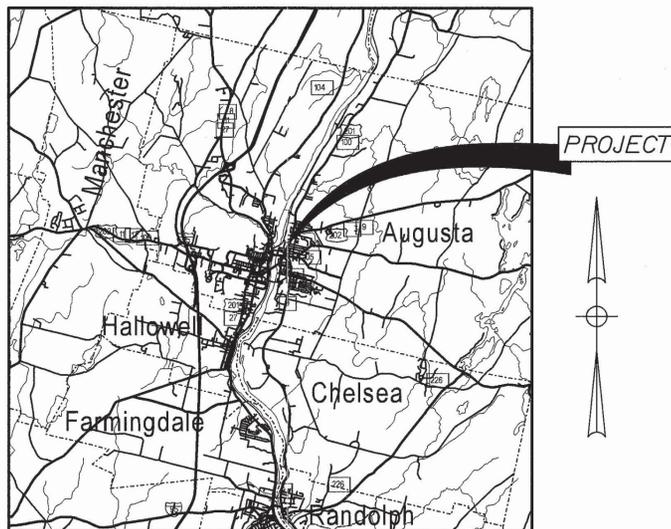


# STATE OF MAINE DEPARTMENT OF TRANSPORTATION



## CITY OF AUGUSTA KENNEBEC COUNTY MEMORIAL BRIDGE OVER KENNEBEC RIVER US ROUTE 201 & 202, ROUTE 100 PROJECT No. BH-9327(100)X PROJECT LENGTH .44 mi. DECK REPLACEMENT BRIDGE NO. 5196



LOCATION MAP



### SPECIFICATIONS

DESIGN: AASHTO Standard Specifications for Highway Bridges, 17th Edition 2002.

### DESIGN LOADING

Live Load ..... HS - 20

### TRAFFIC DATA

Current (2005) AADT.....	24780
Future (2025) AADT.....	28735
DHV - % of AADT.....	9
Design Hour Volume.....	2586
% Heavy Trucks (AADT).....	4
% Heavy Trucks (DHV).....	3
Directional Distribution (DHV).....	50
18 kip Equivalent P 2.0.....	1074
18 kip Equivalent P 2.5.....	1024
Design Speed (mph).....	35

### MATERIALS

Concrete (Unless noted otherwise).....	Class "LP"
Concrete.....	f'c = 5075 psi
Reinforcing Steel.....	ASTM A615, Grade 60
Structural Steel:.....	ASTM A709, Grade 36
	Unless Noted Otherwise
High Strength Bolts.....	ASTM A325, Type 1, Galv.
Steel Grid.....	Grade 50

### BASIC DESIGN STRESSES

Concrete.....	f'c = 5,075 psi
Reinforcing Steel.....	f <sub>y</sub> = 60,000 psi
Structural Steel:	
ASTM A 709, Grade 50.....	F <sub>y</sub> = 50,000 psi
ASTM A 709, Grade 36.....	F <sub>y</sub> = 36,000 psi
ASTM A 325.....	F <sub>u</sub> = 120,000 psi

### UTILITIES

Central Maine Power Company ..... Verizon  
Maine Central Railroad ..... Adelphia

### MAINTENANCE OF TRAFFIC

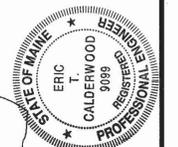
Maintain two lanes, two-way traffic during peak hours and one lane closure during off peak hours (nights and weekends). Ref. Special Provisions.

Close Bridge and install signs as directed to complete the "B" portion of the Work, Ref. Special Provisions.

### LIST OF DRAWINGS

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STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
COMMISSIONER:	[Signature]	3/4/05
CHIEF ENGINEER:	[Signature]	03/08/05



SIGNATURE	P.E. NUMBER	DATE
[Signature]	9099	3/5/05

PROJECT INFORMATION
BRIDGE PROGRAM
WAYNE FRANKHUISER
ERIC CALDERWOOD
PROJECT MANAGER
DESIGNER
CONSULTANT
PROJECT RESIDENT
CONTRACTOR
PROJECT COMPLETION DATE

BH-9327(100)X    PIN 9327.10  
CITY OF AUGUSTA  
MEMORIAL BRIDGE  
TITLE SHEET

SHEET NUMBER  
**1**  
OF 46

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 Username: david.sullivan  
 Date: 3/3/2005

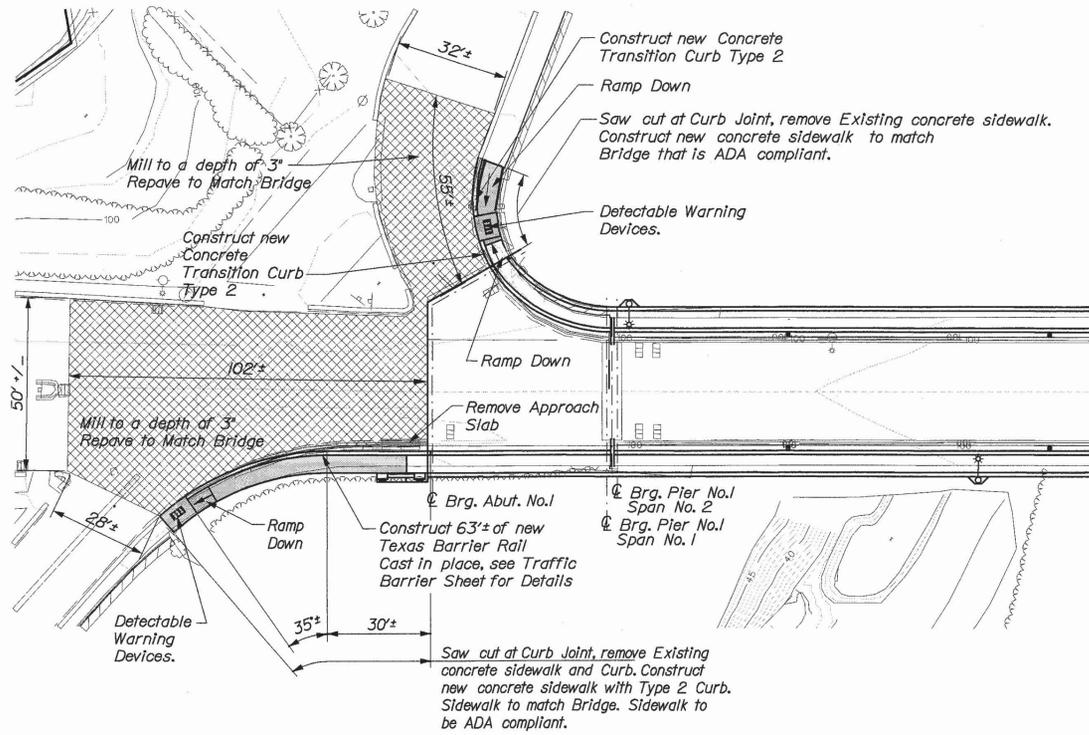


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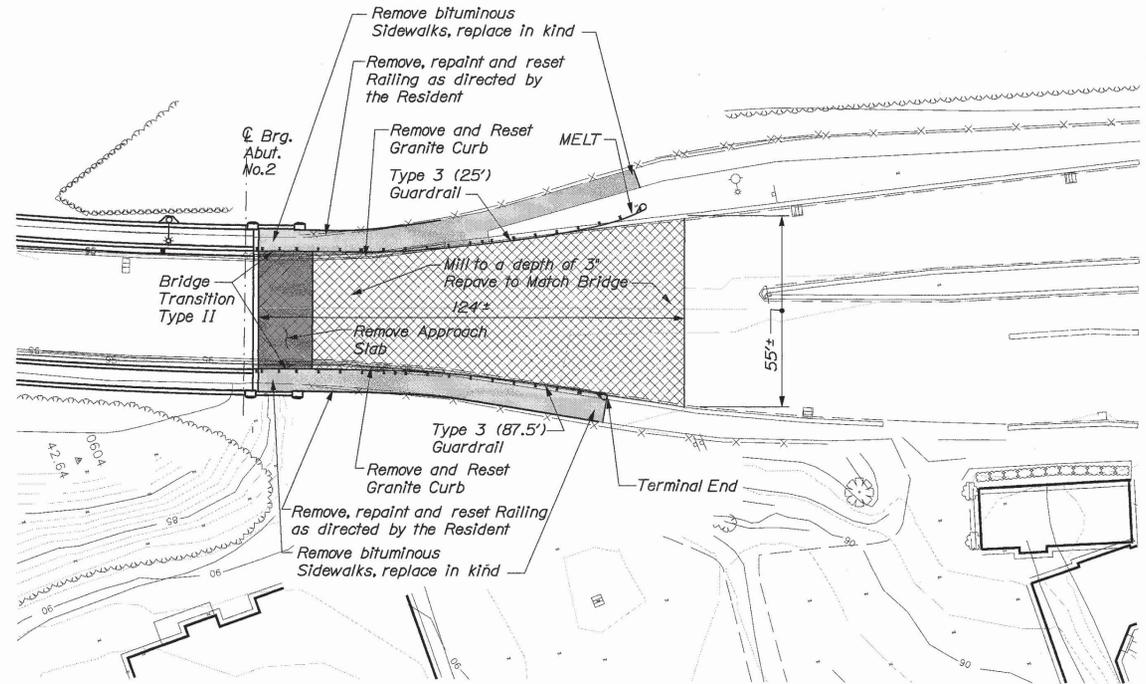
Username: david.sullivan

Division: BRIDGE

Filename: ... \msta\003\_General\_Plan.dgn



WEST APPROACH



EAST APPROACH

NOTE:  
Remove, Repaint and Reset Railing to be Incidental to 507.0841, Steel Pipe Hand Rail.

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BH-9327(100)X  
BRIDGE NO. 5198  
PIN 9327.10  
BRIDGE PLANS

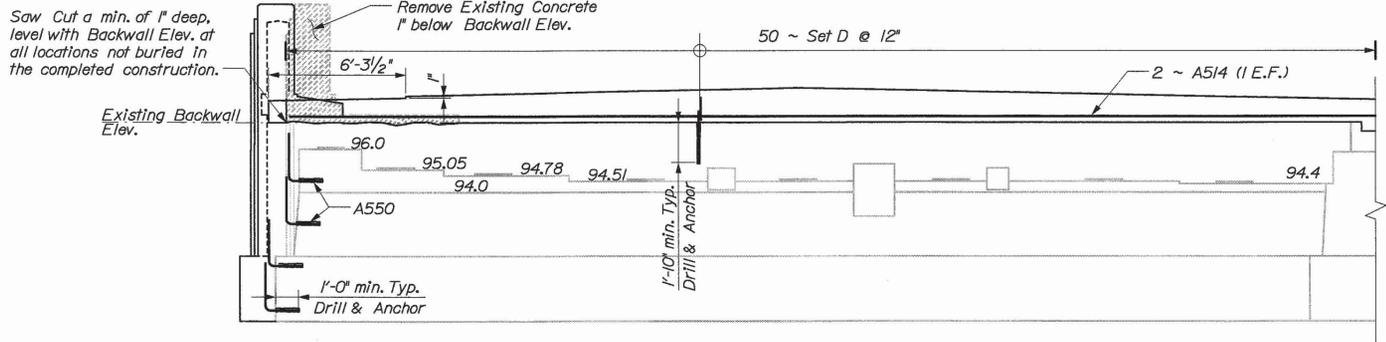
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DESIGN-DETAILED02	RKC			DATE
DESIGN-DETAILED03	EM			
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
GENERAL PLAN

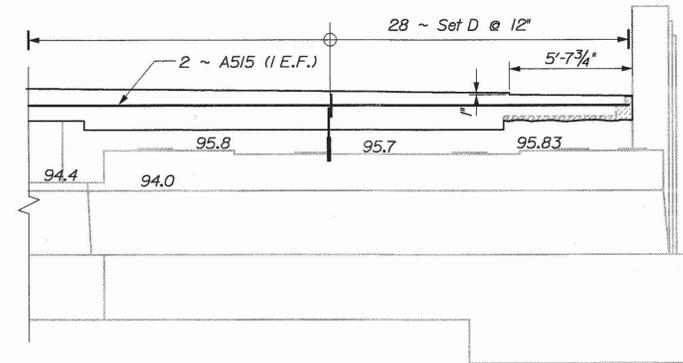
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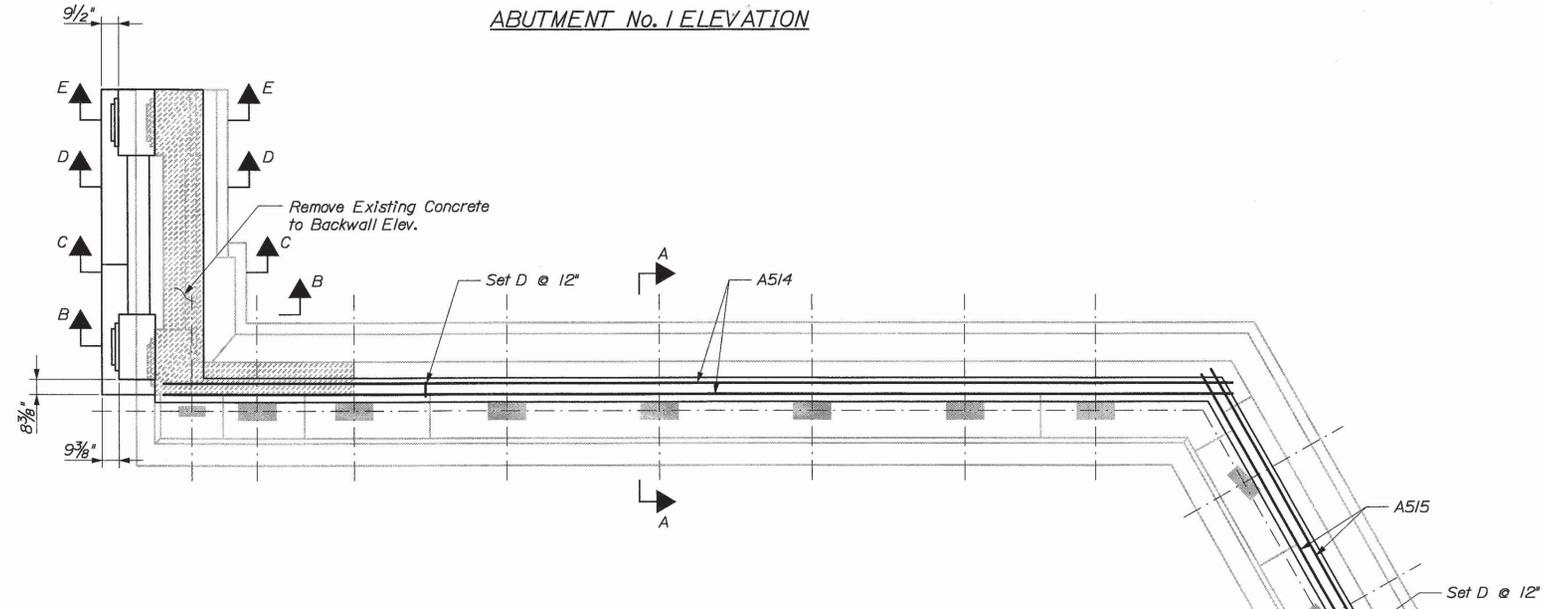
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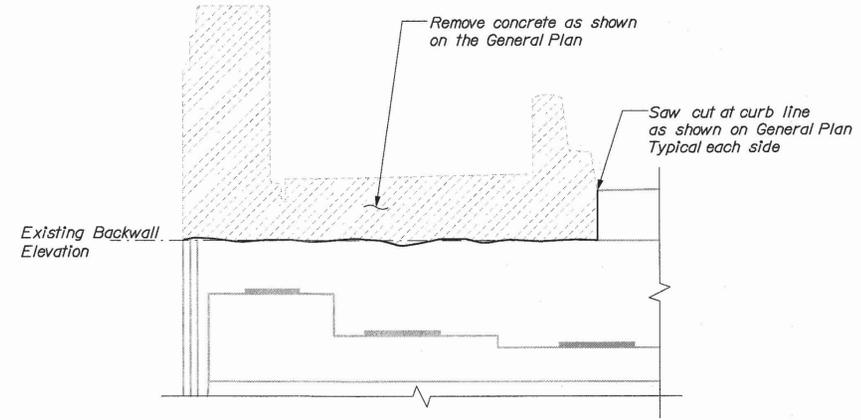
ABUTMENT No. 1 ELEVATION



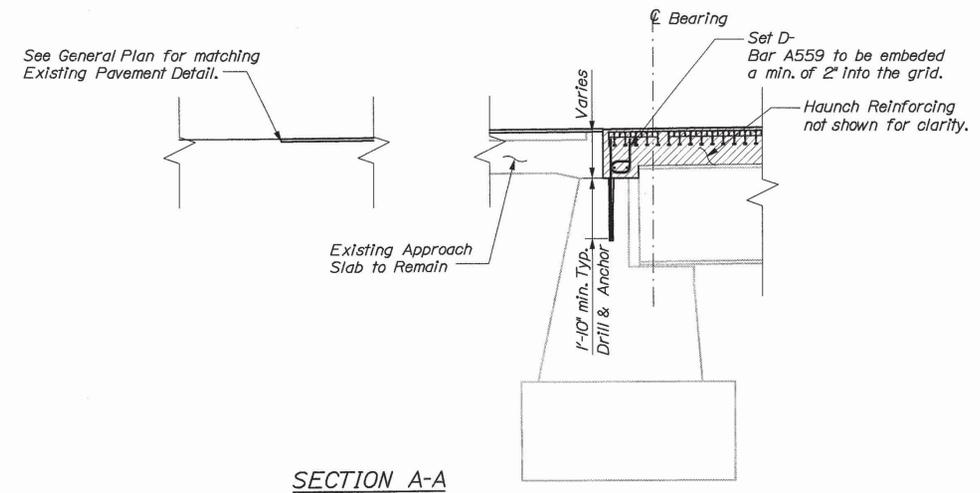
ABUTMENT No. 1 ELEVATION



ABUTMENT No. 1 PLAN



LIMITS OF CONCRETE REMOVAL AT ABUTMENT No. 1 BACKWALL TYP. DOWNSTREAM



SECTION A-A APPROACH SLAB & TYP. ABUT. SECTION DETAIL

NOTE:  
For Set D components refer to Abut. No. 1 Detail sheet.

ABUTMENT NOTES

1. Reinforcing Steel shall have 2" cover unless otherwise noted.
2. Cover Joints in accordance with Standard Detail 502(OI).
3. Excavation required to construct widened Footing and Abutment Wings shall not be paid for directly, but will be considered incidental to related Concrete Items.
4. Abutments, Wings, and their Footings shall be backfilled with Granular Borrow.
5. All Drill and Anchoring will be 1'-0" min. Embedment unless other wise noted.
6. Protective Coating for Concrete surfaces shall be applied to the top of Abutment Backwalls and to 1' below the top of the Backwalls on the backside.
7. A minimum of 18" of Granular Borrow shall be placed in front of the Wings and shaped to direct water away from the Foundation Structure as directed by the Resident. 1'-0" of Rip Rap shall be placed over the disturbed area and shaped to drain and present a neat and orderly appearance. Payment for Granular Borrow and Rip Rap shall be made under appropriate Items.
8. Neoprene at Abutment No. 2 shall be either Polychloroprene or Natural Polyisoprene of 50±5 Shore a Durometer Hardness, and shall conform to the requirements of Div. 2, Section 18.2 of the AASHTO Standard Specifications for Highways and Bridges. Neoprene will not be paid for directly, but shall be considered incidental to related Contract Items.

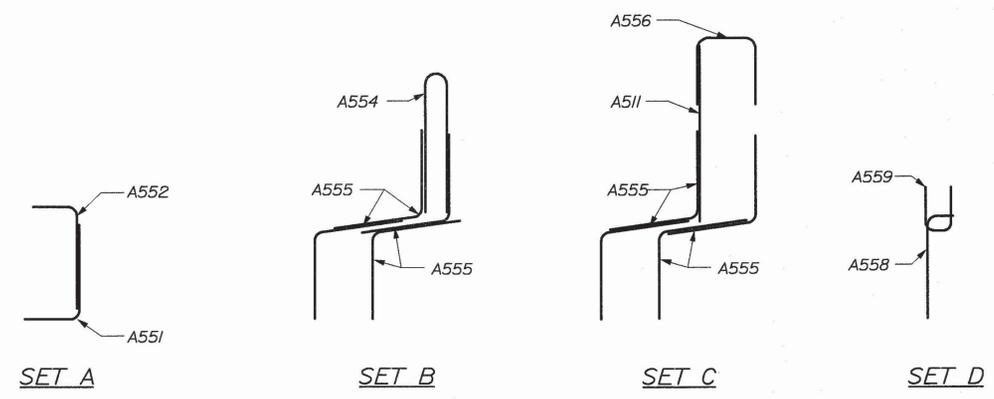
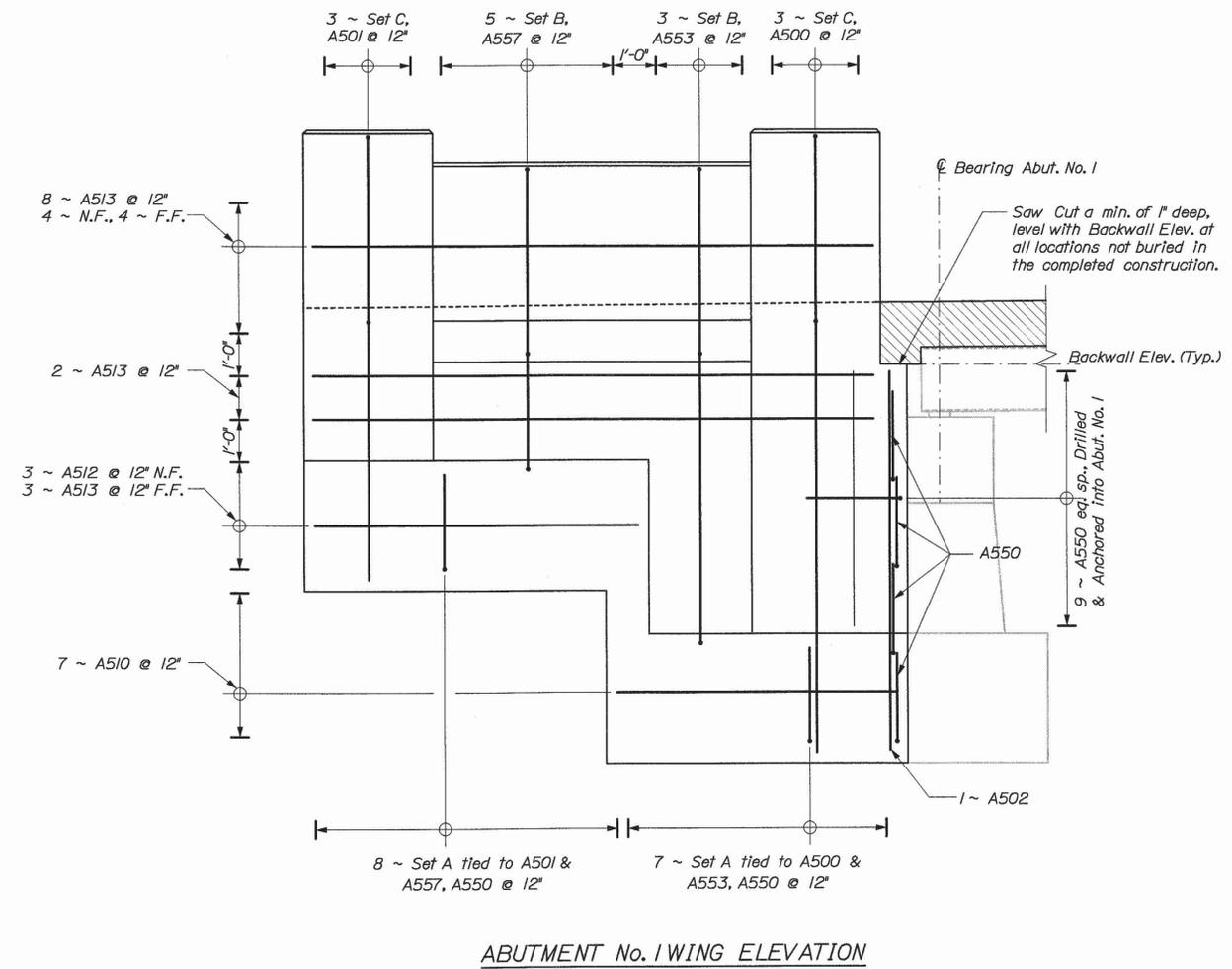
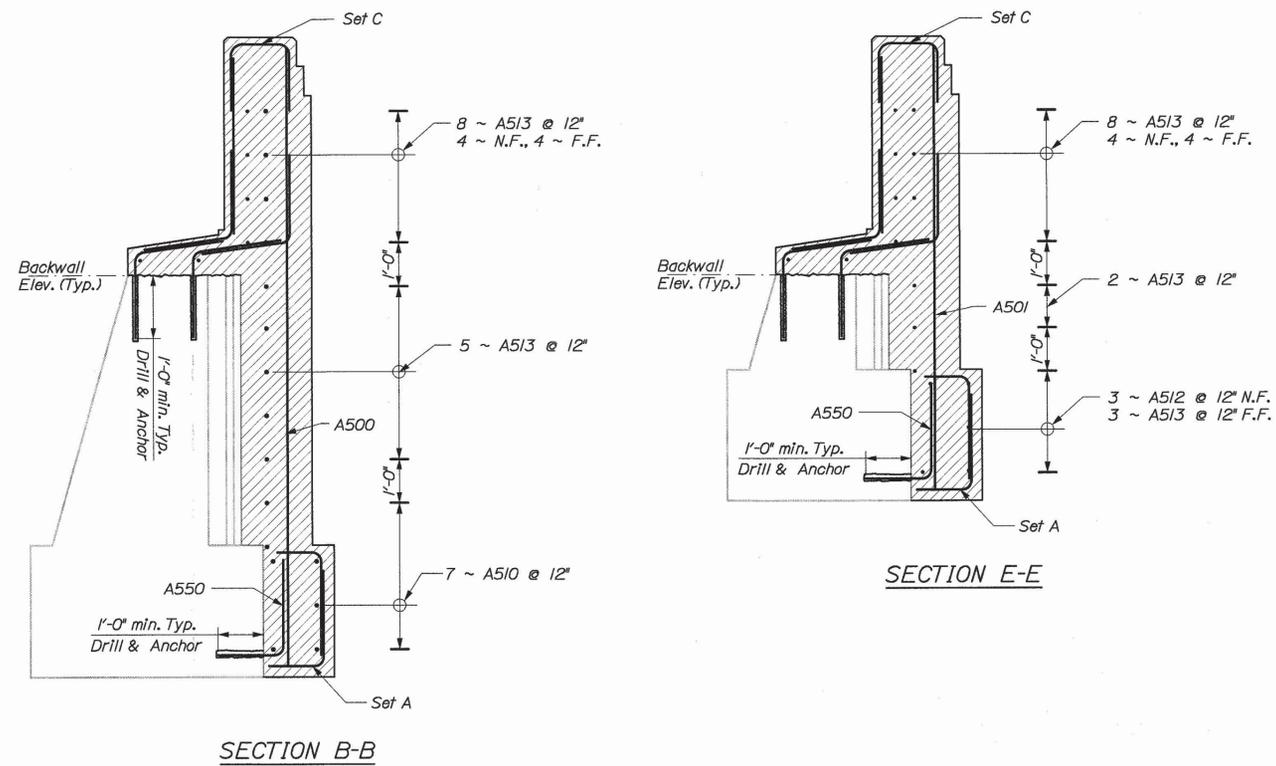
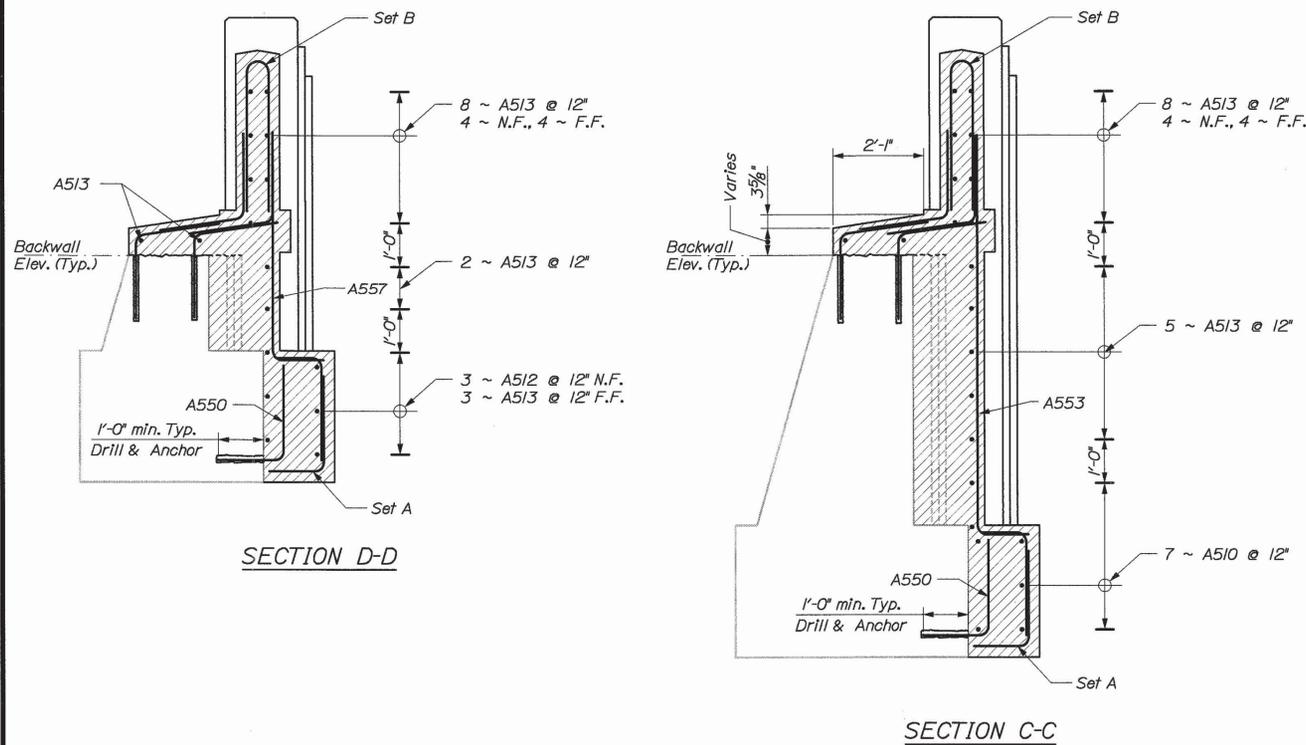
STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BH-9327(100)X  
BRIDGE NO. 5198  
PIN 9327.10  
BRIDGE PLANS

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CHECKED-REVIEWED		RKC					
DESIGN-DETAILED2		BLN					
DESIGN-DETAILED3							
REVISIONS 1							
REVISIONS 2							
REVISIONS 3							
REVISIONS 4							
FIELD CHANGES							

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
ABUTMENT No. 1

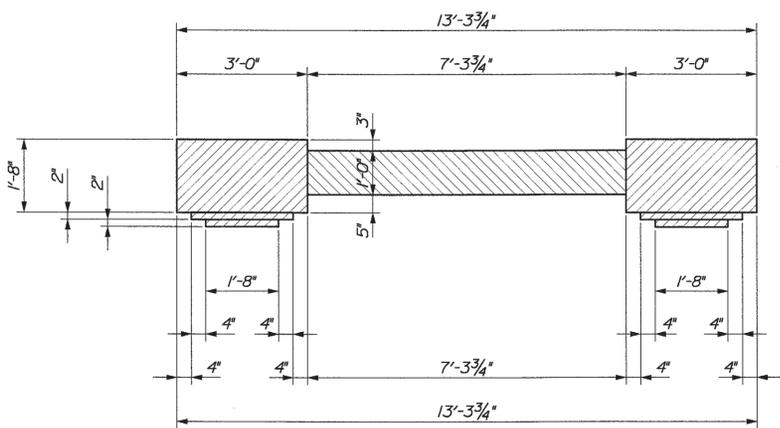
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Date: 3/3/2005

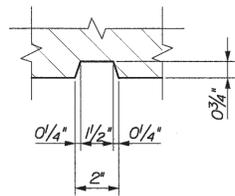


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Set B	1-A554, 4-A555
Set C	1-A556, 1-A511, 4-A555
Set D	1-A558, 1-A559

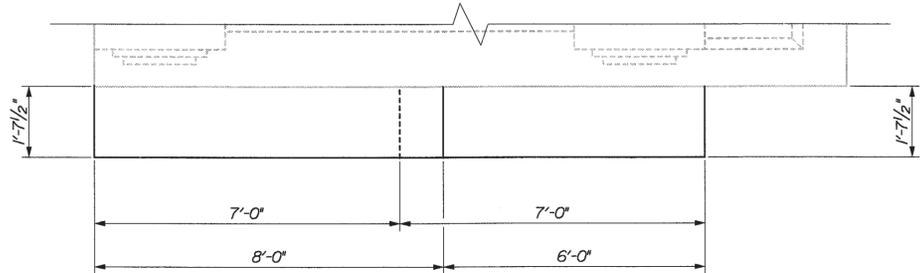
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BRIDGE PLANS	
BH-9327(100)X		PIN 9327.10		BRIDGE NO. 5196	
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	BKC	B/N		P.E. NUMBER	
MEMORIAL BRIDGE			KENNEBEC RIVER		
CITY OF AUGUSTA			KENNEBEC COUNTY		
<b>ABUTMENT No. 1 DETAILS</b>					
SHEET NUMBER					
<b>5</b>					
OF 46					



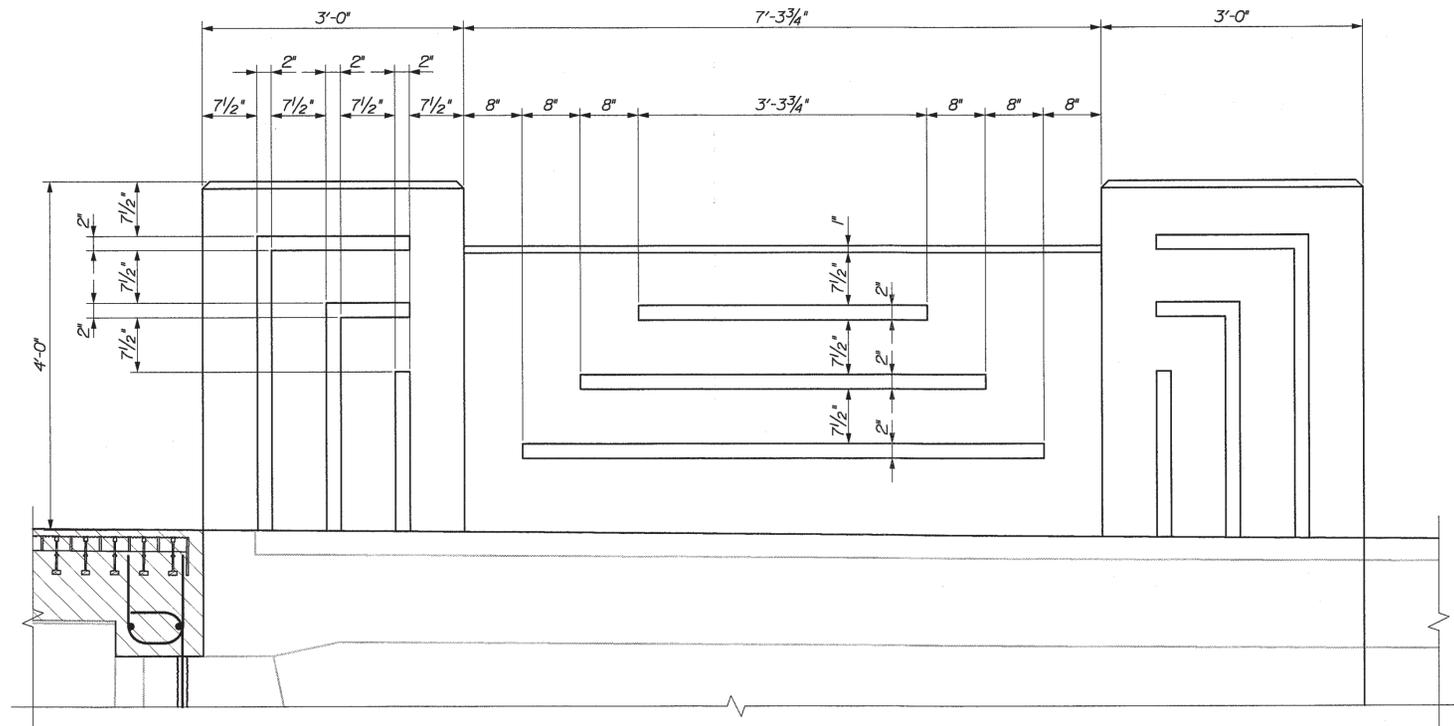
SECTION F-F



GROOVE DETAIL  
Typ. Abut. No. 1 & 2

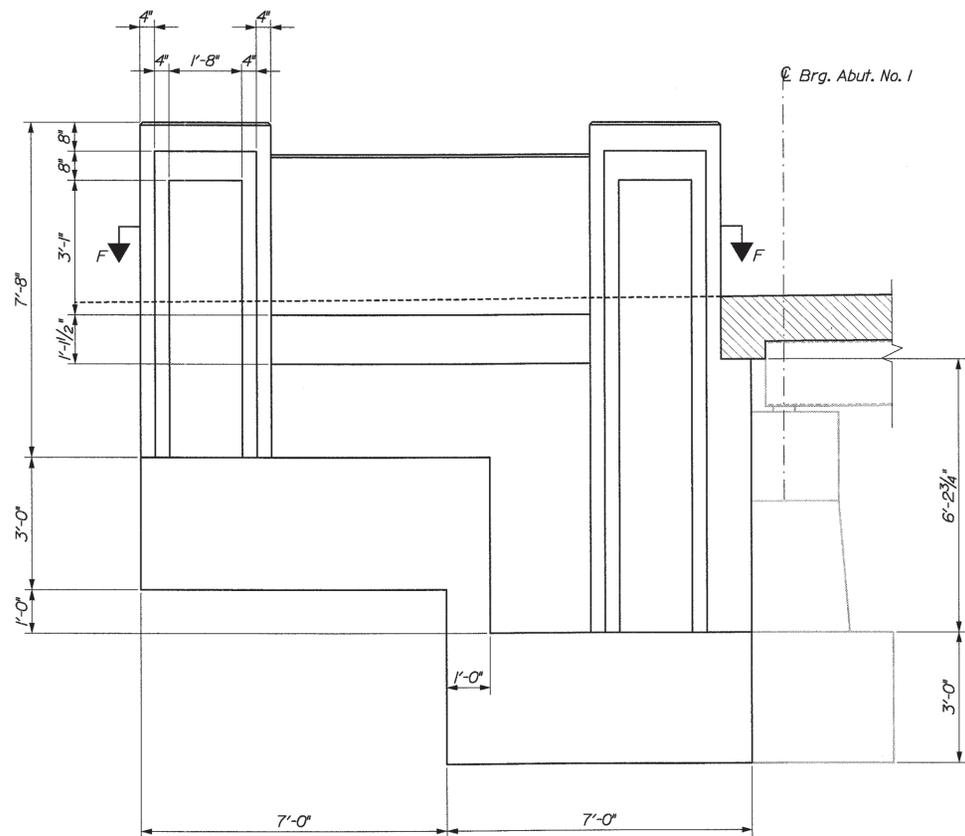


FOOTING PLAN

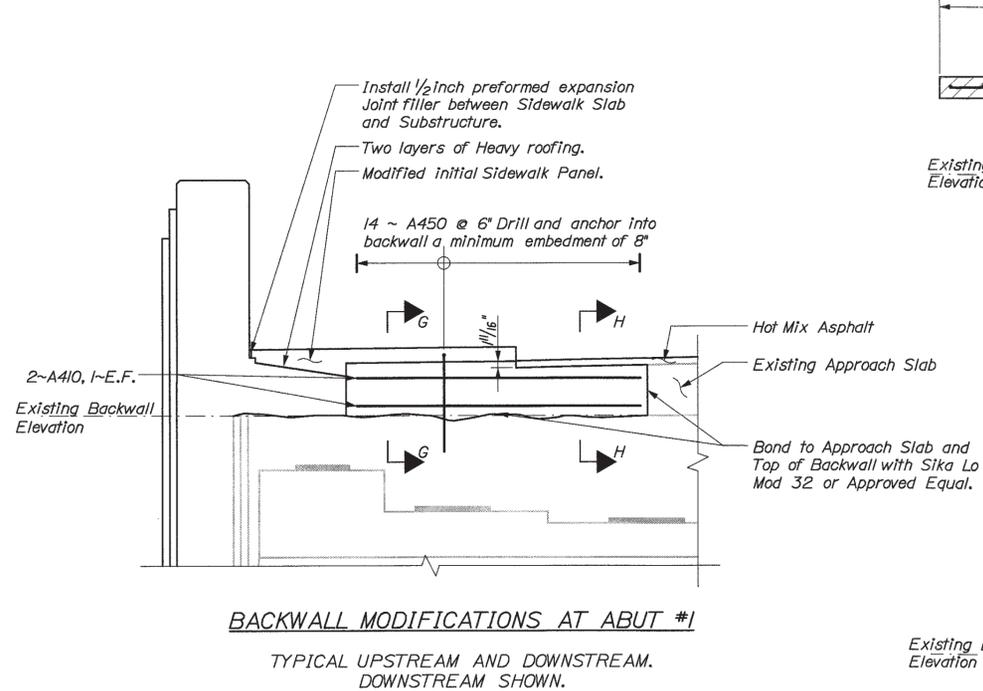


GROOVE PLAN

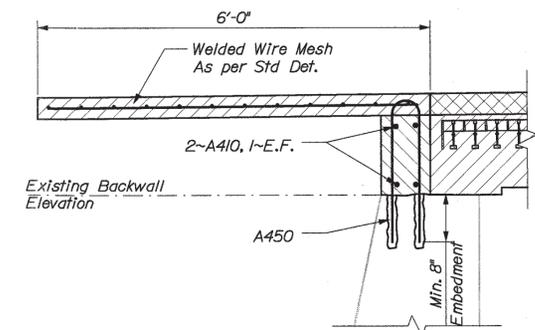
TRAVEL SIDE ELEVATION  
OF CONCRETE POST AND RAIL



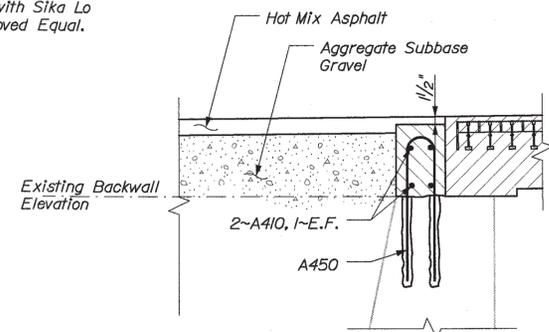
ABUT. No. 1 DOWNSTREAM  
WING WALL ELEVATION



BACKWALL MODIFICATIONS AT ABUT #1  
TYPICAL UPSTREAM AND DOWNSTREAM.  
DOWNSTREAM SHOWN.



