STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Fifth Edition 2010.

DESIGN LOADING

Live Load	HL - 93 Modified

TRAFFIC DATA

Current (2010) AADT	2490
Future (2030) AADT	3490
DHV - % of AADT	11%
Design Hour Volume	384
Heavy Trucks (% of AADT)	8%
Heavy Trucks (% of DHV)	8%
Directional Distribution (% of DHV)	60%
18 kip Equivalent P 2.0	152
18 kip Equivalent P 2.5	145
Design Speed (mph)	40 mph

MATERIALS

Concrete:	
Structural Wearing Surface	Class "LP"
Barriers, Curbs, Sidewalks & Transition Barriers	Class "LP"
Precast	Class "P"
All Other	Class "A"
Reinforcing Steel	ASTM A 615/A 615M, Grade 60
Prestressing Strands	AASHTO 203 (ASTM A 416), Grade 270, Low Relaxation
Structural Steel:	
All Material (except as noted)	ASTM A 709, Grade 50W (unpainted)
High Strength Bolts	ASTM A 325, Type 3

BASIC DESIGN STRESSES

Concrete	f 'c = 4,350 psi
Precast Concrete	f 'c = 5,000 psi
	f 'ci = 4,000 psi
Reinforcing Steel	f y = 60,000 psi
Prestressing Strand	F μ = 270,000 psi
Structural Steel:	
ASTM A 709, Grade 50W	F y = 50,000 psi
ASTM A 709, Grade 36	F y = 36,000 psi
ASTM A 325	F μ = 120,000 psi

UTILITIES

Central Maine Power Company
Fairpoint Communications
Time Warner Cable
Maine Central Railroad

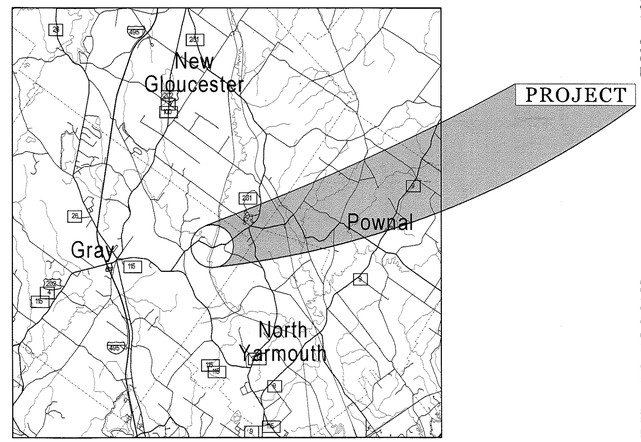
SCOPE OF WORK

Remove the existing bridge deck and components and replace with a new concrete deck, wearing surface, curbs, rail and transition barriers. Some repair to existing diaphragms and rehabilitation of existing bearings. Replace existing guard rail and approximately 325 feet of approach work. Reconstruction of railroad crossing and signal improvements.

GRAY
CUMBERLAND COUNTY
SWEETSER BRIDGE
OVER
ROYAL RIVER
DEPOT ROAD
FEDERAL AID PROJECT NO. BH-1791(300)X
PROJECT LENGTH 0.066 mi.
BRIDGE DECK REPLACEMENT
BRIDGE NO. 5781

MAINE CENTRAL RAILROAD
PROJECT NO. 18107.00
RAILROAD CROSSING RECONSTRUCTION
PROJECT NO. 18107.10
SIGNAL IMPROVEMENTS

LIST OF DRAWINGS



LOCATION MAP

2 0 2 4
Scale of Miles

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

	DATE
APPROVED	
COMMISSIONER: David Bernhardt	5/12/11
CHIEF ENGINEER: Kenneth P. Sweeney	5/12/2011

STATE OF MAINE * Nathaniel D. Benoit 10651 * REGISTERED PROFESSIONAL ENGINEER

SIGNATURE: Nathaniel Benoit
P.E. NUMBER: 10651
DATE: 5/9/11

PROJECT INFORMATION

PROGRAM	BRIDGE PROGRAM
PROJECT MANAGER	R. J. NIMON
DESIGNER	TEAM SOUTH
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

PIN 17913.00, 18107.00 & 18107.10

BH-1791(300)X

GRAY
SWEETSER BRIDGE

TITLE SHEET

SHEET NUMBER
1
OF 23

Filename: \00\BRIDGE\MSTA\001_Title.dgn Division: BRIDGE Username: richard.rinnon Date: 5/9/2011

Filename: ...\bridge\msta\002_Estimate.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	18107.00	18107.10	17913.00	TOTAL QUANTITY	UNIT
202.10	REMOVING EXISTING SUPERSTRUCTURE (PROPERTY OF CONTRACTOR) (1115 CY)			1	1	LS
202.17	REMOVING EXISTING STRUCTURAL CONCRETE (10 CY)			1	1	LS
203.20	COMMON EXCAVATION	160	5	1145	1310	CY
203.24	COMMON BORROW			10	10	CY
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	90	5	1075	1170	CY
403.208	HOT MIX ASPHALT 12.5 MM HMA SURFACE			160	160	T
403.213	HOT MIX ASPHALT 12.5 MM BASE			155	155	T
409.15	BITUMINOUS TACK COAT - APPLIED			34	34	G
502.219	STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS (3 CY)			1	1	LS
502.26	STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLABS ON STEEL BRIDGES (85 CY)			1	1	LS
502.29	STRUCTURAL CONCRETE WEARING SURFACE ON BRIDGES (25 CY)			1	1	LS
502.49	STRUCTURAL CONCRETE CURBS AND SIDEWALK (11 CY)			1	1	LS
503.12	REINFORCING STEEL, FABRICATED AND DELIVERED			1140	1140	LB
503.13	REINFORCING STEEL, PLACING			1140	1140	LB
504.70	STRUCTURAL STEEL FABRICATED AND DELIVERED (300 LB)			1	1	LS
504.71	STRUCTURAL STEEL ERECTION (300 LB)			1	1	LS
505.08	SHEAR CONNECTORS (880 EA)			1	1	LS
506.144	FIELD PAINTING NEW AND EXISTING STRUCTURAL STEEL (10,900 LB)			1	1	LS
506.17	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL (10,600 LB)			1	1	LS
506.18	CONTAINMENT AND POLLUTION CONTROL (10,900 LB)			1	1	LS
506.191	DISPOSAL OF SPECIAL WASTE OR HAZARDOUS WASTE MATERIAL (10,900 LB)			1	1	LS
507.0811	STEEL BRIDGE RAILING, 2 BAR (160 LF)			1	1	LS
514.06	CURING BOX FOR CONCRETE CYLINDERS			1	1	EA
515.21	PROTECTIVE COATING FOR CONCRETE SURFACES (410 SY)			1	1	LS
523.30	REMOVE, REFURBISH, & RESET FIXED BEARING (5 EA)			1	1	LS
523.31	REMOVE, REFURBISH, & RESET EXPANSION BEARING (5 EA)			1	1	LS
524.301	TEMPORARY STRUCTURAL SUPPORT			1	1	LS
526.301	TEMPORARY CONCRETE BARRIER TYPE 1 (100 LF)			1	1	LS
526.34	PERMANENT CONCRETE TRANSITION BARRIER			4	4	EA
606.1721	BRIDGE TRANSITION - TYPE 1			4	4	EA
606.23	GUARDRAIL TYPE 3C - SINGLE RAIL			112.5	112.5	LF
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER			8	8	EA
606.79	GUARDRAIL 350 FLARED TERMINAL			4	4	EA
610.08	PLAIN RIPRAP			180	180	CY
613.319	EROSION CONTROL BLANKET			10	10	SY
615.07	LOAM			25	25	CY
618.1411	SEEDING METHOD NUMBER 3 - PLAN QUANTITY			4	4	UN
619.1201	MULCH - PLAN QUANTITY			4	4	UN
619.1401	EROSION CONTROL MIX			45	45	CY
627.733	4 INCH WHITE OR YELLOW PAINTED PAVE MRK LINE			1275	1275	LF
627.75	WHITE OR YELLOW PAVEMENT AND CURB MARKING			360	360	SF
629.05	HAND LABOR, STRAIGHT TIME	8	2	40	50	HR
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	8	2	30	40	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)	8	2	30	40	HR
639.19	FIELD OFFICE TYPE B			1	1	EA
652.312	TYPE III BARRICADE			6	6	EA
652.33	DRUM			40	40	EA
652.34	CONE			20	20	EA
652.35	CONSTRUCTION SIGNS			325	325	SF
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES (60 CD)			1	1	LS
652.38	FLAGGER			80	80	HR
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL			1	1	LS
659.10	MOBILIZATION			1	1	LS

GENERAL CONSTRUCTION NOTES

1. During construction, the road will be closed to traffic for a time period specified in the Special Provisions.

2. For easements, construction limits and right of way lines, refer to Right of Way Map.

3. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.

4. All existing granite bridge curb which is to be removed shall be carefully salvaged by the Contractor, stacked on site and will remain the property of the Department. Once the material has been removed the Resident will contact the Region One Bridge Maintenance Engineer to coordinate pick up of the existing granite curb. Payment will be considered incidental to related Contract items.

5. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.

6. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for removing existing pavement, grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.

7. Place riprap on sideslopes up to the berm line.

8. Place riprap at each abutment to the top of footing.

9. Place loam 2 inches deep on all new or reconstructed sideslopes or as directed by the Resident.

10. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Item No. 619.1401, Erosion Control Mix.

11. Place a 24-in. wide strip of Temporary Erosion Control Blanket on the sideslopes along the top of the riprap and behind the wingwalls.

12. Guardrail posts as shown in the Standard Details shall be modified from the indicated length of 6 feet to a length of 7 feet with an embedment of 4.5 feet. Payment will be considered incidental to the guardrail pay items.

13. Extended-use Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be made under the appropriate Contract items.

14. Protective Coating for Concrete Surfaces shall be applied to the following areas:

All exposed surfaces of concrete curbs.
Fascias down to the drip notch.
All exposed surfaces of Concrete Transition Barriers.
Concrete wearing surface.
Ends of superstructure slab and wearing surface.

15. Project information referred to below may be accessed at the following MaineDOT web address: http://www.maine.gov/mdot/contractors/ .

16. The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.

17. Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:

a. If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.

b. If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.

c. If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.

18. The Contractor shall submit a Bridge Demolition Plan to the Resident at least 10 business days prior to the start of demolition work. The plan shall outline the methods and equipment to be used to remove and dispose of all materials included in the existing bridge. No work related to the removal of the bridge shall be undertaken by the Contractor until MaineDOT has reviewed the Bridge Demolition Plan for appropriateness and completeness. Payment for all work necessary for developing, submitting and finalizing the Demolition Plan will be considered incidental to the bridge removal pay item.

