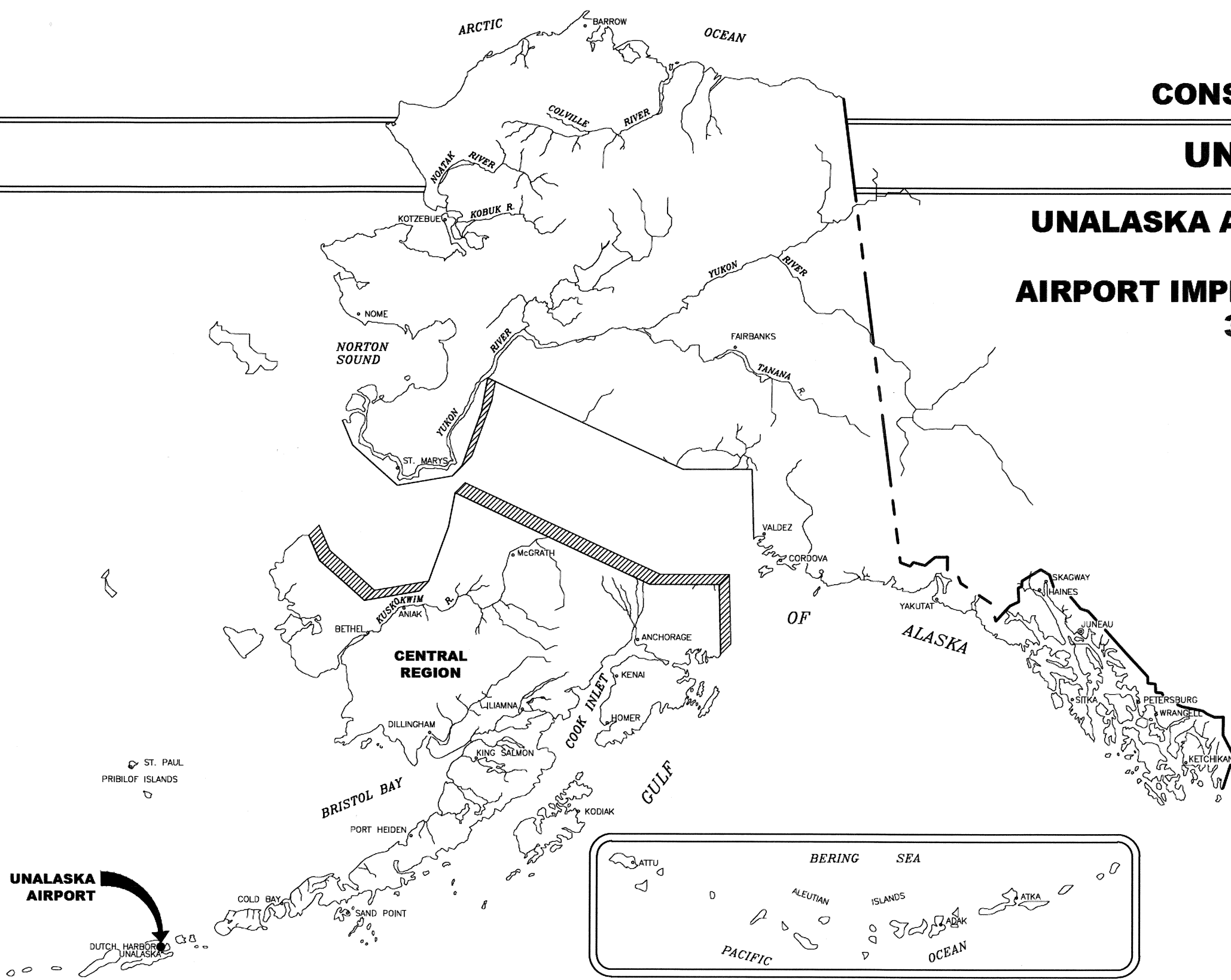


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Date Plotted: _____
Plot Ratio and Layout: _____
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CONSTRUCTION PLANS FOR UNALASKA AIRPORT

**UNALASKA AIRPORT IMPROVEMENTS 2012
NO. 53443
AIRPORT IMPROVEMENT PROGRAM A.I.P. No.
3-02-0082-014-2012**

CENTRAL REGION
AS-ADVERTISED
JUNE 2012



**SPONSORED BY
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION**

CONCUR K. KIM RICE, P.E.	DATE 5/29/2012 DIRECTOR OF DESIGN AND CONSTRUCTION
APPROVED KENNETH M. MORTON, P.E.	DATE 5/25/2012 REGIONAL PRECONSTRUCTION ENGINEER
APPROVED HARVEY M. DOUTHIT, P.E.	DATE 5/25/2012 DESIGN SECTION CHIEF
APPROVED WOLFGANG E. JUNGE, P.E.	DATE 5-24-12 PROJECT MANAGER

**UNALASKA AIRPORT
UNALASKA AIRPORT
IMPROVEMENTS 2012
NO. 53443
AIP NO. 3-02-0082-014-2012
SHEET 1 OF 56**

5/11/2012, 11:21 AM

Date Revised: LND VCTY SHI INDEX

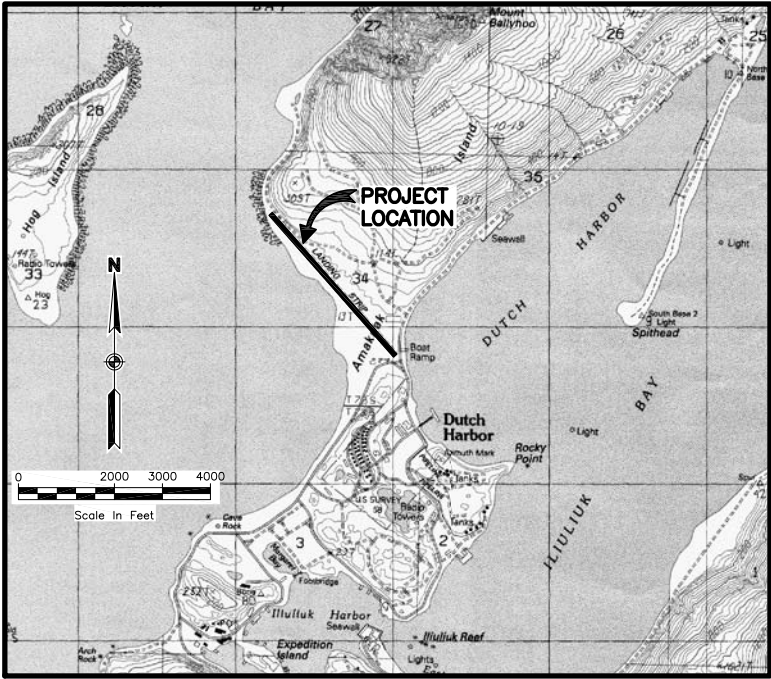
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Designed By:

Drawn By:

Checked By:



VICINITY MAP

T. 72 S., R. 118 W., SEC. 34
SEWARD MERIDIAN
USGS UNALASKA (C-2), ALASKA

LEGEND

PROPOSED	EXISTING	DESCRIPTION
----	----	AIRPORT PROPERTY BOUNDARY
----	----	RUNWAY/TAXIWAY CENTERLINE
----	----	GRAVEL EDGE
----	----	EDGE OF PAVEMENT / SHOULDER
----	----	EDGE OF STRUCTURAL PAVEMENT
----	----	EDGE OF DRAINAGE DITCH
----	----	SHORELINE
----	----	CONCRETE
----	----	CONTOUR LINES
----	----	FENCE
----	----	DITCH OR SWALE FLOW LINE
----	----	UNDERGROUND FUEL LINE
----	----	UNDERGROUND ELECTRICAL LINE
----	----	UNDERGROUND WATER LINE
----	----	UNDERGROUND COMMUNICATION LINE
----	----	UNDERGROUND SANITARY SEWER LINE
----	----	UNDERGROUND STORM DRAIN LINE
----	----	CULVERT
----	----	STORM DRAIN MANHOLE
----	----	ELECTRICAL MANHOLE
----	----	ELECTRICAL PEDESTAL
----	----	ELECTRICAL CAN (BASE ONLY)
----	----	LIGHTING (T/W R/W)
----	----	COMMUNICATION MANHOLE
----	----	COMMUNICATION PEDESTAL
----	----	COMMUNICATION VAULT
----	----	FIBER OPTIC CABLE MARKER
----	----	SIGN
----	----	WIND CONE

LEGEND NOTES:

- SEE SHEET C04 FOR SURVEY CONTROL LEGEND.
- SEE SHEET E01 FOR ELECTRICAL LEGEND.

ABBREVIATIONS

AIP	AIRPORT IMPROVEMENT PROJECT
AOA	AIRCRAFT OPERATIONS AREA
APPROX	APPROXIMATE/APPROXIMATELY
ARFF	AIRPORT RESCUE AND FIRE FIGHTING
AWOS	AUTOMATED WEATHER OBSERVING SYSTEM
BMP	BEST MANAGEMENT PRACTICE
BRL	BUILDING RESTRICTION LINE
CL	CENTERLINE
CABC	CRUSHED AGGREGATE BASE COURSE
CBMH	CATCH BASIN MANHOLE
CMP	CORRUGATED METAL PIPE
CPEP	CORRUGATED POLYETHYLENE PIPE
CS	CONTINGENT SUM
CY	CUBIC YARD
DIA	DIAMETER
DOT&PF	ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
ESCP	EROSION AND SEDIMENT CONTROL PLAN
FAA	FEDERAL AVIATION ADMINISTRATION
FOD	FOREIGN OBJECTS AND DEBRIS
FT	FOOT/FEET
HMA	HOT MIX ASPHALT
INV	INVERT ELEVATION
LF	LINEAR FOOT
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
MHHW	MEAN HIGHER HIGH WATER
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVJ	NORTH AMERICAN VERTICAL DATUM
NOTAM	NOTICE TO AIRMEN
NTP	NOTICE TO PROCEED
NTS	NOT TO SCALE
OFA	OBJECT FREE AREA
OFF	OFFSET
OFZ	OBJECT FREE ZONE
PAPI	PRECISION APPROACH PATH INDICATOR
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PS&E	PLANS, SPECIFICATIONS, AND ESTIMATE
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RAP	RECYCLED ASPHALT PAVEMENT
RP	RADIUS POINT
RSA	RUNWAY SAFETY AREA
RT	RIGHT
RW	RUNWAY
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SREB	SNOW REMOVAL EQUIPMENT BUILDING
STA	STATION
SY	SQUARE YARD
TW	TAXIWAY
TYP	TYPICAL
VASI	VISUAL APPROACH SLOPE INDICATOR
VC	VERTICAL CURVE

ABBREVIATIONS NOTES:

- SEE SHEET E01 FOR ELECTRICAL ABBREVIATIONS.

SHEET INDEX

SHEET NO.	SHEET TITLE
CIVIL	
C01	COVER SHEET
C02	VICINITY MAP, LEGEND, AND SHEET INDEX
C03	ESTIMATED QUANTITIES
C04	SURVEY CONTROL
C05	PROJECT LAYOUT PLAN
C06	CONSTRUCTION PLAN PHASE 1, NO IMPACT TO AIR, GROUND OPERATIONS
C07	CONSTRUCTION PLAN PHASE 2, EXTENDED RUNWAY AND ROADWAY PAVING
C08	CONSTRUCTION PLAN PHASE 3A, RW SOUTH SIDE
C09	CONSTRUCTION PLAN PHASE 3B, RW NORTH SIDE
C10	SAFETY PLAN
C11	SAFETY PLAN PHASE 1, NO IMPACT TO AIR, GROUND OPERATIONS
C12	SAFETY PLAN PHASE 2, EXTENDED RUNWAY AND ROADWAY PAVING
C13	SAFETY PLAN PHASE 3A, RW SOUTH SIDE
C14	SAFETY PLAN PHASE 3B, RW NORTH SIDE
C15	SAFETY PLAN DETAILS
C16	TYPICAL SECTIONS
C17	TYPICAL SECTIONS
C18	RUNWAY NORTH EMBANKMENT EXTENSION SHORE PROTECTION
C19	BALLYHOO ROAD SHORE PROTECTION
C20	RUNWAY PLAN AND PROFILE STA. 143+15.91 TO 132+00
C21	RUNWAY PLAN AND PROFILE STA. 132+00 TO 119+00
C22	RUNWAY PLAN AND PROFILE STA. 119+00 TO 106+00
C23	RUNWAY PLAN AND PROFILE STA. 106+00 TO 94+00
C24	TAXIWAY 'B' PLAN AND PROFILE
C25	BALLYHOO ROAD REALIGNMENT PLAN AND PROFILE
C26	BALLYHOO ROAD REALIGNMENT PLAN AND PROFILE
C27	DETAILS
C28	DETAILS
C29	FENCE DETAILS
C30	RUNWAY MARKING PLAN
C31	RUNWAY MARKING DETAILS
C32	MARKING DETAILS

SHEET INDEX

SHEET NO.	SHEET TITLE
ELECTRICAL	
E01	ELECTRICAL NOTES AND LEGEND
E02	ELECTRICAL DEMOLITION PLAN
E03	ELECTRICAL NEW WORK PLAN
E04	ELECTRICAL DETAILS
E05	ELECTRICAL DETAILS
E06	ELECTRICAL DETAILS
E07	ELECTRICAL DETAILS
E08	ELECTRICAL SCHEDULES
E09	ELECTRICAL SCHEDULES
E10	ARFF SREB BUILDING
E11	REIL DETAILS
E12	VASI-REIL WIRING DIAGRAM
UTILITY	
U0	TABLES
U1	WATER - PLAN AND PROFILE
U2	SEWER - PLAN AND PROFILE
U2.1	SEWER - FORCE MAIN REPLACEMENT
U3	TYPICAL UTILITIES / ROAD SECTION
U4	WATER DETAILS
U5	SEWER DETAILS
U5.1	SEWER DETAILS
U6	ELECTRICAL UTILITY ONE-LINE DIAGRAMS
U7	ELECTRICAL UTILITY DEMOLITION PLAN
U8	ELECTRICAL UTILITY REMODEL PLAN
U9	ELECTRICAL DETAILS

ALASKA DOT&PF STANDARD DRAWINGS

D-01.02 CULVERT PIPE AND ARCH INSTALLATION DETAILS
D-04.21 PIPE AND ARCH TABLES
D-06.10 CULVERT END SECTIONS
D-20.03 MANHOLE, FRAME, AND COVER
D-22.01 STORM DRAIN MANHOLE FRAME AND GRATE DETAILS
D-35.00 48" STORM DRAIN MANHOLE
D-36.00 72" STORM DRAIN MANHOLE

G-00.01 STANDARD GUARDRAIL HARDWARE
G-04.065 STEEL POST W-BEAM GUARDRAIL
G-10.01 BEAM GUARDRAIL POST INSTALLATION
G-13.00 W-BEAM GUARDRAIL DOWNSTREAM END ANCHOR
G-20.10 WIDENING FOR GUARDRAIL END TERMINAL
G-25.20W WOOD POST CONTROLLED RELEASE TERMINAL ANCHORS
G-28.00 LONGSPAN W-BEAM GUARDRAIL

I-81.00 SUPERELEVATION TRANSITION

S-00.10 SIGN FRAMING AND POST SPACING
S-01.00 BRACING FOR SIGNS MOUNTED ON SINGLE POST
S-05.01 POST MOUNTED SIGN OFFSET AND HEIGHT
S-30.03 LIGHT SIGN STRUCTURE POST EMBEDMENT

T-21.02 PAVEMENT MARKING APPLICATIONS



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
VICINITY MAP, LEGEND, AND
SHEET INDEX

DATE: MAY 1, 2012
SHEET: C02 OF 56
AS-BUILT SHEET:

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Checked By: [Blank]

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ESTIMATED QUANTITIES			
Item No	Pay Item	Pay Unit	Quantity
D-701a(1)	Corrugated Polyethylene Pipe, Type S, 24-Inch	Linear Foot	1,430
D-701a(2)	Corrugated Polyethylene Pipe, Type S, 30-Inch	Linear Foot	610
D-705a	Corrugated Polyethylene Underdrain, Class 2, 30-Inch	Linear Foot	300
D-705z	Porous Backfill No. 3	Cubic Yard	230
D-751e(1)	Storm Drain Manhole, Type I	Each	6
D-751e(2)	Storm Drain Manhole, Type II	Each	4
D-751j	Adjust Existing Manhole	Each	1
F-162a(1)	4-foot Chain-Link Fence	Linear Foot	640
F-162a(2)	8-foot Chain-Link Fence	Linear Foot	560
F-162c	20-foot Double Swing Gate	Each	1
F-162k	Remove Fence	Linear Foot	650
F-170a	Steel Bollard	Each	4
G-100a	Mobilization and Demobilization	Lump Sum	All Required
G-115a	Worker Meals and Lodging, or Per Diem	Lump Sum	All Required
G-130a	Field Office	Lump Sum	All Required
G-130b	Field Laboratory	Lump Sum	All Required
G-130g	Nuclear Testing Equipment Storage Shed	Each	1
G-131a	Engineering Transportation (Truck)	Each	4
G-135a	Construction Surveying By The Contractor	Lump Sum	All Required
G-135b	Extra Three Person Survey Party	Hour	60
G-150a	Equipment Rental, Dozer (Minimum 70 HP)	Hour	60
G-300a	CPM Scheduling	Lump Sum	All Required
G-700a	Airport Flagger	Contingent Sum	All Required
G-705a	Watering for Dust Control	M-gal	1,300
G-710a	Highway Traffic Maintenance	Lump Sum	All Required
G-710b	Highway Flagger	Contingent Sum	All Required
G-710c	Highway Traffic Price Adjustment	Contingent Sum	All Required
G-710d	Highway Traffic Control	Contingent Sum	All Required
G-715c	Wildlife Monitoring	Contingent Sum	All Required
L-100b	Regulator, L-828	Each	1
L-100d	Medium Intensity Runway Edge and Threshold Light, L-861 and L-861E	Each	70
L-100e	Taxiway Edge Light, L-861T	Each	27
L-100h	Remove Runway and Taxiway Light	Each	87
L-100k	Flush Runway Edge Light, L-852D	Each	3
L-100n	Airport Sign, Type L-858	Each	7
L-100p	Handhole, L-867, Size B	Each	12
L-100r	Temporary Runway Lighting System	Lump Sum	All Required
L-100ap	Spare Parts	Lump Sum	All Required
L-107a	8-foot Lighted Wind Cone, in place	Each	3
L-108a	Underground Cable #8 AWG, copper, 5kV FAA Type "C", L-824	Linear Foot	12,400
L-108c	#6 Bare Copper Ground Conductor	Linear Foot	11,300
L-108e	Underground Cable, #8 AWG, copper, 600V, Type "C", L-824	Linear Foot	12,400
L-108g	Ground Rod	Each	11
L-110a	2-inch Rigid Steel Conduit	Linear Foot	990
L-110g	2-inch PE Conduit	Linear Foot	13,040
L-132a(1)	Install Approach Lighting Aids, VASI, RW 12	Lump Sum	All Required
L-132a(2)	Install Approach Lighting Aids, VASI, RW 30	Lump Sum	All Required
L-132c	Relocate Approach Lighting Aids, REIL, RW 12	Lump Sum	All Required
L-165a	Flashing Beacon System	Lump Sum	All Required
P-152a	Unclassified Excavation	Cubic Yard	16,500
P-152h(2)	Borrow	Ton	130,000
P-152h(4a)	Borrow, 8-inch plus	Ton	61,500
P-152h(4b)	Borrow, 3-inch minus	Ton	4,000
P-152aj	Disposal of Unsuitable Material	Contingent Sum	All Required
P-154b	Subbase Course	Ton	14,100
P-157a	Erosion, Sediment and Pollution Control Administration	Lump Sum	All Required
P-157b	Temporary Erosion, Sediment and Pollution Control	Contingent Sum	All Required
P-157f	Withholding	Contingent Sum	All Required
P-157g	SWPPP Manager	Lump Sum	All Required
P-161b	Recycled Asphalt Pavement	Cubic Yard	6,800

P-162a	Pavement Cold Planing	Square Yard	76,500
P-165a	Removal of Structures	Lump Sum	All Required
P-170e	Soil Testing Program	Contingent Sum	All Required
P-171b	Temporary Contaminated Soil Stockpile Area	Contingent Sum	All Required
P-181a	Concrete Armor Unit - 14 Ton	Each	700
P-181b	Concrete Armor Unit - 8 Ton	Each	185
P-181c	Existing Dolo Salvage	Each	300
P-185a(1)	Primary Armor Stone - Class PA-1200	Ton	7,300
P-185a(2)	Filter Stone - Class F-120	Ton	6,200
P-185b(1)	Underlayer Stone - Class UL-2400	Ton	23,300
P-185h	Recovered Underlayer Stone	Cubic Yard	4,000
P-401a	Hot Mix Asphalt Type II, Class A	Ton	13,000
P-401b	Hot Mix Asphalt Price Adjustment	Contingent Sum	All Required
P-401c	Asphalt Cement, PG 52-28	Ton	790
P-401e	Asphalt Material Price Adjustment	Contingent Sum	All Required
P-603a	Tack Coat, STE-1	Ton	26
P-620c	Runway and Taxiway Painting	Lump Sum	All Required
P-620e	Painted Marking Removal	Square Foot	70,000
P-620g	Temporary Runway and Taxiway Painting	Lump Sum	All Required
P-620h	Roadway Painting	Lump Sum	All Required
P-630a	Pavement Grooving	Square Yard	75,000
P-661a	Standard Sign	Square Foot	25
P-661d	Relocate Standard Sign	Each	8
P-670a	Hazard Marker Barrier, Plastic	Each	15
P-671a(1)	Runway Closure Marker, Temporary Illuminated Panel	Each	2
P-671a(2)	Runway Closure Marker, Vinyl	Each	4
P-675a	W-Beam Guardrail	Linear Foot	415
P-675f	Remove and Dispose of Guardrail	Linear Foot	300
P-675i	Controlled Release Terminal (CRT)	Each	2
P-684a	Floating Silt Curtain	Linear Foot	2,300
P-685a	Geogrid	Square Yard	7,500
T-901a	Seeding	Acre	6.76
T-905a	Topsoiling	Square Yard	32,689
U-100a	12" Class 52 Ductile Iron Pipe	Linear Foot	25
U-100b	16" Class 52 Ductile Iron Pipe	Linear Foot	795
U-100c	20" Class 52 Ductile Iron Pipe	Linear Foot	235
U-100d	20" Butterfly Valve and Valve Box	Each	2
U-100e	16" Butterfly Valve and Valve Box	Each	1
U-100f	12" Gate Valve and Valve Box	Each	1
U-100g	Single Pumper Hydrant Assembly	Each	1
U-100h	Double Pumper Hydrant Assembly	Each	1
U-100i	Remove and Salvage Hydrant Assembly	Each	1
U-100j	Connect to Existing Combination Air/Vacuum Relief Vault	Lump Sum	All Required
U-100k	Connect to Existing Waterline	Each	3
U-100l	Abandon Existing Waterline	Lump Sum	All Required
U-200a	6" Class 52 Ductile Iron Pipe	Linear Foot	770
U-200b	4' Diameter Manhole	Each	1
U-200c	Drop Connection	Each	1
U-200d	Cleanout Manhole	Each	2
U-200e	Connect to Existing Sewer Line	Each	1
U-200f	2" Force Main	Lump Sum	All Required
U-200g	Abandon Existing Sewer Line	Lump Sum	All Required
U-500a	Retire 35KV, 3-Phase Underground Electric Circuit	Lump Sum	All Required
U-500b	Install 35 KV, 3-Phase Pad Mounted Section Cabinet	Each	1.00
U-500c	DB 1 - Duct Bank, 2-6 inch HDPE Conduits	Linear Foot	120.00
U-500d	DB-2 - Duct Bank, 4-4 inch HDPE Conduits	Linear Foot	420.00
U-500e	DB 3 - Duct Bank, 2-6 & 4-4 inch HDPE Conduits	Linear Foot	1,140.00
U-500f	Furnish & Install Electrical Pull Vault	Each	1.00
U-500g	Install Telecommunications Handhole	Each	1.00
U-500h	Vault Coring	Each	2.00
U-500i	Abandon Existing Electric Conduits	Lump Sum	All Required
U-500j	Abandon Existing Telecommunications Duct	Lump Sum	All Required

ESTIMATING FACTORS		
No.	Item	Factor
G-705a	Watering for Dust Control	25 GAL/SY
P-152h(2)	Borrow	135 LB/FT³
P-152h(4a)	Borrow, 8-Inch Plus	130 LB/FT³
P-152h(4b)	Borrow, 3-Inch Minus	140 LB/FT³
P-154b	Subbase Course	148 LB/FT³
P-181a	Concrete Armor Unit 14-Ton	0.0183 UNITS/FT²
P-181b	Concrete Armor Unit 8-Ton	0.0266 UNITS/FT²
P-185a(1)	Primary Armor Stone, Class PA-1200	1.65 TONS/CY
P-185a(2)	Filter Stone - Class F-120	1.65 TONS/CY
P-185b(1)	Underlayer Stone - Class UL-2400	1.65 TONS/CY
P-603a	Tack Coat, STE-1	0.83 LBS/SY
P-401a	Hot Mix Asphalt, Type II, Class A	152 LBS/CF
P-401c	Asphalt Cement, PG 52-28	6% OF P-401a



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION

AND PUBLIC FACILITIES

CENTRAL REGION

UNALASKA AIRPORT

UNALASKA, ALASKA

UNALASKA AIRPORT IMPROVEMENTS 2012

PROJECT No. 53443

A.I.P. No. 3-02-0082-014-2012

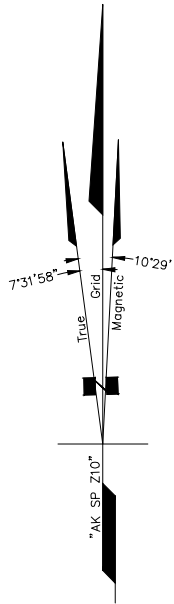
ESTIMATED QUANTITIES

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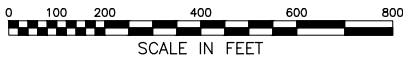
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AS-BUILT SHEET:

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Designed By: DJB
Drawn By: JMG
Checked By:



Declination is 10°29' E. per NOAA September 30, 2011.
Convergence is 7°31'58" at Point #551 (DUT E)



HORIZONTAL CONTROL

The Geodetic Basis is NAD83(2007) holding the published position of the PACS (DUT E, PID: DM3564) fixed.

The Horizontal Coordinate System for this survey is a Local Ground System related to Alaska State Plane Zone 10 using the following conversion parameters;

To convert NAD83(2007) Alaska State Plane, Zone 10 coordinates to the local ground system perform the following;

- 1)Scale about the PACS (DUT E) (N=1,192,319.099', E=5,314,380.466') by 0.9999823846.
- 2)Translate resulting coordinates by -1100000 N, -5250000 E.

To convert local ground coordinates to NAD83(2007) Alaska State Plane, Zone 10 perform the following;

- 1)Scale about the PACS (DUT E) (N=92,319.099', E=64,380.466') by 1.0000176157.
- 2)Translate resulting coordinates by +1100000 N, +5250000 E.

VERTICAL CONTROL

The Vertical Datum is GPS derived NAVD88 using GEOID09AK holding the NGS published elevation at the PACS (DUT E) fixed as 14.96. Note this does not correlate directly with any local tide based datums (see Tidal Datum Reference).

TIDAL DATUM REFERENCE

To convert NAVD88 elevations to 2001 Mean Lower Low Water (MLLW) based on Unalaska Tidal Station 9462620 subtract 0.59 from elevations. This conversion value is based on "Unalaska Tidal Data Report" prepared by R&M Consultants dated June 24, 2010 and provided by DOT&PF.

SYMBOLS LEGEND

- SCP SET PROJECT CONTROL
- RECOVERED PUBLISHED AIRPORT CONTROL
- XX POINT IDENTIFIER

Jacob M. Gerondale LS-11758 Date



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

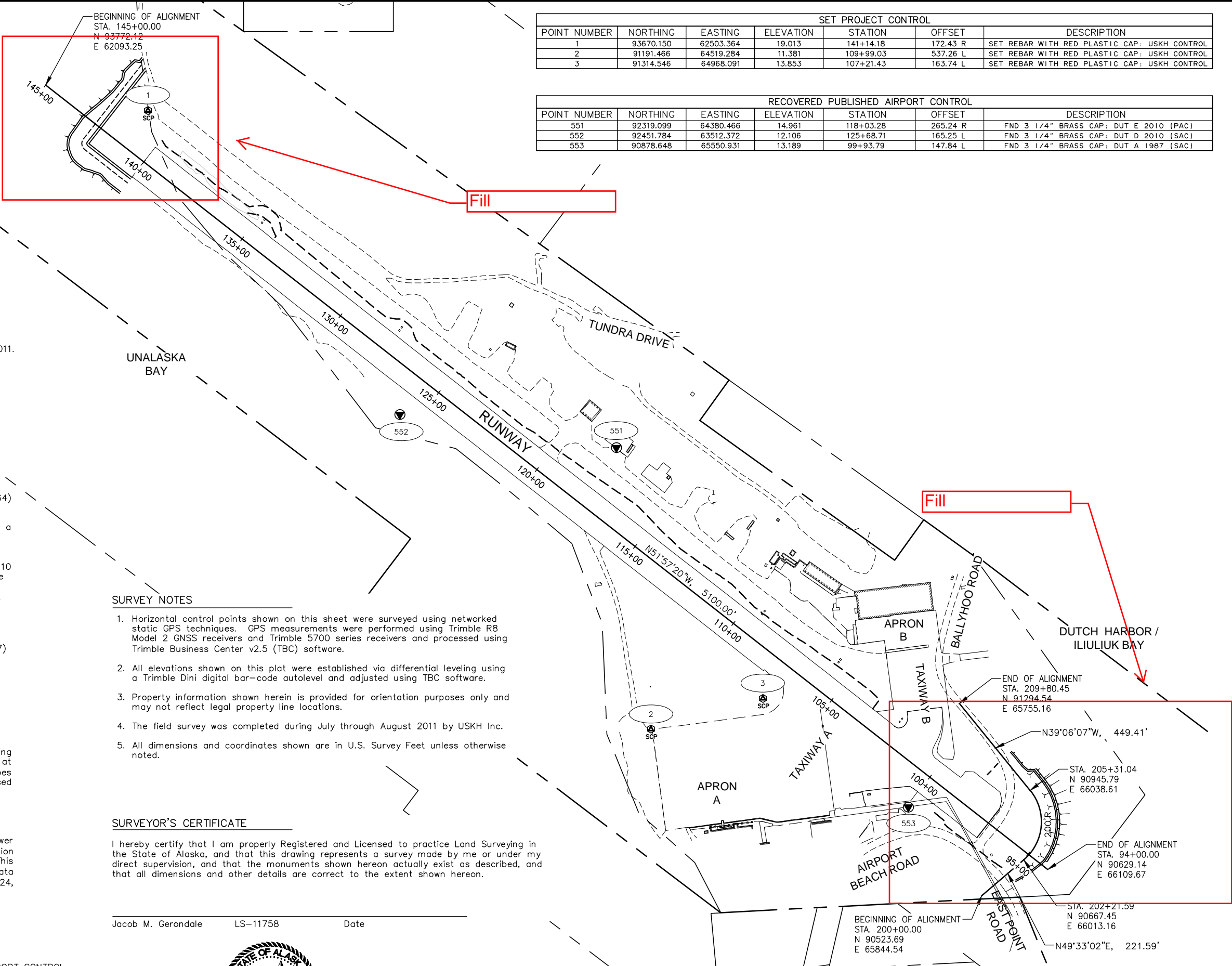
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
SURVEY CONTROL

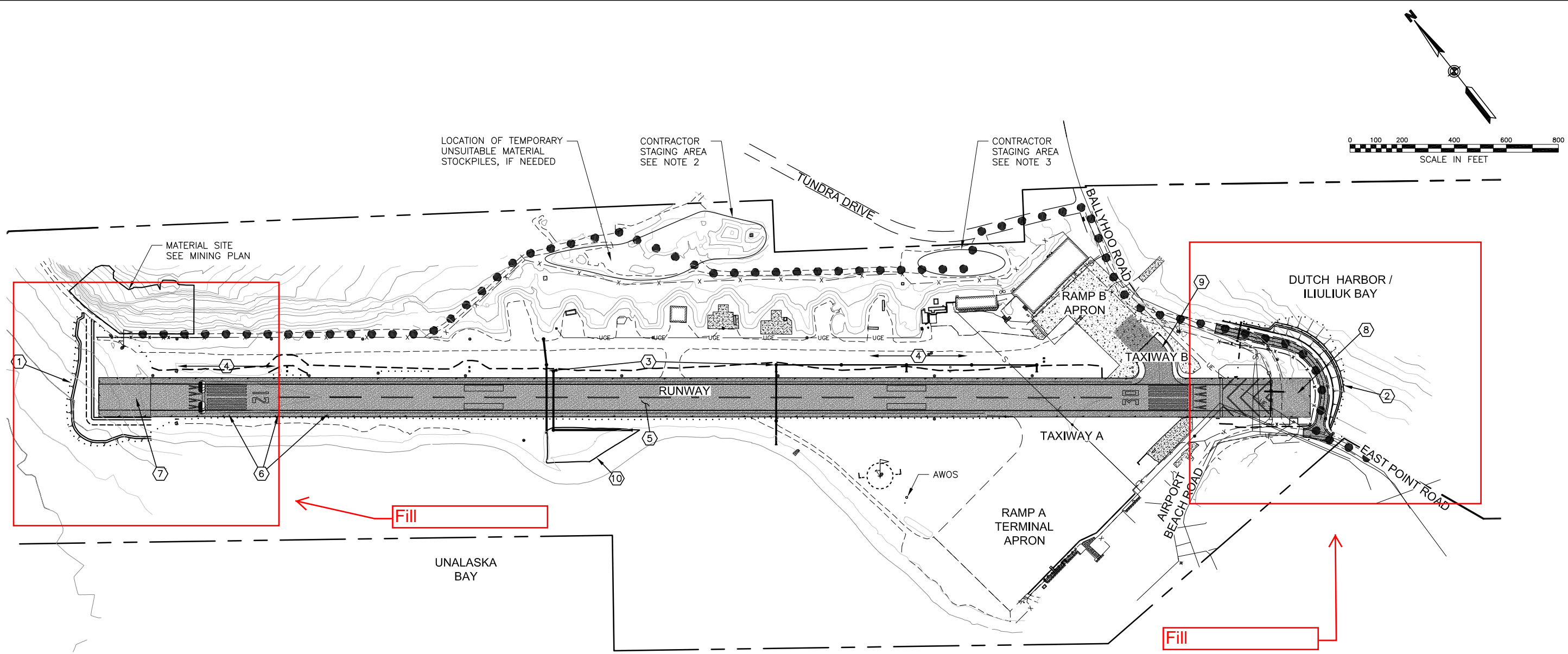
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SHEET: C04 OF 56
AS-BUILT SHEET:

SET PROJECT CONTROL						
POINT NUMBER	NORTHING	EASTING	ELEVATION	STATION	OFFSET	DESCRIPTION
1	93670.150	62503.364	19.013	141+14.18	172.43 R	SET REBAR WITH RED PLASTIC CAP: USKH CONTROL
2	91191.466	64519.284	11.381	109+99.03	537.26 L	SET REBAR WITH RED PLASTIC CAP: USKH CONTROL
3	91314.546	64968.091	13.853	107+21.43	163.74 L	SET REBAR WITH RED PLASTIC CAP: USKH CONTROL

RECOVERED PUBLISHED AIRPORT CONTROL						
POINT NUMBER	NORTHING	EASTING	ELEVATION	STATION	OFFSET	DESCRIPTION
551	92319.099	64380.466	14.961	118+03.28	265.24 R	FND 3 1/4" BRASS CAP: DUT E 2010 (PAC)
552	92451.784	63512.372	12.106	125+68.71	165.25 L	FND 3 1/4" BRASS CAP: DUT D 2010 (SAC)
553	90878.648	65550.931	13.189	99+93.79	147.84 L	FND 3 1/4" BRASS CAP: DUT A 1987 (SAC)



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Checked By: [Redacted]
Date Revised: [Redacted]
Project Name: UNALASKA AIRPORT IMPROVEMENTS 2012
File Path and Name: I:\1320600\Draws\13206-DUT-C05 PROJ LAYOUT.dwg



NOTES:

- EXISTING RUNWAY 12 / 30 WILL BE RE-DESIGNATED TO RUNWAY 13 / 31 UPON PROJECT COMPLETION. ALL TEMPORARY MARKINGS WILL REFLECT THE EXISTING DESIGNATION AS RUNWAY 12 / 30. ALL REFERENCES TO RUNWAY ENDS SHOULD BE INTERPRETED AS SUCH.
- STAGING AREAS CONTAIN MATERIAL STOCKPILES FROM PREVIOUS PROJECTS. THE STOCK PILES ARE MANDATORY MATERIAL SOURCES AND SHALL BE INCORPORATED INTO THE PROJECT AND THE AREAS GRADED UNIFORMLY. SEE GCP 60 AND MINING PLAN FOR ADDITIONAL INFORMATION.
- LOCATE TEMPORARY STORAGE CELL (IF NEEDED) FOR CONTAMINATED SOILS IN THIS AREA, SEE DETAIL 6/C27.

LEGEND:

● ● ● ● HAUL ROUTE

PROJECT TASKS:

- CONSTRUCT EMBANKMENT ON RUNWAY 12 END.
- CONSTRUCT EMBANKMENT ON RUNWAY 30 END, AND RELOCATE BALLYHOO ROAD WITH ASSOCIATED UTILITIES AND INSTALL NEW AIRPORT FENCING.
- REPLACE EXISTING CMP CULVERTS AND CONSTRUCT STORM DRAIN.
- IMPROVE AIRPORT DRAINAGE ALONG RUNWAY.
- REHABILITATE RUNWAY 12-30 PAVEMENTS AND TRANSITIONS INTO TERMINAL APRON.
- RECONSTRUCT RUNWAY LIGHTING.
- EXTEND RUNWAY 12 END.
- CONSTRUCT RUNWAY 30 BLAST PAD.
- REHABILITATE TAXIWAY B.
- CONSTRUCT VEGETATED TREATMENT AREA



PLANS DEVELOPED BY:
USKH, INC.

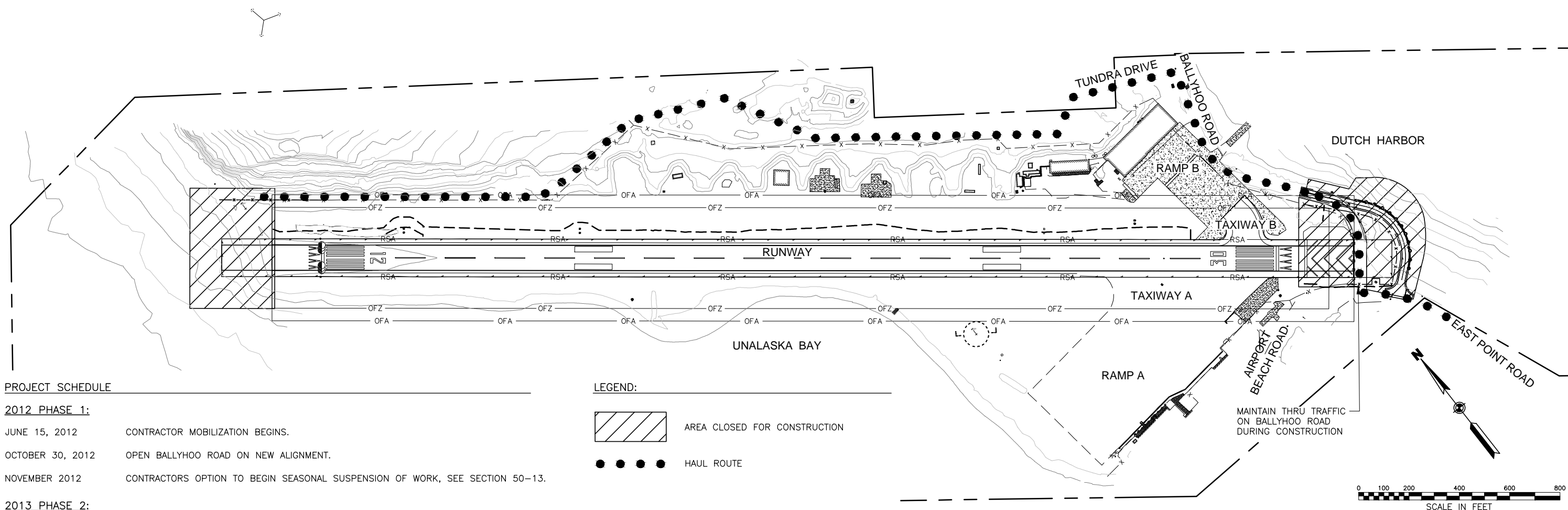
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
PROJECT LAYOUT PLAN

DATE: MAY 1, 2012
SHEET: C05 OF 56
AS-BUILT SHEET:

5/01/2012 5:00 PM
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Drawn By: [redacted]
Checked By: [redacted]
Date Revised: 5/01/2012 5:00 PM
Layout: [redacted]
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PROJECT SCHEDULE

2012 PHASE 1:

- JUNE 15, 2012 CONTRACTOR MOBILIZATION BEGINS.
- OCTOBER 30, 2012 OPEN BALLYHOO ROAD ON NEW ALIGNMENT.
- NOVEMBER 2012 CONTRACTORS OPTION TO BEGIN SEASONAL SUSPENSION OF WORK, SEE SECTION 50-13.

2013 PHASE 2:

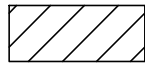

- MARCH 2013 NOTIFY ENGINEER, AIRPORT MANAGEMENT OF RESTART DATE.
- JUNE 30, 2013 COMPLETE PAVING AND TEMPORARY MARKINGS ON RW 12 END, SHIFT RW 12 THRESHOLD.
- JULY 31, 2013 COMPLETE PAVING AND TEMPORARY MARKINGS ON RW 30 END.
- AUGUST 15, 2013 COMPLETE PAVING, SIGNAGE AND MARKINGS ON BALLYHOO ROAD, END PHASE 2.
- OCTOBER 2013 CONTRACTORS OPTION TO BEGIN SEASONAL SUSPENSION OF WORK, SEE SECTION 50-13.

2014 PHASE 3:

- MARCH, 2014 NOTIFY ENGINEER, AIRPORT MANAGER OF RESTART DATE.
- APRIL 1, 2014 CONFIRM WITH LOCAL FAA MAINTENANCE THROUGH THE ENGINEER REGARDING IMPENDING RW CHANGE. SCHEDULE DEACTIVATION OF EXISTING NAVAIDS. BEGIN COORDINATION WITH AIRPORT MANAGEMENT, TENANTS, AND OPERATORS REGARDING HALF WIDTH CLOSURE AND SCHEDULE.
- MAY 1, 2014 BEGIN HALF WIDTH RUNWAY CLOSURE, SOUTH SIDE OF RW.
- JUNE 15, 2014 END PHASE 3A, BEGIN HALF WIDTH RUNWAY CLOSURE, NORTH SIDE OF RW.
- JULY 30, 2014 END PHASE 3B, OPEN RW TO FULL WIDTH OPERATIONS. COMPLETE FINAL MARKINGS FOR NEW RW DESIGNATION.
- SEPTEMBER, 2014 PROJECT ACCEPTANCE / FINAL DEMOBILIZATION

CONSTRUCTION OF ANY PHASE CAN BE STARTED UPON COMPLETION OF THE PREVIOUS PHASE, OR AS OTHERWISE APPROVED BY THE ENGINEER. SEASONAL SUSPENSION OF WORK IS NOT MANDATORY.

LEGEND:

-  AREA CLOSED FOR CONSTRUCTION
-  HAUL ROUTE

PHASING PLANS GENERAL:

THE FOLLOWING PHASING PLANS ARE ACCEPTABLE CONSTRUCTION SEQUENCES. SOME TASKS LISTED IN THE NOTES MAY REQUIRE CONCURRENT WORK TO BE ACCOMPLISHED. TASKS LISTED ARE INTENDED AS A GENERAL CONCEPT OF WORK TO BE PERFORMED UNDER EACH PHASE AND DON'T REPRESENT A COMPREHENSIVE OR SEQUENTIAL LIST OF ALL THE WORK REQUIRED. THE CONTRACTOR MAY MODIFY A PHASING PLAN AND SUBMIT AN ALTERNATE PHASING PLAN WITH A COORDINATED SAFETY PLAN FOR APPROVAL. ALL WORK MUST BE ACCOMPLISHED ACCORDING TO THE LIMITATIONS IN THE SAFETY PLAN, APPLICABLE SPECIAL PROVISIONS, ENVIRONMENTAL COMMITMENTS, AND PERMIT CONDITIONS.

PHASE 1 NOTES:

- COORDINATE WITH AIRPORT MANAGEMENT, ALL AIRPORT OPERATORS, AIRPORT MAINTENANCE AND ARFF, AT LEAST 30 DAYS PRIOR TO BEGINNING WORK. PROVIDE A MINIMUM 45 DAY NOTICE TO FAA ATO/TECHNICAL OPERATIONS PRIOR TO ANY SHUTDOWN OR IMPACTS TO FAA OWNED/MAINTAINED NAVAIDS.
- SUBMIT A WRITTEN PLAN FOR EMBANKMENT CONSTRUCTION AS SPECIFIED UNDER SECTION P-152-3.6. THE PLAN MUST BE APPROVED PRIOR TO BEGINNING WORK ON THIS PHASE.
- CONSTRUCT THE RSA EMBANKMENT ON THE RW 12 END.
- CONSTRUCT THE RSA, AND ROADWAY EMBANKMENT ON THE RW 30 END.
- MAINTAIN AIRPORT SECURITY. PLACE TEMPORARY FENCE AS REQUIRED, AND APPROVED. SUBMIT TEMPORARY FENCING LAYOUT AS PART OF THE SAFETY PLAN FOR THIS PHASE.
- SUBMIT ROADWAY TRAFFIC CONTROL PLAN AS REQUIRED.
- RECONSTRUCT BALLYHOO ROAD ON NEW ALIGNMENT, RELOCATE UTILITIES ON BALLYHOO ROAD, AND OPEN TO TRAFFIC. RELOCATE FLASHER SIGNS & GATE SYSTEM CONDUITS TO NEW BALLYHOO ROAD ALIGNMENT.
- CONSTRUCT NEW AIRPORT FENCE.



PLANS DEVELOPED BY:
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STATE OF ALASKA
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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
CONSTRUCTION PLAN PHASE 1, NO IMPACT
TO AIR, GROUND OPERATIONS

DATE: MAY 1, 2012
SHEET: C06 OF 56
AS-BUILT SHEET:

Date Revised: 5/01/2012, 5:00 PM

Date Drawn: 5/01/2012, 5:00 PM

Date Checked: 5/01/2012, 5:00 PM

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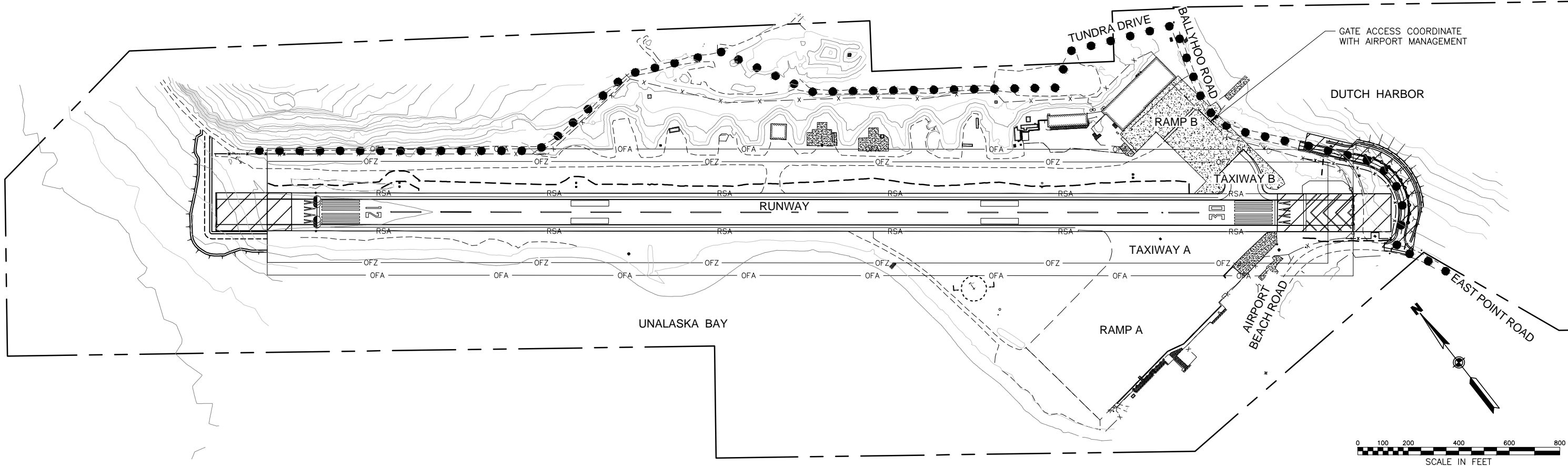
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LEGEND:

AREA CLOSED FOR CONSTRUCTION

HAUL ROUTE

- PHASE 2 NOTES:
- COORDINATE WITH AIRPORT MANAGEMENT, ALL AIRPORT OPERATORS, AIRPORT MAINTENANCE AND ARFF, AT LEAST 30 DAYS PRIOR TO BEGINNING WORK. SUBMIT HIGHWAY TRAFFIC CONTROL PLAN AS REQUIRED. PROVIDE A MINIMUM 45 DAY NOTICE TO FAA ATO/TECHNICAL OPERATIONS PRIOR TO ANY SHUTDOWN OR IMPACTS TO FAA OWNED/MAINTAINED NAVAIDS.
 - CONSTRUCT NEW PAVEMENT FOR RW 12 EXTENSION, AND NEW RW 30 BLAST PAD. INSTALL TEMPORARY THRESHOLD LIGHTS AS REQUIRED TO ALLOW PAVEMENT CONSTRUCTION. INSTALL NEW RUNWAY LIGHTING FOR RUNWAY EXTENSIONS, BUT DO NOT ENERGIZE NEW RW 12 EXTENSION LIGHTING. REPLACE LIGHTING REGULATOR.
 - RELOCATE RW 12 REILS. DO NOT PUT RELOCATED REILS INTO SERVICE UNTIL THRESHOLD SHIFT UNDER THIS PHASE.
 - RELOCATE RW 12 THRESHOLD TO STATION 139+00. INSTALL NEW RW 12 MARKINGS, PUT NEW RW 12 LIGHTING AND REILS IN SERVICE.
 - CONSTRUCT AND MAINTAIN TEMPORARY AIRPORT MARKINGS AS REQUIRED. REMOVE TEMPORARY MARKINGS WHEN THEY ARE NO LONGER IN USE.
 - ENSURE THAT THE RUNWAY, TAXIWAY, AND APRON SURFACES ARE PROPERLY MARKED AND LIGHTED PRIOR TO OPENING FOR AIRCRAFT OPERATIONS.
 - PAVE BALLYHOO ROAD, AND PLACE ROADWAY MARKINGS. MAINTAIN AT LEAST A SINGLE LANE OF THROUGH TRAFFIC ON BALLYHOO ROAD DURING PAVING.



PLANS DEVELOPED BY:
USKH, INC.

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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
CONSTRUCTION PLAN PHASE 2, EXTENDED
RUNWAY AND ROADWAY PAVING

DATE: MAY 1, 2012
SHEET: C07 OF 56
AS-BUILT SHEET:

Date Revised: 5/11/2012, 11:21 AM

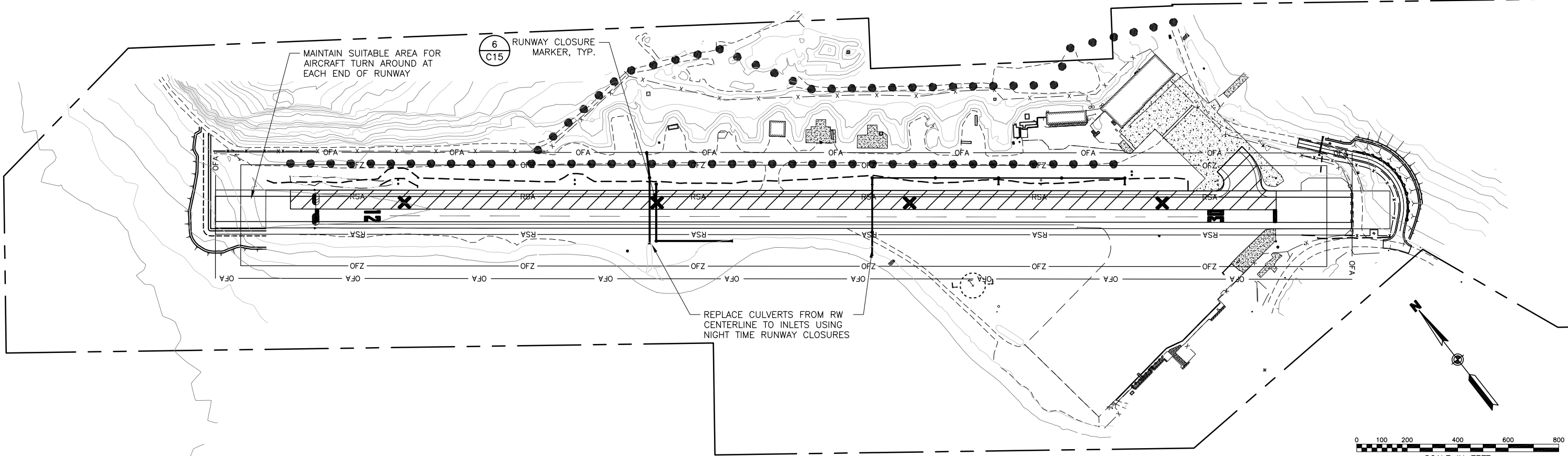
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Designed By:

Drawn By:

Checked By:



LEGEND:

- AREA CLOSED FOR CONSTRUCTION
- HAUL ROUTE

PHASE 3B NOTES:

1. COORDINATE WITH AIRPORT MANAGEMENT AT LEAST 30 DAYS PRIOR TO HALF WIDTH CHANGE OVER FOR PROPER AND TIMELY ISSUANCE OF NOTAMS. COORDINATE WITH AIRPORT TENANTS AND OPERATORS TO ENSURE THEY ARE AWARE OF AREAS THAT WILL BE CLOSED TO AIRCRAFT OPERATIONS OR MOVEMENT. PROVIDE A MINIMUM 45 DAY NOTICE TO FAA ATO/TECHNICAL OPERATIONS PRIOR TO ANY SHUTDOWN OR IMPACTS TO FAA OWNED/MAINTAINED NAVAIDS.

2. BEGIN CONVERTING RUNWAY AFTER LAST SCHEDULED DEPARTURE FOR THE DAY. PLACE TEMPORARY RW EDGE LIGHTING DURING NIGHT TIME CLOSURE. SEE HALF WIDTH SECTION DETAIL.

3. PLACE TEMPORARY MARKINGS FOR HALF WIDTH RUNWAY. SEE MARKING PLANS. MINIMUM RW MARKINGS FOR HALF WIDTH RUNWAY INCLUDE:
 - LANDING DESIGNATOR (RW NUMBERS)
 - RW CENTERLINE
 - RW EDGE STRIPES
 - THRESHOLD BAR
 - THRESHOLD STRIPES

4. REMOVE OR MASK ALL MARKINGS ON THE CLOSED PORTION OF THE RUNWAY WITHIN 24 HOURS OF HALF WIDTH CLOSURE. REMOVE ALL MASKED MARKINGS WITHIN 96 HOURS OF HALF WIDTH CLOSURE. MASKING MAY INCLUDE BLACK PAINT, FABRIC TARPS, WOOD OR PLASTIC PANELS SUITABLY ANCHORED TO WITHSTAND PROPELLER WASH, AND HIGH WINDS, OR OTHER METHOD AS APPROVED.
5. RECONSTRUCT / OVERLAY RW 12 / 30 RIGHT OF CENTERLINE (NORTH HALF, OR TW B SIDE) USING HALF WIDTH CLOSURE.

6. REPLACE RW LIGHTING ON CLOSED PORTION OF RW AND ON TW B. INSTALL NEW WIND CONE AND VASI WIRING ALONG NORTH SHOULDER OF RUNWAY.

7. MILL AND OVERLAY TW B USING PARTIAL CLOSURE OF RAMP AND TW B, OR NIGHT TIME CLOSURE, AS APPROVED. MAINTAIN ACCESS TO RAMP B FOR ALL SCHEDULED OPERATIONS.

8. ULTIMATE RUNWAY MARKINGS WILL INCLUDE REDESIGNATION TO RUNWAY 13 / 31. SEE MARKING PLANS.

9. UPON COMPLETING WORK INSIDE THE CLOSED PORTION OF THE RUNWAY, CLEAN AND SWEEP PAVED SURFACES TO REMOVE ALL FOREIGN DEBRIS. ENERGIZE OR ENABLE EDGE LIGHTING, PROVIDE ALL PERMANENT RUNWAY MARKINGS AS SHOWN, OR AS REQUIRED, AND REMOVE ALL BARRICADES.



PLANS DEVELOPED BY:
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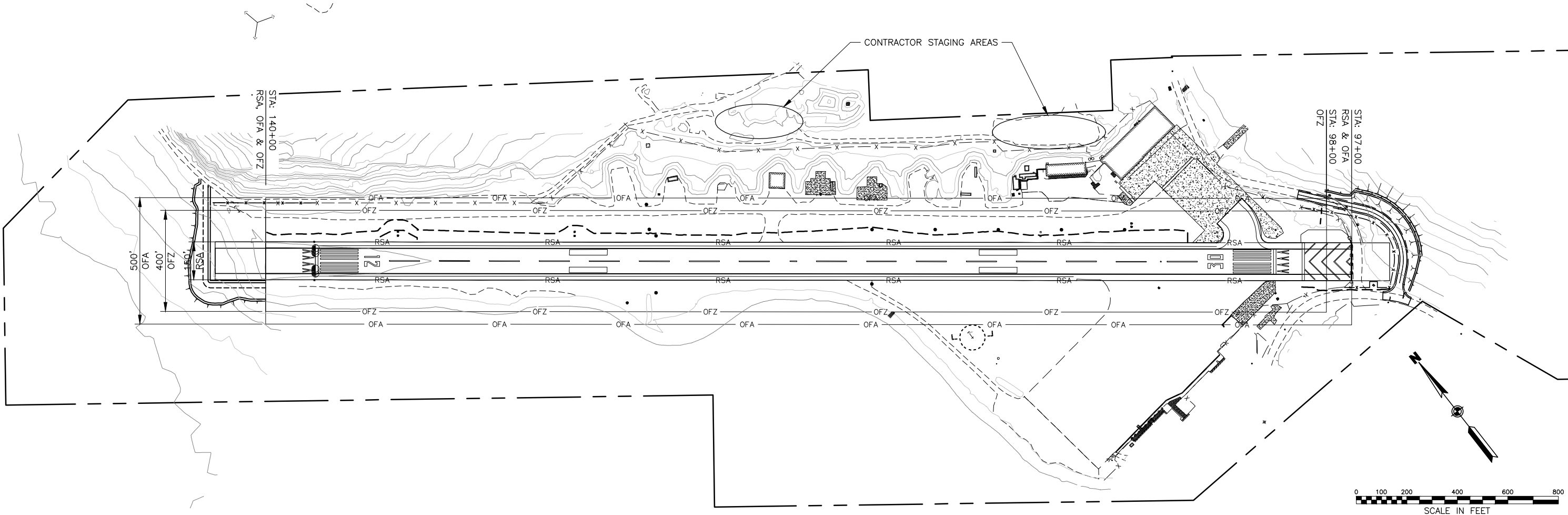
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
CONSTRUCTION PLAN PHASE 3B,
RW NORTH SIDE

DATE: MAY 1, 2012
SHEET: C09 OF 56
AS-BUILT SHEET:

Date Revised: 5/01/2012, 5:01 PM
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Drawn By:
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GENERAL SAFETY PLAN NOTES:

1. SEE SHEETS C11 TO C14 FOR CONSTRUCTION PHASE SPECIFIC SAFETY PLANS. THIS PROJECT IS SHOWN AS FOUR SEPARATE CONSTRUCTION PHASES, WITH FOUR DIFFERENT RUNWAY CONFIGURATIONS:

EXISTING RW	PHASE 1
	PHASE 2
SOUTH HALF CLOSURE	PHASE 3A
NORTH HALF CLOSURE	PHASE 3B
FINAL RW CONFIGURATION	

- THE RSA, OFZ AND OFA CHANGES WITH EACH RUNWAY CONFIGURATION AND ARE BASED ON THE ACTIVE RW CENTERLINE FOR EACH PHASE.
2. WHENEVER THE PLANS OR SPECIFICATIONS CALL FOR COORDINATION, NOTIFICATION, CONTACT, OR OTHER INTERACTION WITH FAA, AIRPORT MANAGEMENT, MAINTENANCE AND OPERATIONS, ARFF PERSONNEL, AIRPORT TENANTS, AIRPORT USERS, ANY LOCAL, STATE, OR FEDERAL AGENCY, GROUP, OR ASSOCIATION, OR THE GENERAL PUBLIC, SUCH ACTIVITY SHALL BE DONE THROUGH, IN THE PRESENCE OF, OR WITH THE WRITTEN APPROVAL OF THE ENGINEER. ALLOW SUFFICIENT TIME FOR COORDINATION AND APPROVALS WITHIN PROPOSED WORK SCHEDULES.
3. THIS PROJECT INVOLVES WORK ON OR NEAR FAA OWNED NAVIGATIONAL AIDS (NAVAIDS). COORDINATE ALL IMPACTS TO NAVAIDS WITH THE FAA THROUGH THE ENGINEER AT LEAST 45 DAYS PRIOR TO BEGINNING ANY PHASE OF CONSTRUCTION OR WORK THAT WILL EFFECT NAVAIDS. ALLOW TIME FOR THIS COORDINATION AND APPROVAL PROCESS WITHIN THE PROJECT WORK SCHEDULE.
4. NIGHT TIME CLOSURES OF THE RUNWAY WILL BE REQUIRED TO COMPLETE THIS PROJECT. COORDINATE WITH AIRPORT MANAGEMENT, AND AIRPORT USERS TO ESTABLISH TIMES FOR NIGHT TIME CLOSURES. SUBMIT PROPOSED CLOSURE TIMES AS PART OF THE CPM AND WORK SCHEDULES. SEE SECTION G-300.
5. ARFF MUST HAVE CONTINUOUS ACCESS TO ENTIRE AIRPORT FOR EMERGENCIES. MAINTAIN SUITABLE CORRIDORS AND COORDINATE ACCESS WITH ARFF PERSONNEL THROUGH THE ENGINEER AS REQUIRED.
6. THE RUNWAY SAFETY AREA DURING CONSTRUCTION IS 150 FOOT WIDE, CENTERED ON THE ACTIVE RUNWAY. SEE SAFETY PLAN DETAILS FOR ADDITIONAL GROUND AND AIRSPACE RESTRICTIONS.

7. ALL PEOPLE AND EQUIPMENT SHALL BE A MINIMUM OF 200 FEET FROM THE ACTIVE RUNWAY CENTERLINE DURING ALL AIR OPERATIONS. THE CONTRACTOR MAY WORK WITHIN 200 FEET OF THE ACTIVE RUNWAY CENTERLINE DURING APPROVED NIGHT TIME CLOSURES, OR BETWEEN AIRCRAFT OPERATIONS AS APPROVED.
8. PROVIDE AIRPORT FLAGGER TO MONITOR CTAF ON 122.6 MHZ AND ADVISE CONSTRUCTION EQUIPMENT OPERATORS AT ALL TIMES DURING CONSTRUCTION. AIRPORT FLAGGER SHALL BE RESPONSIBLE FOR CLEARING ALL WORKERS AND EQUIPMENT WITHIN 200 FEET OF THE ACTIVE RUNWAY CENTERLINE FOR ALL AIRCRAFT OPERATIONS.
9. ALL WORKERS AND EQUIPMENT WORKING WITHIN THE RUNWAY OFA OR TAXIWAY SAFETY AREAS SHALL REMAIN IN CONSTANT RADIO CONTACT WITH THE AIRPORT FLAGGER.
10. STORAGE OF EQUIPMENT OR MATERIALS ON THE APRON, TAXIWAY AND SAFETY AREAS OR RUNWAY SAFETY AREA WILL NOT BE ALLOWED. NO STOCKPILING OF MATERIALS, PARKING OR STAGING OF EQUIPMENT IS ALLOWED WITHIN 400 FEET OF THE ACTIVE RUNWAY CENTERLINE, NOR WITHIN 1000 FEET BEYOND EACH OF THE THRESHOLDS ALONG THE EXTENDED CENTERLINE.
11. MAINTAIN TEMPORARY MARKINGS AND LIGHTING SYSTEMS THROUGHOUT THE PHASES OF CONSTRUCTION. REPAIR DAMAGED OR NON-FUNCTIONING MARKINGS AND LIGHTING IMMEDIATELY UPON DISCOVERY OR NOTIFICATION. USE OF LIGHT COLORED SAND BAGS, OR OTHER MATERIALS THAT INTERFERE WITH THE AIRPORT MARKING SYSTEM WILL NOT BE ALLOWED.
12. CARRYOUT CONTINUING COORDINATION THROUGH THE ENGINEER USING WEEKLY BRIEFINGS WITH AIRPORT MANAGEMENT, AIRPORT MAINTENANCE, ARFF PERSONNEL, AND AIRPORT USERS TO KEEP EVERYONE AWARE OF THE STATUS AND CHANGES OF AIRPORT SURFACES IN RELATION TO AIRCRAFT AND GROUND TRAFFIC. PROVIDE DETAILED DRAWINGS INDICATING TRAFFIC ROUTES FOR AIRCRAFT, GROUND TRAFFIC, AND PASSENGERS. INDICATE AREAS CLOSED TO AIRCRAFT MOVEMENT AND PARKING. PROVIDE UPDATED DRAWINGS AS CONSTRUCTION PROCEEDS.
13. CONDUCT A JOINT INSPECTION OF NEWLY CONSTRUCTED AIRPORT SURFACES WITH AIRPORT MANAGEMENT, AND THE ENGINEER PRIOR TO OPENING THEM FOR AIRCRAFT MOVEMENT OR OPERATIONS. REMOVE ALL FOREIGN OBJECTS, CLEAN AND SWEEP SURFACES AS REQUIRED, OR AS DIRECTED. PROVIDE A PICKUP BROOM TRUCK, (STREET SWEEPER) OR OTHER APPROVED MACHINERY AND EQUIPMENT TO ACCOMPLISH THIS TASK.
14. REPORT ANY SAFETY ISSUES TO THE ENGINEER AND AIRPORT MANAGER UPON DISCOVERY. TAKE IMMEDIATE ACTION TO RESOLVE SAFETY ISSUES AS DIRECTED.

15. PROVIDE WATER FOR DUST CONTROL AS REQUIRED, AND AS DIRECTED. DUST, SMOKE, STEAM, OR OTHER AIRBORNE PARTICULATES CAUSED BY CONTRACTOR ACTIVITIES MAY BE CONSIDERED A SAFETY VIOLATION AS DETERMINED BY THE ENGINEER.
16. REMOVE ALL FOREIGN OBJECTS AND DEBRIS (FOD) FROM ACTIVE SURFACES IMMEDIATELY UPON DISCOVERY OR NOTIFICATION. FAILURE TO REMOVE FOD MAY BE CONSIDERED A SAFETY VIOLATION AS DETERMINED BY THE ENGINEER.
17. REFER TO FAA ADVISORY CIRCULAR (AC) 150/5370-2 FOR ADDITIONAL GUIDANCE ON PREPARING SAFETY PLANS. REFER TO AC 150/5300-13 CHAPTER 3 FOR CLEARANCE STANDARDS RELATED TO THE OFA, OFZ, AND RSA. REFER TO APPENDIX 2 OF THE AC, AND DETAILS ON SHEET 18 FOR THRESHOLD SITING CRITERIA. NOTICE THAT THE MOST RESTRICTIVE CRITERIA GOVERNS. UNALASKA IS AN APPROACH CATEGORY B, AND DESIGN GROUP II AIRPORT.
18. FIELD VERIFY SUITABILITY OF HAUL ROUTES AND STAGING AREAS SHOWN. DEVELOP AND MAINTAIN HAUL ROUTES AS REQUIRED. SEE SECTIONS 40-04 & 70-11G. PROVIDE TRAFFIC CONTROL PLANS FOR EACH PHASE OF WORK. SEE SECTION G-710.



