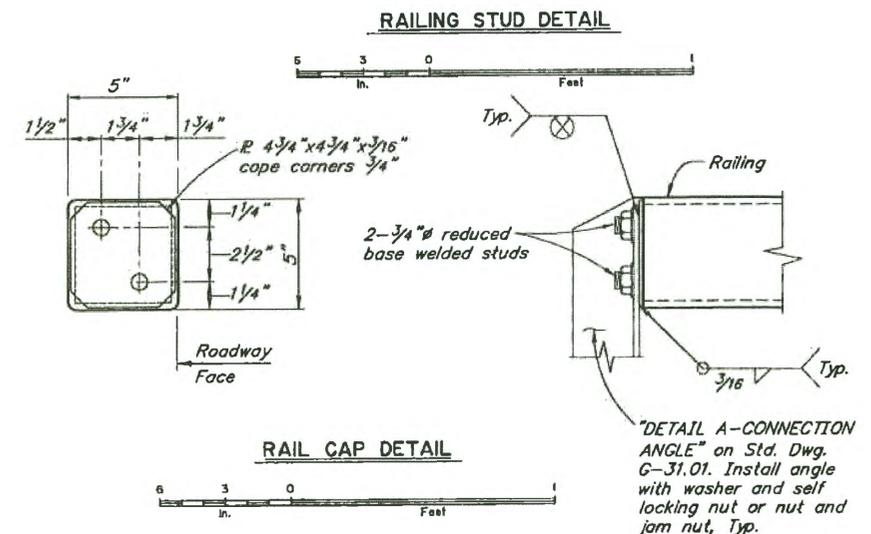
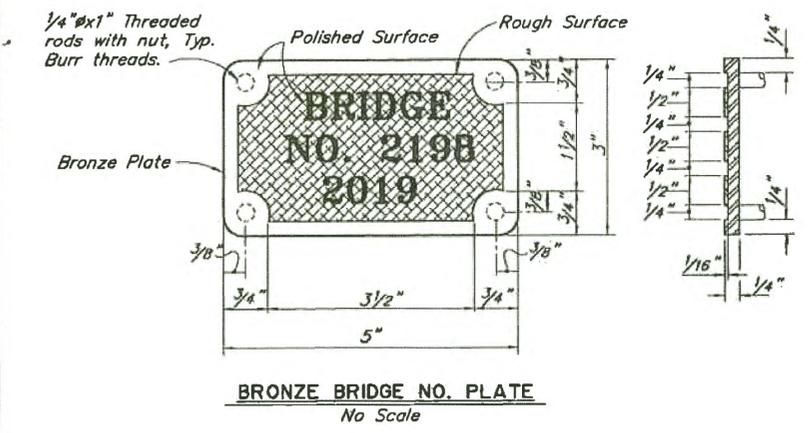
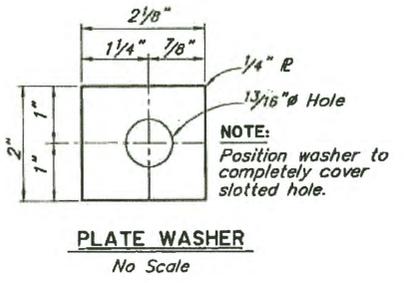
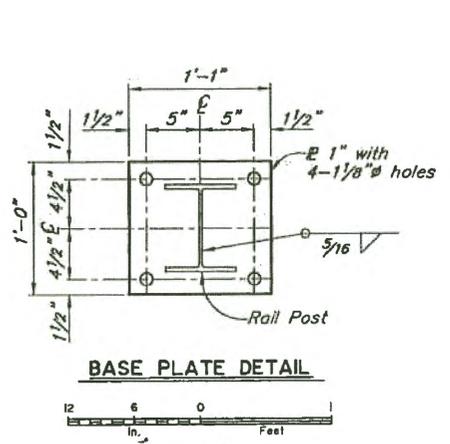
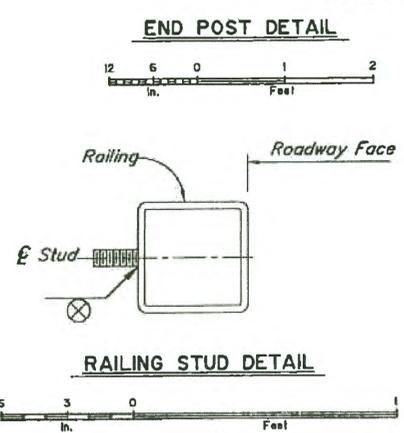
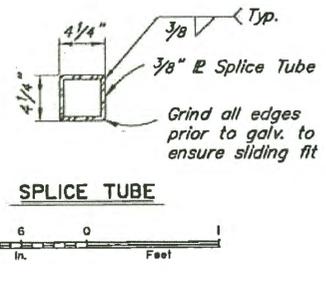
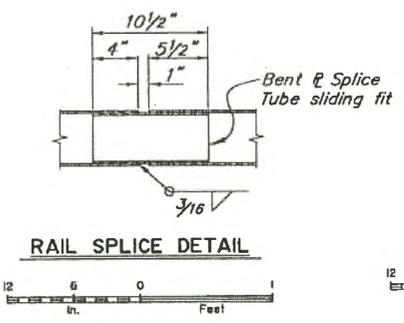
BRIDGE NO. 2198
DWG. NO. 8

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z6B2260000	2017	N9	N12

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *Sam Sallie* Date: 3/14/20



ADDENDUM NO.2
ATTACHMENT NO.2



- NOTES
- See "GENERAL LAYOUT" for bridge number plate locations.
 - Bridge number plates with "Century" type style lettering. Studs and nuts UNS C65100 or C65500. Braze 1/4" threaded rod to back of plate with tamper proof nut - 4 required.
 - 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.
 - Grout with a minimum 24 hour f'c of 3000 psi.
 - See "FRAMING PLAN AND TYPICAL SECTION" Dwg. for rail post spacing.
 - Install bridge rail posts plumb.
 - Adjust reinforcing to accommodate curb taper.

R:\cadd\2198\2198-1-RAILING Thu, Jul/12/18 09:29am

DESIGNED BY: <i>Nick Murray</i>	CHECKED: <i>Elmer Marx</i>
DRAWN BY: <i>Sam Sallie</i>	CHECKED: <i>Nick Murray</i>
QUANTITIES BY: <i>Nick Murray</i>	CHECKED: <i>Elmer Marx</i>

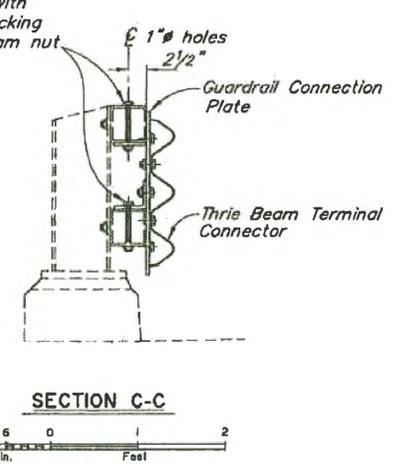
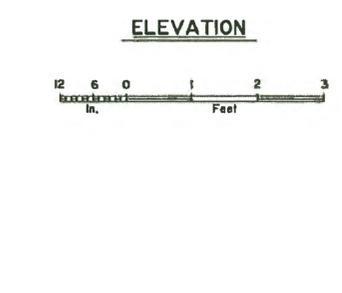
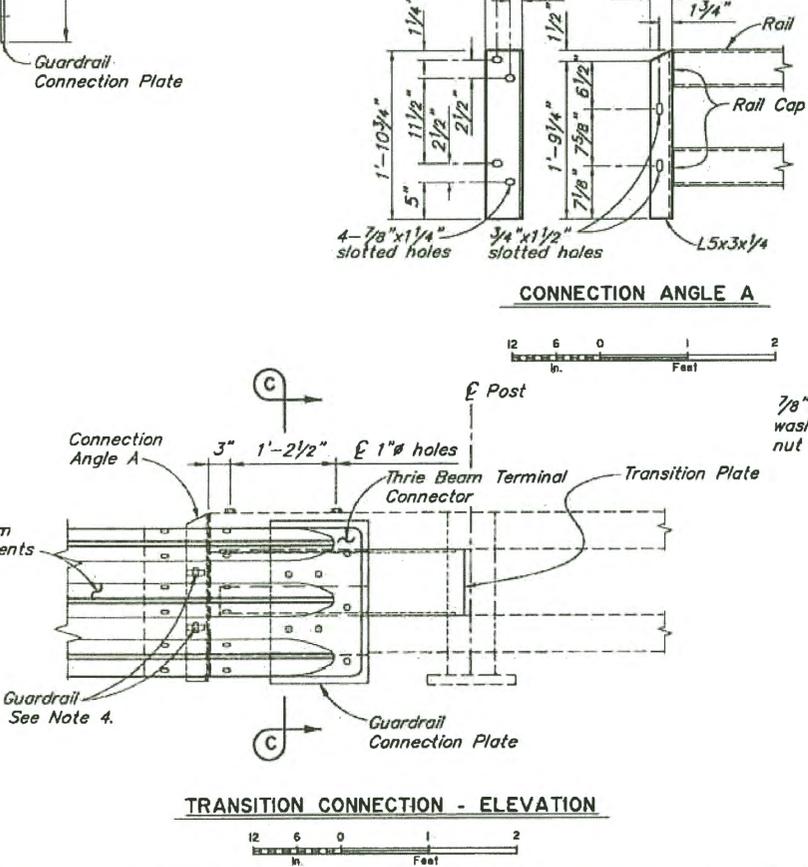
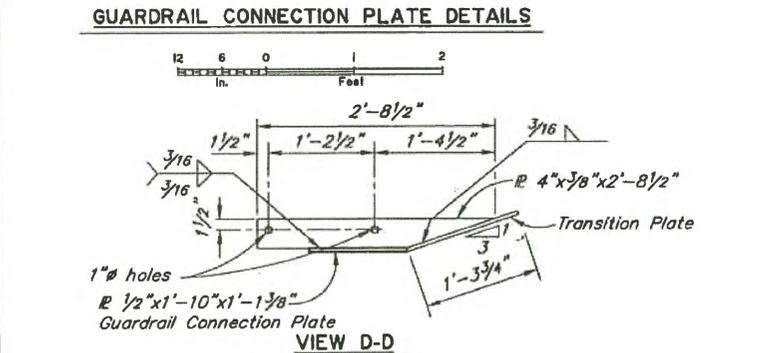
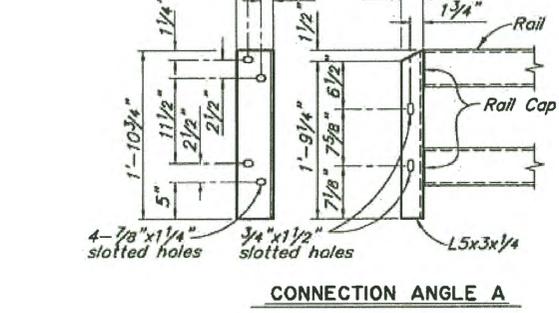
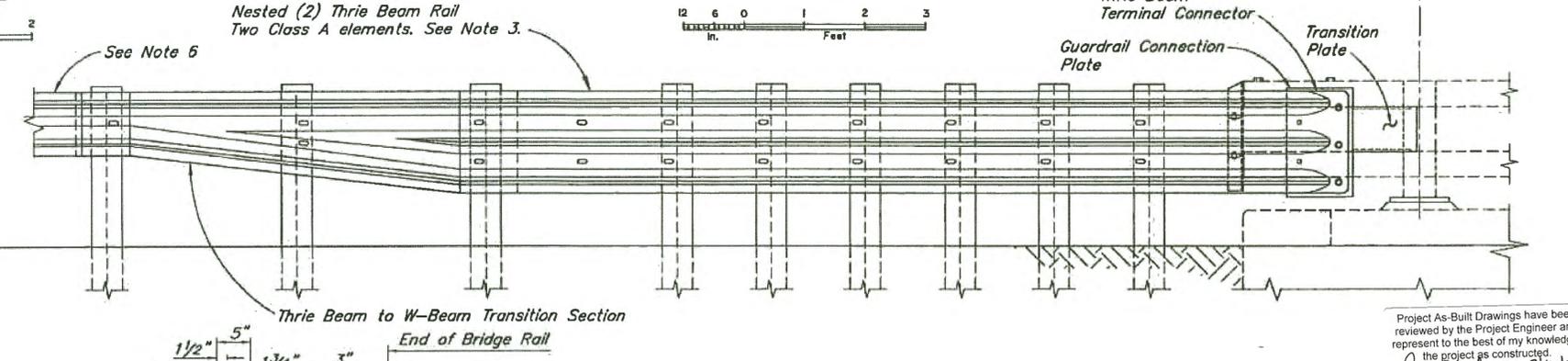
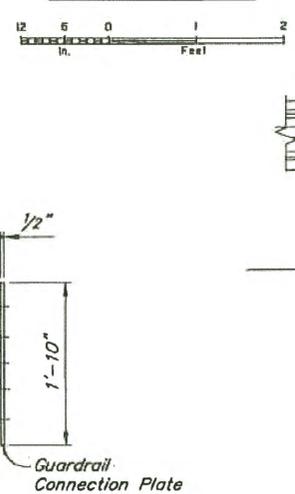
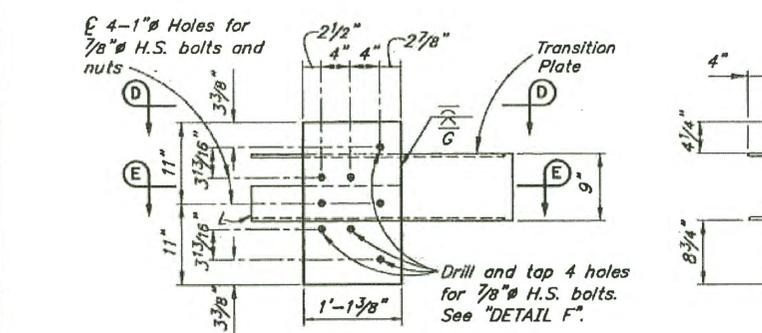
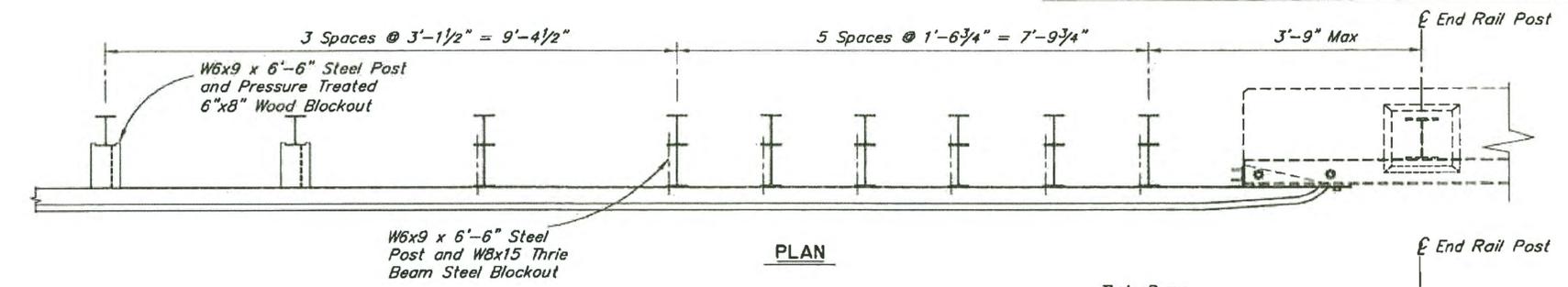
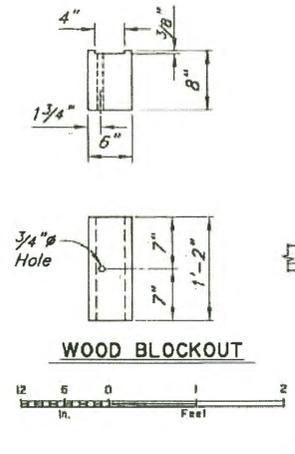
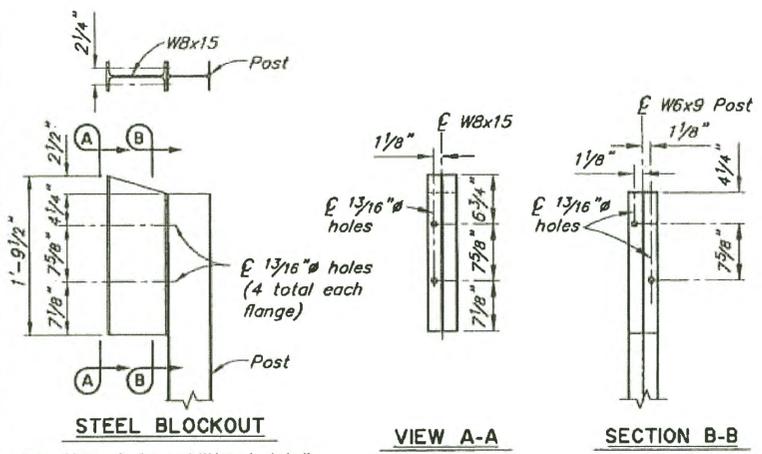
STATE OF ALASKA
 DEPARTMENT OF TRANSPORTATION
 AND PUBLIC FACILITIES
 BRIDGE SECTION
 3132 Channel Drive
 Juneau, Alaska 99801
 907-485-2975



AIRPORT CREEK BRIDGE
 LEWIS REEF ROAD
 STEEL BRIDGE RAILING

BRIDGE NO. 2198
 DWG. NO. 9

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z682260000	2017	N9A	N12



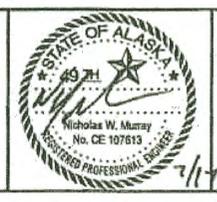
**ADDENDUM NO.2
ATTACHMENT NO.3**

1. All guardrail and guardrail connection hardware to conform to AASHTO M 180. Use H.S. Bolts conforming to ASTM F3125 Grade A325. All other steel conforms to ASTM A709 Grade 36 or Grade 50.
2. Conform to G-00, G-04S and G-10 for all guardrail details not shown. No backup plate is required.
3. Lap approach guardrail to prevent snags from oncoming traffic.
4. Provide 4 1/2" horizontal slots in approach guardrail. Adjust guardrail bolts for sliding fit.
5. Match height of existing or new rail elements and end treatments.
6. Thrie Beam transition to follow roadway alignment.

R:\cod\2198\2198-1-TRANSITION RAIL Thu, Jul/12/18 09:35am

DESIGNED BY: Nick Murray	CHECKED: Elmer Marx
DRAWN BY: Sam Soffie	CHECKED: Nick Murray
QUANTITIES BY: Nick Murray	CHECKED: Elmer Marx

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



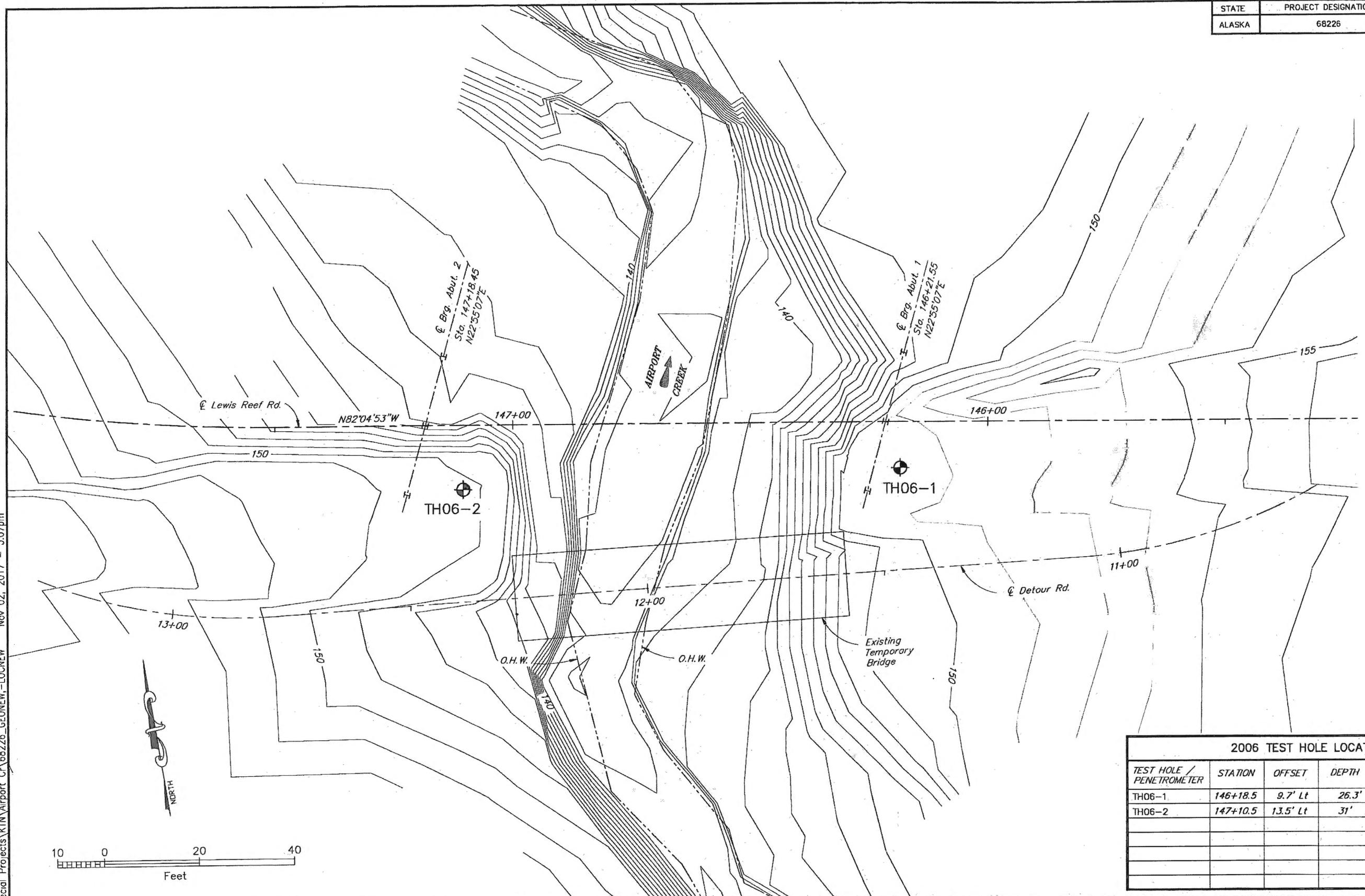
AIRPORT CREEK BRIDGE
LEWIS REEF ROAD
TRANSITION RAIL

BRIDGE NO. 2198
DWG. NO. 9A

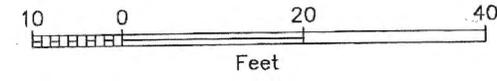
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	68226	2017	10	12

LEGEND

 TEST HOLE
 Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *David Hemstreet* Date: 3/14/20



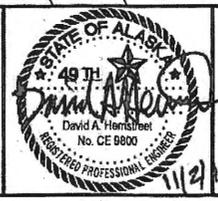
2006 TEST HOLE LOCATIONS				
TEST HOLE / PENETROMETER	STATION	OFFSET	DEPTH	LOCATION
TH06-1	146+18.5	9.7' Lt	26.3'	ABUTMENT 1
TH06-2	147+10.5	13.5' Lt	31'	ABUTMENT 2



R:\Projects\Drafting\Special\Projects\KTN\Airport_C\68226_GEONETWORK-LOCNEW Nov 02, 2017 - 3:07pm

DESIGNED BY:	<i>D.Hemstreet</i>	CHECKED:	<i>Engineer</i>
DRAWN BY:	<i>R.Angell</i>	CHECKED:	<i>Engineer</i>
QUANTITIES BY:	<i>Engineer</i>	CHECKED:	<i>Engineer</i>

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
STATEWIDE MATERIALS



AIRPORT CREEK BRIDGE
LEWIS REEF ROAD

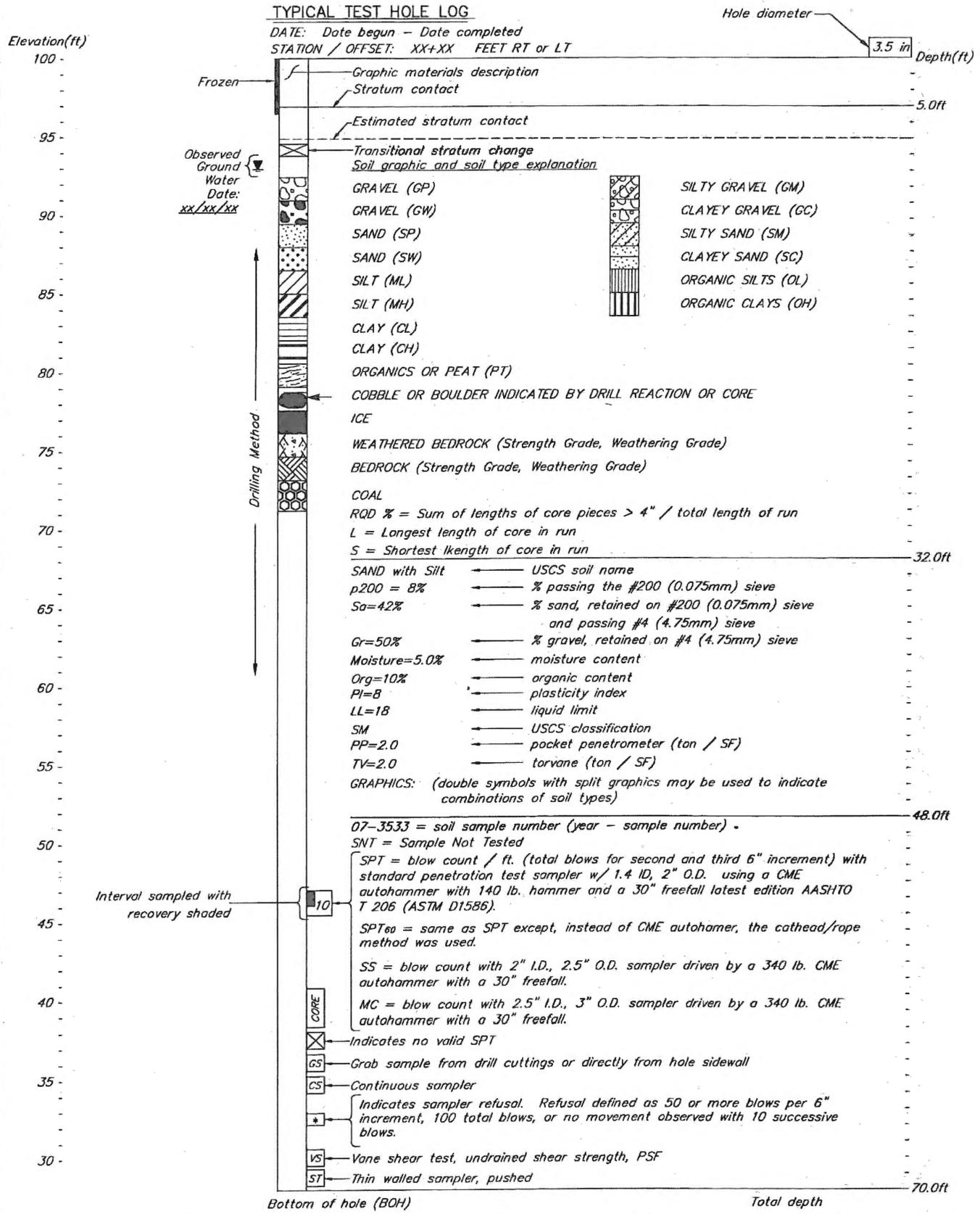
TEST HOLE & PENETROMETER LOCATION


 BRIDGE NO. 2198
 DWG. NO. 10

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	68226	2017	11	12

TYPICAL TEST HOLE LOG

DATE: Date begun - Date completed
 STATION / OFFSET: XX+XX FEET RT or LT



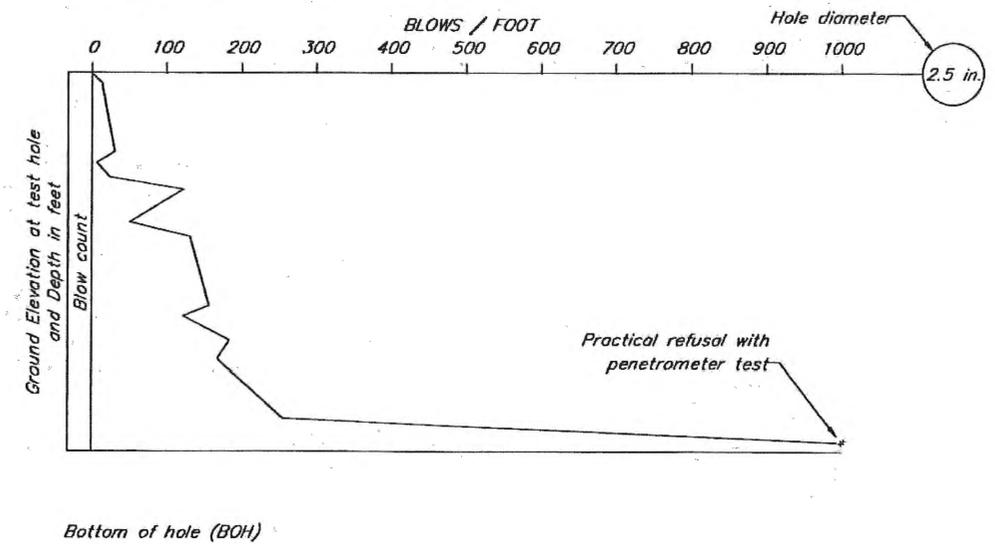
NOTES:

