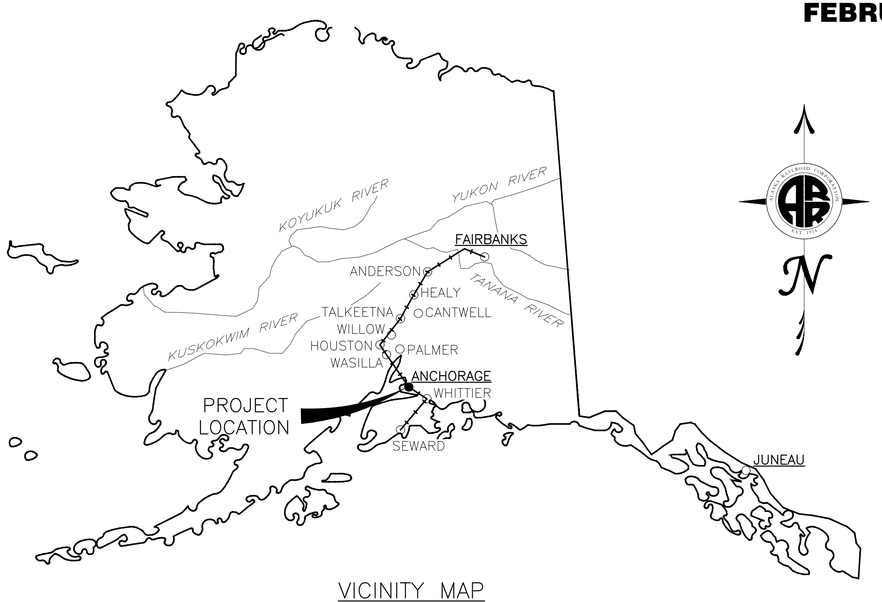
ALASKA RAILROAD CORPORATION

CAPITAL PROJECTS

P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

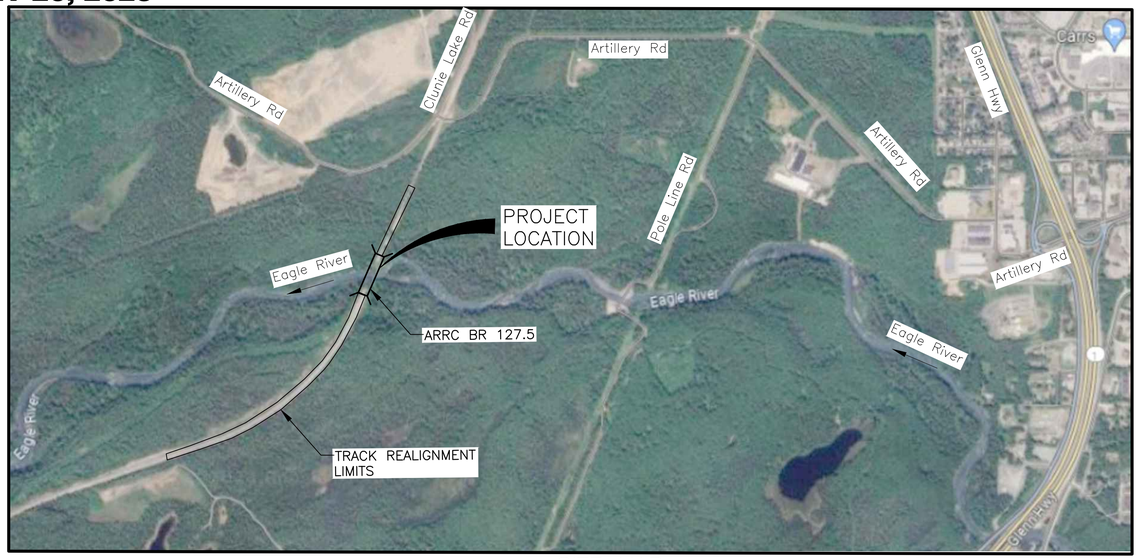
BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT
ISSUE FOR CONSTRUCTION

FEBRUARY 20, 2025



VICINITY MAP

N.T.S



SITE MAP

N.T.S

ARRC STANDARD PLAN REFERENCES

ALASKA RAILROAD CORPORATION, STANDARD PLANS, BALLAST AND TRACK WORK, LATEST VERSION

OTHER PLAN REFERENCES

NEW HORIZONS TELECOM INC., AT&T/ACS BRIDGE 127.5 EAGLE RIVER BRIDGE REPLACEMENT – UTILITY RELOCATION PLANS, DECEMBER 20, 2024.

AS-BUILT PLAN REFERENCES

THE ALASKA RAILROAD, MAINLINE BRIDGE No. 127.5 – EAGLE RIVER GENERAL PLAN AND DETAIL, NOVEMBER 1923

ALASKAN ENGINEERING COMMISSION BRIDGE No. 127.5 OVER EAGLE RIVER DECK PLATE GIRDER VIADUCT 308'-0" LONG, MARCH 1923

THE ALASKA RAILROAD BRIDGE 127.5 (EAGLE RIVER), APRIL 1990

THE ALASKA RAILROAD, REPAIRS TO PIER No. 2-R BRIDGE 127.5 (EAGLE RIVER), MAY 1957

THE ALASKA RAILROAD, REPAIRS TO PIER No. 2-L BRIDGE 127.5 (EAGLE RIVER), OCTOBER 1967

ALASKA RAILROAD CORPORATION'S ANCHORAGE TO EAGLE RIVER LINE CHANGE MP122.9 TO MP127.5, FEBRUARY 2003

SHEET INDEX

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: COVER SHEET

AFE NO.	10944
YEAR	2025
SHEET	01 OF 68

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ABBREVIATIONS

ABT	ABOUT (APPROXIMATELY)
AH	AHEAD ON STATION
AKDOT & PF	ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
APPROX.	APPROXIMATE
AREMA	AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION
ARRC	ALASKA RAILROAD CORPORATION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BD	BALLAST DECK
BK	BACK ON STATION
BMP	BEST MANAGEMENT PRACTICE
BR	BRIDGE
B.S.	BOTH SIDES
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
℄	CENTERLINE
C–C	CENTER–TO–CENTER
C.I.P.	CAST IN PLACE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
C.P.	CONTROL POINT
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CS	POINT OF CURVE TO SPIRAL
Dc	DEGREE OF CURVATURE, CENTRAL CURVE
DIA	DIAMETER
DPG	STEEL DECK PLATE GIRDER
E OR EXP	EXPANSION
Ea	SUPERELEVATION ACTUAL
E.F.	EACH FACE
ELEV. OR EL.	ELEVATION
EQ	EQUAL
Eu	SUPERELEVATION UNBALANCED
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
F OR FIX	FIXED
FG	FINISHED GRADE
FO	FIBER OPTIC
F.S.	FAR SIDE
GALV.	GALVANIZED
GR	GRADE
HORIZ.	HORIZONTAL
H.S.	HIGH STRENGTH
INV.	INVERT
K	"K" VALUE
LC	LENGTH OF CENTRAL CURVE
LF	LINEAR FEET

ABBREVIATIONS (CONT.)

LS	LENGTH OF SPIRAL CURVE
LT	CURVE LEFT
LVC	LENGTH OF VERTICAL CURVE
MIN.	MINIMUM
MK	MARK
MP	MILEPOST
N.S.	NEAR SIDE
OD	OPEN DECK
OE	OVERHEAD ELECTRICAL LINE
OHWM	ORDINARY HIGH WATER MARK
O–O	OUT–TO–OUT
OTM	OTHER TRACK MATERIAL
PC	POINT OF CURVATURE
PCF	POUNDS PER CUBIC FOOT
PT	POINT OF TANGENT
PTFE	POLYTETRAFLUOROETHYLENE
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
PVI	POINT OF VERTICAL INTERSECTION
r	RATE OF CHANGE OF VERTICAL CURVE
R	RADIUS
R/W OR ROW	RIGHT OF WAY
RT	CURVE RIGHT
SBM	STEEL BEAM
SC	POINT OF SPIRAL TO CURVE
SPA	SPACES OR SPACING
SSPC	STEEL STRUCTURES PAINTING COUNCIL
ST	POINT OF SPIRAL TO TANGENT
STA.	STATION
ΔT	TOTAL ANGLE OF DIVERGENCE
T	TANGENT LENGTH
TF	TRACK FOOT
T/XXX	TOP OF XXX (T/TIE, T/CAP, ETC.)
TOR	TOP OF RAIL
TS	POINT OF TANGENT TO SPIRAL
TYP.	TYPICAL
V	VELOCITY
VC	VERTICAL CURVE
VERT.	VERTICAL

LEGEND

GENERAL

	EXISTING	PROPOSED
SIGN		
SWITCH		
TEST HOLE		
CONTROL POINT	401	
RIGHT OF WAY		
GROUNDLINE		
TRACK ℄		
TOP OF RAIL		
SHIFT TRACK		
ROADWAY ℄		
CHAIN LINK FENCE	X X	X X
FILL LIMITS		
CUT EXCAVATION LIMITS		
STRUCTURE		
EXISTING STRUCTURE TO BE REMOVED		
GRAVEL ROAD		
CULVERT		
FLOWLINE		
SWALE TOE		
EDGE OF VEGETATION		
CONCRETE		
SUBBALLAST		

LETTER SERIES / SHEET NUMBER — SECTION DESIGNATION

LETTER SERIES / SHEET NUMBER — DETAIL DESIGNATION

BAR SIZE / LENGTH FEET / LENGTH INCHES — 509–8 — STRAIGHT BARS

BAR SIZE / BEND TYPE / SEQUENTIAL NUMBERING — 5B1 — BENT BARS

REBAR NAMING CONVENTION

UTILITIES

	EXISTING	PROPOSED
POWER POLE		
ELECTRICAL PEDISTAL	U.E.	U.E.
GUY ANCHOR		
FIBER OPTIC VAULT	FO	FO
ELECTRICAL VAULT	E	E
ELECTRICAL METER	E	E
LIGHT POLE		
OVERHEAD POWER	OE	OE
FIBEROPTIC LINE	FO FO FO	FO FO FO
COMMUNICATIONS LINE	C C	C C
UNDERGROUND POWER	UE	UE

TOPOGRAPHY

	EXISTING	PROPOSED
MAJOR CONTOUR	100'	100'
MINOR CONTOUR		
FLOW DIRECTION		
GRADING DIRECTION		2:1 TOP OF CUT OR FILL
WATER EDGE		
1% WATER SURFACE ELEVATION (HW100)	HW100 HW100	HW100 HW100
ORDINARY HIGH WATER (OHW)	OHW	OHW

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH — ANTHONY G. HAFNER No. CE 188080 — REGISTERED PROFESSIONAL ENGINEER

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582 E. 36TH AVE, SUITE 500
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ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: LEGEND AND ABBREVIATIONS

AFE NO.	10944
YEAR	2025
SHEET	02 OF 68

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ESTIMATE OF QUANTITIES

PAY ITEM	ITEM DESCRIPTION	PAY UNIT	TOTAL QUANTITY
201.0003.1	CLEARING AND GRUBBING	ACRE	24.25
202.0001.1	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1
203.0003.1	UNCLASSIFIED EXCAVATION	CY	34,646
205.0001.1	EXCAVATION FOR STRUCTURES	CY	6,857
301.0005.1	RAILROAD SUB-BALLAST, GRADING C-1	TON	2,867
309.0001.1	RAILROAD BALLAST, TYPE 3	TON	3,419
501.0002.1	CLASS A-A CONCRETE	LS	1
501.0009.1	CLASS DS CONCRETE, 42 INCH PIPE FILL (5,000 PSI)	LF	432
501.0010.1	FURNISH PRECAST CONCRETE, MEMBERS	LS	1
501.0011.1	INSTALL PRECAST CONCRETE, MEMBERS	LS	1
503.0001.1	REINFORCING STEEL	LS	1
504.0001.1	STRUCTURAL STEEL	LS	1
505.0005.1	FURNISH STRUCTURAL STEEL PIPE PILE, 42 INCH	LF	456
505.0006.1	DRIVE STRUCTURAL STEEL PIPE PILE, 42 INCH	EA	8
505.0007.1	DRILLED MICROPILE GROUND ANCHOR, 2½ INCH	EA	96
516.0002.1	BEARINGS, ROCKER PLATE	EA	24
603.0001.1	CORRUGATED STEEL PIPE, 18 INCH	LF	31
605.0001.1	PERFORATED CORRUGATED STEEL PIPE FOR UNDERDRAIN, 8 INCH	LF	105
605.0005.1	POROUS BACKFILL MATERIAL	CY	178
611.0003.1	RIPRAP	LS	1
618.0004.1	SEEDING	SY	116,063
619.0002.1	MATTING	SY	15,648
630.0002.1	GEOTEXTILE, STABILIZATION, CLASS 1	SY	3,818
640.0001.1	MOBILIZATION AND DEMOBILIZATION	LS	1
641.0001.1	EROSION, SEDIMENT, AND POLLUTION CONTROL ADMIN	LS	1
641.0002.1	TEMPORARY EROSION, SEDIMENT, AND POLLUTION CONTROL	CS	ALL REQ'D
642.0002.1	CONSTRUCTION SURVEYING AND MONUMENTS	LS	1
643.0002.1	TRAFFIC MAINTENANCE	LS	1
691.0001.1	TEMPORARY SITE ACCESS AND STRUCTURES	LS	1
691.0002.1	TEMPORARY STEEL BEAM JUMP SPANS	LS	1
692.0001.1	QA/QC TESTING	CS	ALL REQ'D
692.0002.1	WATER TRUCK	CS	ALL REQ'D
692.0003.1	GATE SECURITY	CS	ALL REQ'D
802.0002.1	TRACK WORK, 141# RE RAIL	TF	3,384
802.0005.1	TRACK TAMPING, SURFACING, AND FINAL DRESSING	TF	3,613
803.0001.1	TRACK REMOVAL	LF	1,395

TABLE OF ESTIMATING FACTORS

PAY ITEM	ITEM DESCRIPTION	ESTIMATING FACTOR
203.0006.1	BORROW, TYPE A	144 LB/FT^3
301.0005.1	RAILROAD SUB-BALLAST, GRADING C-1	144 LB/FT^3
309.0001.1	RAILROAD BALLAST, TYPE 3	125 LB/FT^3

SUMMARY OF ESTIMATED QUANTITIES FURNISHED BY ARRC

DESCRIPTION		UNIT	QUANTITY
TIMBER APPROACH CROSS TIES	7"x 9"x10'-0"	EA	14
TIMBER TRACK CROSS TIES	7"x 9"x 8'-6"	EA	246
CONCRETE TRACK CROSS TIES	7"x9"x8'-6"	EA	698
TIMBER DECK TIES	8"x8"x10'-0"	EA	50**
TIMBER TIE SPACER	4"x8"	LF	108**
NEW 141# RE RAIL, CWR		LF	3,558
NEW 141# TO 115# TRANSITION RAIL		LF	78
OTM			
CONCRETE TIE FASTENERS		EA	2,792
CONCRETE TIE ABRASION PAD		EA	1,396
RAIL ANCHORS, 141# RAIL		EA	3,832
TIE PLATES, 7¾"X14" 8-HOLE, FOR 141# RAIL		EA	620**
TIE SPIKES		EA	2380**
TIE BOLT w/ SPRING CLIPS		EA	50**
LAG SCREWS FOR TIE SPACER		EA	50**

NOTE: ITEMS MARKED WITH ** INCLUDE MATERIALS FOR TEMPORARY OPEN DECK JUMP SPANS. SECONDHAND MATERIAL MAY BE USED FOR THESE COMPONENTS AT ARRC DISCRETION.

TABLE OF ESTIMATED LIFTING WEIGHTS

COMPONENT	WEIGHT (LBS)
NEW 119'-8" DPG PAIR (ASSEMBLED)	172,000
NEW 119'-8" DPG FULL SPAN (ASSEMBLED WITHOUT TRACK AND BALLAST)	432,000
PRECAST CONCRETE ABUTMENT BACKWALL PANEL MK ABP1A/B	18,770
PRECAST CONCRETE ABUTMENT BACKWALL PANEL MK ABP2A/B	29,380
PRECAST CONCRETE WINGWALL PANEL MK ABWWA/B	29,500
PRECAST CONCRETE ABUTMENT WINGWALL FOOTING MK AWFP1A/B	40,200
PRECAST CONCRETE ABUTMENT BACKWALL FOOTING MK ABFP1A/B	43,560
PRECAST CONCRETE ABUTMENT BACKWALL FOOTING MK ABFP2	43,050
PRECAST CONCRETE SHEAR BLOCK MK PCSB1	2,600
PRECAST CONCRETE SHEAR BLOCK MK PCSB2	1,360
PRECAST CONCRETE BACKWALL BLOCK MK PCBB1	3,110

NOTE: LIFTING WEIGHTS NOTED DO NOT INCLUDE RIGGING OR SAFETY FACTORS. ASSEMBLED WEIGHT OF DPG PAIR AND SPAN DOES NOT INCLUDE BALLAST OR TRACK MATERIAL. CONTRACTOR TO PREPARE CRANE PICKING AND RIGGING PLAN PRIOR TO LIFTING COMPONENTS AND SUBMIT TO OWNER FOR REVIEW AND APPROVAL.

ESTIMATED QUANTITY NOTES:

1. QUANTITIES ARE ESTIMATED, CONTRACTOR TO FIELD VERIFY ALL CONTRACTOR FURNISHED QUANTITIES BASED ON SITE CONDITIONS INCLUDING VERIFICATION MEASUREMENTS, PROPOSED CONSTRUCTION METHODS, AND DETAILS NOTED ON PLANS PRIOR TO ORDERING MATERIAL OR STARTING CONSTRUCTION.
2. FOR DESCRIPTION OF PAY ITEMS, REFER TO PROJECT SPECIFICATIONS.

ITEMS FURNISHED BY ARRC:

1. TRACK MATERIALS INCLUDING TRACK CROSS TIES, NEW RAIL, TIE PLATES, AND OTM SHALL BE FURNISHED BY ARRC. CONTRACTOR IS RESPONSIBLE FOR COORDINATING TRANSPORT OF MATERIAL FROM ARRC YARD, PROVIDING STORAGE OF MATERIAL, AND PLACEMENT OF MATERIAL.
2. REMOVED TRACK MATERIAL SHALL BE RETURNED TO ARRC IN A REUSABLE CONDITION. SALVAGED MATERIAL SHALL BE TRANSPORTED TO AND STOCKPILED BY THE CONTRACTOR AT ARRC'S BIRCHWOOD YARD.

ITEM 201.0003.1 – CLEARING AND GRUBBING

DESCRIPTION	UNIT	CLEARING QUANTITY	GRUBBING QUANTITY
NORTH LAYDOWN AND STAGING AREAS	ACRE	4.20	4.20
SOUTH LAYDOWN AND STAGING AREAS	ACRE	8.60	6.60
TRACK WORK AREAS	ACRE	4.00	4.00
ABUTMENT 1	ACRE	0.20	0.20
ABUTMENT 4	ACRE	0.20	0.20
SOIL WASTE AREA #1	ACRE	3.45	–
SOIL WASTE AREA #2	ACRE	3.60	–
TOTAL CLEAR AND GRUB	ACRE	24.25	15.20

ITEM 202.0001.1 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

DESCRIPTION	UNIT	QUANTITY
REMOVAL OF EXISTING OD STEEL DPG SUPERSTRUCTURE AND DECK	LF	308
REMOVAL OF EXISTING CONCRETE ABUTMENT	EA	2
REMOVAL OF EXISTING STEEL TOWER PIER	EA	2
REMOVAL OF EXISTING CONCRETE PIER FOOTING	EA	8

ITEM 203.0003.1 – UNCLASSIFIED EXCAVATION

DESCRIPTION	UNIT	EXCAVATION QUANTITY	FILL QUANTITY
TRACK WORK	CY	35,579	2,568
ABUTMENT 1 FORESLOPE	CY	422	356
ABUTMENT 4 FORESLOPE	CY	1,617	48
TOTAL UNCLASSIFIED EXCAVATION AND FILL	CY	37,618	2,972
NET UNCLASSIFIED EXCAVATION (CUT)	CY	34,646	

ITEM 205.0001.1 – STRUCTURAL EXCAVATION

DESCRIPTION	UNIT	EXCAVATION QUANTITY	BACKFILL QUANTITY
TEMPORARY SHORING	LS	ALL REQ'D	
ABUTMENT 1	CY	1,200	390
PIER 2	CY	860*	570
PIER 3	CY	860*	570
ABUTMENT 4	CY	1,200	390
TOTAL STRUCTURAL EXCAVATION AND BACKFILL	CY	4,120	1,920
NET STRUCTURAL EXCAVATION	CY	2,200	

* INCLUDES 50 CY ROCK EXCAVATION FOR PIER FOOTING.

DESIGNED BY: MNL
CHECKED BY: AGH
DRAFTED BY: MEM

STATE OF ALASKA 49TH
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HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
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CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: ESTIMATED QUANTITIES AND SUMMARY TABLES

AFE NO. 10944
YEAR 2025
SHEET 03 OF 68

ITEM 501.0002.1 – CLASS A–A CONCRETE		
DESCRIPTION	UNIT	QUANTITY
CAST–IN–PLACE CONCRETE ABUTMENT CAPS	CY	67
CAST–IN–PLACE CONCRETE PIER CAPS	CY	196
CAST–IN–PLACE CONCRETE COLUMNS, 7–FOOT DIA.	CY	454
CAST–IN–PLACE CONCRETE PIER FOOTINGS	CY	480
TOTAL CLASS A–A CONCRETE	CY	1,197

ITEM 501.0010.1 – FURNISH PRECAST CONCRETE, MEMBERS		
DESCRIPTION	UNIT	QUANTITY
ABUTMENT BACKWALL PANEL ABP1A	EA	2
ABUTMENT BACKWALL PANEL ABP1B	EA	2
ABUTMENT BACKWALL PANEL ABP2A	EA	2
ABUTMENT BACKWALL PANEL ABP2B	EA	2
ABUTMENT WINGWALL PANEL ABWWA	EA	2
ABUTMENT WINGWALL PANEL ABWWB	EA	2
ABUTMENT WINGWALL FOOTING PANEL AWFP1A	EA	2
ABUTMENT WINGWALL FOOTING PANEL AWFP1B	EA	2
ABUTMENT BACKWALL FOOTING PANEL ABFP1A	EA	2
ABUTMENT BACKWALL FOOTING PANEL ABFP1B	EA	2
ABUTMENT BACKWALL FOOTING PANEL ABFP2	EA	2
SHEAR BLOCK PCSB1	EA	4
SHEAR BLOCK PCSB2	EA	4
BACKWALL BLOCK PCBWB1	EA	2

ITEM 503.0001.1 – REINFORCING STEEL			
DESCRIPTION	UNIT	QUANTITY (GRADE 60)	QUANTITY (GRADE 80)
CAST–IN–PLACE CONCRETE ABUTMENT CAPS	LBS	27,136	0
CONCRETE–FILLED PIPE PILES	LBS	15,056	118,487
CAST–IN–PLACE CONCRETE PIER CAPS	LBS	15,200	66,763
CAST–IN–PLACE CONCRETE COLUMNS, 7–FOOT DIA.	LBS	37,730	222,827
CAST–IN–PLACE CONCRETE PIER FOOTINGS	LBS	11,629	66,811
TOTAL REINFORCING STEEL	LBS	106,751	478,889

ITEM 504.0001.1 – STRUCTURAL STEEL (NOTE 1)		
DESCRIPTION	UNIT	QUANTITY
NEW PERMANENT H.S. BOLTS (NOTE 2)	EA	17,322
STRUCTURAL STEEL, DECK PLATE GIRDERS	LB	960,694
STRUCTURAL STEEL, W18x55 STEEL CURB BEAMS	LB	40,220
STRUCTURAL STEEL, DECK PLATES	LB	179,575
STRUCTURAL STEEL, DIAPHRAGMS	LB	16,920
STRUCTURAL STEEL, BOTTOM LATERAL BRACING	LB	9,700
STRUCTURAL STEEL, COVER PLATES	LB	1,980
STRUCTURAL STEEL, WALKWAY AND UTILITY BRACKETS	LB	5,104
TOTAL STRUCTURAL STEEL (NOTE 3)	LB	1,274,900
SQUARE TUBE HANDRAIL	LF	362
36" BAR GRATING WALKWAY	LF	360
STEEL GRATING BASE PLATES	LB	748
½" WIRE ROPE	LF	1,460
FASTENERS (NOTE 1)	EA	ALL REQ'D

ITEM 505.0006.2 – DRILLED MICROPILE GROUND ANCHOR		
DESCRIPTION	UNIT	QUANTITY
DRILL 6–INCH HOLE FOR MICROPILE, 27–FEET LONG	EA	96
THREADED ROD, 2½" DIA., GRADE 150	EA	96
COUPLER (OPTIONAL)	EA	96
BEARING PLATE	EA	96
ANCHOR PLATE	EA	96
HEAVY HEX NUTS	EA	288
CEMENTITIOUS TYPE I/II GROUT (6,000 PSI MIN.)	LS	1
COMMERCIAL CONCRETE LEVELING SLAB (6" THICK)	CY	52 (NOTE 4)

ITEM 516.0002.1 – BEARINGS		
DESCRIPTION	UNIT	QUANTITY
EXPANSION ROCKER PLATE BEARING ASSEMBLY	EA	12
FIXED ROCKER PLATE BEARING ASSEMBLY	EA	12
ANCHOR RODS	EA	192

ITEM 611.0003.1 – RIPRAP		
DESCRIPTION	UNIT	QUANTITY
ABUTMENT 1, CLASS III	CY	1,041
ABUTMENT 4, CLASS III	CY	850
CULVERT PROTECTION, CLASS I	CY	25
DOWN FLUME PROTECTION, CLASS I/II BLENDED	CY	288
TOTAL RIPRAP	CY	2,204

ITEM 618.0005.1 – SEEDING		
DESCRIPTION	UNIT	QUANTITY
TEMPORARY WORKS AREAS	SY	92,298
TRACK WORK AREAS	SY	21,344
ABUTMENT 1	SY	1,210
ABUTMENT 4	SY	1,210
TOTAL SEEDING	SY	116,063

ITEM 619.0002.1 – MATTING		
DESCRIPTION	UNIT	QUANTITY
TRACK WORK AREAS (SLOPES STEEPER THAN 2H:1V)	SY	4,360
ABUTMENT 1 (SLOPES STEEPER THAN 2H:1V)	SY	1,100
ABUTMENT 4 (SLOPES STEEPER THAN 2H:1V)	SY	1,100
TEMPORARY WORKS AREAS	SY	9,088
TOTAL MATTING	SY	15,648

ITEM 630.0002.1 – GEOTEXTILE, STABILIZATION, CLASS 1		
DESCRIPTION	UNIT	QUANTITY
ABUTMENT 1, STRUCTURAL FILL SEPARATION MAT	SY	225
ABUTMENT 4, STRUCTURAL FILL SEPARATION MAT	SY	305
ABUTMENT 1, RIPRAP SEPARATION MAT	SY	780
ABUTMENT 4, RIPRAP SEPARATION MAT	SY	638
CULVERT PROTECTION	SY	150
DOWN FLUME SEPARATION MAT	SY	605
TEMPORARY WETLAND PROTECTION	SY	1,115
TOTAL GEOTEXTILE	SY	3,818

ITEM 692.0001.1 – TEMPORARY SITE ACCESS AND STRUCTURES		
DESCRIPTION	UNIT	QUANTITY
DEVELOP EKLUTNA STAGING AREA	LS	1
TEMPORARY EXCAVATION	LS	1
TEMPORARY BORROW EMBANKMENT	LS	1
SHOT ROCK	LS	1
SURFACING AGGREGATE	LS	1
TEMPORARY RIPRAP, CLASS IV	LS	1
TEMPORARY EARTHWORK REMOVALS	LS	1
TEMPORARY DIVERSION BERM	LS	1
REMOVE RIPRAP, CLASS IV	LS	1
WORK TRESTLE	LS	1

ITEM 802.0002.1 – TRACK WORK, 141# RE RAIL, CWR		
DESCRIPTION	UNIT	QUANTITY
TRACK REPROFILE, 141# RE RAIL	TF	475
TRACK SHIFT, 141# RE RAIL	TF	1,130
NEW MAIN TRACK, 141# RE RAIL	TF	1,395
NEW MAIN TRACK, 141# RE RAIL (BRIDGE AND APPROACHES)	TF	384

ITEM 802.0005.1 – TRACK TAMPING, SURFACING, AND FINAL DRESSING		
DESCRIPTION	UNIT	QUANTITY
INTERIM SURFACING (AFTER BRIDGE SPAN CHANGEOUT)	LF	760
PRE–FINAL SURFACING (AFTER NEW TRACK INSTALL)	LF	3,613
FINAL SURFACING (AFTER PASSAGE OF 5 TRAINS)	LF	3,613

NOTES:

1. SEE BILL OF MATERIAL FOR LIST OF STEEL PARTS AND FASTENERS REQUIRED.
2. BOLT QUANTITIES INCLUDE 5% ADDITIONAL, TEMPORARY ERECTION BOLTS NOT INCLUDED.
3. TOTAL WEIGHT OF STEEL INCLUDES 5% INCREASE FOR BOLT WEIGHT.
4. MINIMUM LEVELING CONCRETE (6 INCH THICK) IN BOTTOM OF ROCK EXCAVATION. ACTUAL QUANTITY MAY BE LARGER DEPENDING ON FIELD CONDITIONS. SEE SHEET 38 FOR ADDITIONAL DETAILS.

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DATE TIME: 2/20/2025 1:28 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_03 & 04.DWG

DESIGNED BY: MNL
CHECKED BY: AGH
DRAFTED BY: MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

582 E. 36TH AVE., SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: SUMMARY TABLES (CONTINUED)

AFE NO. 10944
YEAR 2025
SHEET 04 OF 68

BILL OF MATERIAL

LINE	QUANTITY	UNIT	DESCRIPTION	MARK	SIZE	LENGTH	LIFTING WEIGHT (EA.)	REMARKS
1	2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL PANEL	ABP1A	7'–0"x15'–6"	5'–9"	18,770	f'c=5,000 PSI, SEE SHEET 42 FOR DETAILS
2	2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL PANEL	ABP1B	7'–0"x15'–6"	5'–9"	18,770	f'c=5,000 PSI, SEE SHEET 42 FOR DETAILS
3	2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL PANEL	ABP2A	7'–0"x15'–6"	9'–3"	29,380	f'c=5,000 PSI, SEE SHEET 42 FOR DETAILS
4	2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL PANEL	ABP2B	7'–0"x15'–6"	9'–3"	29,380	f'c=5,000 PSI, SEE SHEET 42 FOR DETAILS
5	2	EA.	PRECAST CONCRETE ABUTMENT WINGWALL	ABWW1A	5'–2"x15'–6"	10'–0"	29,500	f'c=5,000 PSI, SEE SHEET 43 FOR DETAILS
6	2	EA.	PRECAST CONCRETE ABUTMENT WINGWALL	ABWW1B	5'–2"x15'–6"	10'–0"	29,500	f'c=5,000 PSI, SEE SHEET 43 FOR DETAILS
7	2	EA.	PRECAST CONCRETE ABUTMENT WINGWALL FOOTING PANEL	AWFP1A	1'–9"x16'–6'	10'–0"	40,200	f'c=5,000 PSI, SEE SHEET 45 FOR DETAILS
8	2	EA.	PRECAST CONCRETE ABUTMENT WINGWALL FOOTING PANEL	AWFP1B	1'–9"x16'–6'	10'–0"	40,200	f'c=5,000 PSI, SEE SHEET 45 FOR DETAILS
9	2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL FOOTING PANEL	ABFP1A	1'–9"x17'–9'	10'–6"	43,560	f'c=5,000 PSI, SEE SHEET 44 FOR DETAILS
10	2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL FOOTING PANEL	ABFP1B	1'–9"x17'–9'	10'–6"	43,560	f'c=5,000 PSI, SEE SHEET 44 FOR DETAILS
11	2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL FOOTING PANEL	ABFP2	1'–9"x17'–9'	9'–0"	43,050	f'c=5,000 PSI, SEE SHEET 44 FOR DETAILS
12	2	EA.	PRECAST CONCRETE BACKWALL BLOCK	PCBWB1	1'–0"x1'–6¾"	13'–3"	3,106	f'c=4,000 PSI, SEE SHEET 47 FOR DETAILS
13	4	EA.	PRECAST CONCRETE PIER SHEAR BLOCK	PCSB1	3'–6"x8"	7'–5"	1,360	f'c=4,000 PSI, SEE SHEET 47 FOR DETAILS
14	4	EA.	PRECAST CONCRETE ABUTMENT SHEAR BLOCK	PCSB2	1'–10"x8"	7'–5"	2,595	f'c=4,000 PSI, SEE SHEET 47 FOR DETAILS
15	8	EA.	ANCHOR ROD (EXTENSION) w/ HEAVY HEX NUT AND PLATE WASHER		1½" DIA.	1'–0¾"		ASTM F1554 GR. 55
16	8	EA.	HEAVY HEX COUPLING NUT		1½" DIA.			ASTM F563
17	150,800	LBS	STEEL PIPE PILE (8 PIECES)		42" DIA. x¾"	VARIES		ASTM A252 GR. 3 (MOD.) Fy=60 KSI, SEE SHEET 37 FOR DETAILS (CONTRACTOR TO DETERMINE ORDERED LENGTHS)
18	96	EA.	MICROPILE, THREADED PRESTRESSING BAR (EPOXY COATED)		2½" DIA.	30'–0"		ASTM A722 GR. 150, SEE SHEET 37 FOR DETAILS
19	192	EA.	MICROPILE ANCHOR AND BEARING PLATE	MPP	2½"x10"	10"		ASTM A709 GR. 50, GALVANIZED SEE SHEET 37 FOR DETAILS
20	288	EA.	HEAVY HEX NUT		2½" DIA.			ASTM A563 GR. C3 GALVANIZED
21								
22	3	EA.	DECK PLATE GIRDER (ASSEMBLED WITH STIFFENERS)	G1	26"x94½"	119'–8"	80,100	ASTM A709 GR. 50W, SEE SHEETS 53 AND 54 FOR DETAILS
23	3	EA.	DECK PLATE GIRDER (ASSEMBLED WITH STIFFENERS)	G2	26"x94½"	119'–8"	80,100	ASTM A709 GR. 50W, SEE SHEETS 53 AND 54 FOR DETAILS
24	3	EA.	DECK PLATE GIRDER (ASSEMBLED WITH STIFFENERS)	G3	26"x94½"	119'–8"	80,100	ASTM A709 GR. 50W, SEE SHEETS 53 AND 54 FOR DETAILS
25	3	EA.	DECK PLATE GIRDER (ASSEMBLED WITH STIFFENERS)	G4	26"x94½"	119'–8"	80,100	ASTM A709 GR. 50W, SEE SHEETS 53 AND 54 FOR DETAILS
26	18	EA.	END DIAPHRAGM	ED1	6"x27"	6'–6"	142	ASTM A709 GR. 50W, SEE SHEET 56 FOR DETAILS
27	54	EA.	INTERIOR DIAPHRAGM	ID1	6"x38¼"	6'–10"	266	ASTM A709 GR. 50W, SEE SHEET 56 FOR DETAILS
28	12	EA.	LATERAL BRACE	LB1	L5x5x½	4'–6⅜"	74	ASTM A709 GR. 50W, SEE SHEET 57 FOR DETAILS
29	12	EA.	LATERAL BRACE	LB2	L5x5x½	4'–8⁹⁄₁₆"	77	ASTM A709 GR. 50W, SEE SHEET 57 FOR DETAILS
30	12	EA.	LATERAL BRACE	LB3	L5x5x½	5'–10⁷⁄₁₆"	95	ASTM A709 GR. 50W, SEE SHEET 57 FOR DETAILS
31	90	EA.	LATERAL BRACE	LB4	L4x4x½	5'–10⁷⁄₁₆"	75	ASTM A709 GR. 50W, SEE SHEET 57 FOR DETAILS
32	6	EA.	DECK PLATE	DP1	⅞"x88"	14'–0"	3,669	ASTM A709 GR. 50, SEE SHEET 59 FOR DETAILS
33	45	EA.	DECK PLATE	DP2	⅞"x84"	14'–0"	3,502	ASTM A709 GR. 50, SEE SHEET 59 FOR DETAILS
34	3	EA.	CURB BEAM	CB1	W18x55	30'–0¾"	1,685	ASTM A709 GR. 50W, SEE SHEET 60 FOR DETAILS
35	3	EA.	CURB BEAM	CB2	W18x55	27–11½"	1,569	ASTM A709 GR. 50W, SEE SHEET 60 FOR DETAILS
36	3	EA.	CURB BEAM	CB3	W18x55	31'–5½"	1,765	ASTM A709 GR. 50W, SEE SHEET 60 FOR DETAILS
37	3	EA.	CURB BEAM	CB4	W18x55	30'–0¾"	1,685	ASTM A709 GR. 50W, SEE SHEET 60 FOR DETAILS
38	3	EA.	CURB BEAM	CB5	W18x55	30'–0¾"	1,685	ASTM A709 GR. 50W, SEE SHEET 61 FOR DETAILS
39	3	EA.	CURB BEAM	CB6	W18x55	27–11½"	1,569	ASTM A709 GR. 50W, SEE SHEET 61 FOR DETAILS
40	3	EA.	CURB BEAM	CB7	W18x55	31'–5½"	1,765	ASTM A709 GR. 50W, SEE SHEET 61 FOR DETAILS
41	3	EA.	CURB BEAM	CB8	W18x55	30'–0¾"	1,685	ASTM A709 GR. 50W, SEE SHEET 61 FOR DETAILS
42	4	EA.	COVER PLATE	CP1	WT6x36	7'–0¼"	258	ASTM A709 GR. 50W, SEE SHEET 62 FOR DETAILS
43	4	EA.	COVER PLATE	CP2	WT6x36	6'–7¾"	237	ASTM A709 GR. 50W, SEE SHEET 62 FOR DETAILS
44	51	EA.	WALKWAY BRACKET	WB1	9"x13"	3'–7³⁄₁₆"	68	ASTM A709 GR. 50W, SEE SHEET 62 FOR DETAILS
45								
46	24	EA.	ROCKER PLATE	RP1	2"x12"	2'–2"	177	ASTM A709 GR. 50W, SEE SHEET 65 FOR DETAILS
47	12	EA.	BASE PLATE (FIXED)	BP1–F	2¾"x17"	2'–10"	451	ASTM A709 GR. 50W, SEE SHEET 65 FOR DETAILS
48	12	EA.	BASE PLATE (EXPANSION) w/STAINLESS STEEL SLIDING SURFACE	BP1–E	2¾"x17	2'–10⅛"	453	ASTM A709 GR. 50W, SEE SHEET 65 FOR DETAILS
49	12	EA.	MASONRY PLATE (FIXED)	MP1–F	3"x17"	2'–10"	492	ASTM A709 GR. 50W, SEE SHEET 65 FOR DETAILS
50	12	EA.	MASONRY PLATE (EXPANSION) w/PTFE SLIDING SURFACE	MP1–E	2¾"x17"	2'–10"	451	ASTM A709 GR. 50W, SEE SHEET 65 FOR DETAILS
51	24	EA.	ELASTOMERIC BEARING PAD	BRP1	¼"x18"	2'–11"		60 DUROMETER NATURAL RUBBER, SEE SHEET 65 FOR DETAILS
52	48	EA.	RETAINER TAB	RT1	1"x6¾"	9¾"	14	ASTM A709 GR. 50W, SEE SHEET 65 FOR DETAILS
53	24	EA.	GUIDE PLATE	GP1	¾"x4"	1'–5"	15	ASTM A709 GR. 50W, SEE SHEET 65 FOR DETAILS
54	96	EA.	PLATE WASHER	PW1	½"x3¾"	7"	4	ASTM A709 GR. 50W, SEE SHEET 66 FOR DETAILS
55	192	EA.	ANCHOR ROD w/2~HEAVY HEX NUTS AND FLAT WASHER	AR1	1½" DIA.	4'–6"		ASTM F1554 GR. 105, SEE SHEET 66 FOR DETAILS

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: BILL OF MATERIALS (1 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	05 OF 68

BILL OF MATERIAL (CONTINUED)

LINE	QUANTITY	UNIT	DESCRIPTION	MARK	SIZE	LENGTH	LIFTING WEIGHT (EA.)	REMARKS
56	2	EA.	HANDRAIL PANEL	HP1	HSS2x2x3/16	23'–3"	278	ASTM A500 GR. B, GALVANIZED, SEE SHEET 64 FOR DETAILS
57	12	EA.	HANDRAIL PANEL	HP2	HSS2x2x3/16	20'–10"	245	ASTM A500 GR. B, GALVANIZED, SEE SHEET 64 FOR DETAILS
58	3	EA.	HANDRAIL PANEL	HP3	HSS2x2x3/16	14'–5⅛"	168	ASTM A500 GR. B, GALVANIZED, SEE SHEET 64 FOR DETAILS
59	1	EA.	HANDRAIL PANEL	HP4	HSS2x2x3/16	21'–2⅞"	248	ASTM A500 GR. B, GALVANIZED, SEE SHEET 64 FOR DETAILS
60	360	LF	BAR GRATING PANELS, 4"x2" MAX. OPENING, SERRATED SURFACE	38W4	2¼"X36"	AS NOTED	32.4 PLF	GALVANIZED, FURNISH IN THE FOLLOWING LENGTHS: 21 @ 14'–0" AND 6 @ 10'–11"
61								
62	158	EA.	CARRIAGE BOLT w/STD WASHER & LOCK NUT		5/16" DIA.	1½"		GALVANIZED
63								
64	102	EA.	UTILITY SUPPORT BRACKET	UC1	5"x10"	10⅞"	16	ASTM A709 GR. 50W, SEE SHEET 62 FOR DETAILS
65	16	LF	STEEL PIPE, BENT (18 PIECES)		½" STD. PIPE	10⁷⁄₁₆"		ASTM A500 GR. B, GALVANIZED, SEE SHEET 59 FOR DETAILS
66	36	EA.	STEEL BAR		⅜"x⅜"	4"		ASTM A36, GALVANIZED, SEE SHEET 59 FOR DETAILS
67	153	LF	STEEL COIL CHAIN (18 PIECES)		⅜"	8'–6"		ASTM A319 OR A413 GR. 30, GALVANIZED, SEE SHEET 59 FOR DETAILS
68	18	EA.	SAFETY PIN ANCHOR SHACKLE		⅜"			GALVANIZED, ½" MAX. PIN DIA., 5/8" MIN. THROAT OPENING, SEE SHEET 59 FOR DETAILS
69	36	EA.	INSPECTION CABLE BRACKET		WT9x59.5	9"		ASTM A709 GR. 50W, SEE SHEET 67 FOR DETAILS
70	1,460	LF	WIRE ROPE, ½" DIA.		½" DIA.			GALVANIZED
71	180	EA.	WIRE ROPE CLIPS		½" DIA.			
72								
73	105	LF	PERFORATED CORRUGATED STEEL PIPE w/ 12" ANNULAR COUPLING BANDS		8" DIA.			18 GAGE, ALUMINIZED, TYPE II. ORDERED LENGTH TO BE DETERMINED BY CONTRACTOR
74	40	LF	CORRUGATED STEEL PIPE w/ 24" ANNULAR COUPLING BANDS		18" DIA.			18 GAGE, ALUMINIZED, TYPE II. ORDERED LENGTH TO BE DETERMINED BY CONTRACTOR
75								
76	262	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	2"		ASTM F3125, A325, TYPE 3
77	3,623	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	2¼"		ASTM F3125, A325, TYPE 3
78	2,029	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	3"		ASTM F3125, A325, TYPE 3
79	4,763	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	3¼"		ASTM F3125, A325, TYPE 3
80	719	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	3¾"		ASTM F3125, A325, TYPE 3
81	687	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	4¼"		ASTM F3125, A325, TYPE 3
82	3,932	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	4½"		ASTM F3125, A325, TYPE 3
83	1,311	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	5½"		ASTM F3125, A325, TYPE 3
84	17,222	EA.	HEAVY HEX NUT		⅞" DIA.			ASTM A563, GR. C3
85	17,322	EA.	WASHER, FLAT, ROUND		⅞" DIA.			ASTM F436, TYPE 3
86	202	EA.	HIGH STRENGTH BOLT		1¼" DIA.	3"		ASTM F3125, A325, TYPE 3, FOR GIRDER TO ROCKER PLATE
87	202	EA.	WASHER, FLAT, ROUND		1¼" DIA.			ASTM F436, TYPE 3
88	101	EA.	HIGH STRENGTH BOLT		¾" DIA.	1½"		ASTM F3125, A325, TYPE 3, FOR GUIDE PLATE TO BASE PLATE
89	101	EA.	WASHER, FLAT, ROUND		¾" DIA.			ASTM F436, TYPE 3

NOTE: BOLT QUANTITES INCLUDE 5% ADDITIONAL

BILL OF MATERIAL (TEMPORARY JUMP SPANS)

LINE	QUANTITY	UNIT	DESCRIPTION	MARK	SIZE	LENGTH	LIFTING WEIGHT (EA.)	REMARKS
1	8	EA.	STEEL BEAM		W24x146	26'–8"	3,895	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
2	8	EA.	INTERIOR OUTER DIAPHRAGM		W24x146	1'–8"	245	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
3	4	EA.	INTERIOR MIDDLE DIAPHRAGM		W33x169	1'–8"	285	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
4	8	EA.	END OUTER DIAPHRAGM		½"x20"	1'–10"	63	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
5	4	EA.	END MIDDLE DIAPHRAGM		½"x20"	2'–7"	88	ASTM A709 GR. 50W, SEE SHEET 69 FOR DETAILS
6	4	EA.	SOLE PLATE (EXPANSION)		¾"x6"	4'–2"	64	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
7	4	EA.	SOLE PLATE (FIXED)		¾"x6"	4'–2"	64	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
8	16	EA.	FILL PLATE		⅜"x7"	1'–1¾"	11	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
9	4	EA.	MASONRY PLATE		¾"x8"	9'–4"	192	ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
10	16	EA.	PLATE WASHER		½"x3"	5"		ASTM A709 GR. 50W, SEE SHEET 68 FOR DETAILS
11	16	EA.	ANCHOR ROD w/HEAVY HEX NUT		1½" DIA.	2'–6"		ASTM F1554 GR. 55
12	84	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	2½"		ASTM F3125, A325, TYPE 3
13	84	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	3"		ASTM F3125, A325, TYPE 3
14	84	EA.	HIGH STRENGTH BOLTS		⅞" DIA.	4¼"		ASTM F3125, A325, TYPE 3
15	252	EA.	HEAVY HEX NUT		⅞" DIA.			ASTM A563, GR. C3
16	252	EA.	WASHER, FLAT, ROUND		⅞" DIA.			ASTM F436, TYPE 3

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: BILL OF MATERIALS (2 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	06 OF 68

PUBLISHED CTB
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SCALE
AS NOTED

DATE TIME
2/19/2025 4:51 PM

DRAWING LOCATION
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GENERAL NOTES:

1. CONTRACTOR SHALL COMPLY WITH ALL ARRC, LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS AND THE PROJECT SPECIFICATIONS FOR THIS CONTRACT.
2. NEW CONSTRUCTION SHOWN AS HEAVY LINES. EXISTING STRUCTURE TO REMAIN SHOWN AS LIGHT SOLID LINES. EXISTING STRUCTURE TO BE REMOVED SHOWN AS LIGHT DASHED LINES.
3. ASSUMED STATIONING IS BASED ON INSIDE FACE OF SOUTH EXISTING BACKWALL AS STATION 100+00.
4. ELEVATIONS AND EXISTING BRIDGE LAYOUT ARE BASED ON DETAILED SURVEY COMPLETED BY KUNA ENGINEERING DATED AUGUST 29, 2021 AND ALL POINTS NORTH SURVEY DATED JUNE 29, 2020.
5. BENCH MARK DATA: ARRC CONTROL POINT 106, STATION 107+71.45. ELEVATION 208.39' OFFSET 28.70' RIGHT OF CL MAIN TRACK. HORIZONTAL DATUM: ALASKA STATE PLANE COORDINATE SYSTEM OF 1983 (SPCS 83), ZONE 4. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
6. HYDRAULIC AND HYDROLOGIC INFORMATION IS BASED ON ARRC MP 127.5 HYDRAULICS AND HYDROLOGY REPORT COMPLETED BY HDR ENGINEERING INC., DATED AUGUST 2024.
7. GEOTECHNICAL INFORMATION IS BASED ON GEOTECHNICAL ENGINEERING REPORT COMPLETED BY NORTHERN GEOTECHNICAL ENGINEERING, INC. DBA TERRA FIRMA TESTING DATED JULY 2024.
8. CONTRACTOR TO PROVIDE, IMPLEMENT, AND MAINTAIN A TEMPORARY EROSION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, ENVIRONMENTAL PERMITS AND STATE OF ALASKA BMPS.
9. POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES TO PREVENT PONDING OF WATER ON SITE.
10. RELOCATION OF UTILITIES WILL BE AT THE UTILITY OWNER'S EXPENSE. KNOWN UTILITIES AND CONTACT INFORMATION:

ACS	CONTACT: IWO OLEWNICZAK (862) 400-2238
AT&T	CONTACT: BRIAN HEDRICK (907) 264-7321
NEW HORIZONS (UTILITY DESIGNER).	CONTACT: JARED TRAVIS (907) 761-6069

11. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH JBER SECURITY FORCES AND RANGE CONTROL FOR ACCESS ONTO AND OFF OF JBER PROPERTY.
12. ALL CONTRACTOR PERSONNEL ENTERING THE JOB SITE THROUGH JBER PROPERTY, UNLESS ENTERING THROUGH A DESIGNATED VISITOR GATE, SHALL BE PROVIDED WITH ADVANCE NOTICE TO JBER SECURITY FORCES FOR VERIFICATION AND BACKGROUND CHECK PRIOR TO ENTERING THE JOB SITE. DELAYS DUE TO UNVERIFIED PERSONNEL WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
13. CONTRACTOR SHALL MAINTAIN A 2-WEEK LOOK AHEAD SCHEDULE AND COORDINATE WITH ARRC OR THEIR REPRESENTATIVE FOR RAILROAD FLAGGING NEEDS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
14. RAIL TRAFFIC DISRUPTIONS SHALL BE KEPT TO A MINIMUM. DISRUPTIONS IN RAIL TRAFFIC THAT MAY BE REQUIRED SHALL BE COORDINATED WITH ARRC BEFOREHAND. NO SUCH WORK SHALL BE PERMITTED TO START WITHOUT APPROVAL OF ARRC.
15. FOR WORK REQUIRING EXTENDED TRACK OUTAGES, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR REVIEW AN HOUR-BY-HOUR WORK PLAN WHICH DETAILS THE WORK TO BE COMPLETED, INCLUDING RESTORATION AND INSPECTION OF TRACK PRIOR TO PLACING THE RAIL BACK IN SERVICE.
16. THE CONTRACTOR SHALL NOT PLACE MATERIAL AND/OR EQUIPMENT WITHIN 25 FEET OF AN ACTIVE TRACK AT ANY TIME WITHOUT PRIOR APPROVAL OF ARRC.
17. EXISTING RAILROAD SIGNAGE SHALL BE MAINTAINED DURING THE CONSTRUCTION PERIOD. ALL RAILROAD SIGNAGE SHALL BE FULLY RESTORED UPON COMPLETION OF EACH DAYS WORK IN ACCORDANCE WITH ARRC STANDARDS.
18. SIGNS SHOWN TO BE RELOCATED SHALL BE PROTECTED FROM DAMAGE AND RELOCATED IN ACCORDANCE WITH ARRC STANDARDS.

SITE CLEARING AND RESTORATION NOTES:

1. CONTRACTOR TO COMPLETE ALL CLEARING OUTSIDE OF THE MIGRATORY BIRD CLEARING WINDOWS IN ACCORDANCE WITH THE ENVIRONMENTAL PERMITS AND PROJECT SPECIFICATIONS.
2. AT COMPLETION OF CONSTRUCTION, CONTRACTOR TO LEAVE SITE FREE OF LOOSE DEBRIS AND RUBBISH AND CONTOUR FILLS LEFT IN PLACE TO BE STABLE AND NON-ERODABLE. TEMPORARY FILLS WITHIN EAGLE RIVER OHW AND JURISDICTIONAL WETLANDS SHALL BE REMOVED AND THE SITE RESTORED TO PRE-CONSTRUCTION OR BETTER CONDITIONS.
3. VEGETATED AREAS CLEARED DURING CONSTRUCTION AND NEW EMBANKMENT SLOPES SHALL BE STABILIZED, AND SEEDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
4. A 100-FT VEGETATIVE BUFFER SHALL BE MAINTAINED ALONG THE BANKS OF EAGLE RIVER TO THE EXTENT PRACTICAL DURING CONSTRUCTION.
5. ALL EXCAVATED WASTE MATERIAL SHALL BE WASTED ON SITE AT LOCATIONS APPROVED BY THE OWNER. WASTE MATERIAL SHALL BE PLACED IN LIFTS AND TRACKWALKED WITH EQUIPMENT TO PROVIDE A STABLE SURFACE.
6. TREES CLEARED ON JBER PROPERTY SHALL BE DELIMBED, CUT TO LENGTH, AND STOCKPILED IN AN AREA DESIGNATED BY JBER IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

DEMOLITION AND REMOVAL NOTES:

1. CONTRACTOR TO COMPLETE ALL DEMOLITIONS AND REMOVALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS TO THE LINES AND GRADES NOTED IN THE PLANS.
2. THE FOLLOWING ITEMS SHALL BE REMOVED WITH CARE AND SALVAGED AND RETURNED TO THE OWNER IN A MANNER THAT IS REUSABLE:
   A. TRACK MATERIAL INCLUDING RAIL, TIES, ANCHORS, FASTENERS, AND TIE PLATES
   B. STEEL BRIDGE GIRDERS
3. DISPOSAL OF HAZARDOUS MATERIALS SUCH AS LEAD BASED PAINT AND CREOSOTE TREATED TIMBER SHALL BE BE IN A SEALED CONTAINER AND TRANSPORTED TO AND APPROVED WASTE FACILITY IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
4. MODIFICATIONS TO THE EXISTING STRUCTURE WHILE MAINTAINING RAIL TRAFFIC TO FACILITATE CONSTRUCTION OF NEW COMPONENTS SHALL BE EVALUATED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN ALASKA AND SUBMITTED TO OWNER FOR REVIEW AND APPROVAL PRIOR TO MAKING MODIFICATIONS TO THE EXISTING STRUCTURE.
5. TO FACILITATE CONSTRUCTION AND EQUIPMENT MOVEMENT WHEN CONSTRUCTING THE NEW CONCRETE PIERS, TOWER BRACING MAY BE REMOVED IN LIMITED SECTIONS UNDER DEAD LOAD. PRIOR TO TRAIN LIVE LOAD PASSING OVER THE STRUCTURE, THE BRACING SHALL BE REATTACHED WITH HIGH STRENGTH BOLTS. LIVE LOAD WILL NOT BE PERMITTED TO PASS OVER THE STRUCTURE WITH BRACING REMOVED WITHOUT PRIOR OWNER APPROVAL.

RIPRAP NOTES:

1. CONTRACTOR TO PROVIDE AND INSTALL RIPRAP IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS TO THE LINES AND GRADES NOTED IN THE PLANS.
2. GEOTEXTILE STABILIZATION FABRIC SHALL BE PLACED UNDER ALL PERMANENT RIPRAP.
3. CARE SHALL BE TAKEN WHEN PLACING RIPRAP AROUND NEW CONCRETE FOOTINGS AND COLUMNS TO AVOID DAMAGING CONCRETE.
4. CLASS IV RIPRAP USED IN TEMPORARY WORKS MAY BE REUSED AS PERMANENT CLASS III RIPRAP AND IS NOT REQUIRED TO MEET CLASS III GRADATION REQUIREMENTS.

TRACK WORK NOTES:

1. CONTRACTOR TO COMPLETE ALL TRACK WORK IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ARRC STANDARD BALLAST AND TRACK PLANS TO THE LINES AND GRADES NOTED IN THE PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL AGGREGATE MATERIAL INCLUDING BALLAST AND SUBBALLAST. TRACK MATERIAL FROM THE TIES UP INCLUDING TIES, RAIL, AND OTM WILL BE SUPPLIED BY ARRC.
3. ALL TRACK SHALL BE INSPECTED BY A QUALIFIED TRACK INSPECTOR AND RAILROAD BRIDGE SUPERVISOR IDENTIFIED AND APPROVED BY ARRC PRIOR TO ANY TRAIN TRAFFIC PASSING THROUGH THE PROJECT SITE AFTER ANY OCCASION IN WHICH THE TRACK HAS BEEN DISTURBED.

TEMPORARY WORKS NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR DESIGN, INSTALLATION, MAINTENANCE, AND REMOVAL OF TEMPORARY WORKS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. TEMPORARY SHORING SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF ALASKA. TEMPORARY SHORING SUPPORTING RAILROAD EMBANKMENTS OR STRUCTURES SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL.
3. TEMPORARY FILLS WITHIN EAGLE RIVER OHWM:
   A. TEMPORARY FILLS SHALL COMPLY WITH ALL APPLICABLE ENVIRONMENTAL PERMITS AND THE PROJECT SPECIFICATIONS.
   B. CONTRACTOR SHALL PREVENT FILLS FROM WASHING DOWNSTREAM THROUGH USE OF SCOUR PROTECTION MEASURES. REFER TO THE HDR ENGINEERING, INC. H&H REPORT FOR RECOMMENDED SCOUR PROTECTION AND RIPRAP SIZING FOR FILLS WHICH WILL REMAIN IN EAGLE RIVER DURING HIGH FLOW MONTHS FROM MAY THROUGH OCTOBER.
   C. TEMPORARY CROSSING STRUCTURES SHALL AT A MINIMUM ALLOW FOR RAPID REMOVAL OF THE SUPERSTRUCTURE SHOULD WATER LEVELS RISE TO WITHIN 1 FOOT OF THE LOW CHORD OF THE SUPERSTRUCTURE.
   D. ALL TEMPORARY FILLS WITHIN EAGLE RIVER OHWM SHALL BE FULLY REMOVED AT THE END OF CONSTRUCTION AND BANKS RESTORED TO PRE-CONSTRUCTION CONDITIONS. RIPRAP THAT IS CLASS III OR BETTER MAY BE REUSED IN PERMANENT RIPRAP ELSEWHERE ON THE PROJECT.
4. TEMPORARY EARTH WORKS PROPOSED TO REMAIN SHALL BE APPROVED BY ALL AFFECTED PARTIES. THE REMAINING WORKS SHALL BE AT A SLOPE NOT GREATER THAN 2H:1V OR AS APPROVED BY OWNER. ALL DISTURBED AREAS SHALL BE SEEDED ONCE MATERIAL IS PLACED IN THE FINAL CONFIGURATION. WHERE REQUIRED IN ENVIRONMENTAL PERMIT DOCUMENTS OR SHOWN ON THE PLANS, TOPSOIL FROM STOCKPILED MATERIAL SHALL BE PLACED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS PRIOR TO SEEDING. INTERIM SEEDING IS NOT REQUIRED.
5. WHERE PRACTICAL, ACCESS ROUTES ESTABLISHED DURING CONSTRUCTION WITHIN ARRC ROW AND OUTSIDE OF WETLANDS SHOULD BE MAINTAINED.
6. TEMPORARY WORKS ON JBER PROPERTY SHALL BE CONTAINED WITHIN THE APPROVED LIMITS OF THE JBER TEMPORARY CONSTRUCTION LICENSE (TCL) AREAS. ALL REQUIREMENTS OF THE TCL AGREEMENTS SHALL BE ADHERED TO BY THE CONTRACTOR. COPIES OF THE AGREEMENTS WILL BE INCLUDED IN THE PROJECT CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL IDENTIFY PROPOSED TEMPORARY CROSSING LOCATIONS FOR MOVEMENT OF EQUIPMENT AND MATERIAL ACROSS ACTIVE TRACKS. TEMPORARY CROSSINGS SHALL BE IN ACCORDANCE WITH THE ARRC STANDARD PLANS FOR AT-GRADE TIMBER CROSSINGS AND THE PROJECT SPECIFICATIONS. RAILROAD FLAGGING FOR EQUIPMENT CROSSING THE TRACKS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

CALL BEFORE YOU DIG

CONTRACTOR SHALL CALL A MINIMUM OF 3 DAYS IN ADVANCE OF CONSTRUCTION

ALASKA DIGLINE....907-278-3121
OR 800-478-3121

CALL OR GO TO WWW.AKONECALL.COM/STATEWIDE.HTM FOR MEMBER LIST OF WHO WILL BE NOTIFIED

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA
49 TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

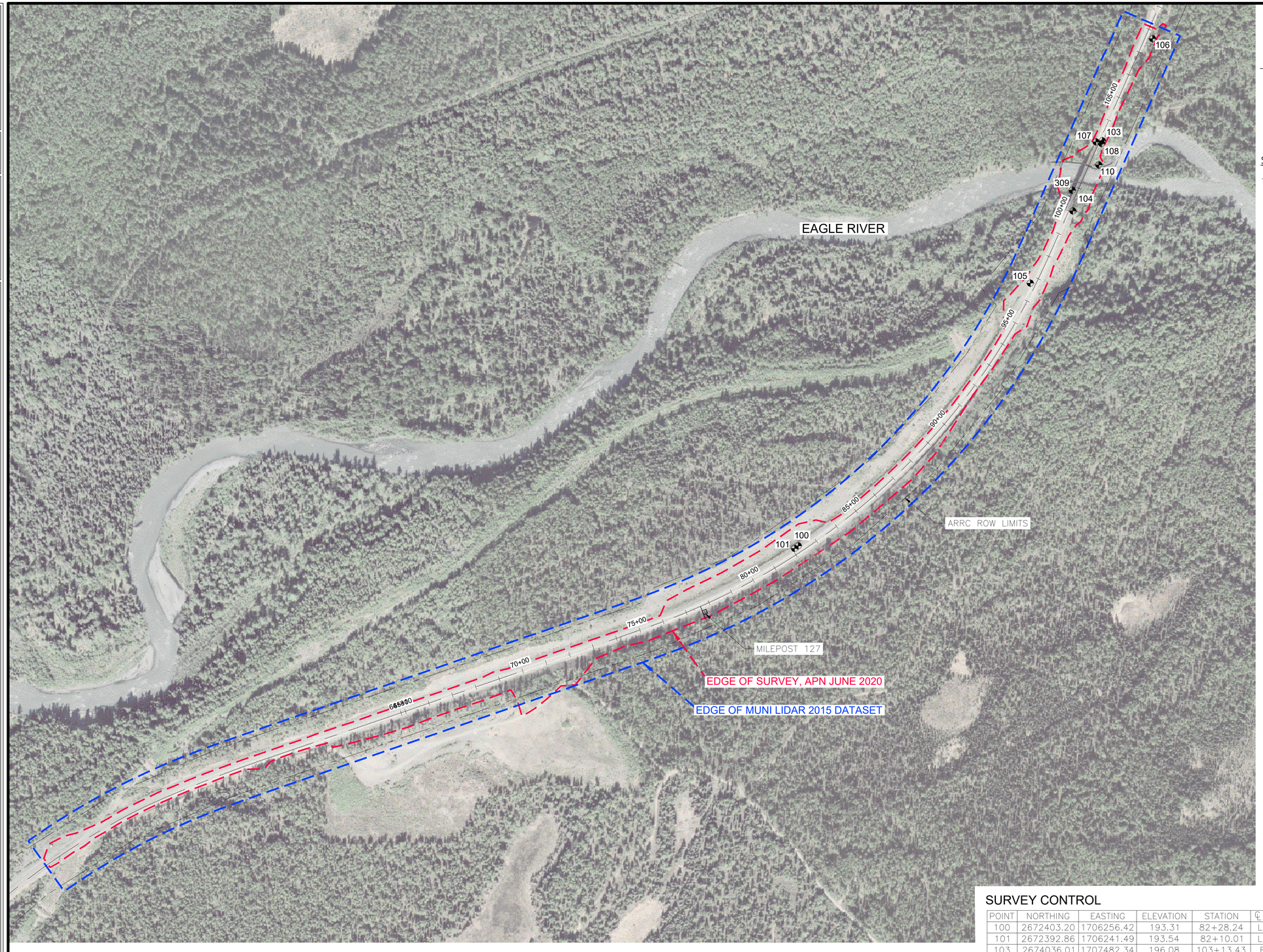
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: GENERAL NOTES

AFE NO.	10944
YEAR	2025
SHEET	07 OF 68



N

SURVEY NOTES:

1. CONTRACTOR TO ESTABLISH ADDITIONAL HORIZONTAL AND VERTICAL CONTROL POINTS OR MONUMENTS AS REQUIRED TO PROVIDE SURVEY CONTROL THROUGHOUT THE PROJECT WHICH WILL NOT BE DAMAGED OR REMOVED DURING CONSTRUCTION.