19. The existing bridge deck slab and the structural steel diaphragm indicated on the plans shall be removed by and become the property of the Contractor. The steel portions of the existing bridge are coated with a lead - based paint system. The Contractor is responsible for the containment, proper management and disposal of all lead-contaminated hazardous waste generated by the process of demolishing the bridge. The Contractor is responsible for implementing appropriate OSHA mandated personal protection standards related to this process. Once the existing bridge is removed, the Contractor is solely responsible for the care, custody and control of the components of the existing bridge and any hazardous waste generated as a result of the storage, recycling or disposal of the bridge components, including lead - coated steel. The Contractor shall recycle or reuse the steel in accordance with the Maine Department of Environmental Protection's "Maine Hazardous Waste Management Regulations," Chapter 850. A copy of this regulation is available at MaineDOT's offices on Child Street in Augusta. Payment for all labor, materials, equipment and other costs required to remove and dispose of the existing bridge will be considered incidental to the bridge removal pay item.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE PLANS

BRIDGE NO. 5781

PROJ. MANAGER	R.J. NIMON			
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011	
CHECKED-REVIEWED	TEAM SOUTH			
DESIGN2-DETAILED2				
DESIGN3-DETAILED3				
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

SIGNATURE

P.E. NUMBER

DATE

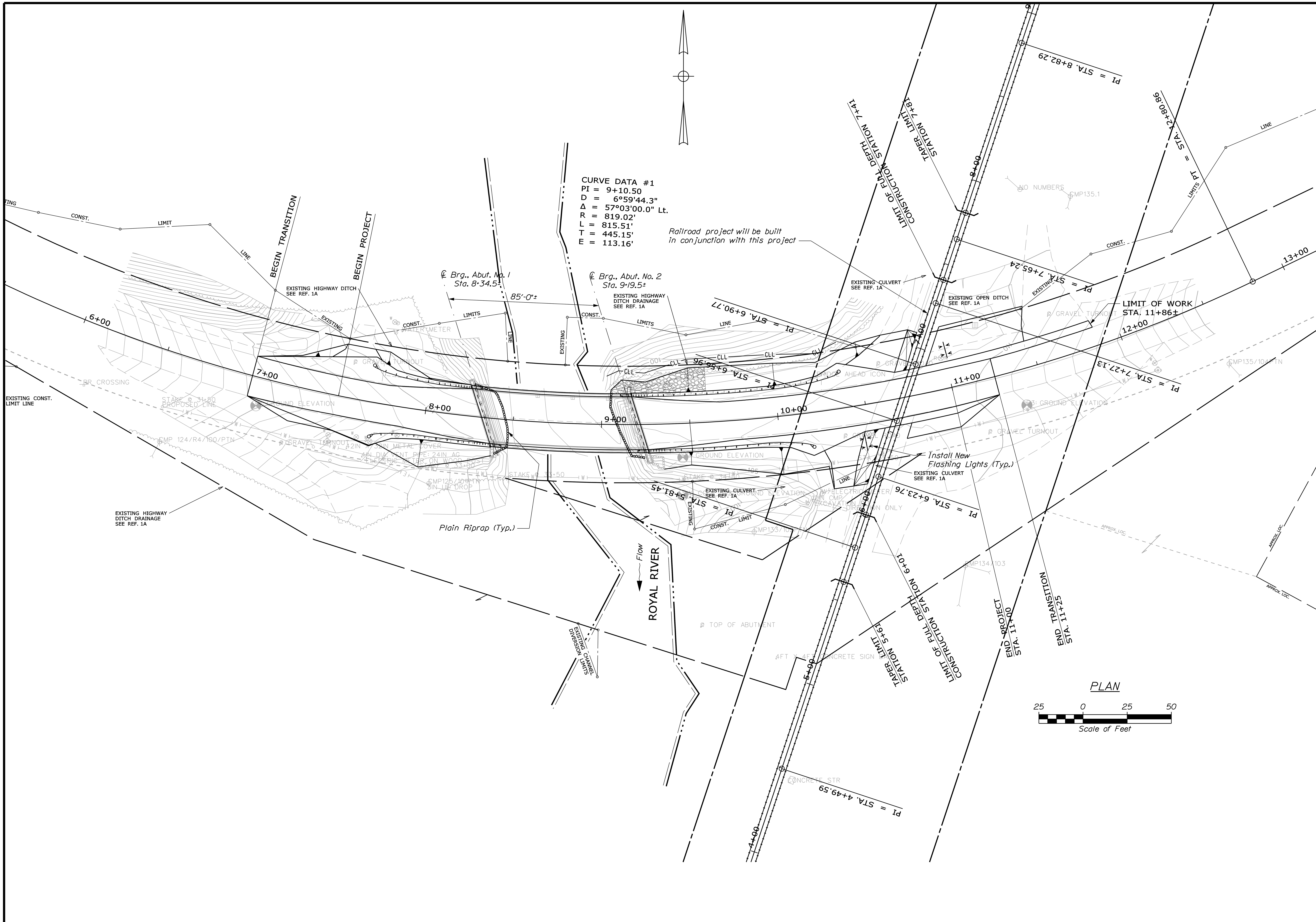
SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

ESTIMATED QUANTITIES

SHEET NUMBER

2

OF 23



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

BRIDGE NO. 5781

PIN 17913.00

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	R.J. NIMON	
DESIGN-DETAILED	TEAM SOUTH	R. NIMON 05/2011
CHECKED-REVIEWED	TEAM SOUTH	05/2011
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
GRAY CUMBERLAND COUNTY

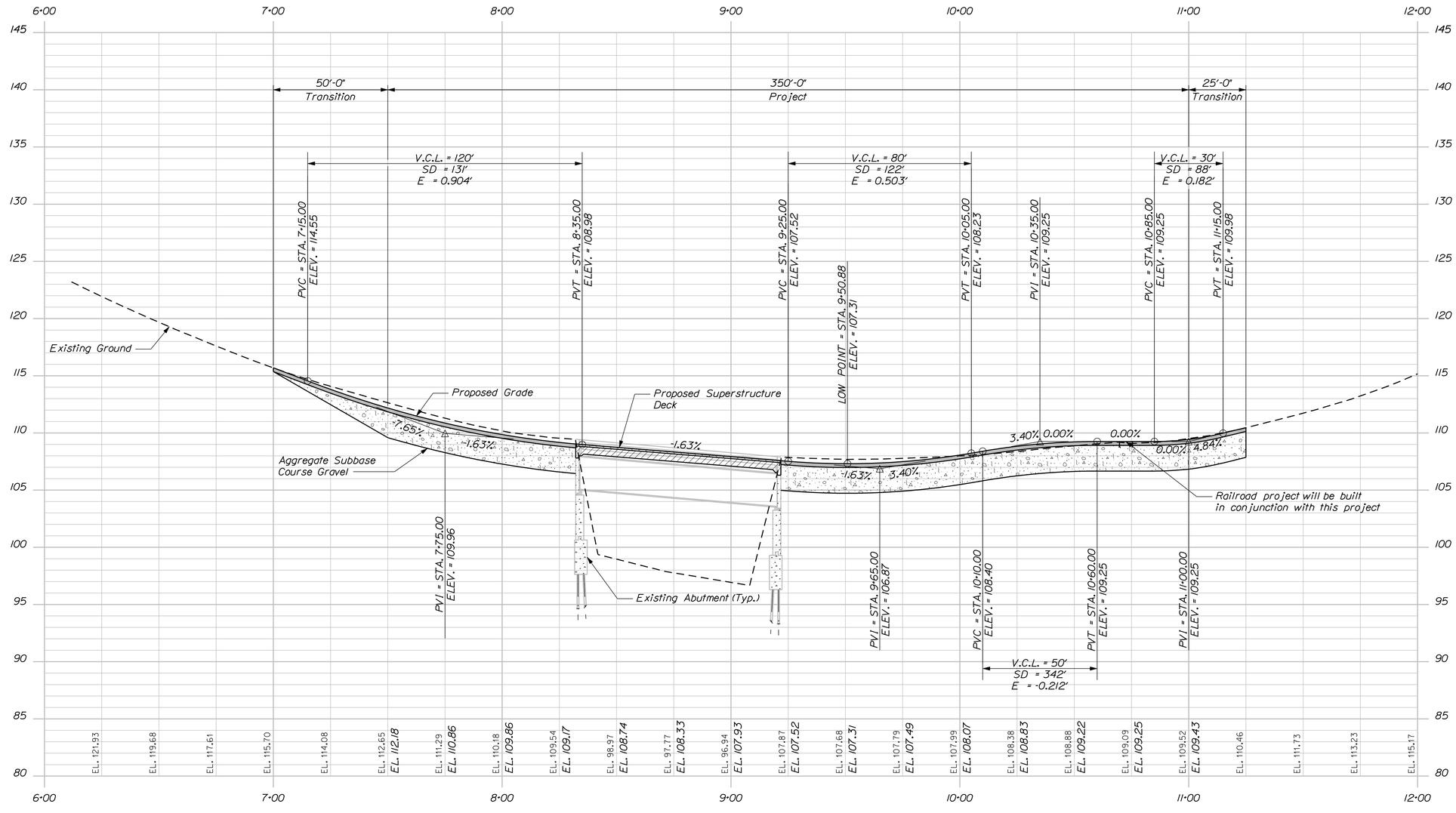
GENERAL PLAN

SHEET NUMBER

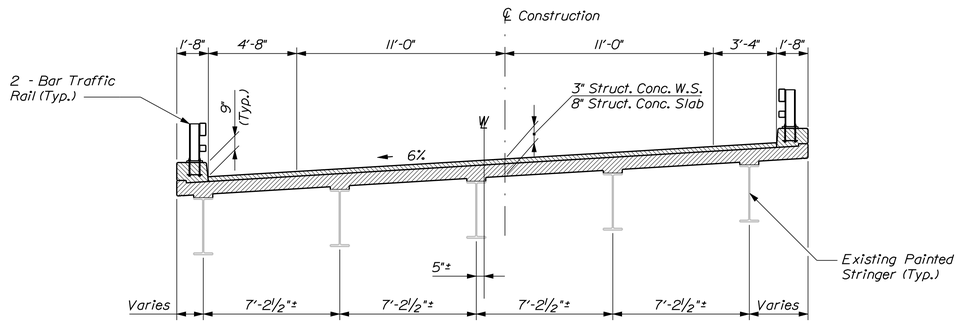
3

OF 23

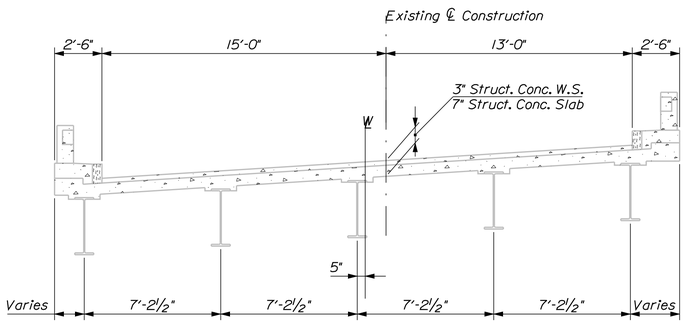
Filename: ...\msta\003_General_Plan.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