PLANS DEVELOPED BY:
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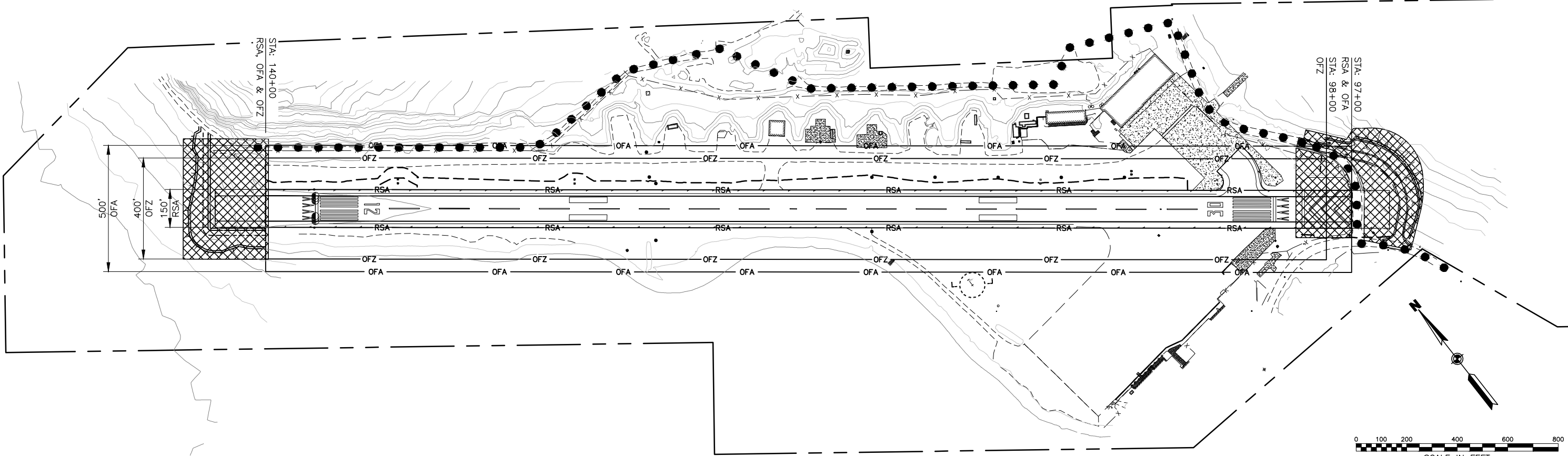
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STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
SAFETY PLAN

DATE: MAY 1, 2012
SHEET: C10 OF 56
AS-BUILT SHEET:

Date Revised: 5/01/2012, 5:01 PM
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LEGEND:

- ● ● ● HAUL ROUTE
- AREA CLOSED TO AIRCRAFT MOVEMENT/WORK ZONE

PHASE 1 SAFETY NOTES:

- KEEP ALL WORKERS, EQUIPMENT, AND MATERIALS OUTSIDE OF THE ACTIVE RUNWAY SAFETY AREA, AND RUNWAY END SITING SURFACE DURING AIRCRAFT OPERATIONS, AND ONLY ENTER THESE AREAS AS REQUIRED AND AS APPROVED. SEE DETAILS.
- MAINTAIN AIRPORT SECURITY FENCING. USE TEMPORARY FENCE ONLY AS APPROVED. SUBMIT DETAILS AND LOCATION OF ANY TEMPORARY GATES FOR APPROVAL. TEMPORARY FENCE MUST MEET SPECIFICATIONS AND STANDARDS FOR PERMANENT FENCE, EXCEPT CONCRETE FOOTING WILL NOT BE REQUIRED.
- USE THE DESIGNATED HAUL ROUTES FOR THIS PHASE AS SHOWN. ALTERNATE HAUL ROUTES MUST BE APPROVED, AND DEPICTED ON THE CONTRACTORS SAFETY PLANS.



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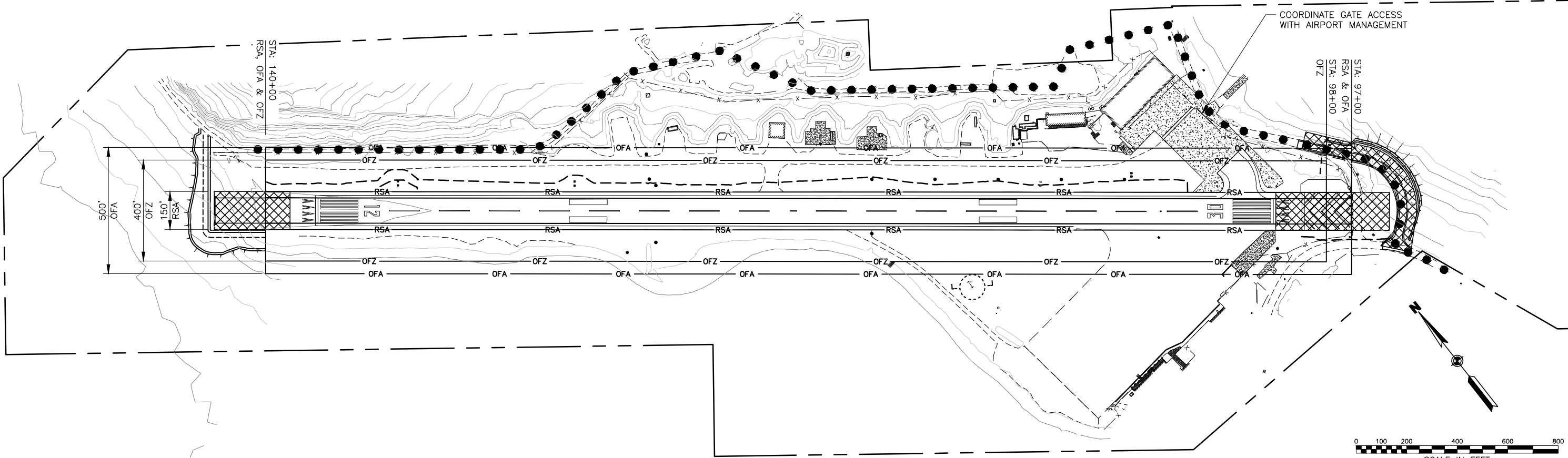
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STATE OF ALASKA
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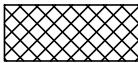
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
SAFETY PLAN PHASE 1, NO IMPACT
TO AIR, GROUND OPERATIONS

DATE: MAY 1, 2012
SHEET: C11 OF 56
AS-BUILT SHEET:

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LEGEND:



AREA CLOSED TO AIRCRAFT MOVEMENT/ WORK ZONE



HAUL ROUTE

PHASE 2 SAFETY NOTES:

1. KEEP ALL WORKERS, EQUIPMENT, AND MATERIALS OUTSIDE OF THE ACTIVE RUNWAY SAFETY AREA, AND RUNWAY END SITING SURFACE DURING AIRCRAFT OPERATIONS, AND ONLY ENTER THESE AREAS AS REQUIRED AND AS APPROVED. SEE DETAILS.
2. MAINTAIN AIRPORT SECURITY FENCING. USE TEMPORARY FENCE ONLY AS APPROVED. SUBMIT DETAILS AND LOCATION OF ANY TEMPORARY GATES FOR APPROVAL. TEMPORARY FENCE MUST MEET SPECIFICATIONS AND STANDARDS FOR PERMANENT FENCE, EXCEPT CONCRETE FOOTING WILL NOT BE REQUIRED.
3. USE THE DESIGNATED HAUL ROUTES FOR THIS PHASE AS SHOWN. ALTERNATE HAUL ROUTES MUST BE APPROVED, AND DEPICTED ON THE CONTRACTORS SAFETY PLANS.
4. SUITABLE AREAS AT EACH END OF THE RUNWAY MUST BE AVAILABLE FOR AIRCRAFT TURN AROUND DURING THIS PHASE. THEY SHALL BE CONSIDERED PART OF THE ACTIVE RUNWAY, AND KEPT FREE OF FOD.
5. NO TAXIING AIRCRAFT WILL BE REQUIRED TO TRAVERSE AN UNPAVED SURFACE, UNLESS APPROVED, AND THEN ONLY AS SHOWN ON THE PHASING AND SAFETY PLANS.



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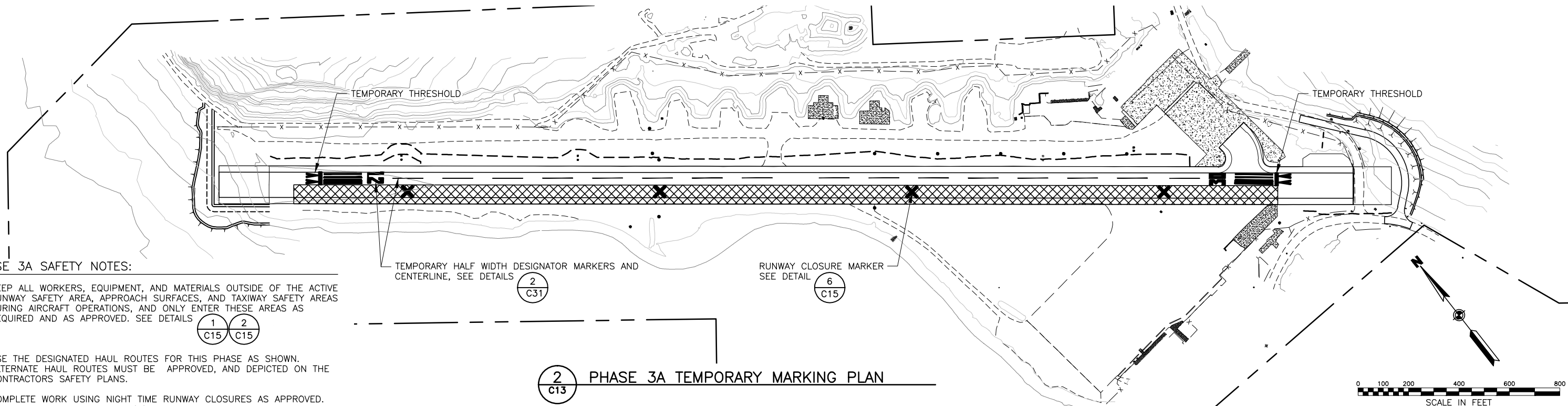
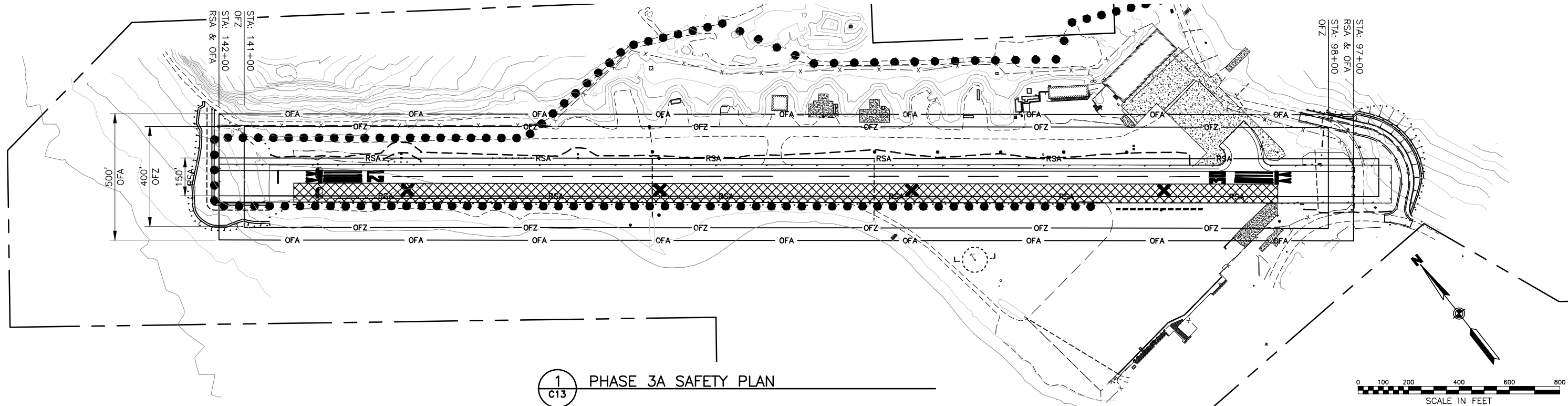
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STATE OF ALASKA
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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
SAFETY PLAN PHASE 2, EXTENDED
RUNWAY AND ROADWAY PAVING

DATE: MAY 1, 2012
SHEET: C12 OF 56
AS-BUILT SHEET:

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Drawn By:
Checked By:
Date Revised:
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PHASE 3A SAFETY NOTES:

- KEEP ALL WORKERS, EQUIPMENT, AND MATERIALS OUTSIDE OF THE ACTIVE RUNWAY SAFETY AREA, APPROACH SURFACES, AND TAXIWAY SAFETY AREAS DURING AIRCRAFT OPERATIONS, AND ONLY ENTER THESE AREAS AS REQUIRED AND AS APPROVED. SEE DETAILS
- USE THE DESIGNATED HAUL ROUTES FOR THIS PHASE AS SHOWN. ALTERNATE HAUL ROUTES MUST BE APPROVED, AND DEPICTED ON THE CONTRACTORS SAFETY PLANS.
- COMPLETE WORK USING NIGHT TIME RUNWAY CLOSURES AS APPROVED. PLACE AND MAINTAIN LIGHTED 'X' CLOSURE APPARATUS, OTHER MARKINGS AND BARRICADES AS REQUIRED. RETURN RUNWAY TO HALF WIDTH OPERATIONS FOR ALL SCHEDULED DAYTIME FLIGHTS. LIGHTED 'X' TO BE USED FOR FULL RUNWAY CLOSURES ONLY, AND MUST BE REMOVED FOR HALF WIDTH OPERATIONS. FOR LIGHTED 'X' REQUIREMENTS, SEE SPECIFICATIONS.
- USE HAZARD MARKER BARRIERS TO DELINEATE CLOSED PORTIONS OF THE RAMP OR TAXIWAYS. DO NOT PLACE BARRIERS WITHIN 200 FEET OF THE RW CENTERLINE. CONSIDER THE EFFECTS OF PROPELLER WASH AND HIGH WINDS WHEN LAYING OUT BARRIERS.
- SUITABLE AREAS AT EACH END OF THE RUNWAY MUST BE AVAILABLE FOR AIRCRAFT TURN AROUND DURING THIS PHASE. THEY SHALL BE CONSIDERED PART OF THE ACTIVE RUNWAY, AND KEPT FREE OF FOD.
- NO TAXIING AIRCRAFT WILL BE REQUIRED TO TRAVERSE AN UNPAVED SURFACE, UNLESS APPROVED, AND THEN ONLY AS SHOWN ON THE PHASING AND SAFETY PLANS.

TEMPORARY MARKING PLAN NOTES:

- INSTALL AND MAINTAIN TEMPORARY RUNWAY CLOSURE X MARKINGS EVENLY SPACED AT APPROXIMATELY 1000' INTERVALS ALONG CLOSED PORTION OF RUNWAY.
- DO NOT USE LIGHTED X MARKING, UNLESS CLOSING ENTIRE RUNWAY TO ALL TRAFFIC.
- PLACE TEMPORARY RUNWAY MARKINGS AS REQUIRED.
- SEE MARKING DETAILS FOR TEMPORARY AND HALF WIDTH MARKING DIMENSIONS.

LEGEND:

- AREA CLOSED TO AIRCRAFT MOVEMENT/WORK ZONE
- HAZARD MARKER BARRIER - SEE DETAIL
- HAUL ROUTE



PLANS DEVELOPED BY:
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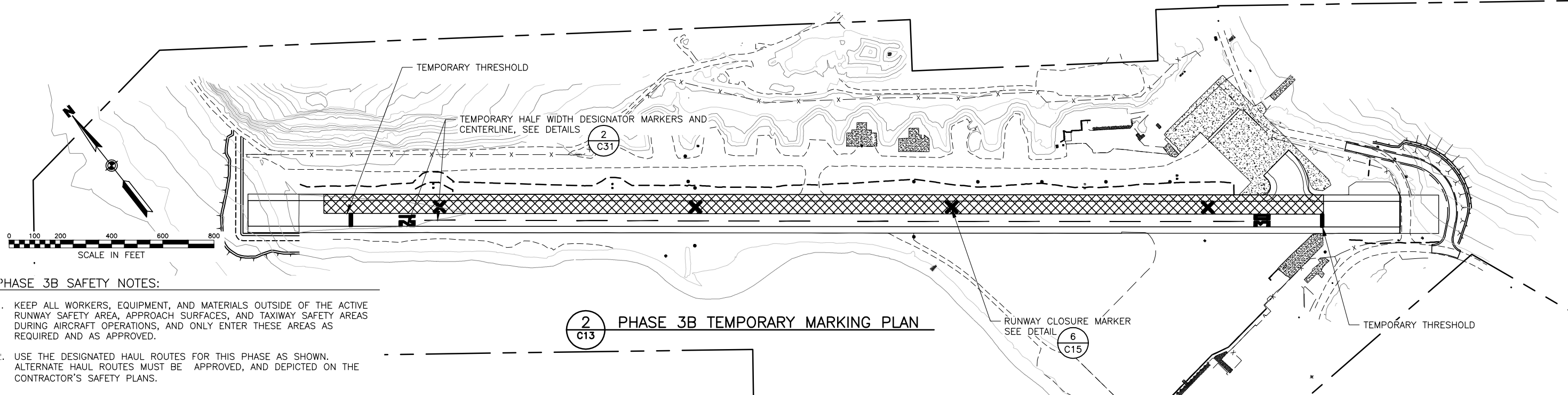
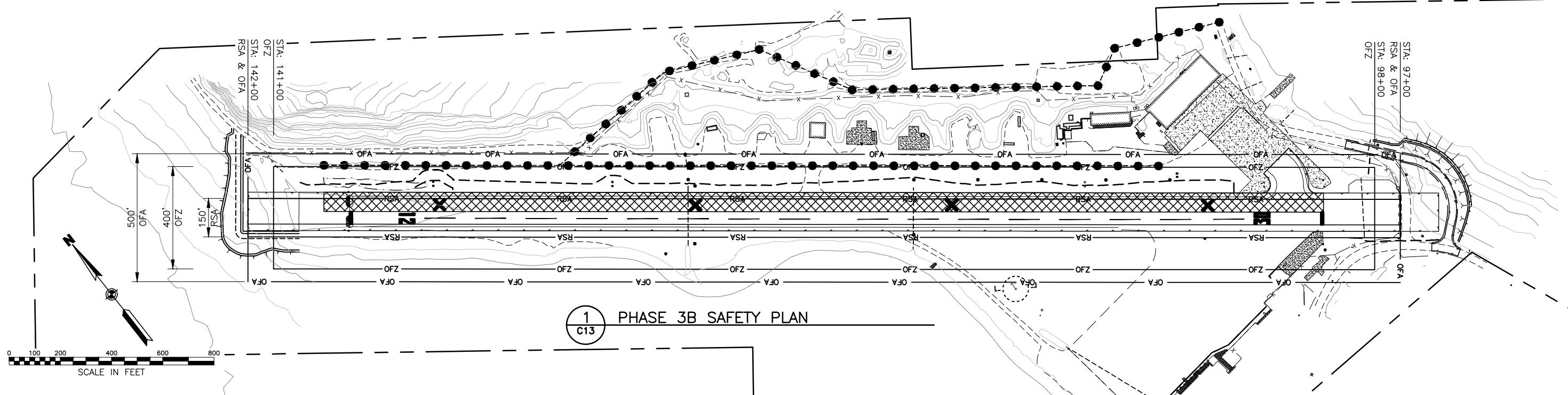
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
SAFETY PLAN PHASE 3A,
RW SOUTH SIDE

DATE: MAY 1, 2012
SHEET: C13 OF 56
AS-BUILT SHEET:

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Date Revised: 5/01/2012, 5:02 PM
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File Path and Name: I:\320600.Dwg
Designed By: C13
Drawn By: C13
Checked By: C13



PHASE 3B SAFETY NOTES:

- KEEP ALL WORKERS, EQUIPMENT, AND MATERIALS OUTSIDE OF THE ACTIVE RUNWAY SAFETY AREA, APPROACH SURFACES, AND TAXIWAY SAFETY AREAS DURING AIRCRAFT OPERATIONS, AND ONLY ENTER THESE AREAS AS REQUIRED AND AS APPROVED.
- USE THE DESIGNATED HAUL ROUTES FOR THIS PHASE AS SHOWN. ALTERNATE HAUL ROUTES MUST BE APPROVED, AND DEPICTED ON THE CONTRACTOR'S SAFETY PLANS.
- COMPLETE WORK USING NIGHT TIME RUNWAY CLOSURES AS APPROVED. PLACE AND MAINTAIN LIGHTED 'X' CLOSURE APPARATUS, OTHER MARKINGS AND BARRICADES AS REQUIRED. RETURN RUNWAY TO HALF WIDTH OPERATIONS FOR ALL SCHEDULED DAYTIME FLIGHTS. LIGHTED 'X' TO BE USED FOR FULL RUNWAY CLOSURES ONLY, AND MUST BE REMOVED FOR HALF WIDTH OPERATIONS. FOR LIGHTED 'X' REQUIREMENTS, SEE SPECIFICATIONS.
- USE HAZARD MARKER BARRIERS TO DELINEATE CLOSED PORTIONS OF THE RAMP OR TAXIWAYS. DO NOT PLACE BARRIERS WITHIN 200 FEET OF THE RW CENTERLINE. CONSIDER THE EFFECTS OF PROPELLER WASH AND HIGH WINDS WHEN LAYING OUT BARRIERS.
- SUITABLE AREAS AT EACH END OF THE RUNWAY MUST BE AVAILABLE FOR AIRCRAFT TURN AROUND DURING THIS PHASE. THEY SHALL BE CONSIDERED PART OF THE ACTIVE RUNWAY, AND KEPT FREE OF FOD.
- NO TAXIING AIRCRAFT WILL BE REQUIRED TO TRAVERSE AN UNPAVED SURFACE, UNLESS APPROVED, AND THEN ONLY AS SHOWN ON THE PHASING AND SAFETY PLANS.

TEMPORARY MARKING PLAN NOTES:

- INSTALL AND MAINTAIN TEMPORARY RUNWAY CLOSURE X MARKINGS EVENLY SPACED AT APPROXIMATELY 1000' INTERVALS ALONG CLOSED PORTION OF RUNWAY.
- DO NOT USE LIGHTED X MARKING, UNLESS CLOSING ENTIRE RUNWAY TO ALL TRAFFIC.
- INSTALL AND MAINTAIN TEMPORARY RUNWAY MARKINGS AS REQUIRED.
- SEE MARKING DETAILS FOR TEMPORARY AND HALF WIDTH MARKING DIMENSIONS.

LEGEND:

- AREA CLOSED TO AIRCRAFT MOVEMENT/WORK ZONE
- HAZARD MARKER BARRIER - SEE DETAIL
- HAUL ROUTE



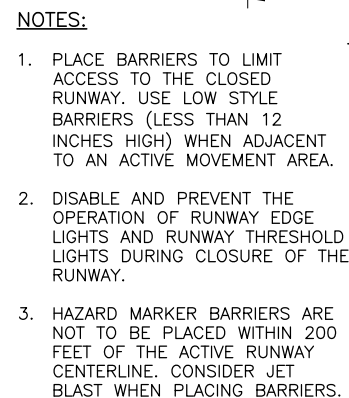
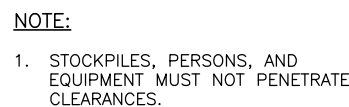
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AND PUBLIC FACILITIES
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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
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SAFETY PLAN PHASE 3B,
RW NORTH SIDE

DATE: MAY 1, 2012
SHEET: C14 OF 56
AS-BUILT SHEET:



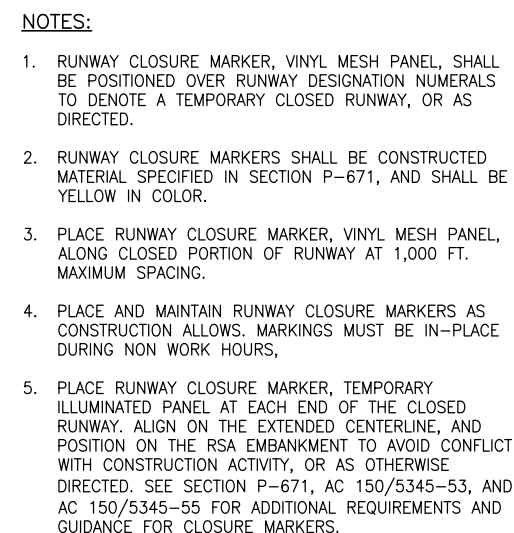
* FLAGS SHALL ALTERNATE COLOR (ORANGE/WHITE) ON EACH BARRIER AS THEY ARE PLACED IN THE AIRPORT OPERATIONS AREA, IN SEQUENCE.

2 RUNWAY END SITING SURFACE
C15 SCALE: N.T.S.

3 HAZARD MARKER BARRIER DETAIL



4 HALF WIDTH RUNWAY TYPICAL SECTION
C15 SCALE: N.T.S.



6 RUNWAY CLOSURE MARKER DETAIL



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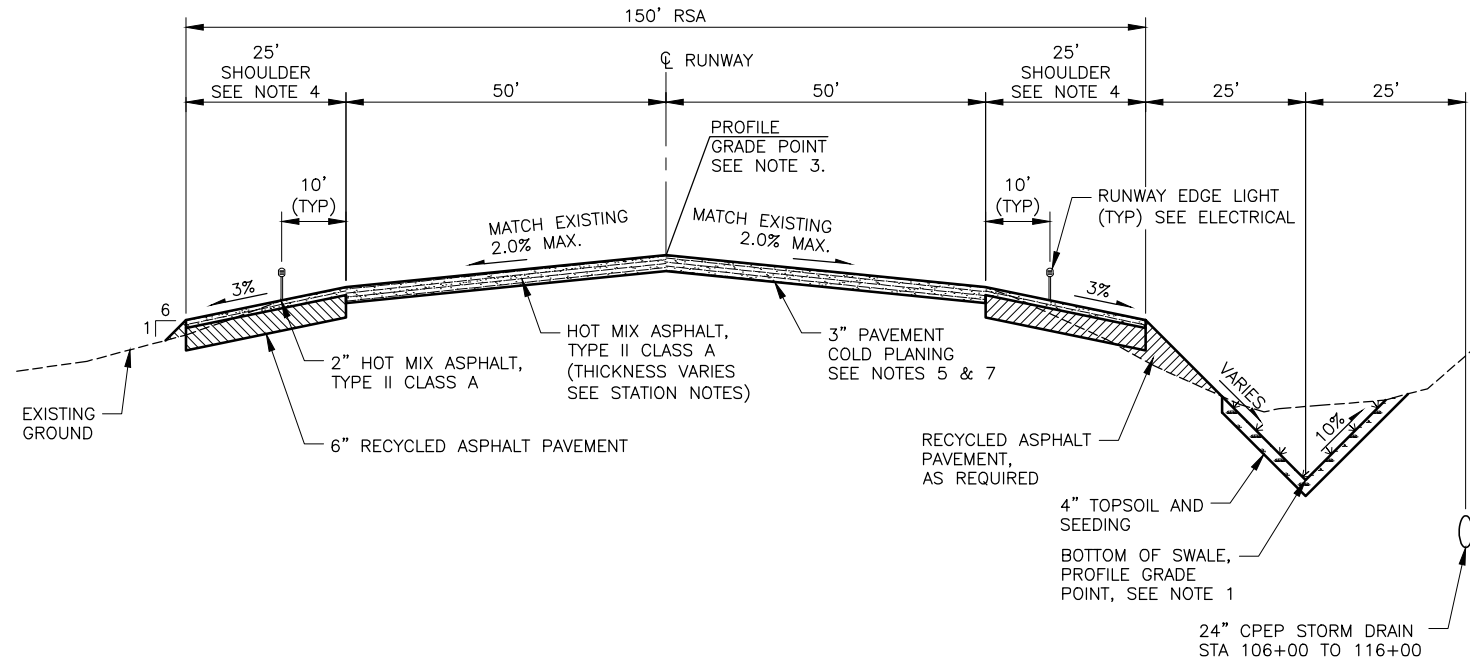
BY	DATE	REVISION

**STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION**

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
SAFETY PLAN DETAILS

DATE:	MAY 1, 2012
SHEET:	C15 OF 56
AS-BUILT SHEET:	

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Zane W. Shanklin
CE 7056
5/1/2012
REGISTERED PROFESSIONAL ENGINEER
Johnathan G. Limb
No. CE 11243
5/1/2012
REGISTERED PROFESSIONAL ENGINEER



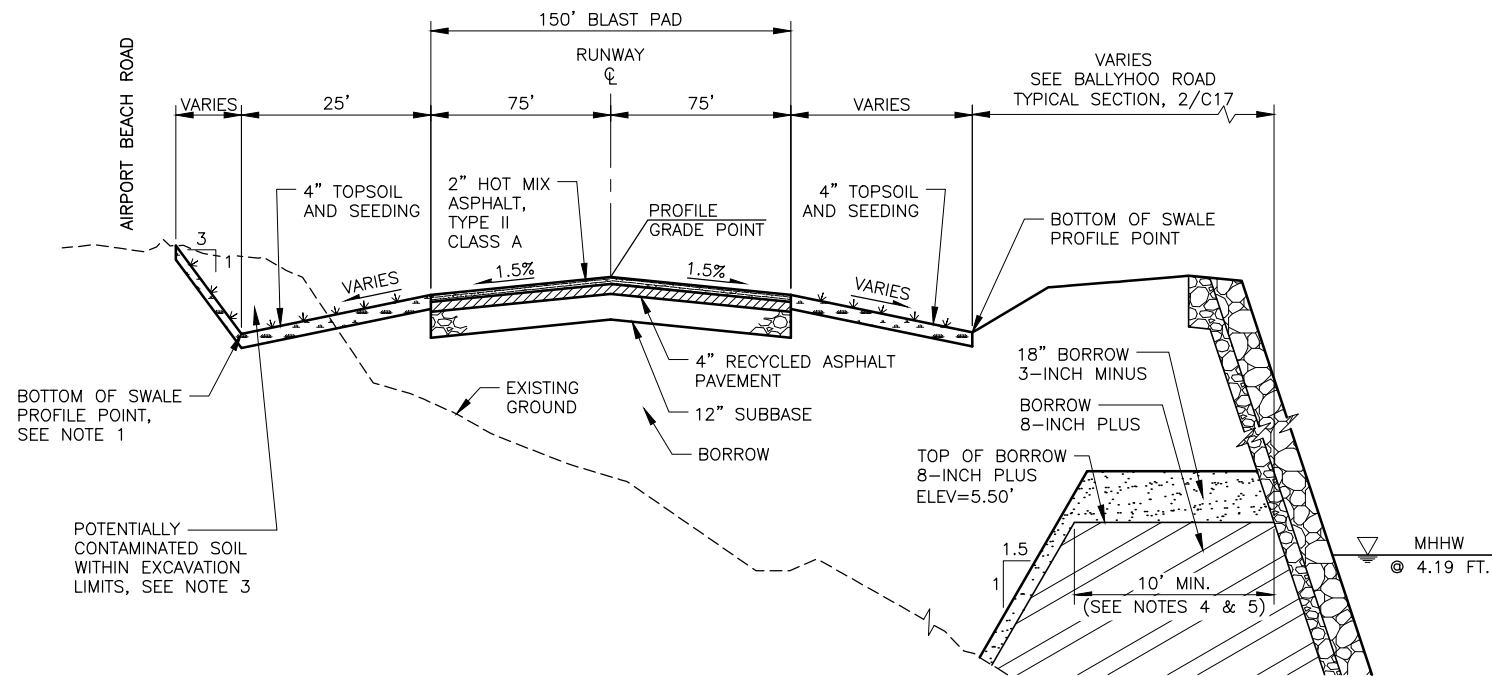
NOTES:

1. APPLY 4" TOPSOIL AND SEEDING WHERE CONSTRUCTION OF SWALE REQUIRES CUT OF EXISTING GROUND. SEE PLAN VIEW FOR STATION LIMITS OF LEFT AND RIGHT SWALES.
2. REMOVE EXISTING RUNWAY SHOULDER PAVEMENT. APPROXIMATE THICKNESS 2.25-INCHES. PROCESS MATERIAL TO BE USED AS RECYCLED ASPHALT PAVEMENT (RAP).
3. PROFILE GRADE POINT FROM 103+00 TO 138+00 IS PROVIDED AS INFORMATION ONLY. MATCH EXISTING GRADES AND CROSS SLOPES. CONSTRUCT SMOOTH TRANSITIONS TO ADJACENT SECTIONS WITH SPECIFIED GRADE AND CROSS SLOPE.
4. FOR AREAS ADJACENT TO TAXIWAYS A AND B, OMIT SHOULDER SECTION AND CONSTRUCT 25' WIDE TRANSITION PAVEMENT ALONG INTERSECTION. MINIMUM THICKNESS OF TRANSITION PAVEMENT IS 2-INCHES. SEE PAVEMENT CUT-MATCH SECTION, SHEET 1/C27.
5. FOR STATIONS SPECIFIED AS VARIABLE DEPTH MILLING, MILL EXISTING ASPHALT TO ALLOW A 4-INCH HMA OVERLAY MEETING THE SPECIFIED FINISHED GRADE. MILL A MINIMUM DEPTH OF 1-INCH AND MAXIMUM DEPTH OF 4-INCHES OF EXISTING PAVEMENT. MATCH EXISTING CROSS SLOPES, HOWEVER, DO NOT EXCEED 2.0%.
6. 4-INCH HMA MUST BE PAVED IN TWO SEPARATE LIFTS.
7. FOR STATION 98+50 TO 99+50 (STRUCTURAL SECTION) REMOVE EXISTING HMA TO FULL DEPTH AND ADD 4-INCHES OF HMA, 6-INCHES OF RECYCLED ASPHALT PAVEMENT, AND SUBBASE COURSE AS REQUIRED TO MEET FINISHED GRADES.

1 EXISTING RUNWAY MILL & OVERLAY

C16 SCALE: N.T.S.

STA. 98+50 TO 99+50 - FULL DEPTH ASPHALT REMOVAL = 4" HMA
STA. 99+50 TO 103+00 - VARIABLE DEPTH MILLING = 4" HMA OVERLAY
STA. 103+00 TO 138+00 - 3 INCH MILLING = 3" HMA OVERLAY
STA. 138+00 TO 140+00 - VARIABLE DEPTH MILLING = 4" HMA OVERLAY
SEE NOTE 5.



2 RUNWAY SOUTH EMBANKMENT EXTENSION & BLAST PAD

C16 SCALE: N.T.S.

STA. 95+50 TO 97+00

NOTES:

1. APPLY 4" TOPSOIL & SEED TO AREAS WHERE CONSTRUCTION OF SWALE REQUIRES CUTTING EXISTING GRADE.
2. COLD PLANE ENTIRE 2.25" THICK SHOULDERS. FOR STA. 97+00 TO 98+50.
3. CONTAMINATED SOIL MAY EXIST IN THE PROJECT AREA. SEE SECTION P-170 OF THE SPECIAL

3 CONVERT EXISTING BLAST PAD TO RUNWAY

C16 SCALE: N.T.S.

STA. 97+00 TO 98+50

1. PROVISIONS AND ADEC APPROVED CLEANUP PLAN FOR REMEDIATION REQUIREMENTS. REMOVE CONTAMINATED SOIL ONLY WITHIN THE LIMITS OF EXCAVATION FOR THE STRUCTURAL SECTION.
2. CONSTRUCT TOP WIDTH OF BORROW 8"-PLUS BERM WIDE ENOUGH TO ALLOW FOR SAFE AND STABLE CONSTRUCTION
3. CONSTRUCT 8-INCH PLUS BORROW BERM ALONG PERIMETER OF EMBANKMENT EXTENSION BEFORE FILLING WITH BORROW EMBANKMENT. THE PURPOSE OF THE BERM IS TO PREVENT THE TRANSPORT OF FINES INTO MARINE WATERS. INSTALL AND MAINTAIN SILT CURTAIN AROUND ALL WATER WORK THAT RELEASES A SEDIMENT PLUME, INCLUDING 8-INCH PLUS BORROW, IF APPLICABLE.



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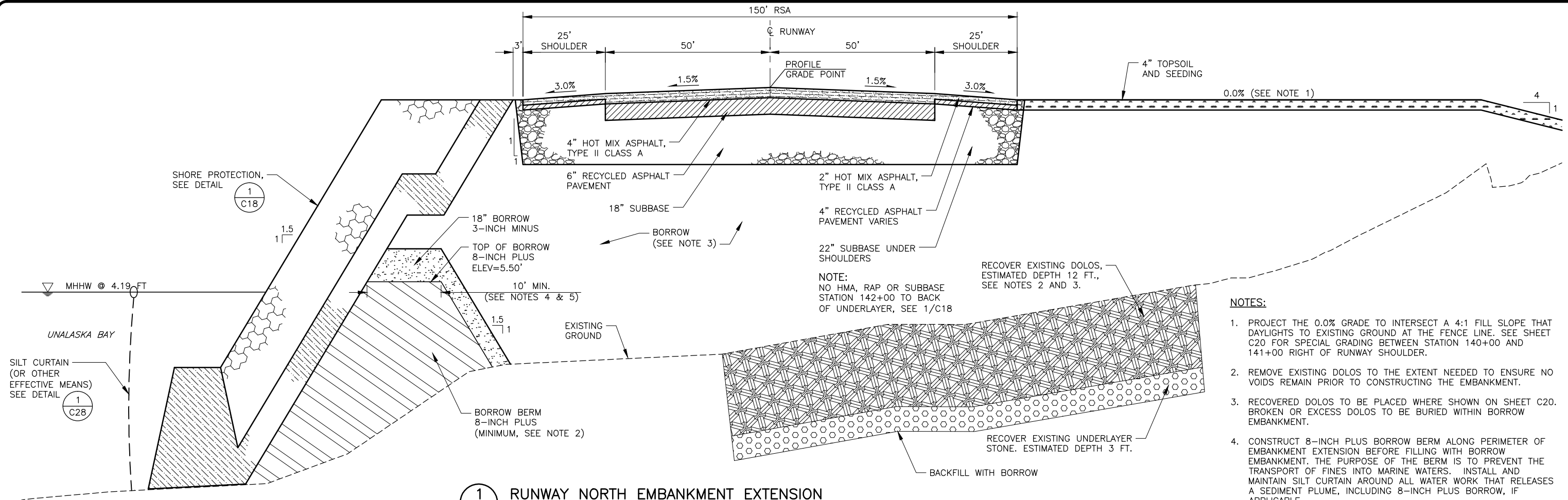
BY	DATE	REVISION

STATE OF ALASKA
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AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
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TYPICAL SECTIONS

DATE: MAY 1, 2012
SHEET: C16 OF 56
AS-BUILT SHEET:

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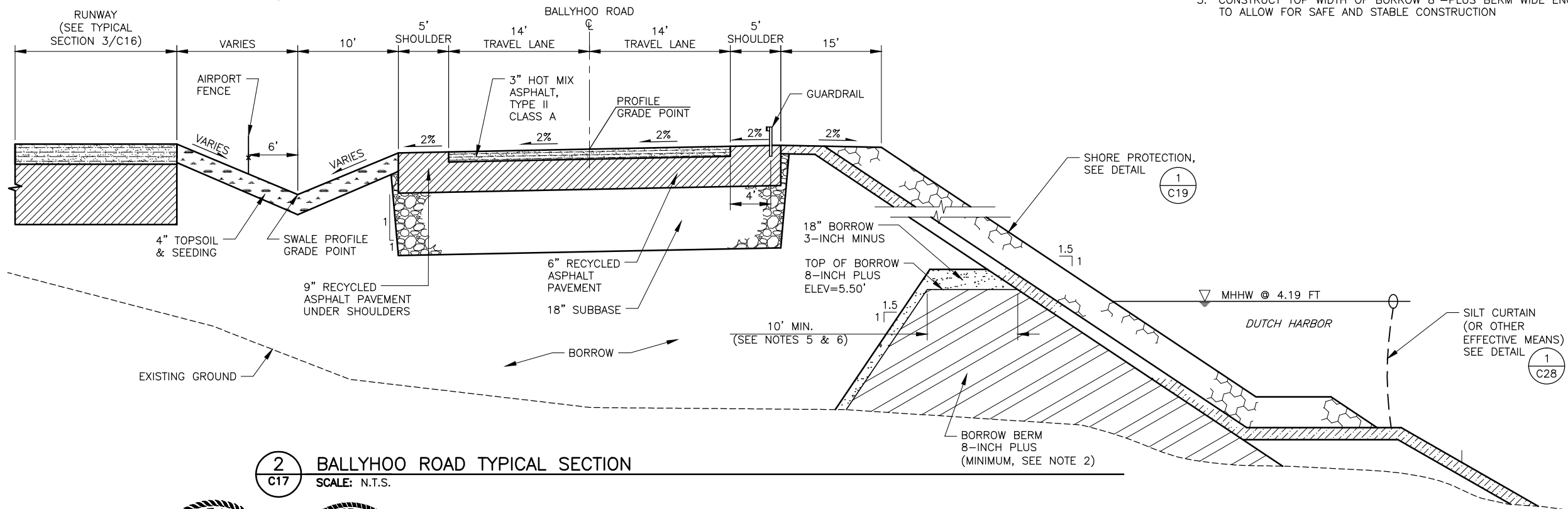


1 RUNWAY NORTH EMBANKMENT EXTENSION
SCALE: N.T.S. STA. 140+00 TO 142+00

- NOTES:
- PROJECT THE 0.0% GRADE TO INTERSECT A 4:1 FILL SLOPE THAT DAYLIGHTS TO EXISTING GROUND AT THE FENCE LINE. SEE SHEET C20 FOR SPECIAL GRADING BETWEEN STATION 140+00 AND 141+00 RIGHT OF RUNWAY SHOULDER.
 - REMOVE EXISTING DOLOS TO THE EXTENT NEEDED TO ENSURE NO VOIDS REMAIN PRIOR TO CONSTRUCTING THE EMBANKMENT.
 - RECOVERED DOLOS TO BE PLACED WHERE SHOWN ON SHEET C20. BROKEN OR EXCESS DOLOS TO BE BURIED WITHIN BORROW EMBANKMENT.
 - CONSTRUCT 8-INCH PLUS BORROW BERM ALONG PERIMETER OF EMBANKMENT EXTENSION BEFORE FILLING WITH BORROW EMBANKMENT. THE PURPOSE OF THE BERM IS TO PREVENT THE TRANSPORT OF FINES INTO MARINE WATERS. INSTALL AND MAINTAIN SILT CURTAIN AROUND ALL WATER WORK THAT RELEASES A SEDIMENT PLUME, INCLUDING 8-INCH PLUS BORROW, IF APPLICABLE.
 - CONSTRUCT TOP WIDTH OF BORROW 8"-PLUS BERM WIDE ENOUGH TO ALLOW FOR SAFE AND STABLE CONSTRUCTION

BALLYHOO ROAD NOTES:

- WHERE NEW ROAD SECTION MEETS EXISTING ROAD SECTION, TAPER SUBBASE AT 2:1 AND ONLY CONSTRUCT RECYCLED ASPHALT PAVEMENT BASE COURSE AND ASPHALT IMPROVEMENTS.
- BORROW MATERIAL ONLY APPLIES IN AREAS OF FILL, BEYOND EXISTING ROAD TIE-INS.
- SEE UTILITY SHEETS FOR INFORMATION ON UTILITIES CONSTRUCTED WITHIN THE ROAD.
- CONSTRUCT TOP WIDTH OF BORROW 8"-PLUS BERM WIDE ENOUGH TO ALLOW FOR SAFE AND STABLE CONSTRUCTION.
- CONSTRUCT 8-INCH PLUS BORROW BERM ALONG PERIMETER OF EMBANKMENT EXTENSION BEFORE FILLING WITH BORROW EMBANKMENT. THE PURPOSE OF THE BERM IS TO PREVENT THE TRANSPORT OF FINES INTO MARINE WATERS. INSTALL AND MAINTAIN SILT CURTAIN AROUND ALL WATER WORK THAT RELEASES A SEDIMENT PLUME, INCLUDING 8-INCH PLUS BORROW, IF APPLICABLE.



2 BALLYHOO ROAD TYPICAL SECTION
SCALE: N.T.S.



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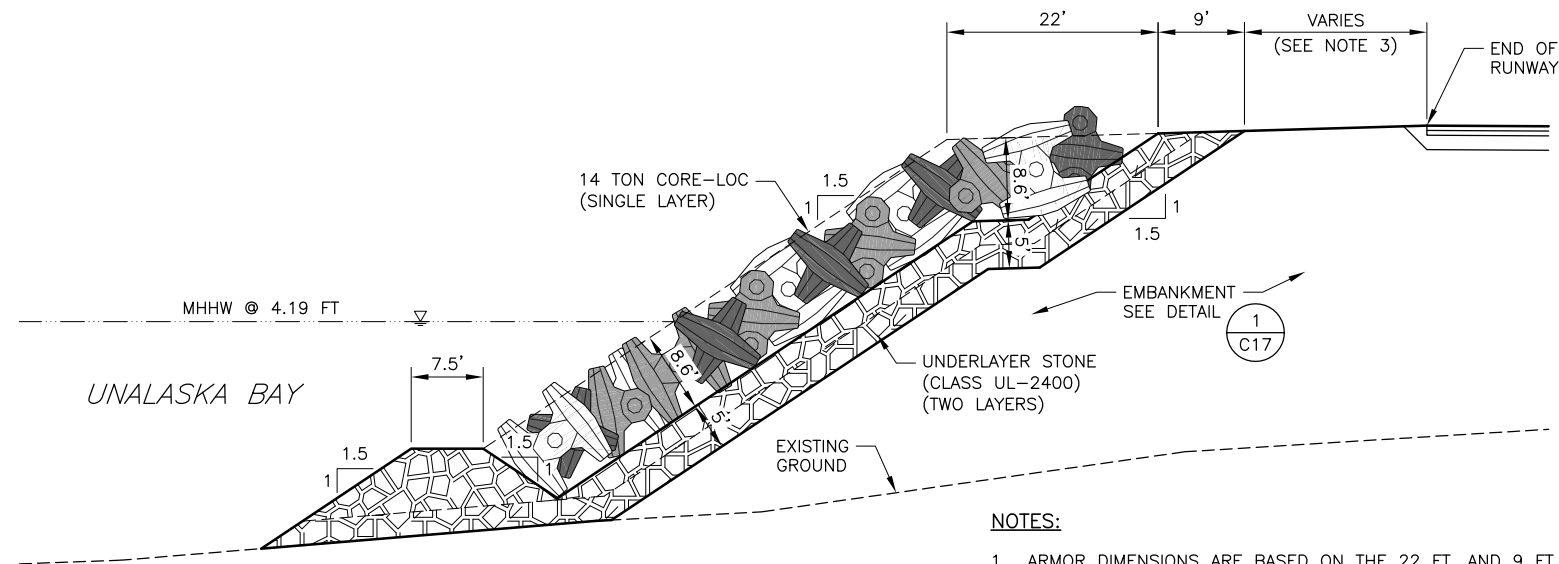
BY	DATE	REVISION

STATE OF ALASKA
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AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
TYPICAL SECTIONS

DATE: MAY 1, 2012
SHEET: C17 OF 56
AS-BUILT SHEET:

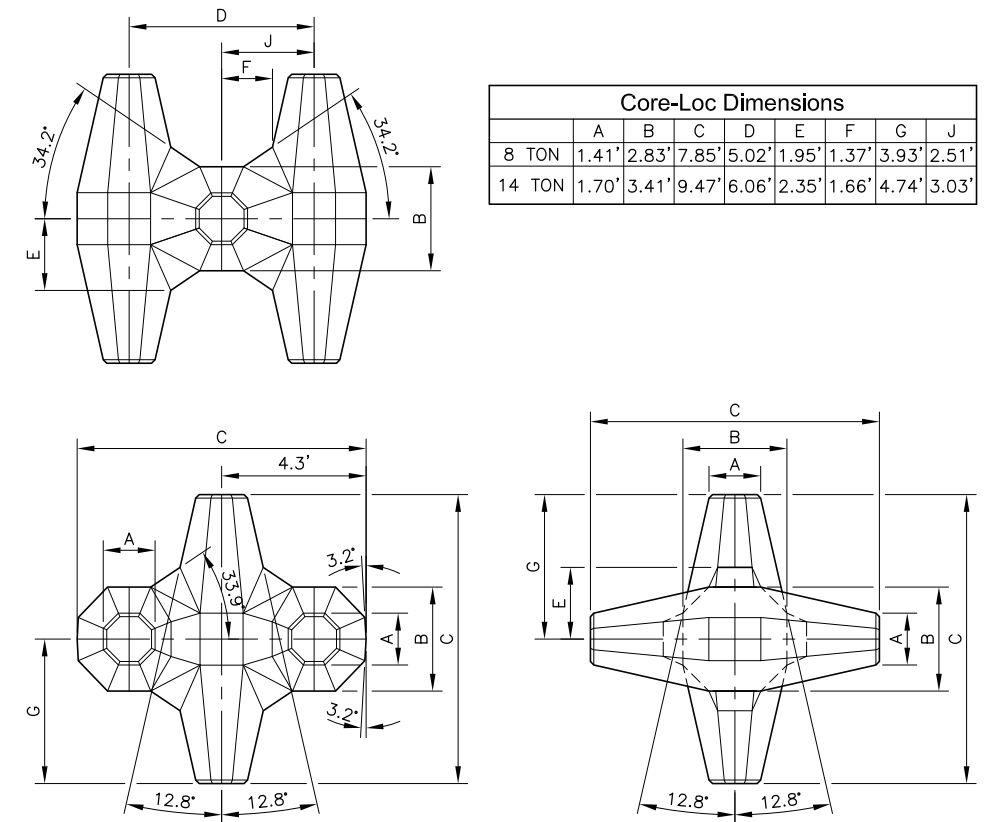
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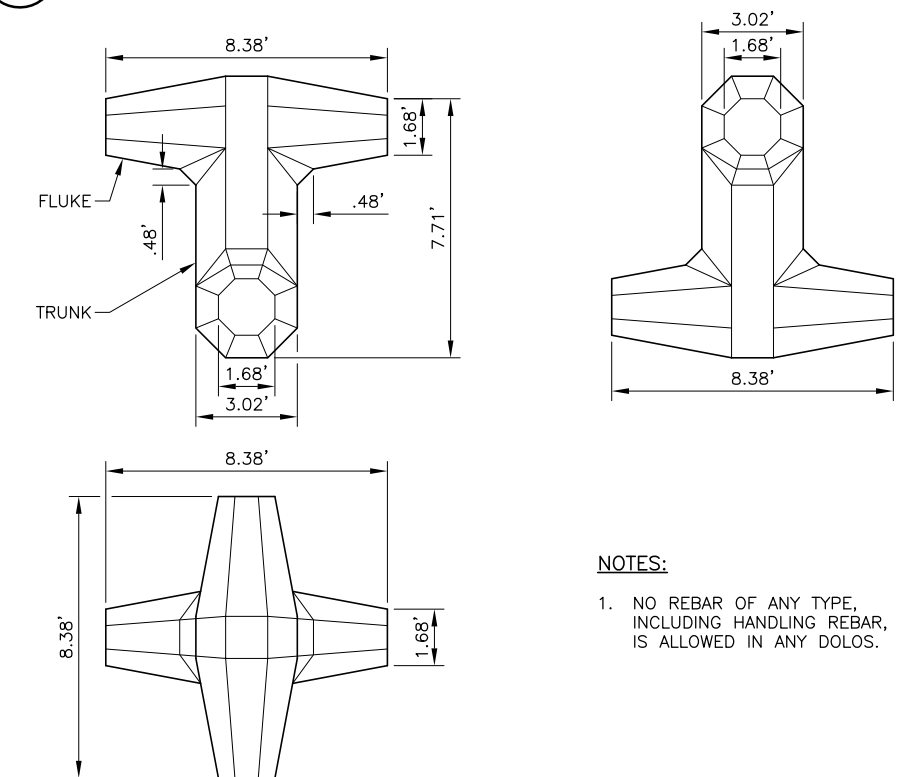
NOTES:

1. ARMOR DIMENSIONS ARE BASED ON THE 22 FT, AND 9 FT TOP WIDTH AT A 0.0% GRADE. CONCRETE ARMOR UNIT LAYER THICKNESS INDICATES AN ESTIMATE OF THE AVERAGE SURFACE LEVEL OF AN IRREGULAR CONCRETE ARMOR SURFACE, ROUNDED TO THE NEAREST TENTH OF A FOOT.
2. THICKNESS IS SHOWN BASED ON APPROXIMATE ARMOR / UNDERLAYER SIZE IN LAYERS SHOWN.
3. RUNWAY SEPARATION FROM BACK OF UNDERLAYER IS 19 FT BEYOND RUNWAY END, AND 3 FT ALONG RUNWAY EDGE.

1
C18 RUNWAY NORTH EMBANKMENT EXTENSION SHORE PROTECTION
SCALE: N.T.S.

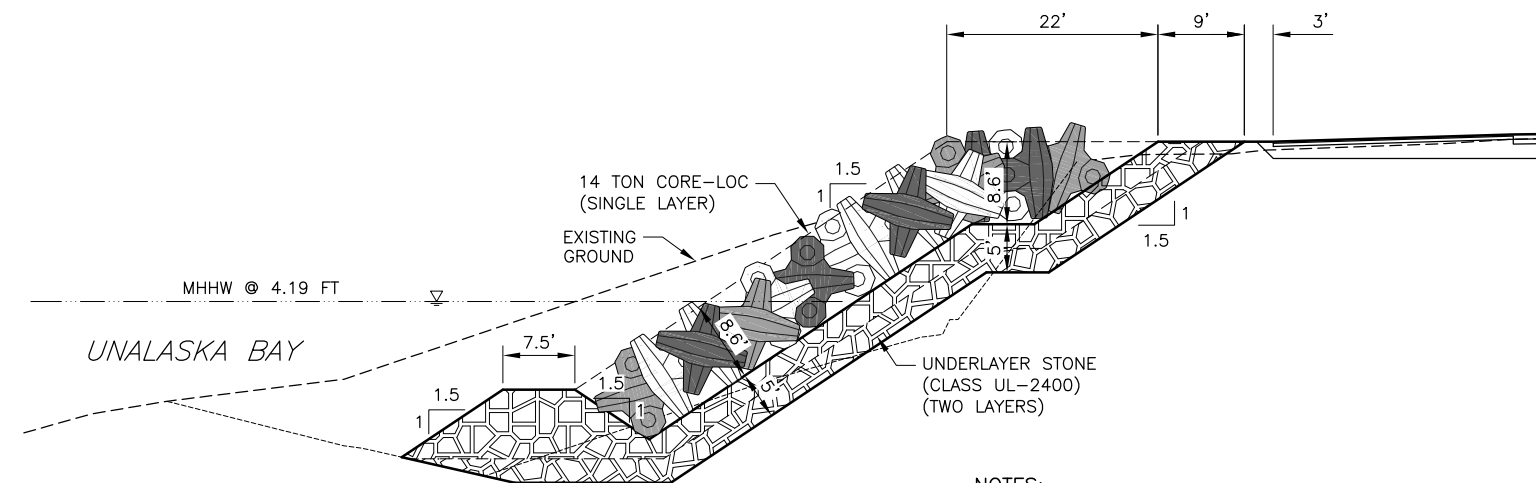


2
C18 CORE-LOC DETAIL
SCALE: N.T.S.



NOTES:

1. NO REBAR OF ANY TYPE, INCLUDING HANDLING REBAR, IS ALLOWED IN ANY DOLOS.



NOTES:

1. PROVIDE A SMOOTH TRANSITION FROM EXISTING DOLOS THAT REMAIN IN PLACE TO NEW CORE-LOCS OVER 30-FEET. TOP SURFACE OF CORE-LOCS SHALL MATCH FLUSH WITH DOLOS AT APPROXIMATELY STA. 138+00.

3
C18 SHORE PROTECTION - NEW TO EXISTING MATCH
SCALE: N.T.S.

4
C18 EXISTING 8-TON DOLO DETAIL
SCALE: N.T.S.



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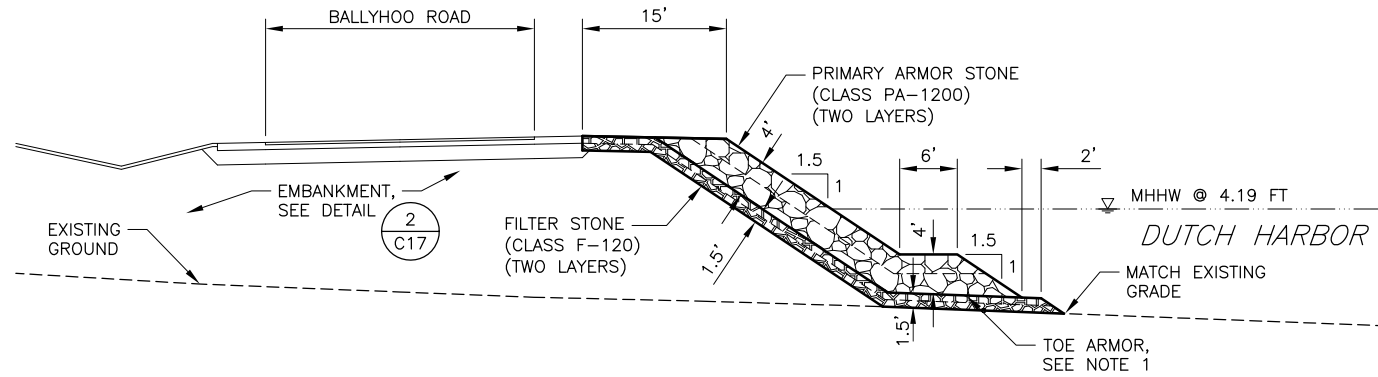
BY	DATE	REVISION

STATE OF ALASKA
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AND PUBLIC FACILITIES
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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
RUNWAY NORTH EMBANKMENT EXTENSION
SHORE PROTECTION

DATE: MAY 1, 2012
SHEET: C18 OF 56
AS-BUILT SHEET:

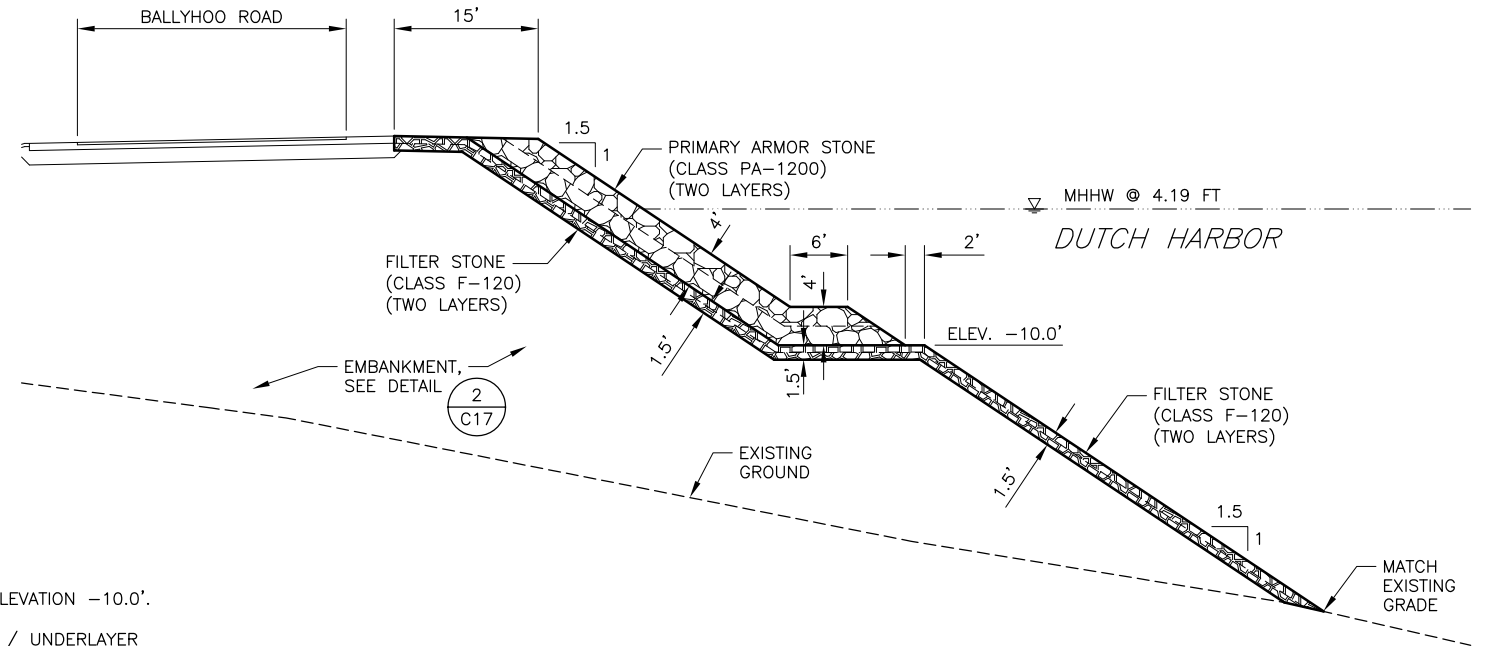
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NOTES:

1. PROVIDE TOE ARMOR FROM ELEVATION +6.0' TO ELEVATION -10.0'.
2. THICKNESS IS SHOWN BASED ON AVERAGE ARMOR / UNDERLAYER STONE SIZE PLACED IN TWO LAYERS.

1
C19 BALLYHOO ROAD SHORE PROTECTION WITH TOE ARMOR
SCALE: N.T.S.



2
C19 BALLYHOO ROAD SHORE PROTECTION
SCALE: N.T.S.



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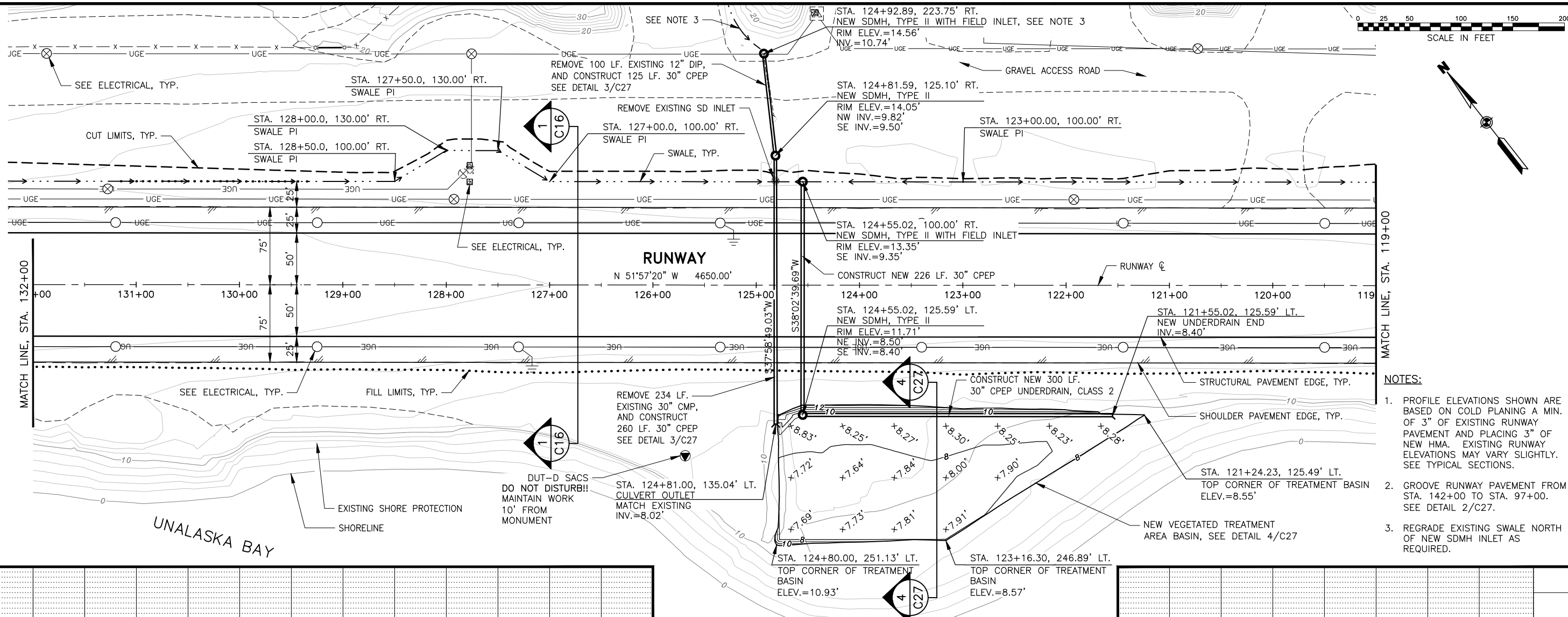
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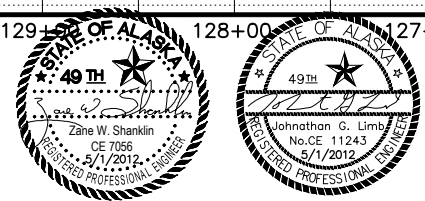
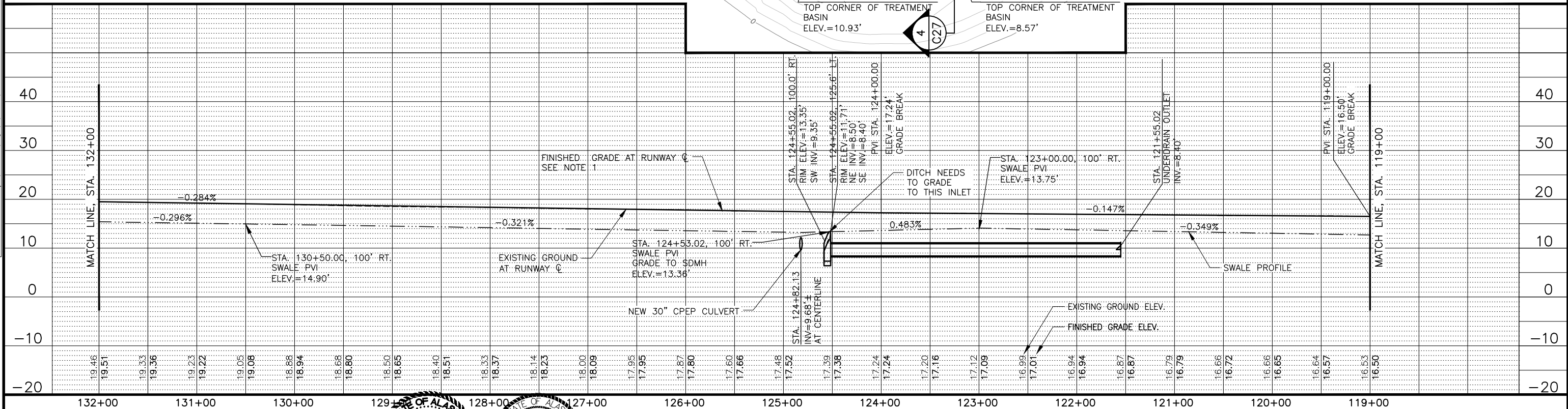
UNALASKA AIRPORT
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PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
BALLYHOO ROAD SHORE PROTECTION

DATE: MAY 1, 2012
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AS-BUILT SHEET:

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- NOTES:
1. PROFILE ELEVATIONS SHOWN ARE BASED ON COLD PLANING A MIN. OF 3" OF EXISTING RUNWAY PAVEMENT AND PLACING 3" OF NEW HMA. EXISTING RUNWAY ELEVATIONS MAY VARY SLIGHTLY. SEE TYPICAL SECTIONS.
 2. GROOVE RUNWAY PAVEMENT FROM STA. 142+00 TO STA. 97+00. SEE DETAIL 2/C27.
 3. REGRADE EXISTING SWALE NORTH OF NEW SDMH INLET AS REQUIRED.



