

GENERAL REQUIREMENTS

1. ALL MATERIAL, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH CHAPTER 15, STEEL STRUCTURES OF THE CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING. ALL WELDING OPERATION PROCESSES, EQUIPMENT, MATERIALS, QUALIFICATION OF WELDERS, WORKMANSHIP, TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH THE CURRENT AREMA MANUAL AND THE AMERICAN WELDING SOCIETY BRIDGE WELDING CODE D1.5-2010. THE MORE STRINGENT CODE SHALL APPLY.
2. THE FABRICATOR SHALL FURNISH ALL EQUIPMENT, TOOLS, LABOR AND MATERIALS IN CONNECTION WITH THE FABRICATION AND SHIPPING OF ALL BRIDGE STEEL SUPERSTRUCTURE, INCLUDING BEARINGS AND ANCHOR BOLTS, IN ACCORDANCE WITH PLANS AND AS HEREIN SPECIFIED.
3. EXCEPT AS MODIFIED HEREIN, THE FURNISHINGS AND FABRICATION OF STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 15, STEEL STRUCTURES, OF THE AREMA MANUAL FOR RAILWAY ENGINEERING AS CURRENTLY IN FORCE AS OF THE DATE OF RECEIPT OF QUOTATION.
4. FABRICATION OF STRUCTURAL STEEL SHALL BE PERFORMED BY A FABRICATOR CERTIFIED UNDER AISC QUALITY CERTIFICATION PROGRAM CATEGORY: INTERMEDIATE.
5. ALL WELDING AND OXYGEN CUTTING SHALL BE IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE AWS D1.5-2010, EXCEPT AS MAY BE AMENDED BY THIS SPECIFICATION.
6. THE FABRICATION OF STEEL MEMBERS DESIGNATED HEREIN AS FRACTURE CRITICAL MEMBERS AND THE MATERIAL MAKING UP THOSE MEMBERS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE AREMA FRACTURE CONTROL PLAN FOR FRACTURE CRITICAL MEMBERS.
7. ERECTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING ERECTION AND THE DESIGN AND DETAILING OF LIFTING ACCESSORIES PER ASME BTH-1-2011 BASED ON ERECTOR'S PROPOSED SUPERSTRUCTURE ERECTION PLAN. ERECTOR SHALL SUBMIT LIFTING PLAN, DETAILS AND CALCULATIONS TO THE ENGINEER FOR APPROVAL. THE SUPERSTRUCTURE ERECTION PLAN SHALL BE COORDINATED WITH THE RAILROAD, AND FINAL ERECTION PLAN AND DETAILS SHALL BE SUBMITTED TO THE ENGINEER AND THE RAILROAD FOR APPROVAL, SIGNED AND SEALED BY AN ALASKA PROFESSIONAL ENGINEER.
8. IF ALASKA RAILROAD CORPORATION FORCES ARE TO ERECT BRIDGE, FALSEWORK AND LIFTING PLANS SHALL BE APPROVED BY THE ENGINEERING DEPARTMENT.
9. SHOP ASSEMBLY OF ALL STRUCTURAL STEEL IS REQUIRED TO ENSURE PROPER FIT.
10. FIELD WELDING OF ANY KIND IS PROHIBITED UNLESS SPECIFICALLY CALLED FOR IN THE PLANS OR APPROVED BY THE ENGINEER.

SHOP DRAWING & WELD PROCEDURES

1. THE FABRICATOR SHALL SUBMIT TO THE ENGINEER SHOP DETAIL DRAWINGS, WELDING PROCEDURE SPECIFICATIONS, AND ERECTION PROCEDURES FOR REVIEW, AS TO CONFORMITY TO CONTRACT REQUIREMENTS. SHOP DRAWINGS AND WELD PROCEDURES REQUIRE APPROVAL BY THE ENGINEER BEFORE ANY FABRICATION IS BEGUN.
2. ALL SHOP DRAWINGS SHALL BE CHECKED BY THE FABRICATOR BEFORE SUBMITTING THEM FOR APPROVAL. SHOP DRAWINGS SHALL BE MADE IN TRIPPLICATE AND SHALL BE REPRODUCIBLE, 24 INCHES BY 36 INCHES IN SIZE, INCLUDING MARGINS. THE MARGIN AT THE LEFT END SHALL BE 1½ INCHES AND THE OTHERS ½ INCH WIDE. THESE DRAWINGS SHALL BECOME THE PROPERTY OF, AND SHALL BE DELIVERED TO, THE ALASKA RAILROAD CORPORATION UPON COMPLETION OF THE CONTRACT.
3. DURING THE PREPARATION OF SHOP DRAWINGS, THE FABRICATOR SHALL CHECK ALL GENERAL DIMENSIONS OF THE STEEL WORK AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER FOR REVISION AND CORRECTION BEFORE THE FABRICATION IS BEGUN. NO ALLOWANCE SHALL BE MADE TO THE FABRICATOR FOR MATERIAL FABRICATED TO INCORRECT DIMENSIONS NOT SO REPORTED.
4. SHOP DRAWINGS SHALL INDICATE THE TYPE AND GRADE OF STEEL USED IN EACH OF THE FABRICATED MEMBERS. MEMBERS SUBJECT TO THE FRACTURE CONTROL PLAN AND CHARPY V-NOTCH TOUGHNESS TESTS SHALL BE DESIGNATED AS SUCH ON THE SHOP DRAWINGS.
5. SHOP DRAWINGS SHALL INDICATE NUMBER, LENGTH, GRIP AND LOCATION OF ALL SHOP AND FIELD HIGH STRENGTH FASTENERS.
6. ALL WELDING SHALL BE FULLY DETAILED. ONE COPY OF THE PROPOSED WELDING PROCEDURES GIVING COMPLETE DETAILS FOR EACH TYPE AND THICKNESS OF JOINT TO BE USED ON THE PROJECT, WHETHER PREQUALIFIED OR SUBJECT TO QUALIFICATION TESTS, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO SUBMITTING SHOP DRAWINGS. THE SHOP DRAWINGS SUBMITTED FOR FINAL APPROVAL SHALL INDICATE THE WELDING PROCEDURE TO BE USED FOR EACH JOINT. WELDING SYMBOLS SHALL BE THOSE SHOWN IN THE LATEST EDITION OF AMERICAN WELDING SOCIETY (AWS) PUBLICATION A2.4, "SYMBOLS FOR WELDING AND NON-DESTRUCTIVE TESTING." SPECIAL CONDITIONS INCLUDING LOCATION OF JOINTS SUBJECT TO NON-DESTRUCTIVE TESTING AND TYPE OF NON-DESTRUCTIVE TESTING SHALL BE FULLY EXPLAINED BY ADDED NOTES OR DETAILS.

7. THE FABRICATOR SHALL FURNISH TO THE ALASKA RAILROAD CORPORATION AS MANY PRINTS OF DRAWINGS AS MAY BE NECESSARY TO CARRY OUT THE WORK. THE FABRICATOR SHALL BE RESPONSIBLE FOR THE CORRECTNESS AND COMPLETENESS OF HIS DRAWINGS, REGARDLESS OF ANY REVIEW BY THE ENGINEER. ANY WORK PERFORMED OR MATERIAL ORDERED PRIOR TO APPROVAL BY THE ENGINEER SHALL BE AT THE SOLE RISK OF THE FABRICATOR.

MATERIALS

STRUCTURAL STEEL A709 GRADE 50W

1. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A709, GRADE 50W UNLESS OTHERWISE NOTED. STRUCTURAL STEEL IMPACT TEST REQUIREMENTS SHALL BE T3 FOR NON-FRACTURE CRITICAL MEMBERS AND F3 FOR FRACTURE CRITICAL MEMBERS. BALLAST DECK PLATE, BENT CURB PLATE, KNEE BRACES, STIFFENERS, DIAPHRAGMS, CONNECTION ANGLES, WALKWAY, UTILITY CHASE, SOLE PLATE, AND MASONRY PLATE SHALL BE EXEMPT FROM IMPACT TEST REQUIREMENTS.
2. STEEL DESIGNATED AS FRACTURE CRITICAL STEEL (F.C.) ON THE DRAWINGS SHALL COMPLY WITH THE REQUIREMENTS OF THE AREMA MANUAL CHAPTER 15, SECTION 1.14. ADDITIONALLY AN S2 PRODUCT ANALYSIS (CHEMICAL COMPOSITION) SHALL BE MADE FROM EACH PLATE FOR COMPARISON TO THE PRODUCT ANALYSIS OF THE HEAT.
3. FOR REFERENCE, FRACTURE CRITICAL PLATES SHALL BE MARKED BY STENCIL (NO STAMPING) WITH AN IDENTIFYING NUMBER. IF THE PLATE IS CUT INTO TWO OR MORE PLATES IN THE FINISHED STRUCTURE, EACH INDIVIDUAL PLATE SHALL BE MARKED. LOSS OF IDENTIFICATION OF INDIVIDUAL PLATES WILL BE CAUSE FOR REJECTION OF THE PLATE.
4. IMPERFECTIONS IN SURFACES OF LOW ALLOY PLATES SHALL BE REPAIRED IN ACCORDANCE WITH ASTM A6 EXCEPT THAT REPAIR BY WELDING WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER AFTER THE MATERIAL IS DELIVERED TO THE FABRICATING SHOP. APPROVAL WILL BE LIMITED TO AREAS WHERE THERE WILL BE LESS THAN THE MAXIMUM DESIGN STRESS IN THE FINISHED STRUCTURE. ALL GRINDING, CHIPPING, AND ARC-AIR GOUGING NECESSARY TO CONDITION PLATE SURFACES SHALL BE PERFORMED AT THE MILL IN ACCORDANCE WITH ASTM A6, SECTION 9.2.

TABLE OF LIFTING WEIGHTS		
DESCRIPTION	MARK NO.	EST. WEIGHT (LB)
GIRDER LT & GIRDER RT		113,530
FLOORBEAM PANEL	FBP1	11,965
FLOORBEAM PANEL	FBP2 & FBP3	12,995
FLOORBEAM PANEL	FBP4	10,150
KNEE BRACE	KB1	380
KNEE BRACE	KB2	535
KNEE BRACE	KB3	560
CLOSURE PLATE	CP1	*
CLOSURE PLATE	CP2	740
BENT CURB PLATE	BCP1 & BCP5	*
BENT CURB PLATE	BCP2 & BCP4	595
BENT CURB PLATE	BCP3	870
BENT CURB PLATE	BCP6	250
SOLE PLATE	SP1 & SP2	480
MASONRY PLATE	MP1	480
UTILITY CHASE	UC1	30
WALKWAY BRACKET	WB1	70
HANDRAIL PANEL	HP1	155
HANDRAIL PANEL	HP2	180
HANDRAIL PANEL	HP3	280
HANDRAIL PANEL	HP4	155
HANDRAIL PANEL	HP5	145
HANDRAIL PANEL	HP6	135
TOE PLATE	TP1	40
TOE PLATE	TP2 & TP3	30

* VARIES BASED ON PROJECT PLANS AND DIMENSION a

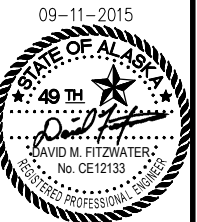
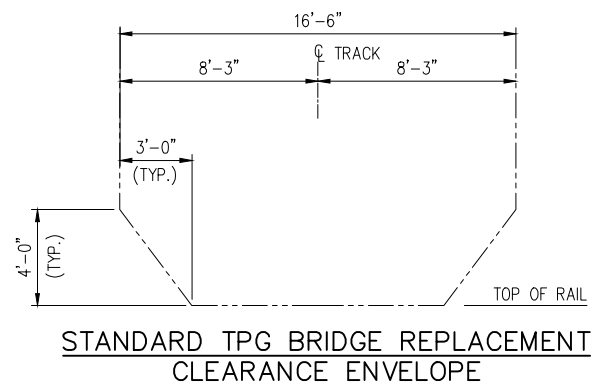
DESIGN DATA

DESIGN IN ACCORDANCE WITH THE AREMA MANUAL FOR RAILWAY ENGINEERING, 2014:
CHAPTER 15, STEEL STRUCTURES

DEAD LOAD:
MAXIMUM 24" AND MINIMUM 15" BALLAST MEASURED TO TOP OF TIE
UTILITIES = 100 LB/FT

LIVE LOAD:
COOPER E-80 & ALTERNATE LOAD WITH DIESEL IMPACT FOR BALLAST DECK
WALKWAY LOAD = 85 PSF

TRACK ECCENTRICITY:
3" BETWEEN CENTERLINE BRIDGE & CENTERLINE TRACK



TOE PLATE		TP2 & TP3		30							
* VARIES BASED ON PROJECT PLANS AND DIMENSION											
 4300 B STREET, SUITE 505 ANCHORAGE, AK 99503 PHONE: 907-315-8306 FAX: 907-274-8644			ISSUED FOR CONSTRUCTION			 ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500					
						PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT					
						TITLE: PROJECT SPECIFICATIONS (1 OF 4)					
						DESIGNED BY: AR DRAWN BY: RDL CHECKED BY: TSK APPROVED BY: DMF		SCALE: AS NOTED DATE: 09/11/15		S2	
						△ 09-11-15		DF		ISSUED FOR CONSTRUCTION	
REV.	DATE	BY	REVISION			AFE NO.: ACAD FILE: DWG NO. 2 OF 18					

1. AS PROMPTLY AS PRACTICABLE AFTER ROLLING OF METAL AND BEFORE SHIPPING, MILLS SHALL MAKE THE CHEMICAL ANALYSES AND PHYSICAL TESTS REQUIRED AND SHALL FURNISH CERTIFIED COPIES OF THE TESTS TO THE ENGINEER IN THE NUMBER REQUESTED. CERTIFIED COPIES MUST BE FURNISHED TO THE ENGINEER PRIOR TO USE OF MATERIAL IN THE WORK.
2. SHOP INSPECTION OF METAL FABRICATION MAY BE PERFORMED BY THE ALASKA RAILROAD CORPORATION AS THE WORK PROGRESSES WITHOUT EXPENSE TO THE FABRICATOR. THE FABRICATOR SHALL GIVE TWO WEEKS WRITTEN NOTICE TO THE ENGINEER OF THE BEGINNING OF WORK IN THE SHOPS SO INSPECTION MAY BE PROVIDED. NO WORK IN THE SHOP SHALL BE DONE UNTIL THE ENGINEER HAS BEEN SO NOTIFIED.
3. THE ENGINEER AND INSPECTOR SHALL HAVE FULL ACCESS TO ALL PARTS OF THE SHOP WHERE MATERIAL IS BEING FABRICATED FOR THE CONTRACT, AND SHALL BE PROVIDED EVERY REASONABLE FACILITY FOR DETERMINING THE CHARACTER OF THE MATERIAL AND WORKMANSHIP.
4. THE FABRICATOR SHALL LAY OUT AND ARRANGE THE INDIVIDUAL MEMBERS OR UNITS TO BE INSPECTED SO THAT ERECTION MARKS ON EACH MAY BE READILY DISTINGUISHED AND SO THAT EACH MEMBER OR UNIT IS ACCESSIBLE FOR SUCH MEASUREMENTS AS THE INSPECTOR MAY DEEM NECESSARY. IF THE MATERIAL HAS NOT BEEN INSPECTED AT THE MILL BEFORE BEING DELIVERED TO THE FABRICATING SHOP, THE FABRICATOR SHALL ASSIST THE INSPECTOR BY TURNING THE STEEL TO PERMIT EXAMINATION ON BOTH SIDES.
5. FINAL INSPECTION SHALL TAKE PLACE AFTER THE FABRICATION IS COMPLETE, BEFORE SHIPPING.
6. WHETHER OR NOT SHOP INSPECTION IS MADE, WORKMANSHIP AND MATERIALS WHICH DO NOT CONFORM TO THE SPECIFICATIONS AND TO RECOGNIZED GOOD PRACTICE MAY BE REJECTED AT ANY TIME PRIOR TO FINAL ACCEPTANCE OF THE WORK.
7. NON-DESTRUCTIVE TESTING OF WELDS IS CONSIDERED A PART OF QUALITY CONTROL AND SHALL BE AT THE FABRICATOR'S EXPENSE (SEE WELD INSPECTION OF PROJECT SPECIFICATIONS).
8. NONDESTRUCTIVE TESTING OF THE FRACTURE CRITICAL MEMBERS IS TO BE PERFORMED BY AN INDEPENDENT TESTING COMPANY APPROVED BY THE ENGINEER AND CONTRACTED FOR BY THE FABRICATOR. PERSONNEL QUALIFICATION AND CERTIFICATION IS TO BE IN ACCORDANCE WITH CURRENT AREMA CHAPTER 15 FOR FRACTURE CRITICAL MEMBERS. COPIES OF TEST REPORTS ARE TO BE FURNISHED TO THE ENGINEER.