LEGEND

- 2015 MUNI LIDAR LIMITS
- 2020 DRONE SURVEY LIMITS
- ARRC ROW LIMITS
- EXISTING RAILROAD TRACK CENTERLINE
- CONTROL POINT

SURVEY CONTROL

POINT	NORTHING	EASTING	ELEVATION	STATION	℄ OFFSET	MILEPOST	DESCRIPTION
100	2672403.20	1706256.42	193.31	82+28.24	L 25.48'	127.09	BASE YPC LS12039
101	2672392.86	1706241.49	193.54	82+10.01	L 25.05'	127.08	SPIKE
103	2674036.01	1707482.34	196.08	103+13.43	R 9.69'	127.48	YPC LS12039
104	2673753.34	1707362.92	184.96	100+06.61	R 14.44'	127.42	YPC LS12039
105	2673462.21	1707191.89	193.12	96+70.29	L 21.66'	127.36	YPC LS12039
106	2674447.54	1707684.53	208.39	107+71.56	R 28.70'	127.57	YPC LS12039
107	2674032.09	1707456.26	192.39	102+99.35	L 12.60'	127.48	YPC LS12039
108	2674025.44	1707479.10	189.02	103+02.47	R 10.99'	127.48	YPC LS12039
309	2673836.66	1707360.94	136.16	100+82.06	L 20.98'	127.44	YPC LS12039
110	2673939.14	1707467.93	137.78	102+18.98	R 35.58'	127.46	YPC LS12039

SURVEY CONTROL PLAN

SCALE: 1" = 200'

SURVEY DATUM

HORIZONTAL DATUM AND VERTICAL DATUM IS ALASKA STATE PLANE COORDINATE SYSTEM ZONE 4, NAD83(2011), GEOID12B BASED ON OPUS PROCESSSING OF CONTROL POINT 100.

DESIGNED BY: MNL
CHECKED BY: AGH
DRAFTED BY: MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: SURVEY CONTROL

AFE NO. 10944
YEAR 2025
SHEET 08 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_08.DWG

DATE 2/19/2025 TIME 4:51 PM
SCALE AS NOTED
PUBLISHED CTB ARRC_CTB_2023.CTB

GENERAL SITE PLAN

SCALE: N.T.S.

N

ACCESS NOTES:

1. CONTRACTOR TO COMPLY WITH AND COORDINATE WITH JBER SECURITY FORCES AND RANGE CONTROL THROUGHOUT DURATION OF CONSTRUCTION ON MOVEMENTS INTO AND OUT OF JBER PROPERTY.
2. USE OF BAILEY BRIDGE ON POLE LINE ROAD BY HEAVY EQUIPMENT OR TRUCKS IS NOT ALLOWED. LIGHT TRUCK TRAFFIC ONLY.
3. ACCESS FROM ARTILLERY ROAD BARS BOULEVARD TO BRIDGE 127.5 TO BE PIONEERED BY CONTRACTOR WITHIN ARRC ROW OR DESIGNATED TEMPORARY CONSTRUCTION LICENSE (TCL) AREAS.
4. SOIL WASTE AREAS WITHIN PROJECT LIMITS SHALL BE COORDINATED WITH ARRC PRIOR TO PLACEMENT OF WASTE MATERIAL. WASTED MATERIAL SHALL BE PLACED IN LIFTS, TRACK WALKED AND STABILIZED PRIOR TO DEMOBILIZATION.

LEGEND

- TEMPORARY CONSTRUCTION LICENSE (TCL)
- SOIL DISPOSAL AREA
- PROJECT DISTURBANCE LIMITS
- PRIMARY ACCESS ROUTE
- ALTERNATE ACCESS ROUTE
- ARRC ROW LIMITS
- JBER BOUNDARY

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH ANTHONY G. HAFNER No. CE 188080 REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

ALASKA RAILROAD

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: GENERAL SITE PLAN

AFE NO. 10944

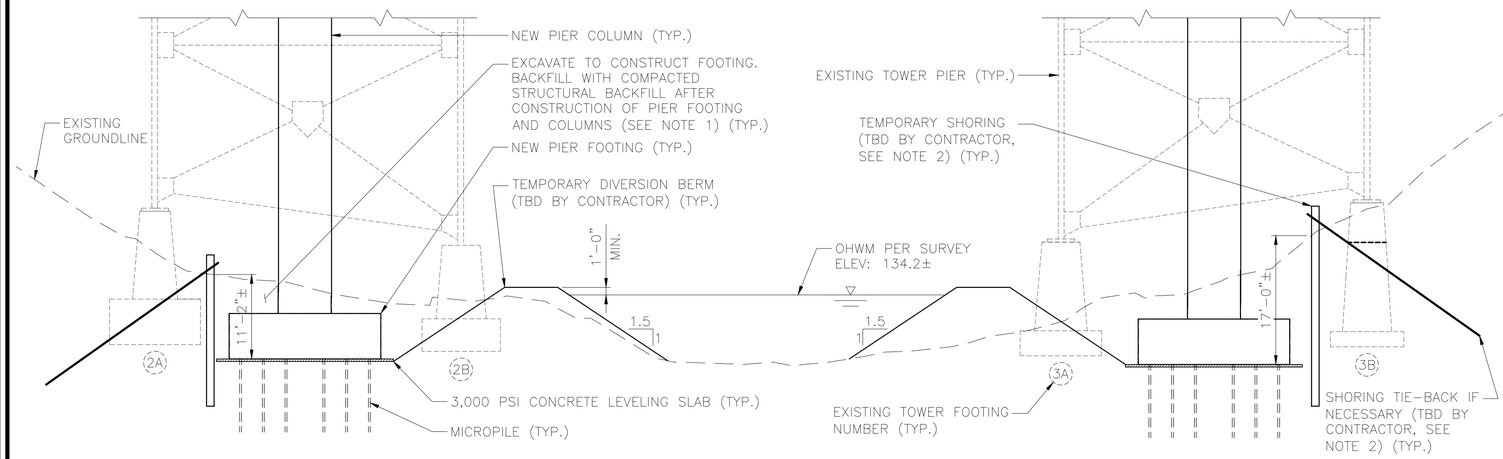
YEAR 2025

DRAWING LOCATION C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_09.DWG

DATE 2/19/2025 TIME 4:51 PM

SCALE AS NOTED

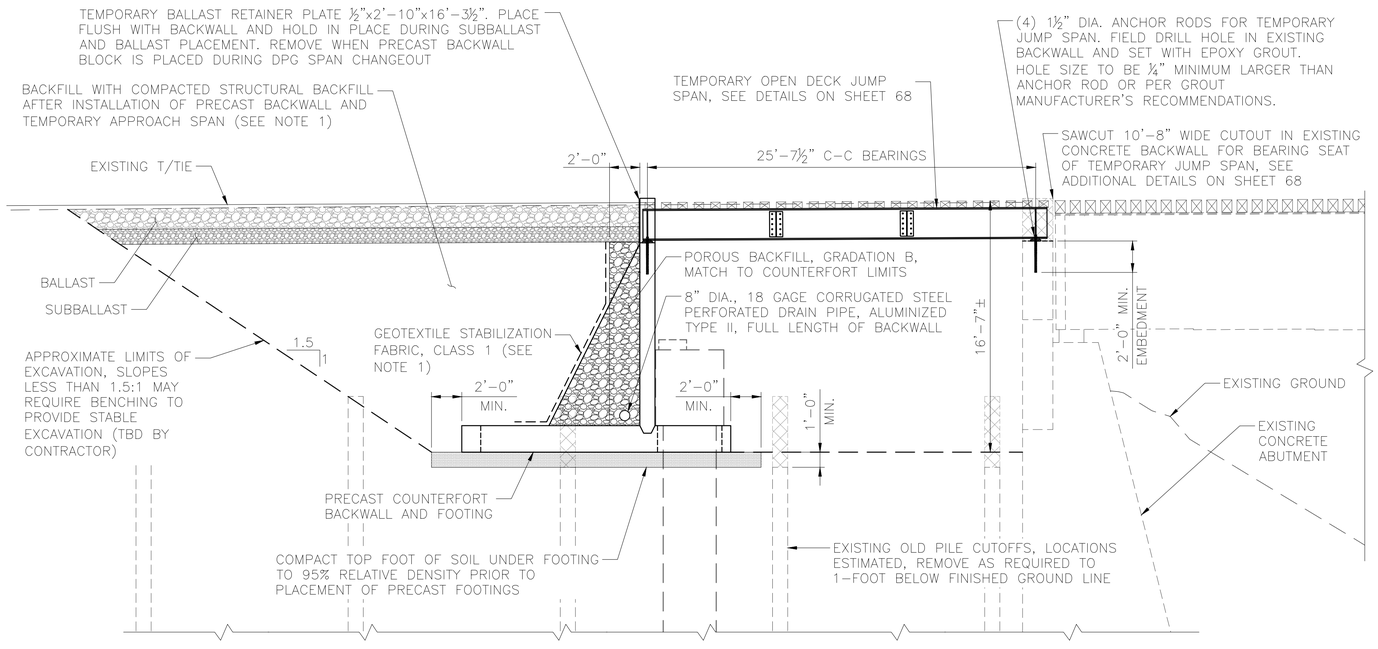
PUBLISHED CTB ARRC_CTB_2023.CTB



PHASE 1 – PIER EXCAVATION AND SHORING

SCALE: 1" = 10'

ESTIMATED EXISTING TOWER PIER FOOTING REACTIONS (PIERS 2A & 3B)		
LOAD TYPE	VERTICAL REACTION (kip)	TRANSVERSE REACTION (kip)
DEAD	293	9
LIVE (E65)	254	43
IMPACT (28.2%)	72	12
TOTAL	619	64



PHASE 2 – TEMPORARY OPEN DECK JUMP SPAN

SCALE: 1" = 5'

LEGEND

REMOVALS

PROPOSED CONSTRUCTION PHASING SEQUENCE:

THE FOLLOWING IS A SUGGESTED CONSTRUCTION SEQUENCE ONLY. CONTRACTOR TO PROVIDE DETAILED CONSTRUCTION PHASING PLAN NOTING SEQUENCE OF WORK, SCHEDULE, REQUIRED TIMING AND DURATION OF TRACK OUTAGES, AND RAILROAD FLAGGING AND EQUIPMENT COORDINATION FOR REVIEW AND APPROVAL PRIOR TO BEGINNING CONSTRUCTION. CONSTRUCTION PHASES MAY HAVE OVERLAPPING ACTIVITY TIMEFRAMES AND DO NOT NECESSARILY NEED TO BE PERFORMED SEQUENTIALLY IN THE ORDER NOTED.

PHASE 1 – SITE ACCESS AND PIER CONSTRUCTION:

1. MOBILIZE TO SITE AND CONSTRUCT TEMPORARY ACCESS ROADS AND TRESTLE. SET UP BMP'S AND EROSION CONTROL MEASURES AS REQUIRED. COORDINATE ACCESS VIA ARTILLERY ROAD WITH JBER SECURITY FORCES. PLACEMENT OF TEMPORARY FILL BELOW OHWM OF EAGLE RIVER TO OCCUR DURING ALLOWABLE IN-WATER WORK WINDOWS PER APPROVED PERMITS.
2. CLEAR AND GRUB STAGING AREAS IN RIVER BASIN, INSTALL TEMPORARY DIVERSION BERMS AT PIERS. PLACEMENT OF TEMPORARY FILL BELOW OHWM OF EAGLE RIVER TO OCCUR DURING ALLOWABLE IN-WATER WORK WINDOWS PER APPROVED PERMITS.
3. CONSTRUCT TEMPORARY SHORING FOR EXCAVATION OF PIER FOUNDATIONS. PROVIDE TEMPORARY BRACING AND MODIFICATION OF THE EXISTING STEEL TOWER PIERS AS REQUIRED FOR EQUIPMENT ACCESS. PROVIDE DEWATERING AS REQUIRED.
4. EXCAVATE PIER FOUNDATIONS TO COMPETENT ROCK AND CONSTRUCT CONCRETE LEVELING SLAB (MUD MAT).
5. INSTALL MICROPILE GROUND ANCHORS FOR PIER FOOTINGS. TEST MICROPILES AS REQUIRED IN SPECIFICATIONS.
6. FORM AND POUR PIER FOOTINGS AND COLUMNS.
7. BACKFILL PIER FOOTINGS TO EXISTING GROUND, REMOVE TEMPORARY SHORING, AND REMOVE TEMPORARY DIVERSION BERMS. REMOVAL OF TEMPORARY FILL FOR DIVERSION BERMS BELOW OHWM OF EAGLE RIVER TO OCCUR DURING ALLOWABLE IN-WATER WORK WINDOWS PER APPROVED PERMITS.
8. FORM AND POUR PIER CAPS.

PHASE 2 – ABUTMENT CONSTRUCTION:

1. CONSTRUCT TEMPORARY ACCESS TO ABUTMENTS.
2. EXCAVATE AND PLACE PROPOSED PRECAST CONCRETE COUNTERFORT WALLS AND TEMPORARY APPROACH SPANS AT EACH ABUTMENT (MAJOR OUTAGE #1 & #2):
   a. TAKE TRACK OUT OF SERVICE.
   b. REMOVE EXISTING TRACK WITHIN EXCAVATION LIMITS.
   c. EXCAVATE AND PREPARE SUBGRADE FOR PRECAST BACKWALL PLACEMENT. REMOVE ANY OLD TIMBER PILES EXPOSED DURING EXCAVATION TO 1 FOOT BELOW TOP OF PROPOSED SUBGRADE UNDER BACKWALL FOOTINGS.
   d. SAWCUT EXISTING ABUTMENT CONCRETE BACKWALL FOR PLACEMENT OF TEMPORARY APPROACH SPAN.
   e. PLACE PRECAST FOOTINGS AND BACKWALLS AND COMPLETE NECESSARY CONNECTIONS BETWEEN ELEMENTS.
   f. PLACE TEMPORARY OPEN DECK APPROACH SPAN AND PLACE STRUCTURAL AND POROUS BACKFILL BEHIND BACKWALLS TO TOP OF SUBGRADE.
   g. RECONSTRUCT TRACK APPROACH INCLUDING SUBBALLAST, BALLAST, AND TRACK.
   h. SURFACE, LINE, AND DRESS TRACK AND RESTORE TRACK SERVICE.
3. DURING AVAILABLE TRACK WINDOWS, DRIVE ABUTMENT PILES USING PRECAST FOOTING OPENINGS AS A GUIDE. CUT OFF AND CLEAN OUT PILES AND PLACE REINFORCING STEEL AND CONCRETE PILE FILL.
4. FORM AND POUR CONCRETE ABUTMENT CAP AND BACKFILL TO FINAL GRADE AFTER CURING.
5. TEMPORARY APPROACH SPANS TO REMAIN IN PLACE UNTIL MAIN SPAN INSTALLATION IN PHASE 3.

NOTES:

1. EXCAVATED COARSE-GRAINED MATERIAL MAY BE REUSED AS STRUCTURAL FILL IF THERE IS LESS THAN 15% MATERIAL PASSING THE #200 SIEVE AND IT DOES NOT CONTAIN ANY ORGANIC OR DELETERIOUS MATERIAL. CONTRACTOR MAY SUBSTITUTE AN APPROVED ROCK FILL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS TO EXPEDITE COMPACTION DURING TRACK OUTAGES FOR ABUTMENT BACKWALL INSTALLATION AND BACKFILL. MINIMUM UNIT WEIGHT OF BACKFILL OVER PRECAST FOOTING SHALL BE 125 PCF. GEOTEXTILE SEPARATION FABRIC IS NOT REQUIRED BETWEEN ROCK FILL AND POROUS BACKFILL. INSTEAD, PLACE GEOTEXTILE FABRIC BETWEEN TOP OF ROCK FILL AND SUBBALLAST OR SUBGRADE FILL.
2. TEMPORARY SHORING AND TIE-BACKS SHALL BE DESIGNED TO ACCOMMODATE RESISTANCE OF LIVE LOAD SURCHARGE PRESSURE AT THE BASE OF THE EXISTING FOOTINGS IN ADDITION TO LATERAL SOIL LOADS IF EXISTING FOOTINGS ARE NOT FOUNDED ON ROCK. LIVE LOAD FOR TEMPORARY CONDITIONS SHALL BE A MINIMUM OF COOPER'S E65 MAGNITUDE.
3. PIER FOOTING REACTIONS ARE AN ESTIMATE DETERMINED FROM EXISTING STRUCTURE AS-BUILT PLANS. LIVE LOAD WAS CONVERTED FROM COOPER'S E50 TO E65. CONTRACTOR TO VERIFY ALL LOADS WHEN DESIGNING TEMPORARY SHORING SYSTEM.

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
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ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: CONSTRUCTION DEMOLITION AND PHASING PLAN (1 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	10 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/20/2025 1:33 PM
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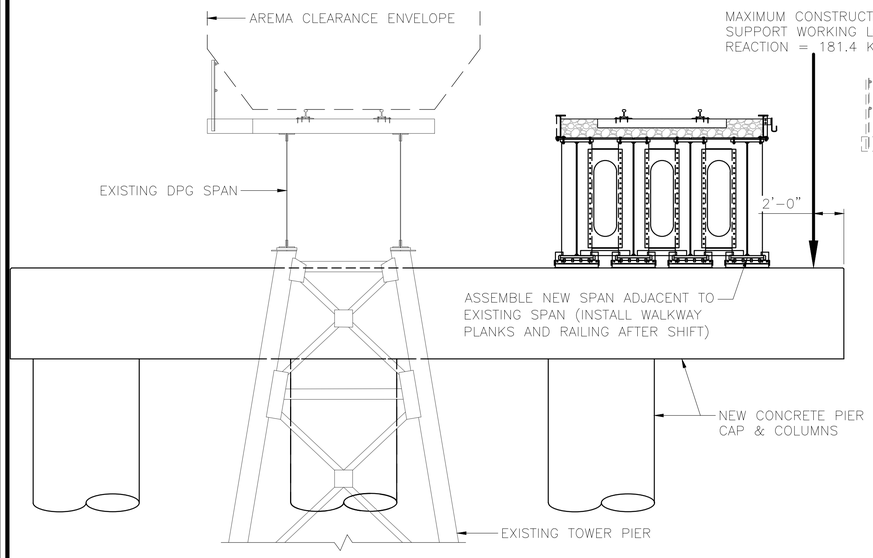
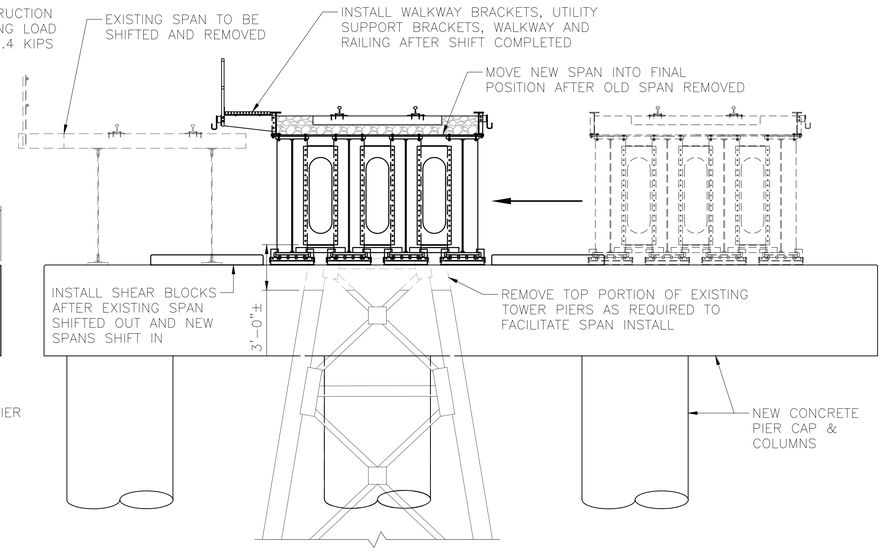


PHASE 3a – PRE–ASSEMBLY AND STAGING

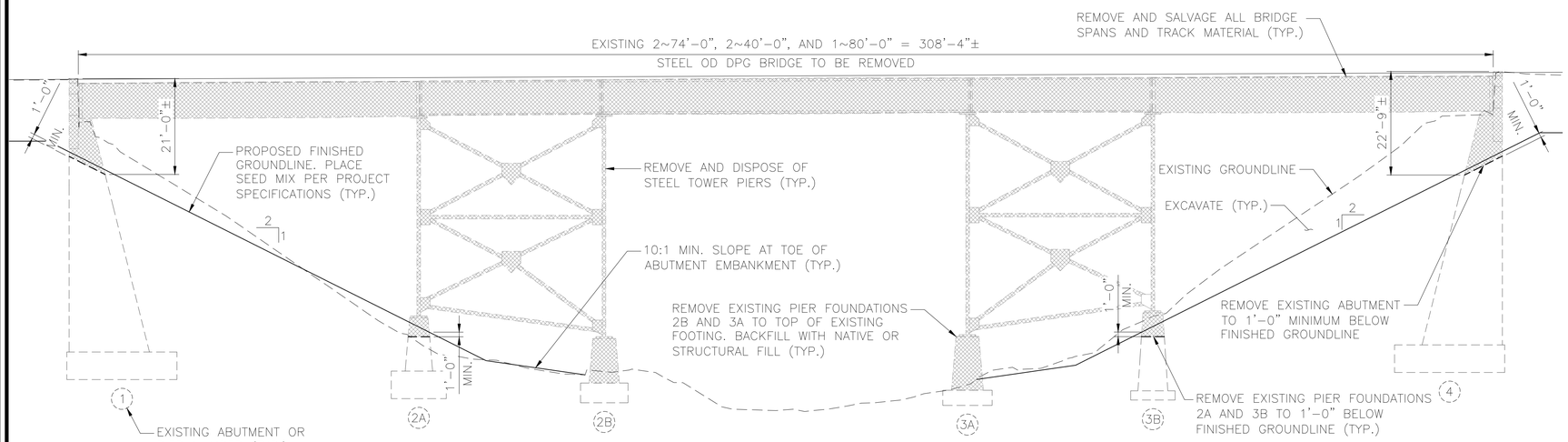
SCALE: 1" = 5'
PIER 2 LOOKING AHEAD ON STATION, PIER 3 SIMILAR



PHASE 3b – SPAN CHANGEOUT

SCALE: 1" = 5'
PIER 2 LOOKING AHEAD ON STATION, PIER 3 SIMILAR

ESTIMATED LIFTING WEIGHT OF EXISTING SPANS		
SPAN LENGTH	WITH DECK (kip)	WITHOUT DECK (kip)
74' SPAN	126	66
40' SPAN	44	11
80' SPAN	136	72



PHASE 3c – BRIDGE DEMOLITION LIMITS

SCALE: 1" = 15'
PROPOSED STRUCTURE AND RIPRAP NOT SHOWN FOR CLARITY.
SEE SHEETS 12 AND 35 FOR RIP RAP AND ADDITIONAL GRADING DETAILS NOT SHOWN.

LEGEND

REMOVALS

PHASE 3 – SPAN REPLACEMENT AND EXISTING BRIDGE REMOVAL:

1. PRE–ASSEMBLE GIRDER PAIRS FOR TRANSPORT TO SITE AT EKLUTNA STAGING AREA.
2. AFTER PHASES 1 AND 2 ARE COMPLETE, SET UP GANTRY CRANES ON PIER AND ABUTMENT CAPS TO UNLOAD AND STAGE SPANS AT BRIDGE SITE.
3. DURING AVAILABLE TRACK WINDOWS, USE WORK TRAINS TO TRASNPORT PRE–ASSEMBLED GIRDER PAIRS AND REMAINING SPAN MATERIALS TO BRIDGE. STAGE GIRDERS ON NEW PIER AND ABUTMENT CAPS ADJACENT TO EXISTING TRACK.
4. COMPLETE SPAN ASSEMBLY AT BRIDGE SITE (MIDDLE DIAPHRAGMS, DECK PLATES AND WALKWAY BRACKETS). PRE–PLACE BALLAST AND TRACK PANELS ON SPANS PRIOR TO SPAN CHANGEOUT.
5. SPAN CHANGEOUT FOR ALL SPANS (MAJOR OUTAGE #3):
   a. TAKE TRACK OUT OF SERVICE.
   b. REMOVE EXISTING OPEN DECK STEEL SPANS AND TEMPORARY APPROACH SPANS. TRANSPORT ALL SUPERSTRUCTURES TO ARRC BIRCHWOOD YARD.
   c. DEMO EXISTING CONCRETE ABUTMENTS TO A MINIMUM OF 1 FOOT BELOW LOW CHORD OF NEW SPANS AND INSTALL NEW SPAN BEARING ASSEMBLIES AND PRECAST BACKWALL OPENING CLOSURE PANELS.
   d. SHIFT SPANS FROM STAGED LOCATION TO FINAL LOCATION AND SECURE TO BEARINGS.
   e. GRADE BALLAST EVENLY ACROSS BRIDGE AND COMPLETE TRACK RECONSTRUCTION ACROSS BRIDGE.
   f. SURFACE, LINE, AND DRESS TRACK AND RESTORE TRACK SERVICE.
6. INSTALL SHEAR BLOCKS, WALKWAY PLANKS AND HANDRAIL DURING AVAILABLE WORK WINDOWS.
7. COMPLETE DEMO OF EXISTING BRIDGE SUBSTRUCTURE (TOWER PIERS, PIER FOUNDATIONS, AND ABUTMENTS). REMOVE AND DISPOSE OF EXISTING BRIDGE SUBSTRUCTURE COMPONENTS.
8. GRADE ABUTMENT SLOPES TO FINAL ELEVATION AND INSTALL STABILIZATION MEASURES INCLUDING RIPRAP, GEOTEXTILE, AND SEEDING.

PHASE 4 – TRACK REALIGNMENT, SITE RESTORATION, AND DEMOBILIZATION:

TRACK REALIGNMENT MAY BE COMPLETED AT ANY POINT IN THE CONSTRUCTION SEQUENCE AND IS NOT DEPENDENT ON BRIDGE CONSTRUCTION PHASING EXCEPT THAT THE FINAL SURFACING AND PROFILING SHALL BE PERFORMED ONCE CONSTRUCTION OF NEW BRIDGE AND TRACK REALIGNMENT IS COMPLETE.

1. EXCAVATE CUT SLOPES TO NEW LINES AND GRADES, CONSTRUCT DOWN FLUMES, AND PLACE JUTE MAT STABILIZATION. WASTE MATERIAL IN APPROVED ON–SITE DISPOSAL AREA.
2. EXTEND EXISTING CMP CULVERTS.
3. CONSTRUCT NEW TRACK EMBANKMENT SUBGRADE, SUBBALAST, AND BALLAST.
4. CONSTRUCT NEW TRACK WITHIN THE LIMITS SHOWN ON THE PLANS.
5. COMPLETE TRACK LINE OVER TO NEW TRACK (MAJOR OUTAGE #4):
   a. TAKE TRACK OUT OF SERVICE.
   b. COMPLETE TRACK SHIFTS AT EACH END OF ALIGNMENT AS NOTED ON THE PLANS.
   c. COMPLETE WELDING OF RAIL SECTIONS TO EXISTING TRACK AND PLUG TEMPORARY RAIL JOINTS.
   d. SURFACE, LINE, AND DRESS TRACK AND RESTORE TRACK SERVICE.
6. REMOVE EXISTING TRACK AND SALVAGE MATERIAL AS ABLE.
7. DURING AVAILABLE TRACK WINDOWS, COMPLETE FINAL SURFACING AFTER CONSTRUCTION OF BOTH TRACK REALIGNMENT AND BRIDGE. IF CONSTRUCTION IS COMPLETED WHILE GROUND IS FROZEN, FINAL SURFACING WILL BE COMPLETED AFTER GROUND IS THAWED AND AN AGREED UPON TONNAGE OF RAIL TRAFFIC HAS PASSED THROUGH THE CORRIDOR.
8. REMOVE REMAINING IN–WATER TEMPORARY WORKS INCLUDING ACCESS FILLS AND TRESTLE. REMOVAL OF TEMPORARY FILL BELOW OHWM OF EAGLE RIVER TO OCCUR DURING ALLOWABLE IN–WATER WORK WINDOWS PER APPROVED PERMITS.
9. CLEAN UP AND STABILIZE SITE AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ENVIRONMENTAL PERMITS.
10. PRIMARY DEMOBILIZATION AND SUBSTANTIAL COMPLETION.

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

582 E. 36TH AVE., SUITE 500
ANCHORAGE, ALASKA 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

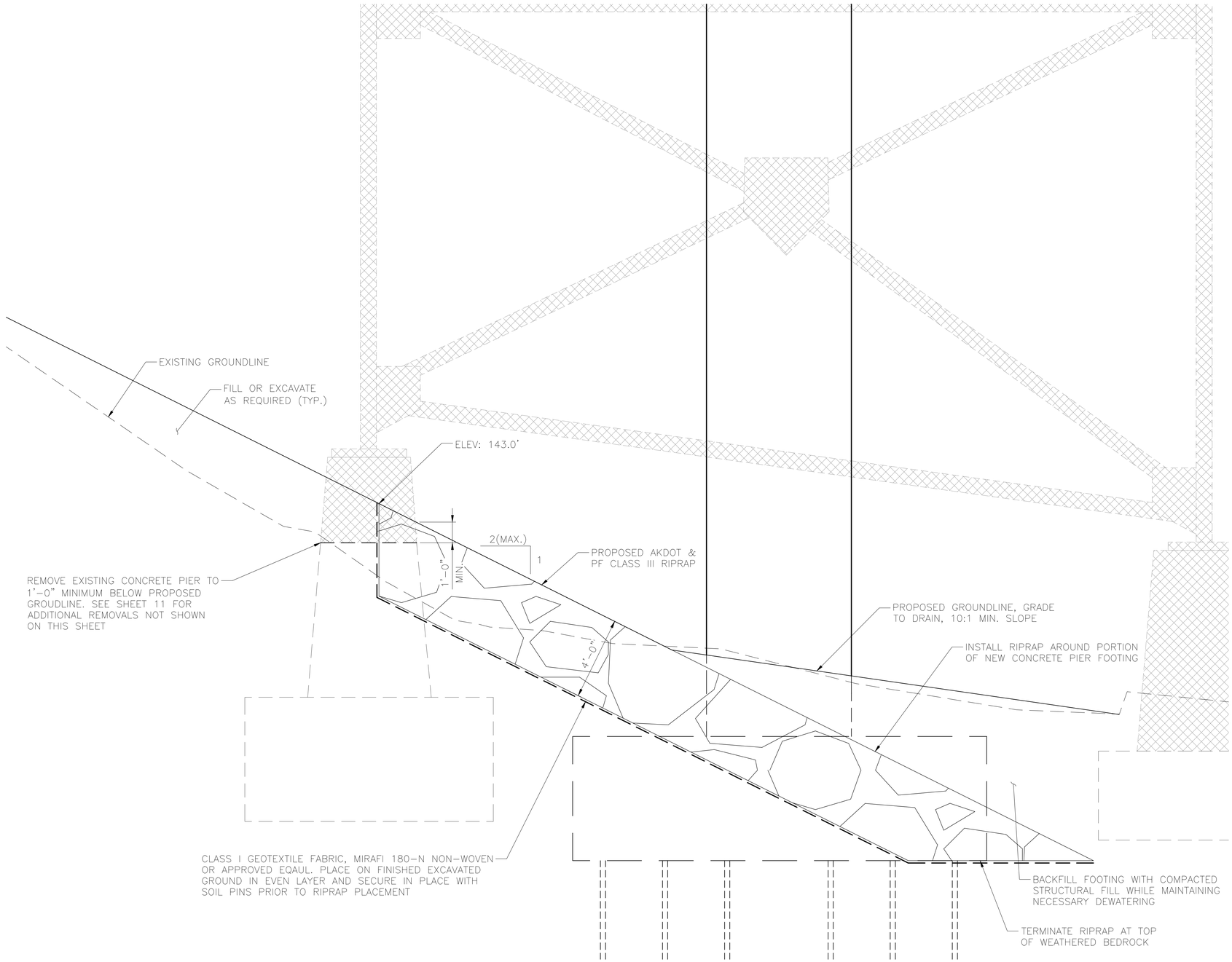
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: CONSTRUCTION DEMOLITION AND PHASING PLAN (2 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	11 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 4:52 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_11.DWG



RIPRAP INSTALLATION DETAILS

SCALE: 3/8" = 1'-0"
ABUTMENT 1 SHOWN,
ABUTMENT 4 SIMILAR

LEGEND

REMOVALS

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_12.DWG

PUBLISHED	SCALE	TIME	DATE
CTB	AS NOTED	4:53 PM	2/19/2025
ARRC_CTB_2023.CTB			

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA
49 TH
ANTHONY G. HAFNER
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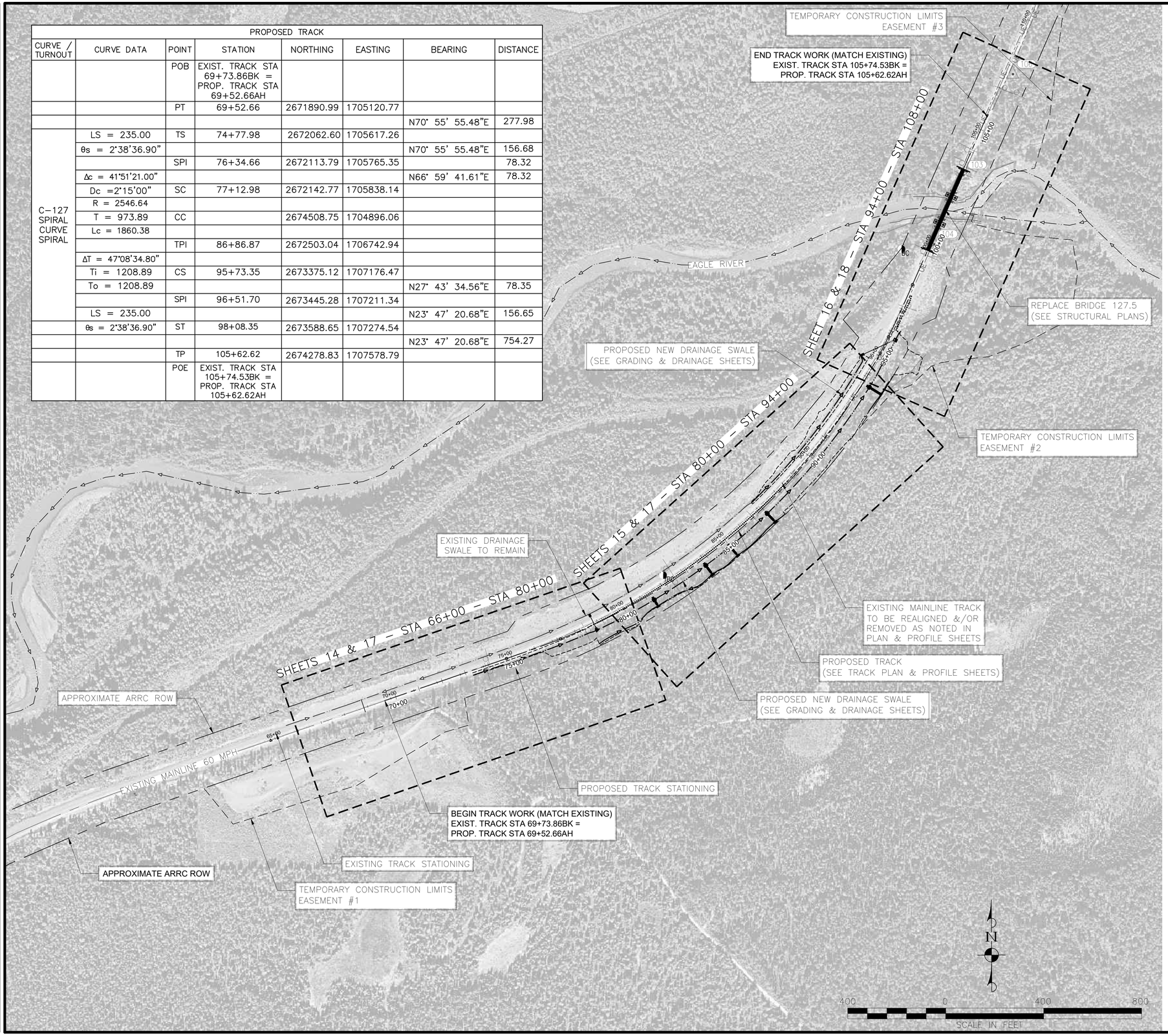
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: RIPRAP LAYOUT DETAILS

AFE NO.	10944
YEAR	2025
SHEET	12 OF 68

PROPOSED TRACK							
CURVE / TURNOUT	CURVE DATA	POINT	STATION	NORTHING	EASTING	BEARING	DISTANCE
		POB	EXIST. TRACK STA 69+73.86BK = PROP. TRACK STA 69+52.66AH				
		PT	69+52.66	2671890.99	1705120.77		
						N70° 55' 55.48"E	277.98
C-127 SPIRAL CURVE SPIRAL	LS = 235.00	TS	74+77.98	2672062.60	1705617.26		
	θs = 2°38'36.90"					N70° 55' 55.48"E	156.68
		SPI	76+34.66	2672113.79	1705765.35		78.32
	Δc = 41°51'21.00"					N66° 59' 41.61"E	78.32
	Dc =2°15'00"	SC	77+12.98	2672142.77	1705838.14		
	R = 2546.64						
	T = 973.89	CC		2674508.75	1704896.06		
	Lc = 1860.38						
		TPI	86+86.87	2672503.04	1706742.94		
	ΔT = 47°08'34.80"						
	Ti = 1208.89	CS	95+73.35	2673375.12	1707176.47		
	To = 1208.89					N27° 43' 34.56"E	78.35
		SPI	96+51.70	2673445.28	1707211.34		
	LS = 235.00					N23° 47' 20.68"E	156.65
	θs = 2°38'36.90"	ST	98+08.35	2673588.65	1707274.54		
						N23° 47' 20.68"E	754.27
		TP	105+62.62	2674278.83	1707578.79		
		POE	EXIST. TRACK STA 105+74.53BK = PROP. TRACK STA 105+62.62AH				



CONSTRUCTION NOTES:

1) !!!CALL BEFORE YOUR DIG!!!
CONTRACTOR SHALL CALL A MINIMUM OF 3 DAYS IN ADVANCE OF CONSTRUCTION.
ALASKA DIGLINE....
907-278-3121
OR
800-478-3121
CALL OR GO TO
WWW.AKONECALL.COM/STATEWIDE.HTM FOR MEMBER LIST OF WHO WILL BE NOTIFIED

DESIGN NOTES:

1) !!!ATTENTION!!!
INFORMATION ON THESE PLANS CONCERNING TYPE AND LOCATION OF UNDERGROUND OR OVERHEAD UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL VERITY THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES BEFORE BEGINNING CONSTRUCTION.

DESIGNED BY:	RAG
CHECKED BY:	KRK
DRAFTED BY:	RAG

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ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: TRACK ALIGNMENT OVERVIEW

AFE NO.	10944
YEAR	2025
SHEET	13 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 4:53 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_13.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB

SCALE
AS NOTED

DATE TIME
2/19/2025 4:53 PM

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_14,15 & 16.DWG

DESIGNED BY:	RAG
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APPROXIMATE ARRC ROW

E1 (EXISTING – 18" DIA CSP CULVERT @ MP 126.73
(SEE SHEET 17 FOR FURTHER DETAIL)

200'

EXISTING MAINLINE 60 MPH

APPROXIMATE ARRC ROW

TEMPORARY CONSTRUCTION LIMITS
EASEMENT #1

70+00

POB, MATCH EXISTING
BEGIN TRACK REPROFILE
141# RAIL, CWR, CONCRETE TIE
EXIST. TRACK STA 69+73.86BK =
PROP. TRACK STA 69+52.66AH

REPROFILE TRACK (151 TF)
EX. 141# RAIL, CWR, CONCRETE TIE TRACK

END TRACK REPROFILE
BEGIN TRACK SHIFT
141# RAIL, CWR, CONCRETE TIE
EXIST. TRACK STA 73+71.61BK =
PROP. TRACK STA 73+50.41AH

75+00

TS
EXIST. TRACK STA 74+99.17BK =
PROP. TRACK STA 74+77.98AH

SHIFT TRACK (579 TF)
EX. 141# RAIL, CWR, CONCRETE TIE TRACK

PERMANENT SOIL WASTE AREA

EXIST. SWALE

PROP. SWALE

GRADING LIMITS

ROW WIDTH VARIES

PROP. RIP RAP
(SEE GRADING & DRAINAGE SHEETS
FOR MORE DETAILS)

80+00

EXIST. TRACK

PROP. TRACK

SC
EXIST. TRACK STA 77+33.95BK =
PROP. TRACK STA 77+12.98AH

C-127
Delta 41°51'20.88"
R = 2546.64'
Ea = 3.75"
Dc = 2°15'00"
LC = 1860.38'
(Actual)
LC = 1819.29
(Chord)
LS = 235.00'
V = 60mph

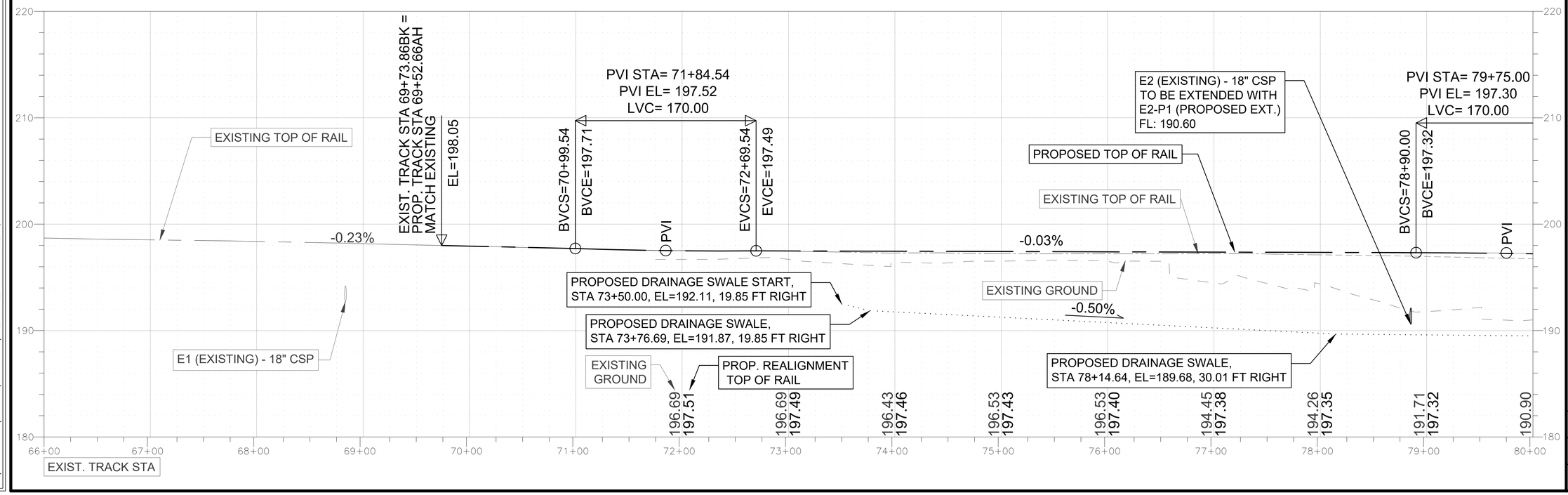
END TRACK SHIFT
BEGIN NEW TRACK
141# RAIL, CWR, CONCRETE TIE
EXIST. TRACK STA 79+49.38BK =
PROP. TRACK STA 79+29.07AH

REMOVE & REINSTALL SIGN
(NEW LOCATION WILL BE THE SAME AS OLD LOCATION)
EXIST. TRACK STA 78+49.95, 20.31 FT RIGHT
PROP. TRACK STA 78+29.57, 12.41 FT RIGHT

E2 (EXISTING) 18" DIA CSP CULVERT @ MP 126.93
(TO BE EXTENDED AS SHOWN IN SHEET 17)

N

100 0 100 200
SCALE IN FEET



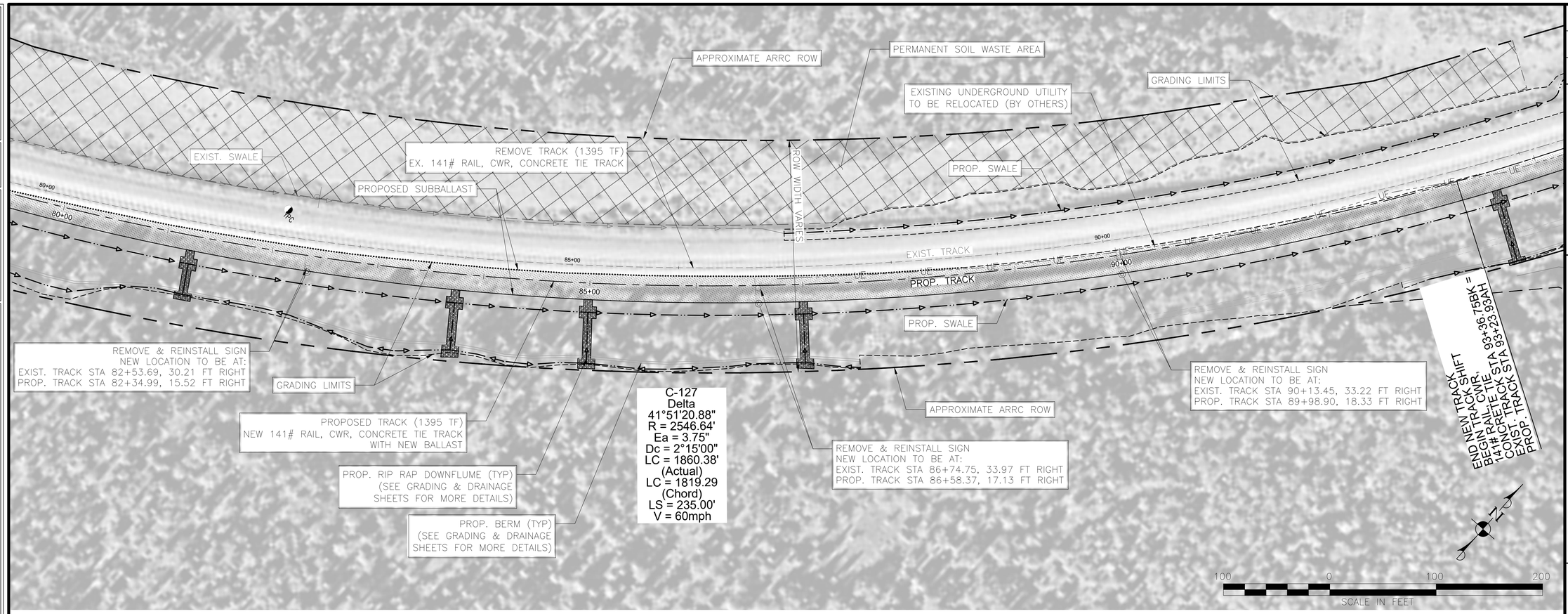
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

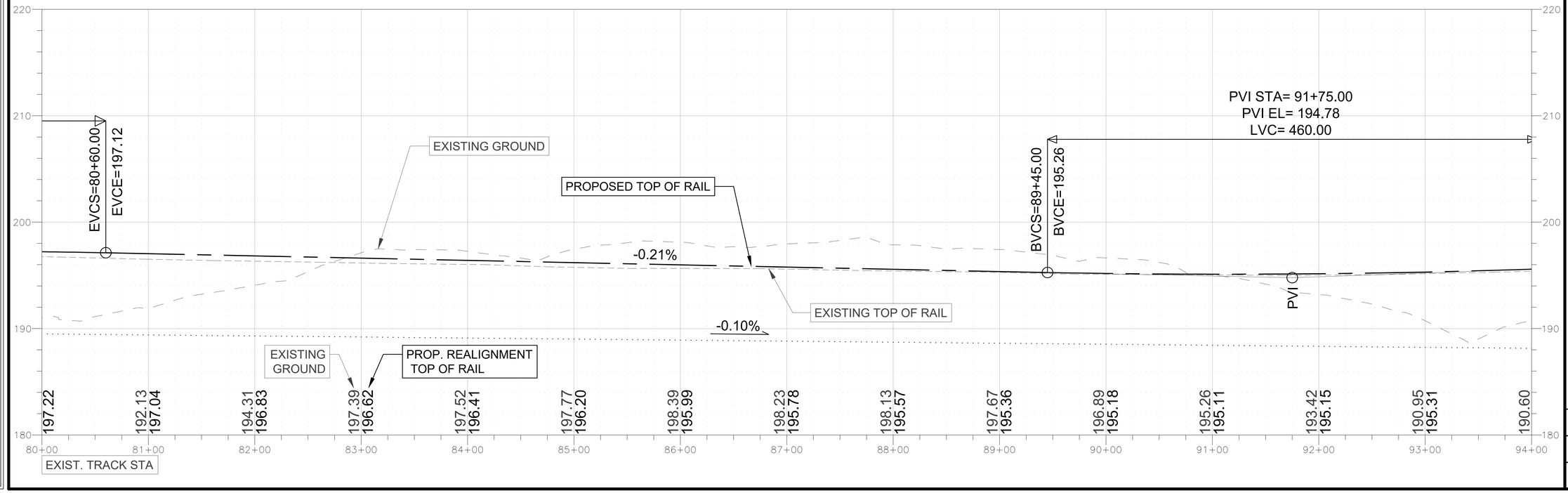
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: TRACK PLAN AND PROFILE
STA 66+00 TO STA 80+00

AFE NO.	10944
YEAR	2025
SHEET	14 OF 68





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DRAFTED BY: RAG

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: TRACK PLAN AND PROFILE
STA 80+00 TO STA 94+00

AFE NO. 10944
YEAR 2025
SHEET 15 OF 68

PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE TIME 2/19/2025 4:53 PM
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_14,15 & 16.DWG

PERMANENT SOIL WASTE AREA
EXISTING UNDERGROUND UTILITY TO BE RELOCATED (BY OTHERS)
EXIST. SWALE
GRADING LIMITS
APPROXIMATE ARRC ROW
E3 (EXISTING) 18" DIA CSP CULVERT (TO BE EXTENDED AS SHOWN ON SHEET 18)
PROP. SWALE
REPROFILE TRACK (77 TF) EX. 141# RAIL, CWR, CONCRETE TIE
SHIFT TRACK (551 TF) EX. 141# RAIL, CWR, CONCRETE TIE
EXIST. TRACK
PROP. TRACK
95+00
END BRIDGE APPROACH
BEGIN BALLAST DECK BRIDGE
141# RAIL, CWR, WOOD TIE
EXIST. TRACK STA 99+74.40BK =
PROP. TRACK STA 99+62.48AH
FAGLE RIVER
BALLAST DECK TRACK (360 TF) 141# RAIL, CWR, AND 8.5 FT WOOD TIES
BRIDGE 127.5 SEE STRUCTURAL PLANS
100+00
END BALLAST DECK BRIDGE
BEGIN BRIDGE APPROACH
141# RAIL, CWR, WOOD TIE
EXIST. TRACK STA 103+34.07BK =
PROP. TRACK STA 103+22.16AH
39' TRANSITION RAIL PANEL
141# RAIL TO 115# RAIL, CWR, WOOD TIE
200'
REPROFILE TRACK (190 TF)
EX. 115# RAIL, CWR, WOOD TIE
105+00
EXISTING MAINLINE 60 MPH
106
BRIDGE APPROACH TRACK (12 TF EACH) 141# RAIL, CWR AND 7–10 FT WOOD TRANSITION TIES
SEE BRIDGE PLANS FOR ABUTMENT GRADING DETAILS
GRADING LIMITS
PROP. RIP RAP (TYP) (SEE GRADING & DRAINAGE SHEETS FOR MORE DETAILS)
APPROXIMATE ARRC ROW
C-127
Delta
41°51'20.88"
R = 2546.64'
Ea = 3.75"
Dc = 2°15'00"
LC = 1860.38'
(Actual)
LC = 1819.29
(Chord)
LS = 235.00'
V = 60mph
CS
EXIST. TRACK STA 95+85.44BK =
PROP. TRACK STA 95+73.35AH
ST
EXIST. TRACK STA 98+20.27BK =
PROP. TRACK STA 98+08.35AH
END TRACK SHIFT
BEGIN TRACK REPROFILE
141# RAIL, CWR, CONCRETE TIE
EXIST. TRACK STA 98+85.96BK =
PROP. TRACK STA 98+74.04AH
END TRACK REPROFILE
BEGIN BRIDGE APPROACH
141# RAIL, CWR, WOOD TIE
EXIST. TRACK STA 99+62.40BK =
PROP. TRACK STA 99+50.48AH
END BRIDGE APPROACH
BEGIN 39' TRANSITION RAIL PANEL
141# / 115# RAIL, CWR, WOOD TIE
EXIST. TRACK STA 103+46.07BK =
PROP. TRACK STA 103+34.16AH
END 39' TRANSITION RAIL PANEL
BEGIN TRACK REPROFILE
115# RAIL, CWR, WOOD TIE
EXIST. TRACK STA 103+85.07BK =
PROP. TRACK STA 103+73.16AH
POE. MATCH EXISTING
END TRACK REPROFILE
115# RAIL, CWR, WOOD TIE
EXIST. TRACK STA 105+74.53BK =
PROP. TRACK STA 105+62.62AH
TEMPORARY CONSTRUCTION LIMITS EASEMENT #3
TEMPORARY CONSTRUCTION LIMITS EASEMENT #2
TEMPORARY CONSTRUCTION LIMITS EASEMENT #2
N
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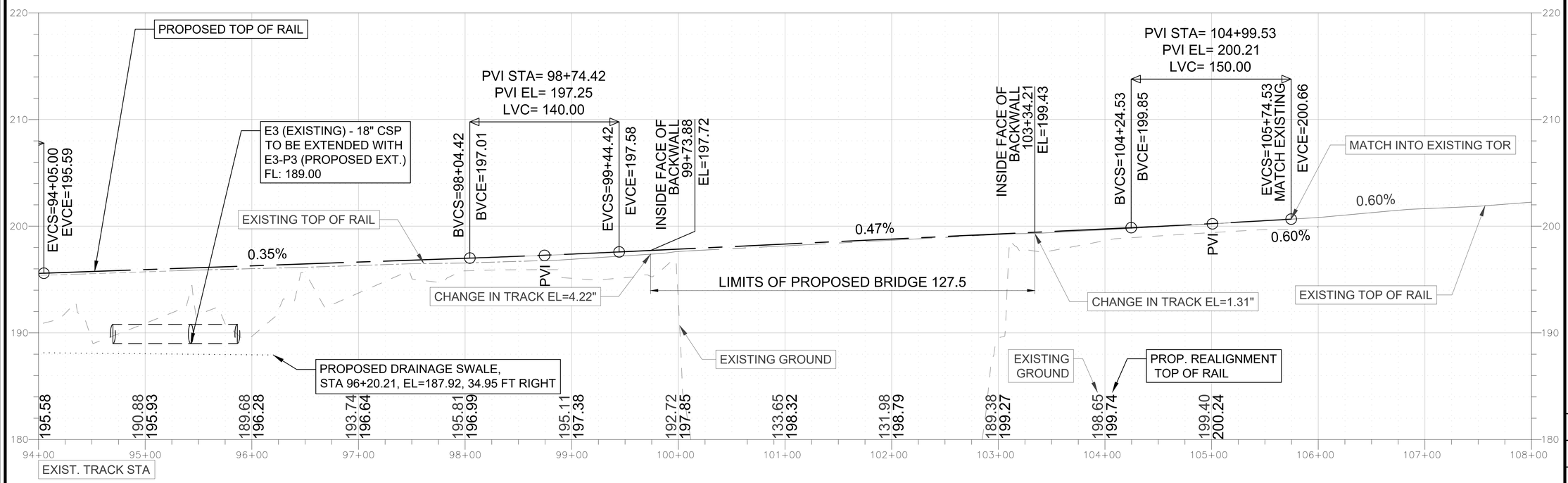
SCALE IN FEET



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49TH
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CAPITAL PROJECTS
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ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: TRACK PLAN AND PROFILE STA 94+00 TO STA 108+00

AFE NO.	10944
YEAR	2025
SHEET	16 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 4:53 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_14,15 & 16.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB

SCALE
AS NOTED

DATE TIME
2/19/2025 4:54 PM

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_17 & 18.DWG

APPROXIMATE ARRC ROW

200'

EXISTING MAINLINE 60 MPH

EXISTING SWALE

70+00

FG:194.90
FG:194.86
FL:192.11

75+00

-0.50%

FL:191.94

-2.00%

PERMANENT SOIL WASTE AREA
137,500 SF

ROW WIDTH VARIES

EXISTING 18" CSP (E2). 50.68 LF @ 0.00%

FL:190.60
N: 2672238.9090
E: 1705957.5450

FL:190.60
N: 2672193.5790
E: 1705980.2010

GRADE TO DRAIN
(REGRADE AS REQUIRED TO
MEET POSITIVE DRAINAGE)

PROP. RIP RAP – 80 SF (EA)

PROPOSED 18" CSP EXT. (E2–P1), 12.83 LF @ 0.00%

FL:190.60
N: 2672182.1017
E: 1705985.9374

EXIST. TRACK

80+00

FG:194.85

PROP. TRACK

FG:195.19

FG:194.59
FG:194.38
FL:189.63

FG:194.73
FG:194.59

FL:190.13

FL:189.48

-2.00%
-0.10%
-2.0:1

FG:206.67

FG:207.93

PROP. BERM
PROP. SWALE

FG:208.09
FG:204.20
FG:208.66

FG:195.01
FG:195.28
FL:189.61

FG:210.06
FL:204.98
FG:207.88

PROPOSED DRAINAGE SWALE START
(TIE INTO EXISTING SWALE & GRADE TO DRAIN)

GRADING LIMITS

2:1 SIDE SLOPE

SWALE GRADE BREAK
EXIST. TRACK STA 78+14.64
TRANSITION FROM 0.50% GRADE TO 0.10% GRADE

TRACKBED TRANSITION
FROM EXIST. TRACK STA 78+49.03 TO STA 78+67.96
TRANSITION FROM SINGLE SLOPED AWAY FROM EXIST.
TRACK TO SINGLE SLOPED TOWARD EXIST. TRACK

TEMPORARY CONSTRUCTION LIMITS
EASEMENT #1

N

100 0 100 200
SCALE IN FEET

CONSTRUCTION NOTES:

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PIPE SUMMARY

PIPE	TRACK XING MP** AT CL	TRACK XING STA AT CL	SIZE (IN)	LENGTH (FT)	EXIST. TRACK STA START	EXIST. TRACK STA START OFFSET	START INVERT ELEV. (FT)	EXIST. TRACK STA END	EXIST. TRACK STA END OFFSET	END INVERT ELEV. (FT)	% GRADE	REMARKS
E1 (EXISTING)	126.74	68+84.15	18	50.0	68+84.47	33.87' LT	192.70	68+84.00	16.15' RT	192.70	0.00%	CORRUGATED STEEL PIPE
E2 (EXISTING)	126.93	78+83.52	18	50.7	78+83.39	32.25' LT	190.60	78+83.60	18.43' RT	190.60	0.00%	CORRUGATED STEEL PIPE
E2–P1 (PROPOSED)			18	12.9	78+83.60	18.43' RT	190.60	78+83.65	31.26' RT	190.60	0.00%	CORRUGATED STEEL PIPE
E3 (EXISTING)*	TBD	TBD	18	126.6	94+69.77	53.14' LT	189.00	95+72.67	21.43' RT	189.00	0.00%	CORRUGATED STEEL PIPE
E3–P3 (PROPOSED)*			18	17.5	95+72.67	21.43' RT	189.00	95+86.46	32.04' RT	189.00	0.00%	CORRUGATED STEEL PIPE

SEE RAIL CROSS SECTION CULVERT CROSSINGS SHEET FOR PIPE SECTIONS
*CULVERT NEEDS TO BE FIELD VERIFIED PRIOR TO ORDERING OF MATERIAL & ASSIGNING MP
**MP CALL OUT PROVIDED THROUGH ARRC'S DOCUMENTATION

PROP. RIP RAP DOWNFLUME – 525 SF
24" DEPTH OF MATERIAL W/ LINER

APPROXIMATE ARRC ROW

PROP. RIP RAP DOWNFLUME – 670 SF
24" DEPTH OF MATERIAL W/ LINER

ROW WIDTH VARIES

EXISTING SWALE

FG:193.43
FG:193.93
FL:188.86

FL:189.35
FL:189.48
FL:200.00
FL:189.11
FL:188.99
FL:190.15
FL:188.80

85+00

FG:208.99
FL:206.94

EXIST. TRACK

PROP. TRACK

FG:211.94

90+00

FG:192.00
FG:193.21
FL:188.51

FG:195.41
FL:188.80
FG:192.51

FL:188.17

FG:194.00
FL:187.00
FG:192.82
FG:193.30
FG:193.68
FL:188.11

FG:212.43
FL:214.71
FL:208.18
FL:217.40

FL:205.01
FL:204.90
FL:208.00
FL:206.50
FL:208.00
FL:205.75
FL:207.55

FL:188.49
FG:208.50
FG:213.26

PERMANENT SOIL WASTE AREA
137,500 F

APPROXIMATE ARRC ROW

1.5:1 SIDE SLOPE

EXISTING UNDERGROUND UTILITY
TO BE RELOCATED (BY OTHERS)

PROP. RIP RAP DOWNFLUME – 670 SF
24" DEPTH OF MATERIAL W/ LINER

BENCHING TO BE INSTALLED ALONG 1.5:1 SIDE SLOPE
WHEN CUT EXCAVATION EXCEEDS 20 FT VERTICALLY

TRANSITION FROM 2.0:1 SIDE SLOPE
TO 1.5:1 SIDE SLOPE

GRADING LIMITS

2:1 SIDE SLOPE

PROP. SWALE GRADE BREAK

PROP. RIP RAP DOWNFLUME – 685 SF
24" DEPTH OF MATERIAL W/ LINER

PROP. SWALE GRADE BREAK

PROP. RIP RAP DOWNFLUME – 685 SF
24" DEPTH OF MATERIAL W/ LINER

PROP. SWALE GRADE BREAK

PROP. BERM

PROP. SWALE

N

100 0 100 200
SCALE IN FEET

DESIGNED BY:	RAG
CHECKED BY:	KRK
DRAFTED BY:	RAG

STATE OF ALASKA
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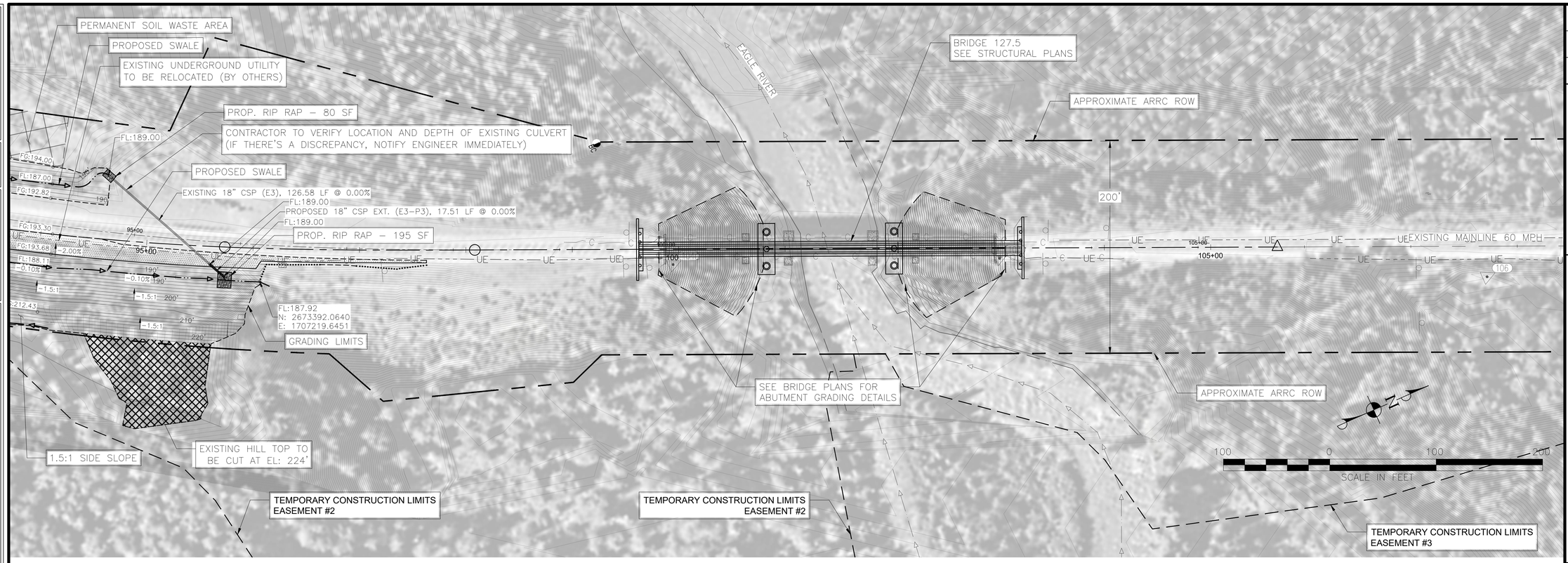
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: GRADING AND DRAINAGE
STA 66+00 TO STA 94+00

AFE NO.	10944
YEAR	2025
SHEET	17 OF 68



PIPE SUMMARY												
PIPE	TRACK XING MP** AT CL	TRACK XING STA AT CL	SIZE (IN)	LENGTH (FT)	EXIST. TRACK STA START	EXIST. TRACK STA START OFFSET	START INVERT ELEV. (FT)	EXIST. TRACK STA END	EXIST. TRACK STA END OFFSET	END INVERT ELEV. (FT)	% GRADE	REMARKS
E1 (EXISTING)	126.74	68+84.15	18	50.0	68+84.47	33.87' LT	192.70	68+84.00	16.15' RT	192.70	0.00%	CORRUGATED STEEL PIPE
E2 (EXISTING)	126.93	78+83.52	18	50.7	78+83.39	32.25' LT	190.60	78+83.60	18.43' RT	190.60	0.00%	CORRUGATED STEEL PIPE
E2–P1 (PROPOSED)			18	12.9	78+83.60	18.43' RT	190.60	78+83.65	31.26' RT	190.60	0.00%	CORRUGATED STEEL PIPE
E3 (EXISTING)*	TBD	TBD	18	126.6	94+69.77	53.14' LT	189.00	95+72.67	21.43' RT	189.00	0.00%	CORRUGATED STEEL PIPE
E3–P3 (PROPOSED)*			18	17.5	95+72.67	21.43' RT	189.00	95+86.46	32.04' RT	189.00	0.00%	CORRUGATED STEEL PIPE
SEE RAIL CROSS SECTION CULVERT CROSSINGS SHEET FOR PIPE SECTIONS												
*CULVERT NEEDS TO BE FIELD VERIFIED PRIOR TO ORDERING OF MATERIAL & ASSIGNING MP												
**MP CALL OUT PROVIDED THROUGH ARRC'S DOCUMENTATION												

CONSTRUCTION NOTES:

1) !!!CALL BEFORE YOUR DIG!!!
   CONTRACTOR SHALL CALL A MINIMUM OF 3 DAYS IN ADVANCE OF CONSTRUCTION.
   ALASKA DIGLINE.... 907–278–3121 OR 800–478–3121
   CALL OR GO TO WWW.AKONECALL.COM/STATEWIDE.HTM FOR MEMBER LIST OF WHO WILL BE NOTIFIED
2) CONTRACTOR TO KEEP LIMITS OF GRADING WITHIN RAILROAD ROW & TEMPORARY CONSTRUCTION LIMITS.

