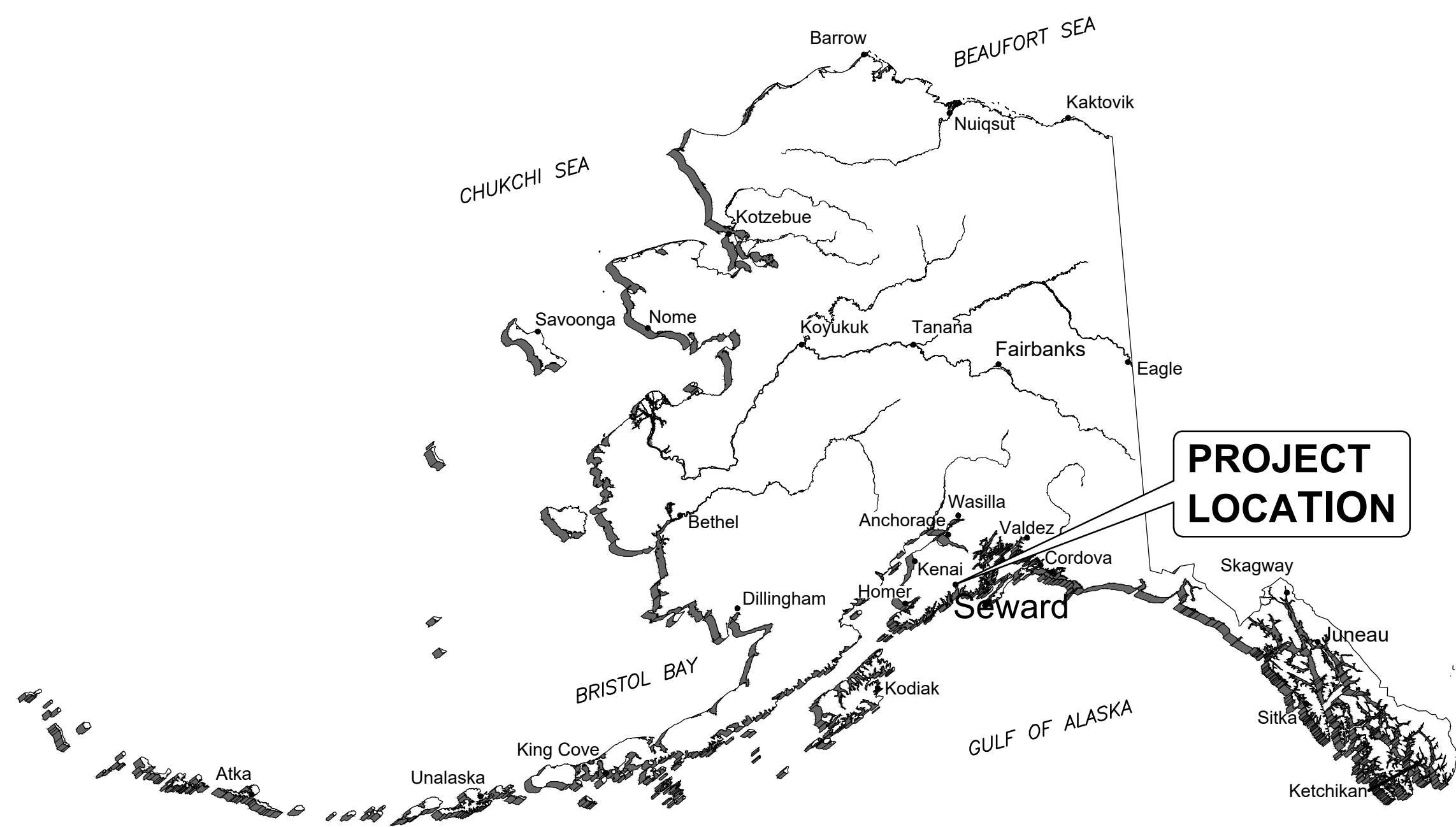


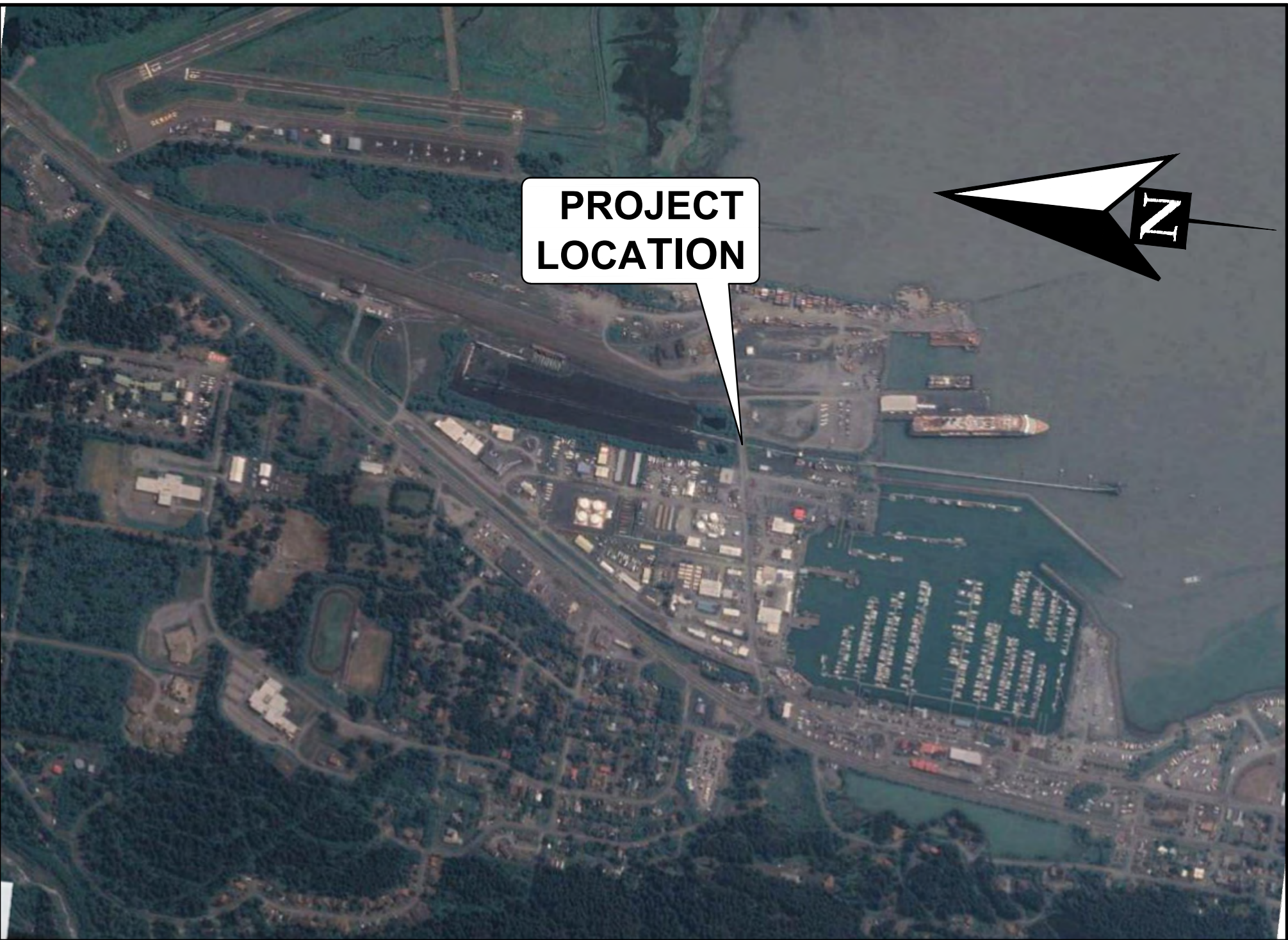
PORT AVENUE PEDESTRIAN UNDERPASS

MAY 2026
SEWARD, ALASKA



STATE OF ALASKA

SHEET INDEX	
SHEET TITLE	SHEET NUMBER
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VICINITY MAP

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ALASKA
RAILROAD

FINAL
5/15/2026

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Anchorage, Alaska 99503
Phone: 907.561.1011
Fax: 907.563.4220
www.pndengineers.com



PROJECT: PORT AVENUE PEDESTRIAN UNDERPASS		
TITLE: COVER SHEET		
DESIGNED BY: SEB	DATE: 5/15/2026	SHEET NO: 01 OF 6
CHECKED BY: SMB	PROJECT NO: 201122	

GENERAL NOTES

GENERAL

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES, PERMITS AND SAFETY REQUIREMENTS.
- THE LOCATIONS OF EXISTING FEATURES AND UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE. ADDITIONAL UTILITIES NOT SHOWN IN THESE DRAWINGS MAY BE PRESENT. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS IN THE FIELD AS NECESSARY, PRIOR TO BEGINNING WORK. THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED IN THE FIELD SHALL BE RECORDED ON THE CONTRACTOR'S RECORD DRAWINGS. CONTACT LOCAL UTILITY COMPANIES PRIOR TO ANY/ALL EXCAVATIONS.
- THE PATHWAY ALIGNMENT AND PROFILE SHOWN ON THE PLANS DEPICT THE INTENDED DESIGN CONCEPT AND APPROXIMATE LOCATION. THE CONTRACTOR WILL PERFORM PATHWAY STAKING FOR MODIFICATIONS BY THE ENGINEER AND TO FIT FIELD CONDITIONS. PRIOR TO EARTHWORK, BASE COURSE, OR PAVING OPERATIONS, THE CONTRACTOR SHALL:
 - VERIFY EXISTING TOPOGRAPHY, UTILITIES, DRAINAGE FEATURES, STRUCTURES, AND TIE-IN ELEVATIONS.
 - DEVELOP PROPOSED FINAL HORIZONTAL ALIGNMENT AND VERTICAL PROFILE OF THE PATHWAY.
 - STAKE A PROPOSED ALIGNMENT AND PROFILE FOR REVIEW BY THE ENGINEER AT LEAST 4 CALENDAR DAYS PRIOR TO CONSTRUCTION.
 - DEMONSTRATE COMPLIANCE WITH CONTRACT REQUIREMENTS FOR WIDTH, GRADES, CROSS SLOPE, AND DRAINAGE.
 - MODIFY THE PROPOSED ALIGNMENT AND PROFILE AS DIRECTED BY THE ENGINEER AND RESTAKE.
 - DO NOT BEGIN PATHWAY GRADING OR PAVING UNTIL WRITTEN ACCEPTANCE IN PROVIDED BY THE ENGINEER.THE WORK IDENTIFIED ABOVE FOR STAKING WILL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS IN THIS CONTRACT, AND ADDITIONAL PAYMENT WILL NOT BE MADE. ENGINEER REVIEW IS FOR GENERAL CONFORMANCE ONLY AND DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ACCURACY, CONSTRUCTIBILITY, DRAINAGE PERFORMANCE, OR COMPLIANCE WITH CONTRACT REQUIREMENTS.
- ALL PAVEMENT CUTS SHALL BE MADE WITH A SAW OR ALTERNATE METHOD APPROVED BY THE ENGINEER.
- CLEARING AND GRUBBING LIMITS SHALL BE 5 FEET BEYOND THE SLOPE CATCH POINTS OR AS DIRECTED BY THE ENGINEER.
- PLACE 2 INCHES OF AGGREGATE BASE COURSE, GRADING D-1 FROM:
 - THE SLOPE CATCH TO THE BOTTOM OF AGGREGATE BASE COURSE SHOWN
 - DISTURBED AREAS
 - AS DIRECTED BY THE ENGINEER.
- PROOF-ROLL AND MECHANICALLY COMPACT EXPOSED SUBGRADE PRIOR TO PLACEMENT OF SELECTED MATERIAL, TYPE A. AREAS EXHIBITING PUMPING, RUTTING, YIELDING, WEAVING, EXCESSIVE DEFLECTION, OR OTHER UNSUITABLE CONDITIONS, AS DETERMINED BY THE ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH SELECTED MATERIAL, TYPE A.
- WHEN UNSUITABLE MATERIAL IS ENCOUNTERED AT THE REQUIRED DEPTH OF EXCAVATION, REMOVE THE UNSUITABLE MATERIAL TO THE DEPTH SPECIFIED OR DIRECTED. ALLOW FOR MEASUREMENTS TO BE TAKEN BEFORE BACKFILL IS PLACED.
- COORDINATE WORK WITH WORK BY OTHERS PRIOR TO CONSTRUCTION. THIS INCLUDES COORDINATING FINAL GRADE TIE-IN ELEVATIONS AND CULVERT INVERT ELEVATIONS WITH THE ADJACENT PASSENGER TERMINAL PROJECT TO PROVIDE A SMOOTH AND CONTINUOUS TRANSITION BETWEEN PROJECTS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
AKDOT&PF	ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
ARRC	ALASKA RAILROAD CORPORATION
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
Ø, DIA	DIAMETER
E	EAST, EASTING
ELEV, EL	ELEVATION
FT	FOOT, FEET
IN	INCH, INCHES
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
N	NORTH, NORTHING
NTS	NOT TO SCALE
PST	PERFORATED STEEL TUBE
R	RADIUS
RT	RIGHT
S	SOUTH
STA	STATION
STD	STANDARD
TYP	TYPICAL
VC	VERTICAL CURVE
VERT	VERTICAL
W	WEST
w/	WITH

LEGEND

SYMBOL	DESCRIPTION	LINE TYPE	DESCRIPTION
	ELECTRIC TRANSFORMER		OVERHEAD ELECTRIC
	POWER POLE		UNDERGROUND ELECTRIC
	ELECTRIC GUY ANCHOR		UNDERGROUND FIBER OPTIC
	ELECTRIC LIGHT POLE		UNDERGROUND WATER LINE
	TELEPHONE PEDESTAL		UNDERGROUND STORM DRAINAGE
	STORM DRAIN CATCH BASIN – ROUND		UNDERGROUND SANITARY SEWER
	STORM DRAIN MANHOLE		BUILDING OUTLINE
	FIRE HYDRANT		TEMPORARY BUILDING OUTLINE
	SANITARY SEWER MANHOLE		EXISTING FENCELINE
	SIGN (TYP)		EDGE OF PAVEMENT
	BOLLARD		RETAINING WALL
	POLE/POST		RECORD STATUS
			RECORD R/W CENTERLINE

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5/15/2026

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REV	DATE	DESCRIPTION



1506 West 36th Avenue
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PROJECT: PORT AVENUE PEDESTRIAN UNDERPASS		
TITLE: GENERAL NOTES, LEGEND, & ABBREVIATIONS		
DESIGNED BY: SEB	DATE: 5/15/2026	SHEET NO: 02
CHECKED BY: SMB	PROJECT NO: 201122	OF 6



SURVEY CONTROL				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
202	2237007.84	1744309.28	22.21	FDR OTHER SS ROD TIDAL BM B 9455090 L
401	2237029.60	1744406.50	26.41	FRB FOUND REBAR
705	2236974.72	1744100.22	19.47	FRB REBAR UNK.ORGIN
3015	2237003.44	1744324.01	23.04	FMN MAG NAIL IN PAVEMENT

ARRC LAND SERVICES SEWARD ROW BASEMAP:
Please review drawing notes prior to use:
If you have questions about the use of this drawing, please contact Jon Roder (S-129562) at ARRC Land Services roderj@akrr.com or 907-265-2411.