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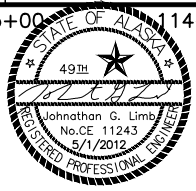
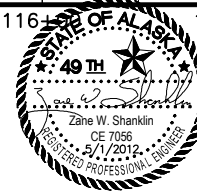
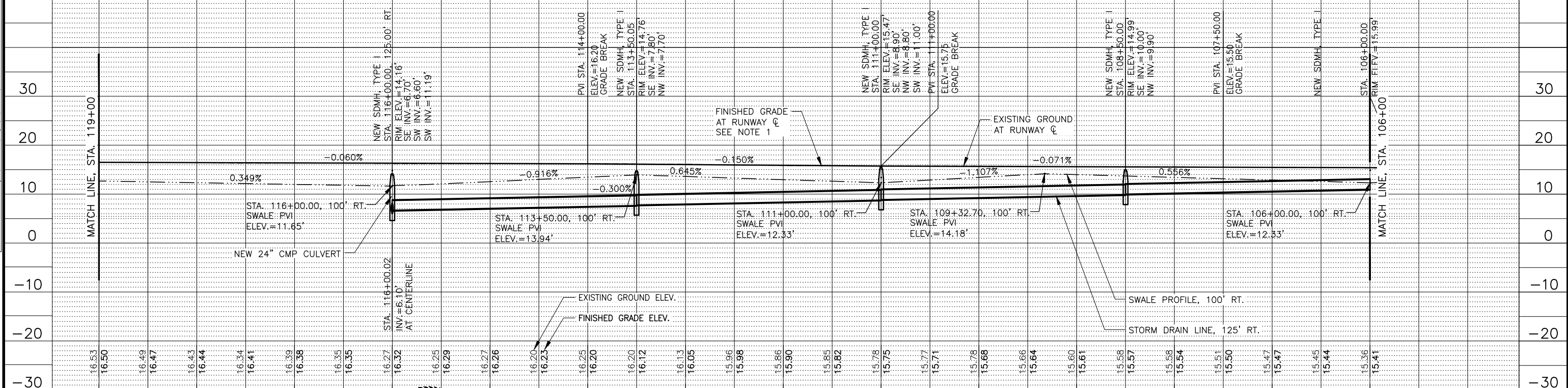
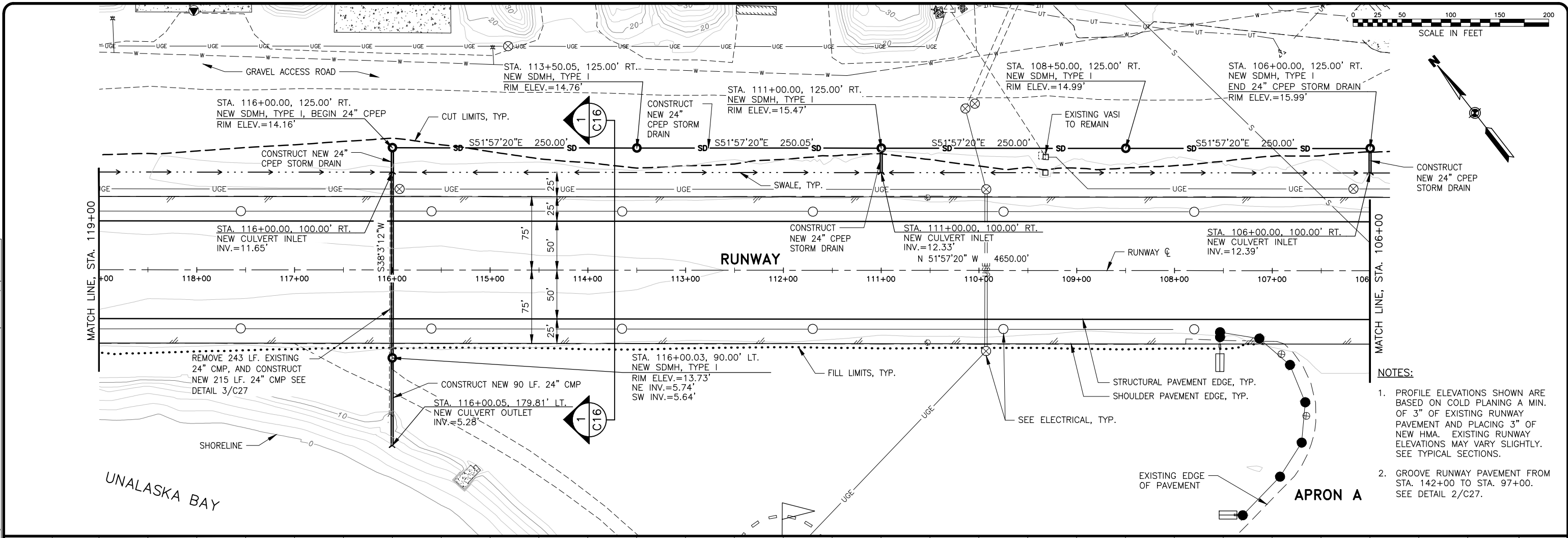
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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
RUNWAY PLAN AND PROFILE
STA. 132+00 TO 119+00

DATE: MAY 1, 2012
SHEET: C21 OF 56
AS-BUILT SHEET:

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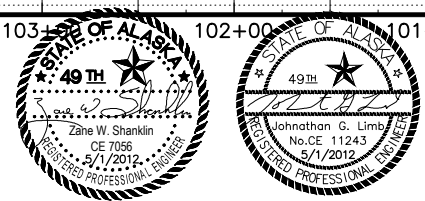
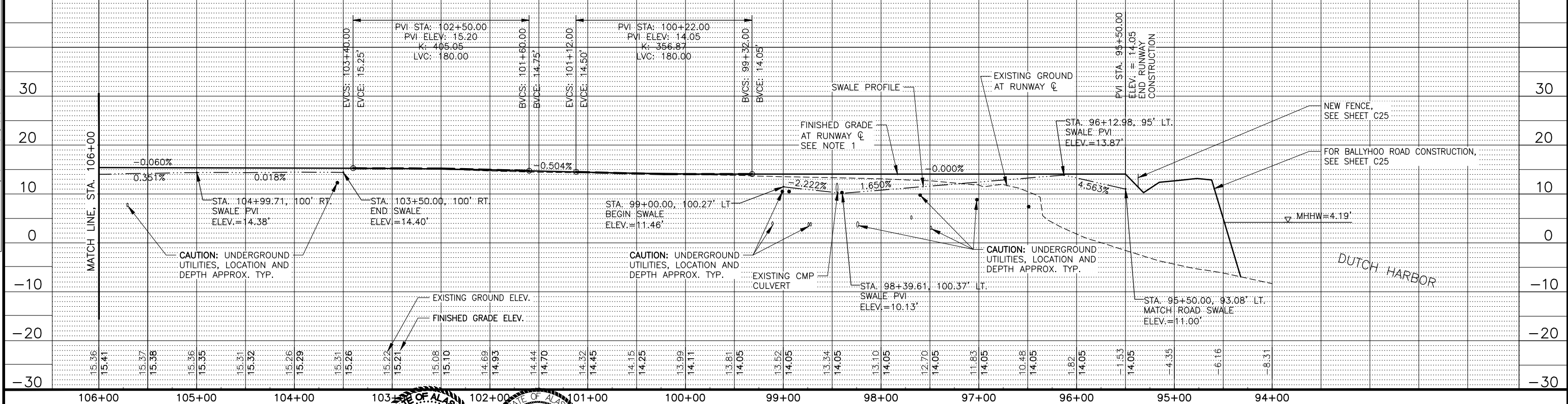
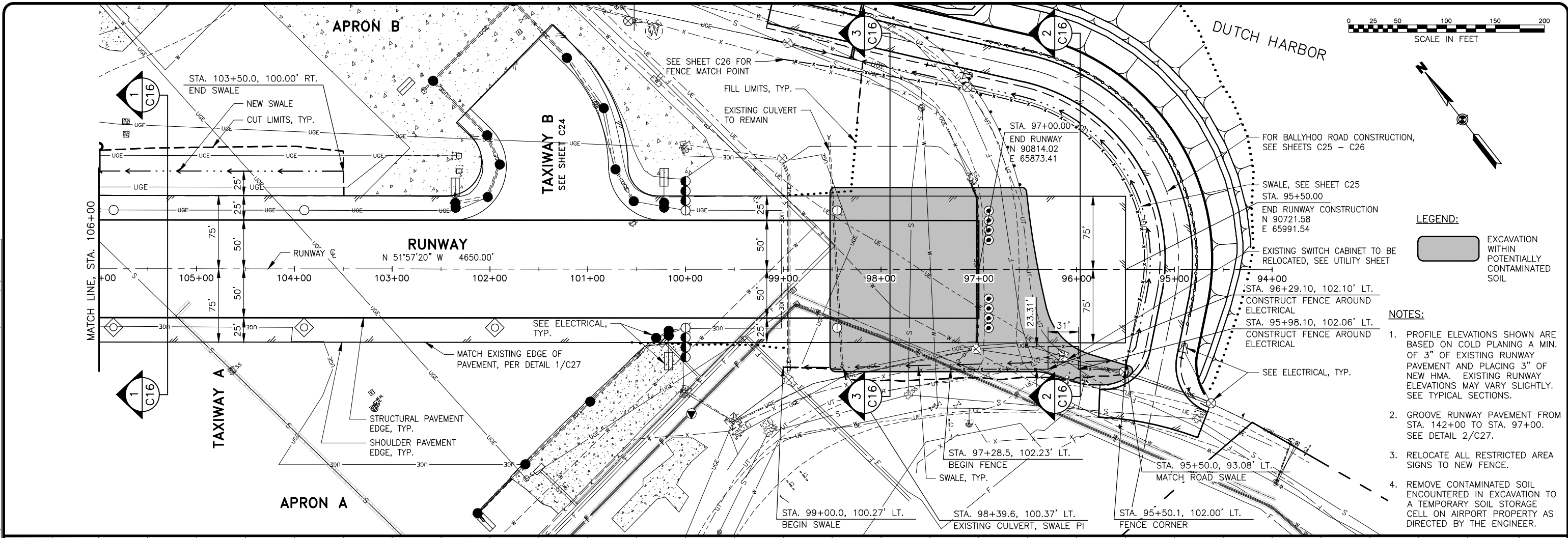
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STATE OF ALASKA
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UNALASKA AIRPORT
UNALASKA, ALASKA
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PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
RUNWAY PLAN AND PROFILE
STA. 119+00 TO 106+00

DATE: MAY 1, 2012
SHEET: C22 OF 56
AS-BUILT SHEET:

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A.I.P. No. 3-02-0082-014-2012
RUNWAY PLAN AND PROFILE
STA. 106+00 TO 94+00

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SHEET: C23 OF 56
AS-BUILT SHEET:

5/01/2012 5:05 PM
TW 'B' P&P
Designed By: TW 'B' P&P
Drawn By: TW 'B' P&P
Checked By: TW 'B' P&P
Date Revised: 5/01/2012 5:05 PM
Layout Name: TW 'B' P&P
File Path and Name: \\1320600\Draws\13206-DUT-C24-TW-B-PP.dwg

CENTERLINE ALIGNMENT LAYOUT TABLE										
NO.	START STATION	NORTHING	EASTING	TANGENT DISTANCE	TANGENT BEARING	NORTHING CENTER	EASTING CENTER	RADIUS	LENGTH	DELTA
L1	10+00.00	91078.35	65535.62	102.77	N38° 02' 39.7"E					
C1	11+02.77	91159.29	65598.96			91220.91	65520.20	100.00	80.03	45° 51' 19.6"
L2	11+82.80	91234.50	65619.28	417.20	N7° 48' 39.9"W					

LINE AND CURVE TABLE - LT EDGE TW SHOULDER PAVEMENT							
NO.	BEGIN EASTING	BEGIN NORTHING	LENGTH	DIRECTION / DELTA	RADIUS	END EASTING	END NORTHING
C7	65491.57	91208.06	82.99	135° 51' 19.6"	35.00	65547.82	91240.38
L6	65547.82	91240.38	21.14	N7° 48' 39.91"W		65544.94	91240.38

LINE AND CURVE TABLE - LT EDGE TW - OUTER EDGE OF MARKINGS							
NO.	BEGIN EASTING	BEGIN NORTHING	LENGTH	DIRECTION / DELTA	RADIUS	END EASTING	END NORTHING
C6	65480.22	91185.20	130.41	135° 51' 19.6"	55.00	65568.61	91235.98
L5	65568.61	91235.98	28.32	N7° 48' 39.91"W		65564.76	91235.98

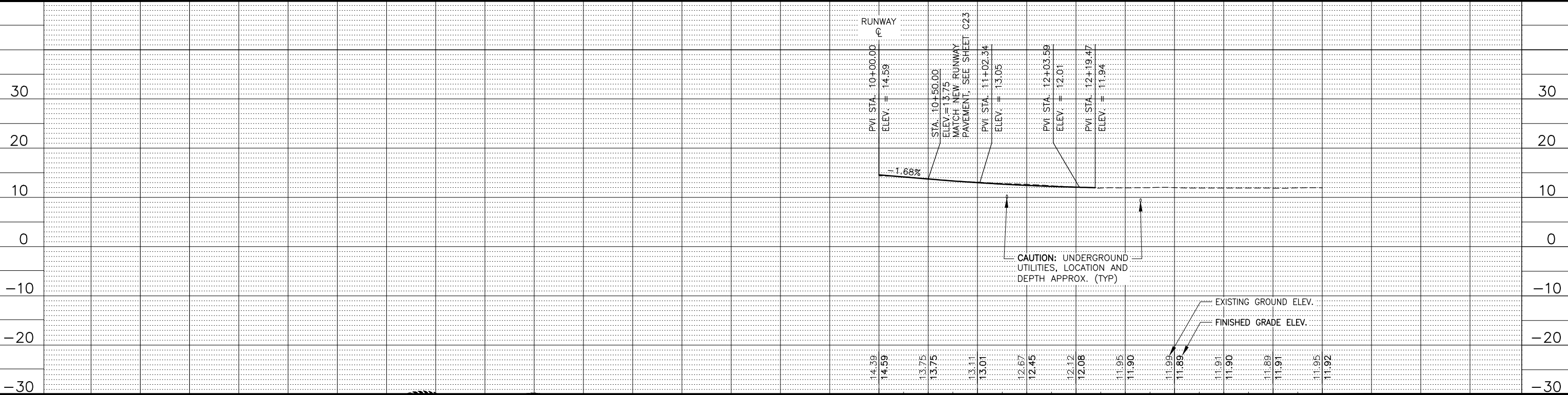
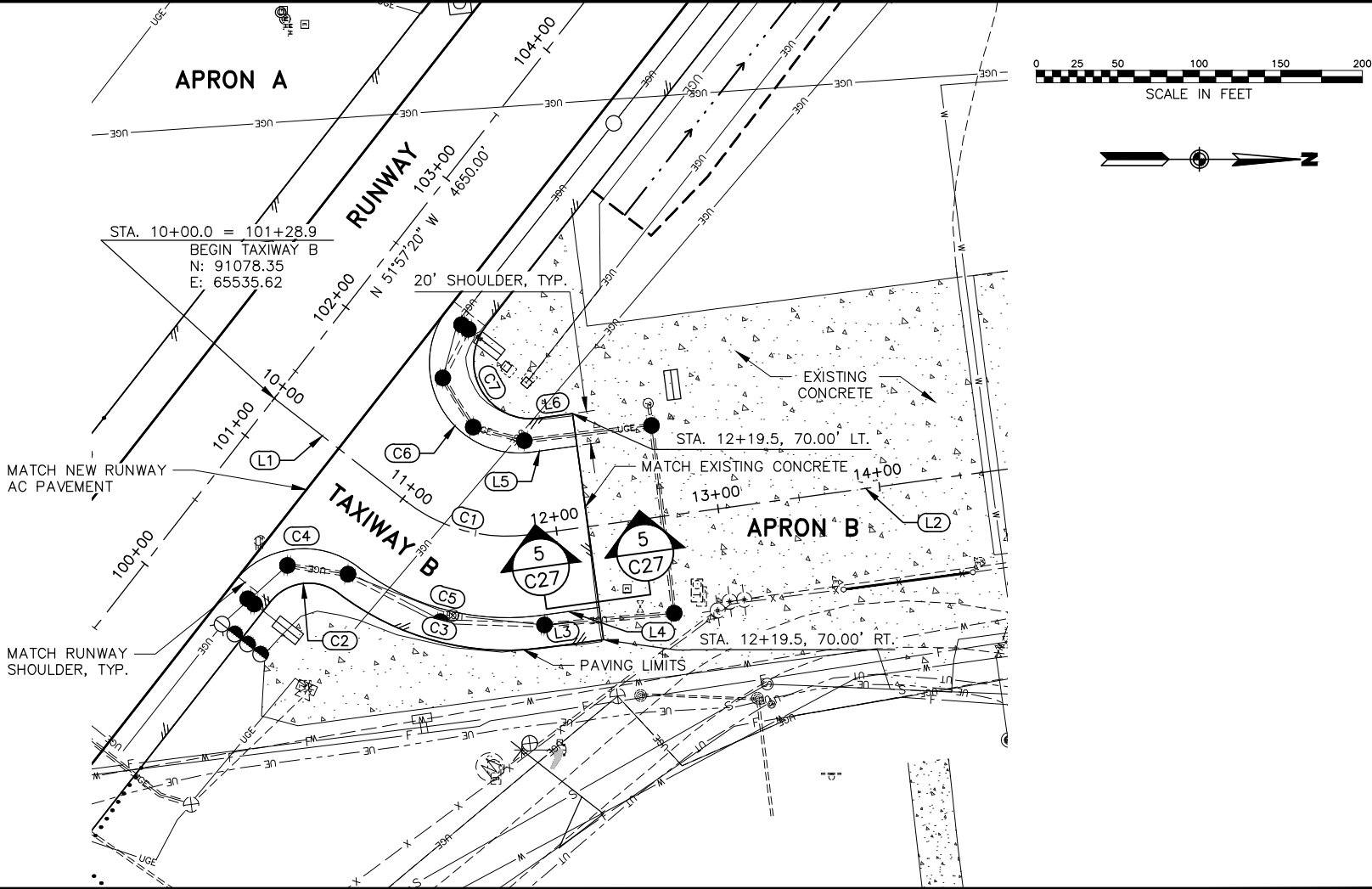
LINE AND CURVE TABLE - RT EDGE TW SHOULDER PAVEMENT							
NO.	BEGIN EASTING	BEGIN NORTHING	LENGTH	DIRECTION / DELTA	RADIUS	END EASTING	END NORTHING
C2	65660.59	91075.80	46.79	89° 21' 40.1"	30.00	65655.25	91117.65
C3	65655.25	91117.65	134.16	45° 12' 59.7"	170.00	65688.63	91244.02
L3	65688.63	91244.02	36.67	N7° 48' 39.91"W		65683.64	91244.02

LINE AND CURVE TABLE - RT EDGE TW - OUTER EDGE OF MARKINGS							
NO.	BEGIN EASTING	BEGIN NORTHING	LENGTH	DIRECTION / DELTA	RADIUS	END EASTING	END NORTHING
C4	65649.12	91053.03	85.80	89° 22' 36.2"	55.00	65639.33	91129.76
C5	65639.33	91129.76	118.42	45° 13' 55.8"	150.00	65668.81	91241.30
L4	65668.81	91241.30	36.67	N7° 48' 39.91"W		65663.83	91241.30

SEE NOTE 2 BELOW.

NOTES:

- THE INTENT FOR TW B IS TO MILL TWO INCHES OF EXISTING ASPHALT PAVEMENT (100' TAXIWAY & 20' SHOULDERS), AND REPAVE A MINIMUM OF TWO INCHES OF HOT MIX ASPHALT TO MATCH EXISTING ELEVATIONS AND GRADES. PROFILE GRADE TO BE USED AS A BASIS, AND MAY REQUIRE ADJUSTMENT IN THE FIELD TO MATCH NEW RW PAVEMENT AS REQUIRED.
- THE EDGE OF TW SHOULDER IS THE EDGE OF THE NEW ASPHALT PAVEMENT. LINE AND CURVE TABLES FOR THE EDGES OF TW ARE PROVIDED ABOVE TO AID LAYOUT OF EDGE MARKINGS.
- CURVES C6 AND C7 ARE NOT CONCENTRIC, AS THE 25 FT RW SHOULDER TRANSITIONS TO A 20 FT WIDE TW SHOULDER. THE NON-CONCENTRIC RELATIONSHIP HOLDS FOR THE RIGHT SIDE OF THE TW AS WELL.



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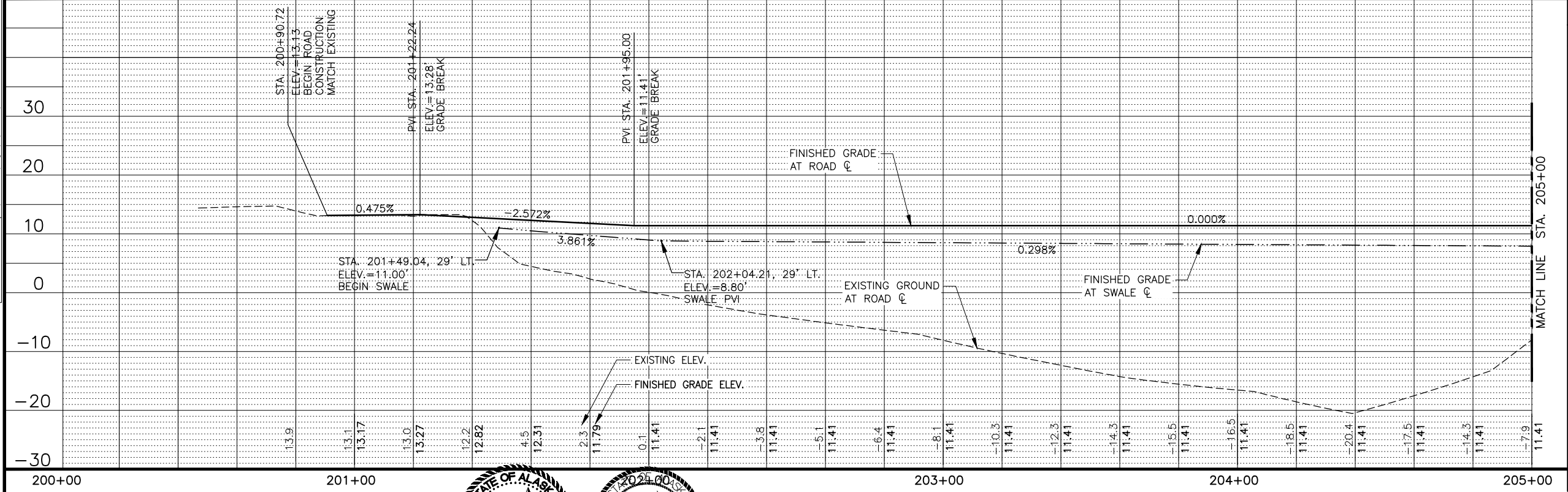
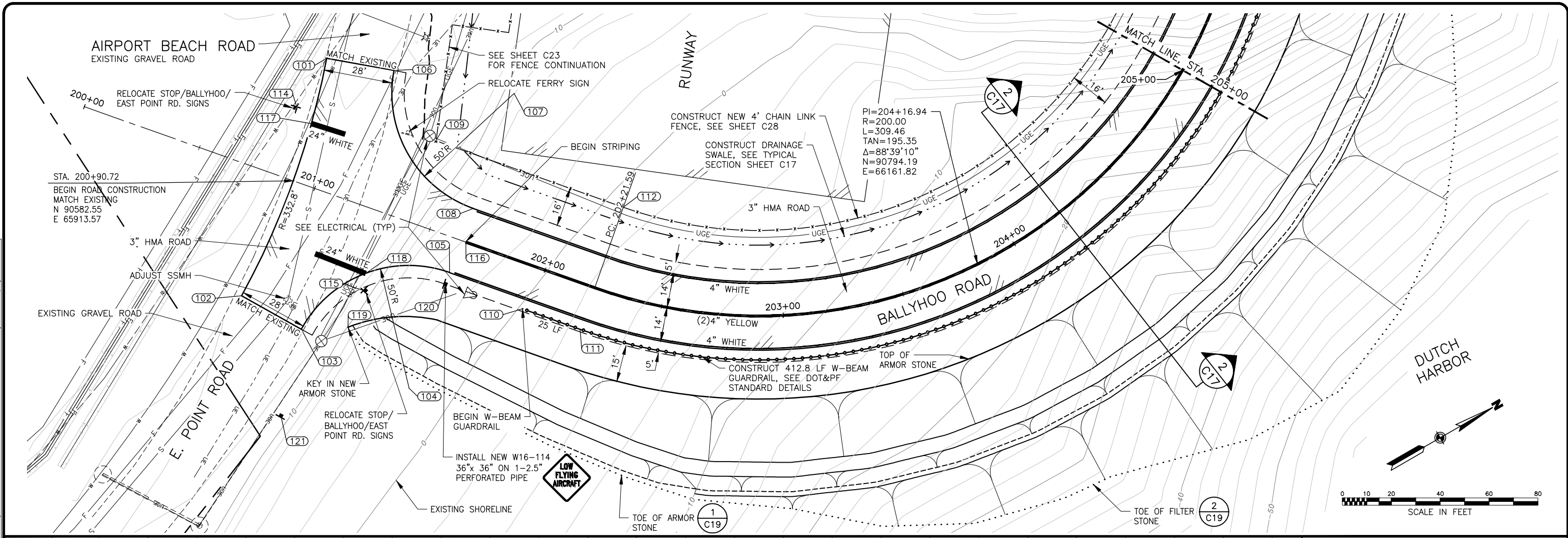
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
TAXIWAY 'B' PLAN AND PROFILE

DATE: MAY 1, 2012
SHEET: C24 OF 56
AS-BUILT SHEET:

5/01/2012 5:05 PM
Date Revised: 5/01/2012 5:05 PM
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File Path and Name: I:\320600\Draws\13206-DUT-C25 BALLYHOO RD.dwg
Designed By: [blank]
Drawn By: [blank]
Checked By: [blank]



BALLYHOO RD LOCATION TABLE			
POINT No.	STATION	OFFSET	DESCRIPTION
101	200+86.82	51.81 LT.	PC
102	200+86.57	51.42 RT.	PT
103	201+14.17	56.14 RT.	PC
104	201+63.55	64.00 RT.	RP
105	201+63.55	14.00 RT.	PT
106	201+14.44	56.38 LT.	PC
107	201+63.86	64.00 LT.	RP
108	201+63.86	14.00 LT.	PT
109	201+40.28	35.00 LT.	FENCE CORNER
110	201+96.59	18.00 RT.	GUARDRAIL
111	202+21.59	18.00 RT.	GUARDRAIL
112	202+21.59	35.00 LT.	FENCE PC
113	202+21.59	200.00 LT.	FENCE RP
114	200+82.01	28.89 LT.	STOP SIGN
115	201+32.89	32.65 RT.	STOP SIGN
116	201+65.63	0.00	BEGIN STRIPE
117	200+89.88	24.58 LT.	STOP BAR CENTER
118	201+31.26	25.82 RT.	STOP BAR CENTER
119	201+31.88	49.04 RT.	BEGIN ARMOR
120	201+63.55	19.00 RT.	SIGN
121	201+18.13	92.32 RT.	SIGN



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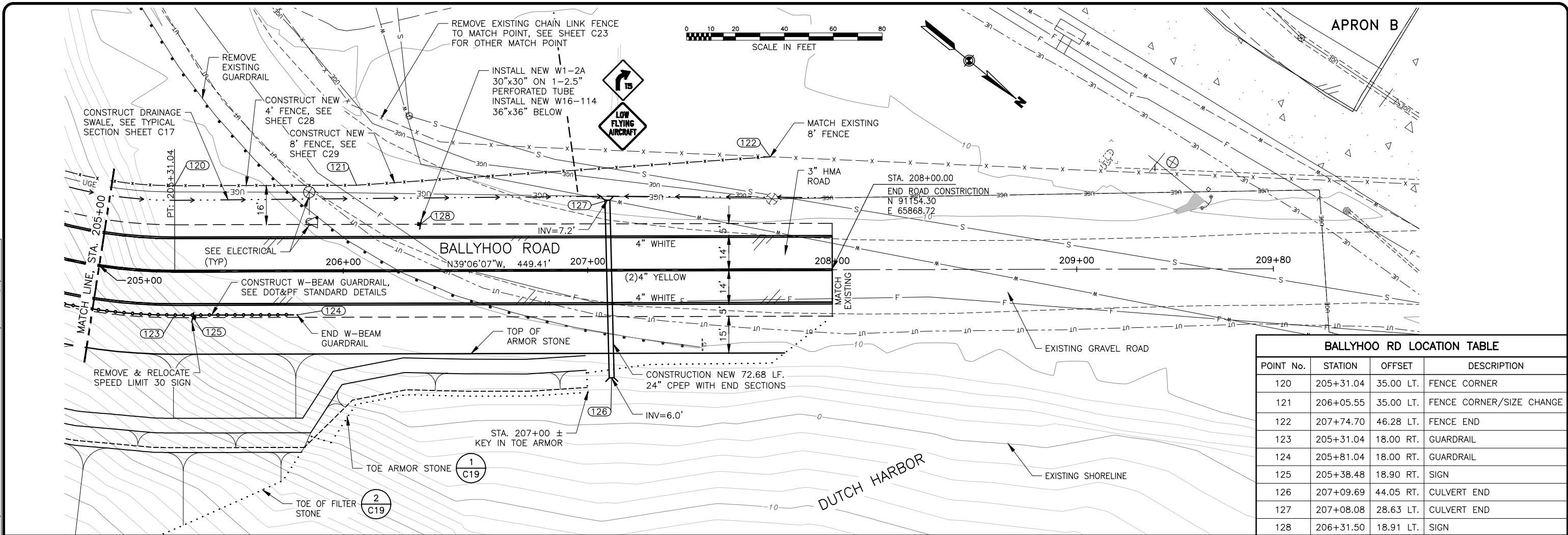
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

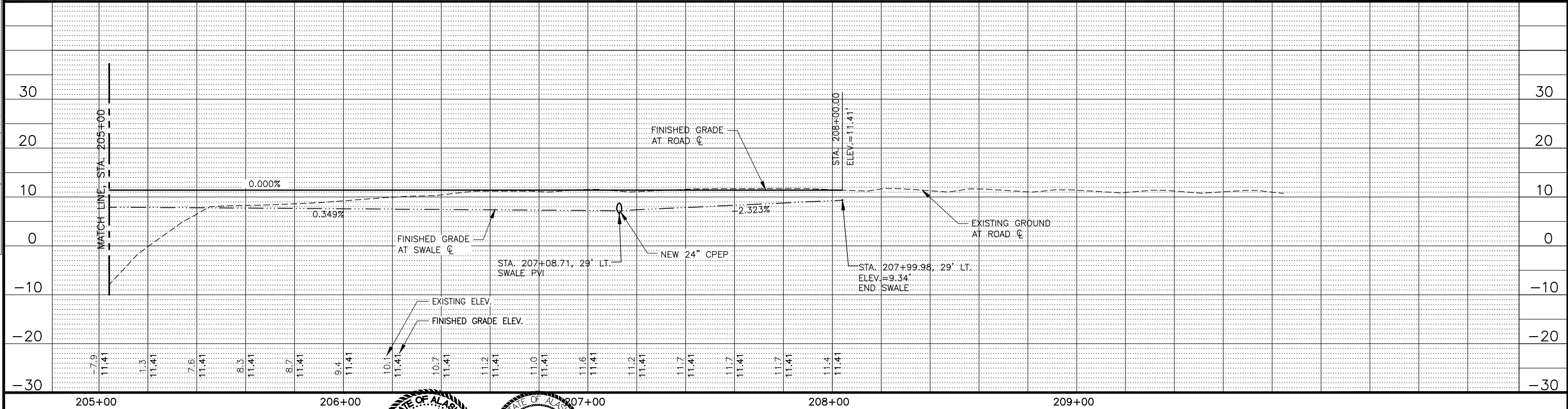
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
BALLYHOO ROAD REALIGNMENT
PLAN AND PROFILE

DATE: MAY 1, 2012
SHEET: C25 OF 56
AS-BUILT SHEET:

Date Revised: 5/01/2012, 5:06 PM
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 Designed By:
 Drawn By:
 Checked By:



BALLYHOO RD LOCATION TABLE			
POINT No.	STATION	OFFSET	DESCRIPTION
120	205+31.04	35.00 LT.	FENCE CORNER
121	206+05.55	35.00 LT.	FENCE CORNER/SIZE CHANGE
122	207+74.70	46.28 LT.	FENCE END
123	205+31.04	18.00 RT.	GUARDRAIL
124	205+81.04	18.00 RT.	GUARDRAIL
125	205+38.48	18.90 RT.	SIGN
126	207+09.69	44.05 RT.	CULVERT END
127	207+08.08	28.63 LT.	CULVERT END
128	206+31.50	18.91 LT.	SIGN



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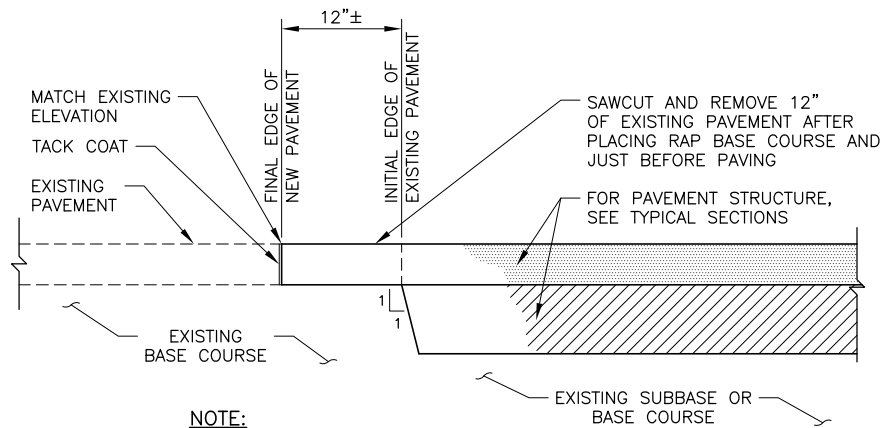
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
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CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
BALLYHOO ROAD REALIGNMENT
PLAN AND PROFILE

DATE: MAY 1, 2012
SHEET: C26 OF 56
AS-BUILT SHEET:

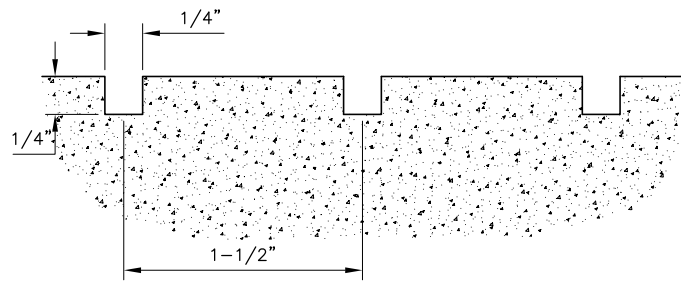
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Checked By: [redacted]
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File Path and Name: [redacted]



NOTE:

THIS DETAIL APPLIES AT LOCATIONS WHERE NEW PAVEMENT IS PLACED AGAINST EXISTING PAVEMENT.

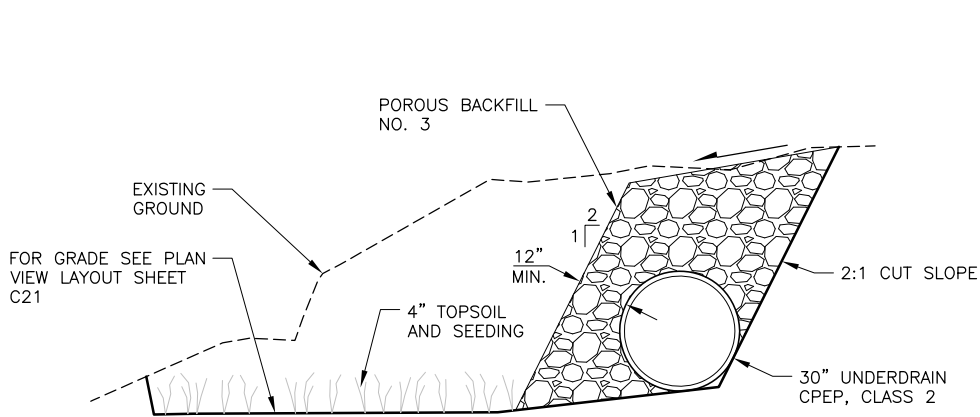
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C27 **PAVEMENT CUT-MATCH SECTION**
SCALE: N.T.S.



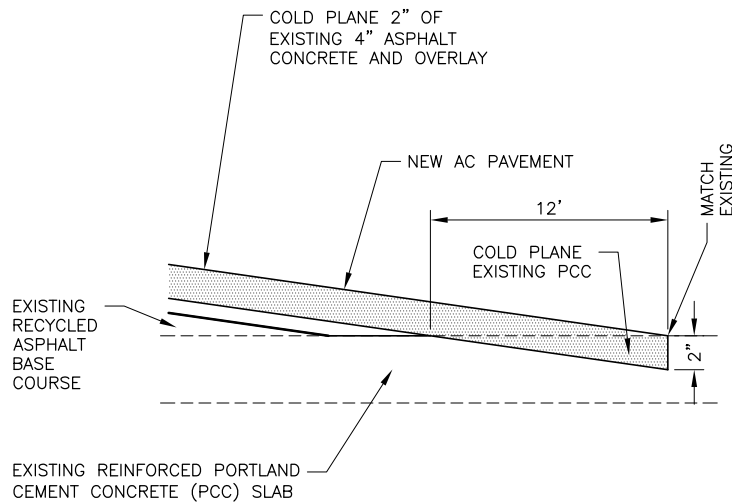
NOTES:

1. SEE SECTION P-630 FOR ADDITIONAL REQUIREMENTS FOR PAVEMENT GROOVING.
2. GROOVE ENTIRE LENGTH OF RUNWAY FROM STA. 142+00 TO 97+00.
3. GROOVE RUNWAY PRIOR TO PLACING PAVEMENT MARKINGS OR AS OTHERWISE APPROVED.

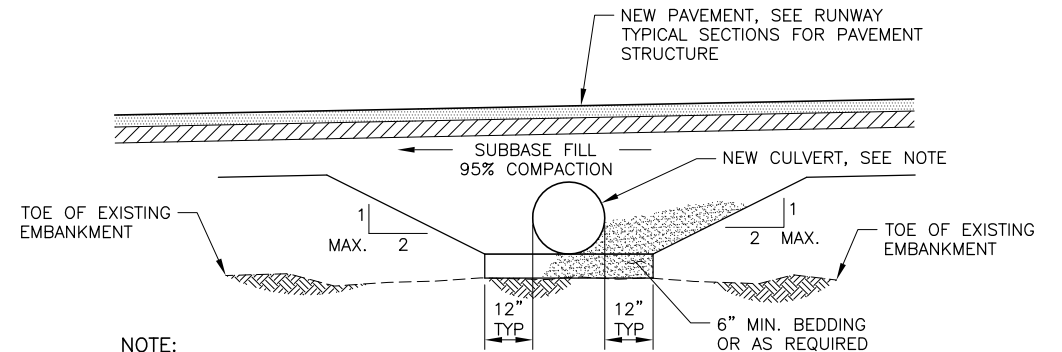
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C27 **RUNWAY PAVEMENT GROOVING DETAIL**
SCALE: N.T.S. STA. 97+00 TO 142+00



4
C27 **VEGETATED TREATMENT AREA BASIN SECTION**
SCALE: N.T.S.



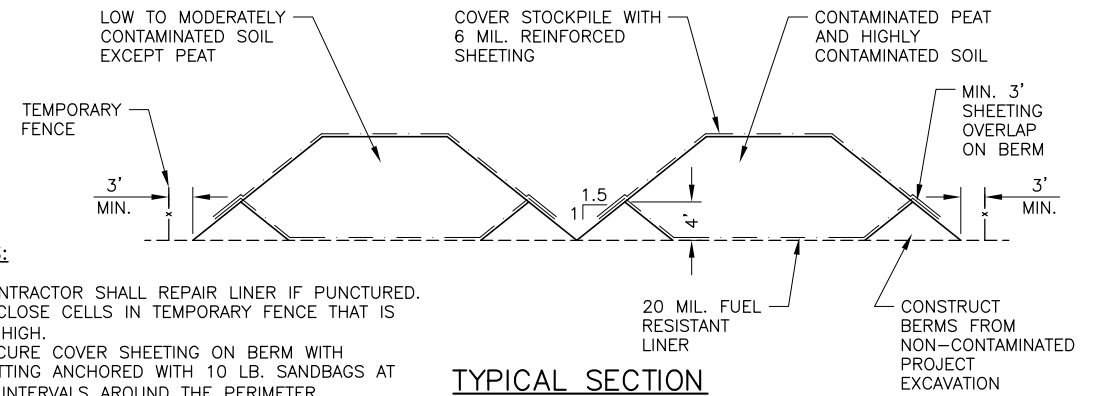
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C27 **TAXIWAY B CONCRETE MATCH DETAIL**
SCALE: N.T.S.



NOTE:

SEE PLAN AND PROFILE SHEETS FOR CULVERT SIZE, LENGTHS, AND LOCATIONS.

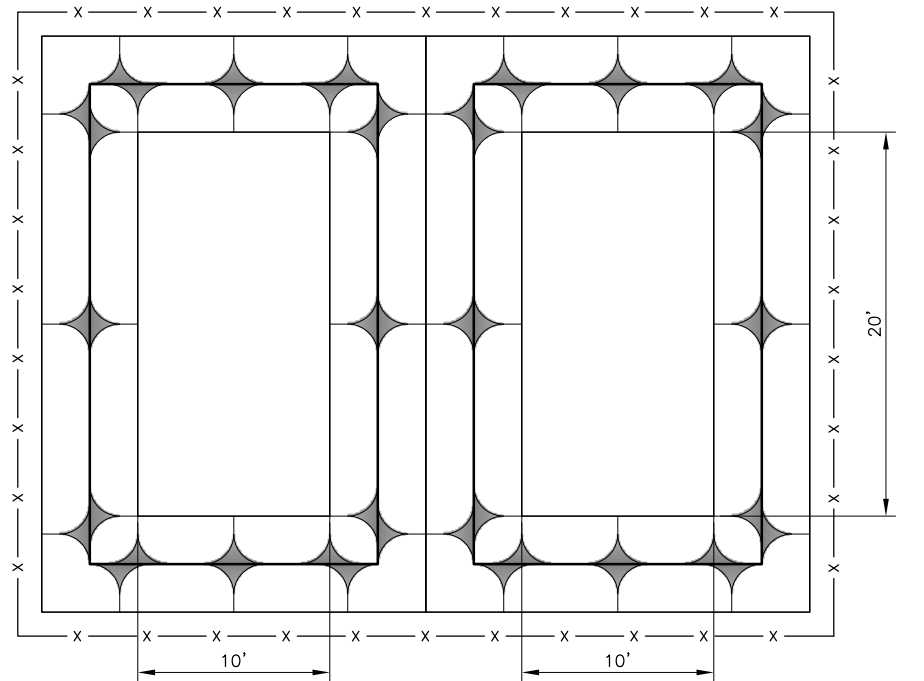
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C27 **TYPICAL CULVERT DETAIL**
SCALE: N.T.S.



NOTES:

1. CONTRACTOR SHALL REPAIR LINER IF PUNCTURED.
2. ENCLOSE CELLS IN TEMPORARY FENCE THAT IS 6' HIGH.
3. SECURE COVER SHEETING ON BERM WITH NETTING ANCHORED WITH 10 LB. SANDBAGS AT 3' INTERVALS AROUND THE PERIMETER.

TYPICAL SECTION



PLAN VIEW

6
C27 **TEMPORARY STOCKPILE AREA FOR CONTAMINATED SOIL**
SCALE: N.T.S.



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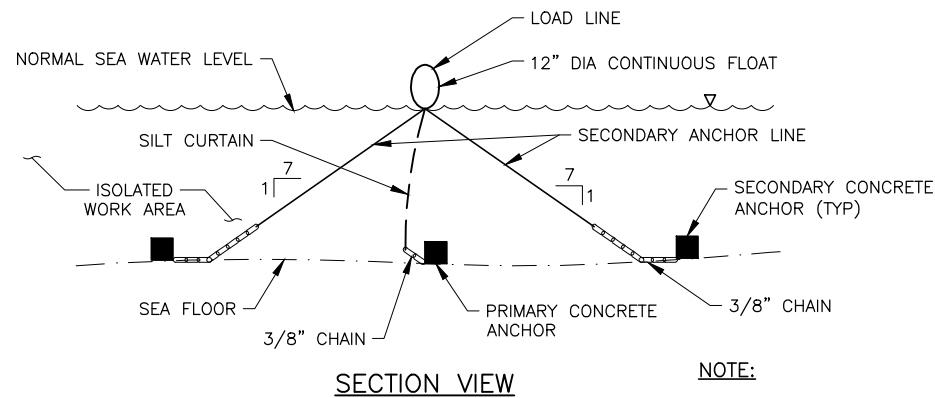
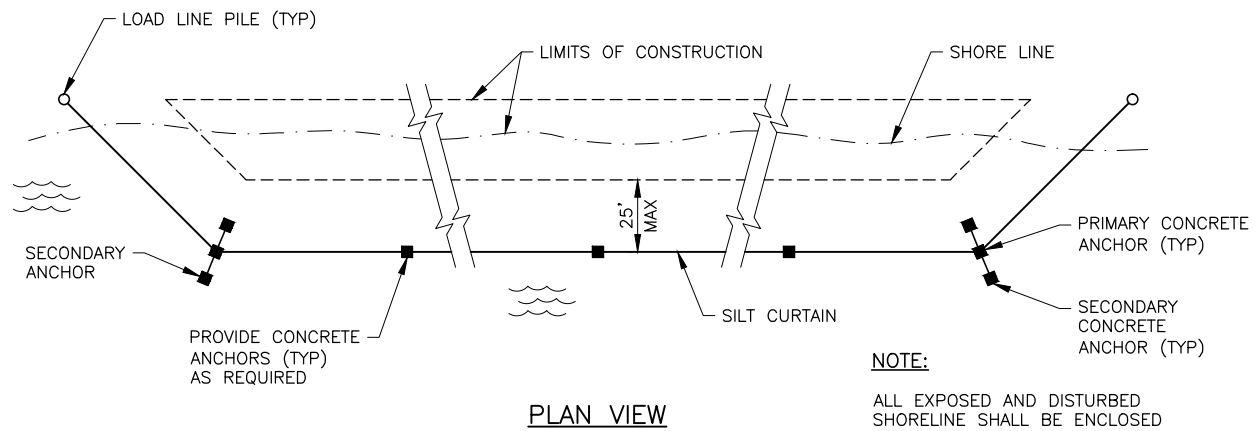
BY	DATE	REVISION

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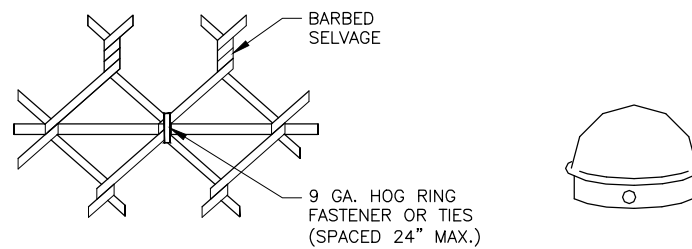
UNALASKA AIRPORT
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UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
DETAILS

DATE: MAY 1, 2012
SHEET: **C27** OF **56**
AS-BUILT SHEET:

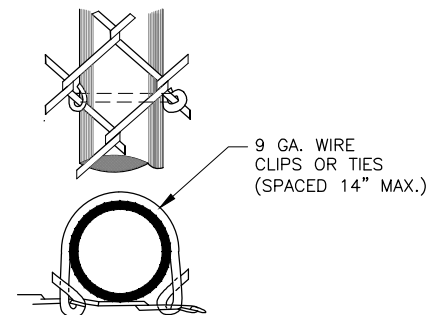
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Date Revised: [blank]
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1
C28 **SILT CURTAIN DETAIL**
SCALE: N.T.S.

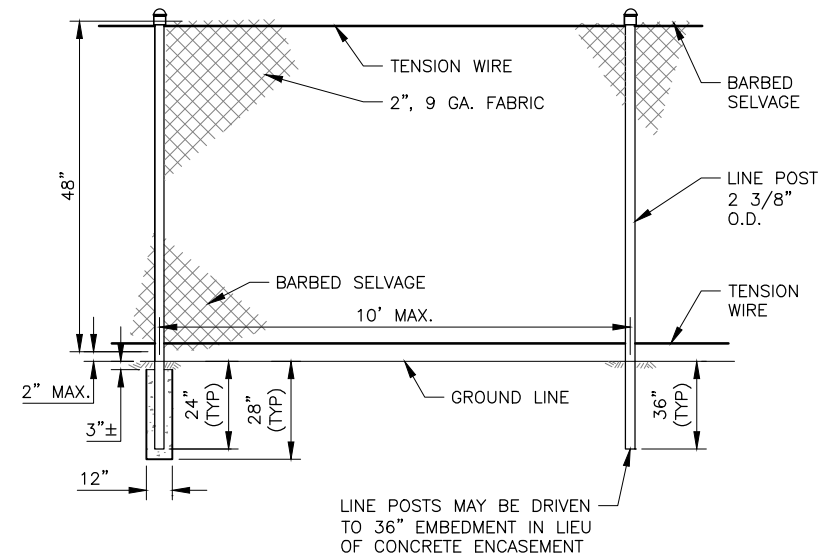


**TYPICAL METHOD OF TYING
FABRIC TO TENSION WIRE**



**TYPICAL METHOD OF TYING
FABRIC TO TUBULAR POSTS**

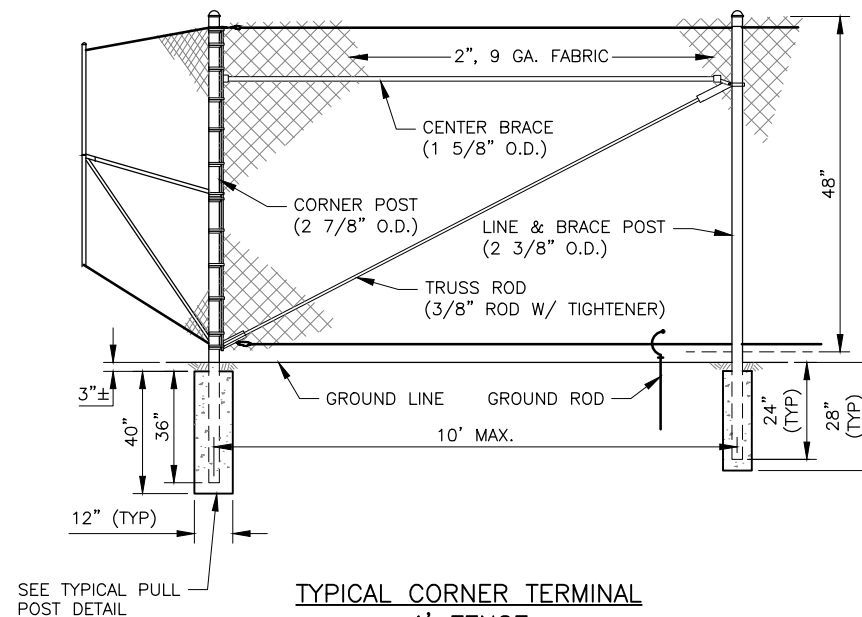
**ACORN OR DOME CAP FOR
GATE/TERMINAL POST**



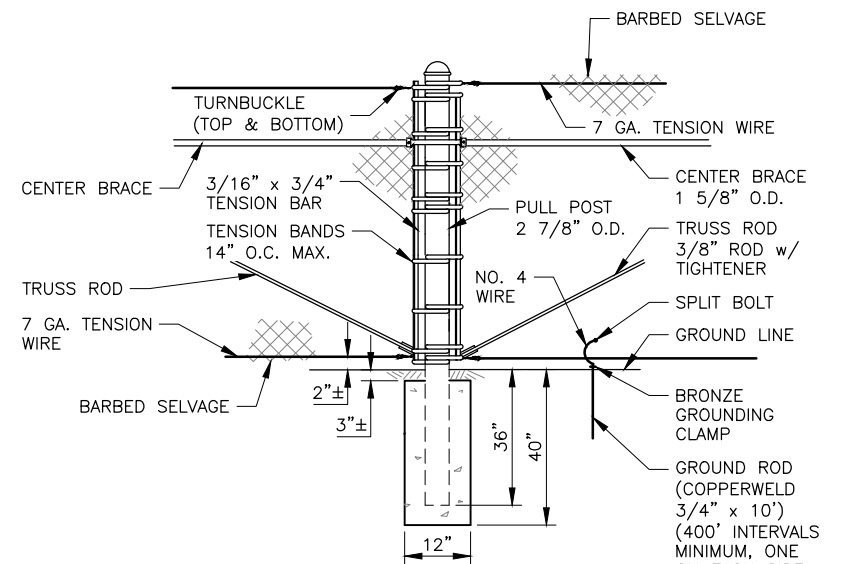
**TYPICAL LINE SECTION
4' FENCE**

NOTES:

1. ALL CONCRETE USED FOR FENCE FOOTINGS SHALL BE 3000 PSI MINIMUM.
2. FINISHED CONCRETE TO BE RECESSED BELOW THE GROUND LINE. BACKFILL AND COMPACT AROUND RECESSED CONCRETE WITH EXCAVATED MATERIAL (TYPICAL ALL CONCRETE POSTS IN GROUND)
3. FINISHED CONCRETE TO BE FLUSH WITH PAVEMENT. (TYP. ALL CONCRETE POSTS IN PAVEMENT)



**TYPICAL CORNER TERMINAL
4' FENCE**



**TYPICAL PULL/TERMINAL POST
4' FENCE**



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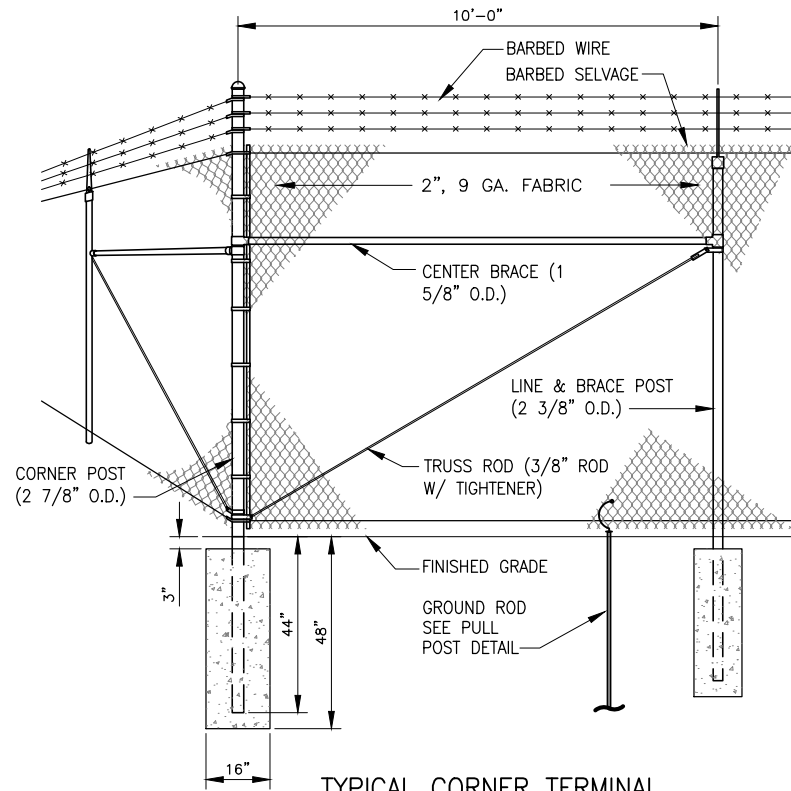
BY	DATE	REVISION

STATE OF ALASKA
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AND PUBLIC FACILITIES
CENTRAL REGION

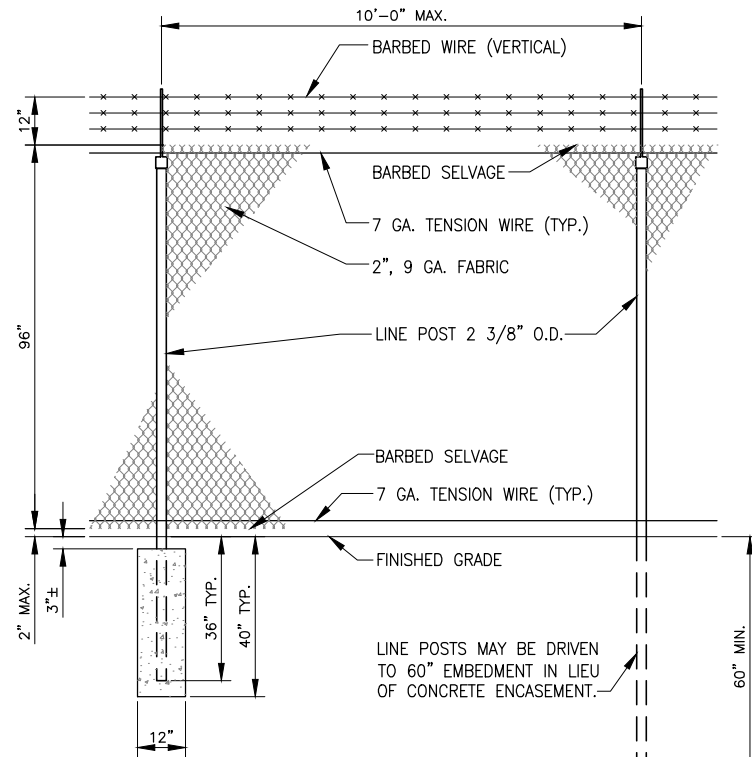
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
DETAILS

DATE: MAY 1, 2012
SHEET: **C28** OF **56**
AS-BUILT SHEET:

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Designed By:
Drawn By:
Checked By:



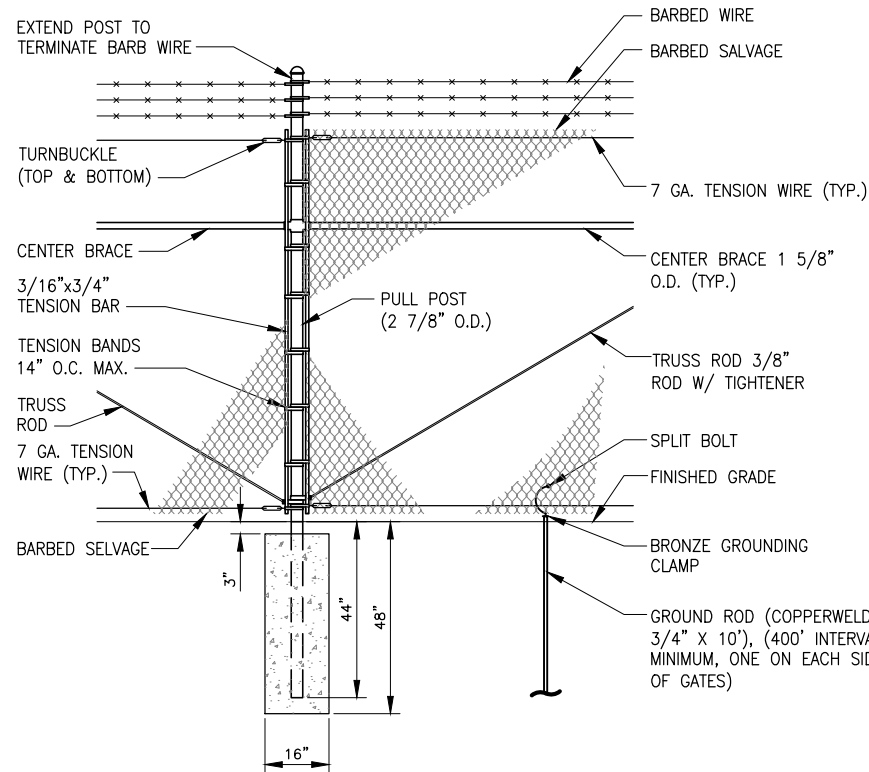
TYPICAL CORNER TERMINAL
8' FENCE



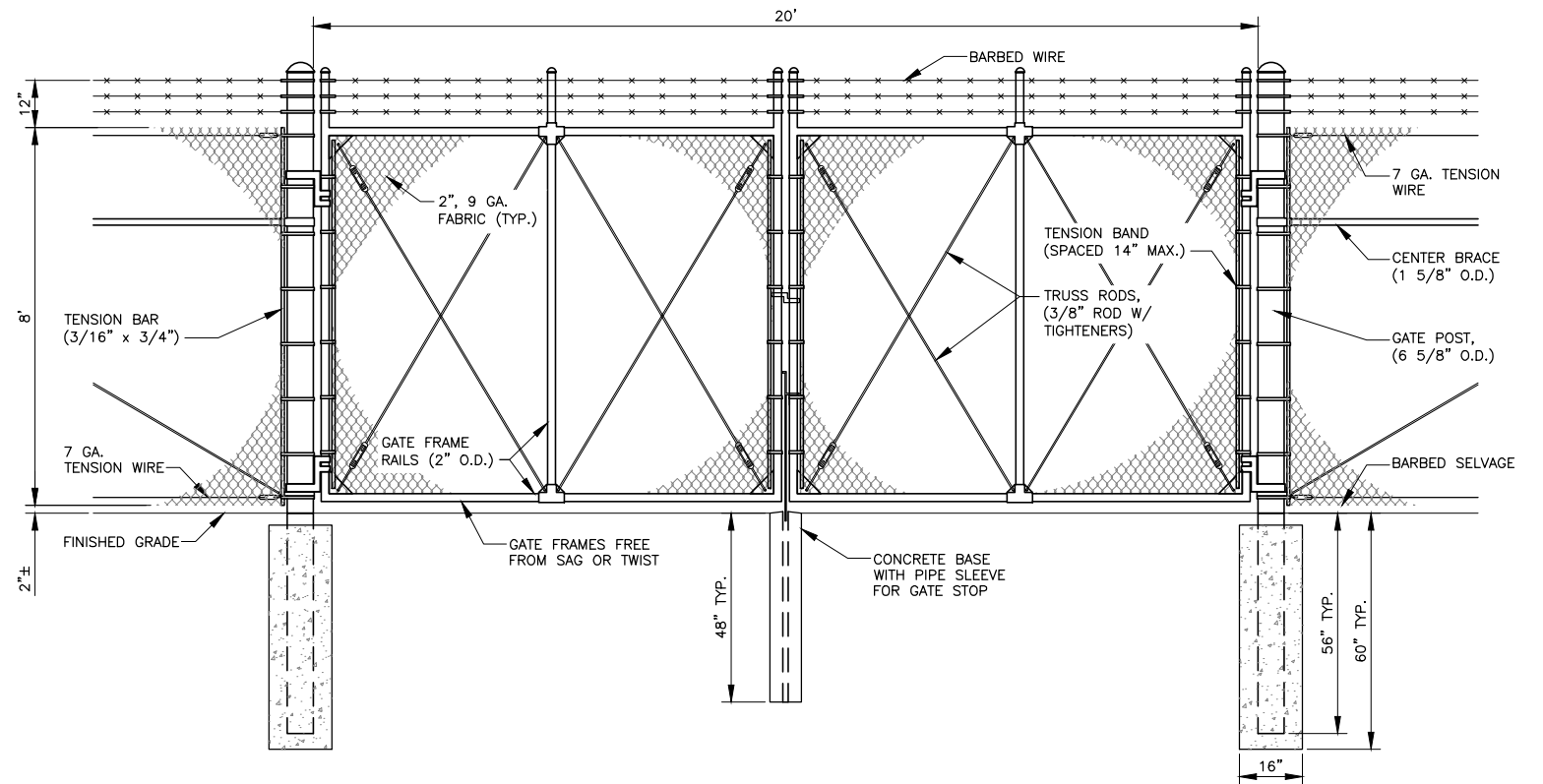
TYPICAL LINE SECTION
8' FENCE

NOTES:

1. ALL CONCRETE USED FOR FENCE FOOTINGS SHALL BE 3000 PSI MINIMUM.
2. FINISHED CONCRETE TO BE RECESSED BELOW THE GROUND LINE. BACKFILL AND COMPACT AROUND RECESSED CONCRETE WITH EXCAVATED MATERIAL (TYPICAL ALL CONCRETE POSTS IN GROUND)
3. FINISHED CONCRETE TO BE FLUSH WITH PAVEMENT. (TYP. ALL CONCRETE POSTS IN PAVEMENT)



TYPICAL PULL / TERMINAL POST
8' FENCE



20' DOUBLE SWING GATE



PLANS DEVELOPED BY:
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BY	DATE	REVISION

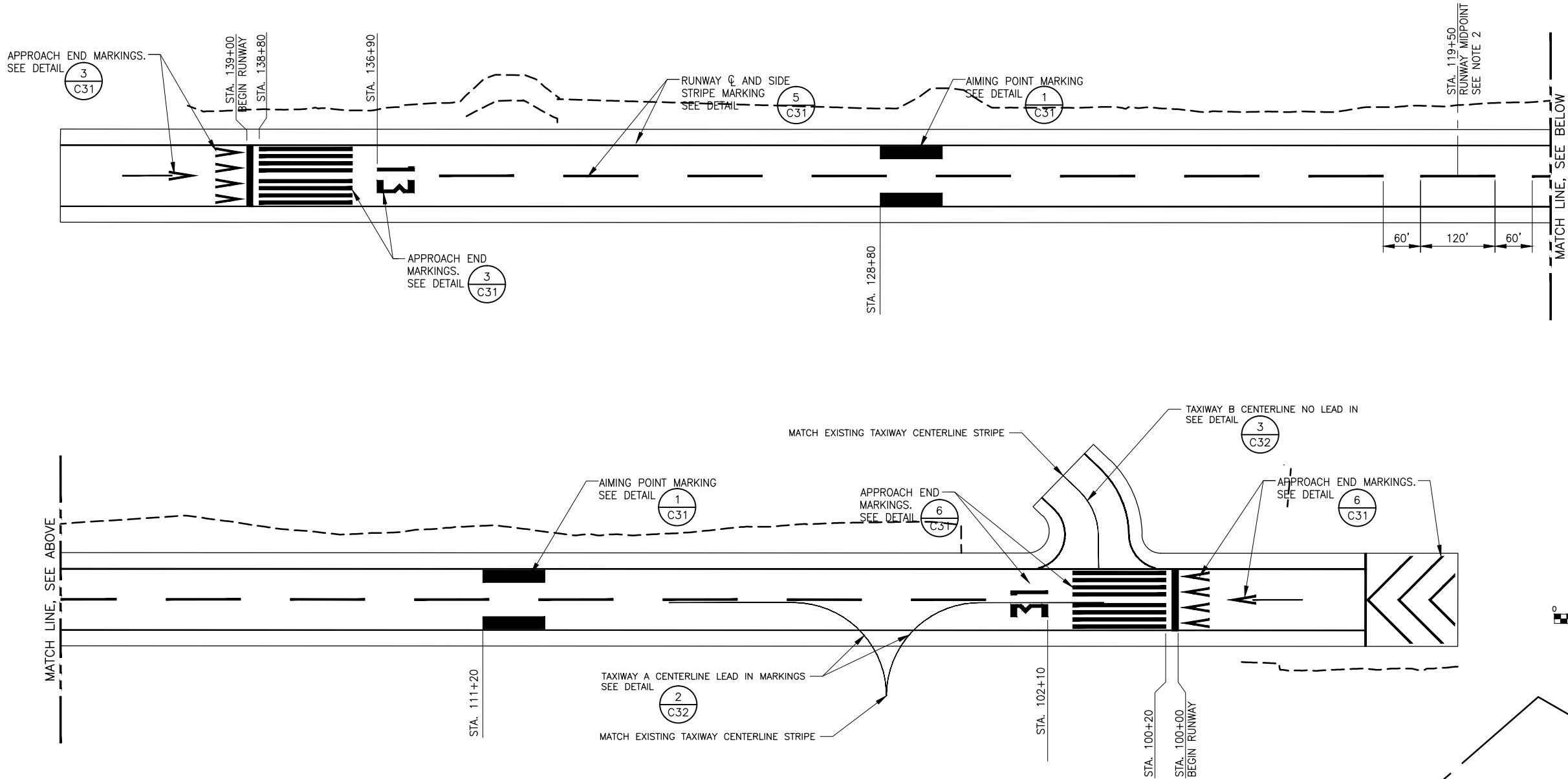
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
FENCE DETAILS

DATE: MAY 1, 2012
SHEET: C29 OF 56
AS-BUILT SHEET:

Date Revised: 5/01/2012 5:06 PM
Layout Name: RW MARK PLAN
File Path and Name: I:\1320600\Draws\13206-DUT-C30 RWY MKR PLAN.dwg

Designed By:
Drawn By:
Checked By:



MARKING NOTES:

- SEE LATEST VERSION OF ADVISORY CIRCULAR (AC) 150/5340-1 FOR ADDITIONAL GUIDANCE AND REQUIREMENTS FOR AIRPORT MARKINGS. ALL MARKINGS MUST CONFORM TO REQUIREMENTS PRESENTED IN THE AC.
- LAYOUT RUNWAY CENTERLINE SPACING FROM BOTH ENDS TOWARD MID POINT OF RUNWAY. MAINTAIN 120' CENTERLINE STRIPES AND 80' SPACES AND ADJUST AT MID POINT.
- ALL RUNWAY MARKINGS ARE WHITE UNLESS OTHERWISE INDICATED.
- ALL TAXIWAY MARKINGS ARE AVIATION YELLOW UNLESS OTHERWISE INDICATED.
- APPLY GLASS BEADS TO ALL MARKINGS.
- ALL CENTERLINE STRIPES ARE DIMENSIONED TO CENTER OF STRIPE. ALL EDGE STRIPES ARE DIMENSIONED TO OUTERMOST EDGE OF STRIPE.
- RUNWAY MARKINGS TAKE PRECEDENCE OVER TAXIWAY MARKINGS. BREAK TAXIWAY CENTERLINE LEAD IN SO RUNWAY MARKINGS ARE NOT OBSCURED.