PROFILE



TRANSVERSE SECTION



EXISTING TRANSVERSE SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		05/2011
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

PROFILE

SHEET NUMBER

4

OF 23

Filename: ...\00\bridge\ms\to\004_Profile.dgn Division: BRIDGE Date:5/12/2011 Username: richard.nimon

Filename: ...\mslo\005_Detour_Plan.dgn Username: richard.nimon Division: BRIDGE Date:5/12/2011

1 — Depot Rd. 34" x 12" / DETOUR 30" x 24"

2 — Depot Rd. 34" x 12" / DETOUR 30" x 24"

3 — Depot Rd. 34" x 12" / DETOUR 30" x 24"

5 — ROAD CLOSED 500 FT. 48" X 48"

6 — ROAD CLOSED 1000 FT. 48" X 48"

7 — DETOUR AHEAD 48" X 48"

8 — ROAD CLOSED / XX MILES AHEAD / LOCAL TRAFFIC ONLY / DETOUR 60" X 30" / 48" X 18"

9 — ROAD CLOSED / XX MILES AHEAD / LOCAL TRAFFIC ONLY / DETOUR 60" X 30" / 48" X 18"

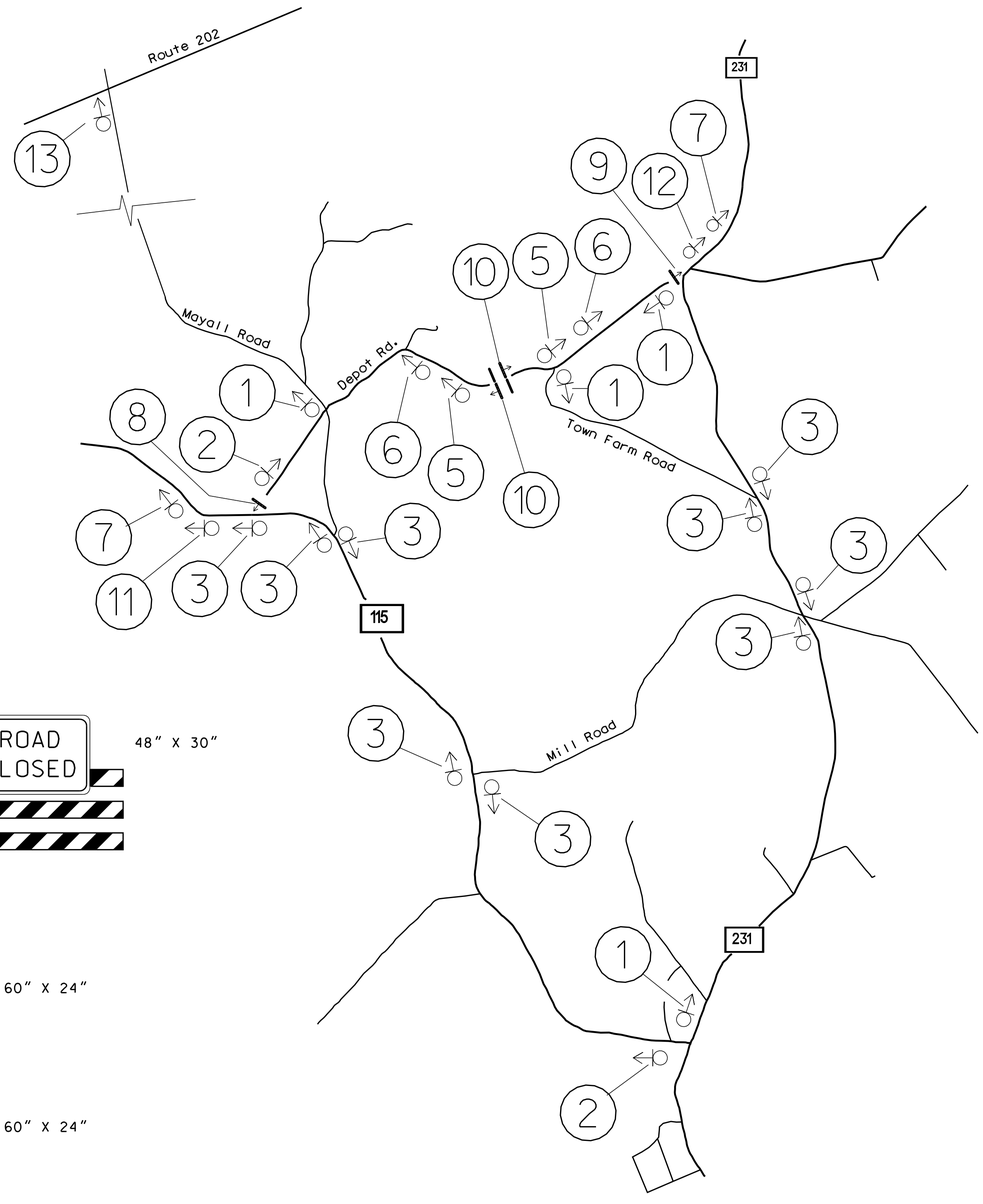
10 — ROAD CLOSED 48" X 30"

11 — DEPOT RD. CLOSED / XX MILES EAST 60" X 24"

12 — DEPOT RD. CLOSED / XX MILES WEST 60" X 24"

13 — DEPOT RD. CLOSED / TO THRU TRAFFIC 60" X 24"

14 — BRIDGE WILL CLOSE / STARTING YY/YY/YY 60" X 24"



General Notes

1) Contractor shall post sign 14 at the bridge in each direction of travel two weeks prior to the bridge closing.

NOT TO SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	D. HANKS	05/2011	
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

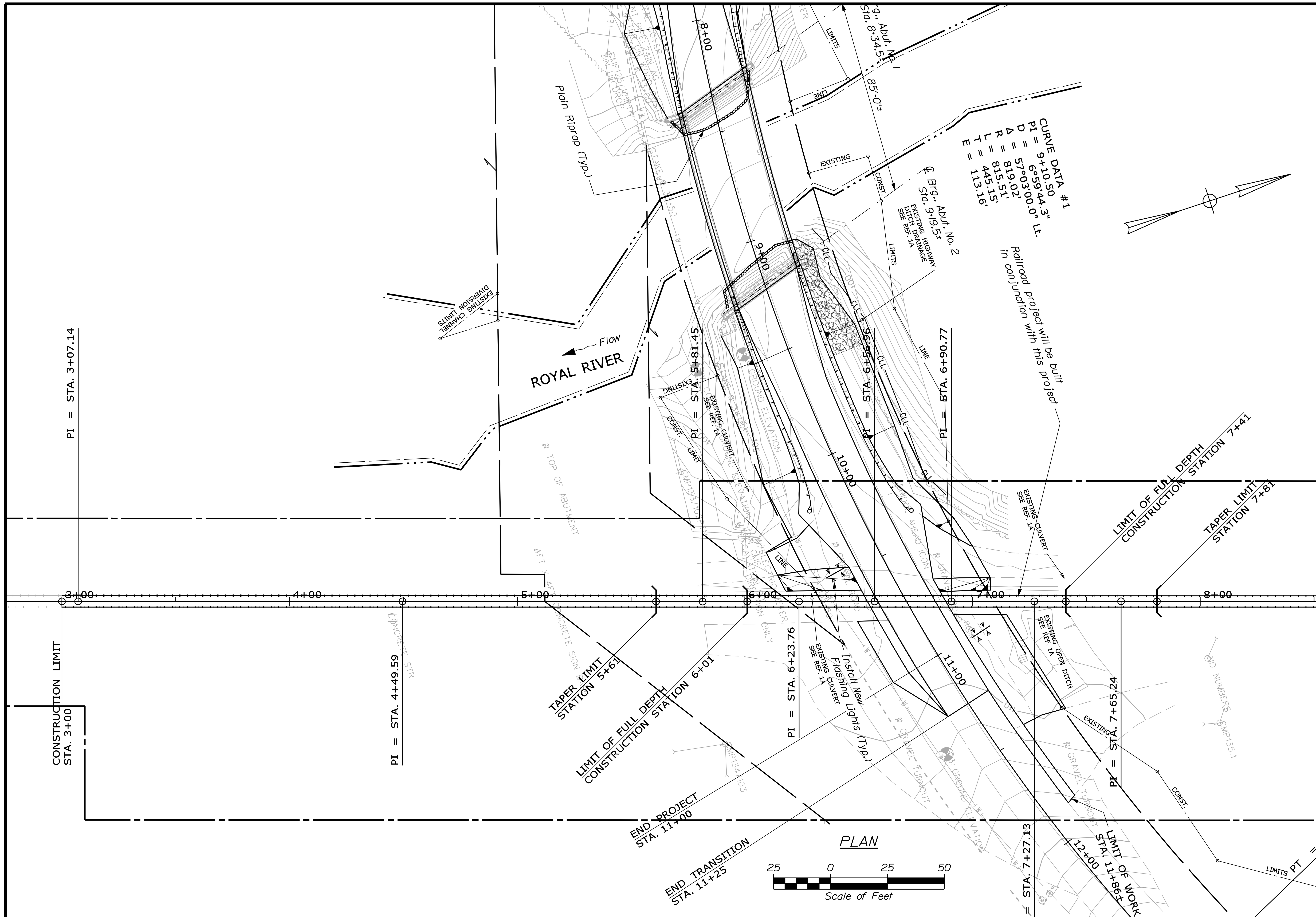
DETOUR PLAN

SHEET NUMBER

5

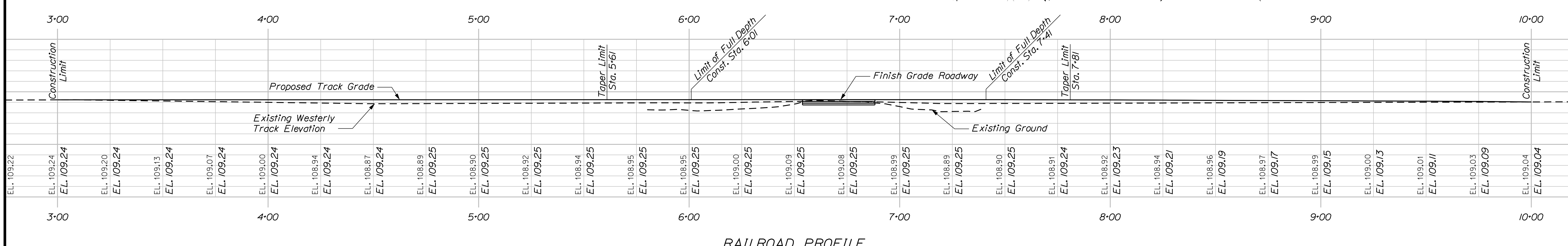
OF 23

Filename: ...\msta\006_Railroad_Plan.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