Date of Survey:
April 8, 2026

PURPOSE:
This drawing displays information for an engineering survey for a pedestrian underpass in the ARRC Seward reserve. It was preformed by ARRC Land Services for sole use by PND Engineering.

COORDINATE SYSTEM & VERTICAL DATUM

This project is in the NAD83(2011) Alaska State Plane Zone 4 grid coordinate system, expressed in U.S. Survey Feet. The project vertical datum is GNSS-derived NAVD88 using Geoid12B (Alaska). All dimensions, coordinates, and elevations shown are in U.S. Survey Feet, unless otherwise noted.

BASIS OF GEODETIC COORDINATES AND VERTICAL CONTROL

The NAD83(2011) (Epoch 2010.00) published positions of the National Geodetic Survey (NGS) Continuously Operating Reference Stations (CORS) were held fixed in establishing the coordinates and elevation of Point 201 as determined by NGS's Online Positioning User Service (OPUS).

Point 201 Coordinates:

Alaska State Plane Zone 4
Northing: 2,236,252.05' ftUS
Easting: 1,744,337.94' ftUS
Orthometric height: 19.09' ftUS

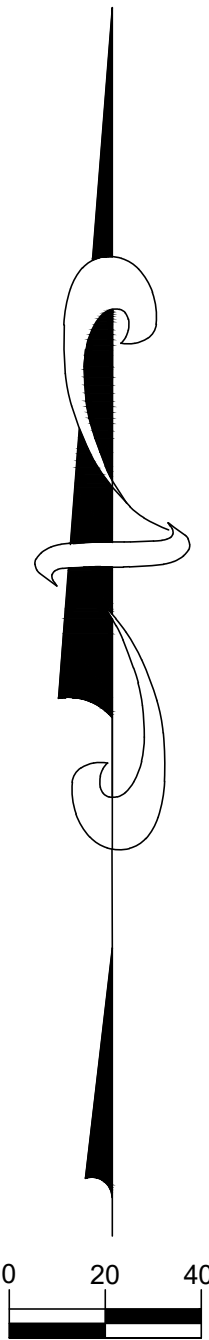
NAD83(2011)
Latitude: N60° 07' 12.5231" N
Longitude: 149° 25' 48.7710" W
Ellipsoid: 58.580'

Note: Point 201 was destroyed for the new dock construction in 2025. Point 202 coordinates were derived from Point 201 at the time of the control survey. Checkshots prove that Point 202 is stable and suitable for construction control

BASIS OF INFORMATION and OTHER NOTES:

- Date of Survey 2026-04-08. See ARRC FB 2025-02 SEW.
- Purpose is Topo and planimetric survey of area as directed by Liz Greer Project manager. Drone imagery collected.
- Control values for 3015, 701, and 401 determined with RTK from Basis of Coordinates PL201 thru a RTK base set up on Pt202.
- Survey control points 1-11 on the table below are from a field survey performed by Edge Survey and Design LLC, on 6/25/2021 and updated 7/30/2024 and based on a opus derived solution on CP3, with a vertical datum of MLLW per NOAA Tidal Benchmark Noi 19 1996. These points are provided to match the ongoing dock project.
- Point 4 on the table below is the same point as Point 202 on the table below. The Points have the exact same Horizontal values. The elevations, while in different datums, only differ by 0.03'. Therefore, for all practical purposes for this survey, the points on both tables can be considered the same survey control. Contact Jon Roder at ARRC Land Services if you need more information or to obtain a copy of the EDGE control sheet.
- Verify control prior to use.

SURVEY CONTROL				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2235912.72	1744636.59	24.36	MOB BM1 TIDAL BENCHMARK "945 5090 19"
2	2236144.46	1744594.75	24.30	MOB BM2 TIDAL BENCHMARK "945 5090 J"
3	2236618.38	1744308.01	20.39	MOB BM3 TIDAL BENCHMARK "945 5090 M"
4	2237007.84	1744309.28	22.24	MOB BM4 TIDAL BENCHMARK "945 05090 L"
5	2236345.67	1744768.82	26.12	MOB BM5 NOS BENCHMARK "945 5090 P"
6	2235884.52	1744653.76	24.45	MOB CP1 SET MAG
7	2236269.99	1744572.77	21.92	MOB CP2 SET PK
8	2236607.65	1744563.32	24.35	MOB CP3 BASE SET PK
9	2236299.74	1744772.60	24.16	MOB CP4 SET PK
10	2235922.40	1744809.84	24.59	MOB CP5 SET MAG
11	2235771.69	1744758.45	24.91	MOB CP6 SET MAG



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ALASKA RAILROAD

FINAL
5/15/2026

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REV	DATE	DESCRIPTION

STATE OF ALASKA
49 TH
Jonathon S. Roder
May 15, 2026
S-129562
REGISTERED PROFESSIONAL LAND SURVEYOR

DATE: May 15, 2026

1506 West 36th Avenue
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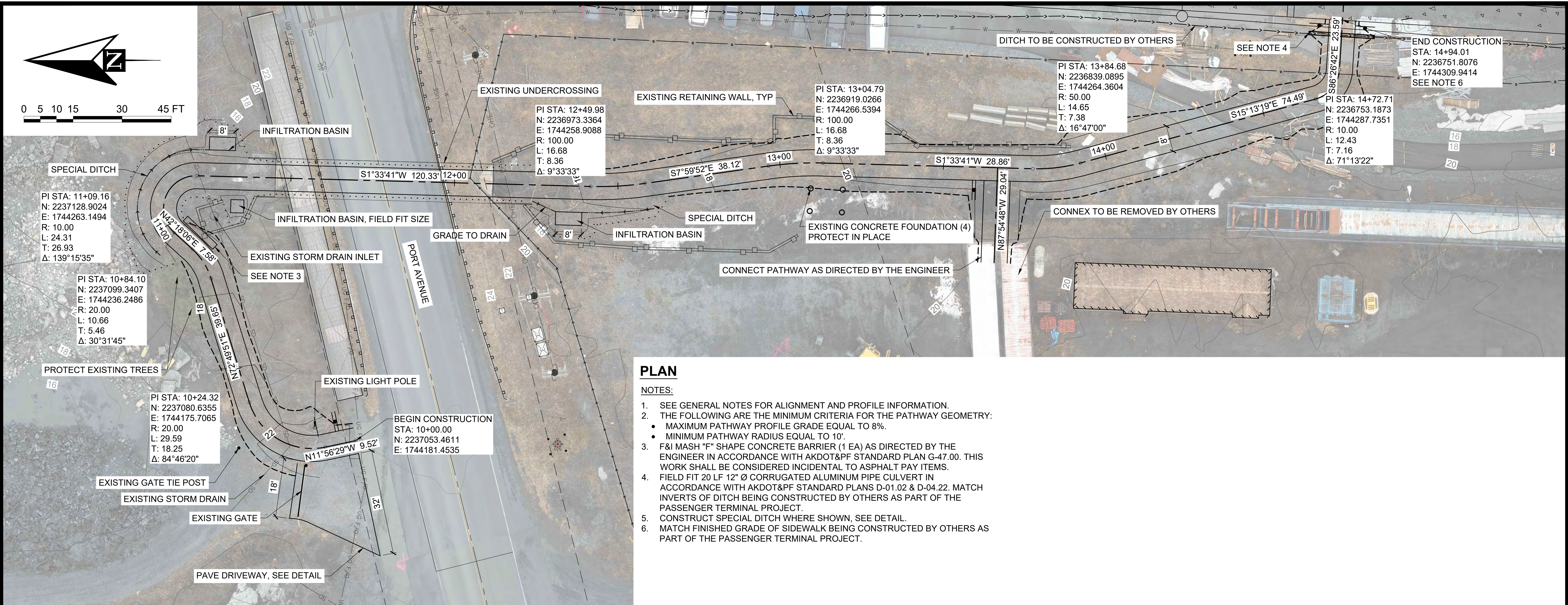
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ENGINEERS, INC.

PROJECT: PORT AVENUE PEDESTRIAN UNDERPASS

TITLE: EXISTING CONDITIONS AND SURVEY CONTROL

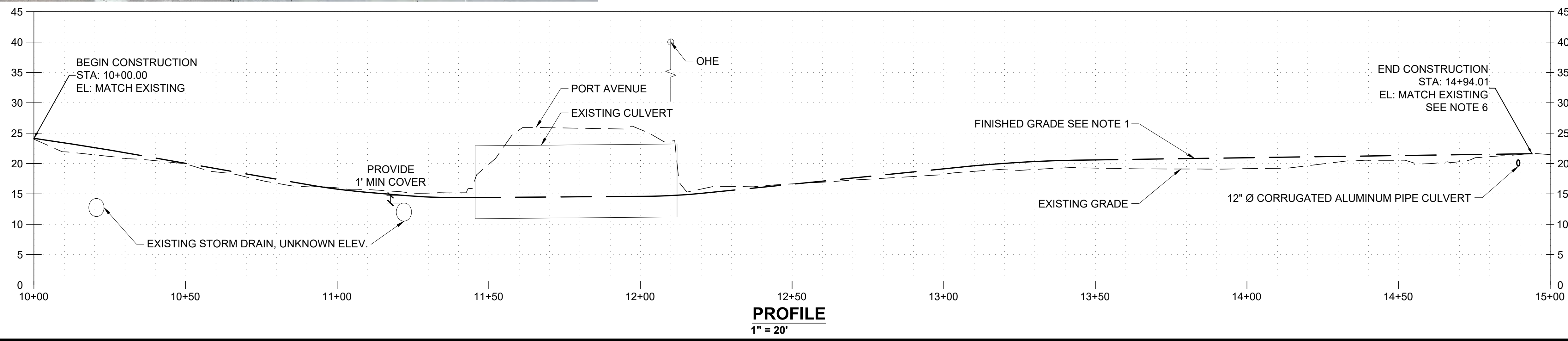
DESIGNED BY:	JSR	DATE:	5/15/2026	SHEET NO:	3 OF 6
CHECKED BY:	DWC	PROJECT NO:	201122		



PLAN

NOTES:

- SEE GENERAL NOTES FOR ALIGNMENT AND PROFILE INFORMATION.
- THE FOLLOWING ARE THE MINIMUM CRITERIA FOR THE PATHWAY GEOMETRY:
 - MAXIMUM PATHWAY PROFILE GRADE EQUAL TO 8%.
 - MINIMUM PATHWAY RADIUS EQUAL TO 10'.
- F&I MASH "F" SHAPE CONCRETE BARRIER (1 EA) AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH AKDOT&PF STANDARD PLAN G-47.00. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ASPHALT PAY ITEMS.
- FIELD FIT 20 LF 12" Ø CORRUGATED ALUMINUM PIPE CULVERT IN ACCORDANCE WITH AKDOT&PF STANDARD PLANS D-01.02 & D-04.22. MATCH INVERTS OF DITCH BEING CONSTRUCTED BY OTHERS AS PART OF THE PASSENGER TERMINAL PROJECT.
- CONSTRUCT SPECIAL DITCH WHERE SHOWN, SEE DETAIL.
- MATCH FINISHED GRADE OF SIDEWALK BEING CONSTRUCTED BY OTHERS AS PART OF THE PASSENGER TERMINAL PROJECT.