- 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.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: [Signature] Date: 3/16/20

TYPICAL PENETROMETER TEST LOG

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



NOTES:

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

R:\Projects\Drafting\Special Projects\KTM\Airport CA\68226_GEONEW_TYP Nov 02, 2017 - 3:07pm

DESIGNED BY: D.Hemstreet	CHECKED: Engineer
DRAWN BY: R.Angell	CHECKED: Engineer
QUANTITIES BY: Engineer	CHECKED: Engineer

STATE OF ALASKA
 DEPARTMENT OF TRANSPORTATION
 AND PUBLIC FACILITIES
 STATEWIDE MATERIALS



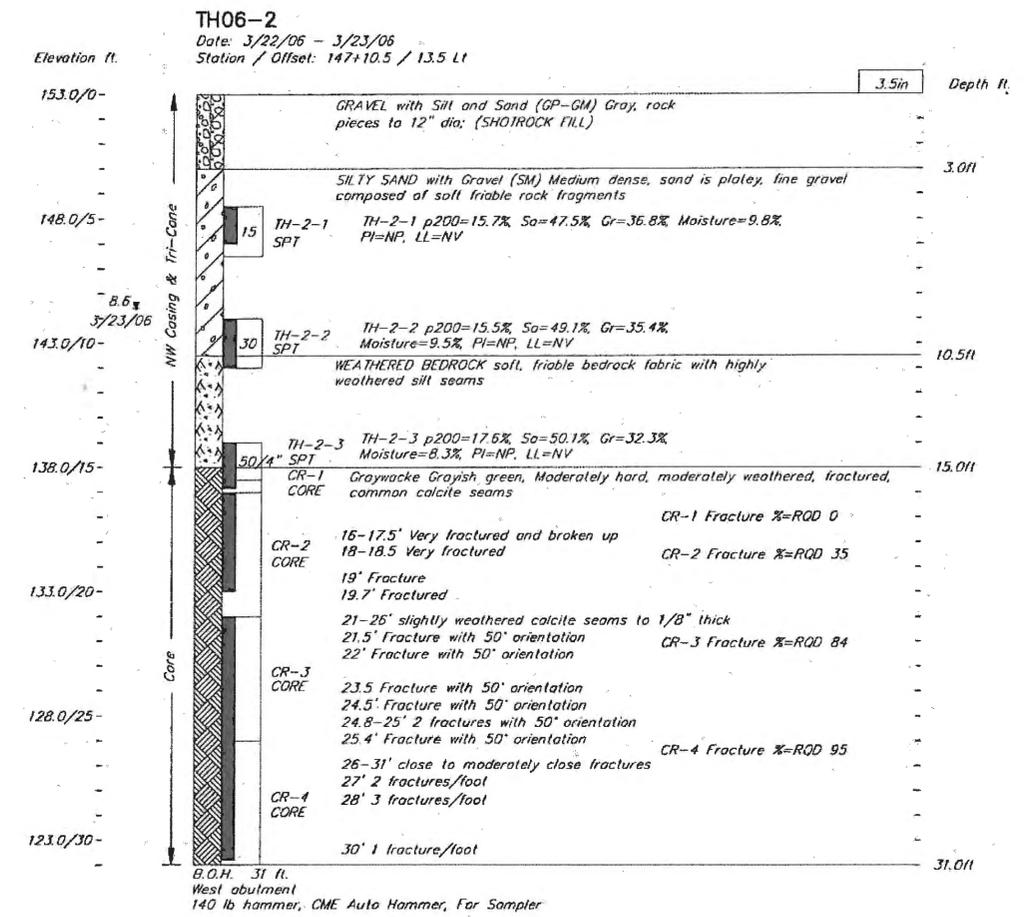
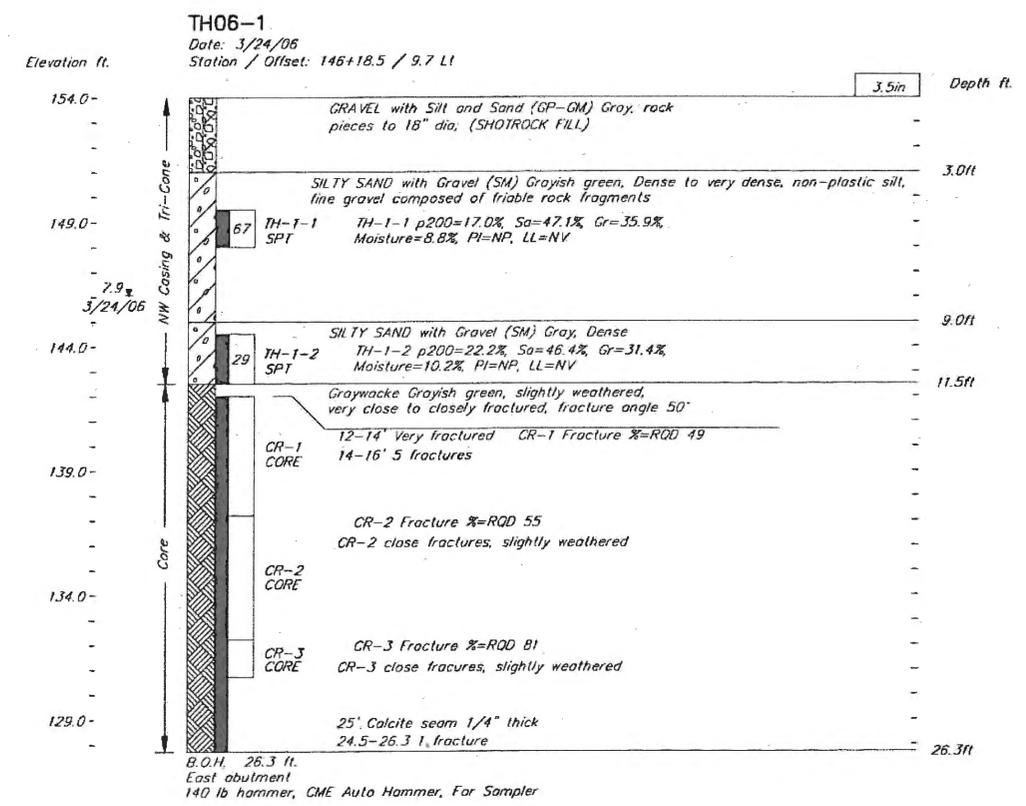
AIRPORT CREEK BRIDGE
 LEWIS REEF ROAD

TEST HOLE & PENETROMETER LEGEND

BRIDGE NO. 2198
 DWG. NO. 11

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	68226	2017	12	12

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *Patly Swill* Date: 3/11/20



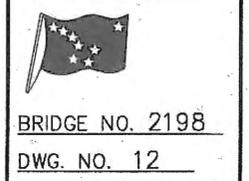
R:\Projects\Drafting Special Projects\KTN\Airport Cr\68226_GEONEM\LOGS Nov 02, 2017 - 3:07pm

DESIGNED BY: D.Hemstreet	CHECKED: Engineer
DRAWN BY: R.Angell	CHECKED: Engineer
QUANTITIES BY: Engineer	CHECKED: Engineer

STATE OF ALASKA
 DEPARTMENT OF TRANSPORTATION
 AND PUBLIC FACILITIES
 STATEWIDE MATERIALS



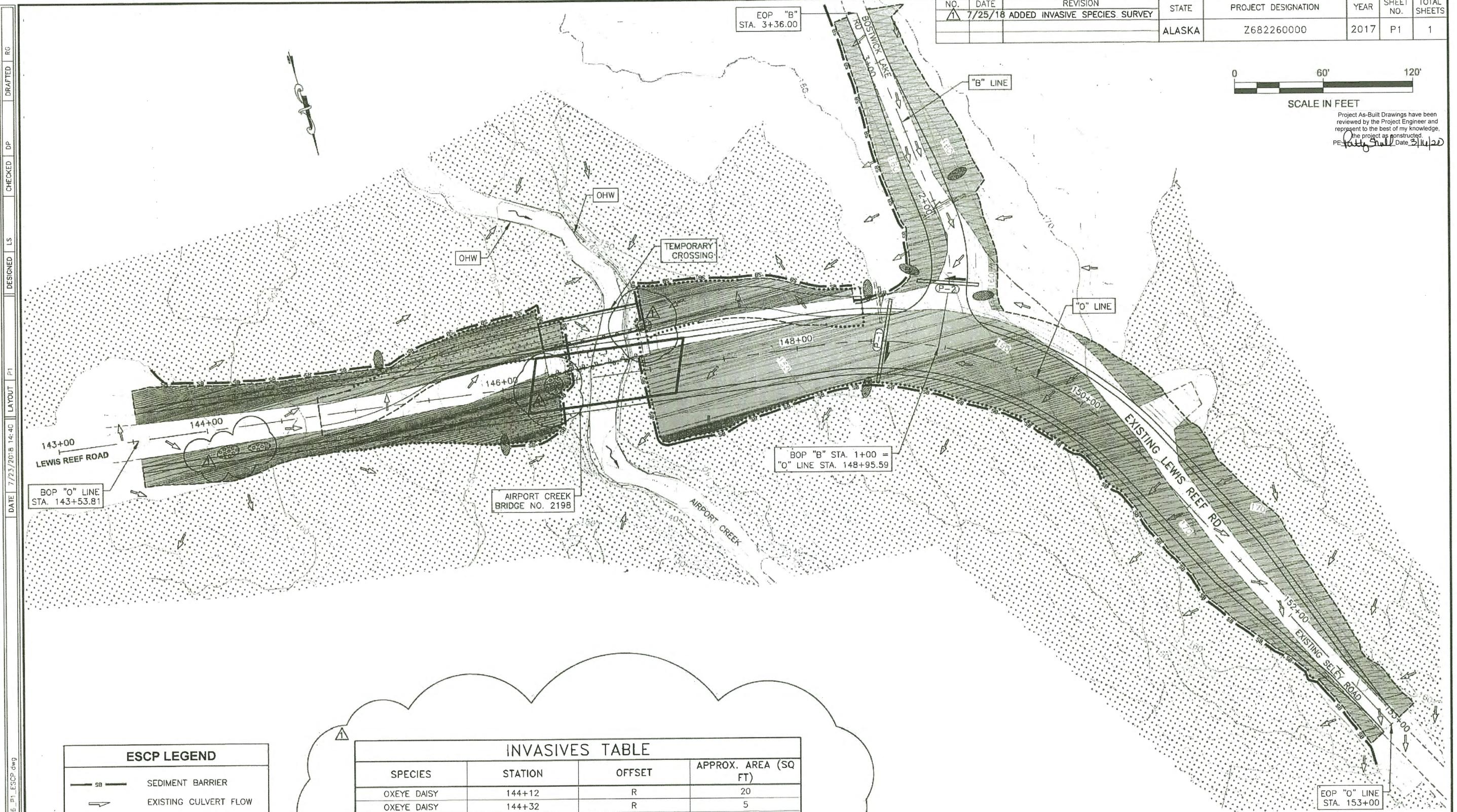
AIRPORT CREEK BRIDGE
 LEWIS REEF ROAD
 TEST HOLE & PENETROMETER LOGS



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
1	7/25/18	ADDED INVASIVE SPECIES SURVEY	ALASKA	Z682260000	2017	P1	1



Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 2/14/20



ESCP LEGEND	
	SEDIMENT BARRIER
	EXISTING CULVERT FLOW
	CULVERT FLOW DIRECTION
	SURFACE FLOW DIRECTION
	CHECK DAM
	AREA OF DISTURBANCE
	WETLANDS
	INVASIVE SPECIES

INVASIVES TABLE			
SPECIES	STATION	OFFSET	APPROX. AREA (SQ FT)
OXEYE DAISY	144+12	R	20
OXEYE DAISY	144+32	R	5
OXEYE DAISY	146+33	R	20
OXEYE DAISY	147+00	L	5

ESCP NOT SEALED IN ACCORDANCE WITH ALASKA HIGHWAY PRECONSTRUCTION MANUAL SECTION 1120.7.3 DATED NOVEMBER 15, 2013

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
 8860 GLACIER HIGHWAY, JUNEAU, AK 99811
 (907) 485-1763
KTN - AIRPORT CREEK BRIDGE (USFS)
EROSION & SEDIMENT CONTROL PLAN

DATE: 7/23/2018 14:40 LAYOUT: P1 DESIGNED: LS CHECKED: DP DRAFTED: RC
 FILE: O:\KTN\68226\Plans\68226_P1_ESCP.dwg

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	P2	2

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge the project as constructed.
 PE: *Andy Smith* Date: 3/11/20

PUMPED STREAM DIVERSION NOTES:

DAM MATERIAL:

SANDBAGS COVERED WITH PLASTIC SHEETING (30 MIL OR 2 OR MORE LAYERS OF 10 MIL), RIPRAP, STEEL PIPE PLATE, SHEETPILE, INFLATABLE BLADDERS, OR EQUIVALENT.

PUMPSIZE:

SIZED FOR DESIGN FLOW IN CONTRACT, WITH INTAKE LINE, FITTINGS, AND NOZZLES. BACK UP PUMP REQUIRED.

ENERGY DISSIPATER:

RIPRAP, SANDBAGS, T-BAR SPREADER, OR EQUIVALENT.

FISH BARRIER:

FENCE OR SCREEN

SPILL PREVENTION BMPS:

INSTALLATION:

- COORDINATE WITH DEPARTMENT TO INSTALL FISH FENCE. SEE APPENDIX B FOR PERMIT REQUIREMENTS.
- INSTALL A CONVEYANCE, SUMP (IF NEEDED), AND INTAKE HOSE.
- INSTALL THE UPSTREAM AND DOWNSTREAM DAM.
- PLACE THE PUMP IN AN AREA DESIGNED FOR ITS USE AND OPERATION WITH SPILL PREVENTION MEASURES.
- INSTALL THE ENERGY DISSIPATER.

INSPECTION:

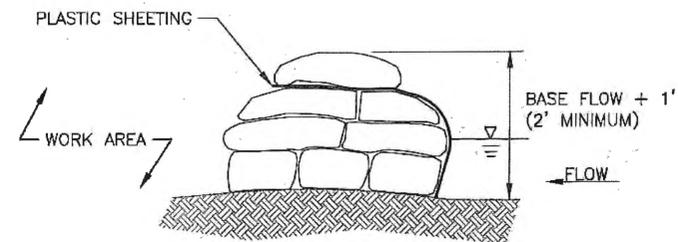
- WHEN PUMPING, MONITOR PUMPS, INTAKE AND DISCHARGE POINTS. ENSURE THAT PUMPS ARE ADEQUATELY SIZED.
- INSPECT UPSTREAM AND DOWNSTREAM DAMS FOR OVERTOPPING, BYPASS, UNDERCUTTING, OR OTHER DEFECTS.
- INSPECT THE CONVEYANCE STRUCTURE FOR LEAKS, EROSION, OR OTHER DEFECTS.
- INSPECT DISCHARGE POINT FOR EROSION OR FAILURE OF THE ENERGY DISSIPATION MATERIAL.
- INSPECT THE EQUIPMENT AREA FOR PROPERLY STORED FUEL AND OTHER POTENTIALLY HAZARDOUS SUBSTANCES.

MAINTENANCE:

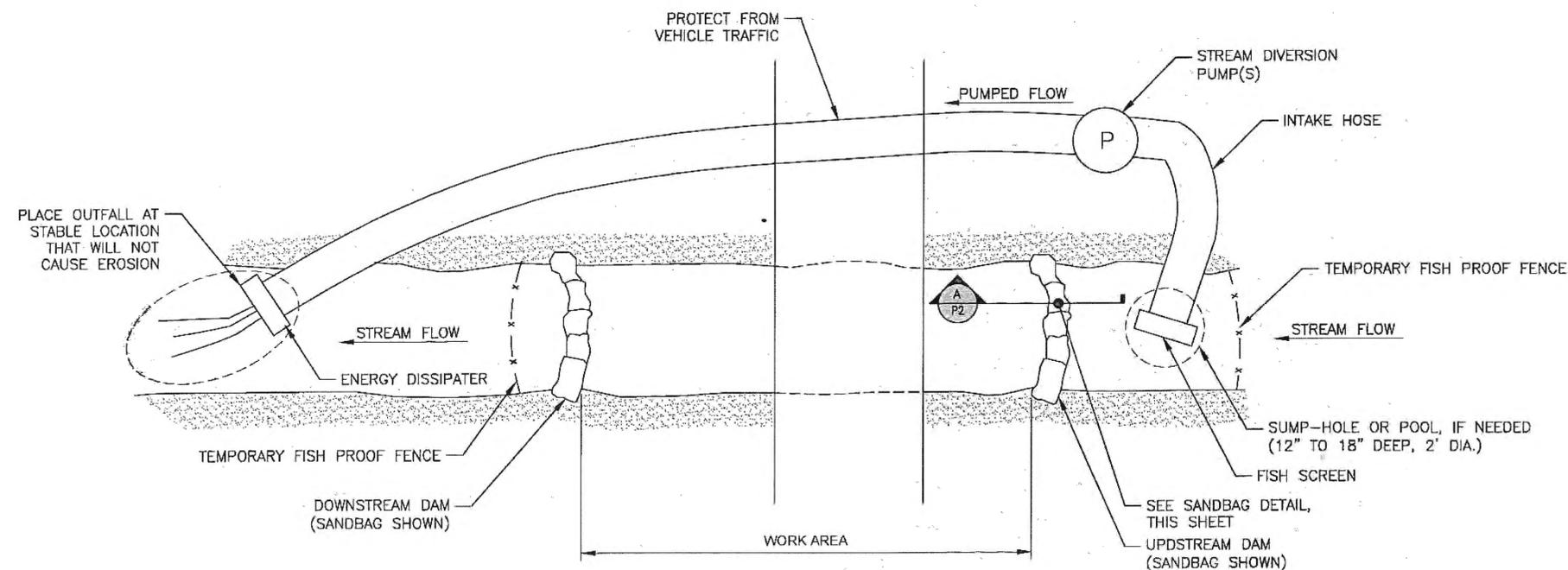
- REINFORCE OR RESTORE ANY PORTION OF THE DAMS, CONVEYANCE STRUCTURE, OR ENERGY DISSIPATER.

REMOVAL:

- ENSURE STREAM BANKS AND SUMP ARE STABLE BEFORE REMOVAL.
- REMOVE THE DOWNSTREAM DAM FIRST, THEN THE UPSTREAM DAM.
- REMOVE THE ENERGY DISSIPATER.
- REMOVE THE INTAKE HOSE
- REMOVE THE TEMPORARY CONVEYANCE STRUCTURE. BACKFILL OR REGRADE AND RESTORE TO ORIGINAL CONTOURS.
- REGRADE AND SEED OR PERMANENTLY STABILIZE ALL DISTURBED AREAS.



SECTION A-A
SANDBAG DAM
 NTS



PLAN
PUMP STREAM DIVERSION
 NTS

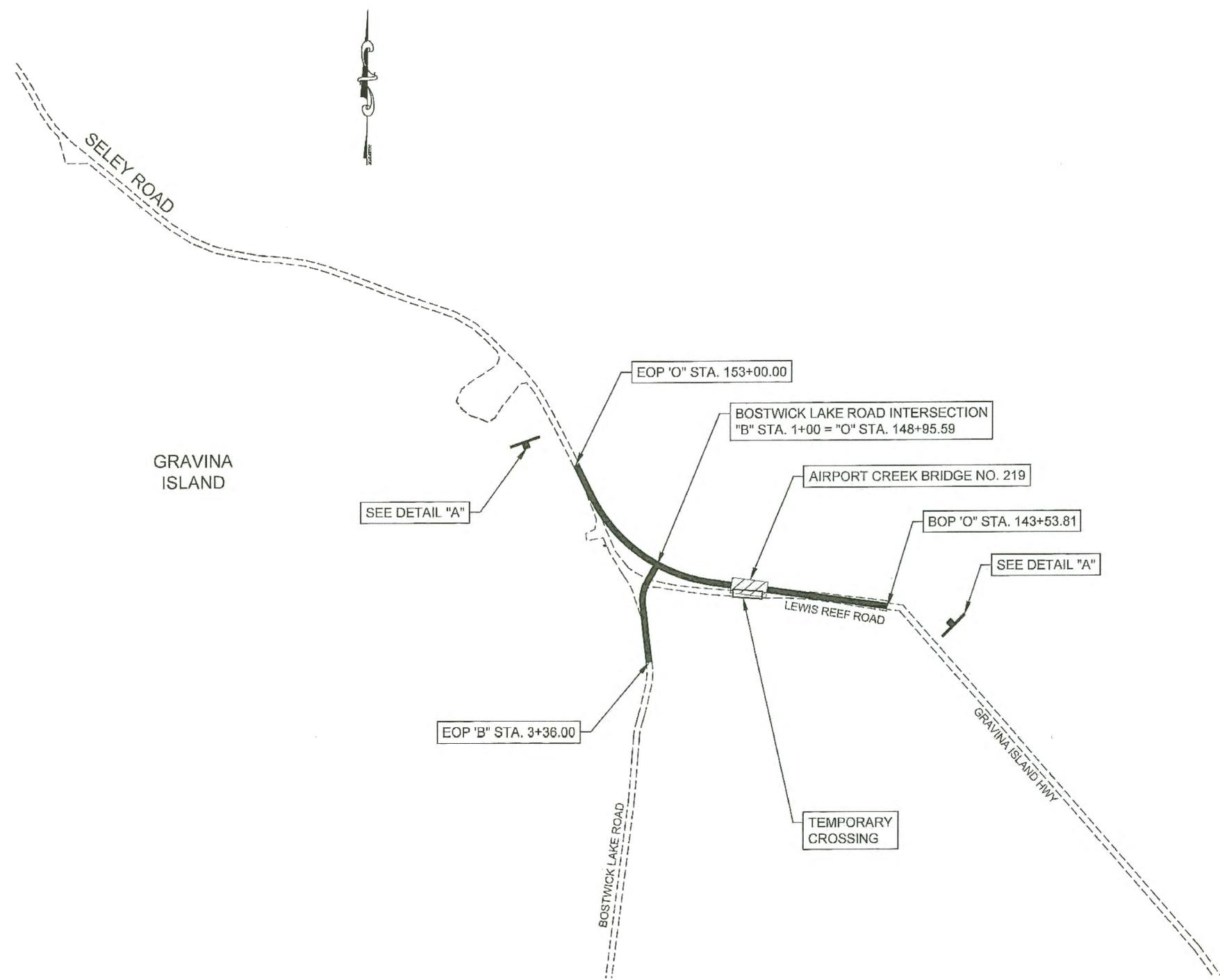
<p>ESCP NOT SEALED IN ACCORDANCE WITH ALASKA HIGHWAY PRECONSTRUCTION MANUAL SECTION 1120.7.3 DATED NOVEMBER 15, 2013</p>	<p>STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES 6860 GLACIER HIGHWAY, JUNEAU, AK 99811 (907) 465-1763 KTN - AIRPORT CREEK BRIDGE (USFS)</p> <p>ESCP DETAIL</p>
--	--

FILE: \\DOTSERFS01\Projects\Ktn\68226\Planset\68226_P2_ESCP.dwg
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 LAYOUT: P2
 DESIGNED: LS
 CHECKED: DP
 DRAFTED: RG

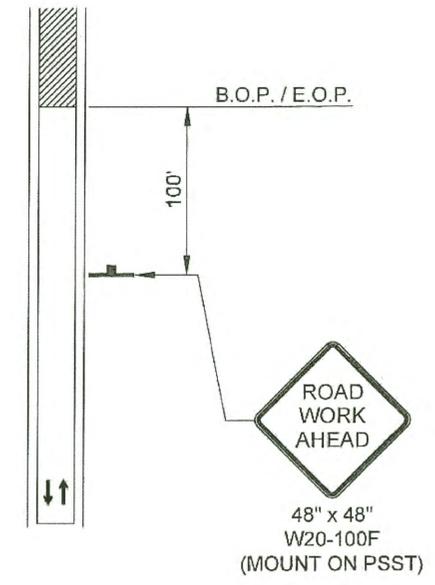
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	Z682260000	2017	T1	1

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *Andy Smith* Date: 3/14/20

FILE: \\D01SRFRS01\Projects\Ktn\68226\Planset\68226_T1-T2_Traf.dwg DATE: 3/9/2018 15:05 LAYOUT: T1 DESIGNED: LS CHECKED: DP DRAFTED: RG



PROJECT WORK AREA



DETAIL "A"
 ADVANCED WARNING SIGN

GENERAL NOTES:

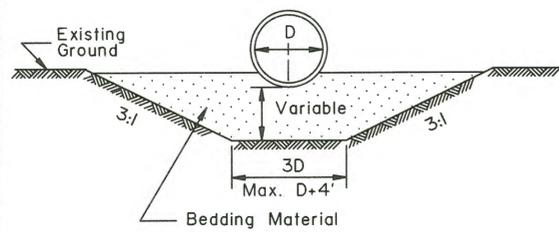
- SIGN SPACING SHOWN IS APPROXIMATE AND NOT TO SCALE. CONTRACTOR SHALL ADJUST PLACEMENT AS NECESSARY IN THE FIELD TO AVOID CONFLICTS WITH EXISTING FEATURES. ADJUSTMENT DISTANCE SHALL NOT EXCEED 50'.