GENERAL NOTES

1. Construction shall conform to railroad crossing general notes in the standard details.
2. 117' or 120' welded 115# track panel shall be installed. Stagger as required to match existing joint pattern and centered on roadway.
3. 37.5 track feet rubber rail seals shall be installed. Rail seal shall be an elastomeric type crossing material sized to fit size of rail gauge and field sections. The material shall be manufactured of 100% virgin rubber and having the ability to interface with a bituminous surface. All rubber materials shall meet ASTM Specification D-2000, M4A712, B35, C32, EA14, G21 and Z1 thru 6.
4. Pavement markings are required.



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

18107.00

PIN 18107.00

RAILROAD PLANS

		BY	DATE
PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	B.JAMESON	R. NIMON	05/2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

GRAY

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY

RAILROAD GENERAL PLAN

SHEET NUMBER

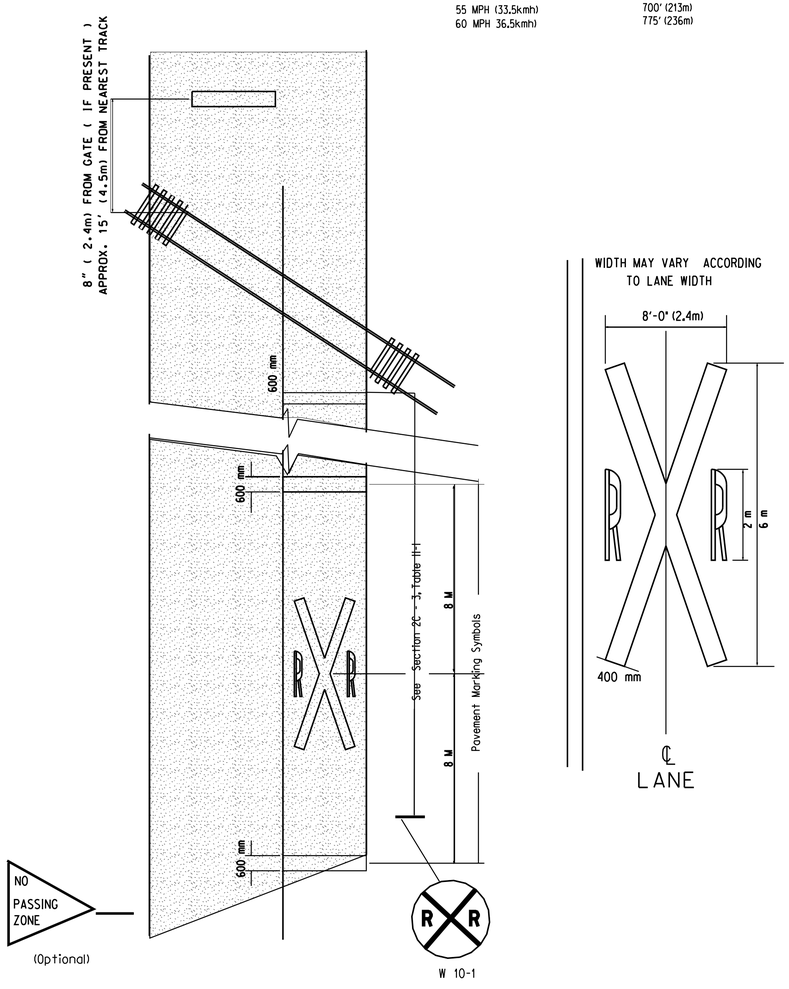
6

OF 23

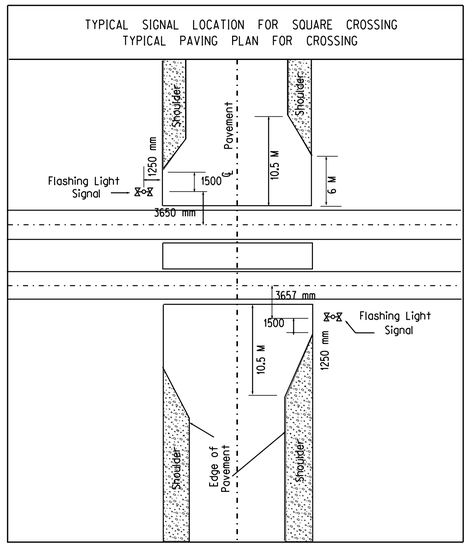
Filename: ...\007_StandardDetail2_RR.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011

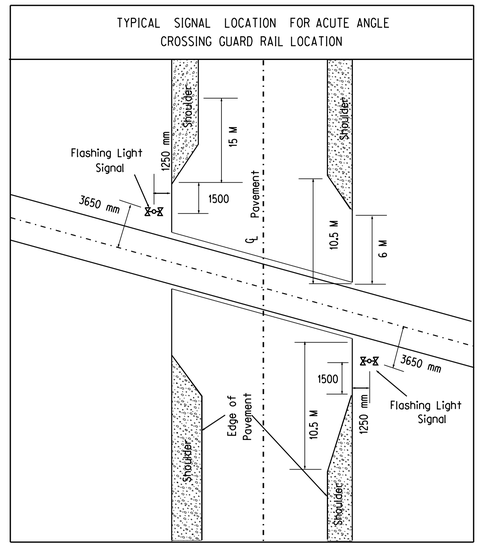
Suggested Minimum Pavement Marking Placement Distance

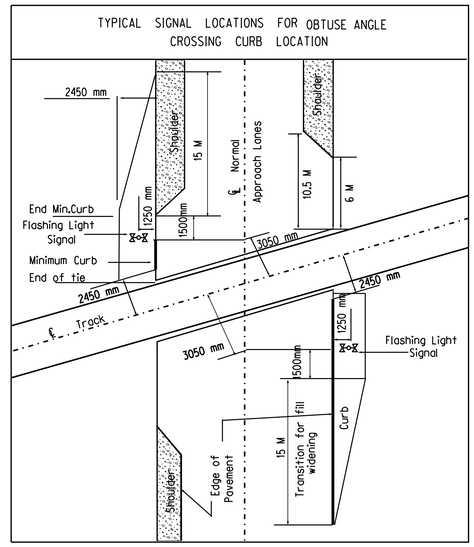
Use Highest Posted Speed	Minimum Distance FROM NEAREST TRACK
20 MPH (12kmh)	175' (53m)
25 MPH (15kmh)	250' (76m)
30 MPH (18kmh)	325' (99m)
35 MPH (21kmh)	400' (122m)
40 MPH (24kmh)	475' (145m)
45 MPH (27.5kmh)	550' 9168m)
50 MPH (30.5kmh)	625' (191m)
55 MPH (33.5kmh)	700' (213m)
60 MPH 36.5kmh)	775' (236m)



PAVEMENT MARKINGS AT RAILROAD
GRADE CROSSINGS







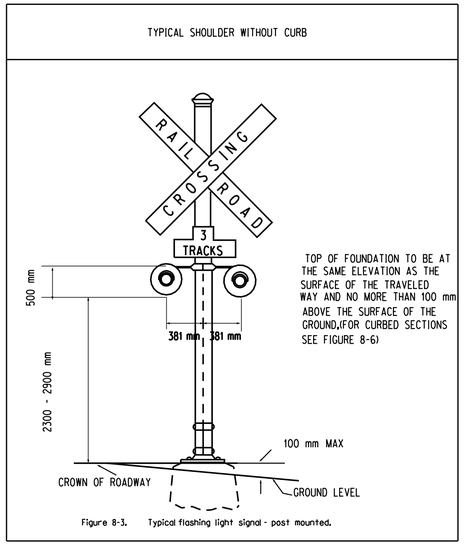


Figure 8-3. Typical flashing light signal - post mounted.

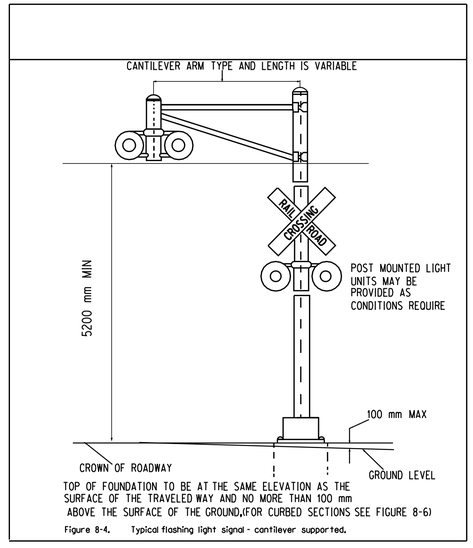


Figure 8-4. Typical flashing light signal - cantilever supported.

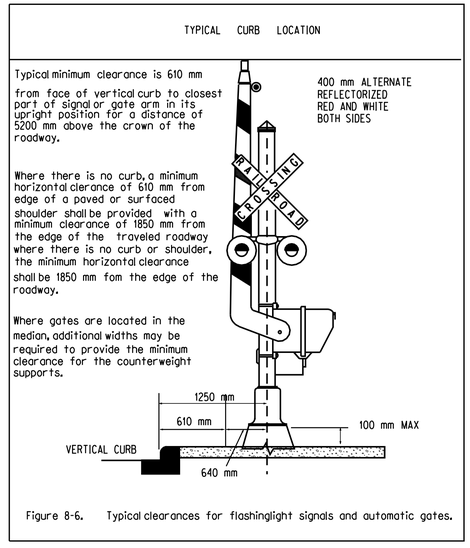


Figure 8-6. Typical clearances for flashinglight signals and automatic gates.