1. THE STEEL SHOP FABRICATION SHALL BE GOVERNED BY THE APPLICABLE PROVISIONS OF THE LATEST AREMA SPECIFICATIONS, CHAPTER 15, STEEL STRUCTURES, PART 3, "FABRICATION", EXCEPT AS HEREIN SPECIFIED. THOSE MEMBERS DESIGNATED AS FRACTURE CRITICAL SHALL CONFORM TO THE REQUIREMENTS OF THE FRACTURE CONTROL PLAN SET FORTH IN THE APPLICABLE PARTS OF THE AREMA MANUAL IN ADDITION TO THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
2. A PREFABRICATION MEETING SHALL BE HELD TO ESTABLISH SHOP FABRICATION SCHEDULES, MATERIAL SUPPLIES, INSPECTION PROCEDURES, REPAIR PROCEDURES, RECORD KEEPING PROCEDURES, AND ALL OTHER RELATED SUBJECTS. ALL INTERESTED PARTIES SHALL BE INVITED TO ATTEND.
3. THE BOTTOM FLANGES OF THE BEAMS MUST BE SQUARE WITH THE VERTICAL AXIS 5 FEET FROM BOTH ENDS OF THE BEAMS.
4. THE TOP SURFACE OF THE BEAMS SHALL BE ADJUSTED TO FORM A STRAIGHT LINE AT ANY TRANSVERSE SECTION THROUGHOUT THE SPAN. TOLERANCE IS PLUS OR MINUS $\frac{3}{8}$ ".

1. EXTRAORDINARY CARE SHALL BE TAKEN IN THE HANDLING OF FRACTURE CRITICAL MEMBERS. LIFTING DOGS, TONGS, GRIPPES, CHAINS, CABLES, OR OTHER LIFTING DEVICES PLACED IN DIRECT CONTACT WITH THE MEMBER WHICH MAY GOUGE, SCRATCH, SCORE, SCRAPE, OR OTHERWISE DAMAGE THE SURFACE, EDGES OR CORNERS SHALL NOT BE USED. PROCEDURES FOR HANDLING FRACTURE CRITICAL MEMBERS USING LIFTING STRAPS, TIMBER CUSHIONS OR OTHER PROTECTIVE DEVICES SHALL BE DEVELOPED, SUBMITTED TO THE ENGINEER, AND RECEIVE WRITTEN APPROVAL BY THE ENGINEER BEFORE HANDLING ANY MATERIAL FOR MOVEMENT, DESIGNATED AS FRACTURE CRITICAL.

GENERAL

1. PLATES MAKING UP STRUCTURAL MEMBERS SHALL BE CUT SO THAT THE DIRECTION OF ROLLING IS PARALLEL TO THE LONGITUDINAL AXIS OF THE MEMBER. CUT EDGES SHALL BE GRIND TO ELIMINATE MICRO CRACKS.
2. ALL MAIN STRESS CARRYING MEMBERS COMPOSED OF PLATES SHALL HAVE ROLLED EDGES OR MAY BE OXYGEN CUT. A MECHANICAL GUIDE SHALL BE USED IN ALL OXYGEN CUTTING. CUTS SHALL BE MADE IN ACCORDANCE WITH AWS STRUCTURAL WELDING CODE, ARTICLE 3.2 REQUIREMENTS, EXCEPT AS MODIFIED IN THESE SPECIFICATIONS.

REPAIR OF PLATE CUT EDGES

THE CORRECTIVE PROCEDURES DESCRIBED IN TABLE 3.1 OF AWS D1.5-2010 SHALL NOT APPLY TO DISCONTINUITIES IN ROLLED PLATE SURFACES. SUCH DISCONTINUITIES SHALL BE CORRECTED BY THE FABRICATOR IN ACCORDANCE WITH THE PROVISIONS OF MATERIALS IN THESE SPECIFICATIONS.

SHEARING

1. SHEARING EDGES, WHERE PERMITTED, SHALL BE LEFT IN A NEAT AND FINISHED CONDITION. A SHEARED EDGE IS DEFINED AS THE TERMINATION OF ANY PART CUT BY SHEARING, WHETHER ON SIDES, ENDS OR OTHERWISE.
2. EDGES OF ALL MAIN MATERIAL, IF SHEARED, SHALL BE PLANED TO A DEPTH OF ¼ INCH. MAIN MATERIAL INCLUDES ALL COMPONENTS, GUSSET AND LATERAL PLATES, BEARING STIFFENERS AND FLOORBEAM END CONNECTORS.
3. PLANING MAY BE OMITTED AT THE SHEARED ENDS OF PLATES AND SHAPES WHICH BECOME ENDS OF MAIN STRESS CARRYING MEMBERS AND ARE NOT OTHERWISE SPECIFIED TO BE MILLED.
4. OTHER METHODS OF SMOOTHING SHEARED EDGES BY GRINDING OR OTHERWISE, WHICH THE ENGINEER MAY APPROVE AS BEING EQUIVALENT TO THE PLANING SPECIFIED, WILL BE GIVEN CONSIDERATION.

1. ALL HOLES FOR $\frac{7}{8}$ INCH DIAMETER HIGH STRENGTH BOLTS SHALL BE $\frac{15}{16}$ INCH DIAMETER UNLESS OTHERWISE INDICATED ON THE PLANS.
2. OPEN HOLES FOR FIELD CONNECTIONS OF THE THROUGH PLATE GIRDER SPAN SHALL BE SUBDRILLED $\frac{1}{4}$ INCH DIAMETER UNDERSIZE AND REAMED TO FINAL DIAMETER WITH PARTS FULLY SHOP ASSEMBLED, OR DRILLED FULL SIZE WITH THE PARTS ASSEMBLED.
3. ANY OPEN BOLT HOLE SHALL BE FILLED IN IF NOT USED.

1. THE NEW THROUGH PLATE GIRDER SPAN SHALL BE COMPLETELY SHOP ASSEMBLED AS A SINGLE UNIT. DURING ASSEMBLY, PIECES SHALL BE MATCH MARKED IN ACCORDANCE WITH APPROVED MATCH MARKING DIAGRAMS TO ASSURE THEY WILL BE REASSEMBLED IN AN IDENTICAL MANNER DURING ERECTION AT THE SITE.
2. NO INTERCHANGE OF PARTS AFTER REAMING AND DRILLING WILL BE ALLOWED. IN THE REAMING OF FIELD HOLES WITH MEMBERS OR PARTS OF MEMBERS ASSEMBLED THE PARTS SHALL BE THOROUGHLY DRAWN TOGETHER WITH BOLTS SO THAT NO BURRS OR REAMINGS WILL BE LEFT BETWEEN ANY PARTS.
3. FLOORBEAMS NEED NOT BE CAMBERED, BUT SHALL BE FABRICATED WITH NATURAL CAMBER UP. CAMBER OF THE THROUGH PLATE GIRDERS SHALL BE AS SHOWN IN THE GIRDER CAMBER DIAGRAM AND IS EQUAL TO THE DEFLECTION PRODUCED BY THE DEAD LOAD ONLY.

GENERAL

1. BOLTS SHALL BE TIGHTENED BY TURN-OF-THE-NUT METHOD TO OBTAIN THE PROPER BOLT TENSION IN ACCORDANCE WITH AREMA CHAPTER 15, SECTION 3.2.3.
2. BOLTS AND NUTS SHALL BE FURNISHED BY THE SAME SUPPLIER TO ENSURE PROPER FIT.
3. BOLTS SHALL BE OF SUCH LENGTH THAT THEY WILL EXTEND ENTIRELY THROUGH THEIR NUTS AND APPROXIMATELY ¼" BEYOND THEM AND THE FULL THREADS SHALL EXTEND NO MORE THAN ¾" INTO THE GRIP
4. ANY OPEN BOLT HOLE SHALL BE FILLED IN WITH HIGH STRENGTH STEEL BOLT IF NOT USED.
5. BOLTED PARTS SHALL FIT SOLIDLY TOGETHER WHEN ASSEMBLED AND SHALL NOT BE SEPARATED BY GASKETS OR ANY OTHER INTERPOSED COMPRESSIBLE MATERIAL.
6. WHEN ASSEMBLED, ALL JOINT SURFACES, INCLUDING THOSE ADJACENT TO THE BOLT HEADS, NUTS OR WASHERS, SHALL BE FREE OF SCALE, EXCEPT TIGHT MILL SCALE; AND SHALL ALSO BE FREE OF DIRT, LOOSE SCALE, BURRS, OTHER FOREIGN MATERIAL AND OTHER DEFECTS THAT WOULD PREVENT SOLID SEATING OF THE PARTS.
7. CONTACT SURFACES WITHIN THE JOINTS SHALL BE FREE OF OIL, PAINT, LACQUER OR RUST INHIBITOR.

WHEN TESTED WITH THE INSPECTING WRENCH, EACH FASTENER SHALL PROVIDE, WHEN ALL FASTENERS IN THE JOINT ARE TIGHT, AT LEAST THE MINIMUM BOLT TENSION SHOWN IN TABLE 15-3-2 OF AREMA CHAPTER 15, SECTION 15.3.2.3 FOR THE SIZE OF FASTENER USED.

 4300 B STREET, SUITE 505 ANCHORAGE, AK 99503 PHONE: 907-315-8306 FAX: 907-274-8644				ISSUED FOR CONSTRUCTION		 ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500			
						PROJECT : 123' STANDARD TPG BRIDGE REPLACEMENT			
						TITLE: PROJECT SPECIFICATIONS (2 OF 4)			
						DESIGNED BY: AR	SCALE: AS NOTED	S3	AFE NO.:
						DRAWN BY: RDL	DATE: 09/11/15		ACAD FILE:
						CHECKED BY: TSK			DWG NO.
						APPROVED BY: DMF		3 OF 18	

GALVANIZING

1. HOT-DIP GALVANIZING SHALL BE APPLIED TO ALL PARTS INDICATED ON THE PLANS OR ELSEWHERE SPECIFIED IN THESE SPECIFICATIONS FOR GALVANIZING.
2. ALL ROLLED STEEL SHAPES, PLATES, AND BARS TO BE GALVANIZED SHALL CONFORM TO ASTM STANDARD A123. THE WEIGHT OF THE ZINC COATING PER SQUARE FOOT OF ACTUAL SURFACE SHALL AVERAGE TO LESS THAN 2.0 OZ. AND NO INDIVIDUAL SPECIMEN SHALL SHOW LESS THAN 1.8 OZ.
3. DAMAGED GALVANIZED SURFACES SHALL BE THOROUGHLY CLEANED TO REMOVE ALL CONTAMINATES AND SHALL THEN BE REPAIRED PER ASTM A780.
4. ALL STEEL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) SHALL BE GALVANIZED PER ASTM A153.

LOADING AND SHIPPING

1. ALL MATERIALS SHALL BE CAREFULLY LOADED SO AS TO AVOID DAMAGE IN TRANSIT. MEMBERS WEIGHING MORE THAN THREE TONS SHALL HAVE THE WEIGHT MARKED THEREON. ALL SMALL PARTS SUCH AS RIVETS, BOLTS, PINS, WASHERS, AND SMALL CONNECTION PLATES SHALL BE PACKED IN CONTAINERS, OF ADEQUATE STRENGTH. THE CONTENTS OF EACH UNIT SHALL BE PLAINLY MARKED ON THE TOP OF EACH CONTAINER.
2. THE WELDED GIRDERS AND FLOORBEAM PANELS SHALL BE SHIPPED IN AN UPRIGHT POSITION AND BE ADEQUATELY BLOCKED AND BRACED TO PREVENT DAMAGE DURING SHIPPING. THE FABRICATOR SHALL SUBMIT GIRDER LOADING DIAGRAMS TO THE ENGINEER FOR APPROVAL 1 WEEK PRIOR TO THE ANTICIPATED SHIPPING DATE. THESE DIAGRAMS SHALL INCLUDE PROPOSED BLOCKING, BRACING AND TIE-DOWN DETAILS.

EPOXY GROUT

EPOXY GROUT SHALL BE NON-SHRINK AND SHALL CONFORM TO ASTM C1107. THE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF THE GROUT SHALL BE 6,000 PSI.

THE FOLLOWING MATERIALS ARE APPROVED FOR USE:

CLASS A EPOXY:

1. AS15-18 A&B LIQUID TYPE EPOXY
2. SPEC-BOND 100 EPOXY

CLASS B EPOXY:

1. AS23-18 A&B GEL TYPE EPOXY
2. SPEC-BOND 200 EPOXY

AS15-18 AND AS23-18 EPOXIES ARE AVAILABLE FROM:
DELTA PLASTICS CO. OR PERMALITE
10513 ROAD 236 1537 MONROVIA AVE
TERRA BELLA, CA 93270 NEWPORT BEACH, CA 92663
PHONE (559) 535-1332 PHONE (714) 548-1137
FAX (559) 535-3723 FAX (714) 548-1130

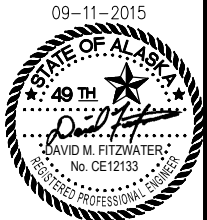
SPEC-BOND EPOXIES ARE AVAILABLE FROM:
CONSPEC MARKETING & MANUFACTURING CO., INC.
636 SOUTH 66TH TERRACE
KANSAS CITY, KS 66111
PHONE (913) 287-1700
FAX (913) 287-2716

PAYMENT

PAYMENT FOR STRUCTURAL STEEL WILL BE MADE AT THE LUMP SUM PRICE QUOTED FOR "STRUCTURAL STEEL", WHICH SHALL BE FULL COMPENSATION FOR FABRICATING, SHIPPING AND INSTALLING THE METALWORK AND SHALL BE FULL COMPENSATION FOR FURNISHING ALL LABOR, MATERIALS, TOOLS, SUPPLIES, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK INDICATED IN THIS PLAN SET. THIS PRICE PAID SHALL INCLUDE ANCHOR BOLTS, ELASTOMERIC BEARING PADS, FRACTURE CRITICAL TESTING, WELD INSPECTION SERVICES, SURFACE PREPARATION, CLEANING, AND GALVANIZING WHERE REQUIRED. NO ADDITIONAL PAYMENT WILL BE MADE FOR FALSEWORK USED IN SPAN ASSEMBLY DURING FABRICATION OR FOR ANY METAL ADDED FOR ERECTION OR OTHER PURPOSES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

JOINT SEALANT

A PREMIUM POLYURETHANE SEALANT SHALL BE USED TO FILL FLOORBEAM PANEL CLOSURE GAP AFTER FIELD WELDING.

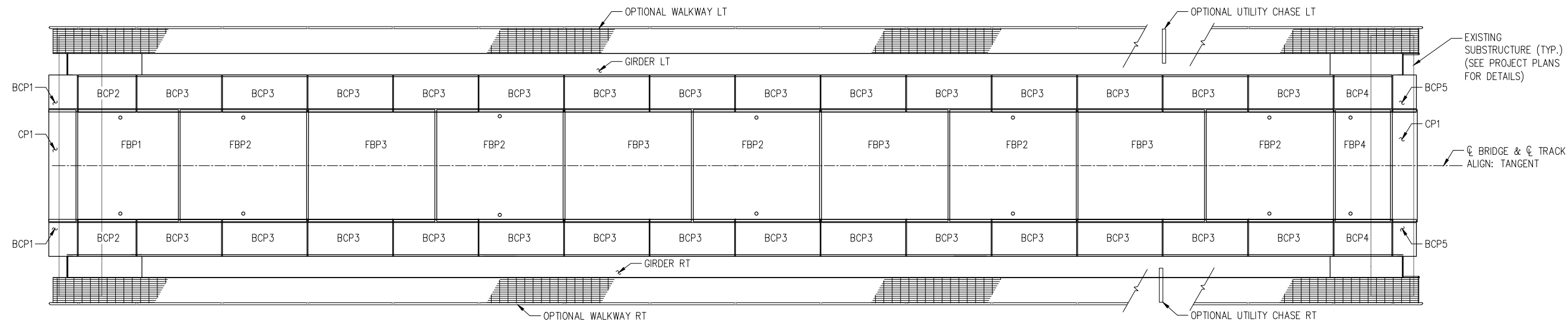


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 ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT	
TITLE: PROJECT SPECIFICATIONS (4 OF 4)	
DESIGNED BY: <u>AR</u>	SCALE: AS NOTED
DRAWN BY: <u>RDL</u>	S5
CHECKED BY: <u>TSK</u>	
APPROVED BY: <u>DMF</u>	
DATE: 09/11/15	
AFE NO.: ACAD FILE: DWG NO. 5 OF 18	

RR SOUTH

RR NORTH



PLAN

$\frac{3}{16}'' = 1' - 0''$

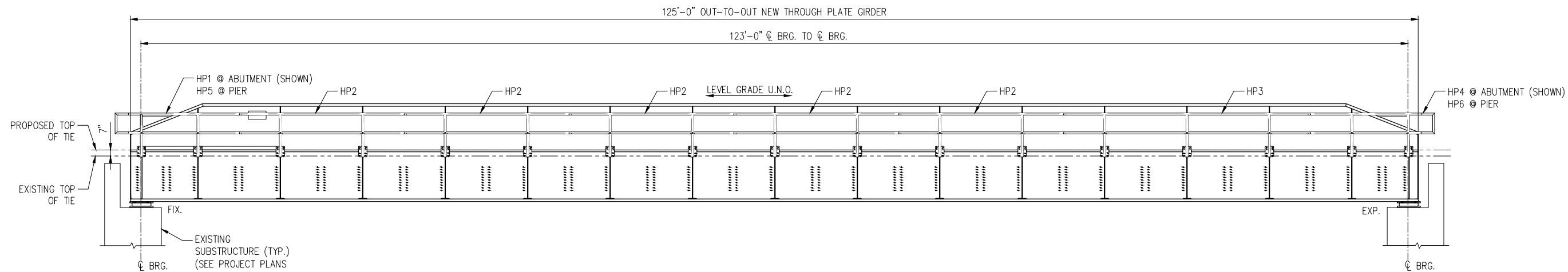
BCP = BENT CURB PLATE (SEE SHEET S11)

CP = CLOSURE PLATE (SEE SHEET S13)

FBP = FLOORBEAM PANEL (SEE SHEET S12)

125'-0" OUT-TO-OUT NEW THROUGH PLATE GIRDER

123'-0" ϕ BRG. TO ϕ BRG.