PLANS DEVELOPED BY:
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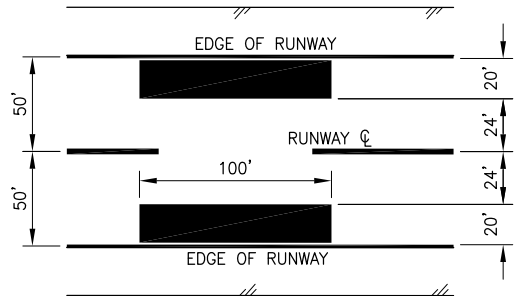
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STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

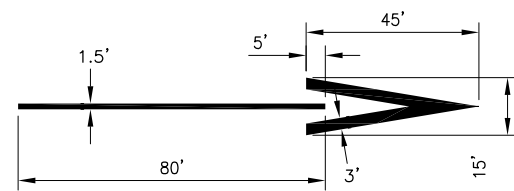
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
RUNWAY MARKING PLAN

DATE: MAY 1, 2012
SHEET: C30 OF 56
AS-BUILT SHEET:

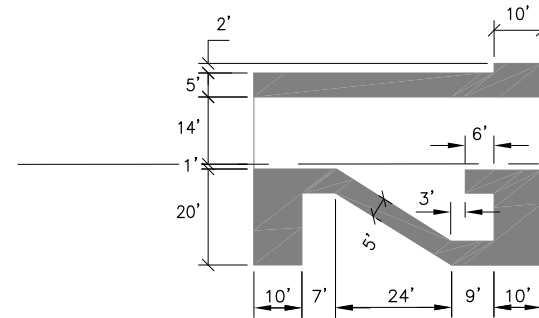
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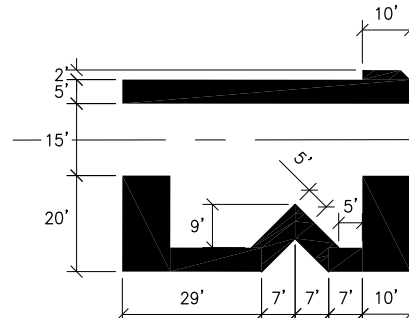
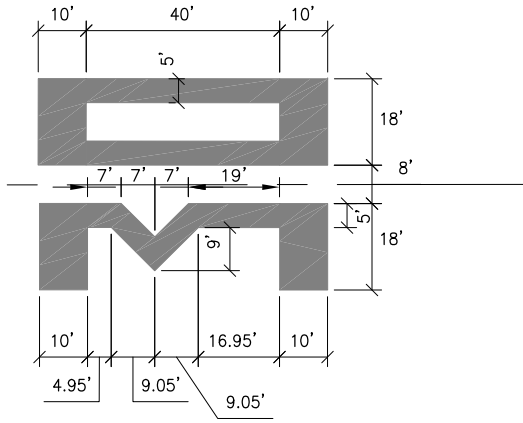
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C31
AIMING POINT MARKING DETAIL
SCALE: N.T.S.



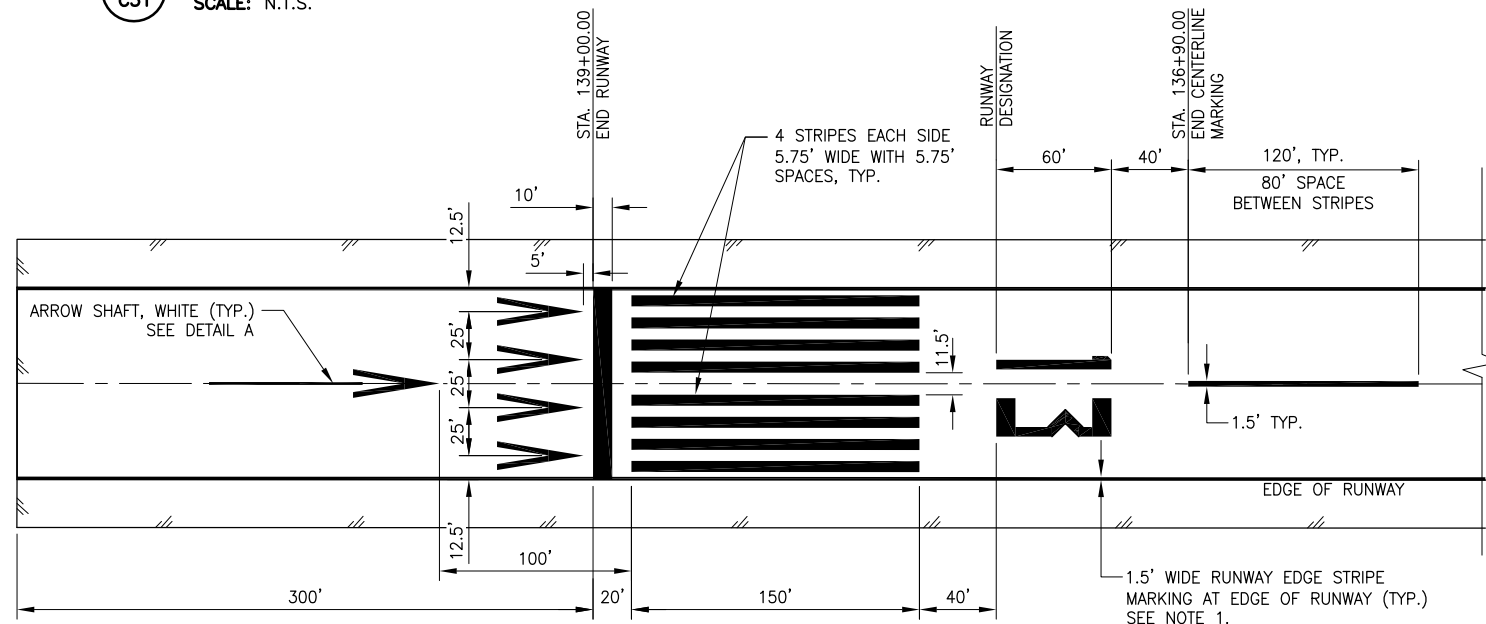
DETAIL A



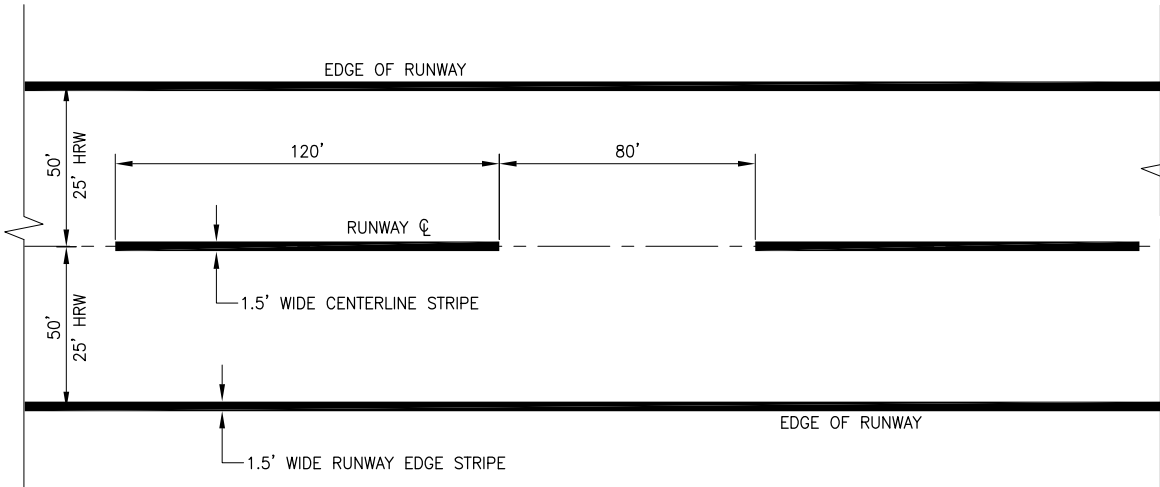
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C31
RUNWAY 12-30 DESIGNATOR DETAILS
FOR TEMPORARY HALF WIDTH RUNWAY MARKINGS ONLY
SCALE: N.T.S.



3
C31
RUNWAY 13 APPROACH END MARKING DETAIL
SCALE: N.T.S.



4
C31
RUNWAY 13-31 DESIGNATOR DETAILS
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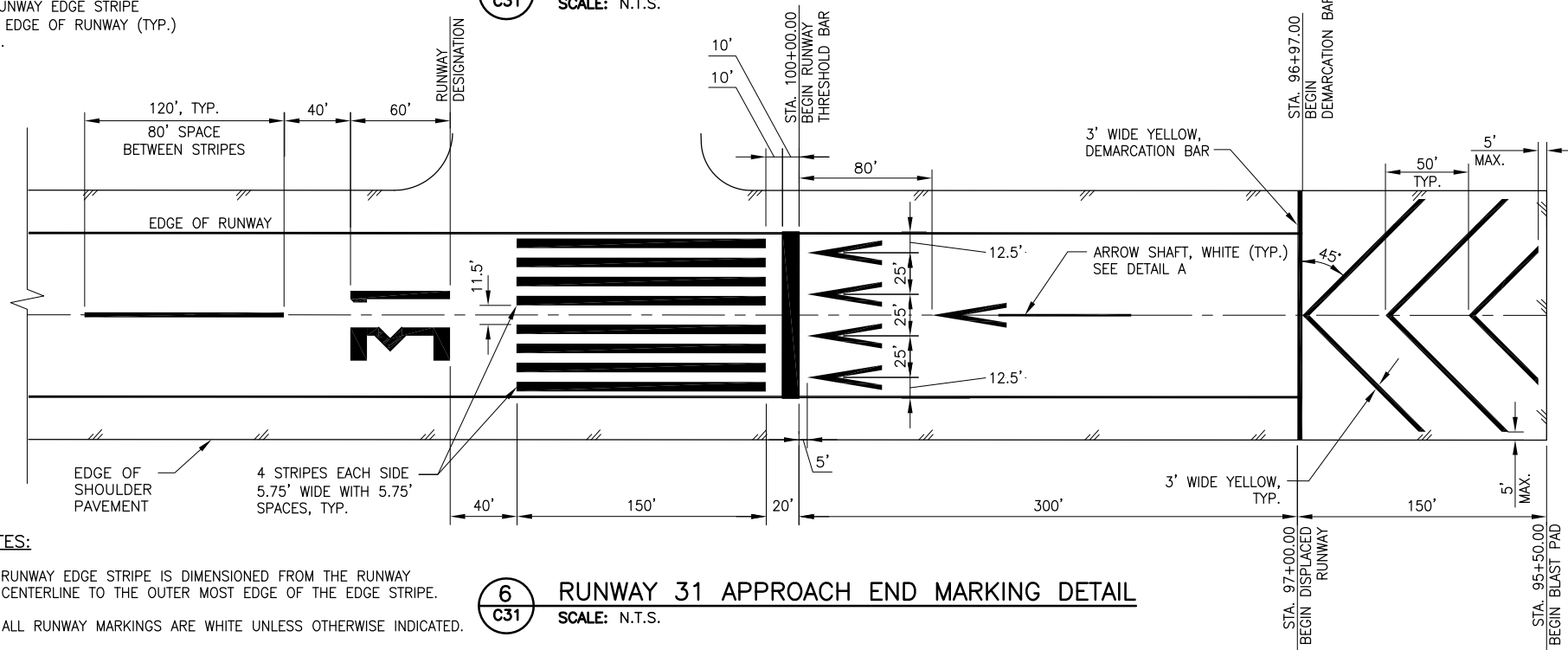


5
C31
RUNWAY CENTERLINE AND SIDE STRIPE MARKING DETAIL
SCALE: N.T.S.

NOTES:

1. RUNWAY EDGE STRIPE IS DIMENSIONED FROM THE RUNWAY CENTERLINE TO THE OUTER MOST EDGE OF THE EDGE STRIPE.
2. ALL RUNWAY MARKINGS ARE WHITE UNLESS OTHERWISE INDICATED.
3. HALF WIDTH RW DESIGNATION WILL MATCH THE NON-STANDARD DIMENSIONS SHOWN IN 2/C31 ABOVE. NOTE 12 DESIGNATOR IS NOT CENTERED ON ACTIVE RW DUE TO PROXIMITY OF RW EDGE.
4. DIMENSIONS FOR HALF WIDTH RUNWAY MARKINGS ARE SUFFIXED WITH HRW. ALL OTHER DIMENSIONS REMAIN THE SAME FOR HALF WIDTH MARKINGS.

6
C31
RUNWAY 31 APPROACH END MARKING DETAIL
SCALE: N.T.S.



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

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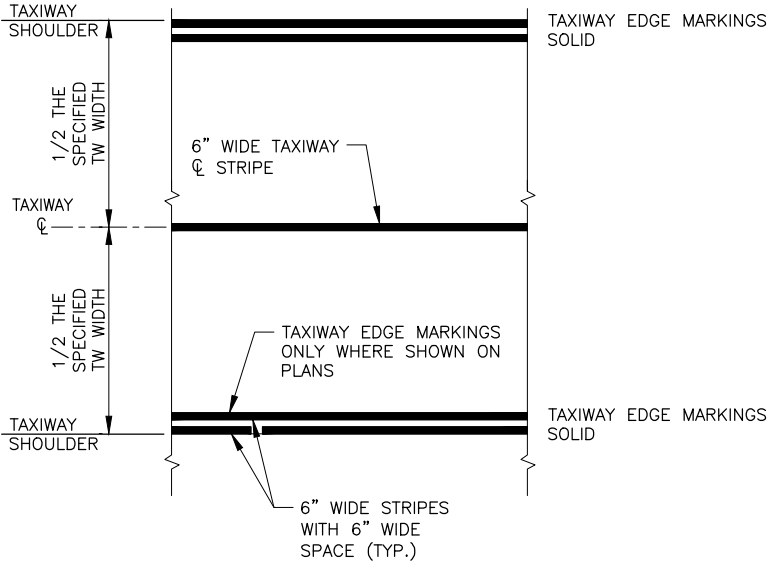
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
RUNWAY MARKING DETAILS

DATE: MAY 1, 2012
SHEET: C31 OF 56
AS-BUILT SHEET:

Date Revised: 5/01/2012 5:07 PM
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NOTE:

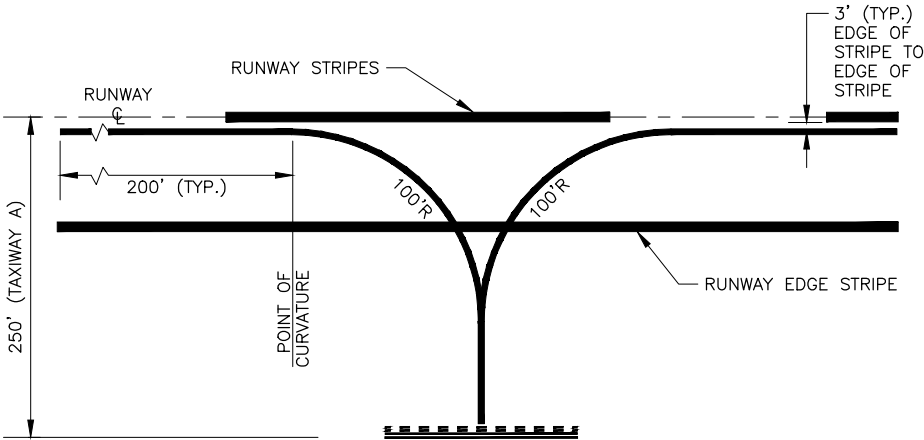
TAXIWAY EDGE MARKINGS ARE PAINTED ENTIRELY ON THE FULL DEPTH PAVEMENT SECTION. NOT ON THE SHOULDER PAVEMENT. TAXIWAY MARKINGS ARE YELLOW, UNLESS SPECIFIED OTHERWISE.



1 TAXIWAY EDGE STRIPE MARKING DETAIL
SCALE: N.T.S.

NOTE:

RUNWAY MARKINGS HAVE PRECEDENCE OVER TAXIWAY MARKINGS. BREAK TAXIWAY MARKINGS WHERE THEY CROSS ANY RUNWAY MARKINGS.



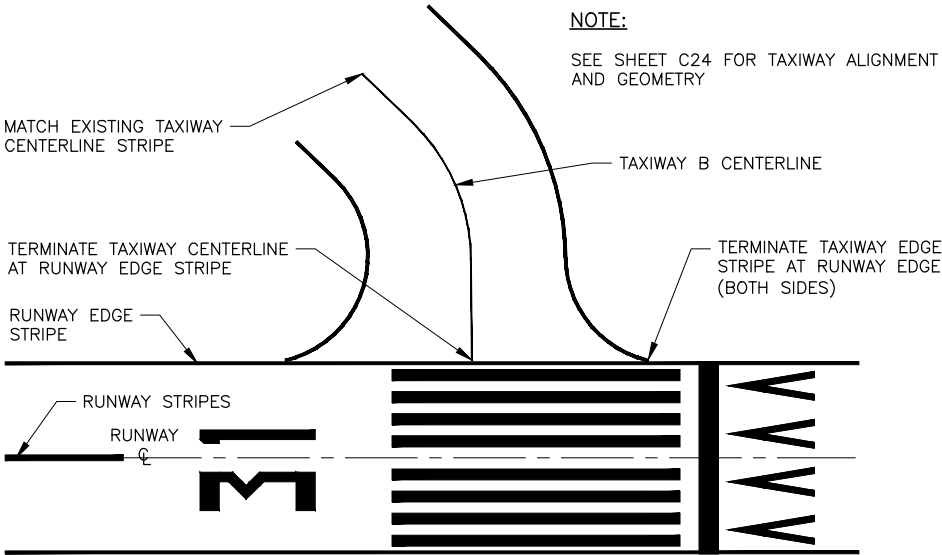
NOTE:

MATCH EXISTING TAXIWAY EDGE STRIPING.

2 TAXIWAY A – CENTERLINE LEAD IN
SCALE: N.T.S.

NOTE:

SEE SHEET C24 FOR TAXIWAY ALIGNMENT AND GEOMETRY



3 TAXIWAY B – NO LEAD IN
SCALE: N.T.S.



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
MARKING DETAILS

DATE: MAY 1, 2012
SHEET: C32 OF 56
AS-BUILT SHEET:

GENERAL ELECTRICAL NOTES:

1. LOCATIONS OF EXISTING EQUIPMENT, CONDUIT, ETC ARE TAKEN FROM ASBUILT DRAWINGS AND SHALL BE FIELD VERIFIED. OBTAIN LOCATES OF EXISTING SYSTEMS AND EXCAVATE WITH CAUTION.
2. REMOVE LIGHTS, SIGNS, AND OTHER EQUIPMENT AS INDICATED ON DEMOLITION PLANS. REMOVAL INCLUDES ALL ASSOCIATED CONDUIT, CONDUCTORS, LIGHT BASES, TRANSFORMERS, CONTROLLERS, DRAIN CONDUITS, FOUNDATIONS, AND CONCRETE, UNLESS OTHERWISE INDICATED. ALL REMOVED LIGHTS, SIGNS, TRANSFORMERS, AND WIND CONES SHALL BE OFFERED TO AIRPORT MAINTENANCE. DISPOSAL OF LIGHTING EQUIPMENT DEEMED NON-SALVAGABLE BY AIRPORT MAINTENANCE AND REMOVED CONDUIT, CONDUCTORS, LIGHT BASES, CONCRETE, AND OTHER MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AT AN APPROVED SITE OFF OF AIRPORT PROPERTY IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS. DISPOSAL COSTS SHALL BE SUBSIDIARY TO THE CONTRACT.
3. REMOVAL OF EXISTING LIGHTED SIGNS IS SUBSIDIARY TO ITEM L-100n.
4. COORDINATE ALL LIGHTING OUTAGES CAUSED BY DISCONNECTIONS, CIRCUIT CHANGES, OR OTHER WORK WITH THE PROJECT ENGINEER. SCHEDULE INSTALLATION OF CONDUCTORS AND OTHER EQUIPMENT TO MINIMIZE QUANTITY AND DURATION OF OUTAGES.
5. COMPLETE ALL EXCAVATION AND TRENCHING PRIOR TO THE FINISH SURFACE ASPHALT BEING PLACED.
6. ALL AIRFIELD LIGHTING CONDUCTORS SHALL BE FAA TYPE C.
7. INSTALL A #6 BARE COPPER GROUNDING CONDUCTOR WITH ALL LIGHTING AND SIGN CIRCUIT CONDUCTORS.
8. DRAWINGS SHOW THE ENTIRE PROJECT. WORK SHALL BE COMPLETED IN PHASES IN ACCORDANCE WITH THE PROJECT CONSTRUCTION AND SAFETY PLANS.

SHEET NOTES: (X)

1. EXISTING OBSTRUCTION LIGHTS ON FENCE LINE TO REMAIN. REPAIR CONDUITS AND JUNCTION BOXES, AND SUPPORT CONDUIT ALONG FENCE. SEE DETAIL 4/E04.
2. INSTALL HANDHOLE TO CAPTURE EXISTING CONDUIT. EXTEND NEW CONDUCTORS THROUGH EXISTING CONDUIT TO EXISTING EQUIPMENT.
3. PULL SUFFICIENT CONDUCTOR BACK INTO HANDHOLE TO ALLOW SPLICING TO NEW CONDUCTORS. LABEL CONDUCTORS TO FACILITATE RECONNECTION OF EXISTING CIRCUITS TO NEW CONDUCTORS.
4. REMOVE EXISTING LIGHT FIXTURES, BASEPLATES, TRANSFORMERS, AND CONDUCTORS IN THIS AREA. LIGHT BASES AND CONDUIT TO BE REUSED.
5. NEW LIGHTS IN THIS AREA WILL REQUIRE SAW CUTTING AND CORE DRILLING OF EXISTING CONCRETE APRON.
6. INSTALL NEW TAXIWAY LIGHTS, TRANSFORMERS, AND CONDUCTORS ON/IN EXISTING LIGHT BASES AND CONDUITS IN THIS AREA. SEE TAXIWAY EDGE LIGHT SCHEDULE FOR INFORMATION ON WORK AT SPECIFIC LIGHTS.
7. LOCATE EXISTING CONDUIT, CUT, EXTEND, AND INSTALL NEW CONDUCTORS AS INDICATED.
8. REMOVE CONDUIT AND CONDUCTORS TO THIS POINT (POINT OF NEW WORK CONNECTION). FIELD VERIFY EXACT EXTENT OF REMOVAL.
9. REMOVE CONDUCTORS FROM EXISTING CONDUIT. CONDUIT TO BE REUSED FOR INSTALLATION OF NEW CONDUCTORS.
10. FIELD VERIFY ROUTING OF 2400V FAA POWER FEEDER. FEEDER IS NOT REQUIRED TO BE REPLACED IF EXISTING ROUTING DOES NOT CONFLICT WITH NEW EXCAVATION AND DRAINAGE. VERIFY EXTENT OF WORK REQUIRED WITH ENGINEER AFTER DETERMINING FEEDER LOCATION.
11. ROUTE CONDUITS BETWEEN EDGE OF PAVEMENT AND DRAINAGE SWALE.
12. CONNECT NEW CONDUIT TO EXISTING HANDHOLE. REUSE EXISTING CONDUIT OPENING OR DRILL NEW OPENING AS REQUIRED. SEAL ANY UNUSED OPENINGS.

ELECTRICAL PLAN LEGEND

	EXISTING LIGHT TO REMAIN/BE REMOVED	UON	UNLESS OTHERWISE NOTED
	NEW RUNWAY EDGE LIGHT, OMNI-DIRECTIONAL	EMT	ELECTRICAL METALLIC TUBING
	NEW RUNWAY EDGE LIGHT, BI-DIRECTIONAL	RMC	RIGID METALLIC CONDUIT (GALVANIZED STEEL)
	NEW RUNWAY THRESHOLD LIGHT, BI-DIRECTIONAL	HDPE	HIGH DENSITY POLYETHYLENE
	NEW RUNWAY END LIGHT, 360° RED	PVC	POLYVINYL CHLORIDE
	NEW SEMI-FLUSH RUNWAY EDGE LIGHT, BI-DIRECTIONAL	LFMC	LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT
	TAXIWAY EDGE LIGHT, 360° BLUE	LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
	EXISTING LIGHTED AIRPORT SIGN TO REMAIN/BE REMOVED	C	CONDUIT
	NEW LIGHTED AIRPORT SIGN	BC	BARE COPPER
	SERIES LIGHTING CIRCUIT, TICK MARKS INDICATE NUMBER OF 5KV SERIES CONDUCTORS IN HDPE CONDUIT (2 SHOWN), INCLUDE GROUND CONDUCTOR (NOT SHOWN), TICK MARKS NOT SHOWN ON SHORT SEGMENTS OR IN CONGESTED AREAS FOR CLARITY	TYP	TYPICAL
	SERIES LIGHTING CIRCUIT, TICK MARKS INDICATE NUMBER OF 5KV SERIES CONDUCTORS IN CONCRETE ENCASED RIGID STEEL CONDUIT (2 SHOWN), INCLUDE GROUND CONDUCTOR (NOT SHOWN), TICK MARKS NOT SHOWN ON SHORT SEGMENTS OR IN CONGESTED AREAS FOR CLARITY	GRD	GROUND
	EXISTING CONDUIT	LHA	LIGHT HOUSING ASSEMBLY
	HDPE CONDUIT CABLE WITH CONDUCTORS AS INDICATED	VASI	VISUAL APPROACH SLOPE INDICATOR
	CONCRETE ENCASED RIGID STEEL CONDUIT WITH CONDUCTORS AS INDICATED		EQUIPMENT NUMBER, SEE SCHEDULES ON SHEETS E08-E09
	GROUND ROD, 3/4"x10' TYPICAL	TX	TAXIWAY EDGE LIGHT
	NEW HANDHOLE (HH), TYPE I (LIGHT BASE WITH BLANK COVER)	RX	RUNWAY EDGE LIGHT
	EXISTING ELECTRICAL MANHOLE TO REMAIN/BE REMOVED	JBX	JUNCTION BOX
	NEW ELECTRICAL MANHOLE OR JUNCTION BOX (TYPE II) AS INDICATED	HHX	HANDHOLE
	EXISTING TRANSFORMER TO REMAIN/BE REMOVED	SX	LIGHTED SIGN
	NEW TRANSFORMER	(X)	REFERENCE TO SHEET NOTE
	EXISTING PRIMARY UNDERGROUND ELECTRICAL LINE TO REMAIN/BE REMOVED		LIGHT COLORS AND DISTRIBUTIONS
	NEW PRIMARY UNDERGROUND ELECTRICAL LINE	B	BLUE
	WIND CONE	Y	YELLOW
	REIL FIXTURE	G	GREEN
	WEATHER SENSOR	R	RED
		W	WHITE
		O	OBSCURED/BLANK
		BI	BI-DIRECTIONAL
		UNI	UNI-DIRECTIONAL
		OMNI	OMNI-DIRECTIONAL



PLANS DEVELOPED BY:
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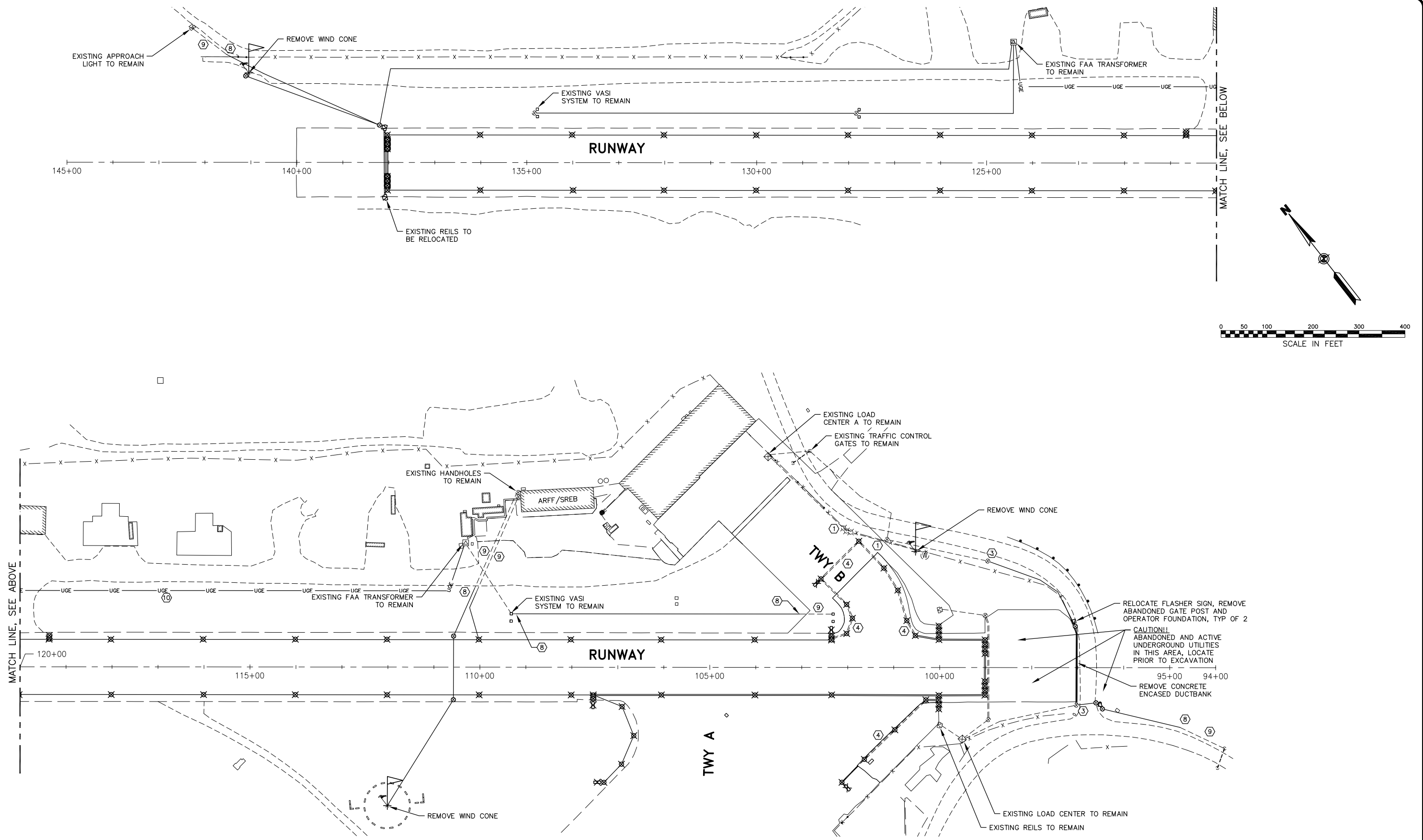
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
ELECTRICAL NOTES AND LEGEND

DATE: MAY 1, 2012
SHEET: E01 OF 56
AS-BUILT SHEET:

Date Revised: 5/01/2012, 5:00 PM
Layout Name: ELEC-DEM
File Path and Name: \\1320600\Draws\13206-DUT-E02 ELEC DEMO.dwg
Designed By:
Drawn By:
Checked By:



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

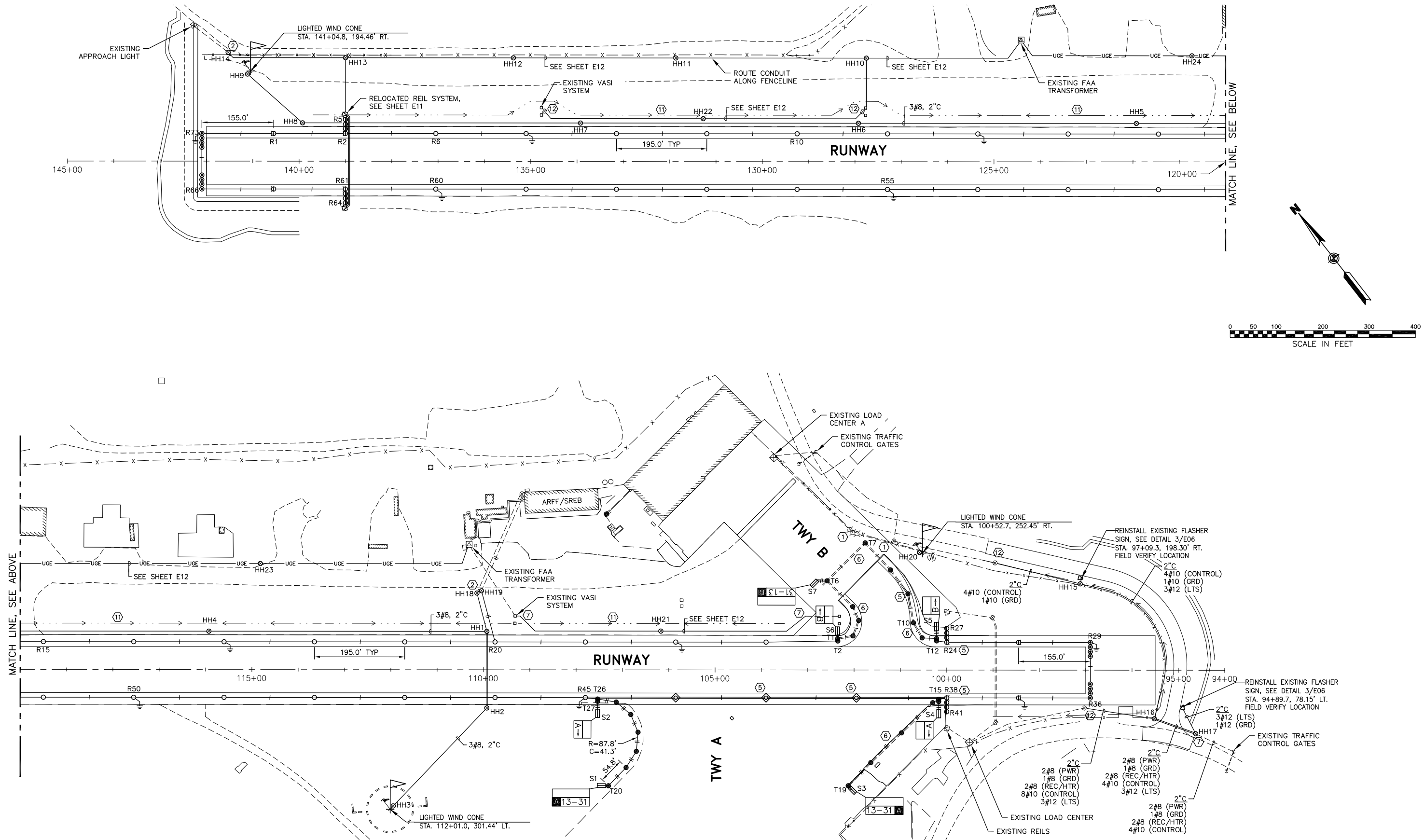
STATE OF ALASKA
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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
ELECTRICAL DEMOLITION PLAN

DATE: MAY 1, 2012
SHEET: E02 OF 56
AS-BUILT SHEET:

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1320600.Dwg
E13206-DUT-E03 ELEC NEW WORK.dwg
Date Revised:
Layout Name:
File Path and Name:

Designed By:
Drawn By:
Checked By:



PLANS DEVELOPED BY:
USKH, INC.

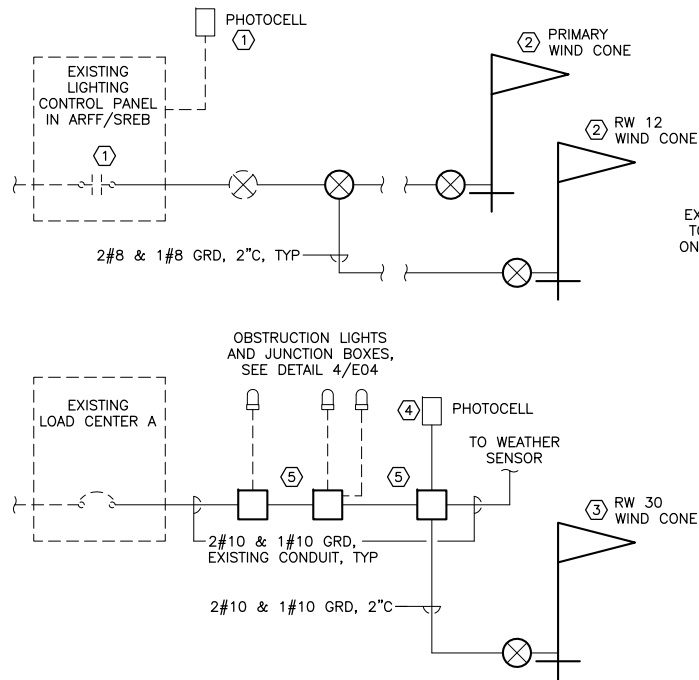
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
ELECTRICAL NEW WORK PLAN

DATE: MAY 1, 2012
SHEET: E03 OF 56
AS-BUILT SHEET:

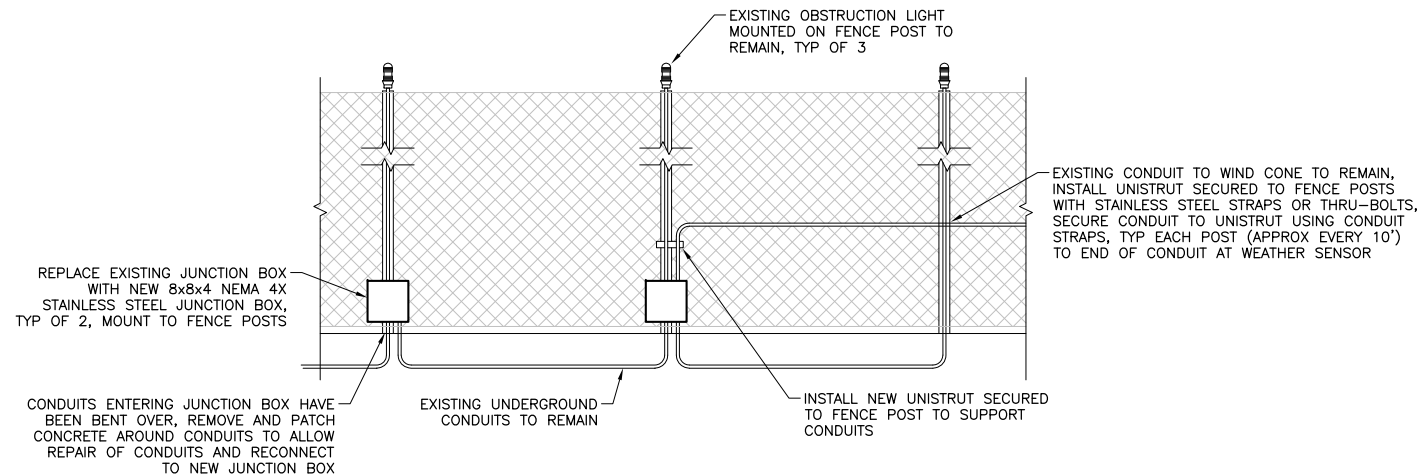
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Checked By: ELEC-DLS1
Date Revised: ELEC-DLS1
Layout Name: ELEC-DLS1
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NOTES:

1. TROUBLESHOOT AND REPAIR OR REPLACE EXISTING PHOTOCELL AND CONTROL CIRCUIT AS REQUIRED FOR PROPER OPERATION.
2. REMOVE WIND CONE AND RETROFIT WITH NEW SUPPORT POLE PER SPECIFICATIONS. REINSTALL EXISTING WIND CONE ASSEMBLY ON NEW SUPPORT POLE AND FOUNDATION.
3. INSTALL STATE-FURNISHED WIND CONE AND POLE ON NEW FOUNDATION.
4. INSTALL TWIST-LOCK PHOTOCELL WITH MATCHING RECEPTACLE. CONNECT TO CONTROL WIND CONE POWER ONLY.
5. WORK TO REPAIR OBSTRUCTION LIGHTS, INSTALL PHOTOCELL, AND RECONNECT WEATHER SENSOR IS SUBSIDIARY TO L-107G PAY ITEM FOR RW 30 WIND CONE.

5 WIND CONE RISER DIAGRAMS
SCALE: N.T.S.



4 OBSTRUCTION LIGHT CONDUIT REPAIR DETAIL
SCALE: N.T.S.



PLANS DEVELOPED BY:
USKH, INC.

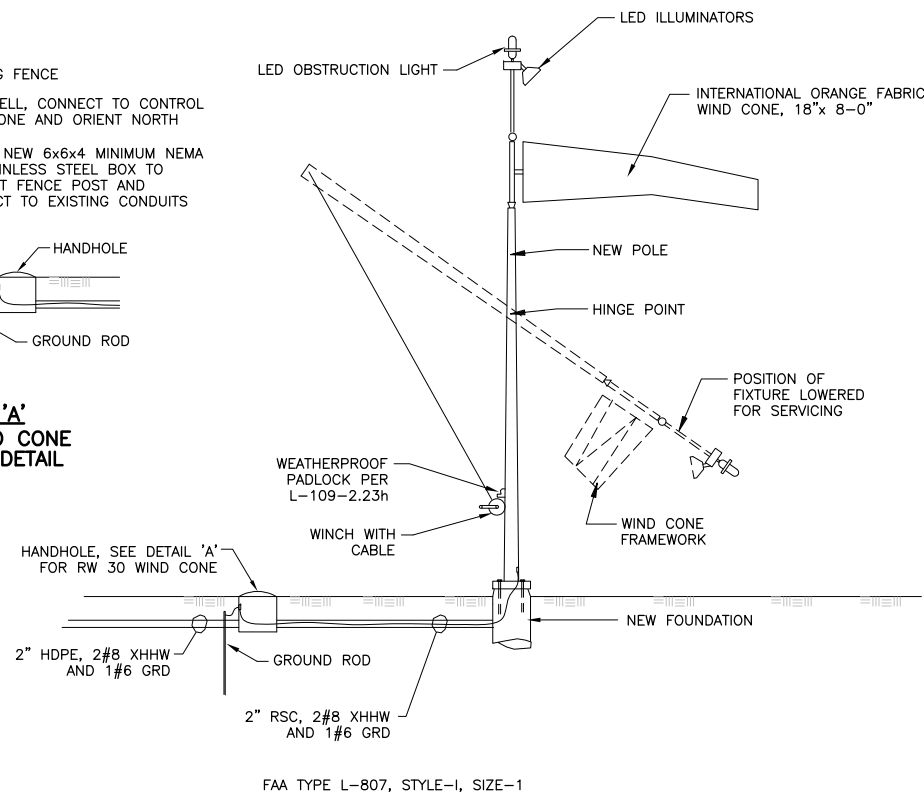
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

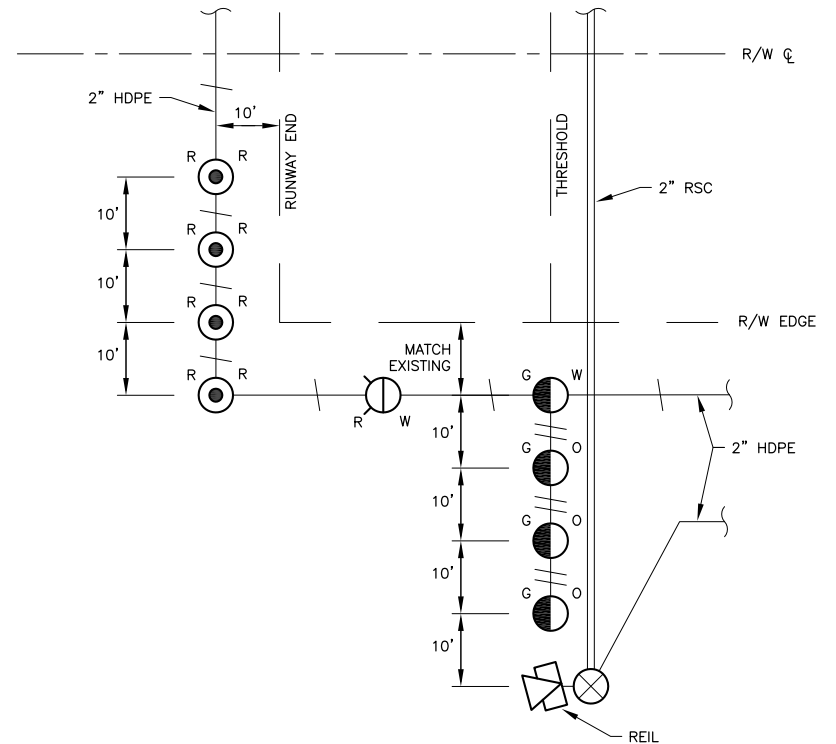
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
ELECTRICAL DETAILS

DATE: MAY 1, 2012
SHEET: E04 OF 56
AS-BUILT SHEET:

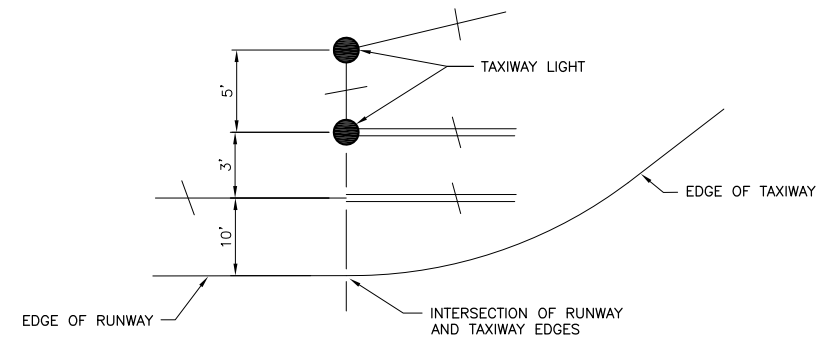
2 LIGHTED WIND CONE ASSEMBLY
SCALE: N.T.S.

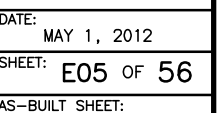


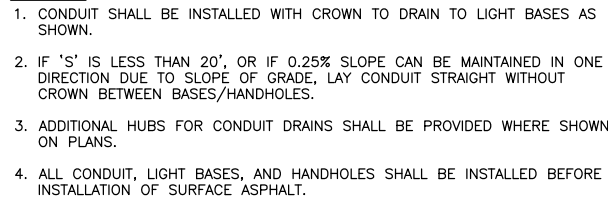
1 DISPLACED THRESHOLD LIGHT DETAIL
SCALE: N.T.S.



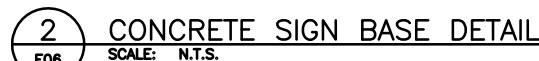
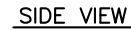
3 TAXIWAY ENTRANCE LIGHTS DETAIL
SCALE: N.T.S.







BY	DATE	REVISION



1. MINOR GRADING OR FILL SHALL BE REQUIRED AT ALL SIGN LOCATIONS. THE GRADING AND EARTHWORK SHALL BE INCIDENTAL TO THE CONTRACT AND NO SEPARATE PAYMENT SHALL BE MADE.
2. ATTACH SIGNS TO CONCRETE BASE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION P-610.
4. SIGN BASE SHALL BE LEVEL AND SET AT THE ELEVATION OF THE SURROUNDING GRADE.



- # 3 E07 SAW-CUT CONDUIT INSTALLATION DETAIL SCALE: N.T.S.



2 HANDHOLE DETAIL - TYPE 1
E07 SCALE: N.T.S.



TYPE B

4 SPLICE DETAILS
E07 SCALE: N.T.S.



NOTES:

- NOTES:

- 6 TYPICAL CONDUIT TRENCH DETAIL
E07 SCALE: N.T.S.



- 5 CONCRETE ENCASED DUCTBANK DETAIL
E07 SCALE: N.T.S.



**STATE OF ALASKA
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UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
ELECTRICAL DETAILS

DATE: MAY 1, 2012
SHEET: E07 OF 56
S-BUILT SHEET:

Date Revised:
Layout Name:
File Path and Name:

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Designed By:
Drawn By:
Checked By:

RUNWAY EDGE LIGHT SCHEDULE							
NUM	LENS COLOR	TYPE	LAMP WATTS	XFMR WATTS	STATION	OFFSET	REMARKS
R1	W/R	L-861	30	30/45	140+55.0	60.0 RT	
R2	W/G	L-861	45	30/45	139+00.0	60.0 RT	
R3	O/G	L-861	45	30/45	139+00.0	70.0 RT	
R4	O/G	L-861	45	30/45	139+00.0	80.0 RT	
R5	O/G	L-861	45	30/45	139+00.0	90.0 RT	
R6	W	L-861	30	30/45	137+04.9	60.0 RT	
R7	W	L-861	30	30/45	135+10.0	60.0 RT	
R8	W	L-861	30	30/45	133+15.0	60.0 RT	
R9	W	L-861	30	30/45	131+20.0	60.0 RT	
R10	W	L-861	30	30/45	129+25.0	60.0 RT	
R11	W	L-861	30	30/45	127+30.0	60.0 RT	
R12	W	L-861	30	30/45	125+35.0	60.0 RT	
R13	W	L-861	30	30/45	123+40.0	60.0 RT	
R14	W	L-861	30	30/45	121+45.0	60.0 RT	
R15	W	L-861	30	30/45	119+50.0	60.0 RT	
R16	W	L-861	30	30/45	117+55.0	60.0 RT	
R17	W	L-861	30	30/45	115+60.0	60.0 RT	
R18	W	L-861	30	30/45	113+65.0	60.0 RT	
R19	W	L-861	30	30/45	111+70.0	60.0 RT	
R20	W	L-861	30	30/45	109+75.0	60.0 RT	
R21	W	L-861	30	30/45	107+80.0	60.0 RT	
R22	W	L-861	30	30/45	105+85.0	60.0 RT	
R23	W	L-861	30	30/45	103+90.0	60.0 RT	
R24	G/W	L-861	45	30/45	100+00.0	60.0 RT	SEE NOTE 1
R25	G/O	L-861	45	30/45	100+00.0	70.0 RT	SEE NOTE 1
R26	G/O	L-861	45	30/45	100+00.0	80.0 RT	SEE NOTE 1
R27	G/O	L-861	45	30/45	100+00.0	90.0 RT	SEE NOTE 1
R28	R/W	L-861	30	30/45	98+45.0	60.0 RT	
R29	R	L-861	45	30/45	96+90.0	60.0 RT	
R30	R	L-861	45	30/45	96+90.0	50.0 RT	
R31	R	L-861	45	30/45	96+90.0	40.0 RT	
R32	R	L-861	45	30/45	96+90.0	30.0 RT	
R33	R	L-861	45	30/45	96+90.0	30.0 LT	
R34	R	L-861	45	30/45	96+90.0	40.0 LT	
R35	R	L-861	45	30/45	96+90.0	50.0 LT	
R36	R	L-861	45	30/45	96+90.0	60.0 LT	
R37	R/W	L-861	30	30/45	98+45.0	60.0 LT	
R38	G/W	L-861	45	30/45	100+00.0	60.0 LT	SEE NOTE 1
R39	G/O	L-861	45	30/45	100+00.0	70.0 LT	SEE NOTE 1
R40	G/O	L-861	45	30/45	100+00.0	80.0 LT	SEE NOTE 1

- NOTE:
1. CORE DRILL ASPHALT AND CONCRETE APRON TO ALLOW INSTALLATION OF LIGHT BASE. SAW-CUT CONCRETE AS REQUIRED TO INSTALL CONDUIT.

RUNWAY EDGE LIGHT SCHEDULE							
NUM	LENS COLOR	TYPE	LAMP WATTS	XFMR WATTS	STATION	OFFSET	REMARKS
R41	G/O	L-861	45	30/45	100+00.0	90.0 LT	SEE NOTE 1
R42	W	L-852D	(2) 30	65	101+95.0	60.0 LT	SEE NOTE 1
R43	W	L-852D	(2) 30	65	103+90.0	60.0 LT	SEE NOTE 1
R44	W	L-852D	(2) 30	65	105+85.0	60.0 LT	
R45	W	L-861	30	30/45	107+80.0	60.0 LT	
R46	W	L-861	30	30/45	109+75.0	60.0 LT	
R47	W	L-861	30	30/45	111+70.0	60.0 LT	
R48	W	L-861	30	30/45	113+65.0	60.0 LT	
R49	W	L-861	30	30/45	115+60.0	60.0 LT	
R50	W	L-861	30	30/45	117+55.0	60.0 LT	
R51	W	L-861	30	30/45	119+50.0	60.0 LT	
R52	W	L-861	30	30/45	121+45.0	60.0 LT	
R53	W	L-861	30	30/45	123+40.0	60.0 LT	
R54	W	L-861	30	30/45	125+35.0	60.0 LT	
R55	W	L-861	30	30/45	127+30.0	60.0 LT	
R56	W	L-861	30	30/45	129+25.0	60.0 LT	
R57	W	L-861	30	30/45	131+20.0	60.0 LT	
R58	W	L-861	30	30/45	133+15.0	60.0 LT	
R59	W	L-861	30	30/45	135+10.0	60.0 LT	
R60	W	L-861	30	30/45	137+05.0	60.0 LT	
R61	W/G	L-861	45	30/45	139+00.0	60.0 LT	
R62	O/G	L-861	45	30/45	139+00.0	70.0 LT	
R63	O/G	L-861	45	30/45	139+00.0	80.0 LT	
R64	O/G	L-861	45	30/45	139+00.0	90.0 LT	
R65	W/R	L-861	30	30/45	140+55.0	60.0 LT	
R66	R	L-861	45	30/45	142+10.0	60.0 LT	
R67	R	L-861	45	30/45	142+10.0	50.0 LT	
R68	R	L-861	45	30/45	142+10.0	40.0 LT	
R69	R	L-861	45	30/45	142+10.0	30.0 LT	
R70	R	L-861	45	30/45	142+10.0	30.0 RT	
R71	R	L-861	45	30/45	142+10.0	40.0 RT	
R72	R	L-861	45	30/45	142+10.0	50.0 RT	
R73	R	L-861	45	30/45	142+10.0	60.0 RT	

TAXIWAY EDGE LIGHT SCHEDULE							
NUM	LENS COLOR	TYPE	LAMP WATTS	XFMR WATTS	STATION	OFFSET	REMARKS
T1	B	L-861T	45	30/45	102+35.5	67.6 RT	SEE NOTE 1
T2	B	L-861T	45	30/45	102+35.2	62.6 RT	SEE NOTE 1
T3	B	L-861T	45	30/45	102+02.4	73.7 RT	SEE NOTE 1
T4	B	L-861T	45	30/45	101+90.1	106.9 RT	SEE NOTE 1
T5	B	L-861T	45	30/45	102+02.9	136.8 RT	SEE NOTE 1
T6	B	L-861T	45	30/45	102+58.4	192.5 RT	SEE NOTE 1
T7	B	L-861T	45	30/45	101+76.1	274.4 RT	SEE NOTE 1
T8	B	L-861T	45	30/45	101+21.5	216.1 RT	SEE NOTE 1
T9	B	L-861T	45	30/45	100+83.8	164.6 RT	SEE NOTE 2
T10	B	L-861T	45	30/45	100+71.7	102.0 RT	SEE NOTE 1
T11	B	L-861T	45	30/45	100+53.1	69.5 RT	SEE NOTE 1
T12	B	L-861T	45	30/45	100+22.0	63.0 RT	SEE NOTE 2
T13	B	L-861T	45	30/45	100+22.0	68.0 RT	SEE NOTE 2
T14	B	L-861T	45	30/45	100+17.2	68.0 LT	SEE NOTE 2
T15	B	L-861T	45	30/45	100+17.2	63.0 LT	SEE NOTE 2
T16	B	L-861T	45	30/45	100+30.1	70.4 LT	SEE NOTE 1
T17	B	L-861T	45	30/45	100+97.4	135.6 LT	SEE NOTE 1
T18	B	L-861T	45	30/45	101+63.7	199.9 LT	SEE NOTE 1
T19	B	L-861T	45	30/45	102+12.4	249.9 LT	SEE NOTE 1
T20	B	L-861T	45	30/45	107+30.1	250.3 LT	
T21	B	L-861T	45	30/45	106+91.9	210.9 LT	
T22	B	L-861T	45	30/45	106+69.9	175.9 LT	
T23	B	L-861T	45	30/45	106+66.2	134.7 LT	
T24	B	L-861T	45	30/45	106+81.9	96.4 LT	
T25	B	L-861T	45	30/45	107+13.3	69.5 LT	
T26	B	L-861T	45	30/45	107+53.5	63.0 LT	
T27	B	L-861T	45	30/45	107+53.5	68.0 LT	

- NOTES:
1. INSTALL NEW LIGHT FIXTURE AND TRANSFORMER ON EXISTING LIGHT BASE WITH NEW CONDUCTORS IN EXISTING CONDUIT.
2. CORE DRILL ASPHALT AND CONCRETE APRON TO ALLOW INSTALLATION OF LIGHT BASE. SAW-CUT CONCRETE AS REQUIRED TO INSTALL CONDUIT.



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION	UNALASKA AIRPORT UNALASKA, ALASKA UNALASKA AIRPORT IMPROVEMENTS 2012 PROJECT No. 53443 A.I.P. No. 3-02-0082-014-2012 ELECTRICAL SCHEDULES	
	DATE:	MAY 1, 2012
	SHEET:	E08 OF 56
AS-BUILT SHEET:		

HANDHOLE SCHEDULE					
NUM	TYPE	SIZE	STATION	OFFSET	REMARKS
HH1	I	B	109+92.7	82.8 RT	
HH2	I	B	109+92.7	82.5 LT	
HH3	I	B	111+94.4	294.1 LT	
HH4	I	B	115+92.7	82.8 RT	
HH5	I	B	121+92.7	82.8 RT	
HH6	I	B	127+92.7	82.8 RT	
HH7	I	B	133+92.7	82.8 RT	
HH8	I	B	139+92.7	82.8 RT	
HH9	I	B	141+11.6	188.1 RT	
HH10	I	D	127+75.7	223.4 RT	PAID UNDER L-132a(1)
HH11	I	D	131+87.1	223.4 RT	PAID UNDER L-132c
HH12	I	D	135+37.6	223.4 RT	PAID UNDER L-132c
HH13	I	D	139+00.0	223.4 RT	PAID UNDER L-132c
HH14	I	D	141+53.4	234.9 RT	PAID UNDER L-132c
HH15	I	B	97+12.0	186.4 RT	PAID UNDER L-165a
HH16	I	B	95+51.8	104.8 LT	PAID UNDER L-165a
HH17	I	B	94+62.4	137.0 LT	PAID UNDER L-165a
HH18	I	B	110+14.2	165.5 RT	
HH19	I	B	110+04.4	170.5 RT	
HH20	I	B	100+58.8	253.8 RT	
HH21	I	B	106+17.3	83.7 RT	PAID UNDER L-132a(2)
HH22	I	B	131+27.8	92.5 RT	PAID UNDER L-132a(1)
HH23	I	D	114+81.8	228.9 RT	PAID UNDER L-132a(1)
HH24	I	D	120+72.9	228.9 RT	PAID UNDER L-132a(1)

NOTES:
1. LOCATIONS ARE APPROXIMATE, FIELD LOCATE HANDHOLES AND JUNCTION BOXES.

SIGN SCHEDULE													
NUM	SIDE	PANEL	LEGEND	TYPE	LEGEND COLOR	FACE COLOR	STATION	OFFSET	SIZE	STYLE	CLASS	MODE	REMARKS
S1	1	1	A	L-858L	YELLOW	BLACK	107+35.9	250.0 LT	2	2	2	3	
	2	1	-	-	-	-							
S2	1	1	-	-	-	-	107+53.5	85.0 LT	2	2	2	3	
	2	1	A →	L-858Y	BLACK	YELLOW							
S3	1	1	13-31	L-858R	WHITE	RED	102+09.7	253.0 LT	2	2	2	3	SIGN MAY BE INSTALLED ON EXISTING FOUNDATION
	2	2	A	L-858L	YELLOW	BLACK							
S4	1	1	← A	L-858Y	BLACK	YELLOW	100+17.2	85.0 LT	2	2	2	3	
	2	1	-	-	-	-							
S5	1	1	B →	L-858Y	BLACK	YELLOW	100+22.0	85.0 RT	2	2	2	3	
	2	1	-	-	-	-							
S6	1	1	-	-	-	-	102+35.5	85.0 RT	2	2	2	3	
	2	1	← B	L-858Y	BLACK	YELLOW							
S7	1	1	31-13	L-858R	WHITE	RED	102+79.5	193.5 RT	2	2	2	3	
	2	2	B	L-858L	YELLOW	BLACK							

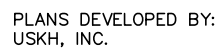
STATION AND OFFSET INDICATED IS AT CENTER OF SIGN DEPTH ON END NEAREST TO EDGE OF RUNWAY OR TAXIWAY UNLESS OTHERWISE INDICATED.
NOTE: TRANSFORMERS SHALL BE SIZED AS RECOMMENDED BY THE SIGN MANUFACTURER.



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

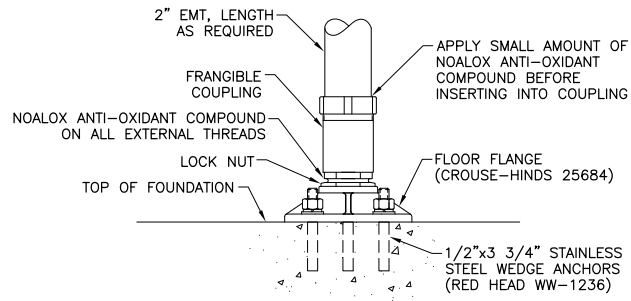
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION	UNALASKA AIRPORT UNALASKA, ALASKA UNALASKA AIRPORT IMPROVEMENTS 2012 PROJECT No. 53443 A.I.P. No. 3-02-0082-014-2012 ELECTRICAL SCHEDULES		DATE: MAY 1, 2012
			SHEET: E09 OF 56
			AS-BUILT SHEET:



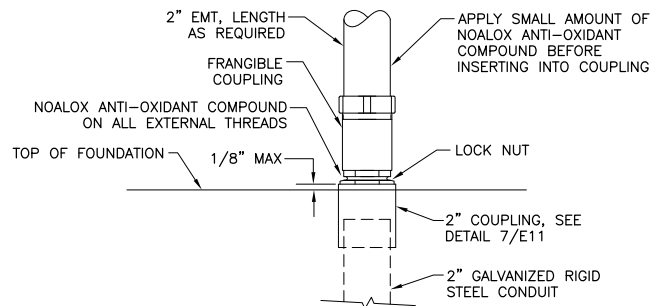
**STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION**

DATE: MAY 1, 2012
SHEET: E10 OF 56
AS-BUILT SHEET:

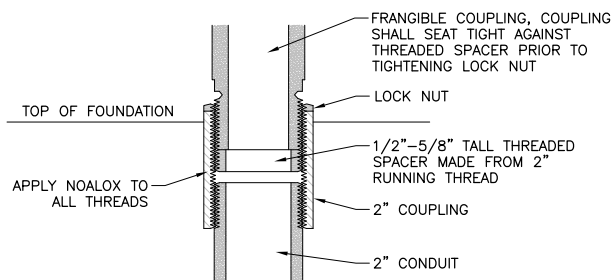
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Designed By: REIL DTLS1
Drawn By: REIL DTLS1
Checked By: REIL DTLS1



5 FRANGIBLE LEG DETAIL
E11 SCALE: N.T.S.

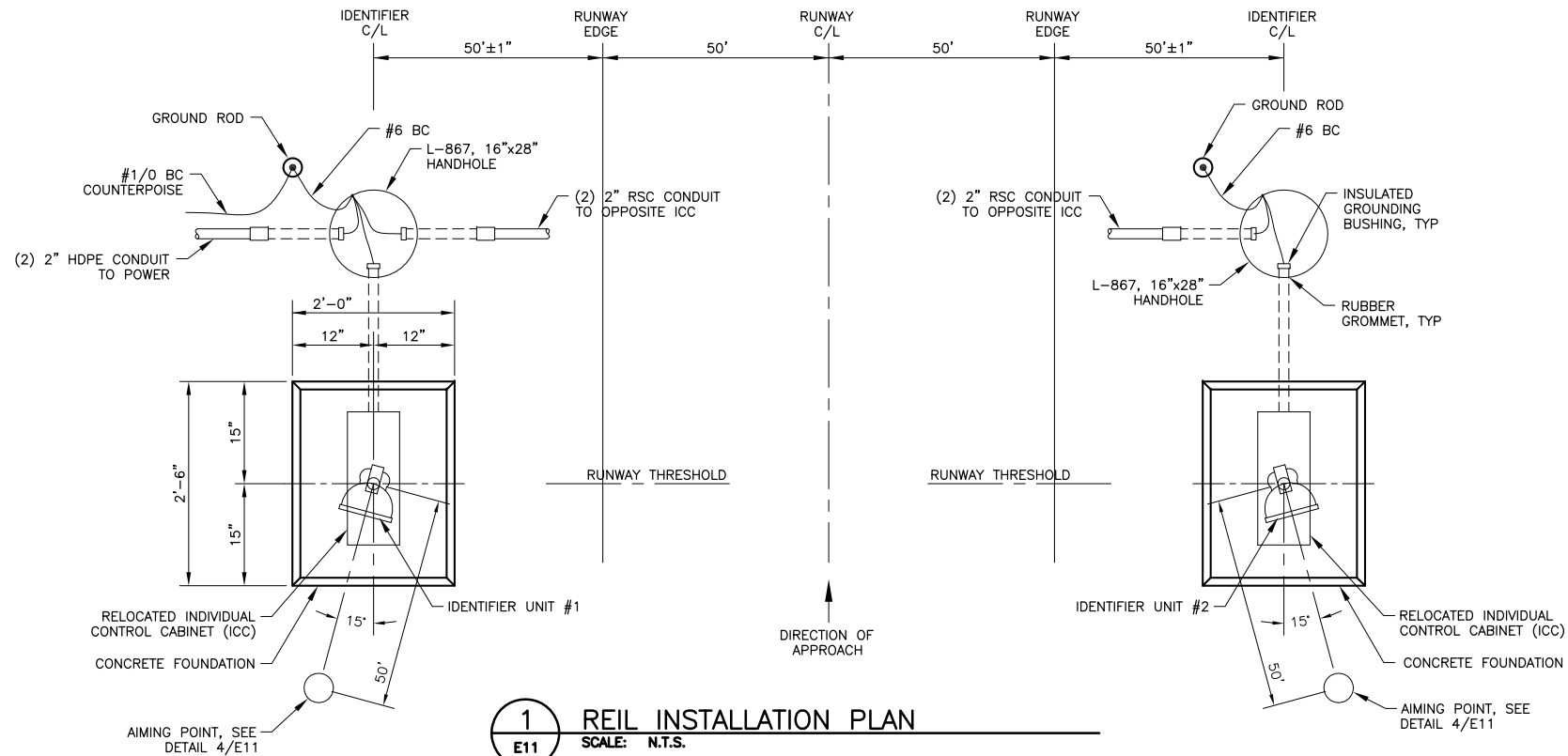


6 FRANGIBLE WIRING LEG DETAIL
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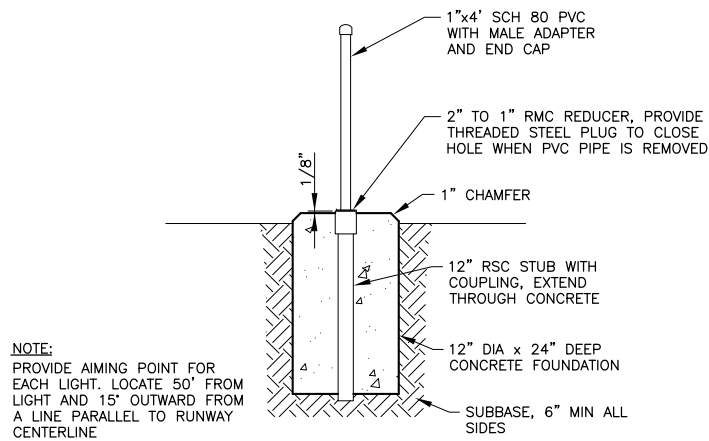


NOTE:
DETAIL SHALL APPLY AT ALL LOCATIONS WHERE
FRANGIBLE COUPLINGS ARE THREADED INTO
CONDUIT COUPLINGS

7 FRANGIBLE COUPLING DETAIL
E11 SCALE: N.T.S.

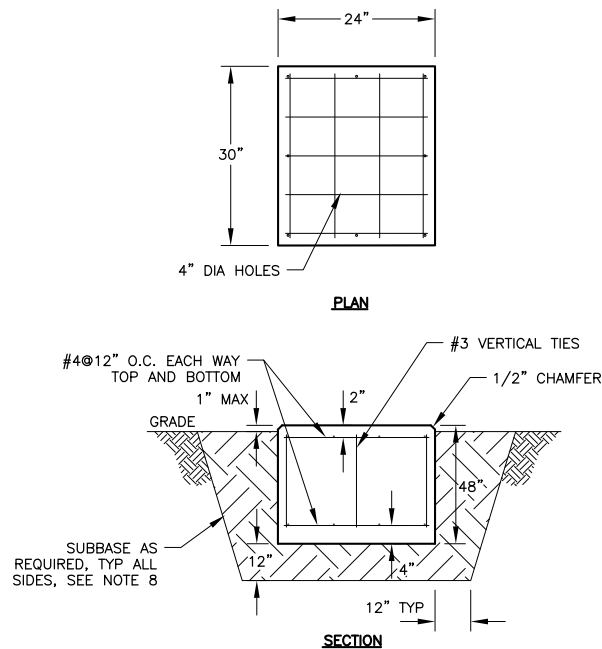


1 REIL INSTALLATION PLAN
E11 SCALE: N.T.S.

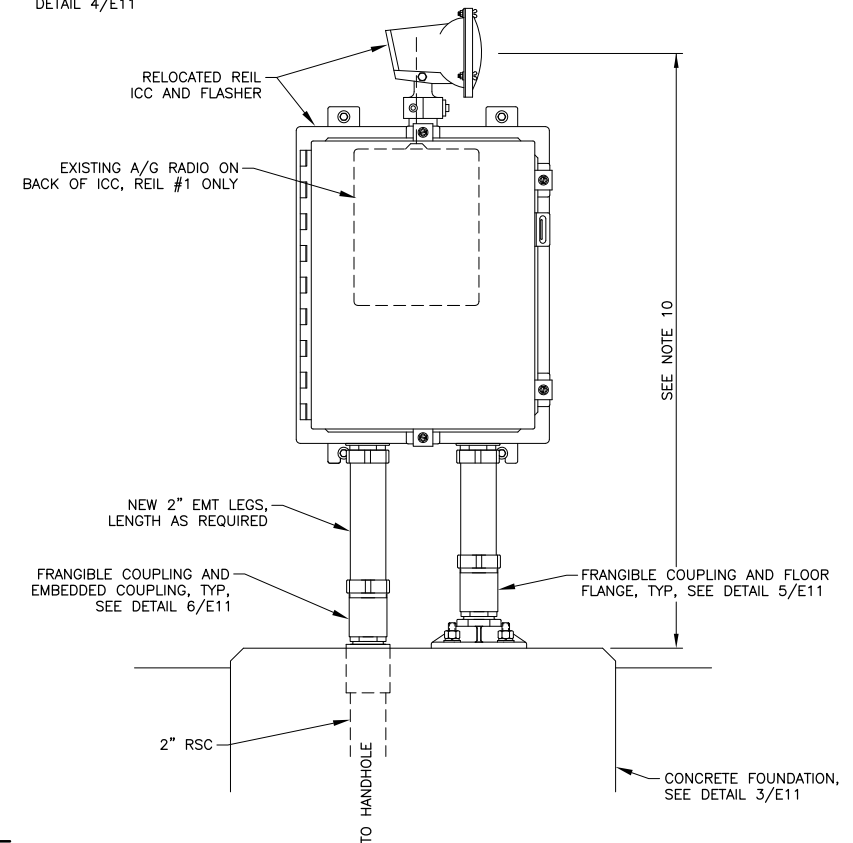


NOTE:
PROVIDE AIMING POINT FOR
EACH LIGHT. LOCATE 50' FROM
LIGHT AND 15' OUTWARD FROM
A LINE PARALLEL TO RUNWAY
CENTERLINE

4 AIMING POINT DETAIL
E11 SCALE: N.T.S.



3 REIL FOUNDATION DETAIL
E11 SCALE: N.T.S.



2 REIL INSTALLATION ELEVATION
E11 SCALE: N.T.S.

- NOTES:**
1. FIELD VERIFY WIRING CONFIGURATION AND TERMINATIONS PRIOR TO DISCONNECTING EXISTING REIL SYSTEM. FIELD VERIFY QUANTITY OF CONDUCTORS REQUIRED.
 2. FAA WILL VERIFY AIMING AND CERTIFY THE REIL SYSTEM AFTER THE INSTALLATION IS COMPLETE.
 3. CONCRETE AND REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SPECIFICATION P-610.
 4. DRILL HOLES AND INSTALL ANCHORS WHEN REIL UNITS HAVE BEEN ACCURATELY LOCATED.
 5. COORDINATE PLACEMENT OF CONDUIT STUB-UPS WITH EQUIPMENT PRIOR TO PLACING CONCRETE.
 6. ALL MOUNTINGS TO BE 2 INCH FRANGIBLE COUPLINGS.
 7. ALL THREADED AND COMPRESSION CONNECTIONS SHALL BE WRENCH-TIGHT AND WIGGLE FREE. ALL THREADED CONNECTIONS SHALL BE TREATED WITH NOALOX ANTI-OXIDANT COMPOUND BEFORE ASSEMBLY.
 8. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, EXCAVATE TO PROVIDE A MINIMUM OF 12" OF SUBBASE BENEATH FOUNDATIONS.
 9. THE IDENTIFIERS SHALL BE AIMED 15 DEGREES OUTWARD FROM THE RUNWAY CENTERLINE AND 10 DEGREES ABOVE THE HORIZONTAL.
 10. THE ELEVATION OF BOTH LAMP HEADS SHALL BE WITHIN 3 FEET OF A HORIZONTAL PLANE THROUGH THE RUNWAY CENTERLINE, OR A MAXIMUM OF 5 FEET ABOVE THE SURROUNDING GRADE. FIELD MEASURE AND INSTALL AT HIGHEST ACCEPTABLE ELEVATION.