When used, a portion of the pavement marking symbol should be directly opposite the Advance Warning Sign (W 10-1). If needed, supplemental pavement marking symbol(s) may be placed between the Advance Warning Sign and the crossing, but should be at least 15 m from the Stop Line.

A three lane roadway should be marked with a centerline for two-lane approach operation on the approach to a crossing.

On multi-lane roads the transverse bands should extend across all approach lanes, and individual RXR symbols should be used in each approach lane.

Refer to Standard Alphabet for Highway and Markings for RXR symbols details.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

18107.00 & 18107.10

PIN
18107.00 & 18107.10

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	B. JAMESON	05/2011
CHECKED-REVIEWED	R. NIMON	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

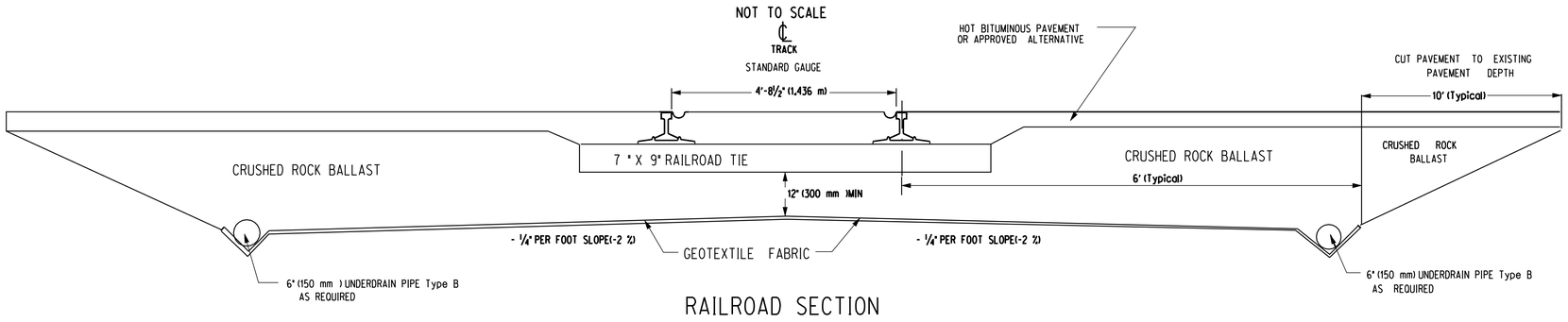
P.E. NUMBER

DATE

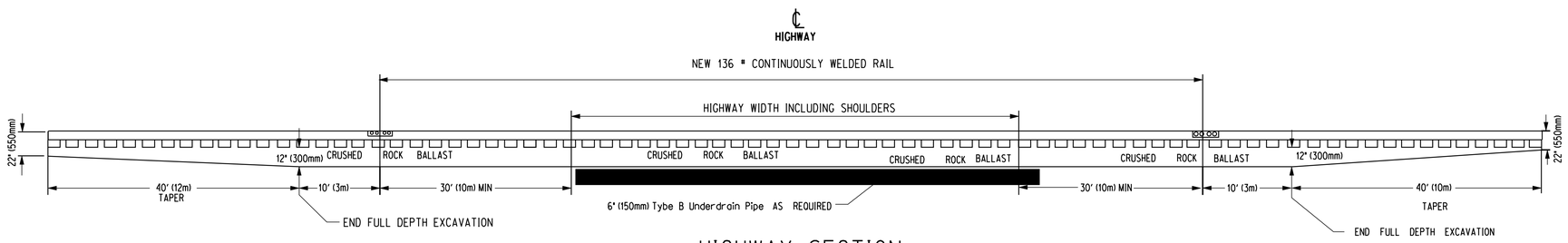
STANDARD DETAILS
SIGNAL LOCATIONS
PAVEMENT MARKINGS

SHEET NUMBER
7
OF 23

STANDARD RAILROAD GRADE CROSSING DETAIL

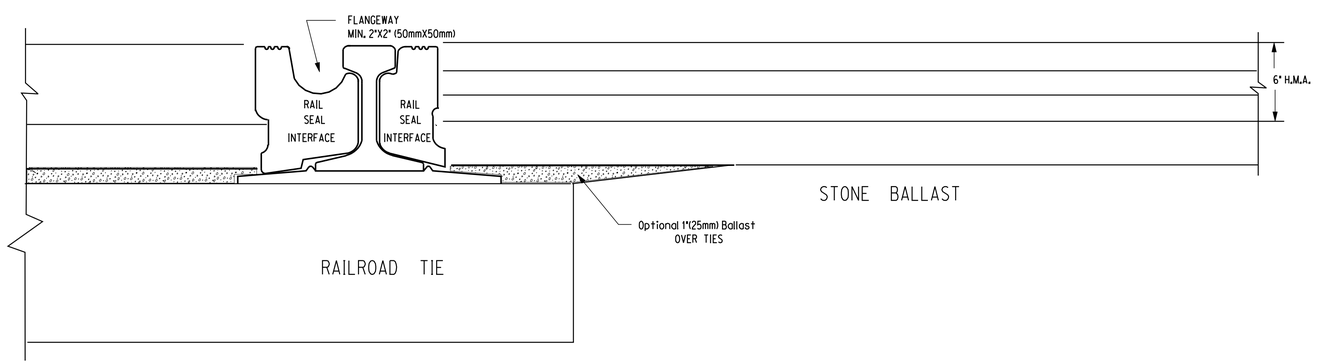


RAILROAD SECTION

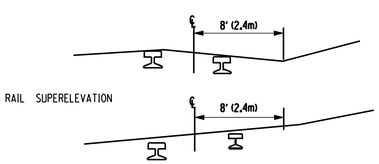


HIGHWAY SECTION

PAVING DETAIL



RAILROAD CROSSING GRADING



SAME % GRADE AS RAIL SUPERELEVATION

NOTE : THE SLOPE OF THE 8' (2.4m) AREA SHOWN,IN NO CASE, SHALL BE ABOVE THE PLANE OF THE RAILS EITHER SIDE OF C/L PER P.U.C. GENERAL ORDER * 2.

RAILROAD CROSSING GENERAL NOTES

1. Signals shall be located as per standard detail and shall comply with the Manual of Uniform Traffic Control Devices.

2. Crossings shall be paved within 20 days following the completion of the crossing reconstruction.

3. Paved shoulders within the gage of the rail to point 24" outside of the field side of each rail shall be a standard 6" depth of pavement. Paved shoulders outside of this area shall be paved with 2" surface mix only.

4. New 136 # prime welded rail shall be provided for crossing reconstruction. The minimum length of welded rail shall be 117' or extend 30' beyond each edge of pavement whichever is longer. The full depth excavation area shall extend 10'(3m) beyond the welded rail and excavated to a minimum depth of 12" below bottom of tie elevation.

5. 7" x 9" ties (8'-6" or 9' long) shall be installed under the welded rail and shall be fully box anchored. Anchors may be omitted beneath the crossing surface in order to accommodate the installation of rubber rail seal.

6. Geotextiles provided for rail crossings shall be the following minimum weights: 8 oz./s.y. for non-woven fabrics and 6 oz./s.y. for woven fabrics. The minimum width through the crossing area shall be 17'. Geotextile fabrics shall be placed throughout the entire full depth construction area.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

18107.00 & 18107.10

PIN
18107.00 & 18107.10

PROJ. MANAGER			
DESIGN-DETAILED	J. KITTREDGE	05/2011	
CHECKED-REVIEWED	B. JAMESON	R. NIMON	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

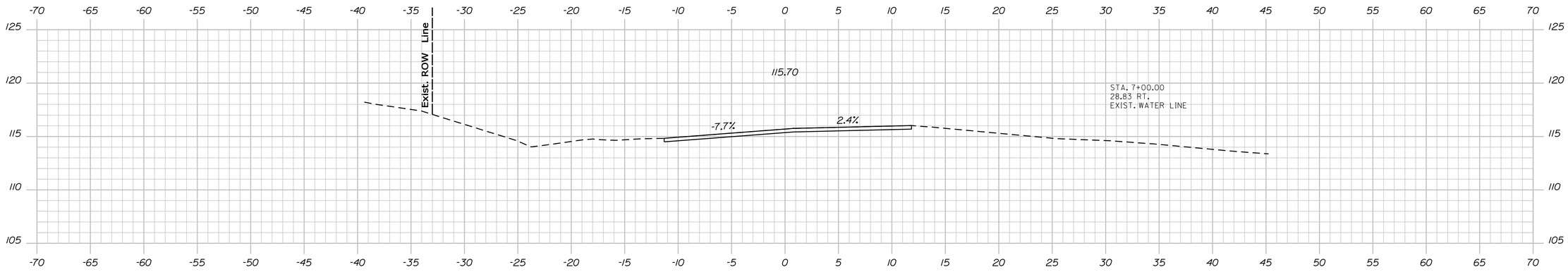
STANDARD RAILROAD CROSSING DETAIL

SHEET NUMBER

8

OF 23

Filename: ...\008_StandardDetail3_RR.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



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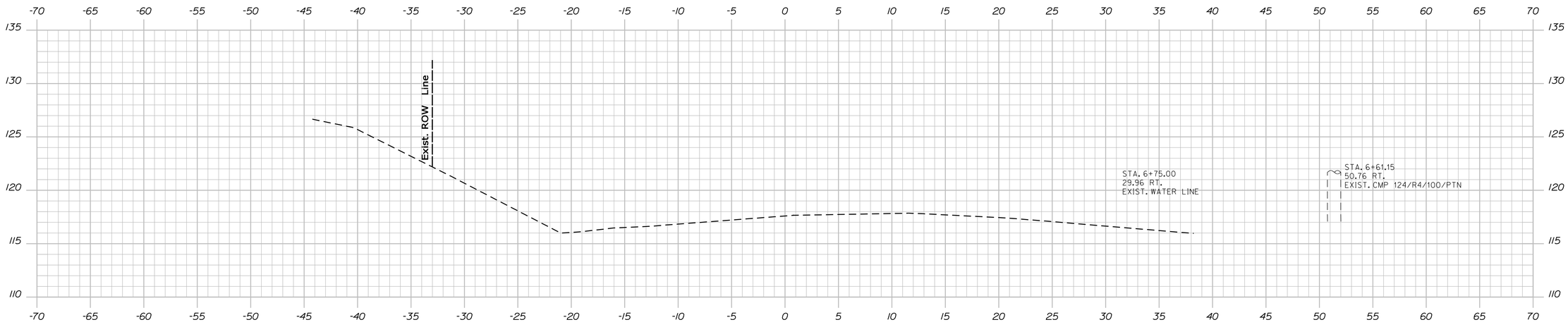
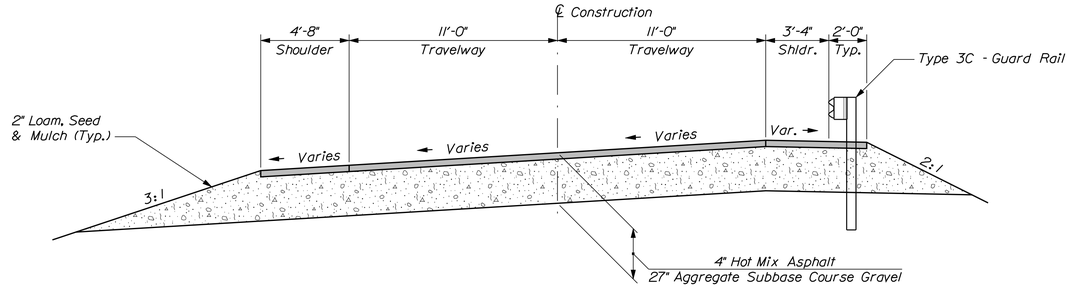
Begin Transition
Match Existing