ELEVATION

$\frac{3}{16}'' = 1' - 0''$

HP = HANDRAIL PANEL (SEE SHEETS S15 & S16)

NOTE:

- FOR MULTIPLE SPAN CONDITION, SEE SHEET S13.
- PROJECT PLANS TO BE PROVIDED FOR SPECIFIC BRIDGE SITES.

09-11-2015



ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

**123' STANDARD TPG
BRIDGE REPLACEMENT**

GENERAL PLAN AND ELEVATION

DESIGNED BY: AR
DRAWN BY: RDL
CHECKED BY: TSK
APPROVED BY: DMF

SCALE: AS NOTED
DATE: 09/11/15

S6

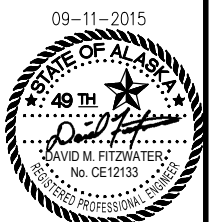
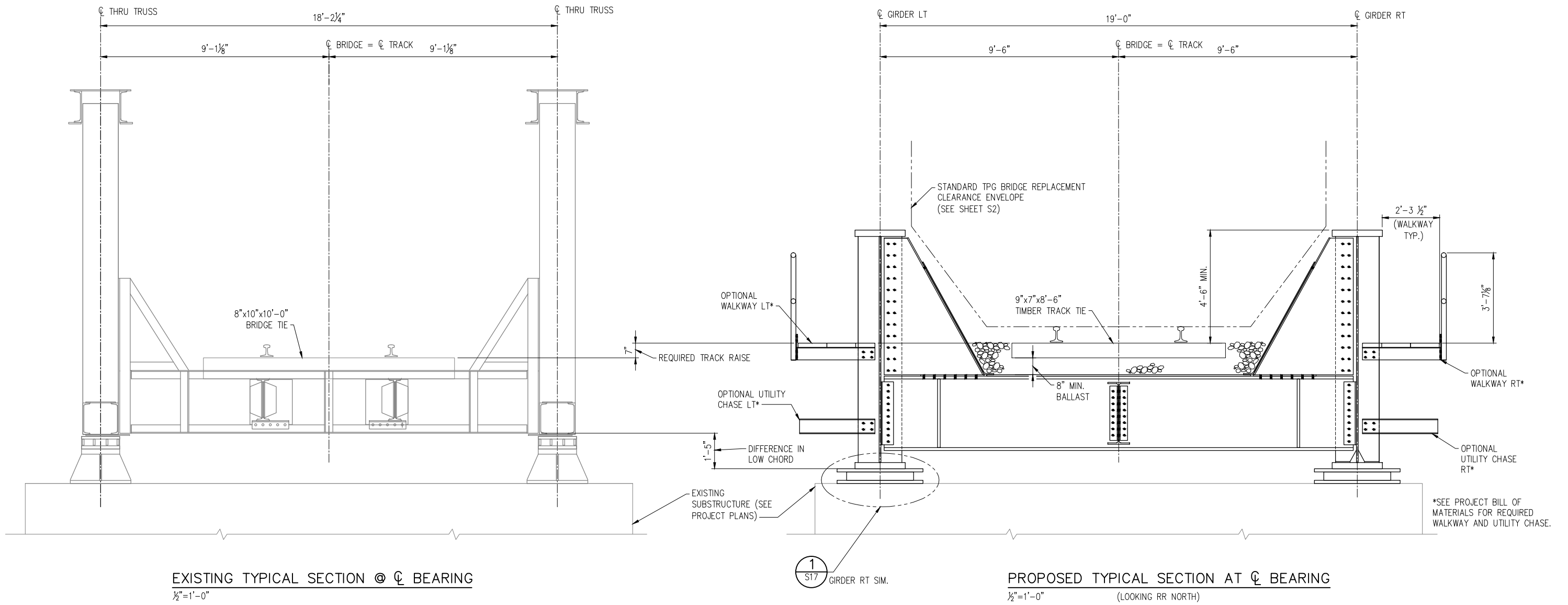
A/E NO.:
ACAD FILE:
DWG NO.
6 OF **18**

**ISSUED FOR
CONSTRUCTION**

**WILSON
& COMPANY**

4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

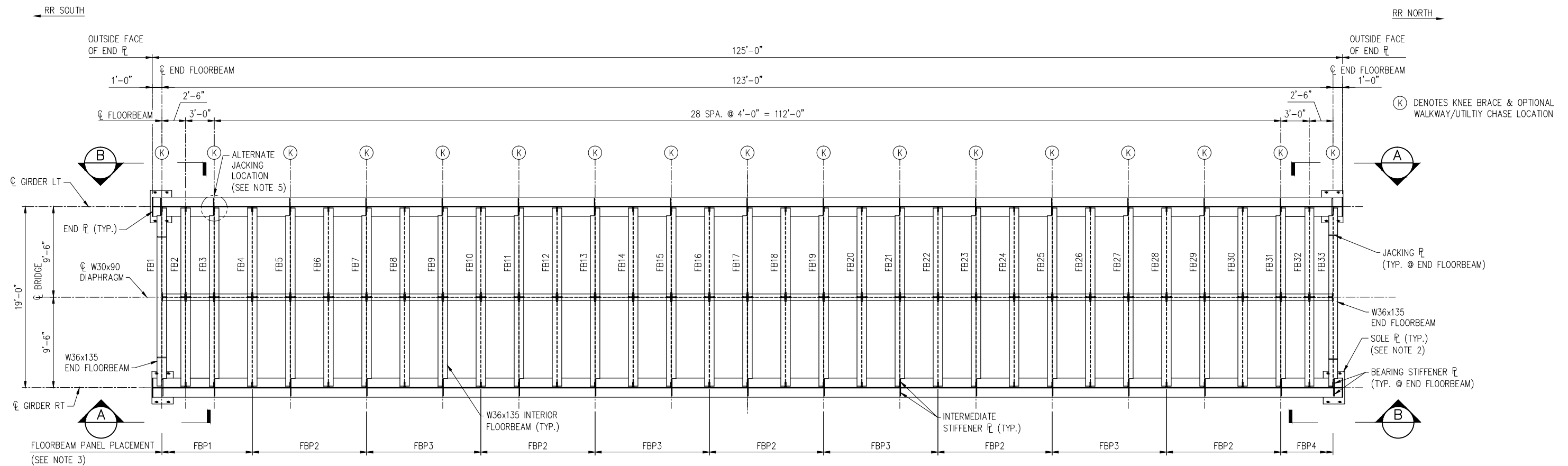
REV.	DATE	BY	REVISION
1	09-11-15	DF	ISSUED FOR CONSTRUCTION



WILSON & COMPANY
4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

ISSUED FOR CONSTRUCTION			
REV.	DATE	BY	REVISION
1	09-11-15	DF	ISSUED FOR CONSTRUCTION

ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500			
123' STANDARD TPG BRIDGE REPLACEMENT			
TYPICAL SECTION			
DESIGNED BY: AR	SCALE: AS NOTED	S7	AFE NO.:
DRAWN BY: RDL	DATE: 09/11/15		ACAD FILE:
CHECKED BY: TSK			DWG NO.
APPROVED BY: DMF			7 OF 18



FRAMING PLAN

$\frac{3}{16}'' = 1'-0''$

BALLAST DECK PLATE NOT SHOWN FOR CLARITY

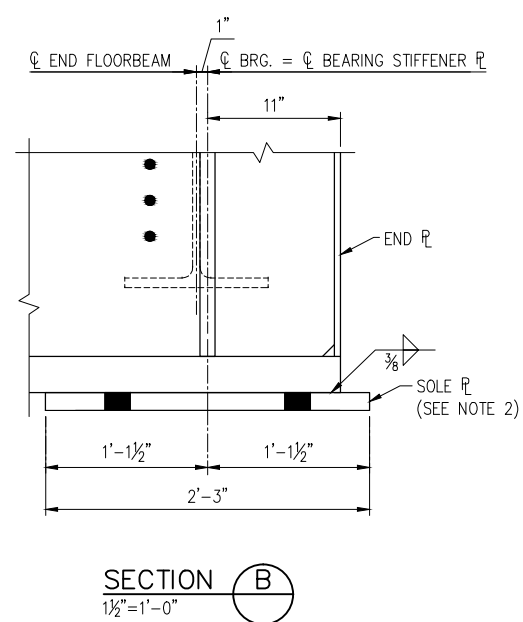
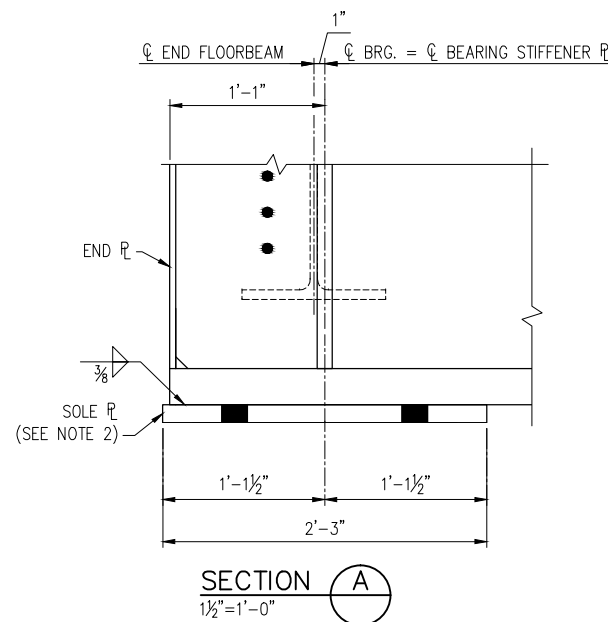


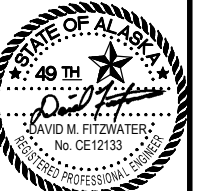
TABLE OF MEMBERS AND LOADING

MEMBER	SECTION	MOMENT (KIP-FT)	SHEAR (KIP)
END FLOORBEAM	W36x135	DL = 32.9	DL = 7.2
		LL = 241.5	LL = 34.5
		IM = 101.2	IM = 14.5
		TOTAL = 375.6	TOTAL = 56.2
INTERIOR FLOORBEAM	W36x135	DL = 85.0	DL = 9.2
		LL = 395.0	LL = 46.0
		IM = 134.9	IM = 19.3
		TOTAL = 614.9	TOTAL = 74.5
GIRDERS	SEE GIRDER ELEVATION	DL = 7014.1	DL = 228.1
		LL = 9702.5	LL = 354.1
		IM = 2573.6	IM = 94.0
		TOTAL = 19290.2	TOTAL = 676.2

NOTES:

- FLOORBEAM CONNECTIONS AT INTERMEDIATE AND BEARING STIFFENER PLATES ARE TO BE MADE ON OPPOSITE SIDES OF STIFFENERS AT THE 2 GIRDERS.
- SEE SHEET S17 FOR SOLE PLATE DETAILS.
- SEE SHEET S12 FOR FLOORBEAM PANEL DETAILS.
- ALTERNATE BRIDGE JACKING LOCATION UNDER INTERMEDIATE STIFFENERS PLATES ON GIRDER LT AND GIRDER RT AT FB3 AND FB31.

09-11-2015



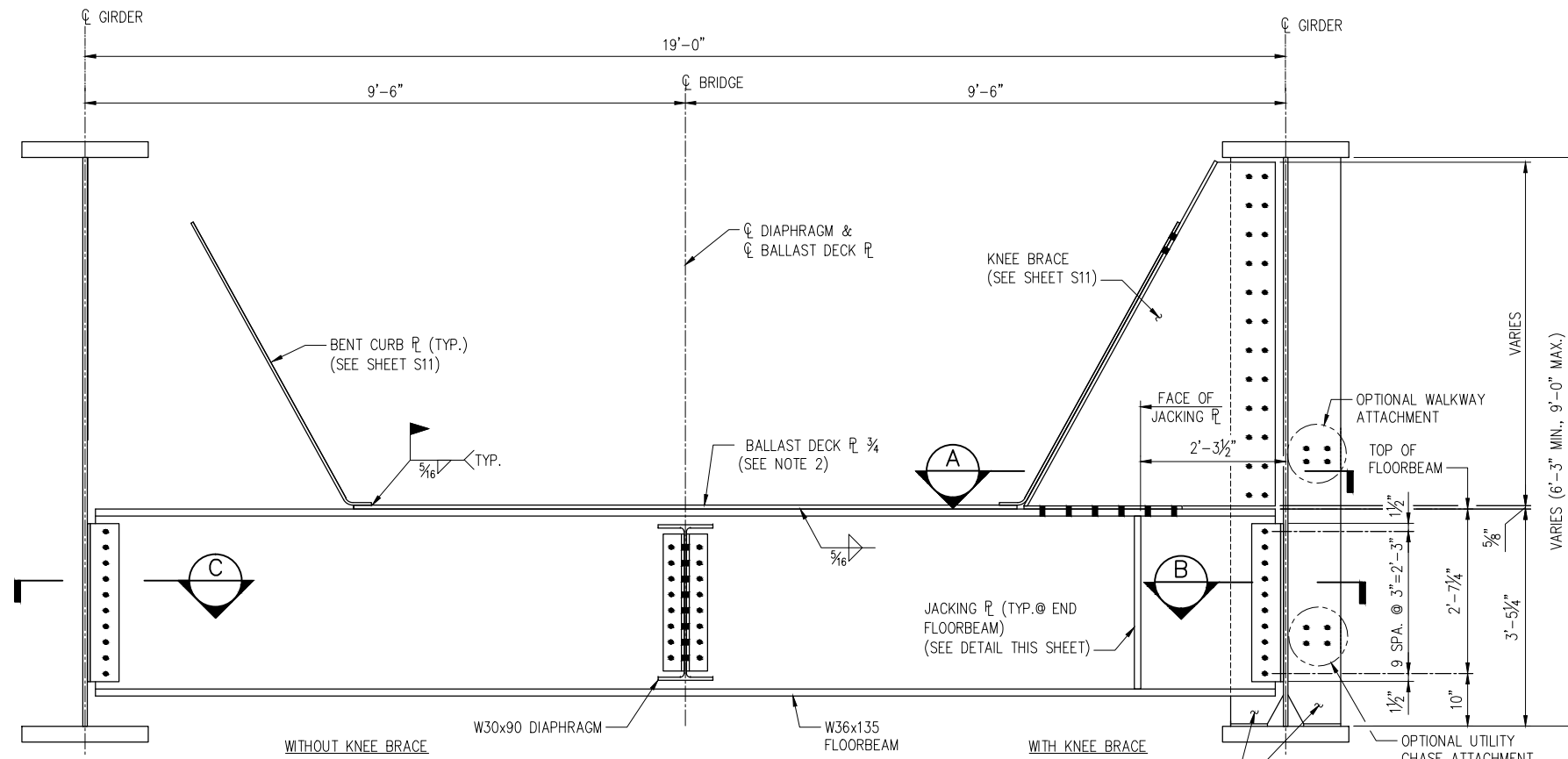
PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT			
TITLE: FRAMING PLAN			
DESIGNED BY: <u>AR</u> DRAWN BY: <u>RDL</u> CHECKED BY: <u>TSK/EDA</u> APPROVED BY: <u>DMF</u>	SCALE: AS NOTED DATE: 09/11/15	S8	AFE NO.: ACAD FILE: DWG NO.: 8 OF 18

ISSUED FOR CONSTRUCTION

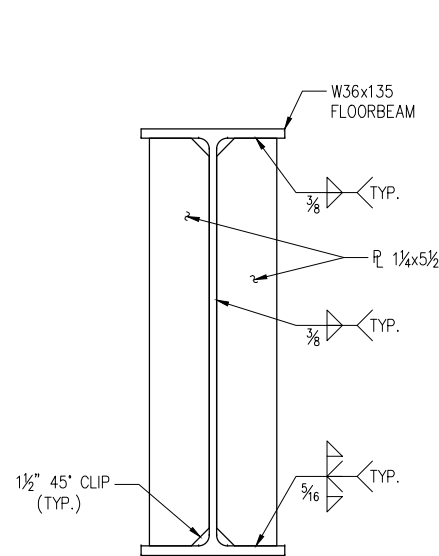
WILSON & COMPANY

4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

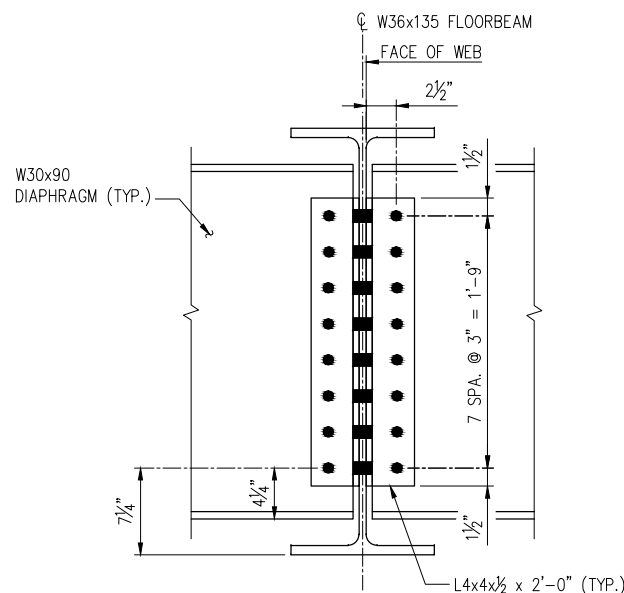
REV.	DATE	BY	REVISION
09-11-15	DF		ISSUED FOR CONSTRUCTION