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-014-2012
REIL DETAILS

DATE: MAY 1, 2012
SHEET: E11 OF 56
AS-BUILT SHEET:

Date Revised:5/01/2012 5:03 PM

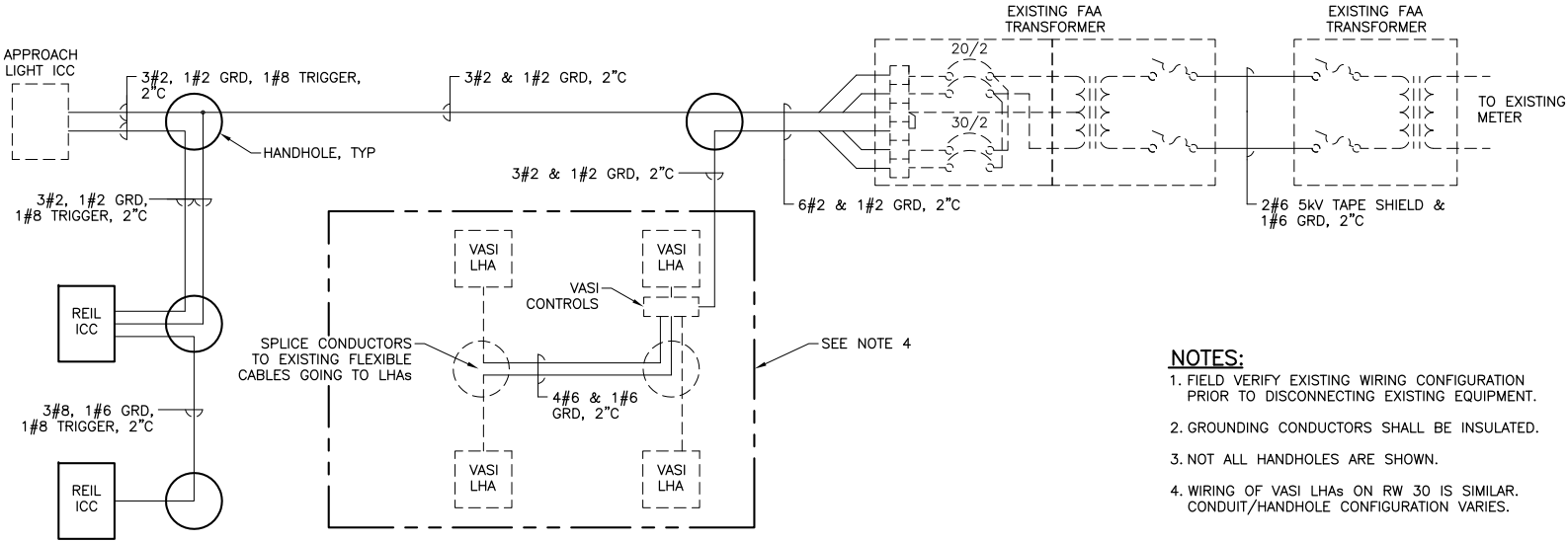
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Designed By:

Drawn By:

Checked By:



1

E12

RW 12 VASI AND REIL WIRING DIAGRAM

SCALE: N.T.S.



PLANS DEVELOPED BY:
USKH, INC.

BY	DATE	REVISION

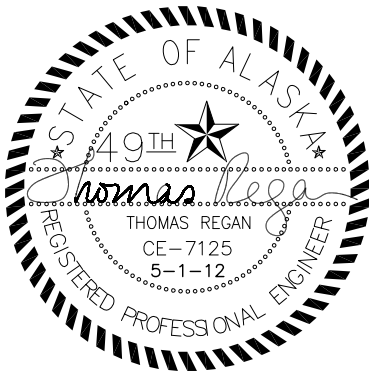
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION	UNALASKA AIRPORT		DATE: MAY 1, 2012
	UNALASKA, ALASKA		SHEET: E12 OF 56
	UNALASKA AIRPORT IMPROVEMENTS 2012		
	PROJECT No. 53443		AS-BUILT SHEET:
	A.I.P. No. 3-02-0082-014-2012		
	VASI-REIL WIRING DIAGRAM		

Date Revised:		Designed By:	T. REGAN
Layout Name:		Drawn By:	T. REGAN
File Path and Name:	D:\Alaska\Airport ADOT Utilities\ADOT Airport Utility Design.dwg	Checked By:	B. HANSON

PIPE INSTALLATION				
DESCRIPTION	FROM STATION	TO STATION	LENGTH (FT)	REMARKS
2" SDR 11 HDPE FORCE MAIN	—	—	627 ±	INSTALL NEW FORCE MAIN TO SERVE ADOT SHOP/TRAILERS
6" CLASS 52 DUCTILE IRON PIPE – SEWER	200+97, 7' LEFT	208+79, 7' LEFT	767	SEE NOTE 2 SHEET U2
12" CLASS 52 DUCTILE IRON PIPE – WATER	200+86, 7' RIGHT	201+09, 7' RIGHT	23	
16" CLASS 52 DUCTILE IRON PIPE – WATER	201+09, 7' RIGHT	208+92, 7' RIGHT	794	SEE NOTE 7 SHEET U1
20" CLASS 52 DUCTILE IRON PIPE – WATER	0+00W	2+35W	235	STA 0+00W=STA 201+09, 7' RIGHT. SEE NOTE 1 SHEET U1

WATER			
DESCRIPTION	STATION	OFFSET	REMARKS
20" BUTTERFLY VALVE AND VALVE BOX	2+35W	0	INSTALL ON EAST POINT SIDE OF EXISTING TEE, SEE DETAIL 5 SHEET U4
20" BUTTERFLY VALVE AND VALVE BOX	201+09	7' RIGHT	INSTALL ON AIRPORT BEACH ROAD SIDE OF NEW TEE, SEE DETAIL 5 SHEET U4
16" BUTTERFLY VALVE AND VALVE BOX	201+09	7' RIGHT	INSTALL AFTER 20x16 REDUCER ON BALLYHOO ROAD SIDE, SEE DETAIL 5 SHEET U4
12" GATE VALVE AND VALVE BOX	201+09	7' RIGHT	INSTALL AFTER 20x12 REDUCER ON E.P SIDE, SEE DETAIL 5, DETAIL 6, SHEET U4
SINGLE PUMPER HYDRANT ASSEMBLY	0+56W	30' LEFT	SEE DETAIL 1, DETAIL 3 SHEET U4
DOUBLE PUMPER HYDRANT ASSEMBLY	203+58	30' LEFT	SEE DETAIL 2, DETAIL 3 SHEET U4
REMOVE AND SALVAGE HYDRANT ASSEMBLY	0+79W	16' RIGHT	DELIVER SALVAGED HYDRANT AND VALVE TO CITY OF UNALASKA
CONNECT TO EXISTING COMBO AIR/VACUUM RELIEF VAULT	1+98W	35' LEFT	SEE DETAIL 4 SHEET U4
CONNECT TO EXISTING WATERLINE (20")	2+23W	0	INSTALL 45° BEND AFTER NEW VALVE, SEE DETAIL 6 SHEET U4
CONNECT TO EXISTING WATERLINE (16")	208+92	7' RIGHT	INSTALL 11.25° BEND
CONNECT TO EXISTING WATERLINE (12")	200+86	7' RIGHT	INSTALL 90° BEND, SEE DETAIL 6 SHEET U4
SLURRY FILL ABANDONED 16" PIPE AND CARRIER PIPE	208+92, 7' RT	2+35W	APPROXIMATELY 590 LF 16" DIP TO BE FILLED PLUS CARRIER PIPE UNDER RUNWAY. PLUG ENDS WITH CONCRETE. SEE NOTE 10 SHEET U1, SPECIFICATIONS.

SEWER			
DESCRIPTION	STATION	OFFSET	REMARKS
INSTALL 4' DIAMETER MANHOLE	200+97	7' LEFT	INSTALL OVER EXISTING 8" DIP SEWER. SEE NOTE 1 SHEET U2, DETAIL 1 SHEET U5
INSTALL DROP CONNECTION	200+97	7' LEFT	SEE DETAIL 2 SHEET U5
INSTALL CLEANOUT MANHOLE	206+54	7' LEFT	SEE DETAILS 1-4 SHEET U5.1. 2" FORCE MAIN PIPE AND VALVES EXCLUDED
CONNECT TO EXISTING 6" DUCTILE IRON SEWER	208+79	7' LEFT	INSTALL 11.25' BEND
INSTALL CLEANOUT MANHOLE	213+61±	24'± RIGHT	SEE DETAILS 1-4 SHEET U5.1. 2" VALVES AND FITTINGS INCLUDED.
SLURRY FILL ABANDONED 6" PIPE AND CARRIER PIPE	200+69, 247' LEFT	208+79, 7'± LEFT	APPROXIMATELY 550 LF 6" DIP TO BE FILLED PLUS CARRIER PIPE UNDER RUNWAY. PLUG ENDS WITH CONCRETE. SEE NOTE 6 SHEET U2, SPECIFICATIONS.




TR	05/01/12	FOR BID
BY	DATE	REVISION

GENERAL NOTES

1. ALL UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL OBTAIN UTILITY LOCATES FROM UTILITY COMPANIES PRIOR TO THE START OF ANY EXCAVATION.
2. THE CONTRACTOR IS RESPONSIBLE TO REPAIR AND/OR REPLACE ANY UTILITIES SHOWN THAT ARE DAMAGED DURING CONSTRUCTION.
3. AT A SUFFICIENT DISTANCE PRIOR TO ENCOUNTERING A KNOWN OBSTACLE OR A TIE INTO AN EXISTING PIPE, THE CONTRACTOR SHALL EXPOSE AND VERIFY THE EXACT LOCATION OF THE OBSTACLE OR PIPE SO THAT ALIGNMENT AND/OR GRADE MAY BE DETERMINED BEFORE THE PIPE SECTIONS ARE LAID IN THE TRENCH AND BACKFILLED. NO EXTRA PAYMENT WILL BE MADE FOR REWORK OF NEWLY INSTALLED UTILITIES REQUIRED BY FAILURE TO EXPOSE EXISTING UTILITIES.
4. THE CONTRACTOR SHALL MAINTAIN A VERTICAL SEPARATION AND MINIMUM CLEARANCE OF 18" BETWEEN THE WATER MAIN AND SEWER OR STORM DRAIN PIPES AT ALL CROSSINGS. IN ADDITION, THE PIPE SECTIONS SHALL BE LOCATED SO THAT NO PIPE JOINT IS CLOSER THAN 9' FROM THE POINT OF THE CROSSING. WATER MAINS AND SEWER PIPES SHALL MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 10' CLEAR.
5. THE CONTRACTOR SHALL INSTALL 2" OF RIGID BOARD INSULATION 4' WIDE AND A MINIMUM OF 2-FEET BEYOND THE SIDES OF THE PIPES AT ALL WATER AND SEWER PIPE CROSSINGS OF CULVERTS AND STORM DRAINS.



 REGAN ENGINEERING, P.C.

**STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION**

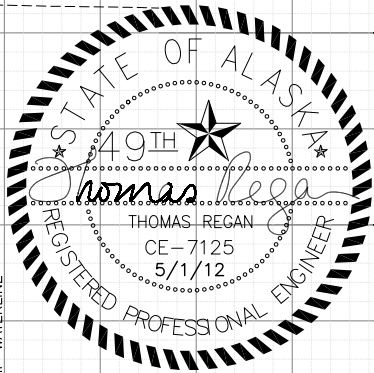
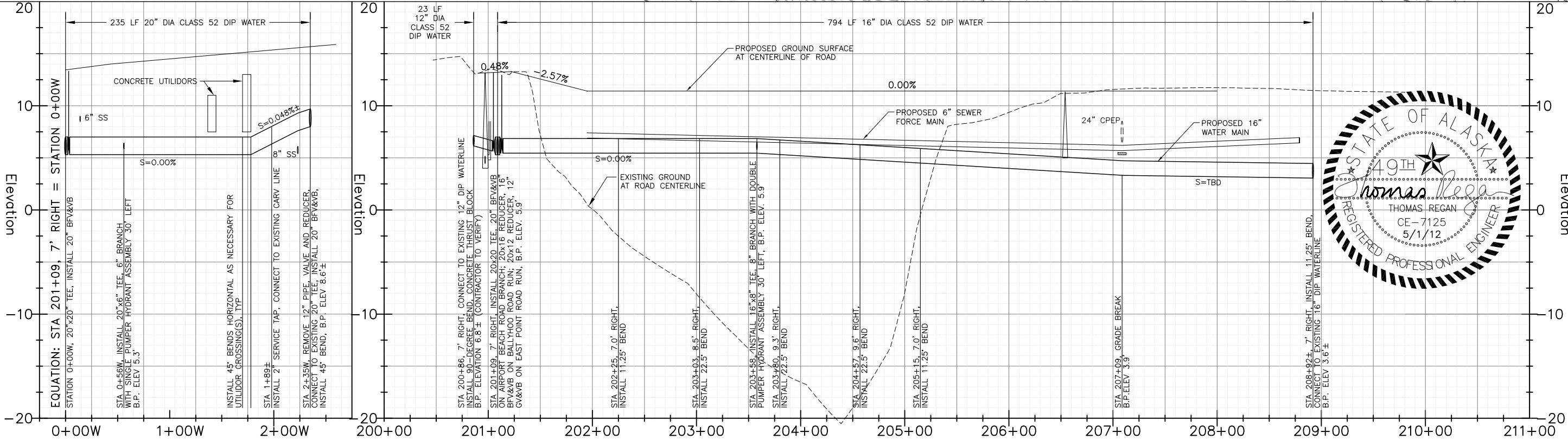
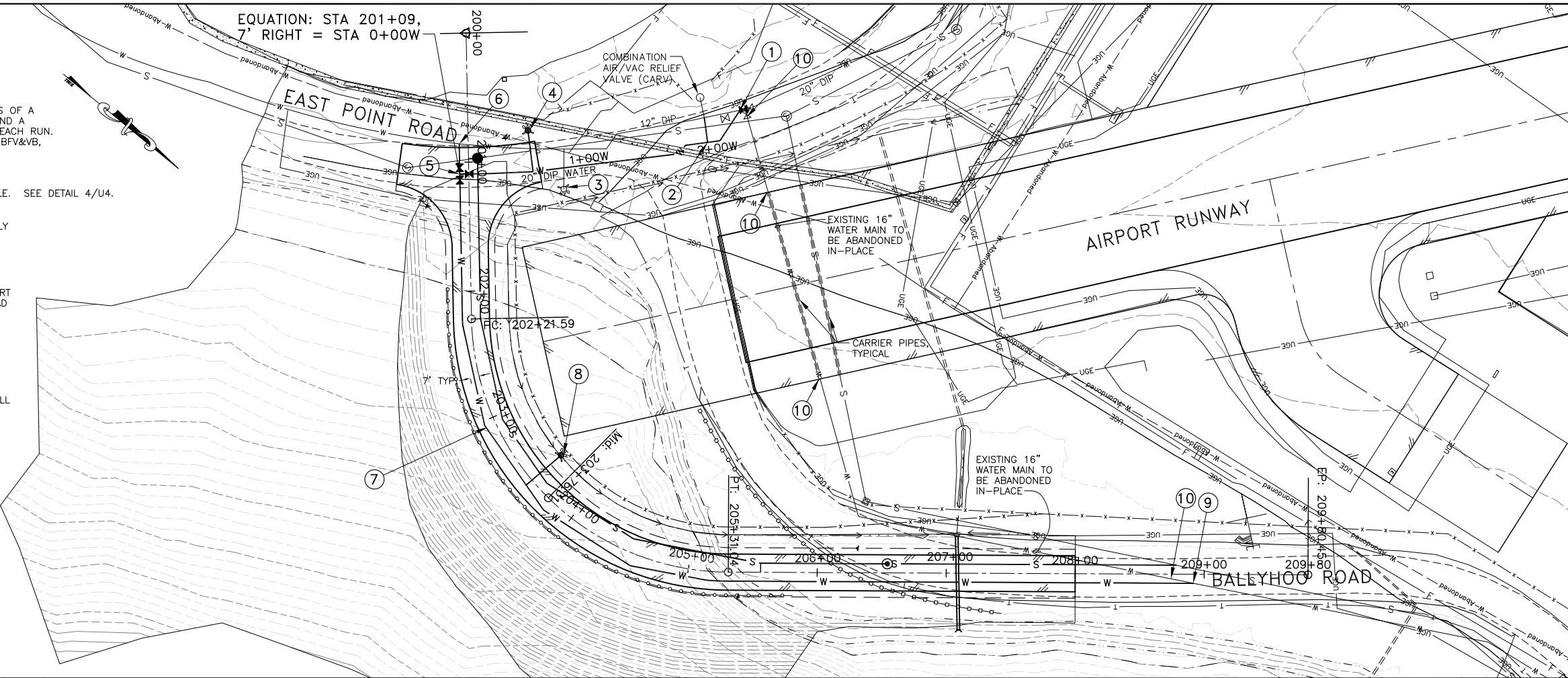
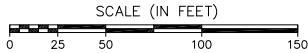
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-XXX-2012
TABLES

DATE: 05/01/2012
SHEET: U0 OF 56
AS-BUILT SHEET:

Designed By: T. REGAN
Drawn By: T. REGAN
Checked By: B. HANSON
Date Revised:
Layout Name:
File Path and Name: D:\Unalaska\Airport ADOT Utilities\ADOT Airport Utility Designing.dwg

WORK NOTES:

- STATION 2+35W (STA 200+93±, 218'± LEFT); EXISTING INSTALLATION CONSISTS OF A 20"x16" TEE, 16" BFV&VB ON THE BALLYHOO BRANCH, A 20"x12" REDUCER AND A 12" GV&VB ON THE EAST POINT RUN, AND A 20" BFV&VB ON THE AIRPORT BEACH RUN. REMOVE 20"x12" REDUCER, CONNECT TO EXISTING 20" TEE, AND INSTALL 20" BFV&VB, 20" DIA. 45° BEND AND PIPE TO RELOCATED ROAD INTERSECTION.
- STATION 1+98W±, 35' LEFT, CONNECT NEW 2" COPPER LINE TO CARV MANHOLE. SEE DETAIL 4/U4.
- STATION 0+79W, 16' RIGHT, REMOVE AND SALVAGE EXISTING HYDRANT ASSEMBLY
- STATION 0+56W, 30' LEFT, INSTALL SINGLE PUMPER HYDRANT ASSEMBLY
- STATION 201+09, 7' RIGHT, INSTALL 20"x20" TEE WITH 20" BFV&VB ON AIRPORT BEACH ROAD BRANCH, 20"x16" REDUCER AND 16" BFV&VB ON BALLYHOO ROAD RUN; AND 20"x12" REDUCER AND 12" GV&VB ON EAST POINT ROAD RUN.
- STATION 200+86, 7' RIGHT, CONNECT TO EXISTING 12" DUCTILE IRON WATERLINE.
- 7' RIGHT, INSTALL 16" DIAMETER CLASS 52 DUCTILE IRON WATER MAIN. INSTALL PIPE LEVEL TO MATCH SURFACE GRADE AND/OR CONTINUOUSLY SLOPING TO CONNECTION. INSTALL BENDS AS SHOWN.
- STATION 203+58, 30' LEFT, INSTALL DOUBLE PUMPER HYDRANT ASSEMBLY
- STATION 208+92±, 7' RIGHT, CONNECT TO EXISTING WATERLINE
- START/END ABANDON EXISTING WATERLINE. FILL UTILITY AND CARRIER PIPES WITH SAND SLURRY AND CONCRETE PLUGS.



REGAN ENGINEERING, P.C.

PROFILE SCALE
HORIZ: 1"=50'
VERT: 1"=5'

TR	05/01/12	FOR BID
BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-XXX-2012
WATER- PLAN AND PROFILE

DATE:
05/01/2012
SHEET:
U1 of 56
AS-BUILT SHEET:

EXISTING SANITARY SEWER MANHOLE INFORMATION

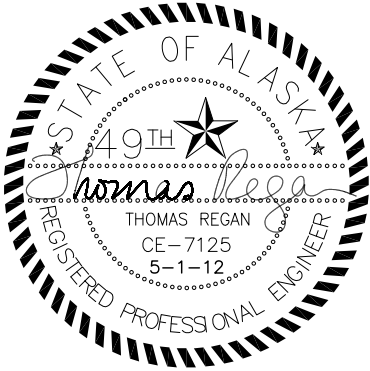
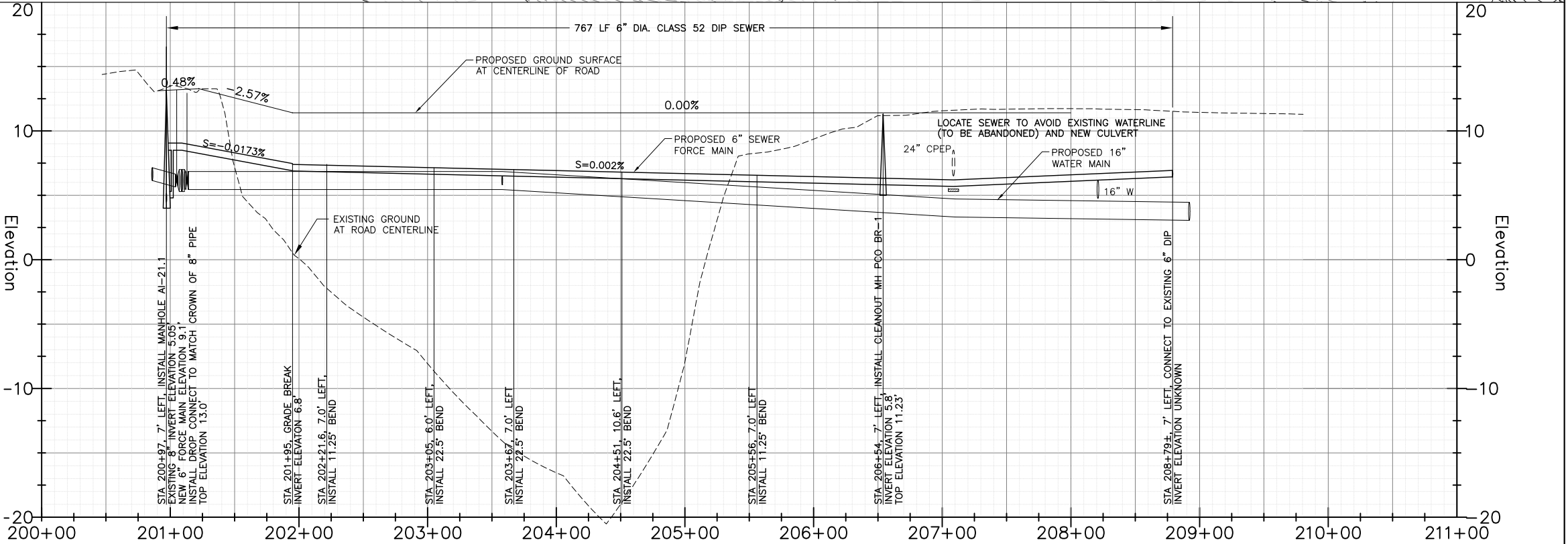
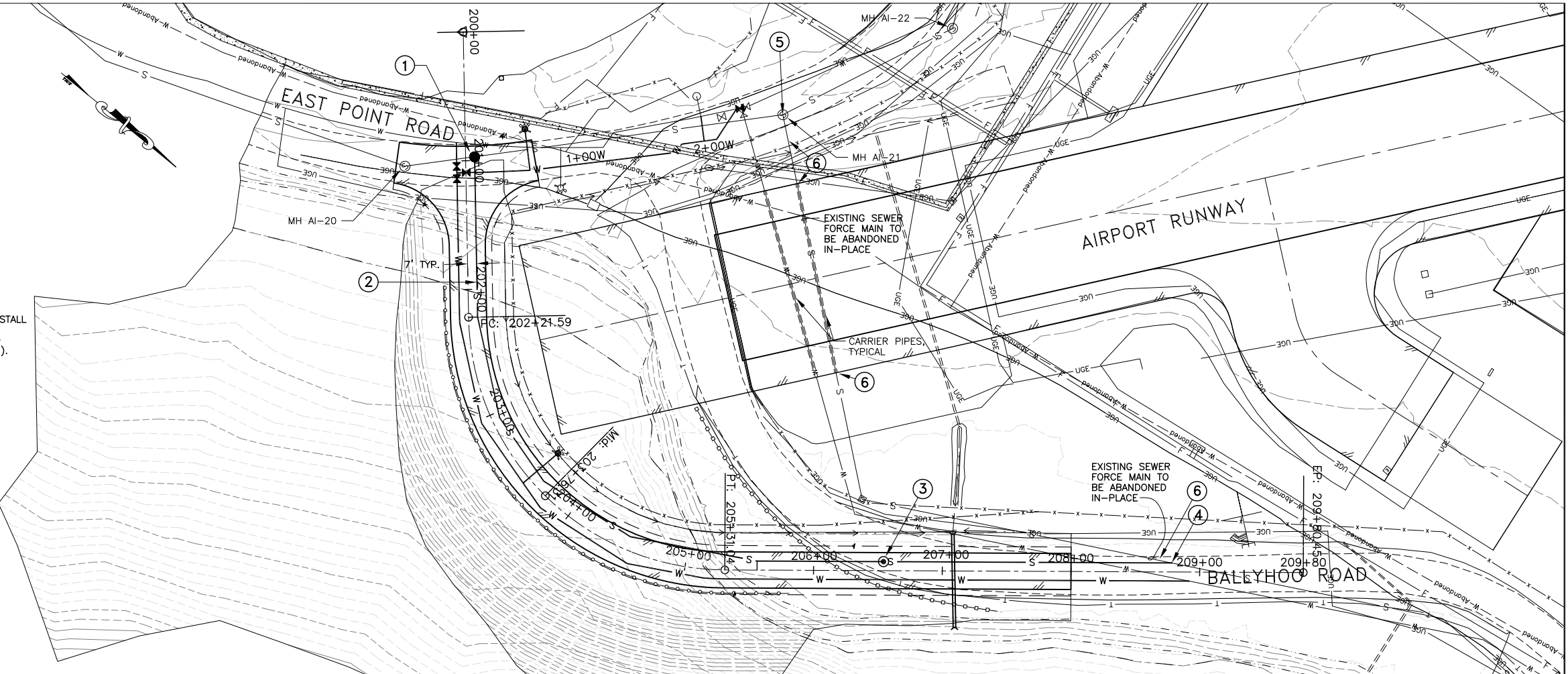
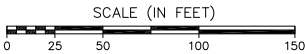
DESIGNATION	I.E. IN	I.E. OUT	FM IN ELEV	FRAME ELEV
MH AI-20	4.24'	4.14'	-	10.3'
MH AI-21	5.54'	5.44'	5.60'	13.0'
MH AI-22	6.24'	6.14'	-	11.7'

INFORMATION OBTAINED FROM 1989 CH2MHILL AS-BUILTS. ELEVATION DATUM N.O.A.A. TIDAL BENCHMARK 15, ELEV 8.63' ABOVE MEAN LOW WATER
I.E. = INVERT ELEVATION
FM = FORCE MAIN

NOTE: PLAN AND PROFILE ELEVATIONS WERE CONVERTED TO NAVD88 ELEVATIONS TO STAY ON THE SAME DATUM AS THE RUNWAY IMPROVEMENTS DESIGN. THE CONVERSION REQD THE ADDITION OF 0.59' TO THE AS-BUILT ELEVATIONS.

WORK NOTES:

- ①
- STATION 200+97, 7' LEFT, CONNECT TO EXISTING 8" DIP SEWER. CONSTRUCT NEW MANHOLE AI-21.1. CONSTRUCT SMOOTH FLOW INVERT TO EAST. CONTRACTOR TO VERIFY ELEVATIONS. INSTALL DROP CONNECTION. SEE DETAILS 1 & 2/U5
- ②
- 7' LEFT +/-, INSTALL 6" DIAMETER CLASS 52 DUCTILE IRON FORCE MAIN. INSTALL PIPE LEVEL TO MATCH SURFACE GRADE AND/OR CONTINUOUSLY SLOPING TO MANHOLE EXCEPT WHERE SHOWN OTHERWISE. ADD BENDS WHERE SHOWN AND DEFLECT PIPE JOINTS NOT EXCEEDING 3" PER JOINT (12" IN 20' PIPE SECTION). SEE ROAD/UTILITY SECTION 1/U3.
- ③
- STATION 206+54, 7' LEFT, INSTALL CLEANOUT MANHOLE. SEE DETAIL 4/U5.
- ④
- STATION 208+79±, 7' LEFT, CONNECT TO EXISTING 6" DIAMETER DUCTILE IRON FORCE MAIN. INSTALL 11.25' BEND, CONCRETE THRUST BLOCK.
- ⑤
- PLUG EXISTING 6" FORCE MAIN WITH MIN. 18" CEMENT-SAND-BENTONITE MIX.
- ⑥
- START/END ABANDON EXISTING SEWER LINE. FILL UTILITY AND CARRIER PIPES WITH SAND SLURRY WITH CONCRETE PLUGS.



PROFILE SCALE
HORIZ: 1"=50'
VERT: 1"=5'

TR	05/01/12	FOR BID
BY	DATE	REVISION

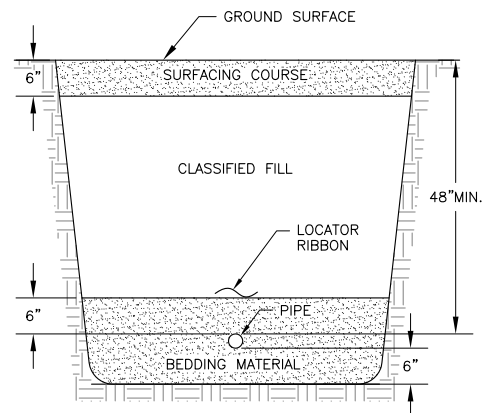
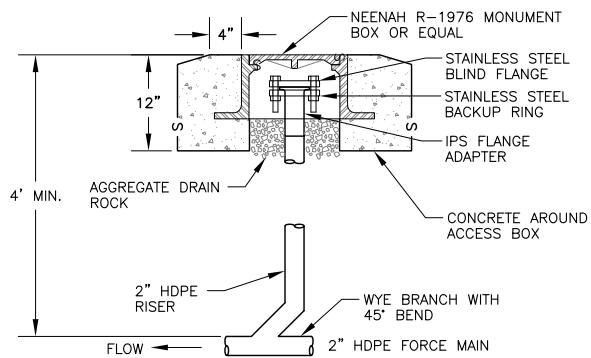
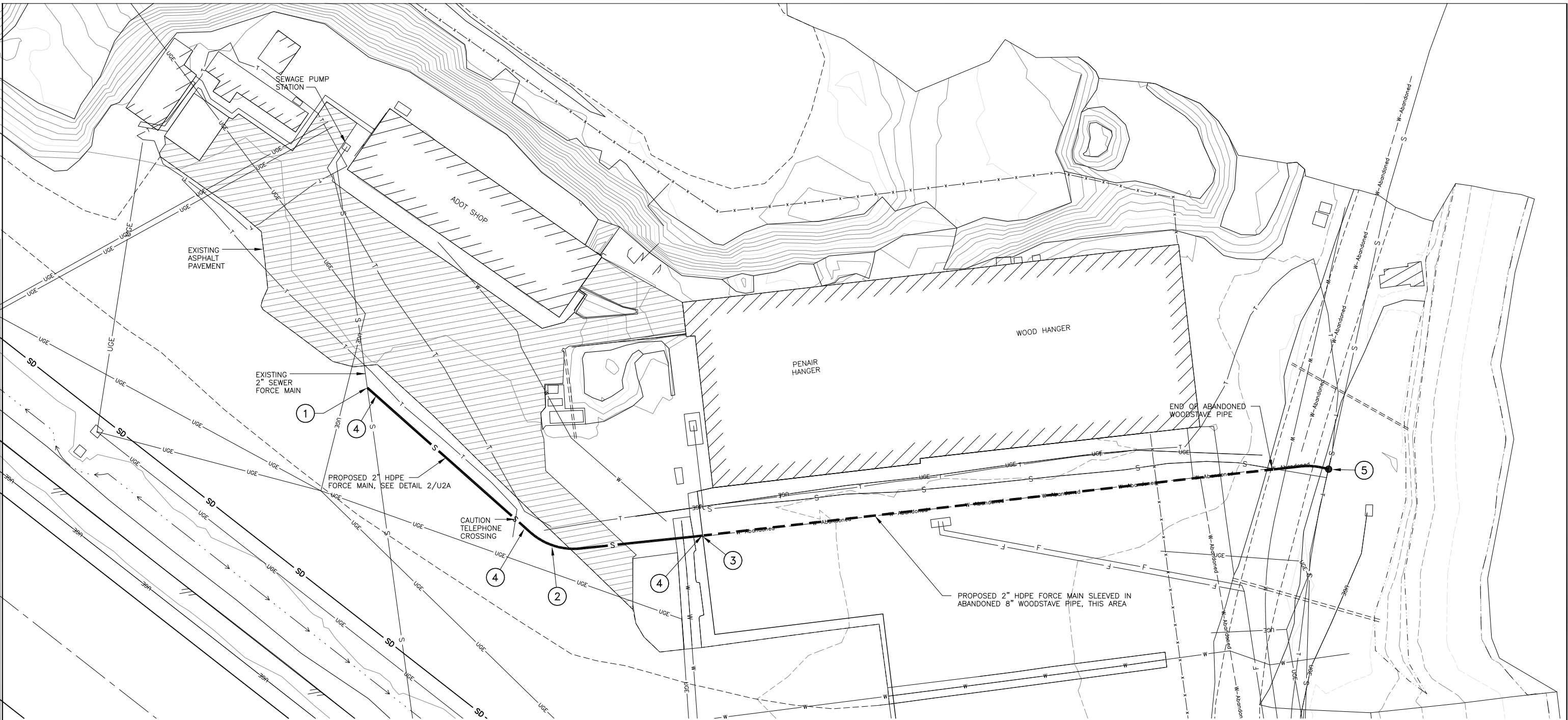
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-XXX-2012
SEWER - PLAN AND PROFILE

DATE: 05/01/2012
SHEET: U2 OF 56
AS-BUILT SHEET:

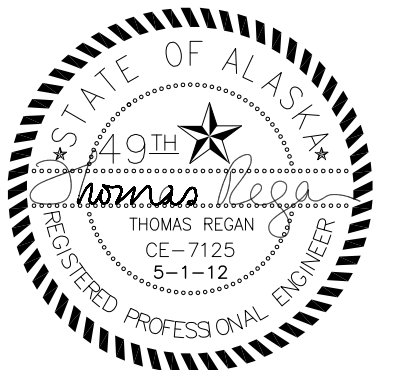
REGAN ENGINEERING, P.C.

Designed By: T. REGAN
Drawn By: T. REGAN
Checked By: J. HANSON
Date Revised:
Layout Name:
File Path and Name: D:\Unalaska\Airport ADOT Utilities\ADOT Airport Utility Designing.dwg



WORK NOTES:

- 1** CONNECT TO EXISTING FORCE MAIN. IT IS THOUGHT TO BE 2" DIAMETER BUT THE EXACT SIZE AND TYPE OF PIPE ARE UNKNOWN. THE CONTRACTOR SHALL EXPOSE AND VERIFY THE PIPE SIZE AND TYPE AND PROVIDE A SUITABLE TRANSITION COUPLING FOR CONNECTION.
- 2** RADIUS PIPE APPROXIMATELY 30' TO ALIGN WITH WOODSTAVE CARRIER PIPE.
- 3** UNCOVER END OF EXISTING ABANDONED WOODSTAVE WATERLINE. USE AS SLEEVE OR CARRIER PIPE FOR NEW FORCE MAIN.
- 4** INSTALL CLEANOUT. SEE DETAIL 1/U2.1.
- 5** CONNECT TO EXISTING 6" DIP CITY FORCE MAIN. INSTALL VALVE AND CLEANOUT MANHOLE. SEE DETAILS 3 & 4/U5.1.



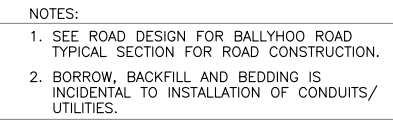
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UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-XXX-2012
SEWER - FORCE MAIN REPLACEMENT

DATE: 05/01/2012
SHEET: U2.1 OF 56
AS-BUILT SHEET:



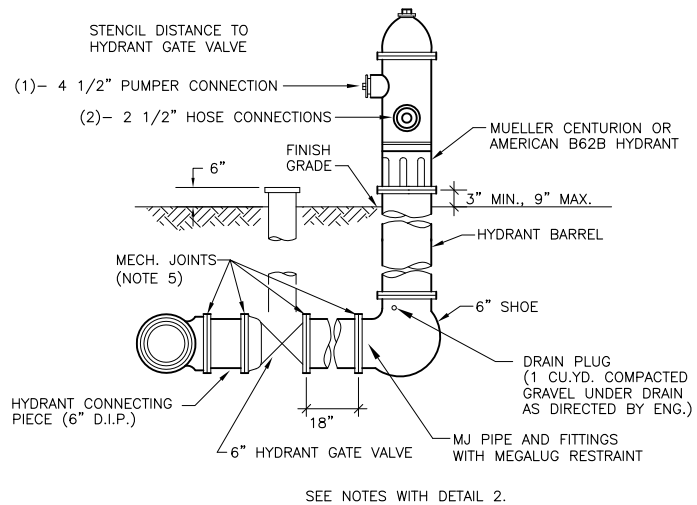
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CENTRAL REGION**

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-XXX-2012
TYPICAL UTILITIES/ROAD SECTION

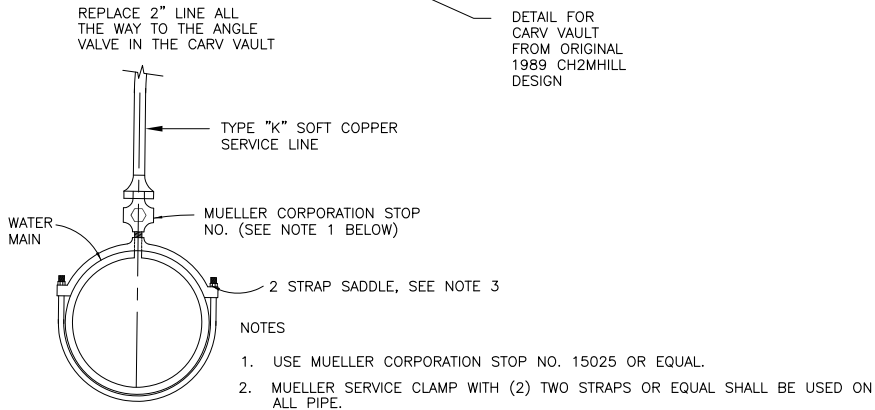
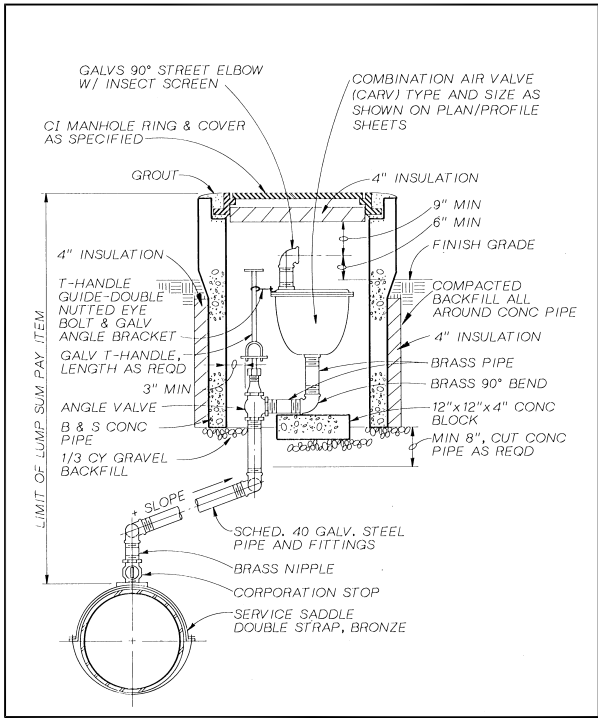
DATE:	05/01/2012
SHEET:	U3 OF 56
AS-BUILT SHEET:	

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Checked By: B. HANSON

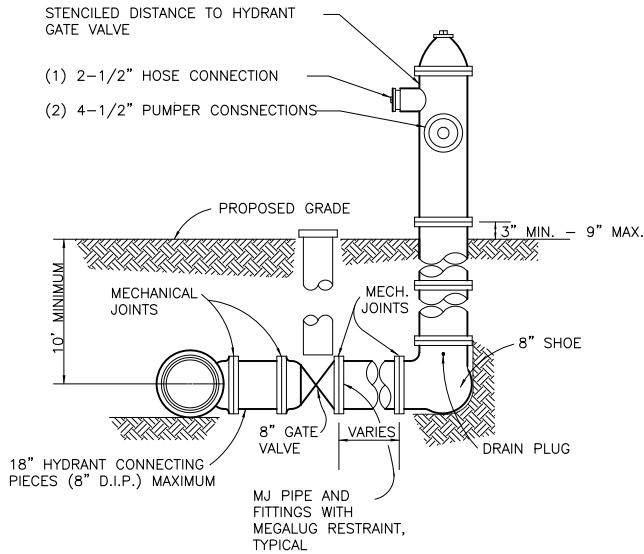
Date Revised:
Layout Name:
File Path and Name: D:\Unalaska Airport ADOT Utilities\DOT Airport Utility Design.dwg



1
DETAIL - SINGLE PUMPER HYDRANT ASSEMBLY
NOT-TO-SCALE

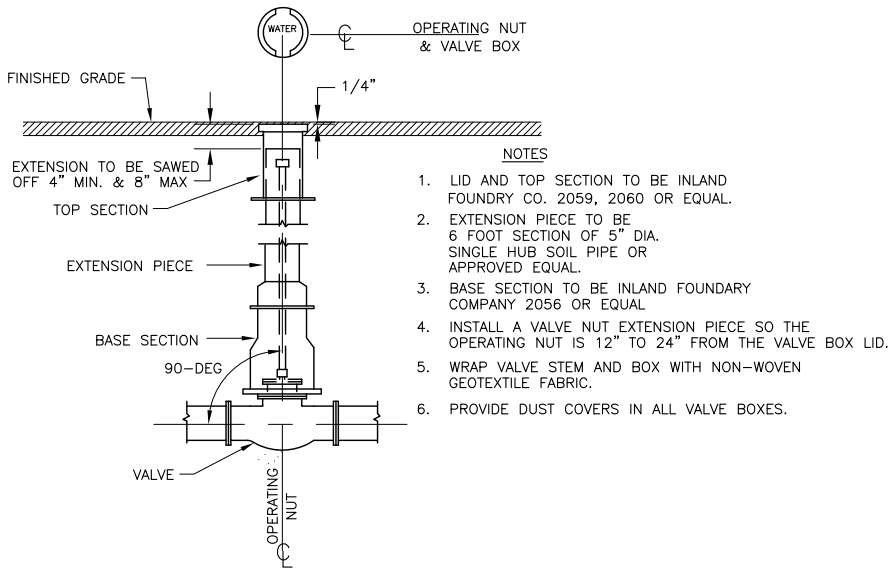


4
DETAIL - 2" SERVICE TAP FOR CARV
NOT-TO-SCALE

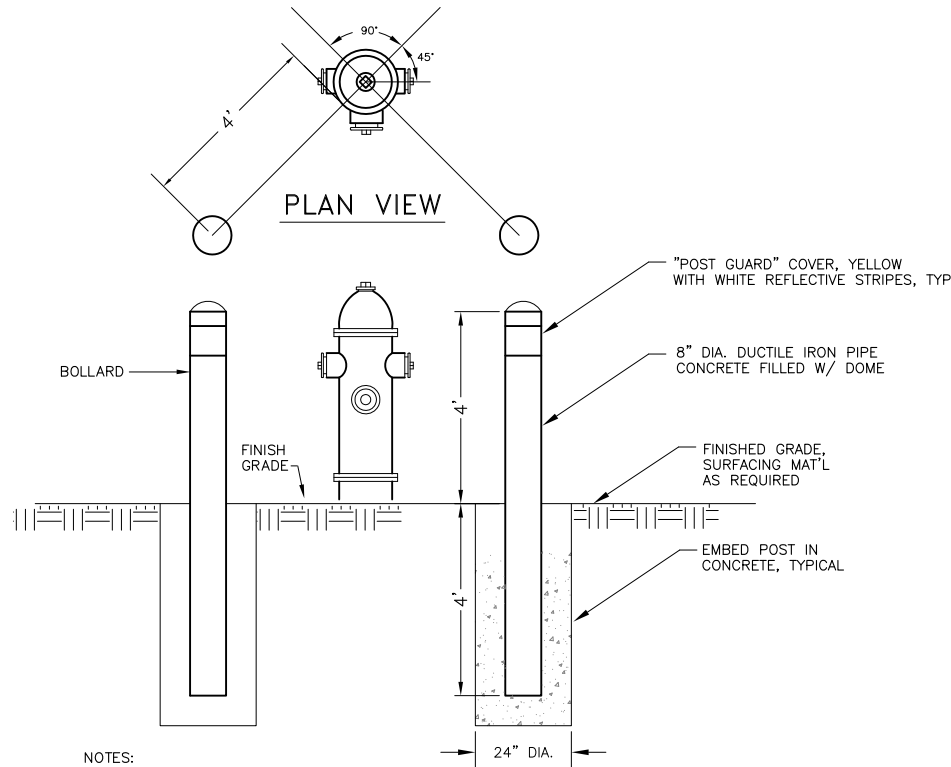


- HYDRANT INSTALLATION NOTES:
- HYDRANT BARREL MUST BE INSTALLED PLUMB AND THE LEG MUST BE INSTALLED LEVEL.
 - DRAIN PLUG TO BE REMOVED BY CONTRACTOR.
 - ALL HYDRANTS SHALL BE PAINTED; MUELLER-YELLOW, AMERICAN DARLING - RED.
 - AUXILIARY VALVE BOX TO BE INSTALLED ACCORDING TO DETAIL FOR TYPICAL VALVE BOX EXCEPT FOR ADJUSTMENT HEIGHT.
 - ALL PIPE AND FITTINGS BETWEEN HYDRANT AND MAIN SHALL BE MECHANICAL JOINT WITH MEGALUG RESTRAINT.

2
DETAIL - DOUBLE PUMPER HYDRANT ASSEMBLY
NOT-TO-SCALE

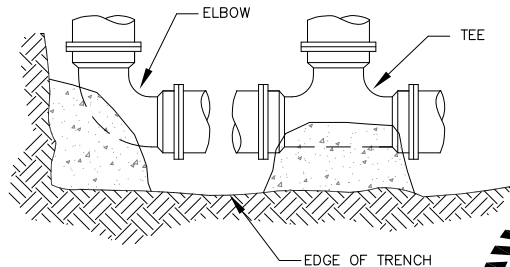


5
DETAIL - VALVE AND VALVE BOX
NOT-TO-SCALE



- NOTES:
- GUARD POSTS WILL BE FURNISHED & INSTALLED BY THE CONTRACTOR.
 - POSTS SHALL BE LOCATED TO ALLOW UNRESTRICTED ACCESS TO PUMPER AND HOSE CONNECTIONS.
 - COVER ALL BOLLARDS WITH POLYETHYLENE "POST GUARD" PROTECTIVE SLEEVES AS MANUFACTURED BY ENCORE COMMERCIAL PRODUCTS, INC.

3
DETAIL - HYDRANT GUARD POSTS
NOT-TO-SCALE



PIPE SIZE	MIN BASE AREA SQ.FT.		PLUG
	90 BEND	45 BEND	
6"	2.0	1	2.0
12"	6	3.5	6
16"	10.5	6	10.5
20"	18	10	18

ALL THRUST BLOCKS TO BE MINIMUM 3000 PSI CONCRETE

COST OF THRUST BLOCKS SHALL BE INCLUDED IN THE UNIT PRICE OF THE PIPE

PROVIDE RESTRAINT FOR ALL FITTINGS, INCLUDING PLUGS. PROVIDE THRUST BLOCKS AT ALL NEW FITTINGS.

6
DETAIL - CONCRETE THRUST BLOCK
NOT-TO-SCALE

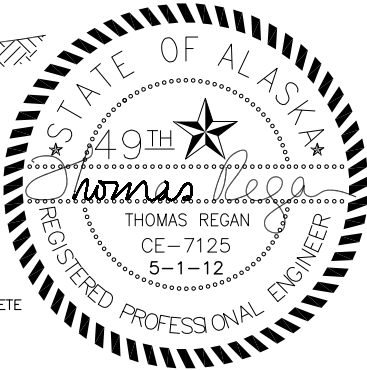
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CENTRAL REGION

UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-XXX-2012
WATER DETAILS

DATE:
05/01/2012
SHEET:
U4 of 56
AS-BUILT SHEET:

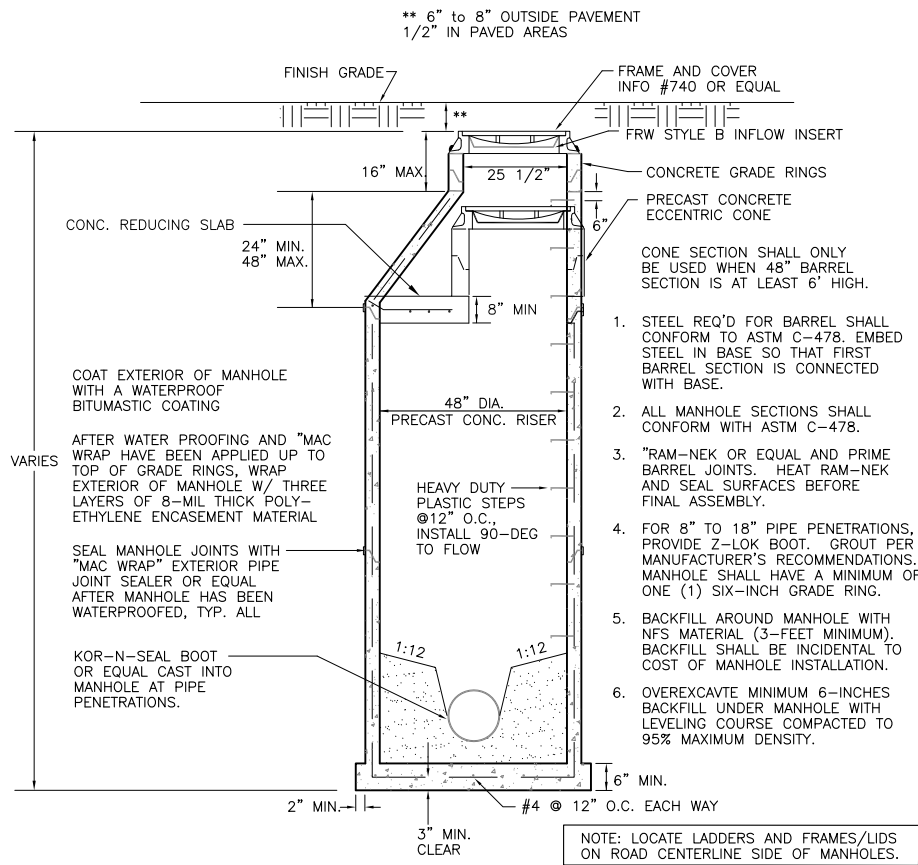
REGAN ENGINEERING, P.C.



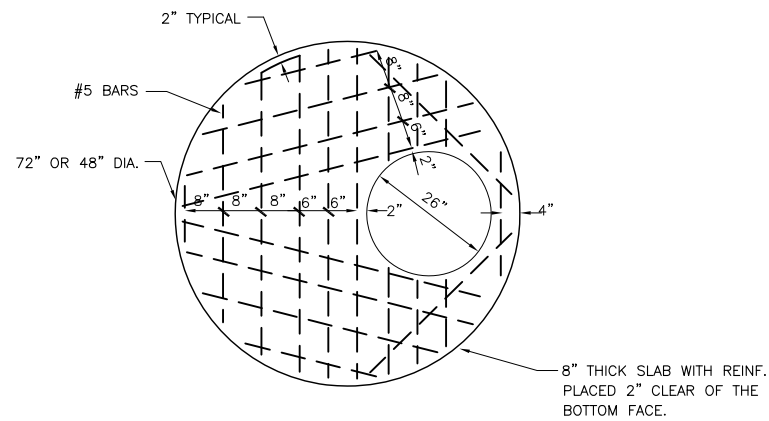
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Date Revised:
Layout Name:
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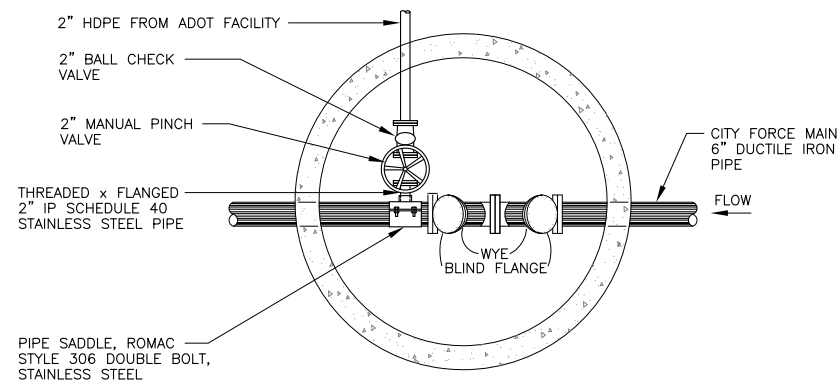
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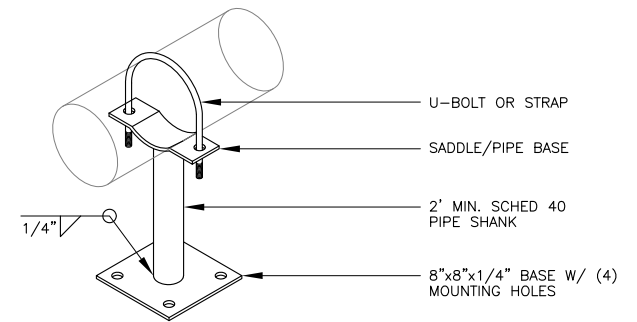
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1 DETAIL - SANITARY CONCRETE REDUCING SLAB, 6' MANHOLE NOT-TO-SCALE



3 PLAN - CLEANOUT MANHOLE NOT-TO-SCALE



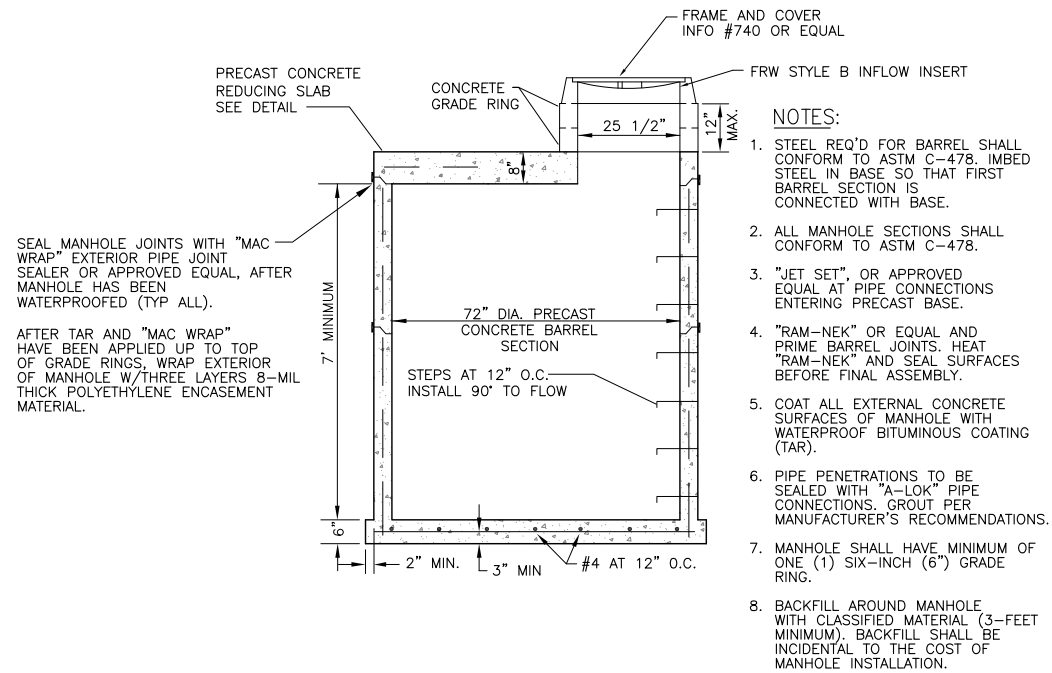
NOTE: ALL MISCELLANEOUS METALS, FABRICATIONS,
HARDWARE, BOLTS AND METAL MATERIALS SHALL BE
STAINLESS STEEL.

INSTALL NON-SHRINK GROUT UNDER PIPE SUPPORT
TO PROVIDE UNIFORM BEARING.

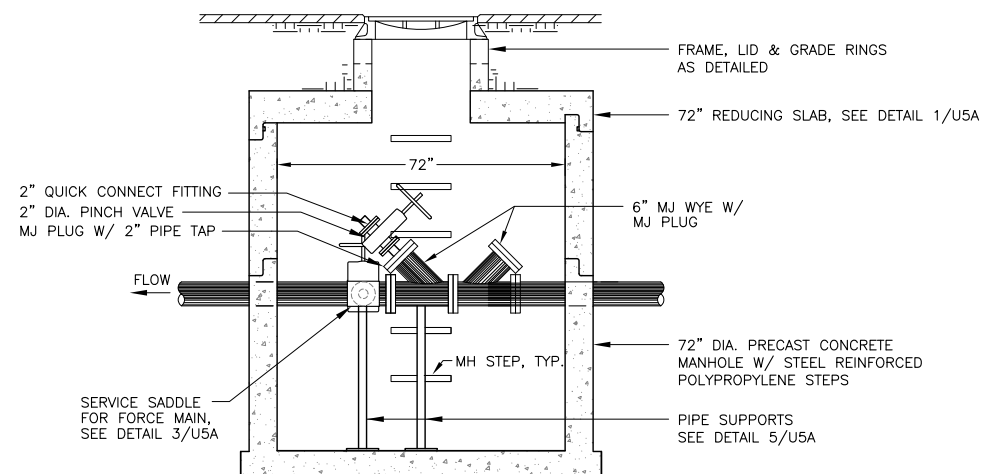
MOUNT BASE WITH (4) 1/2" DIAMETER BOLTS
EPOXIED INTO VALVE VAULT FLOOR OR WETWELL WALL.

PROVIDE SUPPORT UNDER MAIN FORCE MAIN AND
UNDER 2" ADOT FORCE MAIN

5 DETAIL - PIPE SUPPORT NOT-TO-SCALE



2 DETAIL - 6' DIAMETER MANHOLE



THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL FITTINGS, BENDS, OFFSETS, AND OTHER ITEMS NECESSARY TO INSTALL A COMPLETE PRESSURE TESTED SYSTEM.

SEE DETAIL 2/U5A FOR 72" DIAMETER MANHOLE REQUIREMENTS.

PINCH VALVE: REDVALVE SERIES 75, HYPALON SLEEVE, CAST IRON BODY, WITH HANDWHEEL OPERATOR.

CHECK VALVE: SWING CHECK TYPE, LEVER AND WEIGHT, CAST IRON BODY FOR LOW HEADLOSS APPLICATION, VAL-MATIC OR EQUAL

4 DETAIL - CLEANOUT MANHOLE PIPING



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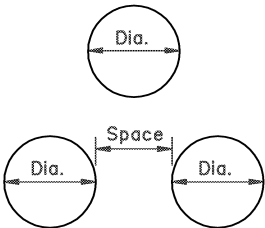
UNALASKA AIRPORT
UNALASKA, ALASKA
UNALASKA AIRPORT IMPROVEMENTS 2012
PROJECT No. 53443
A.I.P. No. 3-02-0082-XXX-2012
SEWER DETAILS

DATE:	05/01/2012
SHEET:	U5.1 OF 56
AS-BUILT SHEET:	

GENERAL NOTES:

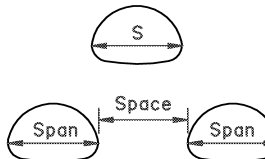
1. Sidefill shall be placed and compacted with care under haunches of pipe and shall be brought up evenly and simultaneously on both sides of pipe to 1 foot above the top of the full length of the pipe.
2. Alternate installation methods may only be used when specified or approved by the Engineer.

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.

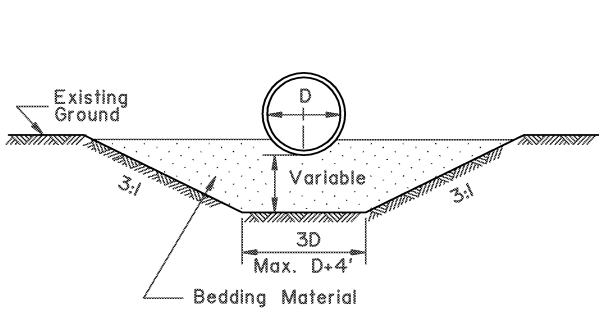
REVISIONS		
Date	Description	By
12/1/87	Delete ref. to Specs.	Gdo
4/1/93	Delete Alt. Arch	Gdo

State of Alaska
Department of Transportation
& Public Facilities

CULVERT PIPE & ARCH
INSTALLATION DETAILS

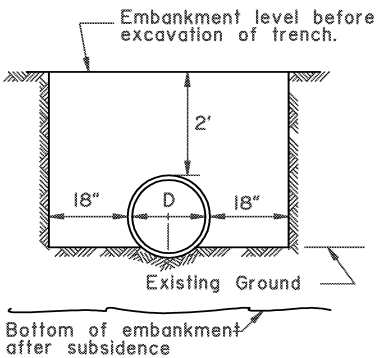


Date 7/15/82

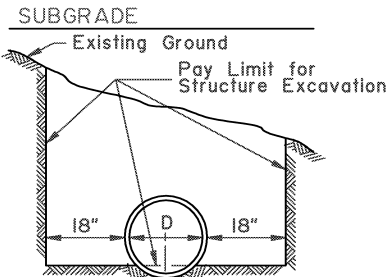


TYPE "A"
FOUNDATION STABILIZATION

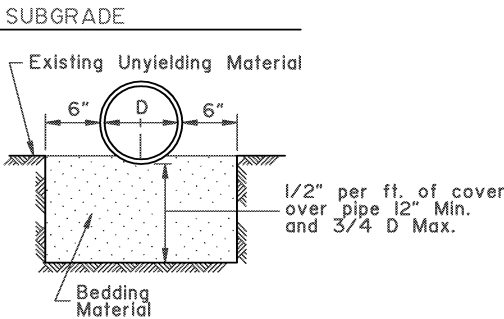
To be used in unstable areas as directed by the Engineer.