<p>TCP NOT SEALED IN ACCORDANCE WITH ALASKA HIGHWAY PRECONSTRUCTION MANUAL SECTION 1400.3.5 DATED JANUARY 30, 2012.</p>	<p>STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES 6860 GLACIER HIGHWAY, JUNEAU, AK 99811 (907) 465-1763 KTN - AIRPORT CREEK BRIDGE (USFS)</p> <p>TRAFFIC CONTROL PLAN</p>
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GENERAL NOTES:

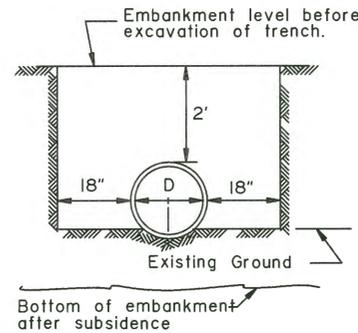
1. Sidefill shall be placed and compacted with care under haunches of pipe and shall be brought up evenly and simultaneously on both sides of pipe to 1 foot above the top of the full length of the pipe.
2. Alternate installation methods may only be used when specified or approved by the Engineer.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 P.E. *[Signature]* Date 3/11/22

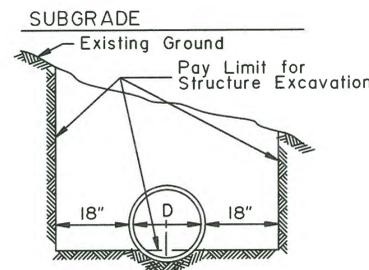


TYPE "A"
FOUNDATION STABILIZATION

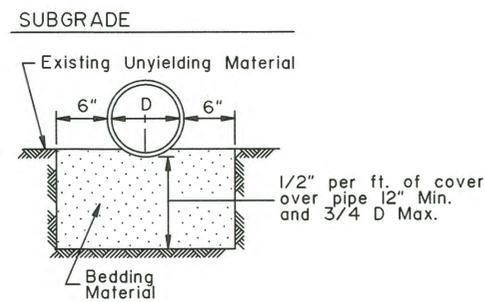
To be used in unstable areas as directed by the Engineer.



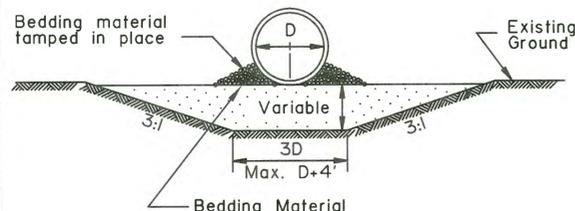
TYPE "B"



TYPE "C"

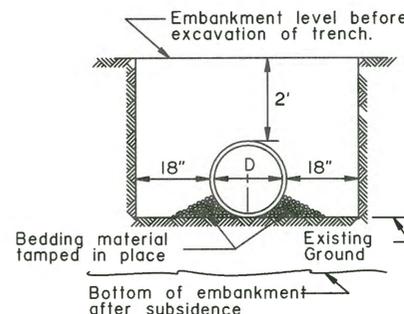


TYPE "D"
ROCK OR UNYIELDING MATERIAL

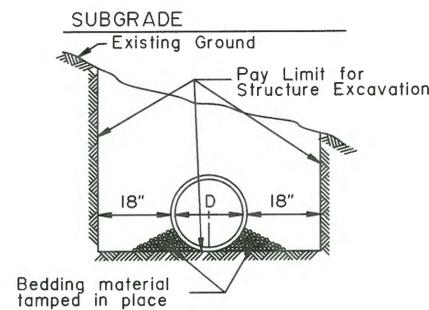


'ALTERNATE'
TYPE "A"
FOUNDATION STABILIZATION

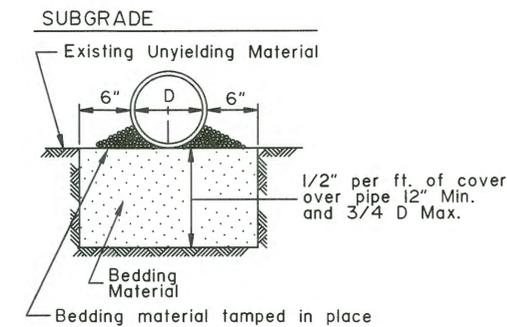
To be used in unstable areas as directed by the Engineer.



'ALTERNATE'
TYPE "B"

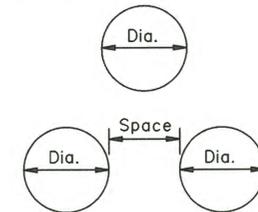


'ALTERNATE'
TYPE "C"



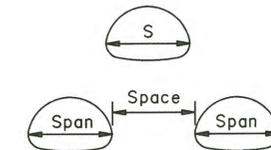
'ALTERNATE' TYPE "D"
ROCK OR UNYIELDING MATERIAL

D = Nominal Pipe Diameter



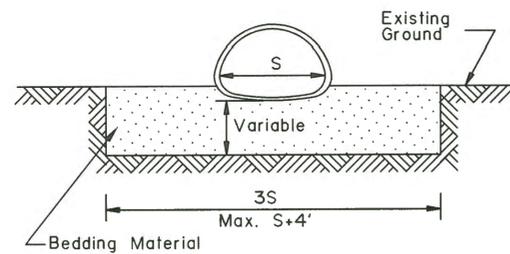
MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Dia. of pipe or 3', whichever is less.

S = Nominal Pipe Arch Span



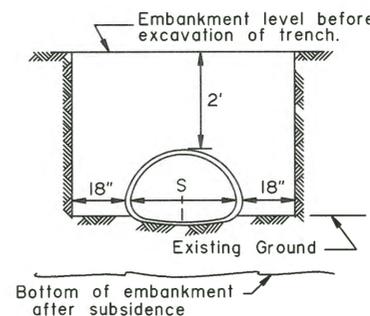
MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Span of pipe arch or 3', whichever is less.

CULVERT PIPE

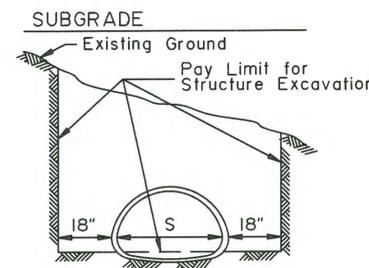


TYPE "A"
FOUNDATION STABILIZATION

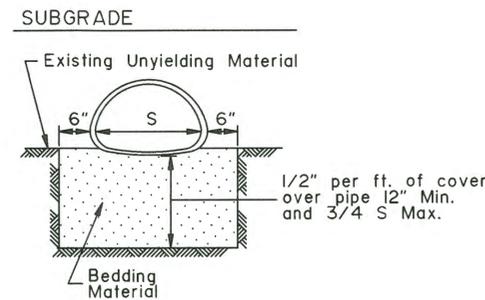
To be used in unstable areas as directed by the Engineer.



TYPE "B"



TYPE "C"



TYPE "D"
ROCK OR UNYIELDING MATERIAL

ARCH

REVISIONS		
Date	Description	By
12/1/87	Delete ref. to Specs.	Gdo
4/1/93	Delete Alt. Arch	Gdo

State of Alaska
Department of Transportation
& Public Facilities
**CULVERT PIPE & ARCH
INSTALLATION DETAILS**



Date 7/15/82

GENERAL NOTES:

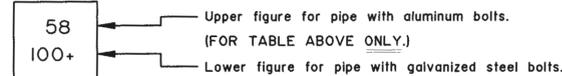
- All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
- The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
- No more than one type of pipe may be used on any single installation or installation grouping.
- All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
- See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
- Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflection.
- These tables have been developed for an H-20 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 2000 AASHTO "LRFD Bridge Design Specifications".

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
	Min. (In)	Max. (Ft)								
12	12	100+	12	100+	12	100+	12	100+	12	100+
15	12	94	12	100+	12	100+	12	100+	12	100+
18	12	75	12	94	12	100+	12	100+	12	100+
21	12	65	12	82	12	100+	12	100+	12	100+
24	12	56	12	71	12	99	12	100+	12	100+
27	12	48	12	63	12	89	12	100+	12	100+
30			12	56	12	79	12	100+	12	100+
36			12	47	12	66	12	85	12	100+
42			12	55	12	56	12	73	12	100+
48			12	47	12	49	12	63	12	78
54					15	43	15	56	15	69
60							15	50	15	62
66							18	44	18	56
72									18	45

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
	Min. (In)	Max. (Ft)								
30	12	52	12	65						
36	12	43	12	54	12	100+	12	100+	12	100+
42	12	36	12	46	12	65	12	100+	12	100+
48	12	32	12	40	12	57	12	73	12	100+
54	15	28	15	35	15	50	12	65	12	100+
60	15	25	15	32	15	45	15	58	15	72
66	18	23	18	28	18	41	18	53	18	65
72	18	21	18	26	18	37	18	48	18	59
78			21	24	21	34	21	44	21	55
84					21	31	21	41	21	57
90					24	29	24	38	24	47
96					24	27	24	36	24	44
102							24	33	24	41
108							24	31	24	39
114									24	37
120									24	35

GAGE	0.100"		0.125"		0.150"		0.175"		0.200"		0.225"		0.250"	
	Min. (In)	Max. (Ft)												
60	12	29 31	12	38 45	12	49 60	12	58 70	12	58 81	12	58 92	12	58 100+
66	12	26 28	12	35 41	12	44 54	12	53 64	12	53 74	12	53 84	12	53 94
72	13	24 25	12	32 37	12	41 50	12	48 58	12	48 67	12	48 77	12	48 86
78	14	22 23	12	29 35	12	37 46	12	45 54	12	45 62	12	45 71	12	45 79
84	15	20 22	13	27 32	12	35 42	12	41 50	12	41 58	12	41 66	12	41 73
90	16	19 20	14	25 30	13	32 40	12	39 47	12	39 54	12	39 61	12	39 68
96	17	18 19	15	24 28	14	30 37	13	36 44	12	36 50	12	36 57	12	36 64
102	18	17 18	16	22 26	15	29 35	14	34 41	13	34 47	13	34 54	13	34 60
108	19	16 17	17	21 25	16	27 33	14	32 39	14	32 45	14	32 51	14	32 57
114	20	15 16	18	20 23	16	25 31	15	30 37	15	30 42	15	30 48	15	30 54
120	21	14 15	19	19 22	17	24 30	16	29 35	15	29 40	15	29 46	15	29 51
126	22	13 14	20	18 21	18	23 28	17	27 33	16	27 38	16	27 44	16	27 49
132	23	13 14	21	17 20	19	22 27	18	26 32	17	26 37	17	26 42	17	26 47
138	24	12 13	22	16 19	20	21 26	18	25 30	18	25 35	18	25 40	18	25 44
144	25	12 12	22	16 18	21	20 25	19	24 29	18	24 33	18	24 38	18	24 43
150			23	15 18	21	19 24	20	23 28	19	23 32	19	23 36	19	23 41
156			24	14 17	22	18 23	21	22 27	20	22 31	20	22 35	20	22 39
162					23	18 22	21	21 26	21	21 30	21	21 34	21	21 38
168					24	17 21	22	20 25	21	20 29	21	20 33	21	20 36
174					25	17 20	23	20 24	22	20 28	22	20 31	22	20 35
180							24	19 23	23	19 27	23	19 30	23	19 34

*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.



———— CORRUGATED CIRCULAR ALUMINUM PIPE ————

———— CORRUGATED ALUMINUM PIPE-ARCH ————

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft)	
				2 Tons Corner Bearing Pressure	3 Tons Corner Bearing Pressure
17 x 13	3	0.060	12	13	20
21 x 15	3	0.060	12	12	19
24 x 18	3	0.060	12	11	16
28 x 20	3	0.075	12	10	16
35 x 24	3	0.075	12	9	14
42 x 29	3 1/2	0.105	12	7	13
49 x 33	4	0.105	15	6	12
57 x 38	5	0.135	15	6	12
64 x 43	6	0.135	18	6	12
71 x 47	7	0.164	18	6	12

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft)	
				2 Tons Corner Bearing Pressure	3 Tons Corner Bearing Pressure
40 x 31	5	0.075	30	8	12
46 x 36	6	0.075	24	8	13
53 x 41	7	0.075	24	8	13
60 x 46	8	0.075	24	13	20
66 x 51	9	0.075	18	13	20
73 x 55	12	0.075	18	16	24
81 x 59	14	0.105	18	14	22
87 x 63	14	0.105	18	13	20
95 x 67	16	0.105	18	12	18
103 x 71	16	0.135	24	11	17
112 x 75	18	0.164	24	10	16
117 x 79	18	0.164	24	10	15

Span x Rise (Ft-In x Ft-In)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (Ft)	Max. Cover in Feet For Soil Bearing Capacity of:	
				2 Tons/ft²	3 Tons/ft²
5 - 11 x 5 - 5	31.8	0.100	2	24**	24**
6 - 11 x 5 - 9	31.8	0.100	2	22**	22**
7 - 3 x 5 - 11	31.8	0.100	2	20**	20**
7 - 9 x 6 - 0	31.8	0.100	2	28**	18**
8 - 5 x 6 - 3	31.8	0.100	2	17**	17**
9 - 3 x 6 - 5	31.8	0.100	2	15**	15**
10 - 3 x 6 - 9	31.8	0.100	2	14**	14**
10 - 9 x 6 - 10	31.8	0.100	2	13**	13**
11 - 5 x 7 - 1	31.8	0.100	2	12**	12**
12 - 7 x 7 - 5	31.8	0.125	2	14	16**
12 - 11 x 7 - 6	31.8	0.150	2	13	14**
13 - 1 x 8 - 2	31.8	0.150	2	13	18**
13 - 11 x 8 - 5	31.8	0.150	2	12	17**
14 - 8 x 9 - 8	31.8	0.175	2	12	18
15 - 4 x 10 - 0	31.8	0.175	2	11	17
16 - 1 x 10 - 4	31.8	0.200	2	10	16
16 - 9 x 10 - 8	31.8	0.200	2.17	10	15
17 - 3 x 11 - 0	31.8	0.225	2.25	10	15
18 - 0 x 11 - 4	31.8	0.255	2.25	9	14
18 - 8 x 11 - 8	31.8	0.250	2.33	9	14

*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.

**Fill limited by the seam strength of the bolts. 3/4" dia. bolts per foot.

ALUMINUM	GAGE NO. (For Info Only)
	16
	14
	12
	10
	8

*This column shall not be used unless specified on the plans or approved by the Regional Geotechnical Engineer.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 Date: 3/11/20

Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	Pipe Table Updates & New Sheet 4	LRG

Sheet 1 of 4

State of Alaska
 Department of Transportation
 & Public Facilities

PIPE AND ARCH TABLES



Date: 10/31/03

GENERAL NOTES

- All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
- The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
- No more than one type of pipe may be used on any single installation or installation grouping.
- All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
- See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
- Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflection.
- These tables have been developed for an H-20 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 2000 AASHTO "LRFD Bridge Design Specifications".

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

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In.)	Min. (In.)	Max. (Ft)								
12	12	100+	12	100+	12	100+	12	100+	12	100+
15	12	100+	12	100+	12	100+	12	100+	12	100+
18	12	100+	12	100+	12	100+	12	100+	12	100+
21	12	100+	12	100+	12	100+	12	100+	12	100+
24	12	100+	12	100+	12	100+	12	100+	12	100+
27	12	100+	12	100+	12	100+	12	100+	12	100+
30	12	99	12	100+	12	100+	12	100+	12	100+
36	12	83	12	100+	12	100+	12	100+	12	100+
42	12	71	12	88	12	100+	12	100+	12	100+
48	12	62	12	77	12	100+	12	100+	12	100+
54			12	66	12	93	12	100+	12	100+
60			12	79	12	100+	12	100+	12	100+
66			12	68	12	88	12	100+	12	100+
72					12	75	12	93		
78							12	79		
84							12	66		

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

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In.)	Min. (In.)	Max. (Ft)								
36	12		12		12	100+	12	100+	12	100+
42	12		12		12	100+	12	100+	12	100+
48	12		12	76	12	100+	12	100+	12	100+
54	12	63	12	79	12	100+	12	100+	12	100+
60	12	56	12	71	12	99	12	100+	12	100+
66	12	52	12	64	12	90	12	100+	12	100+
72	12	47	12	59	12	82	12	100+	12	100+
78	12	44	12	54	12	77	12	98	12	100+
84	12	41	12	51	12	71	12	92	12	100+
90	12	37	12	47	12	67	12	86	12	100+
96	12	35	12	44	12	62	12	80	12	98
102	18	33	18	42	18	59	18	76	18	93
108			18	40	18	55	18	71	18	87
114			18	36	18	51	18	66	18	80
120			18	34	18	46	18	61	18	75
126					18	44	18	56	18	70
132					18	41	18	53	18	64
138					18	37	18	49	18	60
144							18	44	18	55
150									18	52

Minimum & Maximum Cover For 5" x 1" Steel Pipe*

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In.)	Min. (In.)	Max. (Ft)								
36	12	81	12	90	12	100+	12	100+	12	100+
42	12	71	12	77	12	100+	12	100+	12	100+
48	12	62	12	68	12	100+	12	100+	12	100+
54	12	56	12	70	12	98	12	100+	12	100+
60	12	50	12	63	12	88	12	100+	12	100+
66	12	46	12	57	12	80	12	100+	12	100+
72	12	42	12	52	12	73	12	95	12	100+
78	12	39	12	48	12	68	12	87	12	100+
84	12	36	12	45	12	63	12	81	12	99
90	12	33	12	42	12	59	12	76	12	93
96	12	31	12	39	12	55	12	71	12	87
102	18	29	18	37	18	52	18	67	18	82
108			18	35	18	49	18	63	18	77
114			18	32	18	45	18	58	18	71
120			18	30	18	41	18	54	18	66
126					18	39	18	50	18	62
132					18	36	18	47	18	57
138					18	33	18	43	18	53
144							18	39	18	49
150									19	47

* Table for pipe with helical lockseams or helical welded seams ONLY.

Minimum & Maximum Cover For 6" x 2" Steel Structural Plate Pipe**

GAGE	ALL	0.111"	0.140"	0.170"	0.188"	0.218"	0.249"	0.280"
Dia. (In.)	Min. (In.)	Max. (Ft)						
60	12	46	68	90	100+	100+	100+	100+
66	12	42	62	81	93	100+	100+	100+
72	12	38	57	75	86	100+	100+	100+
78	12	35	52	69	79	95	100+	100+
84	12	33	49	64	73	88	100+	100+
90	12	31	45	60	68	82	97	100+
96	12	29	43	56	64	77	91	100+
102	18	27	40	52	60	73	86	94
108	18	25	38	50	57	69	81	88
114	18	24	36	47	54	65	77	84
120	18	23	34	45	51	62	73	80
126	18	22	32	42	49	59	69	76
132	18	21	31	40	46	56	66	72
138	18	20	29	39	44	54	63	69
144	18	19	28	37	43	51	61	66
150	24	18	27	36	41	49	58	64
156	24	17	26	34	39	47	56	61
162	24	17	25	33	38	46	54	59
168	24	16	24	32	36	44	52	57
174	24	16	23	31	35	42	50	55
180	24	15	22	30	34	41	48	53
186	24	15	22	29	33	40	47	51
192	24		21	28	32	38	45	50
198	30		20	27	31	37	44	48
204	30		20	26	30	36	43	47
210	30		19	25	29	35	41	45
216	30			25	28	34	40	44
222	30			24	27	33	39	43
228	30			23	27	32	38	42
234	30			23	26	31	37	41
240	30				25	31	36	40
246	36				25	30	35	39
252	36					29	34	38
258	36					28	34	37
264	36					28	33	36
270	36					27	32	35
276	36						31	34
282	36						31	34
288	42						30	33
294	42							32
300	42							32
306	42							31
312	42							30

** Longitudinal seams use (4) 3/4" dia. bolts per foot.

CORRUGATED CIRCULAR STEEL PIPE

CORRUGATED STEEL PIPE-ARCH

Minimum & Maximum Cover For 2 2/3" x 1/2" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In.)	Minimum Gage (In.)	Min. Cover (In.)	Max. Cover (Ft)	
				2 Tons Corner Bearing Pressure	3 Tons Corner Bearing Pressure
17 x 13	3	0.064	12	16	18
21 x 15	3	0.064	12	15	14
24 x 18	3	0.064	12	15	13
28 x 20	3	0.064	12	15	11
35 x 24	3	0.064	12	15	7
42 x 29	3 1/2	0.064	12	15	7
49 x 33	4	0.079	12	15	6
57 x 38	5	0.109	12	15	8
64 x 43	6	0.109	12	15	9
71 x 47	7	0.138	12	15	10
77 x 52	8	0.168	12	15	10
83 x 57	9	0.168	12	15	10

Minimum & Maximum Cover For 3" x 1" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In.)	Minimum Gage (In.)	Min. Cover (In.)	Max. Cover (Ft)	
				2 Tons Corner Bearing Pressure	3 Tons Corner Bearing Pressure
40 x 31	5	0.079	12	25	12
46 x 36	6	0.079	12	25	13
53 x 41	7	0.079	12	25	13
60 x 46	8	0.079	15	25	13
66 x 51	9	0.079	15	25	13
73 x 55	12	0.079	18	24	16
81 x 59	14	0.079	18	21	17
87 x 63	14	0.079	18	20	16
95 x 67	16	0.079	18	20	17
103 x 71	16	0.079	18	20	15
112 x 75	18	0.079	21	20	16
117 x 79	18	0.109	21	19	15
128 x 83	18	0.138	24	19	14
137 x 87	18	0.138	24	19	13
142 x 91	18	0.138	24	19	12
150 x 96	18	0.138	30	19	
157 x 96	18	0.138	30	19	
164 x 105	18	0.138	30	19	
171 x 110	18	0.138	30	19	

Minimum & Maximum Cover For 5" x 1" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In.)	Minimum Gage (In.)	Min. Cover (In.)	Max. Cover (Ft)	
				2 Tons Corner Bearing Pressure	3 Tons Corner Bearing Pressure
40 x 31	5	0.109	12	25	12
46 x 36	6	0.109	15	25	13
53 x 41	7	0.109	15	25	13
60 x 46	8	0.109	18	25	13
66 x 51	9	0.109	18	25	13
73 x 55	12	0.109	18	24	16
81 x 59	14	0.109	18	21	17
87 x 63	14	0.109	18	20	16
95 x 67	16	0.109	18	20	17
103 x 71	16	0.109	18	20	15
112 x 75	18	0.109	21	20	16
117 x 79	18	0.109	21	19	15
128 x 83	18	0.109	24	19	14
137 x 87	18	0.109	24	19	13
142 x 91	18	0.109	24	19	12
150 x 96	18	0.138	30	19	
157 x 96	18	0.138	30	19	
164 x 105	18	0.138	30	19	
171 x 110	18	0.138	30	19	

Minimum & Maximum Cover For 6" x 2" Steel Structural Plate Pipe-Arch**

Span x Rise (Ft-In x Ft-In)	Corner Radius (In.)	Minimum Gage (In.)	2 Tons Corner Bearing Pressure	
-----------------------------	---------------------	--------------------	--------------------------------	--

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE *Lars R. Gregovich* Date *July 20*

GENERAL NOTES

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

Maximum Cover for Type S Corrugated Polyethelene Pipe	
Size (in.)	Max. Cover (ft.)
12	30.0
15	30.0
18	30.0
24	30.0
30	30.0
36	30.0
40	20.0
48	20.0

REVISIONS		
Date	Description	By
<i>10/31/03</i>	<i>New Sheet 4.</i>	<i>LRG</i>

Sheet 3 of 4

State of Alaska
 Department of Transportation
 & Public Facilities

PIPE AND ARCH TABLES



Date *10/31/03*

D-04.21

GENERAL NOTES

- All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
- The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
- No more than one type of pipe may be used on any single installation or installation grouping.
- All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
- See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
- Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflection.
- These tables have been developed for an H-20 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 2000 AASHTO "LRFD Bridge Design Specifications".

GAGE Dia. (In.)	0.060"		0.075"		0.105"		0.135"	
	Min. (In.)	Max. (Ft)	Min. (In.)	Max. (Ft)	Min. (In.)	Max. (Ft)	Min. (In.)	Max. (Ft)
12	24	35	24	50				
18	24	34	24	49				
24	24	25	24	36	24	63	24	82
30	24	19	24	28	24	50	24	65
36	24	15	24	24	24	41	24	54
42			24	19	24	35	24	46
48			24	17	24	30	24	40
54			24	14	24	27	24	35
60			24	12	24	24	24	30

* $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{7}{8}$ in. or $\frac{3}{4}$ x 1 x $1\frac{1}{2}$ in. Corrugations

Span x Rise (In. x In.)	Min. Cover (In.)	Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.060"	0.075"	0.105"
		Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

* $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{7}{8}$ in. or $\frac{3}{4}$ x 1 x $1\frac{1}{2}$ in. Corrugations

ALUMINUM SPIRAL RIB PIPE
STEEL SPIRAL RIB PIPE

GAGE Dia. (In.)	0.064"		0.079"		0.109"		0.138" **	
	Min. (In.)	Max. (Ft)	Min. (In.)	Max. (Ft)	Min. (In.)	Max. (Ft)	Min. (In.)	Max. (Ft)
18	12							
24	12	51	12	72	12	121		
30	12	41	12	58	12	97		
36	12	34	12	48	12	81		
42	12	29	12	41	12	69		
48	12	26	12	36	12	61		
54	18	23	18	32	18	54		
60	18	21	18	29	18	49	18	73
66	18	19	18	26	18	44	18	65
72			18	24	18	40	18	59
78			24	22	24	37	24	55
84			24	21	24	35	24	52
90					24	32	24	47
96					24	30	24	44
102					30	29	30	43
108					30	27	30	41

* $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{7}{8}$ in. or $\frac{3}{4}$ x 1 x $1\frac{1}{2}$ in. Corrugations
** $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{7}{8}$ in. Corrugations Only.