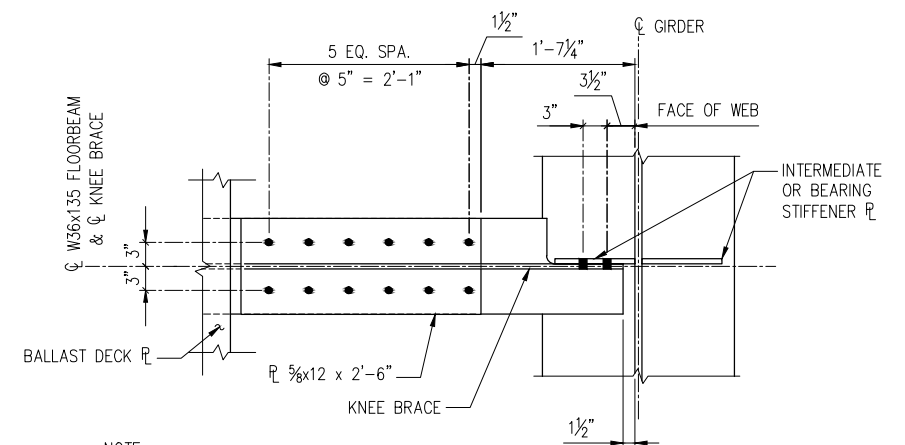
TYPICAL SECTION
3/4"=1'-0"



JACKING PL DETAIL
1 1/2"=1'-0"

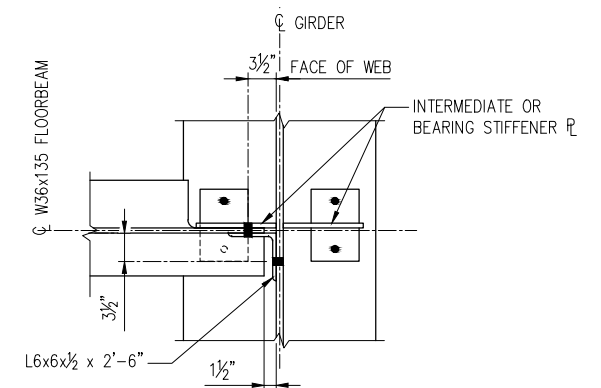


DIAPHRAGM TO FLOORBEAM CONNECTION
1 1/2"=1'-0"

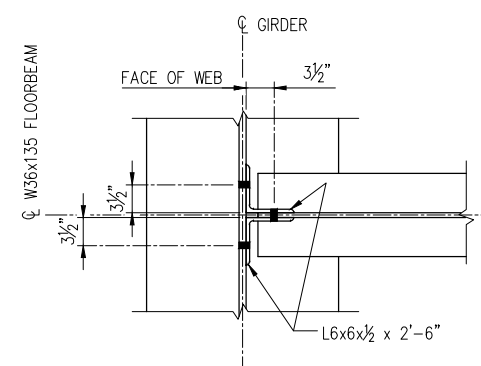


NOTE:
BENT CURB PL & KNEE BRACE FLANGE PL NOT SHOWN FOR CLARITY

SECTION A
1"=1'-0"



SECTION B
1"=1'-0"



SECTION C
1"=1'-0"

NOTE:

- SEE SHEETS S14 THROUGH S16 FOR WALKWAY AND UTILITY CHASE DETAILS.
- NO ALLOWANCE FOR CORROSION OF BALLAST DECK PLATE IS INCLUDED IN THE DESIGN. SEE PROJECT PLANS FOR REQUIRED WATERPROOFING REQUIREMENTS IF ANY.

ISSUED FOR CONSTRUCTION

WILSON & COMPANY

4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

REV.	DATE	BY	REVISION
1	09-11-15	DF	ISSUED FOR CONSTRUCTION



ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

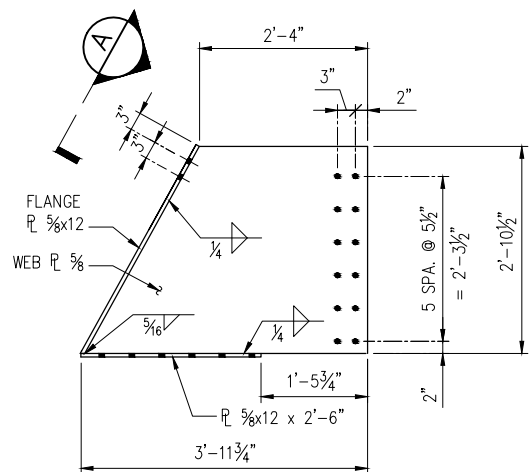
09-11-2015



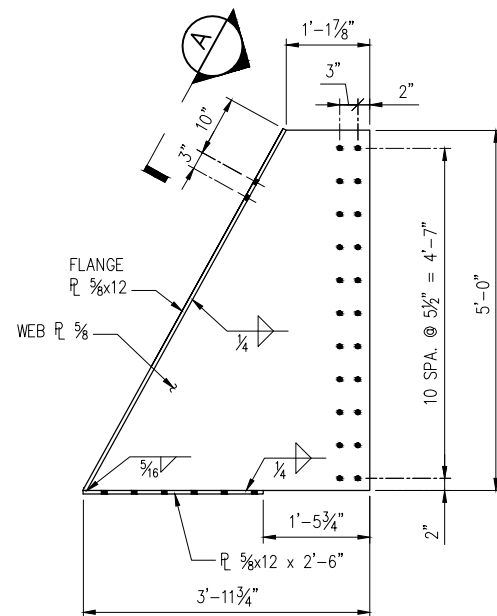
PROJECT: **123' STANDARD TPG BRIDGE REPLACEMENT**

TITLE: **BRIDGE STEEL DETAILS (1 OF 2)**

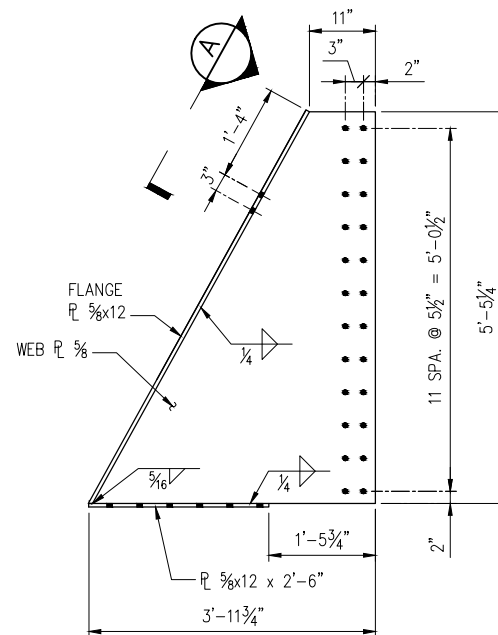
DESIGNED BY: AR	SCALE: AS NOTED	AFE NO.:
DRAWN BY: RDL	DATE: 09/11/15	ACAD FILE:
CHECKED BY: EDA		DWG NO. 10 OF 18
APPROVED BY: DMF		



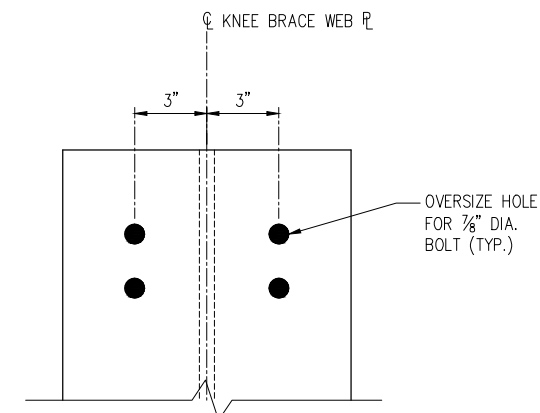
KNEE BRACE KB1
 $\frac{3}{4}$ "=1'-0"
 ATTACHED TO FB1 & FB33



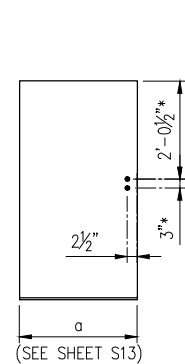
KNEE BRACE KB2
 $\frac{3}{4}$ "=1'-0"
 ATTACHED TO FB3 & FB31



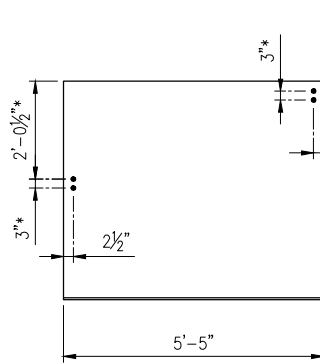
KNEE BRACE KB3
 $\frac{3}{4}$ "=1'-0"
 ATTACHED TO FB5, FB7, FB9, FB11, FB13, FB15, FB17, FB19, FB21, FB23, FB25, FB27 & FB29



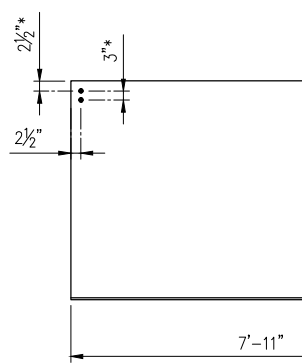
VIEW A
 $\frac{3}{8}$ "=1'-0"



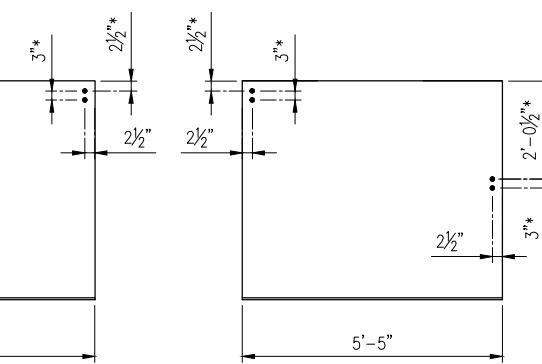
BCP1



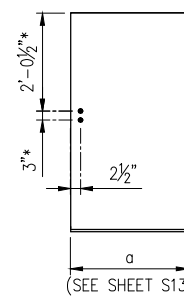
BCP2



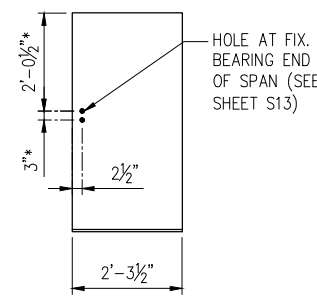
BCP3



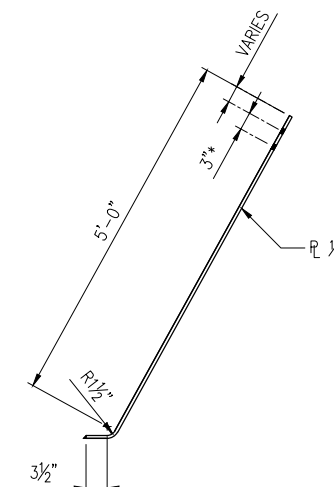
BCP4



BCP5



BCP6



BENT CURB PL
TYPICAL SECTION
 $\frac{3}{4}$ "=1'-0"

BENT CURB PL ELEVATION

$\frac{1}{2}$ "=1'-0"
 *DISTANCE MEASURED ALONG PLATE SLOPE TO CENTER OF OVERSIZED HOLE FOR 7/8" DIA. BOLT

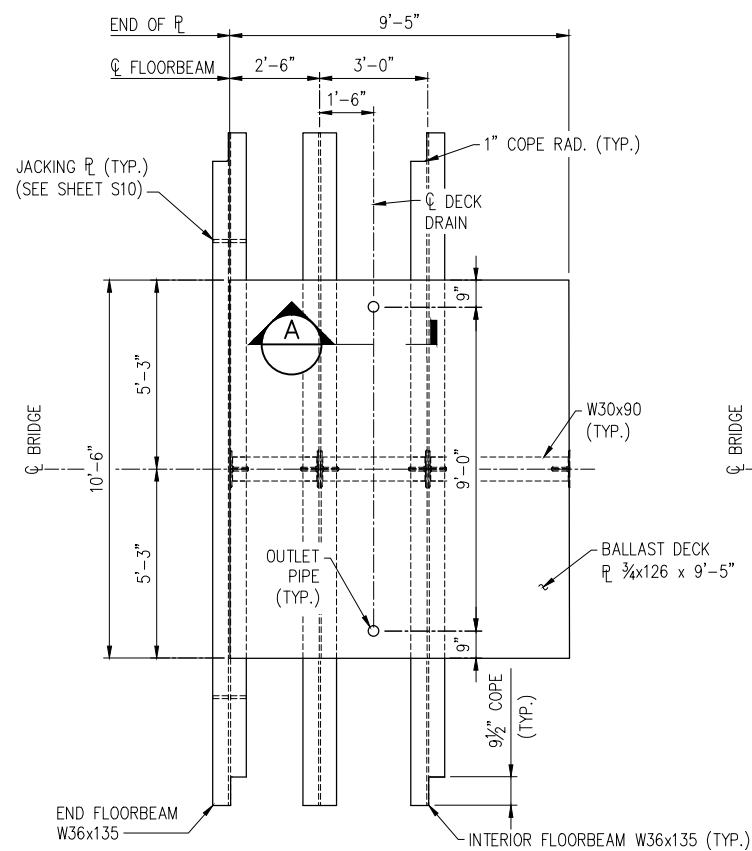
ISSUED FOR CONSTRUCTION

WILSON & COMPANY
 4300 B STREET, SUITE 505
 ANCHORAGE, AK 99503
 PHONE: 907-315-8306
 FAX: 907-274-8644

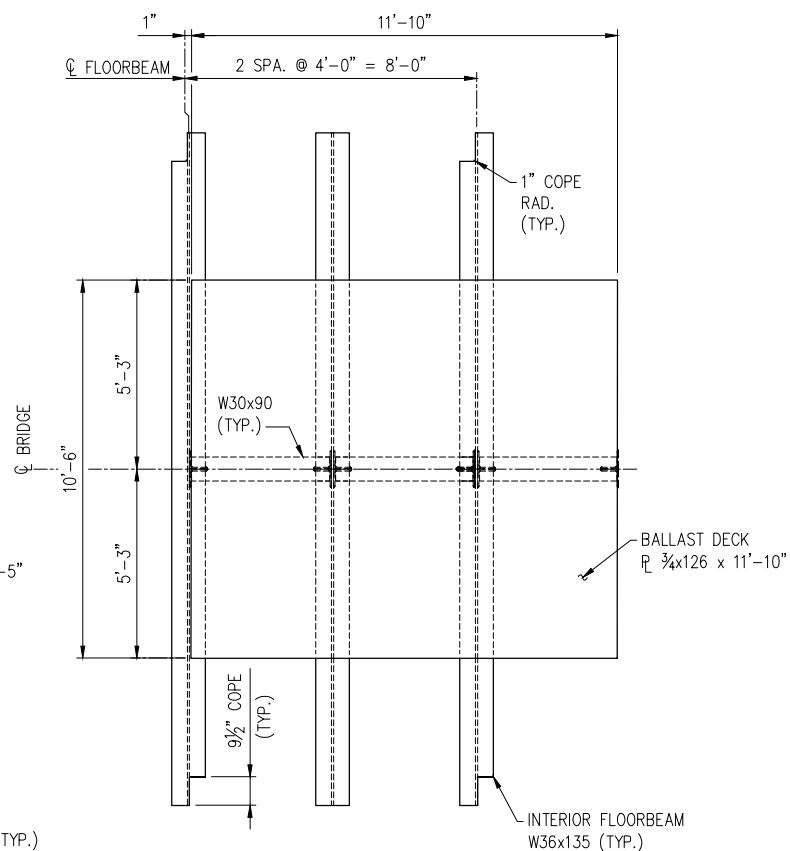
REV.	DATE	BY	REVISION
1	09-11-15	DF	ISSUED FOR CONSTRUCTION

ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500			
PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT			
TITLE: BRIDGE STEEL DETAILS (2 OF 2)			
DESIGNED BY: AR DRAWN BY: RDL CHECKED BY: TKS/EDA APPROVED BY: DMF	SCALE: AS NOTED DATE: 09/11/15	S11	AFE NO.: ACAD FILE: DWG NO. 11 OF 18