SECTION G-G



SECTION H-H

STATE OF MAINE	BRIDGE PLANS
DEPARTMENT OF TRANSPORTATION	
BH-9327(100)X	
PIN 9327.10	
BRIDGE NO. 5196	

DESIGN-DETAILED	DATE
CHECKED-REVIEWED	DATE
DESIGN-DETAILED2	DATE
DESIGN-DETAILED3	DATE
REVISIONS 1	DATE
REVISIONS 2	DATE
REVISIONS 3	DATE
REVISIONS 4	DATE
FIELD CHANGES	DATE

PROJ. MANAGER	BY	DATE
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CHECKED-REVIEWED	RKC	
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DESIGN-DETAILED3	BLN	
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MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY

ABUTMENT No. 1 DETAILS

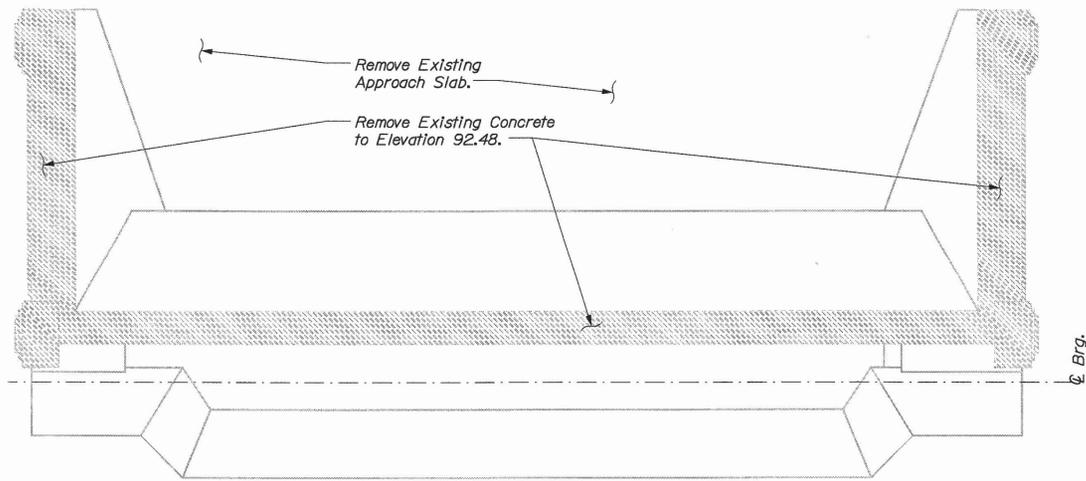
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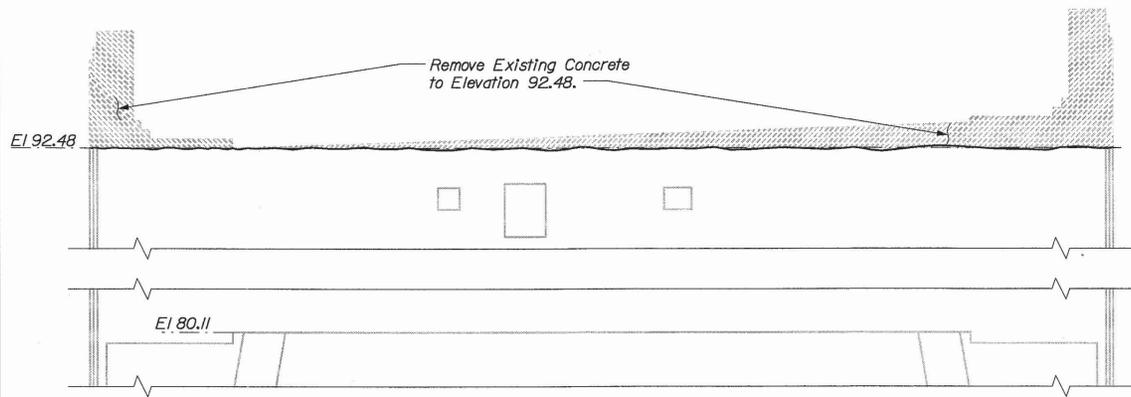
Username: david.sullivan

Division: BRIDGE

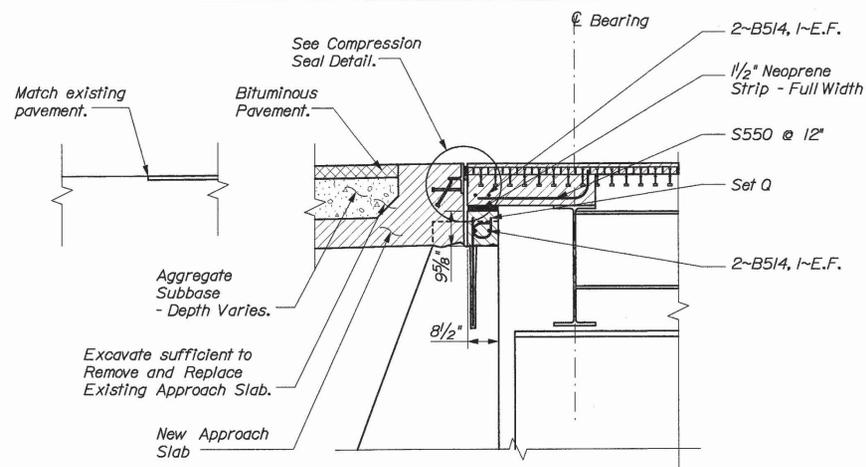
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ABUT. No. 2 EXISTING PLAN



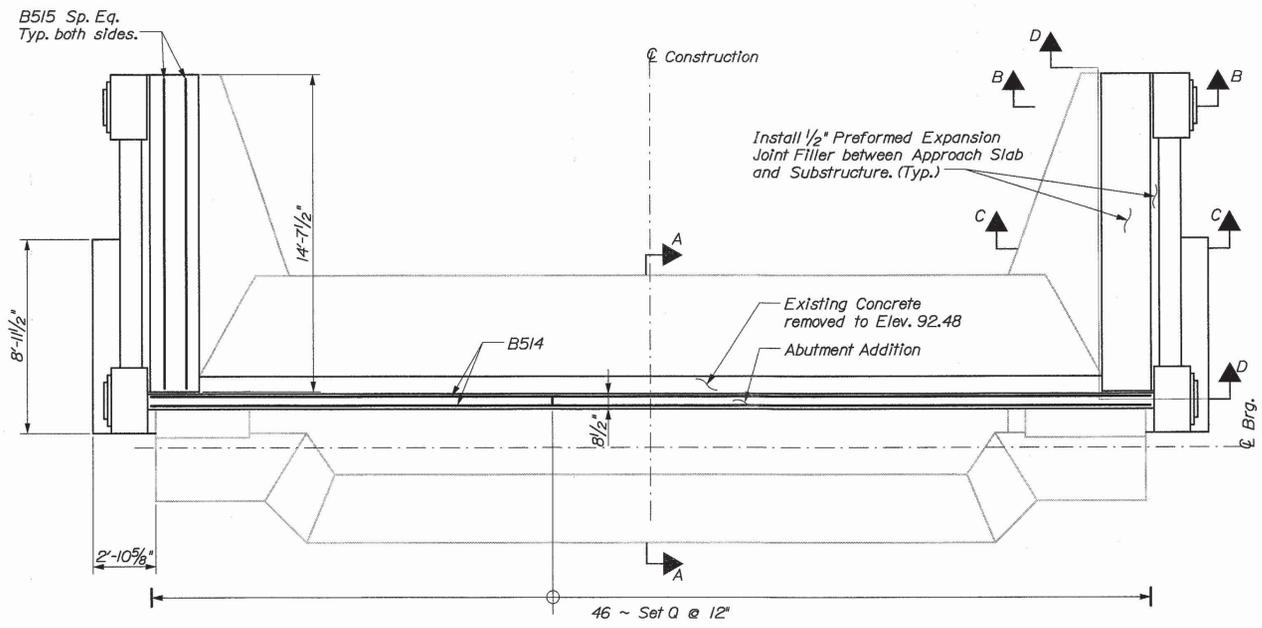
ABUT. No. 2 EXISTING ELEVATION



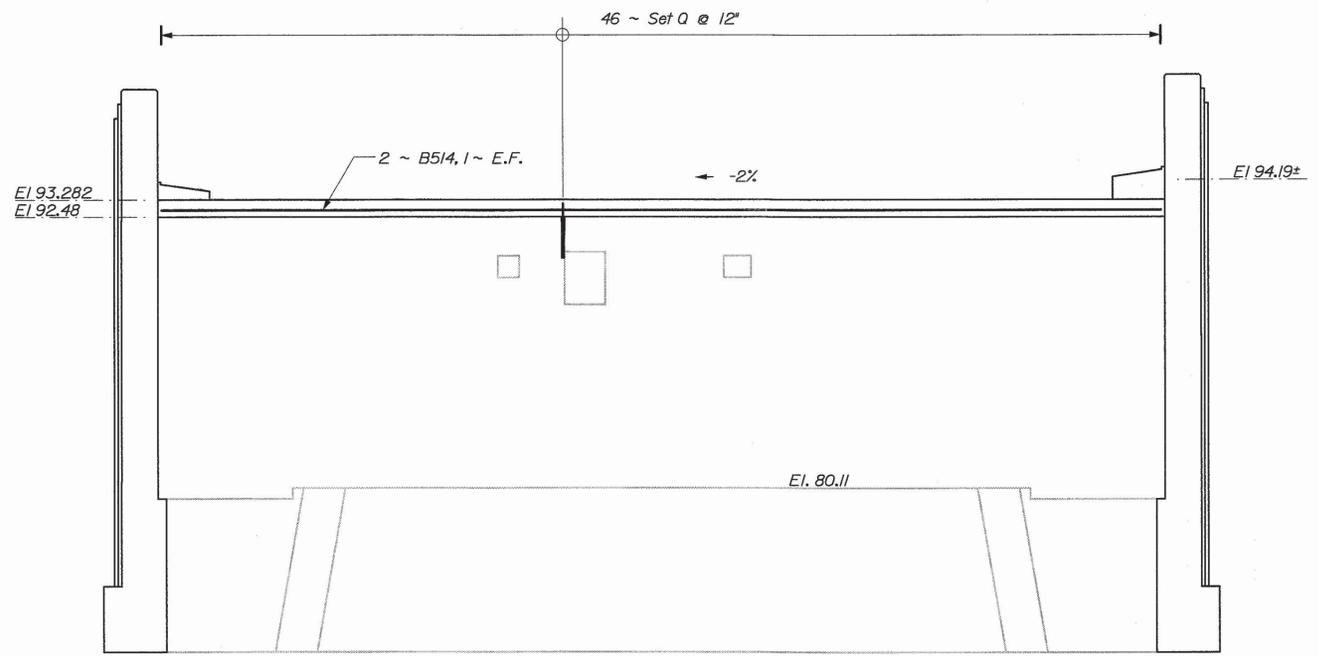
SECTION A-A

TYP. ABUT. No. 2 SECTION DETAIL & APPROACH SLAB

NOTE:  
For Set D components refer to Abut. No. 1 Detail sheet.  
See Abutment No. 2 Details for Approach Slab Details.



ABUT. No. 2 PLAN



ABUT. No. 2 ELEVATION

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BH-9327(100)X  
PIN 9327.10  
BRIDGE NO. 5196  
BRIDGE PLANS

DATE 2/23/05  
SIGNATURE  
P.E. NUMBER  
DATE

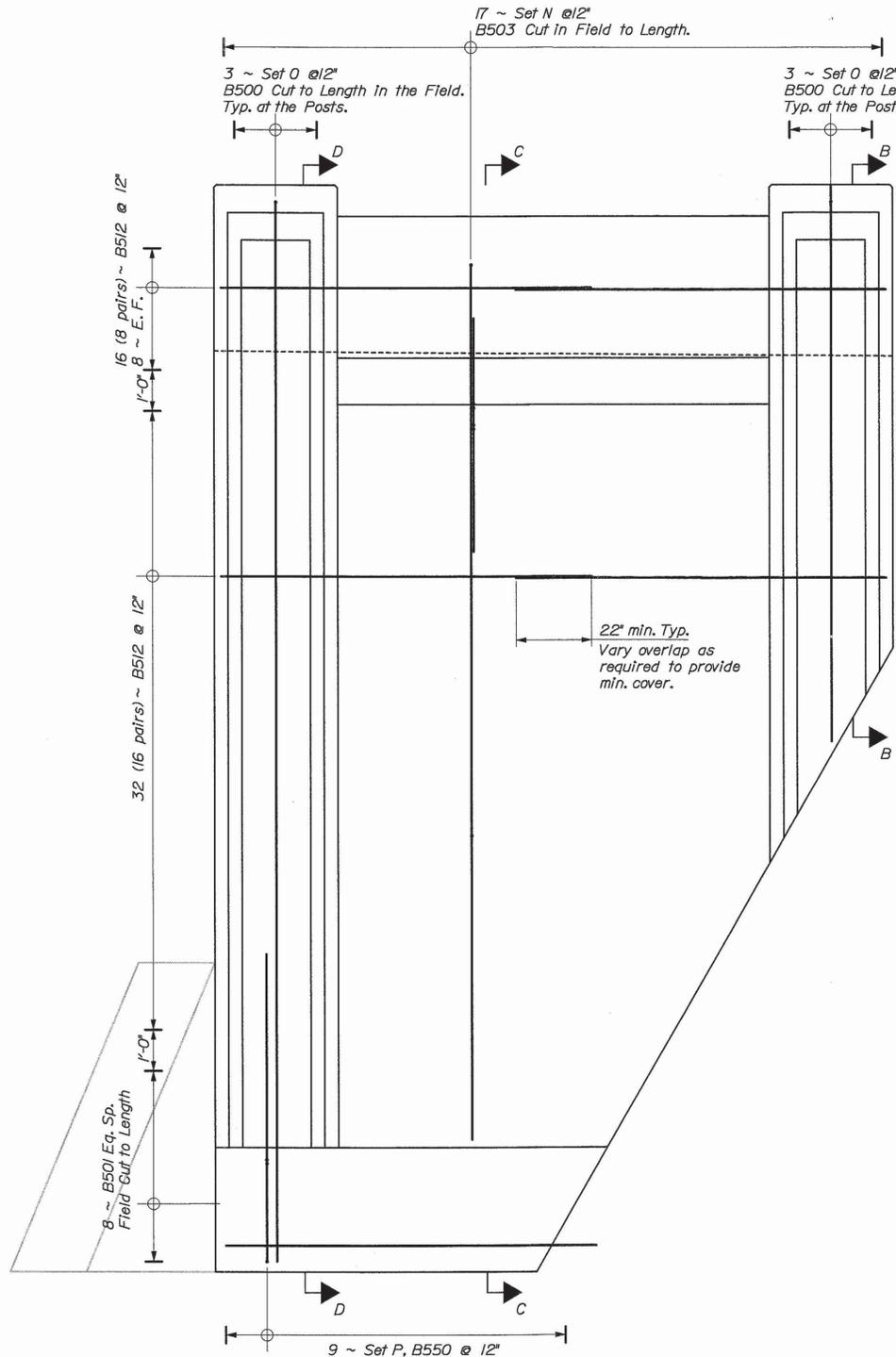
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REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
ABUTMENT No. 2

SHEET NUMBER

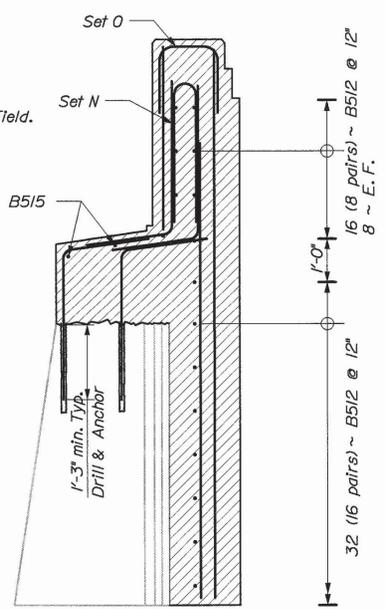
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OF 46

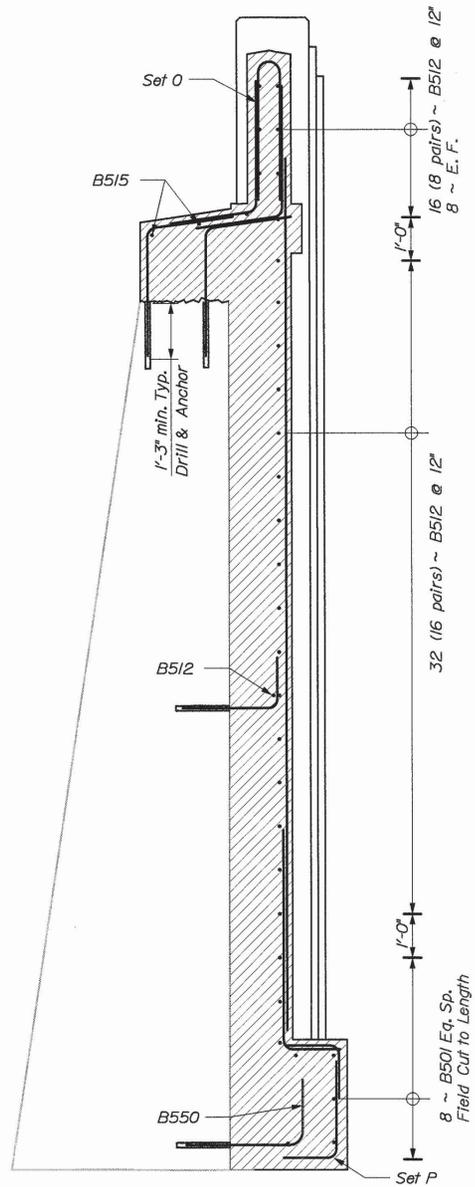


**ABUT. No. 2 WING WALL ELEVATION**  
DOWNSTREAM SIDE SHOWN.  
UPSTREAM SIDE OPPOSITE HAND EXCEPT AS NOTED.

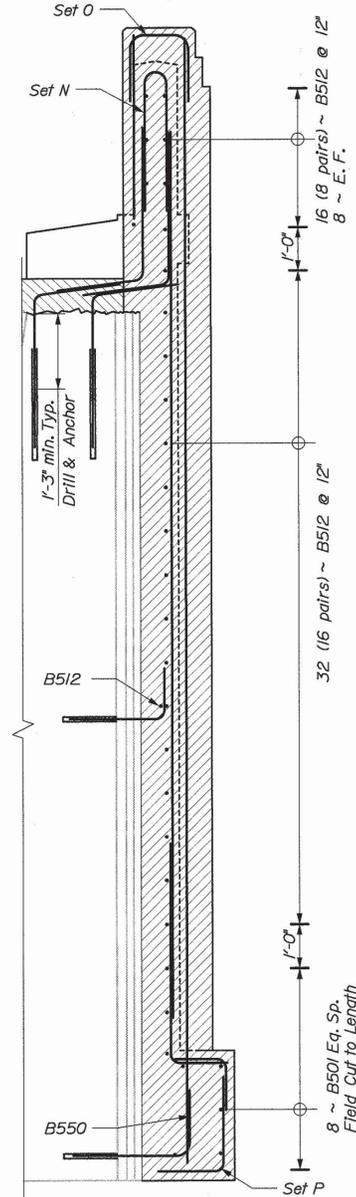
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Set P	1-B551, 1-B552, 1-B553
Set Q	1-B558, 1-B559



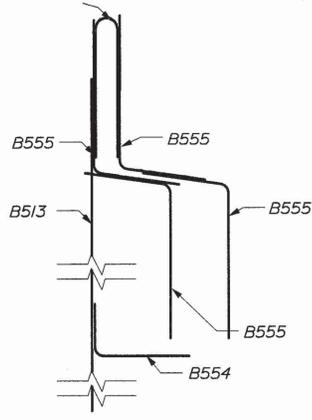
**Section B-B**  
Downstream Wing Shown  
Upstream Wing Opposite Hand



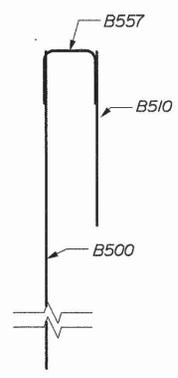
**Section C-C**  
Downstream Wing Shown  
Upstream Wing Opposite Hand



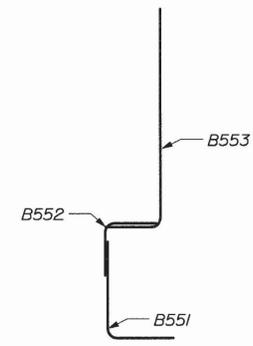
**Section D-D**  
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Upstream Wing Opposite Hand



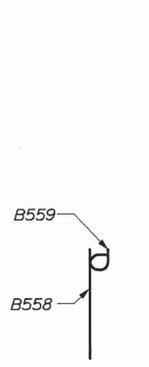
**SET N**



**SET O**

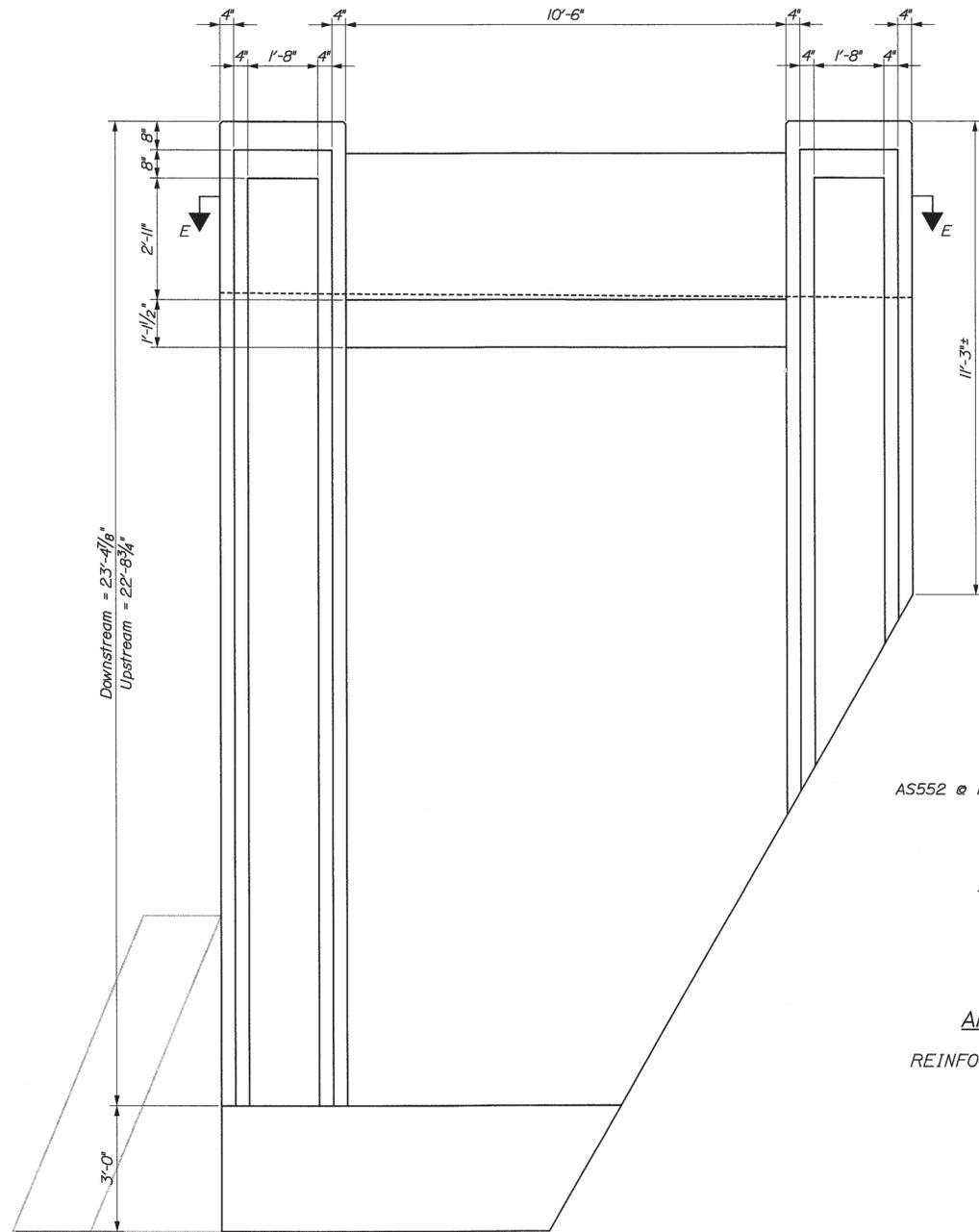


**SET P**



**SET Q**

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BRIDGE NO. 5196	
MEMORIAL BRIDGE		KENNEBEC RIVER		CITY OF AUGUSTA	
KENNEBEC COUNTY		KENNEBEC COUNTY		ABUTMENT No. 2 DETAILS	
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REVISIONS 2					
REVISIONS 3					
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FIELD CHANGES					
SHEET NUMBER		PIN		BRIDGE PLANS	
8		9327.10		BH-9327(100)X	
OF 46					



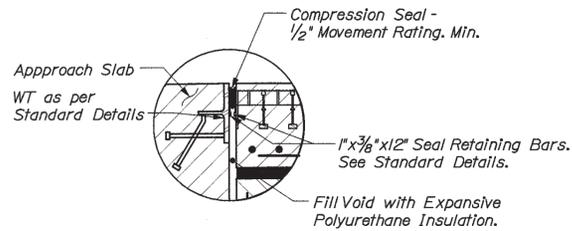
**ABUT. No. 2 WING WALL ELEVATION**

DOWNSTREAM SIDE SHOWN.  
UPSTREAM SIDE OPPOSITE HAND EXCEPT AS NOTED.

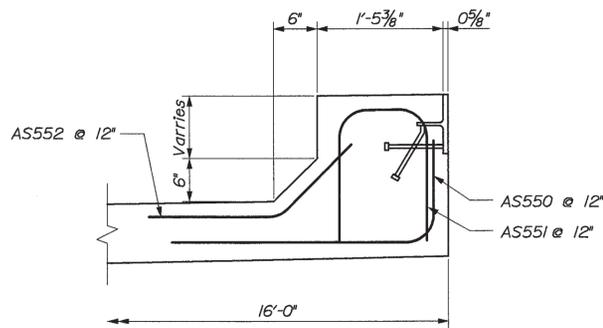
**ABUTMENT No. 2**

**APPROACH SLAB NOTES:**

1. Approach Slab is to extend to within 1/2" of inside face of new Wings.
2. Length and Pitch of Approach Slab shall be as per Standard Details.

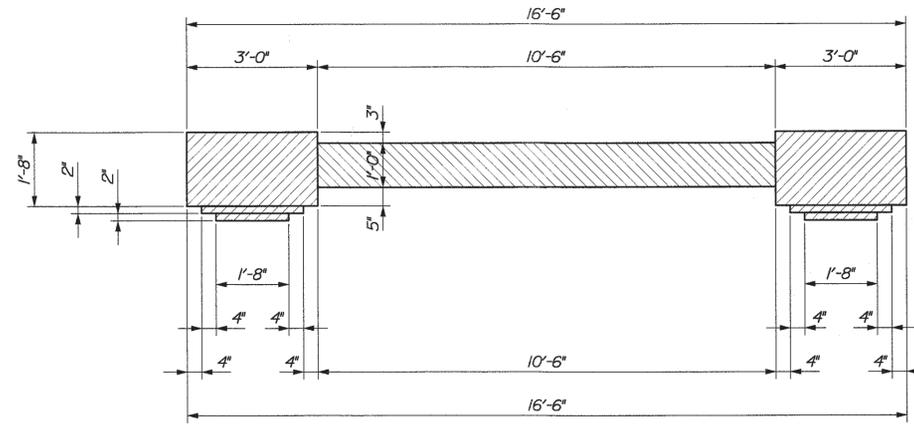


**COMPRESSION SEAL DETAIL**

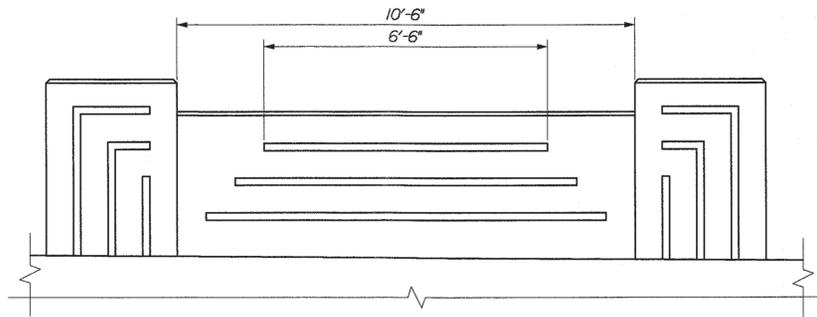


**APPROACH SLAB DETAIL**

REINFORCING SHOWN IN STANDARD DETAILS  
NOT SHOWN FOR CLARITY.

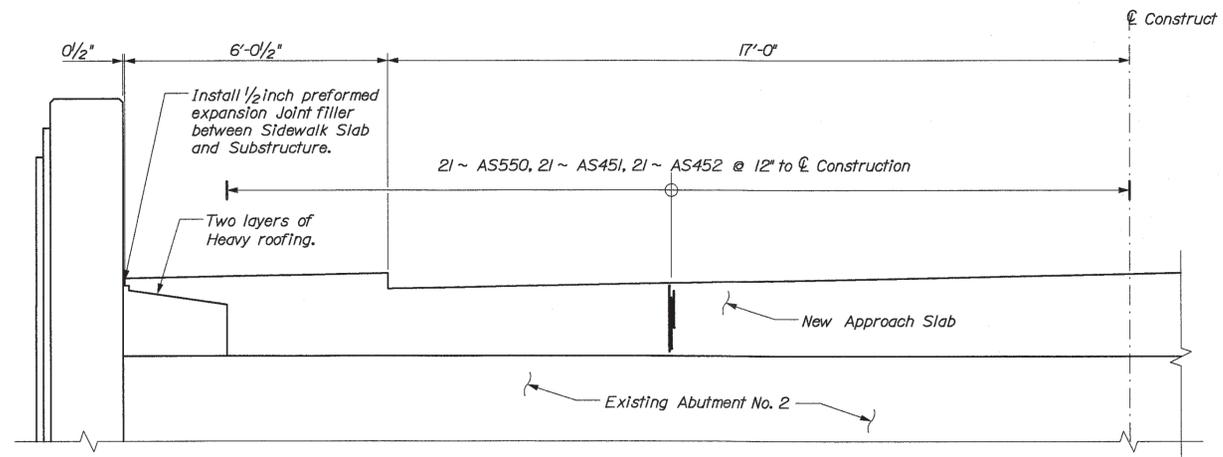


**SECTION E-E**



**GROOVE PLAN**

TRAVEL SIDE ELEVATION OF CONCRETE POST AND RAIL.  
UPSTREAM SIDE SHOWN, DOWNSTREAM SIDE OPPOSITE HAND.  
ALL DIMENSIONS SIMILAR TO GROOVE PLAN FOR ABUTMENT No. 1 EXCEPT AS NOTED.