Span x Rise (In. x In.)	Min. Cover (In.)	Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.064"	0.079"	0.109"
		Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

* $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{7}{8}$ in. or $\frac{3}{4}$ x 1 x $1\frac{1}{2}$ in. Corrugations

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Patty Swell Date 3/11/20

REVISIONS		
Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	New Sheet 4.	LRG

Sheet 4 of 4

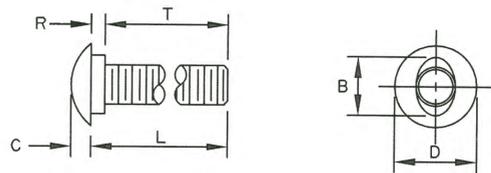
State of Alaska
Department of Transportation
& Public Facilities

PIPE AND ARCH TABLES



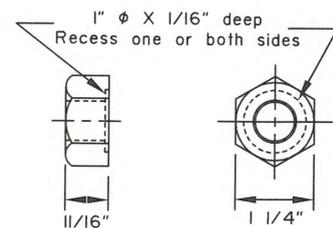
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D-04.21

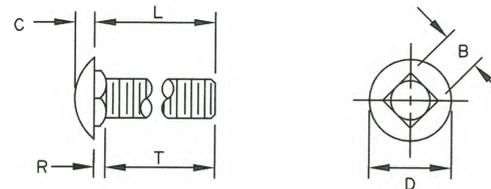


B	C	D	L (Length)	R	T (Thread Length)
15/16"	5/16"	1 5/16" or 1 7/16"	As Required	7/32"	As Required

5/8" BUTTONHEAD BOLT
(FBB01-05)

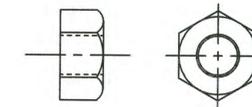


5/8" Dia. RECESSED HEX NUT
(FBB01-05)

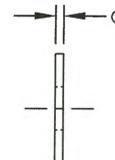
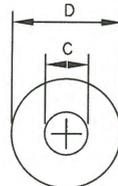
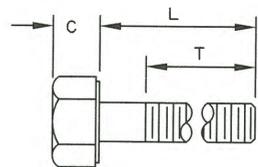


B	C	D	L (Length)	R	T (Thread Length)
5/8"	5/16"	1 5/16"	As Required	3/16"	As Required

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



STANDARD HEX NUT

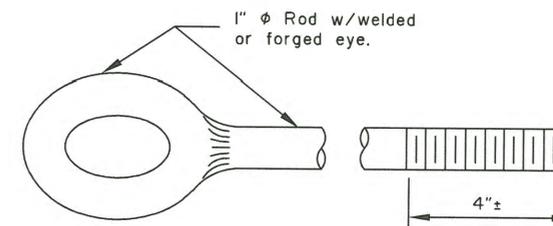


Bolt Size	C	D	L (Length)	T (Thread Length)
5/16"	—	—	1 1/2"	7/8"
5/16"	—	—	1"	1"
3/8"	—	—	7 1/2"	1 1/2"
1/2"	—	—	1 1/2"	1 1/2"
1/2"	—	—	1 1/4"	1 1/4"
5/8" H.S.	5/16"	7/8"	8"	1 1/2"
5/8"-II	—	—	1 1/2"	1 1/2"
3/4"	—	—	1 1/2"	1 1/2"
3/4"	—	—	As Required	2"
3/4" H.S.	15/32"	1 1/4"	2"	1 1/2"

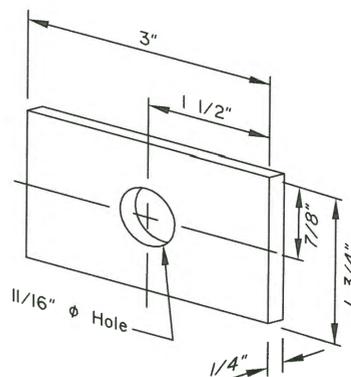
STANDARD HEX BOLTS

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

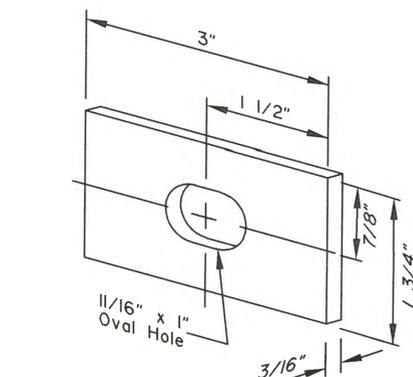
STANDARD STEEL WASHERS



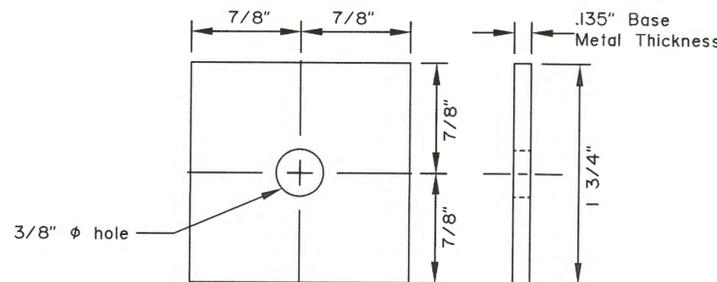
EYE BOLT



FLAT PLATE WASHER



RECTANGULAR POST BOLT WASHER
(FWRO3)



SQUARE STEEL WASHER
(FWRO1)

Note: drawing not to scale

GENERAL NOTES:

- All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition. Designators given when possible in parentheses.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Patty Swell Date 3/14/20

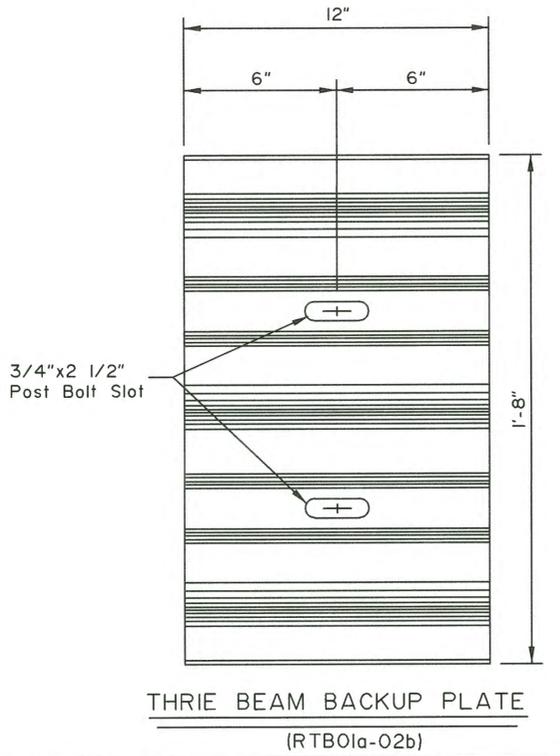
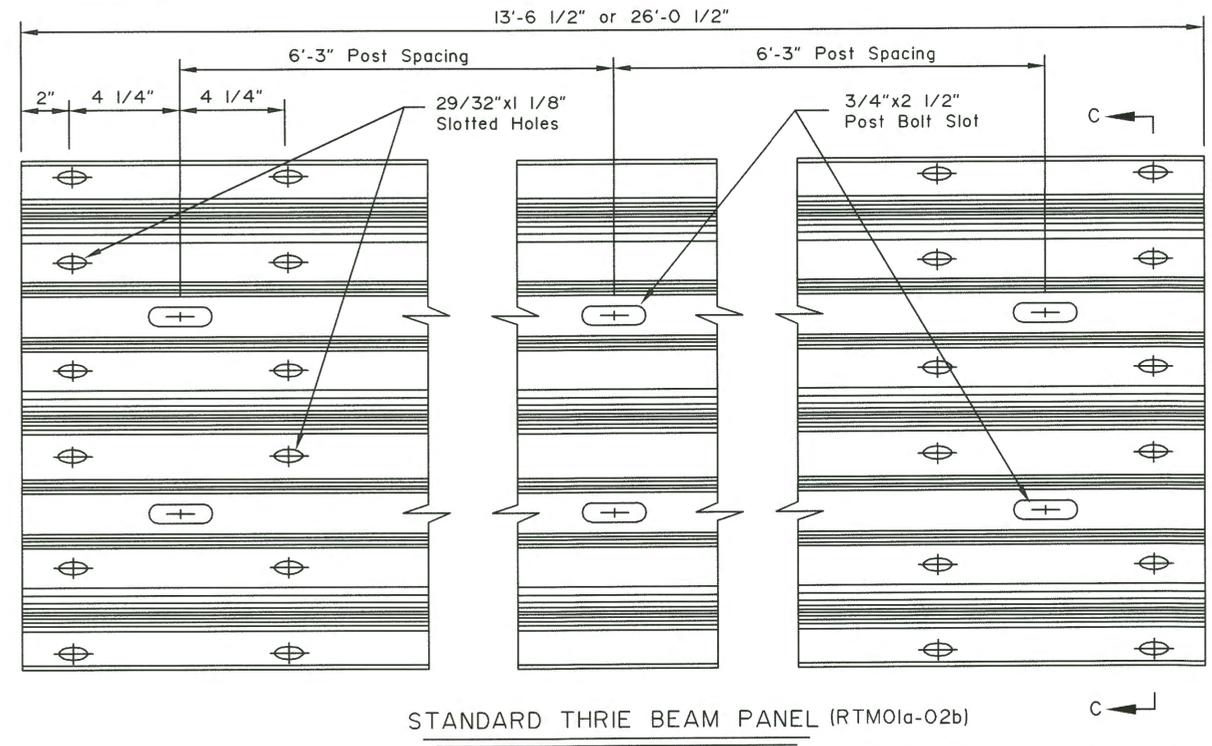
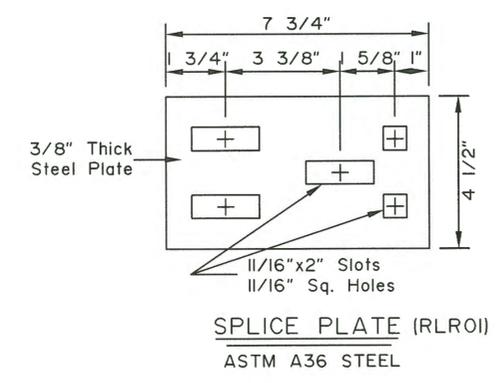
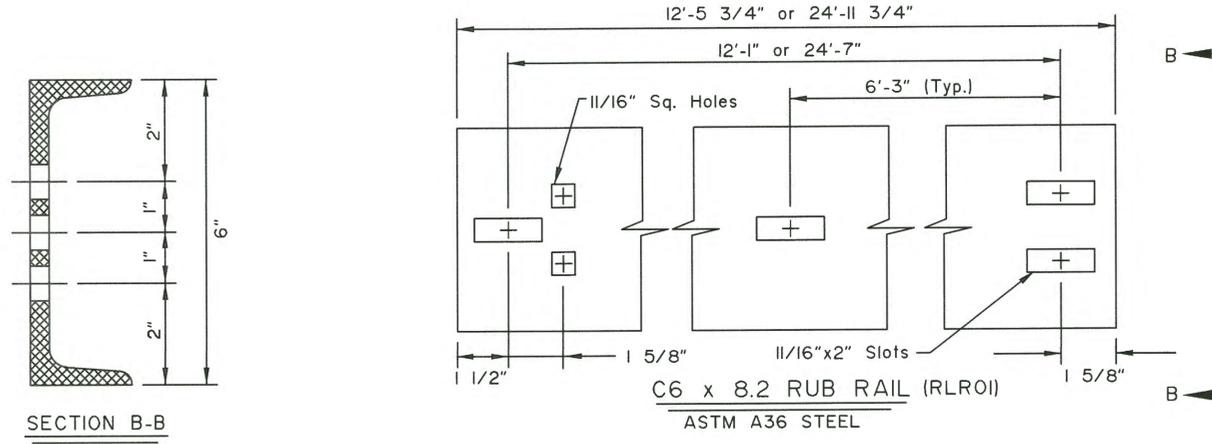
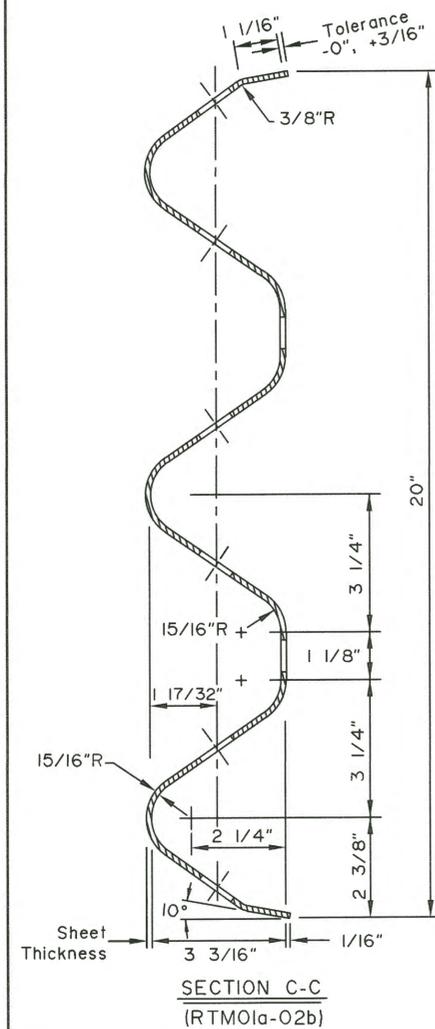
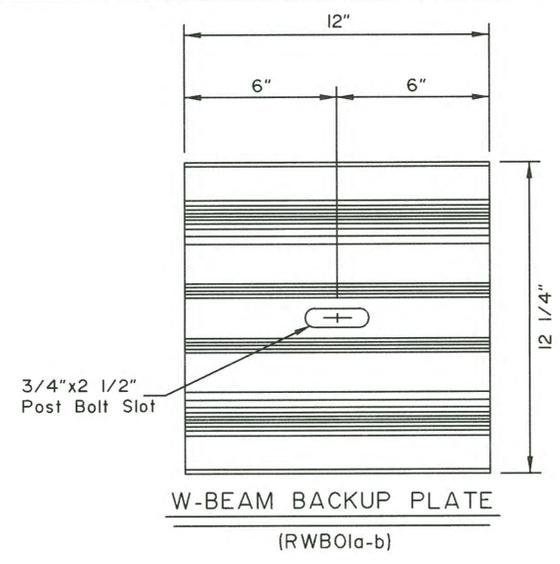
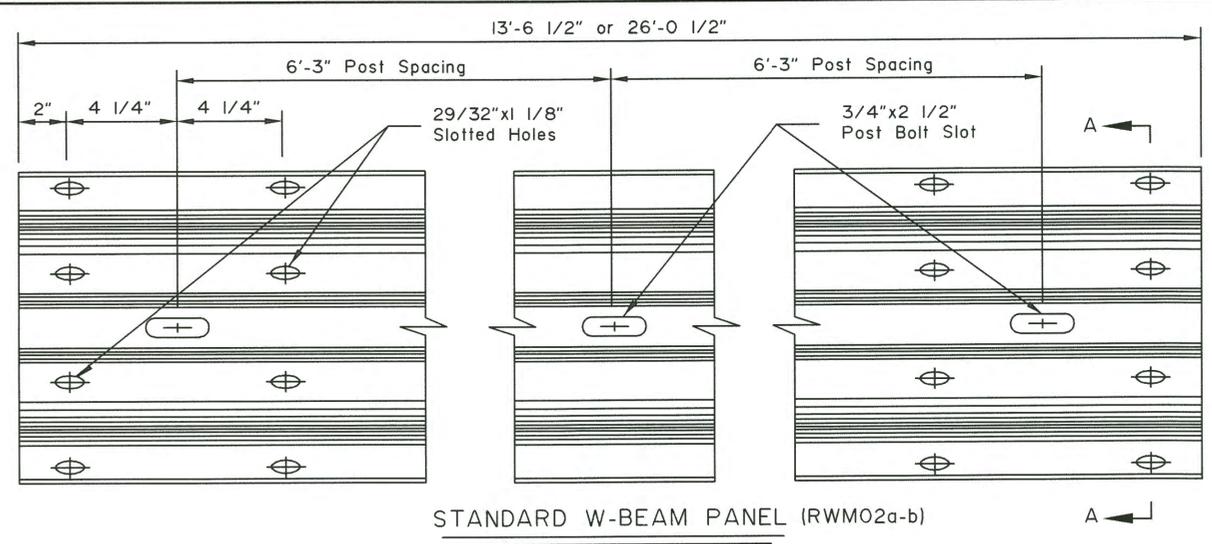
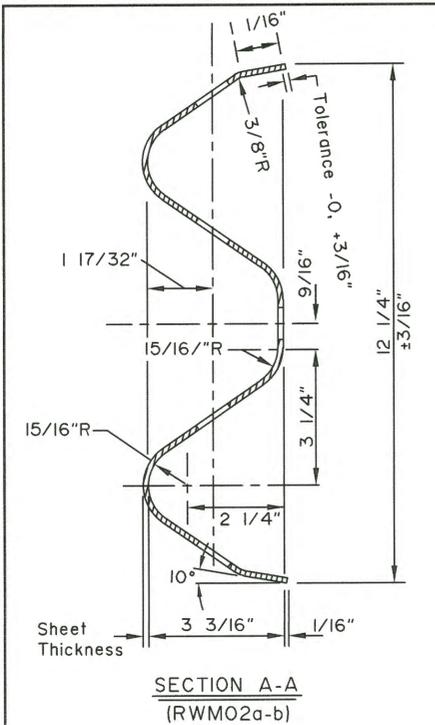
REVISIONS		
Date	Description	By
3/15/99	Delete BCT Hardware	KJS
1/16/17	Added Designators	LRG

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Phone: (907) 465-2960
**STANDARD GUARDRAIL
HARDWARE
(NUTS, BOLTS & WASHERS)**



Eff. Date:
1/16/17

- GENERAL NOTES:**
1. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition. Designators given when possible in parentheses.
 2. Install back-up plates between blockouts and w-beam or thrie-beam rail at intermediate (non-splice) posts when steel blockouts are used but not with wood, rubber, plastic, or other approved blockouts.



Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Date: 3/16/20

REVISIONS		
Date	Description	By
4/28/10	Revise general notes	KJS
1/16/17	Fix dimensions in Sections A-A and C-C	LRG

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Phone: (907) 465-2960

**STANDARD GUARDRAIL
HARDWARE
(RAILS AND SPLICES)**

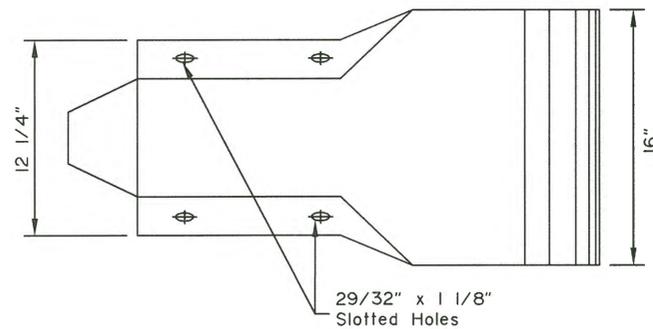


Eff. Date:
1/16/17

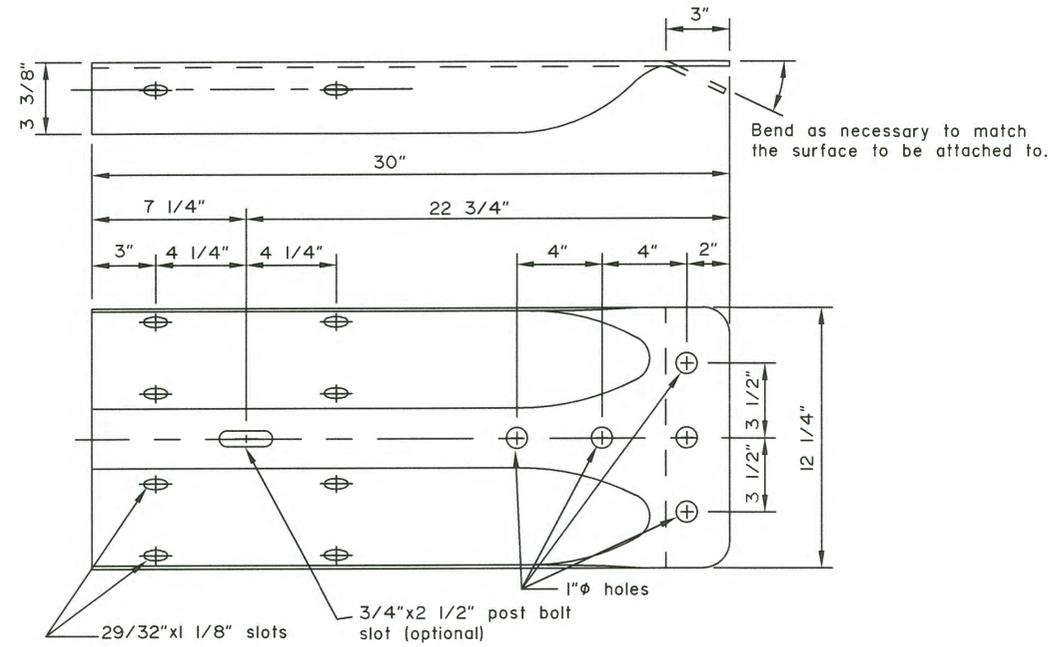
Bend along line to expose Pop-Up Edge™

GENERAL NOTES:

1. W-Beam and Thrie Beam Terminal Connectors shall conform to AASHTO M 180, Class B, Type II.
2. W-Beam end sections shall conform to AASHTO M 180, Class A, Type II.
3. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition. Designators given when possible in parentheses.

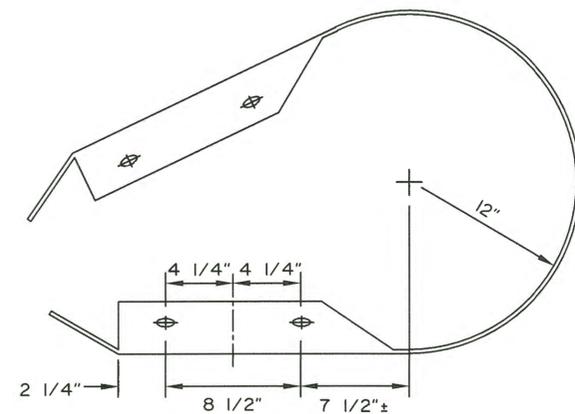


PROFILE



STANDARD W-BEAM TERMINAL CONNECTOR

(RWE02)

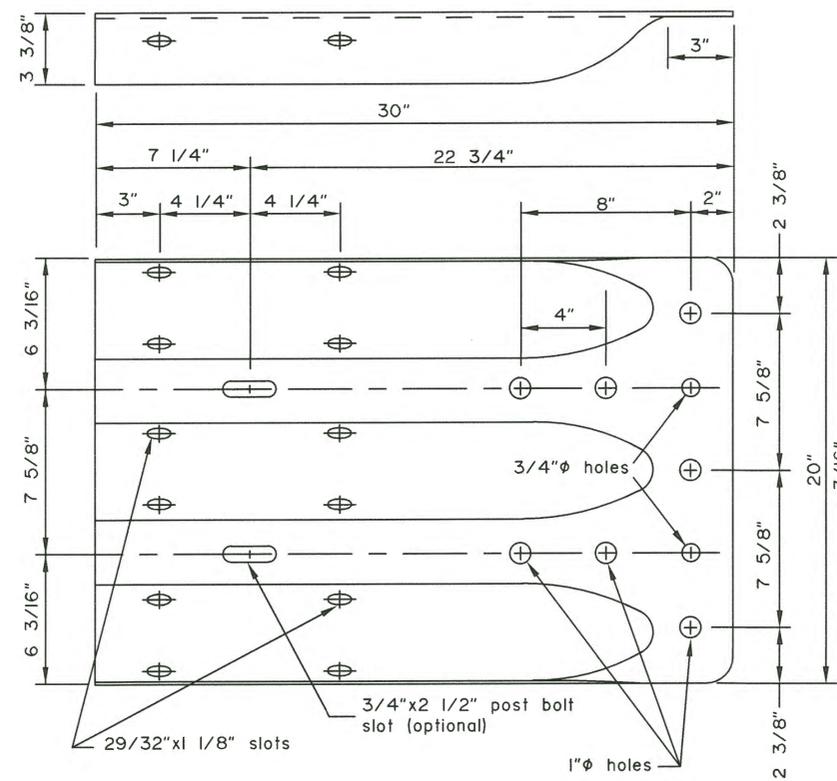


W-BEAM PLAN VIEW

*Radius to be specified on the plans

STANDARD W-BEAM END SECTION

(RWE06)



STANDARD THRIE BEAM TERMINAL CONNECTOR

(RTE01b)

Note: Drawing not to scale

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Date: 3/16/20

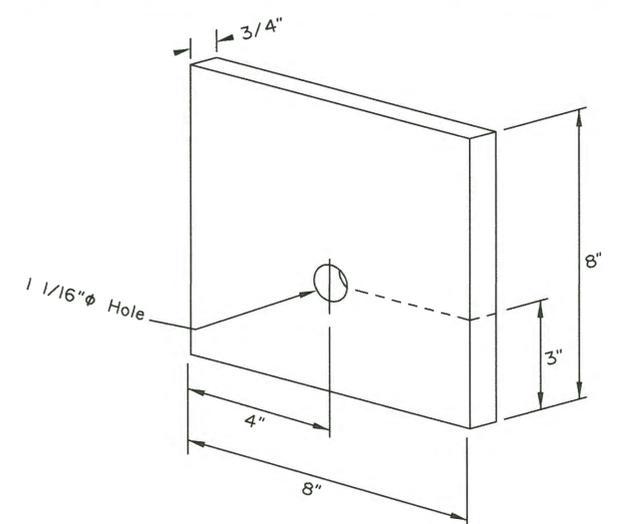
REVISIONS		
Date	Description	By
3/15/99	Delete Thrie end sect.	KJS
1/16/17	Holes added to Thrie	LRG

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Phone: (907) 465-2960

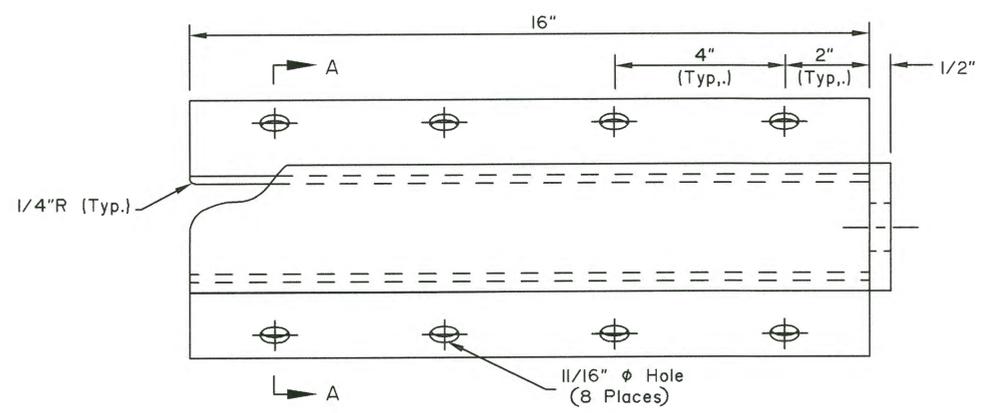
STANDARD GUARDRAIL
HARDWARE
(TERMINAL CONNECTORS)



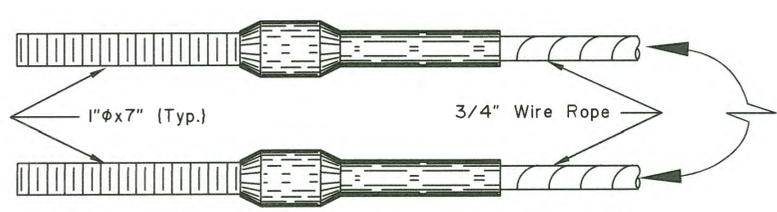
Eff. Date:
1/16/17



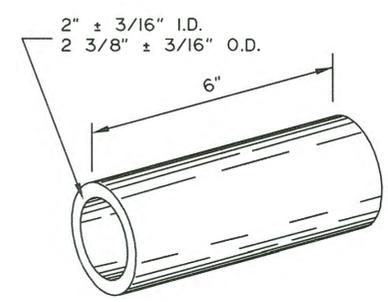
BEARING PLATE for CRT TERMINAL ANCHOR
(FPBO1)



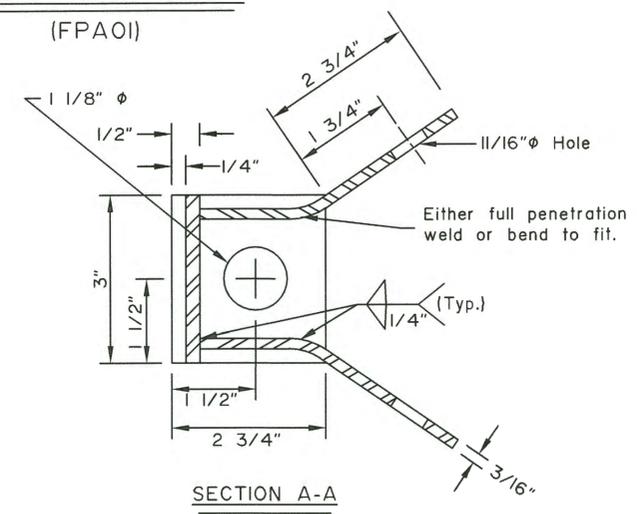
CABLE ANCHOR PLATE
(FPAO1)