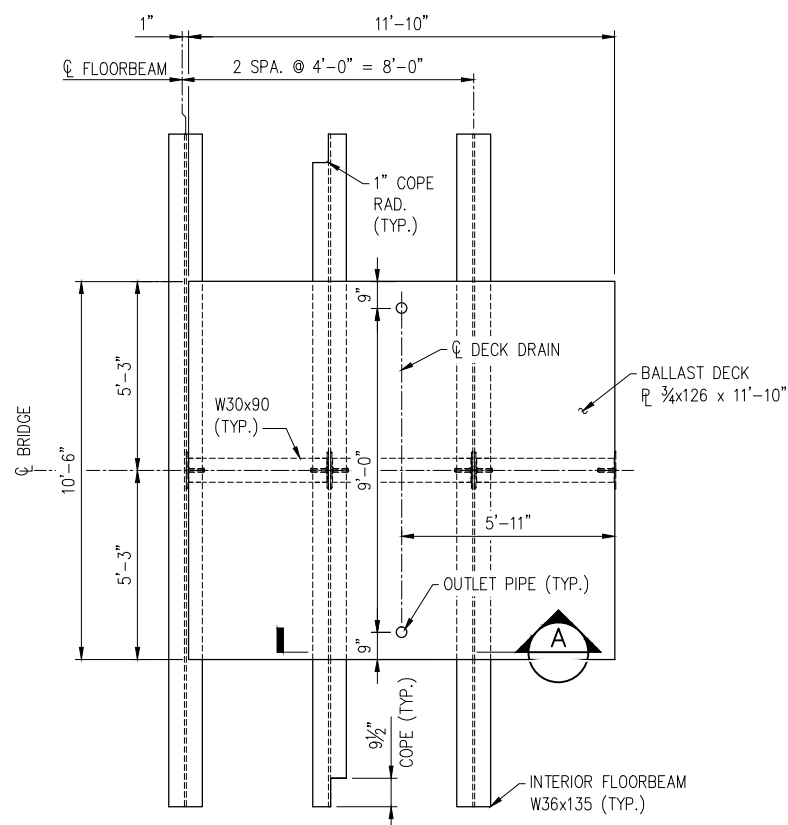




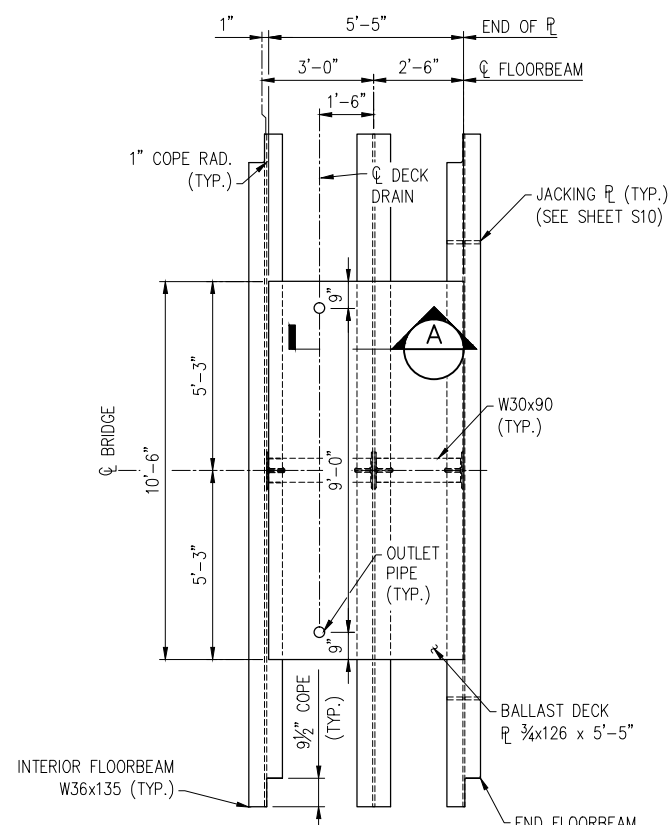
FLOORBEAM PANEL FBP1
3/8"=1'-0"



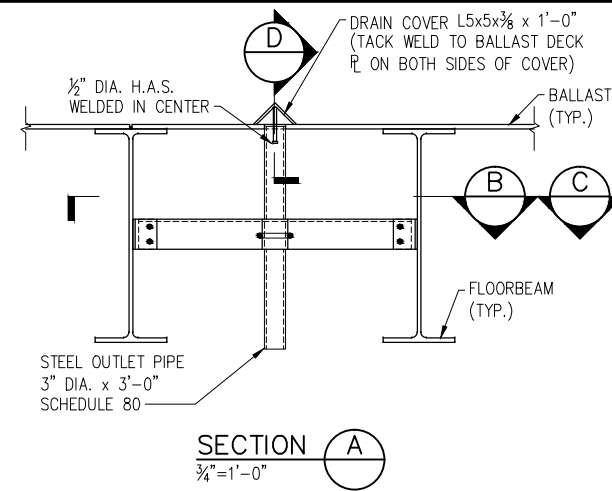
FLOORBEAM PANEL FBP3
3/8"=1'-0"



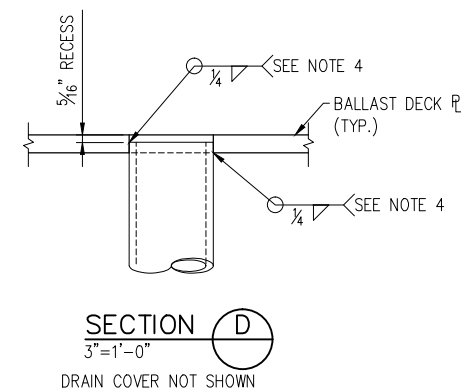
FLOORBEAM PANEL FBP2
3/8"=1'-0"



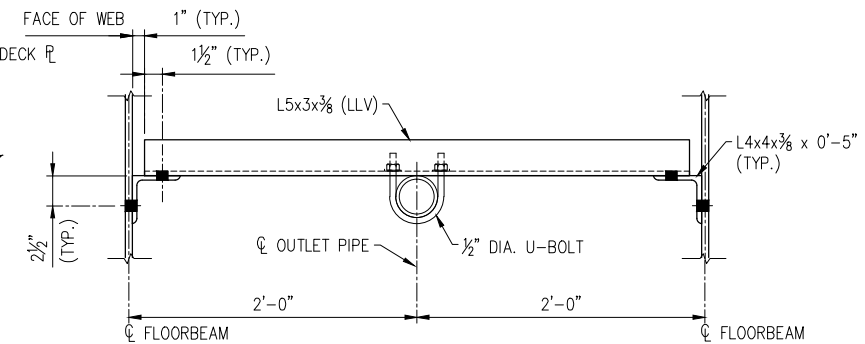
FLOORBEAM PANEL FBP4
3/8"=1'-0"



SECTION A
3/4"=1'-0"

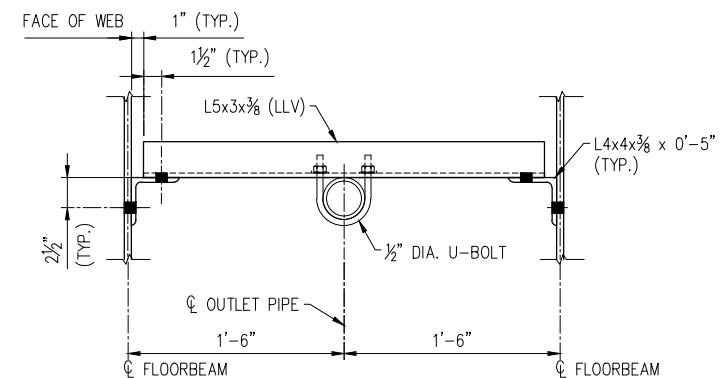


SECTION D
3"=1'-0"



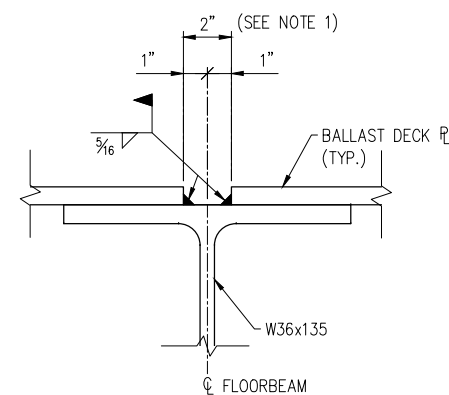
SECTION B
1 1/2"=1'-0"

APPLIES TO FBP2



SECTION C
1 1/2"=1'-0"

APPLIES TO FBP1 & FBP4



FLOORBEAM PANEL CLOSURE DETAIL
3"=1'-0"

NOTES:

1. PROVIDE PREMIUM POLYURETHANE SEALANT IN 2" GAP. APPLY SEALANT 6" UP BENT CURB PLATE GAP ON EACH SIDE OF BRIDGE AT FLOORBEAM PANEL CLOSURE LOCATION.
2. STEEL FOR DRAIN PIPE BRACING AND DRAIN COVER SHALL CONFORM TO ASTM A36.
3. ALL ELEMENTS OF DECK DRAIN ASSEMBLY SHALL BE GALVANIZED AFTER FABRICATION PER ASTM A123. DECK DRAIN ASSEMBLY INCLUDES L5x3x3/8, L4x4x3/8, U-BOLT & OUTLET PIPE.
4. GRIND GALVANIZING BEFORE WELDING.
5. NO ALLOWANCE FOR CORROSION OF BALLAST DECK PLATE IS INCLUDED IN THE DESIGN. SEE PROJECT PLANS FOR REQUIRED WATERPROOFING REQUIREMENTS IF ANY.

09-11-2015



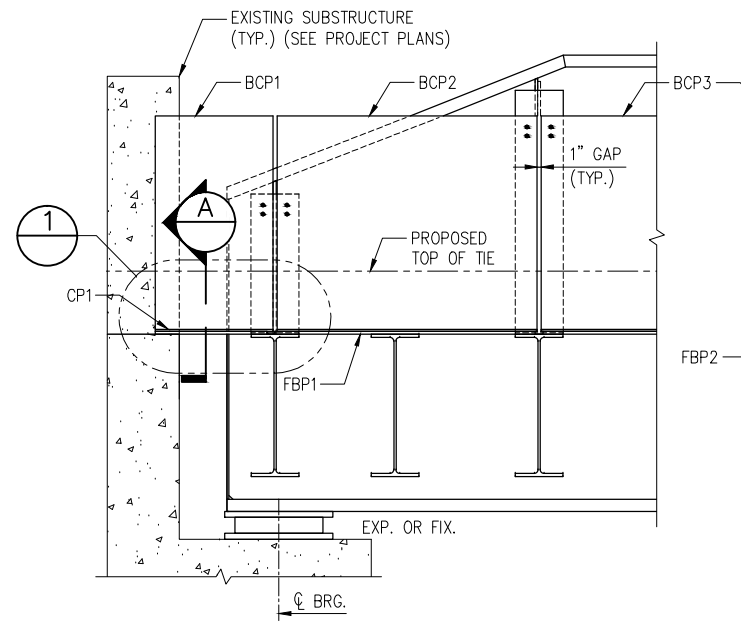
ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
123' STANDARD TPG BRIDGE REPLACEMENT	
FLOORBEAM PANEL DETAILS	
DESIGNED BY: AR DRAWN BY: RDL CHECKED BY: TSK APPROVED BY: DMF	SCALE: AS NOTED DATE: 09/11/15
AFE NO.: ACAD FILE: DWG NO.	S12 12 OF 18

ISSUED FOR CONSTRUCTION

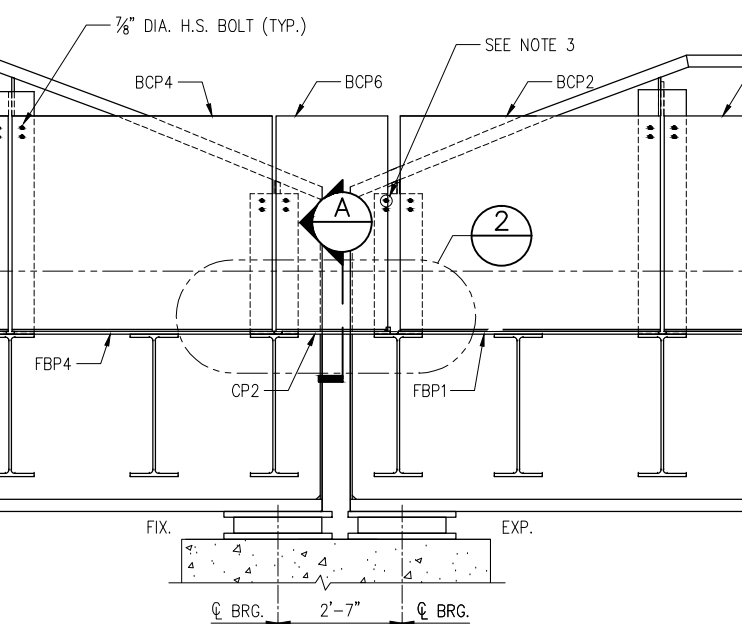
WILSON & COMPANY

4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

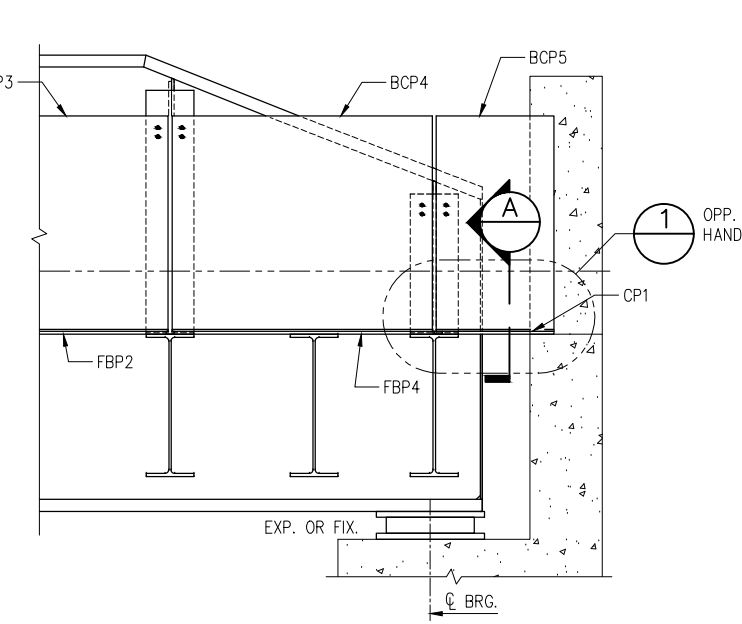
REV.	DATE	BY	REVISION
09-11-15	DF		ISSUED FOR CONSTRUCTION



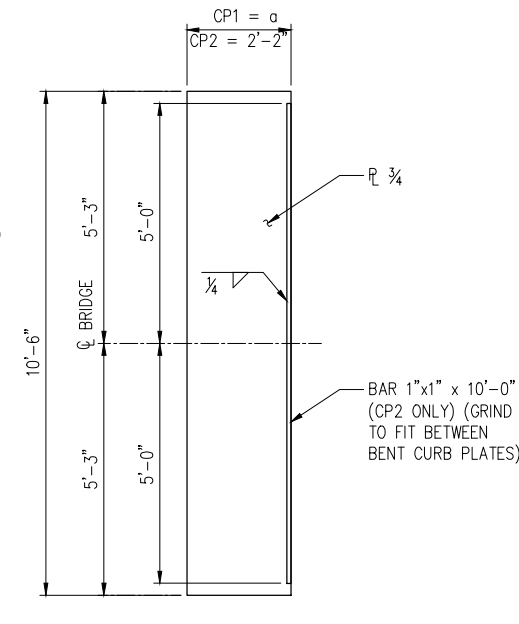
GIRDER END @ ABUTMENT - LONGITUDINAL SECTION
1/2"=1'-0"



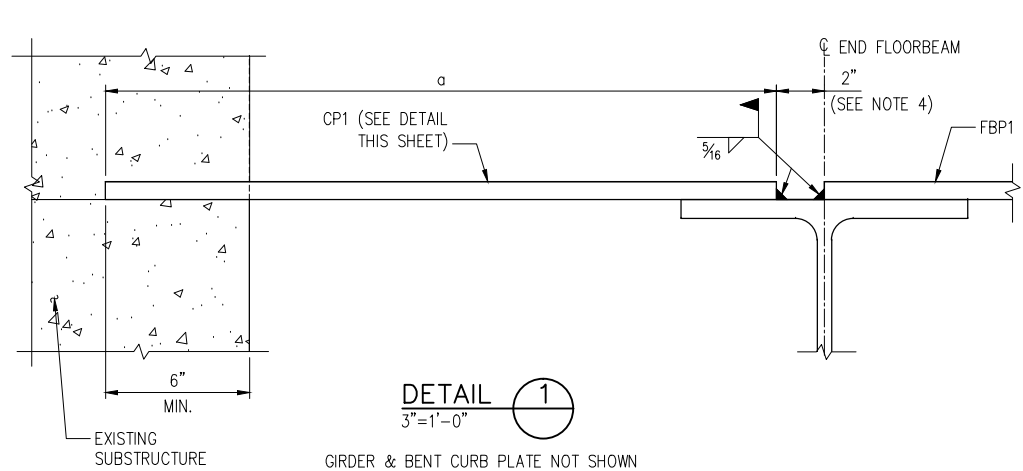
GIRDER ENDS @ PIER - LONGITUDINAL SECTION
1/2"=1'-0"



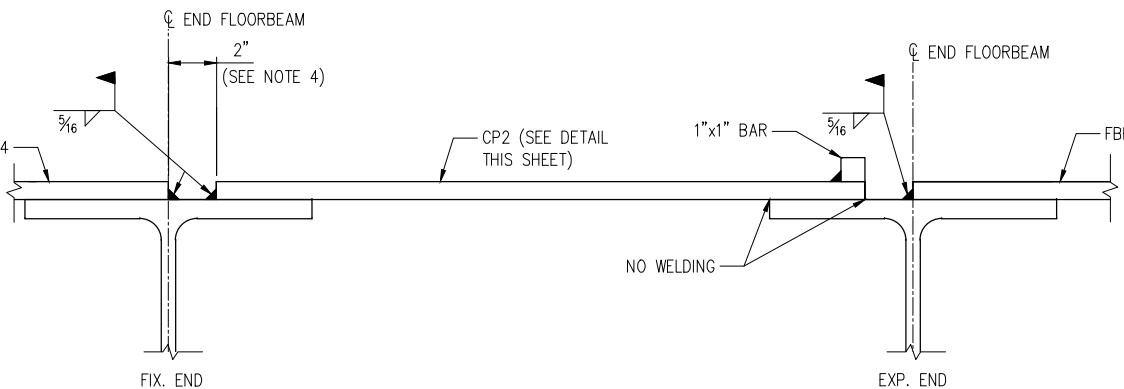
GIRDER END @ ABUTMENT - LONGITUDINAL SECTION
1/2"=1'-0"



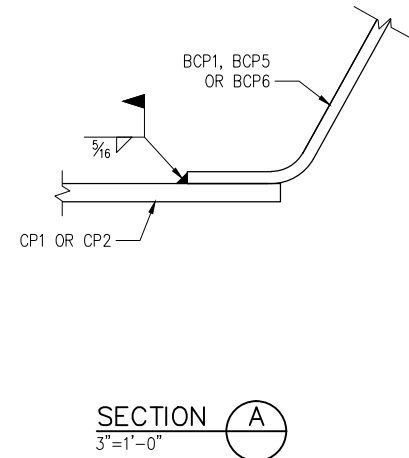
CLOSURE PLATE
1/2"=1'-0"



DETAIL 1
3"=1'-0"
GIRDER & BENT CURB PLATE NOT SHOWN



DETAIL 2
3"=1'-0"
GIRDER & BENT CURB PLATE NOT SHOWN

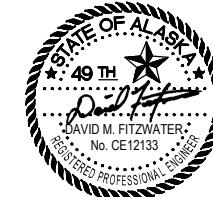


SECTION A
3"=1'-0"

NOTES:

1. VERIFY DIMENSION a WITH PROJECT PLANS.
2. SEE SHEET S11 FOR BENT CURB PLATE DETAILS.
3. HOLES IN KNEE BRACE FLANGE SHALL BE FILLED WITH COUNTERSUNK BOLT.
4. PROVIDE PREMIUM POLYURETHANE SEALANT IN 2" GAP. APPLY SEALANT 6" UP BENT CURB PLATE GAP ON EACH SIDE OF BRIDGE AT FLOORBEAM PANEL CLOSURE LOCATION.