**APPROACH SLAB ELEVATION**  
SYMETRICAL ABOUT C CONSTRUCTION

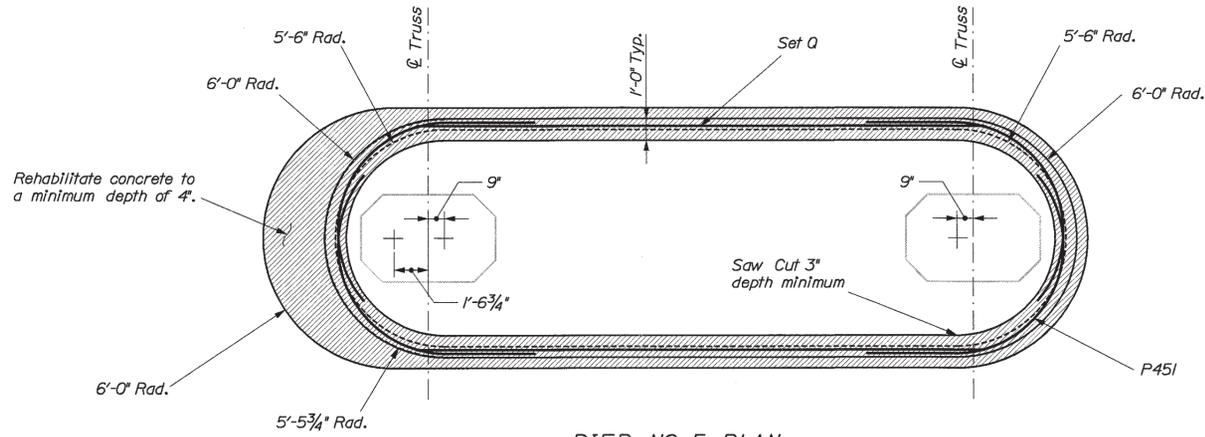
STATE OF MAINE	BRIDGE PLANS
DEPARTMENT OF TRANSPORTATION	
BH-9327(100)X	
BRIDGE NO. 5196	PIN 9327.10

DATE	BY	WLF	ETC	DESIGN-DETAILED	PROJ. MANAGER
2/23/05	DMS	RKC	RKC	DESIGN-REVIEWED	
	RKC	RKC	RKC	DESIGN-REVIEWED	
	BN	BN	BN	DESIGN-REVIEWED	
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				REVISIONS 2	
				REVISIONS 3	
				REVISIONS 4	
				FIELD CHANGES	

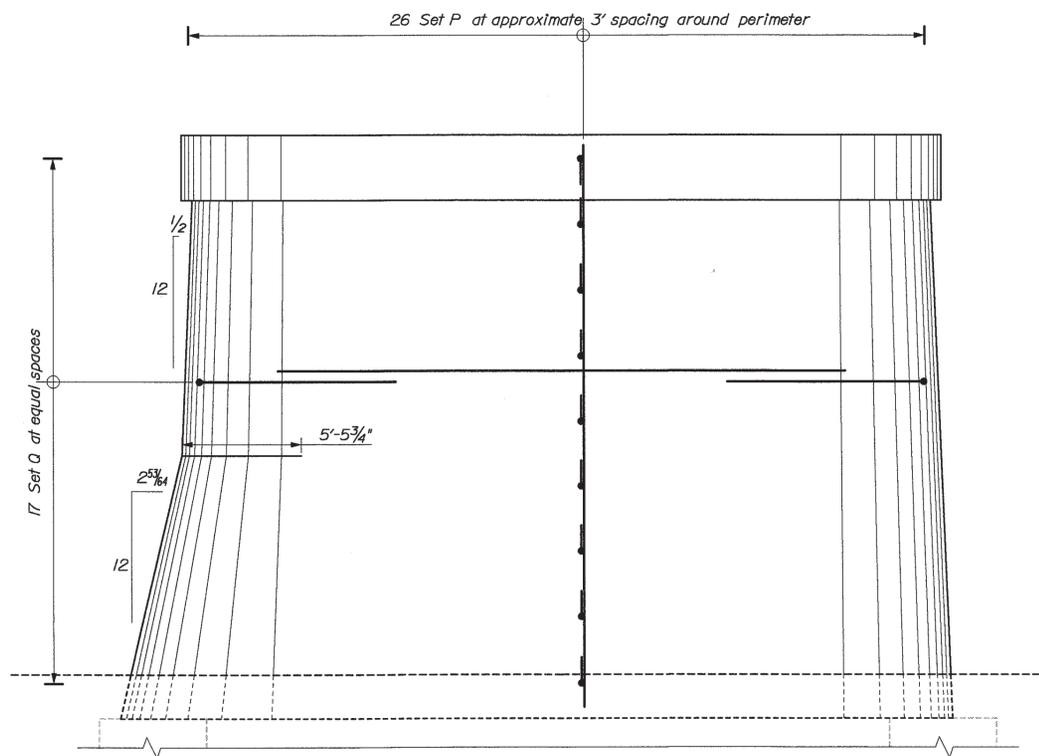
MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA  
KENNEBEC COUNTY  
**ABUTMENT No. 2 DETAILS**

SHEET NUMBER

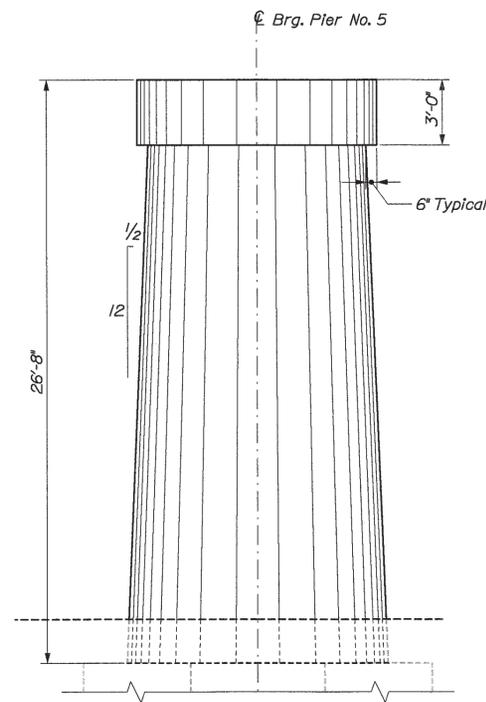
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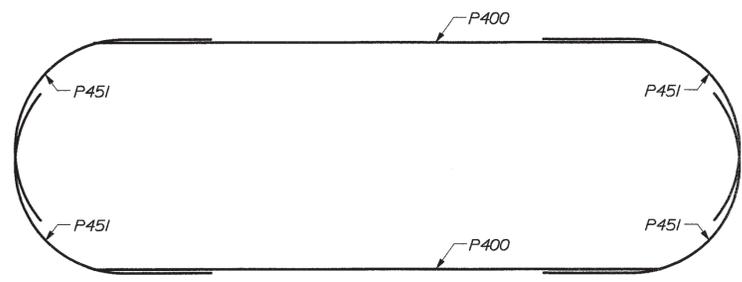
PIER NO. 5 PLAN



PIER NO. 5 ELEVATION



PIER NO. 5 RIGHT SIDE VIEW



SET Q

REBAR SETS	
Set P	9-P450, 1-P400
Set Q	2-P400, 4-P451

PIER NO. 5 REHAB PROCEDURE / NOTES

1. Saw cut a neat, straight line in the top of the concrete pier to a depth of 3", 1'-0" from the top corner of the concrete bearing surface.
2. Remove the concrete to a depth of 4" over exposed surfaces within 10" of horizontal and within 1'0" of the vertical surfaces.
3. Remove concrete over the all exposed surfaces within 15' of vertical to a minimum depth of 4" measured perpendicular to the face of concrete to the elevation of the top of the footing. Contractor shall be careful not to excavate concrete to the existing reinforcing steel over more than 20% of the surface area of the existing pier at one time. It should be noted that while location of existing reinforcement may vary from that shown on plans, the existing plans indicate 6 inches of cover to reinforcement.
4. Drill and anchor 234 P450 bars with 1'-0" embedment min. and place reinforcing steel with a minimum cover of 2 inches in accordance with standard specification section 503.
5. Cast new concrete to the exact lines and grade of the original pier and in accordance with all applicable specifications
6. New Concrete for the jacket shall be class LP.
7. Forms may be removed when concrete Jacket has reached a minimum strength of 3000 psi as demonstrated by cylinders cured with the concrete jacket, or once the curing period is over. Should the forms be removed prior to the full 7 day curing period is completed, defects shall be repaired immediately and an approved curing compound shall be applied in accordance with standard specification 502.10 subsection D.
8. It is anticipated that the contractor may need to modify the P451 bars in the field
9. Protective coating of concrete surfaces must be applied over all exposed surfaces of the pier down to 1'-0" below the ground line, and in accordance with applicable standard specifications. This work must be completed prior to the onset of winter.

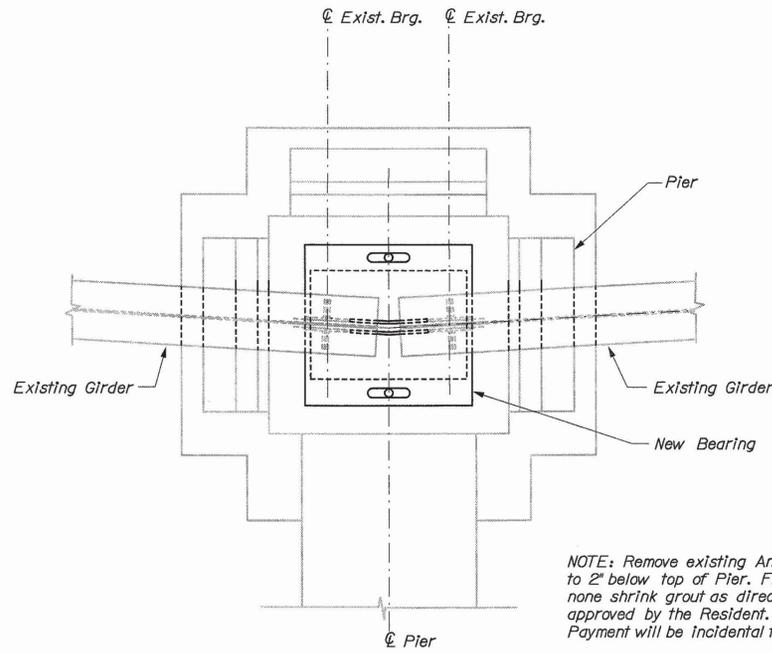
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BH-9327(100)X		PIN		9327.10	
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P.E. NUMBER		DATE		DATE	
PROJ. MANAGER	DESIGN-DETAILED	W/LF	BY	DATE	
CHECKED-REVIEWED	ETC	DMS		2/23/05	
DESIGN-DETAILED		RKC			
DESIGN-DETAILED		RKC			
REVISIONS 1		BM			
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					
MEMORIAL BRIDGE KENNEBEC RIVER CITY OF AUGUSTA KENNEBEC COUNTY			PIER NO. 5 REHABILITATION		
SHEET NUMBER			10		
			OF 46		

Date: 3/3/2005

Username: david.sullivan

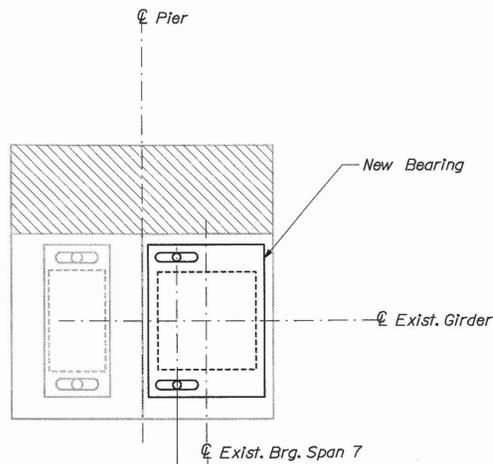
Division: BRIDGE

Filename: ...\\011\_Bearing\_Replacement.dgn



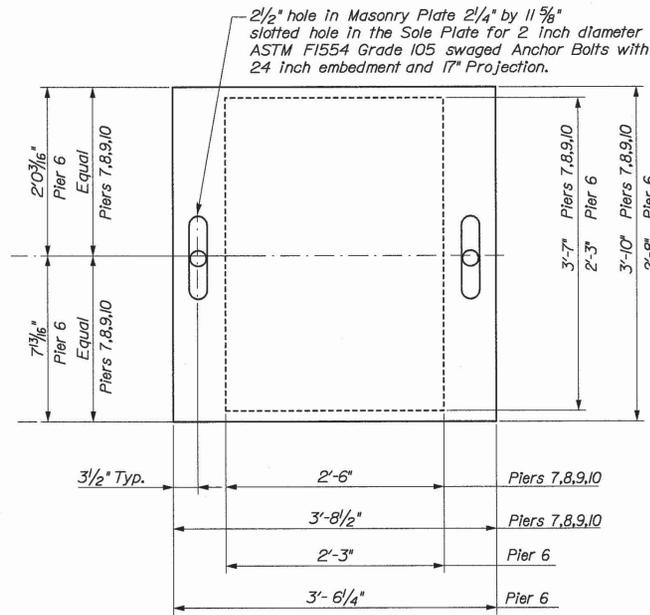
NOTE: Remove existing Anchor Bolts to 2' below top of Pier. Fill voids with none shrink grout as directed and approved by the Resident. Payment will be incidental to Item 523.08

**BEARING REPLACEMENT PLAN**  
Upstream Pier shown, Downstream Pier Similar  
Piers 7, 8, 9 & 10

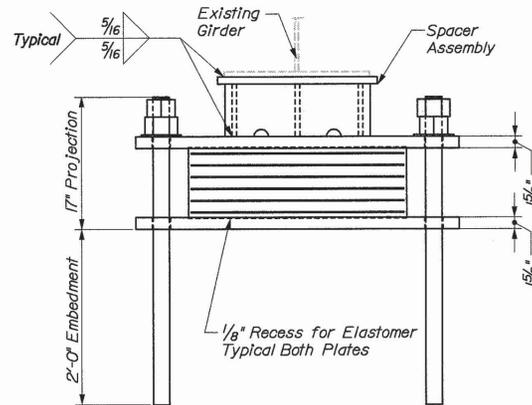


NOTE: Remove existing Anchor Bolts to 2' below top of Pier. Fill voids with none shrink grout as directed and approved by the Resident. Payment will be incidental to Item 523.08

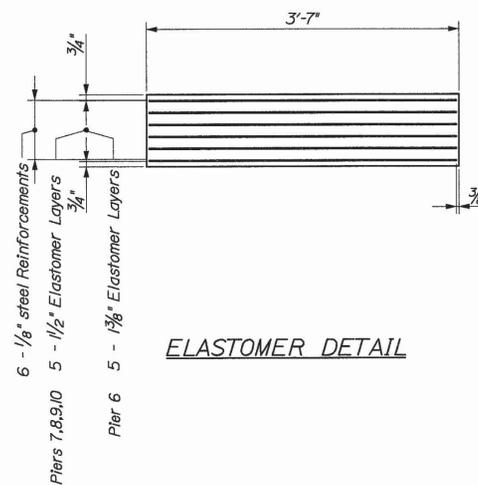
**BEARING REPLACEMENT PLAN PIER 6**  
Upstream Pier shown, Downstream Pier Similar



**TOP VIEW**



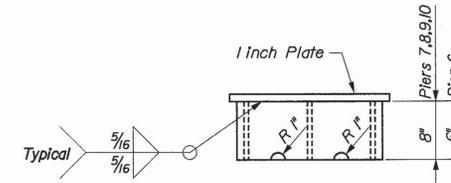
**ELEVATION**



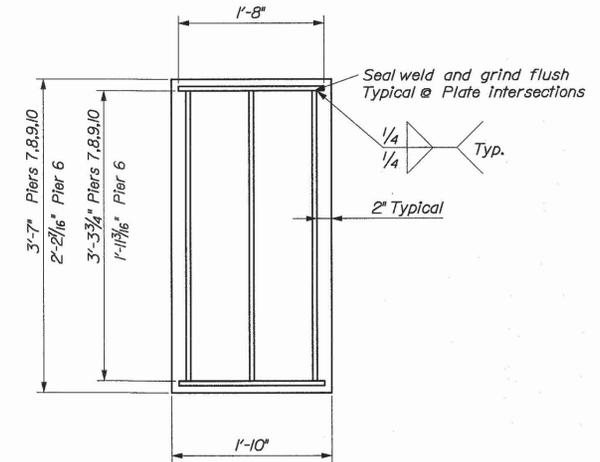
**ELASTOMER DETAIL**

**Elastomeric Bearing Notes**

1. Masonry and Sole Plates to be hot dipped galvanized in accordance with ASTM A123
2. All hardware to be Galvanized in accordance with ASTM A153
3. Install a 6" diameter by 1/4" thick plate washer with a 2-1/4 inch diameter hole at each anchor bolt location.
4. Install 2 heavy hex nuts on each anchor bolt. Install nuts only snug tight, disrupt threads once installation is complete.
5. The shear modulus shall be between 100 and 130 psi
6. Vulcanizing elastomer to Steel Plates shall be done during the primary mold process.
7. Bearings shall be covered during transit.
8. The Masonry Plate and Sole Plate shall meet the requirements of ASTM A36.
9. The Bearings are designed so that the Bearings may be installed when the Ambient Air Temperature is within the range of 30°F and 60°F.
10. The lane over the girder line on which the bearings are being installed shall be closed to traffic during the time the girders are supported on jacks.



**Spacer Assembly Elevation**



**Spacer Assembly Bottom View**

**Spacer Assembly Notes**

1. All Plates in spacer assembly are 5/8" Unless Noted Otherwise
2. All Plates in spacer assembly are ASTM A36 Steel
3. Spacer assembly is to be Galvanized in accordance with ASTM A123
4. Non Destructive Examination of welds will be 100% Visual Testing (VT).

STATE OF MAINE  
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BRIDGE NO. 5196

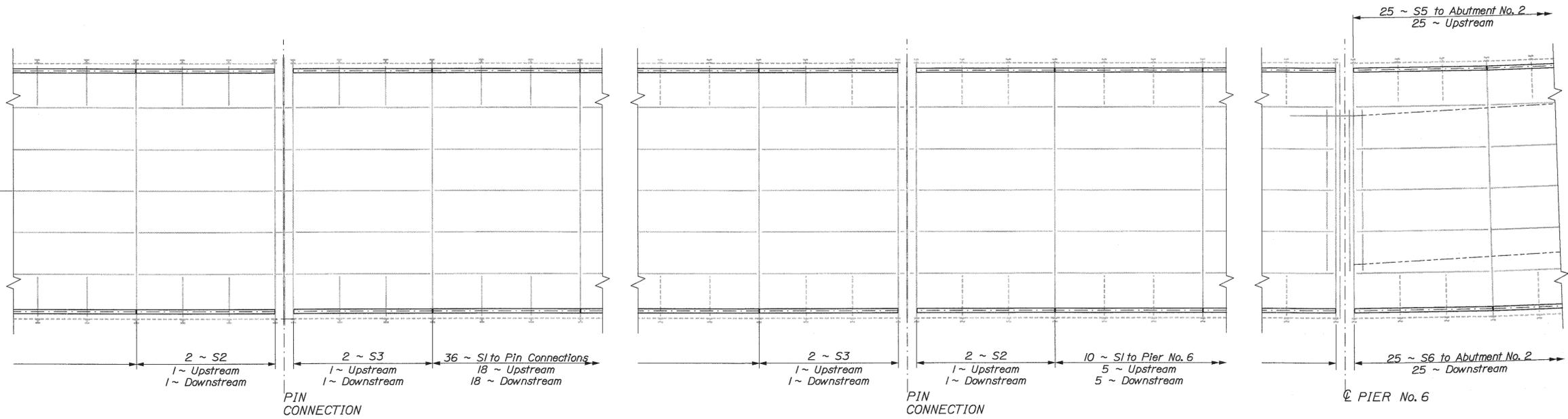
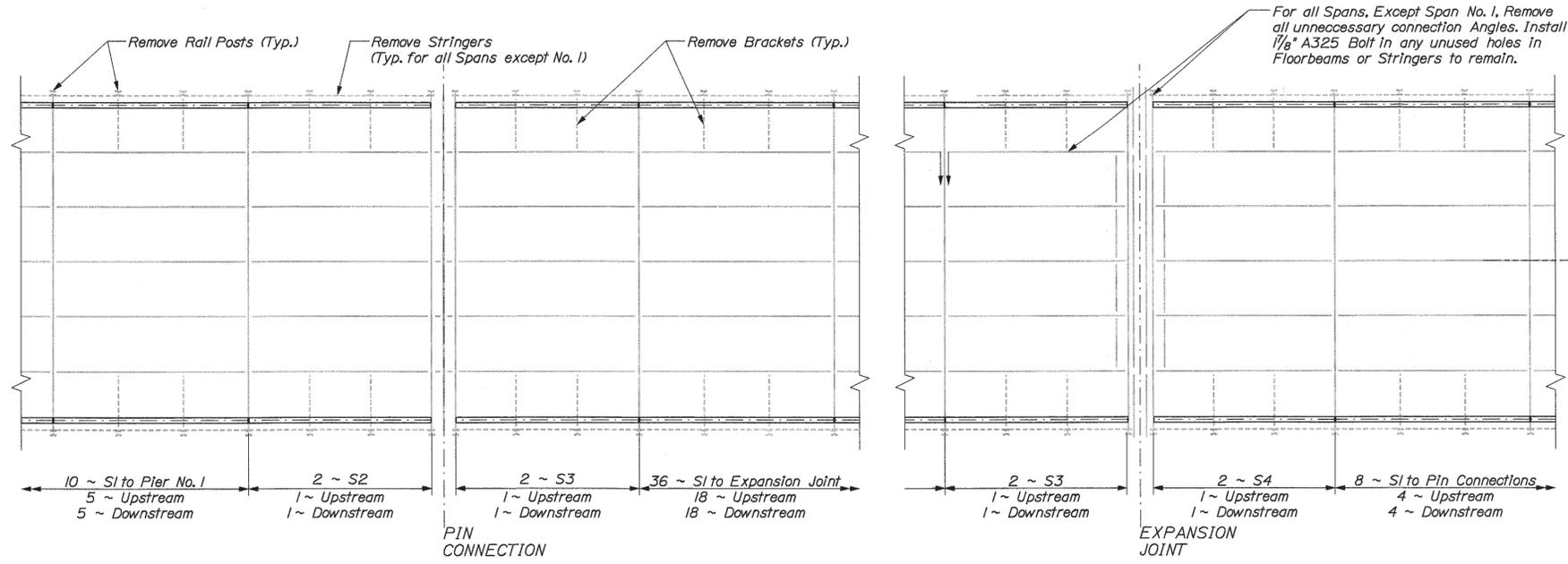
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BY: DMS, BKC, BBN  
DESIGNER: DMS  
CHECKED: BKC  
DESIGNED: BBN  
REVISIONS: 1, 2, 3, 4  
FIELD CHANGES

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA  
KENNEBEC COUNTY  
BEARING REPLACEMENT

SHEET NUMBER

11

OF 46



STATE OF MAINE  
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BH-9327(100)X

BRIDGE NO. 5196  
PIN 9327.10  
BRIDGE PLANS

DATE  
BY  
DESIGNED  
CHECKED-REVIEWED  
DESIGN-DETAILED  
REVISIONS 1  
REVISIONS 2  
REVISIONS 3  
FIELD CHANGES

2/23/05

DMS  
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RKC  
BIN

WLF

DATE

BY

DESIGNED

CHECKED-REVIEWED

DESIGN-DETAILED

REVISIONS 1

REVISIONS 2

REVISIONS 3

FIELD CHANGES

SIGNATURE

P.E. NUMBER

DATE

MEMORIAL BRIDGE  
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CITY OF AUGUSTA KENNEBEC COUNTY  
NEW STRINGER PLAN

SHEET NUMBER

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OF 46

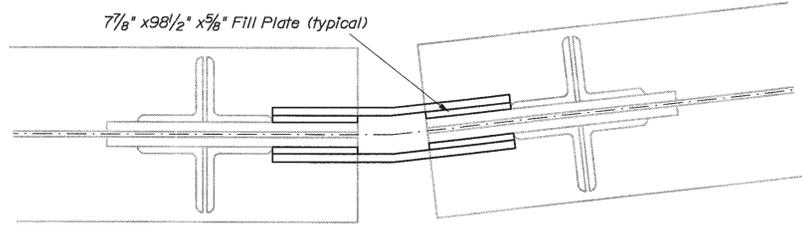


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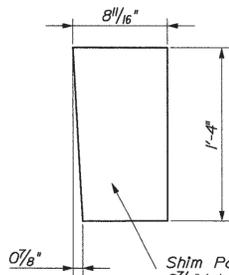
Username: david.sullivan

Division: BRIDGE

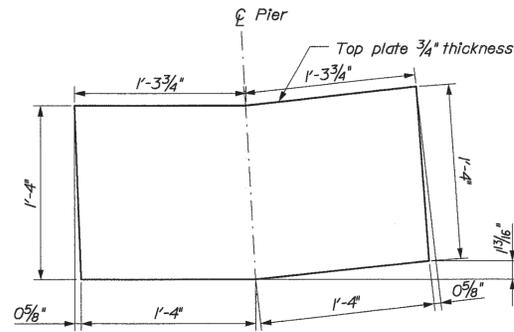
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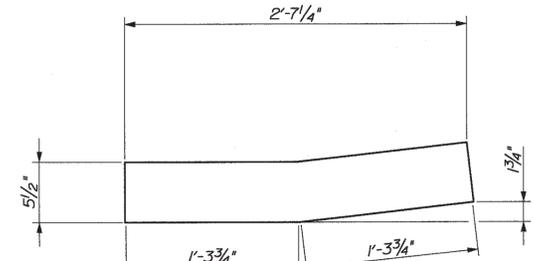
SECTION A-A



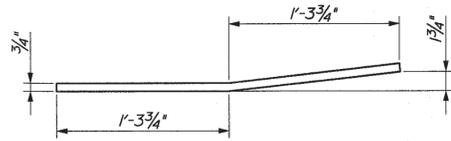
TOP GIRDER OUTSIDE SHIM PLATES



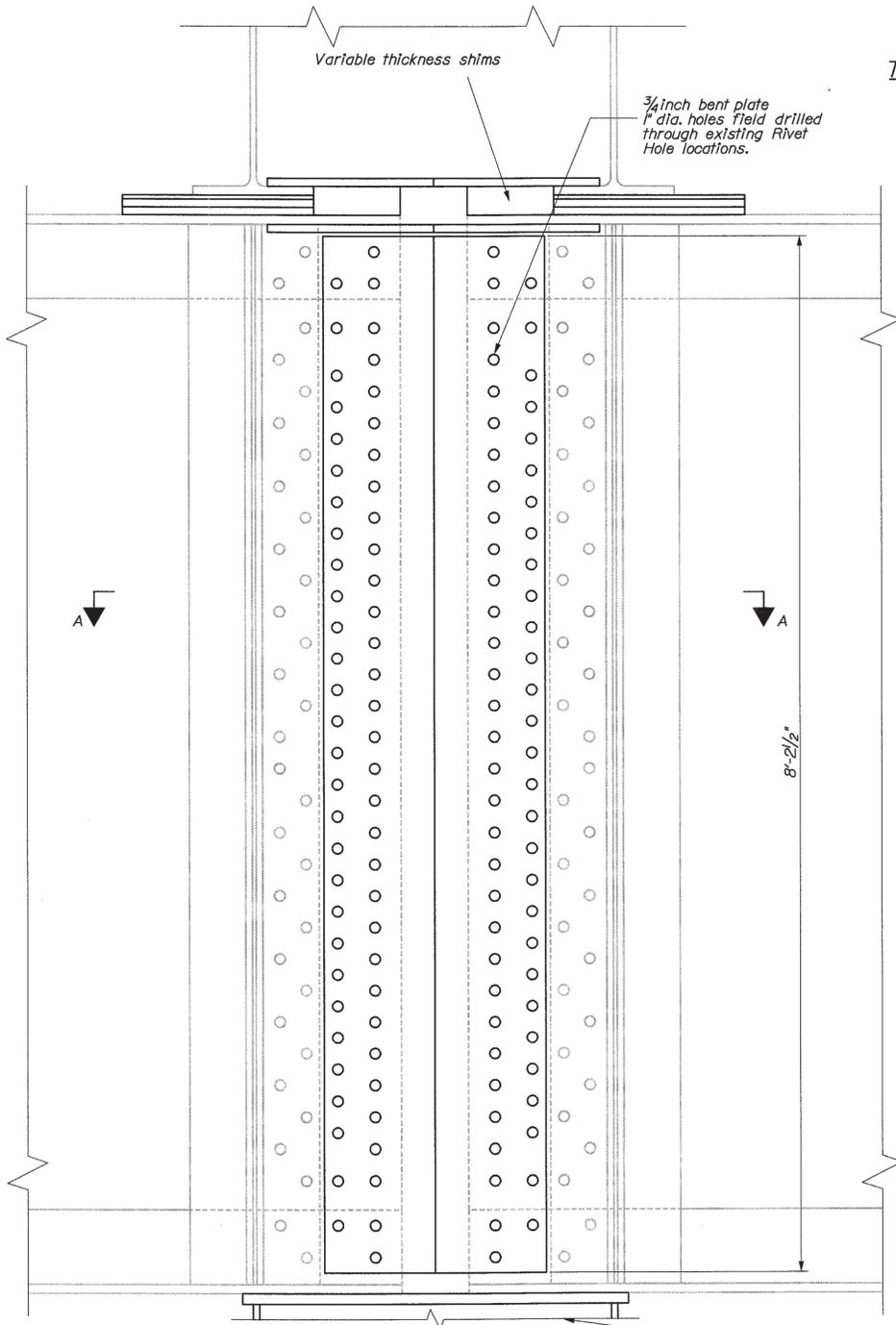
TOP GIRDER OUTSIDE SPLICE PLATE



TOP GIRDER INSIDE SPLICE PLATE  
TWO REQUIRED PER SPLICE

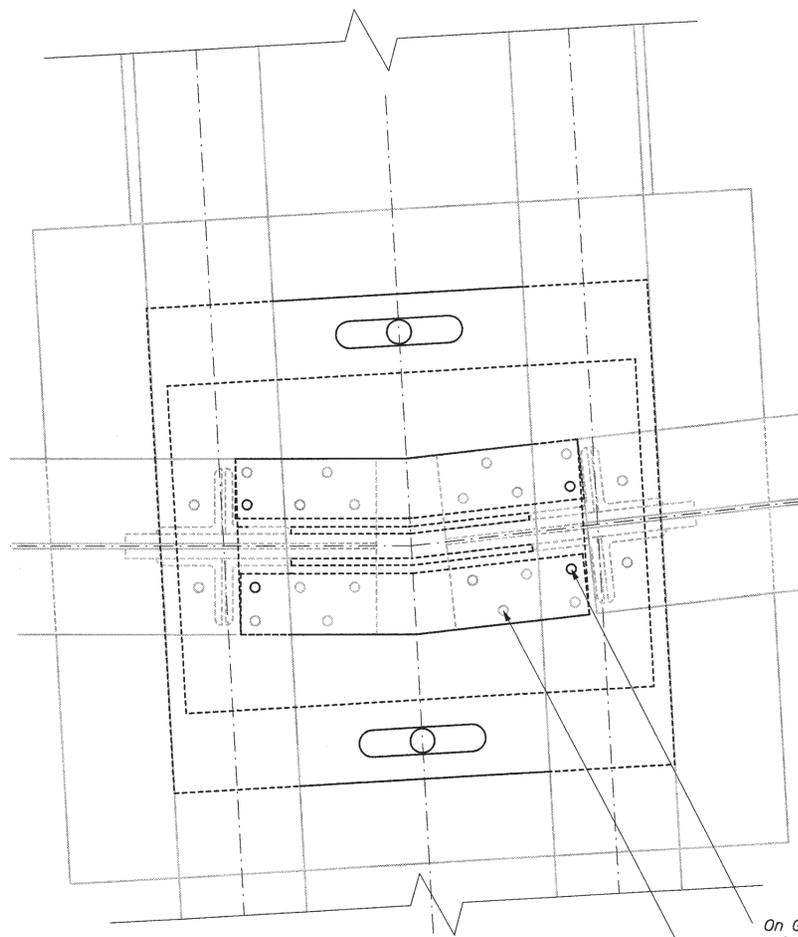


PLAN WEB SPLICE PLATE



ELEVATION WEB SPLICE PLATE

Spacer assembly  
reference bearing  
replacement sheet



PLAN VIEW OF GIRDER SPLICE

Pier seven downstream girders shown upstream similar  
(Typical @ Piers 7,8,9,10)

NOTES

1. All steel shall be painted in accordance with special provision 506. Areas within 8" of each vertical edge of the web splice and within 12 inches of the flange splice plate shall be considered to be faying surfaces or within 3" of the bolt hole for coating purposes.
2. All steel for use as splice plates shall be astm a36 grade.
3. All bends required in web splice shall be made cold.
4. Contractors attention should be brought to the fact that all paint on the existing structure is lead based.
5. All paint on the existing steel which is between faying surfaces of the splices shall be removed and disposed of in accordance with all applicable regulations. No direct payment shall be made for this work, but it shall be considered incidental to item \*504.73 remove, modify, and reset structural steel.
6. All holes 1" diameter unless noted otherwise.
7. All fasteners shall be 7/8" diameter a325 bolts with a hardened washer under both the bolt head and nut.
8. All new steel exposed in the final assembly and all existing steel where the Contractors operations have compromised the existing coating shall be intermediate and top coated in the field.
9. All holes to be field drilled and all splicing work shall be done and progress in accordance with the provisions of special provision 504.

On Girders where there would be only four existing rivet hole locations penetrating the new splice plate Drill a fifth hole 3" from all other holes and maintaining 1/4" minimum edge distance.

Remove existing rivets and use holes as template as per S.P. 504

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BRIDGE PLANS

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CHECKED-REVIEWED	2/23/05	RKC	RKC	SIGNATURE
DESIGN-DETAILED		RKC	RKC	P.E. NUMBER
DESIGN-DETAILED		EJN	EJN	DATE
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
GIRDER SPLICING

SHEET NUMBER

14

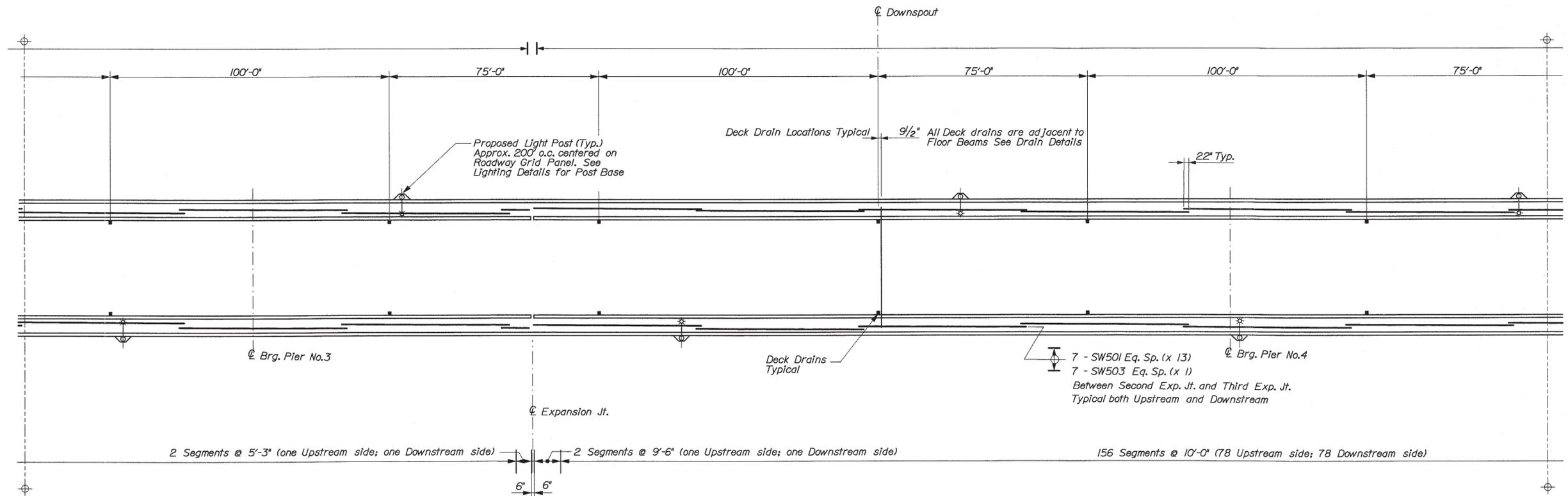
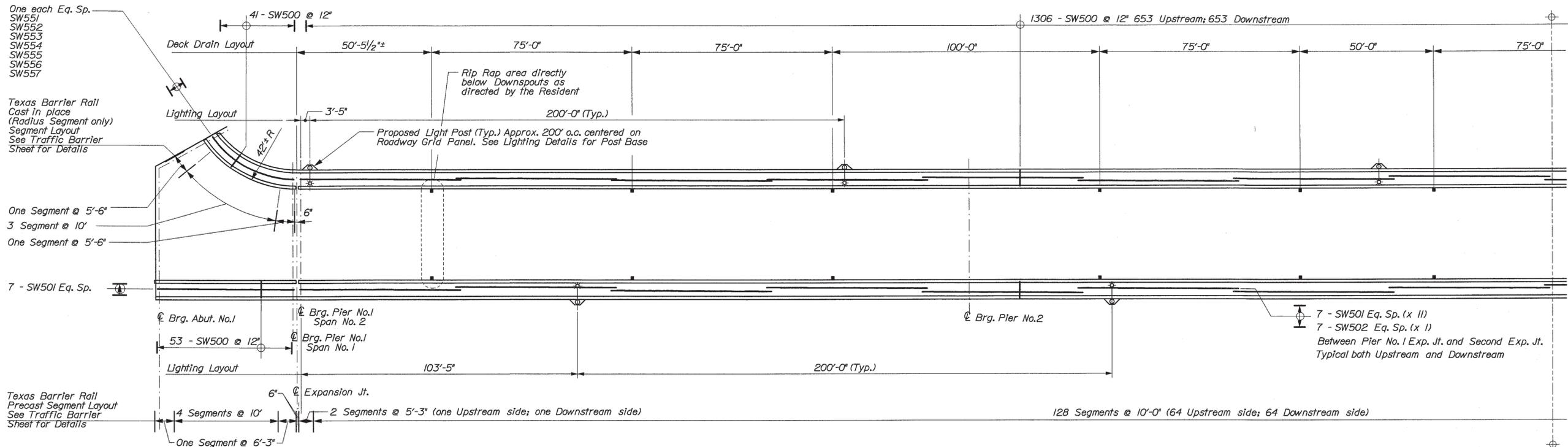
OF 46

Date: 3/3/2005

Username: david.sullivan

Division: BRIDGE

Filename: ...015\_Superstructure\_Plan1.dgn



PLAN SHOWING LAYOUT OF LIGHTING, DECK DRAINS AND TEXAS BARRIER SEGMENTS

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BH-9327(100)X  
PIN 9327.10  
BRIDGE NO. 5196  
BRIDGE PLANS

PROJ. MANAGER  
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DESIGN-DETAILS  
DESIGN-DETAILS  
REVISIONS 1  
REVISIONS 2  
REVISIONS 3  
REVISIONS  
FIELD CHANGES

DATE  
2/23/05

BY  
DMS  
BKC  
BKC  
BKN

WLF  
ETC  
ETC  
ETC

SIGNATURE  
P.E. NUMBER  
DATE

MEMORIAL BRIDGE  
KENNEBEC RIVER  
KENNEBEC COUNTY  
CITY OF AUGUSTA  
SUPERSTRUCTURE PLAN

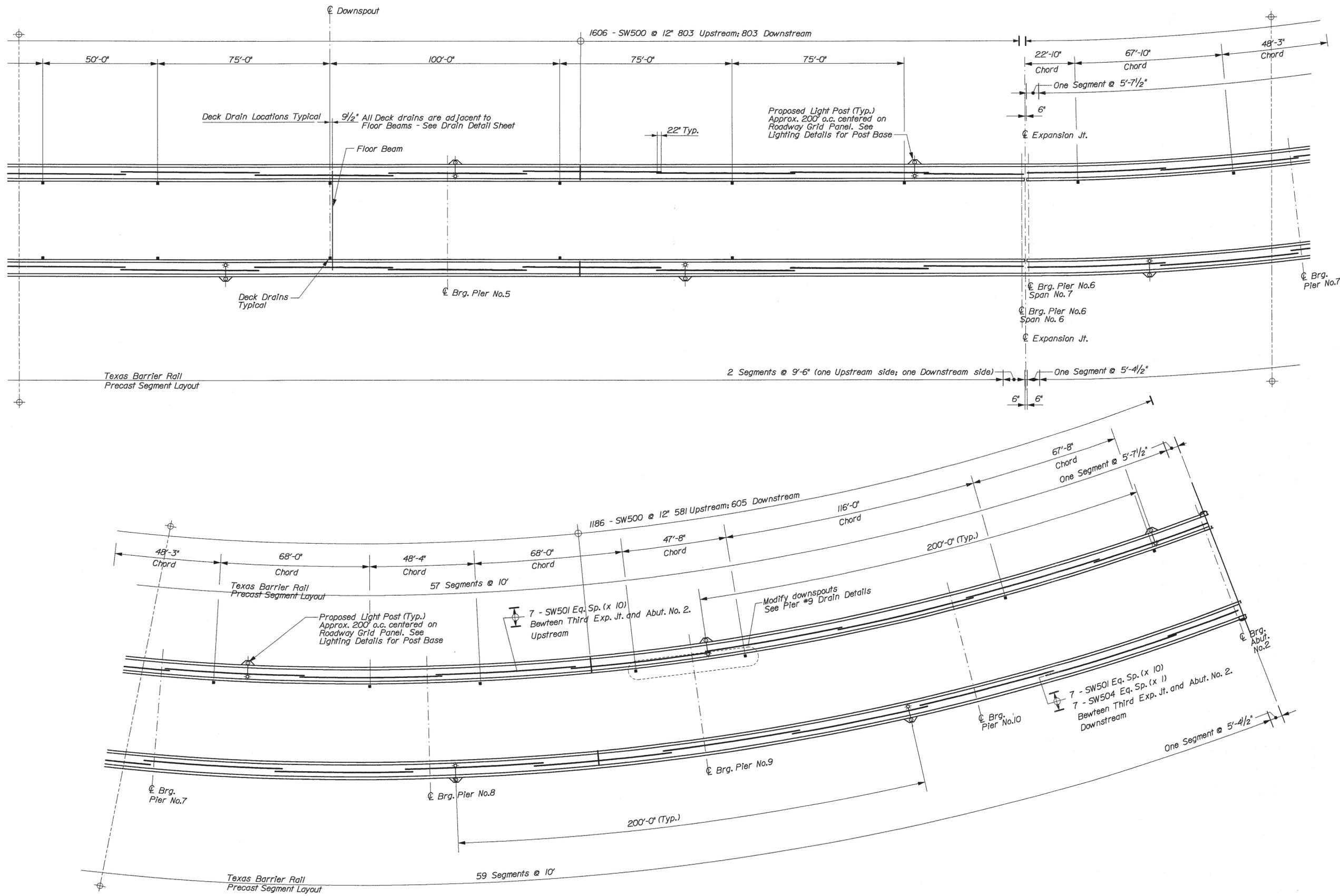
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OF 46