SWAGED FITTING DETAIL
(FCAO1-02)



SLEEVE DETAIL
(FMMO2)



SECTION A-A

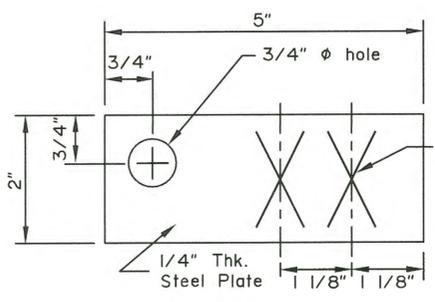
CONTROLLED RELEASE TERMINAL HARDWARE DETAILS

GENERAL NOTES:

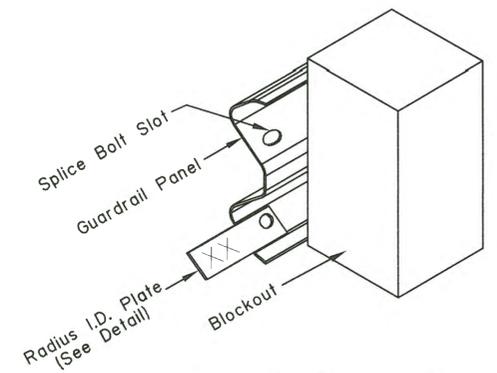
1. Cable Anchor Plate may be formed in single unit or welded fabrication.
2. Anchor Cable Assembly must conform to AASHTO M 30 with Type II Wire Rope.
3. Provide Sleeve for Wood Posts meeting the requirements of ASTM A53 and made of 2-inch galvanized standard pipe. Sleeve shall be a tight, pressed fit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

Note: Drawing not to scale

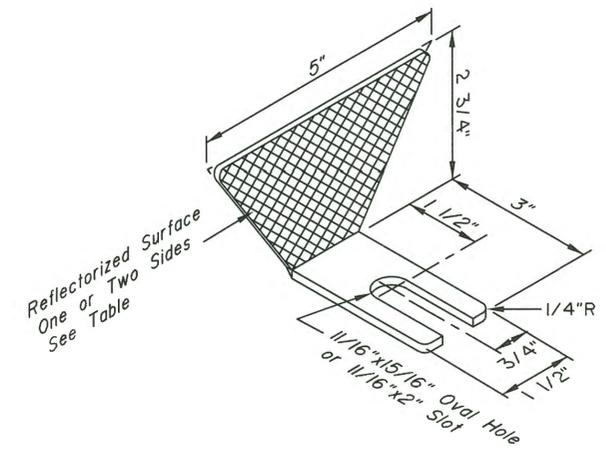
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Date: 3/14/22



RADIUS I.D. PLATE



RADIUS I.D. PLATE MOUNTING DETAIL



GUARDRAIL REFLECTOR

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

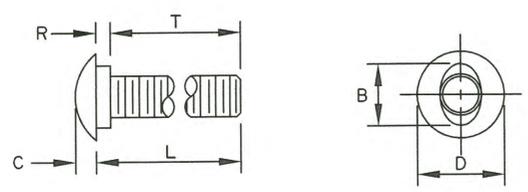
REVISIONS		
Date	Description	By
3/15/99	Delete BCT Hardware	KJS
1/16/17	Change ASTM in Note 3	LRG

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STANDARD GUARDRAIL HARDWARE (MISCELLANEOUS)

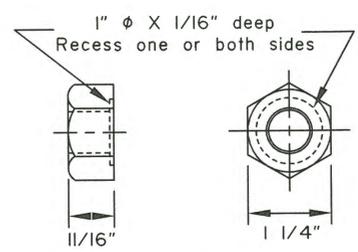


Eff. Date:
1/16/17

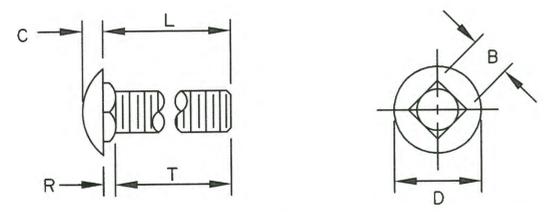


B	C	D	L (Length)	R	T (Thread Length)
15/16"	5/16"	1 5/16" or 1 7/16"	As Required	7/32"	As Required

5/8" BUTTONHEAD BOLT
(FBB01-05)

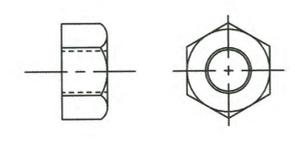


5/8" Dia. RECESSED HEX NUT
(FBB01-05)



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

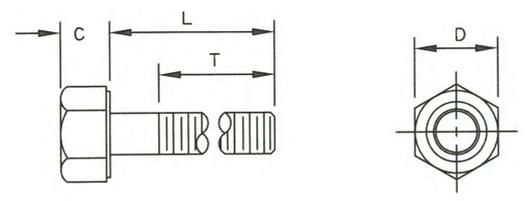
5/8" Dia. CARRIAGE BOLT
(FBC10-20)



STANDARD HEX NUT

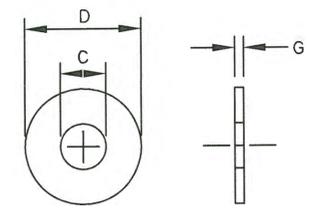
GENERAL NOTES:

- 1. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition. Designators given when possible in parentheses.



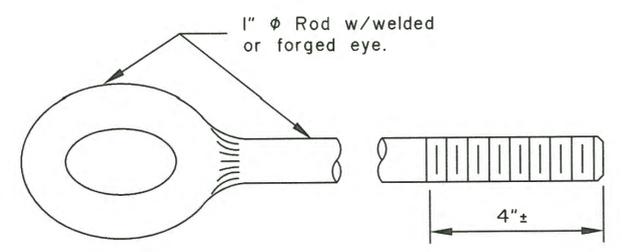
Bolt Size	C	D	L (Length)	T (Thread Length)
5/16"	---	---	1 1/2"	7/8"
5/16"	---	---	1"	1"
3/8"	---	---	7 1/2"	1 1/2"
1/2"	---	---	1 1/2"	1 1/2"
1/2"	---	---	1 1/4"	1 1/4"
5/8" H.S.	5/16"	7/8"	8"	1 1/2"
5/8"-II	---	---	1 1/2"	1 1/2"
3/4"	---	---	1 1/2"	1 1/2"
3/4"	---	---	As Required	2"
3/4" H.S.	15/32"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

STANDARD HEX BOLTS



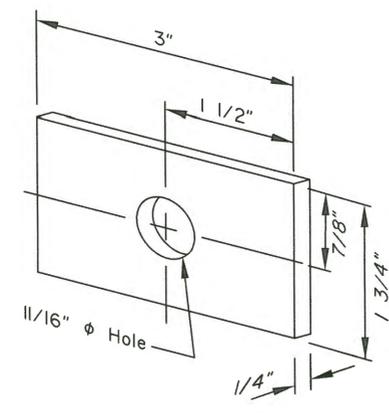
For Bolt ϕ	C	D	G
3/8"	7/16"	1"	5/64"
1/2"	17/32"	1 1/16"	3/32"
1/2" H.S.	17/32"	1 1/16"	3/32"
5/8"	11/16"	1 3/4"	9/64"
3/4"	13/16"	1 15/32"	9/64"
3/4" H.S.	13/16"	2"	5/32"
1"	1 1/16"	2"	9/64"

STANDARD STEEL WASHERS

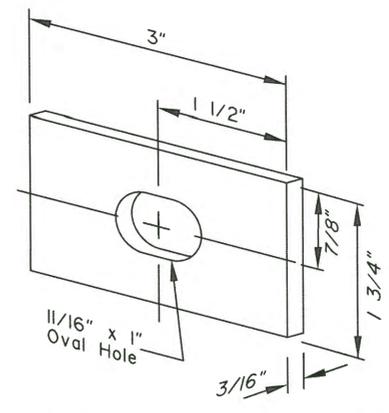


EYE BOLT

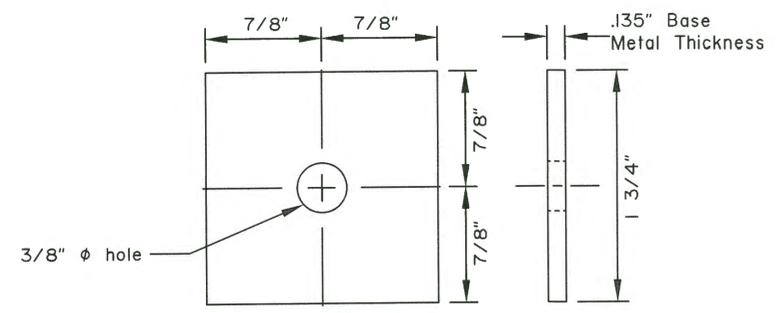
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 2/11/20



FLAT PLATE WASHER



RECTANGULAR POST BOLT WASHER
(FWR03)



SQUARE STEEL WASHER
(FWR01)

Note: drawing not to scale

REVISIONS		
Date	Description	By
3/15/99	Delete BCT Hardware	KJS
1/16/17	Added Designators	LRG
12/22/17	No changes this sht.	LRG

State of Alaska DOT&PF
 3132 Channel Dr., Juneau, AK
 Phone: (907) 465-2960
**STANDARD GUARDRAIL
 HARDWARE
 (NUTS, BOLTS & WASHERS)**



Eff. Date:
12/22/17

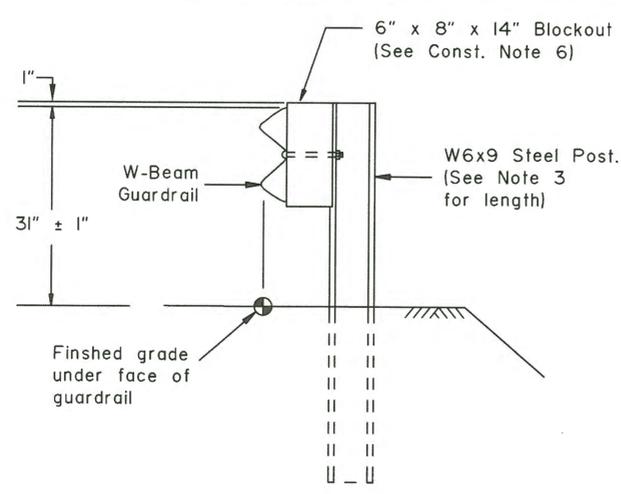
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 3/10/20

CONSTRUCTION NOTES:

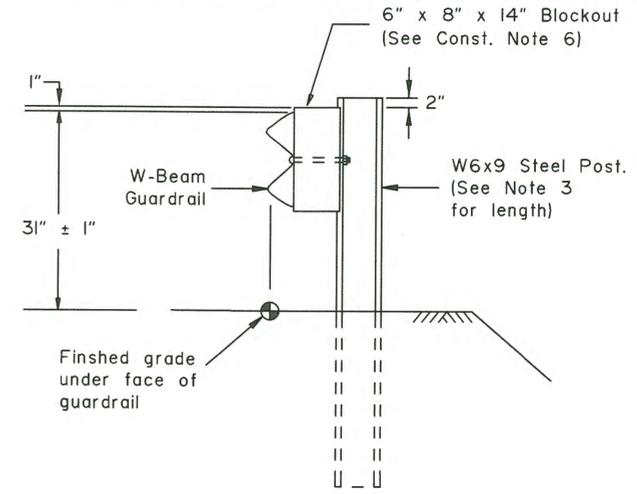
1. Provide hardware compliant with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware," latest edition.
2. See Std. Dwg. G-00 for hardware details not shown on this drawing.
3. See Standard Drawing G-10 for post lengths corresponding to different combinations of slope and behind-post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

DESIGN NOTES:

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

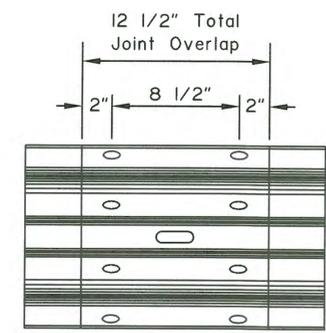


TYPE I POST INSTALLATION

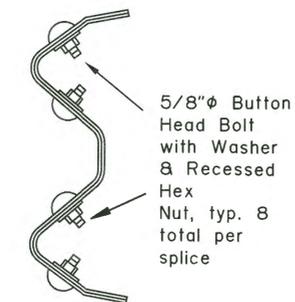


TYPE II POST INSTALLATION

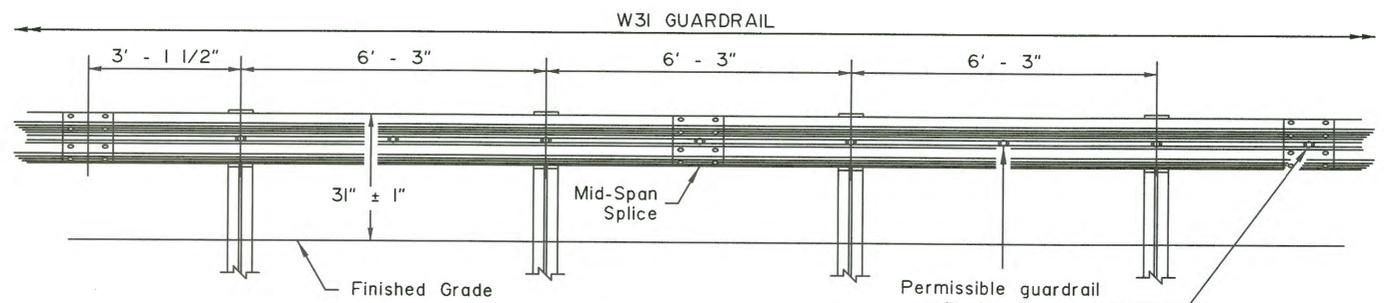
(Facilitates raising rail for future overlays.)



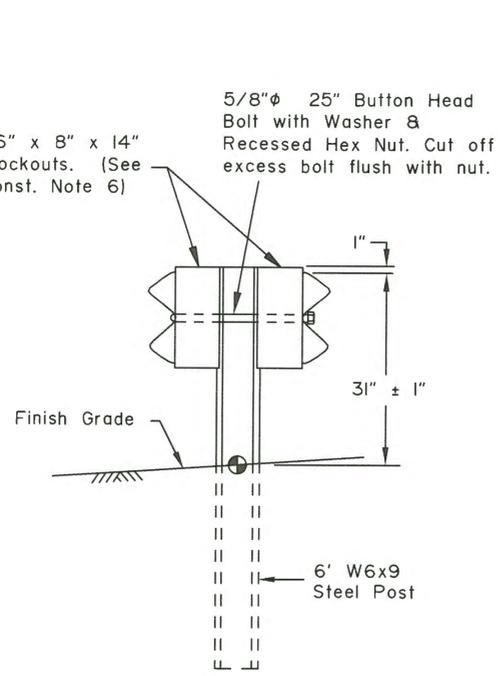
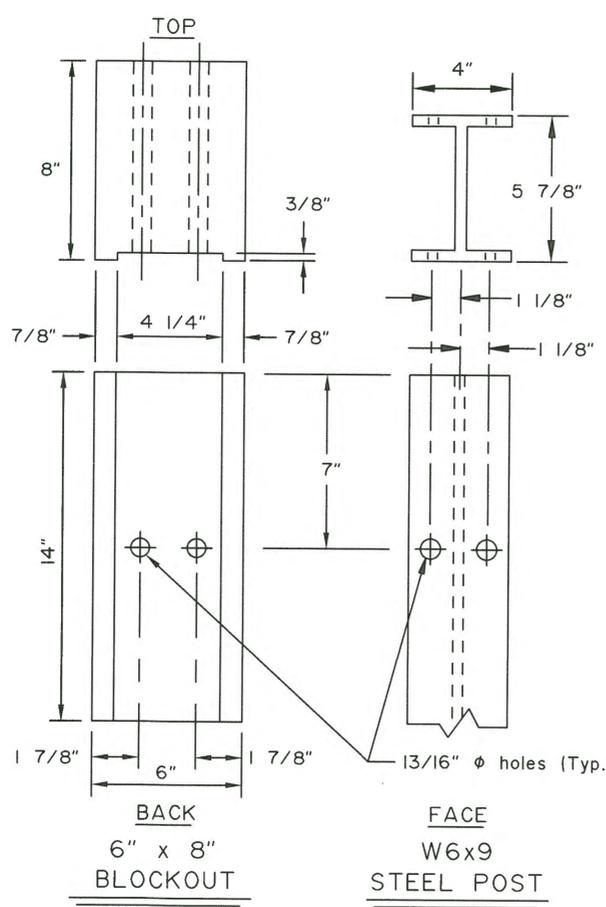
SPLICE DETAIL
 (At mid span between posts only. Bolts not shown for clarity)



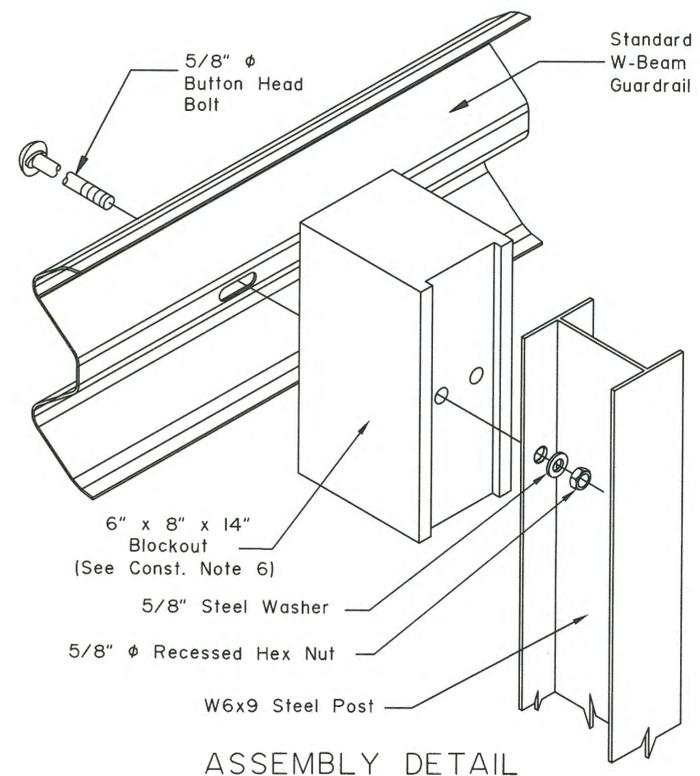
SPLICE CROSS-SECTION



TYPICAL ELEVATION



TYPE IV DOUBLE SIDED INSTALLATION



ASSEMBLY DETAIL
 (Type I post shown)



GUARDRAIL REFLECTOR
 (See Const. Note 5)

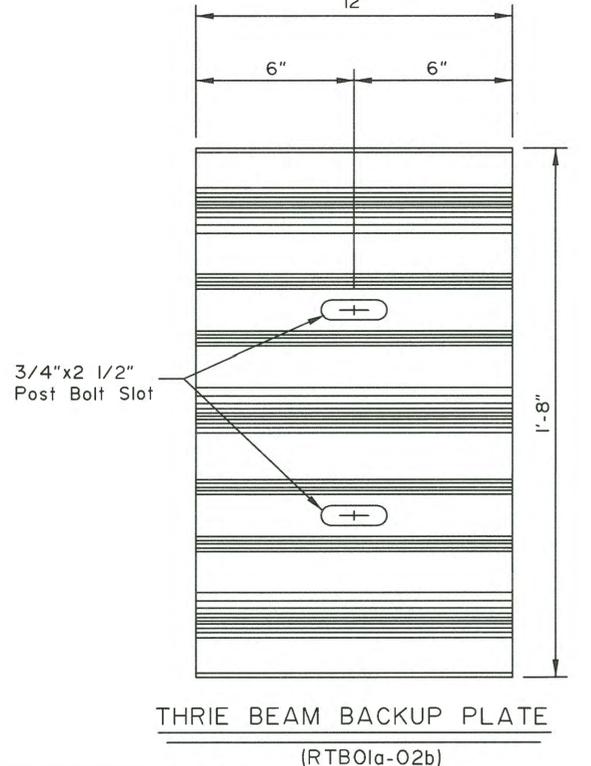
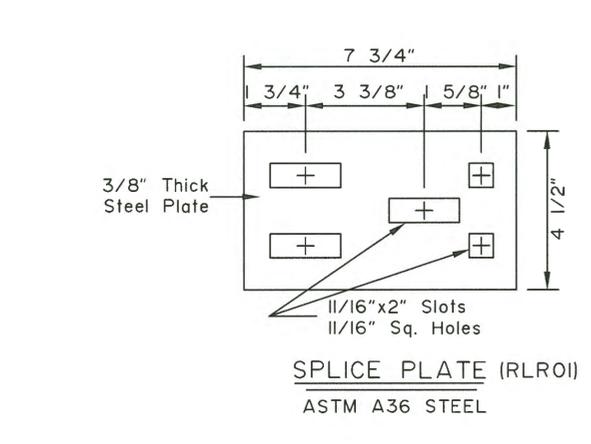
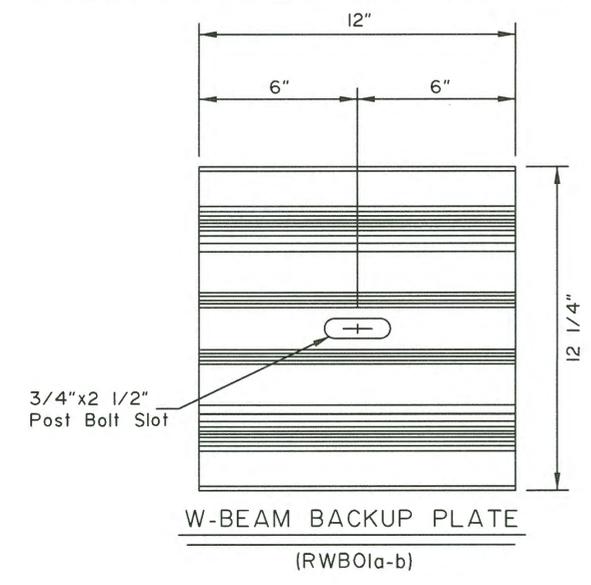
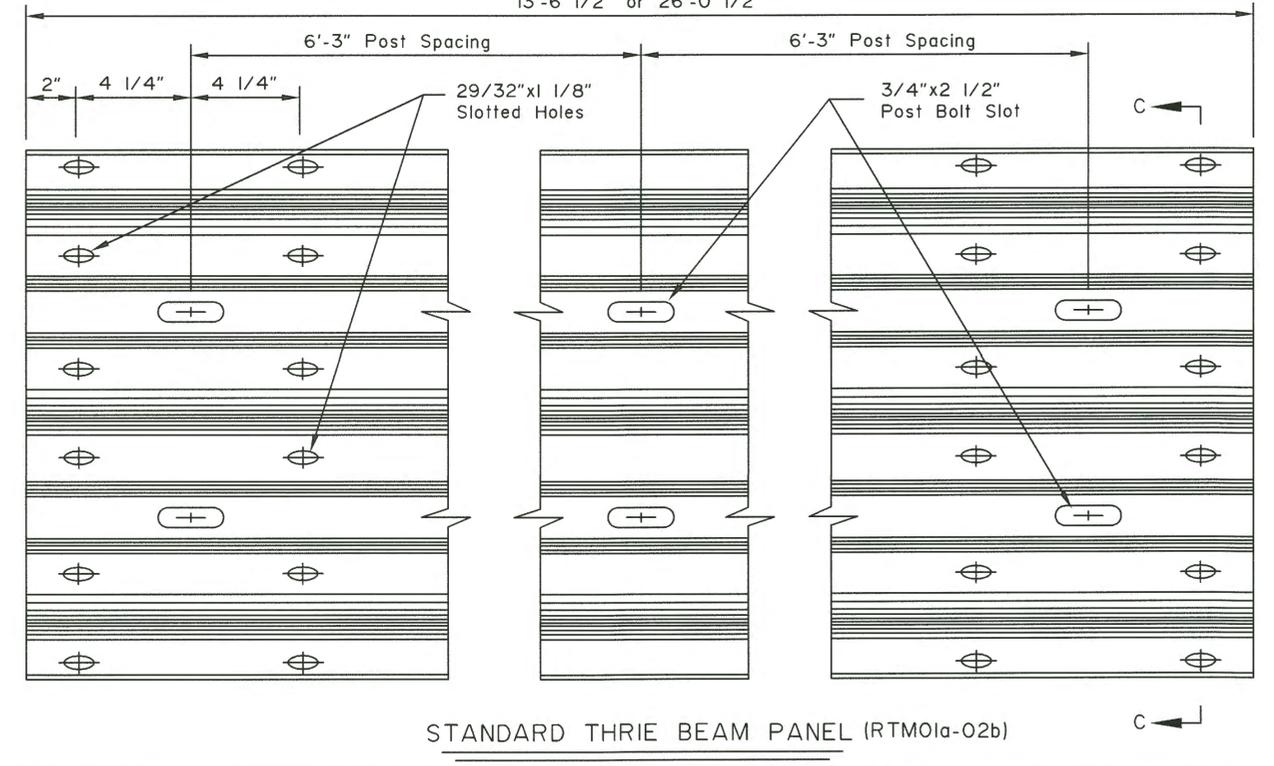
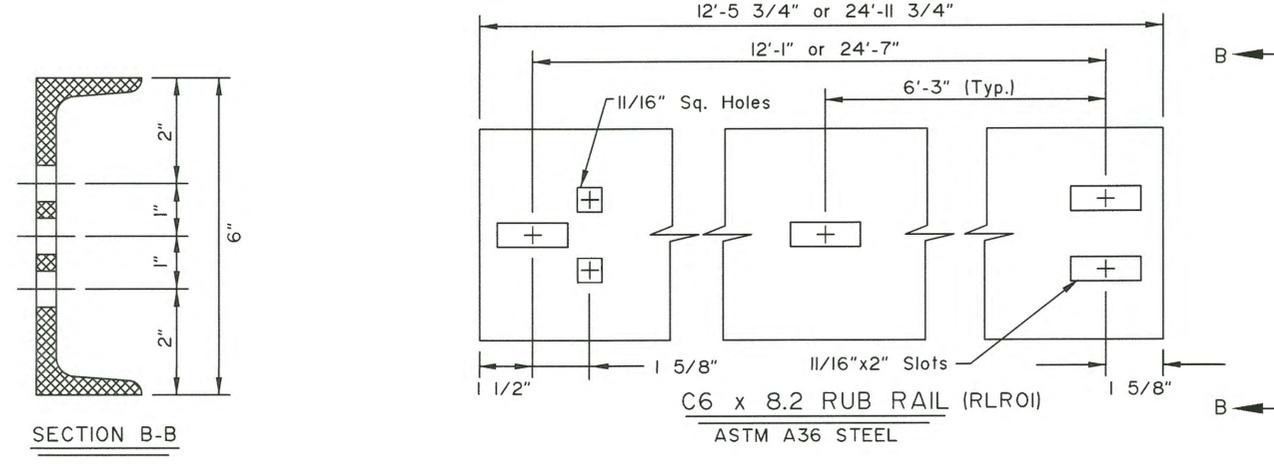
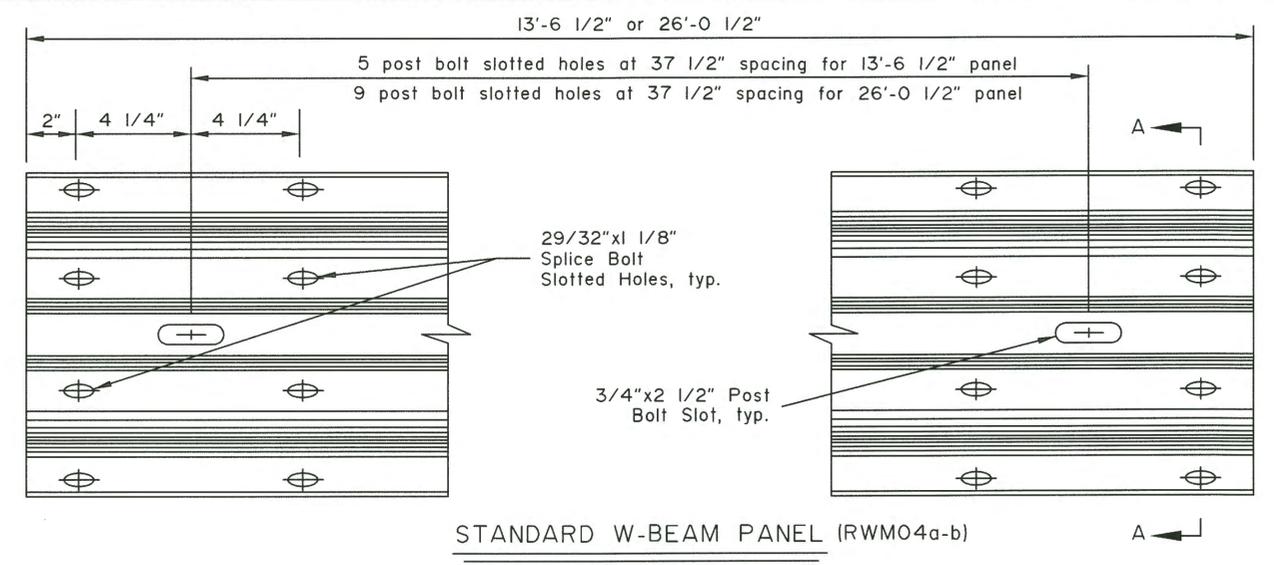
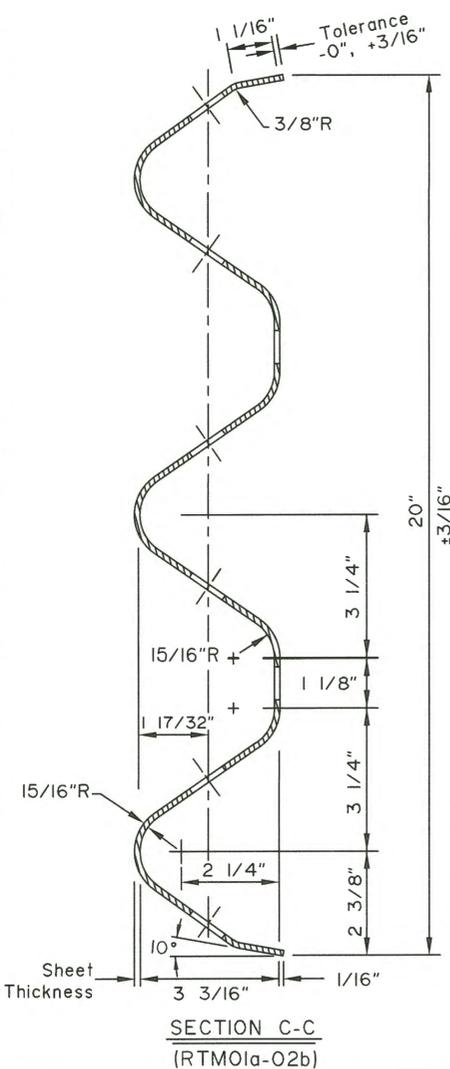
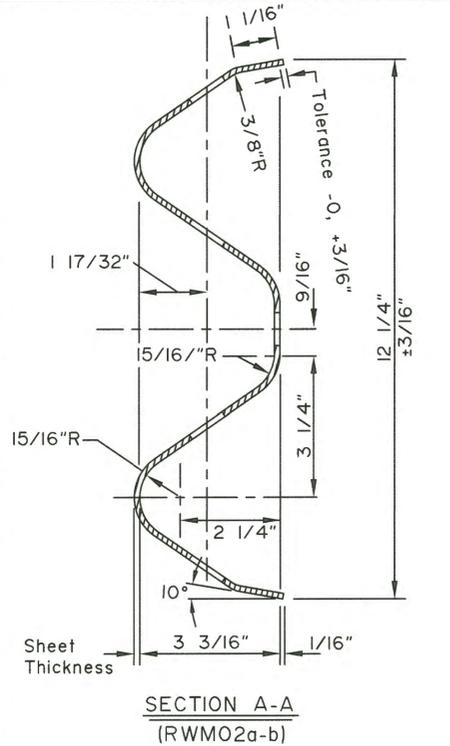
REVISIONS		
Date	Description	By