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ALASKA RAILROAD

FINAL
5/15/2026

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REV	DATE	DESCRIPTION

STATE OF ALASKA
49 TH
Paul Kendall
CE-11665
REGISTERED PROFESSIONAL ENGINEER

DATE: 5/15/2026

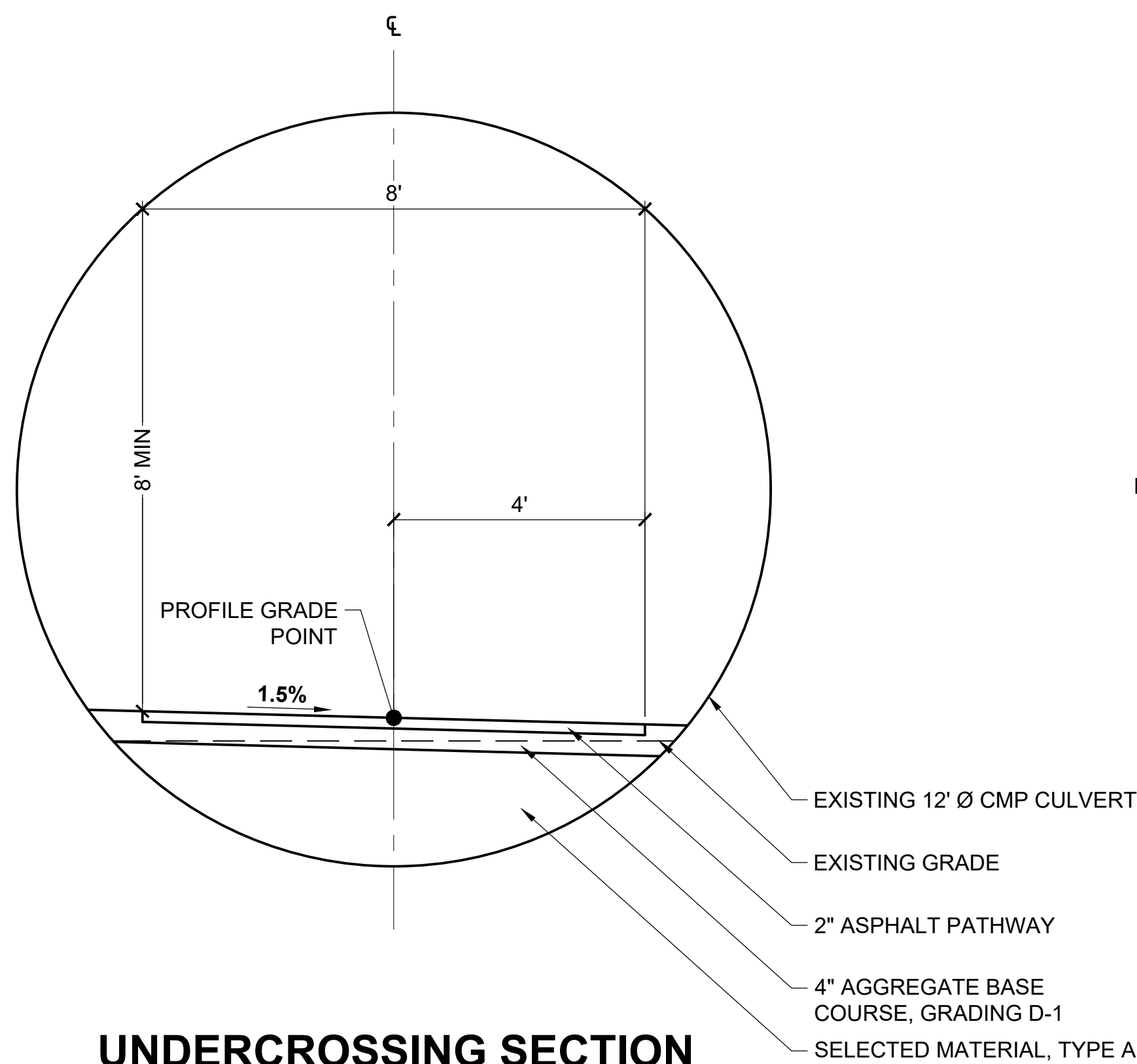
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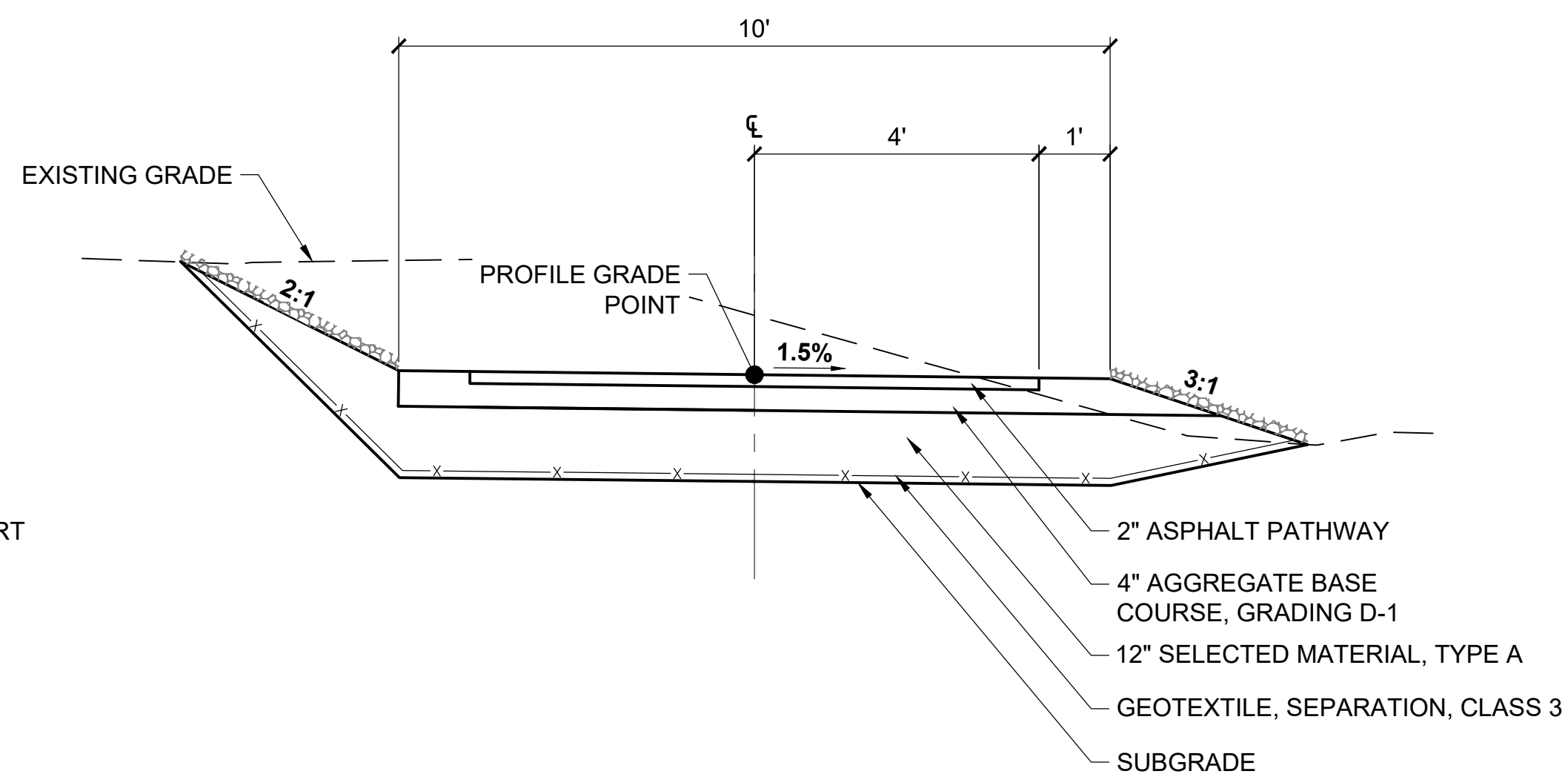
PROJECT: **PORT AVENUE PEDESTRIAN UNDERPASS**

TITLE: **PLAN & PROFILE**

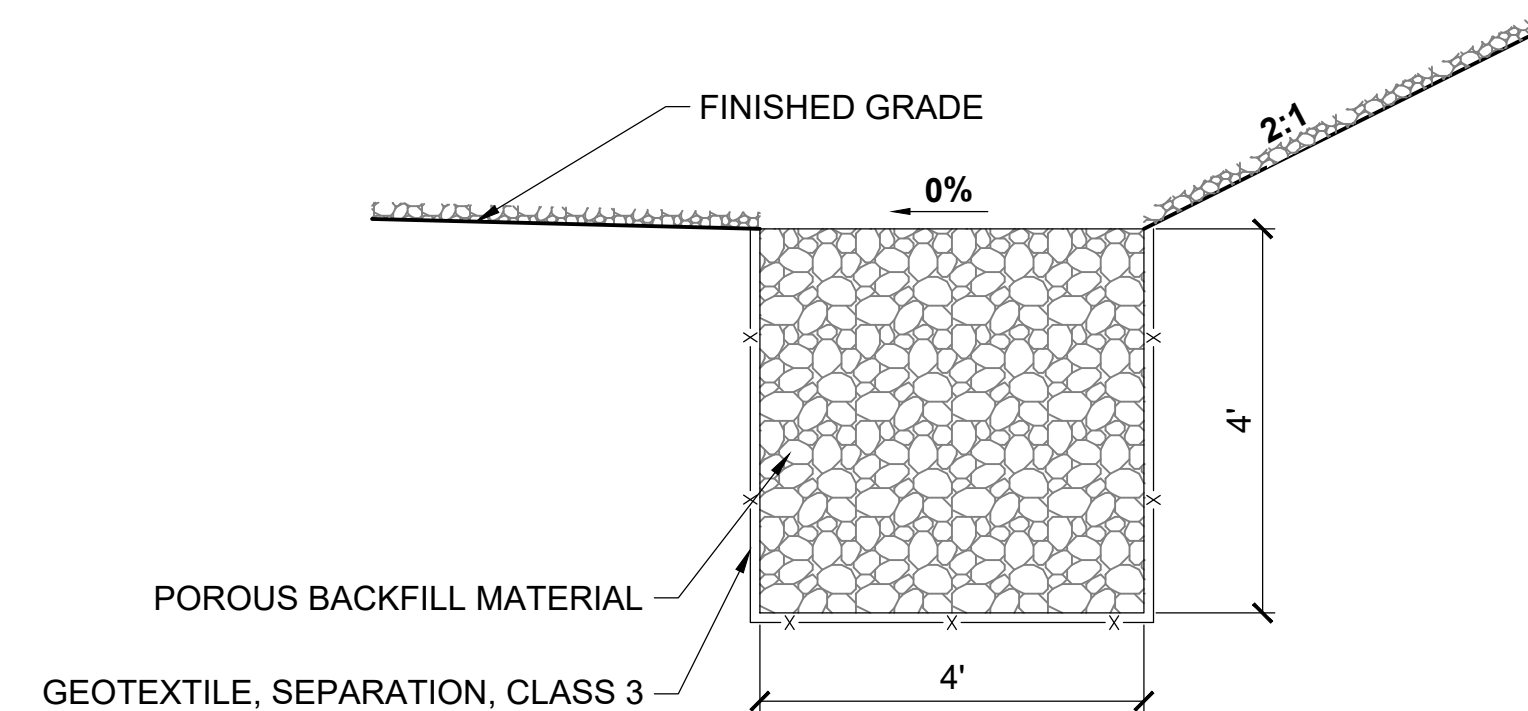
DESIGNED BY: SEB	DATE: 5/15/2026	SHEET NO: 04 OF 6
CHECKED BY: SMB	PROJECT NO: 201122	



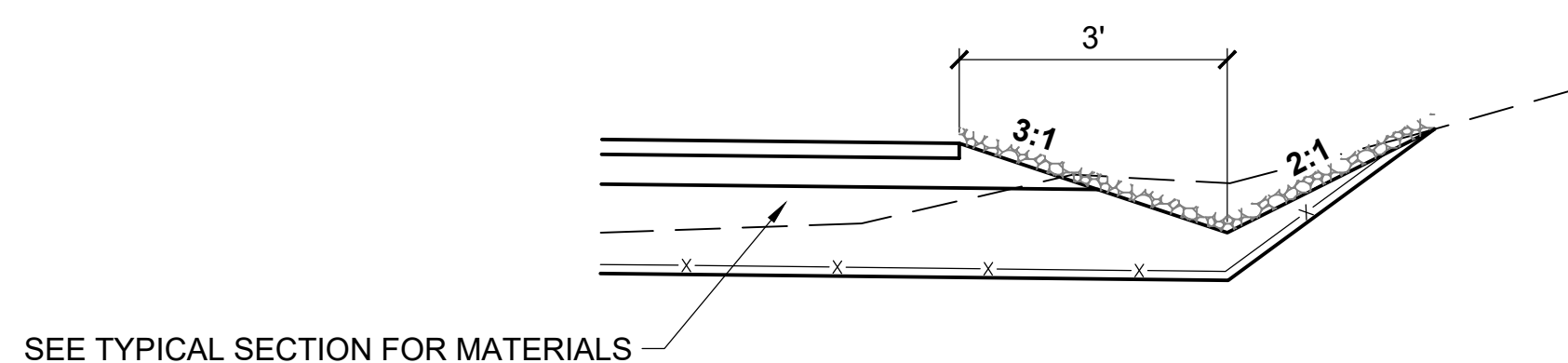
UNDERCROSSING SECTION



TYPICAL SECTION

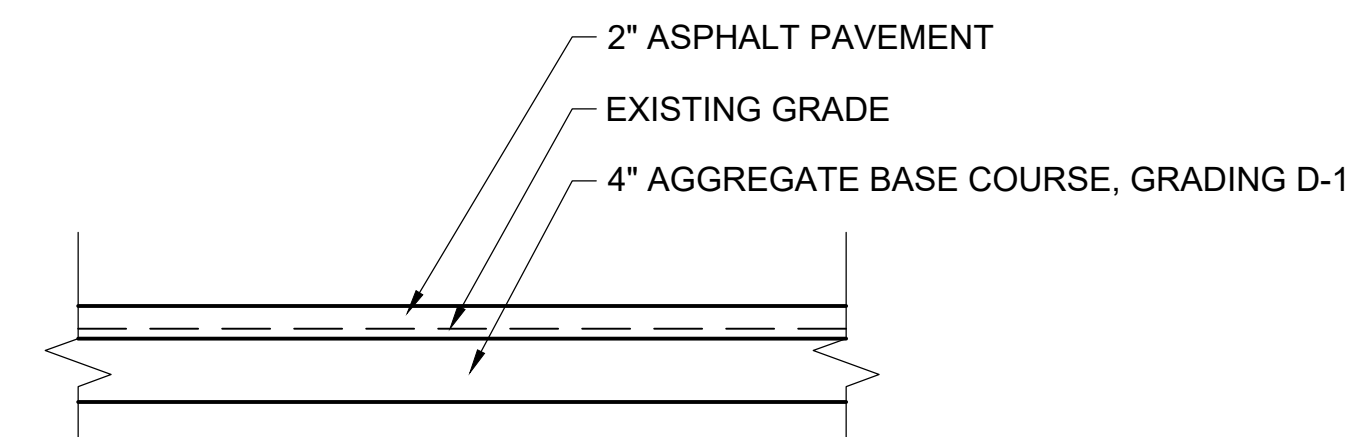


INFILTRATION BASIN DETAIL



SEE TYPICAL SECTION FOR MATERIALS

SPECIAL DITCH



DRIVEWAY PAVEMENT SECTION

NOTES:
1. GEOTEXTILE, SEPARATION, CLASS 3 WILL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION.

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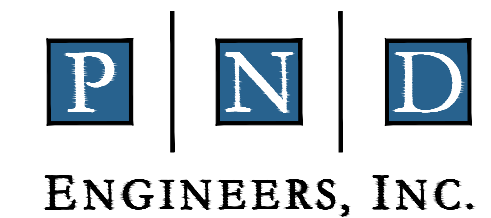
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DATE: 5/15/2026

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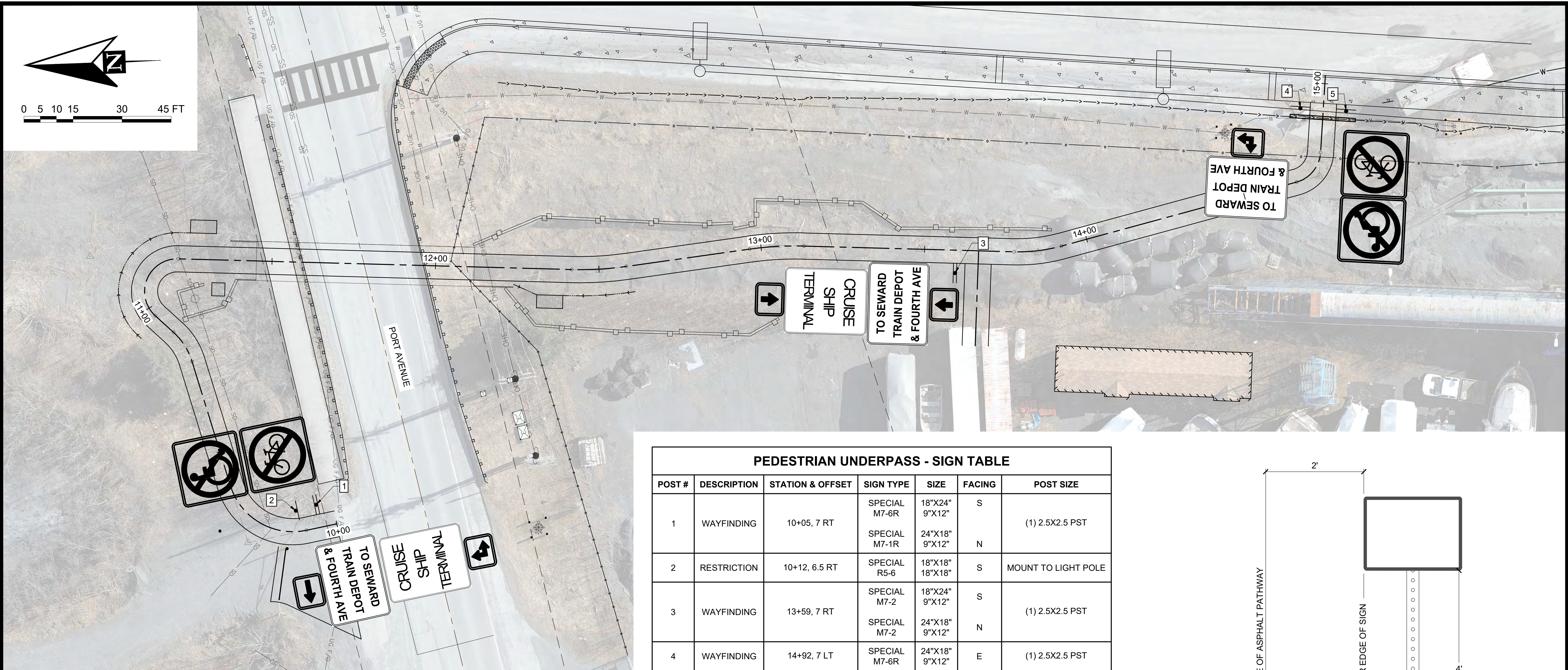