Date: 3/3/2005

Username: david.sullivan

Division: BRIDGE

Filename: ... \016\_Superstructure\_Plan2.dgn



PLAN SHOWING LAYOUT OF LIGHTING, DECK DRAINS AND TEXAS BARRIER SEGMENTS

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 DEPARTMENT OF TRANSPORTATION  
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 PIN 9327.10  
 BRIDGE PLANS

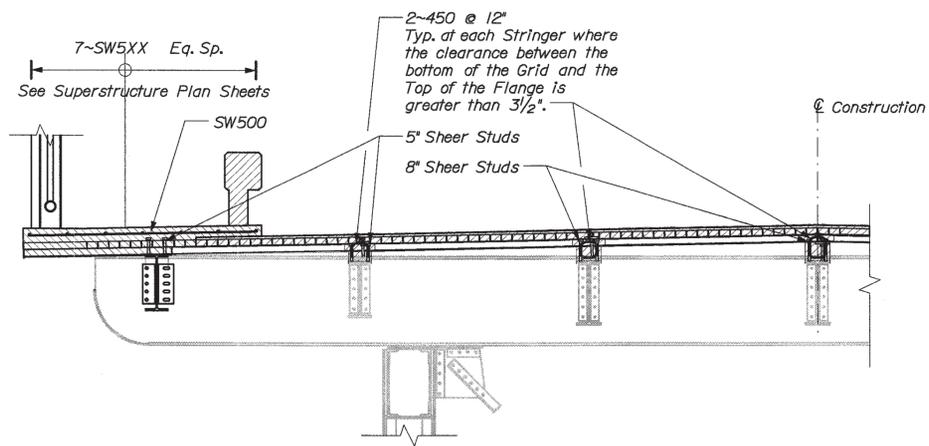
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BY	P.E. NUMBER
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REVISIONS 2	DATE
REVISIONS 3	DATE
REVISIONS 4	DATE
FIELD CHANGES	DATE

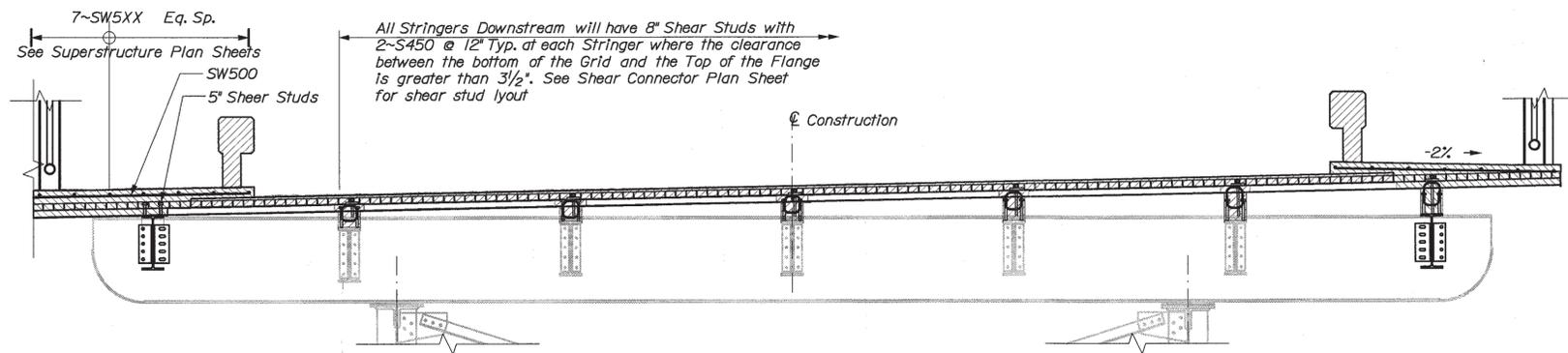
MEMORIAL BRIDGE  
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 KENNEBEC COUNTY  
 CITY OF AUGUSTA  
 SUPERSTRUCTURE PLANS

SHEET NUMBER  
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 OF 46

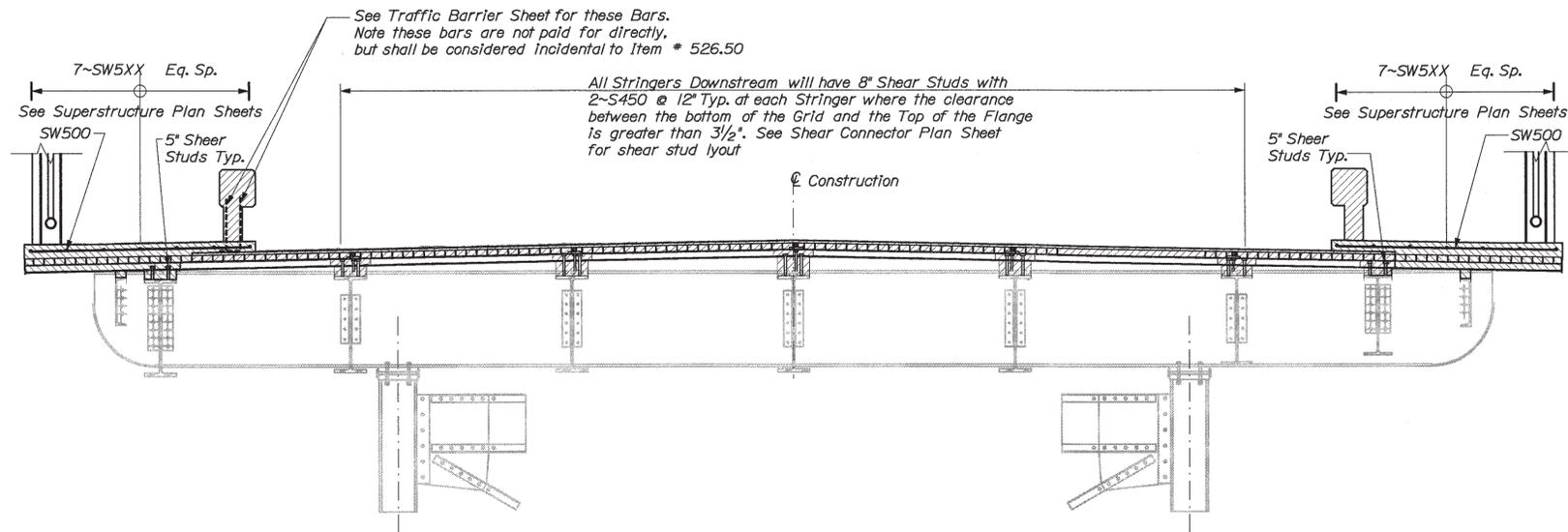
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 Date: 3/3/2005



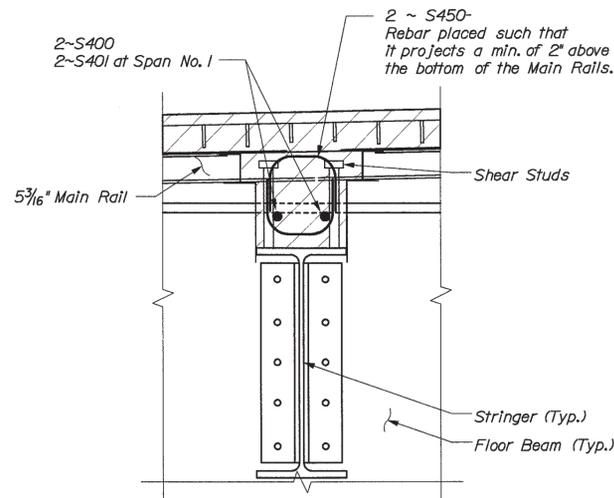
**TRUSS SECTION HAUNCH LAYOUT**  
 SYMMETRICAL ABOUT  $\phi$  CONSTRUCTION



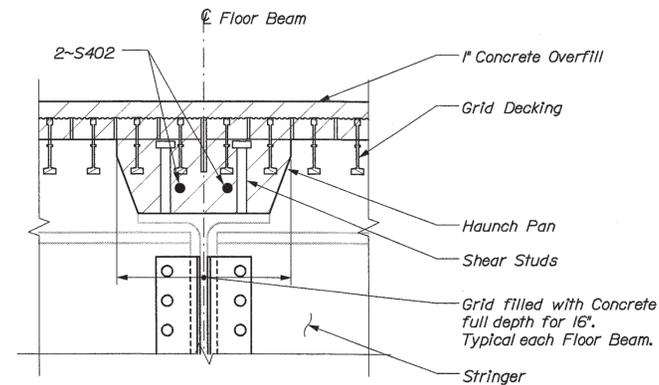
**GIRDER SECTION HAUNCH LAYOUT**  
 REBAR REMOVED FOR CLARITY



**SPAN No. 1 SECTION HAUNCH LAYOUT**  
 REBAR REMOVED FOR CLARITY



**TYPICAL HAUNCH DETAIL**



**TYPICAL FLOOR BEAM HAUNCH DETAIL**

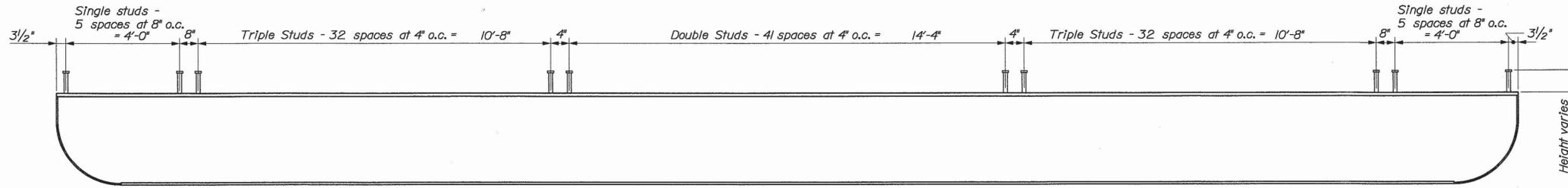
NOTE:  
 Rebar to be Cut to Length In the Field.

STATE OF MAINE  
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 BH-9327(100)X  
 BRIDGE NO. 5196  
 PIN 9327.10  
 BRIDGE PLANS

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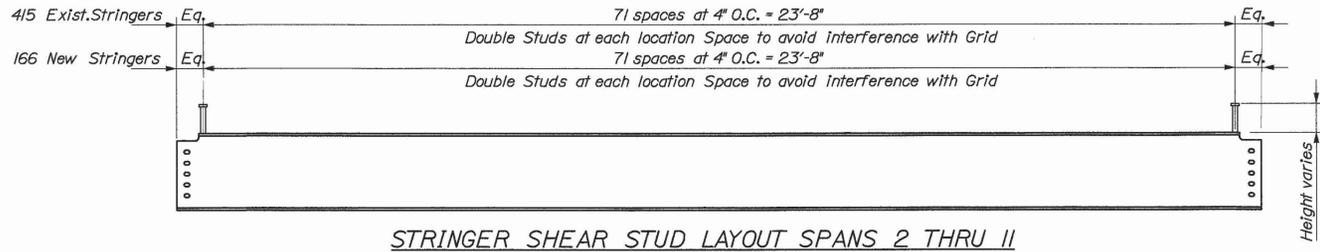
MEMORIAL BRIDGE  
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 CITY OF AUGUSTA KENNEBEC COUNTY  
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 17  
 OF 46



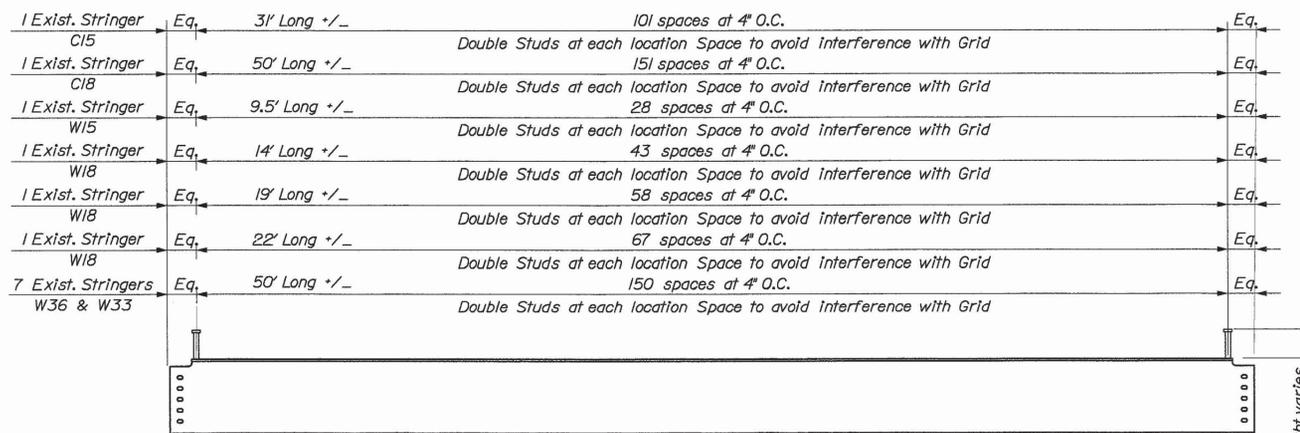
**FLOOR BEAM SHEAR STUD LAYOUT**

93 Floor Beams (existing) to receive 294 studs each = 27,342 Total  
 Stud Height varies See Superstructure Details Sheet for requirements



**STRINGER SHEAR STUD LAYOUT SPANS 2 THRU II**

581 Stringers (new and exist.) to receive 83,664 studs Total  
 Stud Height varies See Superstructure Details Sheet for requirements



**STRINGER SHEAR STUD LAYOUT SPAN I**

13 Stringers (exist.) to receive 3,022 studs Total  
 Stud Height varies See Superstructure Details Sheet for requirements

STATE OF MAINE  
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 BRIDGE PLANS

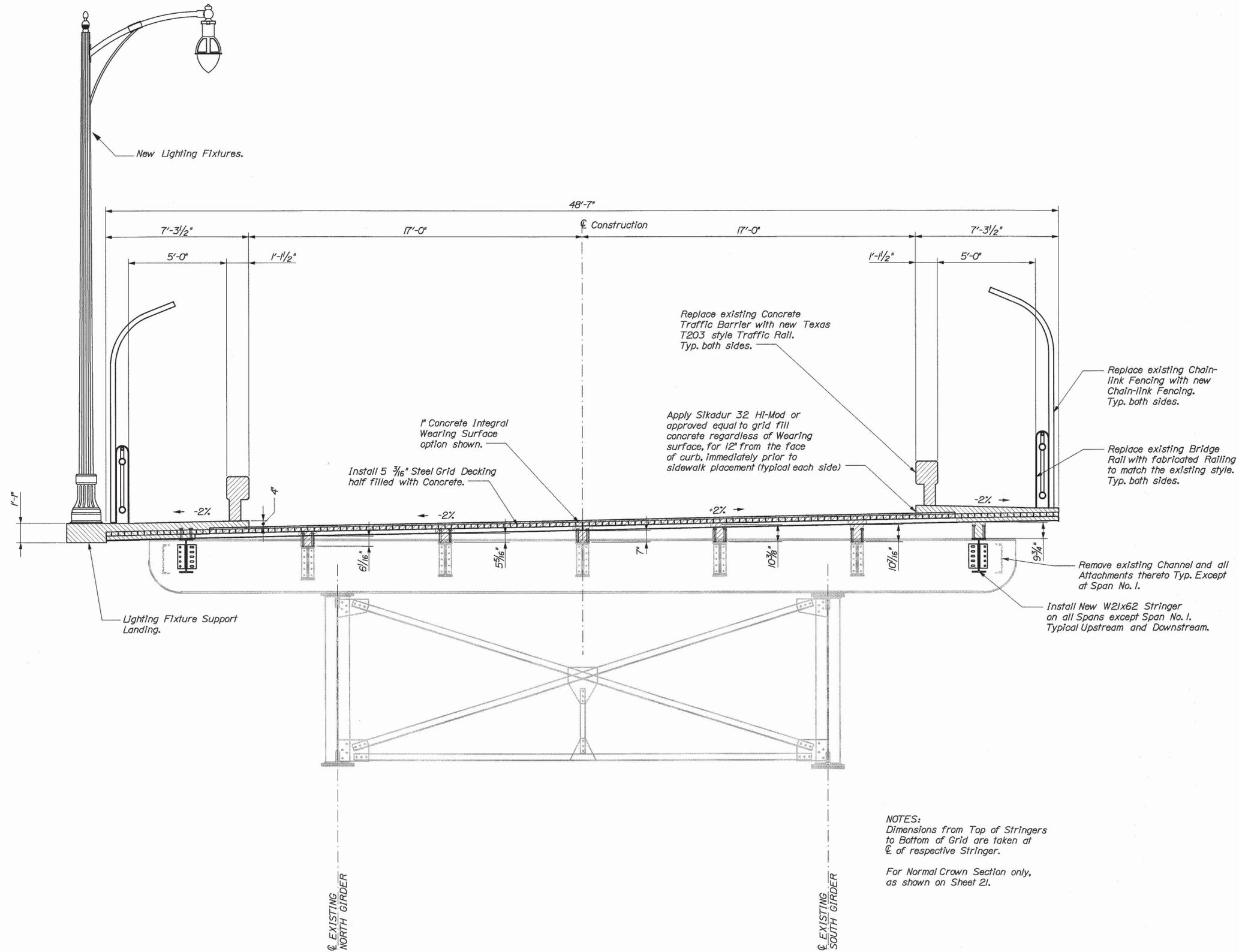
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DESIGN-DETAIL D03		BJN	P.E. NUMBER
REVISIONS 1			DATE
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REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MEMORIAL BRIDGE  
 KENNEBEC RIVER  
 CITY OF AUGUSTA KENNEBEC COUNTY  
 SHEAR CONNECTOR PLAN

SHEET NUMBER  
**18**  
 OF 46

Filename: ... \018\_Shear\_Connector\_Plan.dgn  
 Division: BRIDGE  
 Username: david.sullivan  
 Date: 3/3/2005





NOTES:  
 Dimensions from Top of Stringers to Bottom of Grid are taken at  $\phi$  of respective Stringer.  
 For Normal Crown Section only, as shown on Sheet 21.

TYPICAL BRIDGE SECTION  
 ~ GIRDER SPAN ~

STATE OF MAINE  
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 PIN 9327.10  
 BRIDGE PLANS

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DESIGN-DETAILED		RKC	
DESIGN-DETAILED		BN	
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MEMORIAL BRIDGE  
 KENNEBEC RIVER  
 CITY OF AUGUSTA  
 KENNEBEC COUNTY  
 TYPICAL GIRDER FLOOR BEAM

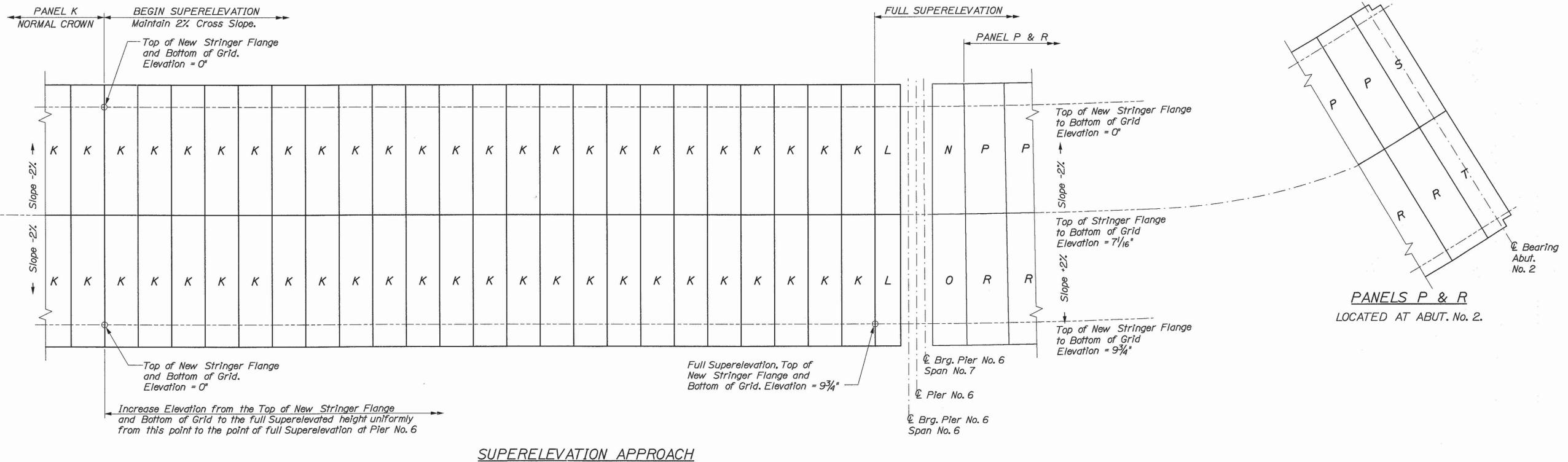
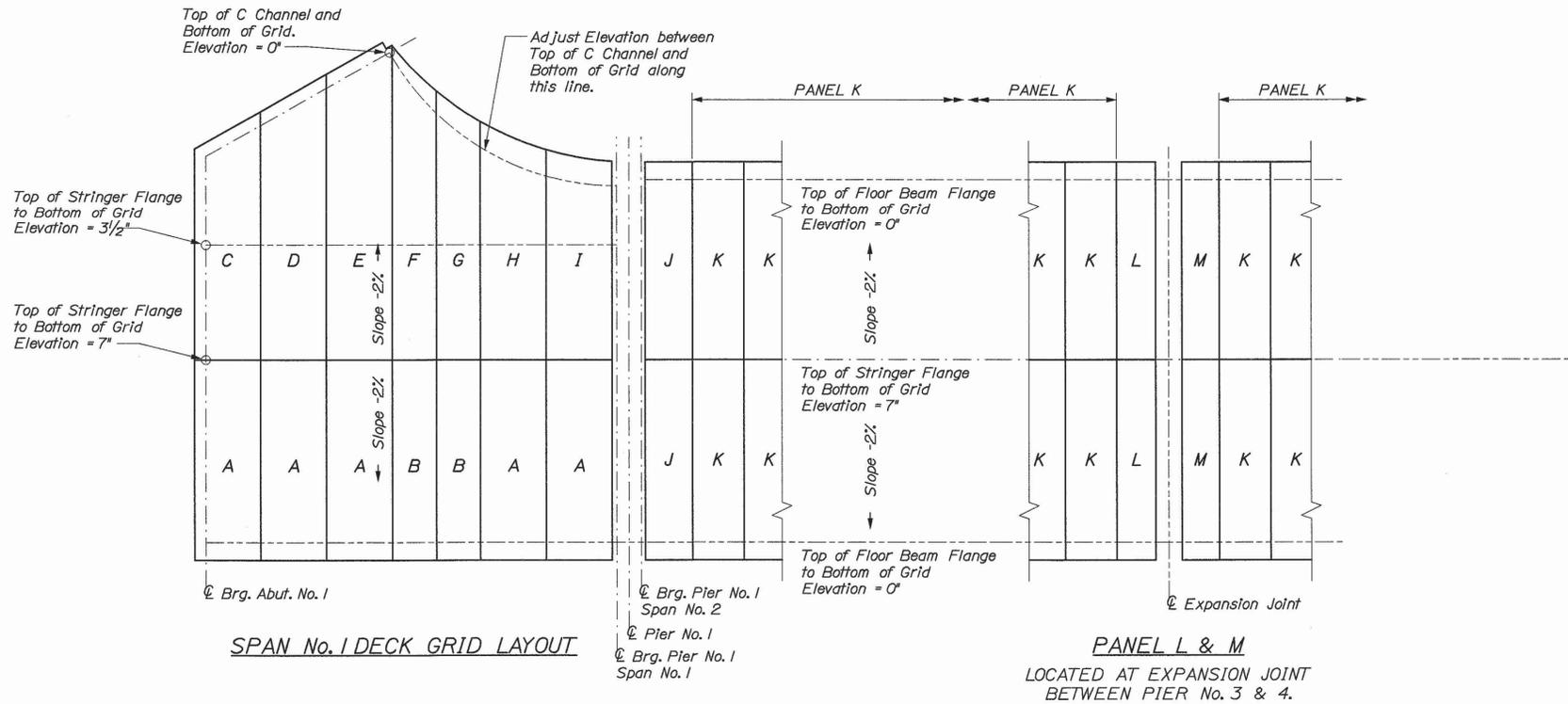
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 20  
 OF 46

Date: 3/3/2005

Username: david.sullivan

Division: BRIDGE

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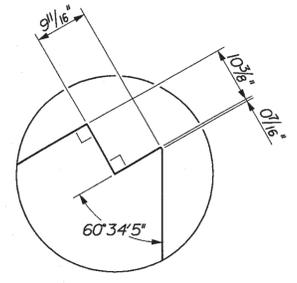
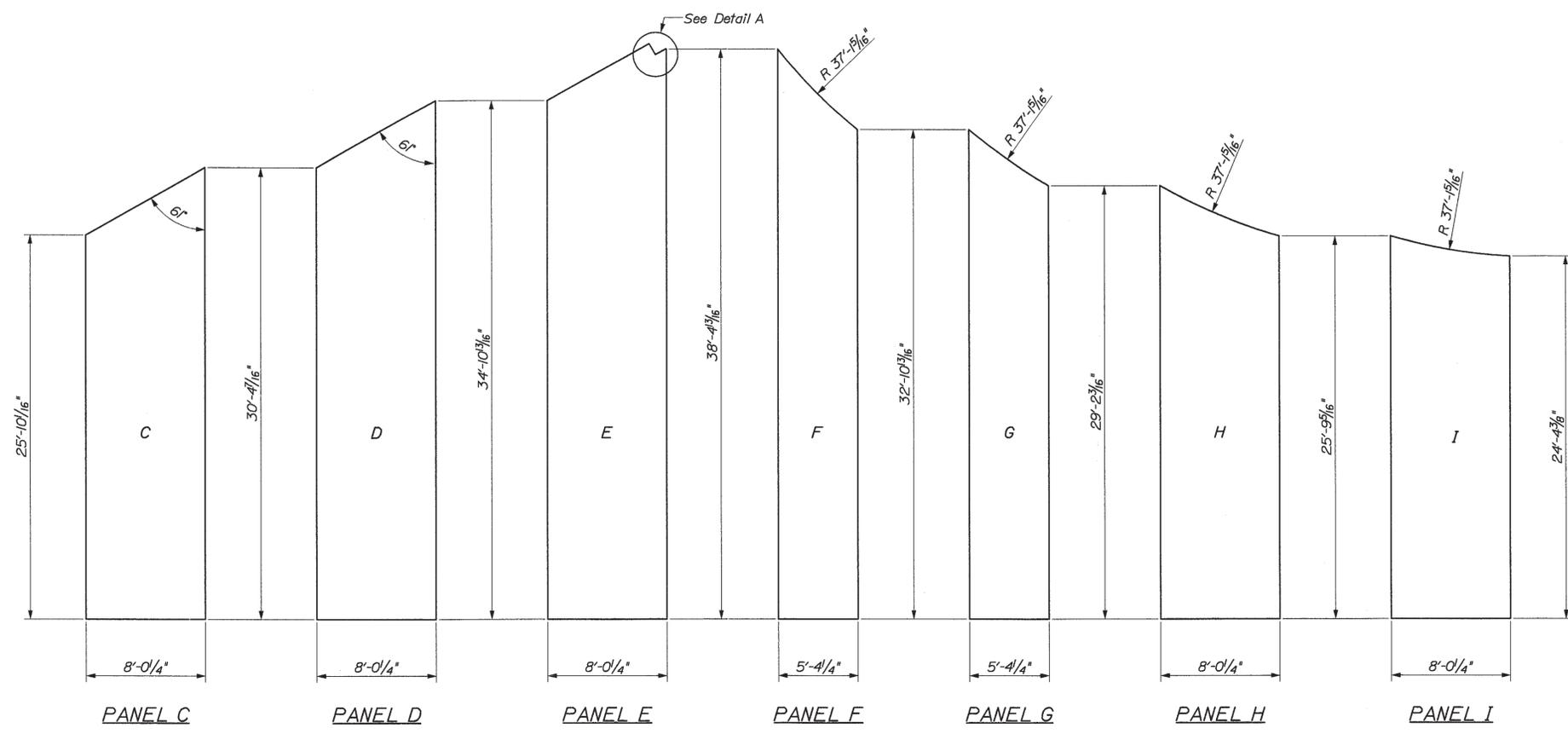


STATE OF MAINE  
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BH-9327(100)X  
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BRIDGE NO. 5196

DATE 2/23/05  
BY DMS, RKC, BN  
SIGNATURE  
P.E. NUMBER  
DATE

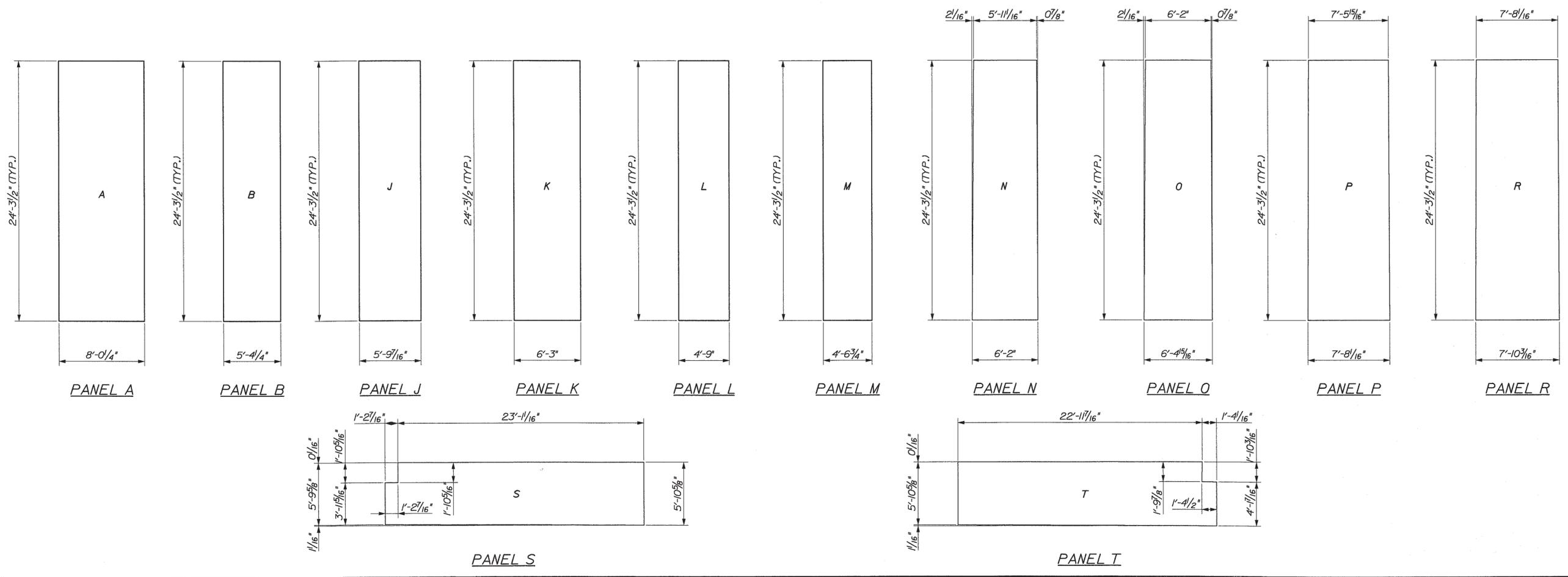
MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
DECK PANEL LAYOUT

SHEET NUMBER  
**21**  
OF 46



PANEL E DETAIL

Panel	Size	Quantity
A	8'-1/4" x 24'-3 1/2"	5
B	5'-4 1/4" x 24'-3 1/2"	2
C	See Detail Sheet	1
D	See Detail Sheet	1
E	See Detail Sheet	1
F	See Detail Sheet	1
G	See Detail Sheet	1
H	See Detail Sheet	1
I	See Detail Sheet	1
J	5'-9 7/16" x 24'-3 1/2"	2
K	6'-3" x 24'-3 1/2"	456
L	4'-9" x 24'-3 1/2"	4
M	4'-6 3/4" x 24'-3 1/2"	2
N	See Detail Sheet	1
O	See Detail Sheet	1
P	See Detail Sheet	76
R	See Detail Sheet	76
S	See Detail Sheet	1
T	See Detail Sheet	1



STATE OF MAINE  
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BRIDGE PLANS

PROJECT: MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY

DECK PANEL DETAILS

SHEET NUMBER  
**22**  
OF 46

DATE	BY	WLF	PROJ. MANAGER	DESIGN-DETAILED	ETC	DESIGNED	BY	DATE
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				DESIGNED	REVIEWED	BKC		
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				REVISIONS 2				
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				REVISIONS 4				
				FIELD CHANGES				

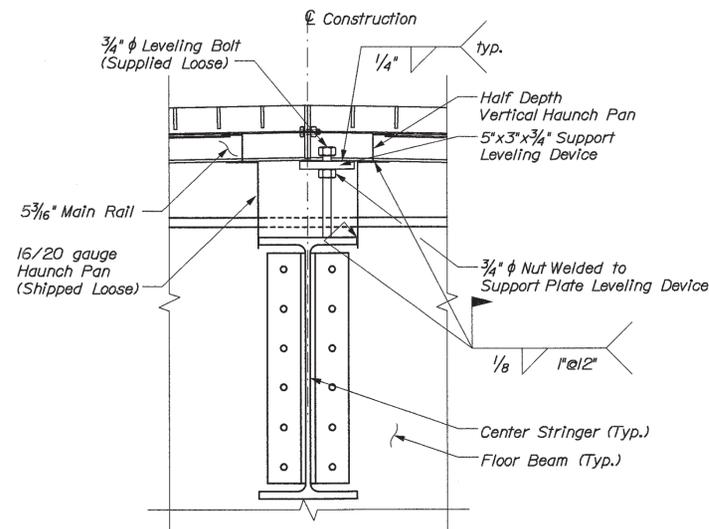
SIGNATURE  
P.E. NUMBER  
DATE

Date: 3/3/2005

Username: david.sullivan

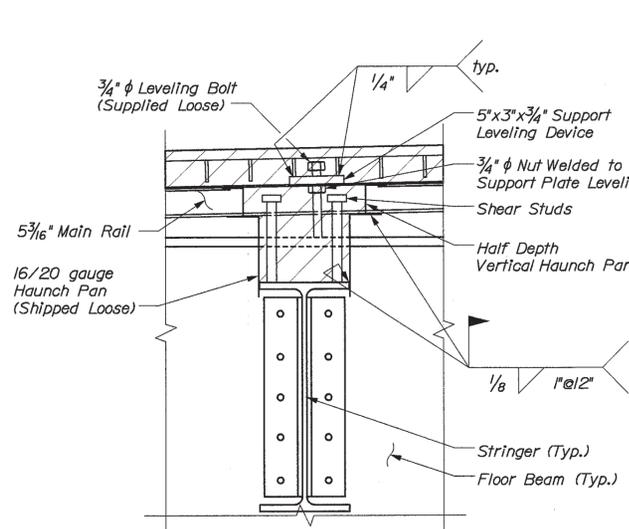
Division: BRIDGE

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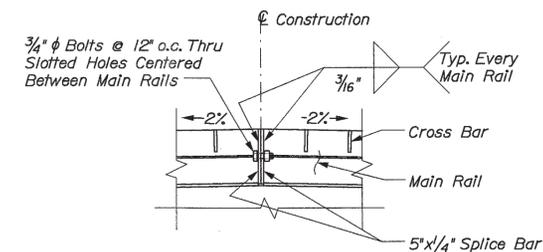


**TYPICAL CENTER STRINGER LEVELING DEVICE DETAIL**

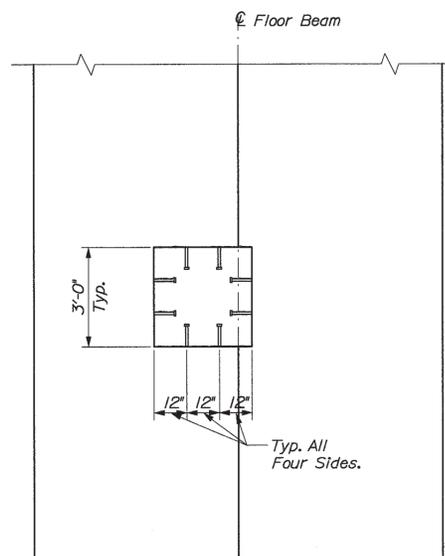
Shear Studs and Rebar not shown for Clarity



**TYPICAL STRINGER LEVELING DEVICE DETAIL**

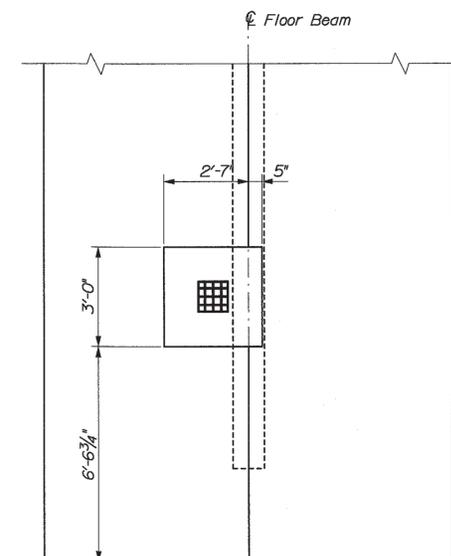


**GRID CONNECTION DETAIL**



**STUD LOCATIONS FOR DRAIN CUT OUT**

Typical at All Drain Locations. Generic Panels Shown.