09-11-2015

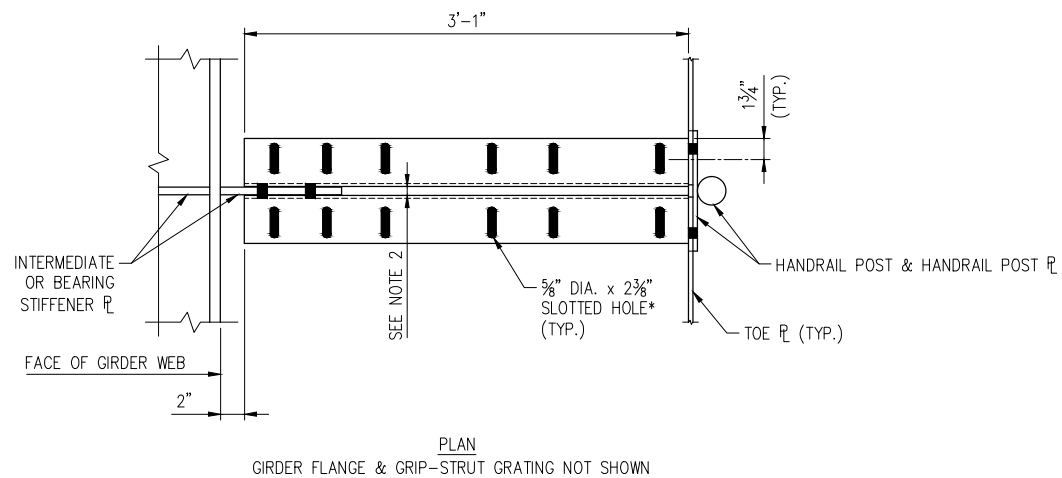
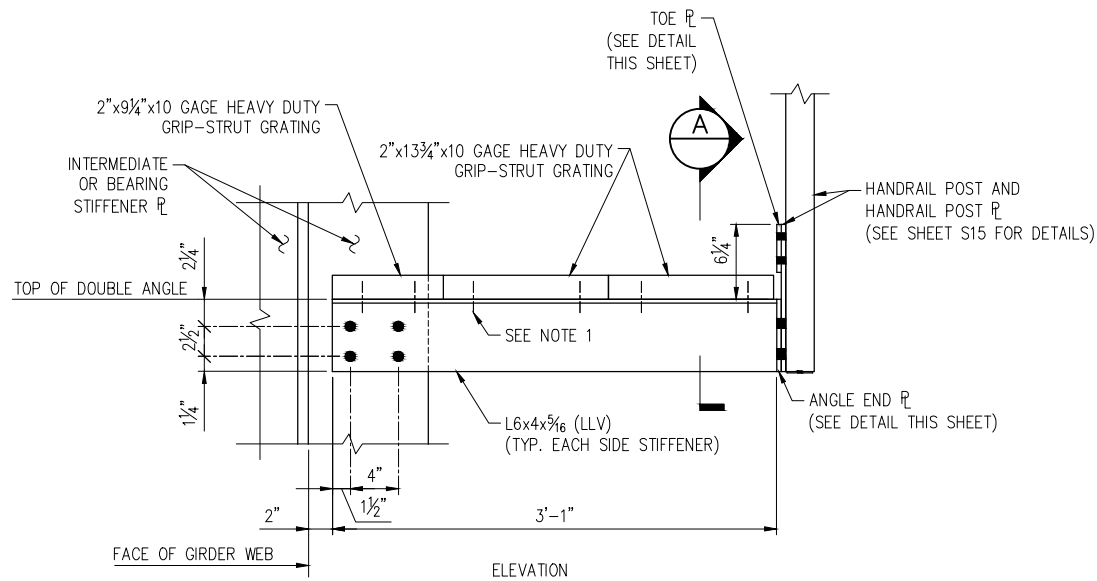


ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT	
TITLE: GIRDER END DETAILS	
DESIGNED BY: AR DRAWN BY: RDL CHECKED BY: TSK APPROVED BY: DMF	SCALE: AS NOTED DATE: 09/11/15
S13 13 OF 18	AFE NO.: ACAD FILE: DWG NO.:

**ISSUED FOR
CONSTRUCTION**

WILSON & COMPANY
4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

REV.	DATE	BY	REVISION
09-11-15	DF		ISSUED FOR CONSTRUCTION

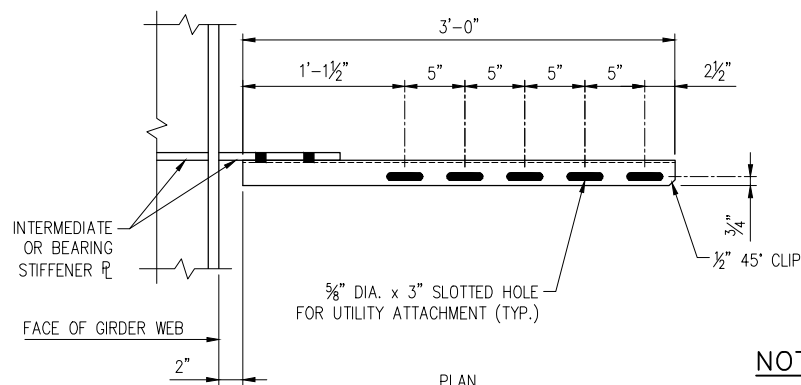
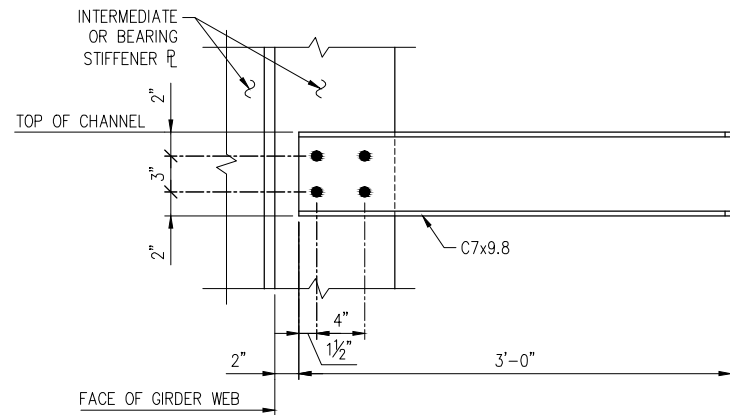
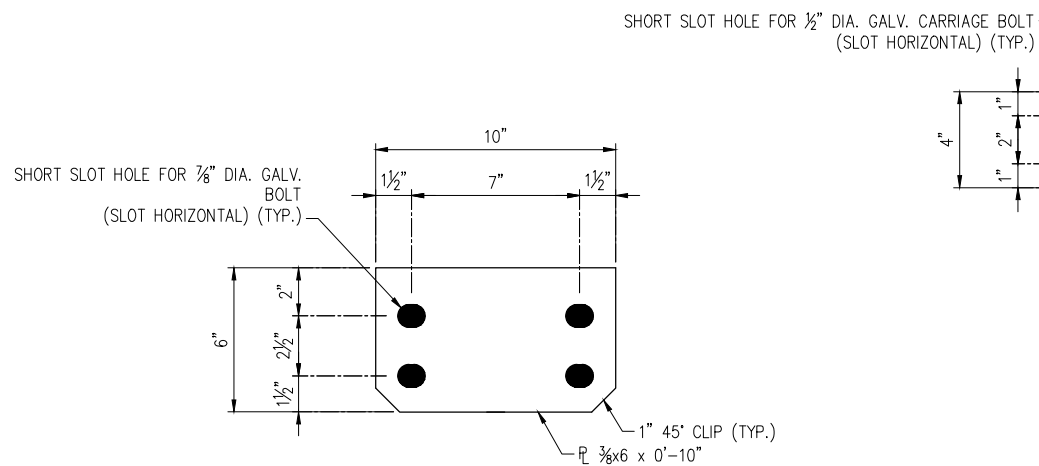


WALKWAY BRACKET WB1

1½"=1'-0"

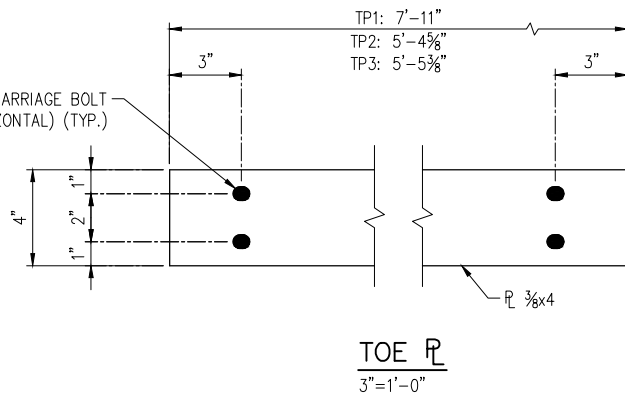
WALKWAY BRACKET INCLUDES (2) L6x4 & ANGLE END PL

* BOLT HOLE LOCATIONS SHALL BE DETERMINED BASED ON THE GRATING MANUFACTURER CHOSEN.



UTILITY CHASE UC1

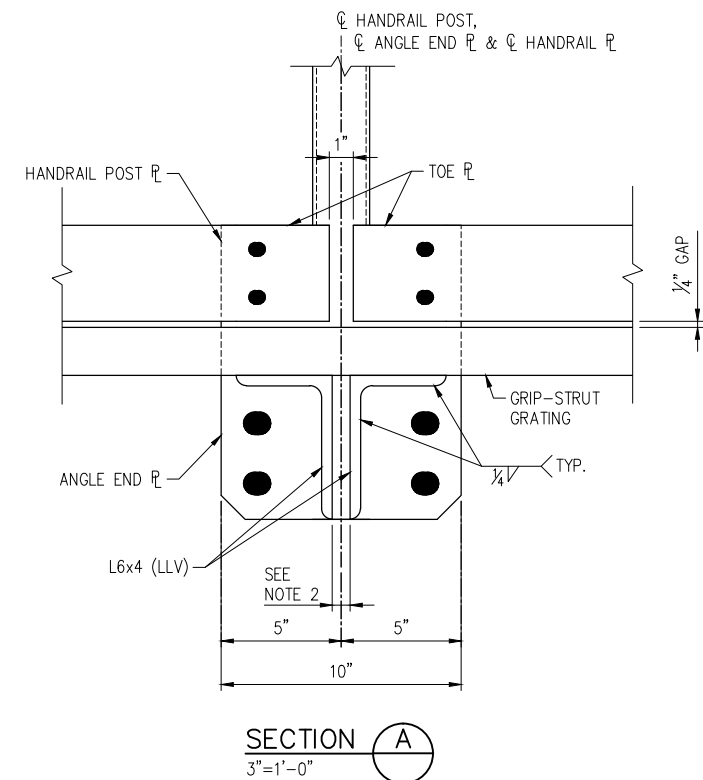
1½"=1'-0"



TP1: TO BE USED BETWEEN INTERMEDIATE STIFFENERS
TP2: TO BE USED BETWEEN INTERMEDIATE STIFFENER & BEARING STIFFENER AT: GIRDER RT, RR SOUTH & GIRDER LT, RR NORTH
TP3: TO BE USED BETWEEN INTERMEDIATE STIFFENER & BEARING STIFFENER AT: GIRDER LT, RR SOUTH & GIRDER RT, RR NORTH

NOTES:

- TYPICAL AT EACH GRATING SLOTTED HOLE CONNECTION: ½" DIA. x 3½" CARRIAGE BOLT W/ NUT, STANDARD WASHER, LOCK WASHER & ANCHORING CLIP PER MANUFACTURER'S RECOMMENDATIONS
- THE GAP BETWEEN ANGLES SHALL BE 5/8" AT INTERMEDIATE STIFFENER PLATE AND 1¼" AT BEARING STIFFENER PLATE.
- GRATING BY GRATING PACIFIC OR EQUIVALENT AS APPROVED BY THE ENGINEER.
- STRUCTURAL STEEL PLATES, ANGLES, AND CHANNELS SHALL CONFORM TO ASTM A709 GRADE 36.
- WALKWAY BRACKET AND UTILITY CHASE SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. BOLTS USED ON TOE PLATE AND ANGLE END PLATE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
- AFTER GALVANIZING ALL ELEMENTS SHALL BE FREE OF FINIS, ABRASIONS, ROUGH OR SHARP EDGES AND OTHER SURFACE DEFECTS.
- GRATING SHALL BE GALVANIZED BY MANUFACTURER PER MATERIAL REQUIREMENTS.



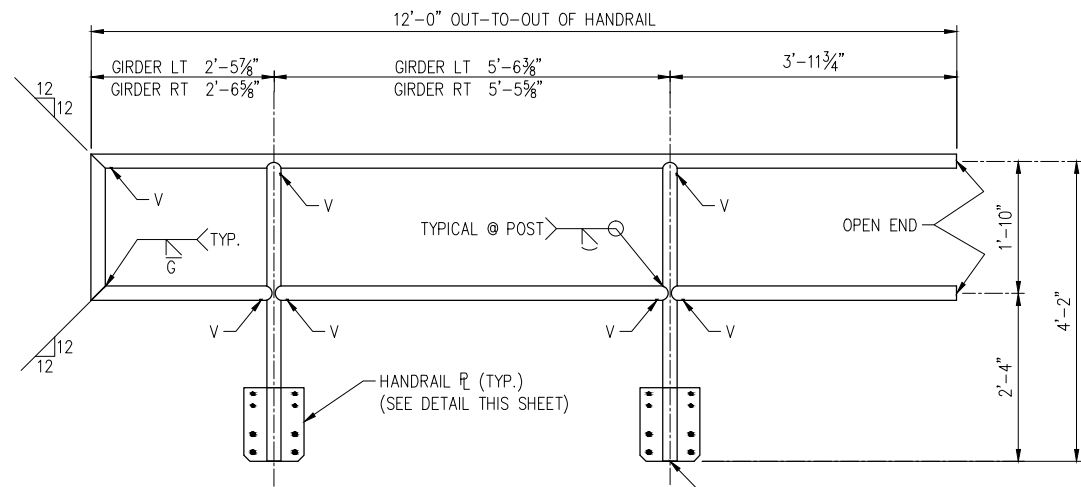
09-11-2015



ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT	
TITLE: WALKWAY AND UTILITY CHASE DETAILS (1 OF 3)	
DESIGNED BY: <u>JRH</u> DRAWN BY: <u>KLO</u> CHECKED BY: <u>TSK</u> APPROVED BY: <u>DMF</u>	SCALE: AS NOTED DATE: 09/11/15 \$14
AFE NO.: ACAD FILE: DWG NO. 14 OF 18	

WILSON & COMPANY
 4300 B STREET, SUITE 505
 ANCHORAGE, AK 99503
 PHONE: 907-315-8306
 FAX: 907-274-8644

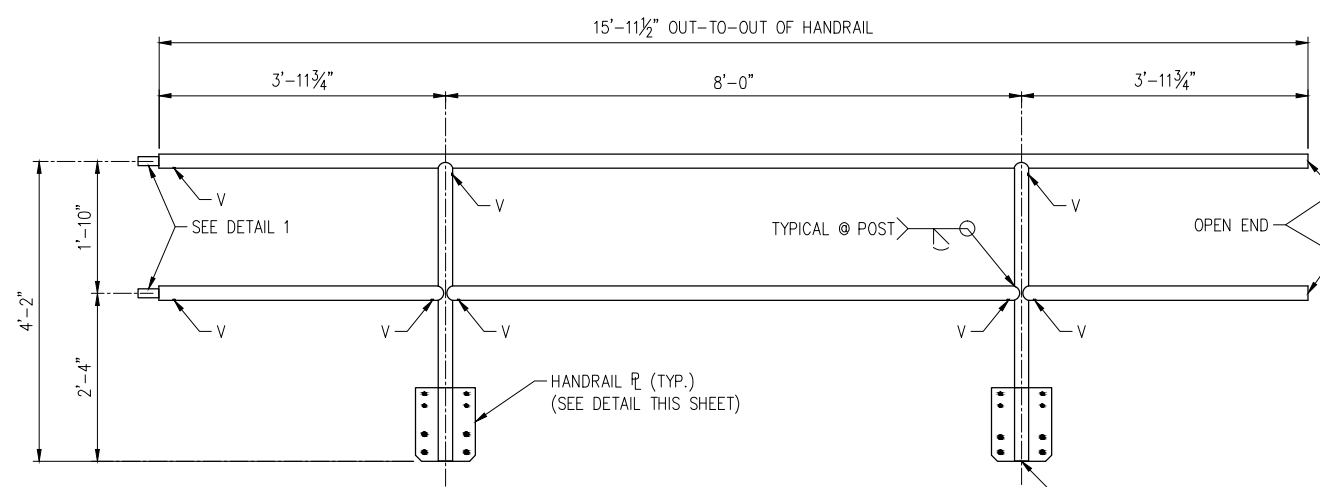
ISSUED FOR CONSTRUCTION			
REV.	DATE	BY	REVISION
09-11-15	DF		ISSUED FOR CONSTRUCTION