6+75.00



TYPICAL DESIGN SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		05/2011
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

CROSS SECTIONS

SHEET NUMBER

9

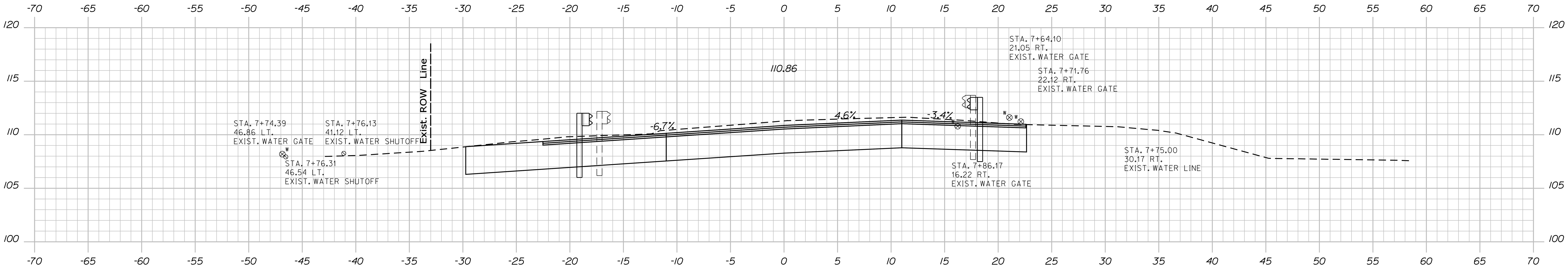
OF 23

Sta. 6+50.00 to Sta. 7+00.00

Username: richard.nimon Date:5/12/2011

Filename: ...\009_Xsect_MainLine_6+50_001.dgn Division: BRIDGE

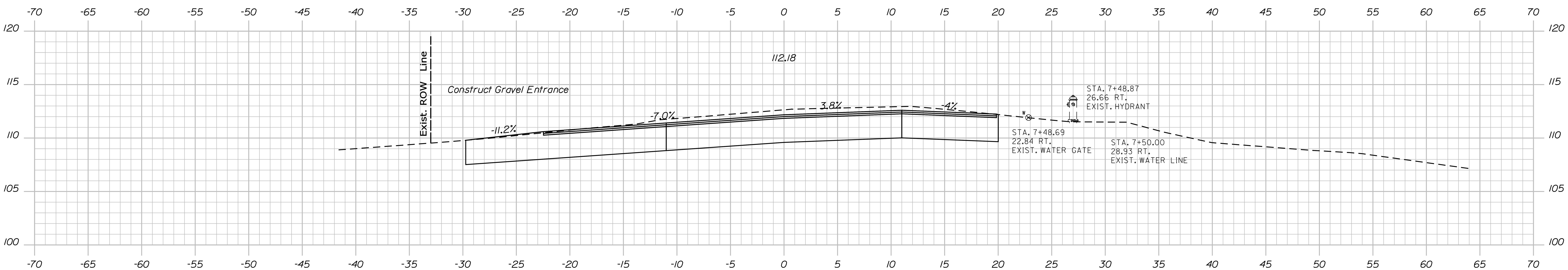
Filename: ...\010_Xsect_MainLine_7+25_002.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



Sta. 7+67.9± to Sta. 8+05.9± Install GR 350 Fared Terminal

7+75.00

Sta. 7+71.5± to Sta. 8+07.9± Install GR 350 Fared Terminal



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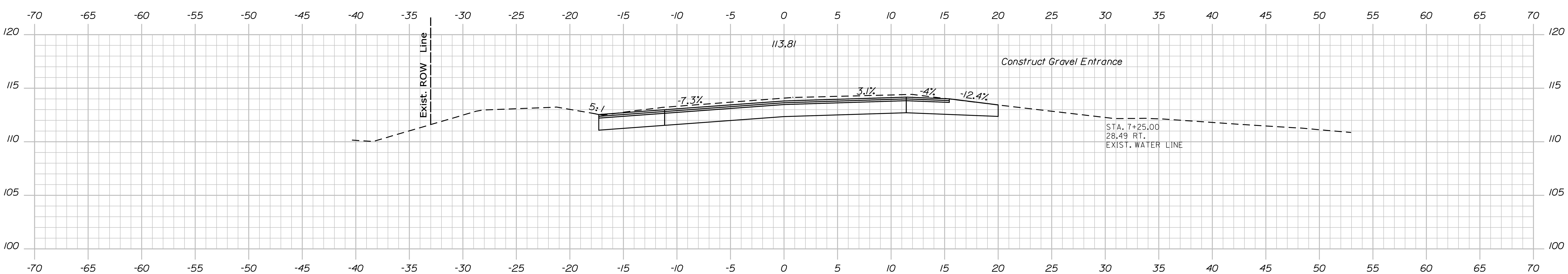


7+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE PLANS

BRIDGE NO. 5781

	BY	DATE
PROJ. MANAGER	R.J. NIMON	
DESIGN-DETAILED	TEAM SOUTH	R. NIMON 05/2011
CHECKED-REVIEWED	TEAM SOUTH	05/2011
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

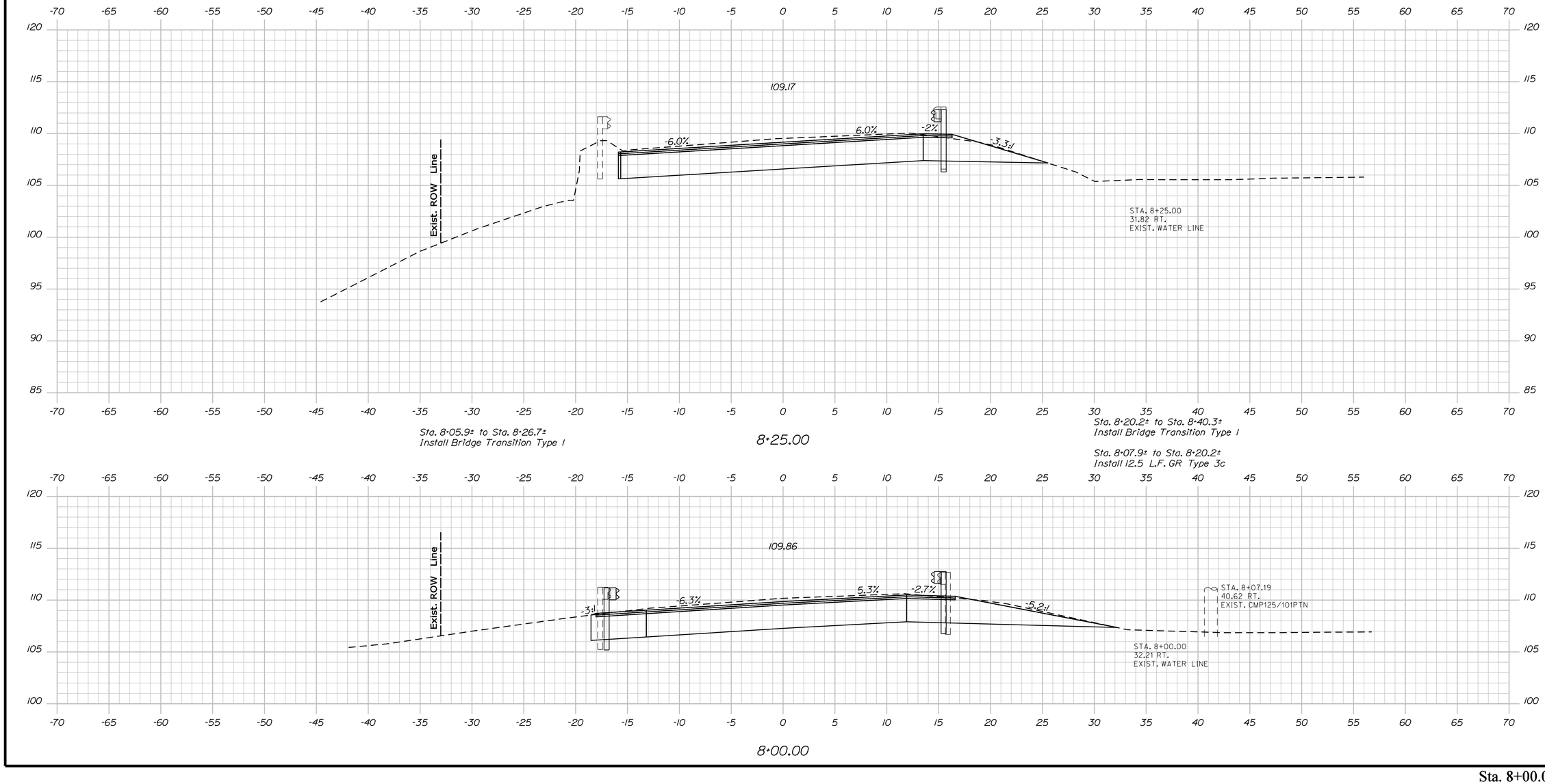
DATE

SWEETSER BRIDGE
ROYAL RIVER
GRAY CUMBERLAND COUNTY

CROSS SECTIONS

SHEET NUMBER
10
OF 23

Username: richard.nimon Date:5/12/2011
Filename: ...\011_Xsect_MainLine_8+00_003.dgn Division: BRIDGE



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781 BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	BY	DATE
CHECKED-REVIEWED	TEAM SOUTH	R. NIMON	05/2011
DESIGN2-DETAILED2			05/2011
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