**PANEL CUT OUT FOR DRAINS**

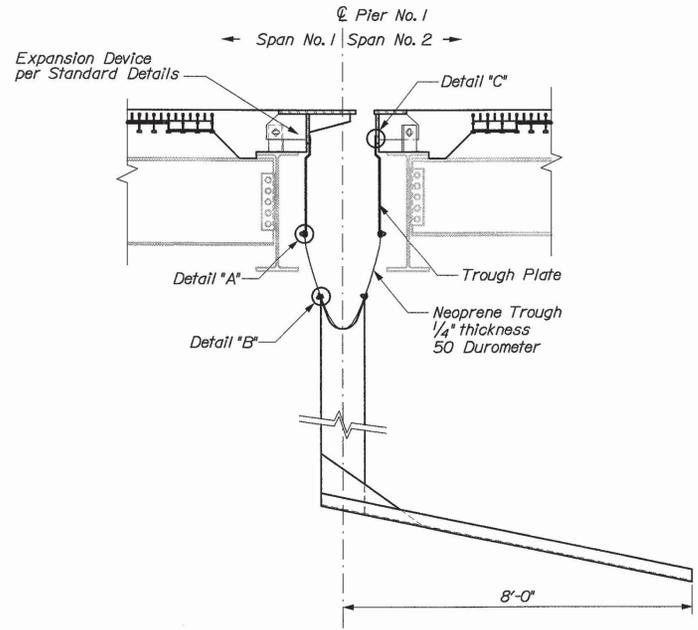
Typical at All Drain Locations. Generic Panels Shown.

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 BH-9327(100)X  
 BRIDGE NO. 5196  
 PIN 9327.10  
 BRIDGE PLANS

PROJ. MANAGER	DATE
CHECKED/REVIEWED	BY
DESIGN/DETAILS	WLF
DESIGN/DETAILS	DMS
DESIGN/DETAILS	BKC
DESIGN/DETAILS	BN
REVISIONS 1	SIGNATURE
REVISIONS 2	P.E. NUMBER
REVISIONS 3	DATE
REVISIONS 4	
FIELD CHANGES	

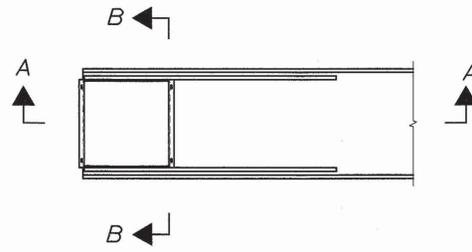
MEMORIAL BRIDGE  
 KENNEBEC RIVER  
 CITY OF AUGUSTA KENNEBEC COUNTY  
 STEEL GRID DETAILS

SHEET NUMBER  
**23**  
 OF 46



**TROUGH AND DOWNSPOUT DETAIL**

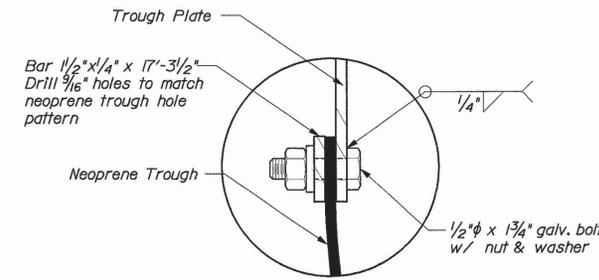
See sheet "Trough Details-Link" for Trough and Trough Plate details



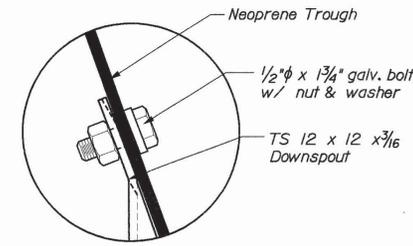
**DOWNSPOUT PLAN - PIER NO. 1**

**FIELD WELDING NOTES**

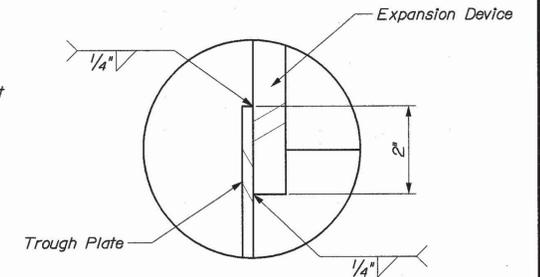
1. Remove galvanizing in areas where field welding is required.
2. Coat all field welds with two coats of zinc-rich paint (cold-galv)
3. Top-coat areas of existing steel where existing steel coating was compromised to match existing color.



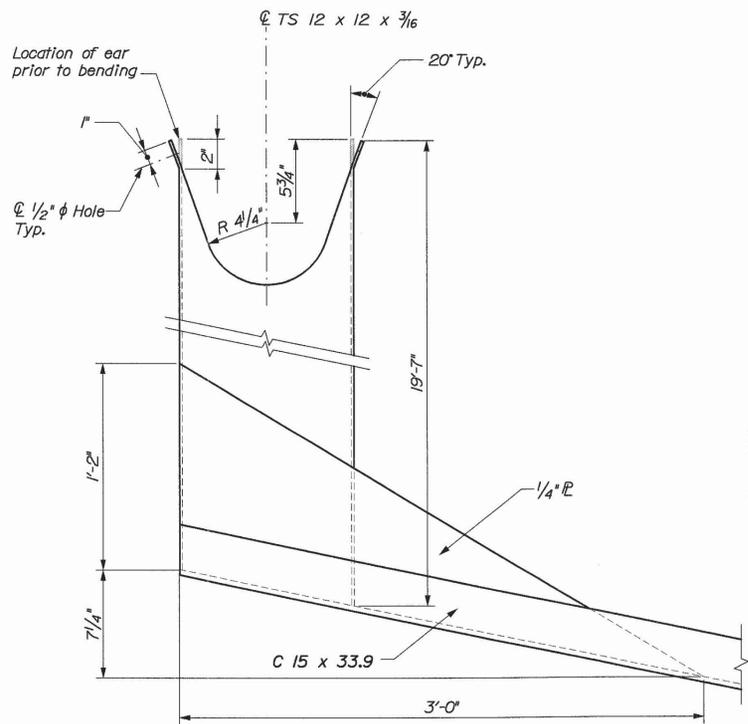
**DETAIL "A"**



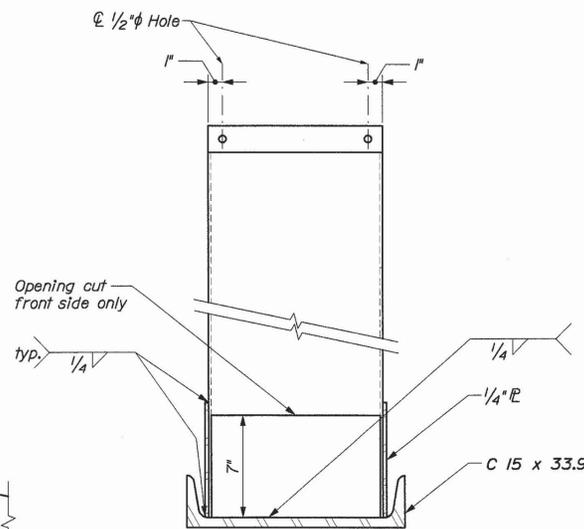
**DETAIL "B"**



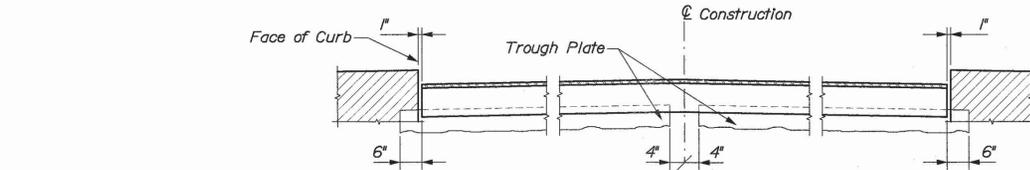
**DETAIL "C"**



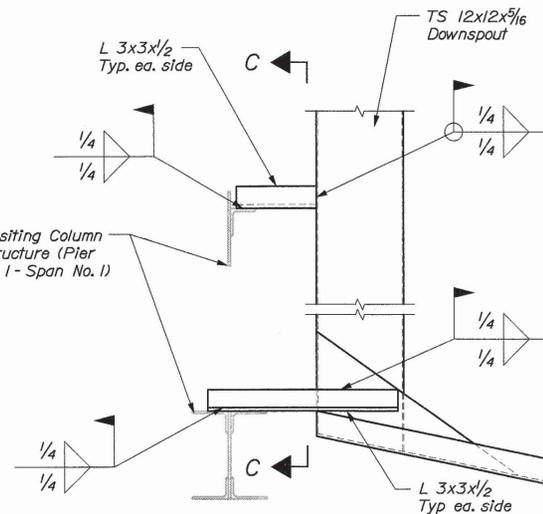
**SECTION A-A**



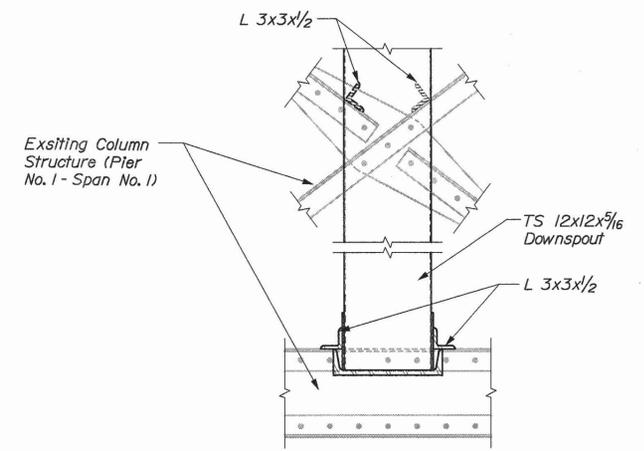
**SECTION B-B**



**PARTIAL EXPANSION JOINT ELEVATION**



**DOWNSPOUT CONNECTION**



**SECTION C-C**

STATE OF MAINE	BRIDGE NO. 5196
DEPARTMENT OF TRANSPORTATION	PIN 9327.10
BH-9327(100)X	BRIDGE PLANS

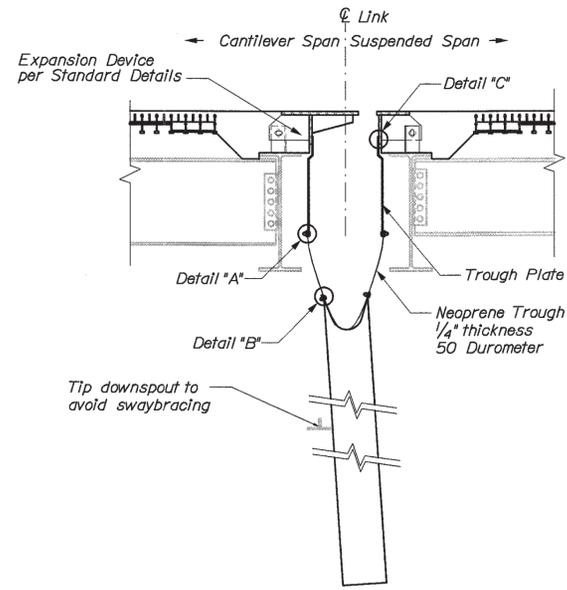
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DESIGN-DETAILED	DMS		2/23/05
CHECKED-REVIEWED	RKC		
DESIGN-DETAILED	RKC		
DESIGN-DETAILED	BN		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
**TROUGH DETAILS PIER NO. 1**

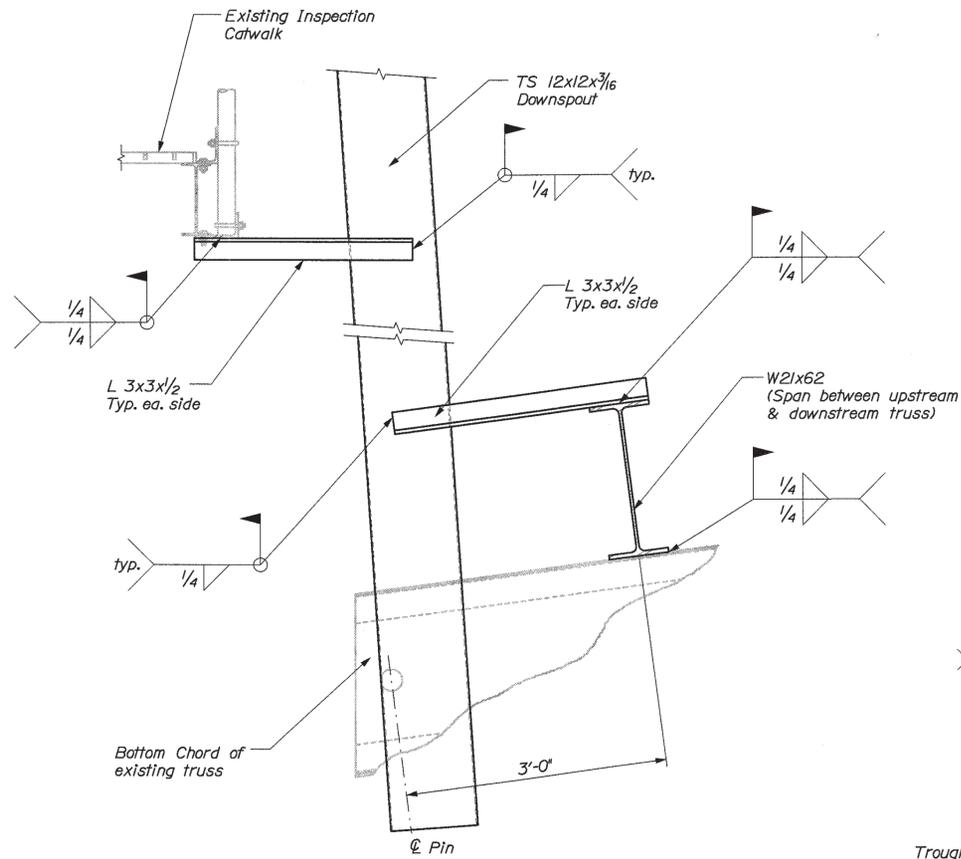
SHEET NUMBER

**24**

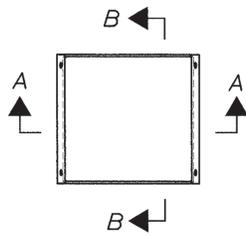
OF 46



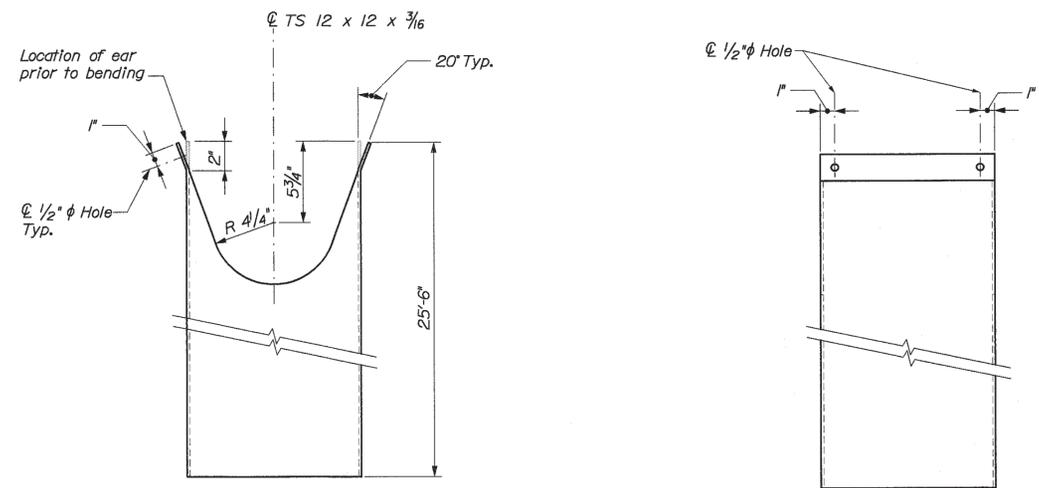
TROUGH AND DOWNSPOUT DETAIL



DOWNSPOUT CONNECTION DETAIL

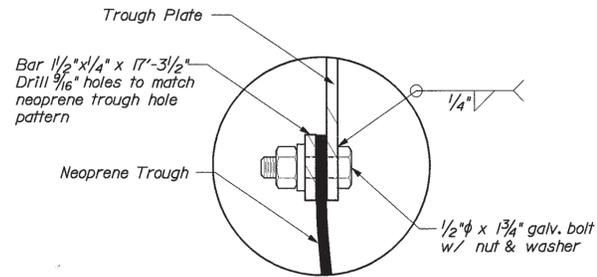


DOWNSPOUT PLAN

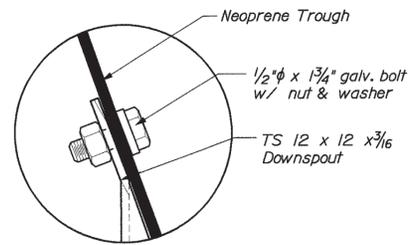


SECTION A-A

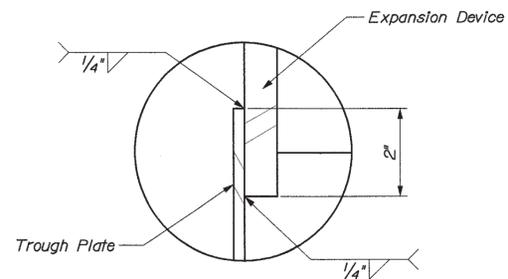
SECTION B-B



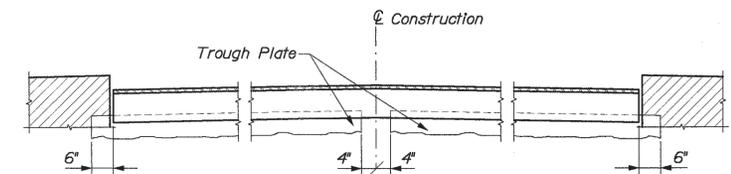
DETAIL "A"



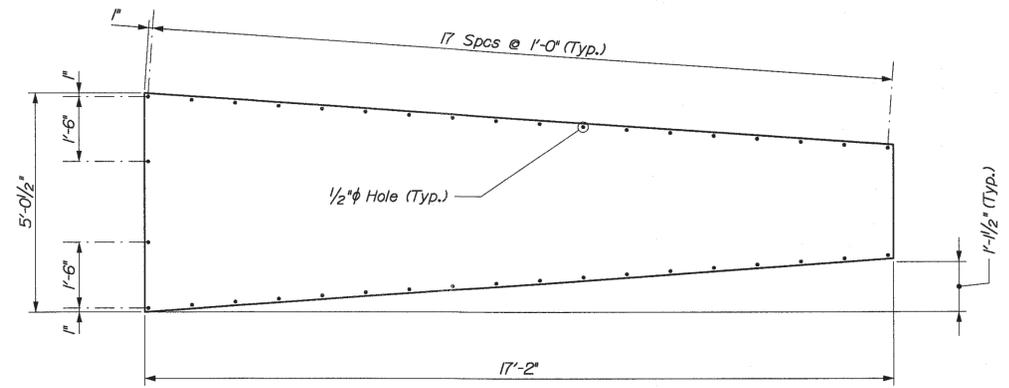
DETAIL "B"



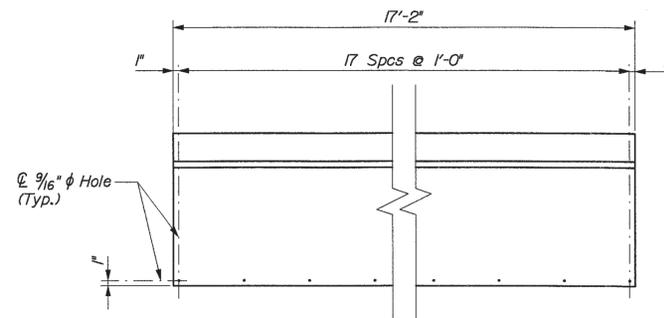
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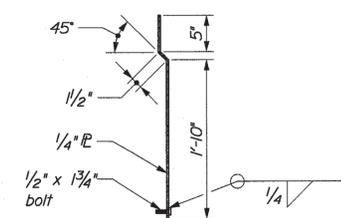
PARTIAL EXPANSION JOINT ELEVATION



NEOPRENE TROUGH Shown Flat



TROUGH PLATE ELEVATION



TROUGH PLATE SECTION

STATE OF MAINE	BRIDGE PLANS
DEPARTMENT OF TRANSPORTATION	PIN 9327.10
BH-9327(100)X	BRIDGE NO. 5196

DATE	SIGNATURE	P.E. NUMBER	DATE
2/23/05			

PROJ. MANAGER	DESIGN-DRAWN	CHECKED-REVIEWED	DESIGN-DRAWN	REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES
	ETC	DMS	RKC	BAN				

MEMORIAL BRIDGE	KENNEBEC RIVER	CITY OF AUGUSTA	KENNEBEC COUNTY	TROUGH DETAILS-LINK
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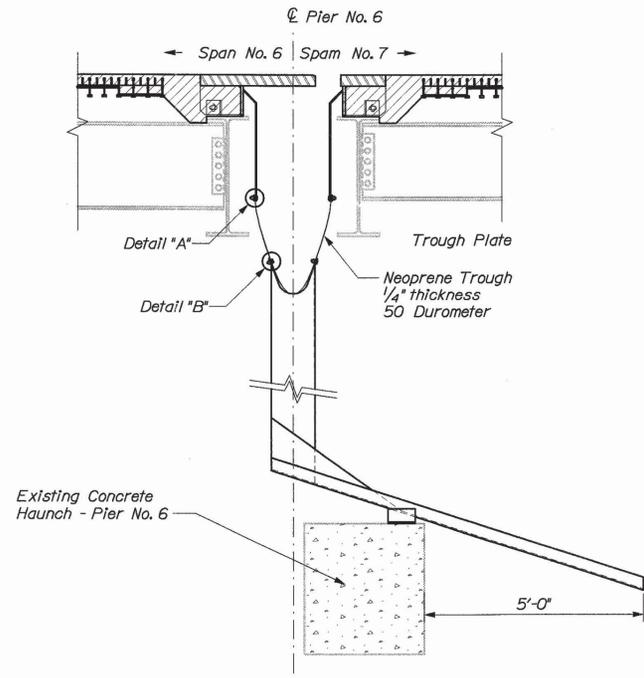
SHEET NUMBER	25
	OF 46

Date: 3/3/2005

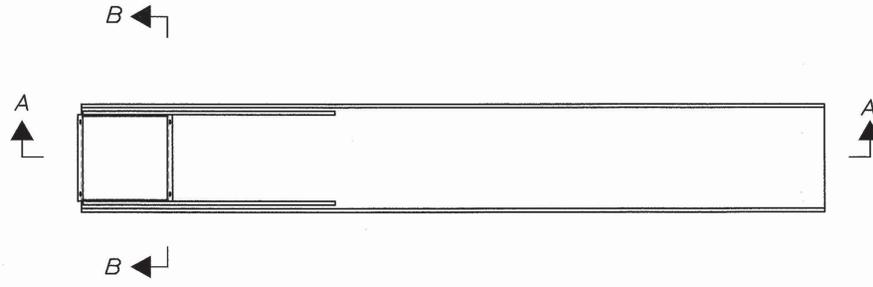
Username: david.sullivan

Division: BRIDGE

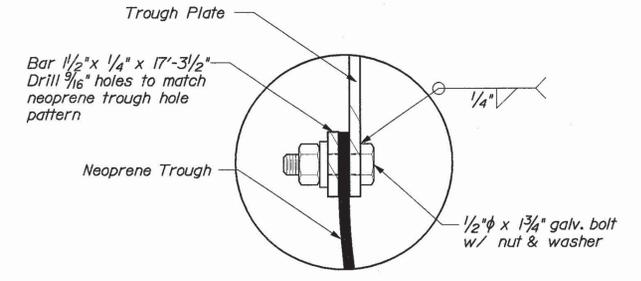
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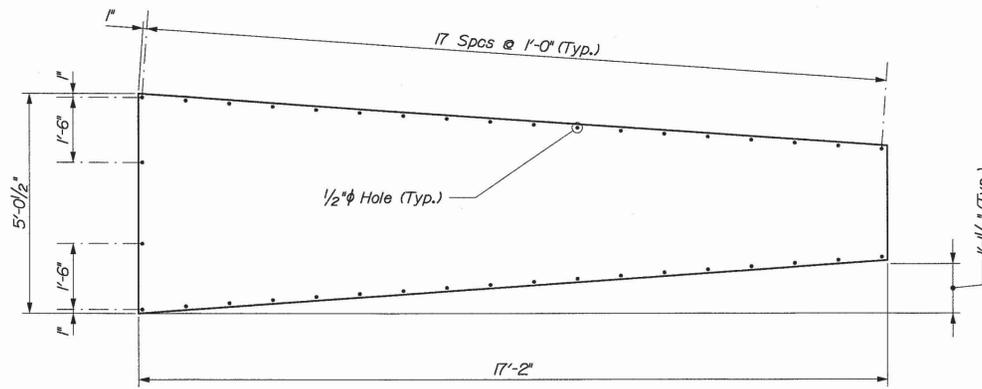
TROUGH AND DOWNSPOUT DETAIL



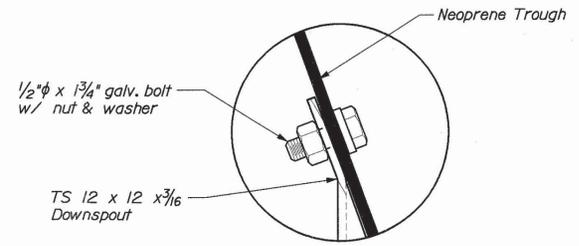
DOWNSPOUT PLAN



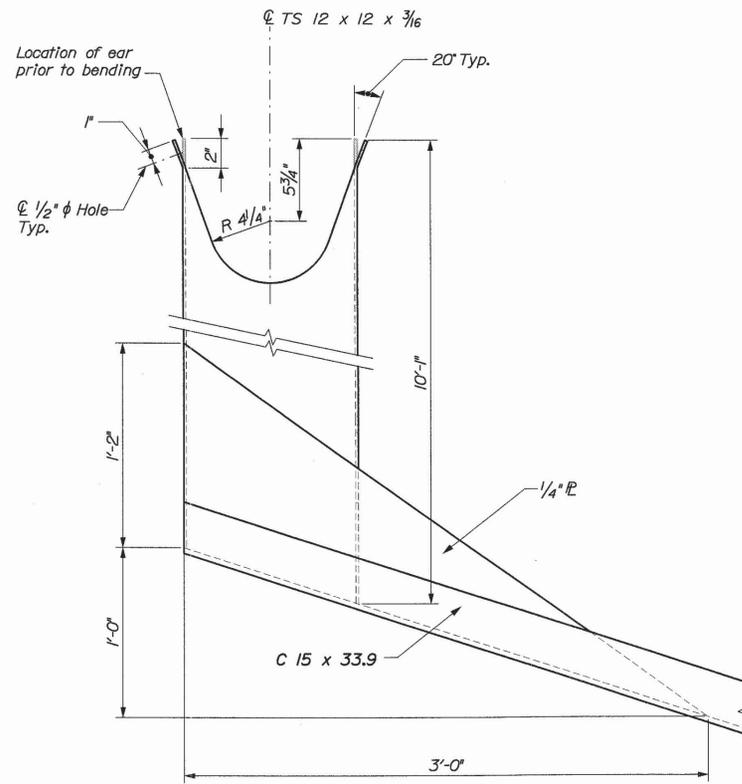
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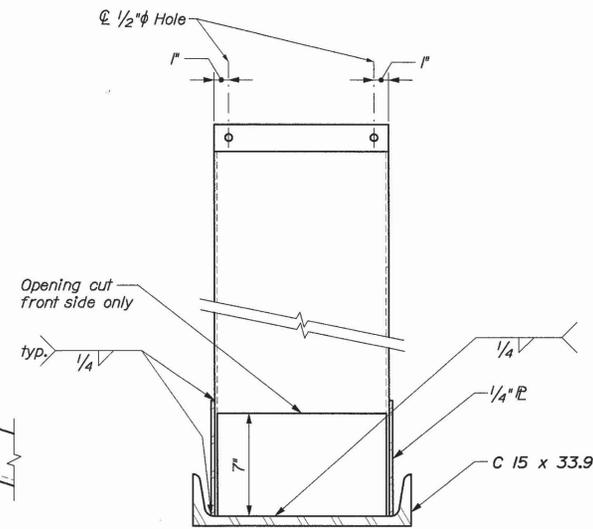
NEOPRENE TROUGH  
(Shown flat)



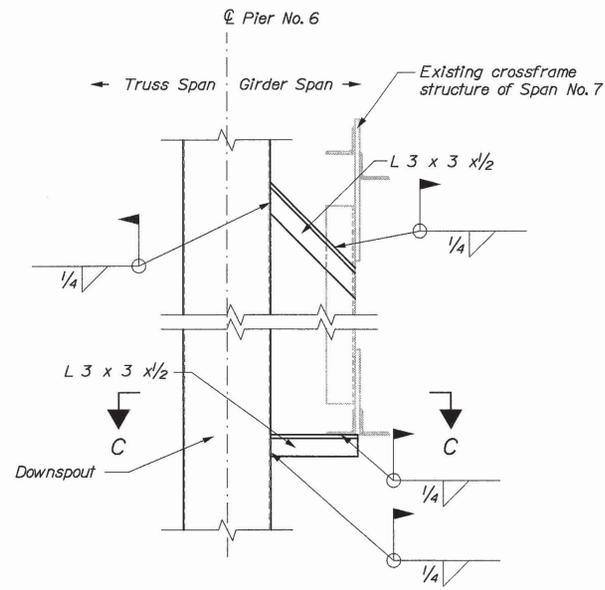
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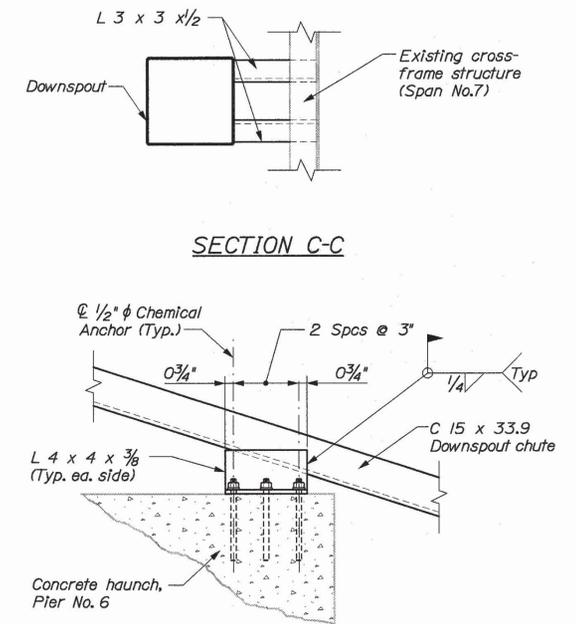
SECTION A-A



SECTION B-B



DOWNSPOUT CONNECTION DETAIL



CHUTE ANCHORING DETAIL

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BH-9327(100)X  
BRIDGE NO. 5196  
PIN 9327.10  
BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
DESIGN-DETAILED		DMS	2/23/05			
CHECKED-REVIEWED		RKC				
DESIGN-SET/ALD		RKC				
DESIGN-DETAILS		BN				
REVISIONS 1						
REVISIONS 2						
REVISIONS 3						
REVISIONS 4						
FIELD CHANGES						

MEMORIAL BRIDGE  
KENNEBEC RIVER  
KENNEBEC COUNTY  
CITY OF AUGUSTA  
TROUGH DETAILS PIER NO. 6

SHEET NUMBER

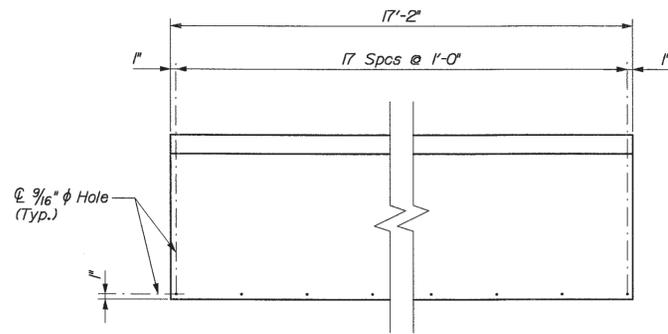
26

OF 46

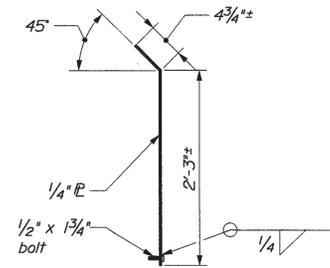
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Username: david.sullivan

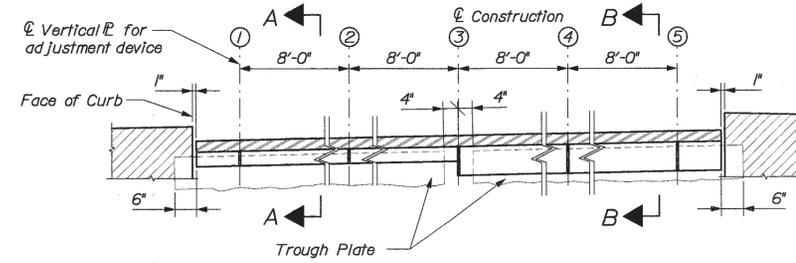
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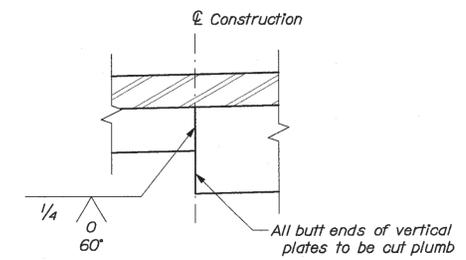
TROUGH PLATE ELEVATION



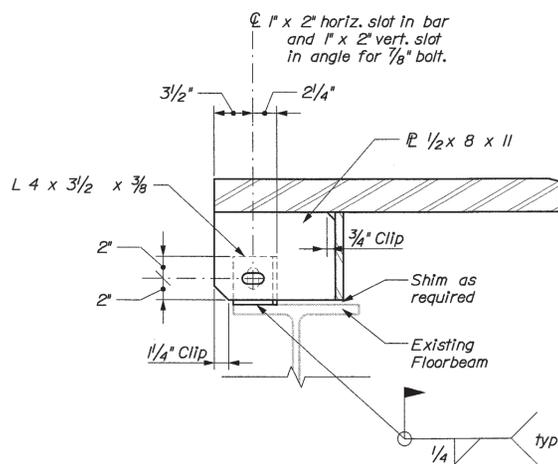
TROUGH PLATE SECTION



PARTIAL EXPANSION JOINT ELEVATION

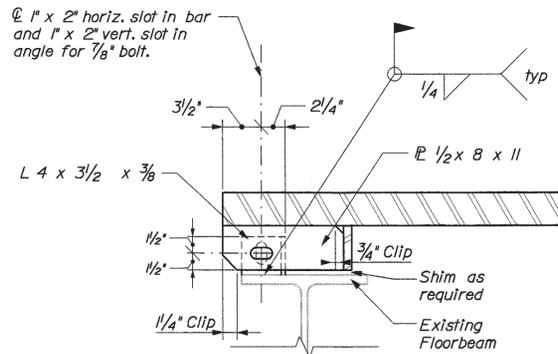


WELD DETAIL AT CONSTRUCTION  
Vertical plate for adjustment device omitted for clarity