DESIGN NOTES:

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   INFORMATION ON THESE PLANS CONCERNING TYPE AND LOCATION OF UNDERGROUND OR OVERHEAD UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL VERITY THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES BEFORE BEGINNING CONSTRUCTION.

DESIGNED BY:	RAG
CHECKED BY:	KRK
DRAFTED BY:	RAG

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, ALASKA 99503
(907) 644–2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: GRADING AND DRAINAGE STA 94+00 TO STA 108+00

AFE NO. 10944

YEAR 2025

SHEET 18 OF 68

PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 2/19/2025 TIME 4:54 PM
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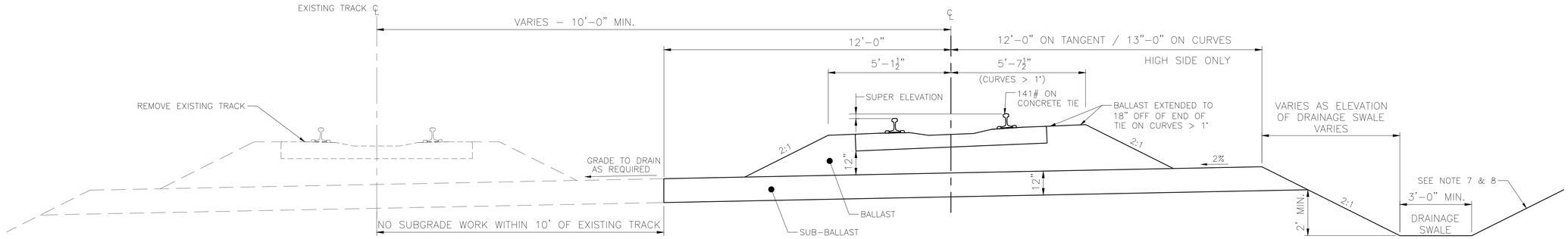
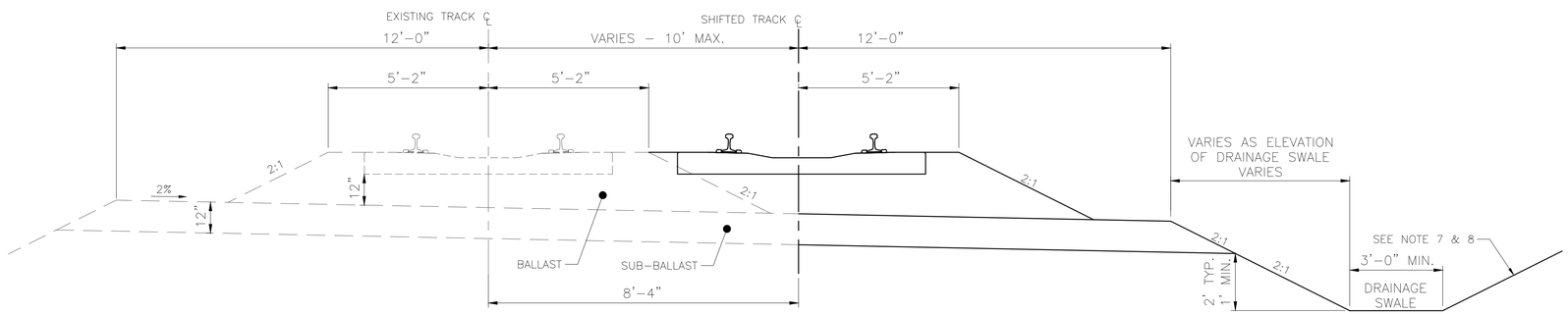
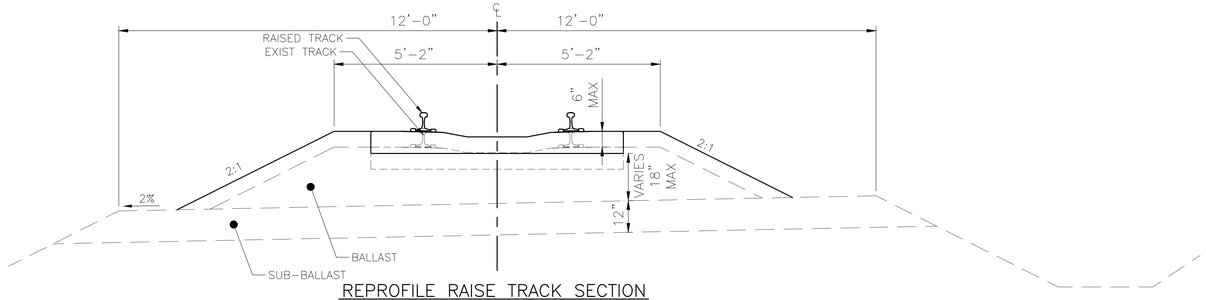


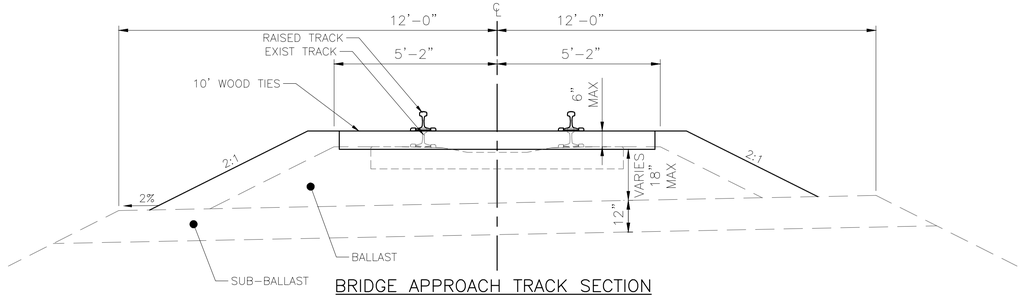
REMOVE EXISTING – NEW PROPOSED TRACK SECTION
3) STA 79+29 – 93+24 (141# RAIL, CWR, CONC. TIES)



SHIFT TRACK SECTION
2) STA 73+51 – 79+29 (141# RAIL, CWR, CONC. TIES)
4) STA 93+24 – 98+74 (141# RAIL, CWR, CONC. TIES)



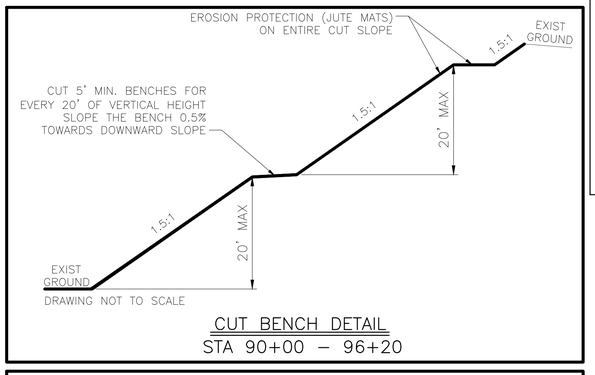
REPROFILE RAISE TRACK SECTION
1) STA 72+00 – 73+51 (141# RAIL, CWR, CONC. TIES)
5) STA 98+74 – 99+50 (141# RAIL, CWR, CONC. TIES)
10) STA 103+73 – 105+63 (115# RAIL, CWR, WOOD TIES)



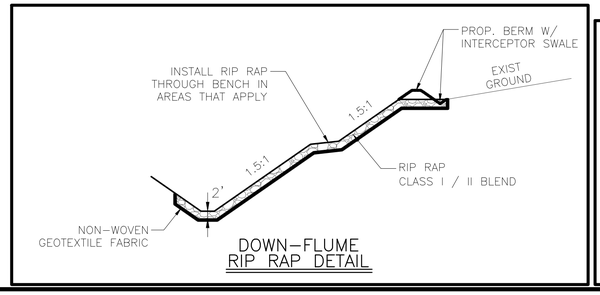
BRIDGE APPROACH TRACK SECTION
6) STA 99+50 – 99+62 (141# RAIL, CWR, 10' WOOD TIES)
8) STA 103+22 – 103+34 (141# RAIL, CWR, 10' WOOD TIES)

BRIDGE TRACK SECTION
7) STA 99+62 – 103+22 (141# RAIL, CWR, WOOD TIES)
(REFER TO STRUCTURAL SHEETS FOR ADDITIONAL DETAIL)

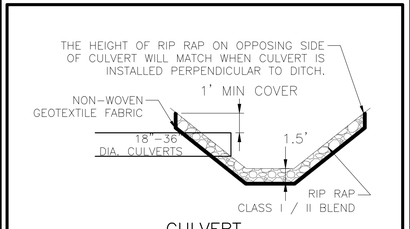
TRANSITION RAIL PANEL SECTION
9) STA 103+34 – 103+73
(141# TO 115# RAIL, CWR, WOOD TIES)



CUT BENCH DETAIL
STA 90+00 – 96+20



DOWN–FLUME
RIP RAP DETAIL



CULVERT
RIP RAP DETAIL

BALLAST REQUIRED FOR 100' TRACK		
CURVED TRACK	SUPER ELEVATION	CUBIC YARDS
	1"	80.1
	2"	84.8
	3"	89.6
	4"	94.9
	5"	100.0
TANGENT TRACK		84.3

SUB–BALLAST REQUIRED FOR 100' TRACK		
CURVED TRACK	DEGREE OF CURVE	CUBIC YARDS
	0° – 1°	96.3
	1° – 2°	98.2
	2° – 6°	100.0
	+ 6°	101.9
TANGENT TRACK		96.3

SUB–BALLAST WIDTH FOR DEGREE OF CURVATURE		
	DIMENSIONS	
2°01' – 6°00' INCLUSIVE	13'	12'

NOTES

1. BALLAST DEPTH SHALL BE MINIMUM 12" UNDER TIE, MEASURED AT LOW RAIL.
2. ALL QUANTITIES ESTIMATED, REPRESENT IN–PLACE, COMPACTED MATERIAL, BASED ON 2,640 EACH, 8'–3" CONCRETE TIES PER MILE AND MINIMUM BALLAST AND SUB–BALLAST DIMENSIONS.
3. SUB GRADE SHALL SLOPE TO PREVAILING DRAINAGE SIDE ON TANGENT, OR TO THE INSIDE OF CURVE.
4. SUBGRADE SLOPE TRANSITION RATE TO BE 1" IN 10'.
5. DEPTH OF DITCH VARIES TO PROVIDE POSITIVE DRAINAGE.
6. CWR RAIL TO BE UTILIZED THROUGHOUT THE MAINLINE TRACK, INCLUDING THROUGH BRIDGE (NO JOINTS SHALL BE INSTALLED).
7. STA 77+00 TO 90+00 USE 2:1 SLOPE
8. STA 90+00 TO 96+20 USE 1.5:1 SLOPE
9. CULVERT DETAILS ARE SHOWN IN PLAN SHEETS.
10. REFERENCE GEOTECH REPORT'S DESIGN RECOMMENDATIONS FOR BEDDING AND BEARING MATERIALS.

DESIGNED BY:	RAG
CHECKED BY:	KRK
DRAFTED BY:	RAG

STATE OF ALASKA
49 TH
ANTHONY G. HAFNER
No. CE 188080
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CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL TYPICAL SECTIONS

AFE NO.	10944
YEAR	2025
SHEET	19 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_19.DWG

DATE TIME 2/19/2025 4:54 PM
SCALE AS NOTED
PUBLISHED CTB ARRC_CTB_2023.CTB

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   OR
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DESIGN NOTES:

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3) SEE SITE GRADING AND DRAINAGE SHEETS FOR ADDITIONAL INFORMATION
4) PER GEOTECH, EXCESSIVE CUTS OR FILLS SHALL NOT EXCEED 1.5:1 SLOPE AND WHEN GREATER THAN 20FT, SHALL HAVE CUT BENCHES MAX 5FT WITH MULTI-YEAR JUTE MAT (COIR MAT90 – ONE CLARION OR COMPATIBLE). SEE CUT BENCH DETAIL ON SHEET 19 FOR FURTHER DETAIL.

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS OVERVIEW

AFE NO.	10944
YEAR	2025
SHEET	20 OF 68

DATE	TIME	SCALE	PUBLISHED CTB
2/19/2025	4:59 PM	AS NOTED	ARRC_CTB_2023.CTB

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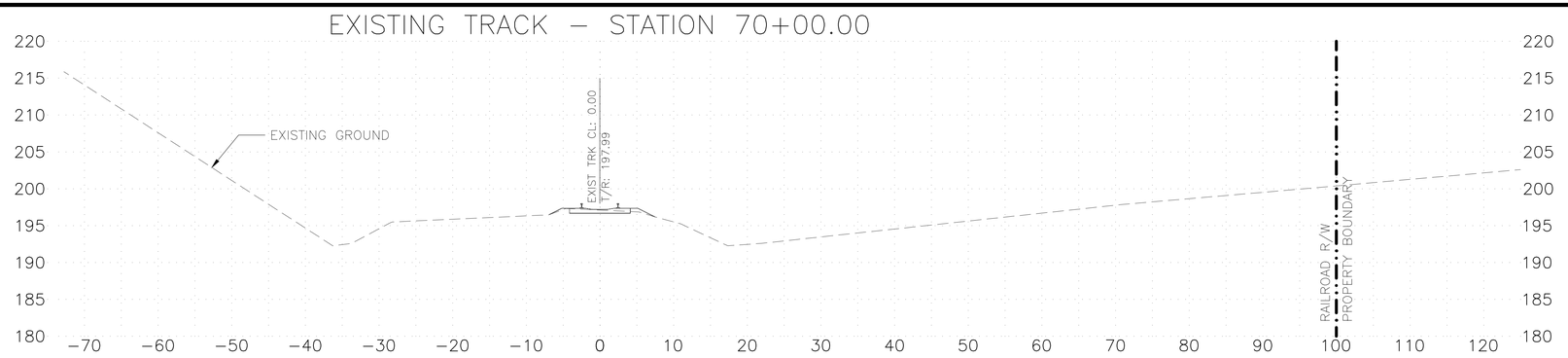

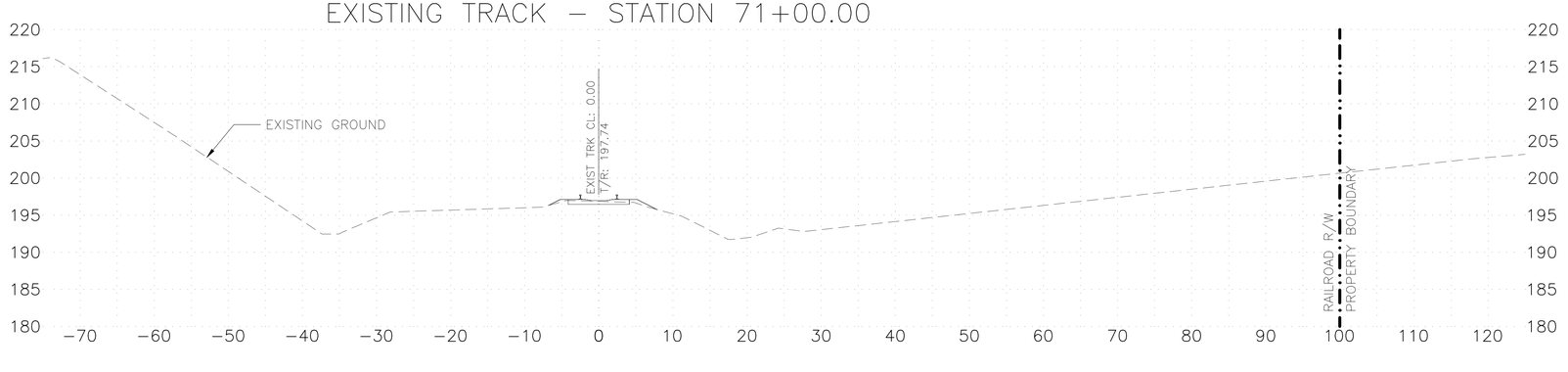

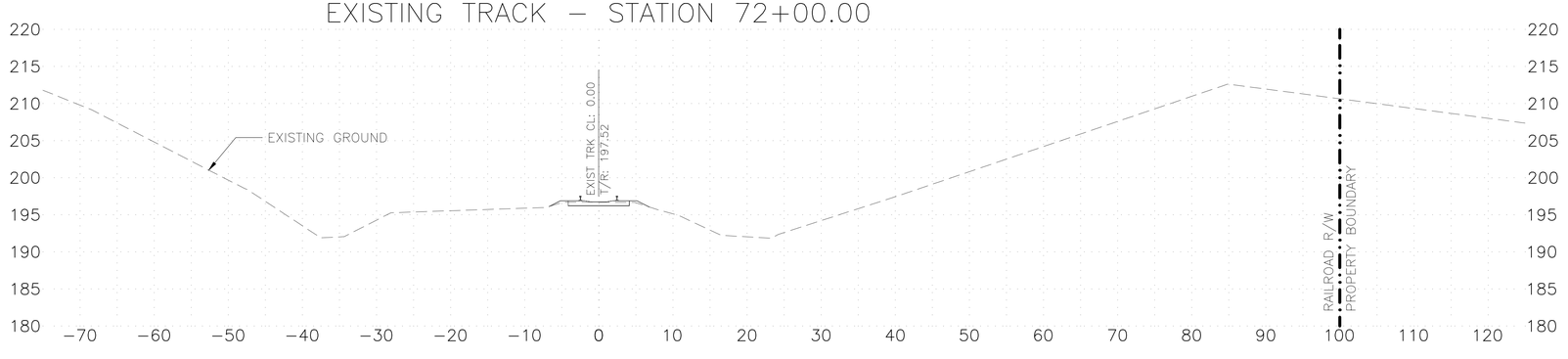

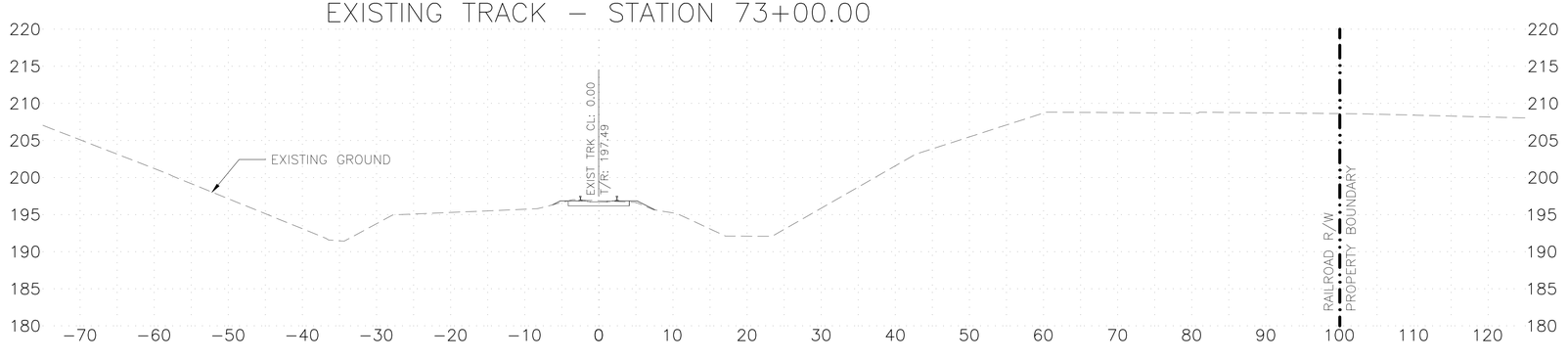

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STATE OF ALASKA 49TH
ANTHONY G. HAFNER
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CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 70+00 TO STA 73+00

AFE NO.	10944
YEAR	2025
SHEET	21 OF 68

PUBLISHED	CTB
	ARRC_CTB_2023.CTB
SCALE	AS NOTED
DATE	2/19/2025
TIME	5:00 PM

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PUBLISHED CTB
ARRC_CTB_2023.CTB

SCALE
AS NOTED

TIME
5:00 PM

DATE
2/19/2025

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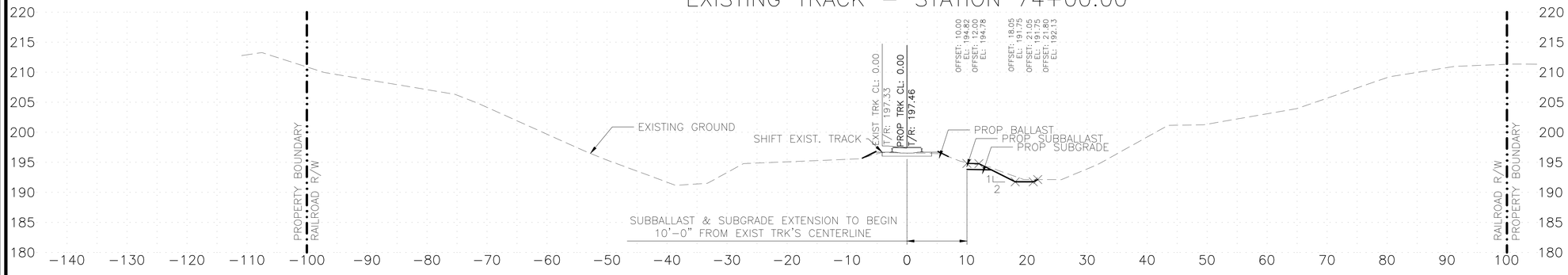

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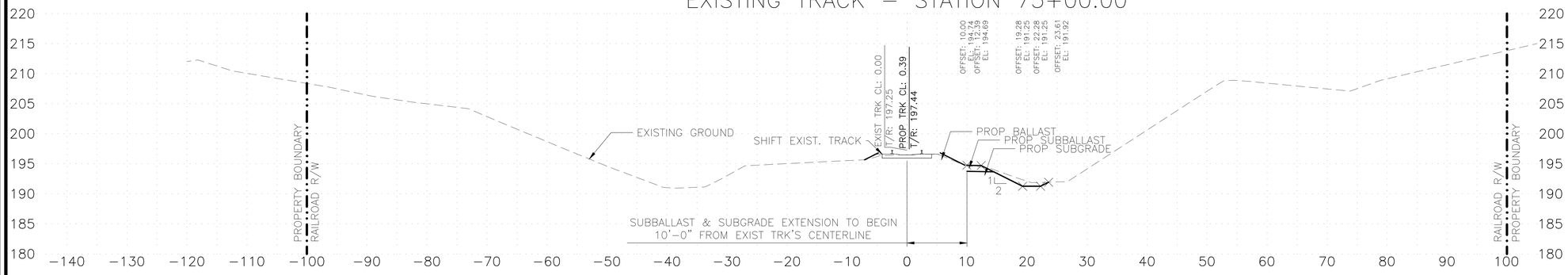

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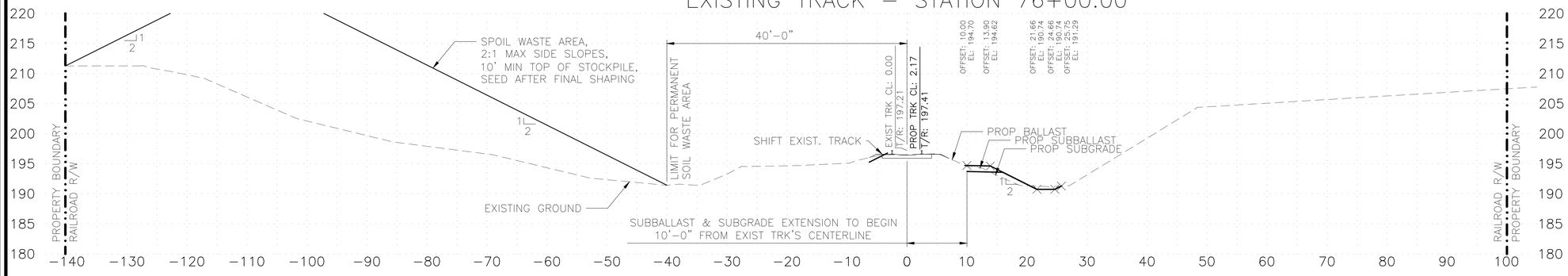

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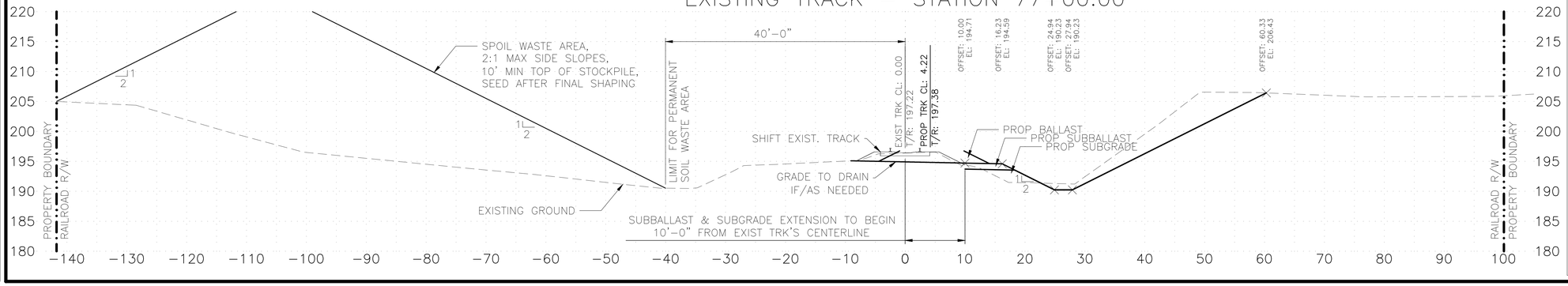

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DRAFTED BY:	RAG

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CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 74+00 TO STA 77+00

AFE NO.	10944
YEAR	2025
SHEET	22 OF 68

PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE
AS NOTED
TIME
5:00 PM
DATE
2/19/2025
DRAWING LOCATION
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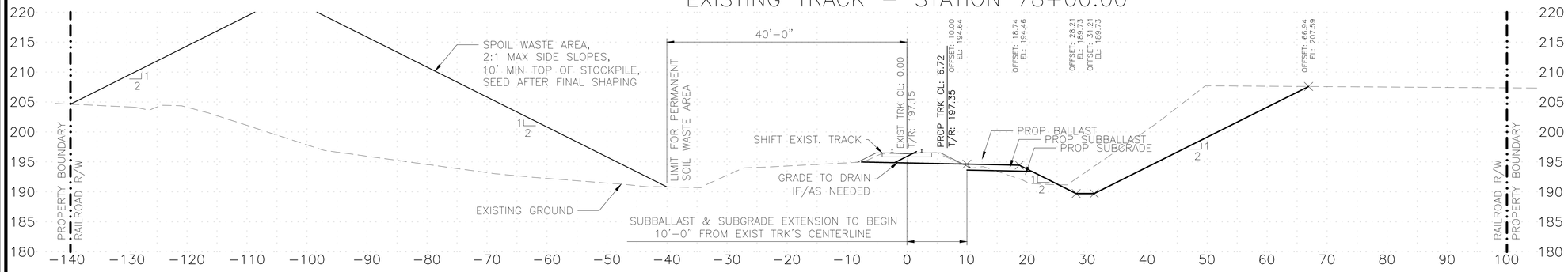
EXISTING TRACK – STATION 78+00.00



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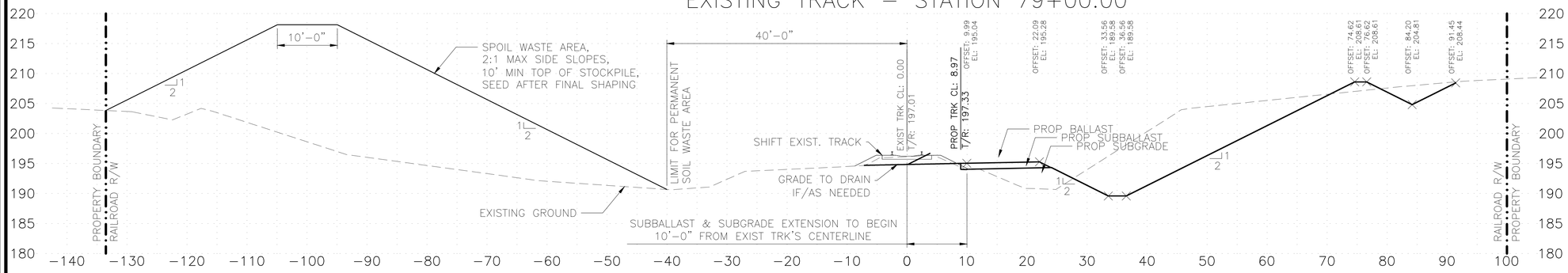

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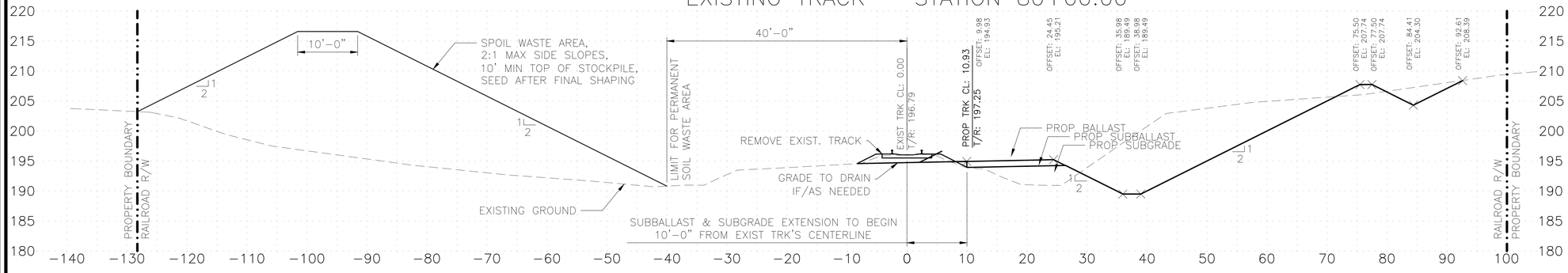

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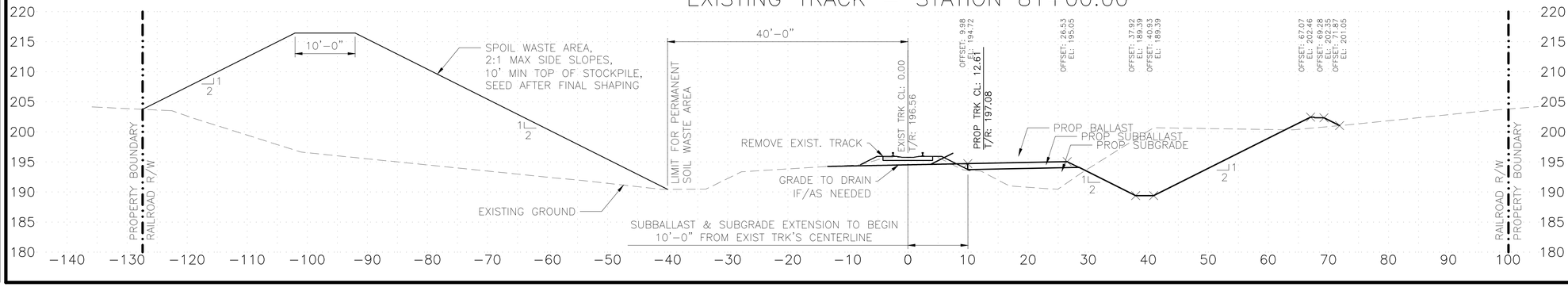

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HDR
582 E. 36TH AVE., SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

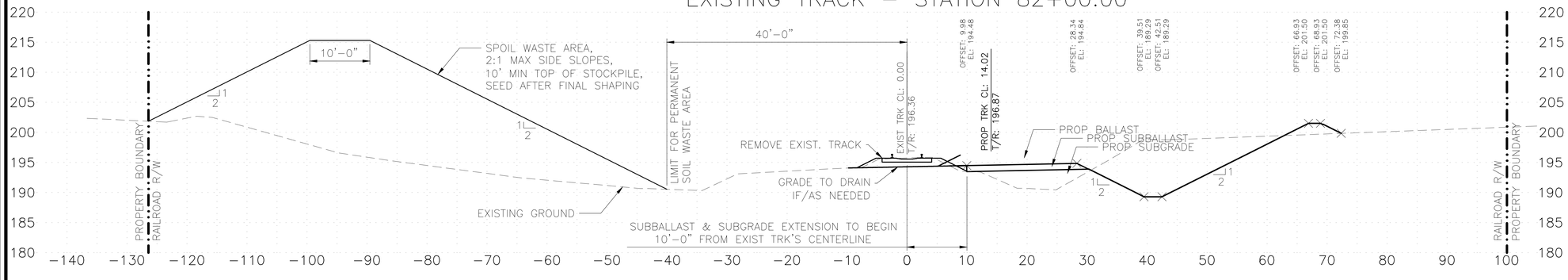
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 78+00 TO STA 81+00

AFE NO. 10944
YEAR 2025
SHEET 23 OF 68

PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE
AS NOTED
TIME
5:00 PM
DATE
2/19/2025

EXISTING TRACK – STATION 82+00.00



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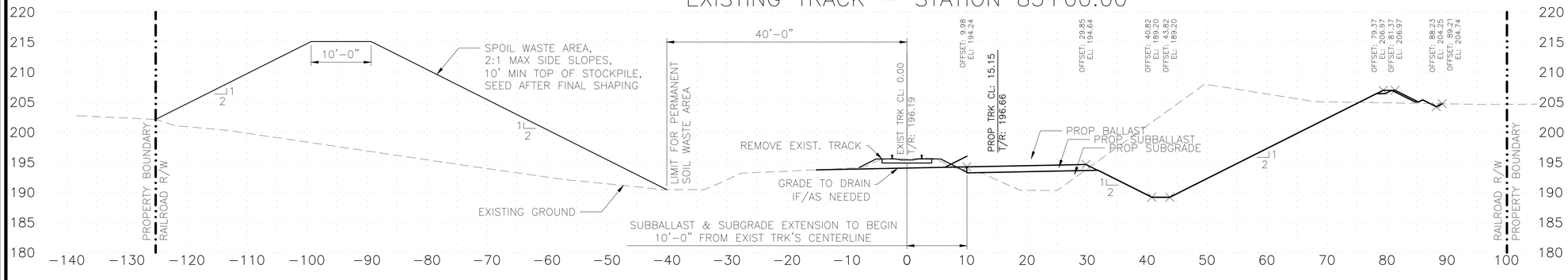

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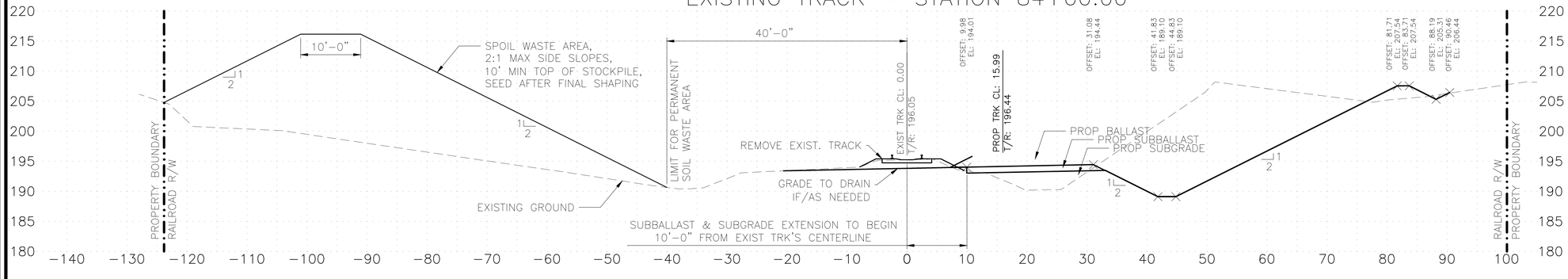

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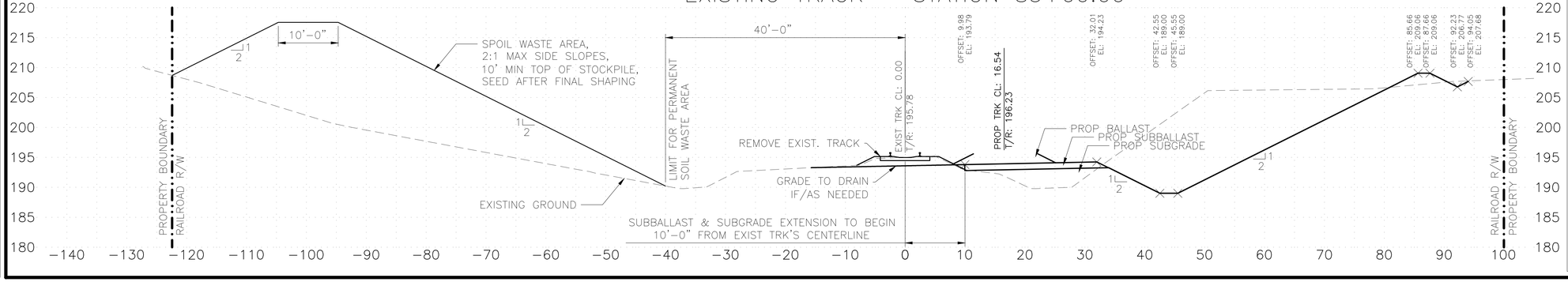

CONSTRUCTION NOTES:

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   CONTRACTOR SHALL CALL A MINIMUM OF 3 DAYS IN ADVANCE OF CONSTRUCTION.
   ALASKA DIGLINE....
   907–278–3121
   OR
   800–478–3121
   CALL OR GO TO WWW.AKONECALL.COM/STATEWIDE.HTM FOR MEMBER LIST OF WHO WILL BE NOTIFIED
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DESIGNED BY:	RAG
CHECKED BY:	KRK
DRAFTED BY:	RAG

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 18808
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

HDR
582 E. 36TH AVE., SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

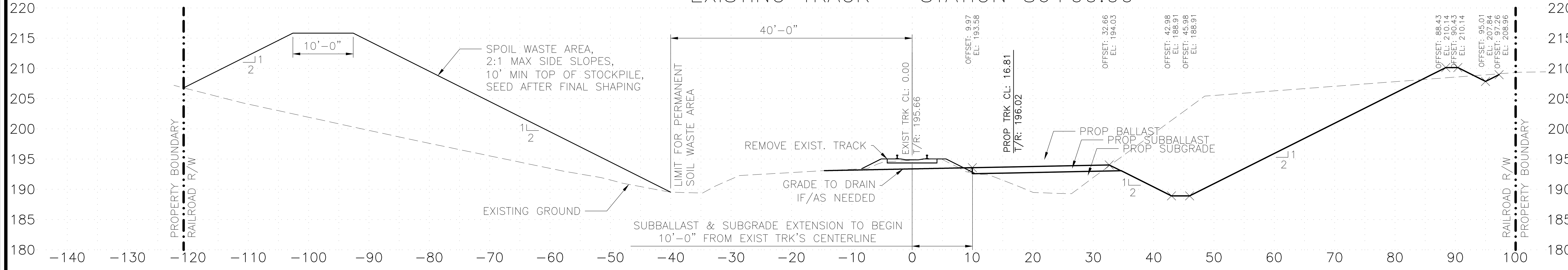
SHEET TITLE: RAIL CROSS SECTIONS
STA 82+00 TO STA 85+00

AFE NO.	10944
YEAR	2025
SHEET	24 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_20–33.DWG

DATE	2/19/2025
TIME	5:01 PM
SCALE	AS NOTED
PUBLISHED CTB	ARRC_CTB_2023.CTB
DRAWING LOCATION	C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_20-33.DWG

EXISTING TRACK – STATION 86+00.00



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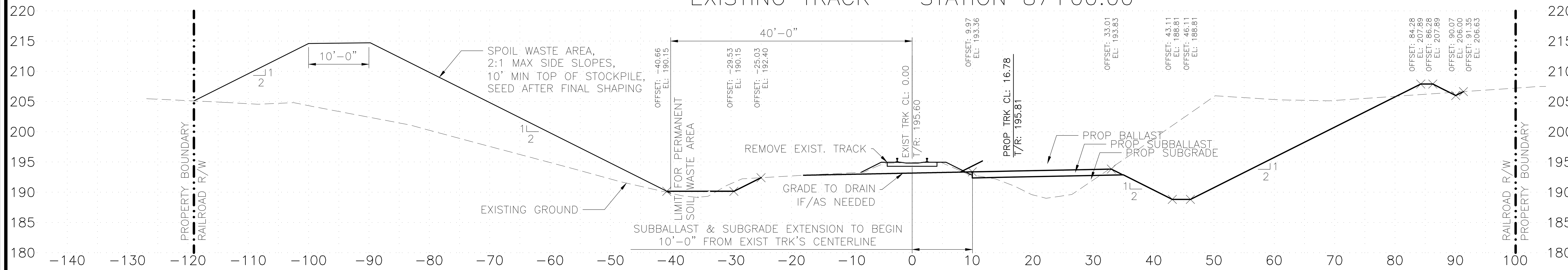

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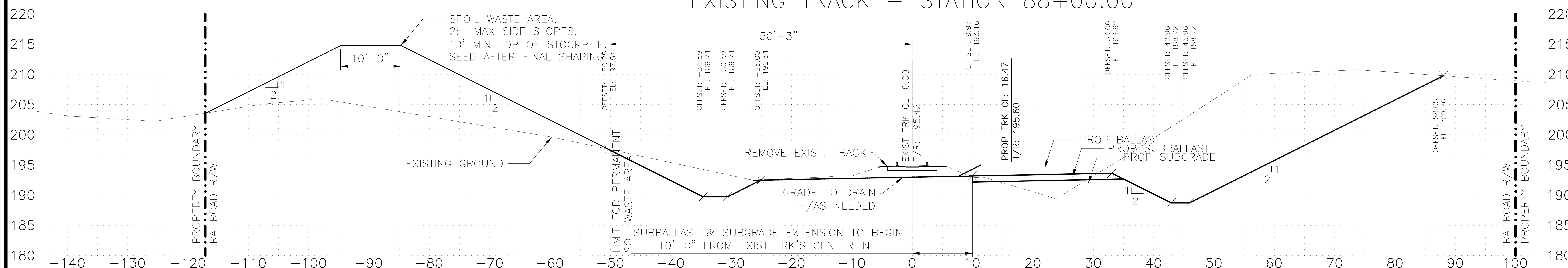

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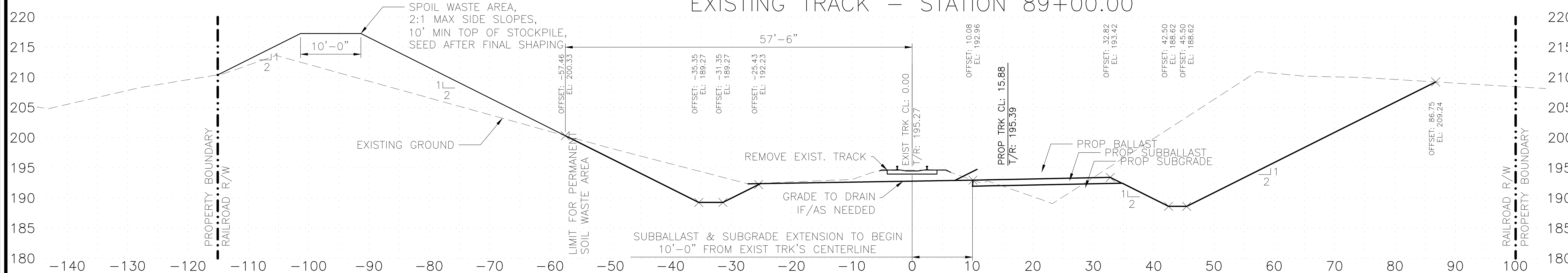

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DESIGNED BY:	RAG
CHECKED BY:	KRK
DRAFTED BY:	RAG

STATE OF ALASKA 49TH ANTHONY G. HAFNER No. CE 188080 REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

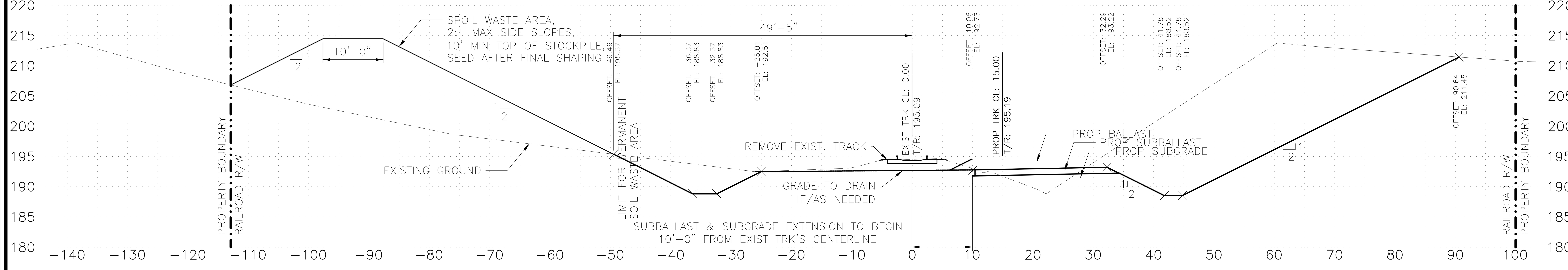
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

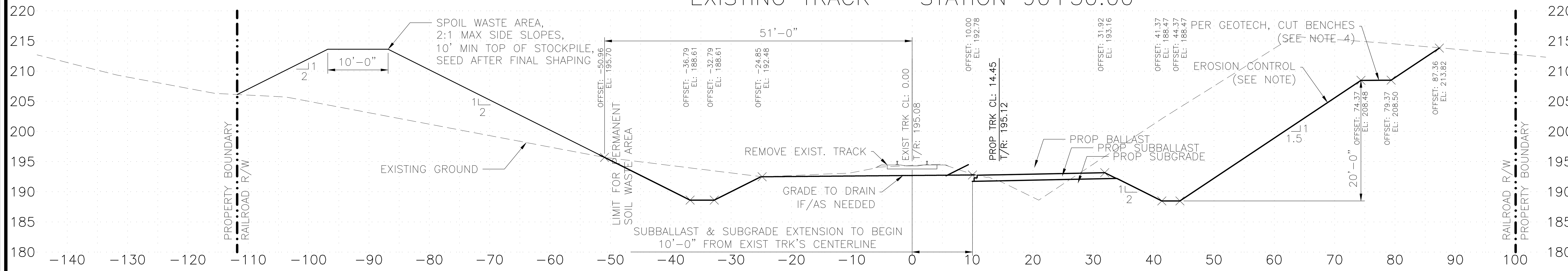
SHEET TITLE: RAIL CROSS SECTIONS STA 86+00 TO STA 89+00

AFE NO.	10944
YEAR	2025
SHEET	25 OF 68

EXISTING TRACK — STATION 90+00.00



EXISTING TRACK — STATION 90+50.00



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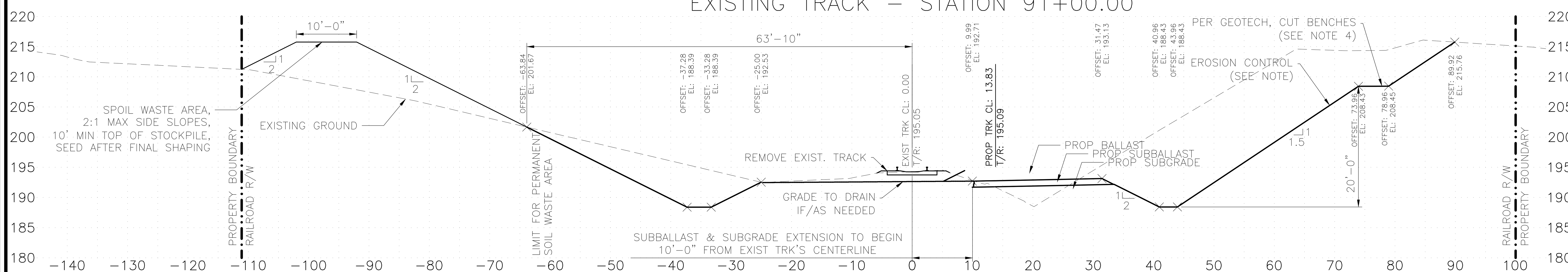

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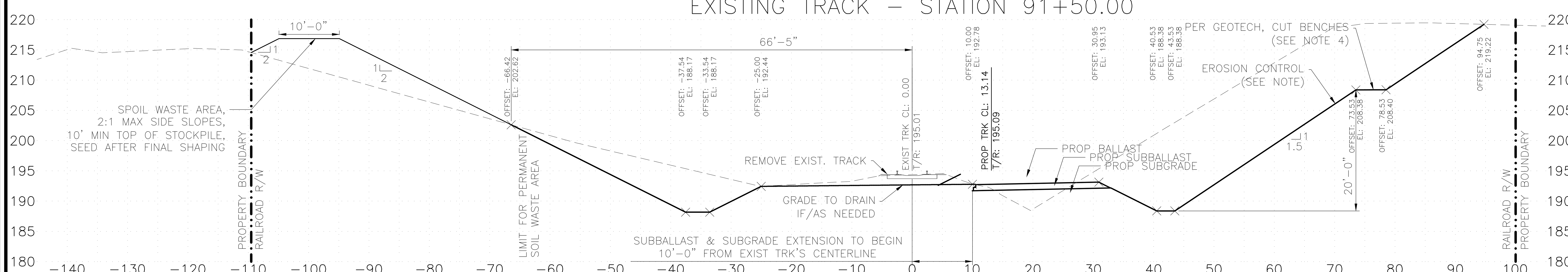

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STATE OF ALASKA 49TH — ANTHONY G. HAFNER No. CE 188080 REGISTERED PROFESSIONAL ENGINEER

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LICENSE #: AECC569

HDR 582 E. 36TH AVE, SUITE 500 ANCHORAGE, AK 99503-4169 (907) 644-2000

ALASKA RAILROAD
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

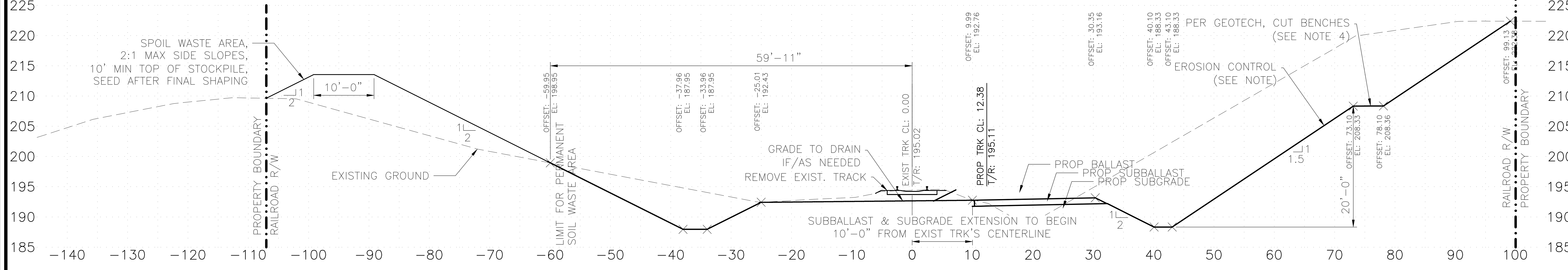
SHEET TITLE: RAIL CROSS SECTIONS STA 90+00 TO STA 91+50

AFE NO. 10944

YEAR 2025

DATE 2/19/2025 TIME 5:01 PM
SCALE AS NOTED
PUBLISHED CTB ARRC_CTB_2023.CTB
DRAWING LOCATION C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_20-33.DWG

EXISTING TRACK — STATION 92+00.00



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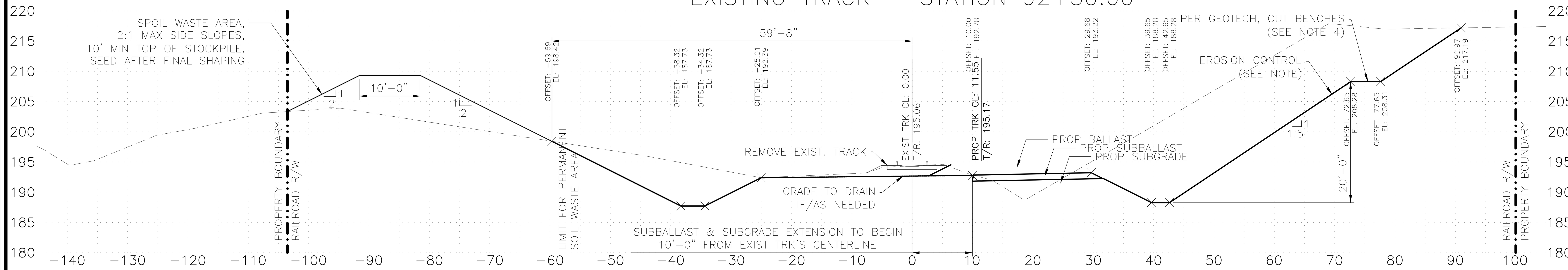

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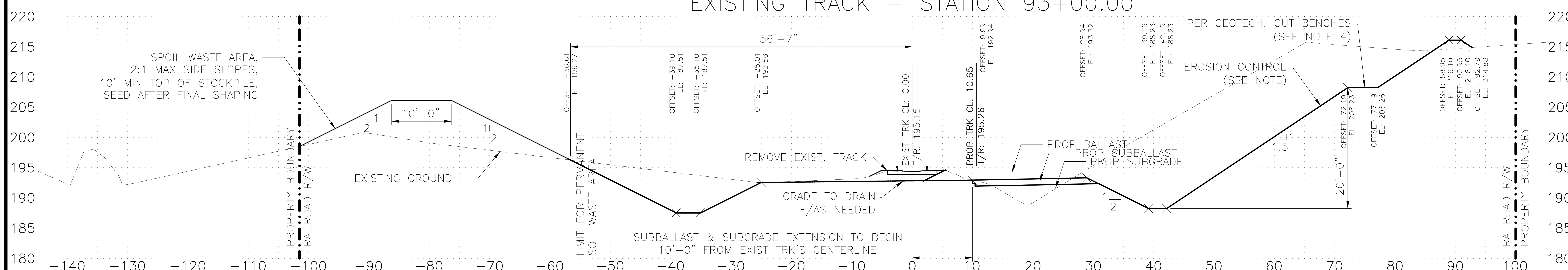

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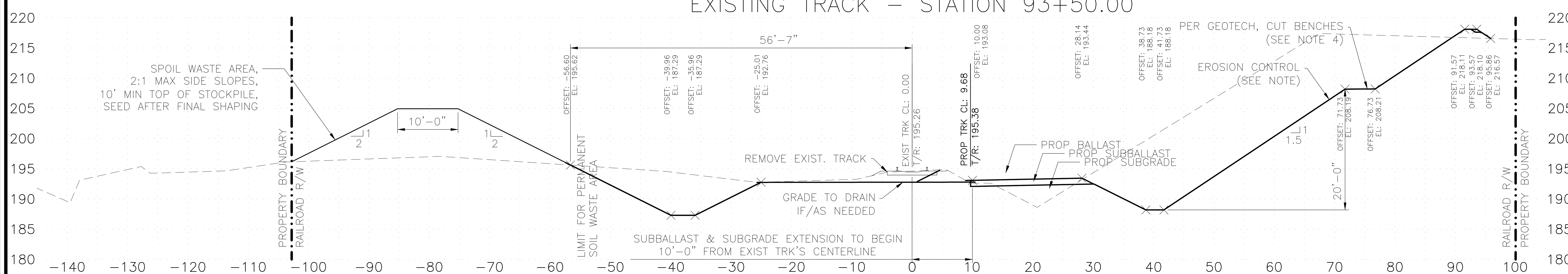

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CHECKED BY:	KRK
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STATE OF ALASKA 49TH — ANTHONY G. HAFNER No. CE 188080 REGISTERED PROFESSIONAL ENGINEER

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ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

HDR

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS STA 92+00 TO STA 93+50

AFE NO.	10944
YEAR	2025
SHEET	27 OF 68

PUBLISHED CTB	ARRC_CTB_2023.CTB
SCALE	AS NOTED
DATE	2/19/2025
TIME	5:01 PM
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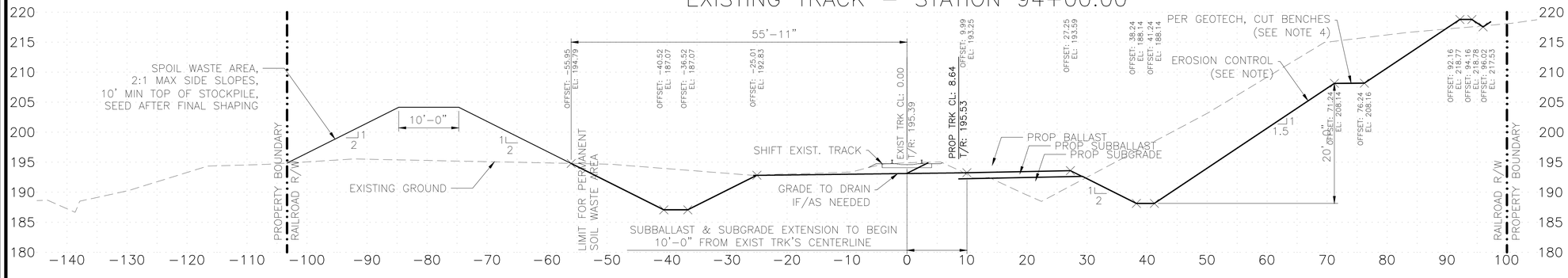

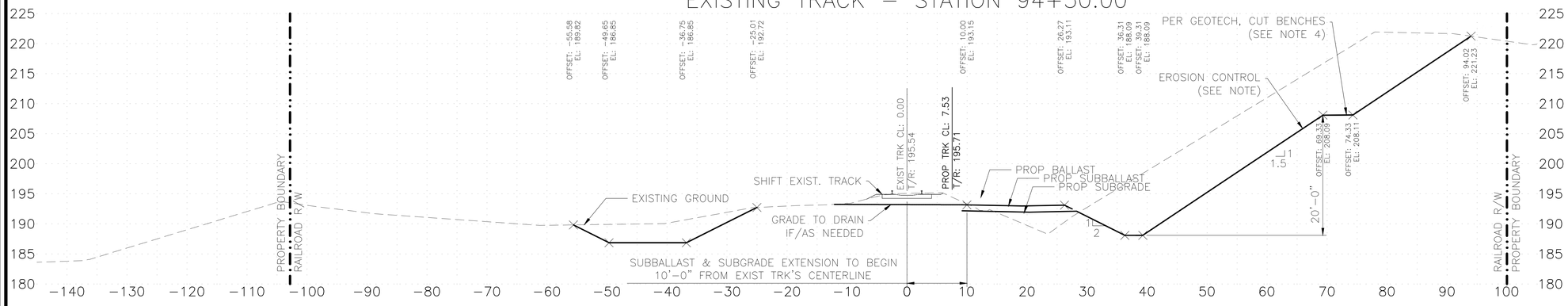

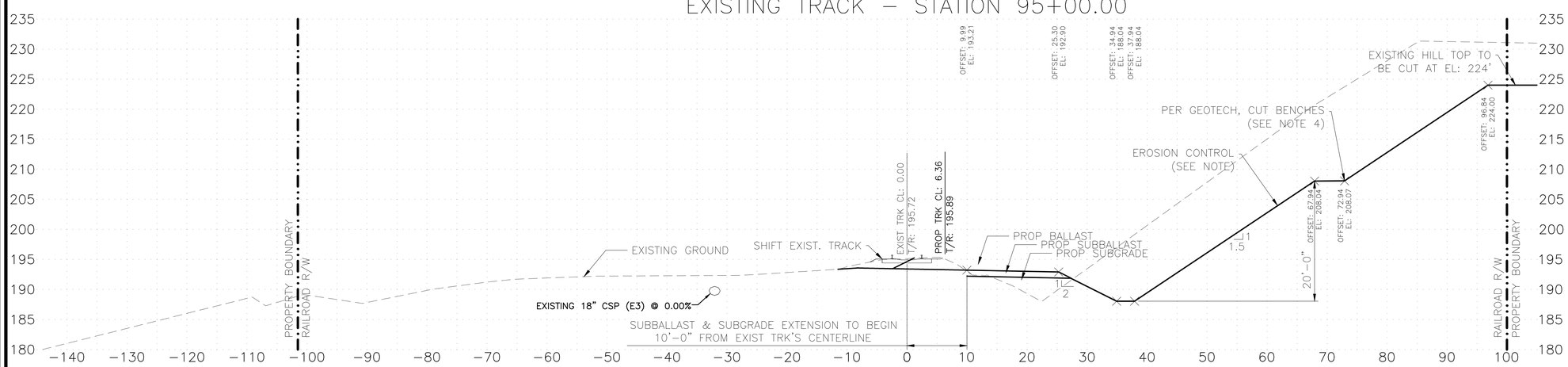

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ANTHONY G. HAFNER
No. CE 188080
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(907) 644–2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 94+00 TO STA 95+00