HANDRAIL PANEL HP1

3/4"=1'-0"

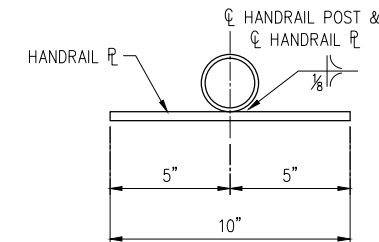
HANDRAIL PANELS ARE TO BE FABRICATED USING 2" DIA. STANDARD BLACK PIPE. GALVANIZE AFTER FABRICATION



HANDRAIL PANEL HP2

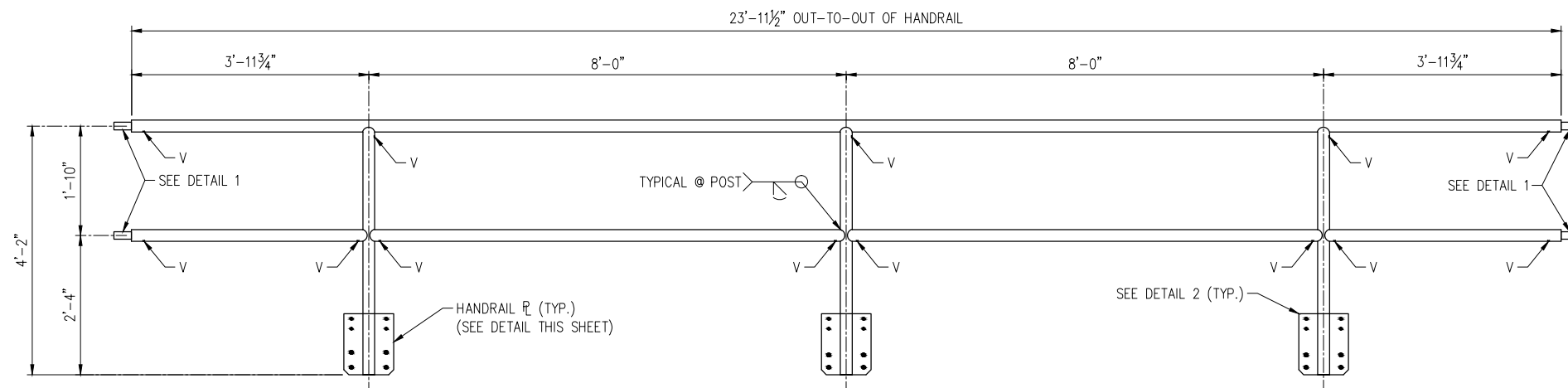
3/4"=1'-0"

HANDRAIL PANELS ARE TO BE FABRICATED USING 2" DIA. STANDARD BLACK PIPE. GALVANIZE AFTER FABRICATION



HANDRAIL PL CONNECTION DETAIL

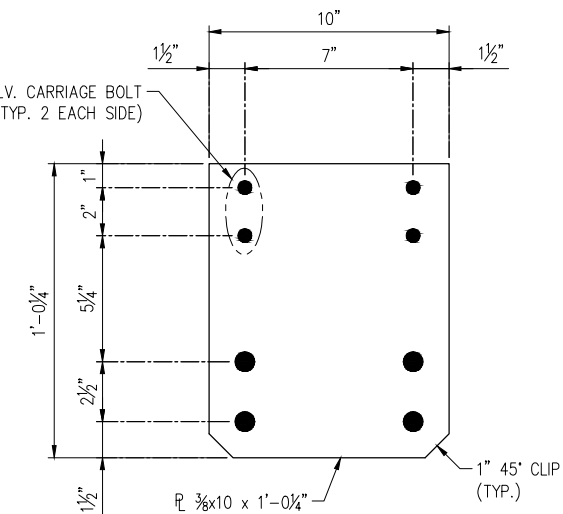
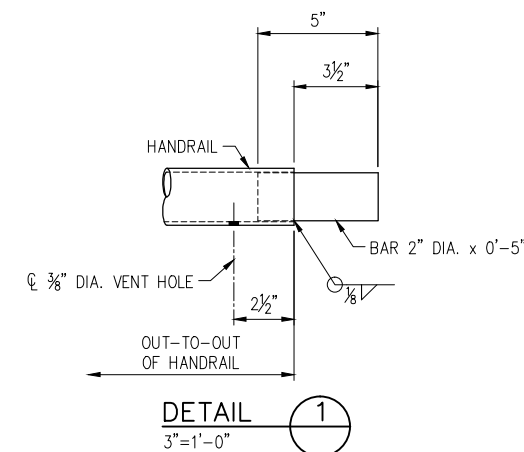
3"=1'-0"



HANDRAIL PANEL HP3

3/4"=1'-0"

HANDRAIL PANELS ARE TO BE FABRICATED USING 2" DIA. STANDARD BLACK PIPE. GALVANIZE AFTER FABRICATION



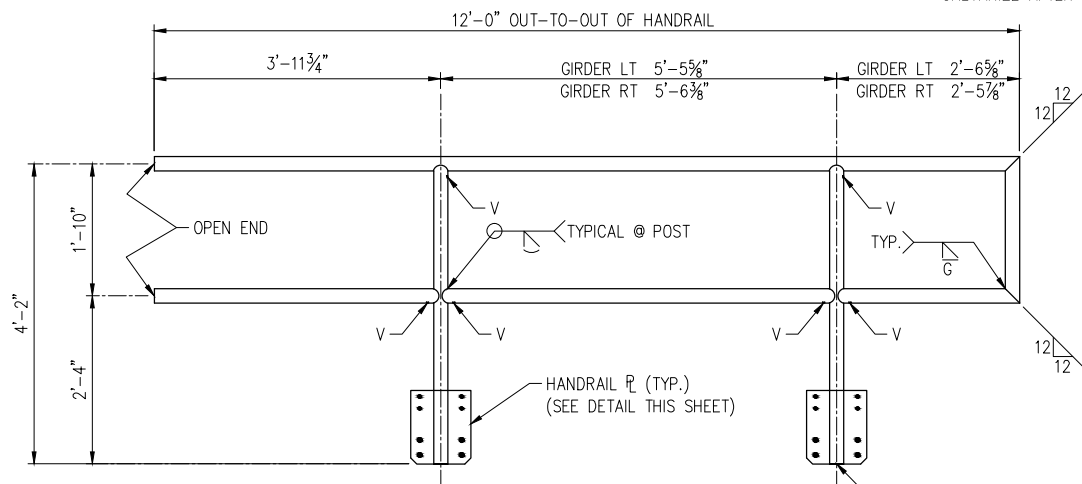
HANDRAIL PL DETAIL

3"=1'-0"

(OVERSIZE HOLES IN PLATE)

NOTES:

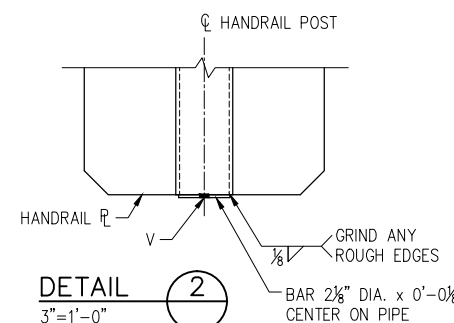
- STRUCTURAL STEEL BARS AND PLATES SHALL CONFORM TO ASTM A36. STANDARD BLACK PIPE SHALL CONFORM TO ASTM A53.
- HANDRAIL PANELS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. BOLTS USED ON HANDRAIL PLATE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153
- AFTER GALVANIZING ALL ELEMENTS SHALL BE FREE OF FINS, ABRASIONS, ROUGH OR SHARP EDGES AND OTHER SURFACE DEFECTS.
- V = 3/8" DIA. DRILLED VENT HOLE 1" FROM JOINT, EXCEPT AS DIMENSIONED IN DETAIL 1.
- HANDRAIL PANELS ON WALKWAY SHALL BE ERECTED PLUMB AND IN-LINE.



HANDRAIL PANEL HP4

3/4"=1'-0"

HANDRAIL PANELS ARE TO BE FABRICATED USING 2" DIA. STANDARD BLACK PIPE. GALVANIZE AFTER FABRICATION



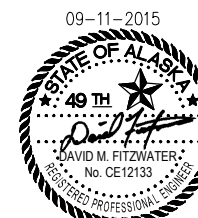
WILSON & COMPANY

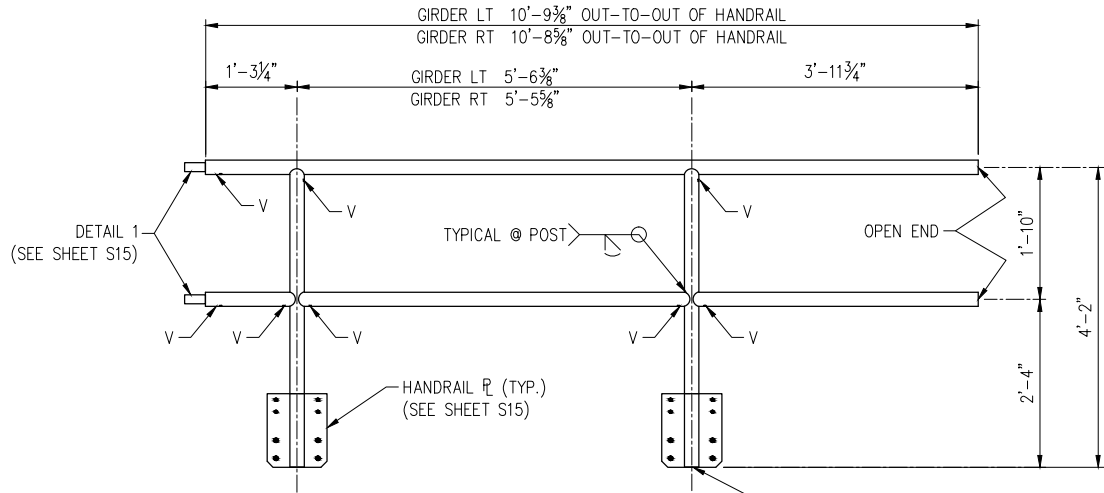
4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

ISSUED FOR CONSTRUCTION

REV.	DATE	BY	REVISION
1	09-11-15	DF	ISSUED FOR CONSTRUCTION

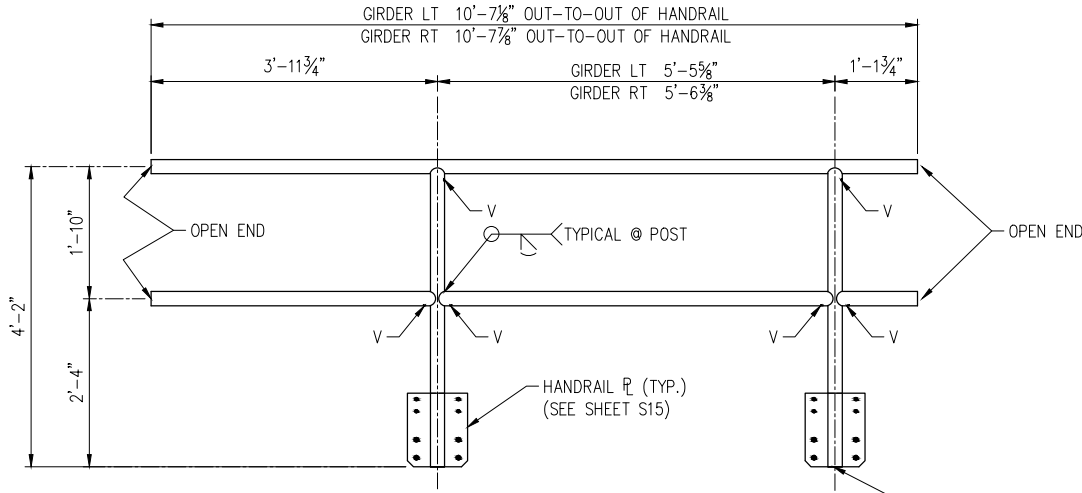
ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500			
PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT			
TITLE: WALKWAY AND UTILITY CHASE DETAILS (2 OF 3)			
DESIGNED BY: JRH	SCALE: AS NOTED	\$15	AFE NO.:
DRAWN BY: KLO	DATE: 09/11/15		ACAD FILE:
CHECKED BY: TSK			DWG NO. 15 OF 18
APPROVED BY: DMF			





HANDRAIL PANEL HP5

HANDRAIL PANELS ARE TO BE FABRICATED USING 2" DIA. STANDARD BLACK PIPE. GALVANIZE AFTER FABRICATION



HANDRAIL PANEL HP6

HANDRAIL PANELS ARE TO BE FABRICATED USING 2" DIA. STANDARD BLACK PIPE. GALVANIZE AFTER FABRICATION

WALKWAY & HANDRAIL BILL OF MATERIALS

LINE	QUANTITY	UNIT	DESCRIPTION	MARK	SIZE	LENGTH	REMARKS
1	X	EA.	WALKWAY BRACKET, ASTM A36, GALV.	WB1			PER SHEET S14
2	X	EA.	GRIP STRUT SAFETY GRATING, 10 GA.		2" x 9 1/4"	5'-3"	PER SHEET S14
3	X	EA.	GRIP STRUT SAFETY GRATING, 10 GA.		2" x 9 1/4"	7'-10"	PER SHEET S14
4	X	EA.	GRIP STRUT SAFETY GRATING, 10 GA.		2" x 13 3/4"	24'-0"	PER SHEET S14, TRIM TO FIT
5	X	EA.	TOE PLATE, ASTM A36, GALV.	TP1	3/8" x 4"	7'-11"	PER SHEET S14
6	X	EA.	TOE PLATE, ASTM A36, GALV.	TP2	3/8" x 4"	5'-4 5/8"	PER SHEET S14
7	X	EA.	TOE PLATE, ASTM A36, GALV.	TP3	3/8" x 4"	5'-5 5/8"	PER SHEET S14
8	X	EA.	HANDRAIL PANEL, ASTM A53, GALV.	HP1	2" DIA. PIPE	12'-0"	PER SHEET S15
9	X	EA.	HANDRAIL PANEL, ASTM A53, GALV.	HP2	2" DIA. PIPE	15'-11 1/2"	PER SHEET S15
10	X	EA.	HANDRAIL PANEL, ASTM A53, GALV.	HP3	2" DIA. PIPE	23'-11 1/2"	PER SHEET S15
11	X	EA.	HANDRAIL PANEL, ASTM A53, GALV.	HP4	2" DIA. PIPE	12'-0"	PER SHEET S15
12	X	EA.	HANDRAIL PANEL, ASTM A53, GALV.	HP5	2" DIA. PIPE	VARIES	PER SHEET S16
13	X	EA.	HANDRAIL PANEL, ASTM A53, GALV.	HP6	2" DIA. PIPE	VARIES	PER SHEET S16
14	X	LOT	BOLTS, NUTS, WASHERS, & CLIPS TO FASTEN HANDRAIL, SAFETY GRATING, & WALKWAY BRACKET				PER SHEET S14

X - QUANTITIES TO BE FILLED OUT ON A PROJECT BASIS.

UTILITY CHASE BILL OF MATERIALS

LINE	QUANTITY	UNIT	DESCRIPTION	MARK	SIZE	LENGTH	REMARKS
1	X	EA.	UTILITY CHASE, ASTM A36, GALV.	UC1	C7x9.8	3'-0"	PER SHEET S14
2	X	LOT	BOLTS, NUTS, & WASHERS TO FASTEN UTILITY CHASE				PER SHEET S14

X - QUANTITIES TO BE FILLED OUT ON A PROJECT BASIS.

NOTES:

- STRUCTURAL STEEL BARS AND PLATES SHALL CONFORM TO ASTM A36. STANDARD BLACK PIPE SHALL CONFORM TO ASTM A53.
- HANDRAIL PANELS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. BOLTS USED ON HANDRAIL PLATE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153
- AFTER GALVANIZING ALL ELEMENTS SHALL BE FREE OF FINS, ABRASIONS, ROUGH OR SHARP EDGES AND OTHER SURFACE DEFECTS.
- V = 3/8" DIA. DRILLED VENT HOLE 1" FROM JOINT, EXCEPT AS DIMENSIONED IN DETAIL 1, SHEET S15.
- HANDRAIL PANELS ON WALKWAY SHALL BE ERECTED PLUMB AND IN-LINE.