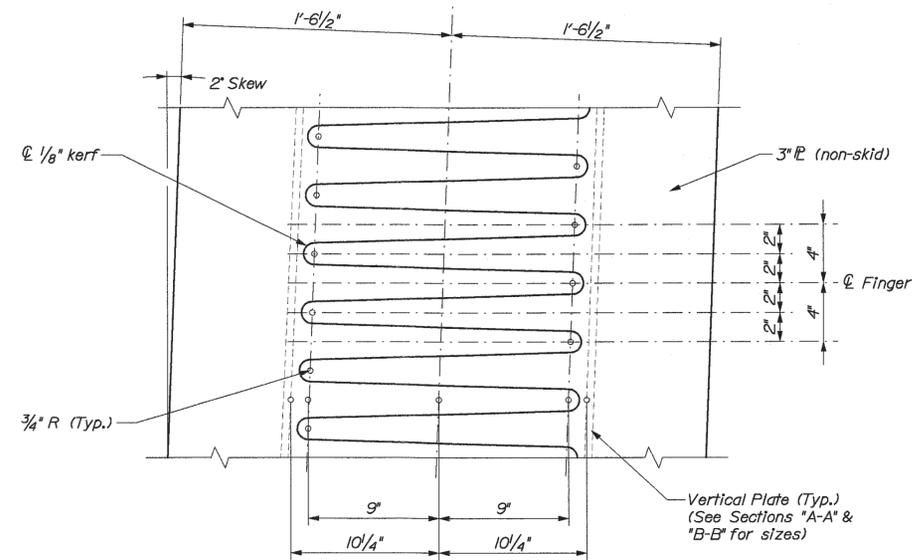
ADJUSTMENT DEVICE

Device at location "3" shown.  
Locations "4" & "5" similar

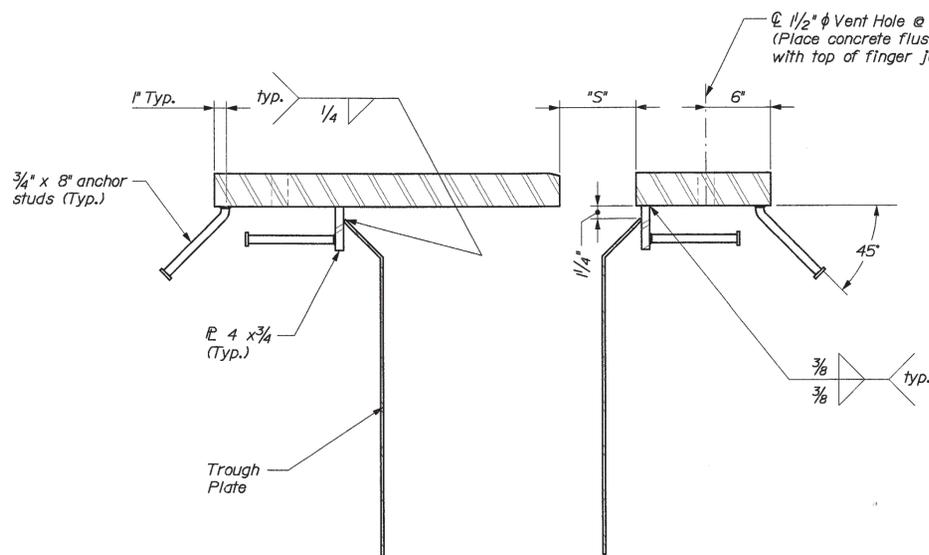


ADJUSTMENT DEVICE

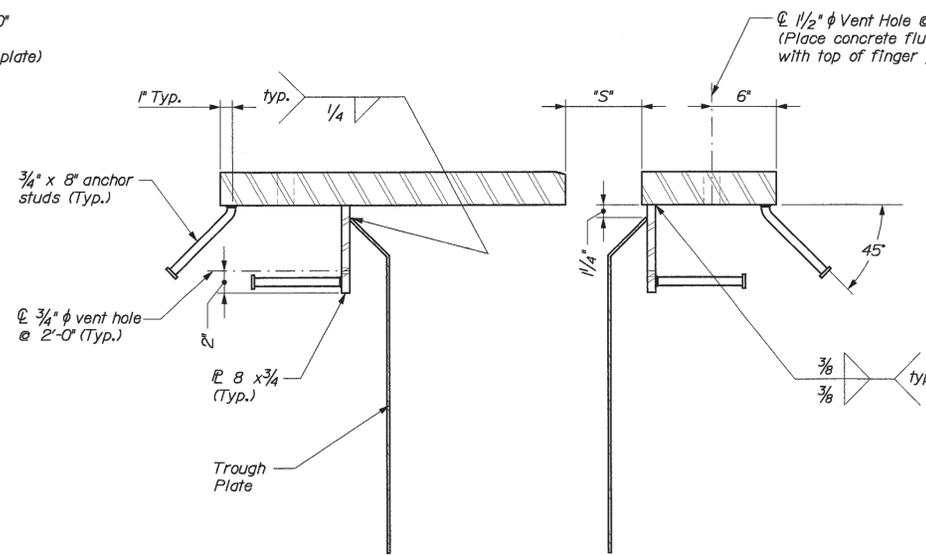
Device at location "1" shown.  
Locations "2" similar



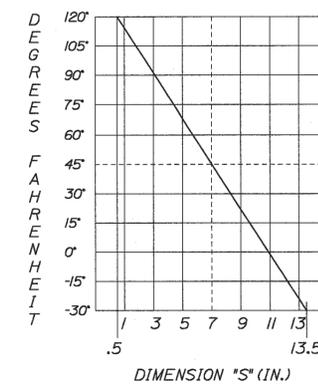
FINGER DETAIL



EXPANSION JOINT SECTION A-A



EXPANSION JOINT SECTION B-B



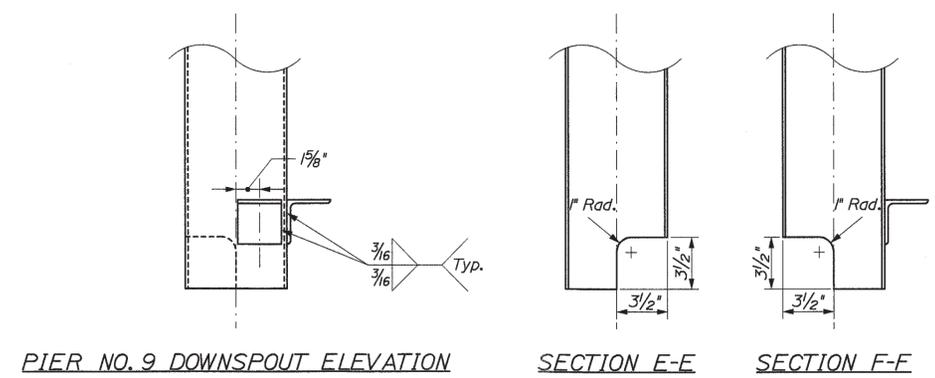
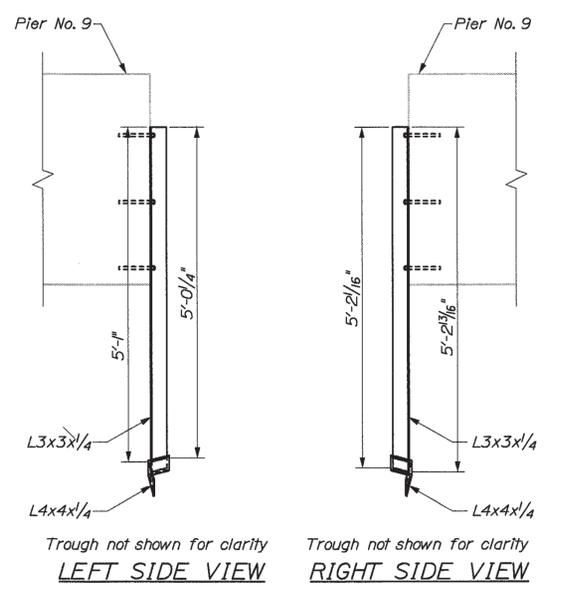
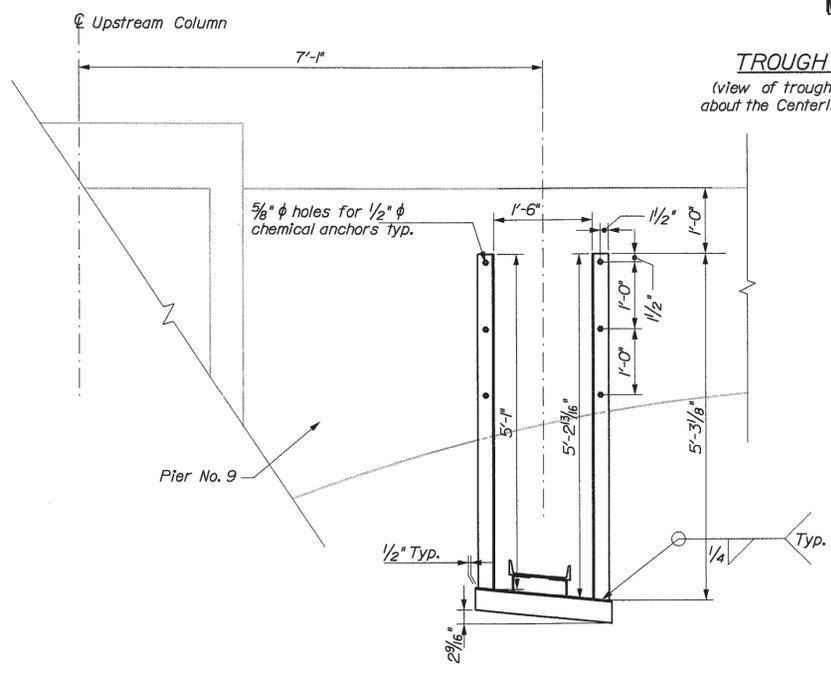
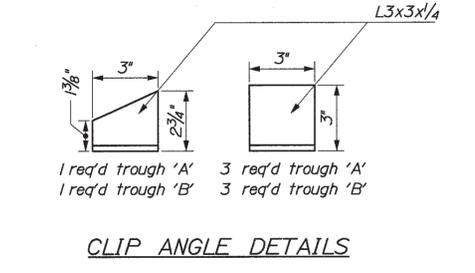
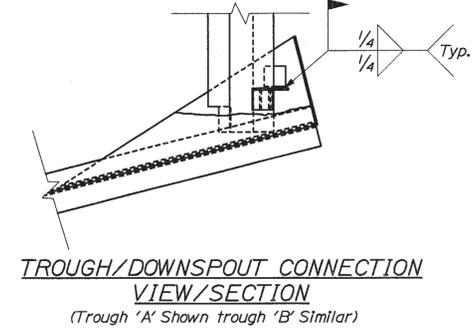
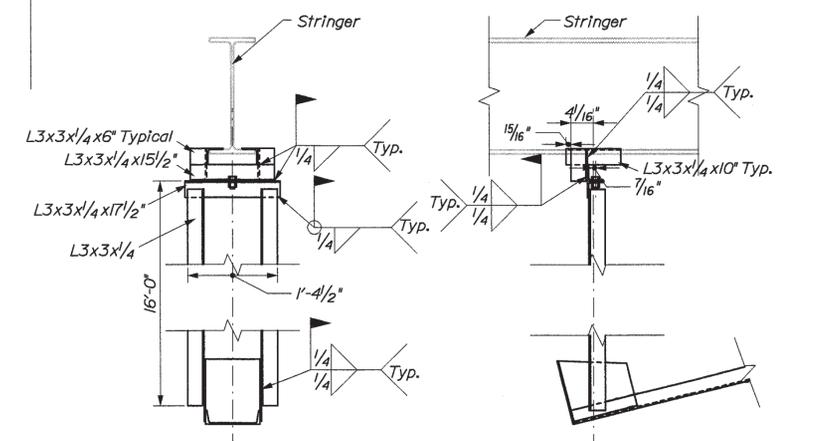
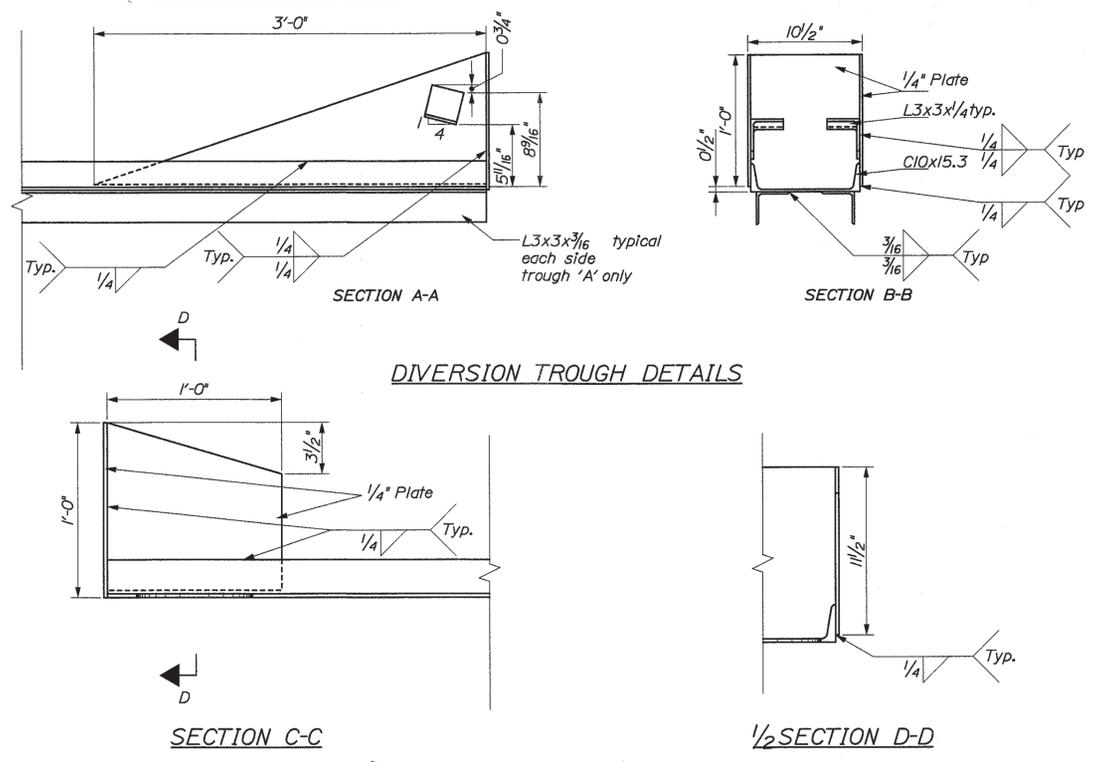
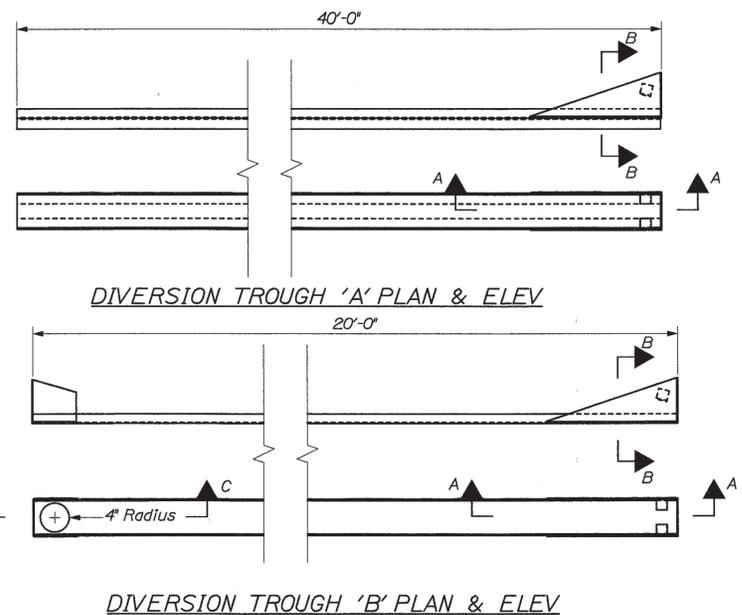
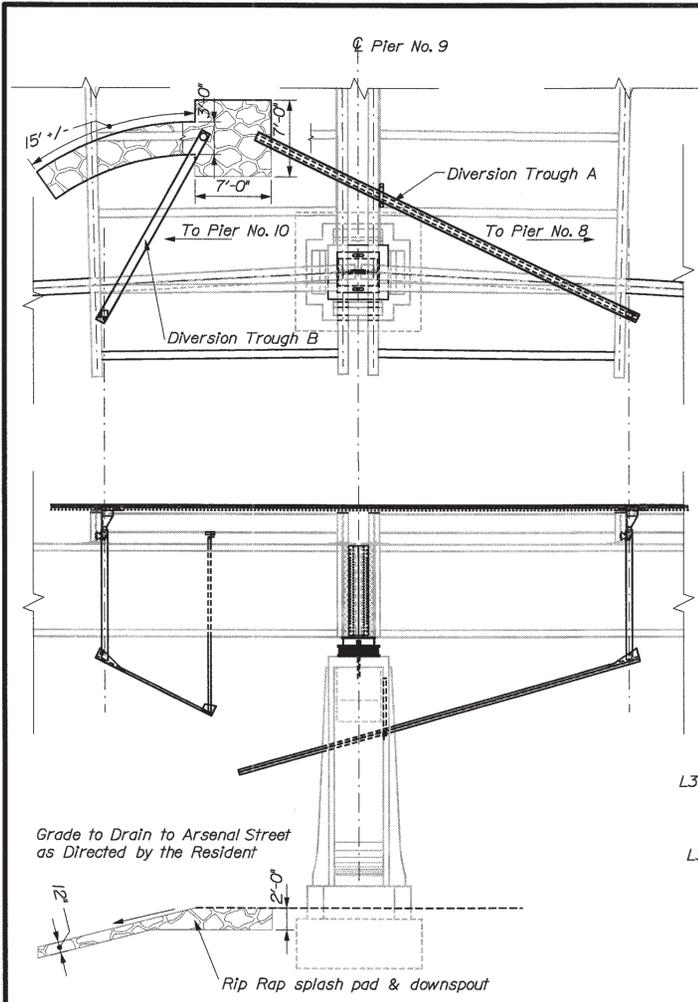
EXPANSION JOINT ADJUSTMENT CHART

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BH-9327(100)X  
PIN 9327.10  
BRIDGE NO. 5196  
BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE	SIGNATURE
DESIGN-DETAILED		DMS	2/23/05	
CHECKED-REVIEWED		RKC		
DESIGN-DETAILED		RKC		
DESIGN-DETAILED		BN		
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
SUPERSTRUCTURE EXPANSION JOINTS - PIER NO. 6

SHEET NUMBER  
**27**  
OF 46



- NOTES**
1. All steel and hardware required shall be hot dipped galvanized and top coated to match the color of the existing bridge in accordance with special provision 506.
  2. All modifications to downspouts required for the diversion trough connections including the two clip angles shop welded to the troughs shall not be paid for directly, but shall be considered incidental to related contract items.
  3. All Labor, equipment, materials, and consumables required to acceptably complete the work of fabricating and installing the diversion troughs, shall be considered paid for under item no. 504.81B2, Modified Welded Deck Drain.
  4. All Labor, equipment, materials, and consumables required to acceptably excavate for, grade and place RipRap, including disposal of waste material, regrading around the splash pad, and redressing the area with bark mulch at a minimum thickness of 6 inches around the splash pad shall be considered paid for under item number 610.08, Plain RipRap.
  5. Remove galvanizing and topcoat as necessary prior to field welding. Coat all field welds with a zinc rich paint, then topcoat with touch up paint to match top coat.

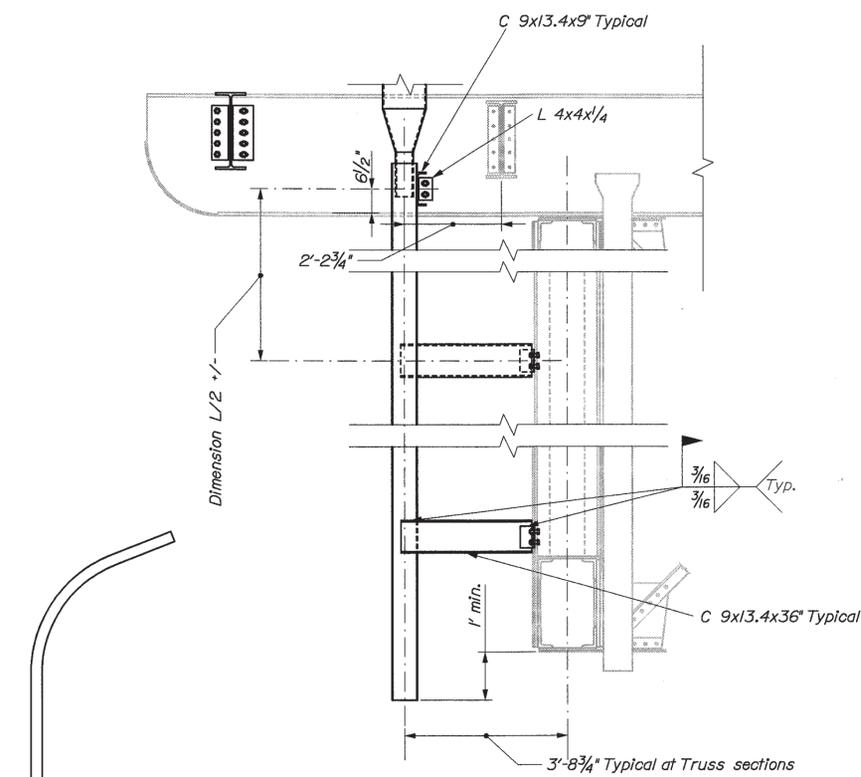
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BH-9327(100)X		P.I. NUMBER		PIN 9327.10	
BRIDGE NO. 5196		DATE		FIELD CHANGES	
PROJ. MANAGER	DATE	BY	DATE	REVISIONS	DATE
DESIGN-DETAILED	2/23/05	DMS		1	
CHECKED-REVIEWED		RKC		2	
DESIGN-DETAILED		BN		3	
DESIGN-DETAILED				4	
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REVISIONS				6	
REVISIONS				7	
REVISIONS				8	
REVISIONS				9	
REVISIONS				10	
MEMORIAL BRIDGE		KENNEBEC RIVER		CITY OF AUGUSTA	
KENNEBEC COUNTY		KENNEBEC COUNTY		KENNEBEC COUNTY	
PIER No. 9 DRAINAGE DETAILS		PIER No. 9 DRAINAGE DETAILS		PIER No. 9 DRAINAGE DETAILS	
SHEET NUMBER		28		OF 46	

DATE	2/23/05	SIGNATURE	
BY	DMS	P.E. NUMBER	
WLF	BKC	DATE	
ETC	BN		
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FIELD CHANGES			

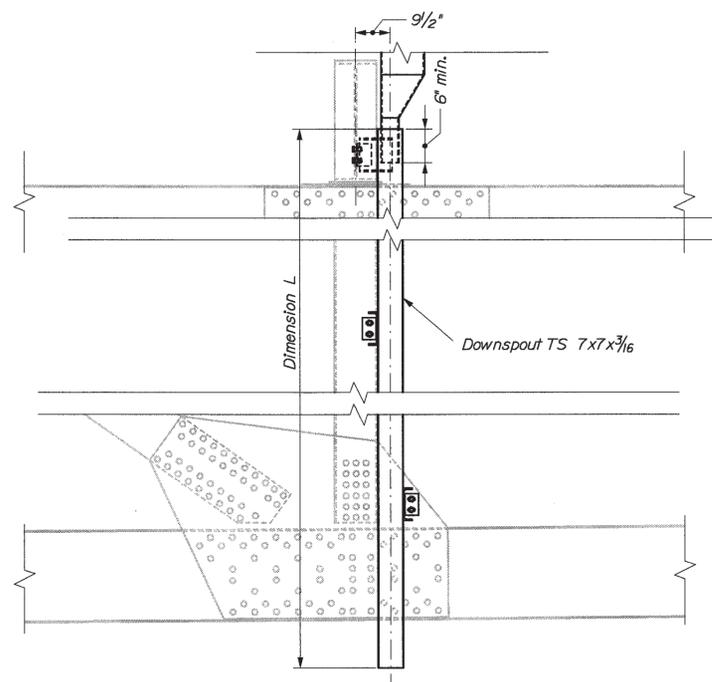
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REVISIONS 2	
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REVISIONS 4	
FIELD CHANGES	

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA KENNEBEC COUNTY  
DRAIN DETAILS

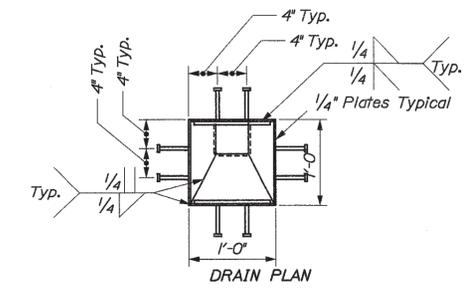
SHEET NUMBER  
**29**  
OF 46



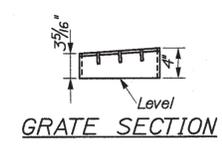
TRUSS DRAIN LOCATION TRANSVERSE SECTION



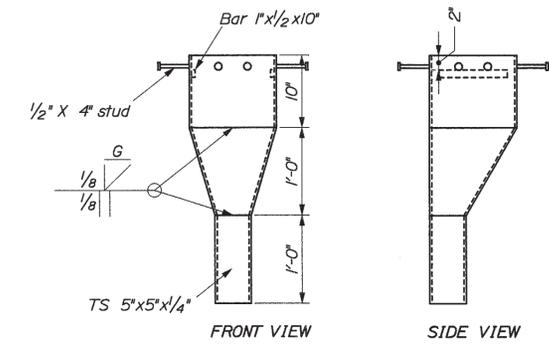
TRUSS DRAIN LOCATION ELEVATION



DRAIN PLAN



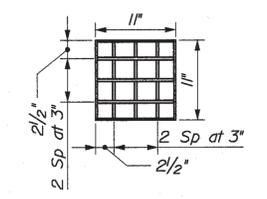
GRATE SECTION



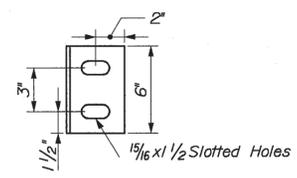
FRONT VIEW

SIDE VIEW

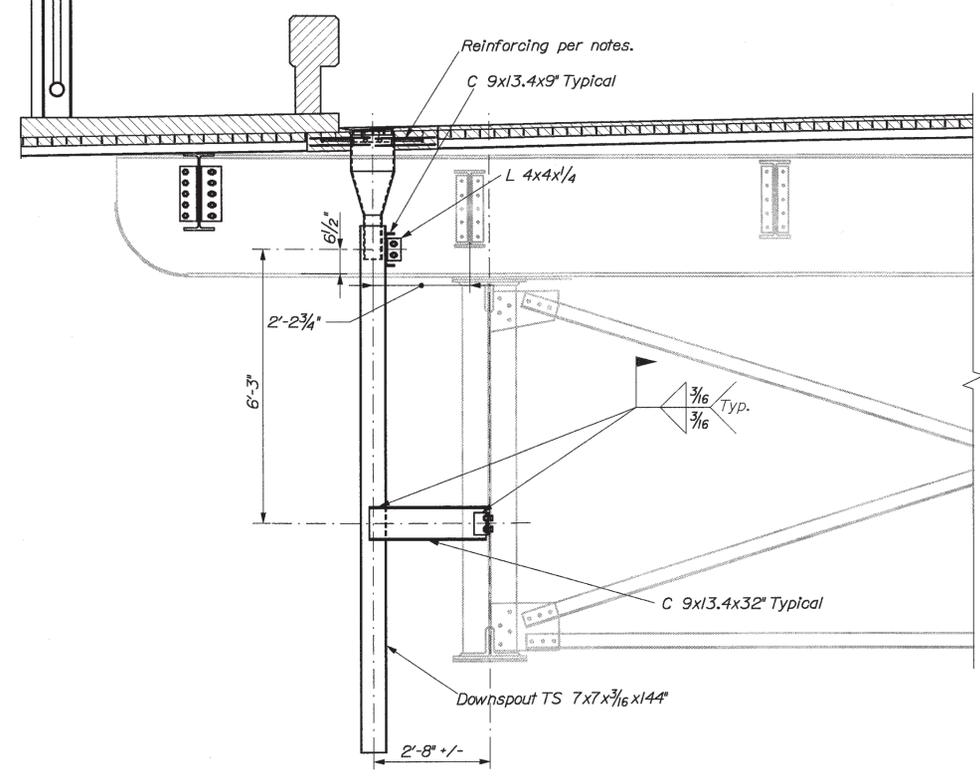
DRAIN DETAILS



GRATE PLAN

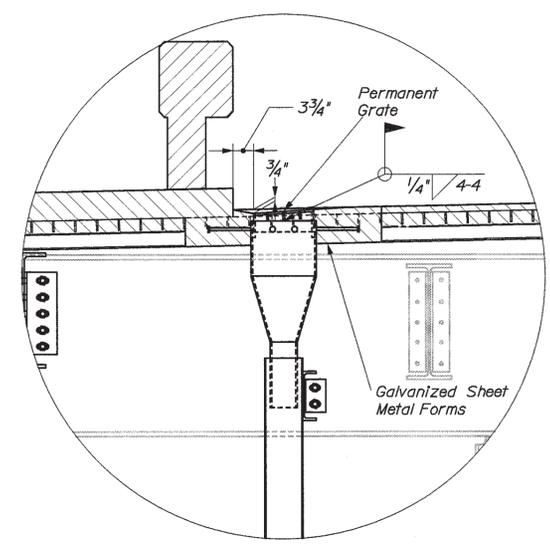


CONNECTION ANGLE DETAIL



GIRDER DRAIN LOCATION TRANSVERSE SECTION

DRAIN	LENGTH - "L"	NO. REQ'D	COMMENTS
Drain D-1	22'-11"	3	These are the first and last set of drains on the Truss.
Drain D-2	25'-6"	8	Approximately 25' from a pin hanger on the suspended span
Drain D-3	39'-3"	8	Approximately 50' from a pin hanger on the Anchor or cantilevered span
Drain D-4	37'-1"	8	Approximately 50' from the piers on the Anchor spans
Drain D-5	23'-10"	8	Located toward the midspan of the two anchor spans
Drain D-6	12'-0"	9	Located on the girder spans



DRAIN INSTALLATION DETAILS

Reinforcing not shown for clarity

NOTES

- Each bridge drain consists of one collector with two grates and one downspout with associated connection angles and standoff brackets as well as all galvanized metal formwork required for the 3'x3' bondout, and 8 - #5 bars as required under note #9. The cost of fabrication, delivery, and installation of each bridge drain including topcoat and touch up shall be considered incidental to prefabricated deck panels.
- Materials shall conform to Subsection 711.04 of the standard specifications.
- Grating shall be a commercial heavy - duty grating with 1 1/2"x3/16" bearing bars and 3/8" phi cross bars.
- Bolted connections shall be made using A325 - 7/8" phi bolts. Holes required in existing members shall be drilled to 15/16" phi.
- The exact location of the drains may be varied slightly to accommodate the spacing of the main bearing bars in the decking grid.
- Remove galvanizing as necessary prior to field welding the permanent grate.
- Coat all field welds with an approved zinc - rich paint after welding.
- All drain downspouts shall be topcoated to match the color of the existing bridge after galvanizing in accordance with special provision section 506. All standoff brackets, connection angles, grate, and drains may remain galvanized, with no topcoat.
- Install 8 #5 bars 1' - 11" long at each drain location. Bars are to be installed 2 at each corner at 45° to the drain centerline.
- The two drain downspouts located approximately 25 ft. either side of pier no. 9, that pier immediately West of Arsenal street, shall be fitted with diversion channels as indicated on the pier no. 9 Drainage Details Sheet. These downspouts must be modified in accordance with the details shown on the Pier no. 9 Drainage Details Sheet.

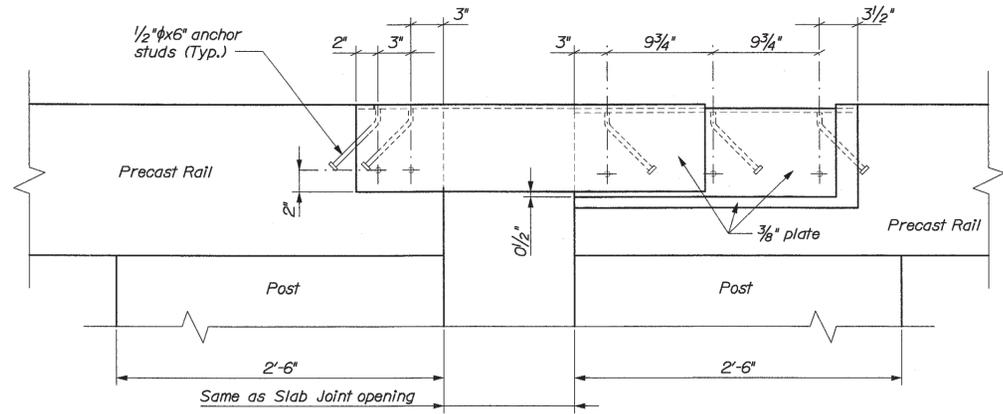




Date: 3/3/2005

Username: david.sullivan

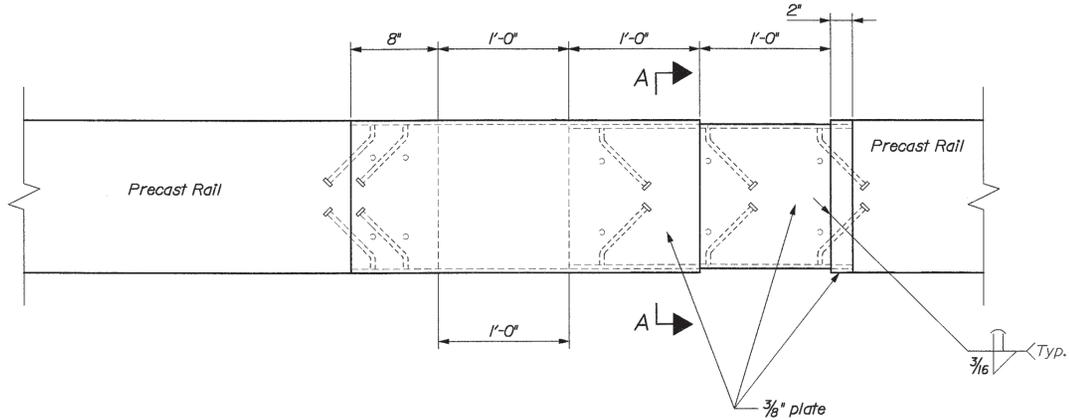
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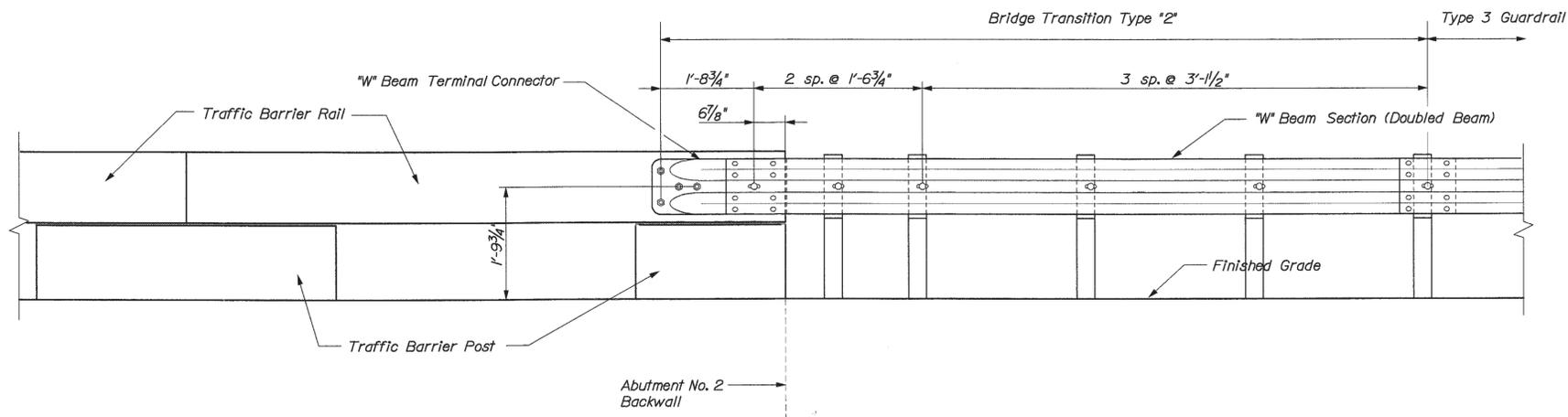
Post note - If Rail segment is = 8'-0" combine with adjacent post such that no opening between posts within an expansion length is less than 3'-0".