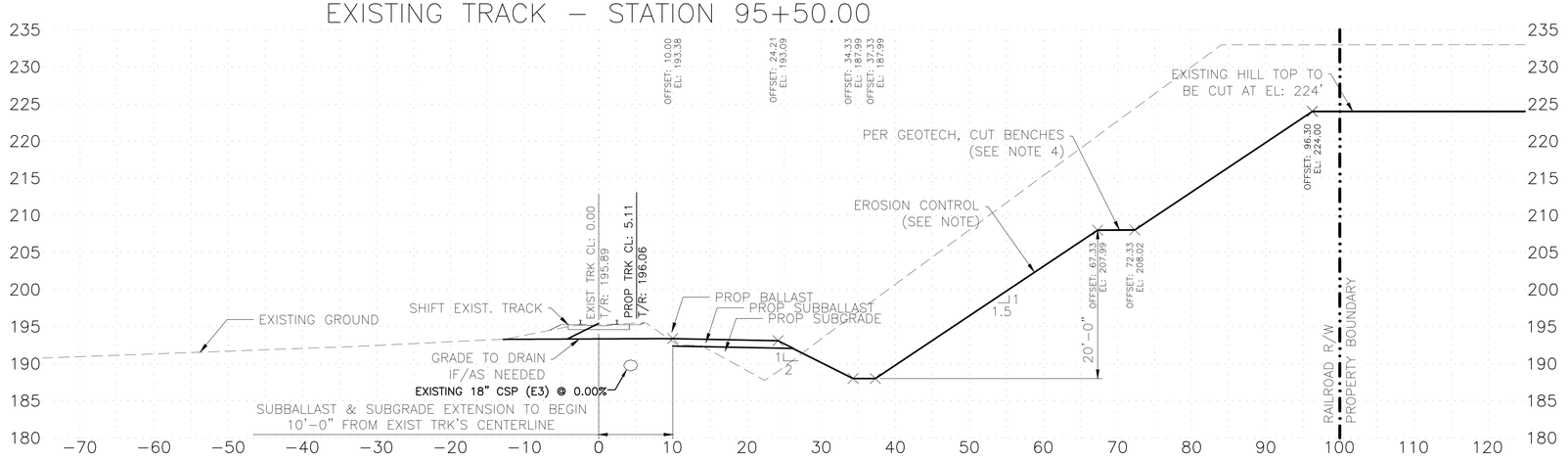
AFE NO.	10944
YEAR	2025
SHEET	28 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_20–33.DWG

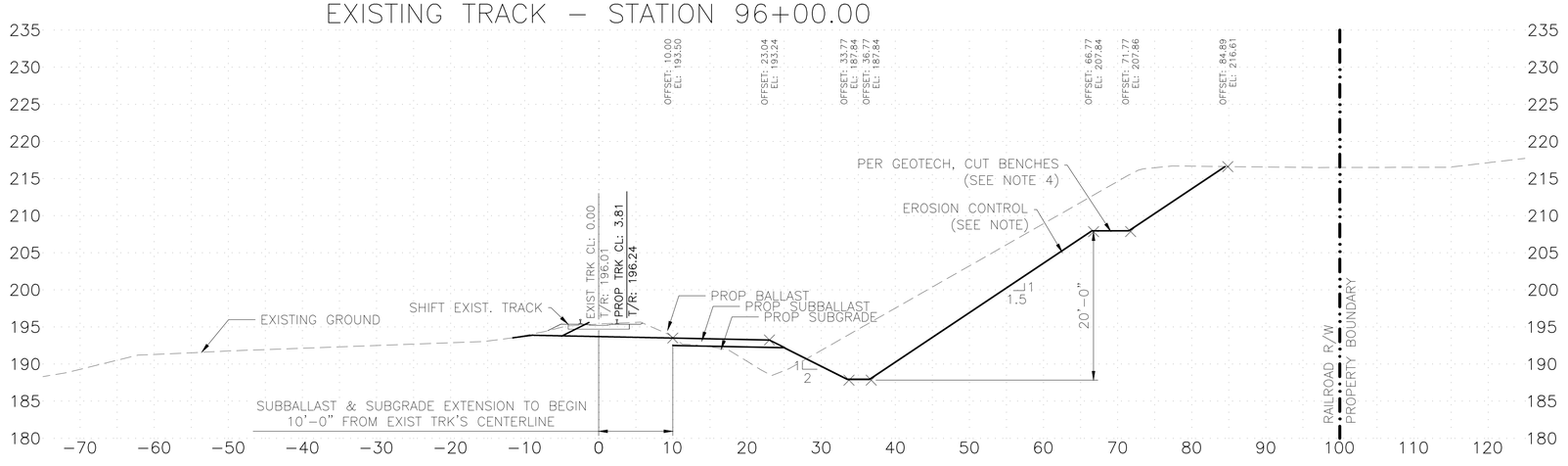
PUBLISHED	CTB
	ARRC_CTB_2023.CTB
SCALE	
AS NOTED	
DATE	TIME
2/19/2025	5:01 PM

PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE
AS NOTED
TIME
5:02 PM
DATE
2/19/2025
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_20-33.DWG

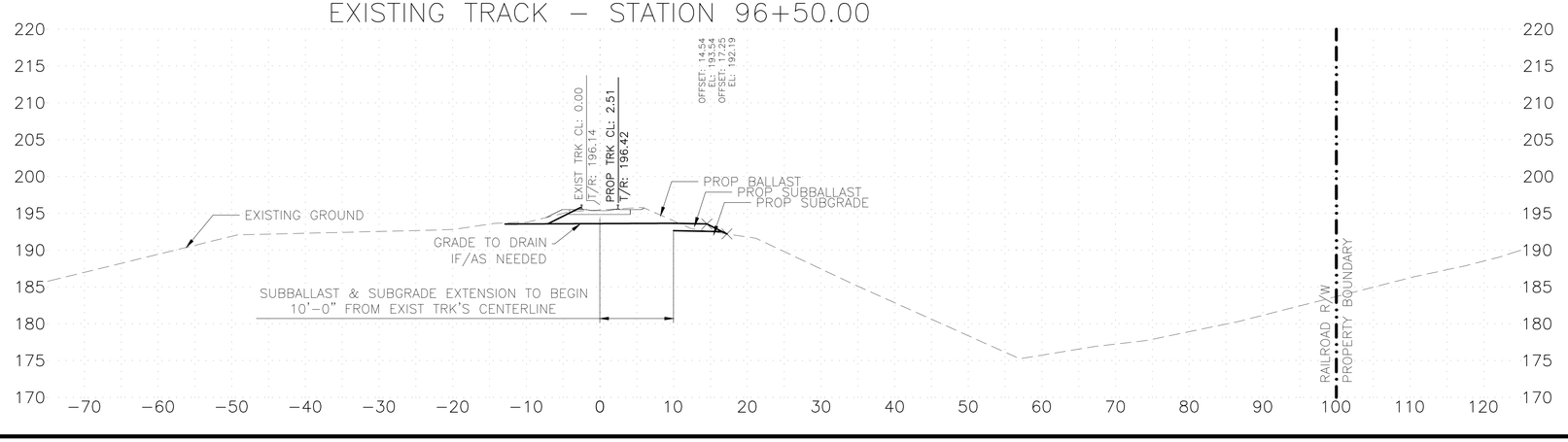
EXISTING TRACK – STATION 95+50.00



EXISTING TRACK – STATION 96+00.00



EXISTING TRACK – STATION 96+50.00



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DESIGNED BY:	RAG
CHECKED BY:	KRK
DRAFTED BY:	RAG

STATE OF ALASKA
49 TH
ANTHONY G. HAFNER
No. CE 188080
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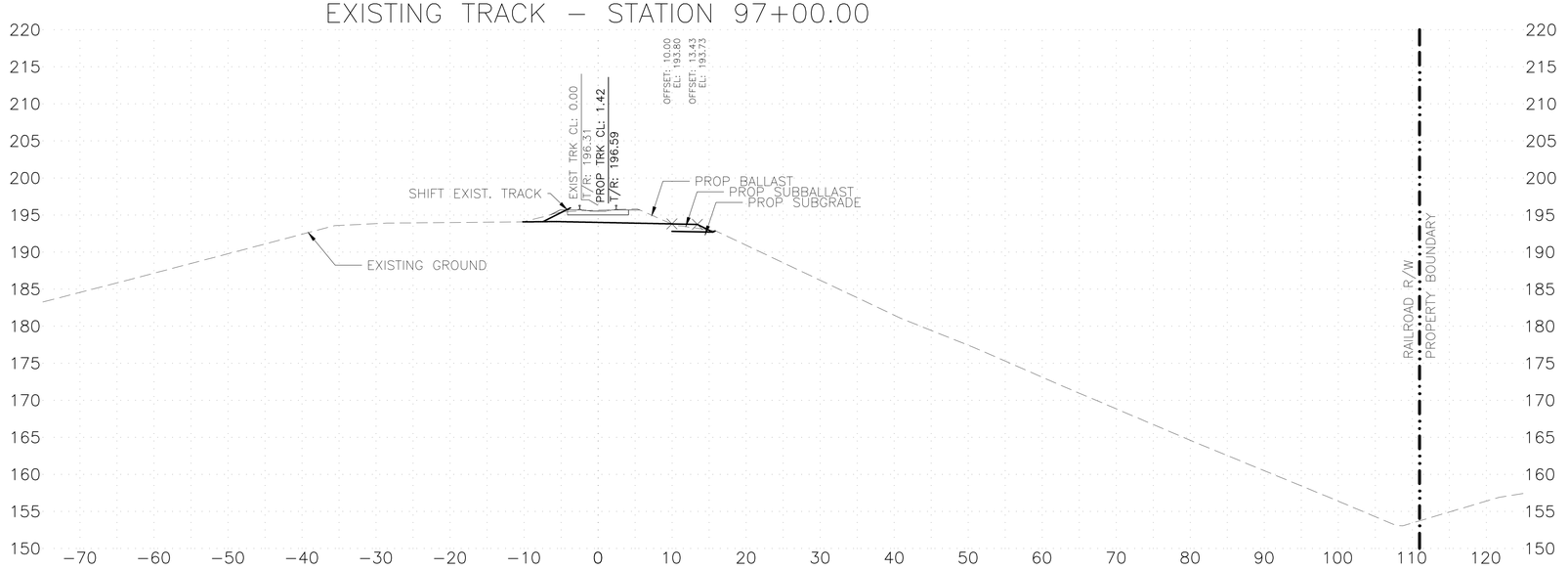
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

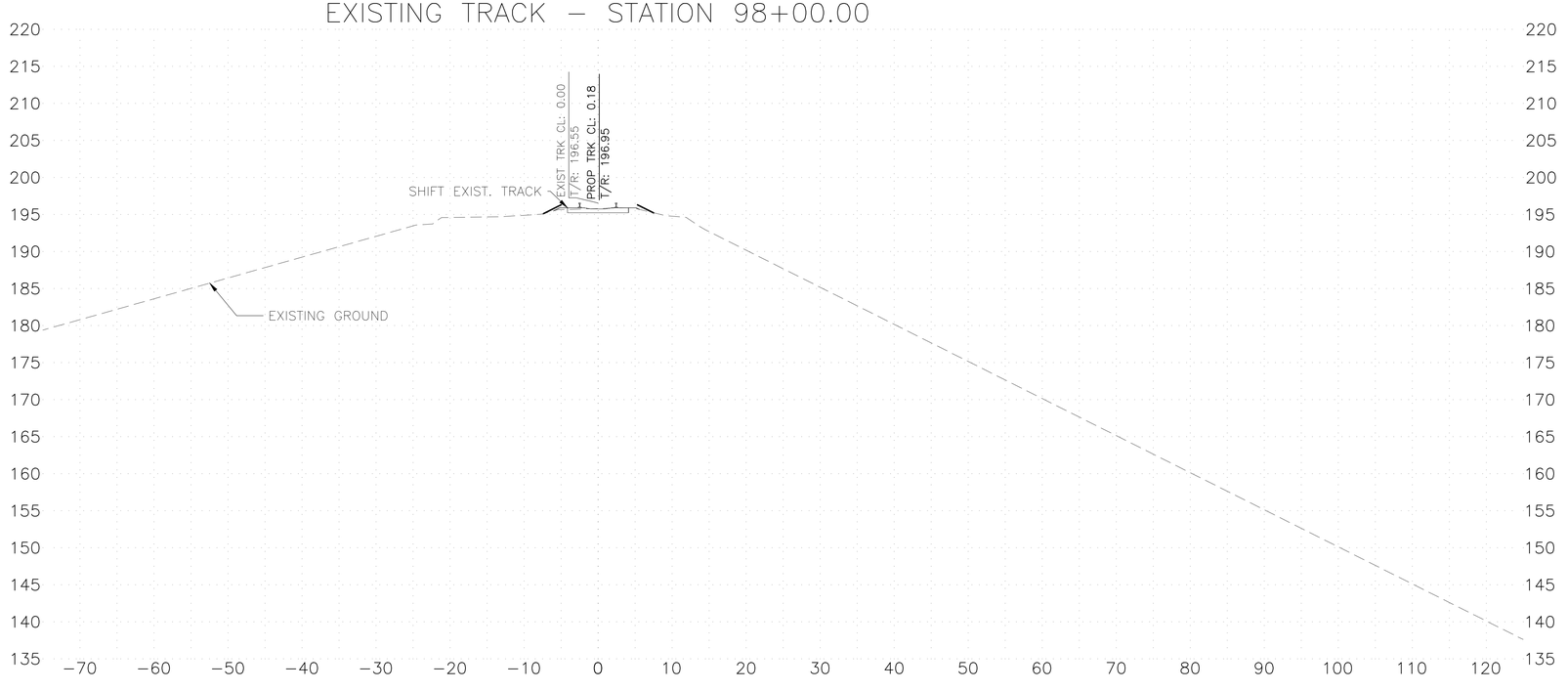
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 95+50 TO STA 96+50

AFE NO.	10944
YEAR	2025
SHEET	29 OF 68





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CHECKED BY:	KRK
DRAFTED BY:	RAG

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. CE 188080
REGISTERED PROFESSIONAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

HDR 582 E. 36TH AVE., SUITE 500 ANCHORAGE, AK 99503-4169 (907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 97+00 TO STA 98+00

AFE NO.	10944
YEAR	2025
SHEET	30 OF 68

PUBLISHED	CTB
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SCALE	
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DATE	TIME
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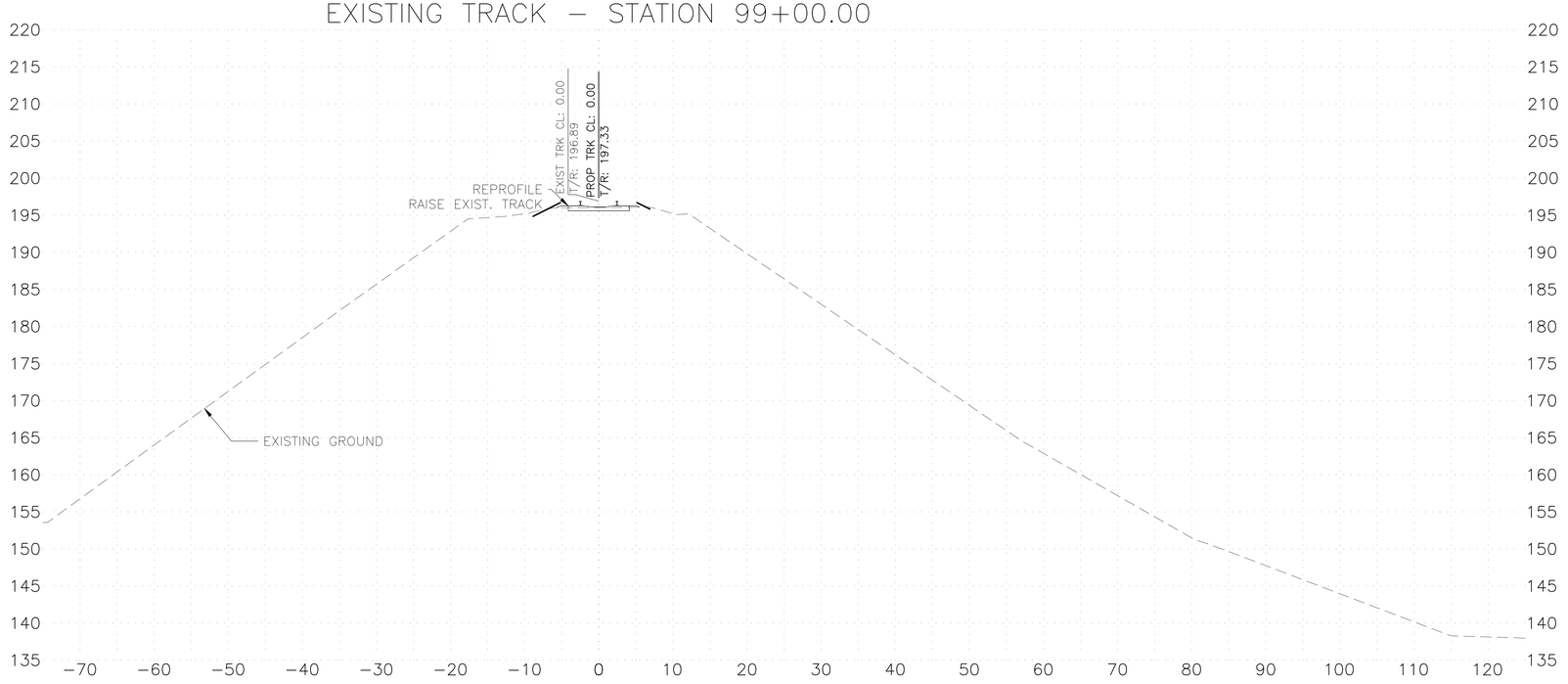

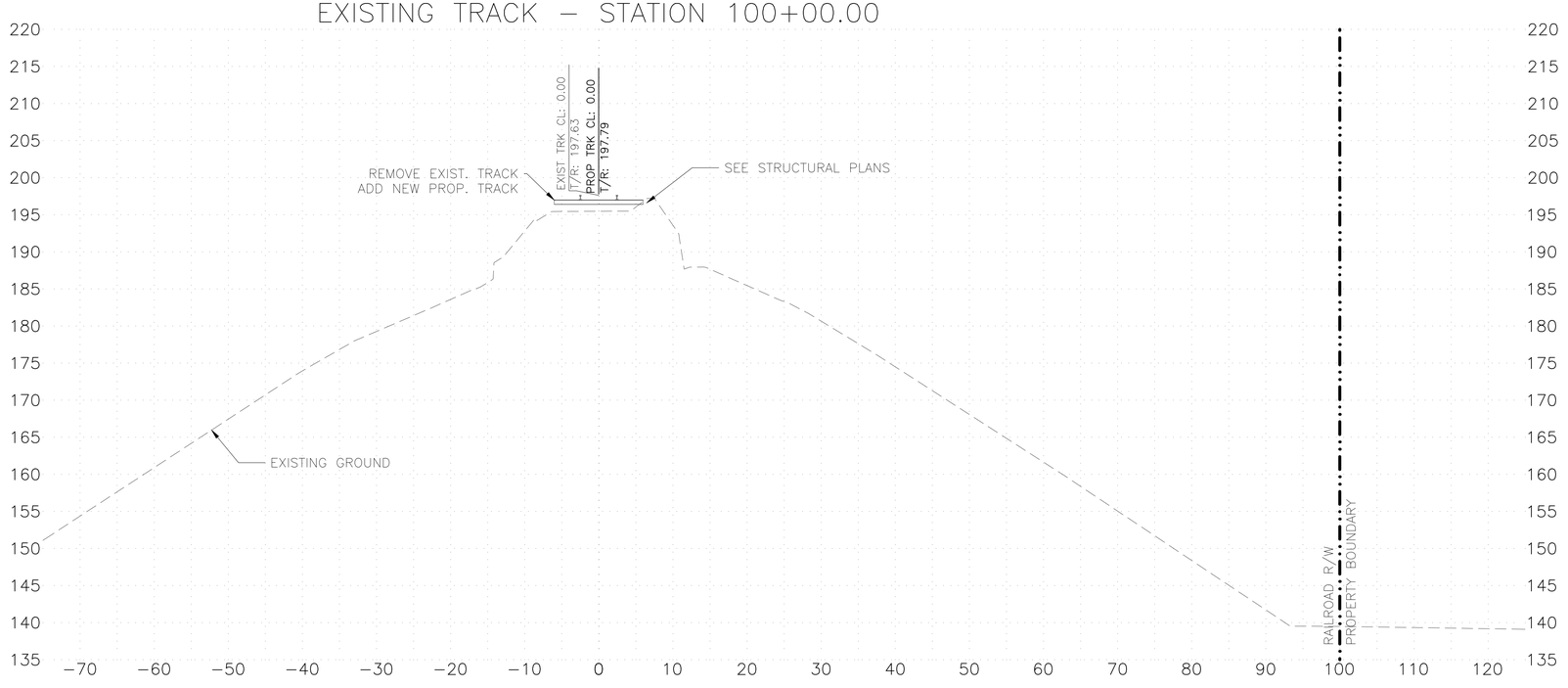

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 99+00 TO STA 100+00

AFE NO.	10944
YEAR	2025
SHEET	31 OF 68

DATE	2/19/2025 5:02 PM
SCALE	AS NOTED
PUBLISHED CTB	ARRC_CTB_2023.CTB

DRAWING LOCATION
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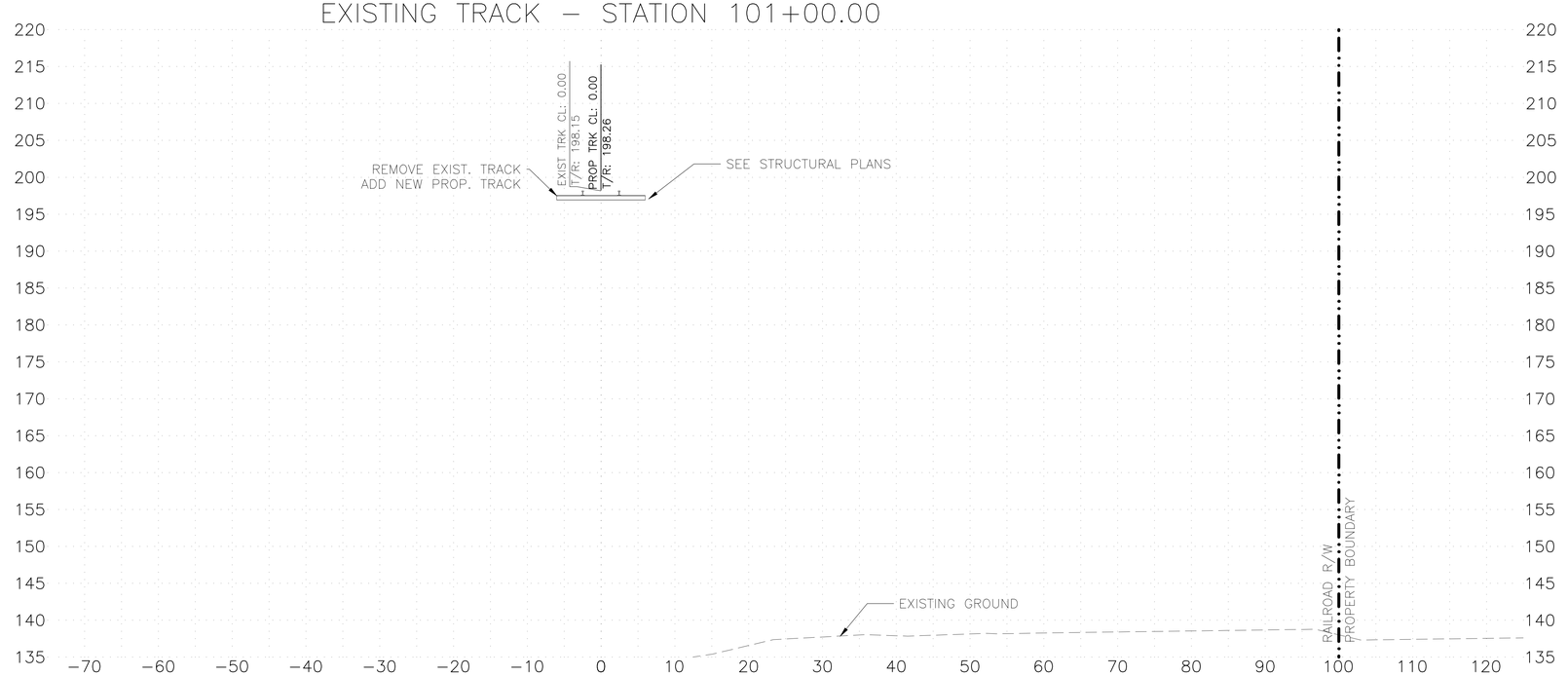

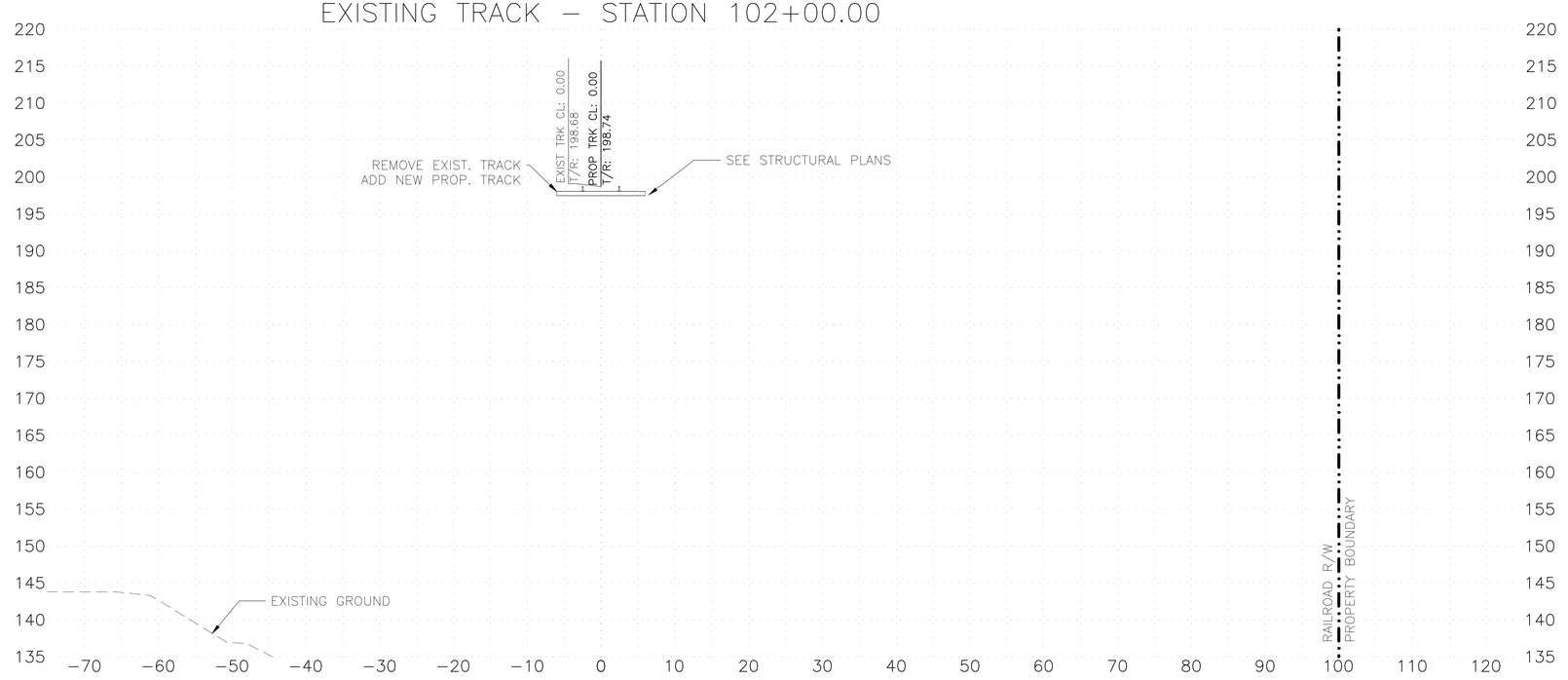

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
STA 101+00 TO STA 102+00

AFE NO.	10944
YEAR	2025
SHEET	32 OF 68

DATE	2/19/2025
TIME	5:02 PM
SCALE	AS NOTED
PUBLISHED CTB	ARRC_CTB_2023.CTB

DRAWING LOCATION
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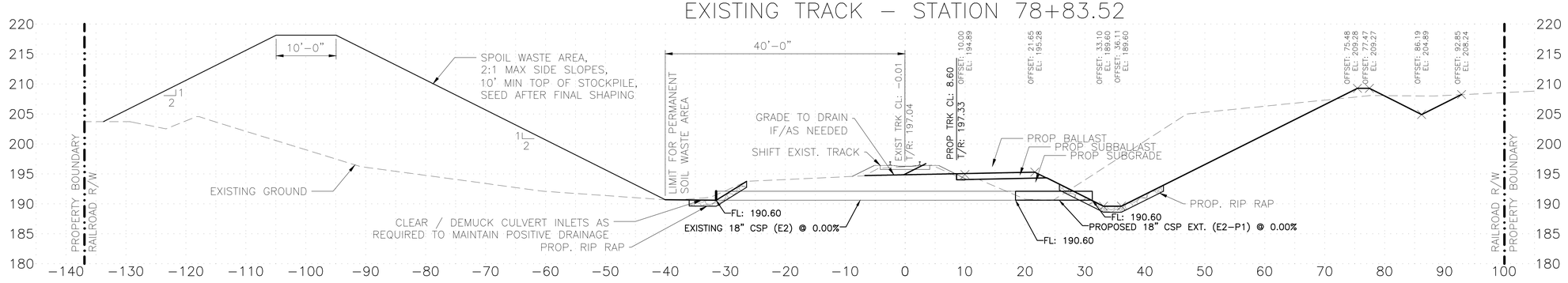
EXISTING TRACK – STATION 78+83.52



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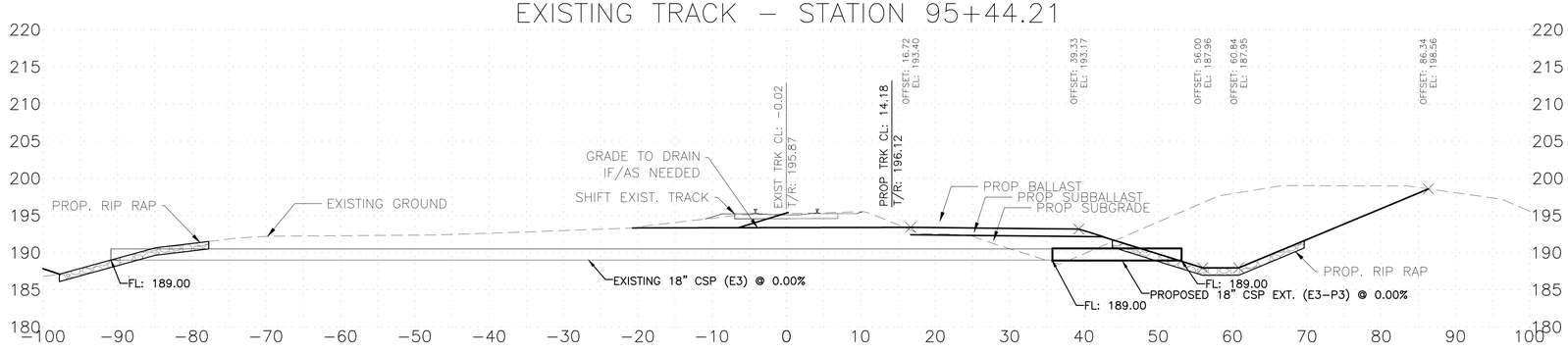

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: RAIL CROSS SECTIONS
CULVERT CROSSINGS

AFE NO.	10944
YEAR	2025
SHEET	33 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:02 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_20–33.DWG

STRUCTURAL DESIGN NOTES:

1. NEW BRIDGE COMPONENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2024 AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8 – CONCRETE STRUCTURES AND FOUNDATIONS, CHAPTER 9 – SEISMIC DESIGN FOR RAILWAY STRUCTURES, AND CHAPTER 15 – STEEL STRUCTURES.

2. DESIGN LOADS FOR PERMANENT CONDITIONS ARE IN ACCORDANCE WITH AREMA MANUAL FOR RAILWAY ENGINEERING AND THE FOLLOWING:

BALLAST DEPTH (FROM T/TIE):	30" MAXIMUM, 15" MINUMUM
LIVE LOAD:	COOPER E80 OR ALTERNATIVE LIVE LOAD
IMPACT PERCENT:	DIESEL IMPACT (16+600/(L–30))*100%
LIVE LOAD ECCENTRICITY:	6"± FROM ℄ BRIDGE AND TRACK
CENTRIFUGAL FORCE:	NONE
BACKFILL SOIL UNIT WEIGHT:	125 PCF
BACKFILL SOIL FRICTION ANGLE:	29°
COEFFICIENT OF STATIC FRICTION:	0.45 (SLIDING)
ALLOWABLE BEARING CAPACITY:	3,000 PSF (FOS = 2)

SPAN	DESIGN RATING	NORMAL STRESS RATING	MAXIMUM STRESS RATING
119'–8" BD DPG	80	101	166
26'–8" OD SBM	80	96	176

3. DESIGN TRACK SPEED PASSENGER & FREIGHT: 60 MPH (NEW).

4. TEMPORARY ABUTMENT BACKWALL DESIGN PROPERTIES FOR USE AS SHORING AND JUMP SPAN SUPPORT:

TEMPORARY LIVE LOAD:	COOPER E64 (286K CONSIST EQUIVALENT)
TEMPORARY TRACK SPEED:	20 MPH
IMPACT PERCENT:	DIESEL IMPACT $(40-3*L^2/1600)*100\%$ w/ SPEED REDUCTION PER 15-7.3.2.3.a(1)
ALLOWABLE BEARING CAPACITY:	4,000 PSF (FOS = 1.5)

5. SEISMIC DESIGN PARAMETERS:

A.	SITE CLASS:	C
B.	IMMEDIATE SAFETY FACTOR:	4
C.	IMMEDIATE VALUE FACTOR:	2
D.	REPLACEMENT VALUE:	3.75

6. SEISMIC DESIGN LIMIT STATES:

LIMIT STATE	IMPORTANCE FACTOR	RETURN PERIOD	SPECTRAL ACCEL. ADJUSTMENT FACTORS FOR SITE, CLASS C			SITE CLASS ADJUSTED PGA (g)
			F_{PGA}	F_A	F_V	PGA_M
SERVICEABILITY	3.6	95	1.17	1.20	1.63	0.23
ULTIMATE	2.4	363	1.00	1.05	1.48	0.4
SURVIVABILITY	3.4	2254	1.00	1.00	1.30	0.69

7. SEISMIC ACCELERATION RESPONSE SPECTRA:

PERIOD (SECONDS)	AREMA SEISMIC RESPONSE COEFFICIENTS (C_M)		
	RETURN PERIOD		
	95–YEAR	363–YEAR	2254–YEAR
	SERVICEABILITY	ULTIMATE	SURVIVABILITY
0	0.269	0.400	0.690
0.1	0.588	0.922	1.590
0.2	0.588	0.922	1.590
0.3	.0588	0.922	1.590
0.4	0.588	0.922	1.590
0.471	0.588	0.922	1.590
0.514	0.540	0.922	1.590
0.556	0.498	0.852	1.590
0.6	0.462	0.789	1.473
0.7	0.396	0.677	1.263
0.8	0.346	0.592	1.105
0.9	0.308	0.526	0.982
1.0	0.277	0.474	0.884
1.2	0.231	0.395	0.737
1.4	0.198	0.338	0.631
1.6	0.173	0.296	0.553
1.8	0.154	0.263	0.491
2.0	0.139	0.237	0.442

PIPE PILE NOTES:

1. PIPE PILES SHALL BE OF THE SIZE AND THICKNESS SHOWN ON THE PLANS AND SHALL MEET THE REQUIREMENTS OF ASTM A252, GRADE 3 (MOD), Fy = 60 KSI AND SHALL BE FABRICATED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. SUBMIT A PILE DRIVING PLAN WITH PROPOSED EQUIPMENT FOR APPROVAL PRIOR TO CONSTRUCTION.

2. SUBSTITUTION OF GRADE 60 PIPE PILE WITH GRADE 50 STEEL AND THICKER WALL MAY BE CONSIDERED WITH A SUBSTANTIATED PILE DRIVING ANALYSIS INDICATING THE PILES WILL NOT BE OVERSTRESSED DURING DRIVING TO THE REQUIRED BEARING RESISTANCE.

3. PIPE PILES SHALL BE DRIVEN TO THE DEEPER OF THE MINIMUM EMBEDMENT DEPTH OR TO THE DEPTH REQUIRED TO OBTAIN THE MINIMUM REQUIRED ULTIMATE BEARING RESISTANCE NOTED IN THE PLANS AND TESTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. CONTACT THE ENGINEER IF PRACTICAL REFUSAL IS REACHED PRIOR TO MINIMUM EMBEDMENT DEPTH BELOW FINISHED GRADE.

4. ALL PIPE PILES SHALL BE FILLED WITH CLASS DS CONCRETE FOR THE MINIMUM LENGTH NOTED ON THE PLANS (SEE CAST–IN–PLACE CONCRETE NOTES). IF SOIL PLUG AT END OF DRIVING IS BELOW THE MINIMUM CONCRETE ELEVATION, THE ADDITIONAL VOIDED LENGTH MAY BE FILLED WITH CLEAN, DRY SAND OR ADDITIONAL CONCRETE BELOW THE MINIMUM CONCRETE DEPTH NOTED. IF SOIL PLUG AT END OF DRIVING IS ABOVE THE MINIMUM CONCRETE ELEVATION, EXCAVATE SOIL TO THE MINIMUM REQUIRED DEPTH PRIOR TO PLACING CONCRETE.

5. CONCRETE FILL SHALL BE LEVEL WITH TOP OF PILE AT CUTOFF.

6. ALLOWABLE PILE SPLICE ZONE IS BETWEEN 35 AND 45 FEET BELOW PILE CUTOFF. MINIMUM LENGTH OF SPLICED SECTION IS 10 FEET. SPLICES SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

CAST–IN–PLACE CONCRETE NOTES:

1. CONCRETE MATERIAL, PLACEMENT, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8 AND THE PROJECT SPECIFICATIONS.

2. THE NOMINAL 28–DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

CLASS A–A CONCRETE:	5,000 PSI
CLASS DS CONCRETE:	5,000 PSI
CLASS W (COMMERCIAL) CONCRETE:	3,000 PSI

3. THE MINIMUM CONCRETE COVER ON REINFORCEMENT SHALL BE 2 INCHES UNLESS NOTED OTHERWISE.

4. EXPOSED EDGES OF 90 DEGREES OR LESS ARE TO BE CHAMFERED ¾" x ¾" UNLESS OTHERWISE SHOWN ON DRAWINGS.

5. MASS CONCRETE PLACEMENT PROCEDURES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS FOR THE FOLLOWING ELEMENTS:

   A. PIER FOOTINGS
   B. PIER COLUMNS
   C. PIER CAPS

6. COMMERCIAL CONCRETE USED FOR LEVELING SLABS UNDER PROPOSED PIER FOOTINGS DOES NOT REQUIRE REINFORCEMENT.

REINFORCING STEEL NOTES:

1. REINFORCING STEEL SHALL BE DEFORMED, PER CURRENT ASTM A706 SPECIFICATIONS, AND MEETING GRADE 60 OR GRADE 80 REQUIREMENTS AS NOTED IN THE PLANS. SUBSTITUTION OF STEEL GRADES IS NOT ALLOWED.

2. BAR BENDS SHALL BE IN ACCORDANCE WITH CHAPTER 7 OF THE CURRENT CRSI MANUAL OF STANDARD PRACTICE. DIMENSIONS OF BENDING DETAILS ARE OUT TO OUT OF BARS.

3. REINFORCING STEEL IS TO BE BLOCKED TO PROPER LOCATION AND SECURELY WIRED AGAINST DISPLACEMENT. TACK WELDING OF REINFORCEMENT IS STRICTLY PROHIBITED.

4. LAP SPLICES SHALL BE IN ACCORDANCE WITH THE CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING CHAPTERS 8 AND 9 FOR REINFORCING STEEL IN SEISMIC REGIONS.

STRUCTURAL STEEL NOTES:

1. FABRICATION AND WORKMANSHIP SHALL CONFORM TO CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 15, STEEL STRUCTURES AND PROJECT SPECIFICATIONS.

2. ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING GRADES EXCEPT AS NOTED.

DECK PLATE GIRDERS, CURBS, DIAPHRAGMS, STIFFENERS, BRACKETS, ROLLED BEAMS, & LATERAL BRACING	ASTM A709 GR 50W T3
DECK PLATES AND MICROPILE ANCHOR & BASE PLATES	ASTM A709 GR 50 T3
ANCHOR RODS	ASTM F1554 GR 105 (GALV)

3. ALL STRUCTURAL BOLTS SHALL BE HIGH–STRENGTH (H.S.) STRUCTURAL BOLTS CONFORMING TO ASTM F3125, GRADE A325, TYPE 3 WITH HEAVY HEX NUTS (ASTM A563, GRADE C3) AND ROUND, FLAT, HARDENED WASHERS (ASTM F436, TYPE 3) UNDER THE TURNED ELEMENT.

4. UNLESS NOTED OTHERWISE, FAYING SURFACES SHALL MEET CLASS B SURFACE CONNECTION REQUIREMENTS (SLIP CRITICAL). HIGH STRENGTH BOLTS SHALL BE INSTALLED WITH THE 'TURN OF THE NUT METHOD."

5. STENCIL PIECE MARK ON EACH SHOP FABRICATED COMPONENT.

6. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.5 BRIDGE WELDING CODE AND THE PROJECT SPECIFICATIONS. WELD MATERIAL SHALL MATCH THE BASE METAL IN STRENGTH AND FINISHED APPEARANCE.

7. NONDESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 15, SECTION 3.5, THE CURRENT AWS D1.5, AND THE PROJECT SPECIFICATIONS.

8. FABRICATOR SHALL DEVELOP GIRDER LIFTING DETAILS AND SUBMIT TO OWNER FOR APPROVAL.

9. STEEL FABRICATION SHALL NOT BEGIN UNTIL SHOP DRAWINGS & WELD PROCEDURES HAVE BEEN APPROVED BY THE OWNER.

10. GIRDERS SHALL BE FULLY SHOP ASSEMBLED AND MATCH MARKED PRIOR TO SHIPMENT.

PRECAST CONCRETE NOTES:

1. FABRICATION AND WORKMANSHIP SHALL CONFORM TO CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8, CONCRETE STRUCTURES AND PROJECT SPECIFICATIONS.

2. STENCIL PIECE MARK, DATE OF FABRICATION AND LIFTING WEIGHT ON EACH PIECE.

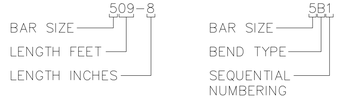
3. CLASS P CONCRETE FOR PRECAST COMPONENTS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.

4. THE MINIMUM CONCRETE COVER ON REINFORCEMENT FOR PRECAST CONCRETE SHALL BE 1½" (INCHES) UNLESS NOTED OTHERWISE.

5. CONCRETE SHALL BE VIBRATED INTERNALLY DURING PLACEMENT TO PROVIDE THOROUGH CONSOLIDATION AND COMPACTION. CARE SHALL BE TAKEN TO AVOID DISPLACEMENT OF EMBEDDED ITEMS.

6. LIFTING DEVICES ARE TO BE DETERMINED BY FABRICATOR. FABRICATOR IS RESPONSIBLE FOR ADEQUACY OF LIFTING DEVICES WITH A 4 TO 1 SAFETY FACTOR. CUT LIFTING DEVICES FLUSH WITH CONCRETE SURFACE OR FILL VOIDS WITH GROUT TO CREATE A SMOOTH SURFACE AFTER PLACEMENT OF PRECAST COMPONENTS IN STRUCTURE.

7. EMBEDDED DUCTS FOR ANCHOR RODS AND THREADED BARS SHALL BE CORRUGATED STEEL ELECTRICAL METALLIC TUBING (EMT) CONDUIT.



STRAIGHT BARS BENT BARS

REBAR NAMING CONVENTION

MICROPILE GROUND ANCHOR NOTES:

1. MICROPILE GROUND ANCHORS (MICROPILES) SHALL MEET THE REQUIREMENTS OF ASTM A722, GRADE 150 PRESTRESSING STEEL THREADED BAR AND SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

2. A COMMERCIAL CONCRETE LEVELING SLAB SHALL BE PLACED TO THE DESIGN ELEVATION NOTED FOR BOTTOM OF FOOTING AND CURED PRIOR TO DRILLING AND PRESTRESSING ANCHORS.

3. MICROPILE GROUND ANCHORS SHALL BE EPOXY COATED. REPAIR DAMAGED EPOXY COATING PRIOR TO INSTALLING ANCHORS IN GROUND.

4. CEMENTITIOUS TYPE I/II GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 6,000 PSI CAPABLE OF DEVELOPING AN ULTIMATE BOND STRESS WITH ROCK SURFACE OF 360 PSI.

5. EACH ANCHOR SHALL HAVE A DEBONDED LENGTH OF 10 FEET FROM TOP OF LEVELING SLAB. DEBONDING METHOD SHALL BE SUBMITTED TO OWNER FOR REVIEW AND APPROVAL PRIOR TO INSTALLING MICROPILES.

6. CENTRALIZERS SHALL BE USED FOR ALL MICROPILE INSTALLATIONS.

7. DRILL HOLES FOR MICROPILES WITH A MINIMUM 6" DIAMETER. HOLES DRILLED IN BEDROCK DO NOT REQUIRE A CASING.

8. TEST MICROPILE GROUND ANCHORS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. A MINIMUM OF ONE NON–PRODUCTION VERIFICATION TEST FOR EACH FOUNDATION SHALL BE PERFORMED AND 20% OF THE PRODUCTION ANCHORS FOR EACH FOUNDATION SHALL BE PROOF TESTED.

BEARING NOTES:

1. FABRICATION AND WORKMANSHIP SHALL CONFORM TO CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 15, STEEL STRUCTURES AND PROJECT SPECIFICATIONS.

2. ALL STRUCTURAL STEEL BEARING COMPONENTS SHALL CONFORM TO ASTM A709 GR 50W.

3. PTFE AND STAINLESS STEEL SLIDING SURFACES SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

4. PLAIN ELASTOMERIC BEARING PADS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. CLEAN BEARING PADS WITH METHYL ETHYL KETONE IMMEDIATELY PRIOR TO APPLYING EPOXY ADHESIVE AND SECURING TO CONCRETE OR STEEL SURFACES AS NOTED IN THE PLANS.

5. BEARINGS SHALL BE SHOP ASSEMBLED, MATCH MARKED, AND CRATED FOR DELIVERY. CARE SHALL BE TAKEN TO PROTECT SLIDING SURFACES FROM DAMAGE DURING TRANSPORTATION AND INSTALLATION.

6. LIFTING DEVICES MAY BE ATTACHED TO THE OUTSIDE EDGES OF BEARING COMPONENTS VIA WELDING TO FACILITATE PLACEMENT. NO WELDING OR DRILLING IS ALLOWED ON FINISHED BEARING SURFACES. AFTER PLACEMENT, LIFTING DEVICES SHALL BE REMOVED AND WELDS GROUND FLUSH WITH THE BASE METAL.

HANDRAIL AND WALKWAY NOTES:

1. STEEL HANDRAIL PANELS SHALL BE FABRICATED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

2. WALKWAY GRATING SHALL BE PACIFIC GRATING 38W2 BAR GRATING WITH SERRATED 2¼" x ¼" BARS AT 2⅜" C–C SPACING WITH 4" C–C CROSS BARS OR APPROVED EQUIVALENT.

3. STEEL HANDRAIL PANELS AND WALKWAY GRATING SHALL BE GALVANIZED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

4. ALL ELEMENTS SHALL BE FREE OF FINS, ABRASIONS, ROUGH OR SHARP EDGES AND OTHER SURFACE DEFECTS.

5. HANDRAIL PANELS ON WALKWAY SHALL BE ERECTED PLUMB AND IN–LINE.

6. INSPECTION SAFETY CABLE SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANS AND PROJECT SPECIFICATIONS.

7. INSPECTION SAFETY CABLE IS DESIGNED FOR USE BY UP TO 2 PEOPLE MAXIMUM AT ONE TIME (PER CABLE).

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MV

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

582 E. 36TH AVE., SUITE 500
ANCHORAGE, ALASKA 99503–4169
(907) 644–2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: STRUCTURAL NOTES

AFE NO.	10944
YEAR	2025
SHEET	34 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/20/2025 1:35 PM
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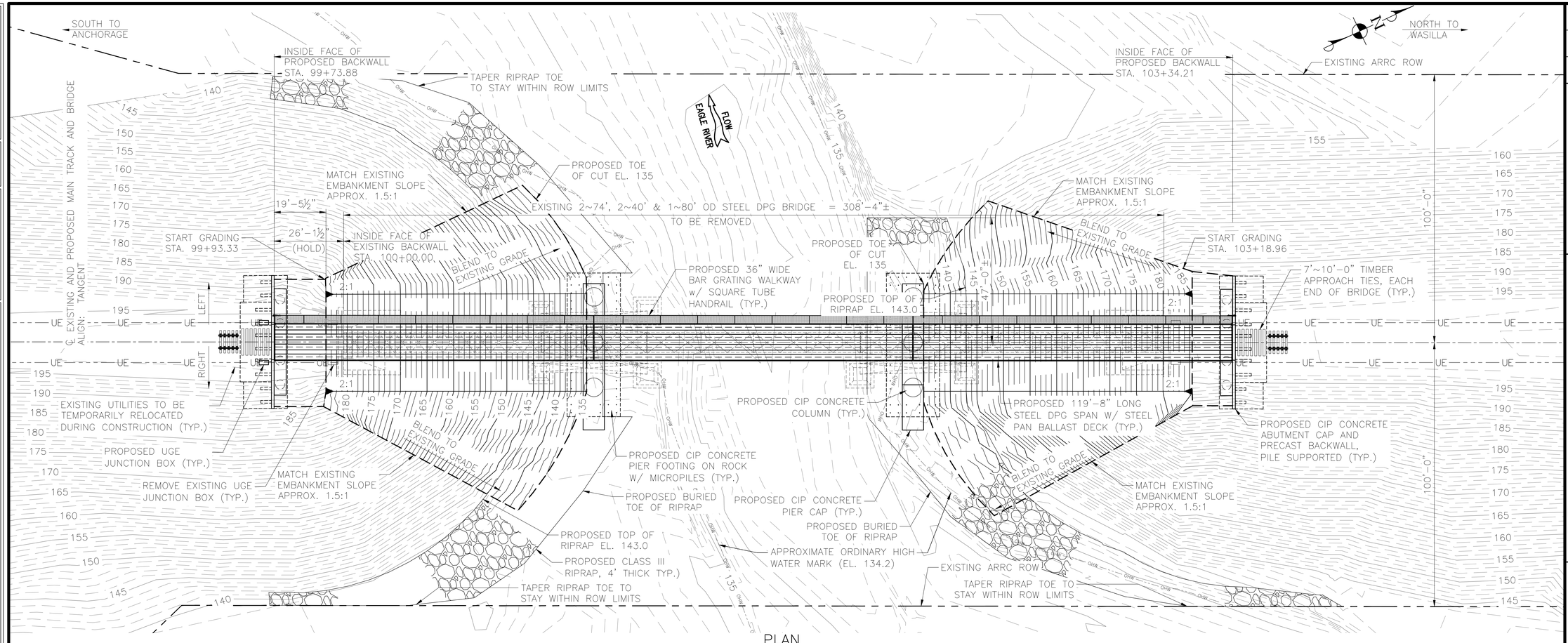
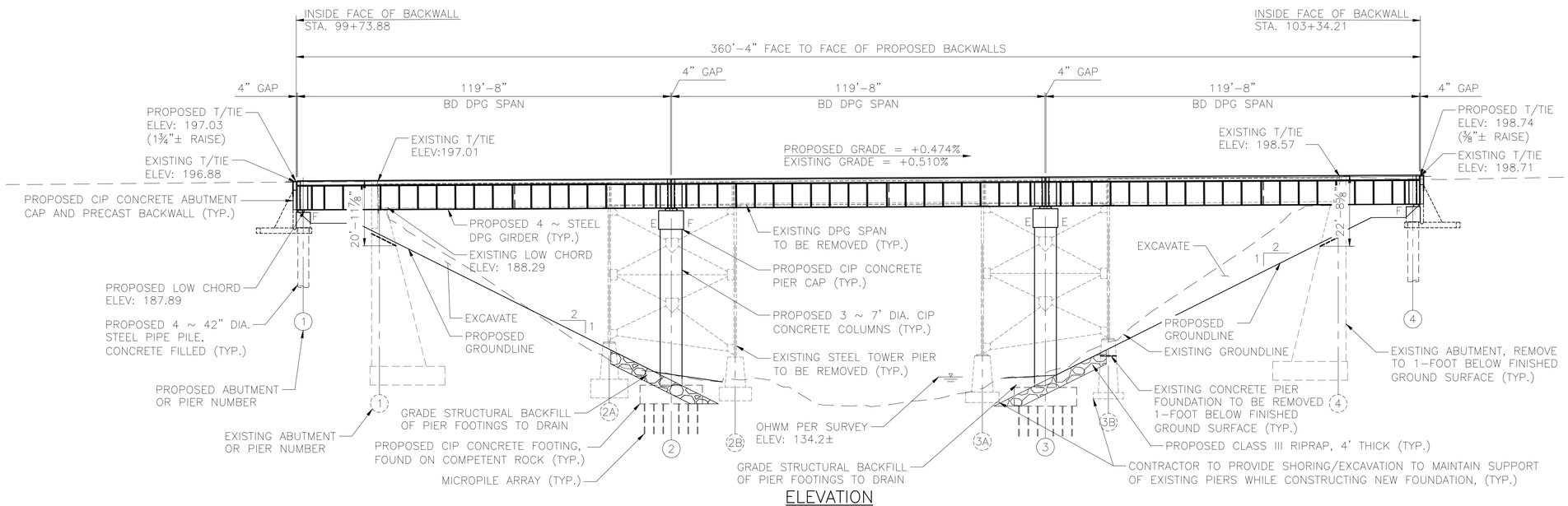


PLAN
SCALE: 1" = 20'



ELEVATION
SCALE: 1" = 20'

DESIGNED BY:	ML
CHECKED BY:	AGH
DRAFTED BY:	AEP

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: GENERAL ARRANGEMENT

AFE NO.	10944
YEAR	2025
SHEET	35 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 4:45 PM
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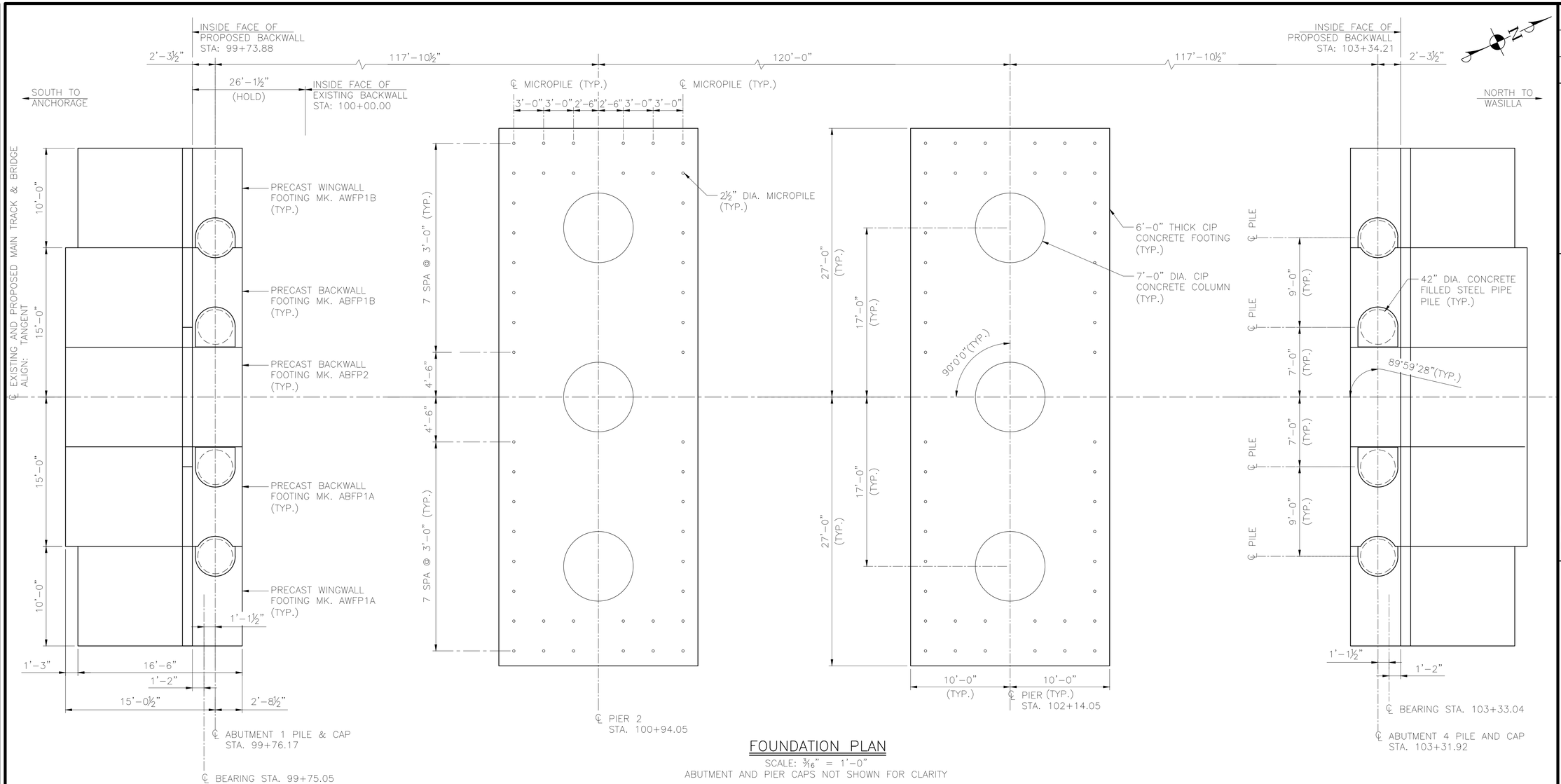

FOUNDATION PLAN

SCALE: 3/16" = 1'-0"
ABUTMENT AND PIER CAPS NOT SHOWN FOR CLARITY

NOTES:

1. FINAL PIER FOOTING ELEVATION TO BE DETERMINED IN THE FIELD BASED ON THE ELEVATION OF COMPETENT ROCK. COORDINATE WITH GEOTECHNICAL ENGINEER FOR ELEVATIONS OUTSIDE THE MIN. AND MAX. PROVIDED PER DIRECTION ON SHEET 38.
2. FACTORED DESIGN LOAD (FDL) FOR MICROPILE GROUND ANCHORS SHALL BE EQUAL TO THE REQUIRED ULTIMATE AXIAL TENSION RESISTANCE. ALIGNMENT LOAD (AL) AND LOCK OFF LOAD SHALL BE 5% OF THE FDL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

PILE DATA TABLE

LOCATION	TYPE	QUANTITY	BAR/PILE DIAMETER (IN)	PILE CUTOFF ELEVATION	MINIMUM TIP ELEVATION	ESTIMATED LENGTH (FT)	REQUIRED ULTIMATE AXIAL RESISTANCE (KIP)	
							COMPRESSION	TENSION
ABUTMENT # 1	CONCRETE FILLED PIPE PILE	4	42	182.38	140.63	58*	1818	277
ABUTMENT # 4	CONCRETE FILLED PIPE PILE	4	42	184.09	142.34	56*	1818	277
PIER # 2	MICROPILE GROUND ANCHOR	48	2½	127.60	82.60	25	–	326
PIER # 3	MICROPILE GROUND ANCHOR	48	2½	126.86	81.86	25	–	326

* ESTIMATED LENGTHS ARE BASED ON GEOTECHNICAL BORINGS AND INCLUDE ADDITIONAL 3 FEET OF PILE LENGTH BELOW ESTIMATED TOP OF BEDROCK TO ACCOUNT FOR BEDROCK ELEVATION VARIABILITY ACROSS THE SITE.