PORT AVENUE PEDESTRIAN UNDERPASS

SECTIONS & DETAILS

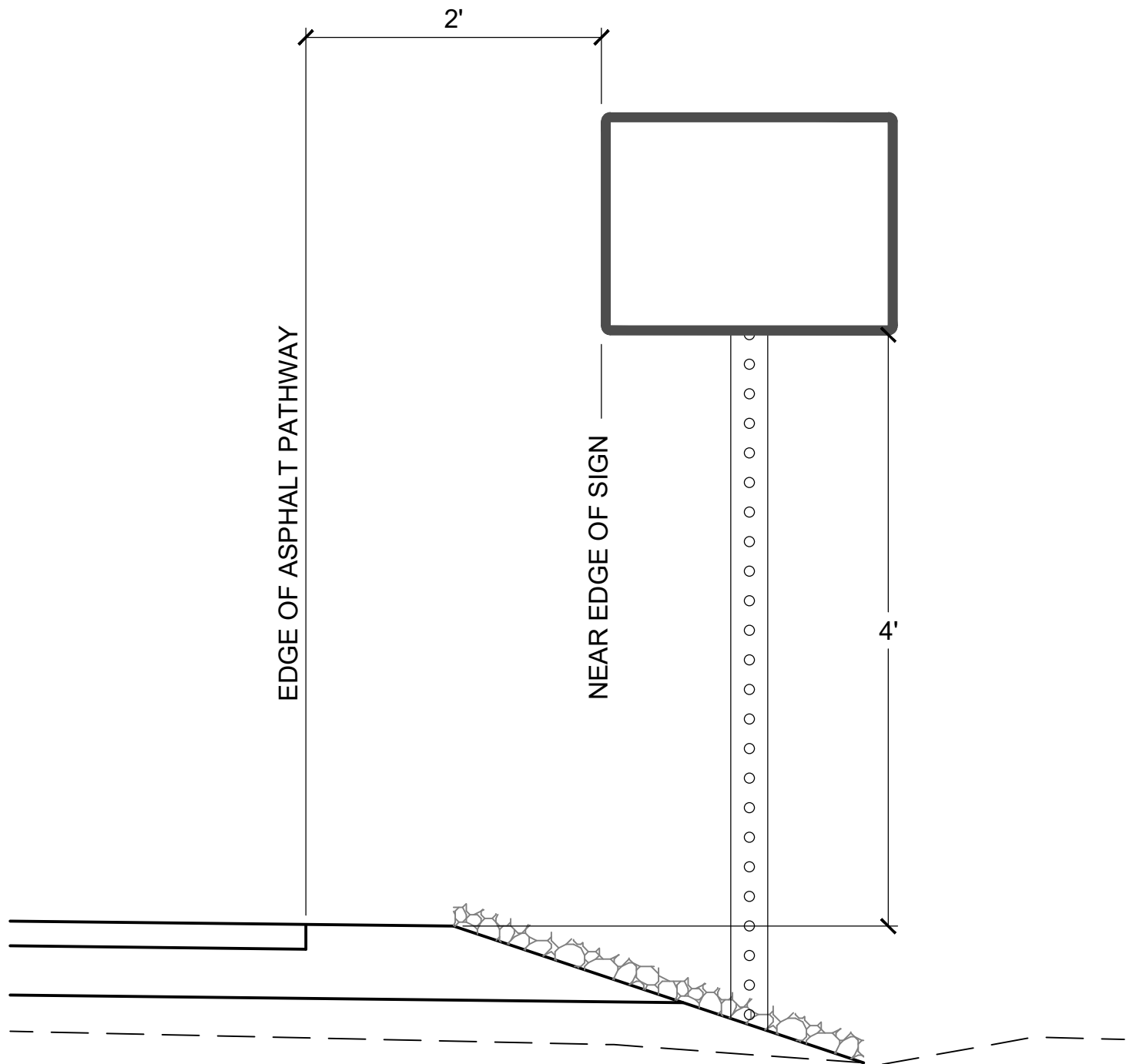
DESIGNED BY: SEB DATE: 5/15/2026
CHECKED BY: SMB PROJECT NO: 201122

SHEET NO: 05 OF 6



PLAN

PEDESTRIAN UNDERPASS - SIGN TABLE						
POST #	DESCRIPTION	STATION & OFFSET	SIGN TYPE	SIZE	FACING	POST SIZE
1	WAYFINDING	10+05, 7 RT	SPECIAL M7-6R	18"x24" 9"x12"	S	(1) 2.5X2.5 PST
			SPECIAL M7-1R	24"x18" 9"x12"	N	
2	RESTRICTION	10+12, 6.5 RT	SPECIAL R5-6	18"x18" 18"x18"	S	MOUNT TO LIGHT POLE
3	WAYFINDING	13+59, 7 RT	SPECIAL M7-2	18"x24" 9"x12"	S	(1) 2.5X2.5 PST
			SPECIAL M7-2	24"x18" 9"x12"	N	
4	WAYFINDING	14+92, 7 LT	SPECIAL M7-6R	24"x18" 9"x12"	E	(1) 2.5X2.5 PST
5	RESTRICTION	14+92, 7 RT	SPECIAL R5-6	18"x18" 18"x18"	E	(1) 2.5X2.5 PST



SIGNAGE POSITIONING DETAIL

- NOTES:**
- 1. SIGN LEGEND, ARROW BORDER, AND BACKGROUND SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE FHWA STANDARD HIGHWAYS SIGNS AND APPLICABLE NOTES WHERE SPECIFIED.
 - 2. STATION AND OFFSET LOCATIONS REFER TO CENTER OF POST.
 - 3. ALL ALUMINUM SIGN PANELS SHALL BE 0.125" THICK.
 - 4. ORIENTATION PROVIDED IS APPROXIMATE, POSITION SIGNS PERPENDICULAR TO TRAVEL.
 - 5. ALL SPECIAL WAYFINDING SIGNS SHALL HAVE WHITE LEGEND AND GREEN BACKGROUND.
 - 6. SPECIAL RESTRICTION SIGNS SHALL HAVE A WHITE BACKGROUND WITH A BLACK HANDICAPPED SYMBOL WITH A RED CIRCLE AND DIAGONAL RED SLASH RUNNING FROM UPPER LEFT TO LOWER RIGHT SUPERIMPOSED ON IT.
 - 7. THE FOLLOWING AKDOT&PF STANDARD PLANS APPLY TO THIS PROJECT AND ARE ATTACHED FOR REFERENCE: S-00.12, S-20.11, S-23.00, S-30.05.

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ALASKA
RAILROAD

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CE-11665
REGISTERED PROFESSIONAL ENGINEER

DATE: 5/15/2026

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PROJECT: **PORT AVENUE PEDESTRIAN UNDERPASS**

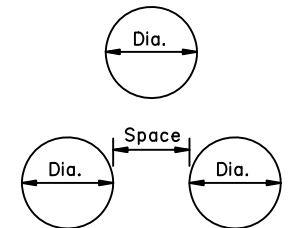
TITLE: **SIGNING**

DESIGNED BY: SEB	DATE: 5/15/2026	SHEET NO: 06 OF 6
CHECKED BY: SMB	PROJECT NO: 201122	

GENERAL NOTES:

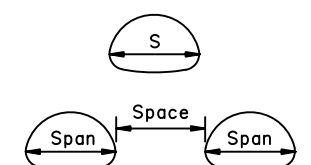
1. Sidefill shall be placed and compacted with care under haunches of pipe and shall be brought up evenly and simultaneously on both sides of pipe to 1 foot above the top of the full length of the pipe.
2. Alternate installation methods may only be used when specified or approved by the Engineer.

D = Nominal Pipe Diameter



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

S = Nominal Pipe Arch Span



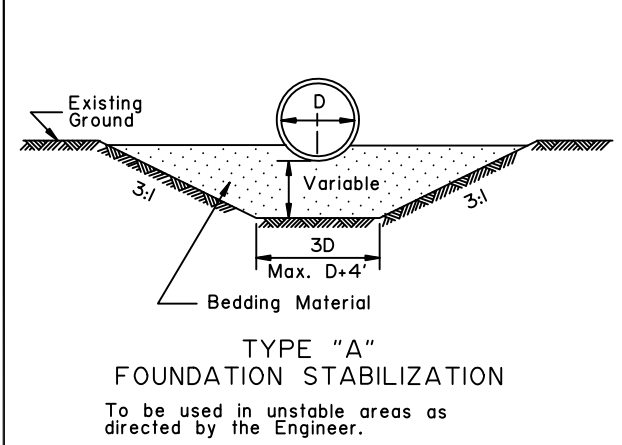
MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Span of pipe arch or 3', whichever is less.

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

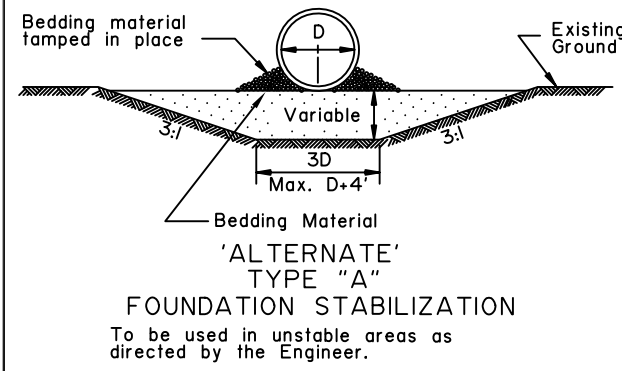
Adopted as an Alaska
Standard Plan by: *Kenneth J. Fisher*
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

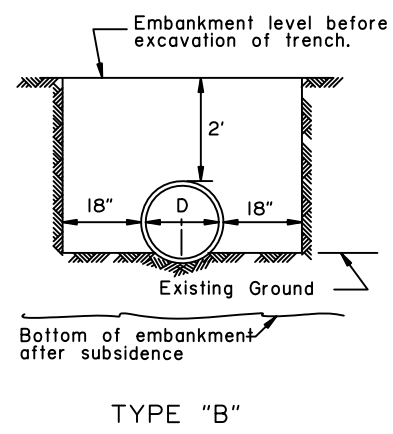
Last Code and Stds. Review
By: Date:
Next Code and Standards Review date: 02/08/2029



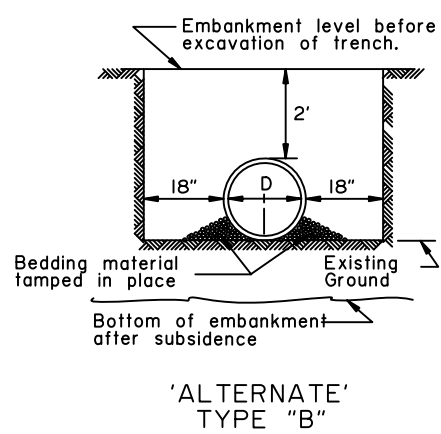
TYPE "A"
FOUNDATION STABILIZATION
To be used in unstable areas as
directed by the Engineer.



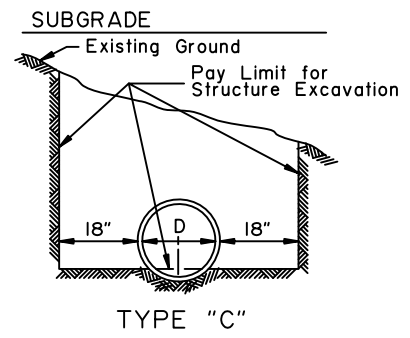
'ALTERNATE'
TYPE "A"
FOUNDATION STABILIZATION
To be used in unstable areas as
directed by the Engineer.



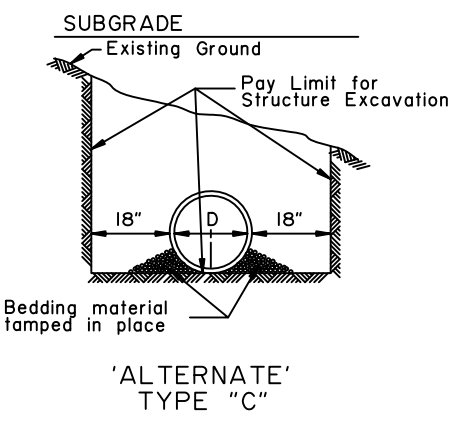
TYPE "B"



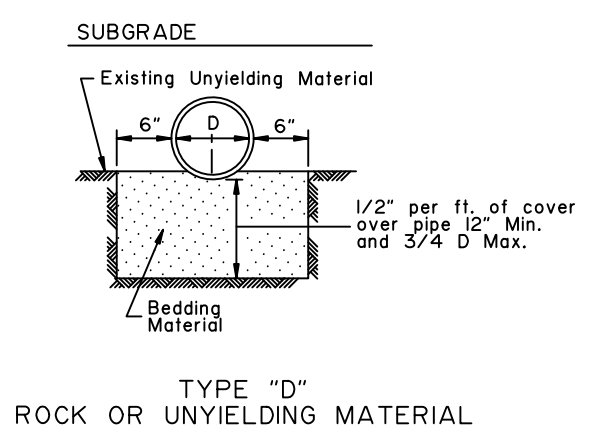
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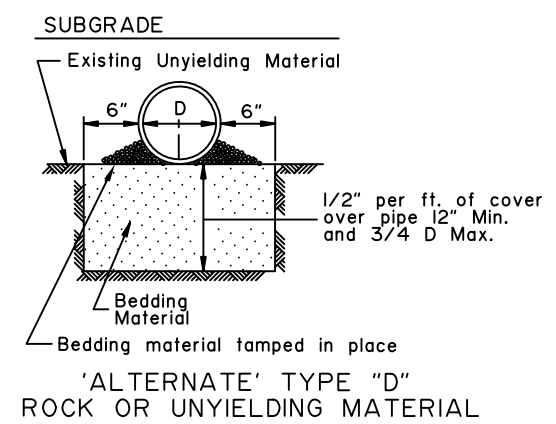
TYPE "C"



'ALTERNATE'
TYPE "C"