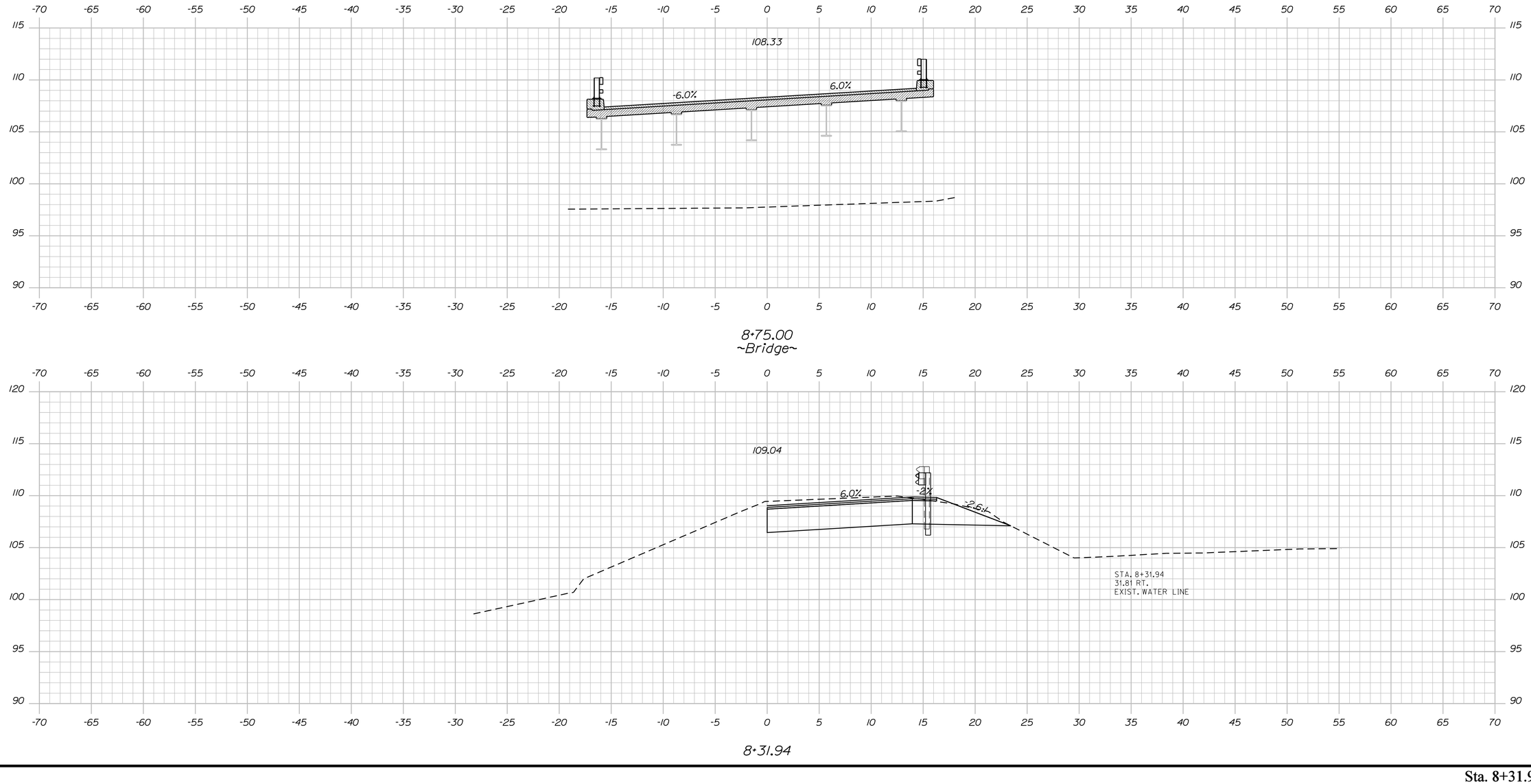
CROSS SECTIONS

SHEET NUMBER

11

OF 23

Sta. 8+00.00 to Sta. 8+25.00



Sta. 8+31.94 to Sta. 8+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		05/2011
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

CROSS SECTIONS

SHEET NUMBER

12

OF 23

Username: richard.nimon Date:5/12/2011

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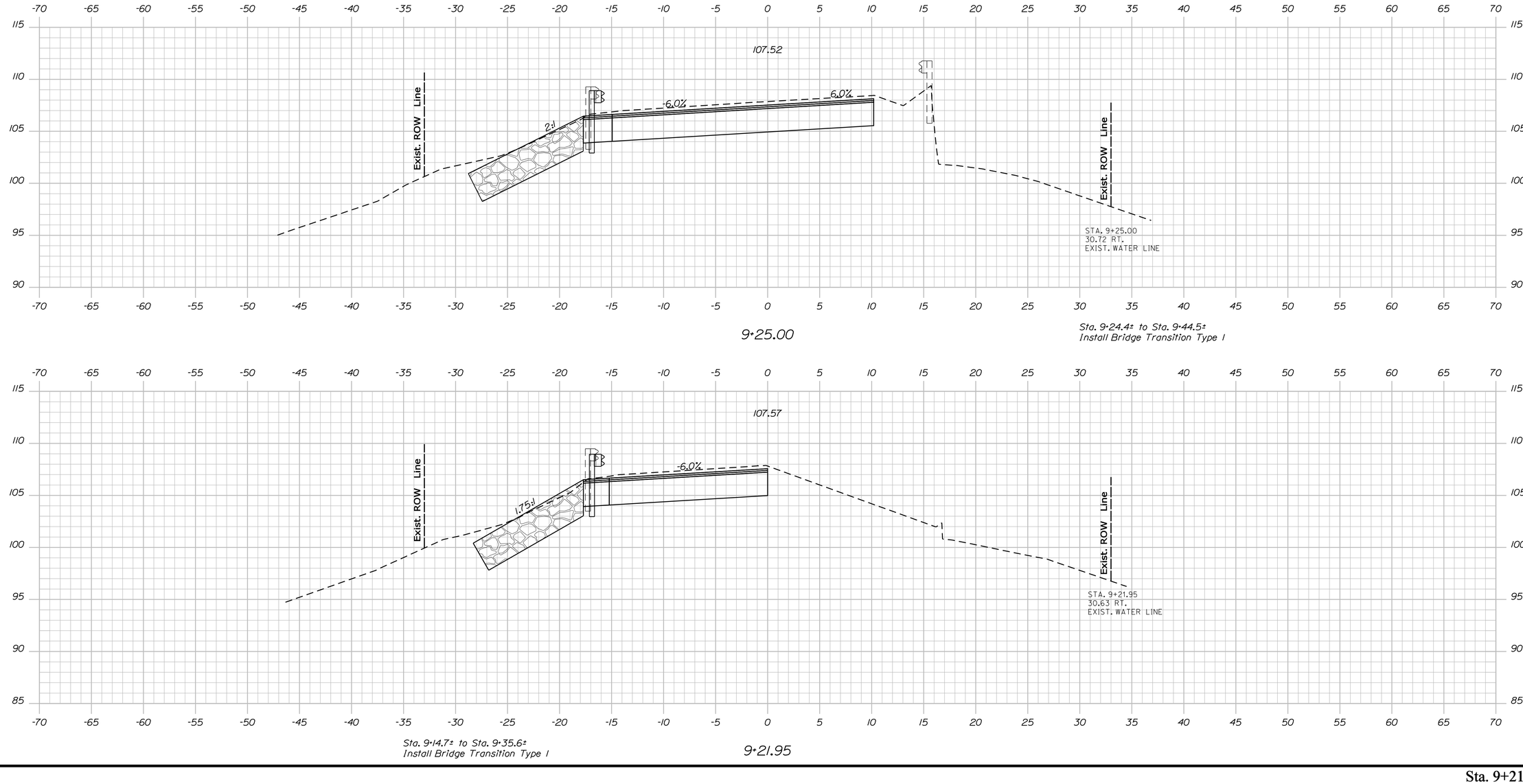

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Division: BRIDGE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN **17913.00**

BRIDGE NO. 5781

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	R.J. NIMON	
DESIGN-DETAILED	TEAM SOUTH	05/2011
CHECKED-REVIEWED	TEAM SOUTH	05/2011
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

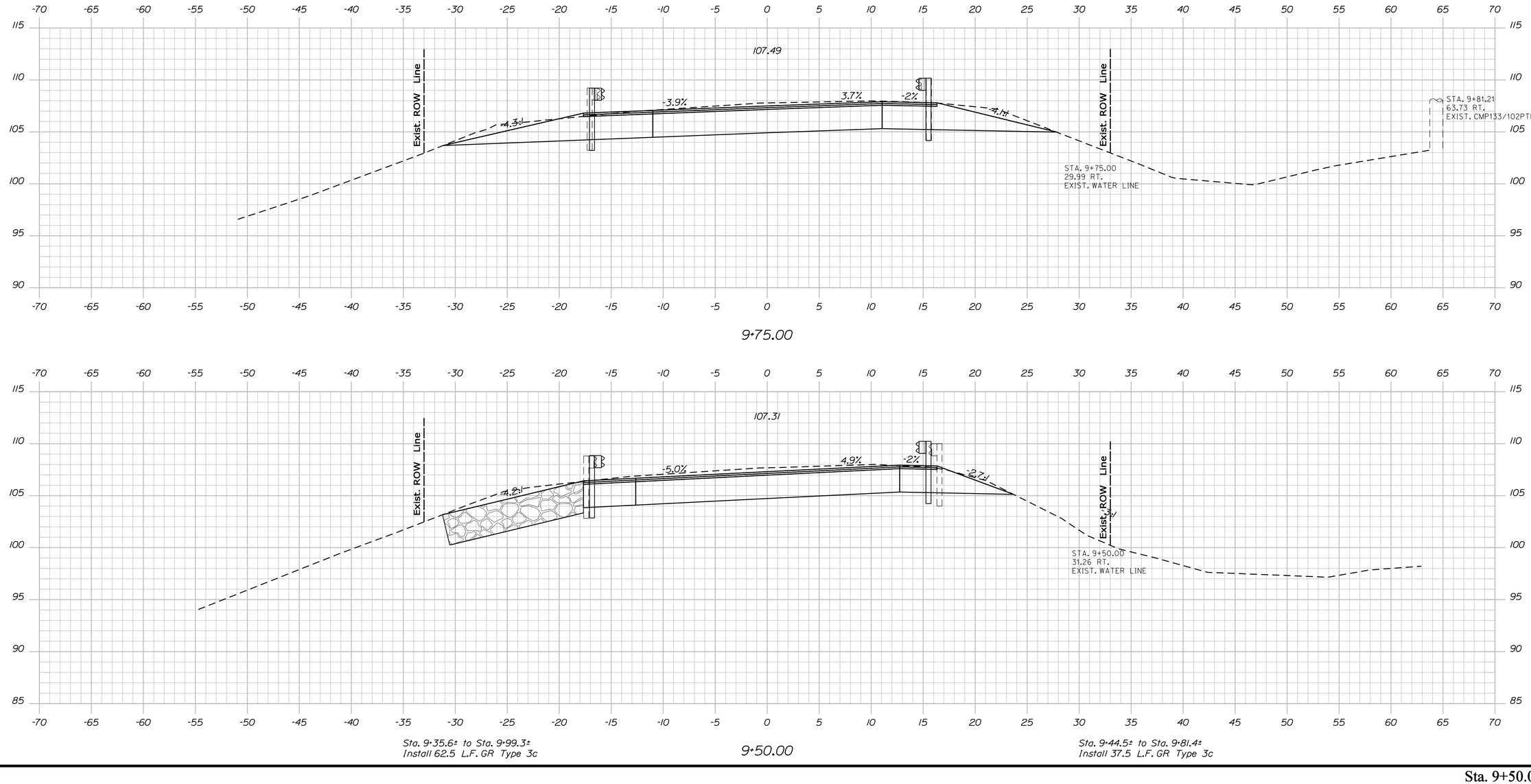
CROSS SECTIONS

SHEET NUMBER

13

OF 23

Sta. 9+21.95 to Sta. 9+25.00



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN
17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		05/2011
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