TABLE OF ELEVATIONS

LOCATION	ABUTMENT 1	PIER 2	PIER 3	ABUTMENT 4
T/PROP. RAIL	197.72	198.29	198.86	199.43
T/PROP. TIE	197.03	197.60	198.17	198.74
T/PROP. BEARING	187.88	188.45	189.02	189.59
T/PROP. CAP	187.21	187.78	188.35	188.92
PILE CUTOFF OR T/COLUMN ELEVATIONS	182.38	181.95	182.52	184.09
B/PROP. CAP	182.25	181.78	182.35	183.96
T/FOOTING MAX.	–	131.78	132.35	–
B/FOOTING (T/LEVELING CONCRETE) MAX.	180.46	125.78	126.35	182.17
T/FOOTING MIN.	–	128.78	129.35	–
B/FOOTING (T/LEVELING CONCRETE) MIN.	180.46	122.78	123.35	182.17

DESIGNED BY: BAH
CHECKED BY: AGH
DRAFTED BY: MV

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

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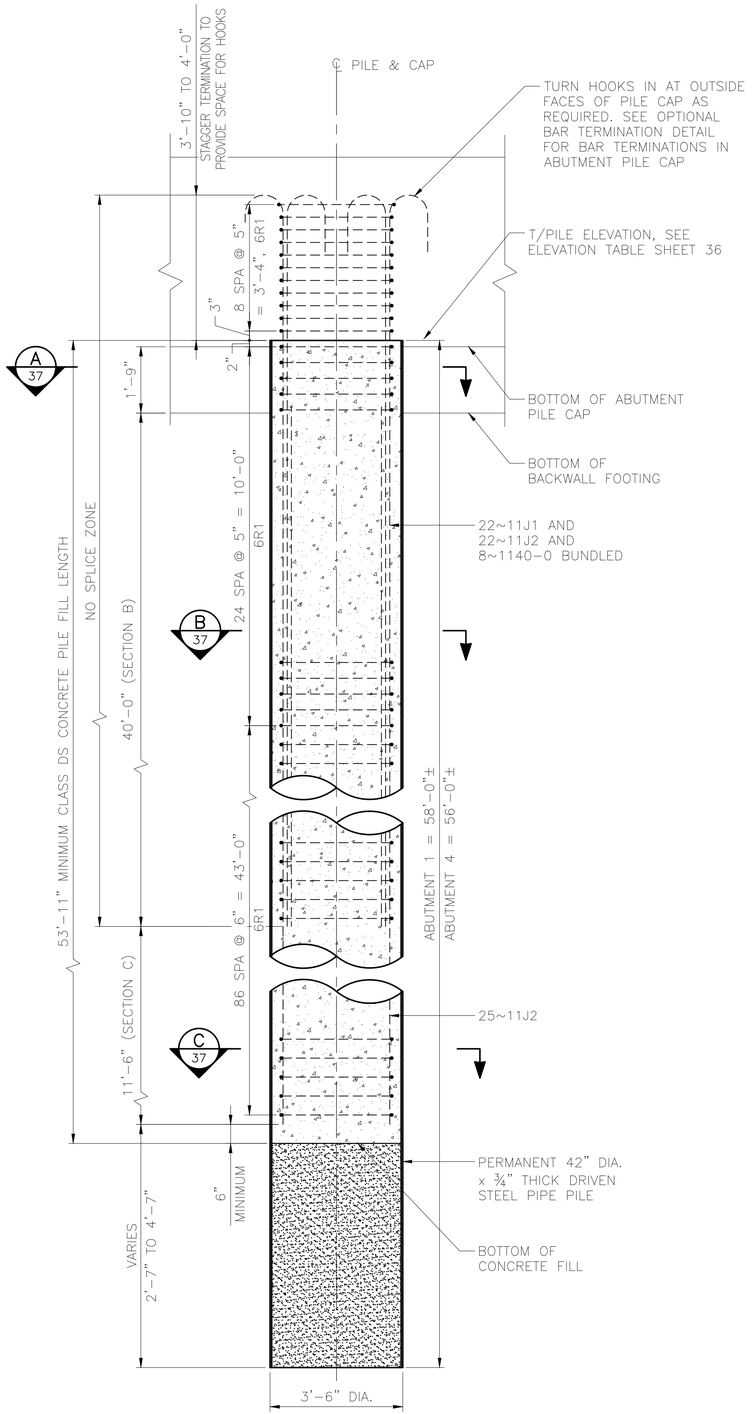
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

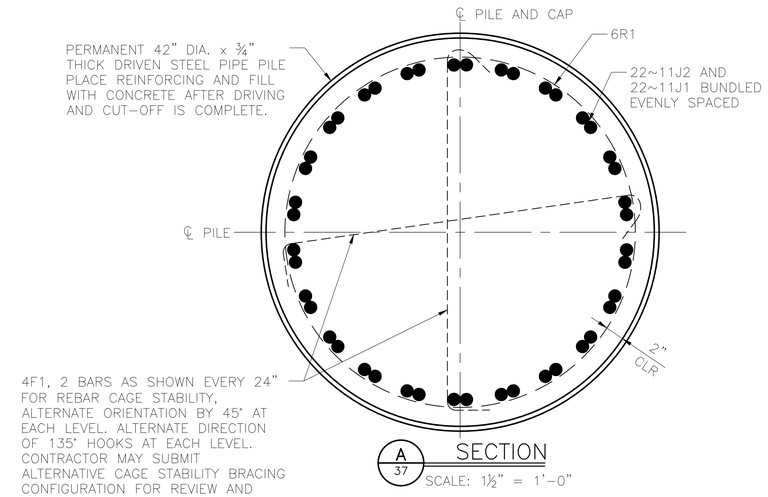
SHEET TITLE: FOUNDATION PLAN

AFE NO. 10944
YEAR 2025
SHEET 36 OF 68



ABUTMENT PILE DETAILS

SCALE: ½" = 1'-0"



SECTION

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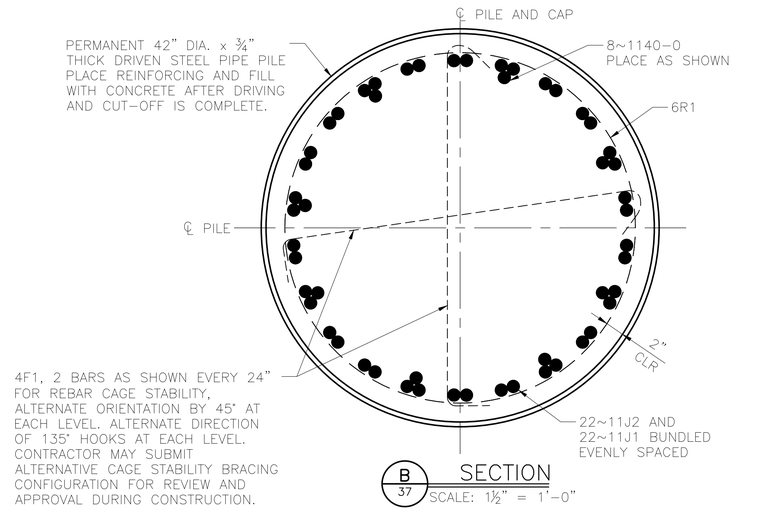

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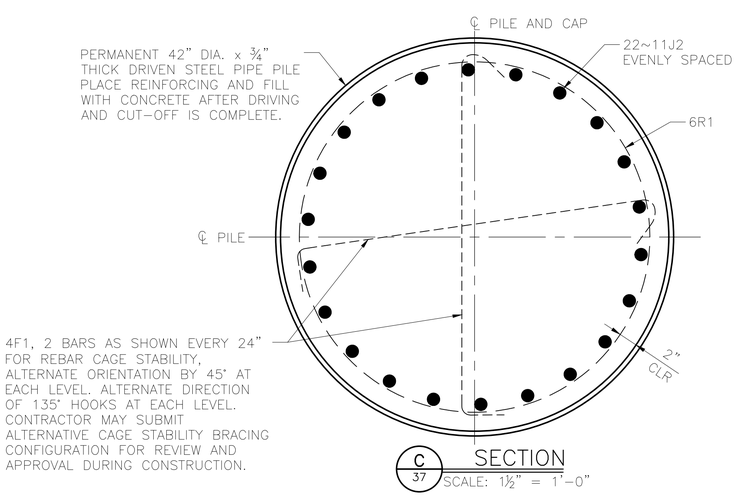

SECTION

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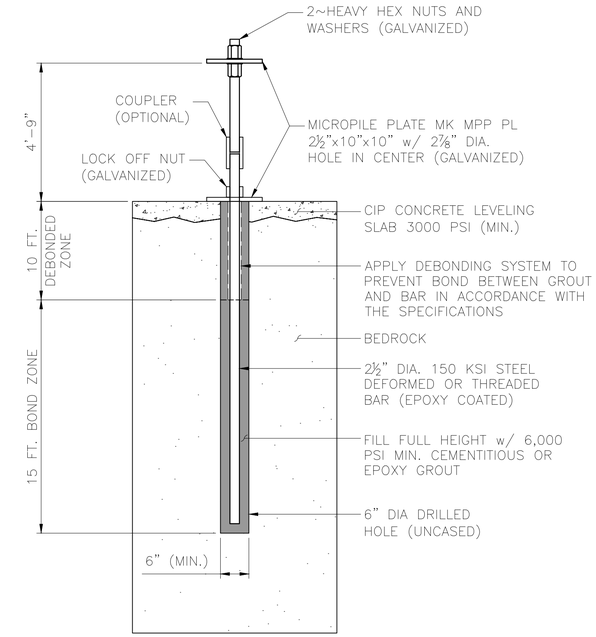
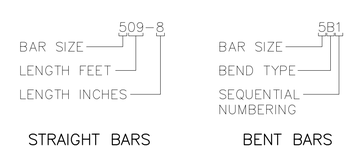


MICROPILE GROUND ANCHOR DETAIL

SCALE: NONE

OPTIONAL BAR TERMINATION DETAIL



REBAR NAMING CONVENTION

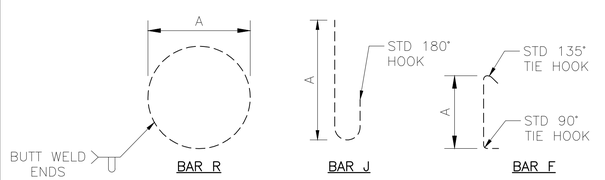
LIST OF REINFORCING BARS FOR ONE ABUTMENT PILE

QTY	MARK	SIZE	SHAPE	A	B	LENGTH	STEEL GRADE
8	1140-0	11	STR	–	–	40'-0"	80
22	11J1	11	J	51'-0"	–	52'-7"	80
22	11J2	11	J	58'-0"	–	59'-7"	80
120	6R1	6	R	3'-0½"	–	9'-6⅝"	60
60	4F1	4	F	3'-0½"	–	4'-0"	60

14,811 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 80,
1,882 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

21.4 CY = TOTAL VOLUME OF CONCRETE, CLASS DS (f'c = 5,000 PSI)

REINFORCING STEEL DETAILS



ALL DIMENSIONS ARE OUT TO OUT OF BARS

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CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: PILE DETAILS

AFE NO. 10944

YEAR 2025

SHEET 37 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_37.DWG

DATE	TIME	SCALE	PUBLISHED CTB
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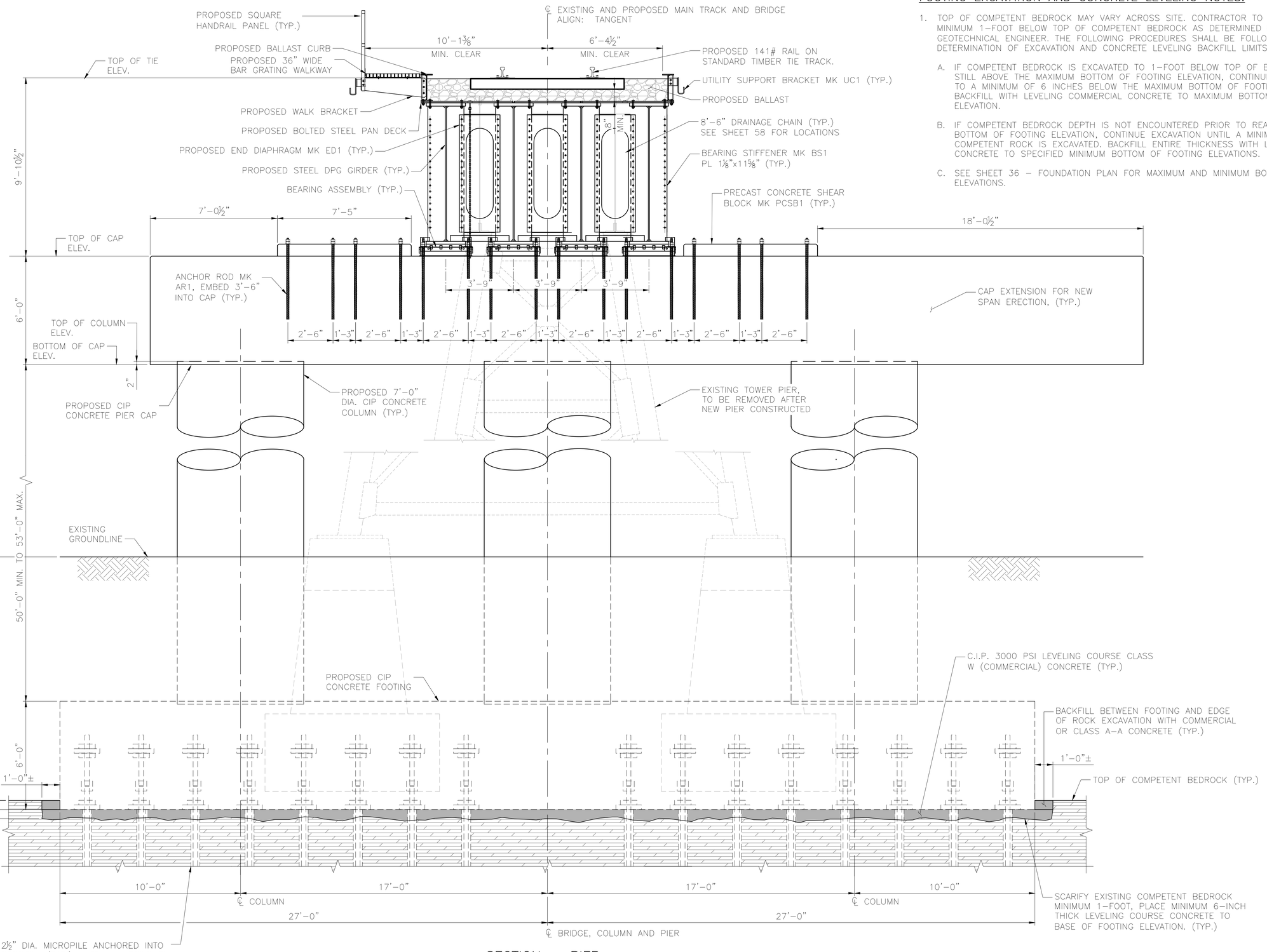

SECTION – PIER

SCALE: ⅜" = 1'-0"

FOOTING EXCAVATION AND CONCRETE LEVELING NOTES:

1. TOP OF COMPETENT BEDROCK MAY VARY ACROSS SITE. CONTRACTOR TO EXCAVATE TO MINIMUM 1-FOOT BELOW TOP OF COMPETENT BEDROCK AS DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER. THE FOLLOWING PROCEDURES SHALL BE FOLLOWED FOR DETERMINATION OF EXCAVATION AND CONCRETE LEVELING BACKFILL LIMITS:

   A. IF COMPETENT BEDROCK IS EXCAVATED TO 1-FOOT BELOW TOP OF BEDROCK, BUT IS STILL ABOVE THE MAXIMUM BOTTOM OF FOOTING ELEVATION, CONTINUE ROCK EXCAVATION TO A MINIMUM OF 6 INCHES BELOW THE MAXIMUM BOTTOM OF FOOTING ELEVATION. BACKFILL WITH LEVELING COMMERCIAL CONCRETE TO MAXIMUM BOTTOM OF FOOTING ELEVATION.

   B. IF COMPETENT BEDROCK DEPTH IS NOT ENCOUNTERED PRIOR TO REACHING MINIMUM BOTTOM OF FOOTING ELEVATION, CONTINUE EXCAVATION UNTIL A MINIMUM OF 1-FOOT OF COMPETENT ROCK IS EXCAVATED. BACKFILL ENTIRE THICKNESS WITH LEVELING COMMERCIAL CONCRETE TO SPECIFIED MINIMUM BOTTOM OF FOOTING ELEVATIONS.

   C. SEE SHEET 36 – FOUNDATION PLAN FOR MAXIMUM AND MINIMUM BOTTOM OF FOOTING ELEVATIONS.

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CHECKED BY:	AGH
DRAFTED BY:	AEP

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: BRIDGE TYPICAL SECTIONS (1 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	38 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
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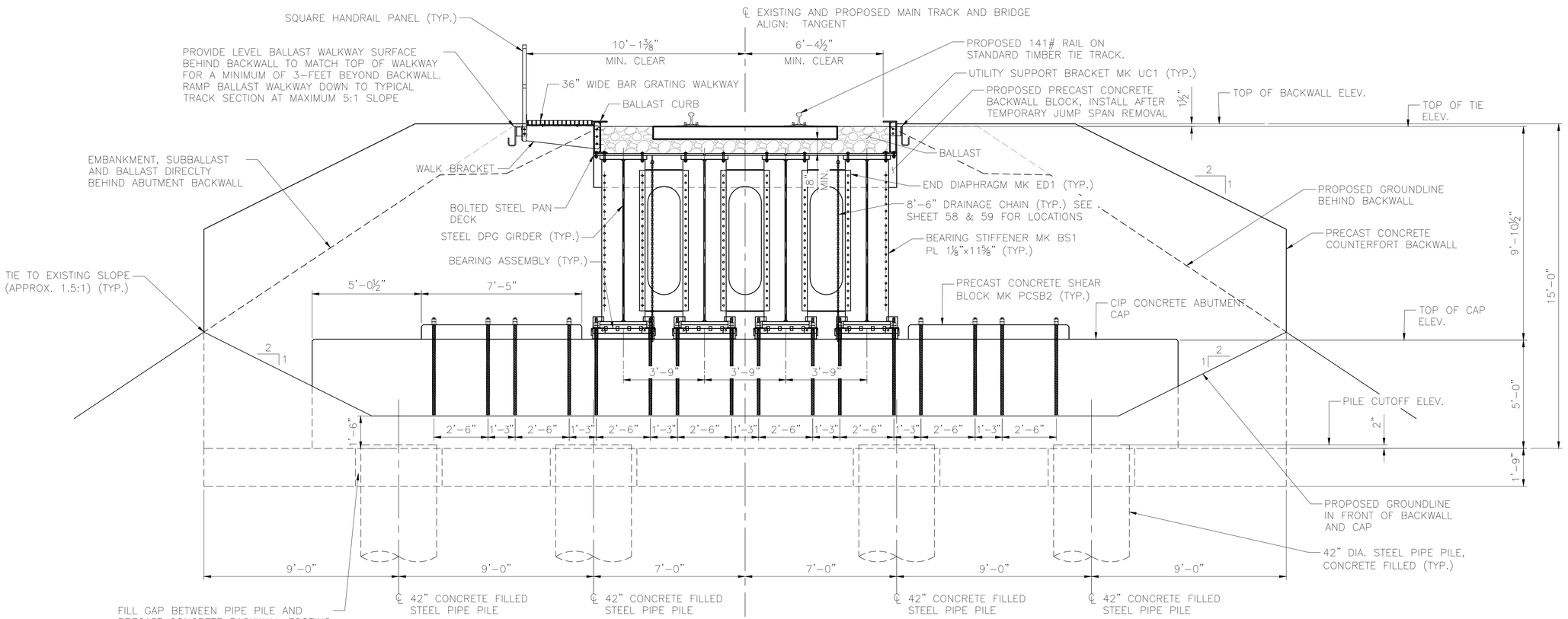

SECTION – ABUTMENT

SCALE: ⅜" = 1'-0"

EXISTING ABUTMENT AND SPAN NOT SHOWN FOR CLARITY.

DESIGNED BY:	ML
CHECKED BY:	AGH
DRAFTED BY:	MV

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: BRIDGE TYPICAL SECTIONS (2 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	39 OF 68

PUBLISHED	CTB
	ARRC_CTB_2023.CTB
SCALE	AS NOTED
DATE TIME	2/19/2025 5:04 PM

DRAWING LOCATION
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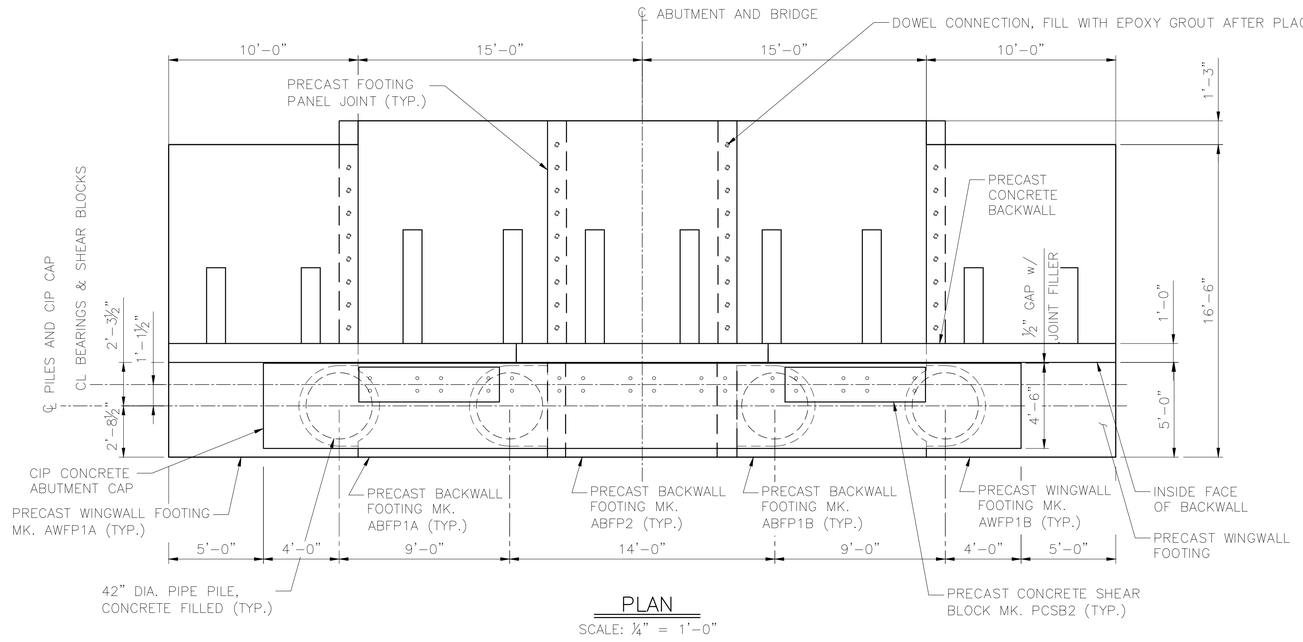
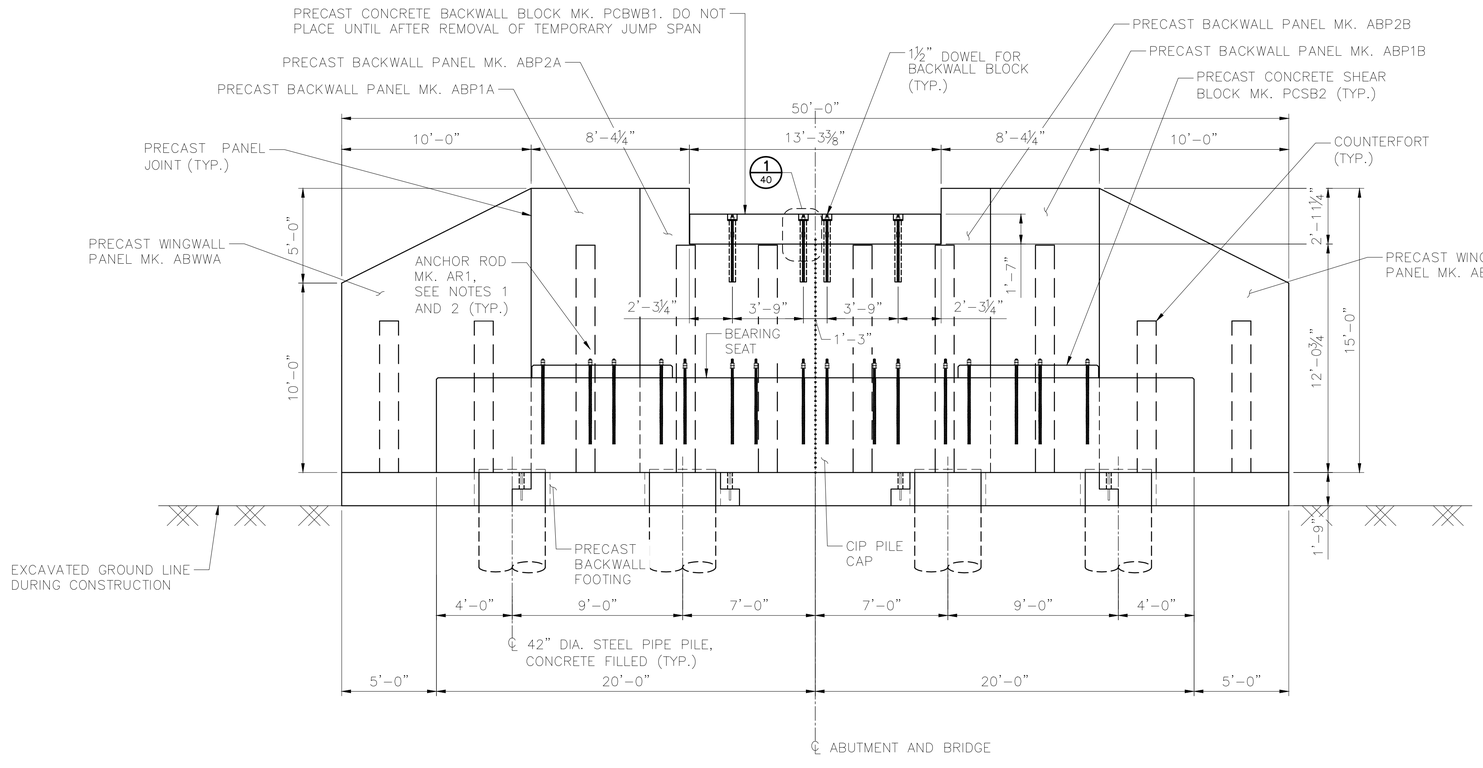


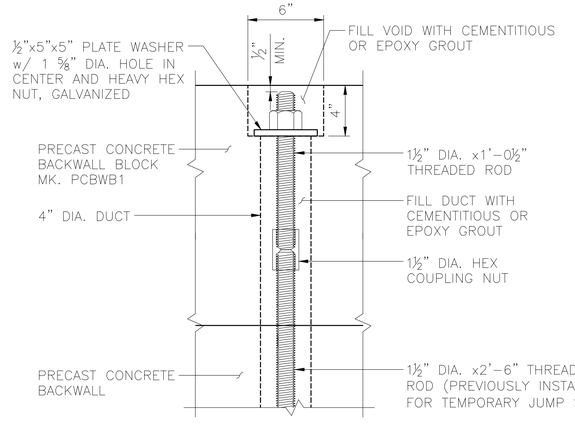
PLAN

SCALE: ¼" = 1'–0"



ELEVATION

SCALE: ¼" = 1'–0"



1/40 CONNECTION DETAIL

SCALE: 3" = 1'–0"

BACKWALL BLOCK TO BACKWALL CONNECTION

NOTES:

1. CONTRACTOR MAY SUBSTITUTE 4–INCH DIAMETER CORRUGATED EMT DUCTS AT ANCHOR ROD LOCATIONS IN LIEU OF CASTING ANCHORS DIRECTLY IN CONCRETE TO ASSIST WITH BEARING FIT UP AT NO ADDITIONAL COST TO OWNER.
2. IF POST–INSTALLING ANCHOR RODS IN DUCTS, SET ANCHOR RODS IN HOLES AFTER INSTALLATION OF SPANS. IMMEDIATELY BEFORE PLACING ANCHOR RODS IN DUCTS, CLEAN HOLE PER GROUT MANUFACTURER'S RECOMMENDATIONS, IMMOBILIZE ANCHOR RODS, AND FILL DUCTS WITH MINIMUM 10,000 PSI NON–SHRINK EPOXY GROUT.
3. TO SUPPORT PILE DRIVING AND CONSTRUCTION OF CAST–IN–PLACE CONCRETE ABUTMENT CAP, THE PRECAST CONCRETE FOOTING AND BACKWALL PANELS WILL BE INSTALLED FIRST AND ACT AS TEMPORARY SHORING. SEE SHEET 10 FOR ADDITIONAL DETAILS.

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	M.V.

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: ABUTMENT FRAMING PLAN

AFE NO.	10944
YEAR	2025
SHEET	40 OF 68

DATE	2/19/2025 5:05 PM
SCALE	AS NOTED
PUBLISHED CTB	ARRC_CTB_2023.CTB

DRAWING LOCATION
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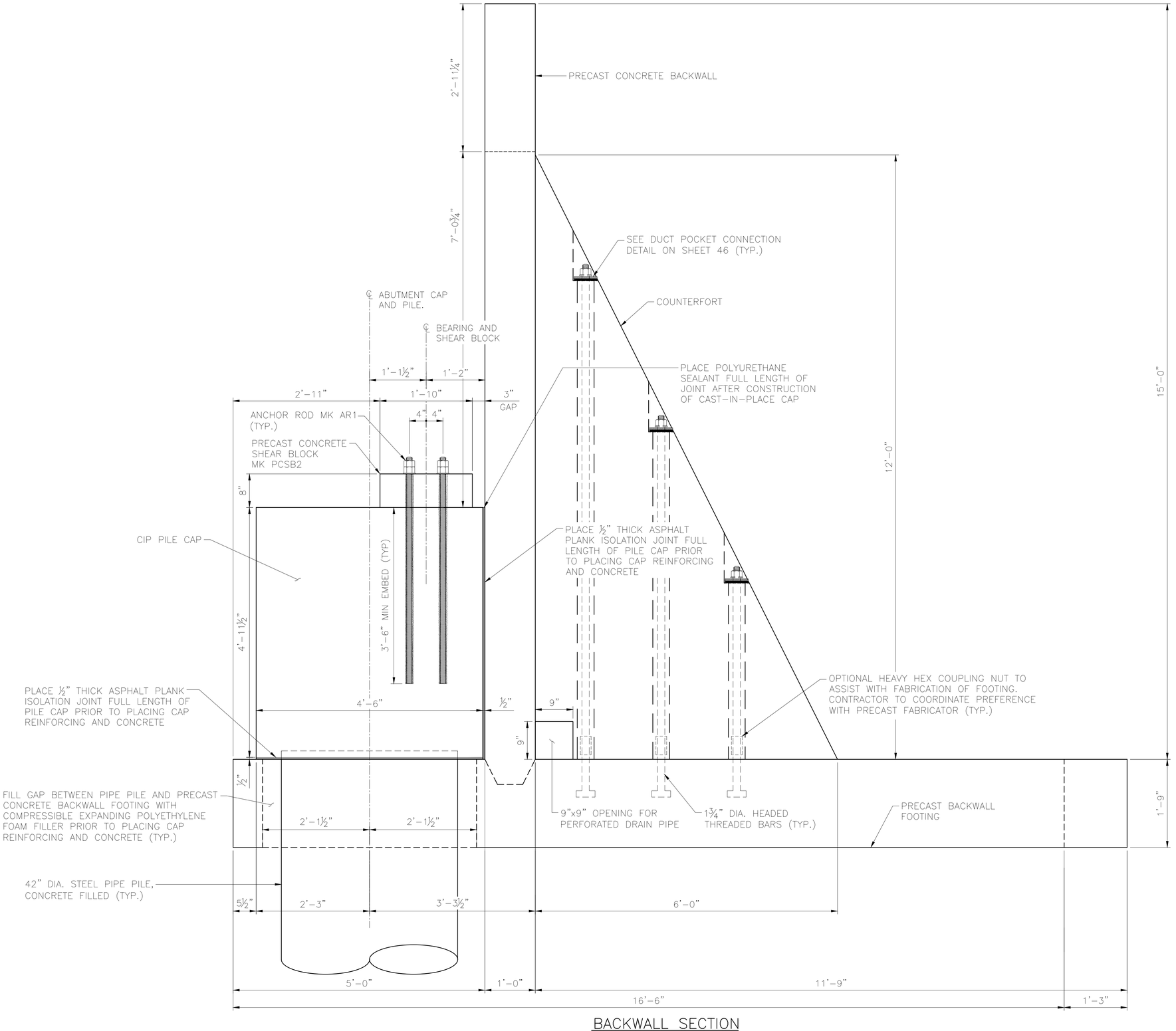

BACKWALL SECTION

SCALE: 1" = 1'-0"

DRAWING LOCATION
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DATE	TIME	SCALE	PUBLISHED CTB
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DRAFTED BY:	M.V.

STATE OF ALASKA
49 TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

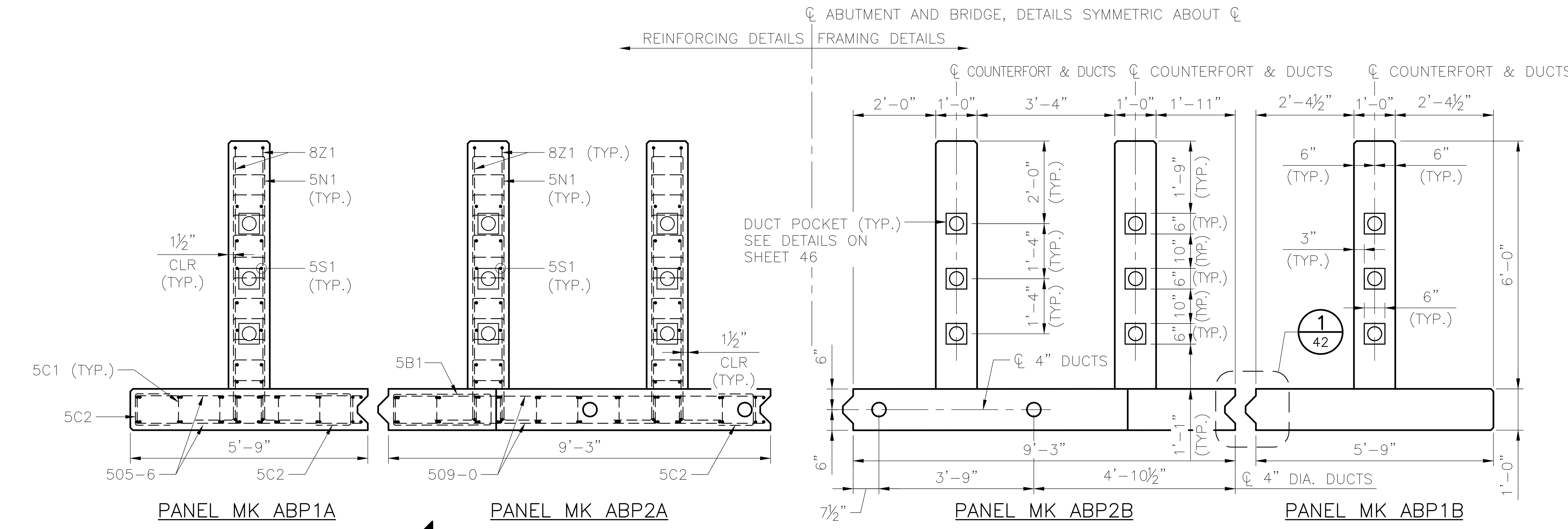
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

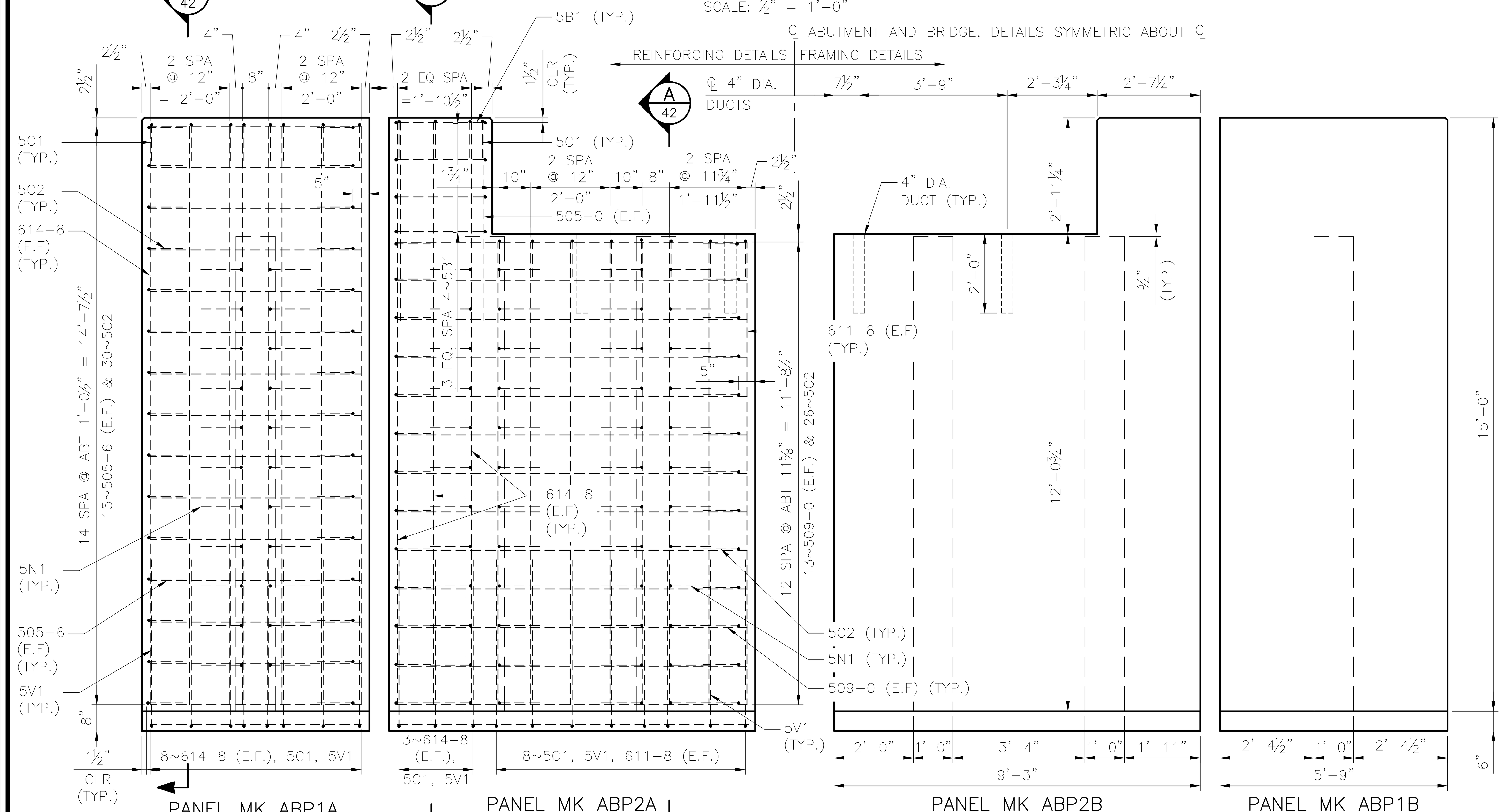
SHEET TITLE: ABUTMENT PRECAST CONCRETE ASSEMBLY DETAILS

AFE NO.	10944
YEAR	2025
SHEET	41 OF 68



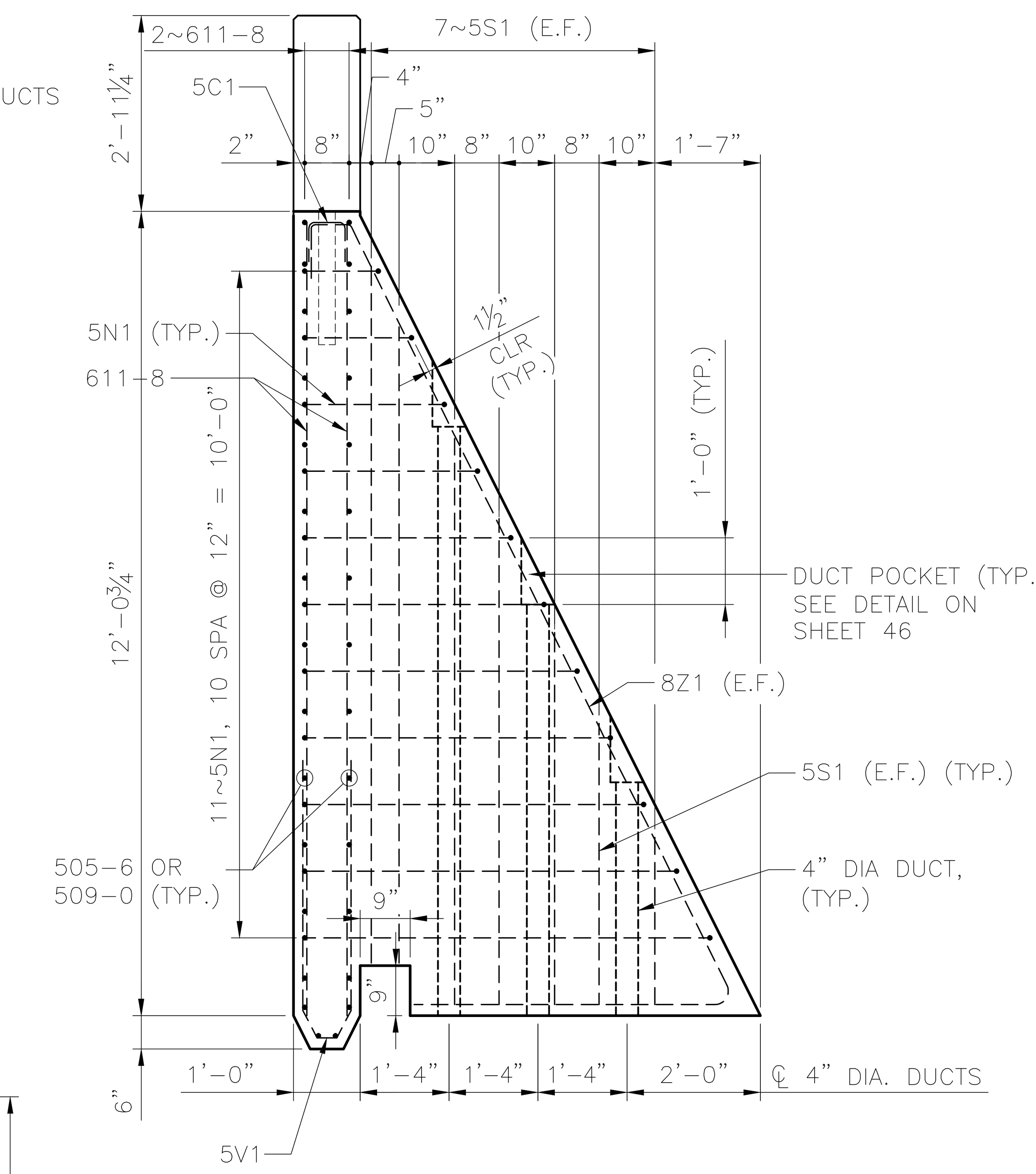
ABUTMENT WALL PLAN

SCALE: ½" = 1'-0"



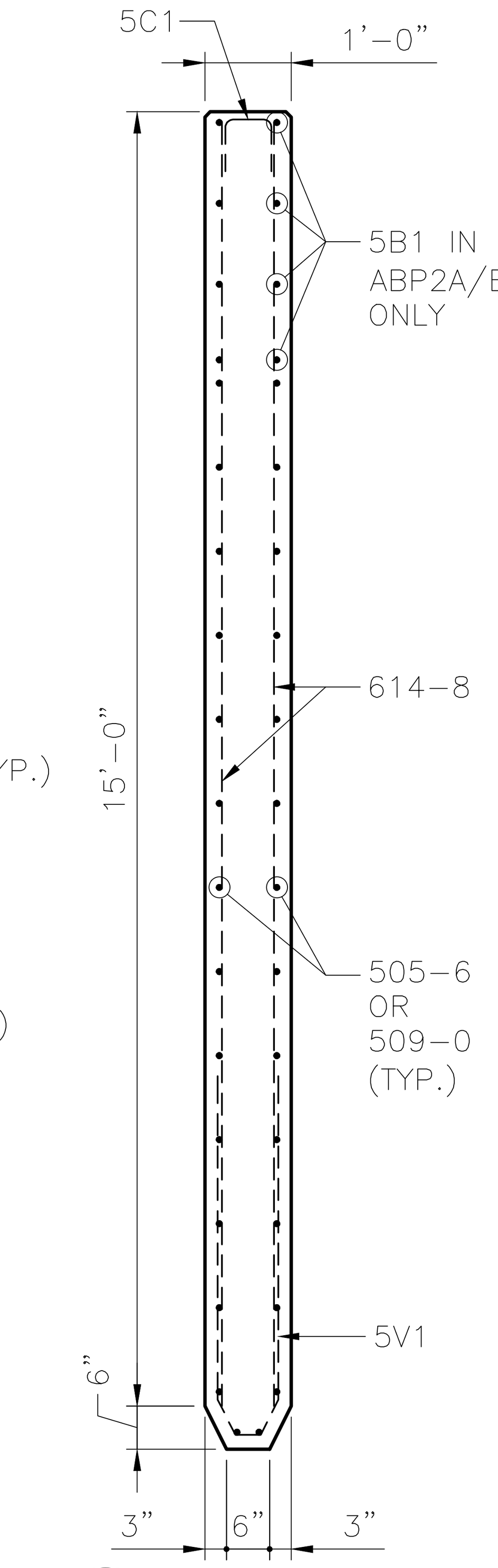
ABUTMENT WALL ELEVATION

SCALE: ½" = 1'-0"



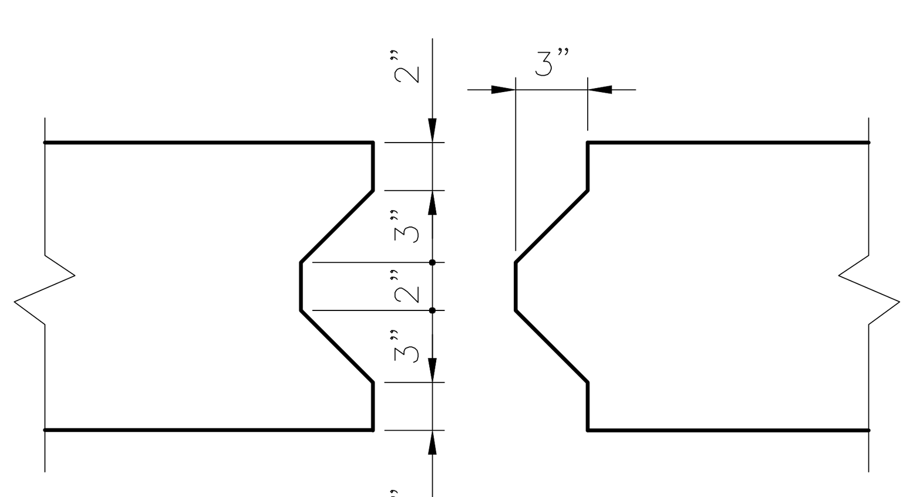
A/42 SECTION

SCALE: ½" = 1'-0"



B/42 SECTION

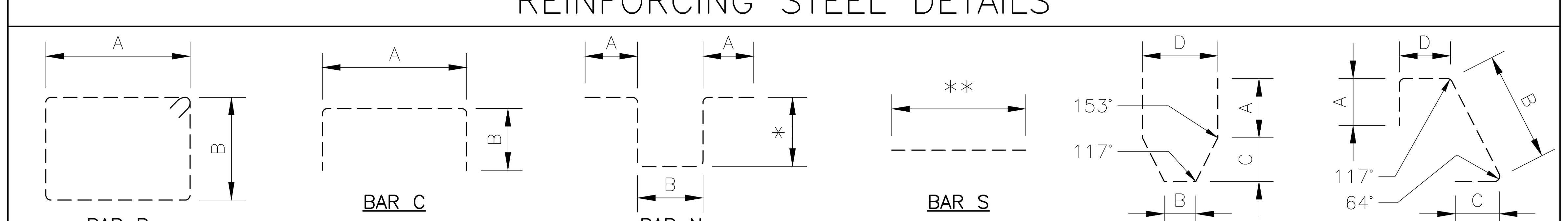
SCALE: ½" = 1'-0"



1/42 WALL JOINT DETAIL

SCALE: 1½" = 1'-0"

REINFORCING STEEL DETAILS



ALL DIMENSIONS ARE OUT TO OUT OF BARS

* VARIES C TO D

** VARIES A TO B

LIST OF REINFORCING BARS FOR MK ABP1A (MK ABP1B SIMILAR)								
QTY	MARK	SIZE	SHAPE	A	B	C	D	LENGTH
30	505-6	5	STR	–	–	–	–	5'-6"
16	614-8	6	STR	–	–	–	–	14'-8"
8	5C1	5	C	0'-7½"	1'-0"	–	–	2'-8"
30	5C2	5	C	0'-9"	1'-0"	–	–	2'-9"
11	5N1	5	N	0'-11"	0'-9"	1'-1"	6'-1"	VARIES
14	5S1	5	S	2'-6"	10'-5"	–	–	VARIES
8	5V1	5	V	3'-9"	0'-2"	0'-6"	0'-9"	8'-8"
2	8Z1	8	Z	1'-0"	13'-0½"	4'-9"	0'-7"	19'-5"
1,020 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60								
4.7 CY = TOTAL VOLUME OF CONCRETE, CLASS P (f'c = 5,000 PSI)								

LIST OF REINFORCING BARS FOR MK ABP2A (MK ABP2B SIMILAR)								
QTY	MARK	SIZE	SHAPE	A	B	C	D	LENGTH
2	505-0	5	STR	–	–	–	–	5'-0"
16	509-0	5	STR	–	–	–	–	9'-0"
16	611-8	6	STR	–	–	–	–	11'-8"
6	614-8	6	STR	–	–	–	–	14'-8"
3	5B1	5	B	2'-4"	0'-9"	–	–	7'-1"
11	5C1	5	C	0'-7½"	1'-0"	–	–	2'-8"
26	5C2	5	C	0'-9"	1'-0"	–	–	2'-9"
22	5N1	5	N	0'-11"	0'-9"	1'-1"	6'-1"	VARIES
28	5S1	5	S	2'-6"	10'-5"	–	–	VARIES
11	5V1	5	V	3'-9"	0'-2"	0'-6"	0'-9"	8'-8"
4	8Z1	8	Z	1'-0"	13'-0½"	4'-9"	0'-7"	19'-5"
1,429 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60								
7.3 CY = TOTAL VOLUME OF CONCRETE, CLASS P (f'c =5,000 PSI)								

DESIGNED BY: BAH
CHECKED BY: AGH
DRAFTED BY: MEM

STATE OF ALASKA 49TH ANTHONY G. HAFNER No. SE 207484 REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

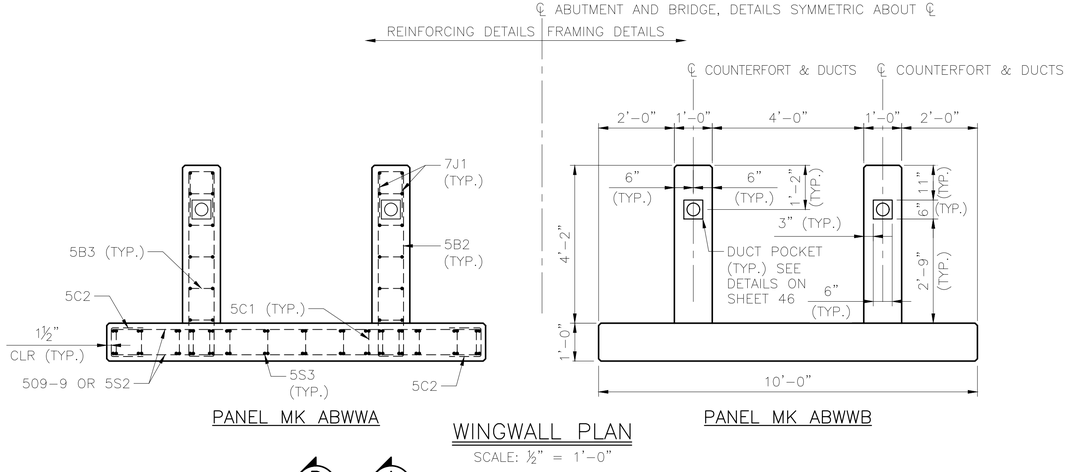
ALASKA RAILROAD
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: ABUTMENT PRECAST CONCRETE BACKWALL DETAILS

AFE NO. 10944
YEAR 2025

DATE 2/19/2025 TIME 5:09 PM
SCALE AS NOTED
PUBLISHED CTB ARRC_CTB_2023.CTB
DRAWING LOCATION C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_42.DWG

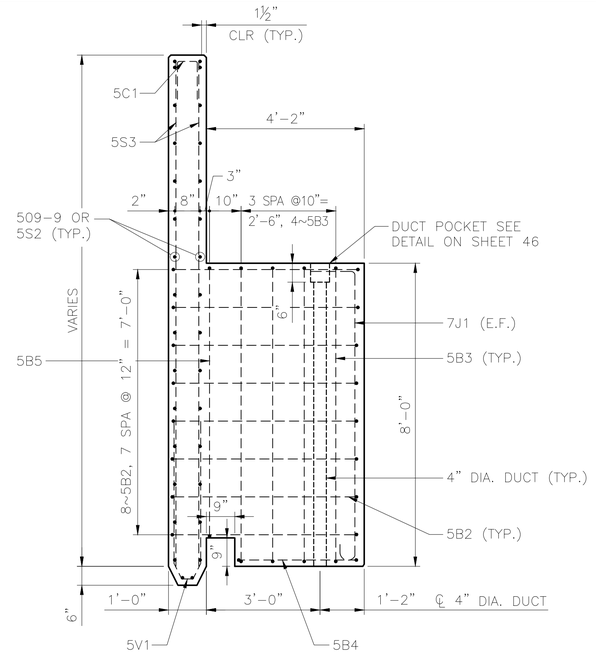


PANEL MK ABWWA

PANEL MK ABWWB

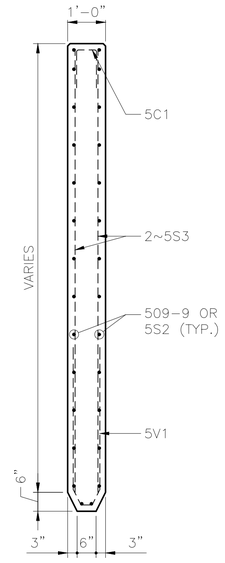
WINGWALL PLAN

SCALE: ½" = 1'–0"



A/43 SECTION

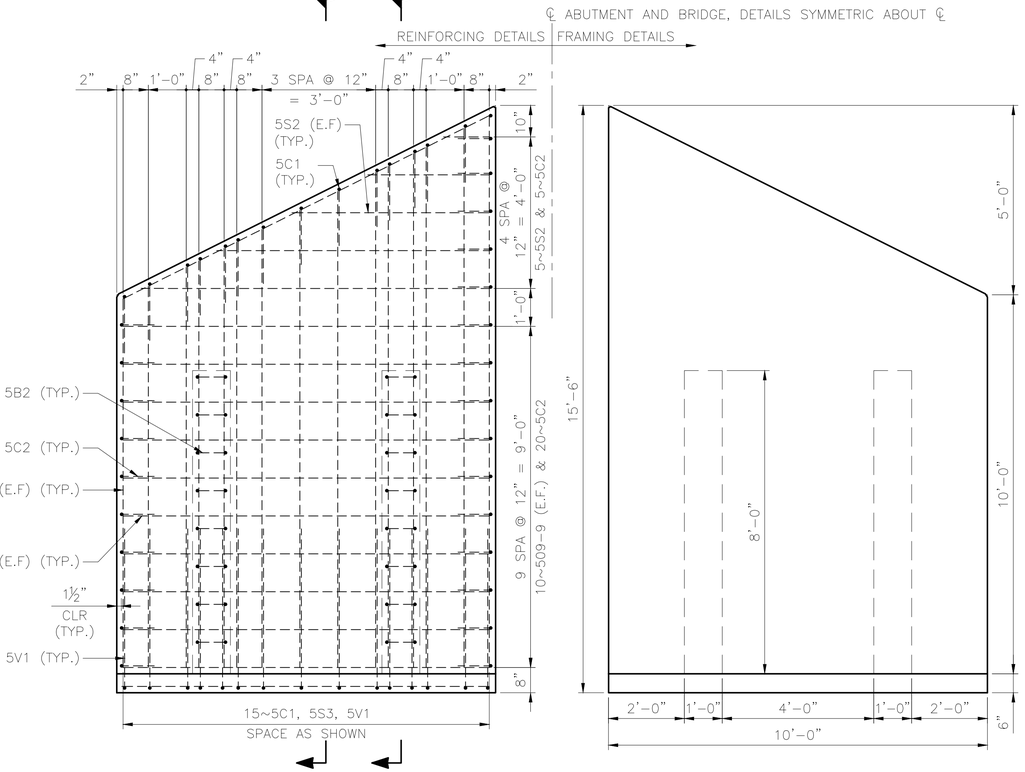
SCALE: ½" = 1'–0"



B/43 SECTION

SCALE: ½" = 1'–0"

B/43 A/43



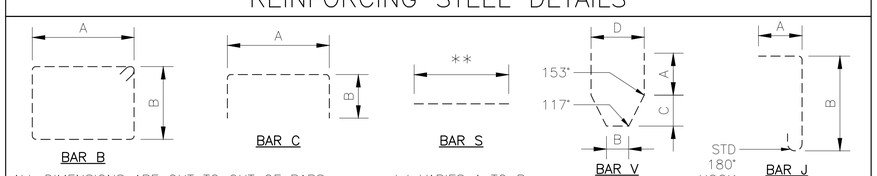
PANEL MK ABWWA

PANEL MK ABWWB

WINGWALL ELEVATION

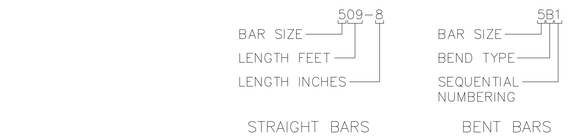
SCALE: ½" = 1'–0"

REINFORCING STEEL DETAILS



ALL DIMENSIONS ARE OUT TO OUT OF BARS

** VARIES A TO B



STRAIGHT BARS

BENT BARS

REBAR NAMING CONVENTION

LIST OF REINFORCING BARS FOR MK ABWWA (ABWWB SIMILAR)

QTY	MARK	SIZE	SHAPE	A	B	C	D	LENGTH
10	509–0	5	STR	–	–	–	–	9'–0"
16	5B2	5	B	0'–9"	4'–11"	–	–	12'–3"
8	5B3	5	B	0'–7½"	7'–9"	–	–	17'–8"
2	5B4	5	B	0'–9"	3'–2"	–	–	9'–9"
2	5B5	5	B	0'–7½"	7'–0"	–	–	16'–2"
15	5C1	5	C	0'–7½"	1'–0"	–	–	2'–8"
25	5C2	5	C	0'–9"	1'–0"	–	–	2'–9"
10	5S2	5	S	1'–2"	9'–2"		–	VARIES
30	5S3	5	S	14'–8"	9'–10"	–	–	VARIES
15	5V1	5	V	3'–9"	0'–2"	0'–6"	0'–9"	8'–8"
4	7J1	7	J	1'–2"	7'–8"	–	–	9'–6"

1,236 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

7.3 CY = TOTAL VOLUME OF CONCRETE, CLASS P (f'c = 5,000 PSI)

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

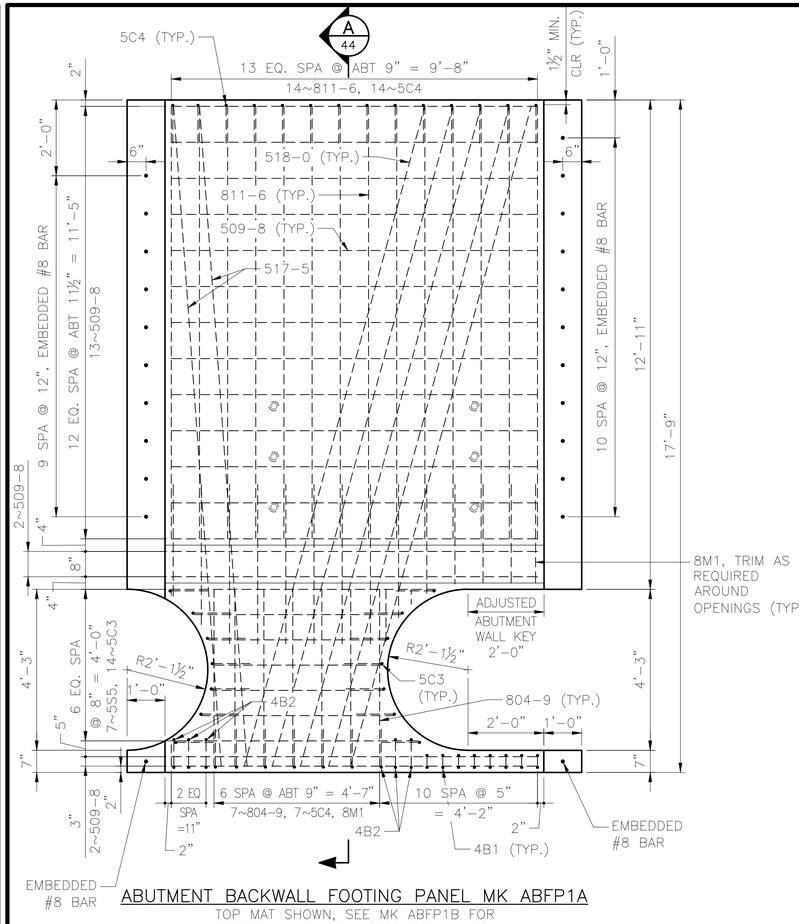
SHEET TITLE: ABUTMENT PRECAST CONCRETE WINGWALL DETAILS

AFE NO.	10944
YEAR	2025
SHEET	43 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_43.DWG

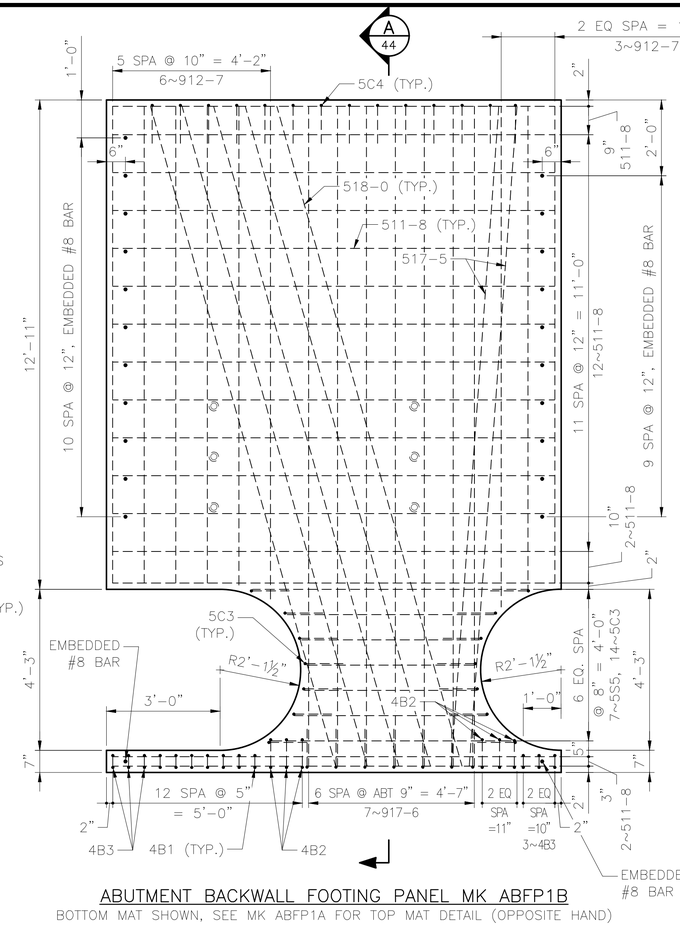
PUBLISHED	SCALE	TIME	DATE
CTB	AS NOTED	5:09 PM	2/19/2025
ARRC_CTB_2023.CTB			

℄ ABUTMENT AND BRIDGE DETAILS SYMMETRIC ABOUT ℄



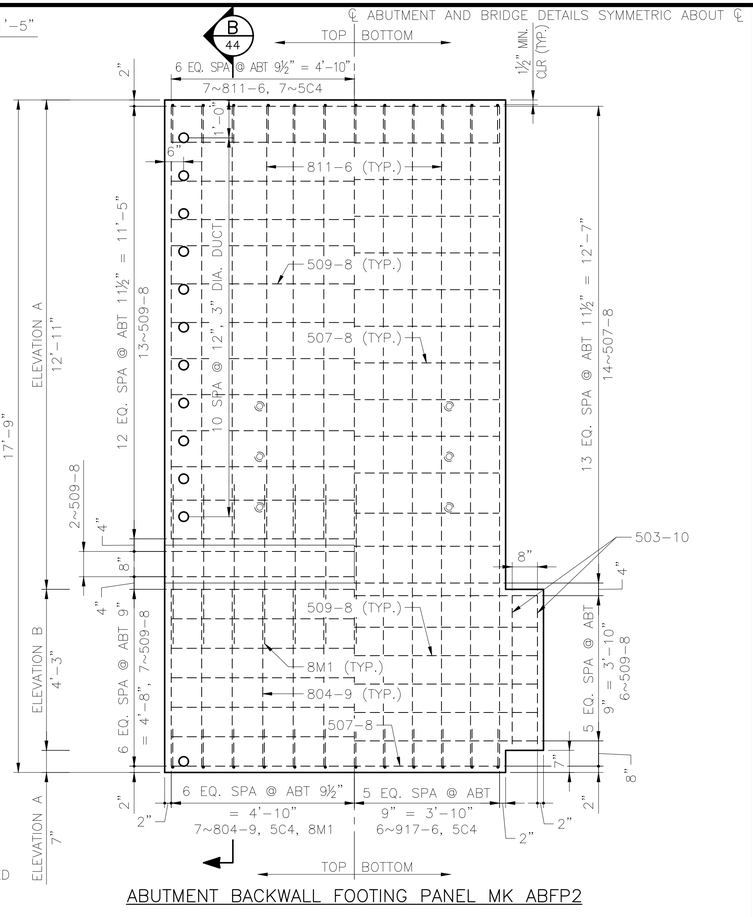
ABUTMENT BACKWALL FOOTING PANEL MK ABFP1A

TOP MAT SHOWN, SEE MK ABFP1B FOR BOTTOM MAT DETAIL (OPPOSITE HAND)



ABUTMENT BACKWALL FOOTING PANEL MK ABFP1B

BOTTOM MAT SHOWN, SEE MK ABFP1A FOR TOP MAT DETAIL (OPPOSITE HAND)

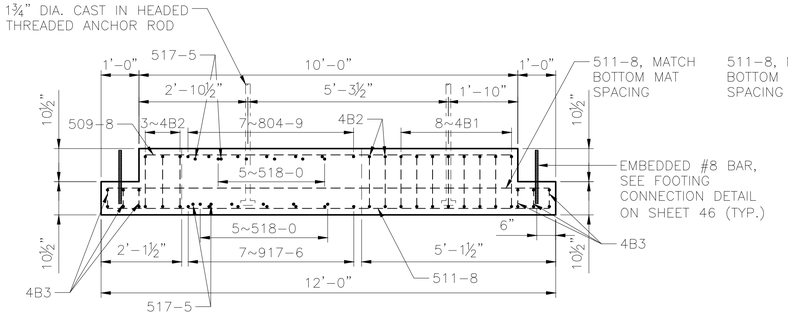


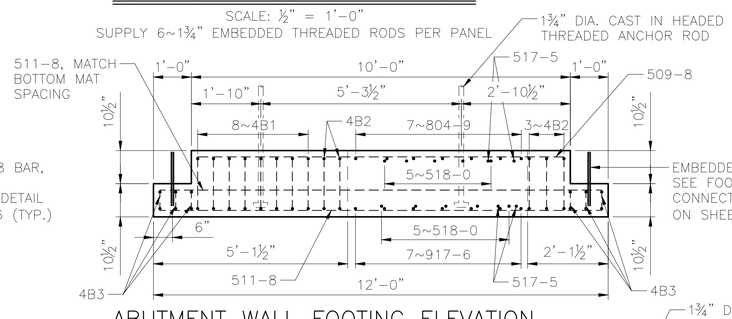
ABUTMENT BACKWALL FOOTING PANEL MK ABFP2