State of Alaska DOT&PF
 3132 Channel Dr., Juneau, AK
 Phone: (907) 465-2960

**STEEL POST
 W31 GUARDRAIL**



Eff. Date:
 12/22/17



- GENERAL NOTES:**
- All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition. Designators given when possible in parentheses.
 - Install back-up plates between blockouts and w-beam or thrie-beam rail at intermediate (non-splice) posts when steel blockouts are used but not with wood, rubber, plastic, or other approved blockouts.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 4/16/20

REVISIONS		
Date	Description	By
4/28/10	Revise general notes	KJS
1/16/17	Fix dimensions in Sections A-A and C-C	LRG
12/22/17	Std w-beam to RWM04	LRG

State of Alaska DOT&PF
 3132 Channel Dr., Juneau, AK
 Phone: (907) 465-2960

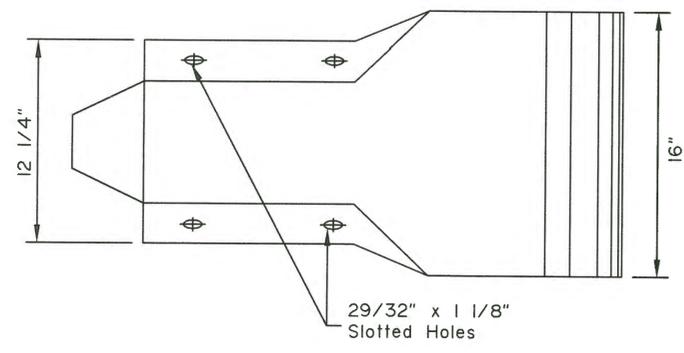
STANDARD GUARDRAIL HARDWARE (RAILS AND SPLICES)



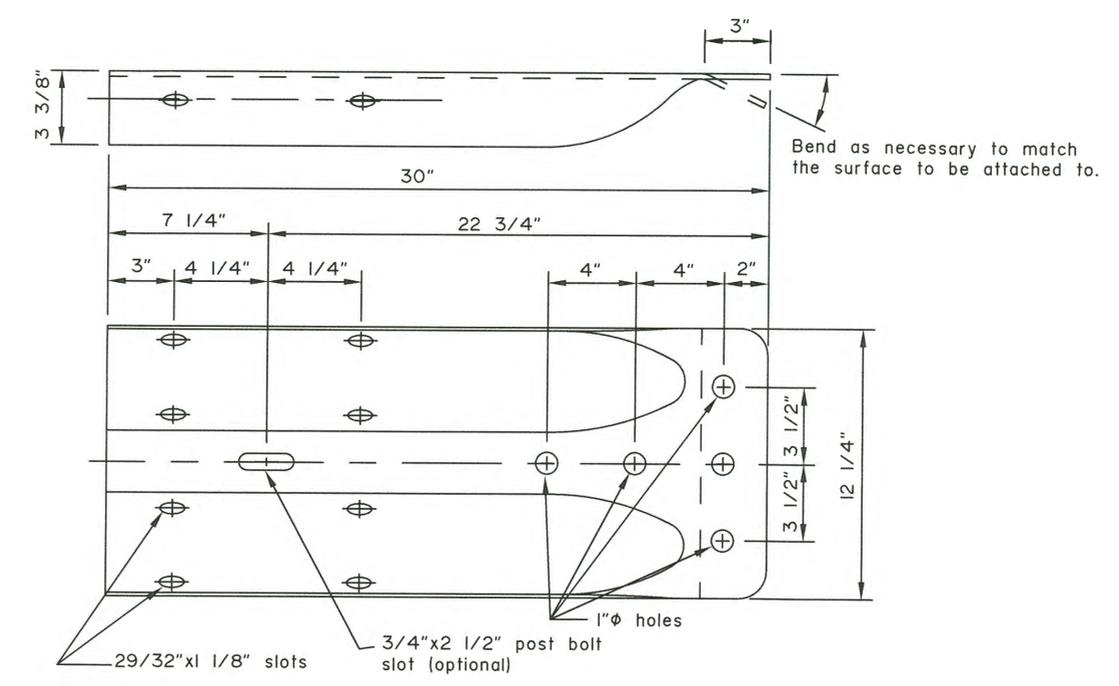
Eff. Date: 12/22/17

GENERAL NOTES:

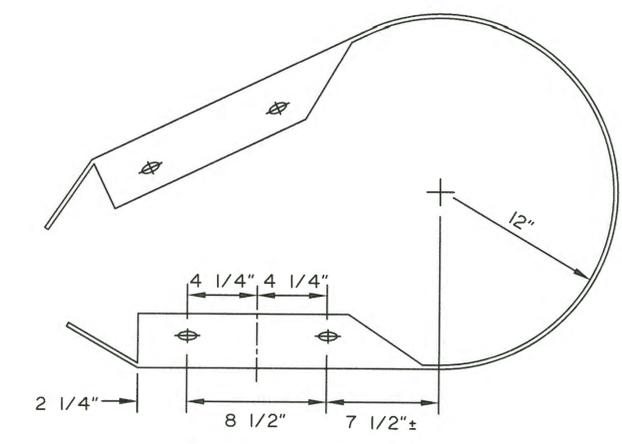
1. W-Beam and Thrie Beam Terminal Connectors shall conform to AASHTO M 180, Class B, Type II.
2. W-Beam end sections shall conform to AASHTO M 180, Class A, Type II.
3. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition. Designators given when possible in parentheses.



PROFILE

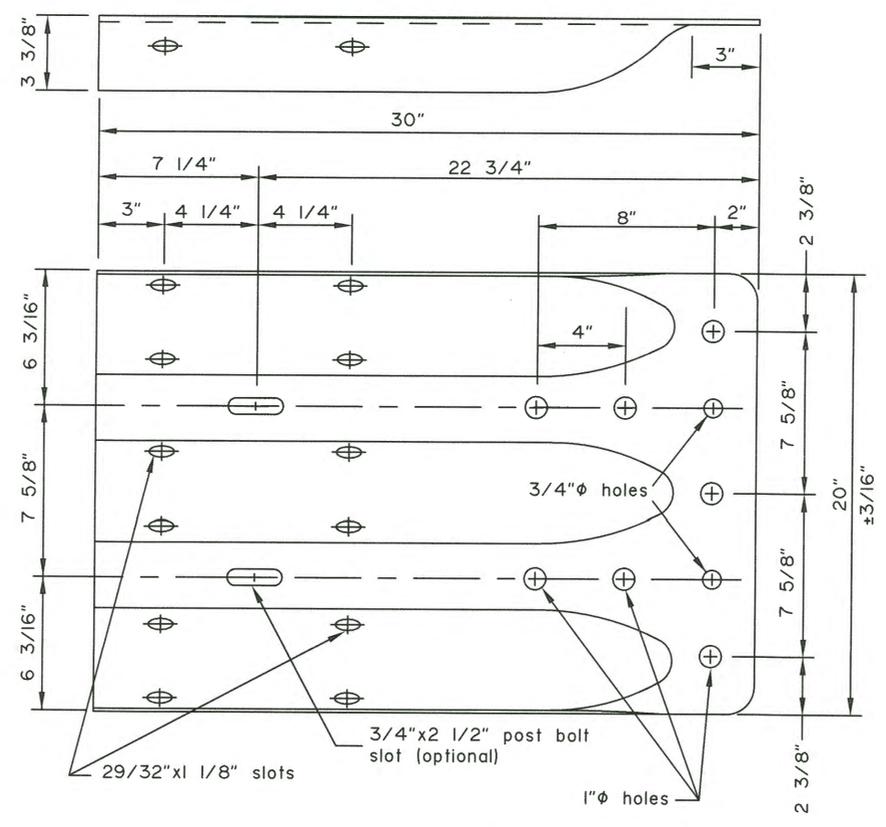


STANDARD W-BEAM TERMINAL CONNECTOR
(RWE02)



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

STANDARD W-BEAM END SECTION
(RWE06)



STANDARD THRIE BEAM TERMINAL CONNECTOR
(RTE01b)

Note: Drawing not to scale

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Date: 3/16/20

REVISIONS		
Date	Description	By
3/15/99	Delete Thrie end sect.	KJS
1/16/17	Holes added to Thrie	LRG
12/22/17	No changes this sht.	LRG

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Phone: (907) 465-2960

**STANDARD GUARDRAIL
HARDWARE
(TERMINAL CONNECTORS)**



Eff. Date:
12/22/17

GENERAL NOTES:

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

Note: Drawing not to scale

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 3/16/20

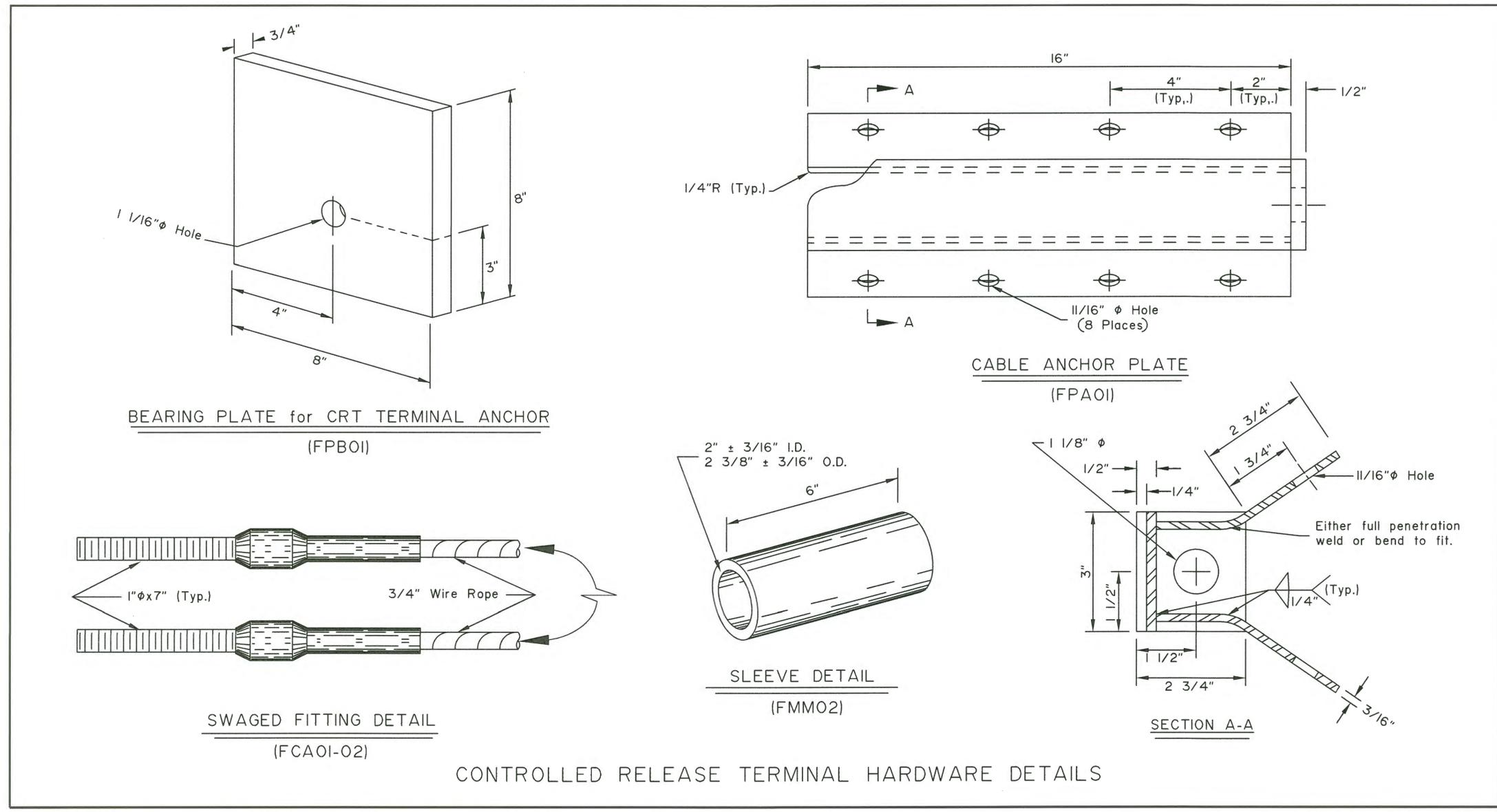
REVISIONS		
Date	Description	By
3/15/99	Delete BCT Hardware	KJS
1/16/17	Change ASTM in Note 3	LRG
12/22/17	No changes this sht.	LRG

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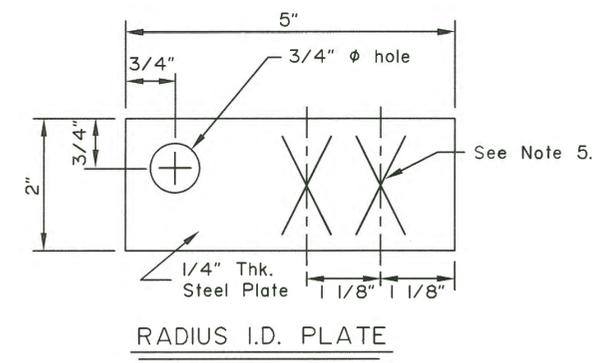
STANDARD GUARDRAIL HARDWARE (MISCELLANEOUS)



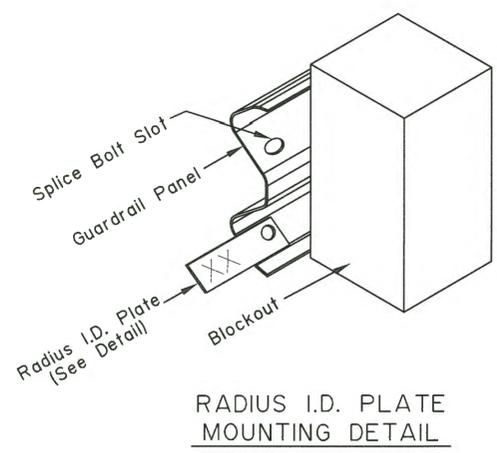
Eff. Date:
12/22/17



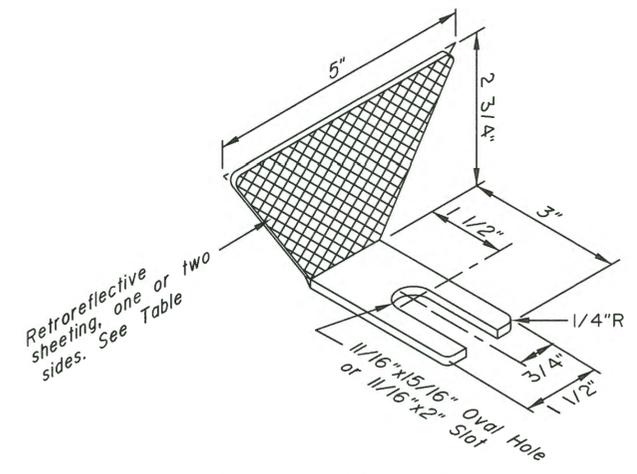
CONTROLLED RELEASE TERMINAL HARDWARE DETAILS



RADIUS I.D. PLATE



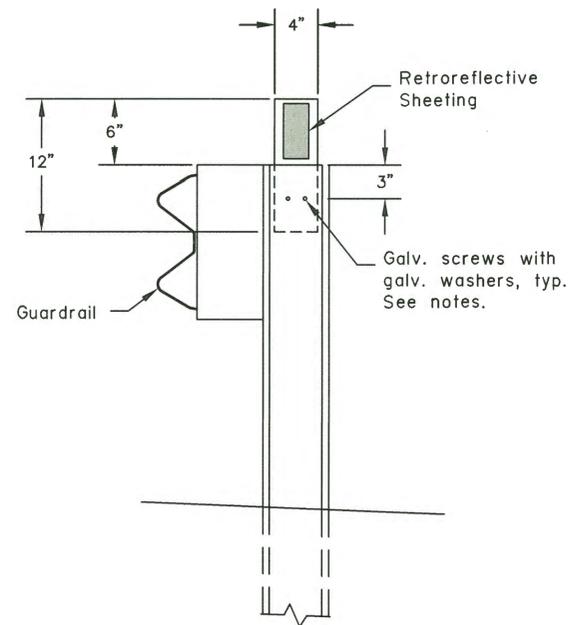
RADIUS I.D. PLATE MOUNTING DETAIL



GUARDRAIL REFLECTOR

Guardrail Reflector Table

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



GUARDRAIL FLEXIBLE DELINEATOR DETAIL

(Steel post shown - similar for wood post)

CONSTRUCTION NOTES

1. Install guardrail flexible delineators where shown on the plans.
2. Install guardrail flexible delineators at 50 foot spacing, unless otherwise noted on the plans. Install not less than 2 delineators per guardrail run.
3. Use 3" x 5" white/yellow/red retroreflective sheeting as required per Standard Drawing T-05. Install retroreflective sheeting on both sides of delineator on two-way roads.
4. Attach 4" x 12" flexible delineators to the top of new guardrail posts, on the trailing side of the posts relative to the adjacent lane's direction of travel.
5. Predrill or preform 5/16" diameter mounting holes in steel posts by the manufacturer prior to galvanizing. Predrilling or preforming holes not required for wood posts.
6. Use 2 each 1/4" dia. x 1-1/2" long galvanized lag screws for attaching to wood posts and 2 each 1/4" dia. x 3/4" long galvanized self-drilling fasteners for steel posts. Install a galvanized washer between the fastener head and the flexible delineator.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 3/14/20

REVISIONS		
Date	Description	By
12/22/17	New Sht. 5 added	LRG

State of Alaska DOT&PF
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STANDARD GUARDRAIL
 HARDWARE
 (FLEXIBLE DELINEATORS)

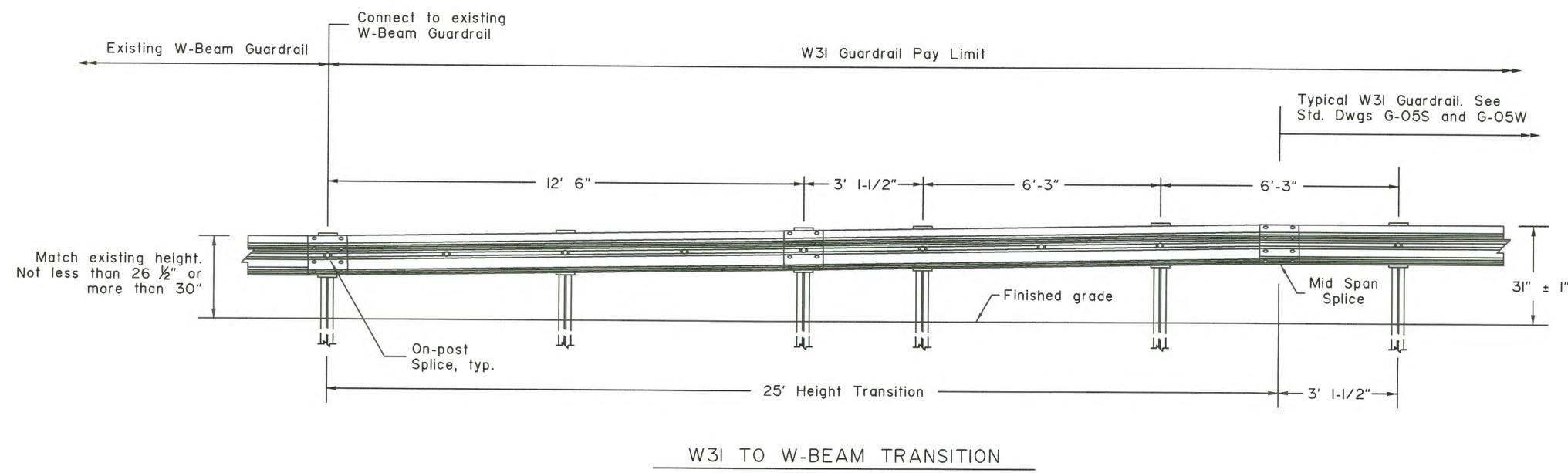


Eff. Date:
12/22/17

Note: Drawing not to scale

GENERAL NOTES:

- This drawing illustrates steel post W31 guardrail. Wood posts may be substituted when allowed by specification.



Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 2/16/20

REVISIONS		
Date	Description	By

State of Alaska
 Department of Transportation
 & Public Facilities

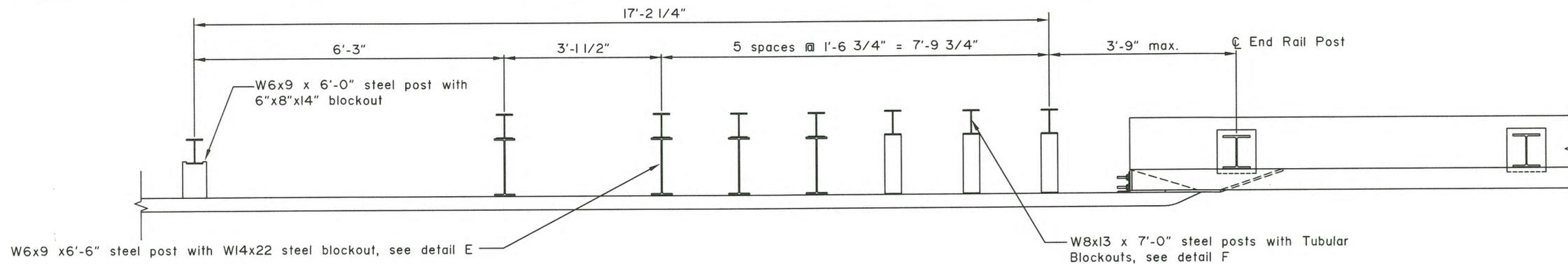
**W31 Guardrail
 Transition Details**

Eff. Date:
 12/22/17

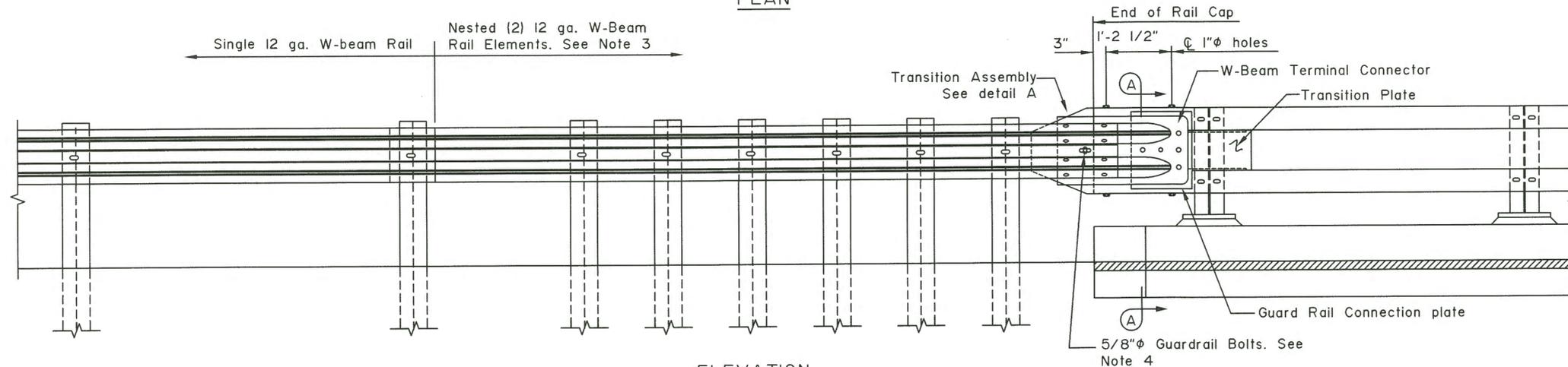
G-30.01

GENERAL NOTES

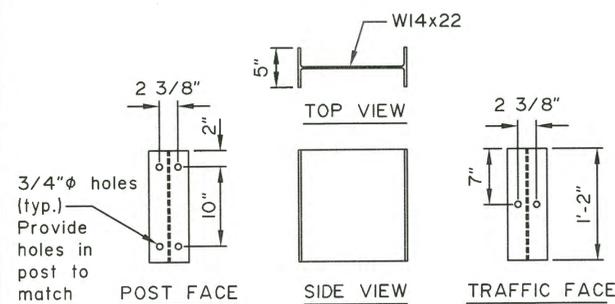
1. All guardrail and guardrail connection hardware to conform to AASHTO M-180. All High Strength Bolts conform to ASTM A325. All other steel to conform to ASTM A709 Grade 36.
2. Conform to G-00 and G-04S for all guardrail details not shown. No Back-up Plates required.
3. Lap approach guardrail to prevent snags from oncoming traffic.
4. Provide 4 1/2" horizontal slot in approach guardrail. Adjust guardrail bolts for sliding fit.
5. This design is approved for NCHRP 350, TL 3.