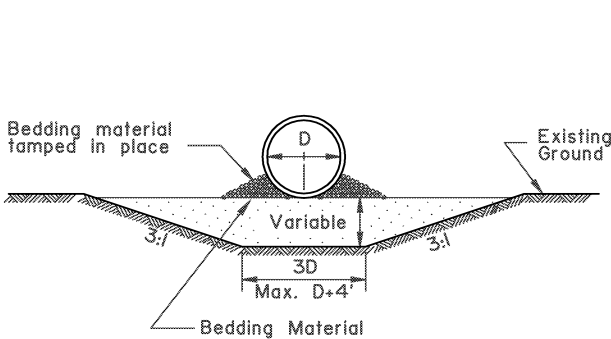
TYPE "B"



TYPE "C"

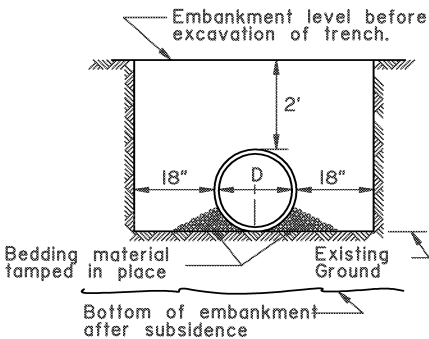


TYPE "D"
ROCK OR UNYIELDING MATERIAL

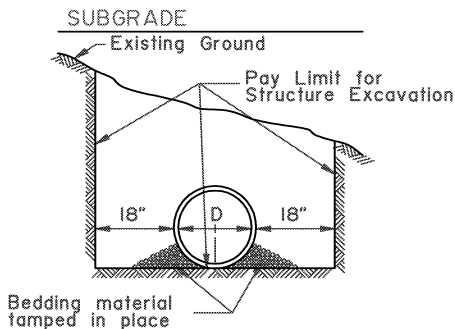


'ALTERNATE'
TYPE "A"
FOUNDATION STABILIZATION

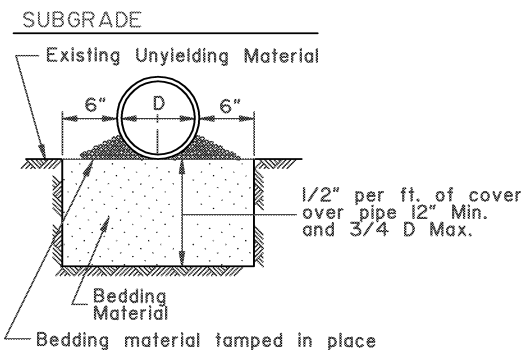
To be used in unstable areas as directed by the Engineer.



'ALTERNATE'
TYPE "B"

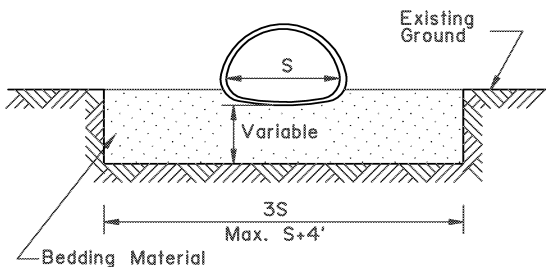


'ALTERNATE'
TYPE "C"



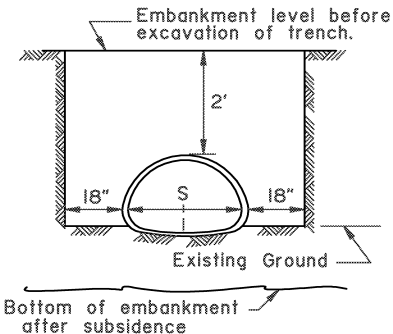
'ALTERNATE' TYPE "D"
ROCK OR UNYIELDING MATERIAL

CULVERT PIPE

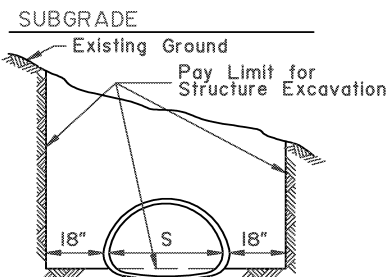


TYPE "A"
FOUNDATION STABILIZATION

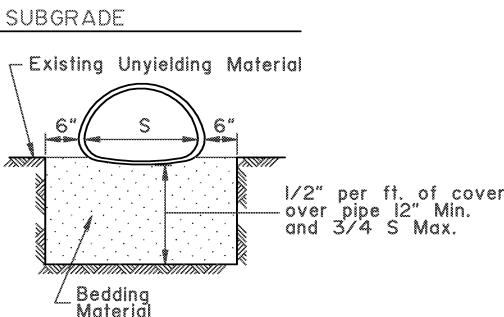
To be used in unstable areas as directed by the Engineer.



TYPE "B"



TYPE "C"



TYPE "D"
ROCK OR UNYIELDING MATERIAL

ARCH

GENERAL NOTES:

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 Drawing "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 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.
7. 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" Aluminum Pipe										
GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	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

Minimum & Maximum Cover For 3" x 1" Aluminum Pipe										
GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	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	21	47
96					24	27	24	36	24	44
102							24	33	24	41
108							24	31	24	39
114									24	37
120									24	35

Minimum & Maximum Cover For 9" x 2 1/2" Aluminum Structural Plate Pipe *														
GAGE	0.100"		0.125"		0.150"		0.175"		0.200"		0.225"		0.250"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	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
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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
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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.

58
100+

Upper figure for pipe with aluminum bolts.
(FOR TABLE ABOVE ONLY.)

Lower figure for pipe with galvanized steel bolts.

CORRUGATED CIRCULAR ALUMINUM PIPE

CORRUGATED ALUMINUM PIPE-ARCH

Minimum & Maximum Cover For 2 2/3" x 1/2" Aluminum Pipe-Arch					
				Max. Cover (Ft)	
Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	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

Minimum & Maximum Cover For 3" x 1" Aluminum Pipe-Arch					
				Max. Cover (Ft)	
Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	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

*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.

Minimum & Maximum Cover For 9" x 2 1/2" Aluminum Structural Plate Pipe-Arch*					
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/ft ²	3 Tons/ft ²
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.

METAL THICKNESSES & GAGES	
ALUMINUM	GAGE NO. (For Info Only)
0.060	16
0.075	14
0.105	12
0.135	10
0.164	8

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

REVISIONS		
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

APPROVED

STATE OF ALASKA
49TH
LARS R. GREPOVICH
CE-8065

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"		0.136"		0.168"
Dia. (in.)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)
12	12	100+	12	100+	12	100+	12	100+	12
15	12	100+	12	100+	12	100+	12	100+	12
18	12	100+	12	100+	12	100+	12	100+	12
21	12	100+	12	100+	12	100+	12	100+	12
24	12	100+	12	100+	12	100+	12	100+	12
27	12	100+	12	100+	12	100+	12	100+	12
30	12	99	12	100+	12	100+	12	100+	12
36	12	83	12	100+	12	100+	12	100+	12
42	12	71	12	88	12	100+	12	100+	12
48	12	62	12	77	12	100+	12	100+	12
54			12	66	12	93	12	100+	12
60					12	79	12	100+	12
66					12	68	12	88	12
72							12	75	12
78									12
84									12

Minimum & Maximum Cover For 3" x 1" Steel Pipe									
GAGE	0.064"		0.079"		0.109"		0.136"		0.168"
Dia. (in.)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)
36	12		12		12	100+	12	100+	12
42	12		12		12	100+	12	100+	12
48	12		12	76	12	100+	12	100+	12
54	12	63	12	79	12	100+	12	100+	12
60	12	56	12	71	12	99	12	100+	12
66	12	52	12	64	12	90	12	100+	12
72	12	47	12	59	12	82	12	100+	12
78	12	44	12	54	12	77	12	98	12
84	12	41	12	51	12	71	12	92	12
90	12	37	12	47	12	67	12	86	12
96	12	35	12	44	12	62	12	80	12
102	18	33	18	42	18	59	18	76	18
108			18	40	18	55	18	71	18
114			18	36	18	51	18	66	18
120			18	34	18	46	18	61	18
126					18	44	18	56	18
132					18	41	18	53	18
138					18	37	18	49	18
144							18	44	18
150									18

Minimum & Maximum Cover For 5" x 1" Steel Pipe*									
GAGE	0.064"		0.079"		0.109"		0.136"		0.168"
Dia. (in.)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)	Max. (Ft)	Min. (in.)
36	12	81	12	90	12	100+	12	100+	12
42	12	71	12	77	12	100+	12	100+	12
48	12	62	12	68	12	100+	12	100+	12
54	12	56	12	70	12	98	12	100+	12
60	12	50	12	63	12	88	12	100+	12
66	12	46	12	57	12	80	12	100+	12
72	12	42	12	52	12	73	12	95	12
78	12	39	12	48	12	68	12	87	12
84	12	36	12	45	12	63	12	81	12
90	12	33	12	42	12	59	12	76	12
96	12	31	12	39	12	55	12	71	12
102	18	29	18	37	18	52	18	67	18
108			18	35	18	49	18	63	18
114			18	32	18	45	18	58	18
120			18	30	18	41	18	54	18
126					18	39	18	50	18
132					18	36	18	47	18
138					18	33	18	43	18
144							18	39	18
150									19

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

Minimum & Maximum Cover For 6" x 2" Steel Structural Plate Pipe**									
GAGE	ALL	0.11"	0.140"	0.170"	0.188"	0.218"	0.248"	0.280"	
Dia. (in.)	Min. (in.)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	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.

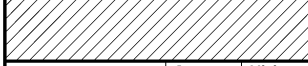

CORRUGATED CIRCULAR STEEL PIPE

CORRUGATED STEEL PIPE-ARCH

Minimum & Maximum Cover For 2 2/3" x 1/2" Steel Pipe-Arch					
					Max. Cover (Ft)
Span x Rise (in. x in.)	Corner Radius (in.)	Minimum Gage (in.)	Min. Cover (in.)	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					
				Max. Cover (Ft)	
Span x Rise (in. x in.)	Corner Radius (in.)	Minimum Gage (in.)	Min. Cover (in.)	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
126 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					
				Max. Cover (Ft)	
Span x Rise (in. x in.)	Corner Radius (in.)	Minimum Gage (in.)	Min. Cover (in.)	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
126 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**						
			2 Tons Corner Bearing Pressure		3 Tons Corner Bearing Pressure 	
Span x Rise (Ft-In x Ft-In)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft)	Min. Cover (In)	Max. Cover (Ft)
6-1 x 4-7	18	0.11	18	16	12	24
7-0 x 5-1	18	0.11	18	14	12	21
7-11 x 5-7	18	0.11	18	13	12	19
8-10 x 6-1	18	0.11	24	11	18	17
9-9 x 6-7	18	0.11	24	10	18	16
10-11 x 7-1	18	0.11	24	9	18	14
11-10 x 7-7	18	0.11	24	7	18	13
12-10 x 8-4	18	0.11	30	6	24	12
14-1 x 8-9	18	0.11	30	5	24	11
15-4 x 9-3	18	0.11	NS	NS	24	10
15-10 x 9-10	18	0.11	NS	NS	24	9
16-7 x 10-1	18	0.11	NS	NS	24	9
13-3 x 9-4	31	0.11	24	13	24	17
14-2 x 9-10	31	0.11	24	12	24	16
15-4 x 10-4	31	0.11	24	11	24	16
16-3 x 10-10	31	0.11	24	11	24	14
17-2 x 11-4	31	0.11	30	10	30	13
18-1 x 11-10	31	0.11	30	10	30	12
19-3 x 12-4	31	0.11	30	9	30	13
19-11 x 12-10	31	0.140	30	9	30	13
20-7 x 13-2	31	0.140	36	7	36	13

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
10/31/03	New Sheet 4.	LRG

Sheet 3 of 4

State of Alaska
Department of Transportation
& Public Facilities

PIPE AND ARCH TABLES

APPROVED

STATE OF ALASKA
49TH
Lars R. Gregovich
CE-8065
PROFESSIONAL ENGINEER

10/31/03

Date

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 Drawing "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 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.
7. 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 Aluminum Spiral Rib Circular Pipe*								
GAGE	0.060"			0.075"		0.105"		0.135"
Dia. (In)	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 $7\frac{1}{2}$ in. or $\frac{3}{4}$ x 1 x $8\frac{1}{2}$ in. Corrugations

Minimum & Maximum Cover For Aluminum Spiral Rib Pipe-Arch*					
		Soil Corner Bearing Capacity of 2 Tons/ s.f.			
Span x Rise (In. x In.)	Min. Cover (In.)	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 $7\frac{1}{2}$ in. or $\frac{3}{4}$ x 1 x $8\frac{1}{2}$ in. Corrugations

ALUMINUM SPIRAL RIB PIPE

STEEL SPIRAL RIB PIPE

Minimum & Maximum Cover For Steel and Aluminized Steel Spiral Rib Circular Pipe*								
GAGE	0.064"		0.079"		0.109"		0.135**	
Dia. (In)	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		
66	18	19	18	26	18	44		
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 $7\frac{1}{2}$ in. or $\frac{3}{4}$ x 1 x $8\frac{1}{2}$ in. Corrugations

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

Minimum & Maximum Cover For Steel Spiral Rib Arch-Pipe*					
		Soil Corner Bearing Capacity of 2 Tons/ s.f.			
Span x Rise (In. x In.)	Min. Cover (In.)	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 $7\frac{1}{2}$ in. or $\frac{3}{4}$ x 1 x $8\frac{1}{2}$ in. Corrugations

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

APPROVED

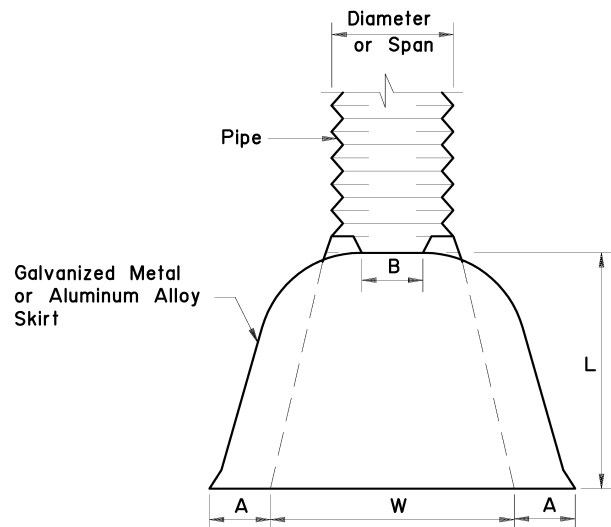
10/31/03

Date

49TH

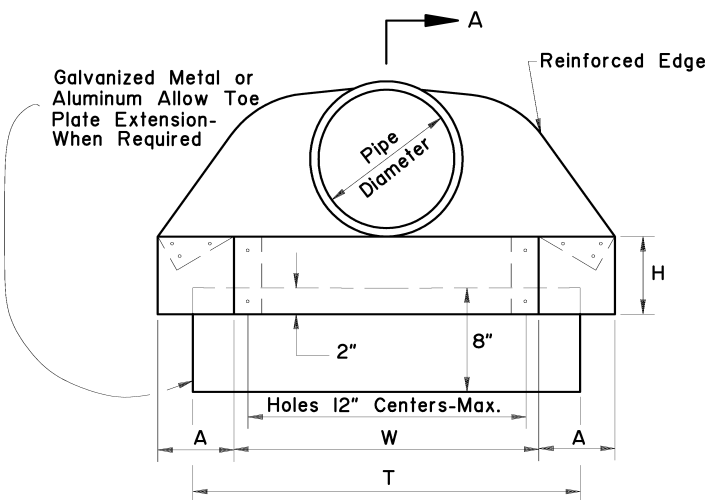
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PROFESSIONAL



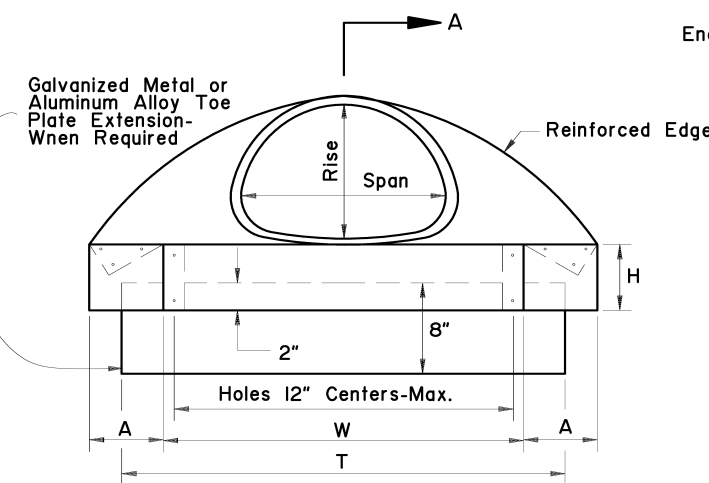
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ROUND AND PIPE ARCH



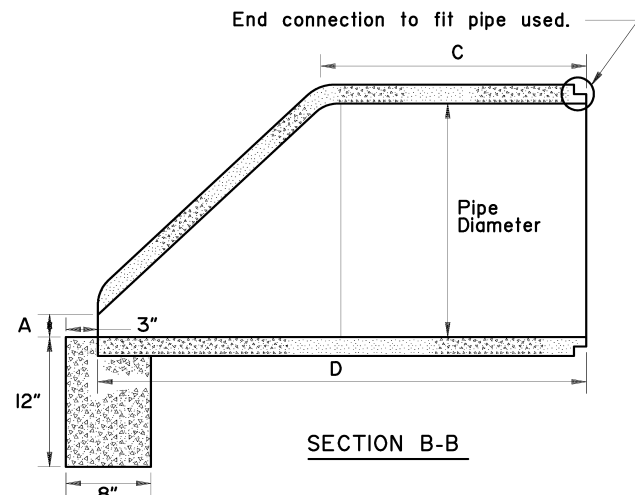
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ROUND PIPE

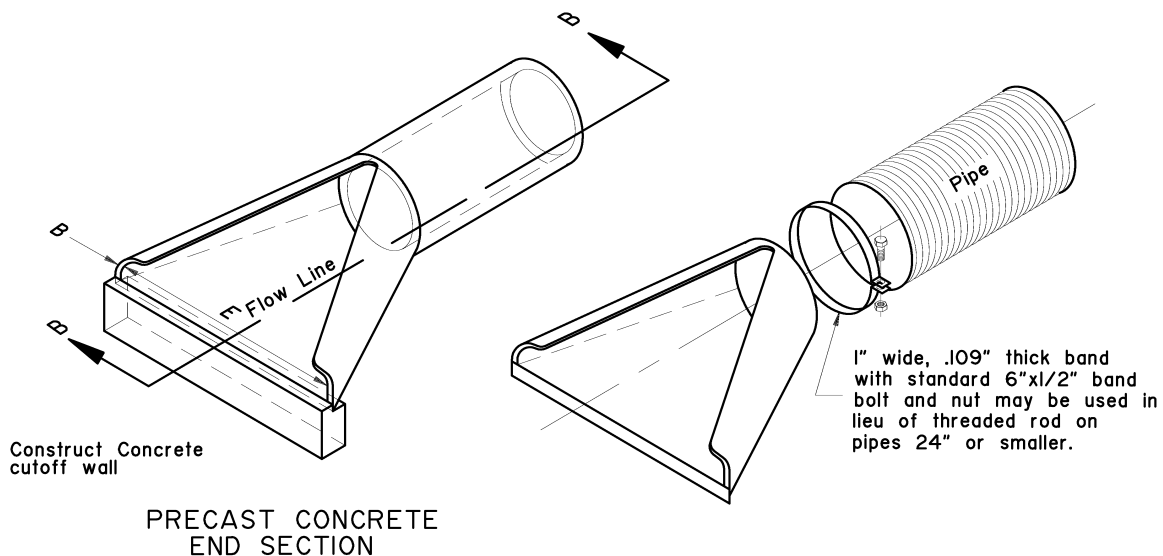


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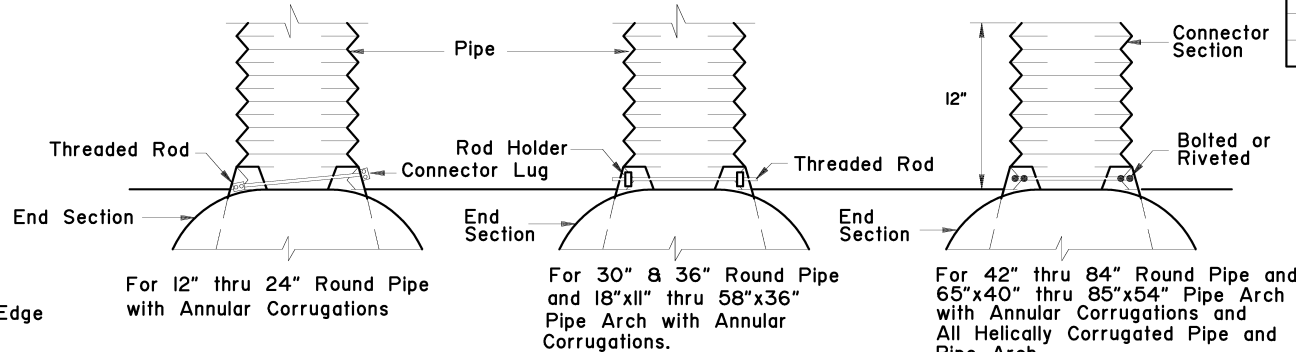
PIPE ARCH



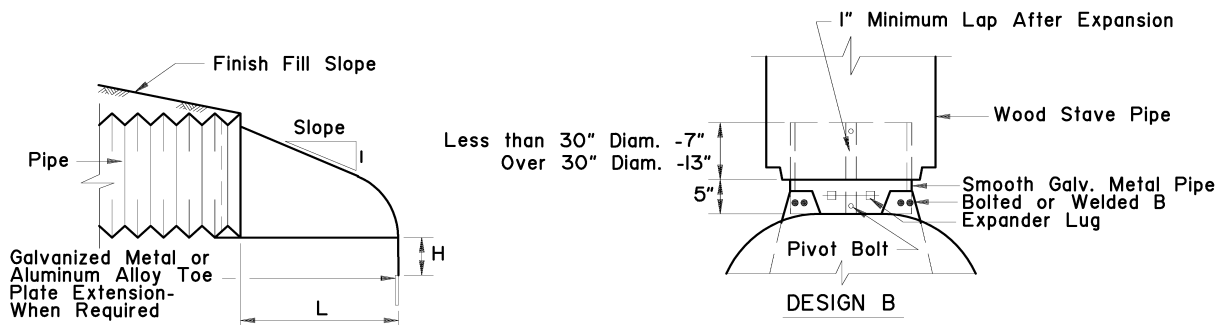
SECTION B-B



PRECAST CONCRETE END SECTION



DESIGN A



DESIGN B

METAL END SECTION CONNECTED TO WOOD STAVE PIPE

MINIMUM DIMENSIONS					
Pipe Diameter	A	B	C	D	E
12"	4"	1 3/4"	24"	46"	24"
18"	9"	2"	25"	50"	36"
24"	9 1/2"	2 1/2"	30"	72"	48"
30"	12"	3"	20"	73"	60"
36"	15"	3 3/8"	35"	97"	72"
42"	21"	3 3/4"	35"	98"	78"
48"	24"	4 1/4"	26"	98"	84"
54"	27"	4 5/8"	33"	99"	82"

ROUND PIPE											
Pipe Diam. Inches	Thickness For Aluminum	Thk. for Galv. Metal	Dimension Inches						Skirt	Approx. Slope.	
			1" A Tol.	B Max.	1" H Tol.	1 1/2" L Tol.	2" W Tol.	2" T Tol.			
12"	0.060	0.064	6"	6"	6"	21"	24"	34"	1 Pc.	2 1/2	
15"	0.060	0.064	7"	8"	6"	26"	30"	40"	1 Pc.	2 1/2	
18"	0.060	0.064	8"	10"	6"	31"	36"	46"	1 Pc.	2 1/2	
21"	0.060	0.064	9"	12"	6"	36"	42"	52"	1 Pc.	2 1/2	
24"	0.075	0.064	10"	13"	6"	41"	48"	58"	1 Pc.	2 1/2	
30"	0.075	0.079	12"	16"	8"	51"	60"	70"	1 Pc.	2 1/2	
36"	0.105	0.079	14"	19"	9"	60"	72"	94"	2 Pc.	2 1/2	
42"	0.105	0.109	16"	22"	11"	69"	84"	106"	2 Pc.	2 1/2	
48"	0.105	0.109	18"	27"	12"	78"	90"	112"	2 Pc.	2 1/4	
54"	0.105	0.109	18"	30"	12"	84"	102"	122"	2 Pc.	2 1/4	
60"	0.135	0.109	18"	33"	12"	87"	114"	134"	3 Pc.	2 1/4	
66"	0.135	0.109	18"	36"	12"	87"	120"	142"	3 Pc.	2 1/4	
72"	0.135	0.109	18"	39"	12"	87"	126"	146"	3 Pc.	2 1/4	
78"	— —	0.109	18"	42"	12"	87"	132"	152"	3 Pc.	1 1/4	
84"	— —	0.109	18"	45"	12"	87"	138"	158"	3 Pc.	1 1/6	

PIPE-ARCH											
Pipe-Arch Dimension Inches		Thickness for Aluminum	Thk. for Galv. Metal	Dimension Inches						Skirt	Approx. Slope
				1" A Tol.	B Max.	1" H Tol.	1 1/2" L Tol.	2" W Tol.	2" T Tol.		
17"	13"	0.060	0.064	7"	9"	6"	19"	30"	40"	1 Pc.	2 1/2
21"	15"	0.060	0.064	7"	10"	6"	23"	36"	46"	1 Pc.	2 1/2
24"	18"	0.060	0.064	8"	12"	6"	28"	42"	52"	1 Pc.	2 1/2
28"	20"	0.075	0.064	9"	14"	6"	32"	48"	58"	1 Pc.	2 1/2
35"	24"	0.075	0.079	10"	16"	6"	39"	60"	70"	1 Pc.	2 1/2
42"	29"	0.105	0.079	12"	18"	8"	46"	75"	85"	1 Pc.	2 1/2
49"	33"	0.105	0.109	13"	21"	9"	53"	85"	103"	2 Pc.	2 1/2
57"	38"	0.105	0.109	18"	26"	12"	63"	90"	114"	2 Pc.	2 1/2
64"	43"	0.105	0.109	18"	30"	12"	70"	102"	130"	2 Pc.	2 1/4
71"	47"	0.135	0.109	18"	33"	12"	77"	114"	144"	3 Pc.	2 1/4
77"	52"	0.135	0.109	18"	36"	12"	84"	120"	158"	3 Pc.	2 1/4
83"	57"	0.135	0.109	18"	39"	12"	90"	126"	170"	3 Pc.	2 1/4

GENERAL NOTES:

1. Toe plate extensions will be required only when provided for on the plans. When required, the toe plate extensions shall be punched with holes to match those in lip of skirt and fastened with 3/8 inch or larger galvanized nuts and bolts and shall be the same gage as the end section.
2. Galvanized Metal or Aluminum Alloy End Sections may be used on Wood Stave and Plastic Pipe.
3. All 3 piece bodies shall have 12 gage sides and 10 gage center panels. Multiple panel bodies shall have lap seams which are to be tightly joined by 3/8" galvanized rivets or bolts.

REVISIONS		
Date	Description	By
3/1/83	Arch Dimensions	WJF/HK
8/10/00	Note 2	DFD

Sheet 1 of 3

State of Alaska
Department of Transportation
& Public Facilities

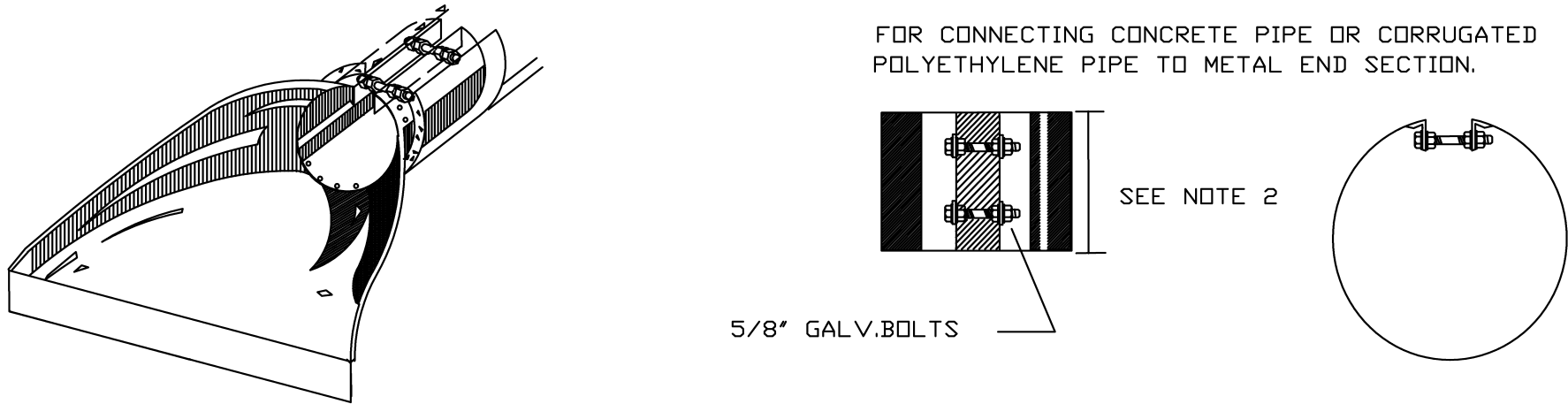
CULVERT END SECTIONS



Date 7/15/82

GENERAL NOTES

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



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

REVISIONS		
Date	Description	By

Sheet 2 of 3

State of Alaska
Department of Transportation
& Public Facilities

CULVERT END SECTIONS

APPROVED

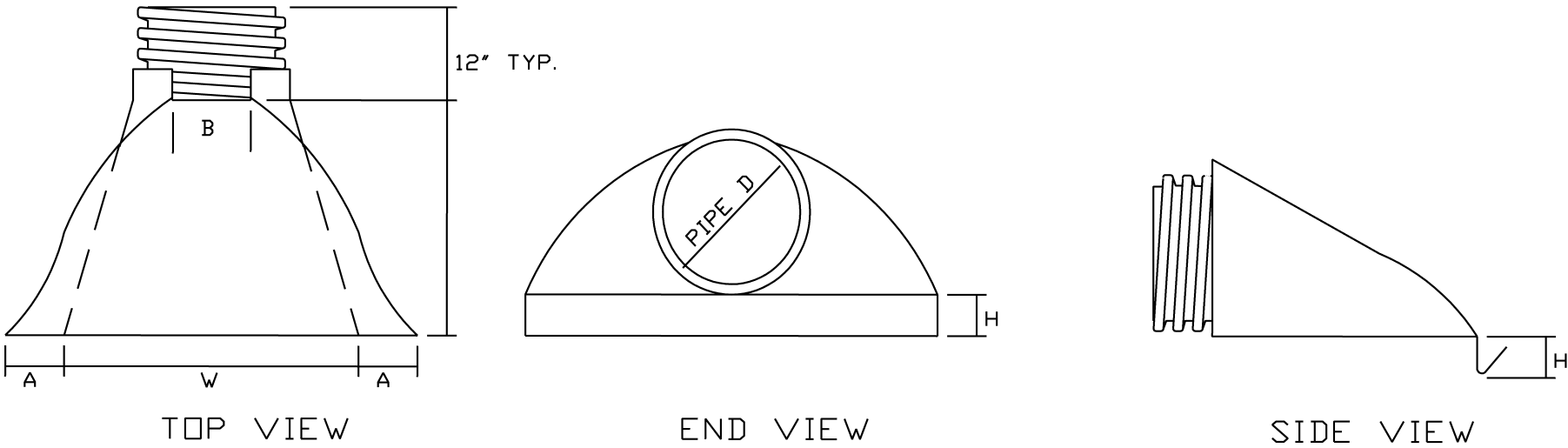
5/15/01

5/15/01

Professional Engineer

GENERAL NOTES

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



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

PLASTIC END SECTION FOR CORRUGATED PLASTIC PIPE

REVISIONS		
Date	Description	By

Sheet 3 of 3

State of Alaska
Department of Transportation
& Public Facilities

CULVERT END SECTIONS

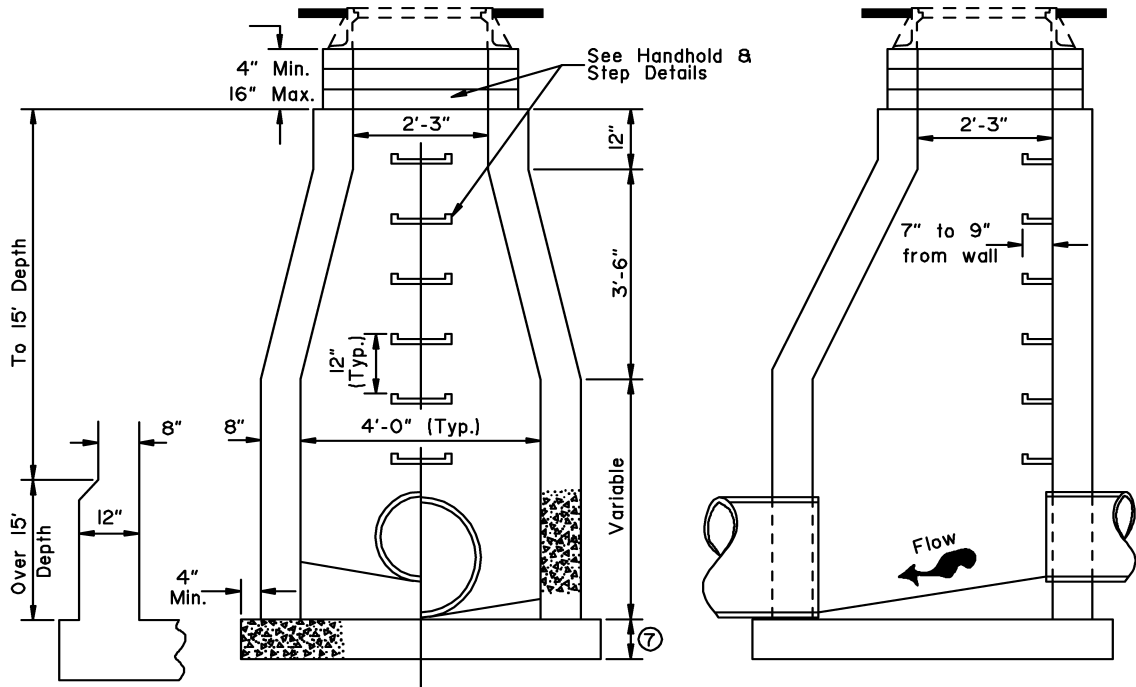
APPROVED

Date 5/15/01

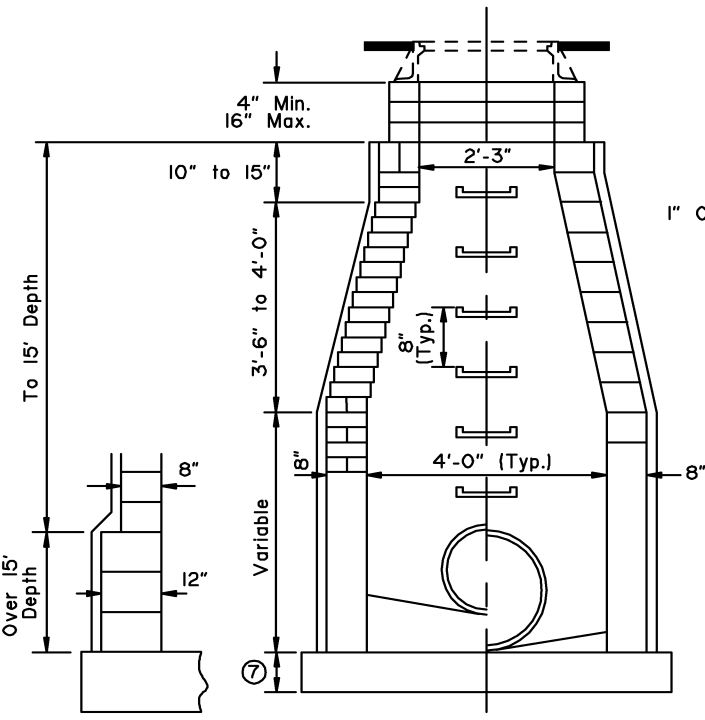
5/15/01

GENERAL NOTES:

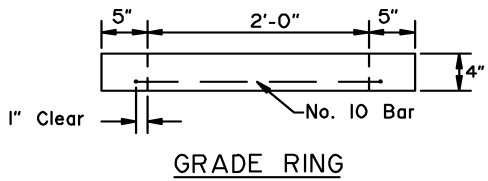
1. Manhole depth shall be as shown on the plans or as directed by the Engineer.
2. Cast in place concrete shall be class W.
3. Manhole frame and cover bearing surface shall be machine finished and all covers interchangeable. Details shown are to indicate general design and may vary among manufacturers.
4. Precast Reinforced Bases may be used in lieu of cast in place bases.
5. Manhole frame shall have a depth of 6" unless specified otherwise on the plans.
6. Precast bases shall have No. 4 reinforcing bar on 12" centers each way for depths under 20' and No. 5 reinforcing bar on 6" centers for depths of 20' and over.
7. Poured in place concrete bases shall be 8" thick for depths less than 15' and 12" thick for depths 15' or greater.



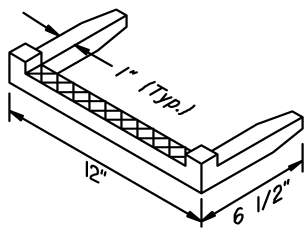
CAST IN PLACE MANHOLE



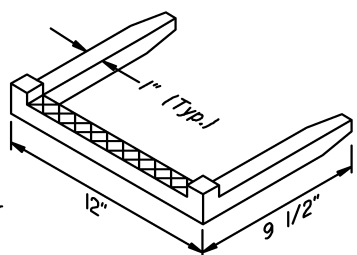
BRICK OR BLOCK MANHOLE



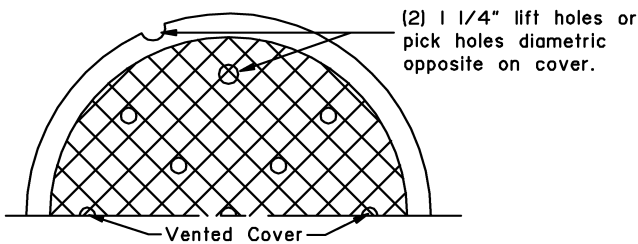
GRADE RING



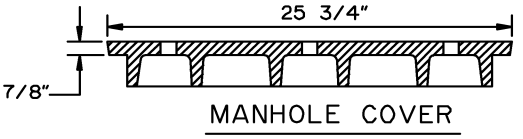
HANDHOLD DETAIL



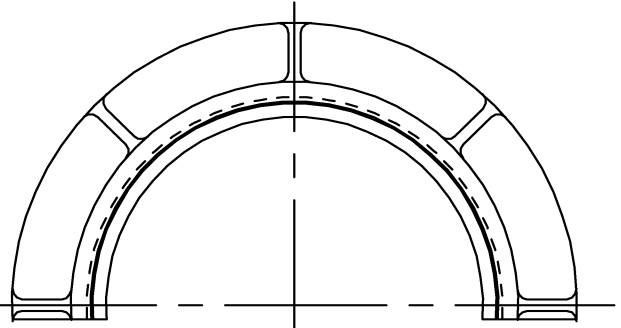
STEP DETAIL



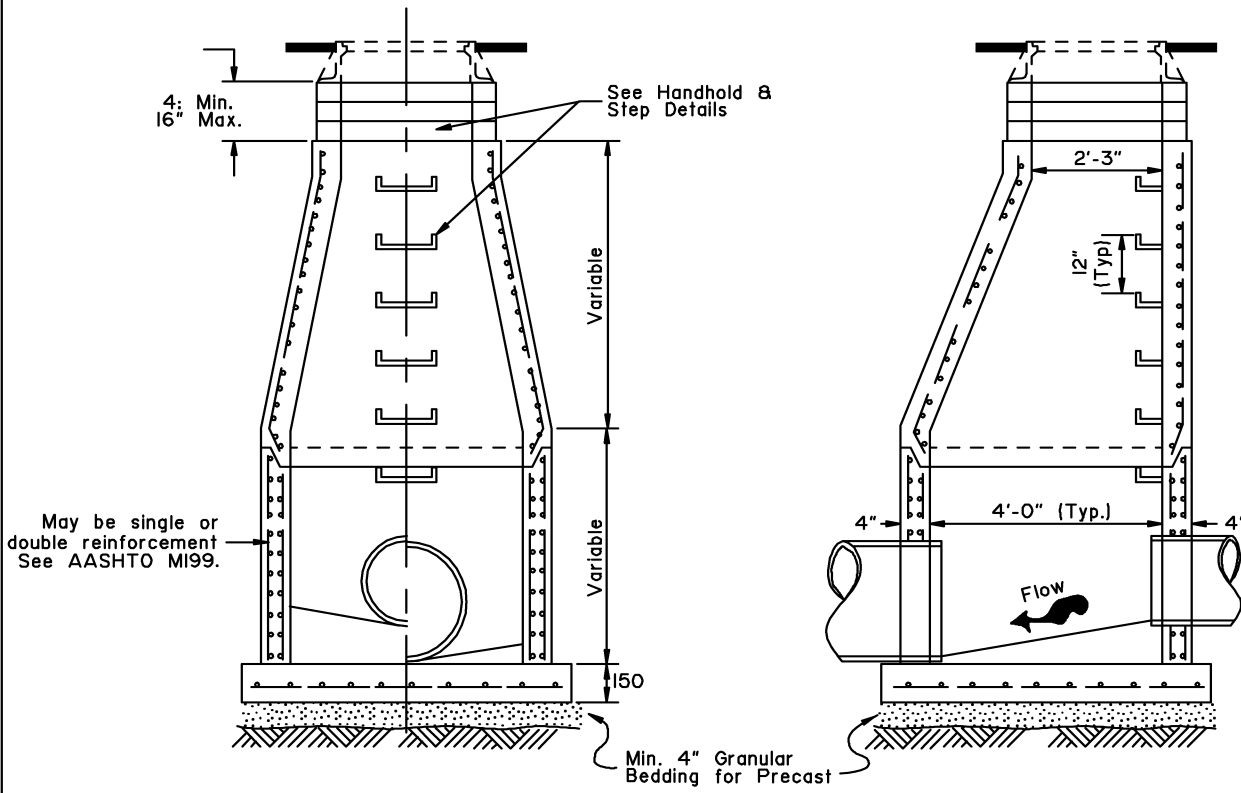
Vented Cover



MANHOLE COVER



MANHOLE FRAME



PRECAST CONCRETE MANHOLE

MANHOLE FRAME & COVER MINIMUM WEIGHT		
Depth		
5"		350 lbs
6"		380 lbs
7"		400 lbs
8"		440 lbs
9"		470 lbs
10"		500 lbs

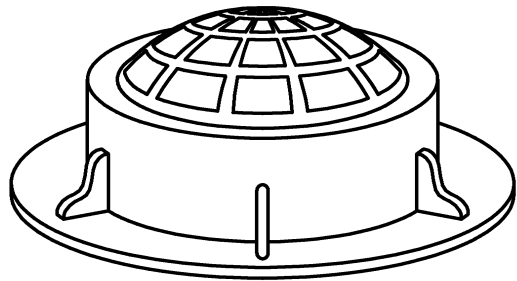
REVISIONS		
Date	Description	By
9/15/91	Added Grade Rings	Gdo
3/15/99	Remove Steps in Rings	EMR

State of Alaska
Department of Transportation
& Public Facilities

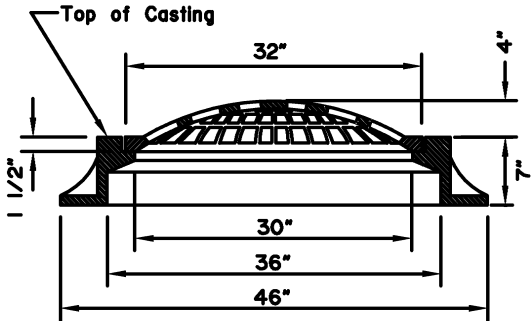
MANHOLES, FRAME
AND COVER



Date 7/15/82

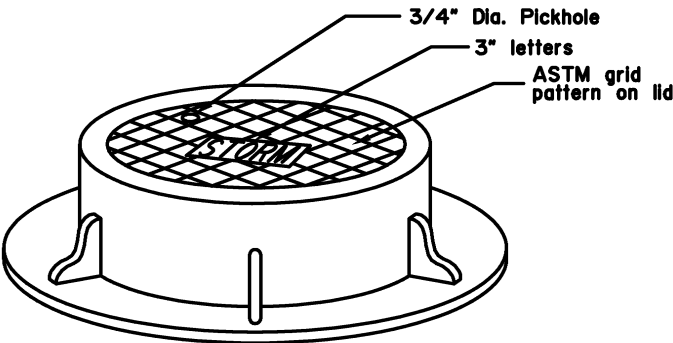


Surround field inlets with a 24" wide rock rubble collar 10" deep, 3" maximum size rock.



FIELD INLET FRAME & GRATE

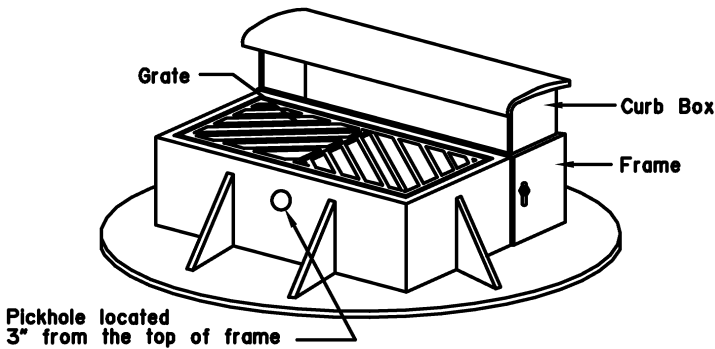
To be supplied for storm drain manholes where field inlets are specified. Field inlet frame and grate shall have a Minimum total weight of 525 lb.



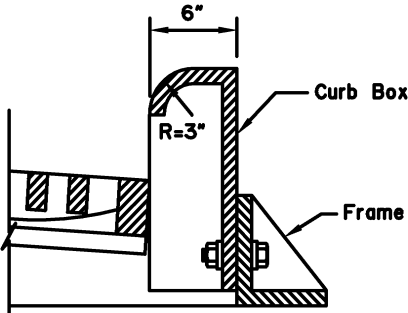
MANHOLE LID FRAME AND GRATE

NOTES:

- 1. Details shown are to indicate general design only. Dimensions and design may vary among the manufacturers, except that inlet grate shall be within 1/4"± of dimensions shown on this drawing.
- 2. Manhole lids shall be 32" in diameter and may be used with field inlet frames.
- 3. Type A field inlet frame inside dimensions shall be 24" x 36". Lugs will not protrude outside the concrete surface of the inlet box.
- 4. Grates shall be bicycle safe. Where high capacity grates are called for on the plans, they shall conform to Std. Dwg. D-25.
- 5. Frame and grate casting types are identified by the following abbreviations:
 - C.I. = Curb Inlet
 - F.I. = Field Inlet
 - M.H. = Manhole
- 6. Flowline depression shall conform to Std. Dwg. D-23 for an on grade or sag point conditions.
- 7. These are the default frames and grates to be used unless shown otherwise on the drainage plans or drainage structure summary.

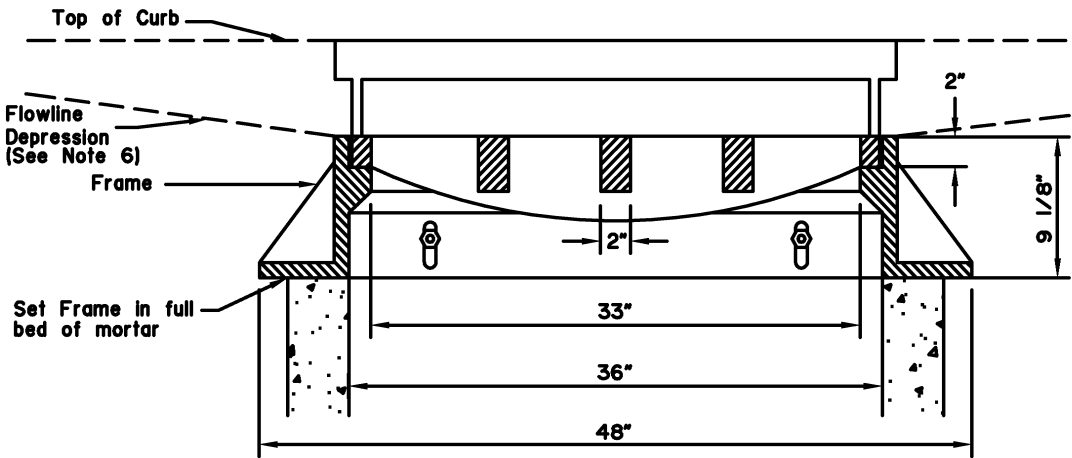


NOTE: Curb Box, Grate and frame shall have a minimum total weight of 725 lb.



SIDE VIEW
MOUNTABLE CURB AND GUTTER

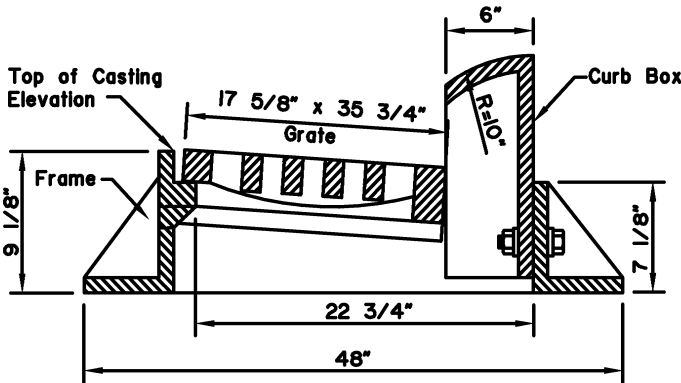
REQUIRED FRAME AND GRATES (See Note 7)			
STRUCTURE	INLET TYPE	CURB TYPE	TYPE FRAME AND GRATE
INLET BOX, TYPE A	Curb	Mountable	Standard Curb Inlet
	Curb	Expressway	Mountable Curb Inlet
	Curb	Rolled Curb	Depressed Inlet
	Field	-----	Field Inlet
STORM DRAIN MANHOLES, TYPE I, II AND III	Curb	Mountable	Mountable Curb Inlet
	Curb	Expressway	Expressway Curb Inlet
	Curb	Rolled Curb	Depressed Inlet
	Field	-----	Field Inlet
	Manhole Lids	-----	Field Inlet Frame, Solid MH. Lid



FRONT VIEW

CURB INLET FRAME AND GRATE

To be supplied for storm drain manholes Type I, Type II and Type III where curb inlets are specified.



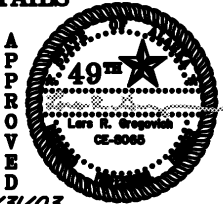
SIDE VIEW
EXPRESSWAY CURB AND GUTTER

REVISIONS		
Date	Description	By
10/31/03	Misc. Revisions/ Corrections	LRG

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

STORMDRAIN MANHOLE
FRAME AND GRATE
DETAILS

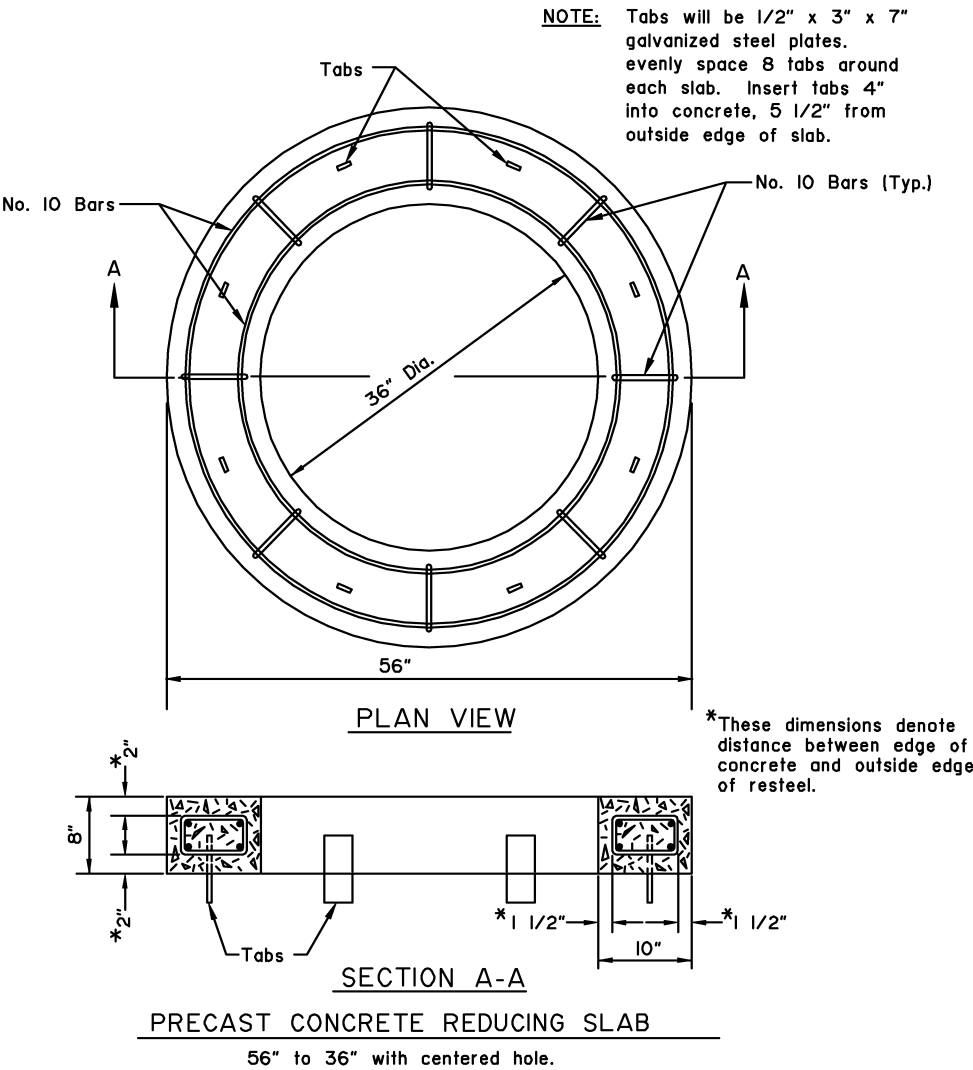
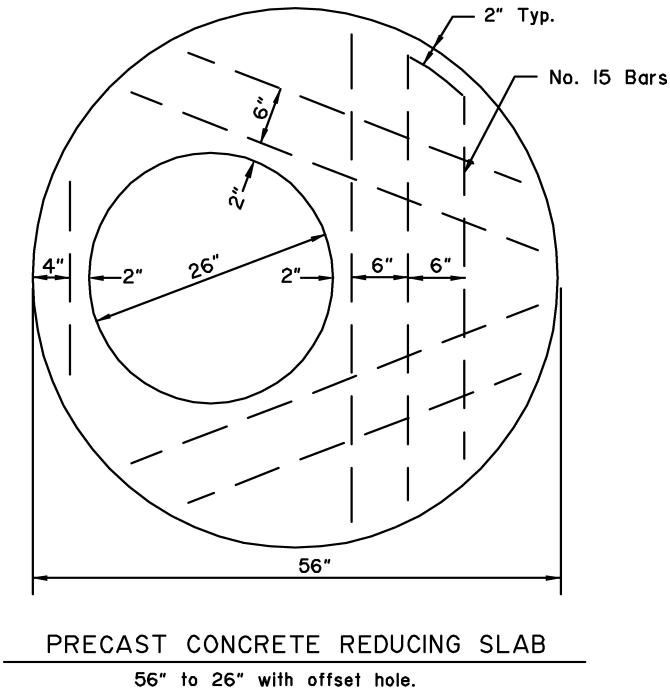
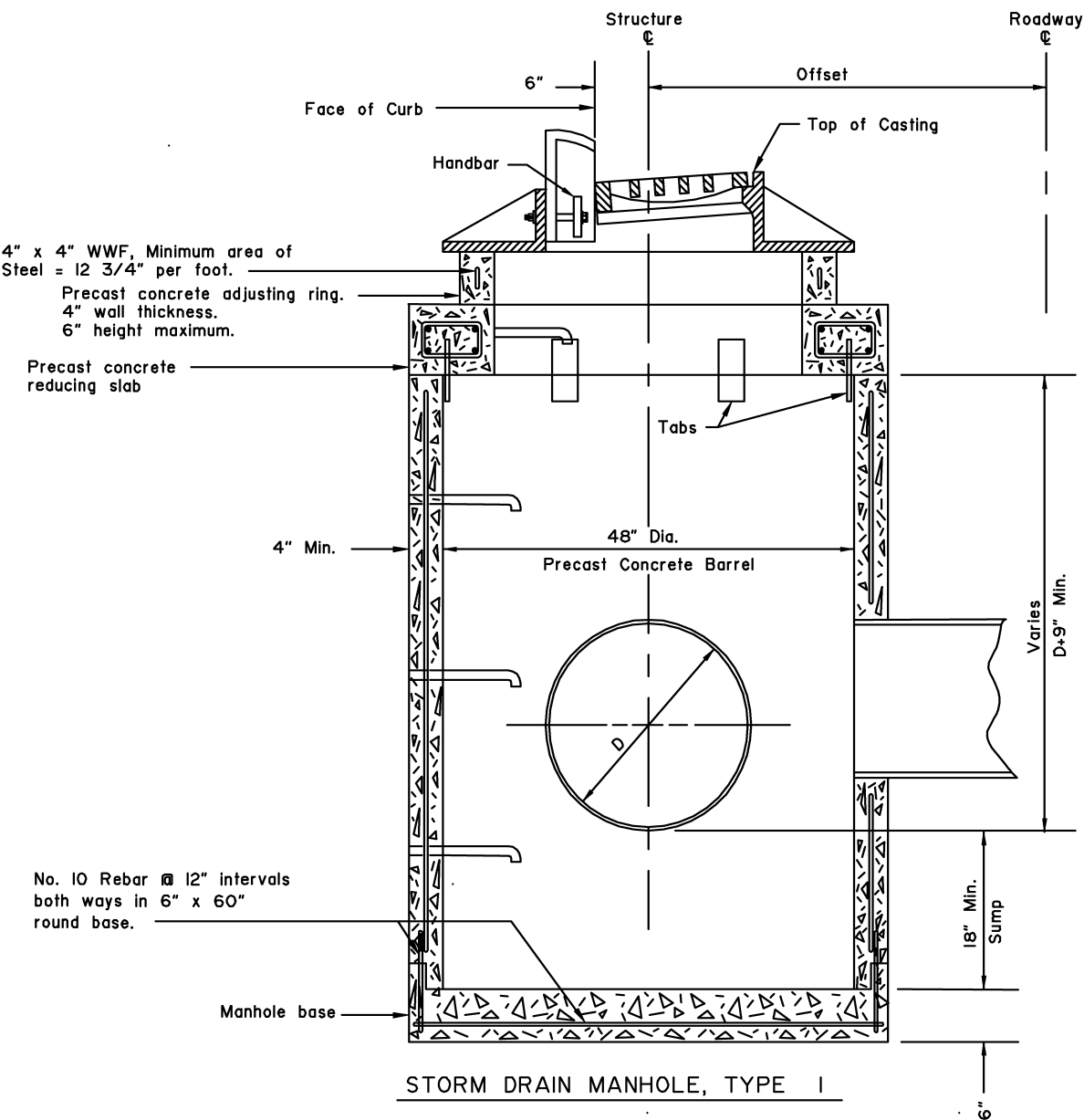


APPROVED

NOT TO SCALE Date 10/31/03

GENERAL NOTES:

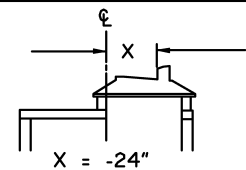
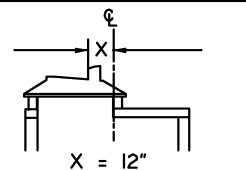
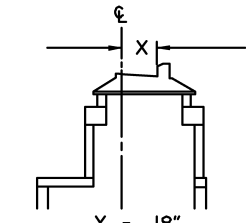
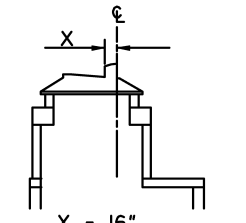
1. All drainage structures and appurtenances shall meet the requirements of ASTM C-478.
2. Minimum steel required for barrel as per ASTM-478 shall be imbedded in base so that the first barrel section is connected to the base by continuous steel.
3. Cast-In-Place structures may be used if approved by the Engineer.
4. All blockouts shall be formed.
5. All storm drain manholes and inlets shall have 18" minimum sumps. Manholes with petroleum separators shall have 24" minimum sumps.
6. Steps shall be placed 12" O.C. on the unobstructed side of the structure, 20" from top of casting and 18" maximum from manhole base.
7. On storm drain manhole, type I structures, primary pipes not to exceed 30" C.M.P. or 27" rigid concrete pipe with included angle between pipes no less than 135 degrees or primary pipes not to exceed 24" C.M.P. or 21" rigid concrete pipe with included angle no less than 135 degrees.
8. Offsets are measured from C of the road to C of the structure.
9. The precast concrete reducing slab with a 26" opening is to be used with the depressed inlet frame in the rolled curb areas.



REVISIONS		
Date	Description	By
State of Alaska Department of Transportation & Public Facilities		
48" STORM DRAIN MANHOLE		
APPROVED		
Date	3/15/99	

GENERAL NOTES:

1. All drainage structures and appurtenances shall meet the requirements of ASTM C-478.
2. Minimum steel required for barrel as per ASTM C-478 shall be embedded in base so that the first barrel section is connected to the base by continuous steel.
3. Cast in place structures may be used as approved by the Engineer.
4. All blockouts shall be formed.
5. All storm drain manholes and inlets shall have minimum 18" sumps. Manholes with petroleum separators shall have 24" minimum sumps.
6. Steps shall be placed 12" O.C. on the unobstructed side of the structure, 19" from top of casting and 18" maximum from manhole base.
7. On storm drain manhole, Type II structures, primary pipes not to exceed 42" CMP or 36" reinforced concrete pipe with included angle between pipes no less than 135° or primary pipes not to exceed 36" CMP or 30" reinforced concrete pipe with included angle no less than 135°.
8. Offsets are measured from \mathcal{C} of the road to the \mathcal{C} of the structure.
9. Distance to \mathcal{C} of structure from face of curb is:

STRUCTURE UNDER ROADWAY A	STRUCTURE OUT OF ROADWAY B
 X = -24"	 X = 12"
 X = -18"	 X = 16"

Type II Manhole offsets are calculated assuming the minimum riser height is 3 feet.

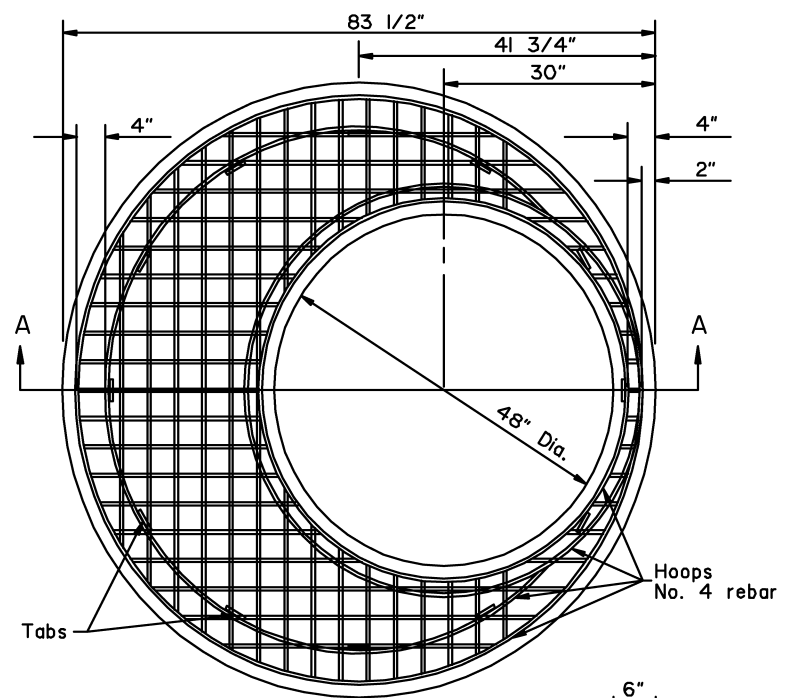
REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation
& Public Facilities

72" STORM
DRAIN MANHOLE

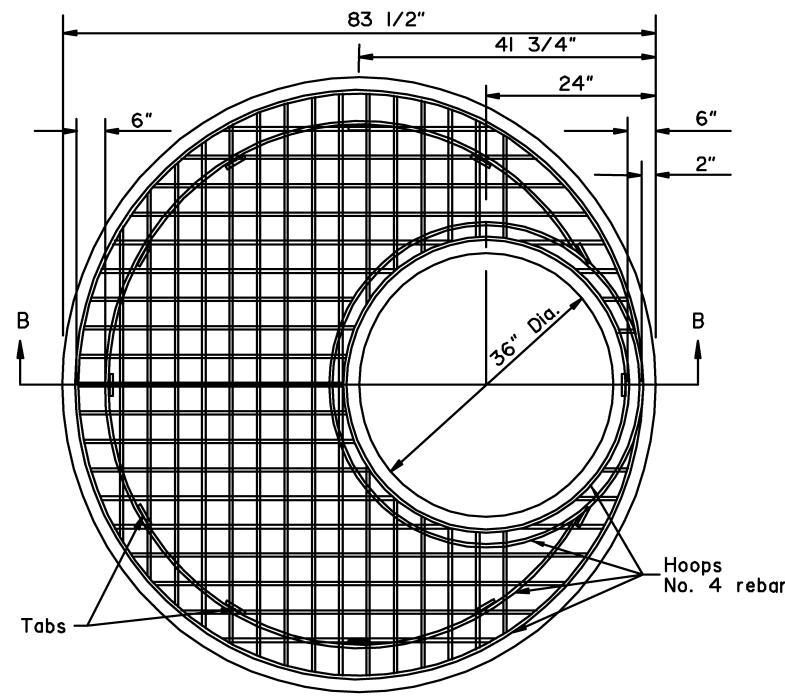


Date 3/15/99



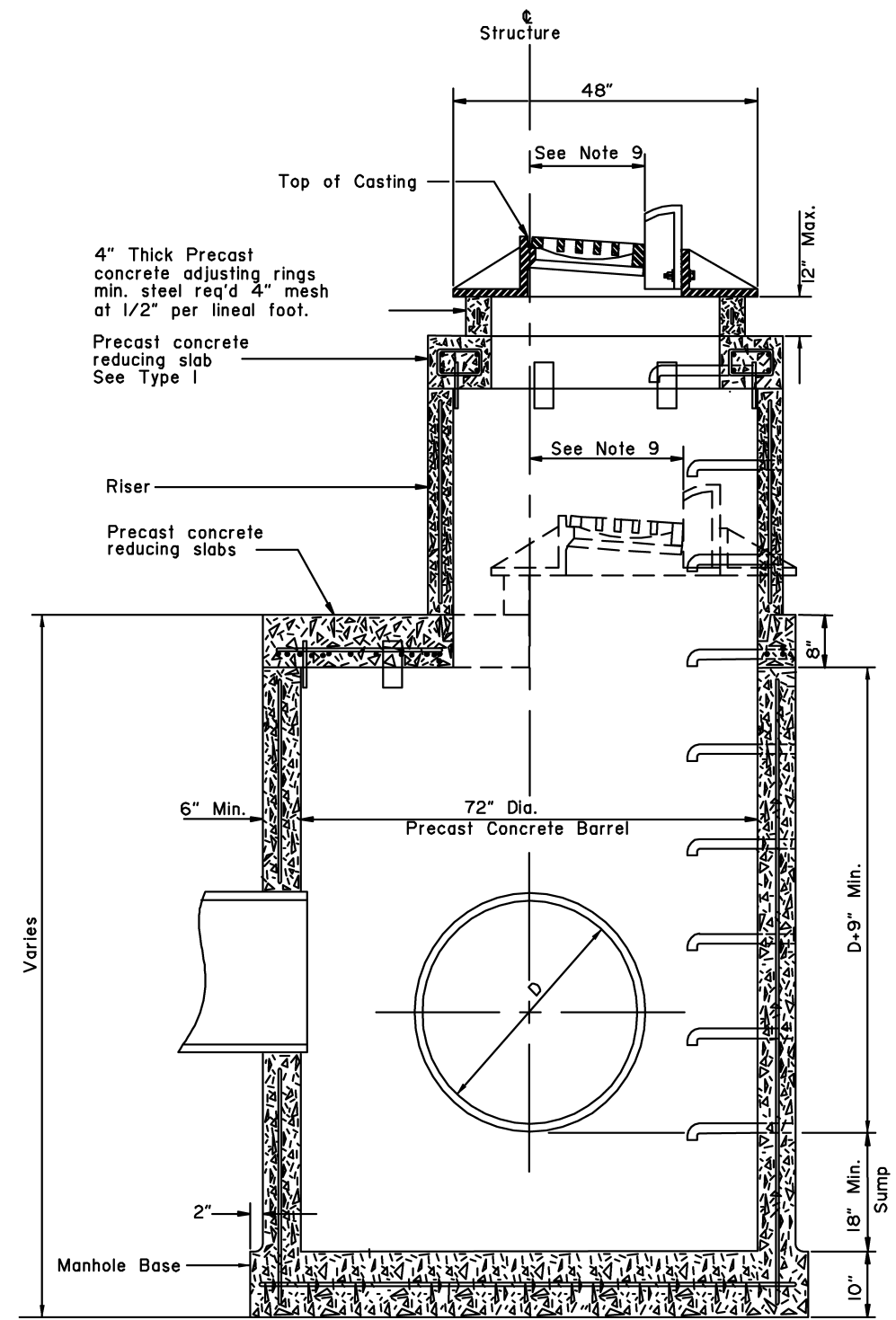
SECTION A-A
84" TO 48" PRECAST
CONCRETE REDUCING SLAB

*Dimension is to outside of rebar.