ABUTMENT WALL FOOTING PLAN

SCALE: ½" = 1'-0"

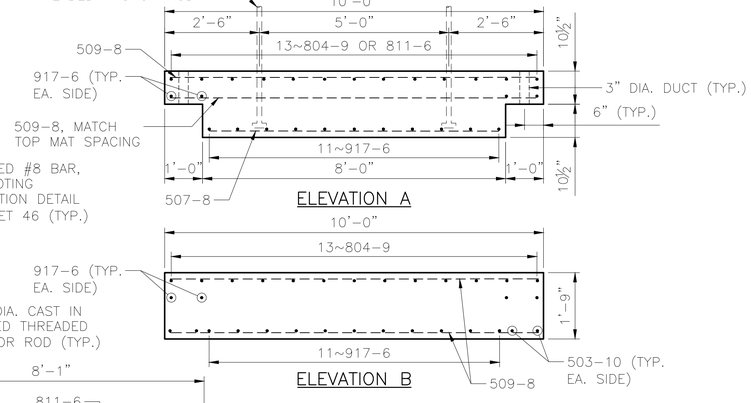
SUPPLY 6~1¾" EMBEDDED THREADED RODS PER PANEL

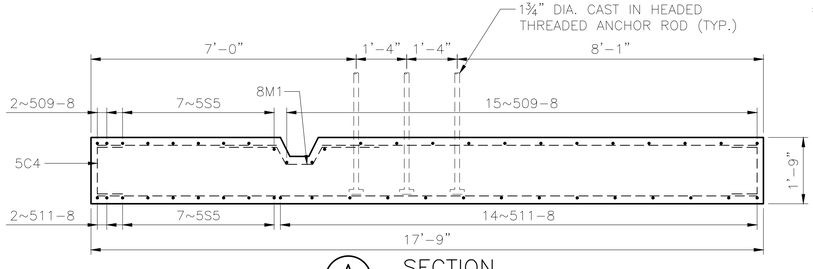




ABUTMENT WALL FOOTING ELEVATION

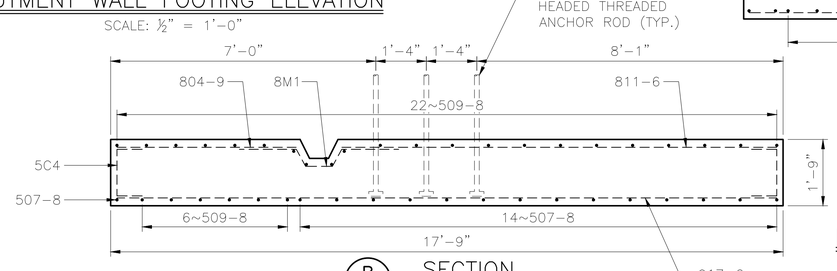
SCALE: ½" = 1'-0"





A 44 SECTION

SCALE: ½" = 1'-0"



B 44 SECTION

SCALE: ½" = 1'-0"

NOTE:

1. REFER TO SHEET 46 FOR LISTS OF REINFORCING BARS AND REINFORCING STEEL DETAILS.

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

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ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

HDR 582 E. 36TH AVE., SUITE 500 ANCHORAGE, ALASKA 99503-4169 (907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

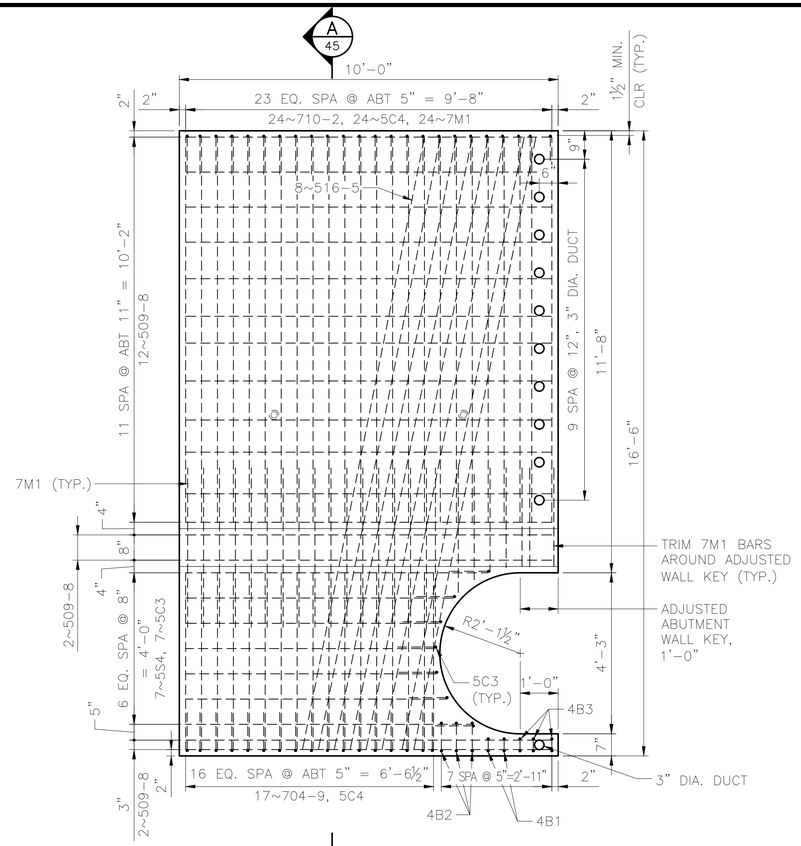
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: ABUTMENT PRECAST CONCRETE BACKWALL FOOTING DETAILS

AFE NO.	10944
YEAR	2025
SHEET	44 OF 68

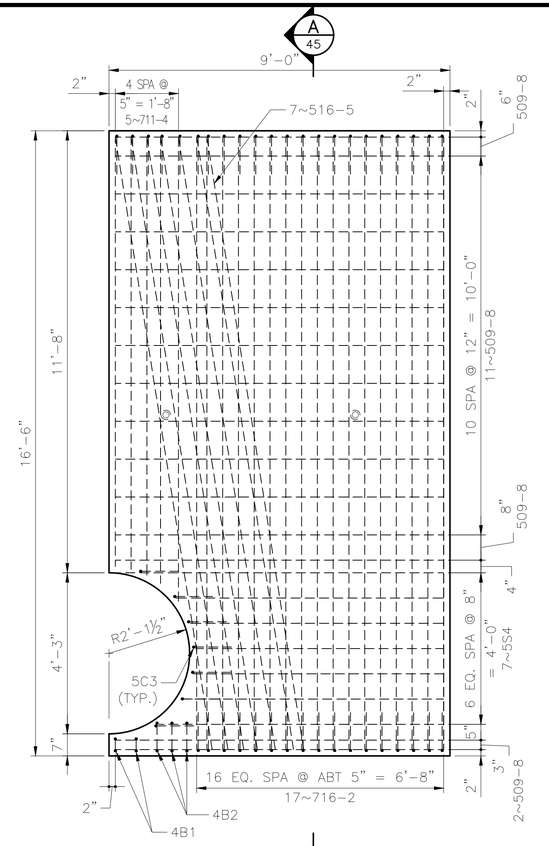
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_44.DWG

DATE TIME 2/19/2025 5:10 PM | SCALE AS NOTED | PUBLISHED CTB ARRC_CTB_2023.CTB



ABUTMENT WINGWALL FOOTING PANEL MK AWFP1A

TOP MAT SHOWN, SEE MK AWFP1B FOR BOTTOM MAT DETAIL (OPPOSITE HAND)



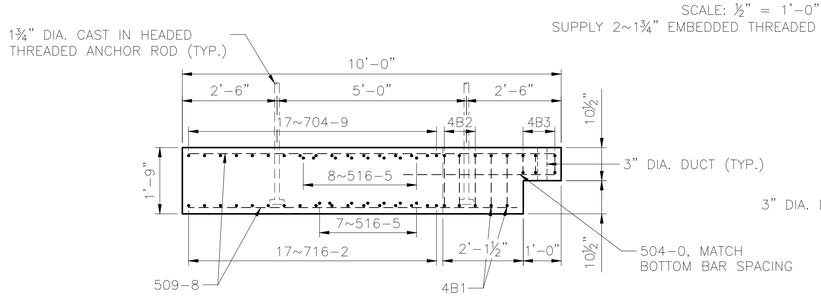
ABUTMENT WINGWALL FOOTING PANEL MK AWFP1B

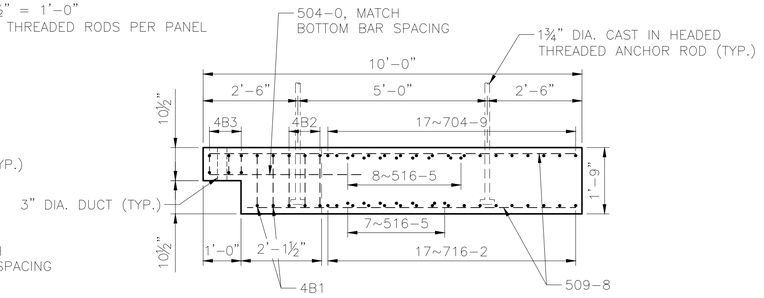
BOTTOM MAT SHOWN, SEE MK AWFP1A FOR TOP MAT DETAIL (OPPOSITE HAND)

ABUTMENT WINGWALL FOOTING PLAN

SCALE: ½" = 1'-0"

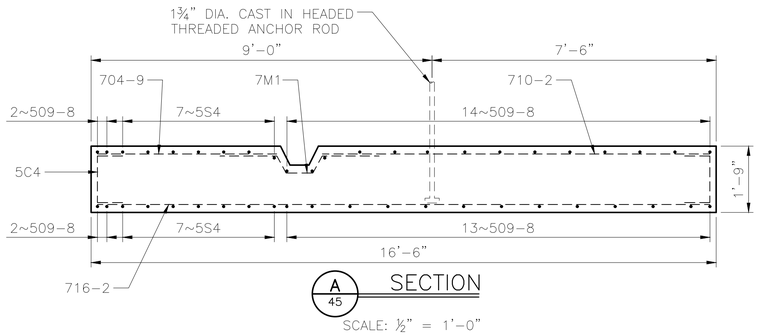
SUPPLY 2~1¾" EMBEDDED THREADED RODS PER PANEL





ABUTMENT WINGWALL FOOTING ELEVATION

SCALE: ½" = 1'-0"



NOTE:

1. REFER TO SHEET 46 FOR LISTS OF REINFORCING BARS AND REINFORCING STEEL DETAILS.

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

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ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

HDR
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

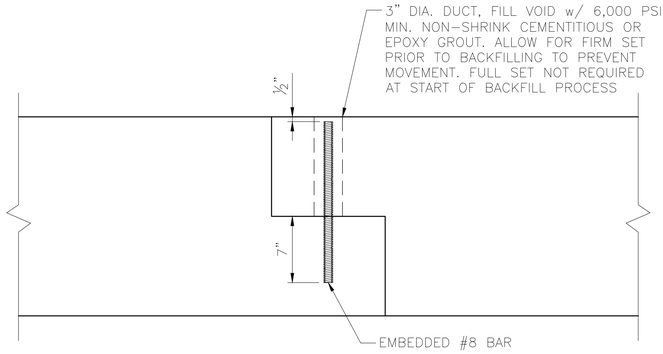
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: ABUTMENT PRECAST CONCRETE WINGWALL FOOTING DETAILS

AFE NO.	10944
YEAR	2025
SHEET	45 OF 68

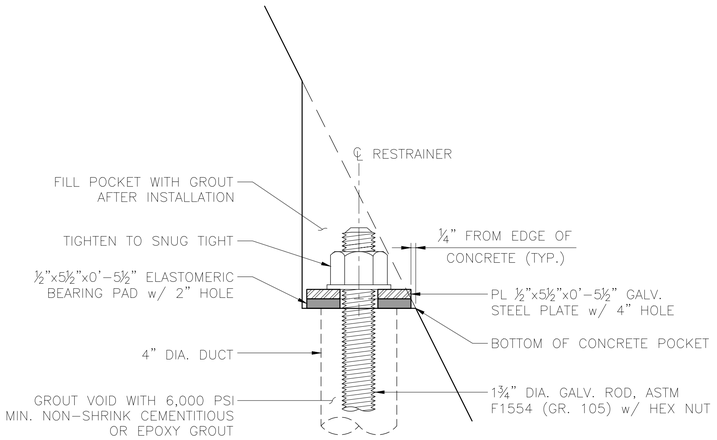
DATE	TIME	SCALE	PUBLISHED CTB
2/19/2025	5:10 PM	AS NOTED	ARRC_CTB_2023.CTB

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_45.DWG



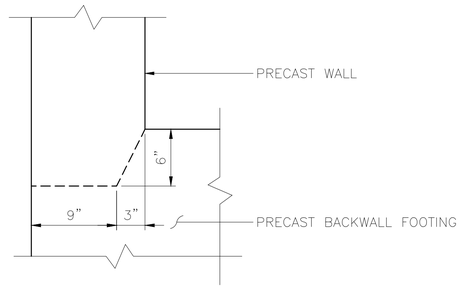
FOOTING CONNECTION

SCALE: 1½" = 1'-0"
NOTE: SEE SHEET 44 & 45 FOR REBAR DETAILING



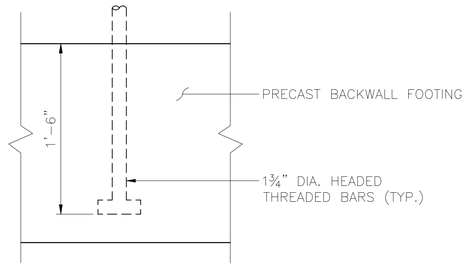
DUCT POCKET CONNECTION

SCALE: 3" = 1'-0"
SLOPED COUNTERFORT IN MK ABP1/ABP2 SHOWN,
SQUARE COUNTERFORT IN MK ABWWA/B SIMILAR



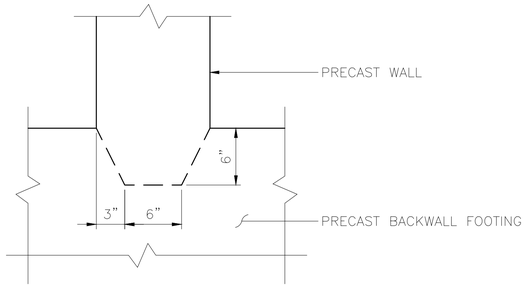
ADJUSTED ABUTMENT WALL KEY

SCALE: 1½" = 1'-0"
NOTE: SEE SHEETS 42 TO 45 FOR REBAR DETAILING



COUNTERFORT FOOTING CONNECTION

SCALE: 1½" = 1'-0"
NOTE: SEE SHEET 44 FOR REBAR DETAILING



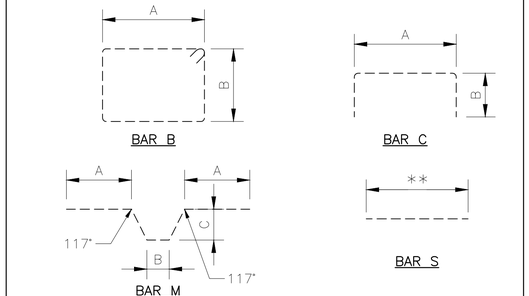
ABUTMENT WALL KEY

SCALE: 1½" = 1'-0"
NOTE: SEE SHEETS 42 TO 45 FOR REBAR DETAILING

LIST OF REINFORCING BARS FOR ABFP1A (ABFP1B SIMILAR)							
QTY	MARK	SIZE	SHAPE	A	B	C	LENGTH
17	509-8	5	STR	–	–	–	9'-8"
32	511-8	5	STR	–	–	–	11'-8"
4	517-5	5	STR	–	–	–	17'-5"
10	518-0	5	STR	–	–	–	18'-0"
7	804-9	8	STR	–	–	–	4'-9"
14	811-6	8	STR	–	–	–	11'-6"
8	912-7	9	STR	–	–	–	12'-7"
7	917-6	9	STR	–	–	–	17'-6"
8	4B1	4	B	1'-4"	0'-4"	–	4'-0"
5	4B2	4	B	1'-4"	0'-9"	–	4'-10"
6	4B3	4	B	0'-7"	0'-4"	–	2'-6"
14	5C3	5	C	1'-6"	1'-0"	–	3'-6"
14	5C4	5	C	1'-4"	1'-0"	–	3'-4"
14	5S5	5	S	4'-5"	6'-11"	–	VARIES
7	8M1	8	M	3'-9"	0'-2"	0'-6"	9'-4"
2,504 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60							
10.4 CY = TOTAL VOLUME OF CONCRETE, CLASS P (f'c = 5,000 PSI)							

LIST OF REINFORCING BARS FOR ABFP2							
QTY	MARK	SIZE	SHAPE	A	B	C	LENGTH
15	507-8	5	STR	–	–	–	7'-8"
28	509-8	5	STR	–	–	–	9'-8"
4	503-11	5	STR	–	–	–	3'-11"
13	804-9	8	STR	–	–	–	4'-9"
13	811-6	8	STR	–	–	–	11'-6"
15	917-6	9	STR	–	–	–	17'-6"
22	5C4	5	C	1'-4"	1'-0"	–	3'-4"
13	8M1	8	M	3'-9"	0'-2"	0'-6"	9'-4"
2,156 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60							
10.7 CY = TOTAL VOLUME OF CONCRETE, CLASS P (f'c = 5,000 PSI)							

REINFORCING STEEL DETAILS



ALL DIMENSIONS ARE OUT TO OUT OF BARS ** VARIES A TO B

LIST OF REINFORCING BARS FOR AWFP1A (AWFP1B SIMILAR)							
QTY	MARK	SIZE	SHAPE	A	B	C	LENGTH
16	504-0	5	STR	–	–	–	4'-0"
32	509-8	5	STR	–	–	–	9'-8"
15	516-5	5	STR	–	–	–	16'-5"
17	704-9	7	STR	–	–	–	4'-9"
24	710-2	7	STR	–	–	–	10'-2"
5	711-4	7	STR	–	–	–	11'-4"
17	716-2	7	STR	–	–	–	16'-2"
2	4B1	4	B	1'-4"	0'-4"	–	4'-0"
3	4B2	4	B	1'-4"	0'-9"	–	4'-10"
3	4B3	4	B	0'-7"	0'-4"	–	2'-6"
7	5C3	5	C	1'-6"	1'-0"	–	3'-6"
41	5C4	5	C	1'-4"	1'-0"	–	3'-4"
14	5S4	5	S	6'-6"	7'-11"	–	VARIES
24	7M1	7	M	3'-9"	0'-2"	0'-6"	9'-4"
2,739 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60							
9.5 CY = TOTAL VOLUME OF CONCRETE, CLASS P (f'c = 5,000 PSI)							

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

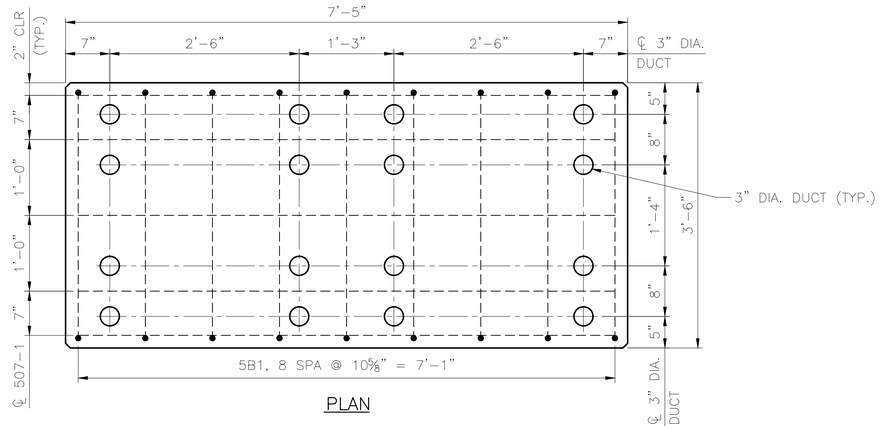
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

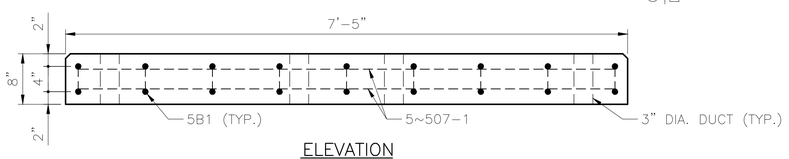
SHEET TITLE: ABUTMENT PRECAST CONCRETE CONNECTION DETAILS

AFE NO.	10944
YEAR	2025
SHEET	46 OF 68

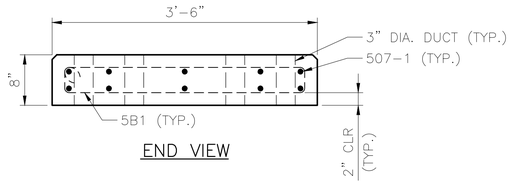
PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:10 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_46.DWG



PLAN



ELEVATION

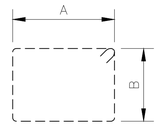


END VIEW

PRECAST CONCRETE SHEAR BLOCK MK PCSB1 DETAILS

SCALE: 1" = 1'-0"

REINFORCING STEEL DETAILS



BAR B

ALL DIMENSIONS ARE OUT TO OUT OF BARS

LIST OF REINFORCING BARS FOR MK PCSB1

QTY	MARK	SIZE	SHAPE	A	B	LENGTH
10	507-1	5	STR	–	–	7'-1'
9	5B1	5	B	3'-3"	5"	8'-4"

153 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

0.64 CY = TOTAL VOLUME OF CONCRETE, CLASS A-A (f'c = 5,000 PSI)

LIST OF REINFORCING BARS FOR MK PCSB2

QTY	MARK	SIZE	SHAPE	A	B	LENGTH
6	507-1	5	STR	–	–	7'-1'
9	5B2	5	B	1'-7"	5"	4'-11"

91 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

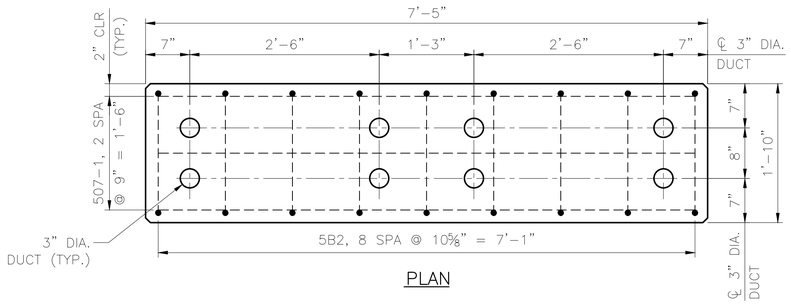
0.34 CY = TOTAL VOLUME OF CONCRETE, CLASS A-A (f'c = 5,000 PSI)

LIST OF REINFORCING BARS FOR MK PCBWB1

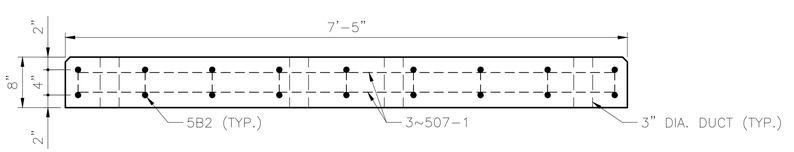
QTY	MARK	SIZE	SHAPE	A	B	LENGTH
6	512-11	5	STR	–	–	12'-11"
15	5B3	5	B	0'-9"	1'-3½"	5'-0"

161 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

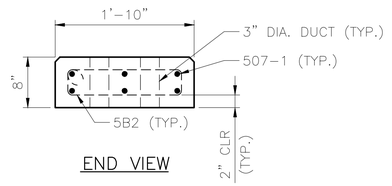
0.77 CY = TOTAL VOLUME OF CONCRETE, CLASS A-A (f'c = 5,000 PSI)



PLAN



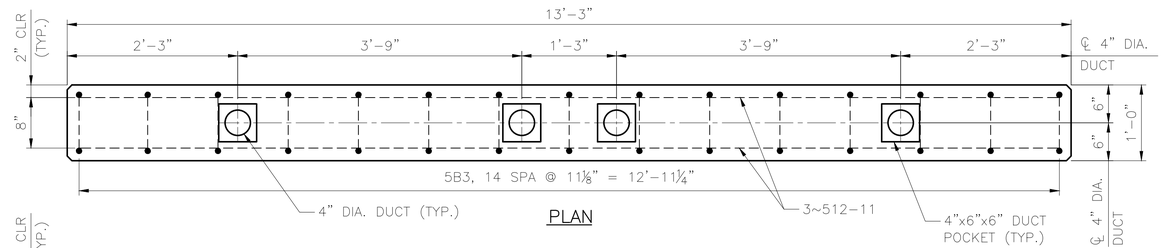
ELEVATION



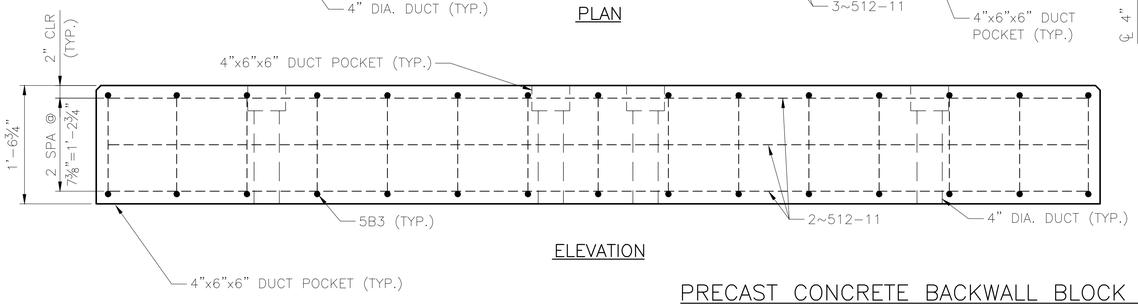
END VIEW

PRECAST CONCRETE SHEAR BLOCK MK PCSB2 DETAILS

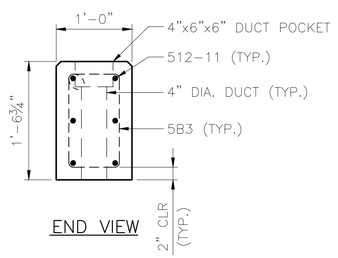
SCALE: 1" = 1'-0"



PLAN



ELEVATION



END VIEW

PRECAST CONCRETE BACKWALL BLOCK MK PCBWB1 DETAILS

SCALE: 1" = 1'-0"

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

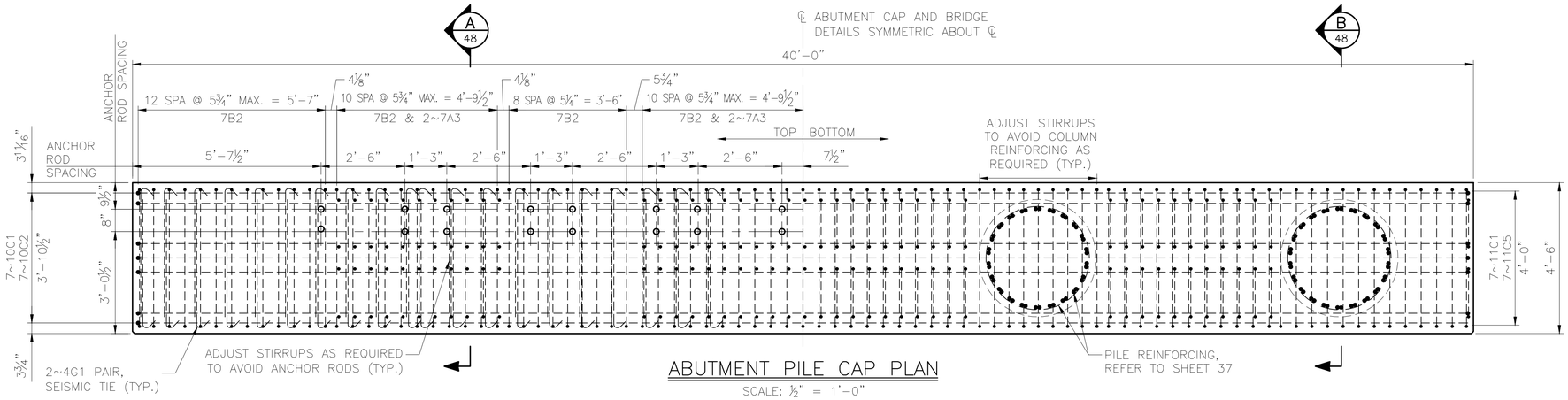
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: MISCELLANEOUS PRECAST CONCRETE DETAILS

AFE NO.	10944
YEAR	2025
SHEET	47 OF 68

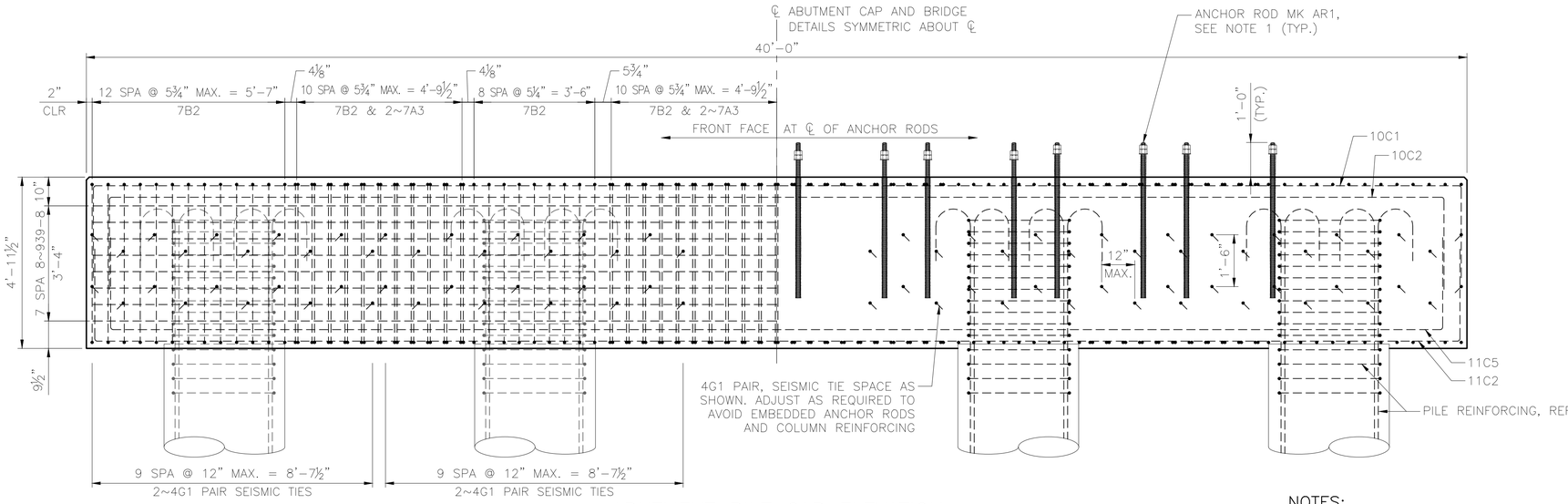
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_47.DWG

DATE	2/19/2025 5:10 PM
SCALE	AS NOTED
PUBLISHED CTB	ARRC_CTB_2023.CTB



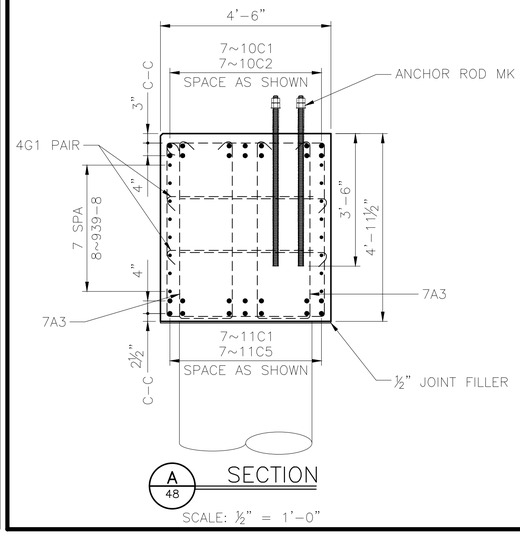
ABUTMENT PILE CAP PLAN

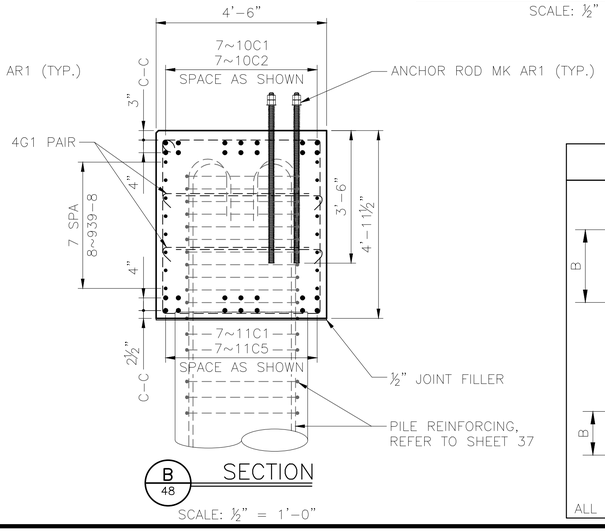
SCALE: ½" = 1'-0"



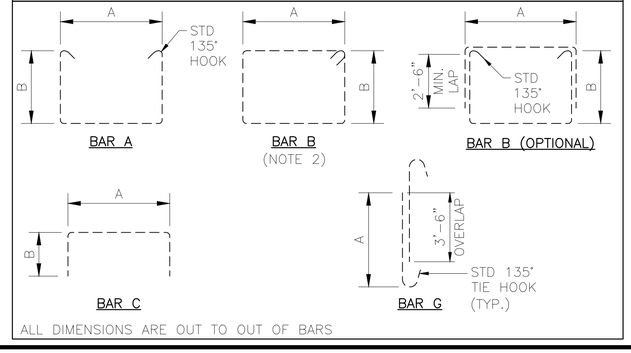
ABUTMENT PILE CAP ELEVATION

SCALE: ½" = 1'-0"





REINFORCING STEEL DETAILS



ALL DIMENSIONS ARE OUT TO OUT OF BARS

NOTES:

1. CONTRACTOR MAY SUBSTITUTE 4-INCH DIAMETER CORRUGATED EMT DUCTS AT ANCHOR ROD LOCATIONS IN LIEU OF CASTING ANCHORS DIRECTLY IN CONCRETE TO ASSIST WITH BEARING FIT UP AT NO ADDITIONAL COST TO OWNER.
2. CONTRACTOR MAY UTILIZE OPTIONAL REBAR DETAILING CONFIGURATIONS AS NOTED TO AID IN CONSTRUCTABILITY AT NO ADDITIONAL COST TO OWNER. REBAR QUANTITIES SHOWN ARE FOR PRIMARY DETAILING CONFIGURATIONS.

LIST OF REINFORCING BARS FOR ONE ABUTMENT CAP

QTY	MARK	SIZE	SHAPE	A	B	LENGTH
16	939-8	9	STR	–	–	39'-8"
86	7A3	7	A	1'-6"	4'-7"	9'-2"
87	7B2	7	B	4'-2"	4'-7"	19'-0"
7	10C1	10	C	39'-8"	2'-8"	45'-0"
7	10C2	10	C	39'-2"	2'-2"	43'-6"
7	11C1	11	C	39'-8"	2'-8"	45'-0"
7	11C5	11	C	39'-2"	2'-2"	43'-6"
160	4G1	4	G	3'-11"	–	4'-4"
13,568 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60						
33.1 CY = TOTAL VOLUME OF CONCRETE, CLASS A-A (f'c = 5,000 PSI)						

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

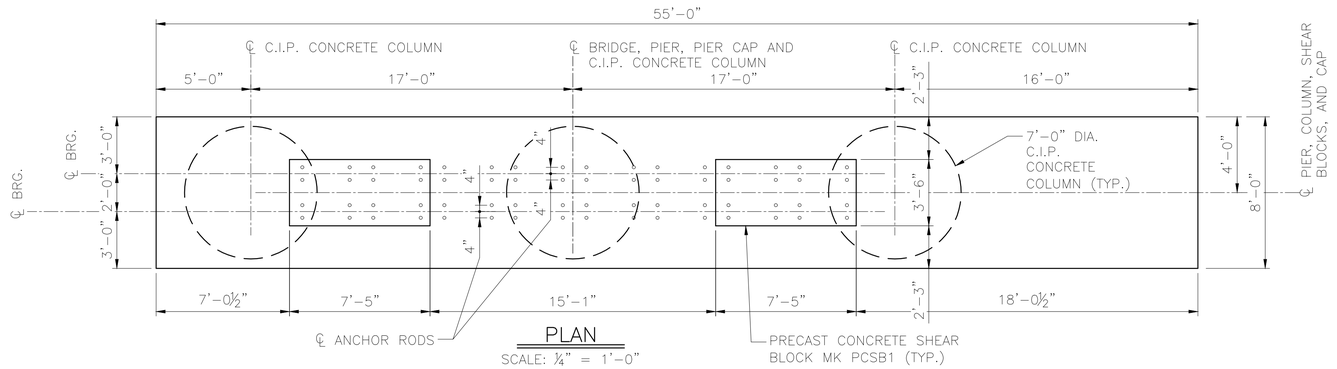
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: ABUTMENT CAST-IN-PLACE CONCRETE DETAILS

AFE NO.	10944
YEAR	2025
SHEET	48 OF 68

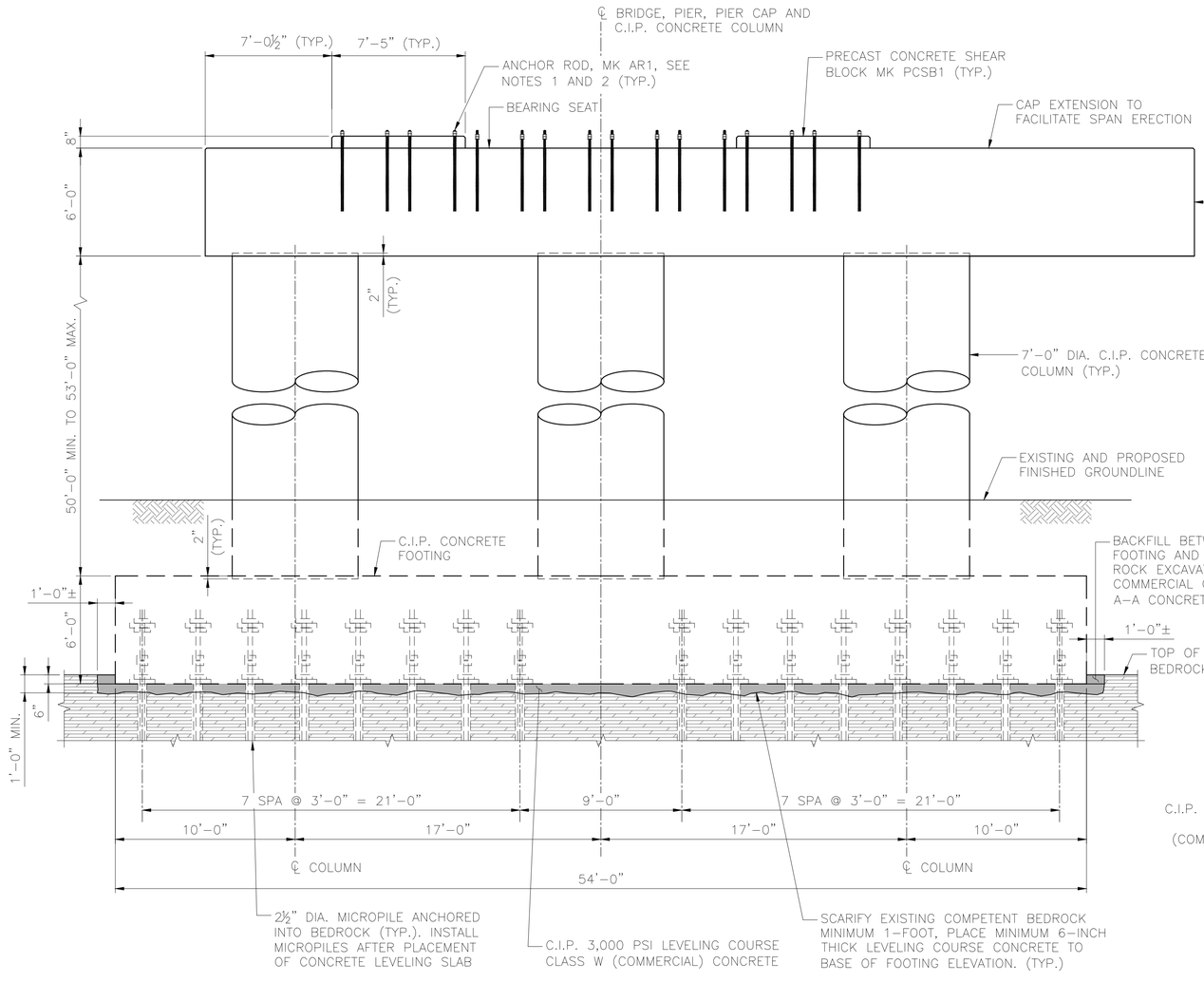
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_48.DWG

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:10 PM



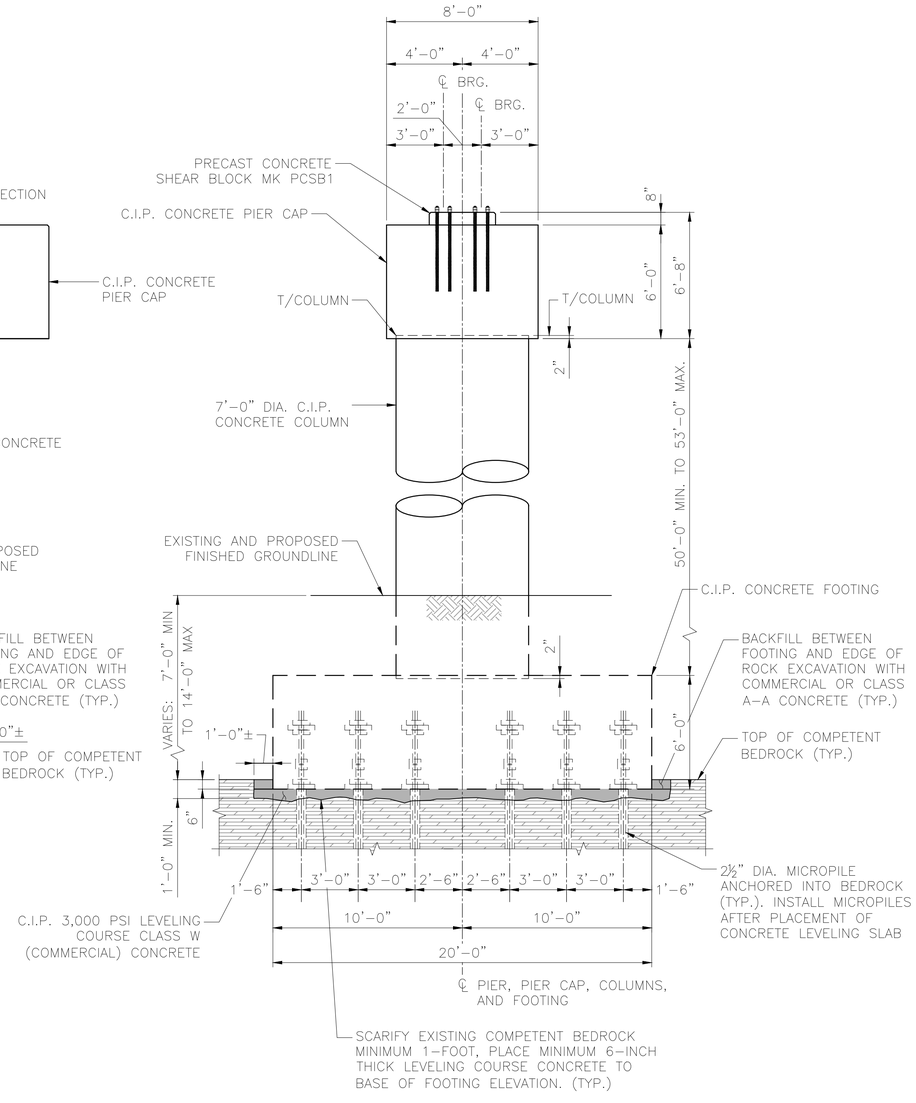
PLAN

SCALE: ¼" = 1'-0"



ELEVATION

SCALE: ¼" = 1'-0"



END VIEW

SCALE: ¼" = 1'-0"

NOTES:

1. CONTRACTOR MAY SUBSTITUTE 4-INCH DIAMETER CORRUGATED EMT DUCTS AT ANCHOR ROD LOCATIONS IN LIEU OF CASTING ANCHORS DIRECTLY IN CONCRETE TO ASSIST WITH BEARING FIT UP AT NO ADDITIONAL COST TO OWNER.
2. IF POST-INSTALLING ANCHOR RODS IN DUCTS, SET ANCHOR RODS IN HOLES AFTER INSTALLATION OF SPANS. IMMEDIATELY BEFORE PLACING ANCHOR RODS IN DUCTS, CLEAN HOLE PER GROUT MANUFACTURER'S RECOMMENDATIONS, IMMOBILIZE ANCHOR RODS, AND FILL DUCTS WITH MINIMUM 10,000 PSI NON-SHRINK EPOXY GROUT.
3. REFER TO SHEET 38 FOR ADDITIONAL NOTES ON FOOTING EXCAVATION AND LEVELING CONCRETE BACKFILL.

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MV

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

HDR
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: PIER FRAMING PLAN

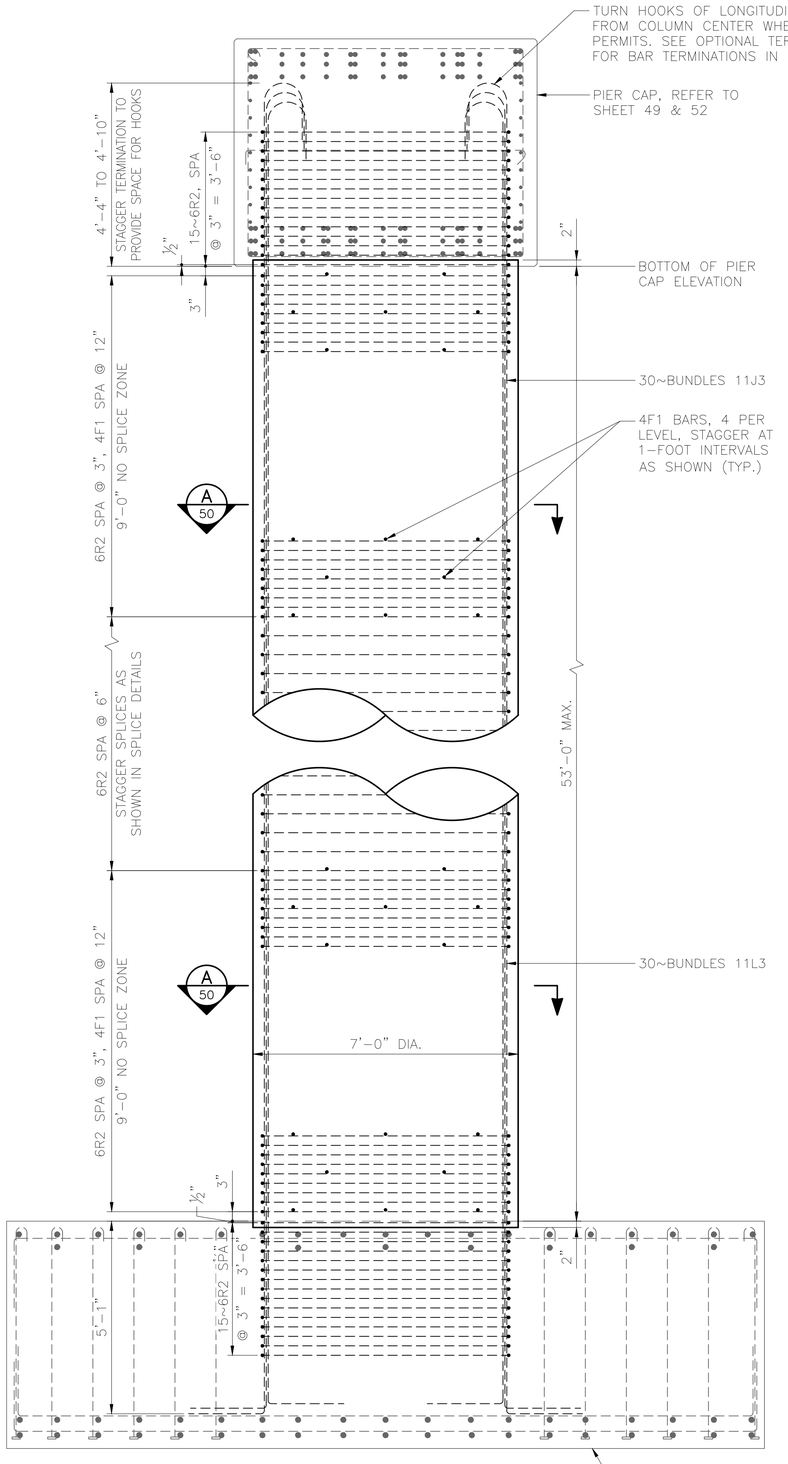
AFE NO.	10944
YEAR	2025
SHEET	49 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE_RIVER_49.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB

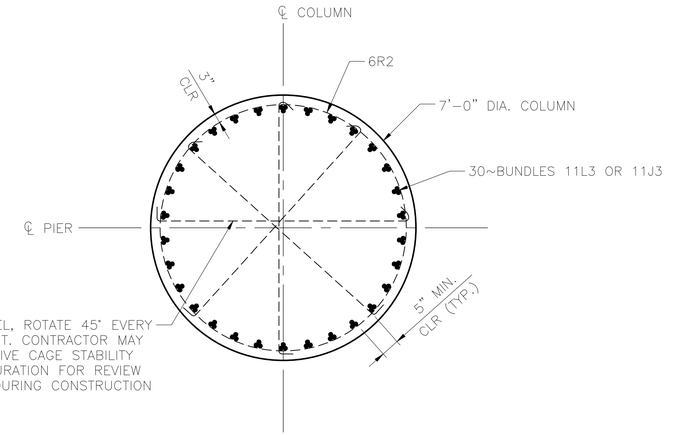
SCALE
AS NOTED

DATE TIME
2/19/2025 5:11 PM



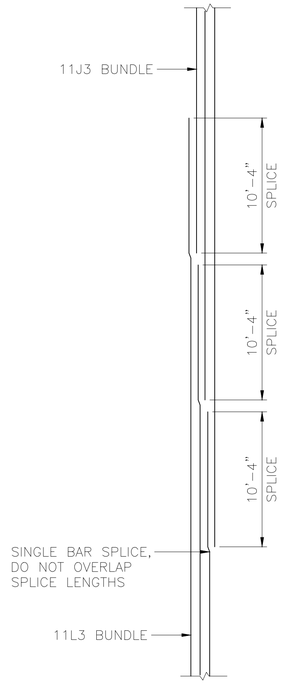
COLUMN DETAILS

SCALE: ½" = 1'-0"



A 50 SECTION

SCALE: ½" = 1'-0"



SPLICE DETAIL

NOT TO SCALE

CONTRACTOR MAY PROPOSE ALTERNATIVE SPLICE CONFIGURATION USING STAGGERED MECHANICAL SPLICES FOR REVIEW SUBJECT TO APPROVAL OF THE OWNER. SPLICES SHALL BE STAGGERED WITH A MINIMUM CLEAR SPACE BETWEEN SPLICES OF 2'-0" OR AS REQUIRED TO MAINTAIN BUNDLE GEOMETRY WITHOUT DAMAGING BAR BUNDLES

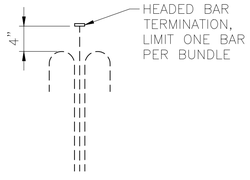
LIST OF REINFORCING BARS FOR ONE PIER COLUMN

QTY	MARK	SIZE	SHAPE	A	B	LENGTH	STEEL GRADE
90	11L3	11	L	VARIES*	2'-0"	VARIES*	80
90	11J3	11	J	VARIES*	–	VARIES*	80
212	4F1	4	F	6'-7¼"	–	7'-4½"	60
171	6R2	6	R	6'-6"	–	20'-5"	60

37,138 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 80
6,288 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

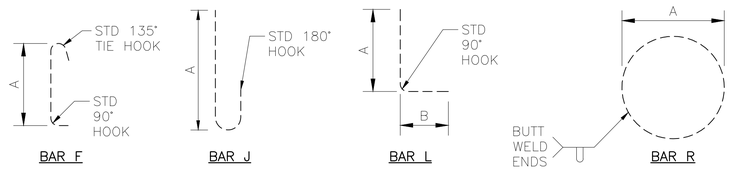
75.5 CY = TOTAL VOLUME OF CONCRETE, CLASS A-A (f'c = 5,000 PSI)

* LENGTH OF LONG LEG OF REINFORCING WILL VARY BASED ON SPLICE LOCATION. SEE SPLICE DETAIL FOR SPLICE REQUIREMENTS. ESTIMATED WEIGHT OF REINFORCING STEEL INCLUDES LAP SPLICE LENGTH.



OPTIONAL BAR TERMINATION DETAIL

REINFORCING STEEL DETAILS



ALL DIMENSIONS ARE OUT TO OUT OF BARS

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
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REGISTERED STRUCTURAL ENGINEER

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ANCHORAGE, AK 99503-4169
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582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

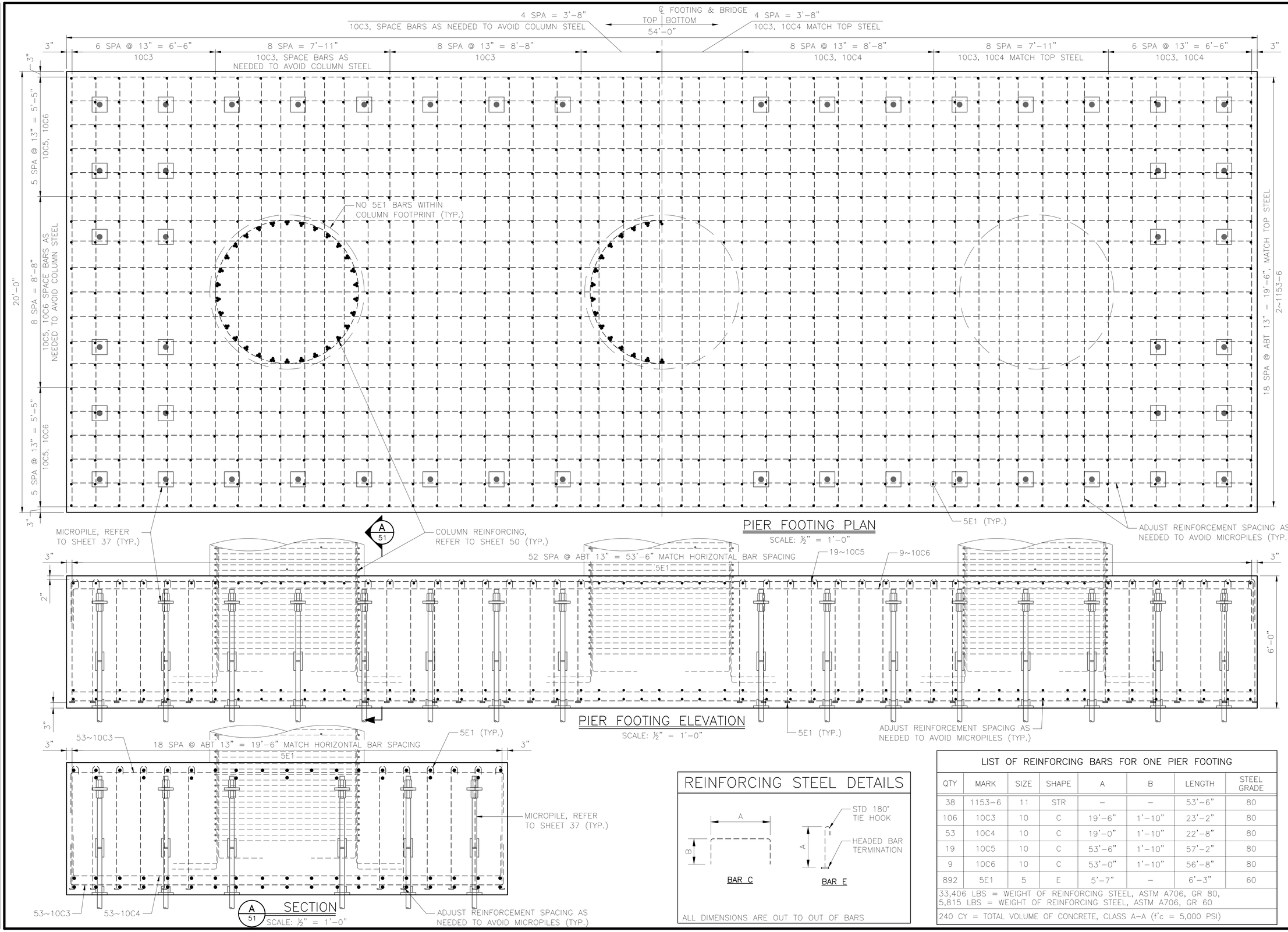
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: CONCRETE COLUMN DETAILS

AFE NO.	10944
YEAR	2025
SHEET	50 OF 68

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_50.DWG

DATE	TIME	SCALE	PUBLISHED CTB
2/19/2025	5:11 PM	AS NOTED	ARRC_CTB_2023.CTB



REINFORCING STEEL DETAILS

ALL DIMENSIONS ARE OUT TO OUT OF BARS

LIST OF REINFORCING BARS FOR ONE PIER FOOTING

QTY	MARK	SIZE	SHAPE	A	B	LENGTH	STEEL GRADE
38	1153-6	11	STR	–	–	53'-6"	80
106	10C3	10	C	19'-6"	1'-10"	23'-2"	80
53	10C4	10	C	19'-0"	1'-10"	22'-8"	80
19	10C5	10	C	53'-6"	1'-10"	57'-2"	80
9	10C6	10	C	53'-0"	1'-10"	56'-8"	80
892	5E1	5	E	5'-7"	–	6'-3"	60

33,406 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 80,
5,815 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

240 CY = TOTAL VOLUME OF CONCRETE, CLASS A-A (f'c = 5,000 PSI)

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
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LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: PIER FOOTING DETAILS

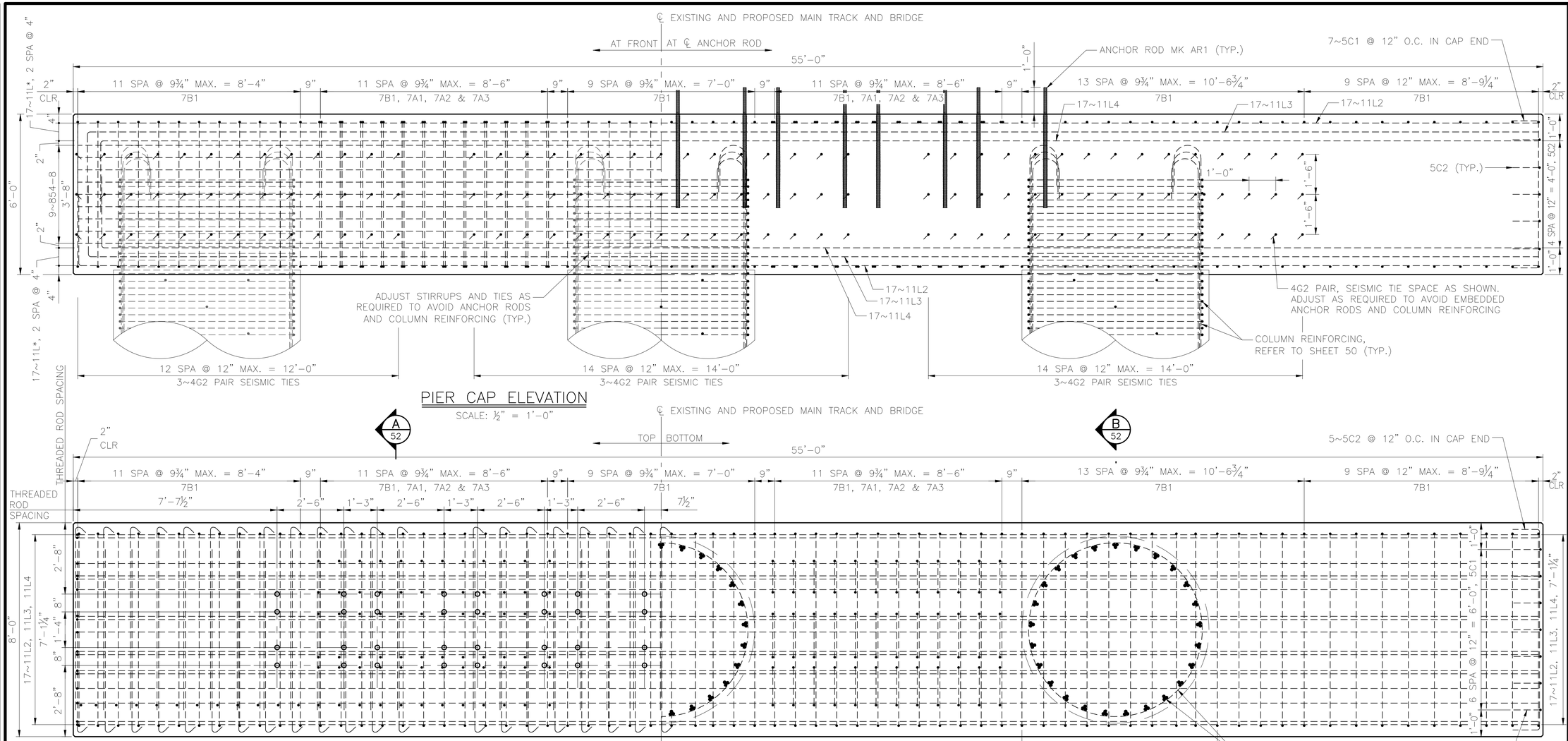
AFE NO. 10944

YEAR 2025

SHEET 51 OF 68

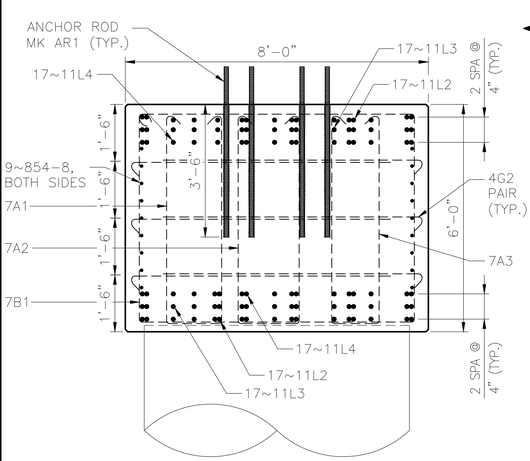
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_51.DWG

DATE 2/19/2025 TIME 5:11 PM
SCALE AS NOTED
PUBLISHED CTB ARRC_CTB_2023.CTB



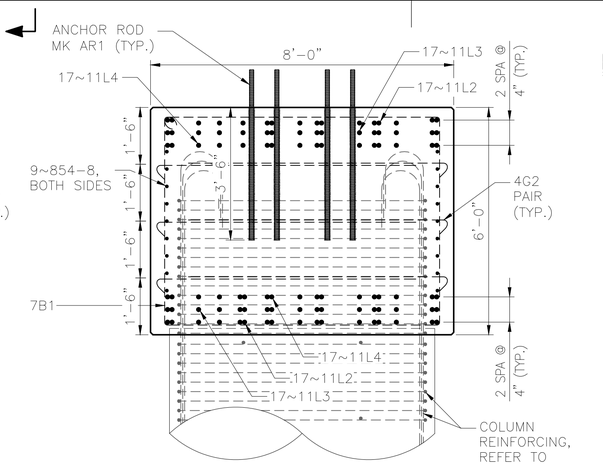
PIER CAP ELEVATION

SCALE: ½" = 1'-0"



A 52 SECTION

SCALE: ½" = 1'-0"