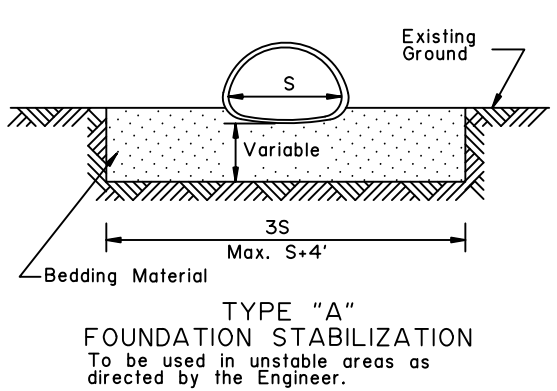


TYPE "D"
ROCK OR UNYIELDING MATERIAL

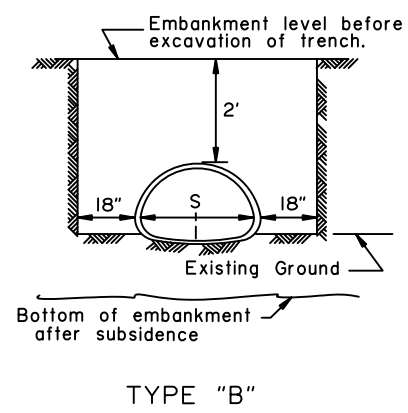


'ALTERNATE' TYPE "D"
ROCK OR UNYIELDING MATERIAL

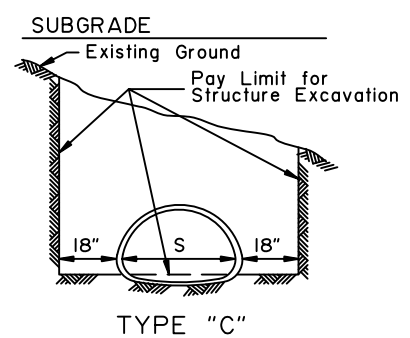
CULVERT PIPE



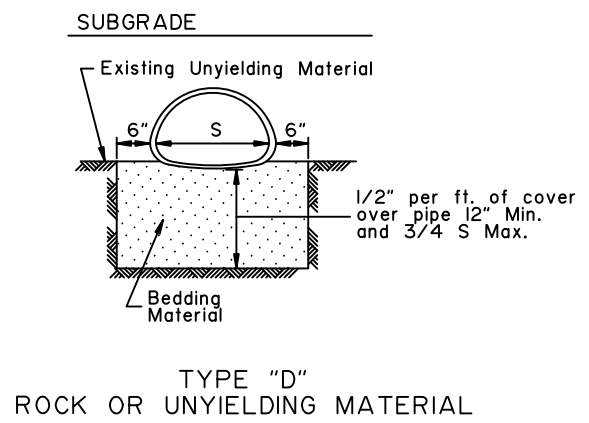
TYPE "A"
FOUNDATION STABILIZATION
To be used in unstable areas as
directed by the Engineer.



TYPE "B"



TYPE "C"



TYPE "D"
ROCK OR UNYIELDING MATERIAL

ARCH

GENERAL NOTES:

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

Minimum & Maximum Cover for 2 2/3" X 1/2" Aluminum Pipe						
Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
12	12	100+	100+	100+	100+	100+
15	12	100	100+	100+	100+	100+
18	12	83	100+	100+	100+	100+
21	12	71	89	100+	100+	100+
24	12	62	78	100+	100+	100+
27	12		69	97	100+	100+
30	12		62	87	100+	100+
36	12		51	73	94	100+
42	12			62	80	100+
48	12			54	70	85
54	15			48	62	76
60	15				52	64
66	18					52
72	18					43

Minimum & Maximum Cover for 3" x 1" Aluminum Pipe						
Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
30	12	57	72	100+	100+	100+
36	12	47	60	84	100+	100+
42	12	40	51	72	96	100+
48	12	35	44	62	84	99
54	15	31	39	55	74	88
60	15	28	35	50	67	79
66	18	25	32	45	61	72
72	18	23	29	41	56	66
78	21		27	38	51	61
84	21			35	48	56
90	24			33	44	52
96	24			31	41	49
102	24				39	46
108	24				37	43
114	24					39
120	24					36

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

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

CORRUGATED CIRCULAR ALUMINUM PIPE

CORRUGATED ALUMINUM PIPE-ARCH

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

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

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

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

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

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

Adoption Date: 7/17/2020

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

GENERAL NOTES

1.

All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2.

The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3.

No more than one type of pipe may be used on any single installation or installation grouping.
4.

All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5.

See Standard Plan D-01 "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6.

Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the bottom of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflection.
7.

These tables have been developed for an HL-93 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2017 AASHTO "LRFD Bridge Design Specifications".

Minimum & Maximum Cover for 2 2/3" x 1/2" Steel Pipe						
Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
12	12	100+	100+	100+	100+	100+
15	12	100+	100+	100+	100+	100+
18	12	100+	100+	100+	100+	100+
21	12	100+	100+	100+	100+	100+
24	12	100+	100+	100+	100+	100+
30	12	83	100+	100+	100+	100+
36	12	69	86	100+	100+	100+
42	12	59	74	100+	100+	100+
48	12	51	64	91	100+	100+
54	12		57	80	100+	100+
60	12			72	93	100+
66	12			66	85	100+
72	12				78	95
78	12					84
84	12					73

Minimum & Maximum Cover fo 3" x 1" Steel Pipe						
Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
36	12			100+	100+	100+
42	12			100+	100+	100+
48	12		74	100+	100+	100+
54	12	53	66	93	100+	100+
60	12	47	59	83	100+	100+
66	12	43	54	76	98	100+
72	12	39	49	69	89	100+
78	12	36	45	64	82	100+
84	12	33	42	59	77	94
90	12	31	39	55	71	87
96	12	29	37	52	67	82
102	18	27	34	49	63	77
108	18		32	46	59	73
114	18		31	43	56	69
120	18		29	41	53	65
126	18			39	51	62
132	18			37	48	59
138	18			36	46	57
144	18				44	54

Minimum & Maximum Cover for 5" x 1" Steel Pipe						
Gage		16	14	12	10	8
Thickness		0.060	0.075	0.105	0.135	0.164
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
36	12	71	88	100+	100+	100+
42	12	60	76	100+	100+	100+
48	12	53	66	93	100+	100+
54	12	47	59	82	100+	100+
60	12	42	53	74	96	100+
66	12	38	48	67	87	100+
72	12	35	44	62	79	97
78	12	32	40	57	73	90
84	12	30	37	53	68	83
90	12	28	35	49	63	78
96	12	26	33	46	59	73
102	18	24	31	43	56	69
108	18		29	41	53	65
114	18		27	39	50	61
120	18		26	37	47	58
126	18			35	45	55
132	18			33	43	53
138	18			32	41	50
144	18				39	48

Minimum & Maximum Cover for 6" x 2" Steel Multiplate Pipe*								
Gage		12	10	8	7	5	3	1
Thickness		0.111	0.140	0.170	0.188	0.218	0.249	0.280
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
60	12	46	67	87	100	100+	100+	100+
66	12	42	60	79	91	100+	100+	100+
72	12	38	55	73	83	100+	100+	100+
78	12	35	51	67	77	93	100+	100+
84	12	32	47	62	71	86	100+	100+
90	12	30	44	58	67	80	95	100+
96	12	28	41	54	62	75	89	97
102	18	27	39	51	59	71	84	91
108	18	25	37	48	55	67	79	86
114	18	24	35	45	52	63	75	82
120	18	22	33	43	50	60	71	77
126	18	21	31	41	47	57	68	74
132	18	20	30	39	45	54	64	70
138	18	19	28	37	43	52	62	67
144	18	18	27	36	41	50	59	64

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

CORRUGATED CIRCULAR STEEL PIPE

CORRUGATED STEEL PIPE-ARCH

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

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

Minimum & Maximum Cover for 5" X 1" Steel Pipe-Arch						
2 Tons/Sf Corner Bearing Pressure						
Span (Ft.-In.)	Rise (Ft.-In.)	Corner Radius (In)	Min. Thickness (In)	Min. Cover (In)	Max. Cover (Ft)	
53	41	10 2/8	14 (0.079)	12	10	
60	46	18 6/8	14 (0.079)	15	29	
66	51	20 6/8	14 (0.079)	15	29	
73	55	22 7/8	14 (0.079)	18	18	
81	59	20 7/8	14 (0.079)	18	15	
87	63	22 7/8	14 (0.079)	18	15	
95	67	24 3/8	14 (0.079)	18	15	
103	71	26 1/8	14 (0.079)	18	14	
112	75	27 6/8	14 (0.079)	21	14	
117	79	29 4/8	12 (0.109)	21	14	
128	83	31 2/8	10 (0.138)	24	14	
137	87	33	10 (0.138)	24	14	
142	91	34 6/8	10 (0.138)	24	13	
150	96	36	10 (0.138)	30	13	
157	96	38	10 (0.138)	30	13	
164	105	40	10 (0.138)	30	14	
171	110	41	10 (0.138)	30	13	

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

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

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

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

Adoption Date: 7/17/2020

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

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

GENERAL NOTES

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

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

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

Minimum & Maximum Cover for Aluminum Spiral Rib Circular Pipe*					
Gage		I6	I4	I2	I0
Thickness		0.064	0.079	0.109	0.138
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
18	12	43	61		
21	12	38	52	84	
24	12	33	45	73	
30	15	26	36	58	
36	18	21	30	49	69
42	21		25	41	59
48	24			36	51
54	24			32	46
60	24			29	41
66	24				37
72	30				34

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

Minimum & Maximum Cover for Aluminum Spiral Rib Pipe-Arch*						
Gage			I6	I4	I2	I0
Thickness			0.060	0.075	0.105	0.135
Span (Ft.-In.)	Rise (Ft.-In.)	Min. Cover (In)	Max. Cover (Ft)			
20	16	12	16			
23	19	12	15			
27	21	15	13	13		
33	26	18	13	13	13	
40	31	21		13	13	
46	36	24			13	13
53	41	24			13	13
60	46	24			13	13
66	51	24				13

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

ALUMINUM SPIRAL RIB PIPE

STEEL SPIRAL RIB PIPE

Minimum & Maximum Cover for Steel and Aluminized Steel Spiral Rib Circular Pipe*					
Gage		I6	I4	I2	I0
Thickness		0.064	0.079	0.109	0.138
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
18	12	91			
24	12	68	95	100+	
30	12	54	76	100+	
36	12	45	63	100+	
42	12	38	54	90	
48	12	33	47	79	
54	18	30	42	70	
60	18	27	38	63	92
66	18	24	34	57	83
72	18		31	52	76
78	24		29	48	70
84	24		27	45	65
90	24			42	61
96	24			39	56
102	30			36	50
108	30			32	45

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

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

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

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PIPE AND ARCH TABLES

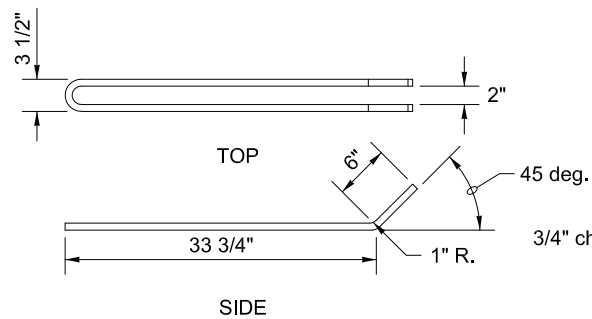
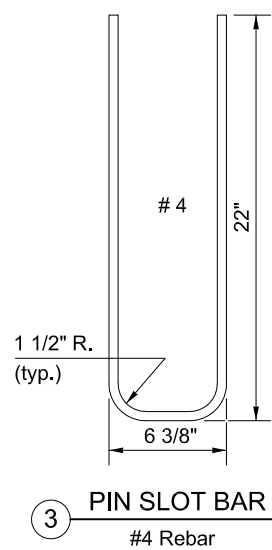
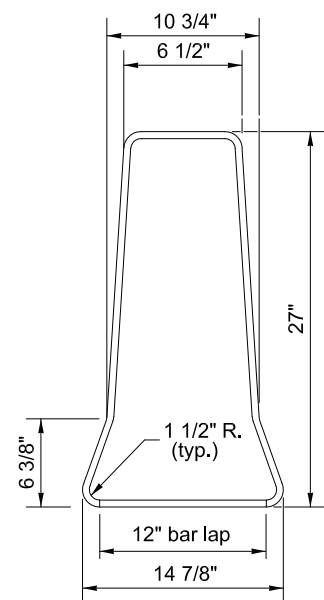
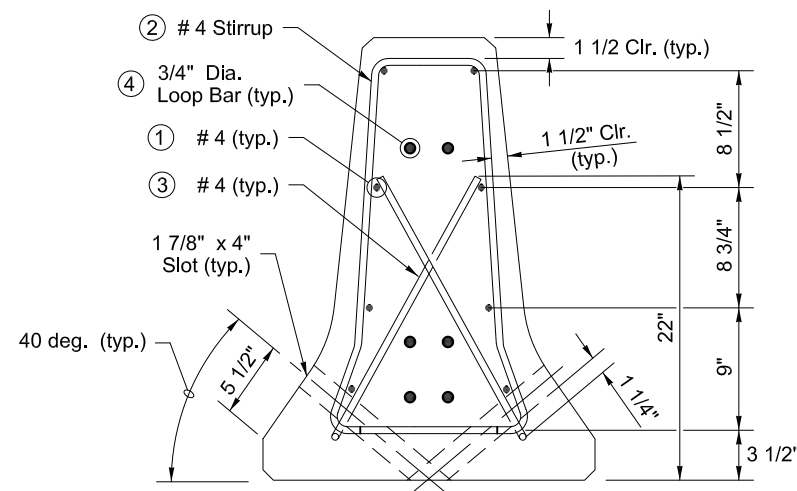
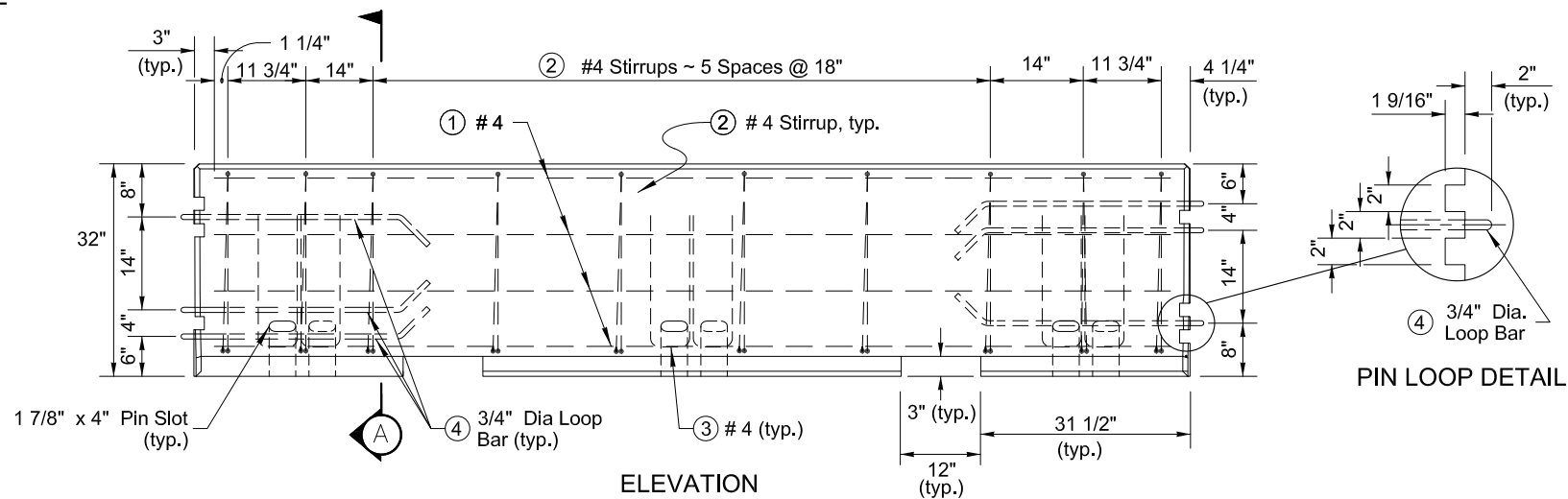
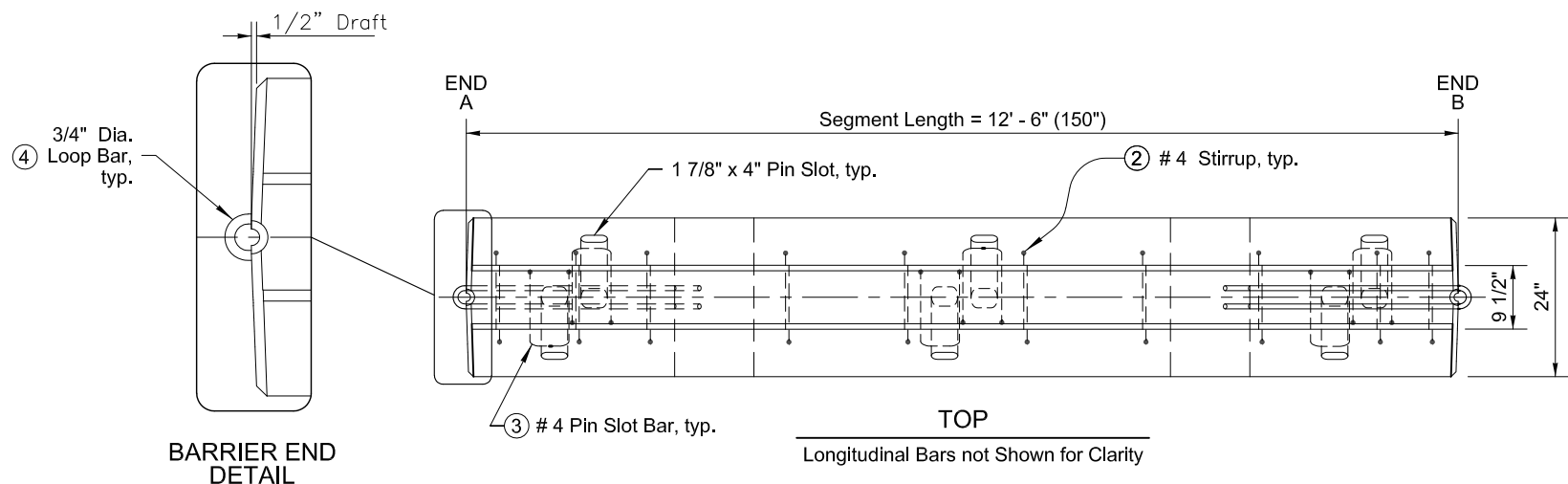
Adopted as an Alaska
Standard Plan by: *Carolyn Morehouse*
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