SECTION B-B
84" TO 36" PRECAST
CONCRETE REDUCING SLAB

*Dimension is to outside of rebar.



STORM DRAIN MANHOLE, TYPE II

Without riser.
Pipe Cover* < 75".

With riser.
Pipe Cover* > 75".

* Assuming a 6" Grade Ring and a 3 foot riser.

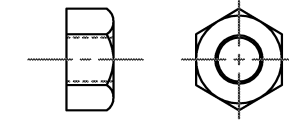
REDUCING SLAB NOTES

1. Use No. 5 for all rebar except stirrups and hoops.
2. All rebar shall be spaced at 5" centers unless otherwise noted.
3. Maintain a minimum of 1 1/2" of concrete cover over all rebar.
4. Tabs will be 1/2"x3"x7" galvanized steel plates. Evenly space 8 tabs around each slab. Insert tabs 4" into concrete, 6 1/2" from outside edge of slab.

GENERAL NOTES:

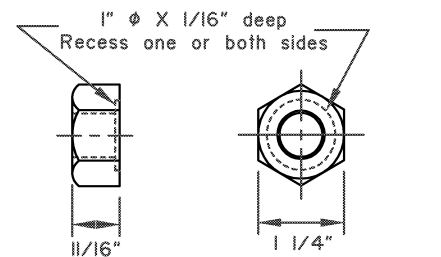
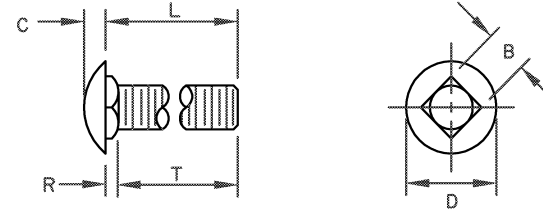
1. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition.

STANDARD HEX NUT

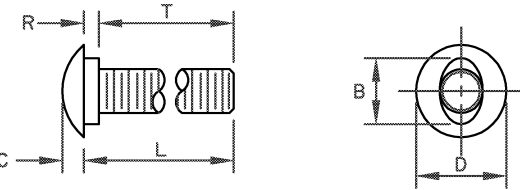


B	C	D	L (Length)	R	T (Thread Length)
5/8"	5/16"	1 5/16"	As Required	3/16"	As Required

5/8" Dia. CARRIAGE BOLT

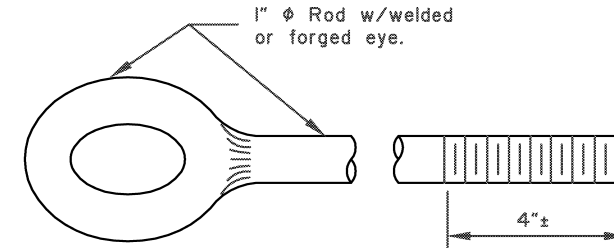


5/8" Dia. RECESSED HEX NUT



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

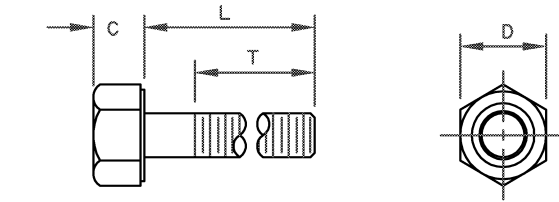
5/8" BUTTONHEAD BOLT



EYE BOLT

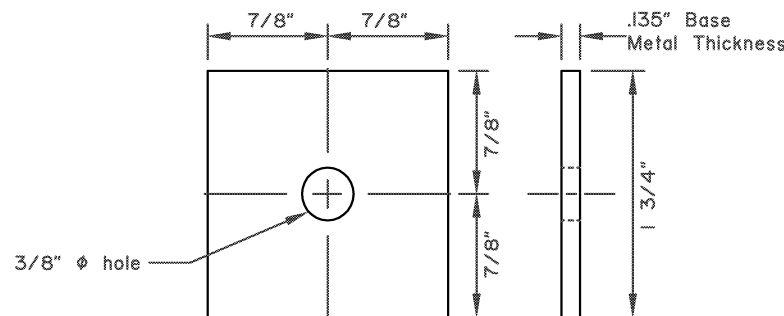
For Bolt ϕ	C	D	G
3/8"	7/16"	1"	5/64"
1/2"	17/32"	1 1/16"	3/32"
1/2" H.S.	17/32"	1 1/16"	3/32"
5/8"	11/16"	1 3/4"	9/64"
3/4"	13/16"	1 15/32"	9/64"
3/4" H.S.	13/16"	2"	5/32"
1"	1 1/16"	2"	9/64"

STANDARD STEEL WASHERS

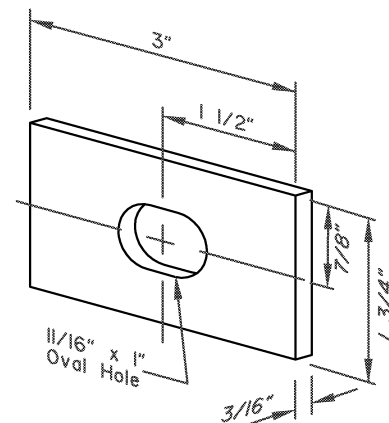


Bolt Size	C	D	L (Length)	T (Thread Length)
5/16"	—	—	1 1/2"	7/8"
5/16"	—	—	1"	1"
3/8"	—	—	7 1/2"	1 1/2"
1/2"	—	—	1 1/2"	1 1/2"
1/2"	—	—	1 1/4"	1 1/4"
5/8" H.S.	5/16"	7/8"	8"	1 1/2"
5/8"-II	—	—	1 1/2"	1 1/2"
3/4"	—	—	1 1/2"	1 1/2"
3/4"	—	—	As Required	2"
3/4" H.S.	15/32"	1 1/4"	2"	1 1/2"

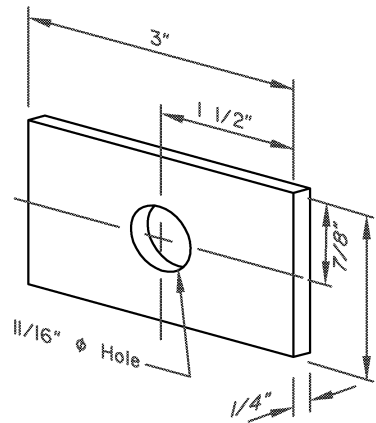
STANDARD HEX BOLTS



SQUARE STEEL WASHER



RECTANGULAR POST BOLT WASHER



FLAT PLATE WASHER

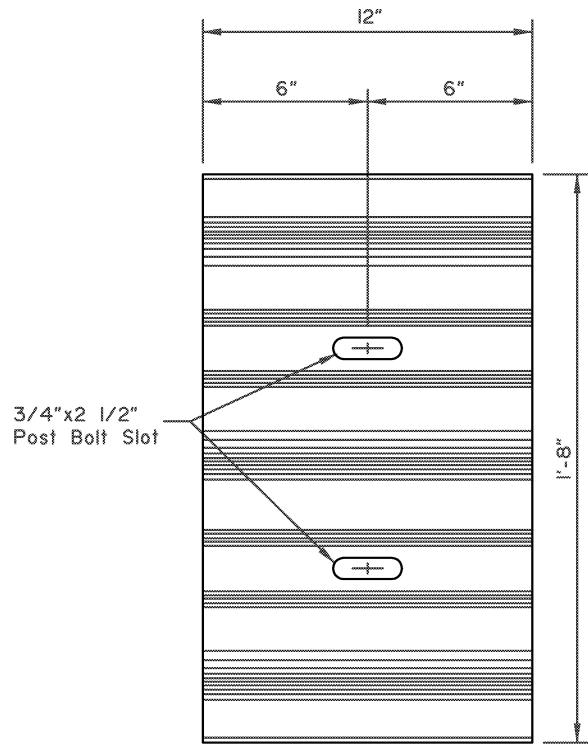
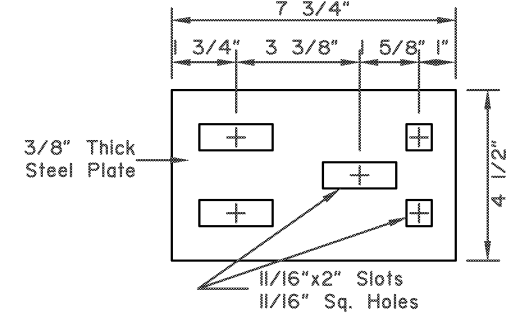
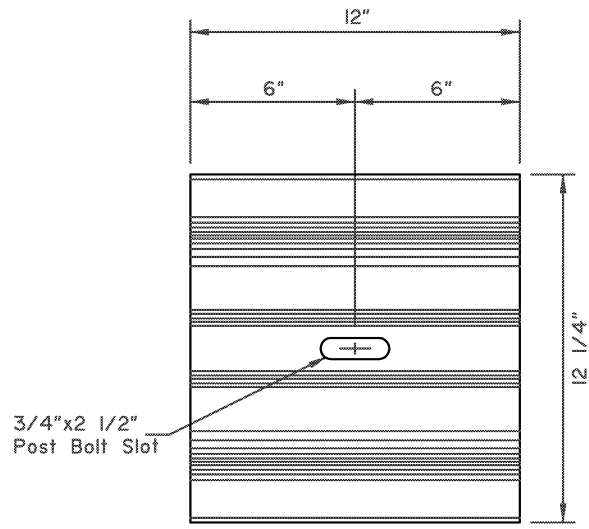
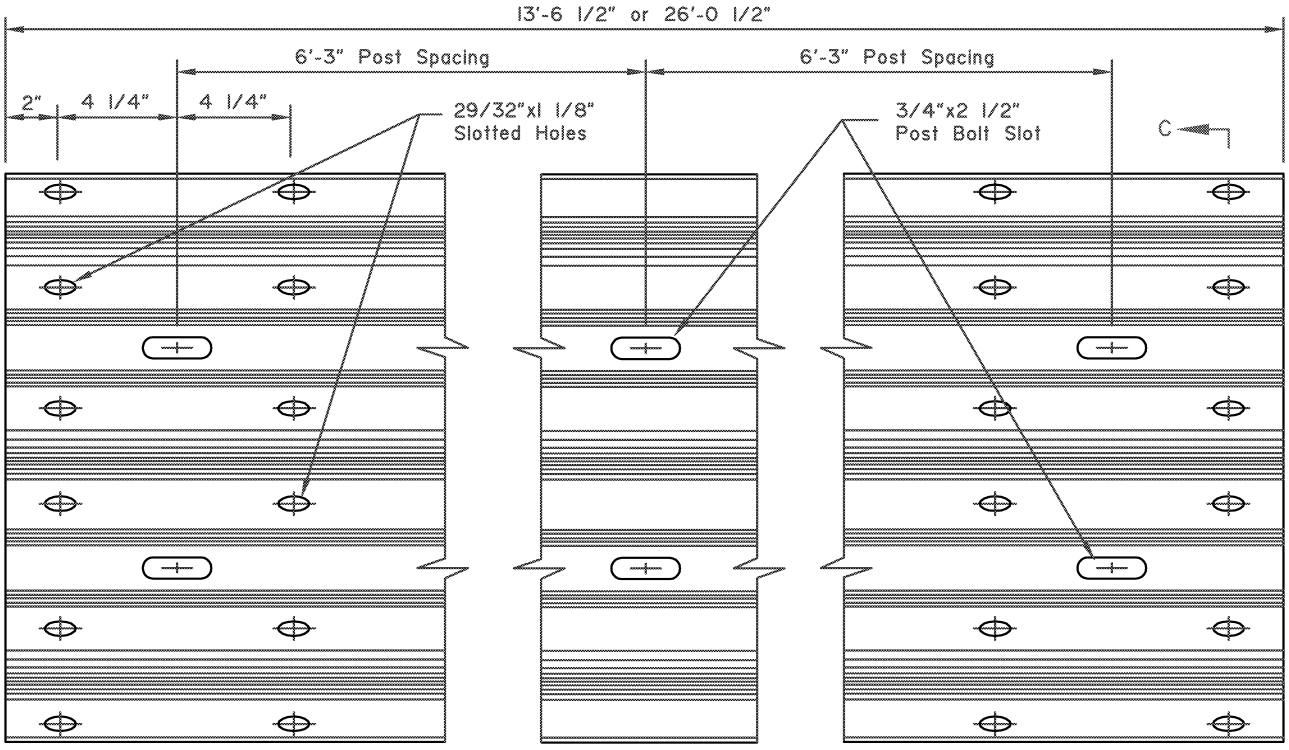
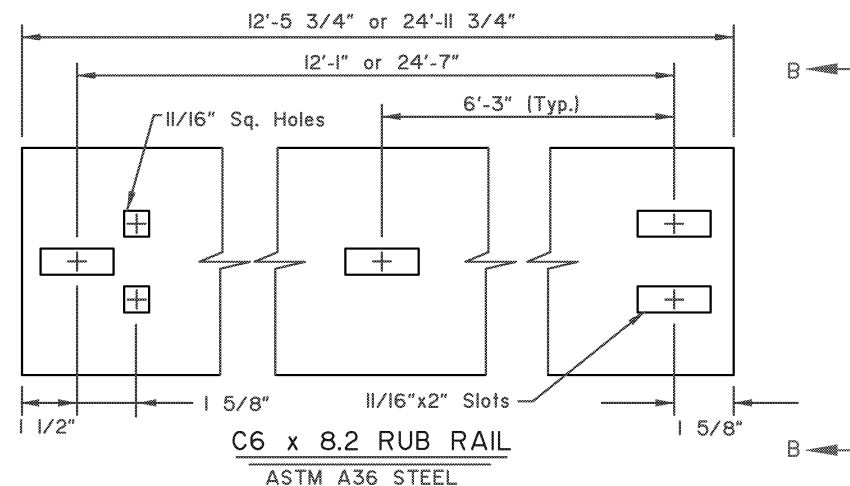
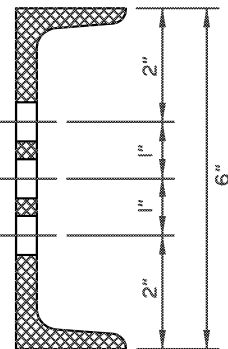
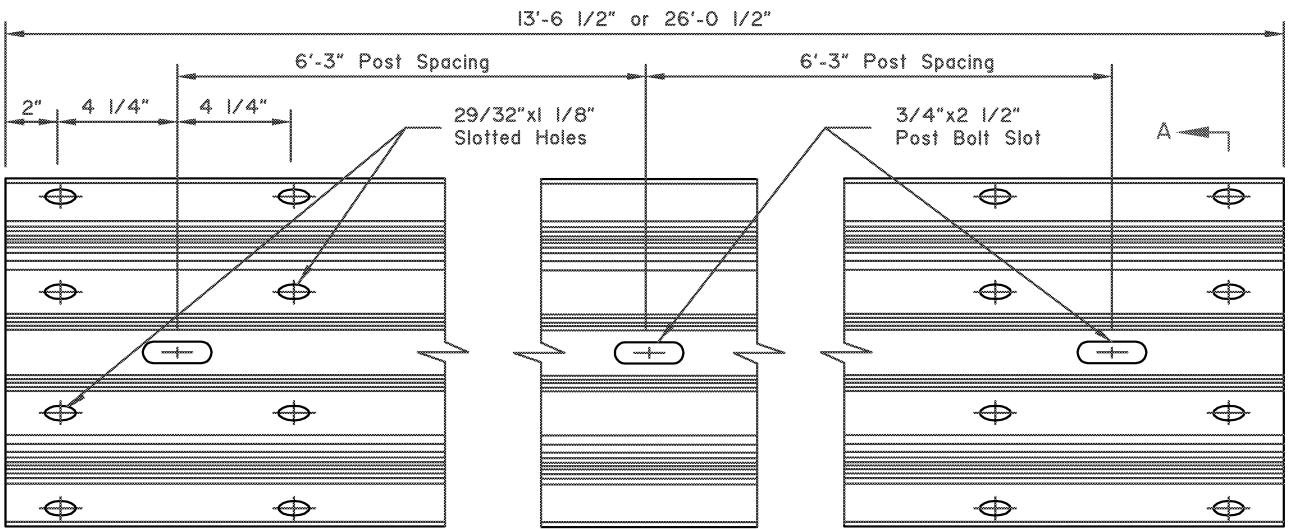
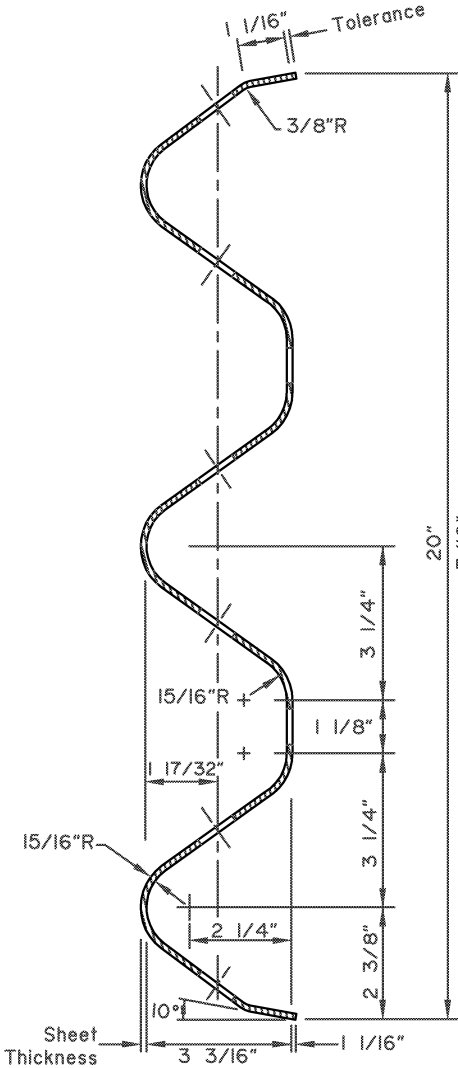
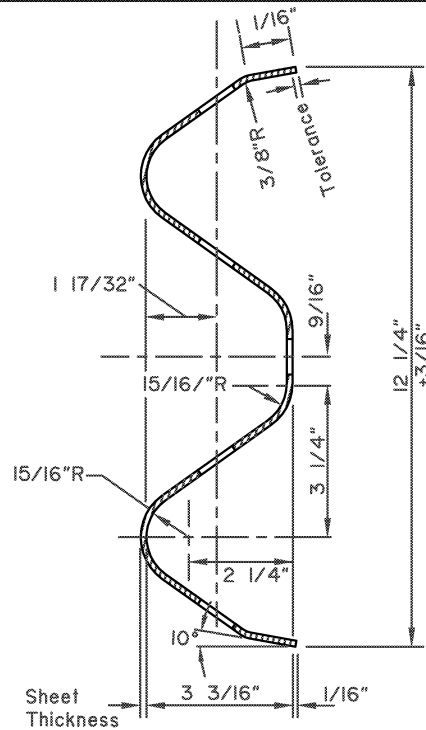
REVISIONS		
Date	Description	By
3/15/99	Delete BCT Hardware	KJS

State of Alaska
Department of Transportation
& Public Facilities
**STANDARD GUARDRAIL
HARDWARE
(NUTS, BOLTS, WASHERS)**

APPROVED
Date 1/1/96
49th
Kurt J. Smith
Kurt J. Smith
02-1547

GENERAL NOTES:

1. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition.
2. Back-up Plates shall be used at intermediate (Non-Splice) Posts.



REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation
& Public Facilities

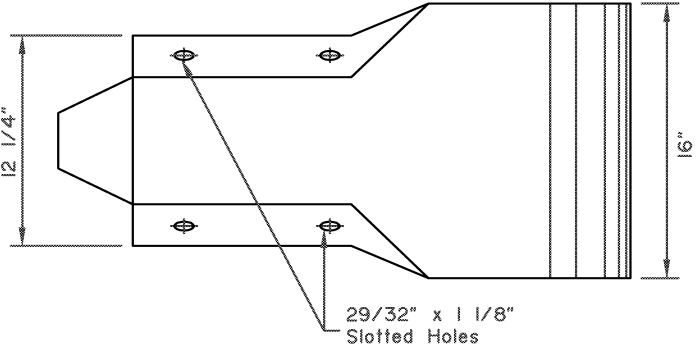
**STANDARD GUARDRAIL
HARDWARE
(RAILS AND SPLICES)**

APPROVED
1/1/96

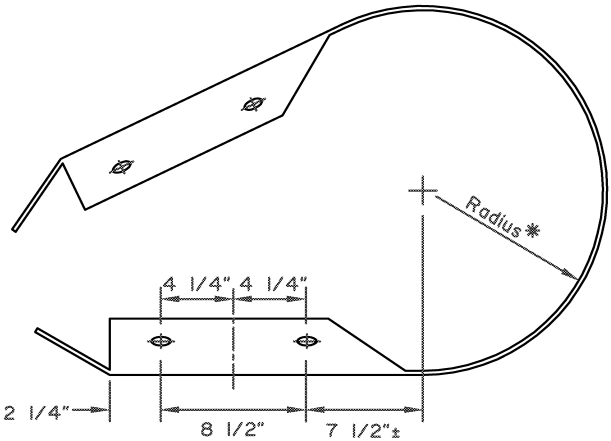
Date

GENERAL NOTES:

1. W-Beam and Thrie Beam Terminal Connectors shall conform to AASHTO M180, Class B, Type 2.
2. W-Beam end sections shall conform to AASHTO M180, Class A, Type 2.
3. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition.



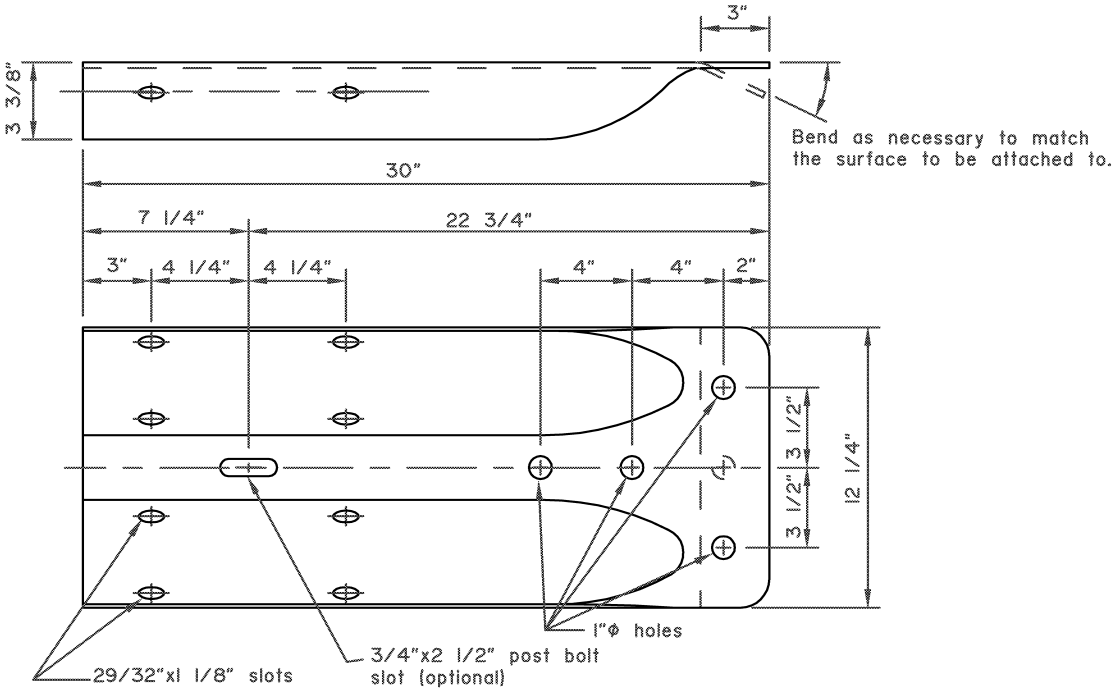
PROFILE



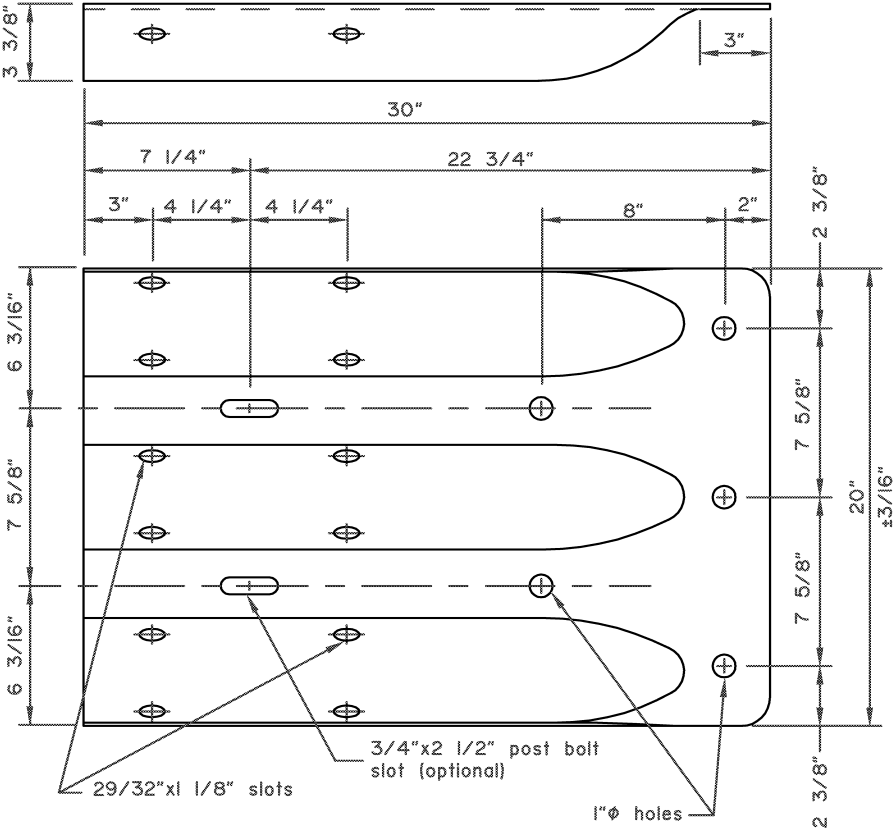
W-BEAM PLAN VIEW

*Radius to be specified on the plans

STANDARD W-BEAM END SECTION



STANDARD W-BEAM TERMINAL CONNECTOR



STANDARD THRIE BEAM TERMINAL CONNECTOR

REVISIONS		
Date	Description	By
3/15/99	Delete Thrie End Sect.	KJS

State of Alaska
Department of Transportation
& Public Facilities

STANDARD GUARDRAIL
HARDWARE
(TERMINAL CONNECTORS)

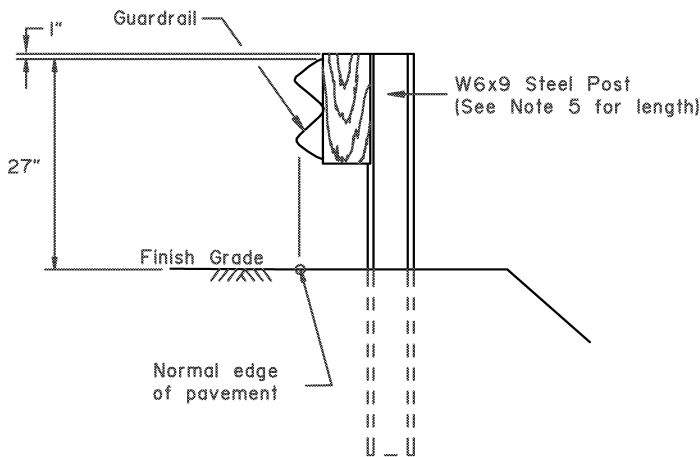


APPROVED

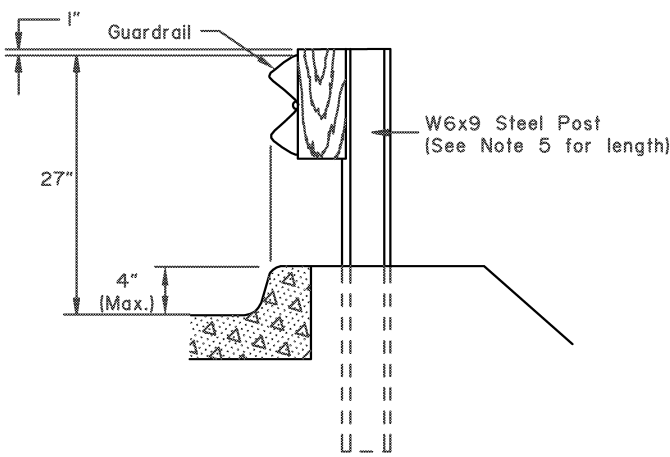
Date 1/1/96

GENERAL NOTES:

- Guardrail Reflectors shall be mounted at 50' centers beginning with the first post. Type A Reflectors shall be used unless specified otherwise on the plans.
- All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition.
- See standard drawings G-00, "Standard Guardrail Hardware" for hardware details.
- Mount rail to block with bolt on approaching traffic side of block web.
- See standard drawing G-10, "Beam Guardrail Post Installation" for post lengths corresponding to different combinations of slope and behind-post embankment width.
- Typical post spacing is 6'-3" center to center.
- This barrier is acceptable under NCHRP 350, TL3.



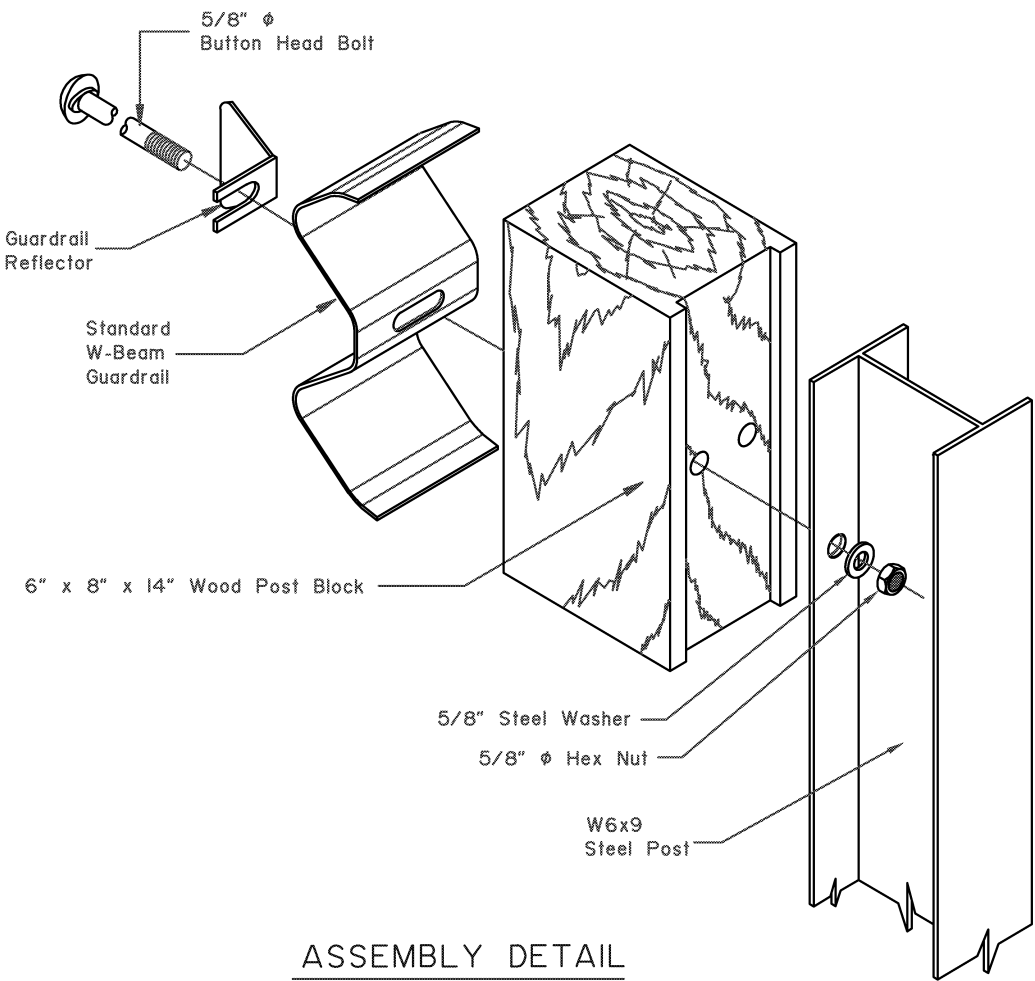
TYPE I POST INSTALLATION



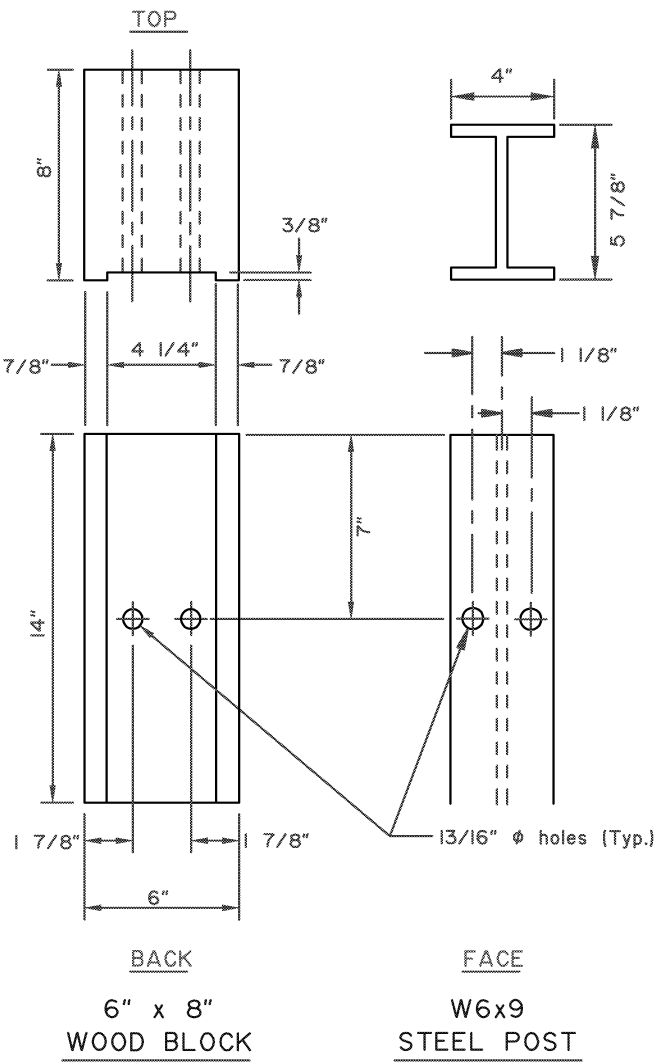
CURB DETAIL

TYPE III POST INSTALLATION

NOTE: Curb should not be installed with guardrail when the speed limit exceeds 40 mph.



ASSEMBLY DETAIL



REVISIONS		
Date	Description	By
3/1/83	Revised Gen. Notes	Gdo
1/1/86	Revised Hanger Detail	Gdo
3/15/99	Modified Block Detail and post length.	KJS

State of Alaska
Department of Transportation
& Public Facilities

**STEEL POST
W-BEAM GUARDRAIL**

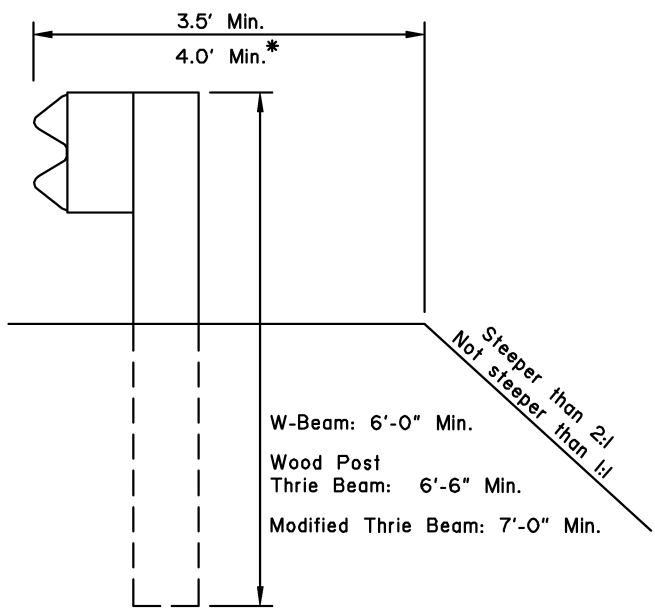
APPROVED

49th
Alaska State Seal
1957-1997

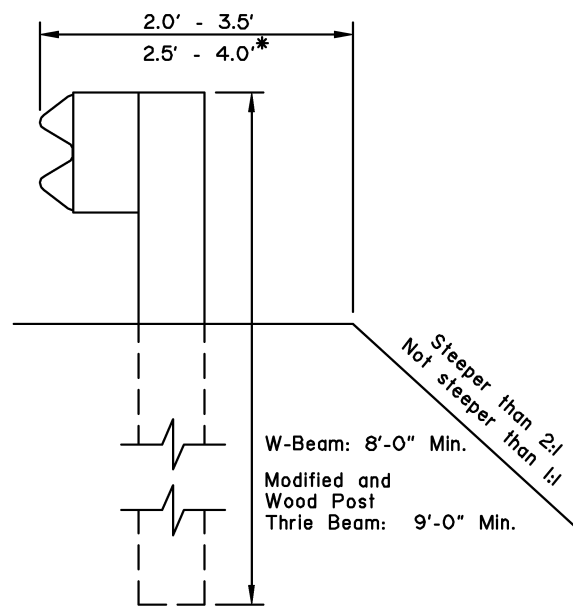
Date 7/15/82

GENERAL NOTES:

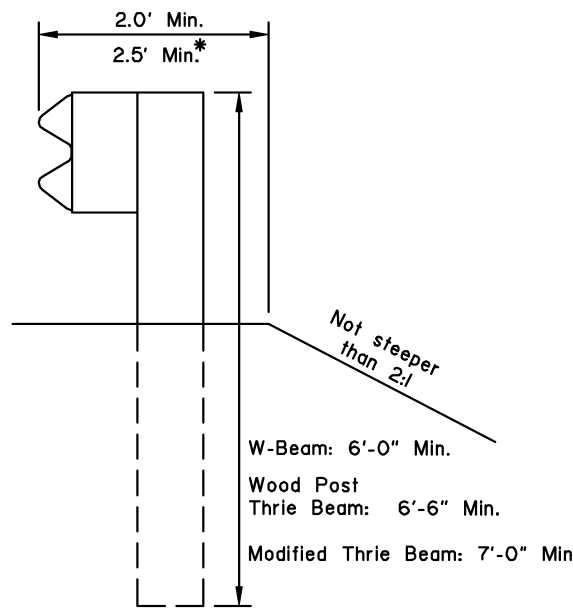
1. This drawing is to be used for post length determination only. See the plans for slopes and behind-post embankment widths.
2. To determine post length, identify the case that matches site conditions and read the length corresponding to the pertinent guardrail type.
3. These dimensions apply to both curbed and uncurbed sections.



CASE 1



CASE 2



CASE 3


* with Modified Thrie Beam'

REVISIONS		
Date	Description	By
12/2/99	Delete Case 4,5, and 6	KJS

State of Alaska
Department of Transportation
& Public Facilities

BEAM GUARDRAIL
POST INSTALLATION

A
P
P
R
O
V
E
D

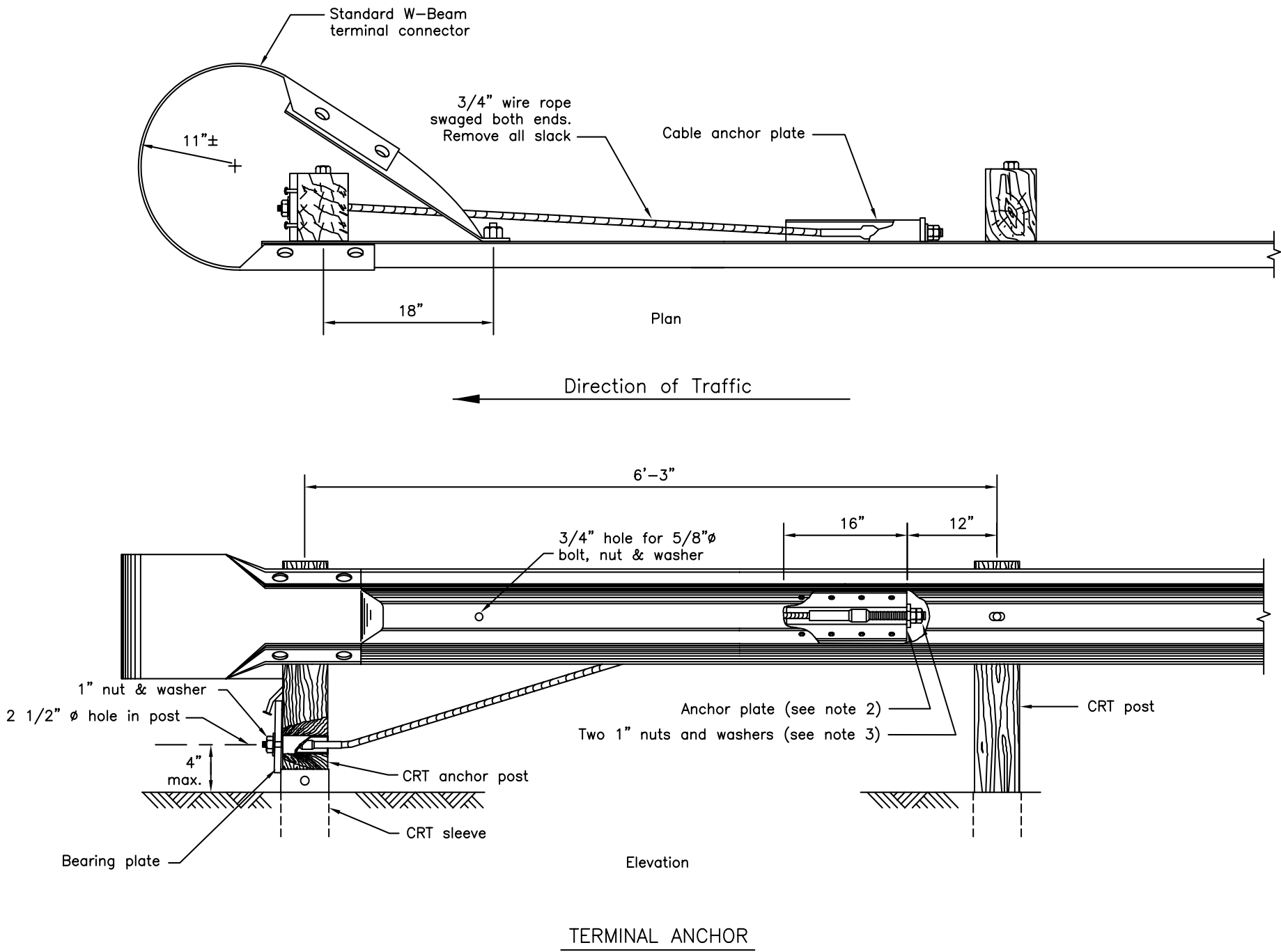


Date 3/15/99

G-10.01

GENERAL NOTES:

- 1. Hardware details not shown here shall conform to drawings G-00, G-04W, G-25W
- 2. Fasten anchor plate to rail with eight 5/8" x 1 1/2" machine bolts with hex nut and washer. Place washer on face side of rail.
- 3. Torque outside nut against inside nut a minimum of 100 ft-lbs.
- 4. Toenail bearing plate with two 10d galvanized nails at corners to prevent turning.
- 5. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition.
- 6. This assembly will typically be used on the downstream ends of guardrail runs on one-way streets.
- 7. This assembly is generally not intended for divided highway applications due to possible 2-way construction detours. Designer should consider future detouring needs when deciding whether to use this terminal.
- 8. This design does not meet NCHRP 350 TL 3 standards. It is not intended as a crash worthy barrier end treatment for approach end impacts.



REVISIONS		
Date	Description	By

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

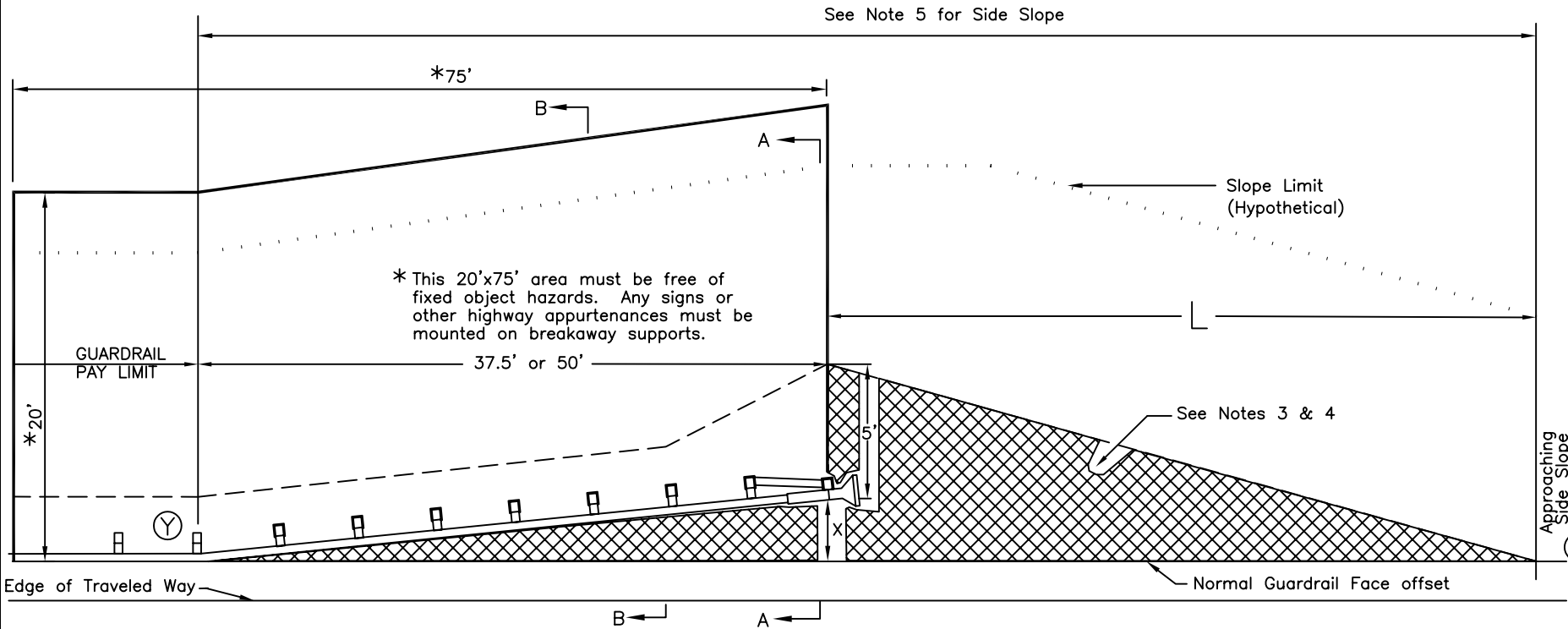
**W BEAM GUARDRAIL
DOWNSTREAM END
ANCHOR**

APPROVED

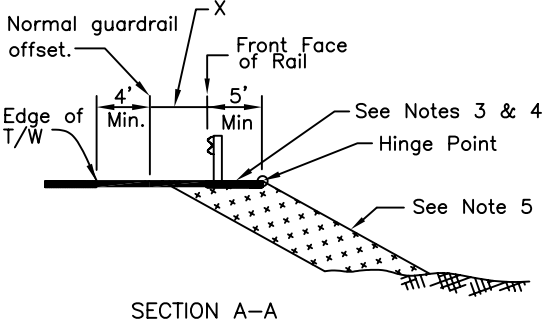
DATE 2/28/03

GENERAL NOTES:

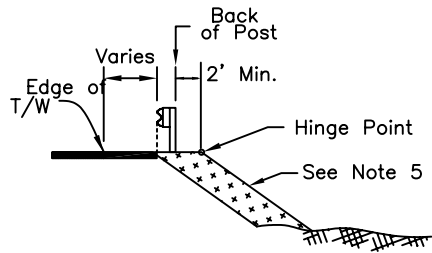
- 1) The standard detail applies to all approved guardrail terminals, including those with parabolic flares. The alternate detail may only be used with straight terminals. The terminal details shown are for illustration only – see manufacturer's drawings for actual post, rail, etc. drawings.
- 2) Use the standard detail for all terminals except when upgrading existing non-NCHRP-350 compliant terminals to NCHRP-350 compliant terminals where site conditions make the use of the standard detail infeasible. In that case, use the alternate detail.
- 3) Construct the hatched areas to match the slope of the adjacent shoulder to a maximum slope of 10:1. Maintain 10:1 for steeper shoulders. Match the slope when the shoulder slopes toward the road as well as away from the road.
- 4) On paved roads, the hatched areas shall be paved. On gravel roads, surface the hatched areas with the same materials used to surface the travel lanes.
- 5) From point Y to point Z, make the side slope match the approaching side slope except where it is flatter than 4:1. In that case, the slope may be steepened to 4:1.
- 6) Attach a flexible marker to the first point (where the flare begins) and the end post of each terminal.



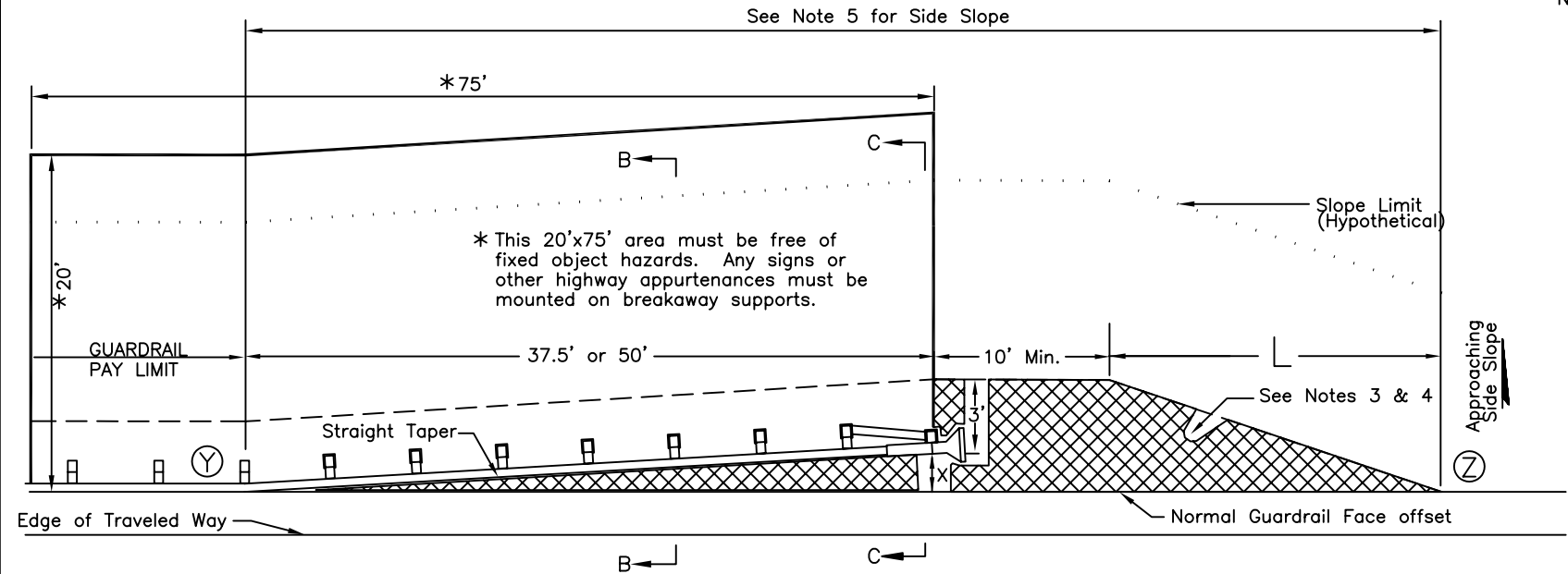
STANDARD GUARDRAIL TERMINAL WIDENING DETAIL



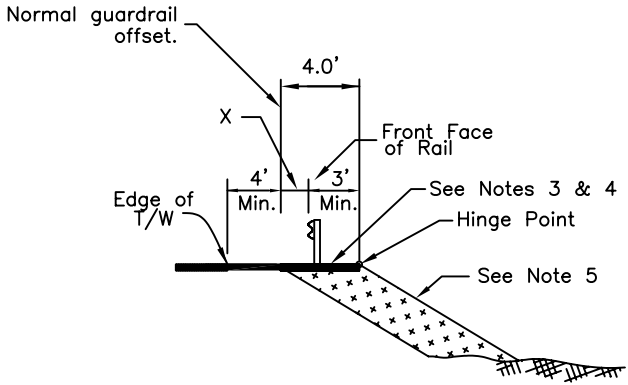
SECTION A-A



SECTION B-B
(Applies to both drawings)



ALTERNATE GUARDRAIL TERMINAL WIDENING DETAIL



SECTION C-C

X: End offset. See manufacturer's information for the range of acceptable (NCHRP 350 compliant) end offsets for each terminal.

Taper Lengths (L) for Common End Offsets (X)		
End Offset	Standard Detail	Alternate Detail
0'	15.0'	10.0'
1'	17.0'	10.0'
1.5'	20.0'	15.0'
2'	22.0'	15.0'
2.5'	25.0'	15.0'
4'	30.0'	20.0'
Interpolate if the end offset falls between table values		

REVISIONS		
Date	Description	By
3/6/02	Changed ET Offset	KJS
2/28/03	Major Revisions	KJS

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

WIDENING FOR GUARDRAIL
END TERMINALS



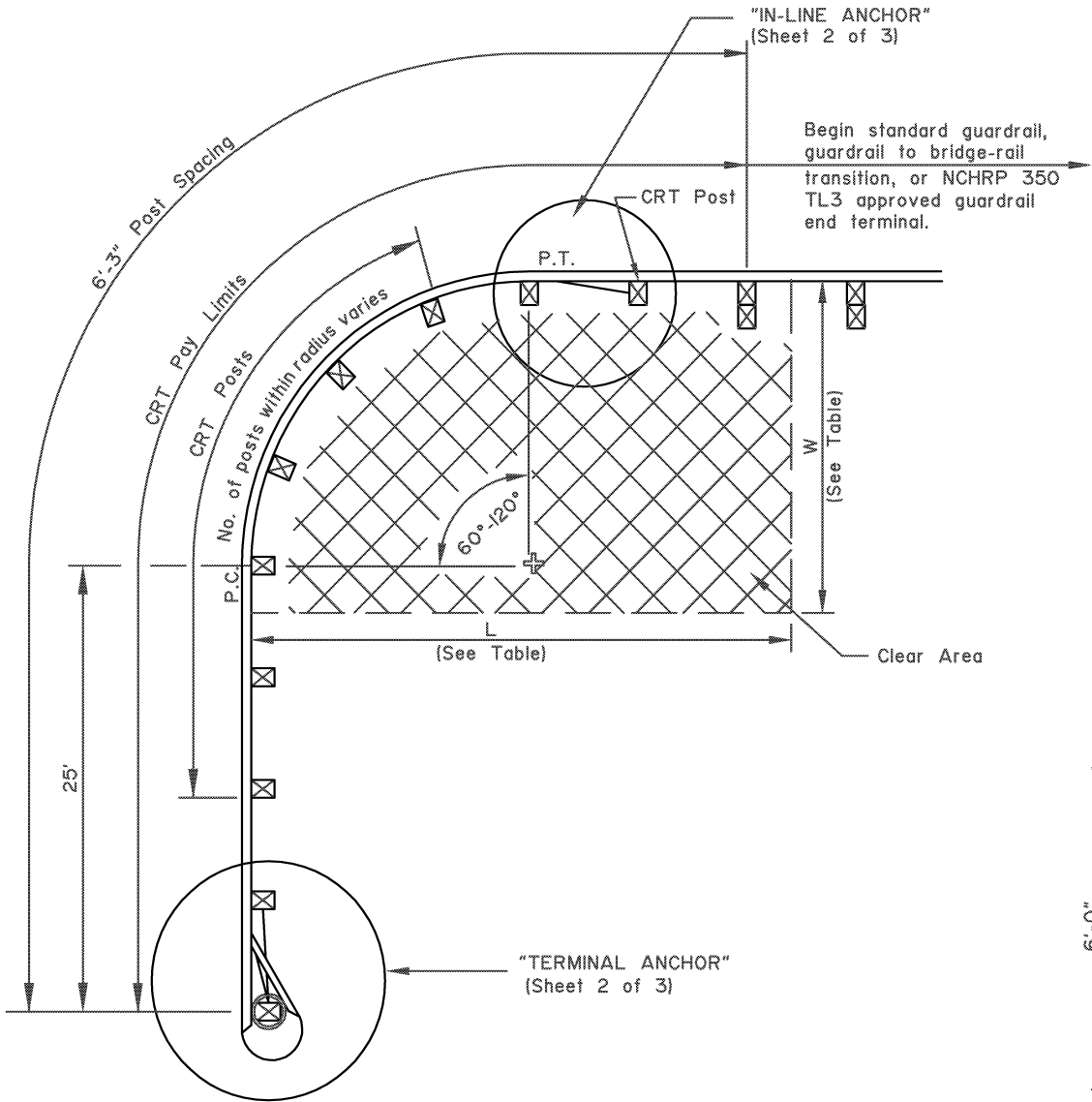
Date 3/15/99

GENERAL NOTES:

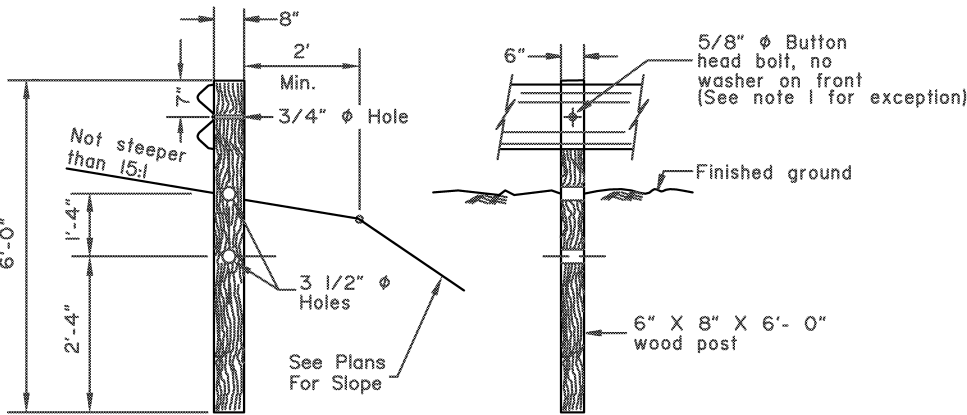
CRT RADIUS TABLE *					
Curve Radius, Ft. (Rounded)	Curve Length	Number of Rail Sections	Clear Area		** Number of Posts
			Length (L)	Width (W)	
8'	12.50'	1.0	25	15	5
12'	18.75'	1.5	25	15	6
16'	25.00'	2.0	30	15	7
20'	31.25'	2.5	33	15	8
24'	37.50'	3.0	37	20	9
28'	43.75'	3.5	40	20	10
32'	50.00'	4.0	45	20	11
36'	56.25'	4.5	50	20	12

* The table applies only to 90° approaches or driveways.
** Number of CRT posts includes one for the In-Line Anchor.

- Do not bolt rail to central post on 8' radius CRT.
- CRT's on 60° to 120° approaches are allowed provided they are constructed with posts at the P.C. and P.T. and the posts are placed on uniform 6'-3" centers.
- CRT connections are not limited to what is shown. Terminal Anchors, NCHRP 350 TL3 approved guardrail end terminals, guardrail to bridge-rail transitions, or standard guardrail may be attached to either end, or both ends of the apparatus.
- The Terminal Anchor shall only be placed on approaches where motorists are required to stop or yield.
- The Clear Area shall be free of fixed object hazards. Any signs or other highway appurtenances must be mounted on breakaway supports.



CONTROLLED RELEASE TERMINAL PLAN

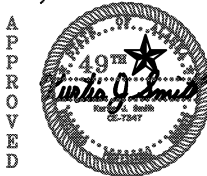


CONTROLLED RELEASE TERMINAL (CRT) POST

REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation
& Public Facilities

WOOD POST CONTROLLED
RELEASE TERMINAL
(CRT)

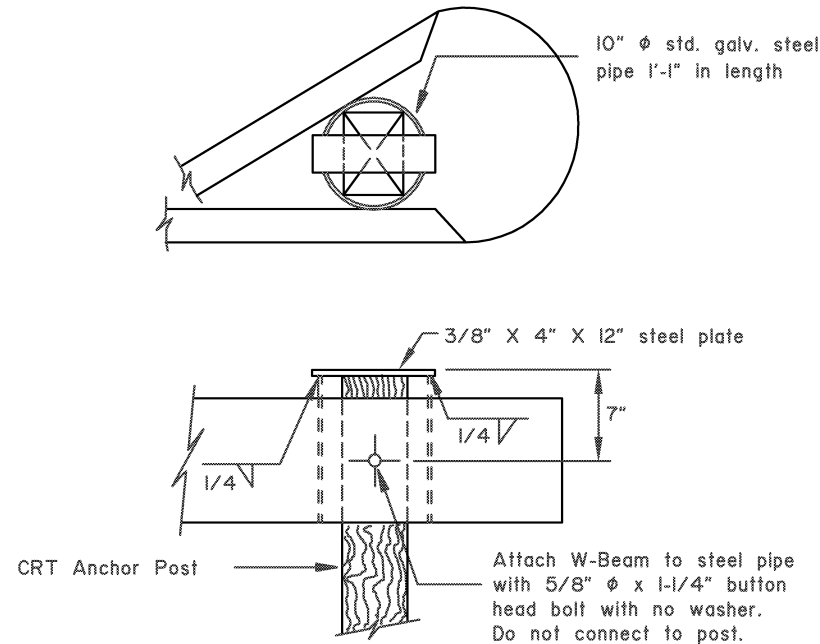


Date 3/15/99

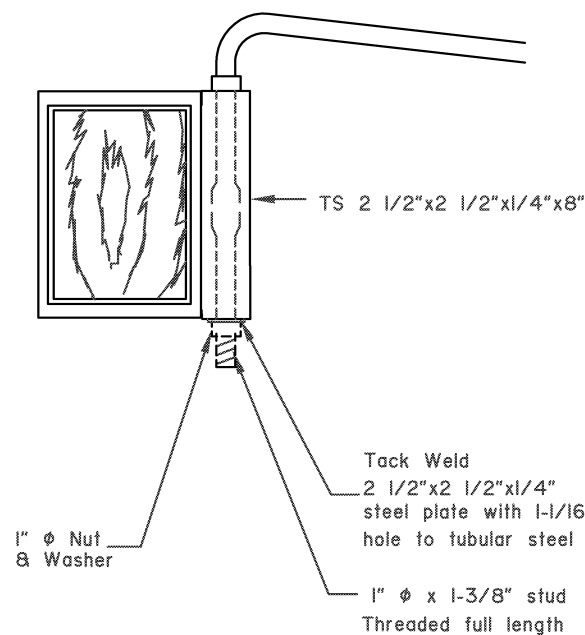
G-25.20W

GENERAL NOTES:

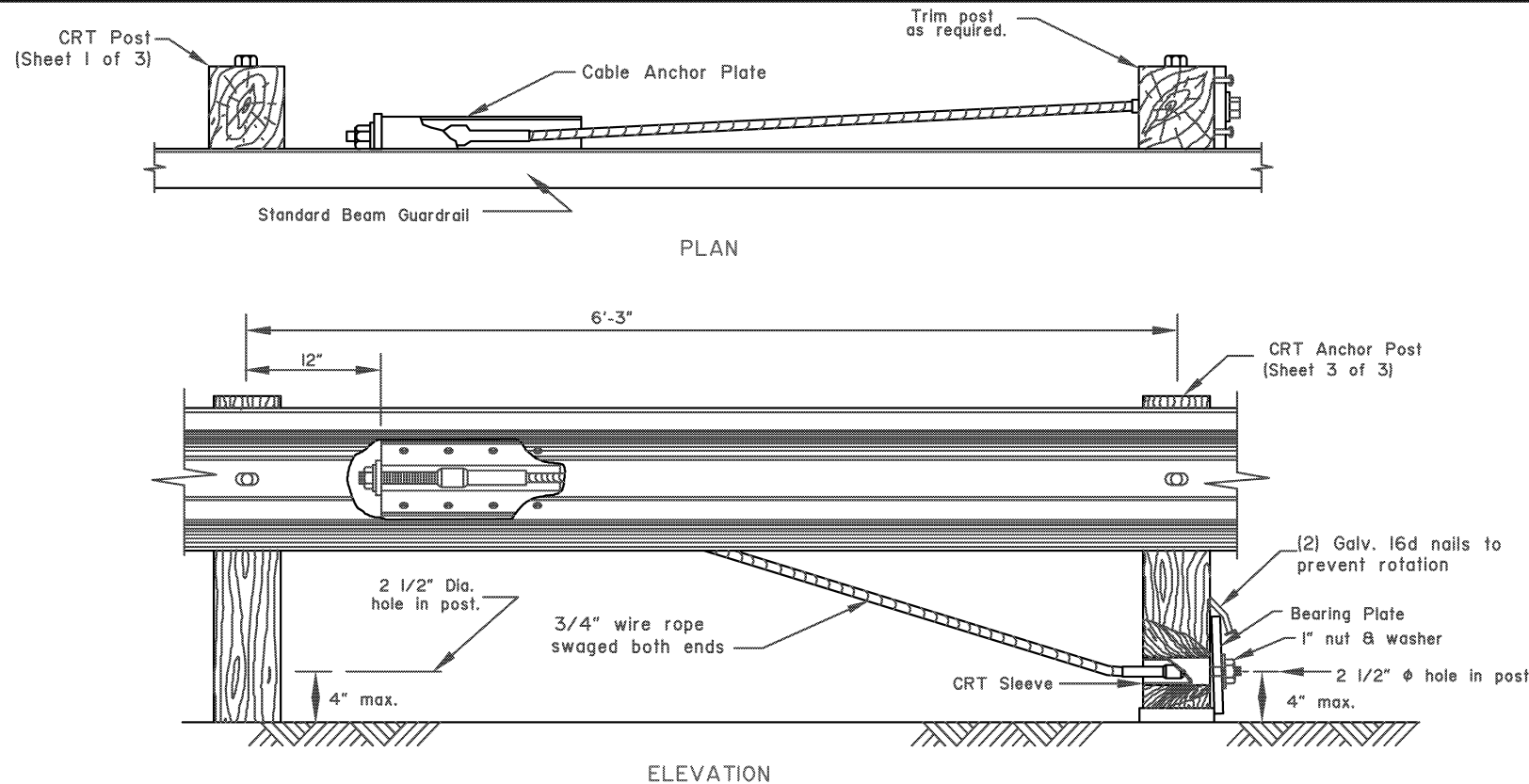
1. Hardware details not shown here shall conform to drawings G-04 & G-00.
2. All covered hardware shall comply with the AASHTO/AGC/ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition.