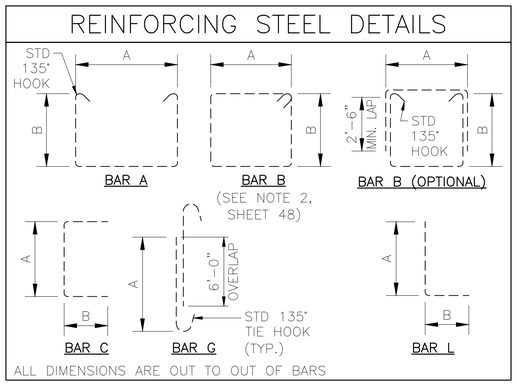
B 52 SECTION

SCALE: ½" = 1'-0"

PIER CAP PLAN

SCALE: ½" = 1'-0"

REINFORCING STEEL DETAILS



ALL DIMENSIONS ARE OUT TO OUT OF BARS

LIST OF REINFORCING BARS FOR ONE PIER CAP

QTY	MARK	SIZE	SHAPE	A	B	LENGTH	STEEL GRADE
18	854-8	8	STR	–	–	54'-8"	80
34	11L2	11	L	54'-8"	2'-8"	57'-4"	80
34	11L3	11	L	54'-5"	2'-4"	56'-9"	80
34	11L4	11	L	54'-2"	2'-0"	56'-2"	80
24	7A1	7	A	1'-6"	5'-8"	14'-4"	60
24	7A2	7	A	1'-7"	5'-8"	14'-5"	60
24	7A3	7	A	1'-3"	5'-8"	14'-1"	60
69	7B1	7	B	7'-8"	5'-8"	28'-2"	60
7	5C1	5	C	5'-6"	1'-0"	7'-6"	60
5	5C2	5	C	7'-6"	1'-0"	9'-6"	60
258	4G2	4	G	7'-10"	–	8'-3"	60

33,382 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 80,
7,600 LBS = WEIGHT OF REINFORCING STEEL, ASTM A706, GR 60

97.78 CY = TOTAL VOLUME OF CONCRETE, CLASS A-A (f'c = 5,000 PSI)

DESIGNED BY:	BAH
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

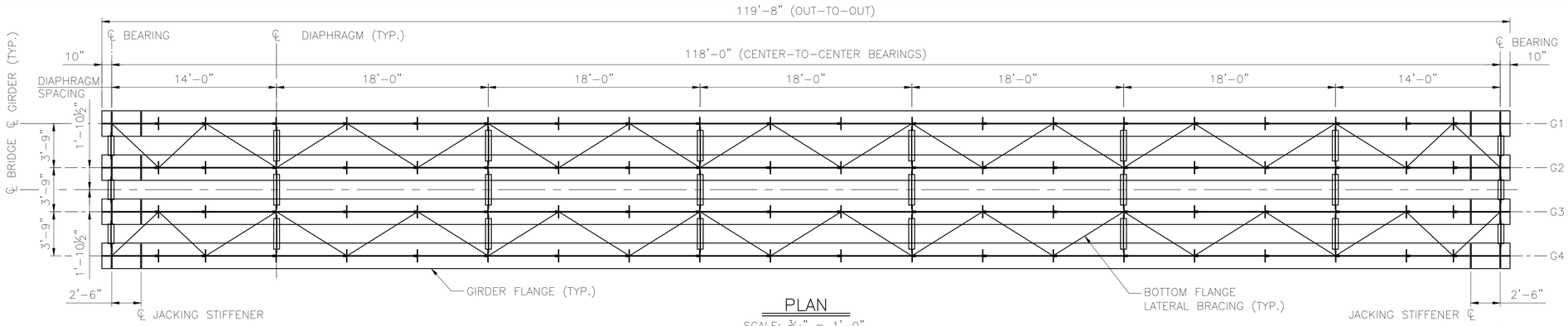
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: PIER CAP DETAILS

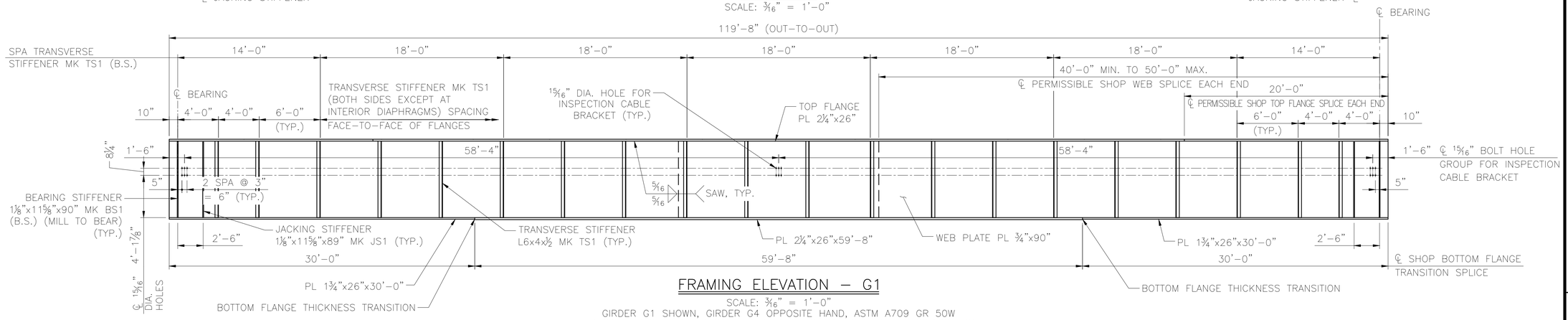
AFE NO. 10944
YEAR 2025
SHEET 52 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:11 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_52.DWG



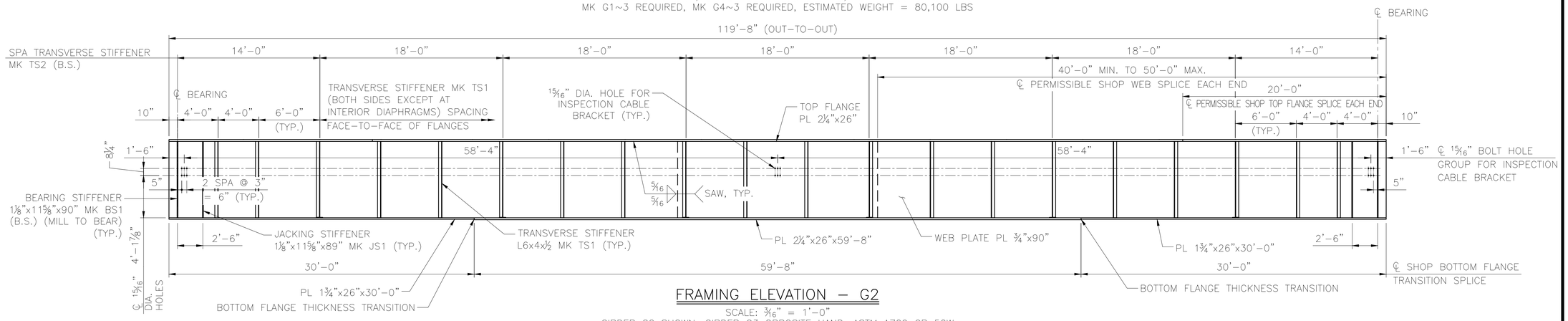
PLAN

SCALE: 3⁄16" = 1'-0"



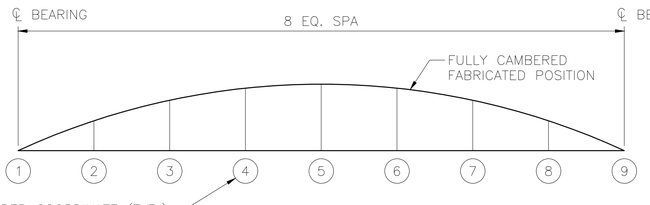
FRAMING ELEVATION – G1

SCALE: 3⁄16" = 1'-0"
GIRDER G1 SHOWN, GIRDER G4 OPPOSITE HAND, ASTM A709 GR 50W
MK G1~3 REQUIRED, MK G4~3 REQUIRED, ESTIMATED WEIGHT = 80,100 LBS



FRAMING ELEVATION – G2

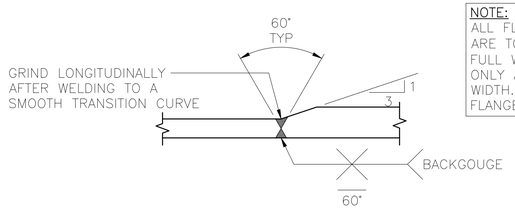
SCALE: 3⁄16" = 1'-0"
GIRDER G2 SHOWN, GIRDER G3 OPPOSITE HAND, ASTM A709 GR 50W
MK G2~3 REQUIRED, MK G3~3 REQUIRED, ESTIMATED WEIGHT = 80,100 LBS



CAMBER DIAGRAM

SCALE: NTS

GIRDER DEFLECTION & CAMBER DATA									
CAMBER COORDINATES	1	2	3	4	5	6	7	8	9
DEFLECTION/CAMBER	0"	7⁄16"	13⁄16"	1 1⁄16"	1⅛"	1 1⁄16"	13⁄16"	7⁄16"	0"

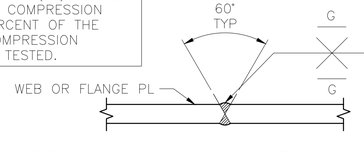


THICKNESS TRANSITION

SHOP FLANGE PLATE TRANSITION SPLICE DETAIL

NOT TO SCALE

NOTE:
ALL FLANGE BUTT WELDED JOINTS SUBJECT TO TENSION STRESS ARE TO BE RADIOGRAPHED (RT) AND ULTRASONIC (UT) TESTED FULL WIDTH. ALL BUTT WELDS SUBJECTED TO COMPRESSION ONLY ARE TO BE RADIOGRAPHED FOR 50 PERCENT OF THE WIDTH. IF DEFECTS ARE DETECTED IN THE COMPRESSION FLANGE THEN 100% OF THE WELD SHALL BE TESTED.



SHOP GIRDER TOP FLANGE AND WEB SPLICE DETAIL

NOT TO SCALE
BACK GOUGE PRIOR TO WELDING OTHER SIDE.

DESIGNED BY: MNL
CHECKED BY: AGH
DRAFTED BY: MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
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HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

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ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

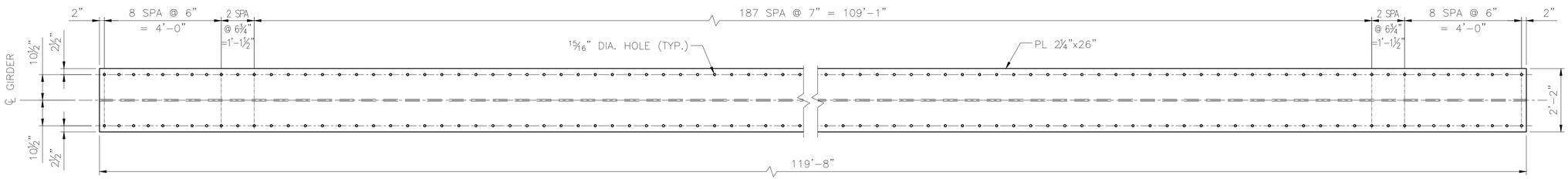
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: 119'-8" DECK PLATE GIRDER FRAMING PLAN

AFE NO. 10944
YEAR 2025
SHEET 53 OF 68

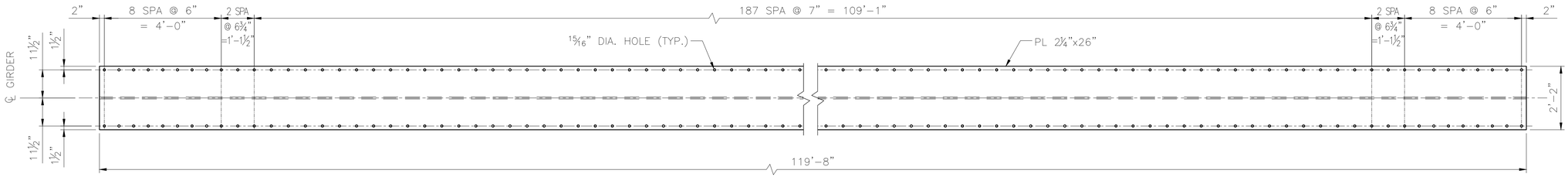
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_53.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 2/19/2025 TIME 5:12 PM



TOP FLANGE – G1

SCALE: ½" = 1'-0"
GIRDER G1 SHOWN, GIRDER G4 SIMILAR
ASTM A709 GR 50W
MK G1~3 REQUIRED, MK G4~3 REQUIRED
ESTIMATED WEIGHT = 23,822 LBS.
FOR BOTTOM FLANGE HOLE SPACINGS, REFER TO BOTTOM FLANGE LATERAL BRACING DETAILS ON SHEET 57



TOP FLANGE – G2

SCALE: ½" = 1'-0"
GIRDER G2 SHOWN, GIRDER G3 SIMILAR
ASTM A709 GR 50W
MK G2~3 REQUIRED, MK G3~3 REQUIRED
ESTIMATED WEIGHT = 23,822 LBS.
FOR BOTTOM FLANGE HOLE SPACINGS, REFER TO BOTTOM FLANGE LATERAL BRACING DETAILS ON SHEET 57

STRESS TABLE															
SPAN LENGTH (L)	SHEAR						FLEXURE						DEFLECTION		
	DEAD LOAD (k)	LIVE LOAD (k)	IMPACT (k)	TOTAL (k)	WEB AREA (Aw)		DEAD LOAD (k-ft)	LIVE LOAD (k-ft)	IMPACT (k-ft)	TOTAL (k-ft)	SECTION MODULUS (Sx)		ALLOWABLE (in)	MOMENT OF INERTIA (Ix)	
					REQ'D (in^2)	PROVIDED (in^2)					REQ'D (in^3)	PROVIDED (NET) (in^3)		REQ'D (in^4)	PROVIDED (in^4)
119'-8"	133	685	258	1076	61.5	67.5	3962	17857	6732	28551	12459	12467	2.21	263025	294531

DESIGN RATING: E-80
NORMAL RATING: E-101 (GIRDERS)
MAXIMUM RATING: E-166 (GIRDERS)

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
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HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

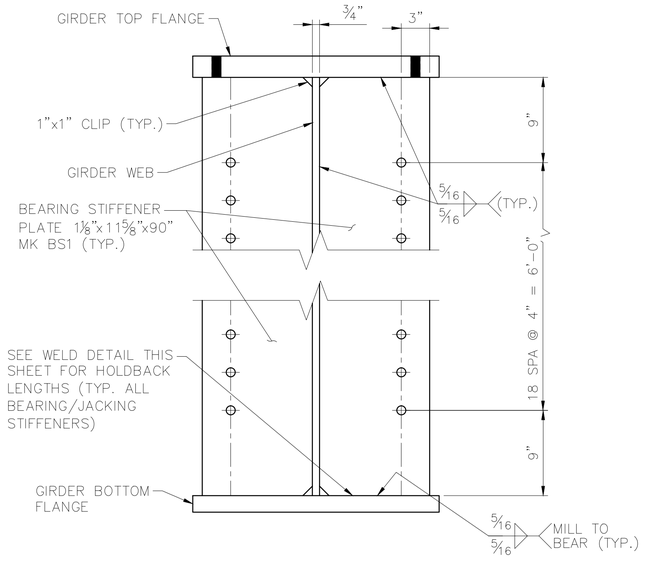
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: 119'-8" DECK PLATE GIRDER FLANGE DETAILS

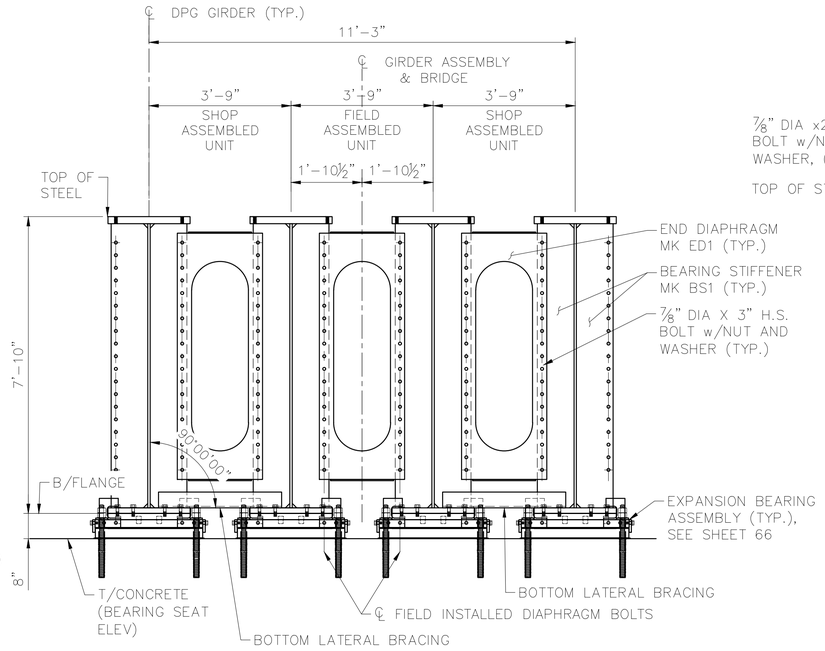
AFE NO.	10944
YEAR	2025
SHEET	54 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:12 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_54.DWG



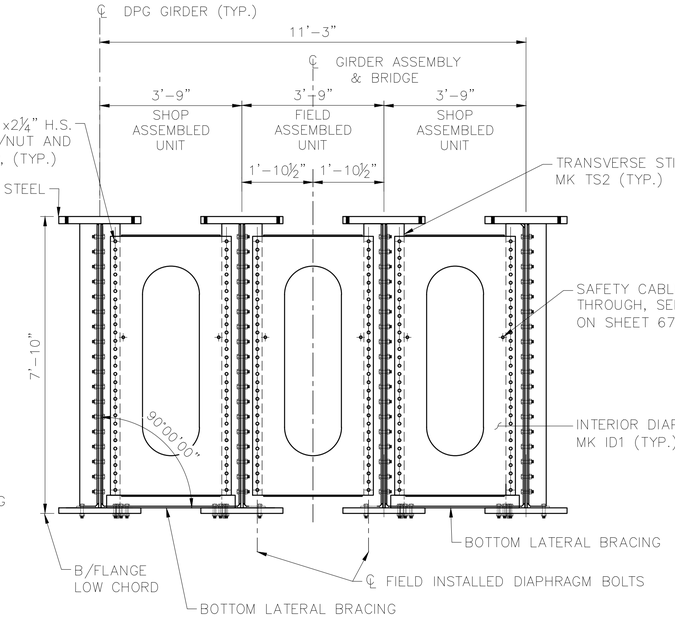
BEARING STIFFENER DETAIL

SCALE: 1½" = 1'-0"



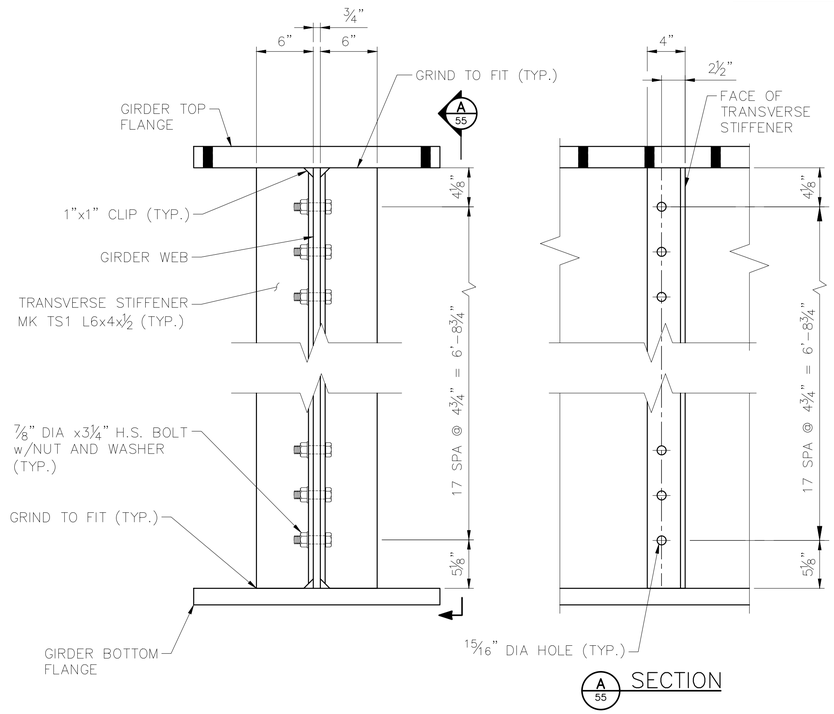
EXPANSION END SHOWN, FIXED END SIMILAR TYPICAL SECTION AT END DIAPHRAGM

SCALE: ½" = 1'-0"



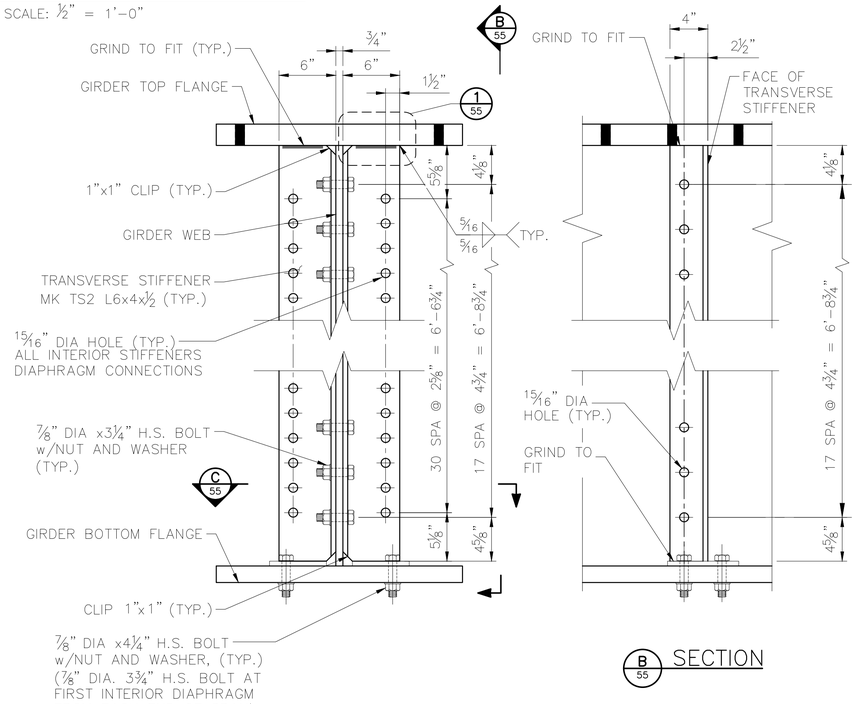
TYPICAL SECTION AT INTERIOR DIAPHRAGM

SCALE: ½" = 1'-0"



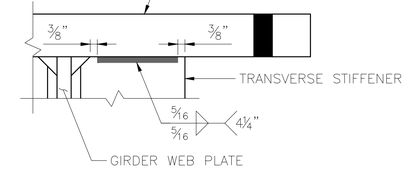
TRANSVERSE STIFFENER DETAIL

SCALE: 1½" = 1'-0"

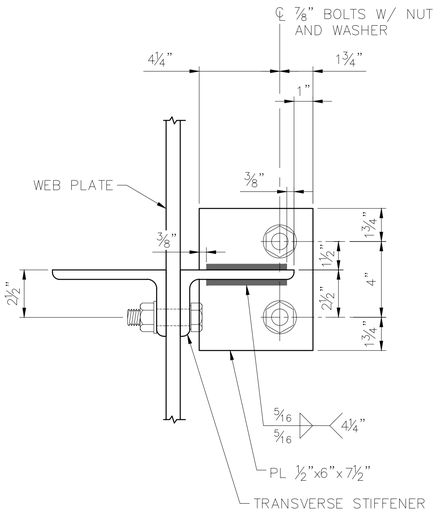


INTERIOR DIAPHRAGM CONNECTION TRANSVERSE STIFFENER DETAIL

SCALE: 1½" = 1'-0"



1 55 WELD DETAIL
SCALE: 3" = 1'-0"



C 55 SECTION
SCALE: 3" = 1'-0"

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MV

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

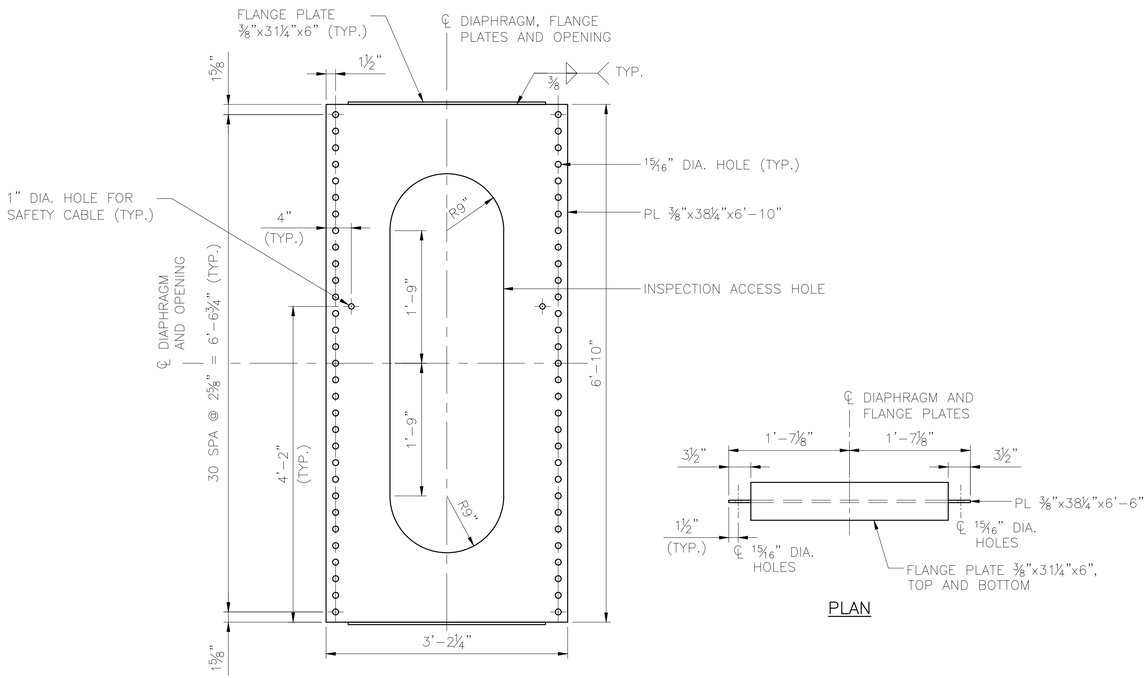
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: DPG SECTIONS AND DETAILS

AFE NO.	10944
YEAR	2025
SHEET	55 OF 68

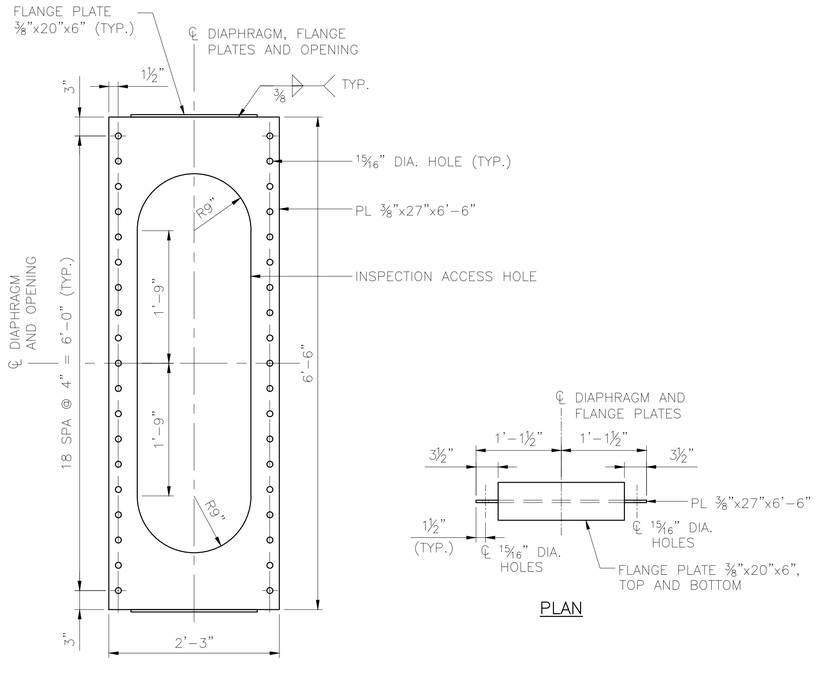
PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:17 PM

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_55.DWG



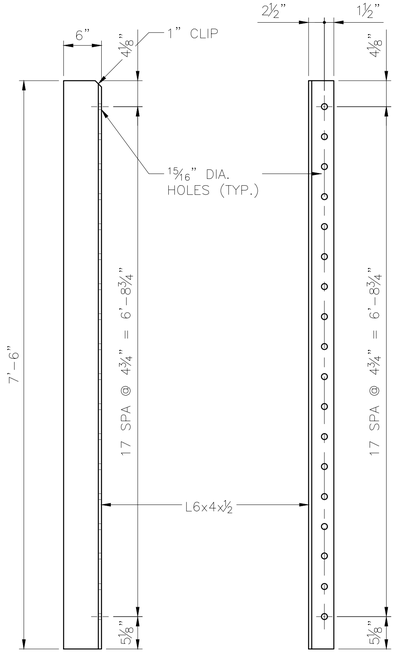
INTERIOR DIAPHRAGM MK ID1

SCALE: 1" = 1'-0"
ASTM A709 GR 50W
54 ~ REQUIRED
ESTIMATED WEIGHT = 266 LBS



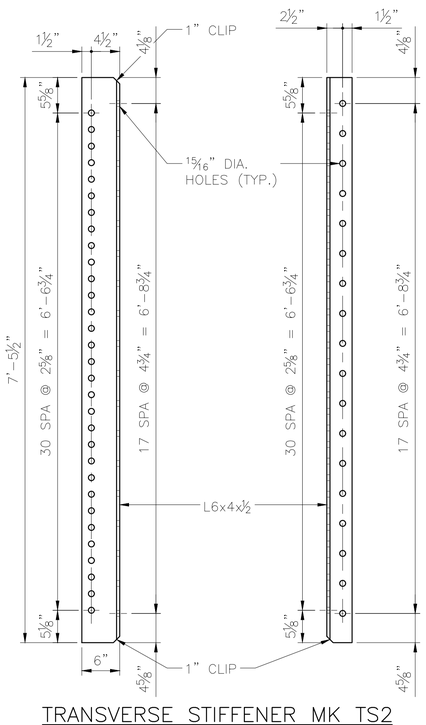
END DIAPHRAGM MK ED1

SCALE: 1" = 1'-0"
ASTM A709 GR 50W
18 ~ REQUIRED
ESTIMATED WEIGHT = 142 LBS



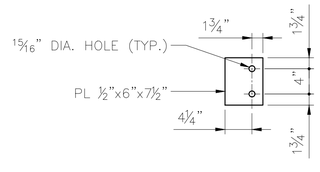
TRANSVERSE STIFFENER MK TS1

SCALE: 1" = 1'-0"
ASTM A709 GR 50W
336 ~ REQUIRED
ESTIMATED WEIGHT = 122 LBS



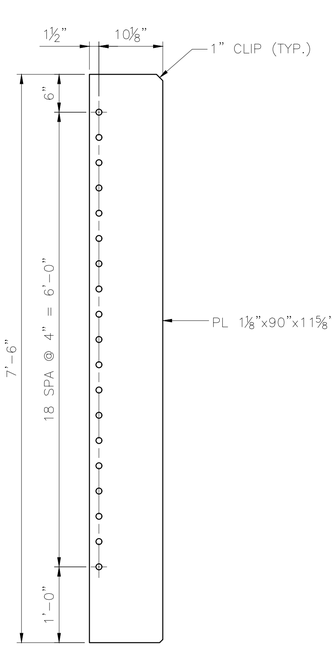
TRANSVERSE STIFFENER MK TS2

SCALE: 1" = 1'-0"
ASTM A709 GR 50W
144 ~ REQUIRED
ESTIMATED WEIGHT = 121 LBS



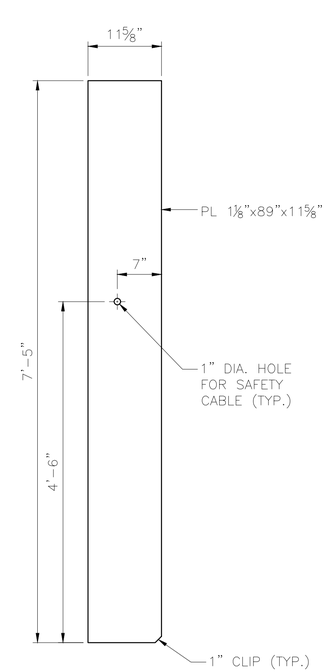
STIFFENER CONNECTION PLATE MK SCP1

SCALE: 1" = 1'-0"
ASTM A709 GR 50W
144 ~ REQUIRED
ESTIMATED WEIGHT = 5.5 LBS



BEARING STIFFENER MK BS1

SCALE: 1" = 1'-0"
ASTM A709 GR 50W
48 ~ REQUIRED
ESTIMATED WEIGHT = 334 LBS



JACKING STIFFENER MK JS1

SCALE: 1" = 1'-0"
ASTM A709 GR 50W
48 ~ REQUIRED
ESTIMATED WEIGHT = 330 LBS

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA
49 TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

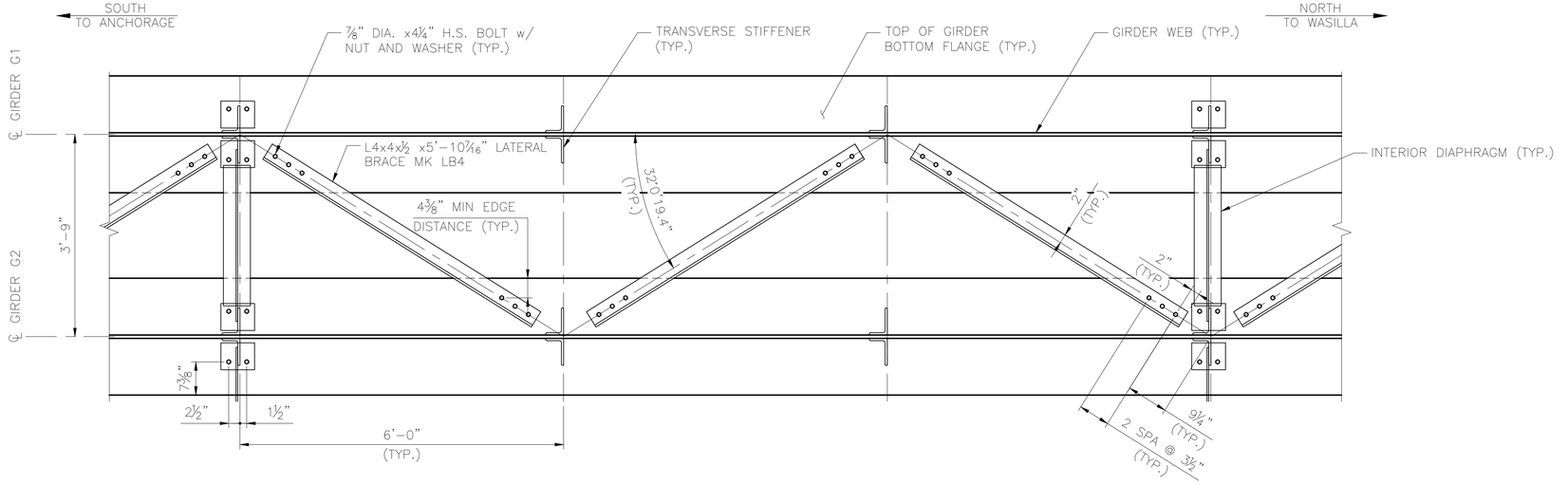
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: DPG DIAPHRAGM DETAILS

AFE NO.	10944
YEAR	2025
SHEET	56 OF 68

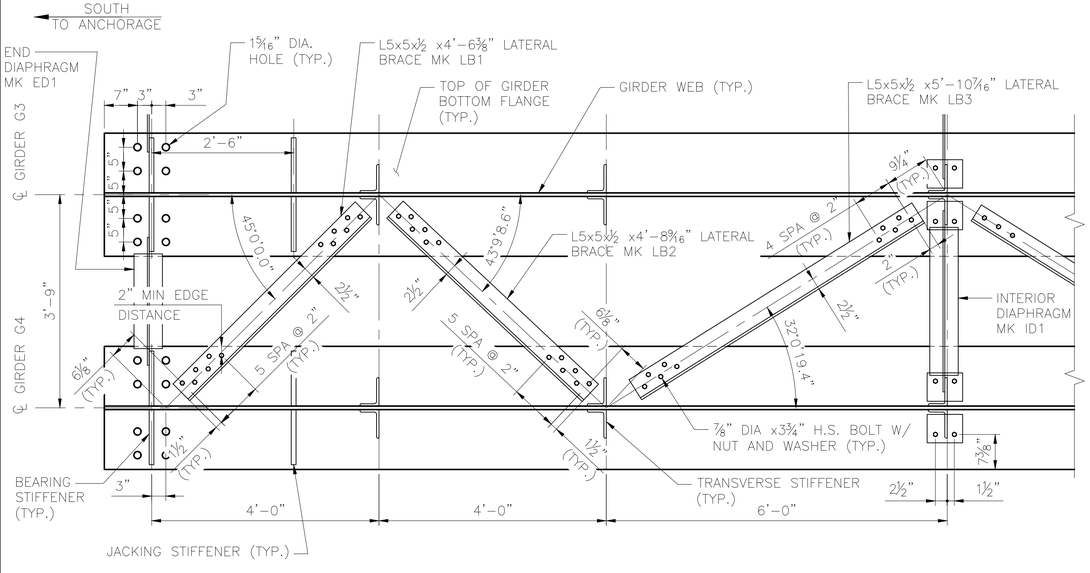
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_56.DWG

PUBLISHED	SCALE	TIME	DATE
CTB	AS NOTED	5:17 PM	2/19/2025
ARRC_CTB_2023.CTB			



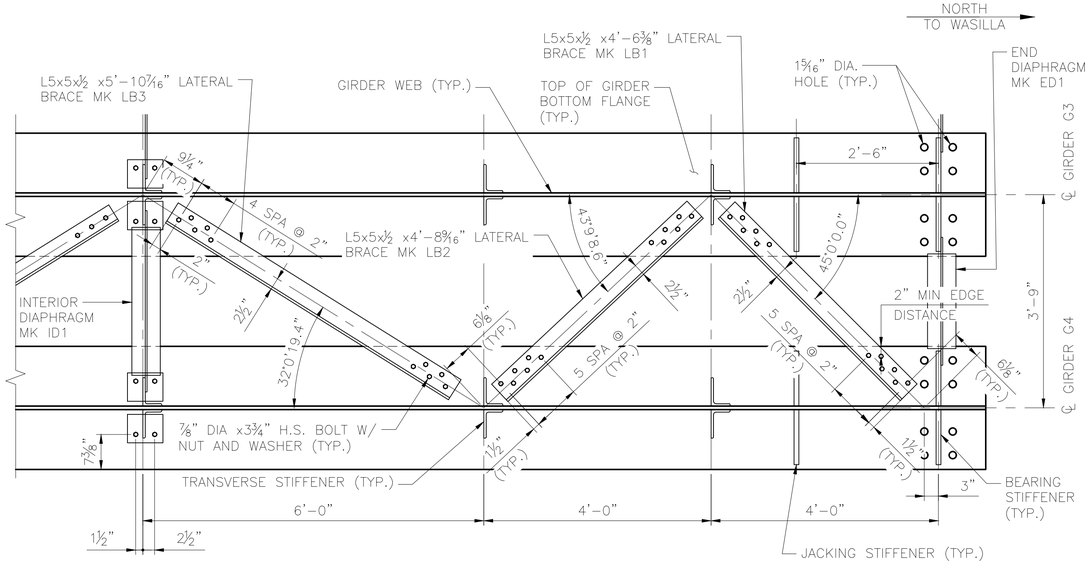
TYPICAL INTERIOR BOTTOM LATERAL BRACING DETAIL

SCALE: ¾" = 1'-0"
ONE SECTION BETWEEN INTERIOR DIAPHRAGMS ON G1 AND G2 SHOWN, OTHERS SIMILAR



END BOTTOM LATERAL BRACING DETAIL 1

SCALE: ¾" = 1'-0"
SOUTH END OF G3 AND G4 GIRDERS SHOWN, NORTH END OF GIRDERS G1 AND G2 SIMILAR, OPPOSITE HAND



END BOTTOM LATERAL BRACING DETAIL 2

SCALE: ¾" = 1'-0"
NORTH END OF G3 AND G4 GIRDERS SHOWN, SOUTH END OF GIRDERS G1 AND G2 SIMILAR, OPPOSITE HAND

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
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HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: DPG BOTTOM LATERAL BRACING DETAILS

AFE NO.	10944
YEAR	2025
SHEET	57 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:17 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_57.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB

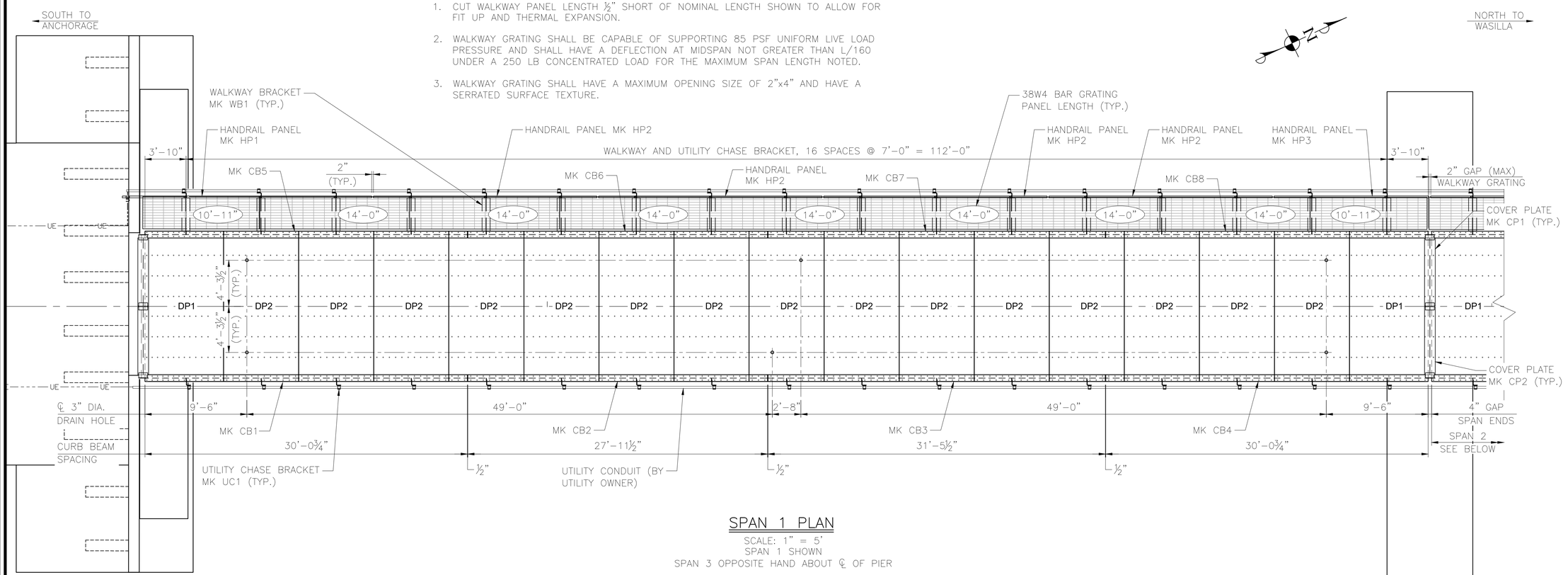
SCALE
AS NOTED

DATE TIME
2/19/2025 5:18 PM

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_58.DWG

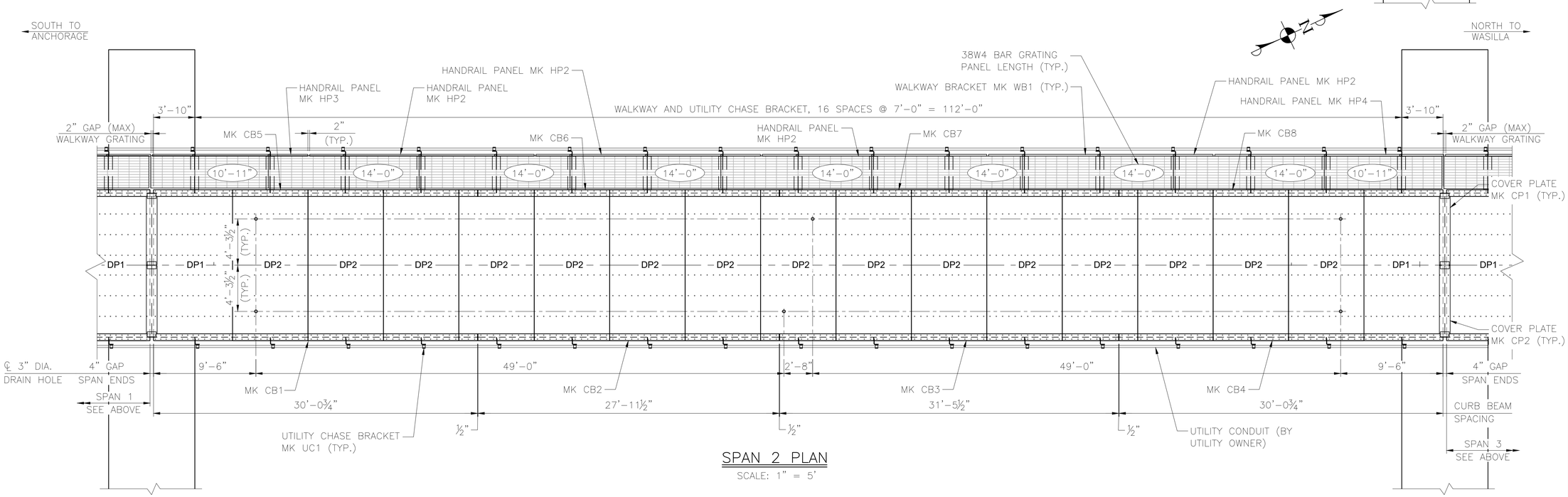
NOTES:

1. CUT WALKWAY PANEL LENGTH ½" SHORT OF NOMINAL LENGTH SHOWN TO ALLOW FOR FIT UP AND THERMAL EXPANSION.
2. WALKWAY GRATING SHALL BE CAPABLE OF SUPPORTING 85 PSF UNIFORM LIVE LOAD PRESSURE AND SHALL HAVE A DEFLECTION AT MIDSPAN NOT GREATER THAN L/160 UNDER A 250 LB CONCENTRATED LOAD FOR THE MAXIMUM SPAN LENGTH NOTED.
3. WALKWAY GRATING SHALL HAVE A MAXIMUM OPENING SIZE OF 2"x4" AND HAVE A SERRATED SURFACE TEXTURE.



SPAN 1 PLAN

SCALE: 1" = 5'
SPAN 1 SHOWN
SPAN 3 OPPOSITE HAND ABOUT ℄ OF PIER



SPAN 2 PLAN

SCALE: 1" = 5'

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MV

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
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REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
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(907) 644-2000
LICENSE #: AECC569

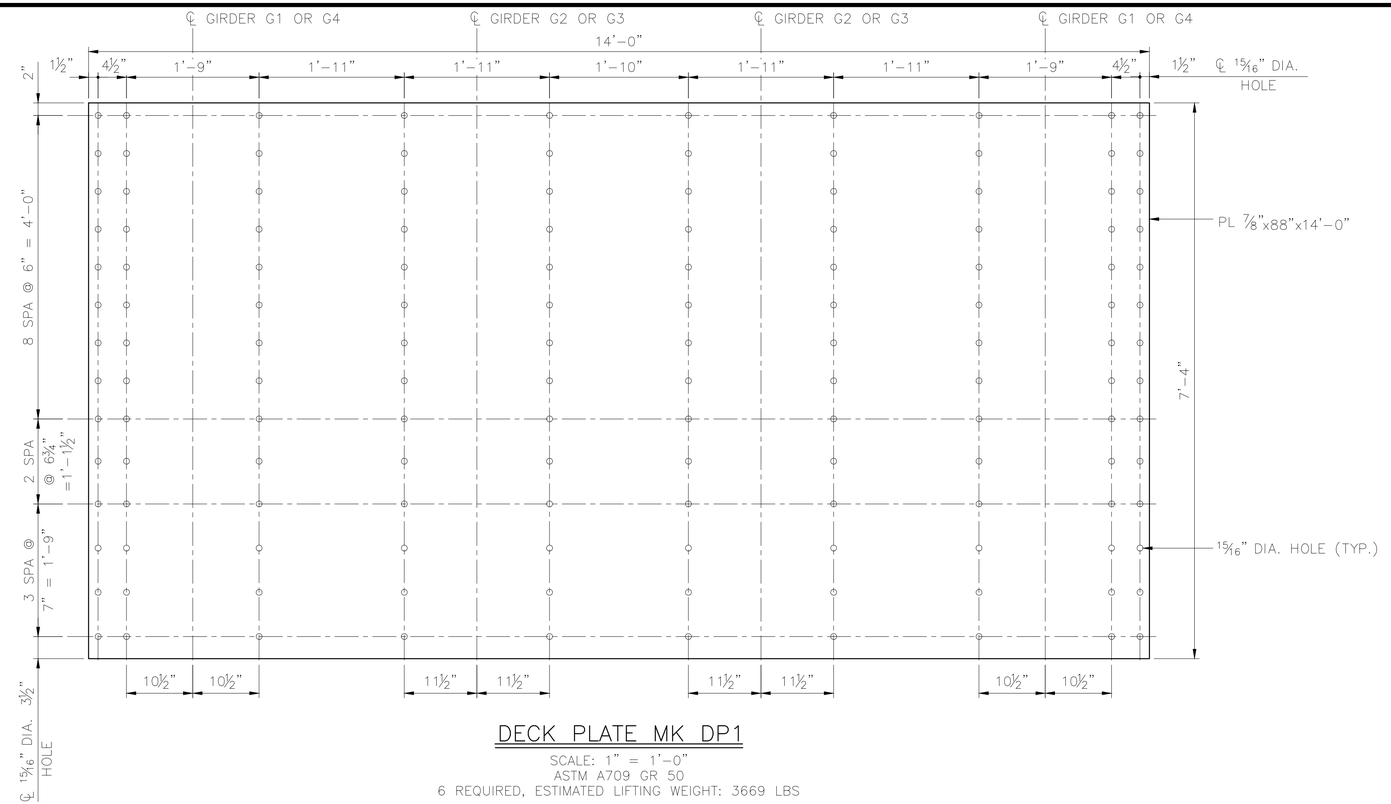
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

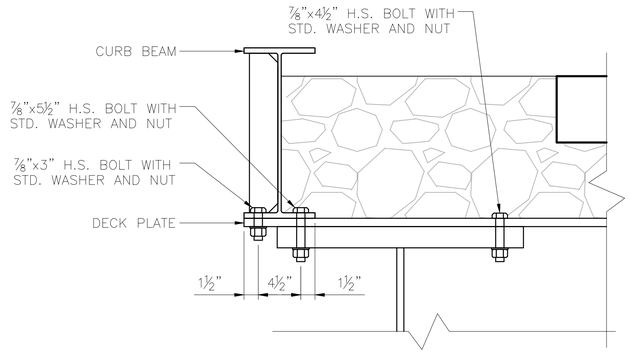
SHEET TITLE: DECK AND WALKWAY LAYOUT

AFE NO.	10944
YEAR	2025
SHEET	58 OF 68



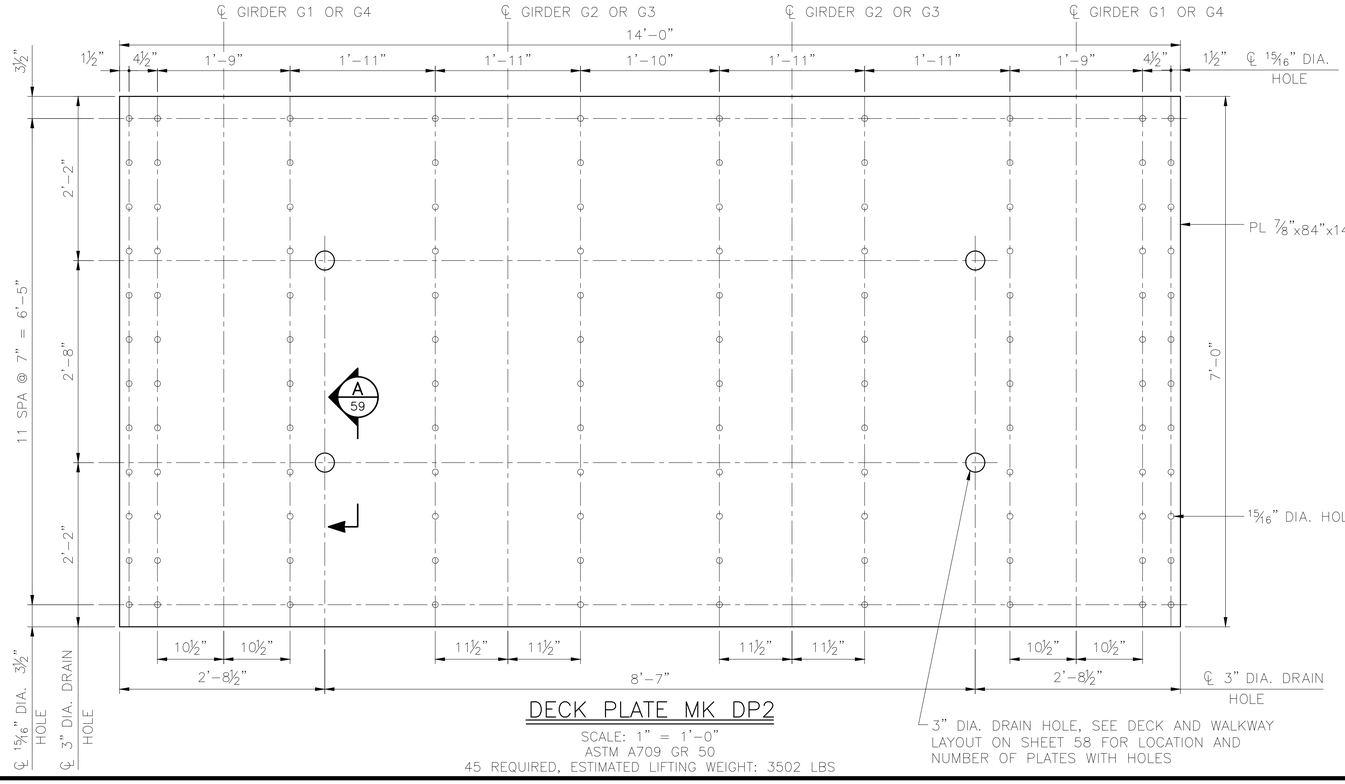
DECK PLATE MK DP1

SCALE: 1" = 1'–0"
ASTM A709 GR 50
6 REQUIRED, ESTIMATED LIFTING WEIGHT: 3669 LBS



CURB TO DECK DETAIL

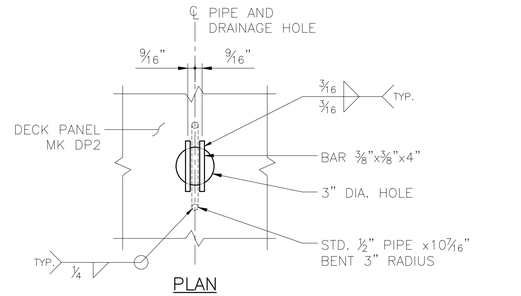
SCALE: 1½" = 1'–0"



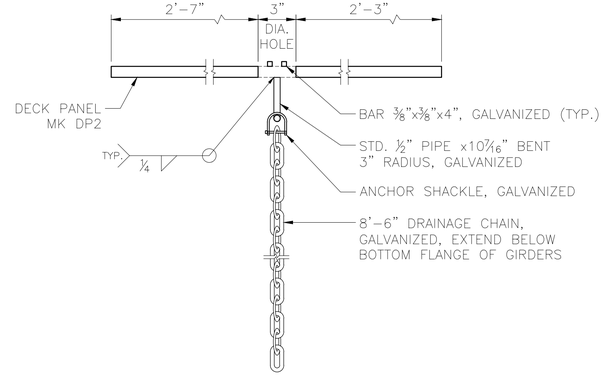
DECK PLATE MK DP2

SCALE: 1" = 1'–0"
ASTM A709 GR 50
45 REQUIRED, ESTIMATED LIFTING WEIGHT: 3502 LBS

3" DIA. DRAIN HOLE, SEE DECK AND WALKWAY LAYOUT ON SHEET 58 FOR LOCATION AND NUMBER OF PLATES WITH HOLES



PLAN



A/59 SECTION
DRAINAGE DETAIL

SCALE: 2" = 1'–0"

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	M.V.