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

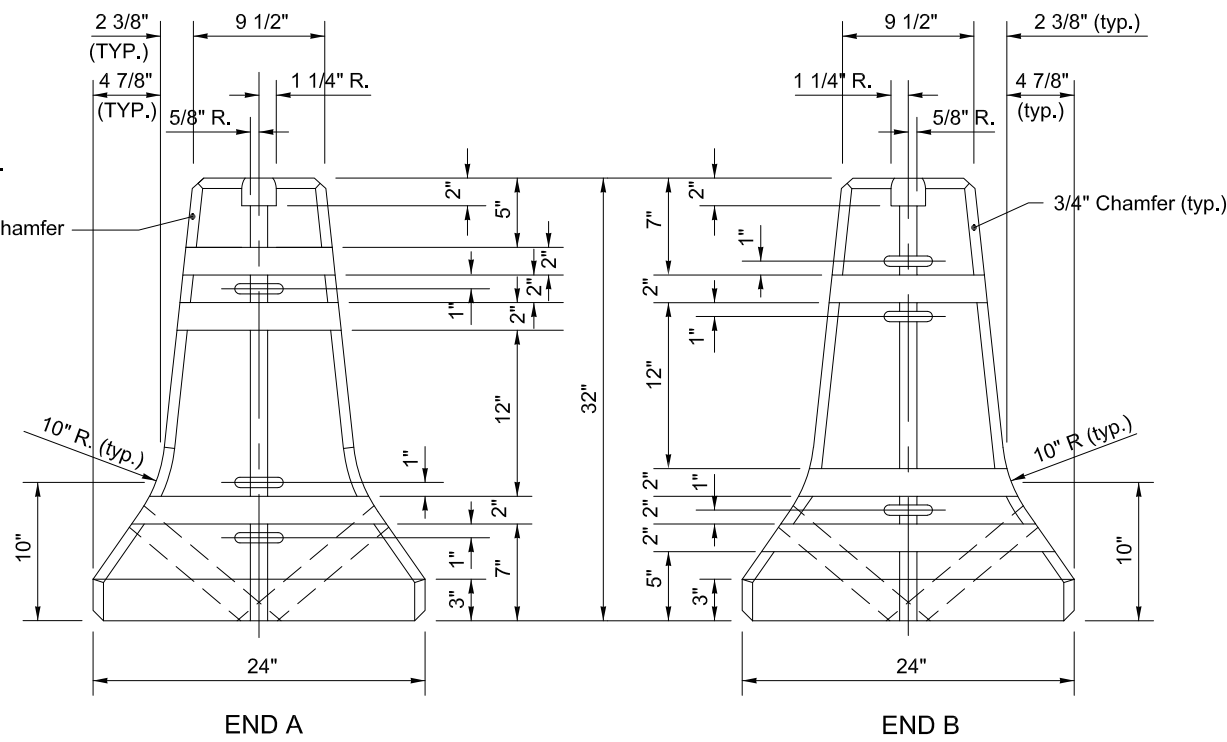
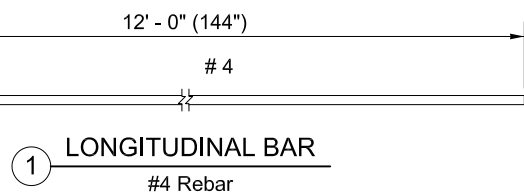
CONSTRUCTION NOTES

1. This concrete barrier meets MASH TL-3 and may be used for temporary and permanent applications.
2. Use Class B-B concrete (5,000 psi) meeting the requirements of Section 550 of the Standard Specifications.
3. Provide the following unobstructed smooth deflection area behind barrier:
18" when anchored to concrete
22" when anchored to asphalt pavement
64" when unanchored
4. When anchored, install anchor pins on the side facing traffic. Concrete barrier used as permanent median barrier in medians less than 8' in width shall be anchored to the roadway with anchor pins on both sides of the barrier.



LOOP BAR DETAIL

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



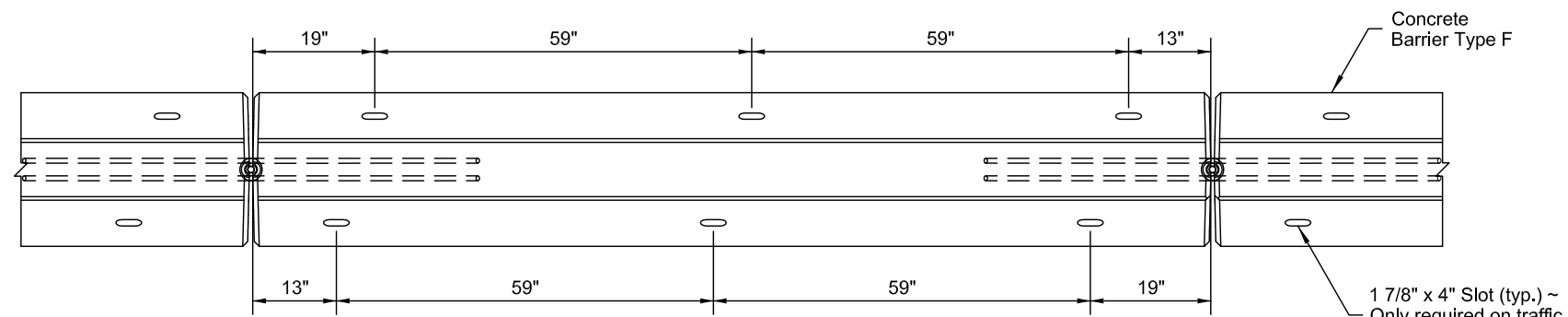
Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLANMASH "F" SHAPE
CONCRETE BARRIERAdopted as an Alaska
Standard Plan by: Carolyn MorehouseCarolyn Morehouse, P.E.
Chief Engineer

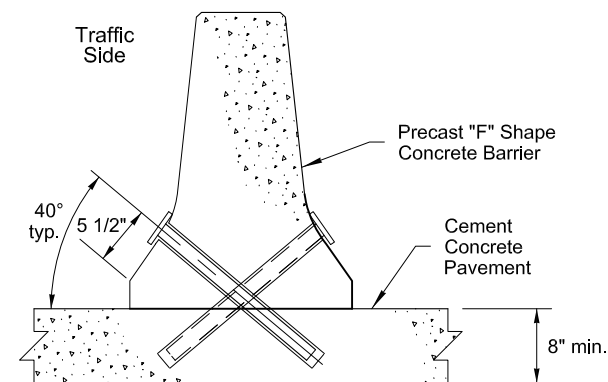
Adoption Date: 07/17/2020

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

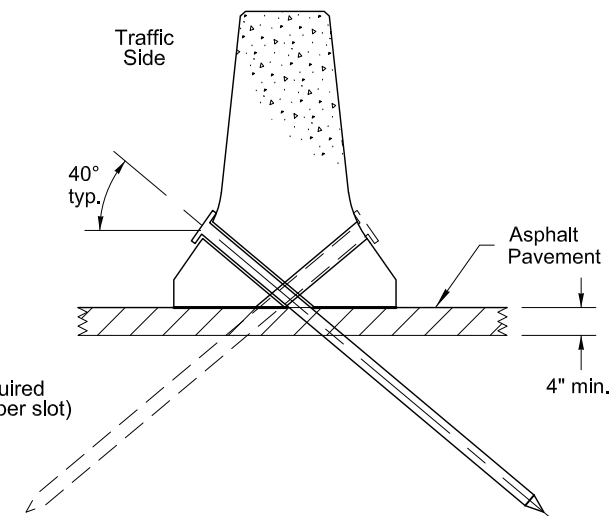
Next Code and Standards Review date: 07/17/2030



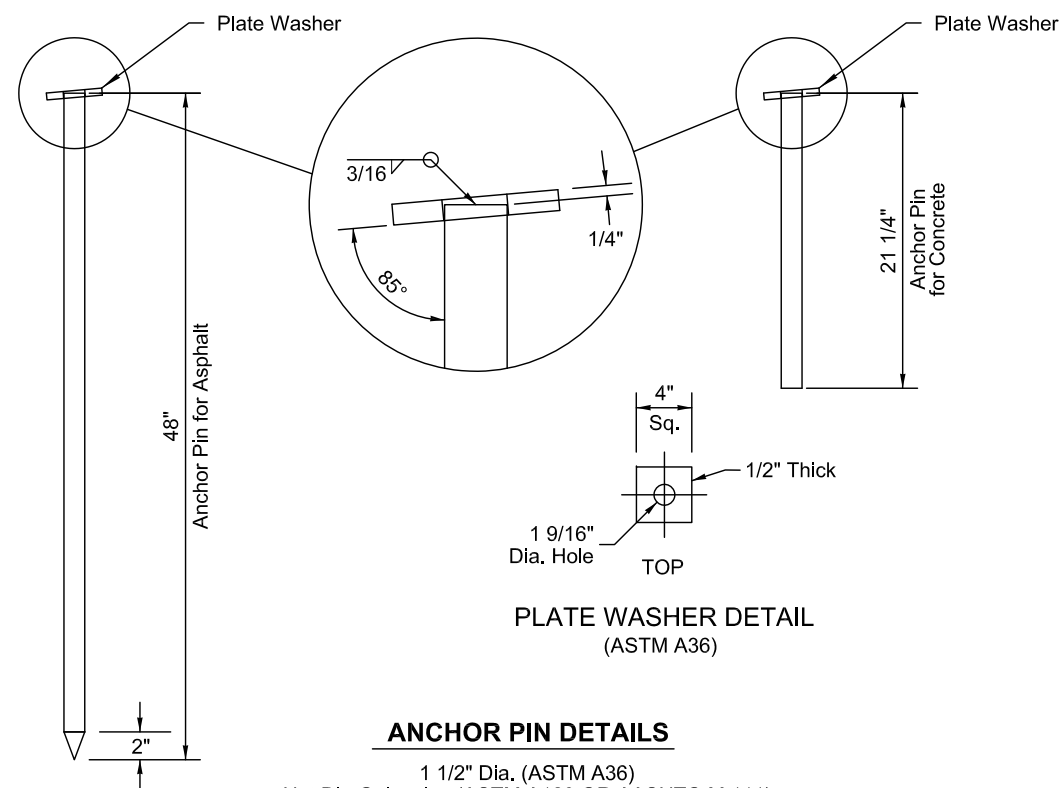
ANCHOR PIN SLOT LOCATIONS
Reinforcing steel not shown for clarity



CONCRETE ANCHOR PIN DETAILS

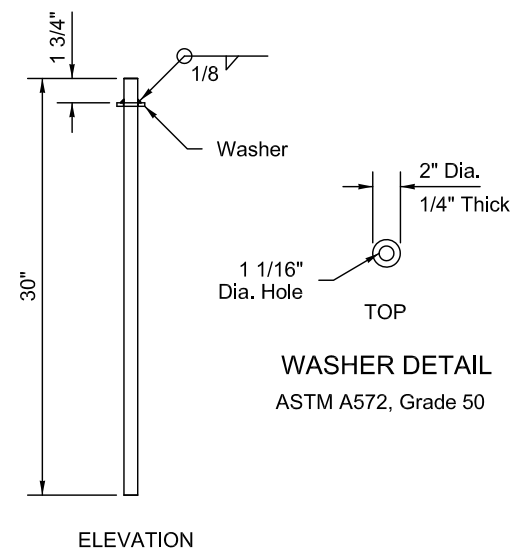


**ASPHALT PAVEMENT
ANCHOR PIN LOCATIONS**



ANCHOR PIN DETAILS

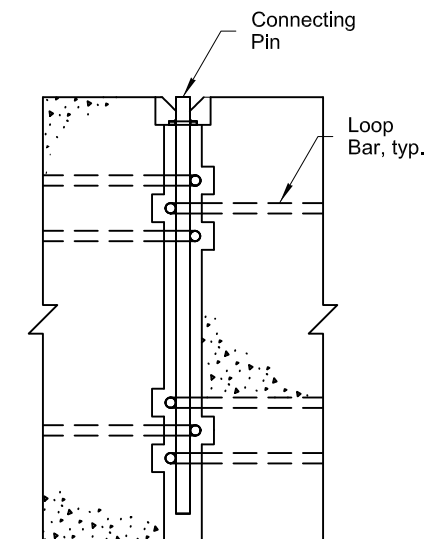
1 1/2" Dia. (ASTM A36)
Hot Dip Galvanize (ASTM A123 OR AASHTO M 111)