Expansion Joint - See Chart on Superstructure Expansion Joint Sheet for setting dimensions. All Three expansion joints are using this configuration for the Traffic Barrier Rail expansion joint (that is they all will have 12" of movement whether or not they need it)

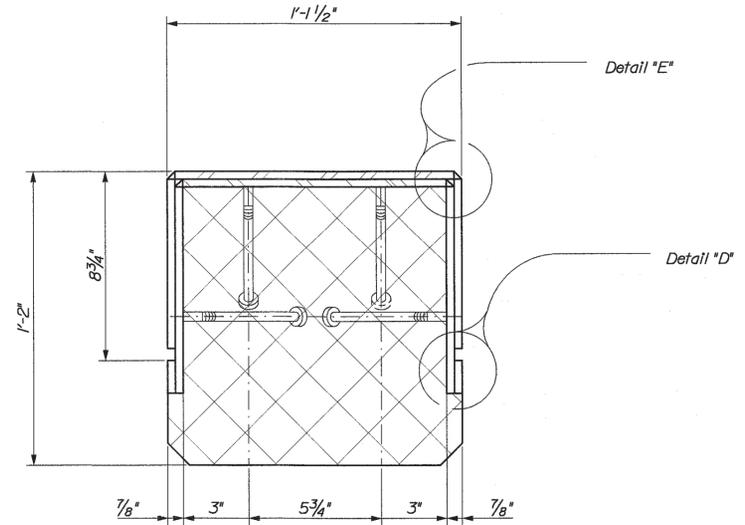
**EXPANSION JOINT ELEVATION**  
(typical for each expansion joint)



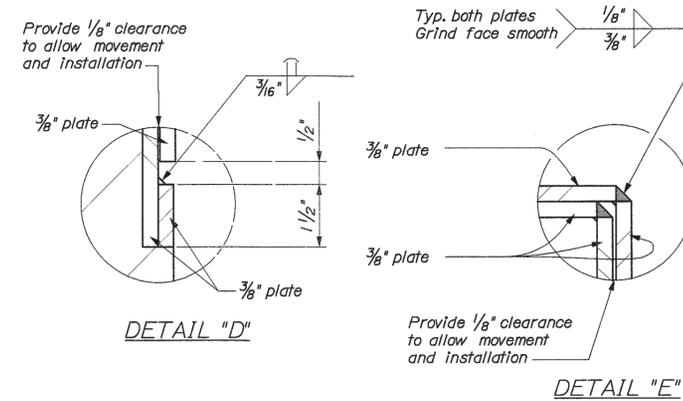
**EXPANSION JOINT PLAN**



**BRIDGE TRANSITION TYPE "2"**  
(at Abut. 2 only)

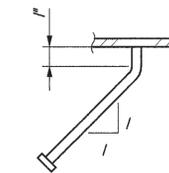


**SECTION A-A**



**DETAIL "D"**

**DETAIL "E"**



**BENT STUD DETAIL**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BH-9327(100)X  
BRIDGE NO. 5196  
PIN 9327.10  
BRIDGE PLANS

DATE  
BY  
WLF  
DMS  
RKC  
B/N  
SIGNATURE  
P.E. NUMBER  
DATE

PROJ. MANAGER  
DESIGN-DETAILED  
CHECKED-REVIEWED  
DESIGN2-DETAILED  
DESIGN3-DETAILED  
REVISIONS 1  
REVISIONS 2  
REVISIONS 3  
REVISIONS 4  
FIELD CHANGES

MEMORIAL BRIDGE  
KENNEBEC RIVER  
CITY OF AUGUSTA  
KENNEBEC COUNTY  
TRAFFIC BARRIER  
EXPANSION DETAILS

SHEET NUMBER

32

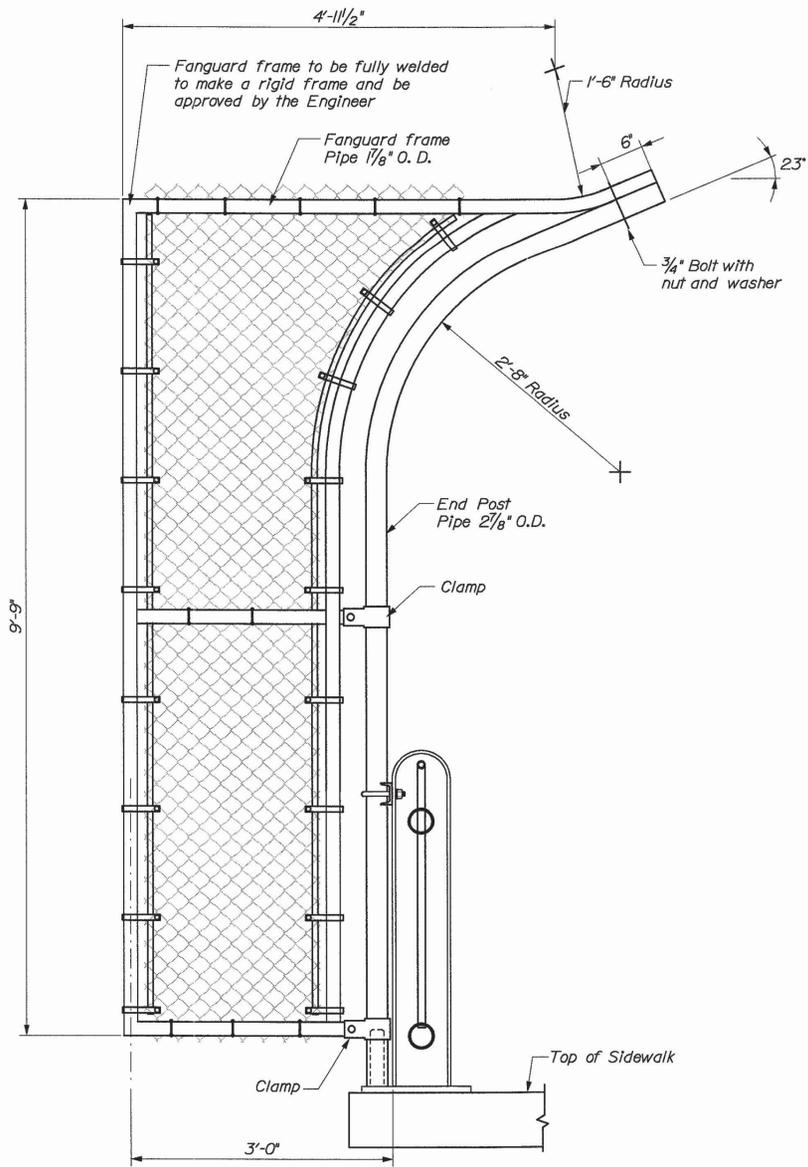
OF 46







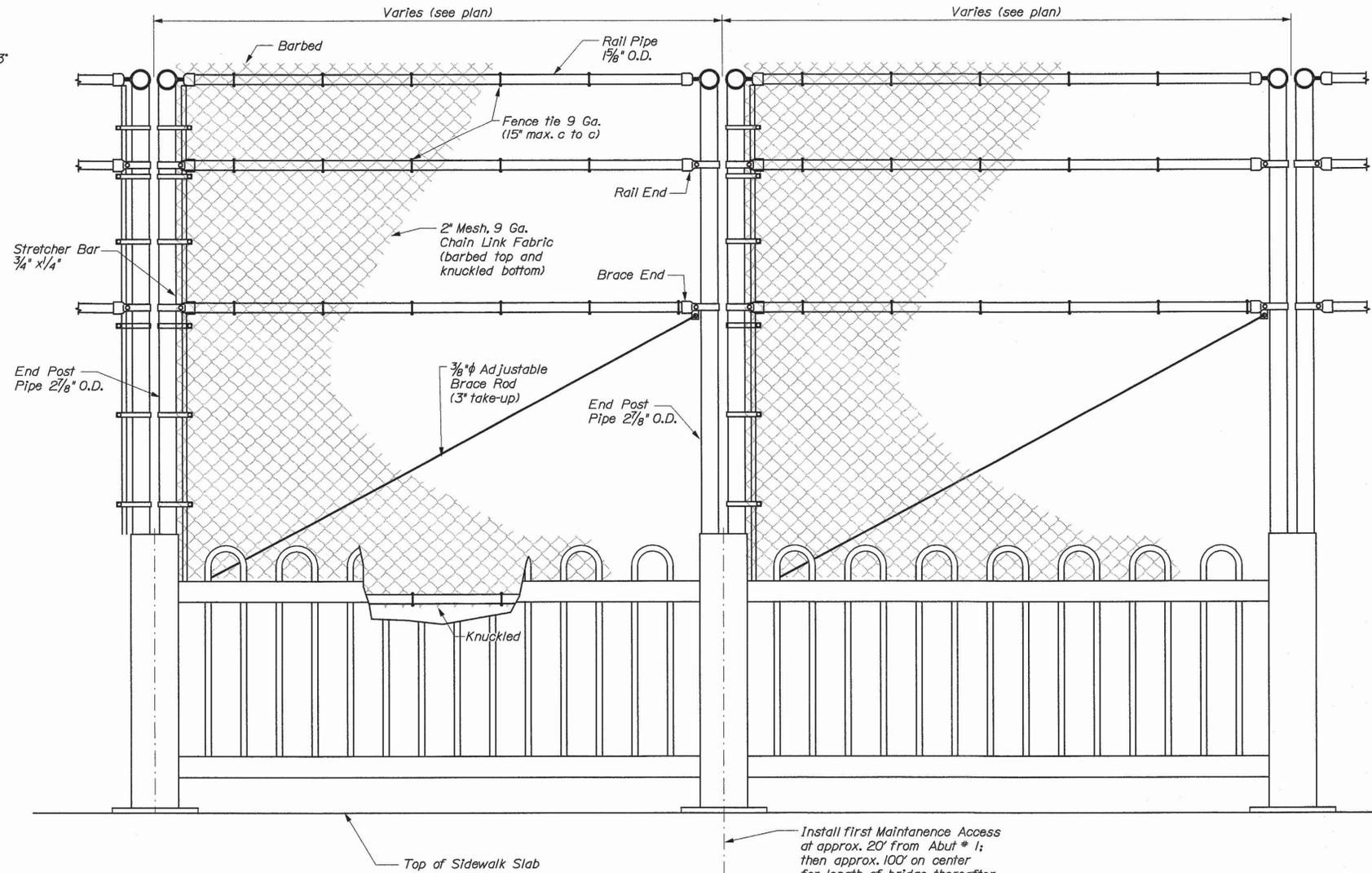
Filename: ...036\_Safety\_Fence\_Details.dgn  
 Division: BRIDGE  
 Username: david.sullivan  
 Date: 3/3/2005



**FANGUARD ELEVATION**

Fanguard Detail (4 Required)  
 All materials to be the same as Safety Fence except as noted

NOTE: Payment for Fanguard shall be included in the Lump Sum payment for Item 607.441 Sidewalk Barrier Fence



**MAINTENANCE ACCESS REMOVABLE PANEL**

2 Panels at each maintenance access location

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 BH-9327(100)X  
 BRIDGE NO. 5196  
 PIN 9327.10  
 BRIDGE PLANS

PROJ. MANAGER	DATE	BY	WLF	ETC	SIGNATURE	P. I. NUMBER	DATE
DESIGN-DETAILED		DMS					
CHECKED-REVIEWED	2/23/05	BKC					
DESIGN-DETAILED		BKC					
DESIGN-DETAILED		BN					
REVISIONS 1							
REVISIONS 2							
REVISIONS 3							
REVISIONS 4							
FIELD CHANGES							

MEMORIAL BRIDGE  
 KENNEBEC RIVER  
 CITY OF AUGUSTA  
 KENNEBEC COUNTY  
 SAFETY FENCE DETAILS

SHEET NUMBER  
**36**  
 OF 46

Date: 3/3/2005

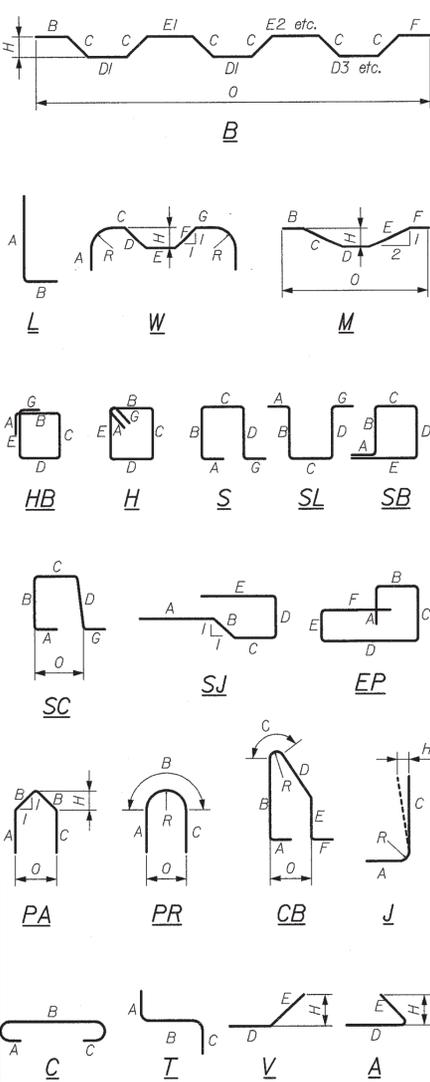
Username: david.sullivan

Division: BRIDGE

Filename: ... \10\bridge\msta\037\_Rebar.dgn

STRAIGHT BARS				BENT BARS																		
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
<b>Abutment #1</b>				<b>Abutment No. 1</b>																		
A 410	4	6'-6"	Transverse Backwall	A 450	14	4'-7"	PR	1'-11/2"	8"	1'-11/2"										5'	2 1/2"	Abut. to Backwall
A 500	3	14'-2"	Vertical Dowel Foot	A 550	28	3'-8"	L	2'-2"	1'-6"													Abut. to Footing Dowel
A 501	3	10'-2"	Vertical in Post	A 551	15	3'-5"	L	2'-2"	1'-3"													Set A - Footing
A 502	1	8'-9"	Vertical at Saw Cut	A 552	15	3'-4"	L	2'-4"	1'-0"													Set A - Footing
A 510	7	6'-6"	Transverse Backwall	A 553	3	1'-4"	L	9'-2"	1'-2"													Vert. Wall Tied to Sets A&B
A 511	6	4'-0"	Vertical in Post	A 554	8	7'-1/2"	PR	3'-2"	9 1/2"	3'-2"												Set B - Rail
A 512	3	7'-6"	Horizontal in Footing	A 555	56	4'-0"	J	2'-0"	2'-0"									3'		6"	3"	Sets B&C
A 513	13	13'-0"	Horizontal in Wall	A 556	6	4'-4"	S		1'-6"	1'-4"												Set C - Posts
A 514	2	49'-0"	Transverse in Abut 1	A 557	5	6'-5"	L	5'-3"	1'-2"													Vert. Wall Tied to Sets A&B
A 515	2	27'-0"	Transverse in Abut 1	A 558	78	2'-11"	L	2'-4"	7"													Longitudinal Abut 1
				A 559	78	2'-7"	S		1'-0"	7"												Longitudinal Abut 1
<b>Abutment #2</b>				<b>Abutment No. 2</b>																		
B 500	12	25'-9"	Vertical Dowel Footing	B 550	18	4'-2"	L	2'-8"	1'-6"													Abut. to Footing Dowel
B 501	16	9'-0"	Horizontal Wing Wall	B 551	18	3'-8"	L	2'-2"	1'-6"													Set P - Footing
B 510	12	4'-2"	Vertical in Post	B 552	18	2'-4"	L	1'-2"	1'-2"													Set P - Footing
B 511	16	9'-0"	Horizontal Wing Wall	B 553	18	6'-3"	L	5'-0"	1'-3"													Set P - Footing
B 512	60	9'-0"	Horizontal Wing Wall	B 554	34	3'-4"	L	2'-2"	1'-2"													Set N
B 513	34	20'-0"	Vertical Wing Wall	B 555	136	5'-6"	J	2'-0"		3'-6"								3'		6"	2 1/2"	Set N
B 514	4	45'-10"	Transverse in Abut. 2	B 556	34	7'-1"	PR	3'-2"	9"	3'-2"												Set N
B 515	4	14'-3"	Longitudinal Wing Wall	B 557	12	4'-4"	S		1'-6"	1'-4"												Set O
				B 558	46	2'-9"	L	2'-4"	5"													Longitudinal Abut 2
				B 559	46	1'-4"	S		5 1/2"	5"												Longitudinal Abut 2
<b>Pier No. 5</b>				<b>Pier No. 5</b>																		
P 400	60	26'-0"	Horizontal and Vertical	P 450	234	15'-3"	CB		4'-0"	11'-3"												Horizontal Perimeter
				P 451	68	2'-4"	L	1'-2"	1'-2"													vertical Perimeter
<b>Superstructure</b>				<b>Superstructure</b>																		
S 400	840	23'-5"	Long. Along Stringers	S 450	20832	1'-4"	S		5"	6"												Transverse on Stringers
S 401	28	49'-0"	Span No. 1 Stringers	S 550	46	3'-2"	L	2'-6"	7 1/2"													At Abut 2 Grid End Casting
S 402	126	27'-0"	Trans. Along Flr. Bm.																			
S 403	60	35'-8"	Trans. Sup. Elev. Flr. Bm.																			
<b>Sidewalk</b>				<b>Sidewalk</b>																		
SW500	4191	6'-11"	Transverse	SW551	1	40'-5"	PR		40'-5"													Sidewalk Upstream side at Gage St.
SW501	308	60'-0"	Longitudinal	SW552	1	39'-3"	PR		39'-3"													Sidewalk Upstream side at Gage St.
SW502	7	12'-0"	Longitudinal	SW553	1	38'-0 1/2"	PR		38'-0 1/2"													Sidewalk Upstream side at Gage St.
SW503	7	46'-0"	Longitudinal	SW554	1	36'-10"	PR		36'-10"													Sidewalk Upstream side at Gage St.
SW504	7	23'-0"	Longitudinal	SW555	1	35'-7 1/2"	PR		35'-7 1/2"													Sidewalk Upstream side at Gage St.
				SW556	1	34'-5"	PR		34'-5"													Sidewalk Upstream side at Gage St.
				SW557	1	33'-2"	PR		33'-2"													Sidewalk Upstream side at Gage St.
<b>Approach Slab</b>				<b>Approach Slab</b>																		
AS 550	42	4'-2"	L	3'-0"	1'-2"																	Long. Approach Slab
AS 551	42	4'-0"	S		1'-6"	1'-0"																Long. Approach Slab
AS 552	42	2'-8"	V		1'-6"	1'-2"																Long. Approach Slab

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.  
 Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.  
 Reinforcing Bar: ASTM A615/A615M, Grade 60

GENERAL NOTES

- The first two digits following the letter(s) of the mark indicate the size of the bar:  
 Mark 'A502' = bar size #5  
 Mark 'P805' = bar size #8  
 Mark 'S650' = bar size #6
- For reinforcement details for bridge mounted light bases, the Contractor is directed to the Lighting Details sheet. Bars on the Lighting details sheet are to be paid for under item numbers 503.12 & 503.13. For reinforcement details for the traffic railing the Contractor is directed to the Traffic Barrier sheets. Bars on the Traffic Barrier sheets are to be paid for under item numbers 503.12 & 503.13.

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 BH-9327(100)X  
 BRIDGE NO. 5198  
 PIN 9327.10  
 BRIDGE PLANS

PROJ. MANAGER: [ ]  
 DESIGN-DETAILED: [ ]  
 CHECKED/REVIEWED: [ ]  
 DESIGN/REVIEWED: [ ]  
 DESIGN/REVIEWED: [ ]  
 REVISIONS 1: [ ]  
 REVISIONS 2: [ ]  
 REVISIONS 3: [ ]  
 REVISIONS 4: [ ]  
 FIELD CHANGES: [ ]

DATE: 2/23/05

MEMORIAL BRIDGE  
 KENNEBEC RIVER  
 CITY OF AUGUSTA KENNEBEC COUNTY  
 REINFORCING  
 STEEL SCHEDULE

SHEET NUMBER  
 37  
 OF 46

Username: david.sullivan Date: 3/3/2005

Division: BRIDGE

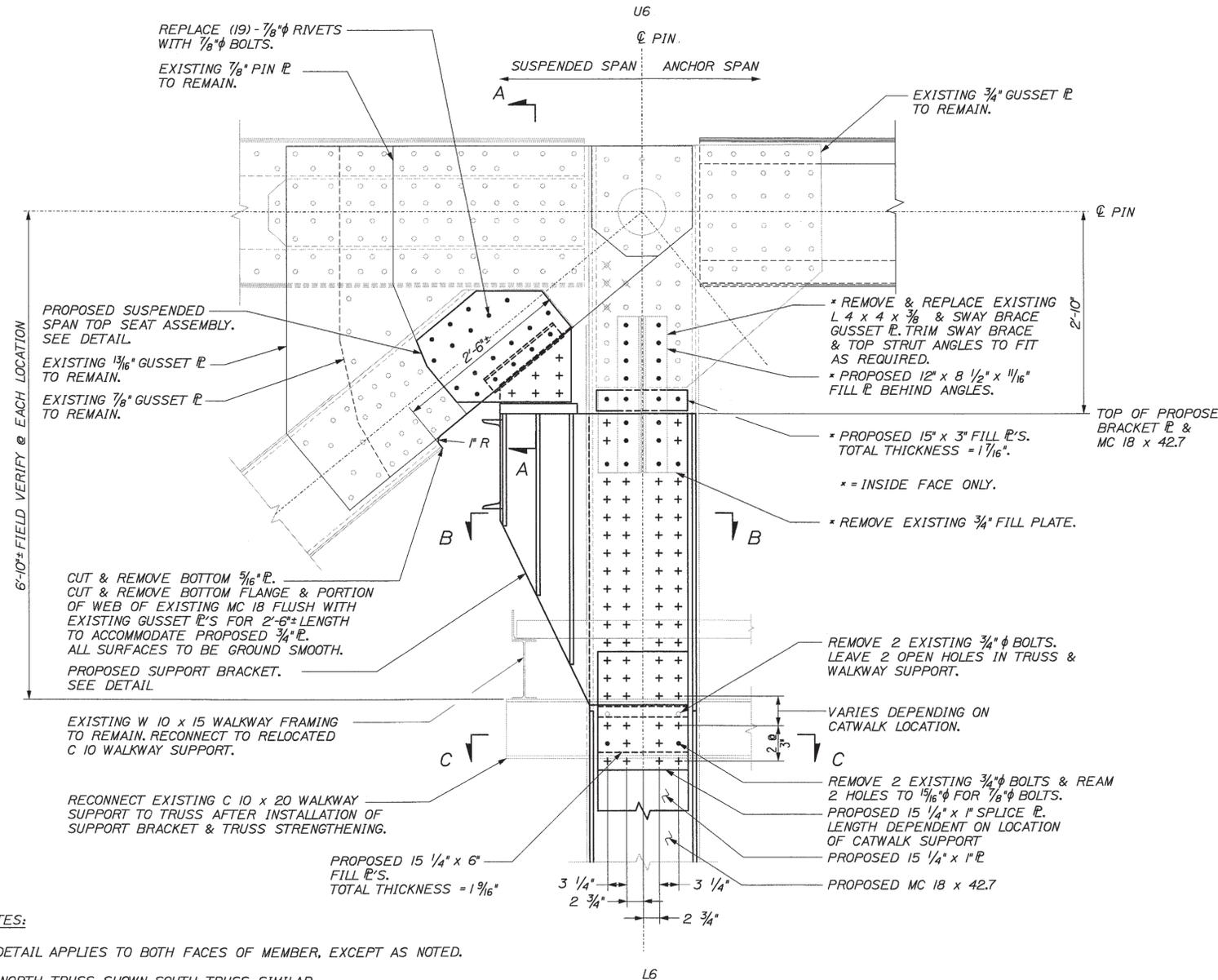
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## INSTALLATION OF A SUPPLEMENTAL SUPPORT SYSTEM FOR TRUSS HINGE CONNECTION

### GENERAL NOTES:

1. THE PROPOSED WORK INVOLVES THE INSTALLATION OF A SUPPORT SYSTEM ASSEMBLY AT THE SIX (6) FIXED PIN LOCATIONS ON BOTH OF THE TRUSSES. INSTALLATION OF EACH ASSEMBLY INVOLVES THE FOLLOWING:
  - A. REMOVAL OF 19 RIVETS FROM TWO FACES OF THE SUSPENDED SPAN TRUSS DIAGONAL AND INSTALLATION OF A TOP SEAT ASSEMBLY AND PROVIDING A NEW BOLTED CONNECTION USING THE EXISTING RIVET HOLES. ONLY ONE (1) TOP SEAT ASSEMBLY SHALL BE INSTALLED AT A TIME. NO MORE THAN 19 RIVETS SHALL BE REMOVED AT ONE TIME.
  - B. FIELD DRILLING NEW HOLES AND INSTALLATION OF A SUPPORT BRACKET ASSEMBLY ON TWO FACES OF THE ANCHOR SPAN TRUSS VERTICAL MEMBER.
  - C. FIELD DRILLING NEW HOLES AND INSTALLATION OF STRENGTHENING STEEL ON TWO FACES OF THE ANCHOR SPAN TRUSS VERTICAL MEMBER.
  - D. REMOVING, MODIFYING AND RECONNECTING EXISTING CATWALK SUPPORTS AND SWAY BRACES.
2. ALL NEW BOLTS SHALL BE 7/8"  $\phi$  ASTM A325 PLACED IN EXISTING 15/16"  $\phi$  RIVET HOLES OR NEW FIELD DRILLED 15/16"  $\phi$  HOLES UNLESS NOTED OTHERWISE. MATERIAL THICKNESS AND JOINT DETAILS SHALL PRECLUDE THREADS FROM SHEAR PLANE. BOLTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
3. EXISTING DIMENSIONS: DIMENSIONS, ANGLES, AND ELEVATIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM LIMITED FIELD INVESTIGATION AND INFORMATION CONTAINED IN THE ORIGINAL CONSTRUCTION DRAWINGS AND ARE NOT GUARANTEED. THE EXISTING MEASUREMENTS SHALL BE VERIFIED PRIOR TO STARTING THE WORK. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.
4. PLANS FOR THE EXISTING BRIDGE ARE AVAILABLE WITH THE MAINE DEPARTMENT OF TRANSPORTATION.
5. DESIGN LOADS:
  - DEAD LOADS = 407 KIPS
  - TRAFFIC LIVE LOADS = 142 KIPS
  - SIDEWALK LIVE LOAD = 35 KIPS
  - DYNAMIC IMPACT FACTOR (FOR DROP) = 2.7
6. THERE SHALL BE NO TRAFFIC LIVE LOAD ON THE LANE OVER THE TRUSS ON WHICH THE SUPPLEMENTAL SUPPORT SYSTEM IS BEING INSTALLED.
7. ALL NEW STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 50 GALVANIZED IN ACCORDANCE WITH ASTM A123 AND PAINTED TO MATCH EXISTING.
8. EXTREME CARE SHOULD BE TAKEN TO NOT DAMAGE ANY EXISTING STEEL MEMBERS WHICH ARE TO REMAIN. ANY DAMAGE SHALL BE REPORTED IMMEDIATELY TO THE DEPARTMENT OF TRANSPORTATION AND REPAIRED AS DIRECTED BY THE ENGINEER.
9. ALL FAYING SURFACES SHALL BE CLEANED AND PRIMED WITH ZINC RICH PAINTS OR COLD GALVANIZING COMPOUNDS IN ACCORDANCE WITH ASTM A780 PRIOR TO INSTALLATION. ANY DAMAGE TO GALVANIZED COATING ON NEW STEEL SHALL BE TOUCHED UP WITH ZINC RICH PAINTS OR COLD GALVANIZING COMPOUNDS IN ACCORDANCE WITH ASTM A780.
10. THE EXISTING 1 1/2" STEEL GRATING OF THE TRANSVERSE CATWALK WILL NEED TO BE REMOVED PRIOR TO THE INSTALLATION OF THE SUPPLEMENTAL SUPPORT SYSTEM. AN AREA OF THE GRATING AROUND THE PERIMETER WILL NEED TO BE TRIMMED, TO PROVIDE CLEARANCE AROUND THE SUPPORT SYSTEM, PRIOR TO ITS REINSTALLATION. THE TRANSVERSE AND LONGITUDINAL CATWALK SUPPORTS ATTACHED TO THE ANCHOR SPAN TRUSS VERTICAL WILL NEED TO BE REMOVED AND RECONNECTED FOLLOWING INSTALLATION OF THE SUPPORT BRACKETS AND STRENGTHENING STEEL. PROVIDE TEMPORARY SUPPORT OF TRANSVERSE AND LONGITUDINAL CATWALKS.
11. RIVET REMOVAL: ALL ELEMENTS OF THE EXISTING TRUSS BRIDGE ARE TO BE CONSIDERED FRACTURE CRITICAL. RIVETS SHALL BE REMOVED BY PNEUMATIC OR MECHANICAL TOOLS IN A MANNER THAT WILL NOT DAMAGE THE UNDERLYING, CONNECTED MATERIAL. FLAME CUTTING METHODS SHALL NOT BE USED. UPON REMOVAL OF EACH RIVET, THE BASE METAL AROUND THE HOLE SHALL BE EXAMINED FOR SURFACE IRREGULARITIES AND DETEIORATION. ALL OXIDIZED MATERIAL SHALL BE REMOVED.
 

WHERE RIVET HOLE DIAMETERS ARE INCREASED BY REMOVAL OF OXIDIZED MATERIAL OR REMOVAL OF CORROSION, THE DIAMETER OF THE RESULTANT HOLE MUST NOT BE MORE THAN 1/8" LARGER THAN THE MATING BOLT. IF THIS CONDITION IS NOT MET, PROVIDE A HIGH STRENGTH BOLT IN A LARGER DIAMETER AS DIRECTED BY THE ENGINEER. A HARDENED WASHER SHALL BE PROVIDED UNDER EACH ELEMENT OF EACH BOLT.
12. WELDING DETAILS, PROCEDURES, AND TESTING METHODS SHALL CONFORM TO ANSI/AASHTO/ANS-D1.5 BRIDGE WELDING CODE.
13. STRUCTURAL STEEL WORK SHALL CONFORM TO THE REQUIREMENTS OF SECTION 504 OF THE MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
14. ALL TRUSS MEMBERS SHALL BE CONSIDERED AS FRACTURE CRITICAL MEMBERS (FCM).

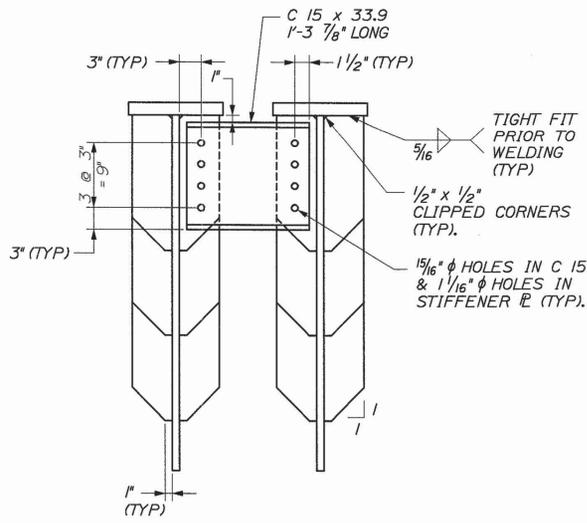


- NOTES:**
1. DETAIL APPLIES TO BOTH FACES OF MEMBER, EXCEPT AS NOTED.
  2. NORTH TRUSS SHOWN, SOUTH TRUSS SIMILAR.
  3. SEE STRENGTHENING DETAIL FOR ADDITIONAL INFORMATION.

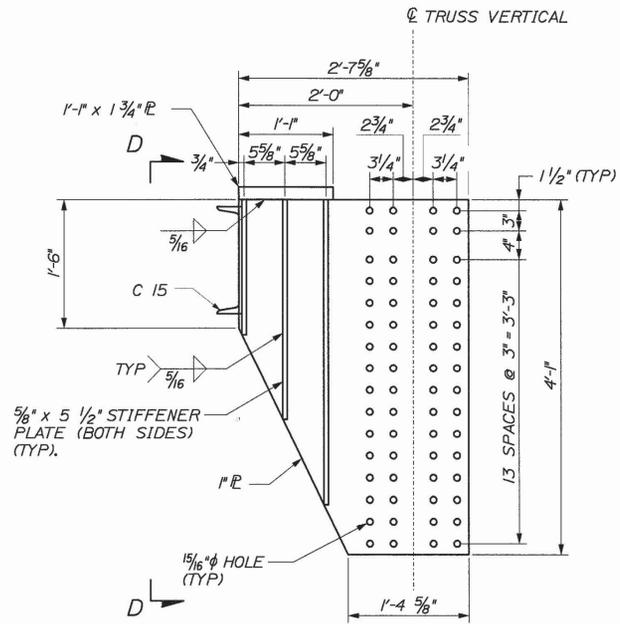
**PROPOSED FIXED PIN SUPPORT DETAIL**  
 SCALE: 1" = 1'-0"  
 U6-L6 - SPAN 2 NORTH TRUSS (INSIDE FACE) SHOWN  
 U32-L32 - SPAN 4 OPPOSITE AND SIMILAR  
 U52-L52 - SPAN 6 OPPOSITE

- LEGEND**
- EXISTING RIVET TO REMAIN
  - RIVET REMOVAL AND INSTALL 7/8"  $\phi$  BOLT IN EXISTING HOLE
  - × EXISTING COUNTERSUNK RIVET TO REMAIN
  - + NEW 7/8"  $\phi$  BOLT IN 15/16"  $\phi$  HOLE

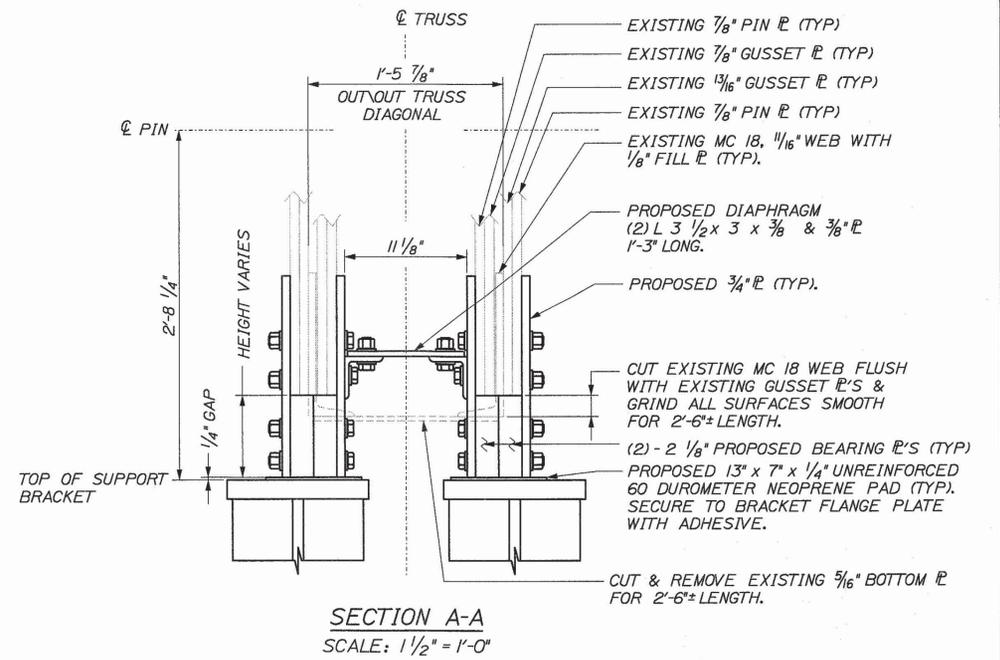
STATE OF MAINE	DEPARTMENT OF TRANSPORTATION	BH-9327(100)X	PIN 9327.10	BRIDGE PLANS
MEMORIAL BRIDGE		KENNEBEC COUNTY		FIXED PIN SUPPORT PLAN
KENNEBEC RIVER		AUGUSTA		SHEET NUMBER
PROJECT MANAGER: J.MCGOVERN		DESIGNED: T.STRAND		38
CHECKED: R.ROBERTS		DESIGNED: C.DONOHUE		OF 46
DATE: 12/04		BY: C.DONOHUE		
SIGNATURE		P.E. NUMBER		
DATE		DATE		
FIELD CHANGES		FIELD CHANGES		



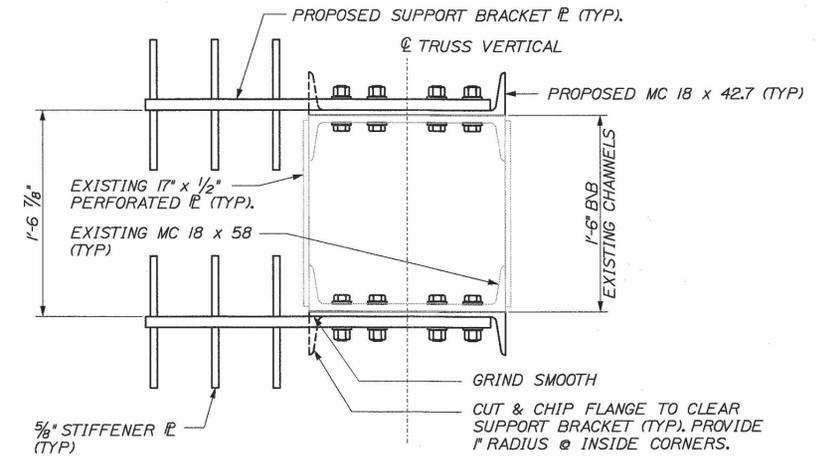
SECTION D-D  
SCALE: 1" = 1'-0"



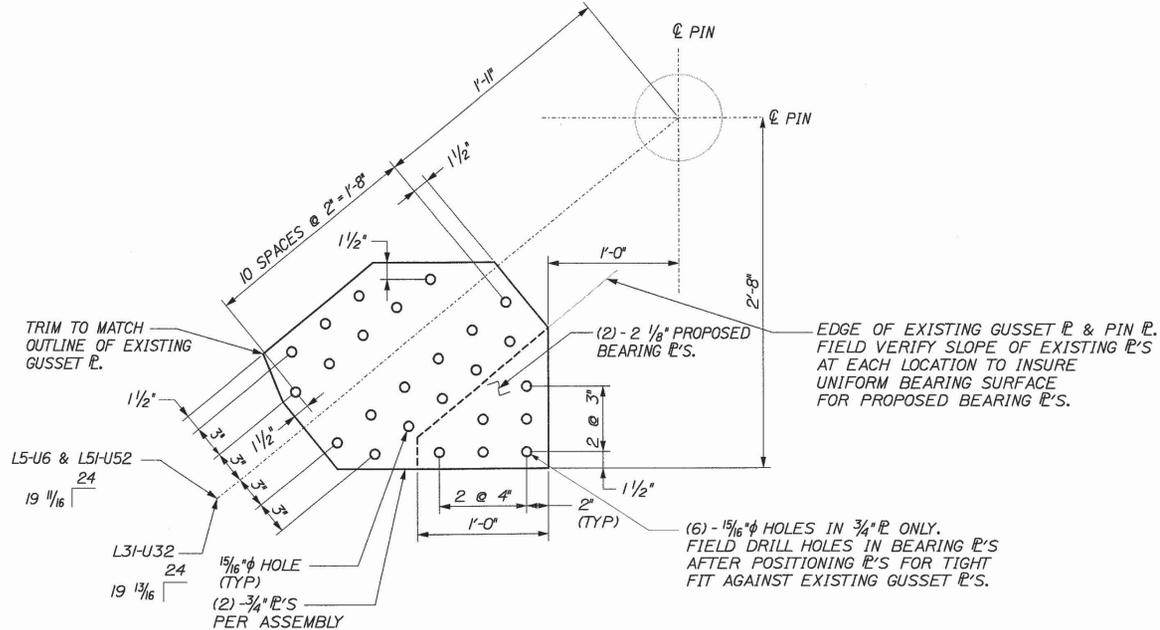
PROPOSED SUPPORT BRACKET ELEVATION  
SCALE: 1" = 1'-0"



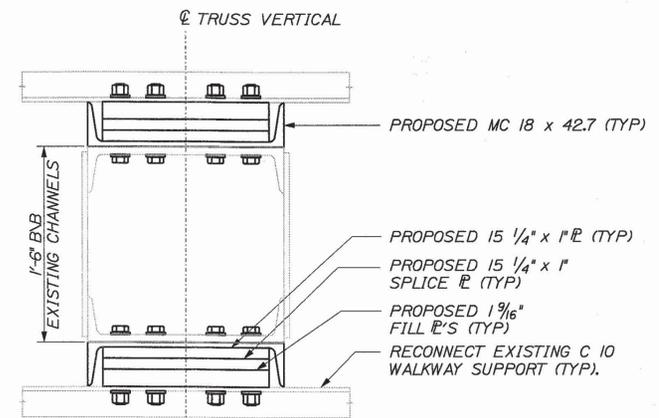
SECTION A-A  
SCALE: 1 1/2" = 1'-0"



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



PROPOSED SUSPENDED SPAN TOP SEAT ASSEMBLY  
SCALE: 1 1/2" = 1'-0"