09-11-2015



ALASKA RAILROAD CORPORATION

ENGINEERING SERVICES

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

PROJECT:

123' STANDARD TPG
BRIDGE REPLACEMENT

TITLE:

WALKWAY AND UTILITY CHASE
DETAILS (3 OF 3)

DESIGNED BY: JRH

DRAWN BY: KLO

CHECKED BY: TSK

APPROVED BY: DMF

SCALE: AS NOTED

DATE: 09/11/15

AFE NO.:

ACAD FILE:

DWG NO.

16 OF 18

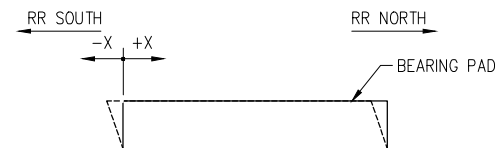
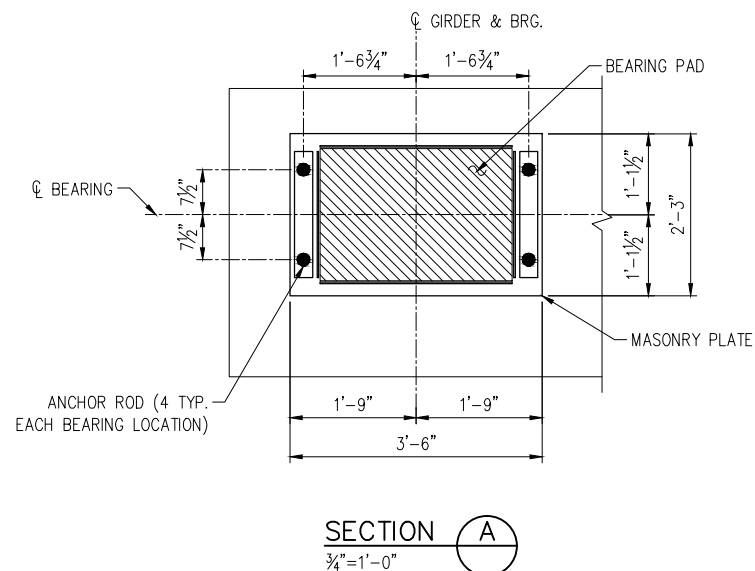
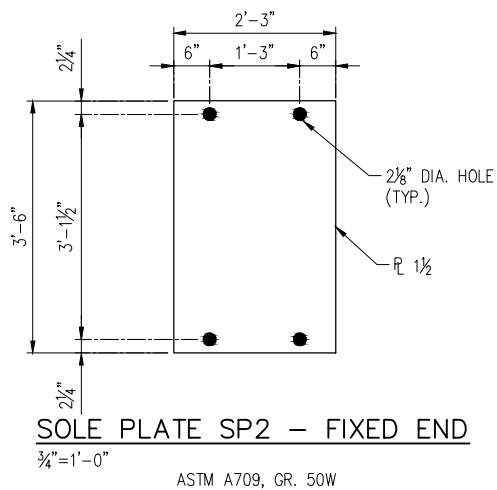
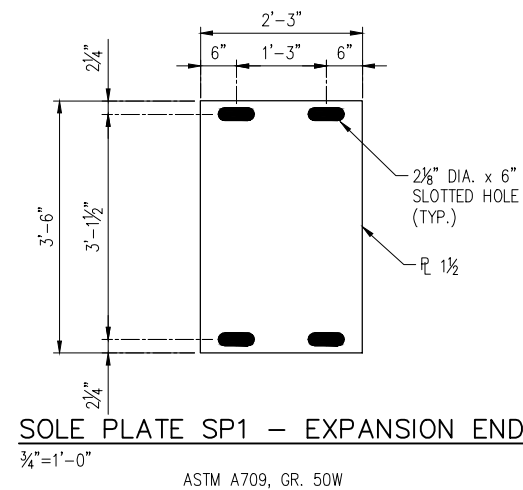
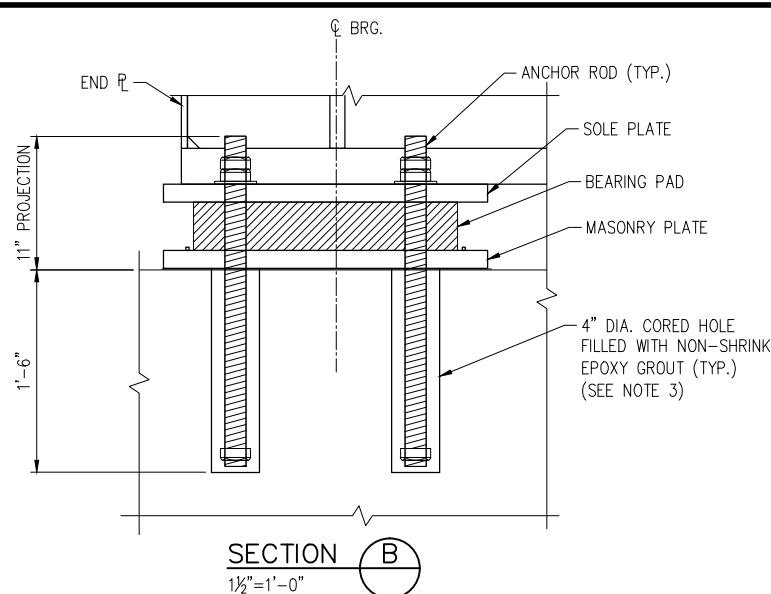
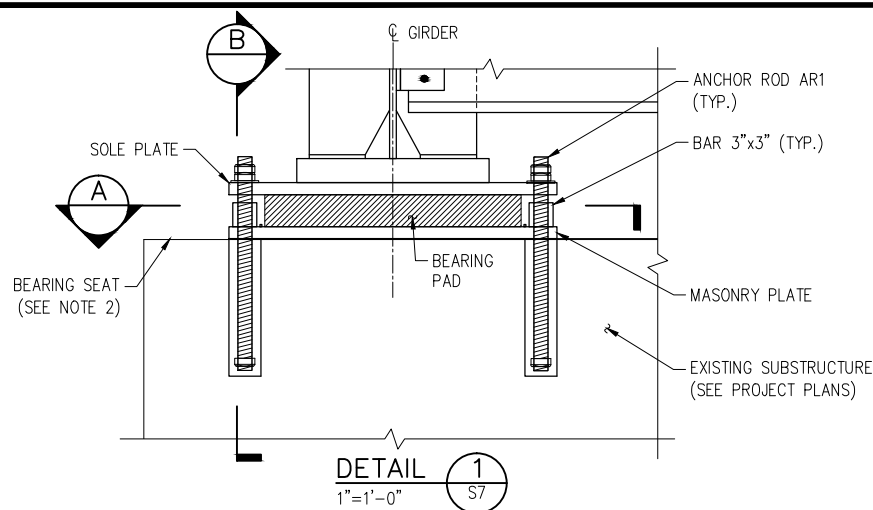
ISSUED FOR
CONSTRUCTION

WILSON
& COMPANY

4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

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REVISION

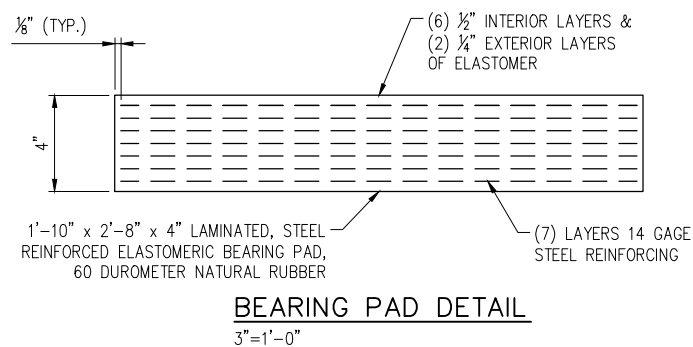
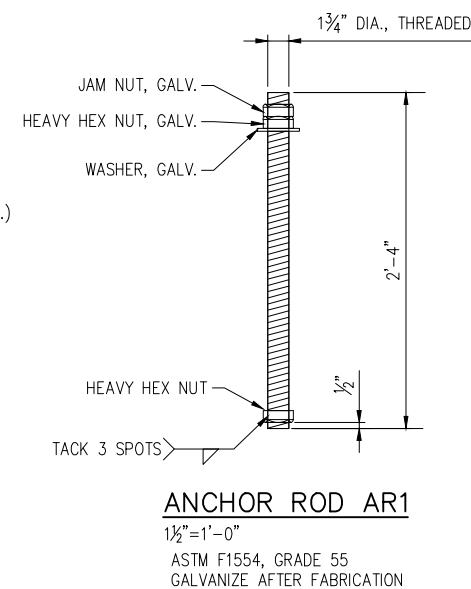
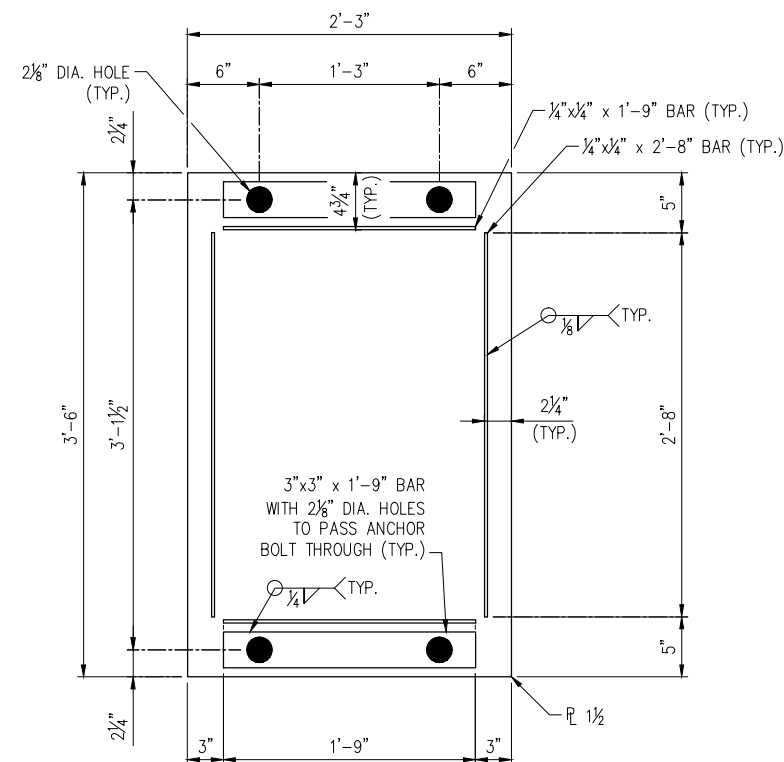


$$X = \frac{3}{4} \left(\frac{T - 17.5}{77.5} \right)$$

T = BRIDGE INSTALLATION TEMPERATURE

**EXPANSION BEARING PAD
INSTALLATION DETAIL**
NO SCALE

NEUTRAL TEMPERATURE RANGE IS 43° TO -8° FAHRENHEIT.
IF BEARINGS INSTALLED WHEN AMBIENT TEMPERATURE IS OUTSIDE THE NEUTRAL TEMPERATURE RANGE:
a. BEARINGS SHALL BE DEFORMED PER THE EQUATION GIVEN BY X. OR,
b. BEARINGS SHALL BE RESET WHEN THE AMBIENT TEMPERATURE IS WITHIN THE NEUTRAL TEMPERATURE RANGE.



NOTES:

- BEARINGS SHALL BE FABRICATED IN ACCORDANCE WITH CHAPTER 15, PART 5 OF THE CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING.
- LEVEL BEARING SURFACE SHALL BE ACHIEVED WITH THE USE OF NON-SHRINK EPOXY GROUT AS NEEDED .
- HOLE SHALL BE DRY AND FREE OF LAITANCE PRIOR TO ANCHOR BOLT PLACEMENT.

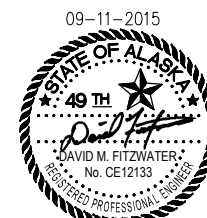
MASONRY PLATE MP1
1 1/2"=1'-0"
ASTM A36
GALVANIZE AFTER FABRICATION

**ISSUED FOR
CONSTRUCTION**

**WILSON
& COMPANY**
4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
PHONE: 907-315-8306
FAX: 907-274-8644

REV.	DATE	BY	REVISION
1	09-11-15	DF	ISSUED FOR CONSTRUCTION

ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500			
PROJECT: 123' STANDARD TPG BRIDGE REPLACEMENT			
TITLE: BEARING DETAILS			
DESIGNED BY: AR	SCALE: NONE	S17	AFE NO.:
DRAWN BY: KLO	DATE: 09/11/15		ACAD FILE:
CHECKED BY: TSK			DWG NO. 17 OF 18
APPROVED BY: DMF			



TPG BILL OF MATERIALS							
LINE	QUANTITY	UNIT	DESCRIPTION	MARK	SIZE	LENGTH	REMARKS
1	X	LOT	GIRDER LT W/ STIFFENERS & H.S. BOLTS FOR FIELD ERECTION			125'-0"	PER SHEET S8 & S9, CAMBERED FOR DEAD LOAD
2	X	LOT	GIRDER RT W/ STIFFENERS & H.S. BOLTS FOR FIELD ERECTION			125'-0"	PER SHEET S8 & S9, CAMBERED FOR DEAD LOAD
3	X	EA.	FLOORBEAM PANEL, ASTM A709 GR. 50W	FBP1			PER SHEET S12
4	X	EA.	FLOORBEAM PANEL, ASTM A709 GR. 50W	FBP2			PER SHEET S12
5	X	EA.	FLOORBEAM PANEL, ASTM A709 GR. 50W	FBP3			PER SHEET S12
6	X	EA.	FLOORBEAM PANEL, ASTM A709 GR. 50W	FBP4			PER SHEET S12
7	X	LOT	DECK DRAIN ASSEMBLIES, DRAIN COVERS & BOLTS, GALV.				PER SHEET S12, STRUCTURAL STEEL PER ASTM A36
8	X	EA.	KNEE BRACE, ASTM A709 GR. 50W	KB1	5⁄8" x 473⁄4"	2'-10½"	PER SHEET S11
9	X	EA.	KNEE BRACE, ASTM A709 GR. 50W	KB2	5⁄8" x 473⁄4"	5'-0"	PER SHEET S11
10	X	EA.	KNEE BRACE, ASTM A709 GR. 50W	KB3	5⁄8" x 473⁄4"	5'-5¼"	PER SHEET S11
11	X	EA.	CLOSURE PLATE, ASTM A709 GR. 50W	CP1	3⁄4" x α	10'-6"	PER SHEET S13
12	X	EA.	CLOSURE PLATE, ASTM A709 GR. 50W	CP2	3⁄4" x 26"	10'-6"	PER SHEET S13
13	X	EA.	BENT CURB PLATE, ASTM A709 GR. 50W	BCP1	½" x 63½"	α	PER SHEET S11
14	X	EA.	BENT CURB PLATE, ASTM A709 GR. 50W	BCP2	½" x 63½"	5'-5"	PER SHEET S11
15	X	EA.	BENT CURB PLATE, ASTM A709 GR. 50W	BCP3	½" x 63½"	7'-11"	PER SHEET S11
16	X	EA.	BENT CURB PLATE, ASTM A709 GR. 50W	BCP4	½" x 63½"	5'-5"	PER SHEET S11
17	X	EA.	BENT CURB PLATE, ASTM A709 GR. 50W	BCP5	½" x 63½"	α	PER SHEET S11
18	X	EA.	BENT CURB PLATE, ASTM A709 GR. 50W	BCP6	½" x 63½"	2'-3½"	PER SHEET S11
19	X	EA.	BRIDGE PLATE ID, STAINLESS STEEL T-316				PER SHEET S9
20	X	EA.	SOLE PLATE, ASTM A709 GR. 50W	SP1	1½" x 27"	3'-6"	PER SHEET S17
21	X	EA.	SOLE PLATE, ASTM A709 GR. 50W	SP2	1½" x 27"	3'-6"	PER SHEET S17
22	X	EA.	MASONRY PLATE, ASTM A36 GALV.	MP1	1½" x 27"	3'-6"	PER SHEET S17
23	X	EA.	THREADED ANCHOR ROD, ASTM F1554, WITH NUTS AND WASHERS, GALV.	AR1	1¾" DIA.	2'-4"	PER SHEET S17
24	X	EA.	LAMINATED, STEEL REINFORCED ELASTOMERIC BEARING PAD, 60 DURO., NATURAL RUBBER		4" x 22"	2'-8"	PER SHEET S17
25	X	EA.	WALKWAY LT				PER WALKWAY & HANDRAIL BILL OF MATERIALS, SHEET S16
26	X	EA.	WALKWAY RT				PER WALKWAY & HANDRAIL BILL OF MATERIALS, SHEET S16
27	X	EA.	UTILITY CHASE				PER UTILITY CHASE BILL OF MATERIALS, SHEET S16

X QUANTITIES TO BE FILLED OUT ON A PROJECT BASIS

NOTE:
VERIFY DIMENSION α WITH PROJECT PLANS





4300 B STREET, SUITE 505
ANCHORAGE, AK 99503
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FAX: 907-274-8644

Δ	09-11-15	DF	ISSUED FOR CONSTRUCTION	
REV.	DATE	BY	REVISION	



ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

PROJECT:

123' STANDARD TPG
BRIDGE REPLACEMENT

TITLE:

BILL OF MATERIALS

DESIGNED BY: JRH	SCALE: AS NOTED	S18	AFE NO.:
DRAWN BY: KLO			ACAD FILE:
CHECKED BY: TSK	DATE: 09/11/15		DWG NO.
APPROVED BY: DMF			18 OF 18