WASHER DETAIL
ASTM A572, Grade 50

CONNECTING PIN DETAILS

1" Dia. - ASTM A449
Hot Dip Galvanize



BARRIER CONNECTION DETAIL

CONSTRUCTION NOTES

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

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

**MASH "F" SHAPE
CONCRETE BARRIER**

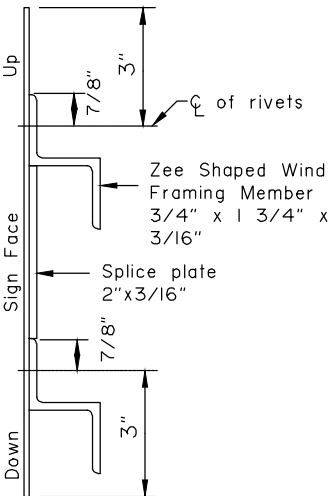
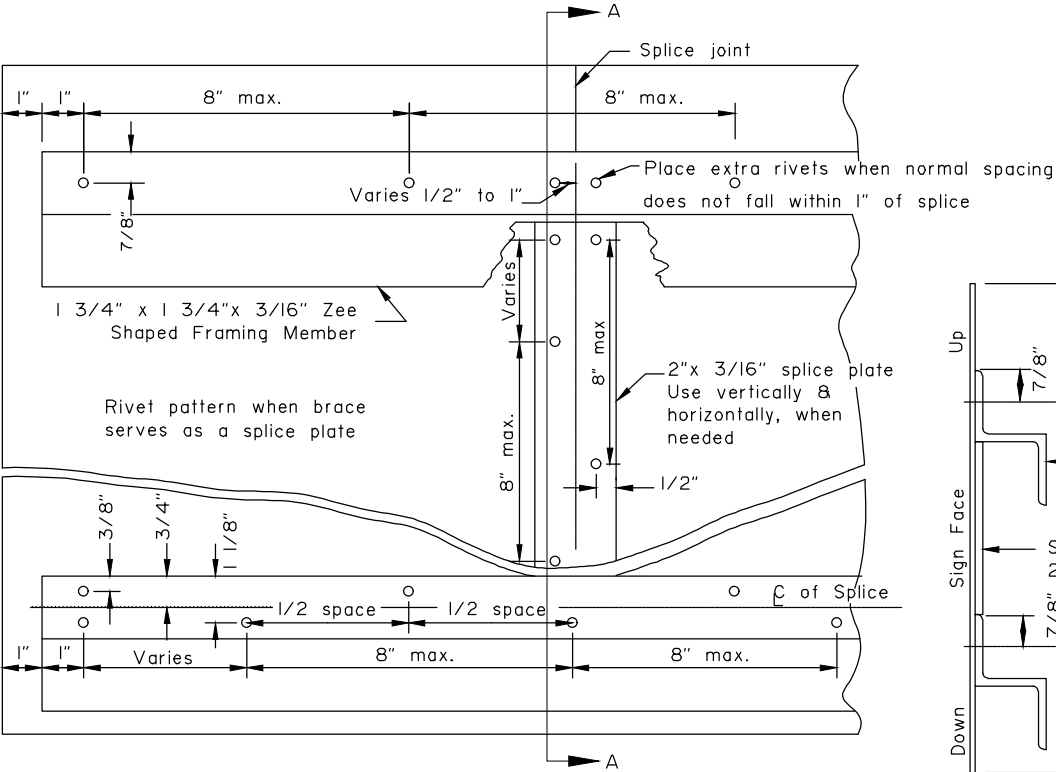
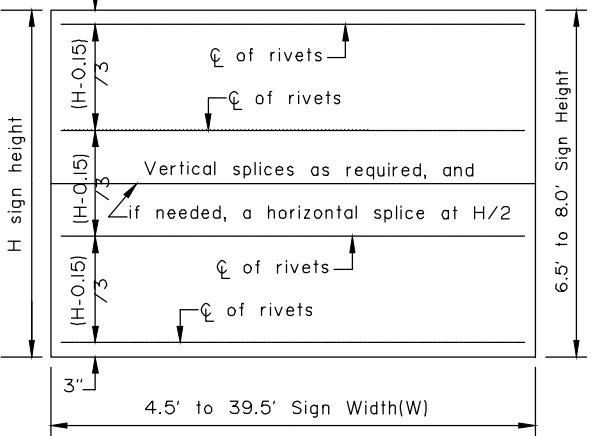
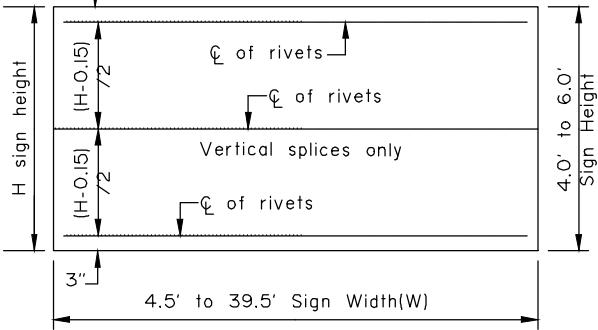
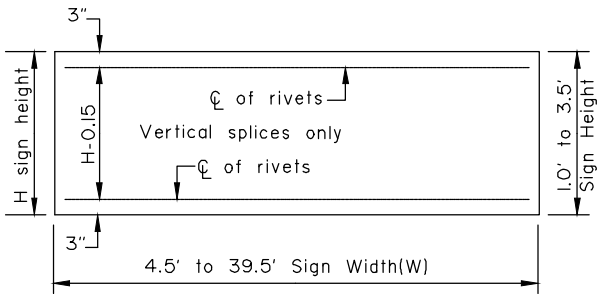
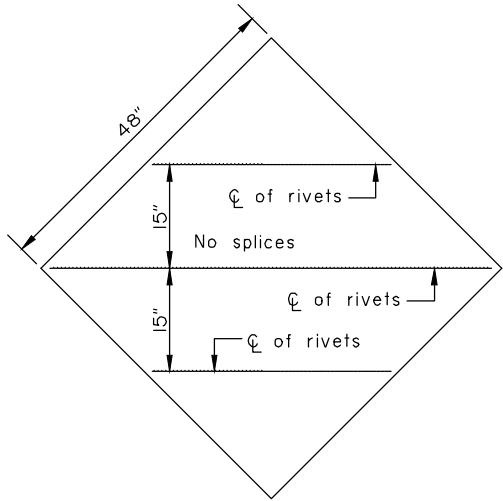
Adopted as an Alaska
Standard Plan by: *Carolyn Morehouse*
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 07/17/2020

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

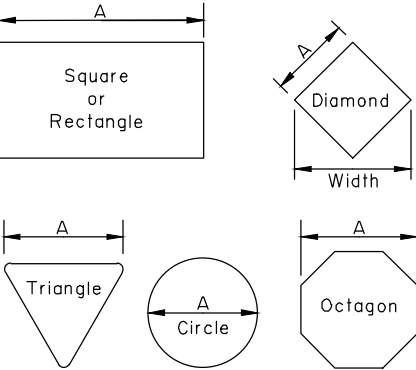
GENERAL NOTES

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.



RIVET DETAIL FOR ZEE SHAPED WIND FRAMING & SPLICE PLATE

SECTION A-A



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

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

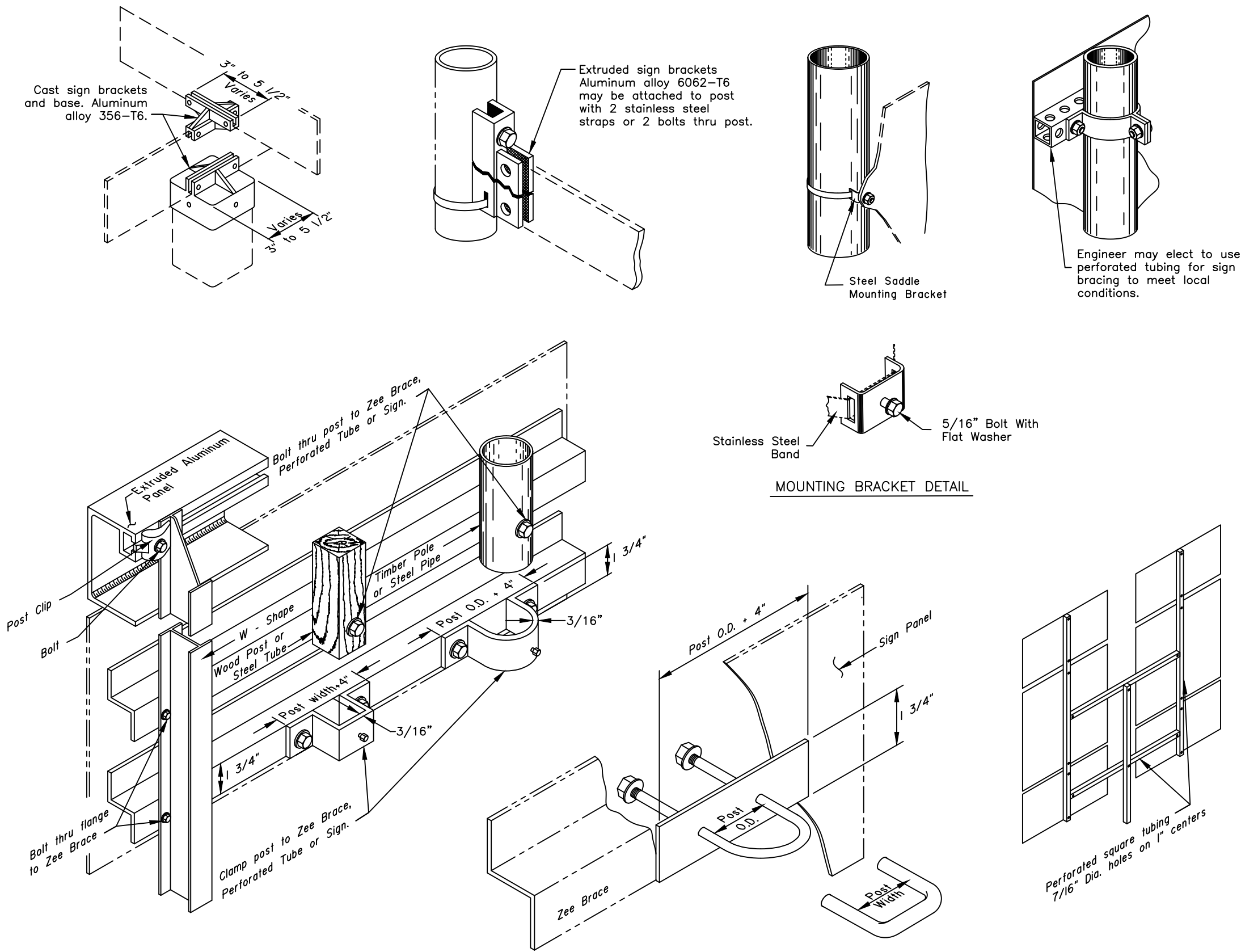
SIGN FRAMING

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

Adoption Date: 7/17/2020

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

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



CONSTRUCTION NOTES

1. Details shown indicate general design only. Dimensions and design may vary among manufacturers.
2. Install weather tight caps on all pipe and tube post (except perforated tubing).
3. Protect driven sign posts 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, nuts and washers.
8. Furnish all aluminum nuts, bolts and washers with anodized finish.

FASTENER SPECIFICATION TABLE
(ALL REFERENCES ARE TO ASTM)

FASTENERS		ALUMINUM	STEEL	STAINLESS STEEL
BOLTS	MACHINE	F468 2024-T4	A307	F593
	CARRIAGE "U"	F468 2024-T4	A307	A276 TYPE 304
NUTS	REGULAR	F467 6061-T6	A563	F594
	LOCKING	F467 2017-T4		
WASHERS		F468 2024-T4	F844	A480
POST CLIP		A356-T6	N/A	N/A

State of Alaska DOT&PF
ALASKA STANDARD PLAN

SIGN TO SIGN POST
CONNECTION

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

Adoption Date: 07/30/2021

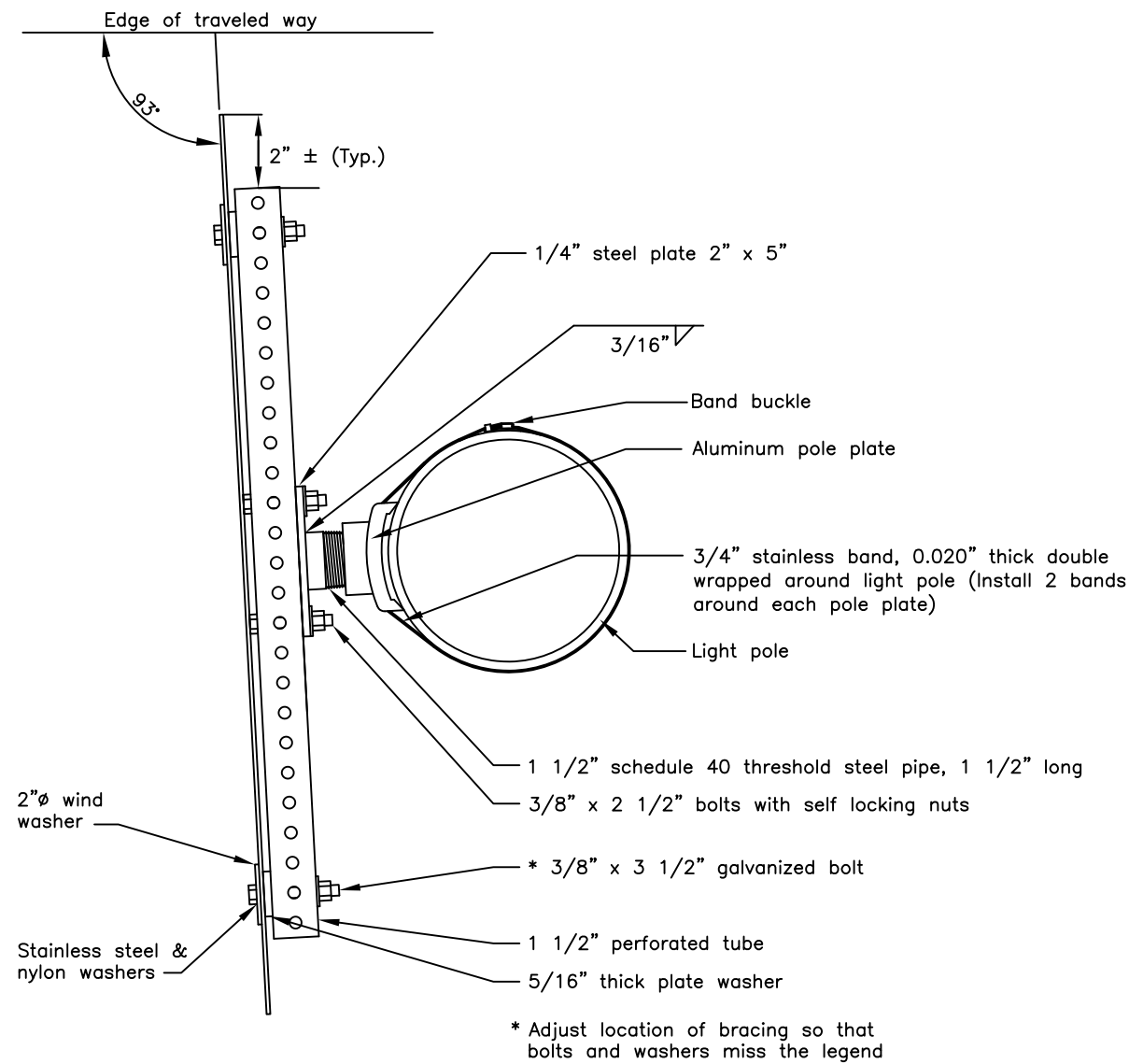
Last Code and Stds. Review
By: LRG Date: 07/30/2021