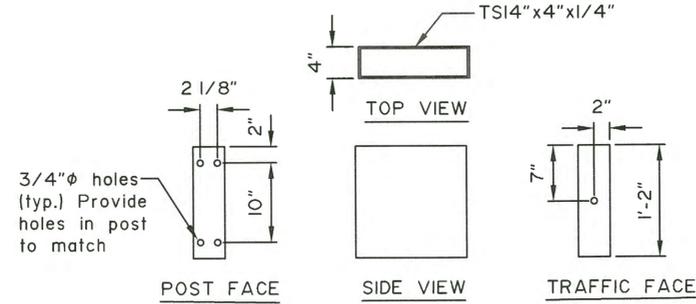
PLAN



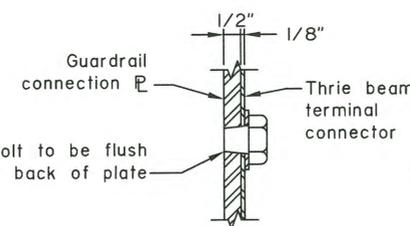
ELEVATION



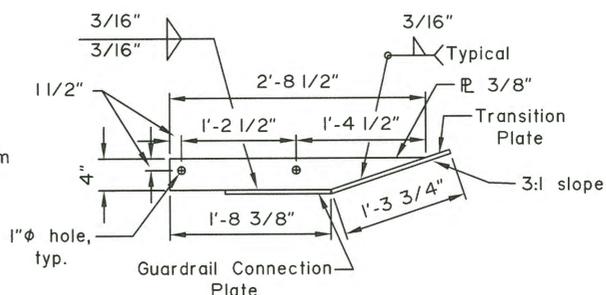
DETAIL E - STEEL BLOCK OUT



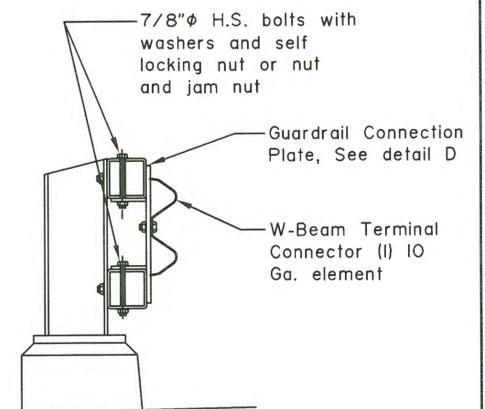
DETAIL F - TUBULAR BLOCKOUTS



DETAIL G

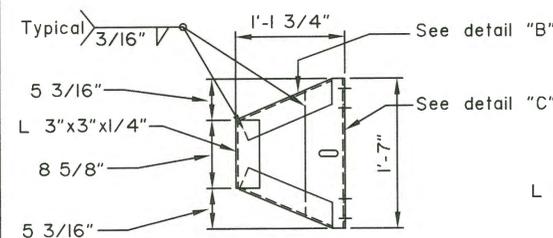


VIEW H-H

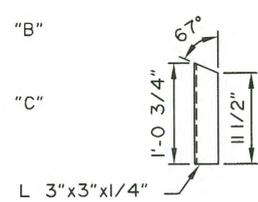


SECTION A-A

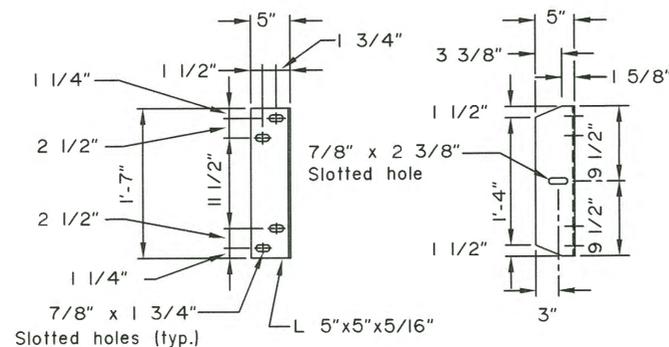
Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 Date: 2/11/20



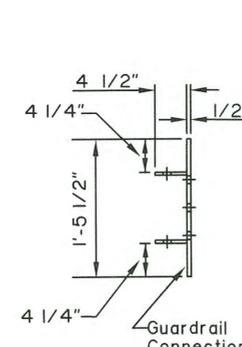
DETAIL A - TRANSITION ASSEMBLY



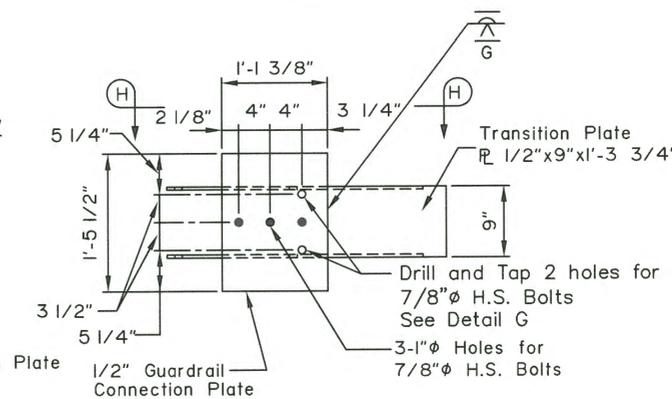
DETAIL B



DETAIL C



DETAIL D - GUARDRAIL CONNECTION PLATE



DETAIL D - GUARDRAIL CONNECTION PLATE

REVISIONS		
Date	Description	By
8/10/11	Misc. Corrections	EEM

Sheet 1 of 1

State of Alaska
 Department of Transportation
 & Public Facilities
**BRIDGE RAIL W-BEAM
 TRANSITION**



APPROVED

No Scale

Date 3/31/15

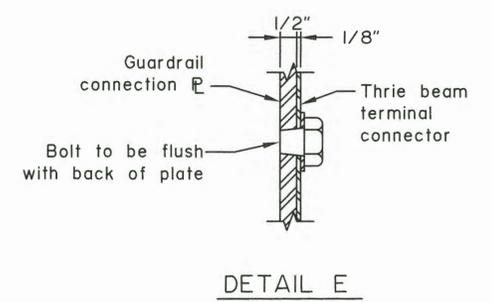
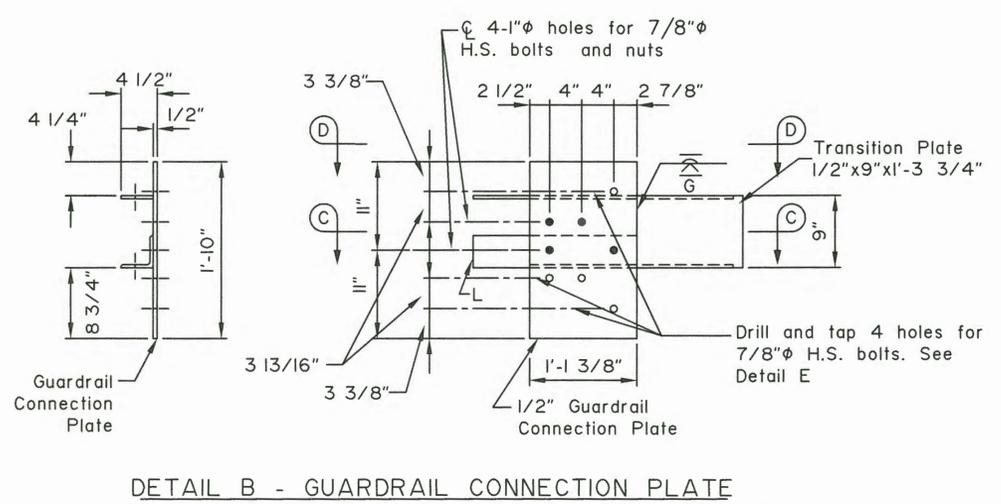
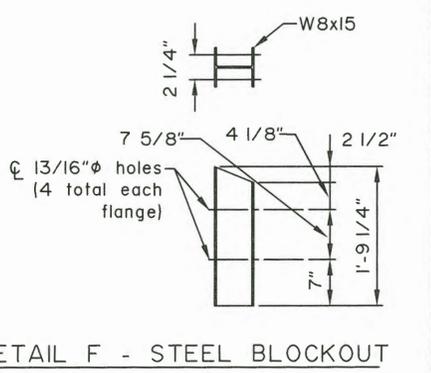
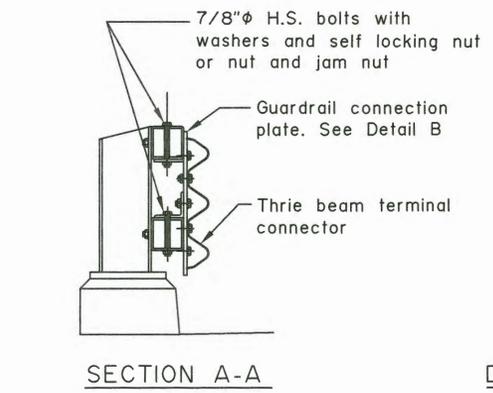
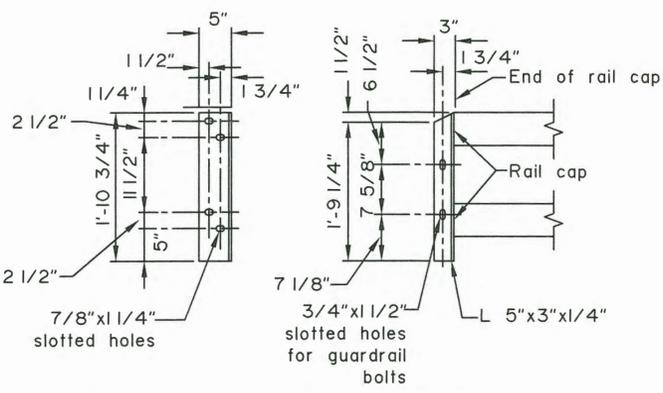
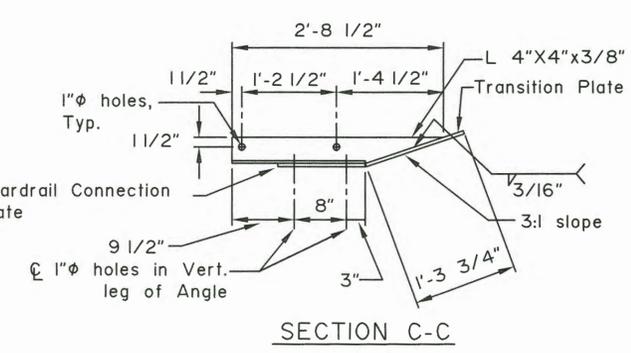
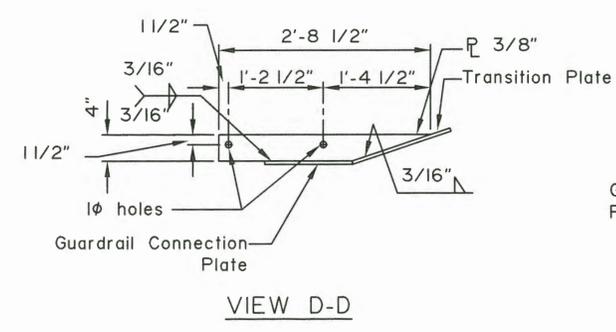
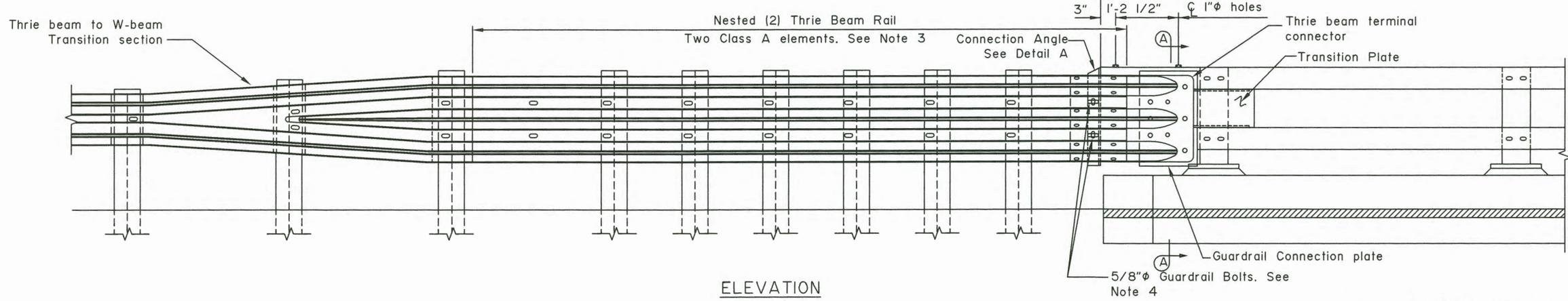
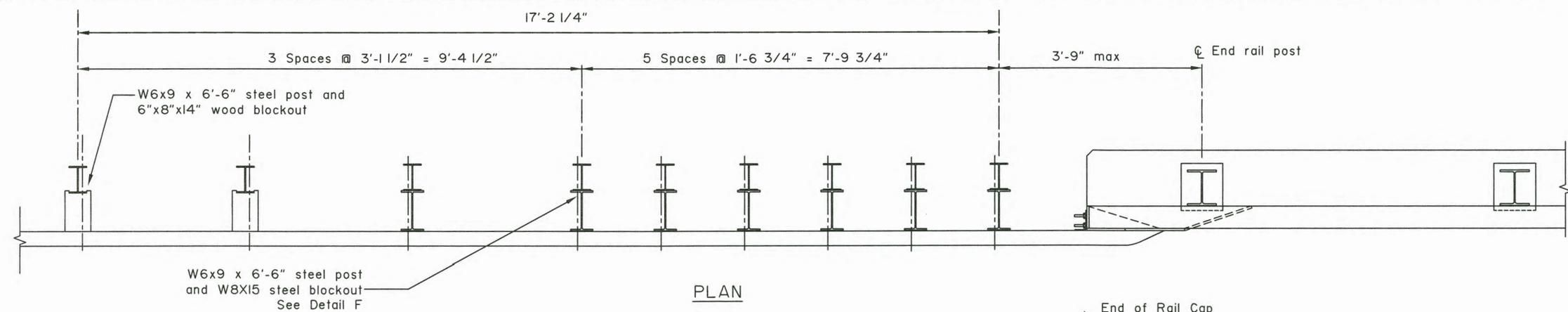
G-30.01

G-31.01

GENERAL NOTES

1. All guardrail and guardrail connection hardware to conform to AASHTO M-180. All H.S. Bolts conform to ASTM A325. All other steel to conform to ASTM A709 Grade 36.
2. Conform to G-00, G-04S, G-10 for all guardrail details not shown. No Back-up Plates required.
3. Lap approach guardrail to prevent snags from oncoming traffic.
4. Provide 4 1/2" horizontal slot in approach guardrail. Adjust guardrail bolts for sliding fit.
5. This design is approved for NCHRP 350, TL 4.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge the project as constructed.
 P. J. Shaw Date 2/10/20



REVISIONS		
Date	Description	By
8/10/11	Post Length	EEM

Sheet 1 of 1

State of Alaska
 Department of Transportation
 & Public Facilities

**BRIDGE RAIL THRIE
 BEAM TRANSITION**

APPROVED

Elmer E. Marx III
 No. CE 9490

Date 3/31/15

No Scale

G-31.01

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.

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 Date: 4/28/10
 Signature: [Signature]

REVISIONS		
Date	Description	By
4/28/10	Delete pipe, rev notes	KJS

Sheet 1 of 1

State of Alaska
 Department of Transportation
 & Public Facilities

SIGN FRAMING AND POST SPACING

APPROVED

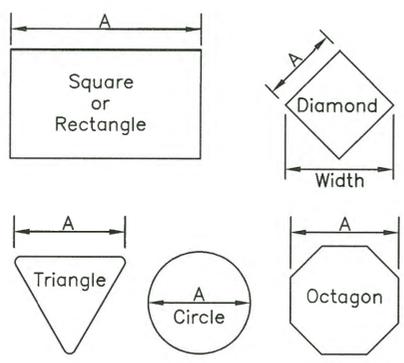
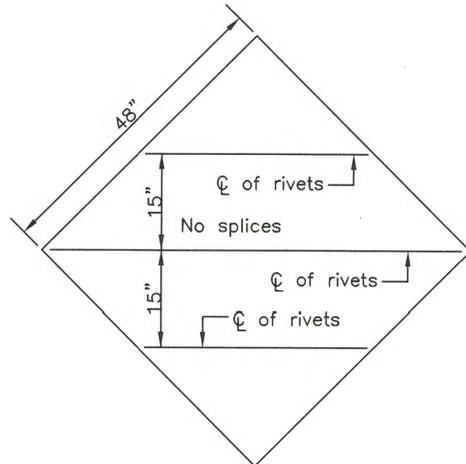


Date: 5/31/12

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	

SIGN POST SPACING NOTES:

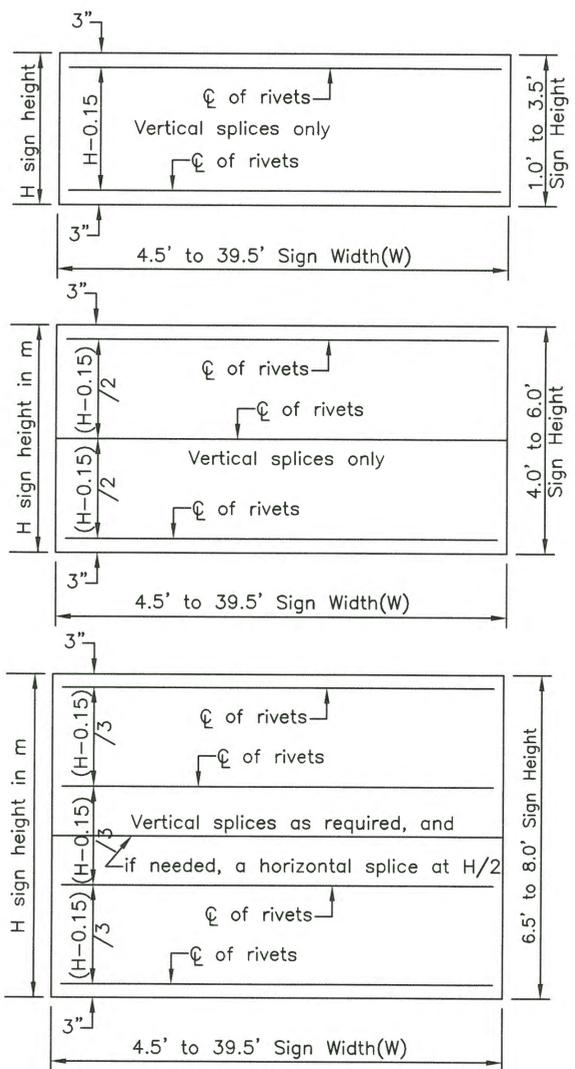
1. Install sign support in accordance with the table above, unless otherwise required by plans or specifications.
2. Exceptions:
 - a. Use one post for all E5-1 gore signs, regardless of width.
 - b. Use one 2.5" P.S.T. for all STOP signs, with or without street name signs.
3. Supports placed within 7' of each other must be acceptable for that use. See Standard Drawing S-30 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 Drawing S-31 for frangible couplings, hinges, and foundations for tube and W-shape sign supports.



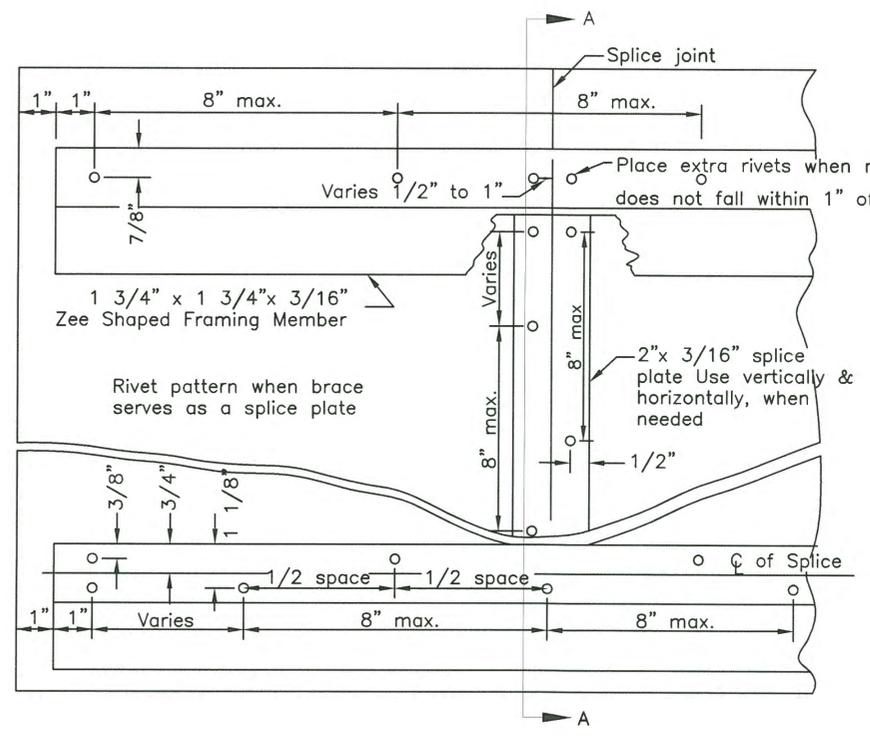
Maximum size unframed signs using 0.125" thick aluminum sheeting.	
Sign Shape	A
Squares, Shields, and Route Markers	48"
Rectangles	48"
Diamonds	48"
Triangles	48"
Rounds and Octagons	48"

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

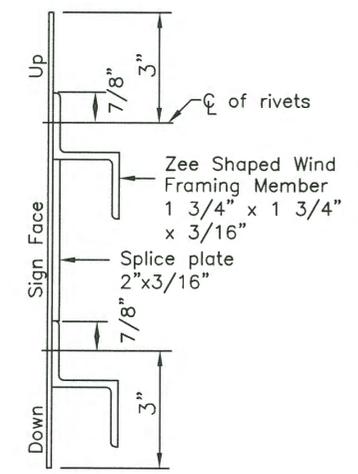
LIGHT SIGNS



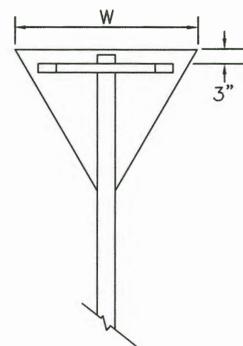
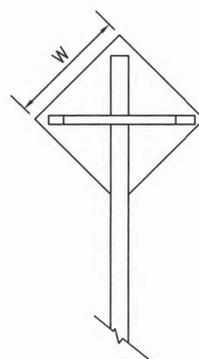
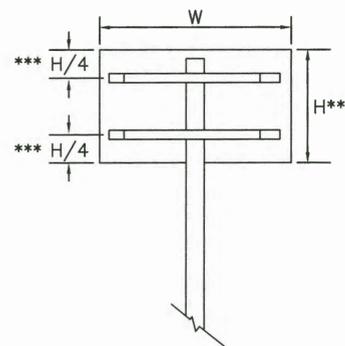
WIND FRAMING LOCATIONS



RIVET DETAIL FOR ZEE SHAPED WIND FRAMING & SPLICE PLATE

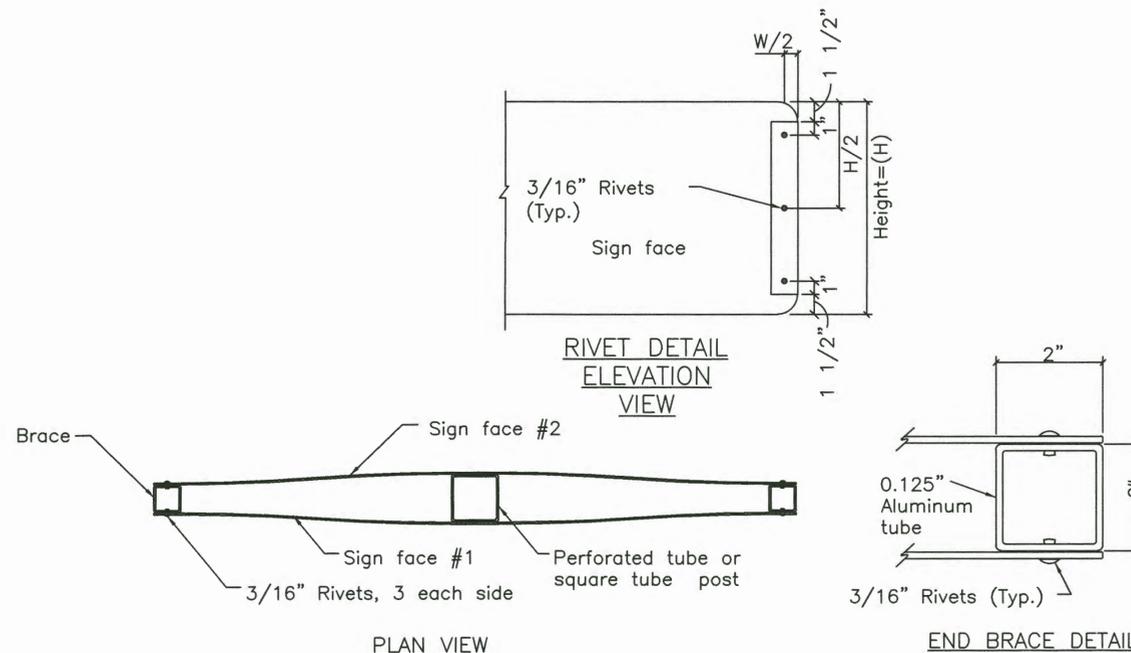


SECTION A-A

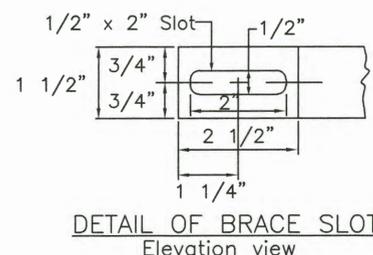


*** Use one brace when $H \leq 18"$
 Use two braces when $18" < H < 48"$
 Use three braces when $H \geq 48"$
 ** Position of brace may be varied to match
 Pre-drilled mounting holes in panel