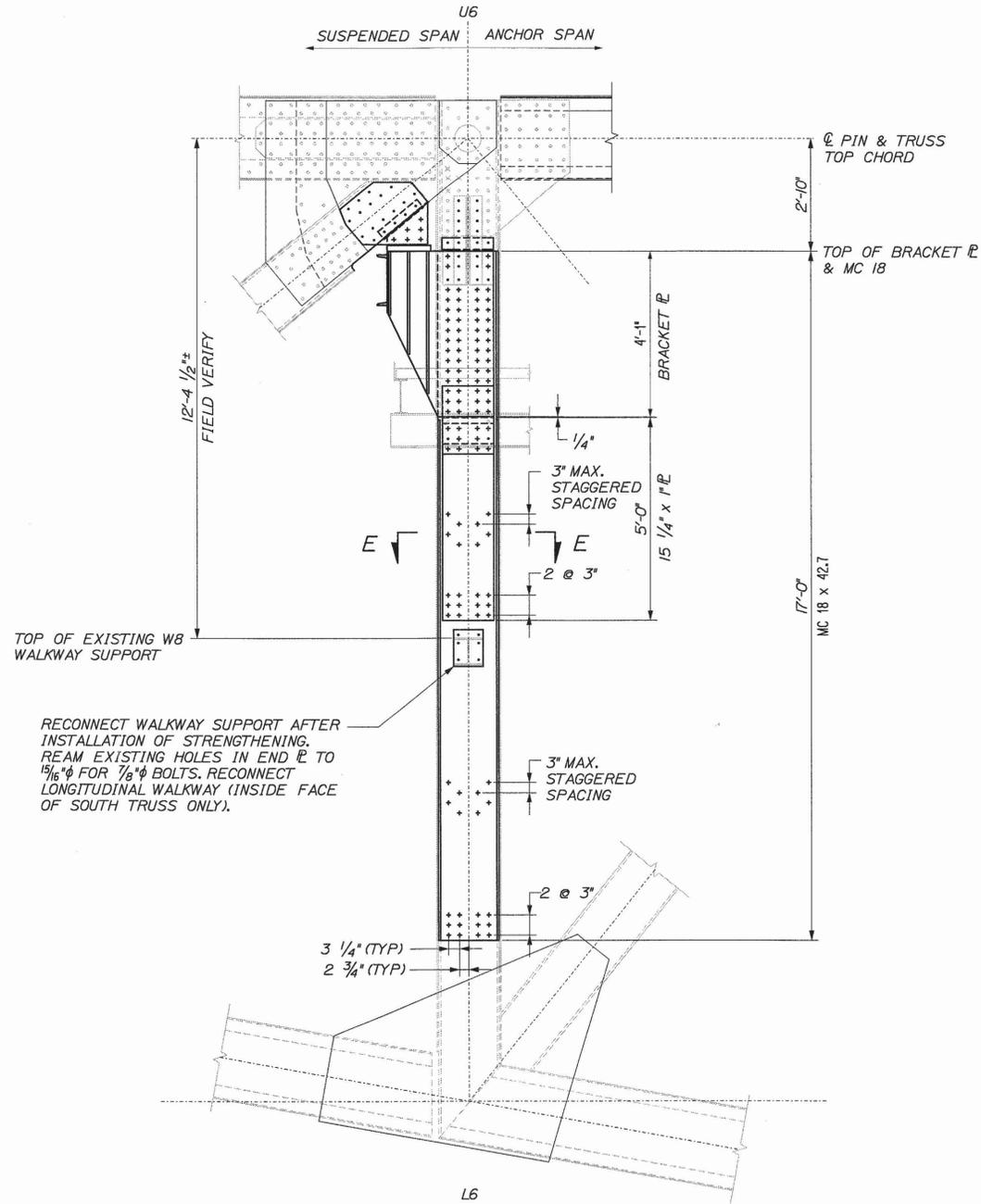


SECTION C-C  
SCALE: 1 1/2" = 1'-0"

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BRIDGE PLANS	
BH-9327(100)X		MEMORIAL BRIDGE		PIN 9327.10	
SIGNATURE		P.E. NUMBER		DATE	
DATE	BY	J.MCGOVERN	T.STRAND	C.DONOHUE	12/04
DESIGN-DETAILED	CHECKED-REVIEWED	DESIGN-DETAILED	CHECKED-REVIEWED	DESIGN-DETAILED	CHECKED-REVIEWED
REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES	
MEMORIAL BRIDGE			KENNEBEC RIVER		
AUGUSTA			KENNEBEC COUNTY		
FIXED PIN SUPPORT DETAILS					
SHEET NUMBER					
39					
OF 46					

**NOTES:**

1. STRENGTHENING APPLIES TO BOTH FACES OF MEMBER, EXCEPT AS NOTED.
2. NORTH TRUSS SHOWN, SOUTH TRUSS SIMILAR.

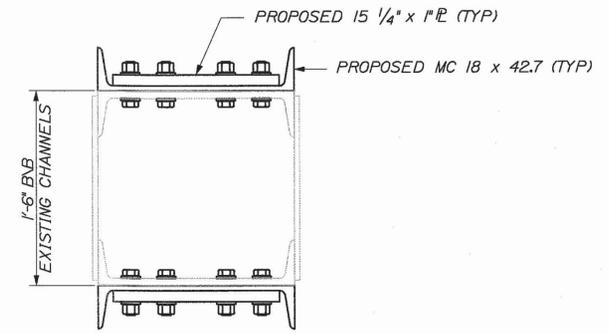


**PROPOSED TRUSS STRENGTHENING**  
SCALE: 1/2" = 1'-0"

U6-L6 - SPAN 2 NORTH TRUSS (INSIDE FACE) SHOWN  
U32-L32 - SPAN 4 OPPOSITE AND SIMILAR  
U52-L52 - SPAN 6 OPPOSITE

**LEGEND**

- EXISTING RIVET TO REMAIN
- RIVET REMOVAL AND INSTALL 7/8" φ BOLT IN EXISTING HOLE
- ⊗ EXISTING COUNTERSUNK RIVET TO REMAIN
- + NEW 7/8" φ BOLT IN 1 5/16" φ HOLE



**SECTION E-E**  
SCALE: 1 1/2" = 1'-0"

Date: 3/3/2005

Username: david.sullivan

Division: BRIDGE

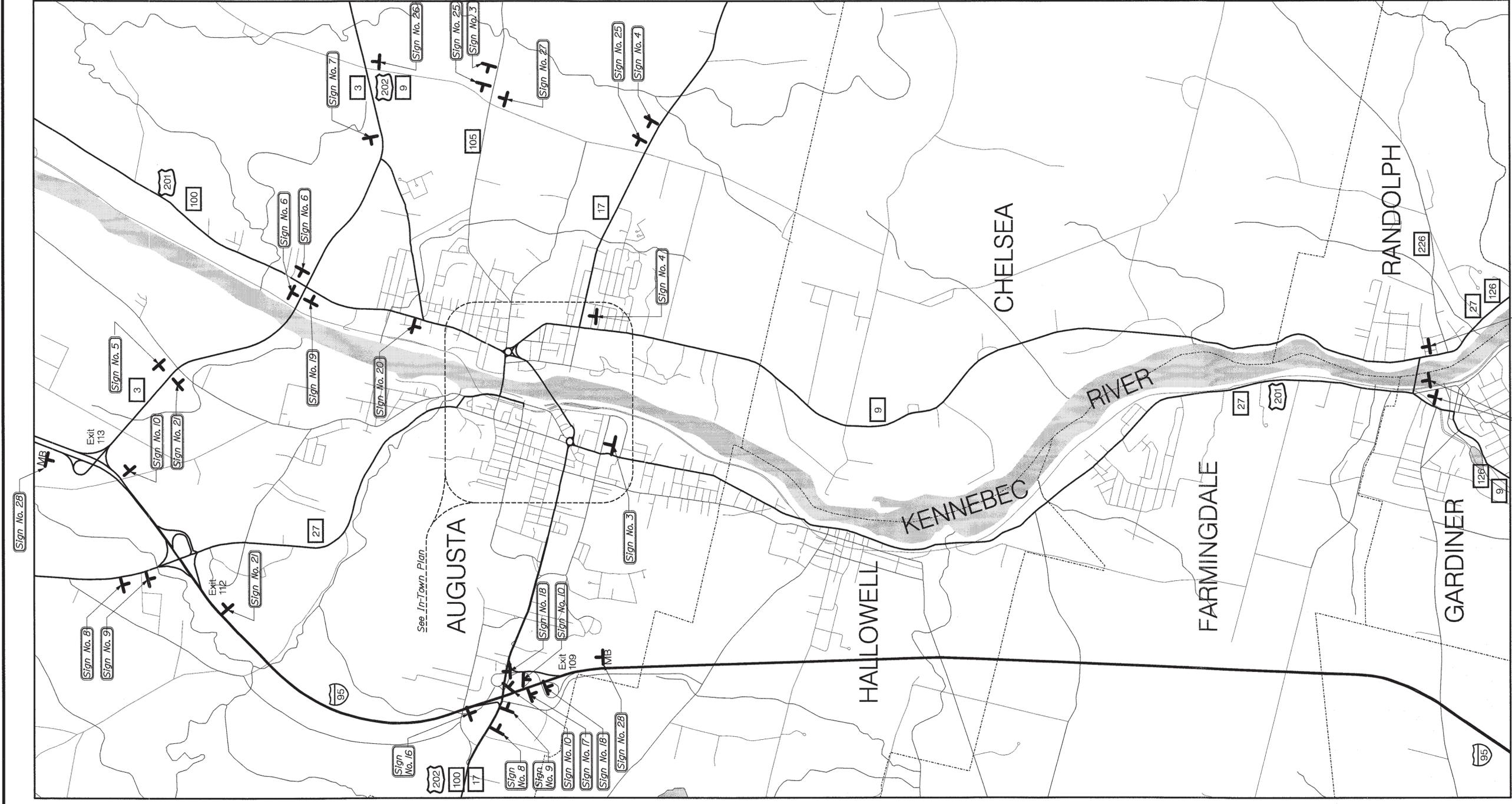
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STATE OF MAINE	DEPARTMENT OF TRANSPORTATION	BH-9327(100)X	PIN	9327.10	BRIDGE PLANS
MEMORIAL BRIDGE					

PROJ. MANAGER	J.MCGOVERN	DATE	12/04
DESIGN-DETAILED	T.STRAD	BY	C.DONOHUE
CHECKED-REVIEWED	J.MCGOVERN	SIGNATURE	
DESIGN-DETAILED		P.E. NUMBER	
REVISIONS 1		DATE	
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

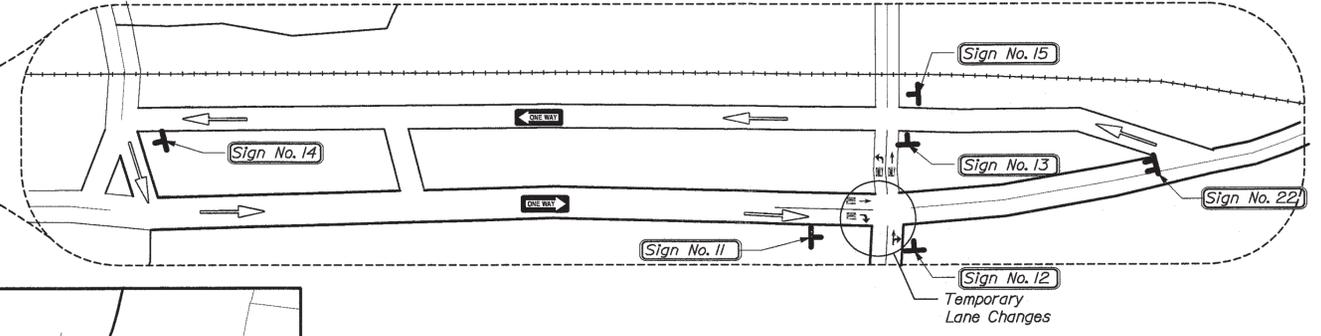
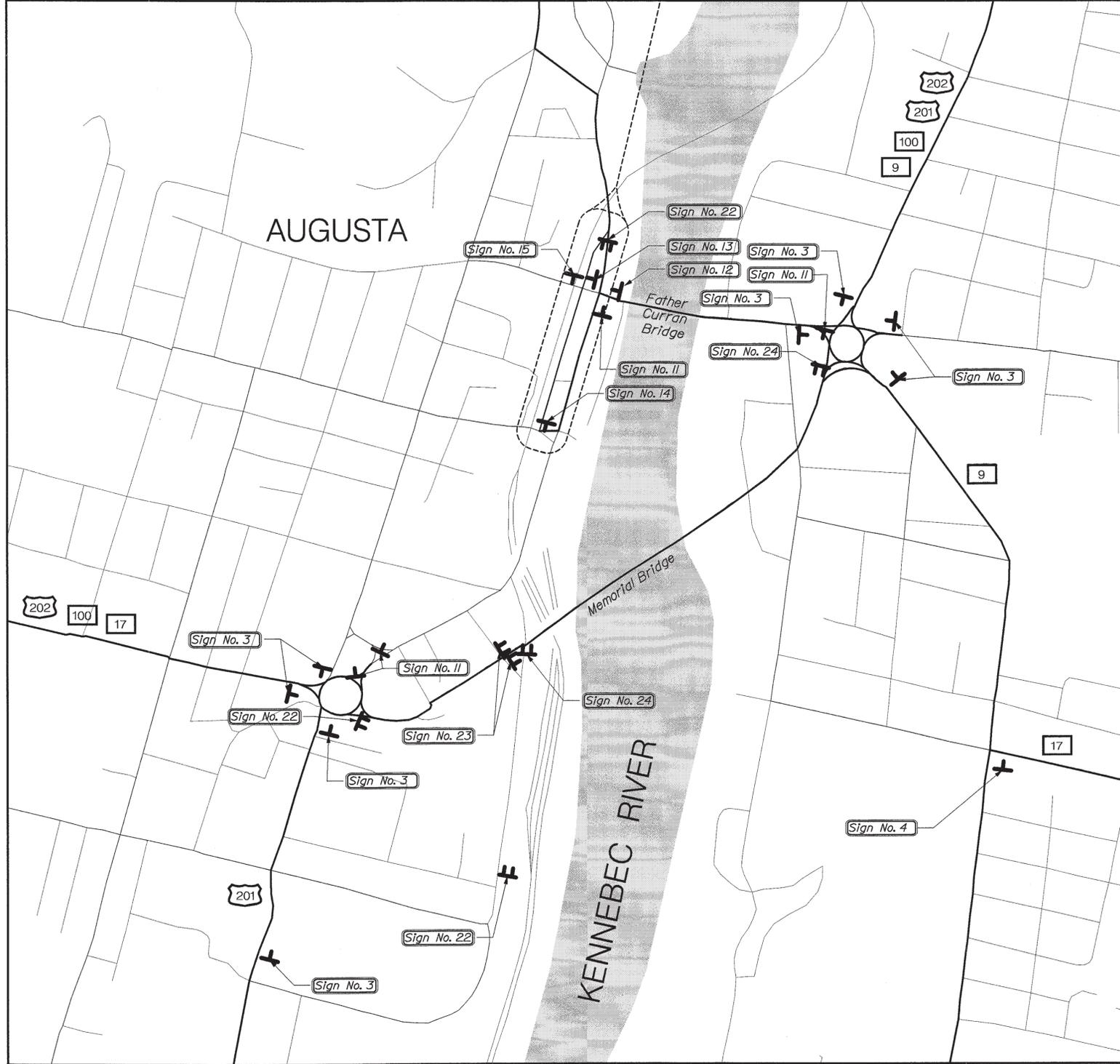
MEMORIAL BRIDGE	KENNEBEC RIVER	KENNEBEC COUNTY
AUGUSTA		

<b>TRUSS STRENGTHENING</b>	
SHEET NUMBER	
40	
OF 46	



NOTE:  
Message Boards that  
are to be moved are  
not shown.

SHEET NUMBER  <h1 style="margin: 0;">41</h1> OF 46	CITY OF AUGUSTA KENNEBEC COUNTY MEMORIAL BRIDGE KENNEBEC RIVER DETOUR AREA PLAN	STATE OF MAINE DEPARTMENT OF TRANSPORTATION BH-9327(100)X BRIDGE NO. 5196 PIN 9327.10 BRIDGE PLANS																																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">PROJ. MANAGER</th> <th style="width: 10%;">WLF</th> <th style="width: 10%;">BY</th> <th style="width: 10%;">DATE</th> </tr> </thead> <tbody> <tr> <td>DESIGN-DETAILED</td> <td>ETC</td> <td>DMS</td> <td></td> </tr> <tr> <td>CHECKED-REVIEWED</td> <td></td> <td>BKC</td> <td>2/23/05</td> </tr> <tr> <td>DESIGN-DETAILED</td> <td></td> <td>BKC</td> <td></td> </tr> <tr> <td>DESIGN-DETAILED</td> <td></td> <td>BAN</td> <td></td> </tr> <tr> <td>REVISIONS 1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVISIONS 2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVISIONS 3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVISIONS 4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FIELD CHANGES</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		PROJ. MANAGER	WLF	BY	DATE	DESIGN-DETAILED	ETC	DMS		CHECKED-REVIEWED		BKC	2/23/05	DESIGN-DETAILED		BKC		DESIGN-DETAILED		BAN		REVISIONS 1				REVISIONS 2				REVISIONS 3				REVISIONS 4				FIELD CHANGES				SIGNATURE P.E. NUMBER DATE
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MEMORIAL BRIDGE  
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 CITY OF AUGUSTA    KENNEBEC COUNTY

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 BH-9327(100)X

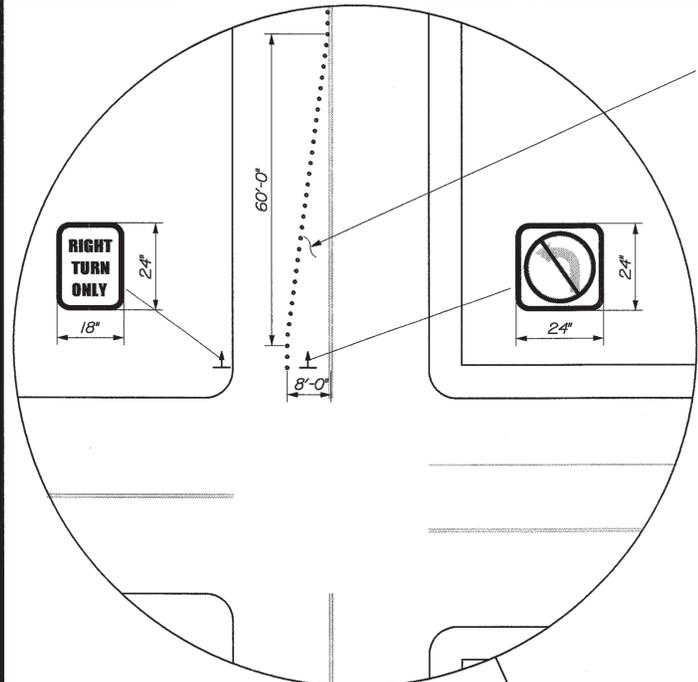
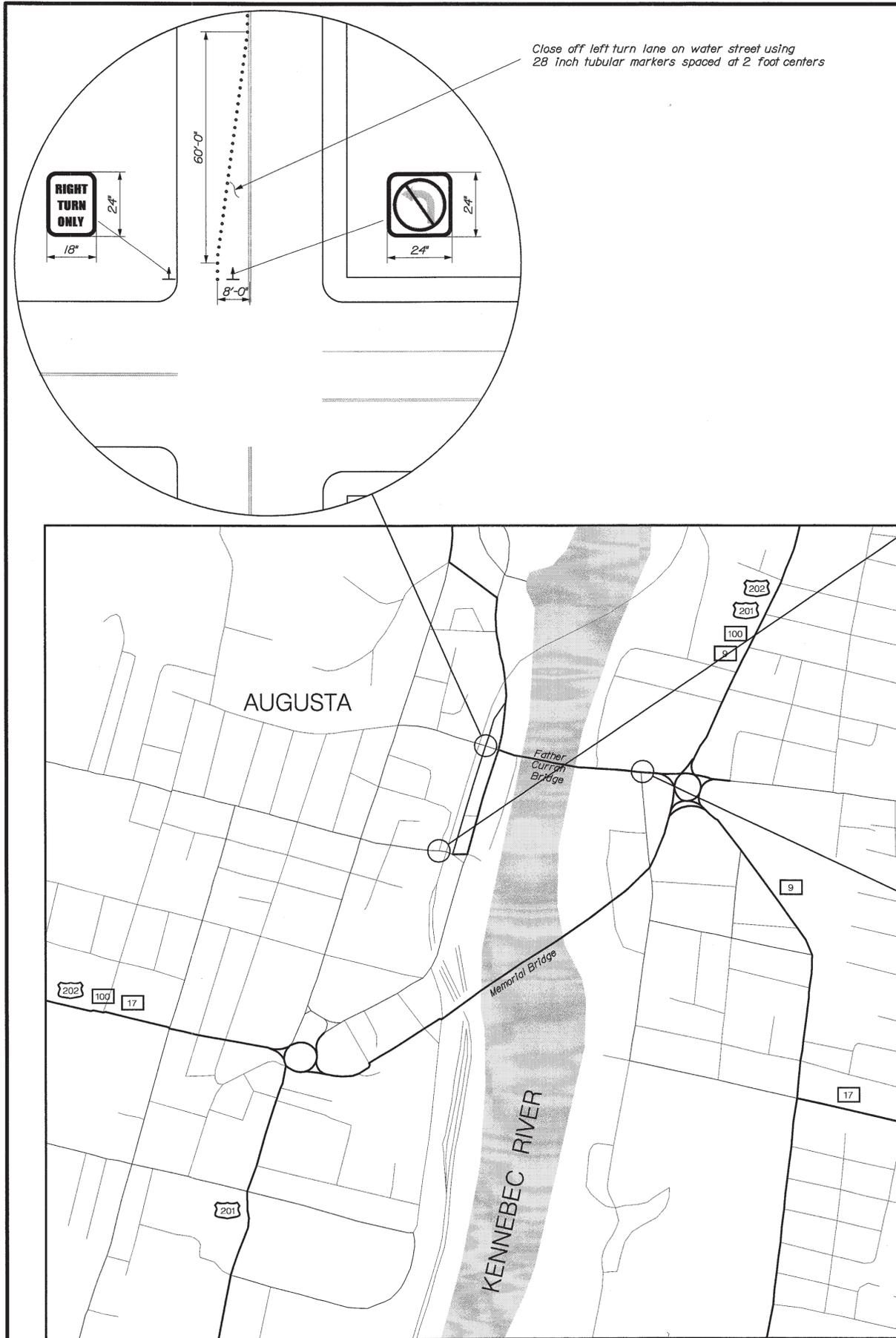
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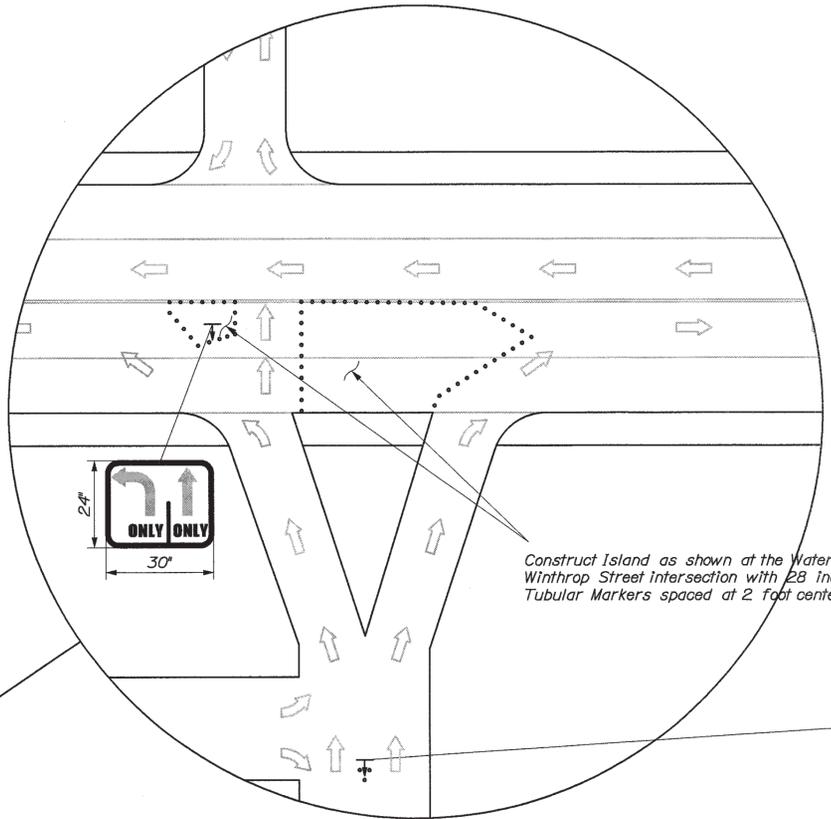
BRIDGE NO. 5196      PIN 9327.10      BRIDGE PLANS

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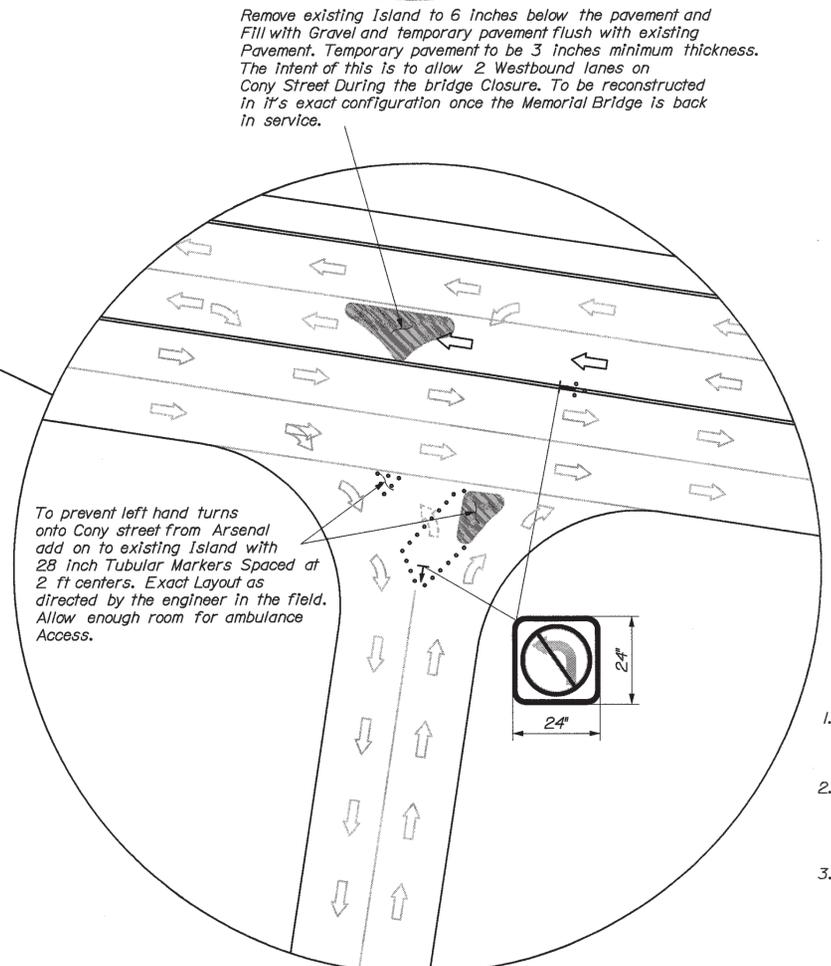
IN-TOWN DETOUR PLAN



Close off left turn lane on water street using 28 inch tubular markers spaced at 2 foot centers



Construct Island as shown at the Water Street Winthrop Street Intersection with 28 inch Tubular Markers spaced at 2 foot centers



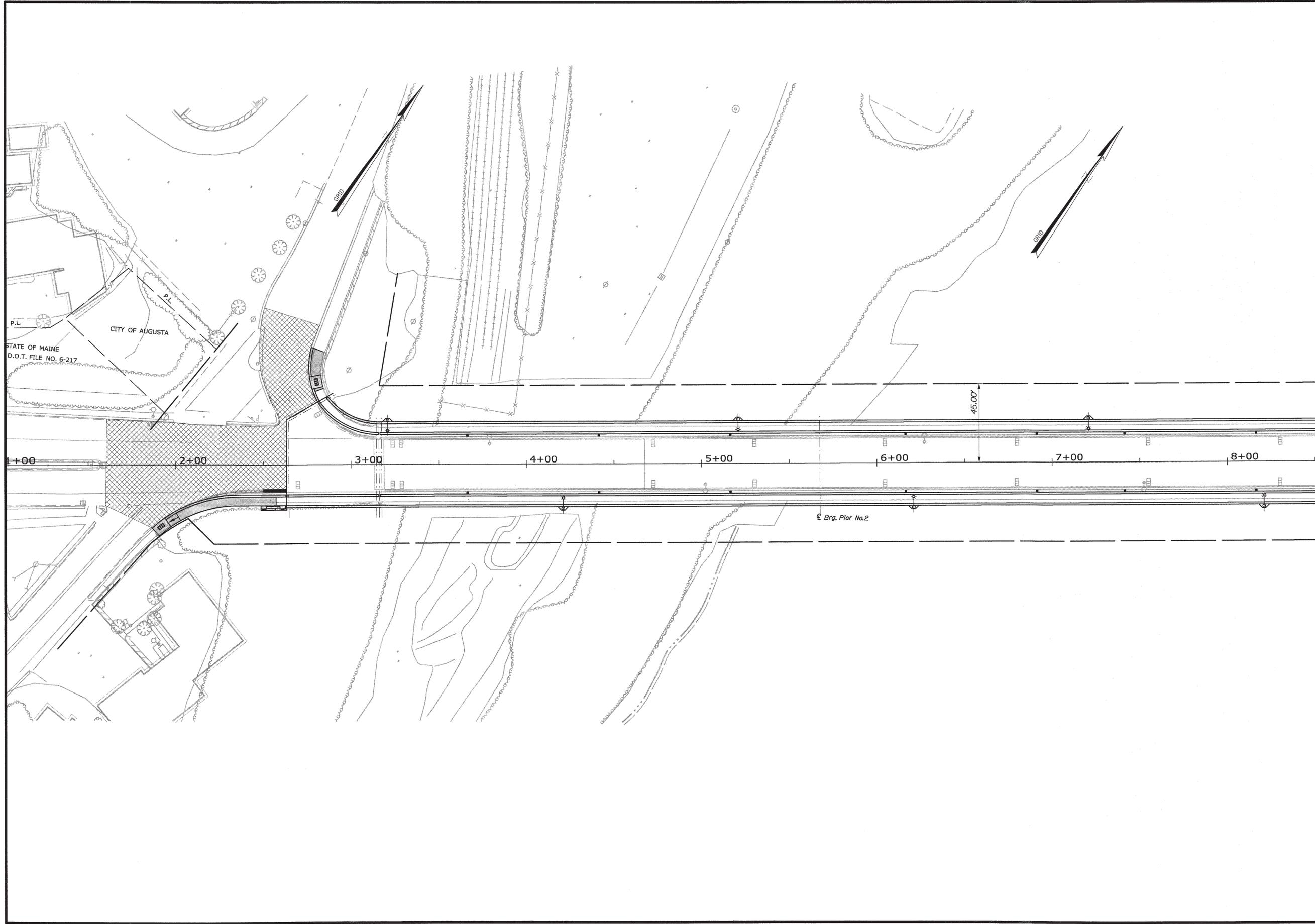
Remove existing Island to 6 inches below the pavement and Fill with Gravel and temporary pavement flush with existing Pavement. Temporary pavement to be 3 inches minimum thickness. The intent of this is to allow 2 Westbound lanes on Cory Street During the bridge Closure. To be reconstructed in it's exact configuration once the Memorial Bridge is back in service.

To prevent left hand turns onto Cory street from Arsenal add on to existing Island with 28 inch Tubular Markers Spaced at 2 ft centers. Exact Layout as directed by the engineer in the field. Allow enough room for ambulance Access.

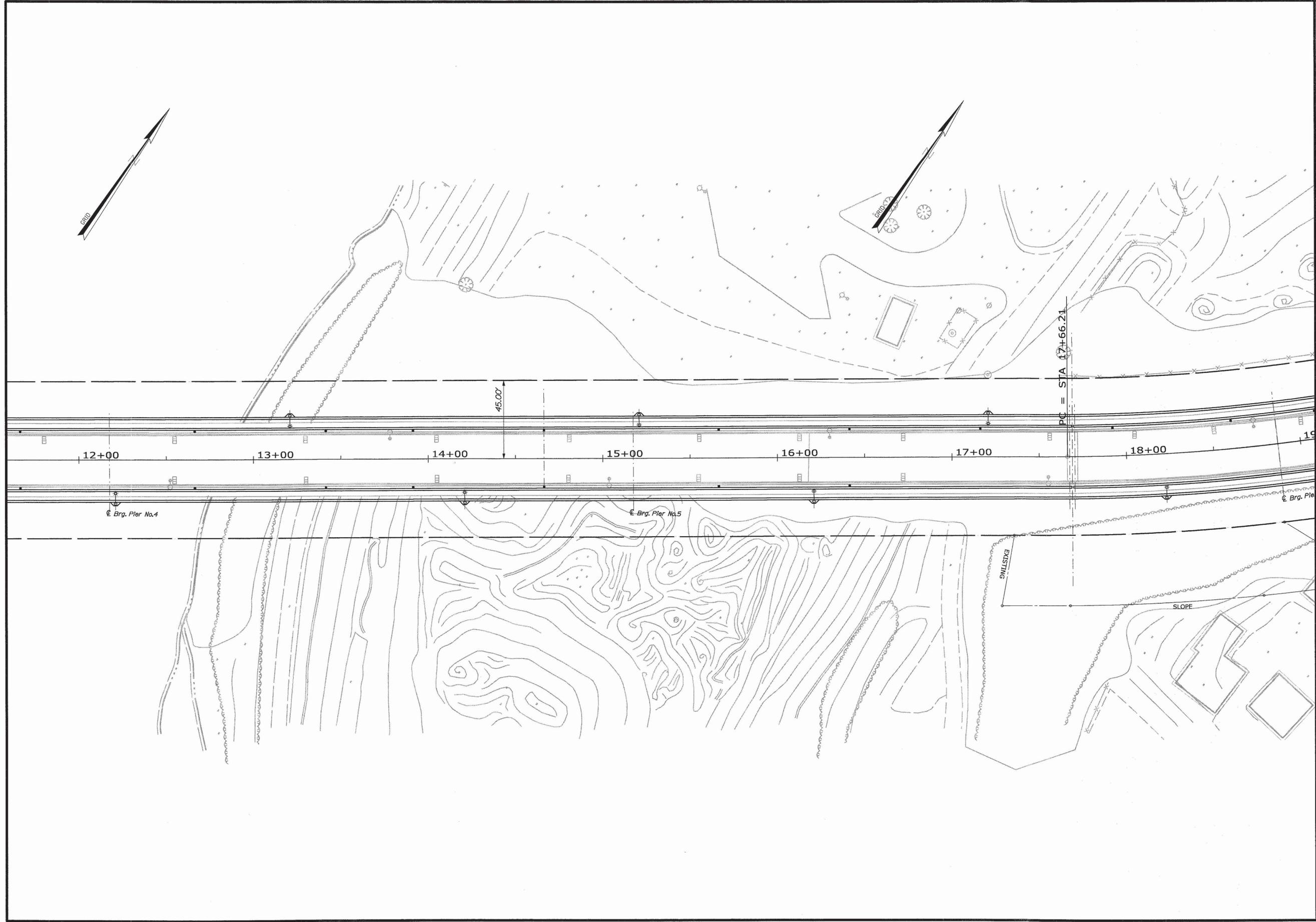
**NOTES:**

1. All signs to be of the size shown, minimum, mounted in accordance with the MUTCD and Maine Department of Transportation Standard Specifications.
2. Payment for all materials, labor and equipment required to satisfactorily install all tubular markers, all signs as shown on this sheet, shall be paid for under item number 652.70, Temporary Intersection Modifications.
3. Payment for all materials, labor, and equipment required as well as all excavation, gravel, pavement and concrete required to remove island and reinstall island in its exact current configuration on Cory street shall be paid for under item number 652.70, Temporary Intersection Modifications.

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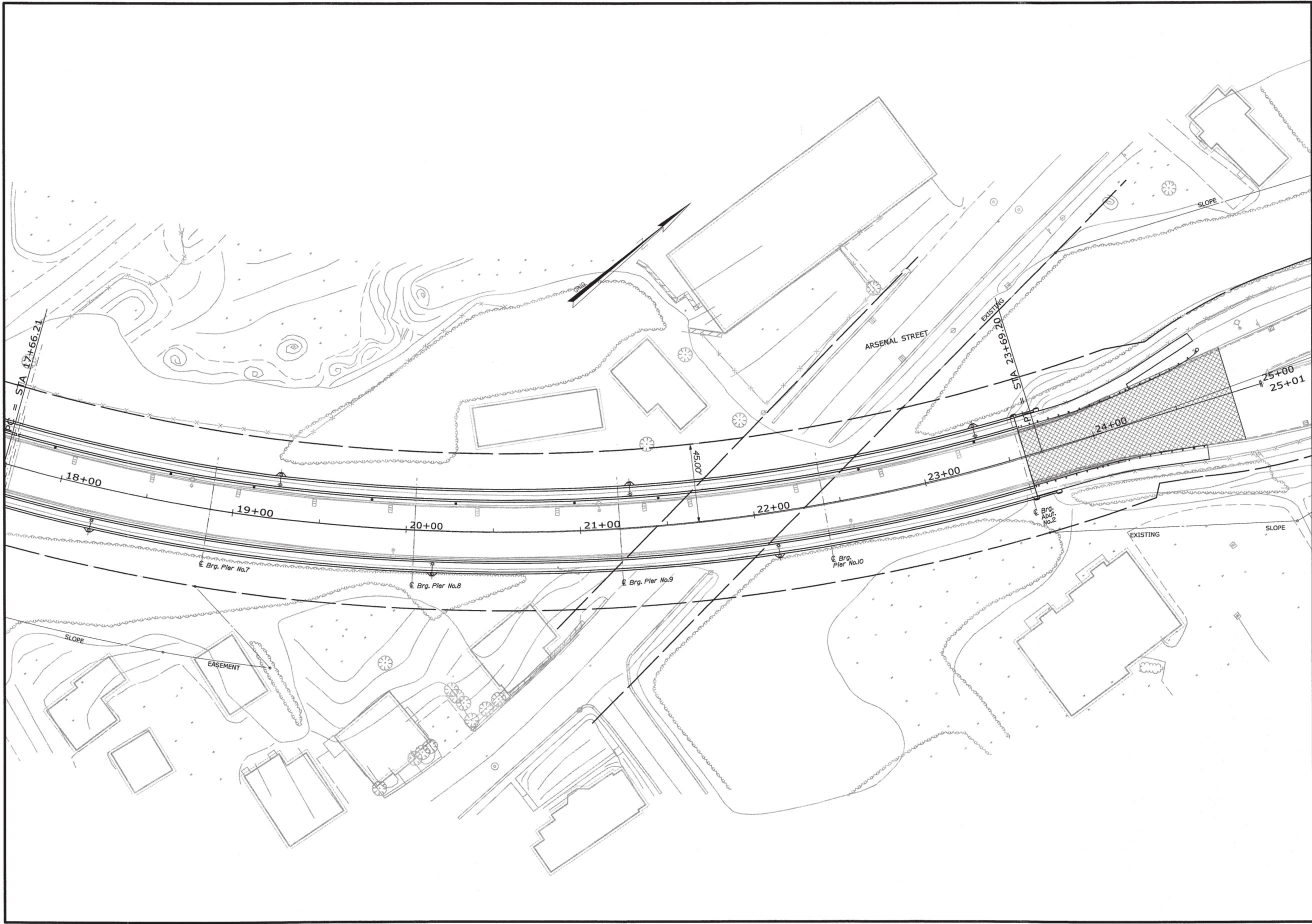


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