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000
LICENSE #: AECC569

582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503–4169
(907) 644–2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

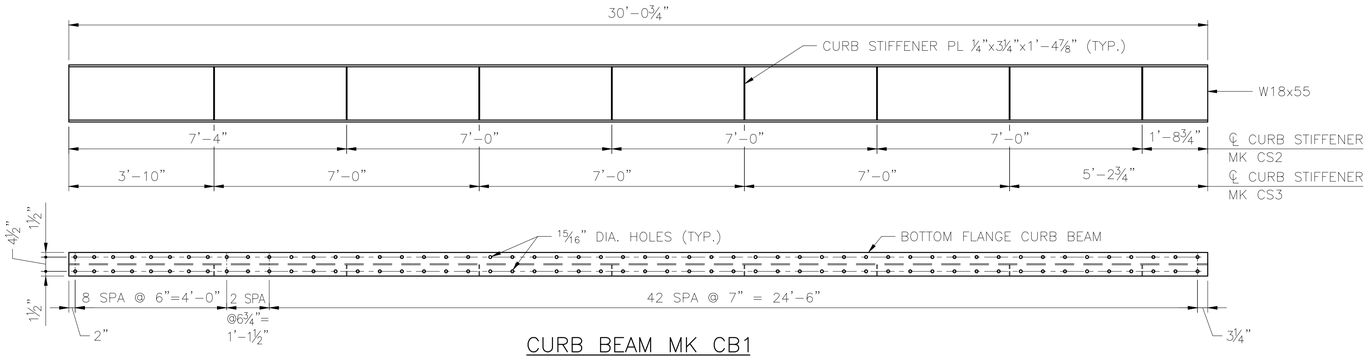
PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: STEEL DECK DETAILS

AFE NO.	10944
YEAR	2025
SHEET	59 OF 68

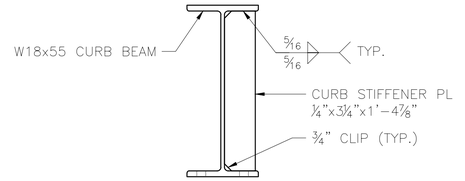
DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_59.DWG

DATE TIME	2/19/2025 5:19 PM
SCALE	AS NOTED
PUBLISHED CTB	ARRC_CTB_2023.CTB



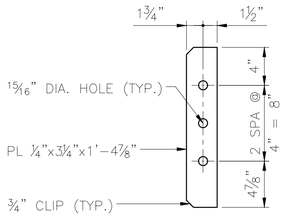
CURB BEAM MK CB1

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,685 LBS



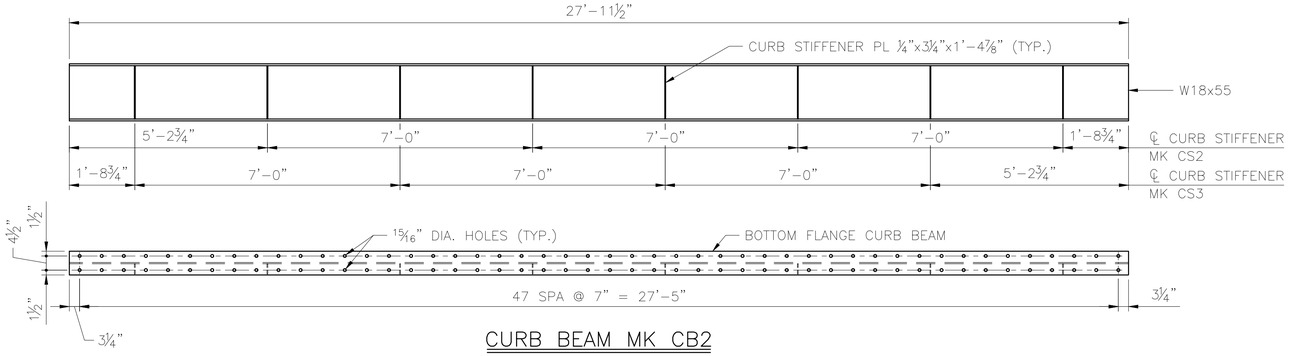
W18x55 END VIEW

SCALE: 1½" = 1'-0"



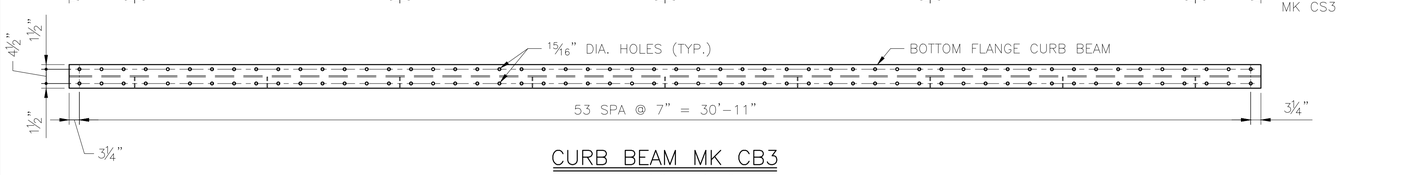
CURB STIFFENER MK CS1

SCALE: 1½" = 1'-0"
ASTM A709 GR 50W
51 REQUIRED
ESTIMATED WEIGHT = 4 LBS



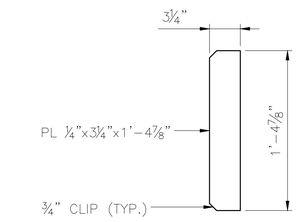
CURB BEAM MK CB2

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,569 LBS



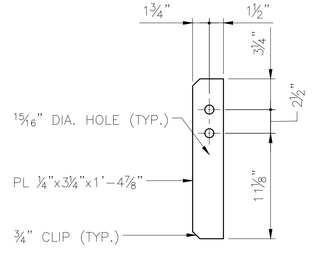
CURB BEAM MK CB3

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,765 LBS



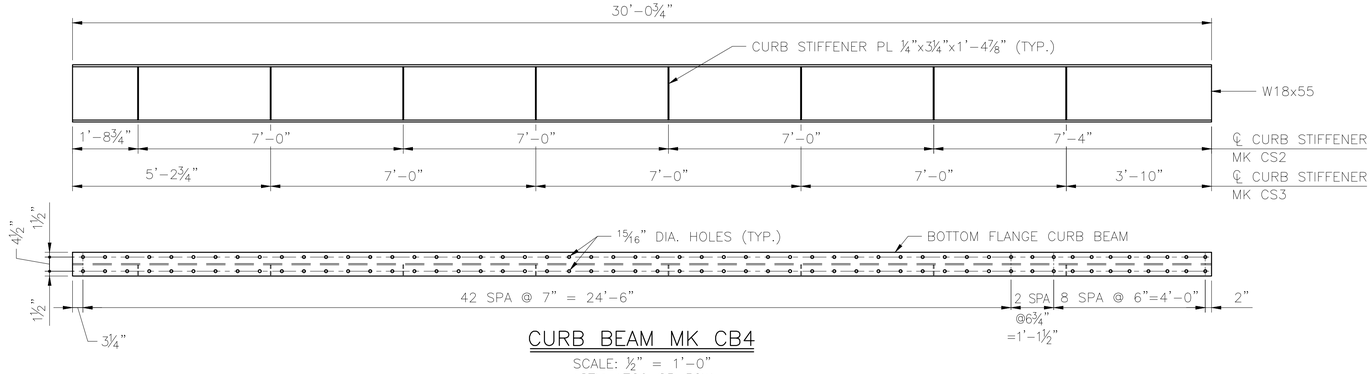
CURB STIFFENER MK CS2

SCALE: 1½" = 1'-0"
ASTM A709 GR 50W
96 REQUIRED
ESTIMATED WEIGHT = 4 LBS



CURB STIFFENER MK CS3

SCALE: 1½" = 1'-0"
ASTM A709 GR 50W
51 REQUIRED
ESTIMATED WEIGHT = 4 LBS



CURB BEAM MK CB4

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,685 LBS

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA · 49 TH
ANTHONY G. HAFNER
No. SE 207484
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(907) 644-2000
LICENSE #: AECC569

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CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

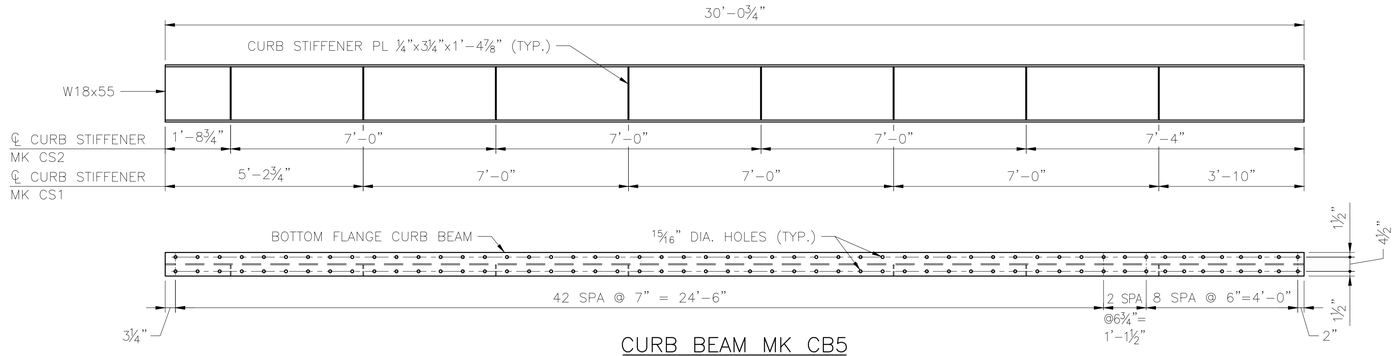
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: STEEL CURB DETAILS (1 OF 2)

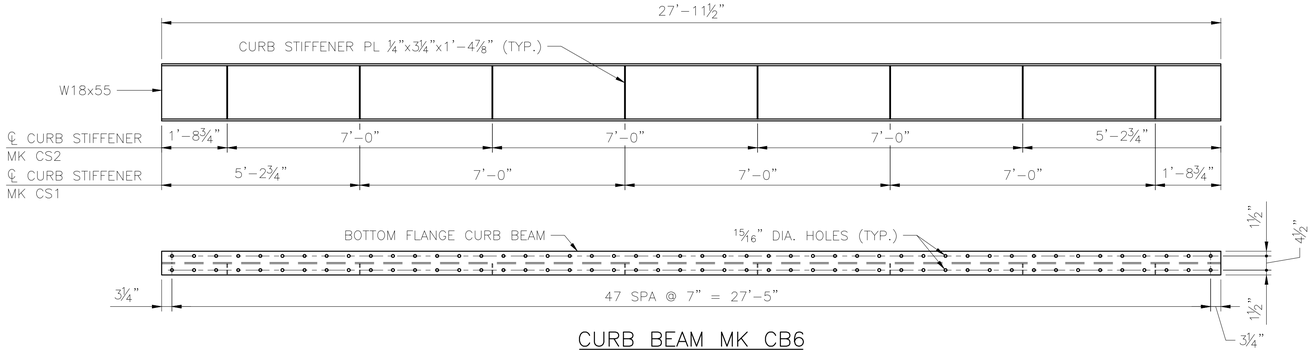
AFE NO.	10944
YEAR	2025
SHEET	60 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:19 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_60.DWG



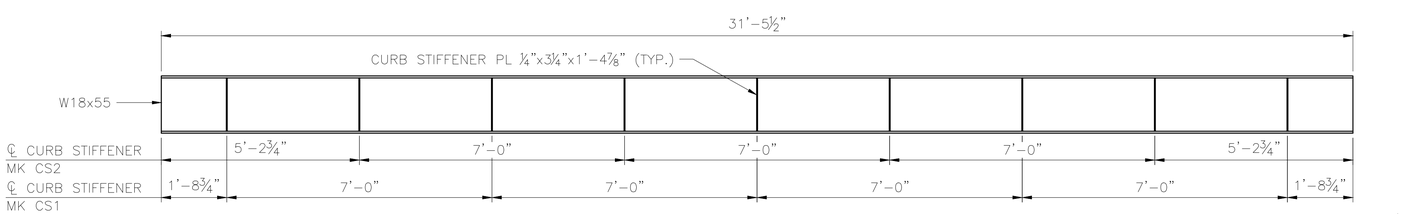
CURB BEAM MK CB5

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,685 LBS



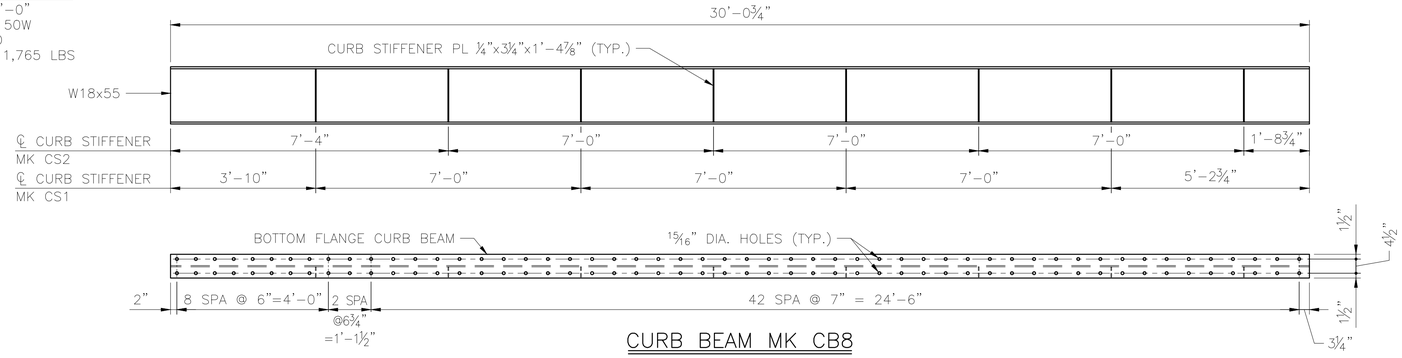
CURB BEAM MK CB6

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,569 LBS



CURB BEAM MK CB7

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,765 LBS



CURB BEAM MK CB8

SCALE: ½" = 1'-0"
ASTM A709 GR 50W
3 REQUIRED
ESTIMATED WEIGHT = 1,685 LBS

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
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(907) 644-2000
LICENSE #: AECC569

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

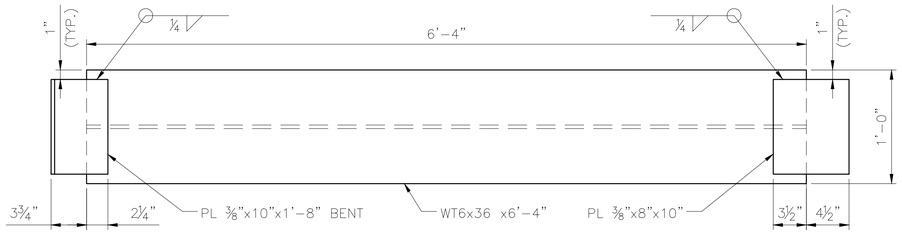
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

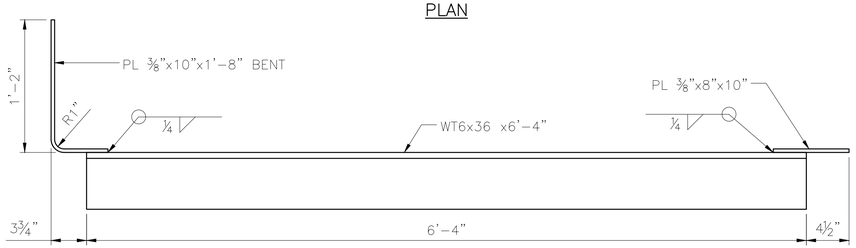
SHEET TITLE: STEEL CURB DETAILS (2 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	61 OF 68

PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 2/19/2025 TIME 5:19 PM
DRAWING LOCATION C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_61.DWG



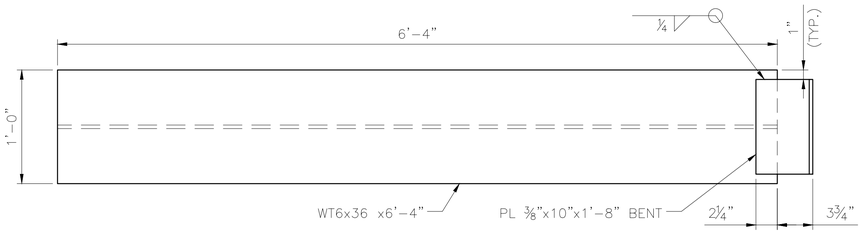
PLAN



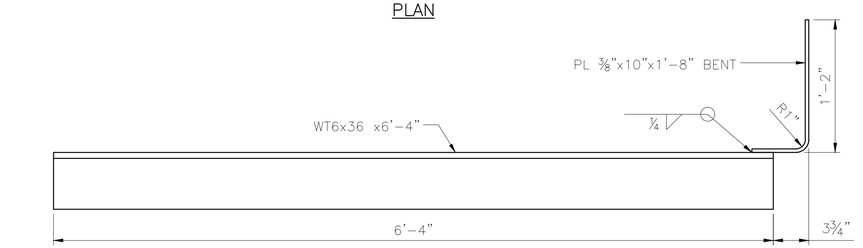
ELEVATION

COVER PLATE MK CP1

SCALE: 1½" = 1'-0"
ASTM A709 GR 50W
4 ~ REQUIRED
ESTIMATED WEIGHT = 258 LBS



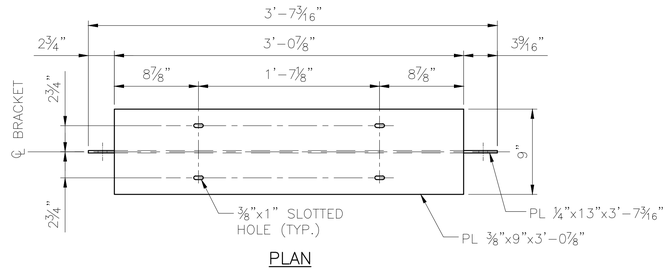
PLAN



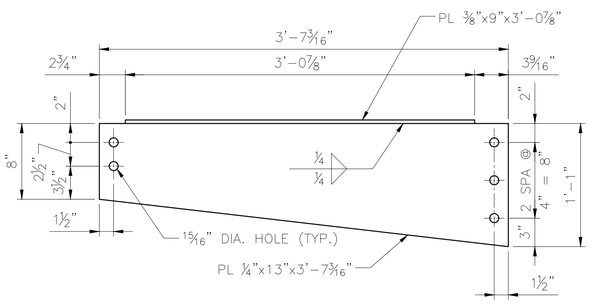
ELEVATION

COVER PLATE MK CP2

SCALE: 1½" = 1'-0"
ASTM A709 GR 50W
4 ~ REQUIRED
ESTIMATED WEIGHT = 237 LBS



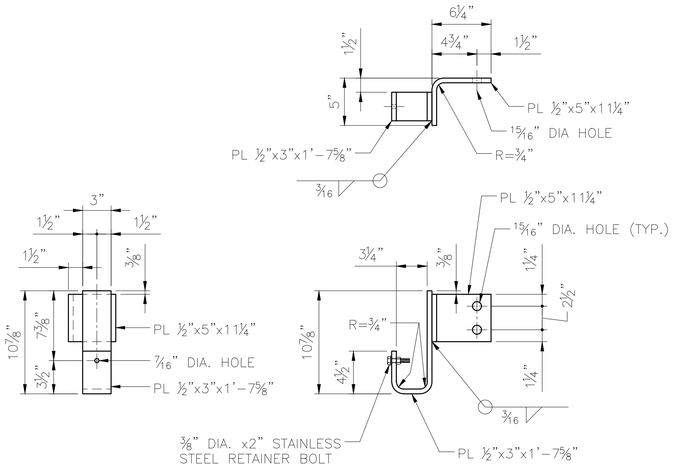
PLAN



ELEVATION

WALKWAY BRACKET MK WB1

SCALE: 1½" = 1'-0"
ASTM A709 GR 50W
51 ~ REQUIRED
ESTIMATED WEIGHT = 68 LBS



UTILITY SUPPORT BRACKET MK UC1

SCALE 1½" = 1'-0"
ASTM A709 GR 50W
102 ~ REQUIRED
ESTIMATED WEIGHT 16.5 LBS

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

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582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

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ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

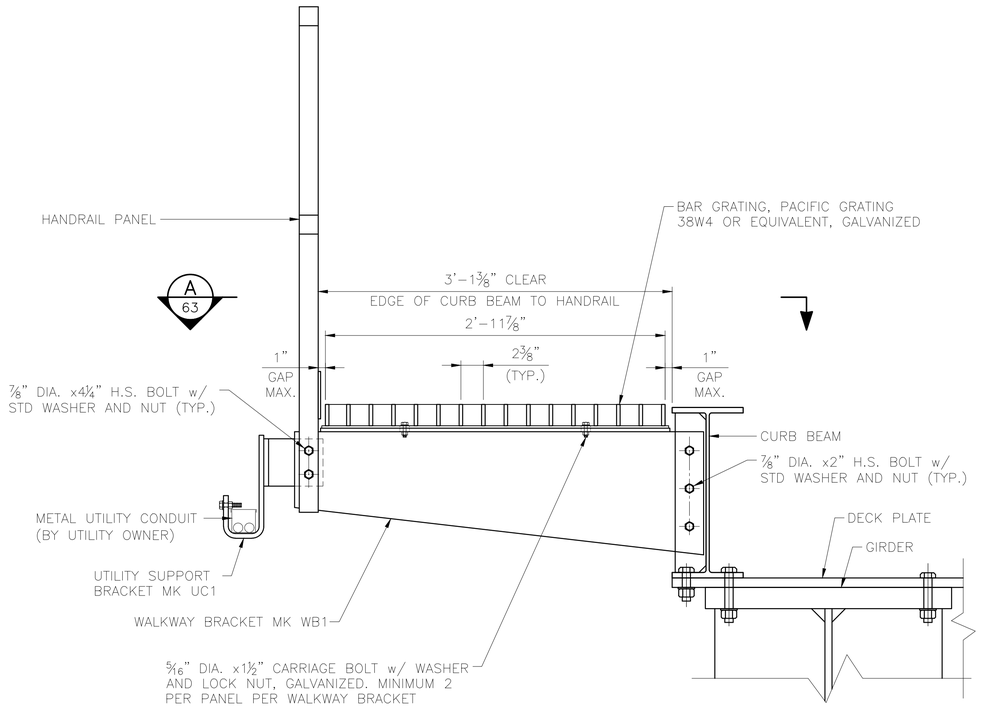
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

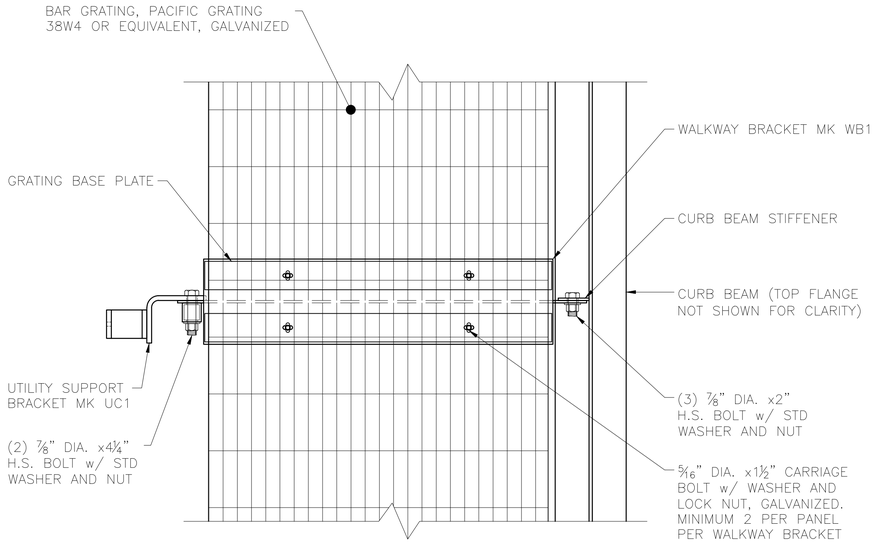
SHEET TITLE: WALKWAY BRACKET AND MISCELLANEOUS STEEL DETAILS (1 OF 2)

AFE NO.	10944
YEAR	2025
SHEET	62 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:20 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_62.DWG



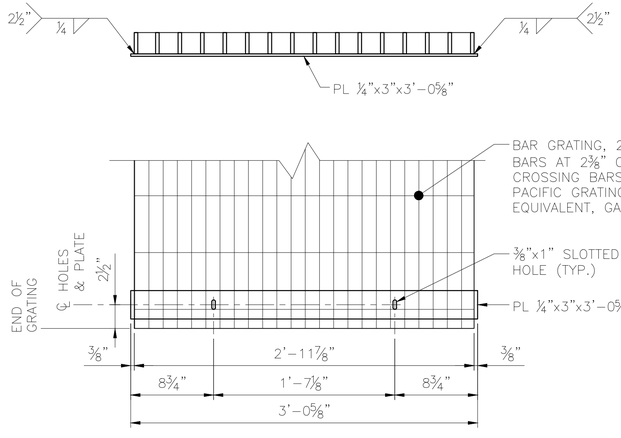
ELEVATION



A 63 SECTION

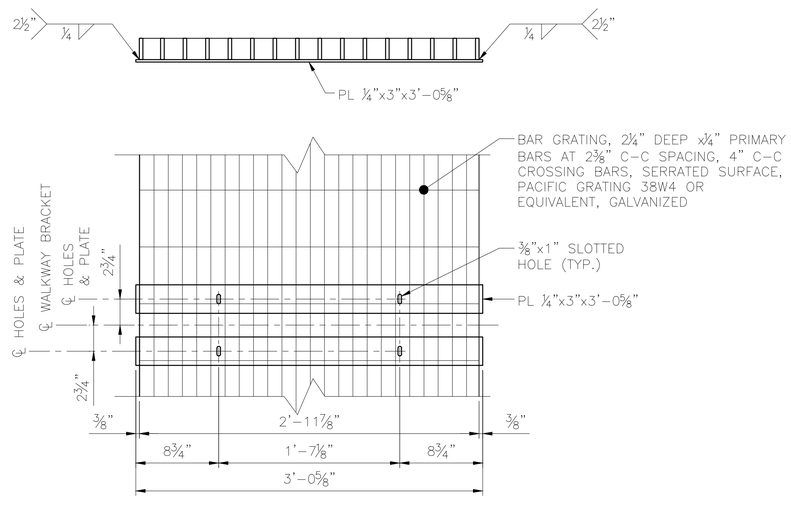
WALKWAY ASSEMBLY DETAILS

SCALE: 1½" = 1'-0"



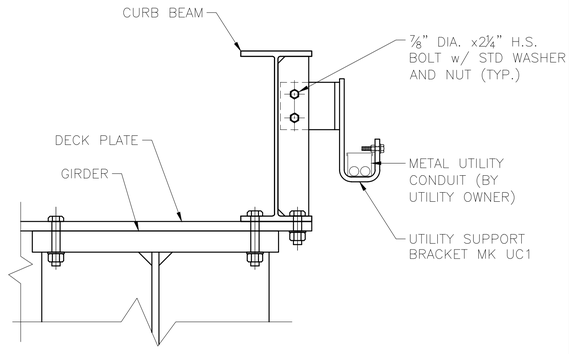
GRATING BASE PLATE DETAIL @ END OF PANEL

SCALE: 1½" = 1'-0"



GRATING BASE PLATE DETAIL @ INTERMEDIATE SUPPORT

SCALE: 1½" = 1'-0"



UTILITY CHASE ASSEMBLY DETAILS
– NON-WALKWAY SIDE OF BRIDGE

SCALE: 1½" = 1'-0"

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_63.DWG

DATE TIME 2/19/2025 5:20 PM
SCALE AS NOTED
PUBLISHED CTB ARRC_CTB_2023.CTB

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
No. SE 207484
REGISTERED STRUCTURAL ENGINEER

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HDR 582 E. 36TH AVE., SUITE 500 ANCHORAGE, AK 99503-4169 (907) 644-2000

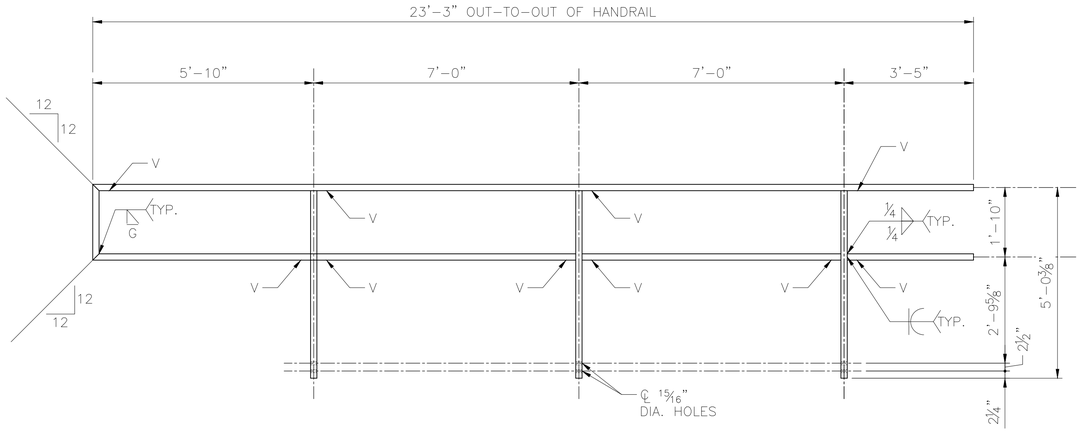
CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: WALKWAY BRACKET AND MISCELLANEOUS STEEL DETAILS (2 OF 2)

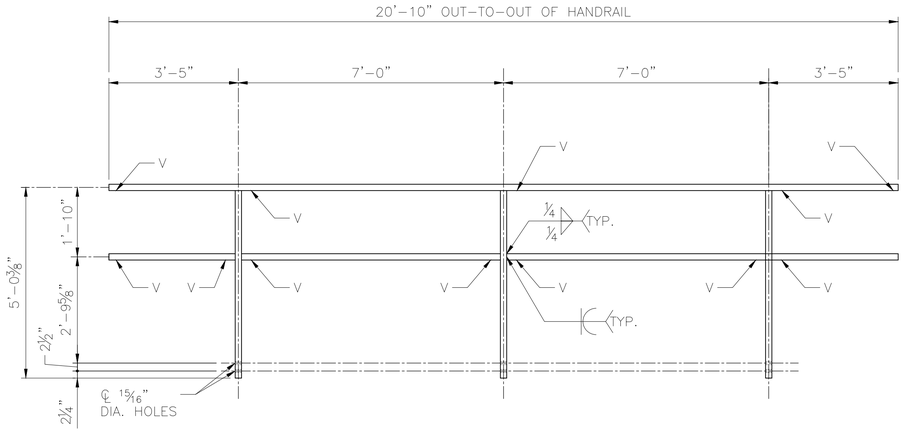
AFE NO.	10944
YEAR	2025
SHEET	63 OF 68



HANDRAIL PANEL HP1

SCALE: ½" = 1'-0"

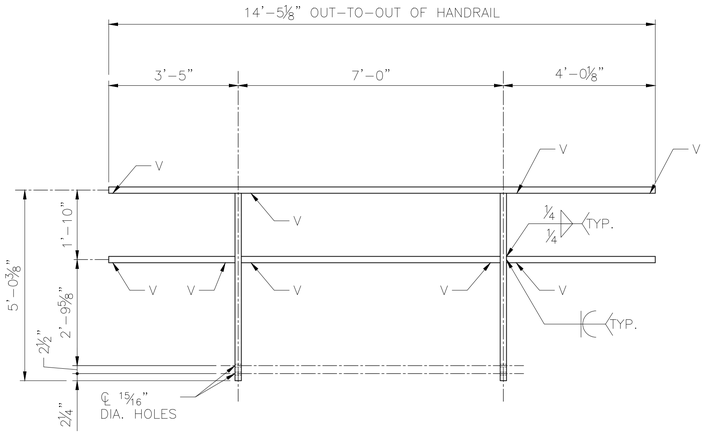
HANDRAIL PANELS ARE TO BE FABRICATED USING HSS2x2x3/16"
ASTM A500, GRADE B GALVANIZE AFTER FABRICATION
2 ~ REQUIRED
ESTIMATED WEIGHT = 278 LBS



HANDRAIL PANEL HP2

SCALE: ½" = 1'-0"

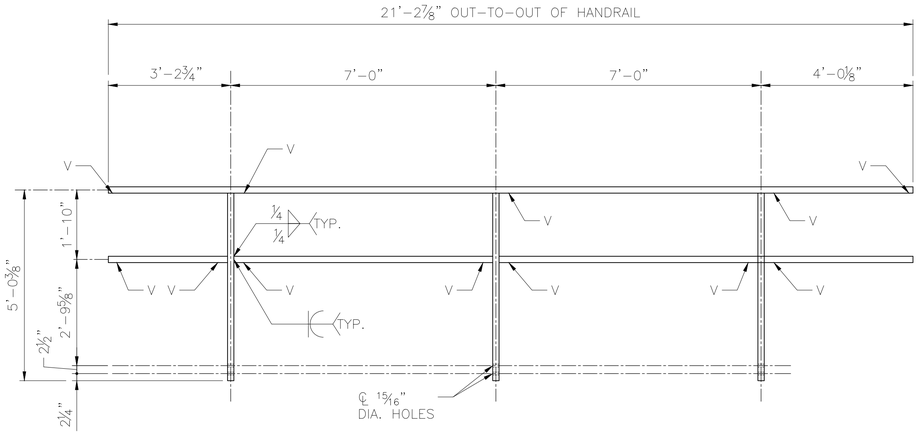
HANDRAIL PANELS ARE TO BE FABRICATED USING HSS2x2x3/16"
ASTM A500, GRADE B GALVANIZE AFTER FABRICATION
12 ~ REQUIRED
ESTIMATED WEIGHT = 245 LBS



HANDRAIL PANEL HP3

SCALE: ½" = 1'-0"

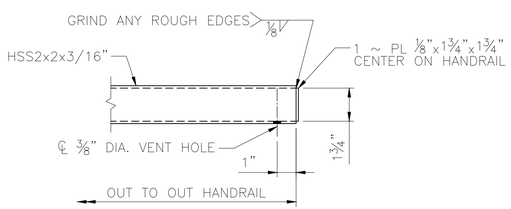
HANDRAIL PANELS ARE TO BE FABRICATED USING HSS2x2x3/16"
ASTM A500, GRADE B GALVANIZE AFTER FABRICATION
3 ~ REQUIRED
ESTIMATED WEIGHT = 168 LBS



HANDRAIL PANEL HP4

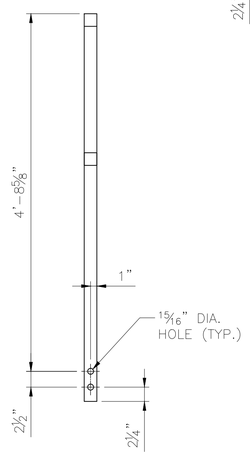
SCALE: ½" = 1'-0"

HANDRAIL PANELS ARE TO BE FABRICATED USING HSS2x2x3/16"
ASTM A500, GRADE B GALVANIZE AFTER FABRICATION
1 ~ REQUIRED
ESTIMATED WEIGHT = 248 LBS



END CAP

SCALE: 3" = 1'-0"



HANDRAIL SIDE VIEW

SCALE: 1" = 1'-0"
TYPICAL ALL HANDRAIL POSTS

NOTES:

1. V = 3/8" DIA. DRILLED VENT HOLE 1" FROM JOINT.

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MV

STATE OF ALASKA 49TH
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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: HANDRAIL PANEL DETAILS

AFE NO.	10944
YEAR	2025
SHEET	64 OF 68

DRAWING LOCATION
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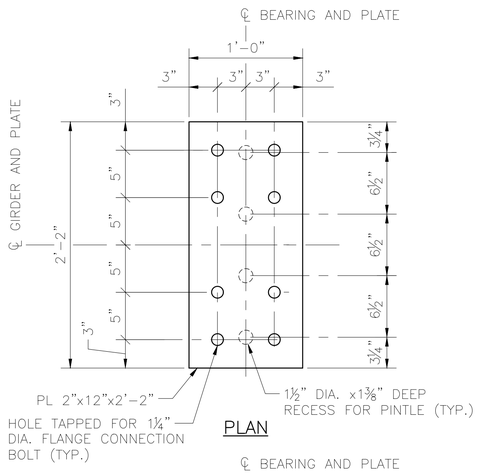
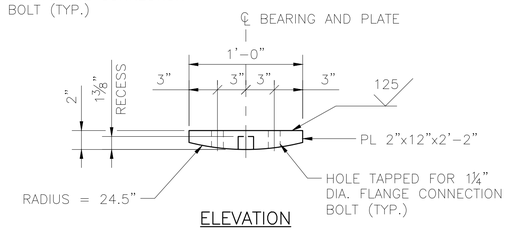
PUBLISHED	CTB
	ARRC_CTB_2023.CTB
SCALE	AS NOTED
DATE TIME	2/19/2025 5:20 PM



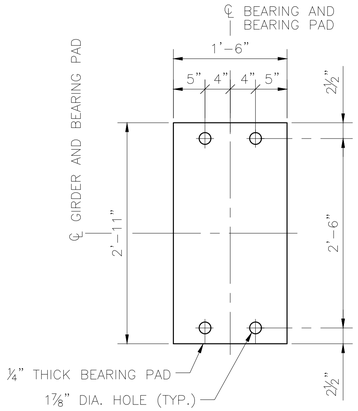
PLAN



ELEVATION

ROCKER PLATE MK RP1

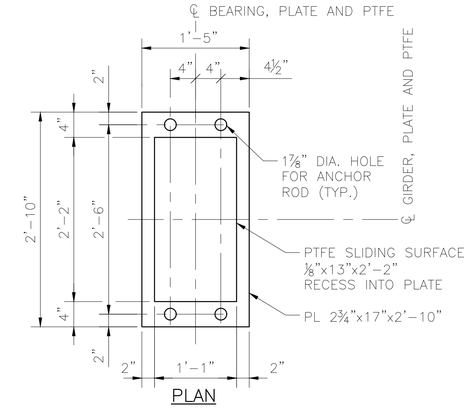
SCALE: 1½" = 1'-0"
24 ~ REQUIRED
WEIGHT = 177 LBS



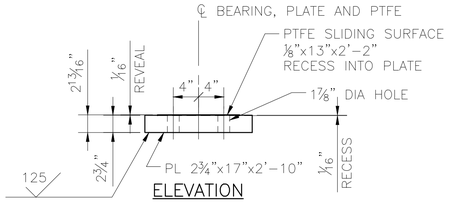
PLAN

BEARING PAD MK BRP1

SCALE: 1" = 1'-0"
24 ~ REQUIRED
60 DUROMETER NATURAL RUBBER



PLAN



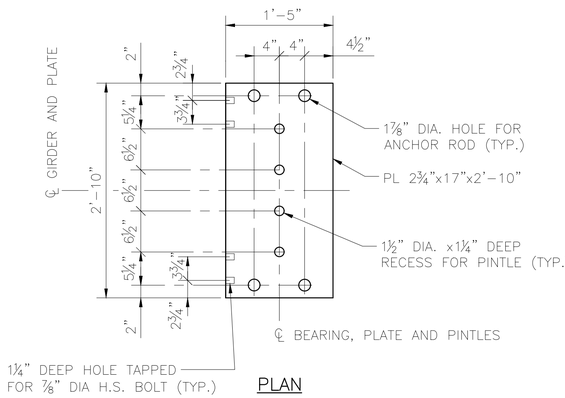
ELEVATION

MASONRY PLATE MK MP1-E

SCALE: 1" = 1'-0"
12 ~ REQUIRED
WEIGHT = 451 LBS

NOTES:

SURFACE TEXTURE SYMBOLS:	SYMBOLS SHOWN ARE IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE STANDARD Y14.36-1996 AND THE ROUGHNESS AVERAGE IS SHOWN IN MICRO INCHES.
PRE-ASSEMBLY:	BEARINGS ARE TO BE PRE-ASSEMBLED IN SHOP TO ENSURE PROPER FIT, MATCH MARKED AND CRATED FOR SHIPMENT.
TAPPED HOLES:	TAPPED HOLES DEPTH SPECIFIED TO BE FULLY THREADED. FABRICATOR MAY DRILL UP TO ¼" BEYOND TAPPED LENGTH SPECIFIED TO ALLOW FOR TAP CLEARANCE.
STEEL:	SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 15. STEEL SHALL BE ASTM A709 GR. 50 UNLESS OTHERWISE NOTED.
ROCKER PLATE:	SHALL BE IN ACCORDANCE WITH AREMA 15-5.3.4.1.
MASONRY PLATE:	SHALL BE IN ACCORDANCE WITH AREMA 15-5.3.5. AND MEET FLATNESS TOLERANCES OF THE PROJECT SPECIFICATIONS.
BASE PLATE:	SHALL BE IN ACCORDANCE WITH AREMA 15-5.3.5 AND MEET FLATNESS TOLERANCES OF THE PROJECT SPECIFICATIONS.
PTFE:	PTFE SLIDING SURFACES SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 15-5.5.2.1 AND 15-5.11. BOND WITH EPOXY TO MASONRY PLATE RECESS.
STAINLESS STEEL:	STAINLESS STEEL SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 15-5.5.2.2 AND 15-5.11.
BEARING PAD:	NATURAL RUBBER BEARING PADS SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 15-5.6.2 AND 15-5.12 AND SHALL HAVE A HARDNESS OF THE DUROMETER SPECIFIED.
BEARING SETTINGS:	CENTER PTFE ON CENTERLINE OF EXISTING SPAN AT 45°F. ADJUST 1/16" PER TEN DEGREES OF TEMPERATURE DIFFERENCE BETWEEN AMBIENT TEMPERATURE AND 45°F. SEE EXPANSION BEARING SETTING DETAIL ON SHEET 61.
COATINGS:	GALVANIZE ALL PARTS EXCEPT FOR STAINLESS STEEL AND PTFE SLIDING SURFACES. GALVANIZATION SHALL BE IN ACCORDANCE WITH ASTM A123.
ANCHOR BOLTS:	ANCHOR BOLTS CONNECTING DPG BOTTOM FLANGE TO ROCKER PLATES SHALL BE ASTM F3125, GR. A490, TYPE 1 BOLTS WITH STANDARD FLAT WASHERS.

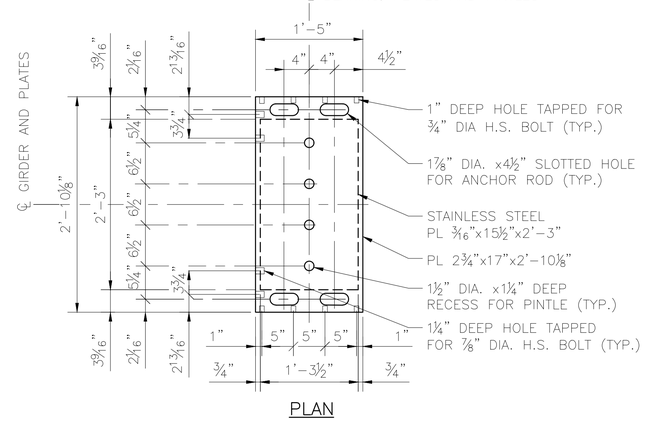


PLAN

ELEVATION

BASE PLATE MK BP1-F

SCALE: 1" = 1'-0"
12 ~ REQUIRED
WEIGHT = 451 LBS

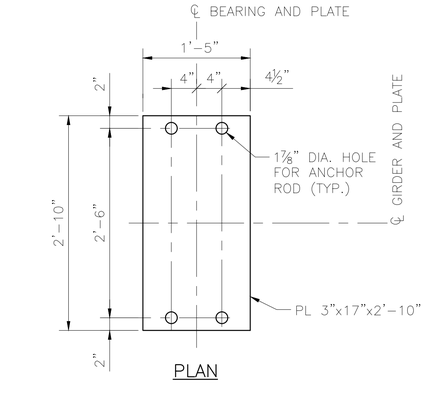


PLAN

ELEVATION

BASE PLATE MK BP1-E

SCALE: 1" = 1'-0"
12 ~ REQUIRED
WEIGHT = 453 LBS

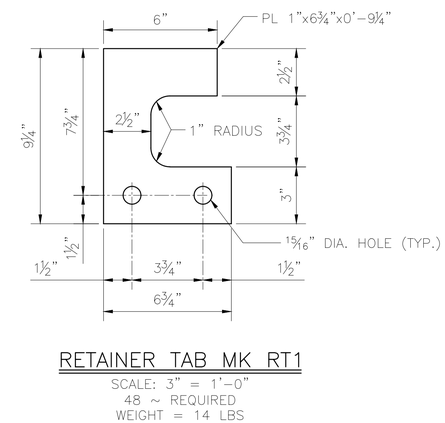


PLAN

ELEVATION

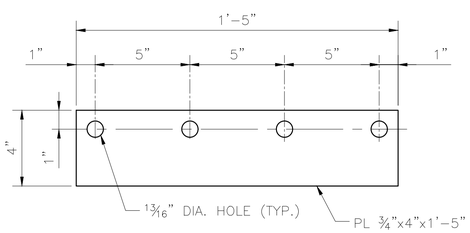
MASONRY PLATE MK MP1-F

SCALE: 1" = 1'-0"
12 ~ REQUIRED
WEIGHT = 492 LBS



RETAINER TAB MK RT1

SCALE: 3" = 1'-0"
48 ~ REQUIRED
WEIGHT = 14 LBS



GUIDE PLATE MK GP1

SCALE: 3" = 1'-0"
24 ~ REQUIRED
WEIGHT = 15 LBS

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER No. SE 207484 REGISTERED STRUCTURAL ENGINEER

HDR ENGINEERING, INC.
582 E. 36TH AVE, SUITE 500
ANCHORAGE, AK 99503-4169
(907) 644-2000
LICENSE #: AECC569

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ANCHORAGE, AK 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: DPG BEARING DETAILS (1 OF 2)

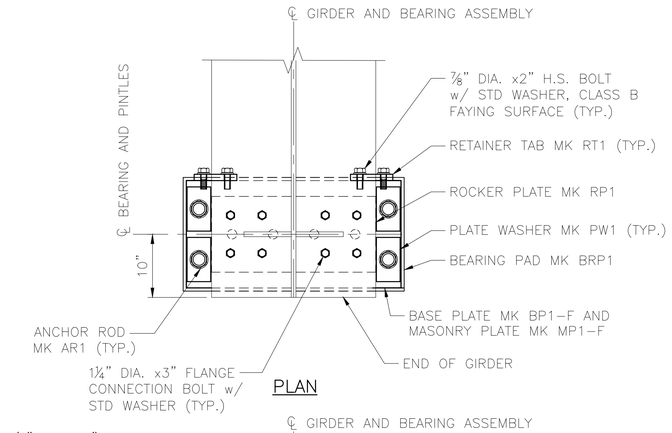
AFE NO.	10944
YEAR	2025
SHEET	65 OF 68

PUBLISHED CTB
ARRC_CTB_2023.CTB

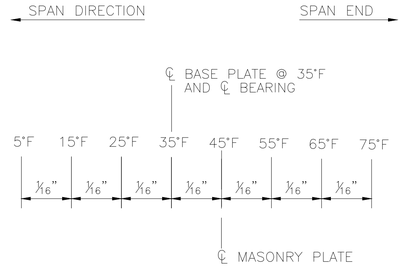
SCALE
AS NOTED

DATE TIME
2/19/2025 5:20 PM

DRAWING LOCATION
C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_65.DWG

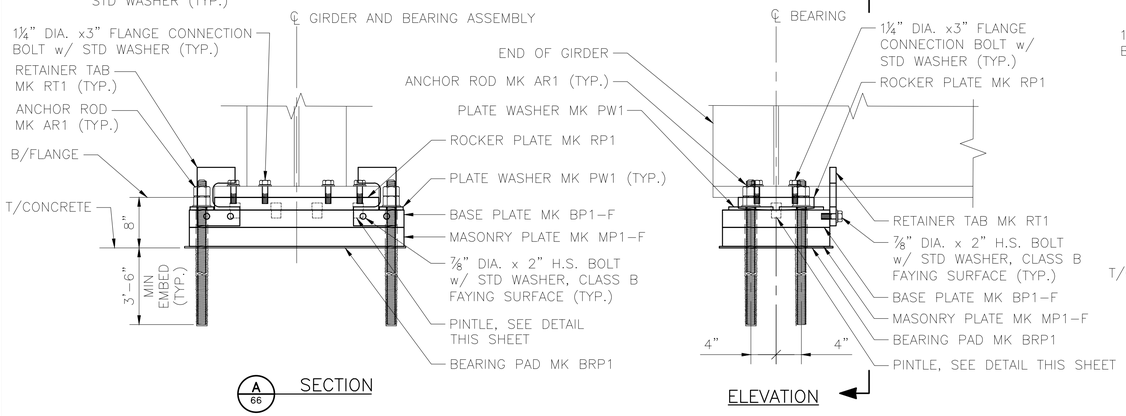


PLAN



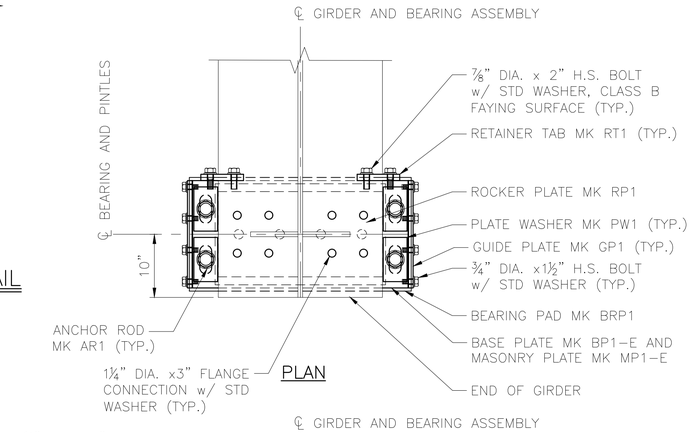
EXPANSION BEARING SETTING DETAIL

NOT TO SCALE

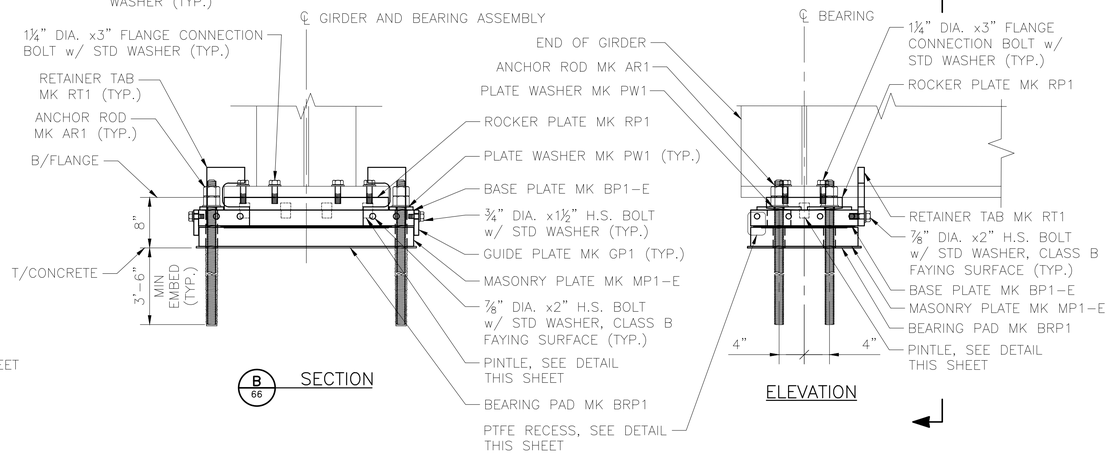


FIXED BEARING ASSEMBLY

SCALE: 1" = 1'-0"



PLAN

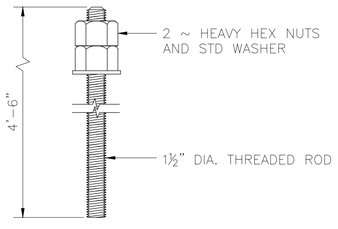


EXPANSION BEARING ASSEMBLY

SCALE: 1" = 1'-0"

NOTE:

BEARINGS, MASONRY PLATES AND BEARING PADS TO HAVE FULL FLAT BEARING SURFACE WITH TOP OF CONCRETE CAPS.



ANCHOR ROD MK AR1

SCALE: 1½" = 1'-0"
96 ~ REQUIRED
ASTM F1554, GR. 105
GALVANIZED ASSEMBLY

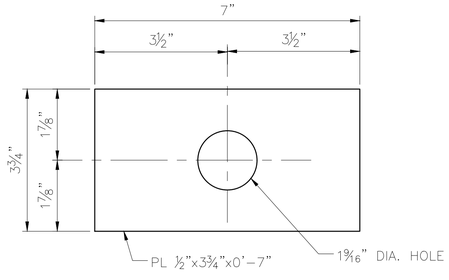
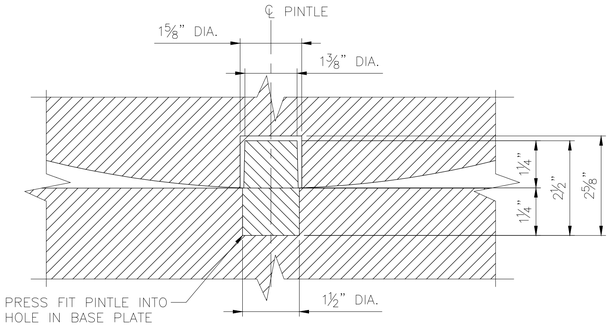


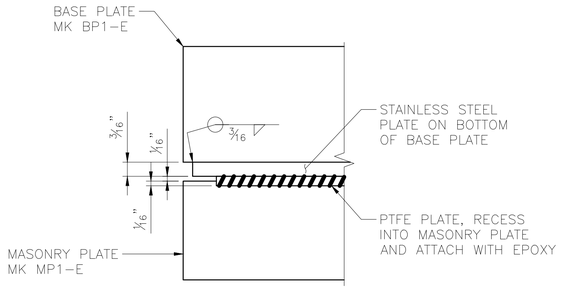
PLATE WASHER MK PW1

SCALE: 6" = 1'-0"
ASTM A709 GR. 36
GALVANIZED AFTER FABRICATION
96 ~ REQUIRED
WEIGHT = 4.0 LBS



PINTLE DETAIL

SCALE: 6" = 1'-0"



PTFE RECESS DETAIL

NOT TO SCALE

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

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CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

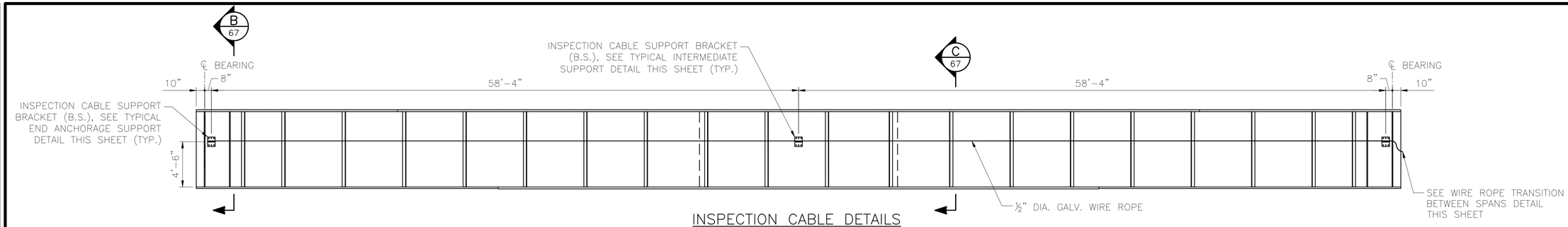
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: DPG BEARING DETAILS (2 OF 2)

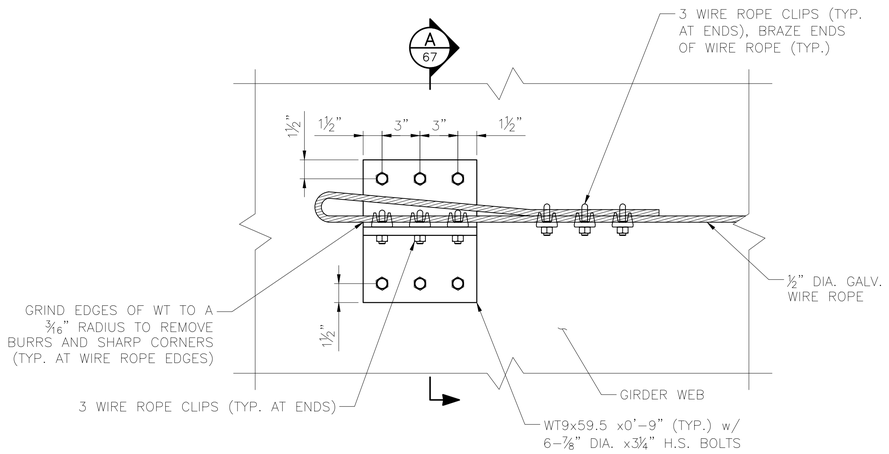
AFE NO.	10944
YEAR	2025
SHEET	66 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:20 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_66.DWG



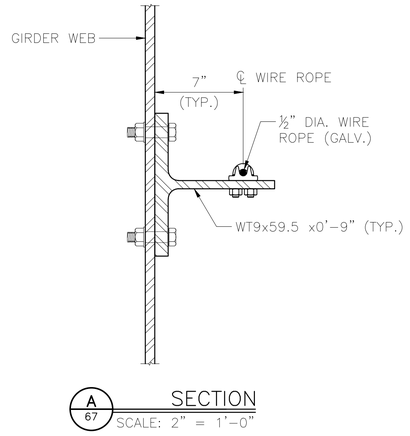
INSPECTION CABLE DETAILS

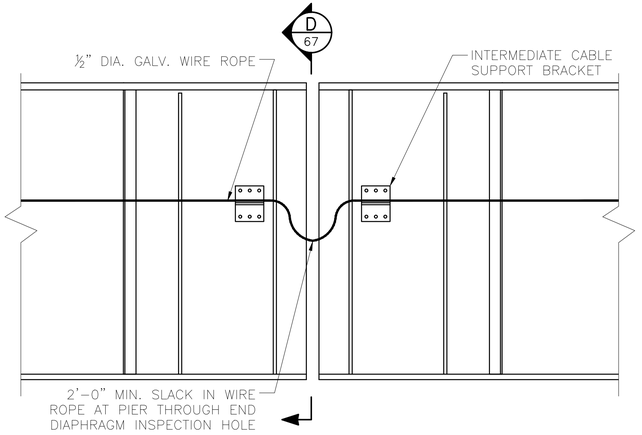
SCALE: 3⁄16" = 1'–0"



TYPICAL END ANCHORAGE SUPPORT DETAIL

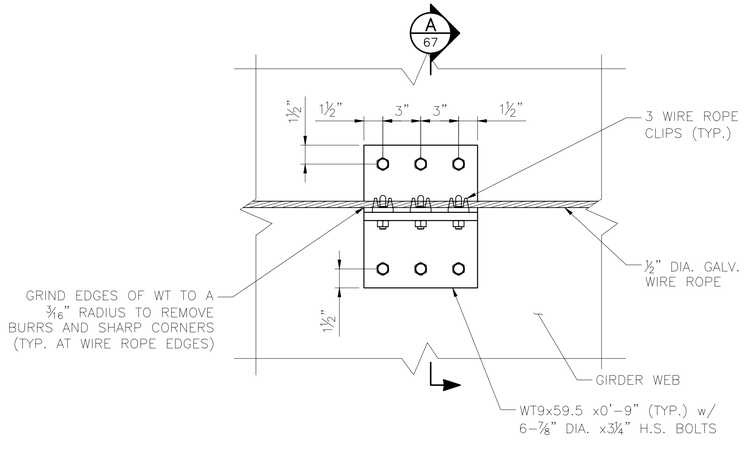
SCALE: 2" = 1'–0"
TYPICAL ALL GIRDERS AT ABUTMENT 1 & 4





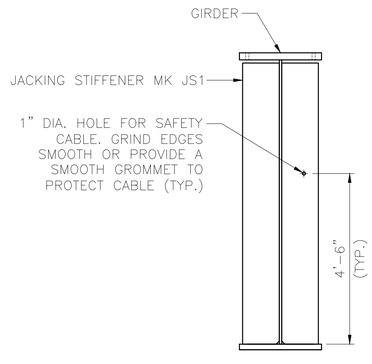
WIRE ROPE TRANSITION BETWEEN SPANS

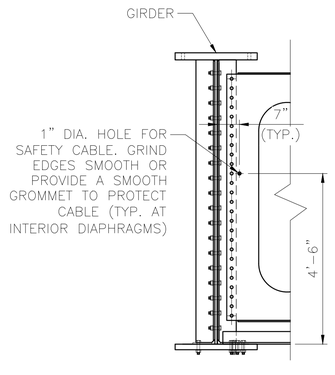
SCALE: ½" = 1'–0"

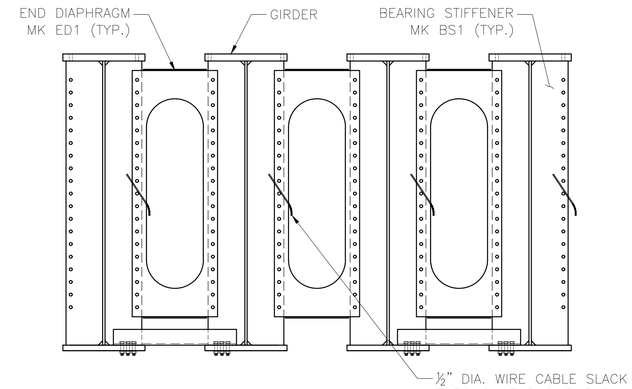


TYPICAL INTERMEDIATE SUPPORT DETAIL

SCALE: 2" = 1'–0"
TYPICAL ALL GIRDERS AT INTERMEDIATE SUPPORTS







CABLE TENSIONING NOTES:

1. TENSION CABLE UNTIL THERE IS A MAXIMUM OF 4 INCHES OF SAG WITH A 10–LB WEIGHT SUSPENDED HALFWAY BETWEEN CABLE SUPPORTS.
2. CABLE IS DESIGNED TO SUPPORT A MAXIMUM OF 2 PEOPLE PER CABLE SIMULTANEOUSLY.

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

STATE OF ALASKA 49TH
ANTHONY G. HAFNER
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LICENSE #: AECC569

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ANCHORAGE, ALASKA 99503-4169
(907) 644-2000

CAPITAL PROJECTS
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

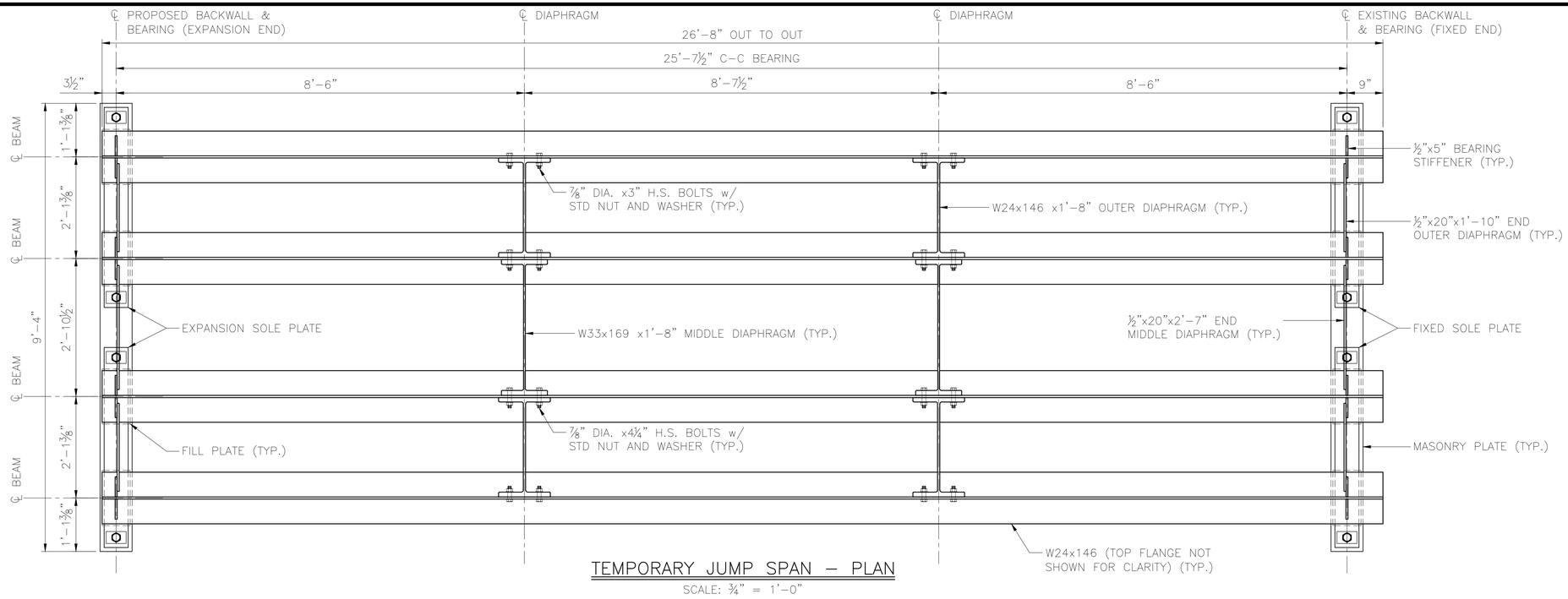
ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER BRIDGE REPLACEMENT

SHEET TITLE: INSPECTION CABLE DETAILS

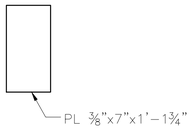
AFE NO.	10944
YEAR	2025
SHEET	67 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:21 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE RIVER_67.DWG



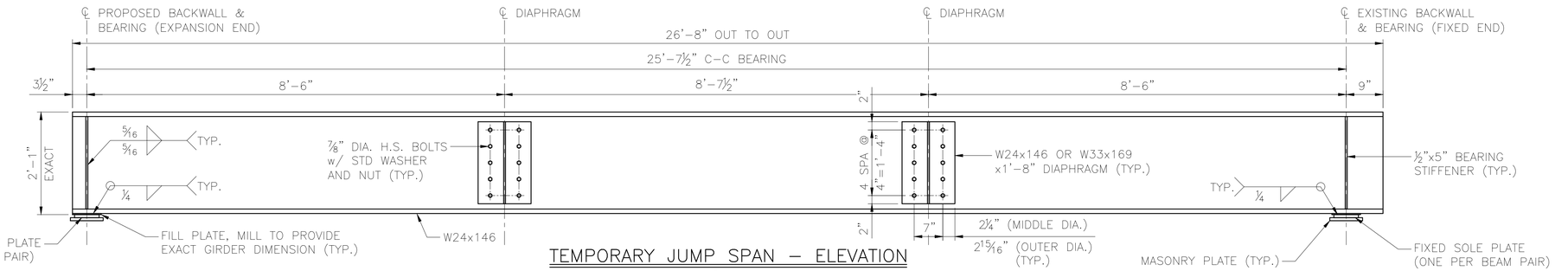
TEMPORARY JUMP SPAN – PLAN

SCALE: ¾" = 1'-0"



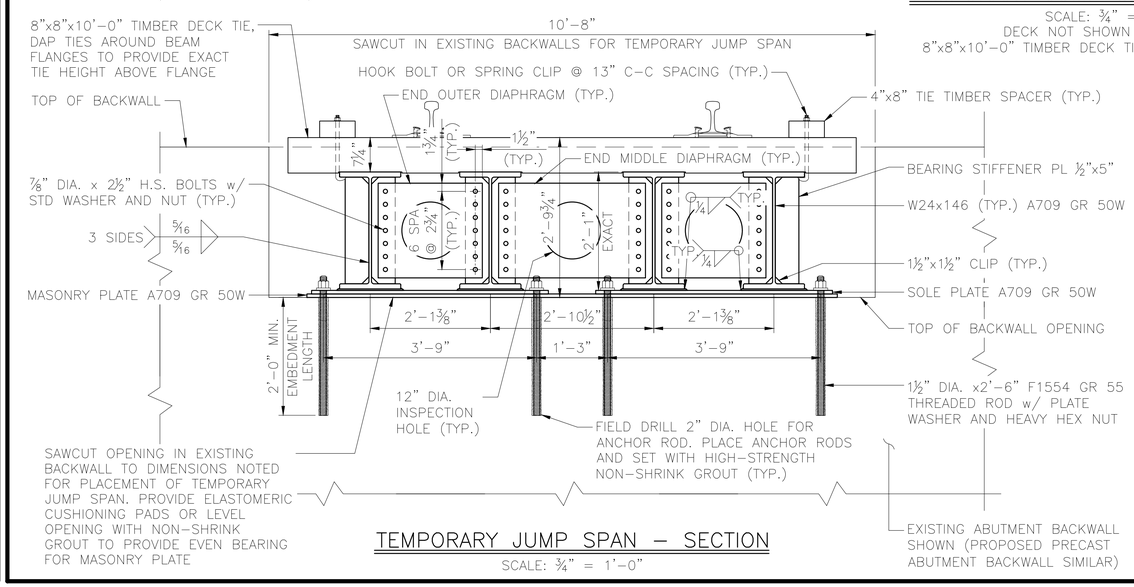
FILL PLATE

SCALE: 1" = 1'-0"
16 ~ REQUIRED



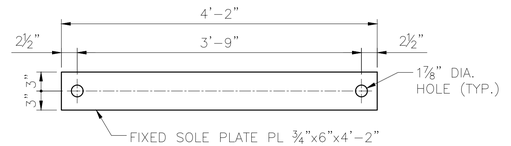
TEMPORARY JUMP SPAN – ELEVATION

SCALE: ¾" = 1'-0"
DECK NOT SHOWN FOR CLARITY
8"x8"x10'-0" TIMBER DECK TIES @ 13" C-C SPACING



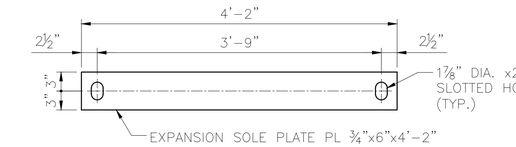
TEMPORARY JUMP SPAN – SECTION

SCALE: ¾" = 1'-0"



FIXED SOLE PLATE

SCALE: 1" = 1'-0"
4 ~ REQUIRED
250 μ-INCH SURFACE ROUGHNESS BOTH FACES

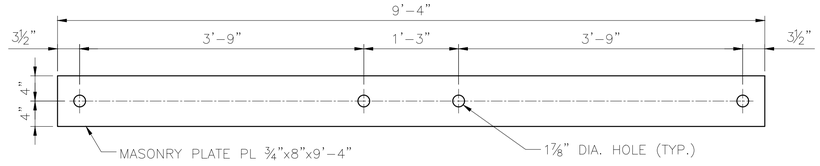


EXPANSION SOLE PLATE

SCALE: 1" = 1'-0"
4 ~ REQUIRED
250 μ-INCH SURFACE ROUGHNESS BOTH FACES

PLATE WASHER

SCALE: 1" = 1'-0"
16 ~ REQUIRED



MASONRY PLATE

SCALE: 1" = 1'-0"
4 ~ REQUIRED
250 μ-INCH SURFACE ROUGHNESS BOTH FACES

DESIGNED BY:	MNL
CHECKED BY:	AGH
DRAFTED BY:	MEM

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ALASKA RAILROAD

PROJECT: BRIDGE 127.5 OVER EAGLE RIVER
BRIDGE REPLACEMENT

SHEET TITLE: TEMPORARY JUMP SPAN

AFE NO.	10944
YEAR	2025
SHEET	68 OF 68

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 2/19/2025 5:22 PM
DRAWING LOCATION: C:\PWWORKING\WEST01\D2128537\BR_127.5_EAGLE_RIVER_68.DWG