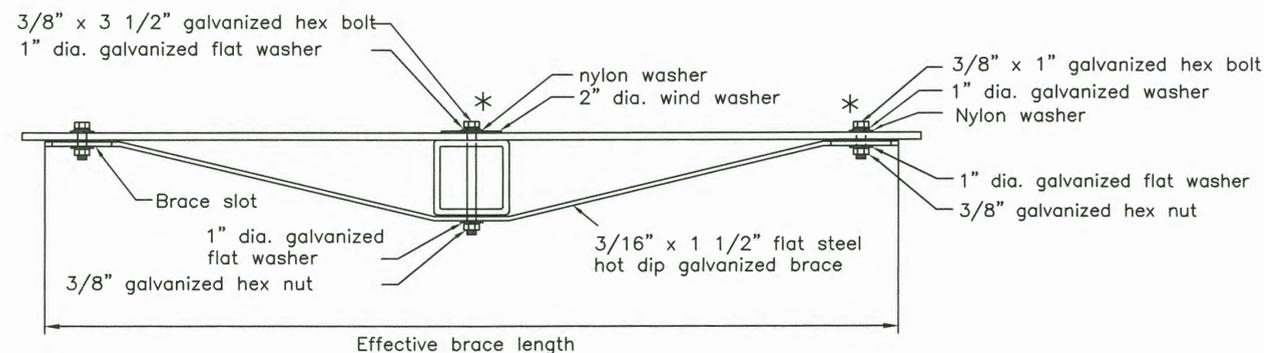
SIGN BRACING PLACEMENT



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



DETAIL OF BRACE SLOT
Elevation view



TUBE POST SIGN BRACING
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

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 2/16/20

REVISIONS		
Date	Description	By
1/16/17	Bolt size & type	LRG

State of Alaska DOT&PF
 3132 Channel Dr., Juneau, AK
 Phone: (907) 465-2960
**BRACING FOR SIGNS
 MOUNTED ON SINGLE POST**

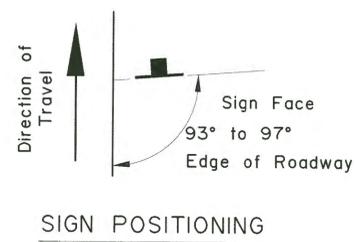
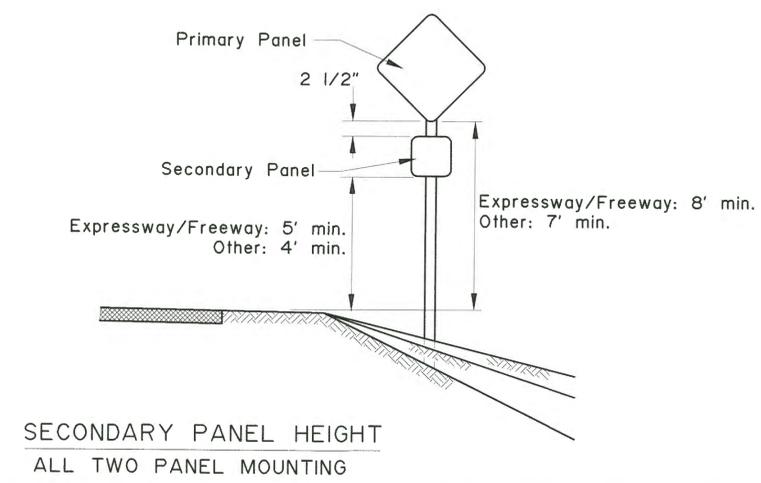
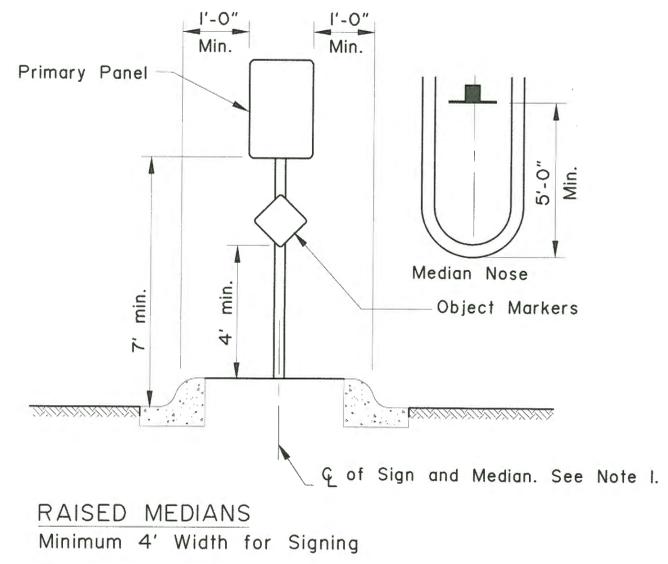
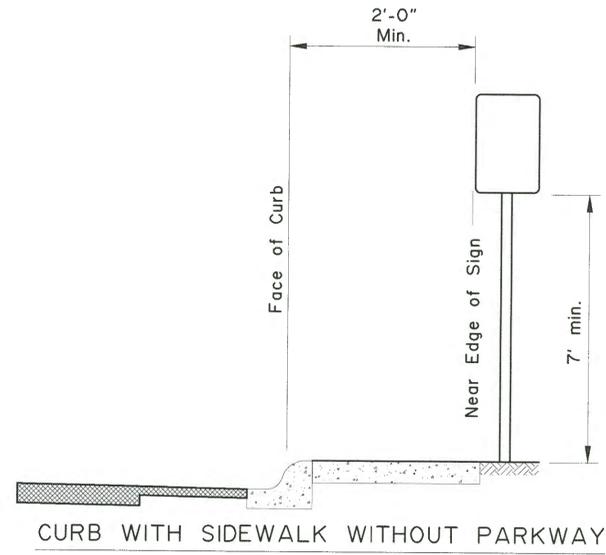
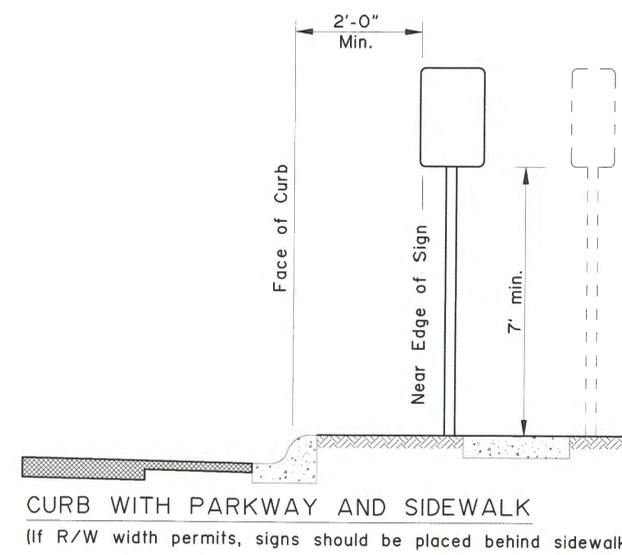
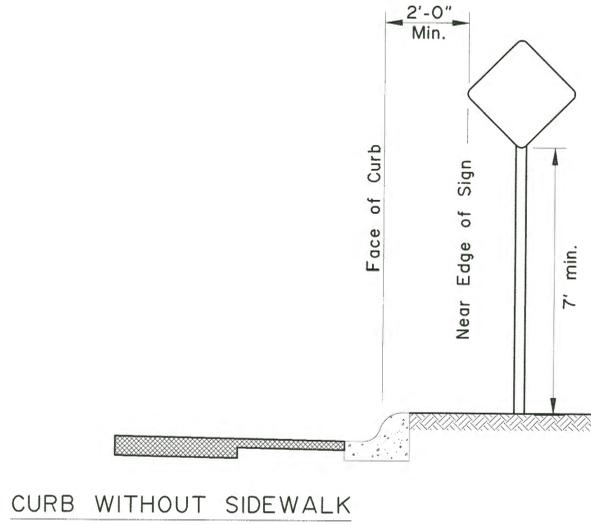
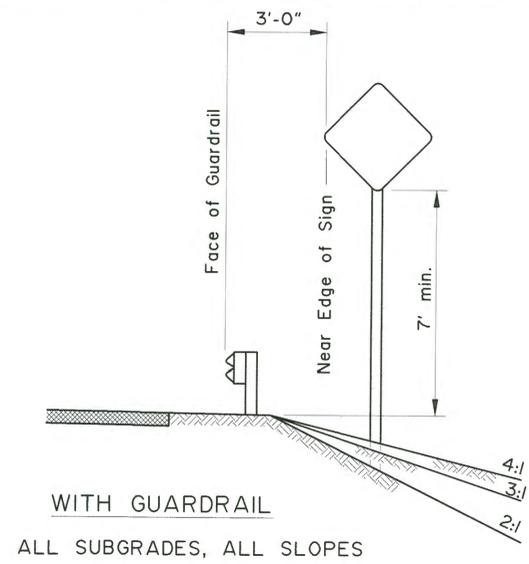
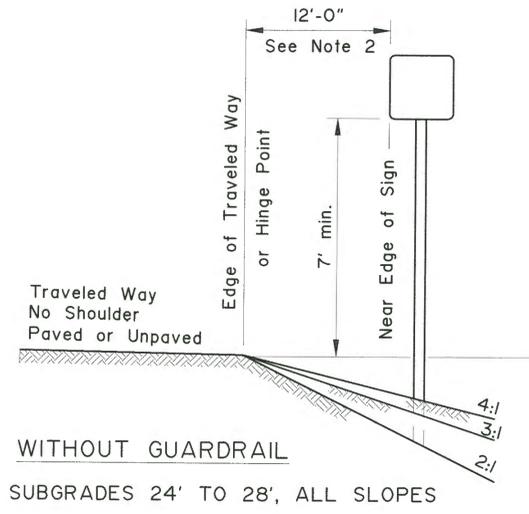
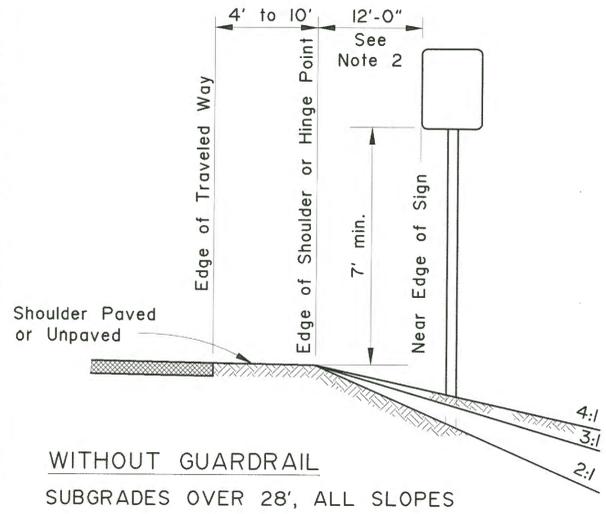


Eff. Date:
1/16/17

DRAWING NOT TO SCALE

GENERAL NOTES

1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6'.
2. If signs extend over sidewalks, the minimum vertical clearance is 7'-0".
3. Add 6" to mounting height on unpaved roads.
4. If signs extend over bike paths, the minimum vertical clearance is 8' 0".
5. 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.
6. When multiple hinged sign supports are used, mount hinges at least 7' above the ground.



Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
Date: 3/14/20

REVISIONS		
Date	Description	By
4/3/01	Revised Sign Heights	KJS

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

POST MOUNTED SIGN
OFFSET AND HEIGHT

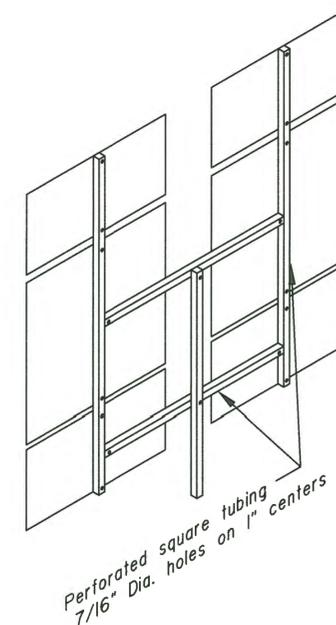
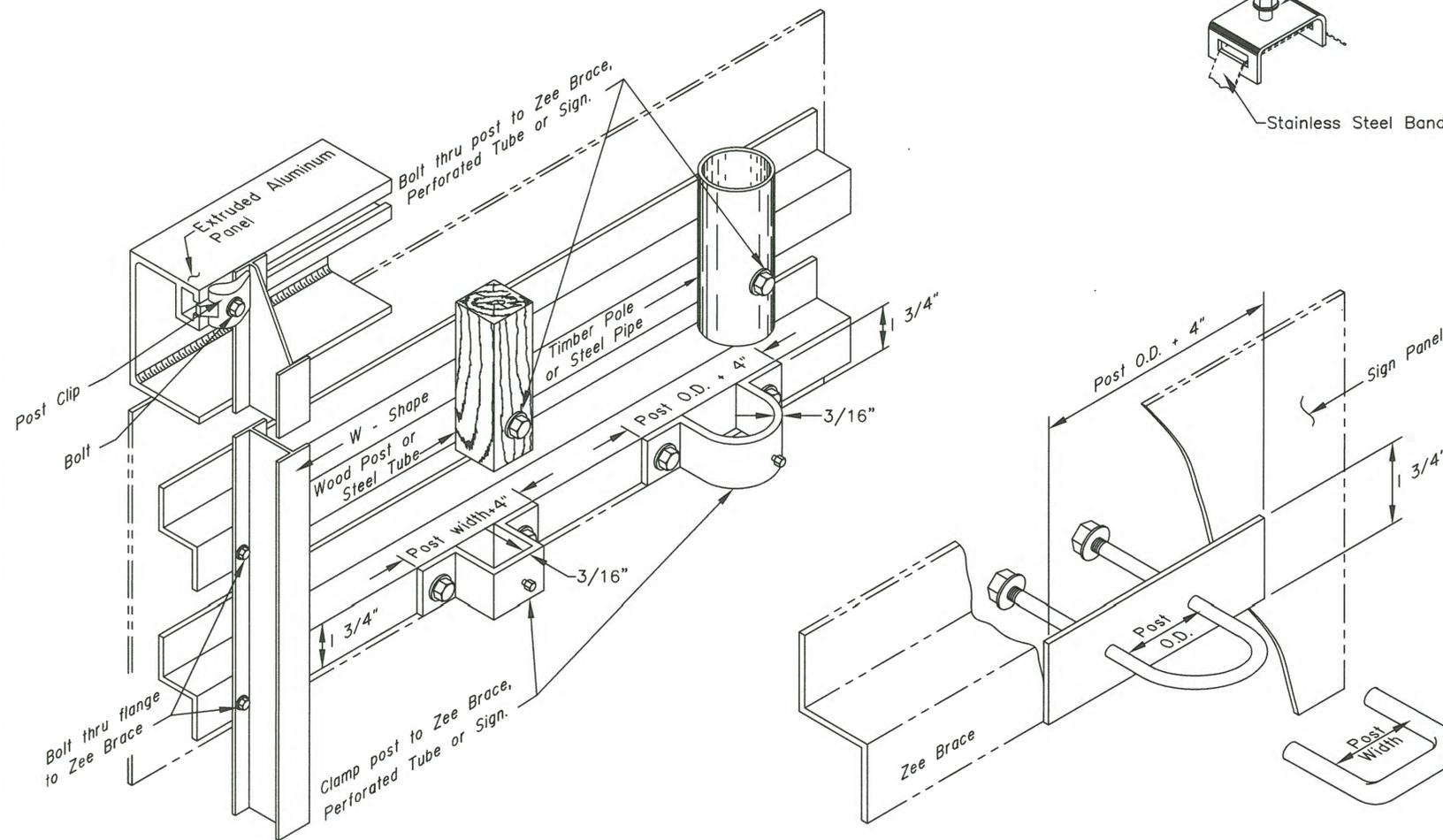
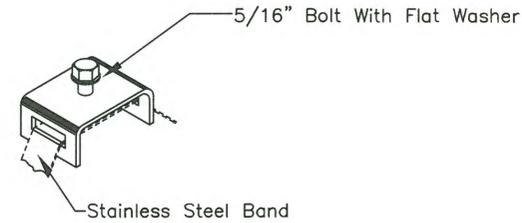
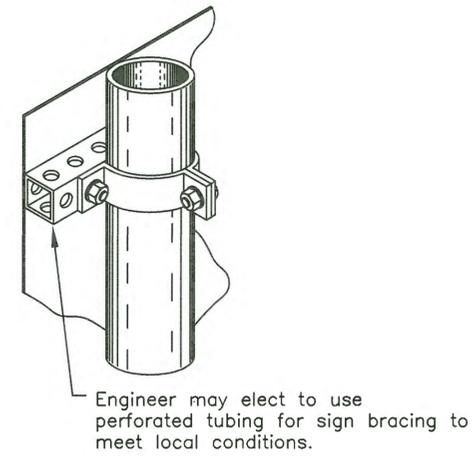
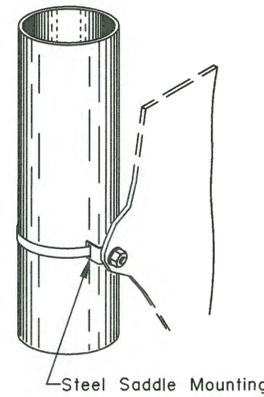
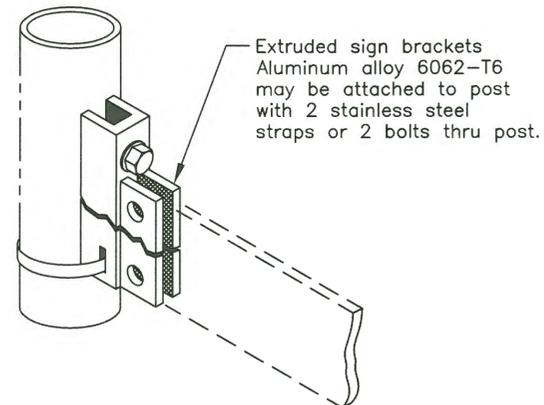
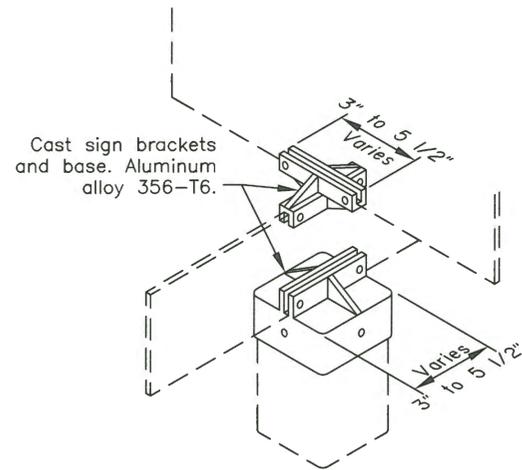
APPROVED
Kurtis J. Smith
Professional Engineer
No. 4978
Exp. 12/31/2017

Date: 7/15/82

S-20.10

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 LOCK	6061-T6 2017-T4	A-307	A-276
WASHERS		2024-T4	A-36	A-276
POST CLIP		356-T6		

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 P. J. Shull Date: 3/16/20

REVISIONS		
Date	Description	By

Sheet 1 of 1

State of Alaska
 Department of Transportation
 & Public Facilities

SIGN TO SIGN POST CONNECTIONS



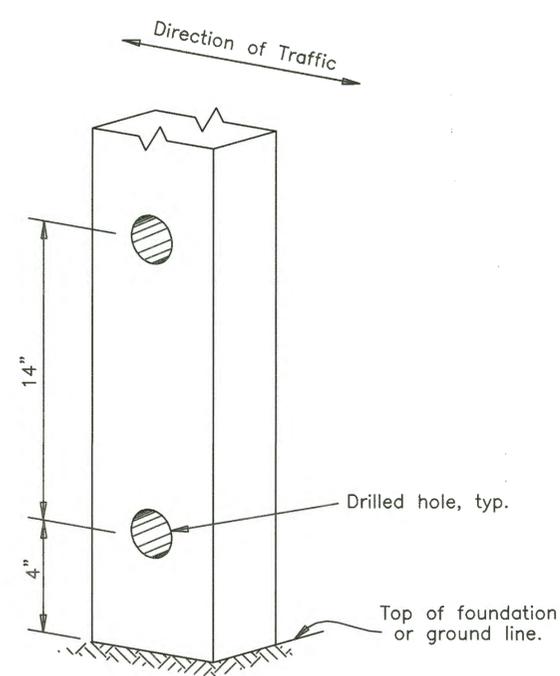
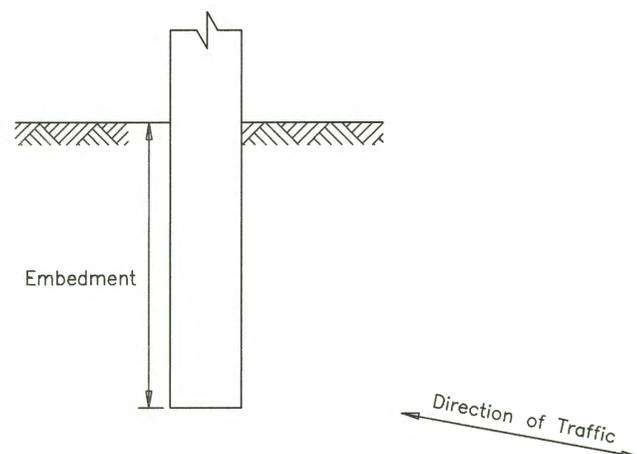
APPROVED



Date: 2/28/03

GENERAL NOTES:

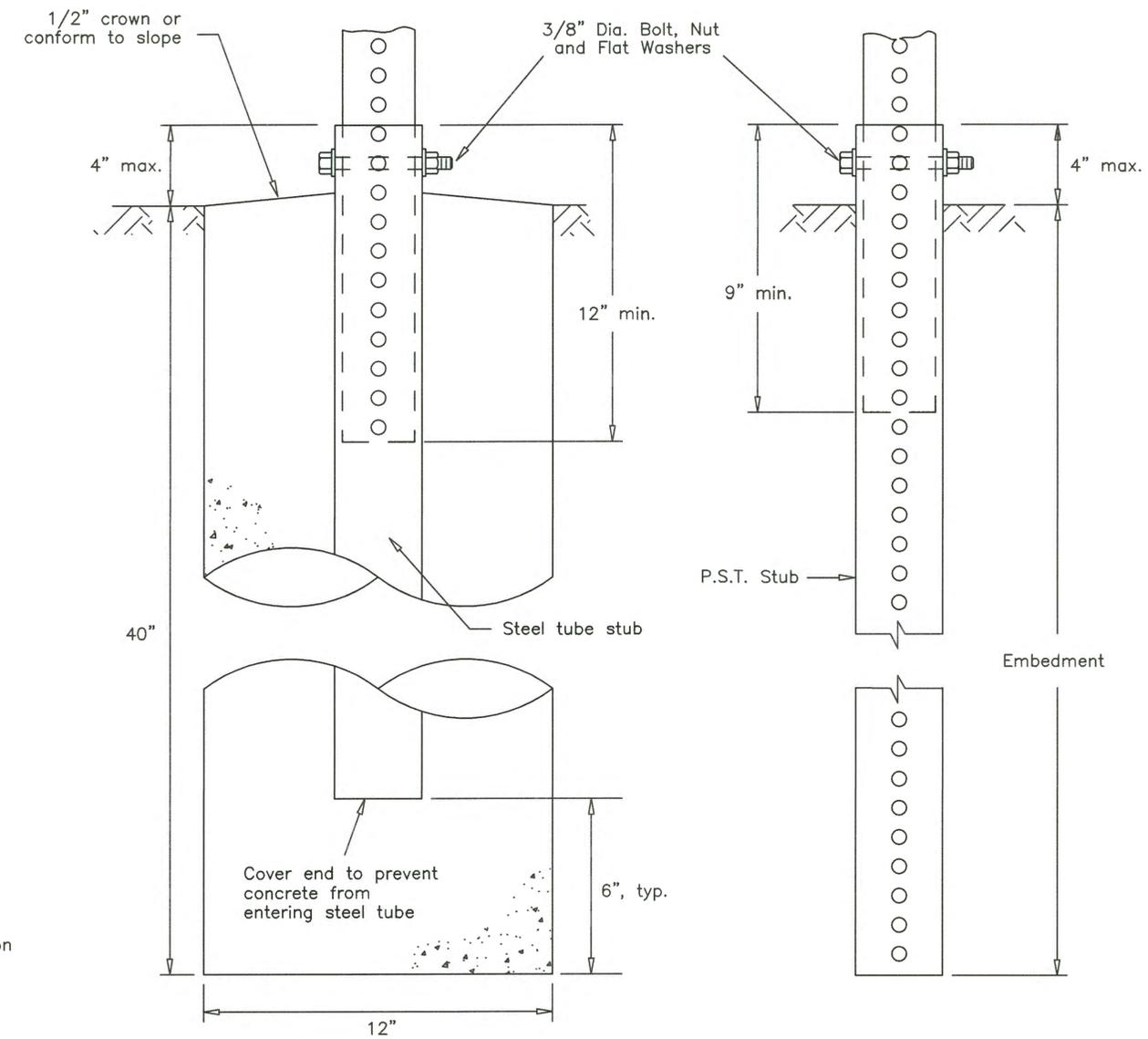
1. Refer to Std Dwg S-00 for sign framing details.
2. See plans for type of post, size and embedment type.
3. To maintain crashworthiness, install no more than the number of P.S.T.s or wood posts specified in the tables within 7' of each other.
4. Do not install wood posts larger than 6"x8".
5. Do not 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.



WOOD SIGN POSTS			
SIZE	HOLE DIA.	EMBEDMENT*	NO. OF POSTS WITHIN 7 Ft. PATH
4"x4"	NONE	36"	2
4"x6"	1 1/2"	36"	2
6"x6"	1 1/2"	40"	1
6"x8"	3"	48"	1

* Embedment depth applies in both strong and weak soil.

WOOD POSTS



SLEEVE TYPE
CONCRETE FOUNDATION

SLEEVE TYPE*
SOIL EMBEDMENT

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"	3'-0"	2
1 3/4" x 1 3/4"	3'-0"	2
2" x 2"	3'-6"	2
2 1/4" x 2 1/4"	4'-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

Project As-Built Drawings have been reviewed by the Project Engineer and represent to the best of my knowledge, the project as constructed.
 PE: *[Signature]* Date: 3/20/20

REVISIONS		
Date	Description	By
4/2/01	Revised PST table Added Note 3	KJS
2/12/02	Revised wood posts	KJS
1/16/17	Rev. note 1, et. al.	LRG

State of Alaska DOT&PF
 3132 Channel Dr., Juneau, AK
 Phone: (907) 465-2960
**LIGHT SIGN STRUCTURE
 POST EMBEDMENT**



Eff. Date:
 1/16/17