Next Code and Standards Review date: 07/30/2031

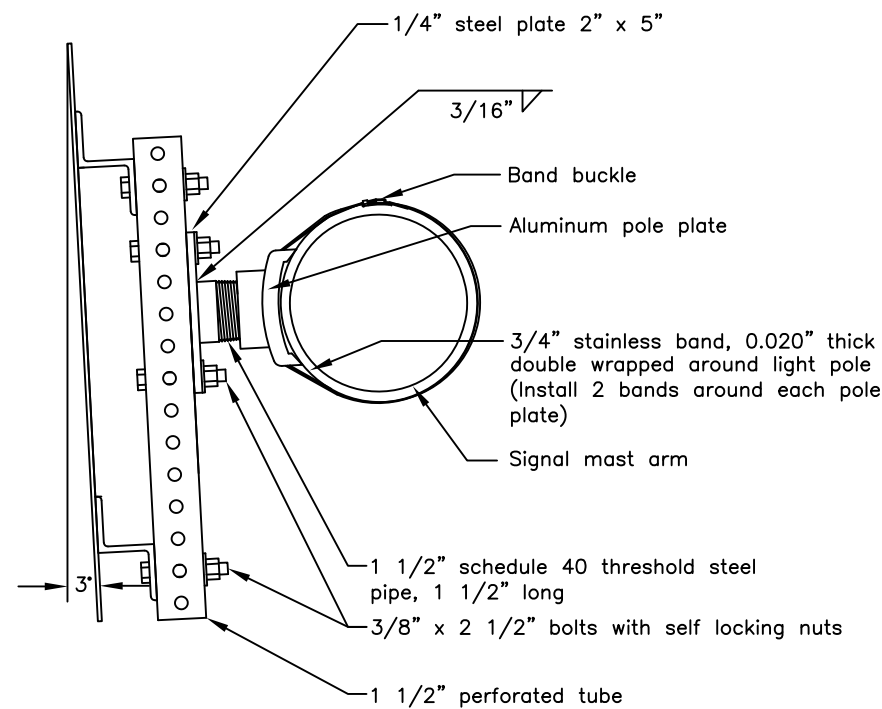
GENERAL NOTES

1. Use pole plate assemblies shown here to install signs on tapered mast arms and light poles. Install one pole plate per 10 square feet of sign panel. Use at least two plates for each installation.
2. Fabricate each pole plate-to-perforated tube adapter (steel plate welded to pipe) using steel plate conforming to ASTM A36 and steel pipe conforming to ASTM A53. Paint these adapters in conformance with section 504 of the Standard Specifications for Highway Construction, latest edition.
3. Paint the assemblies in accordance with AASHTO standard specification M69.
4. Attach each pole plate with two bands of 3/4" wide by 0.020" thick stainless steel banding material. Double wrap each band and tighten it until the band stops moving through the buckle.
5. Install bolts, nuts and washers conforming to ASTM A325.

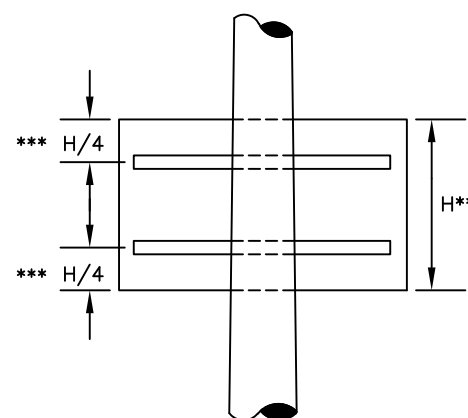
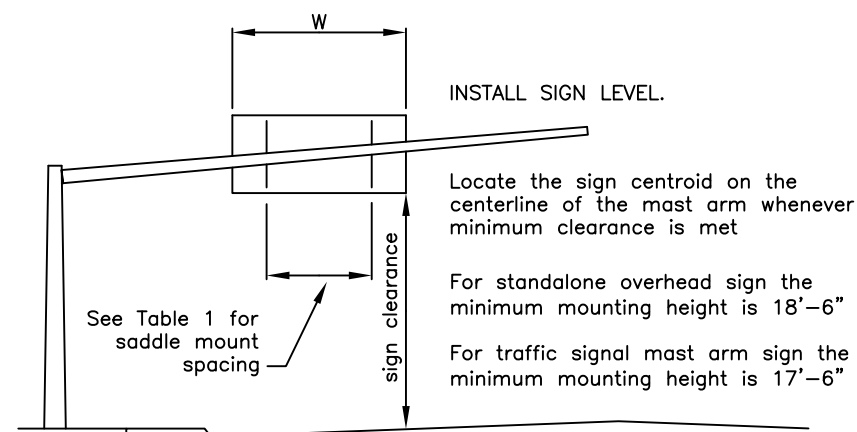
TABLE 1				
POLE PLATE SPACING				
NO. OF POLE PLATES	OVERHANG	BETWEEN POLE PLATES	OVERHANG	
2	0.2W	1 SPACE AT 0.6W	2	0.2W
3	0.15W	SPACES AT 0.35W	3	0.15W
4	0.125W	SPACES AT 0.25W	1	0.125W
5	0.2W	SPACE AT 0.6W		0.2W



ELECTROLIER SIGN MOUNTING
(PLAN VIEW)

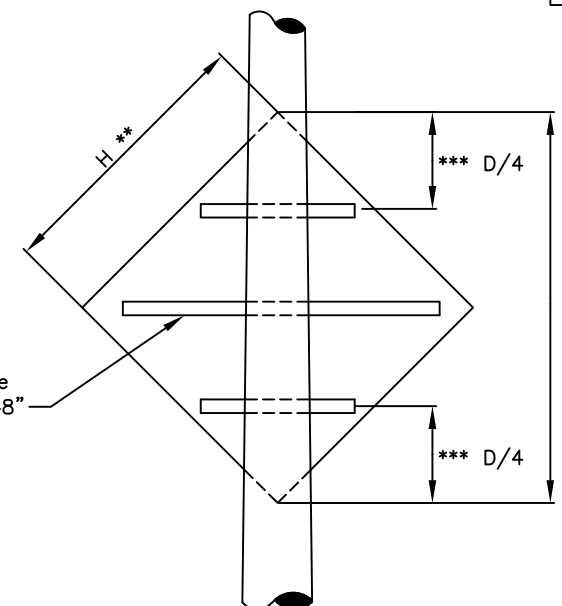


SIGNAL POLE MAST ARM SIGN MOUNTING
(ELEVATION VIEW)



1 1/2" PT brace
only when $H \leq 48"$

- ** Use two pole plates when $H \leq 48"$
use three pole plates when $H > 48"$
- *** When sign panels features predrilled
mountings holes, use them to attach the
perforated tubes



State of Alaska DOT&PF
ALASKA STANDARD PLAN
POLE AND MASTARM
SIGN MOUNTING

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

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: Date:

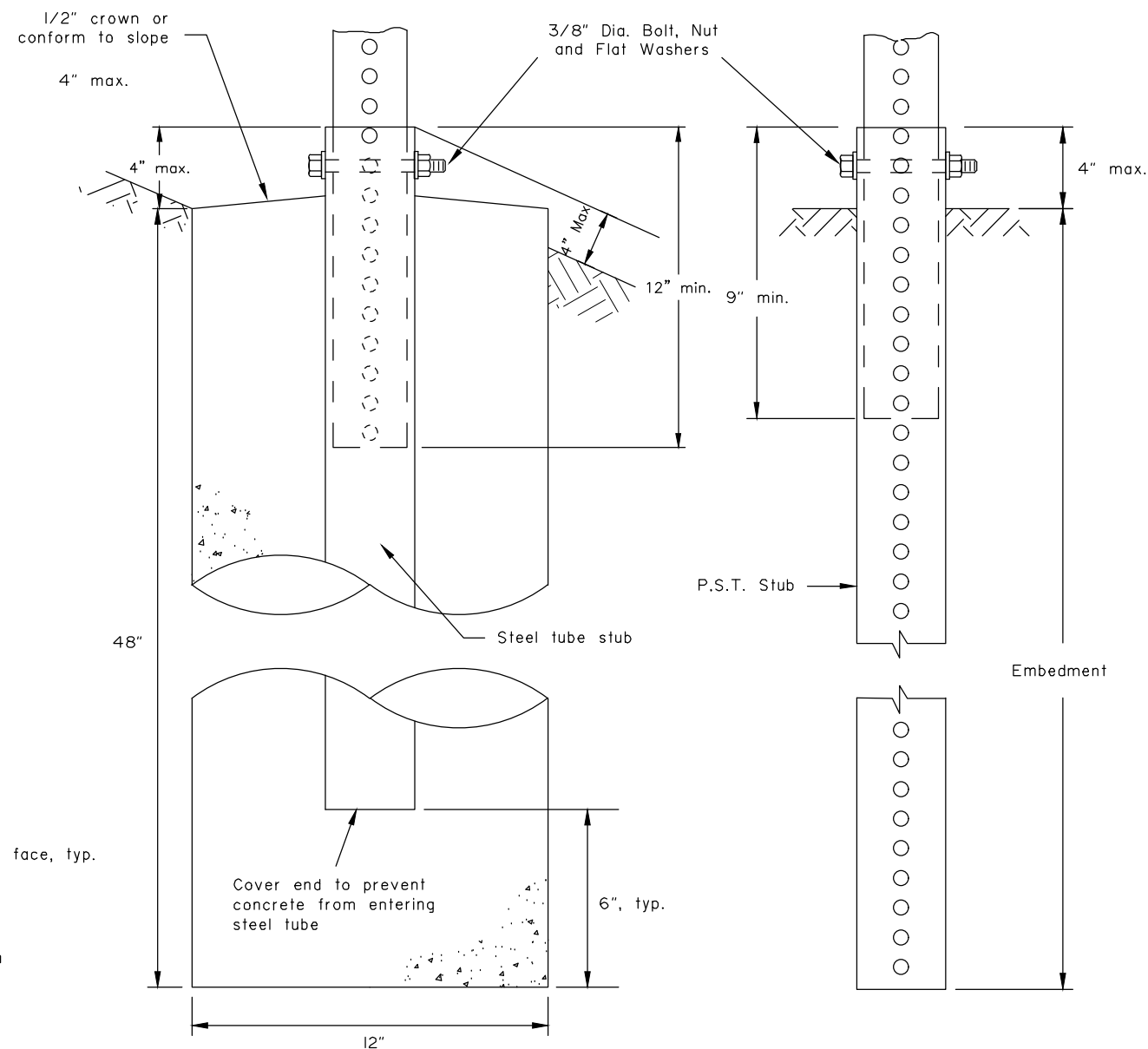
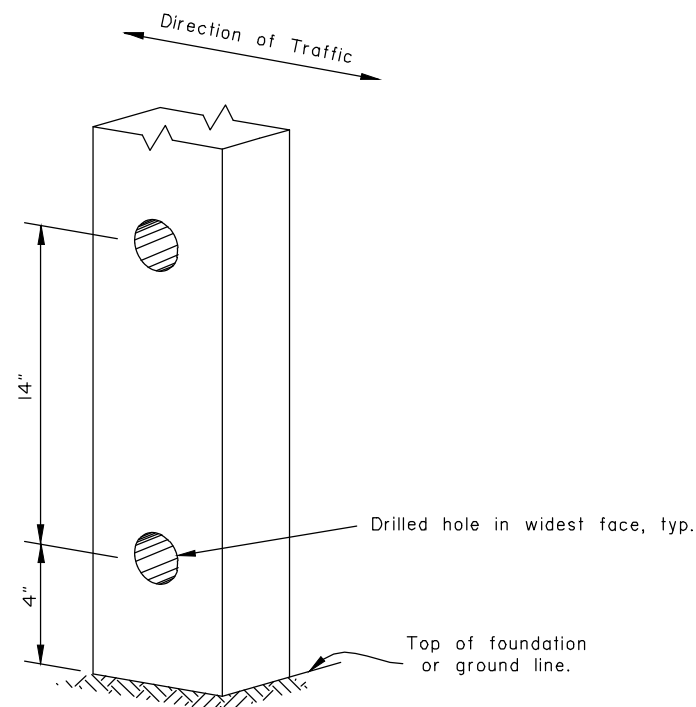
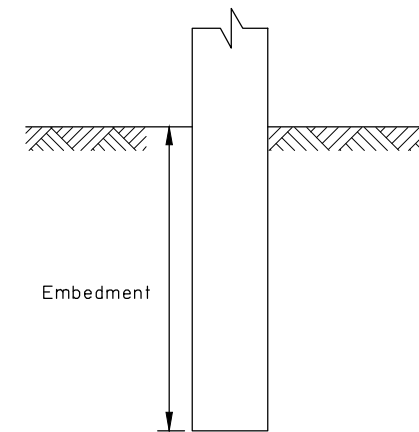
Next Code and Standards Review date: 02/08/2029

GENERAL NOTES:

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

SIGN POST SPACING NOTES:

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



SLEEVE TYPE
CONCRETE FOUNDATION

SLEEVE TYPE*
SOIL EMBEDMENT

WOOD SIGN POSTS			
SIZE	HOLE DIA.	EMBEDMENT ^x	NO. OF POSTS WITHIN 7 Ft. PATH
4" x 4"	NONE	4'-1"	2
4" x 6"	1 1/2"	5'-3"	2
6" x 6"	1 1/2"	4'-9"	1
6" x 8"	3"	4'-9"	1

* Embedment depth applies in both strong and weak soil.

WOOD POSTS

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

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

PERFORATED STEEL TUBE (PST) POSTS

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

TUBE SIGN POST SPACING

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

LIGHT SIGN STRUCTURE POST EMBEDMENT

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

Adoption Date: 7/17/2020

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By: WTH Date: 7/8/2020

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