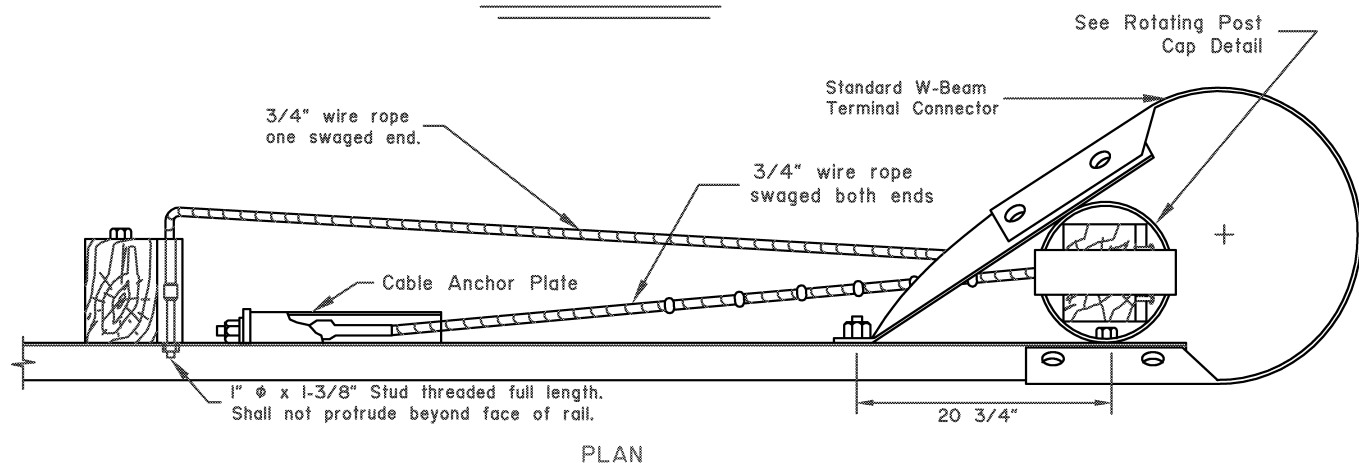
ROTATING POST CAP



SIDE CABLE ATTACHMENT



IN-LINE ANCHOR



TERMINAL ANCHOR

REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation
& Public Facilities

**WOOD POST CONTROLLED
RELEASE TERMINAL
ANCHORS**

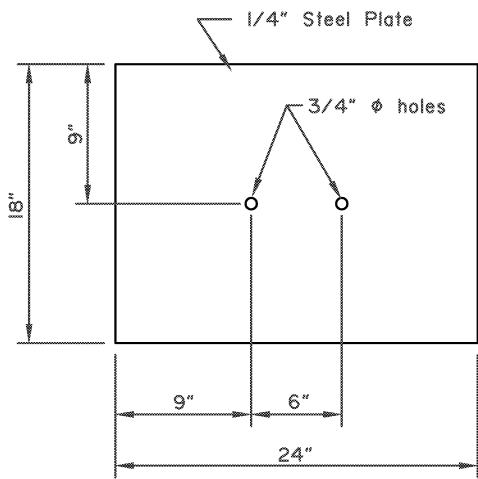
APPROVED



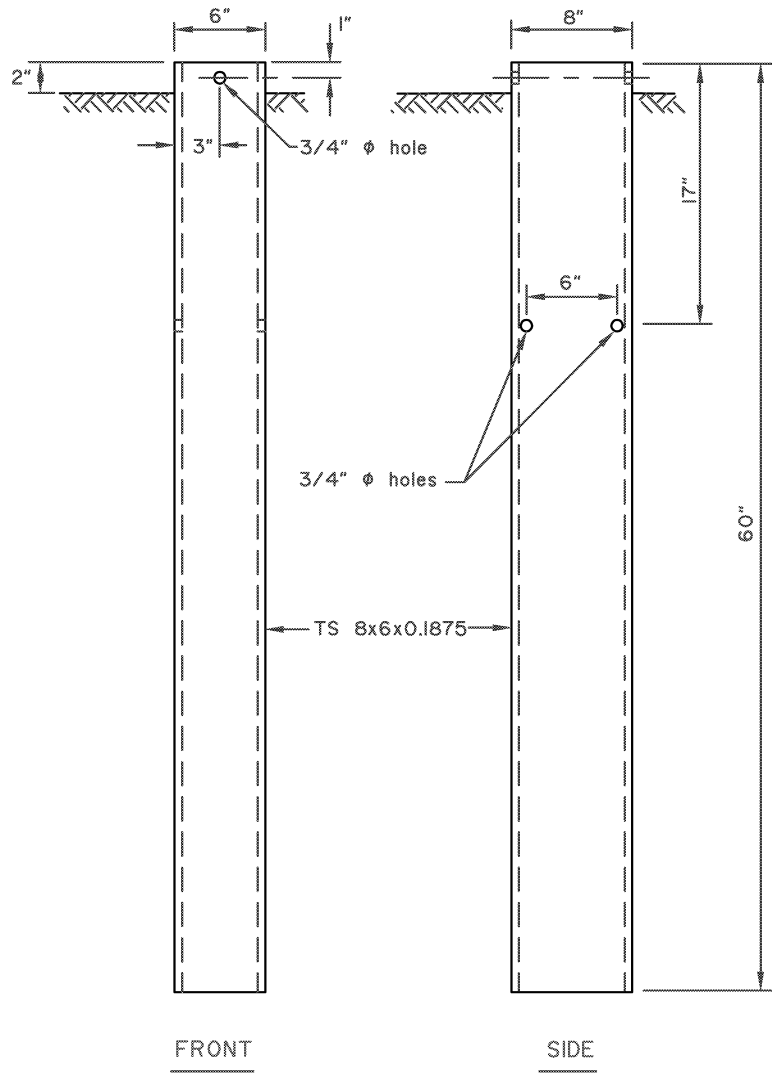
Date 3/15/99

GENERAL NOTES:

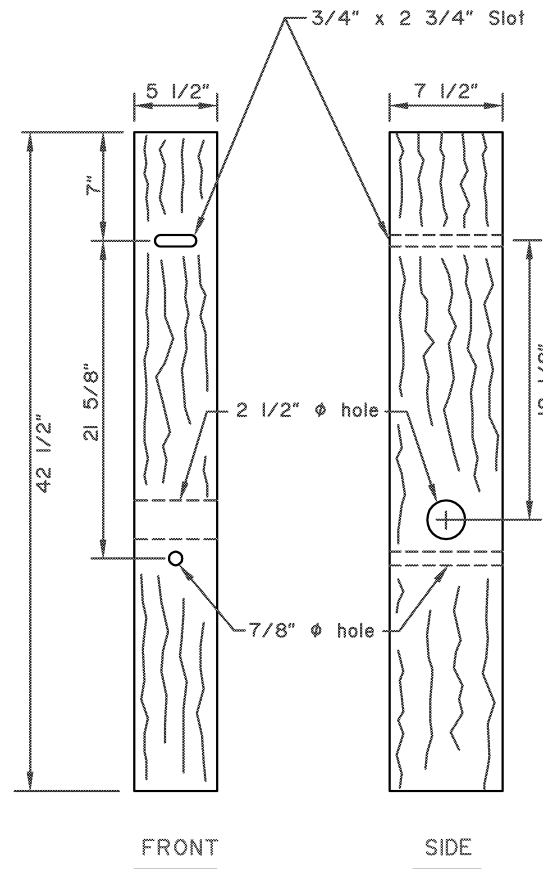
- Hardware details not shown here shall conform to drawings G-04 & G-00.
- All covered hardware shall comply with the AASHTO/AGC.ARTBA "A Guide to Standardized Highway Barrier Hardware", latest edition.
- Each CRT Anchor Post with a cable attached shall conform to these details except the 2nd post in the Terminal Anchor, which shall conform except for the method of cable attachment (See sheet 2 of 3).



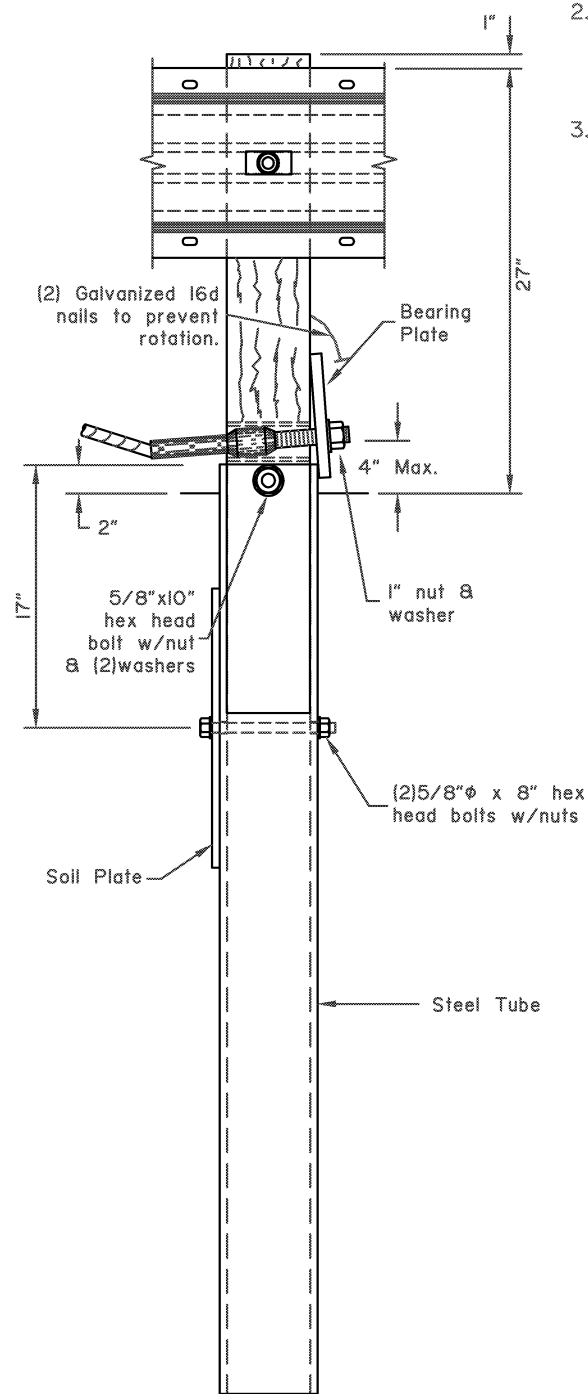
STEEL SOIL PLATE



STEEL TUBE



WOOD POST



ASSEMBLY

REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation
& Public Facilities

WOOD POST CONTROLLED
RELEASE TERMINAL
ANCHOR POSTS

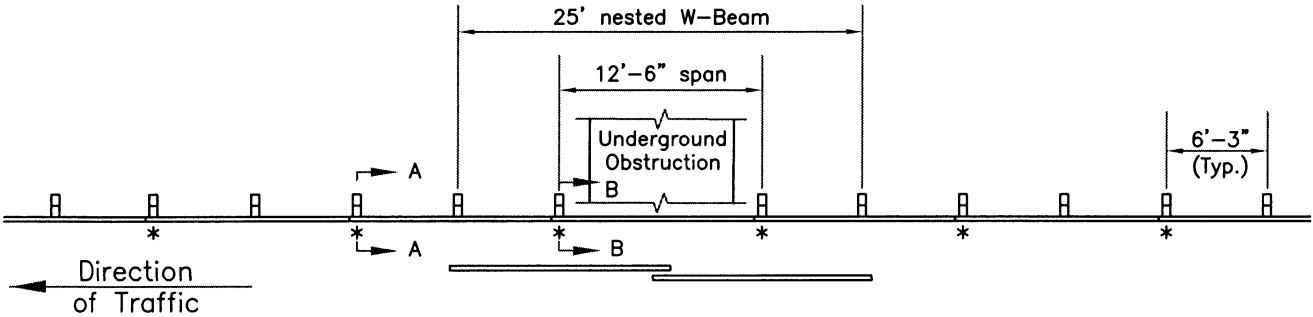
APPROVED

49th
Alaska
State Seal

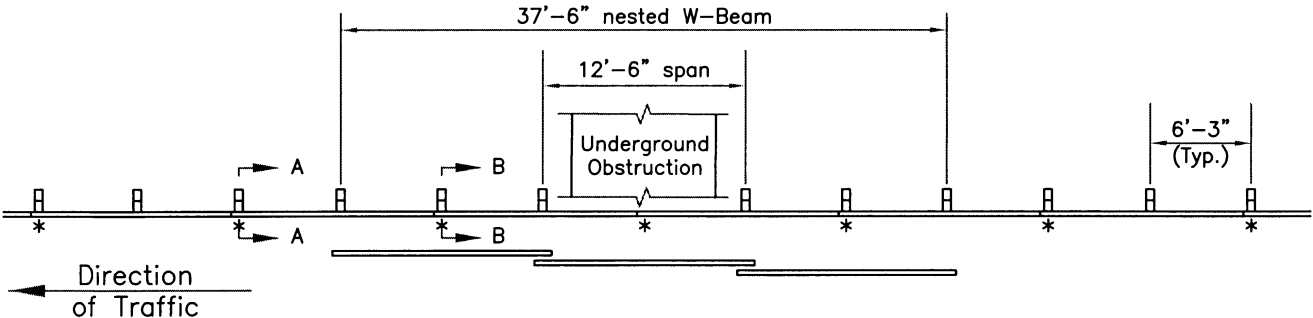
Date 3/15/99

GENERAL NOTES

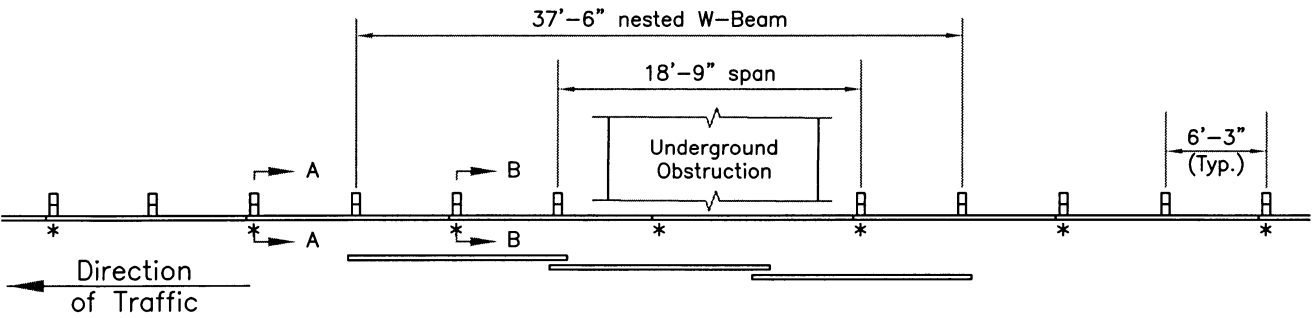
1. See Standard Drawings G-00, G-04, G-10 for additional details, and G-25 Sheet 1 of 3 for CRT post details.
2. For one-way traffic locations Case D may be modified so that only the posts trailing the span are CRT posts with double blocks.
3. In Case D only, provide 2' minimum clearance between posts and underground obstruction.
4. Standard steel posts with standard wood blocks (or NCHRP 350 compliant synthetic blocks) may be used for all posts except those indicated to be CRT posts.
5. Install nested rail element with leading edge lapped behind primary rail element.
6. Cases A and B were tested under NCHRP 230 guidelines but the FHWA considers them equivalent to an NCHRP 350 Test Level 2 design. Case C has not been tested (as of March, 03) but the FHWA considers it equivalent to an NCHRP 350 Test Level 3 design. Case D is NCHRP 350 Test Level 3 tested and approved.



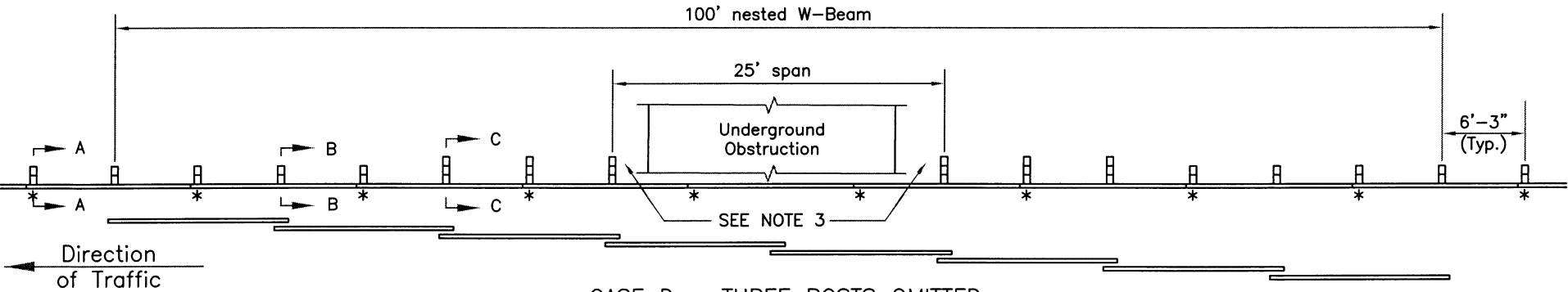
CASE A – ONE POST OMITTED (NESTED RAIL SPLICE AT OMITTED POST)
For obstruction widths up to 10'-6"



CASE B – ONE POST OMITTED (NESTED RAIL SPANS OMITTED POST)
For obstruction widths up to 10'-6"

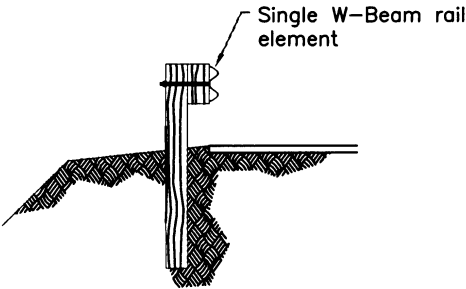


CASE C – TWO POSTS OMITTED
For obstruction widths from 10'-6" to 16'-9"

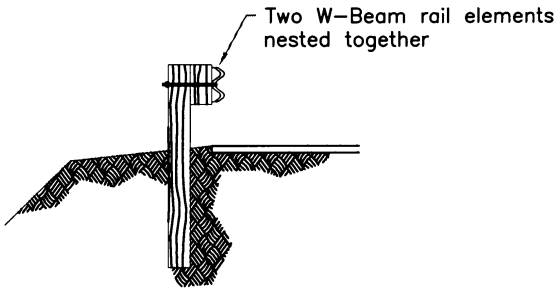


CASE D – THREE POSTS OMITTED
For obstruction widths from 16'-9" to 20'-6"

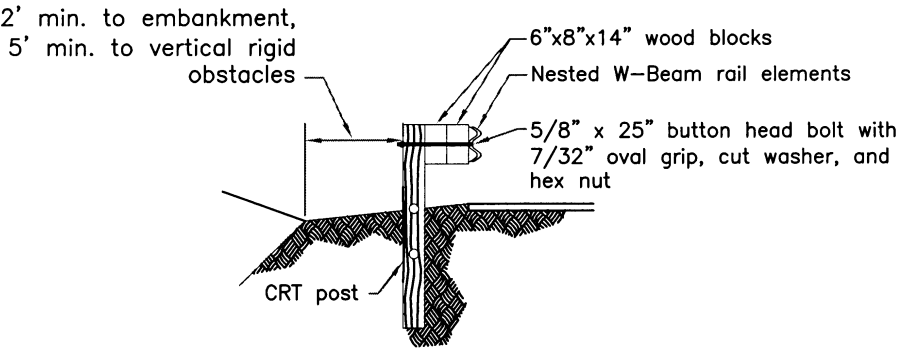
* Designates Splice Location



SECTION A-A



SECTION B-B



SECTION C-C

CROSS SECTIONS

REVISIONS		
Date	Description	By

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

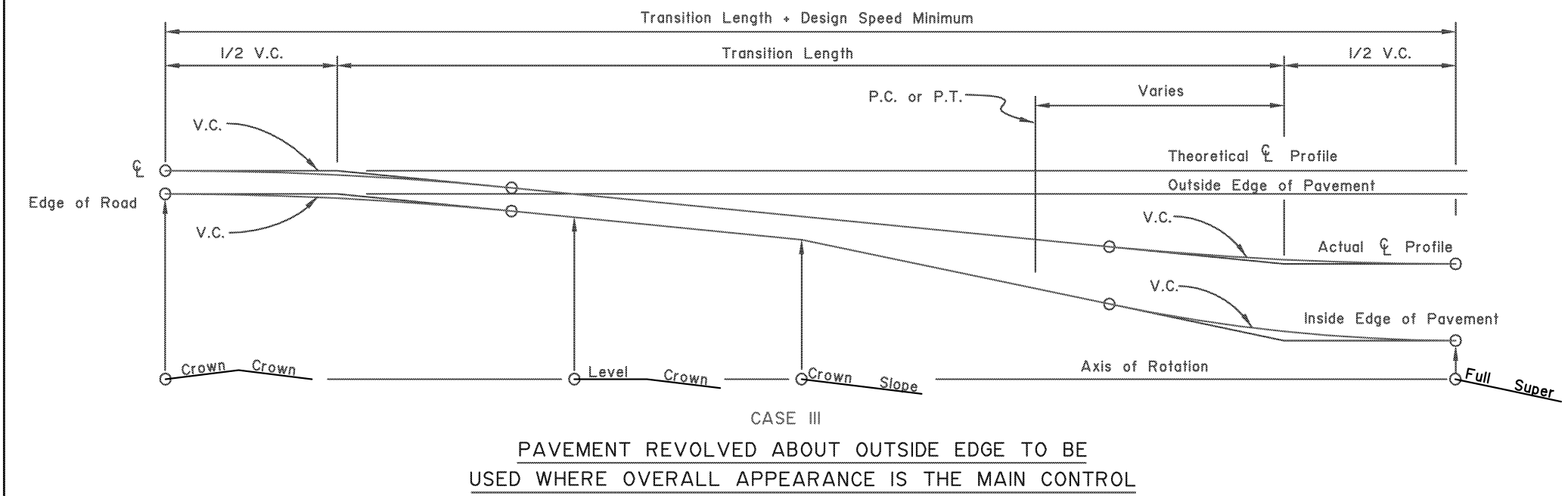
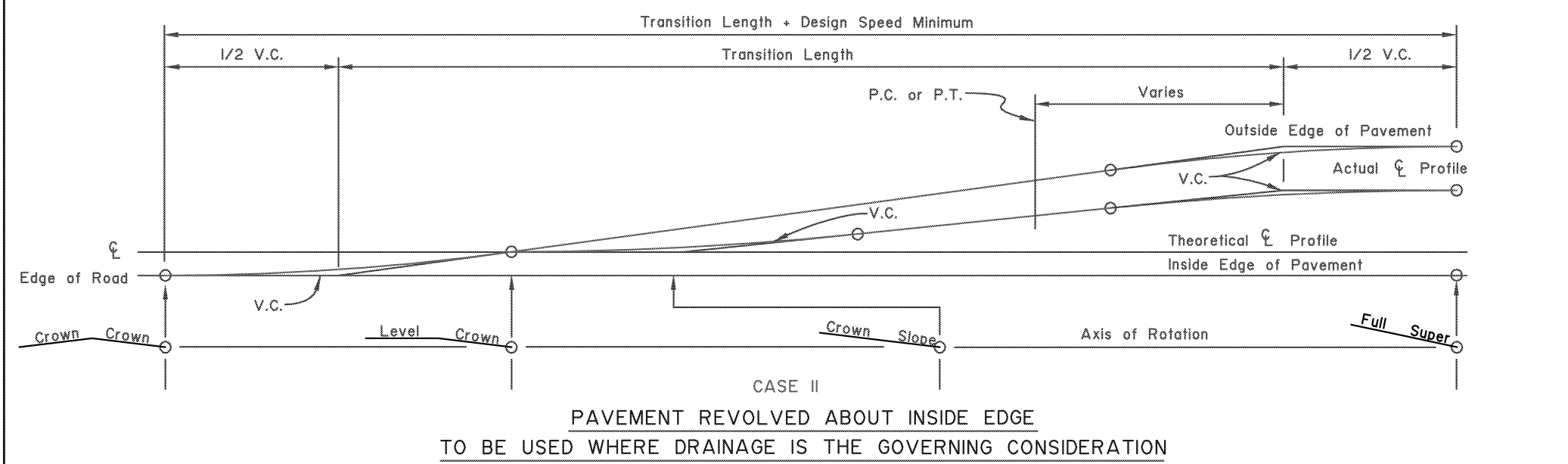
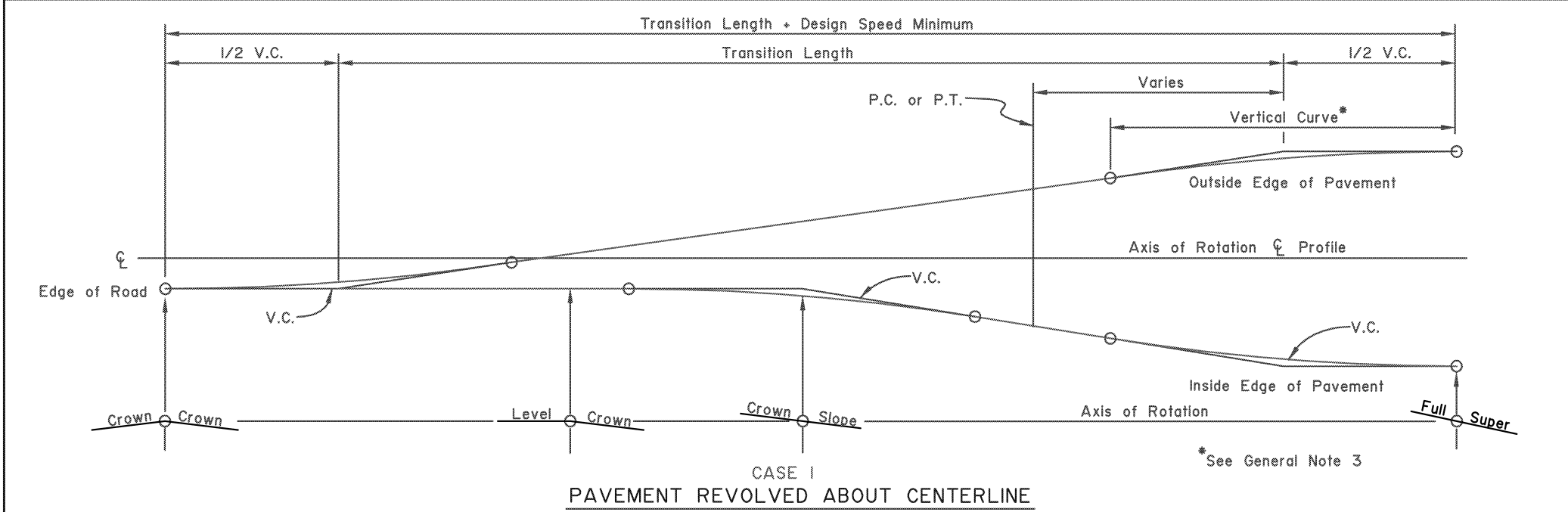
LONG SPAN
W BEAM GUARDRAIL



Date 2/28/03

GENERAL NOTES:

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



REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation
& Public Facilities

SUPERELEVATION
TRANSITION

APPROVED
49th
Loren C. Williams
12/11/87

Date 12/11/87

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 manufacture'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.

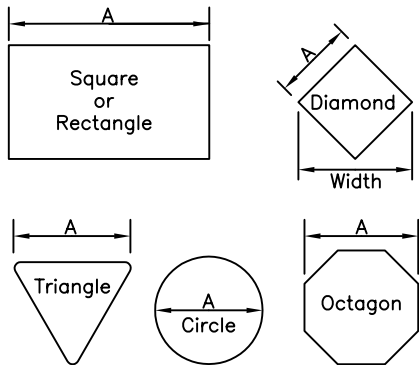
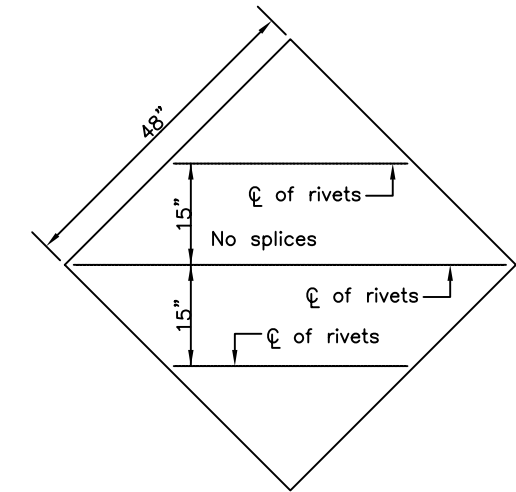
Pipe and Tube Sign Post Spacing			
Sign Width (W)	No. of Posts	Distance Between Posts	Sign Overhang
4.5 ft. to 10.0 ft.	2	0.6W	0.2W
10.5 ft. to 11.0 ft.	2	6.0 feet	Varies

W Shape Sign Post Spacing			
Sign Width (W)	No. of Posts	Distance Between Posts	Sign Overhang
11.5 ft to 13.0 ft	2	8.0 feet	Varies
13.5 ft to 20.0 ft	2	0.6W	0.2W
20.5 ft to 22.5 ft	3	8.0 feet	Varies
23.0 ft to 29.5 ft	3	0.35W	0.15W
30.0 ft to 31.5 ft	4	8.0 feet	Varies
32.0 ft to 40.0 ft	4	0.25W	0.125W

SIGN POST SPACING

SIGN POST SELECTION AND SPACING NOTES

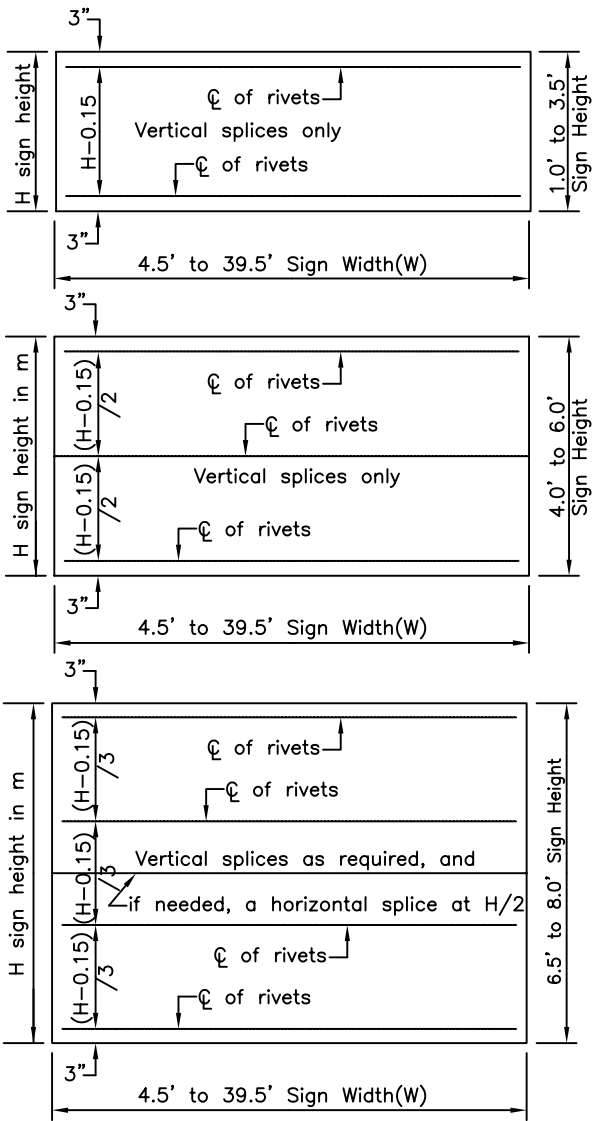
1. Use one tube (solid or perforated) to support all signs that measure 48" or less in width or diameter, diamond shaped signs that measure 48" or less on a side, Class T roadway route marker assemblies, and E5-1 gore signs. Do not use pipe posts for single post signs.
2. Install combination stop and street name signs on a 2-1/2" perforated tube.
3. Use two pipes spaced according to the Pipe and Tube Sign Post Spacing table to support signs too large for one post and not more than 11.0' in width. Tubes may be substituted for pipes provided the tube size equals the nominal pipe size.
4. Do not use perforated tubing larger than 2" for two post installations.
5. Use the number of W shape posts specified in the W Shape Sign Post table to support signs more than 11.0' in width.



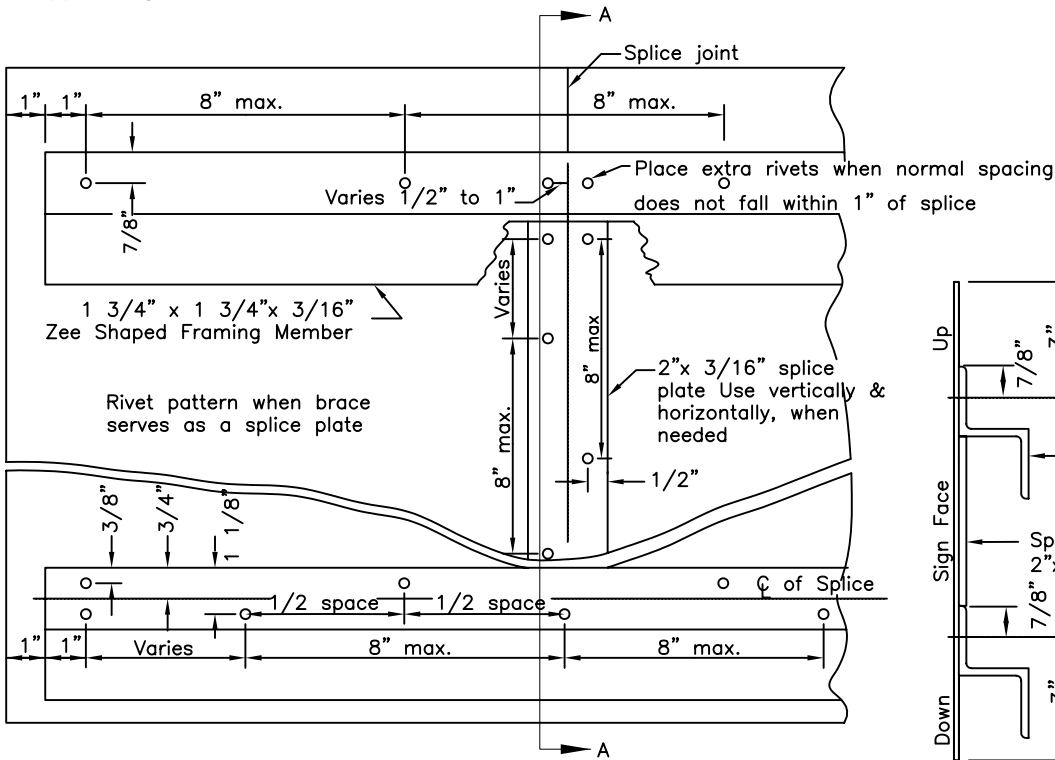
Maximum size unframed signs using 0.125" thick aluminum sheeting.	
Sign Shape	A
Squares, Shields, and Route Markers	48"
Rectangles	48"
Diamonds	48"
Triangles	48"
Rounds and Octagons	48"

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

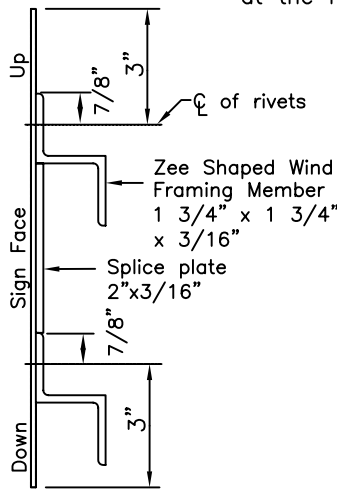
LIGHT SIGNS





WIND FRAMING LOCATIONS

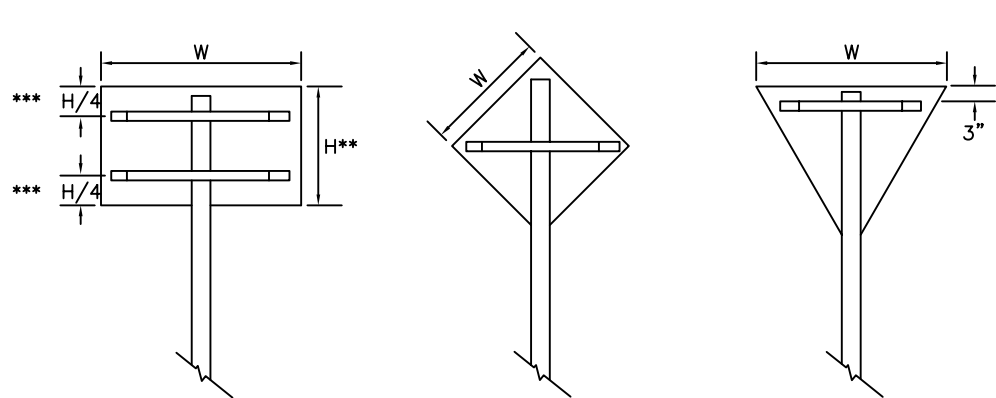


RIVET DETAIL FOR ZEE SHAPED WIND FRAMING & SPLICE PLATE



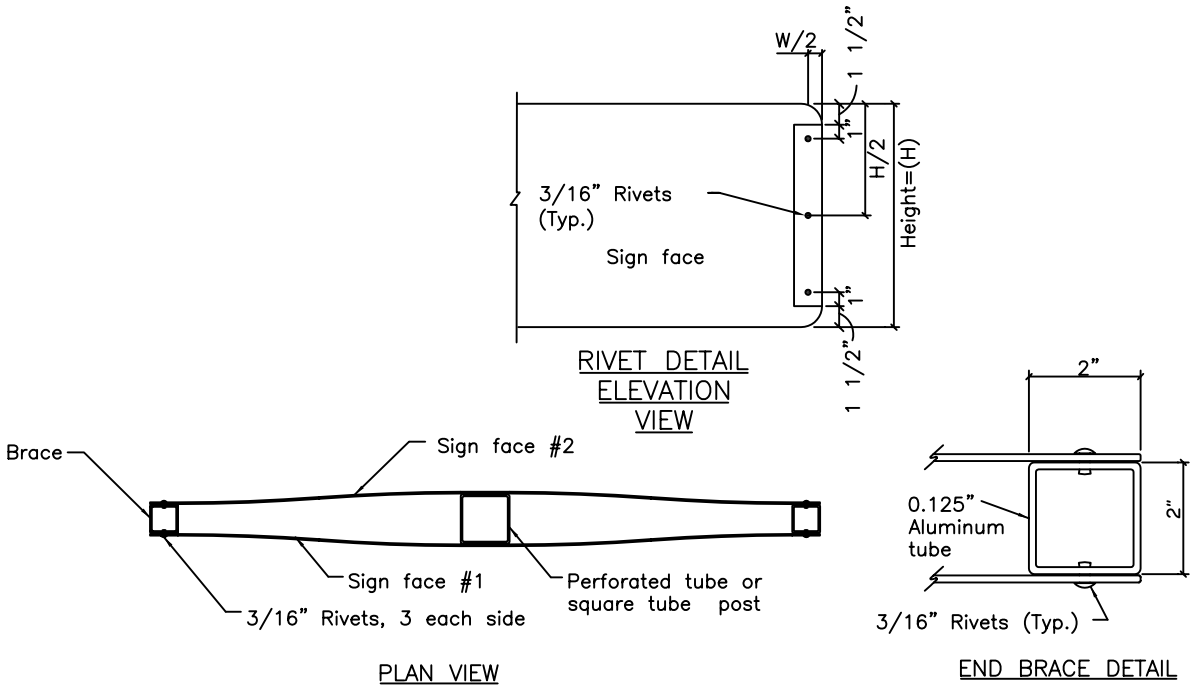
SECTION A-A

REVISIONS		
Date	Description	By
Sheet 1 of 1		
State of Alaska Department of Transportation & Public Facilities		
SIGN FRAMING AND POST SPACING		
 		
Date	2/28/03	

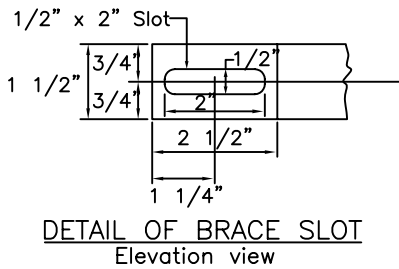


***Use one brace when $H \leq 18"$
Use two braces when $18" < H < 48"$
Use three braces when $H \geq 48"$
** Position of brace may be varied to match
Predrilled mounting holes in panel

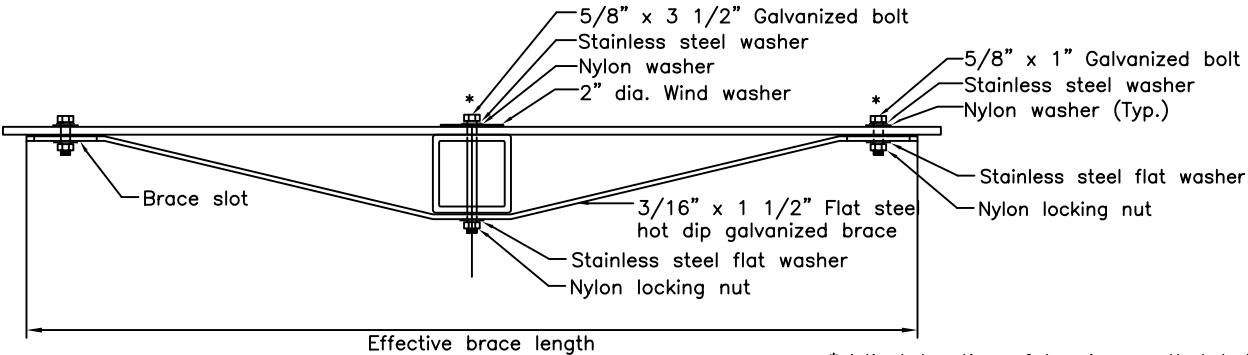
SIGN BRACING PLACEMENT



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



DETAIL OF BRACE SLOT
Elevation view



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

TUBE POST SIGN BRACING
Plan view

SIGN WIDTH(W)	EFFECTIVE BRACE LENGTH		
	WARNING	YIELD	OTHER
30"	36"	24"	24"
36"	42"	30"	30"
42"	48"	—	36"
48"	TWO POSTS	36"	42"

< 30" No bracing required and use square tube

REVISIONS		
Date	Description	By

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities
BRACING FOR SIGNS
MOUNTED ON SINGLE POST

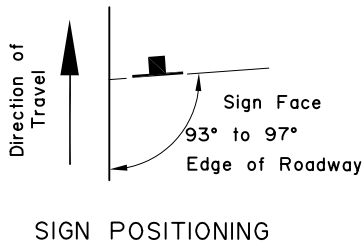
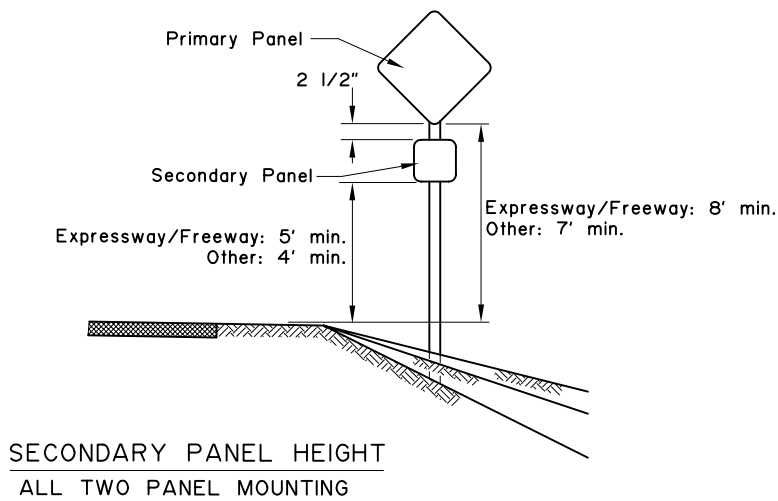
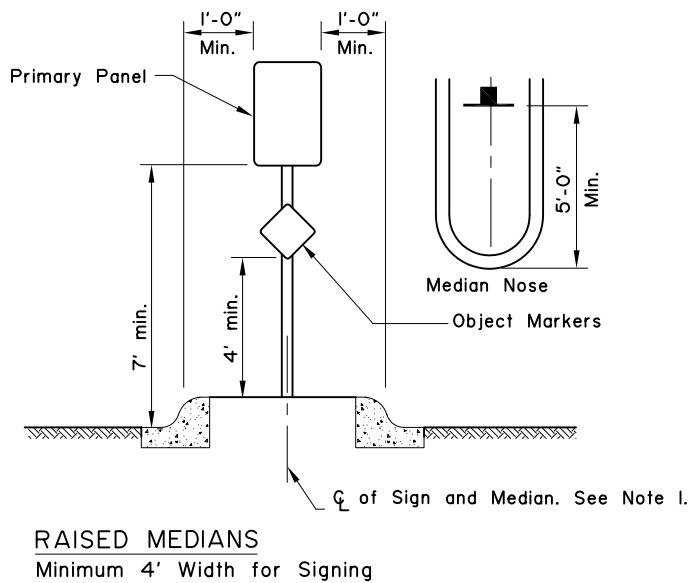
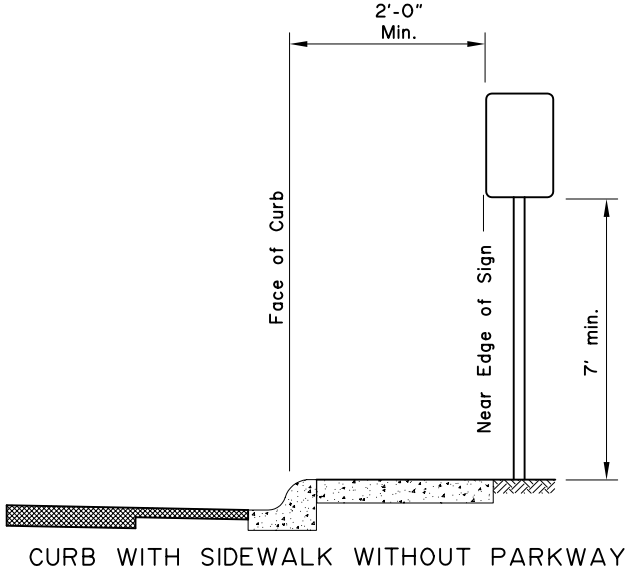
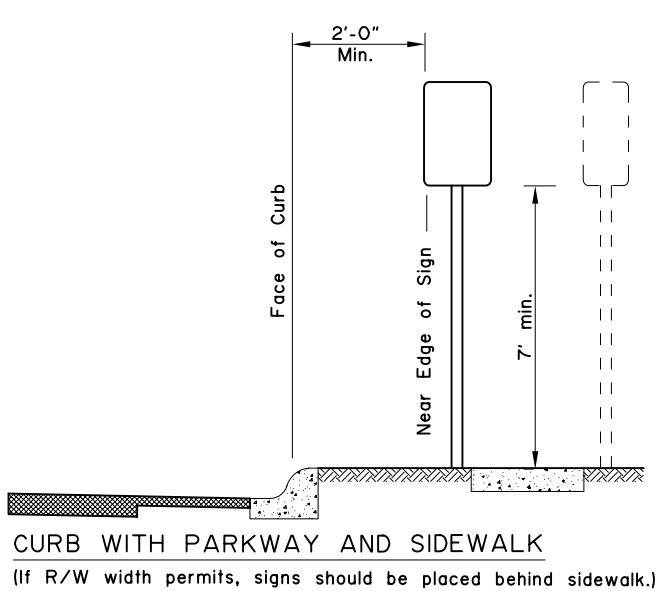
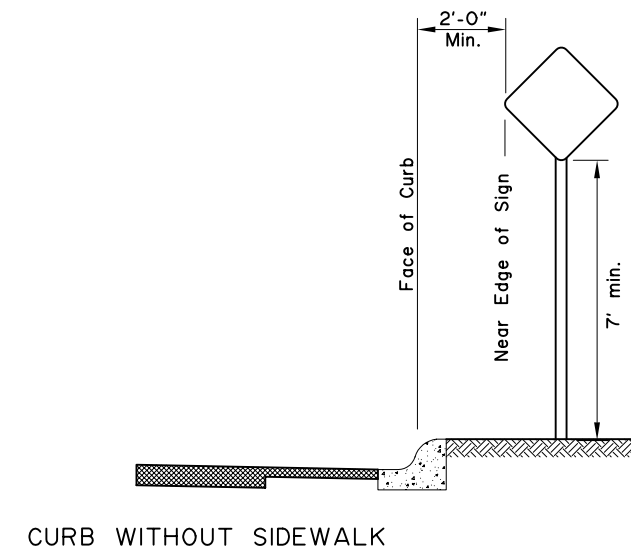
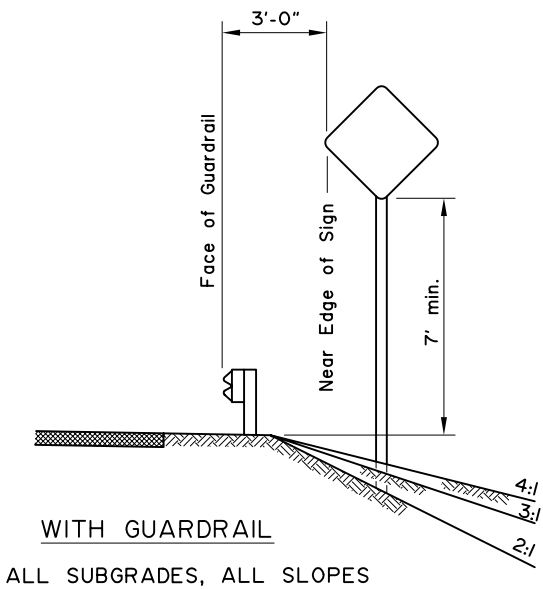
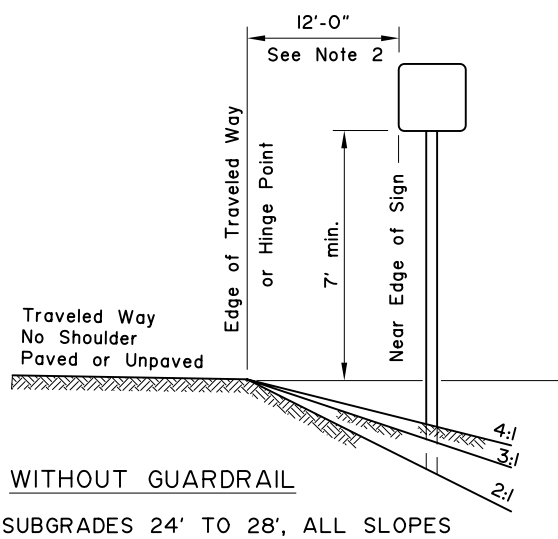
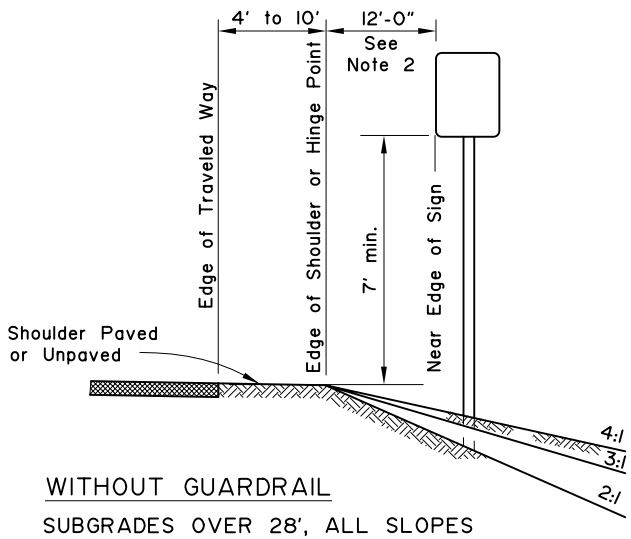


Date 2/28/03



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.



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

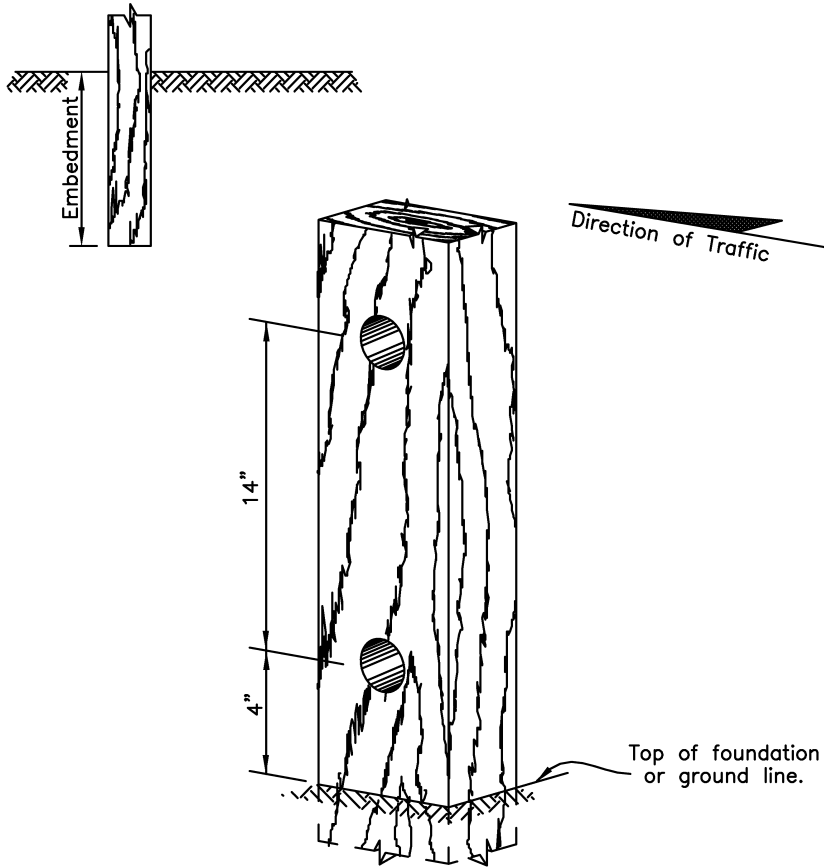
APPROVED

7/15/82

Date

GENERAL NOTES:

- 1. Refer to Standard Drawing "Sheet Aluminum Sign and Framing" for light sign 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. Use larger posts than shown on this sheet, with hinges, for multiple support signs where the supports are separated by more than 7 feet.

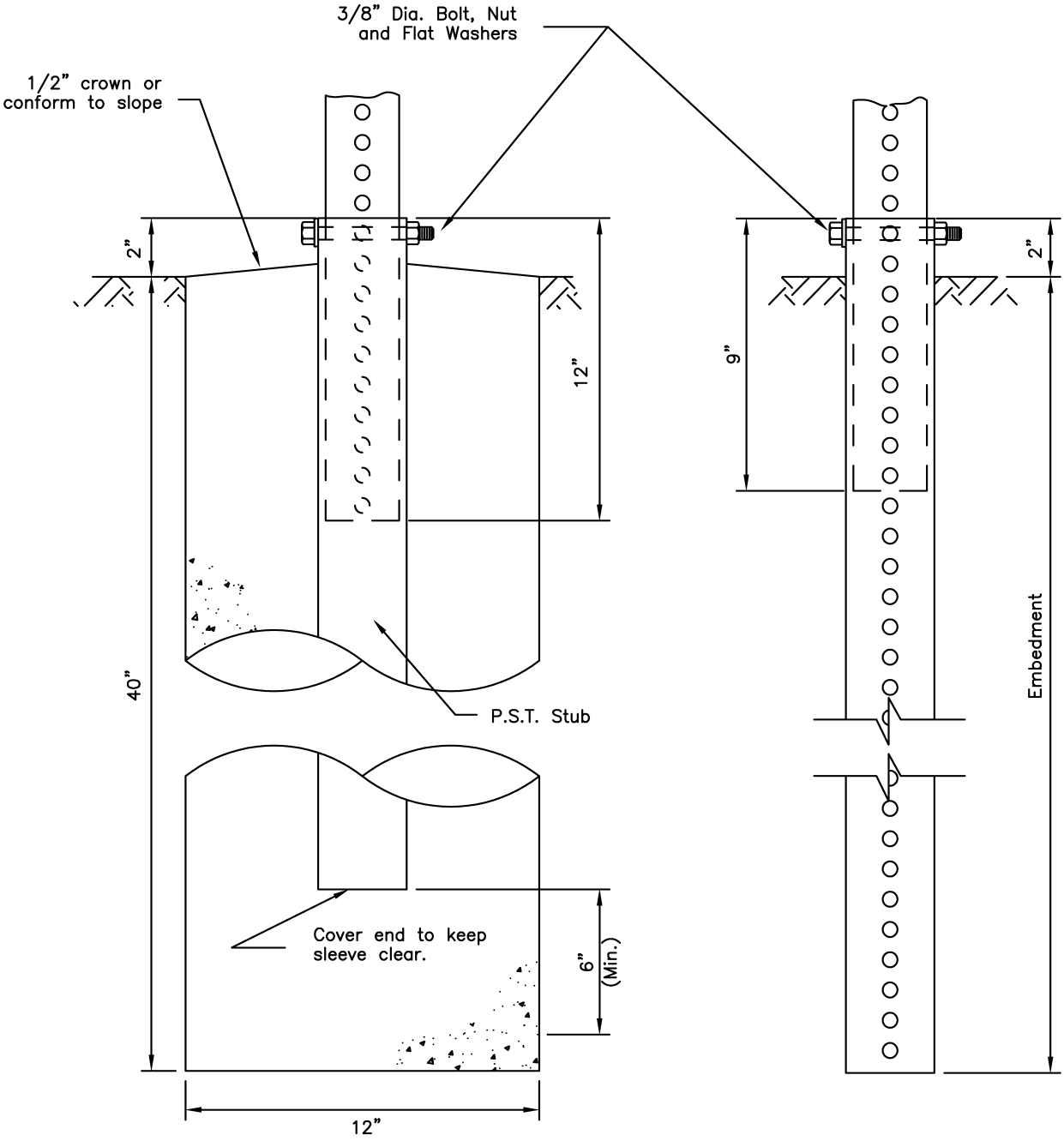


Note: If holes are field drilled after post has been treated, the holes shall be thoroughly swabbed with a 5% solution of pentachlorophenol and mineral spirits.

WOOD POSTS			
SIZE	HOLE DIA.	EMBEDMENT*	NUMBER 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.) (12 ga. - .105" Wall Thickness)		
POST SIZE (inch)	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

REVISIONS		
Date	Description	By
1/1/85	Redraft-Delete Post	Gdo
4/2/01	Revised PST table	Kjs
	Added note 3	
2/12/02	Revised Wood Posts	Kjs

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

LIGHT SIGN
STRUCTURE POST
EMBEDMENT

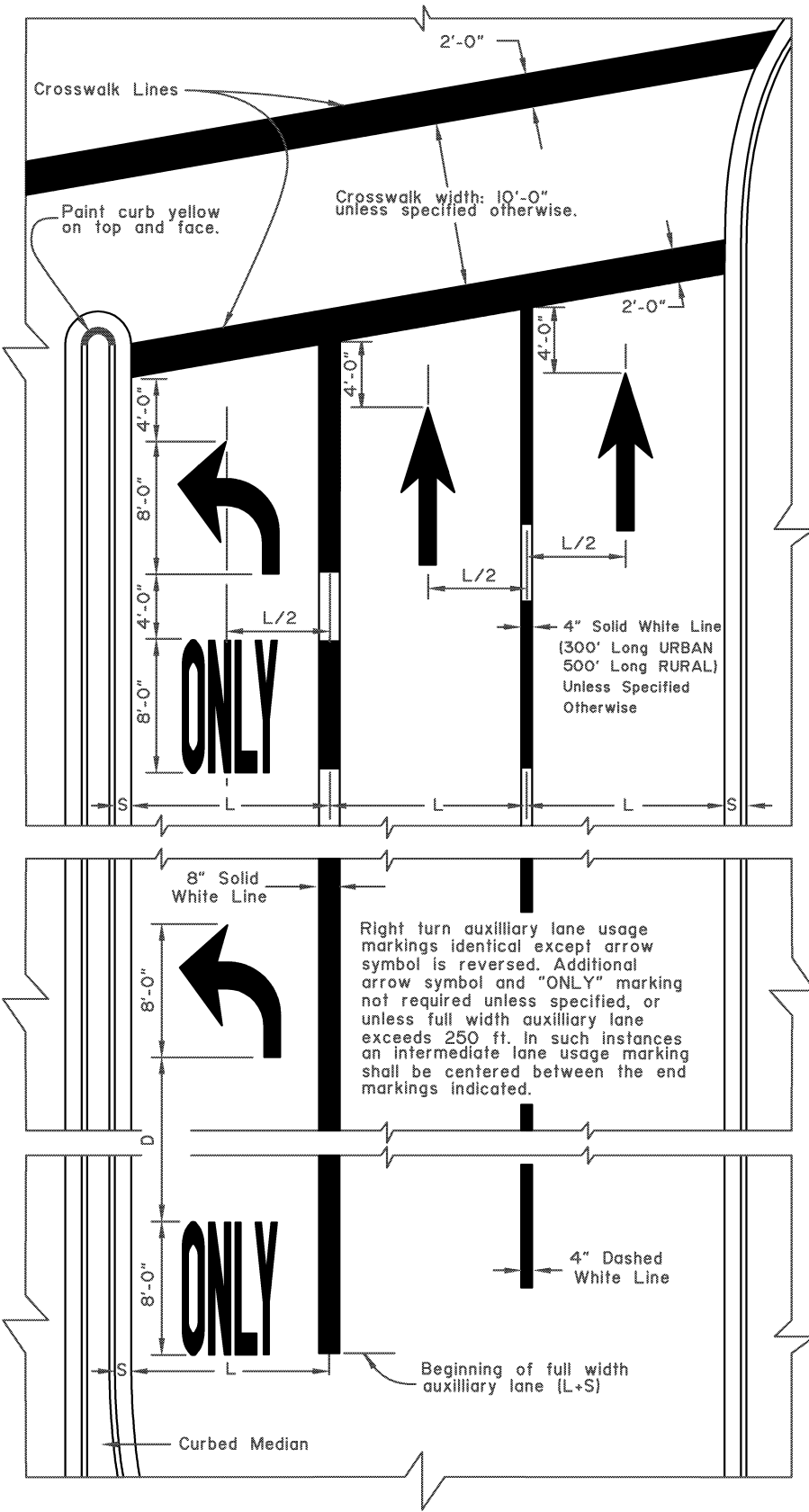


Date 7/15/82

- NOTES:
1. All markings white unless indicated otherwise.
 2. Straight ahead and combination arrows shall be used only on one-way roadways unless indicated otherwise on the plans.
 3. Lane lines for auxilliary lanes are unbroken solid white.

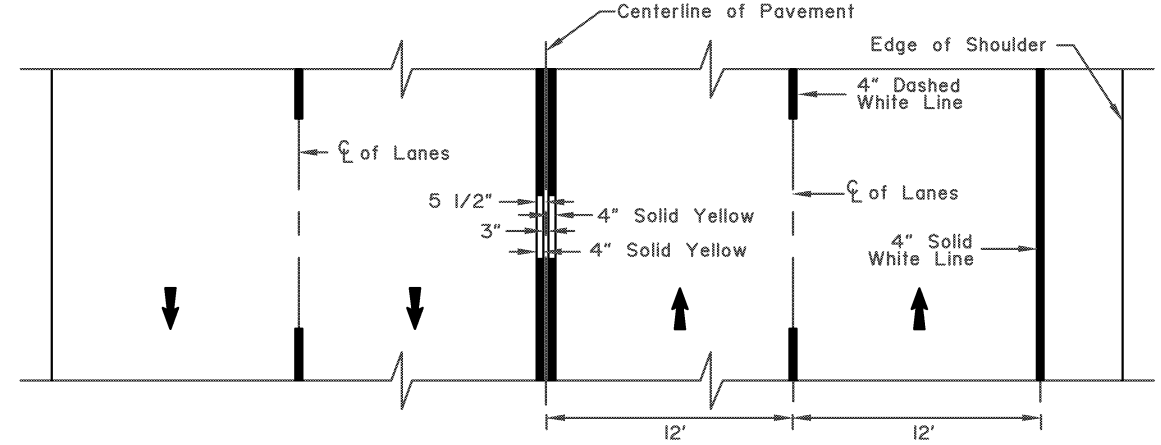
T-21.02

SHEET
1 of 1

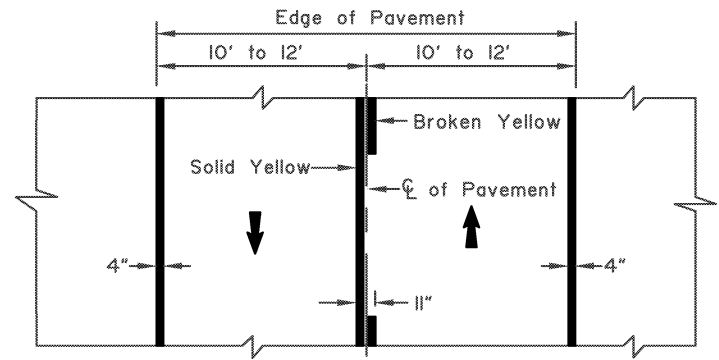


APPROACH TO INTERSECTION

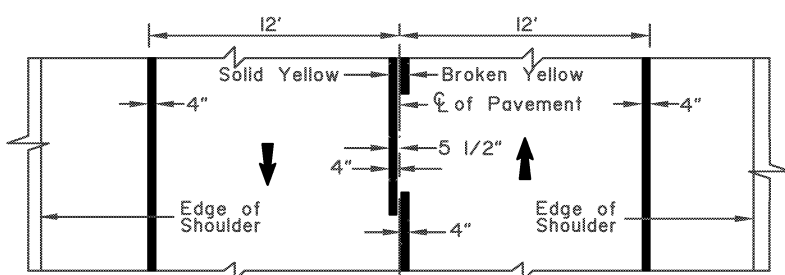
V	D
25 or less	35'
30	45'
35	50'
40	60'
45	65'
50	75'
55 or more	80'



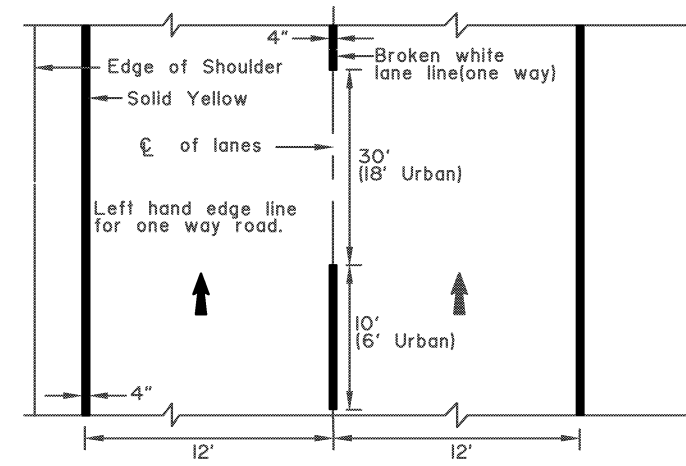
4 LANE UNDIVIDED



UNPAVED SHOULDER OR NO SHOULDER



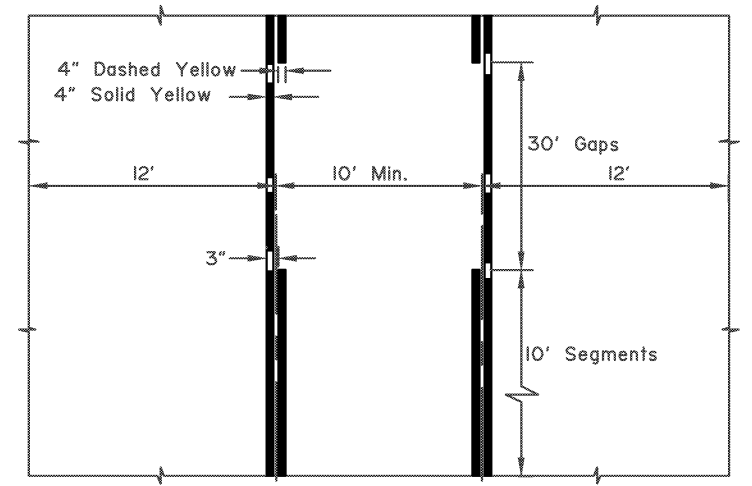
PAVED SHOULDER



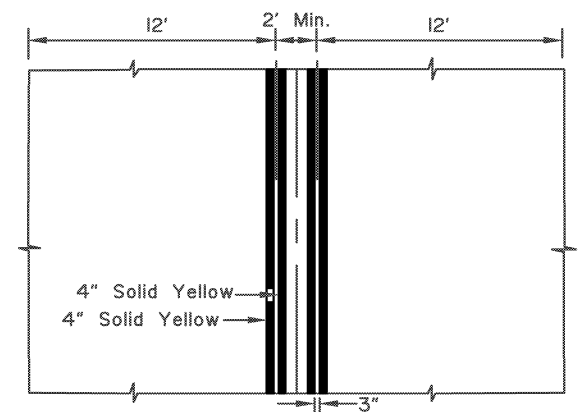
LEFT HAND EDGE LINE FOR ONE WAY ROAD

- NOTES:
1. All markings solid white unless indicated otherwise.
 2. Lengths of stripe and gap for lane and center lines identical.

CENTER LINES, LANE LINES EDGE LINES and SHOULDER MARKINGS



PAINTED MEDIANS



BI-DIRECTIONAL LANE MARKINGS

1. All markings shall be reflectorized.
2. "L" = driving lane width.
3. "S" = shy distance as designated, otherwise 1 to 2 feet.

REVISIONS		
Date	Description	By
1/1/86	Arrow Dimensions	Gdo
1/1/96	Intersect. Note	Gdo

State of Alaska
Department of Transportation
& Public Facilities

PAVEMENT MARKING
APPLICATIONS

APPROVED

49th

7/15/82

Date

T-21.02