CROSS SECTIONS

SHEET NUMBER
14
OF 23

Sta. 9+50.00 to Sta. 9+75.00

Filename: ...\014_Xsect_MainLine_9+50_006.dgn Division: BRIDGE Date:5/12/2011 Username: richard.nimon

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		05/2011
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
GRAY CUMBERLAND COUNTY

CROSS SECTIONS

SHEET NUMBER

15

OF 23

Sta. 10+00.00 to Sta. 10+50.00

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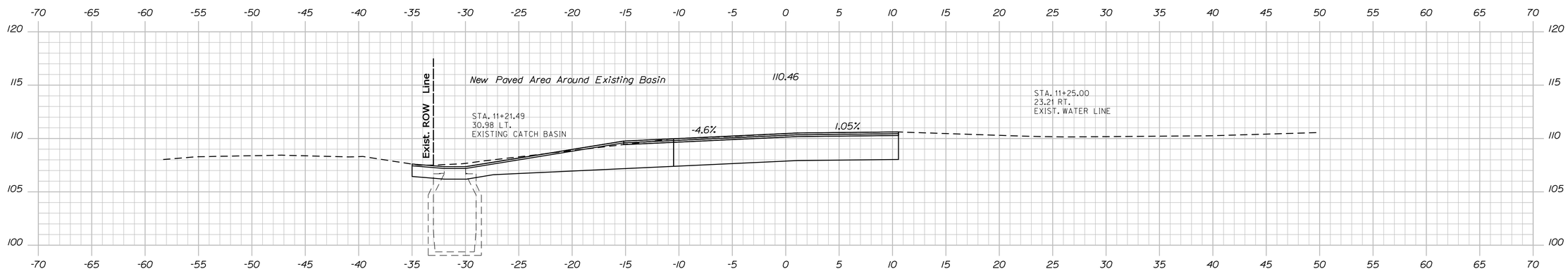
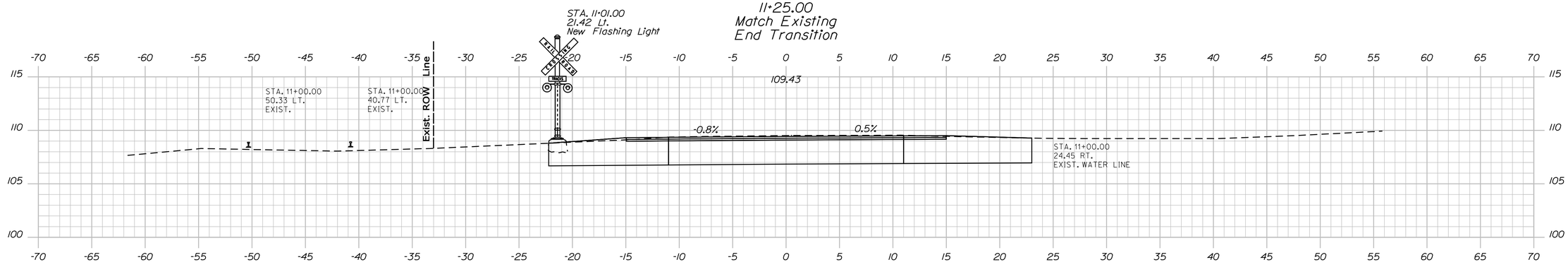


11+25.00
Match Existing
End Transition



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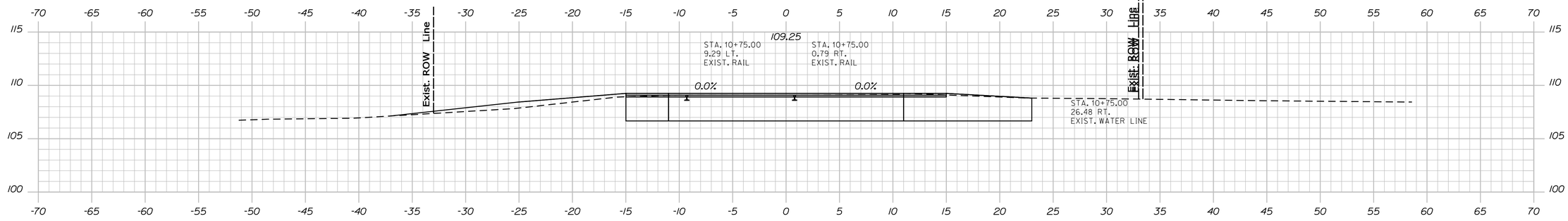
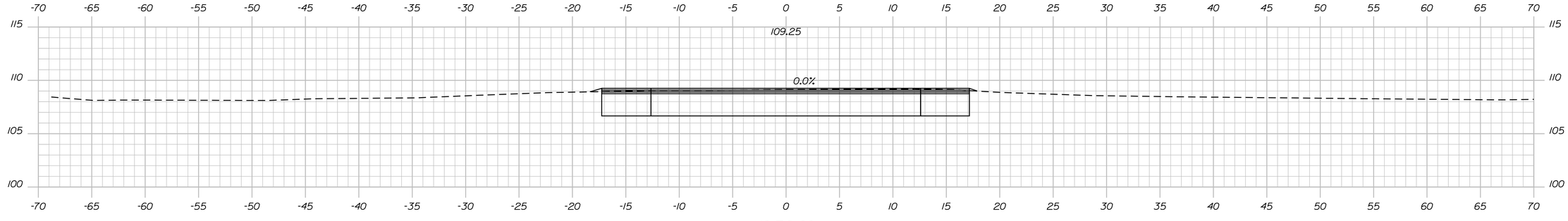
Begin Transition
End Project



10+75.00



10+72.60
Skewed Along Railroad Tracks

6" Pavement Depth, 6'-0" minimum back, ahead and between each rail.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

CROSS SECTIONS

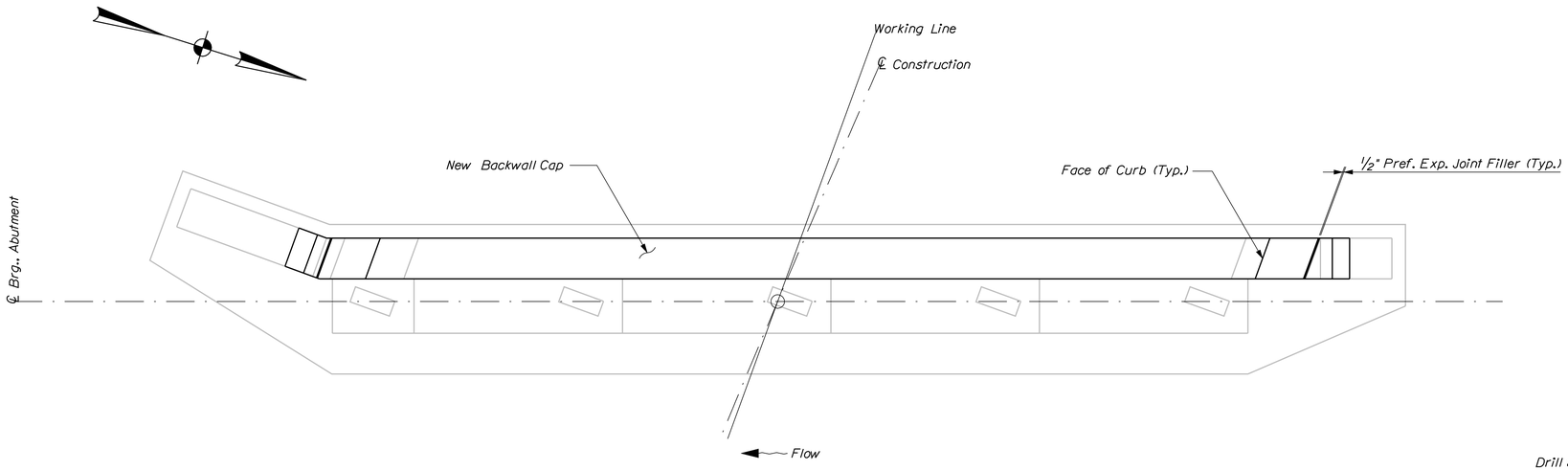
SHEET NUMBER

16

OF 23

Sta. 10+72.60 to Sta. 11+25.00

Filename: ...\016_Xsect_MainLine_10+72_008.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



ABUTMENT PLAN

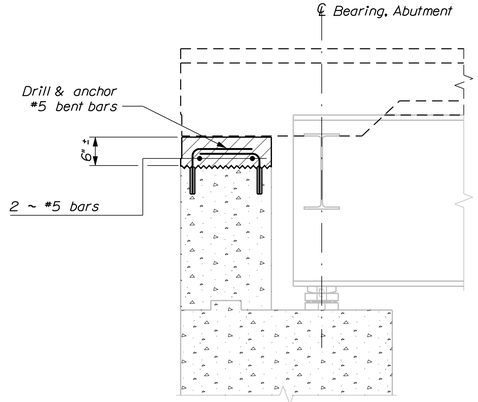
Abutment No. 1 Shown - Abutment No. 2 Similar

ABUTMENT NOTES

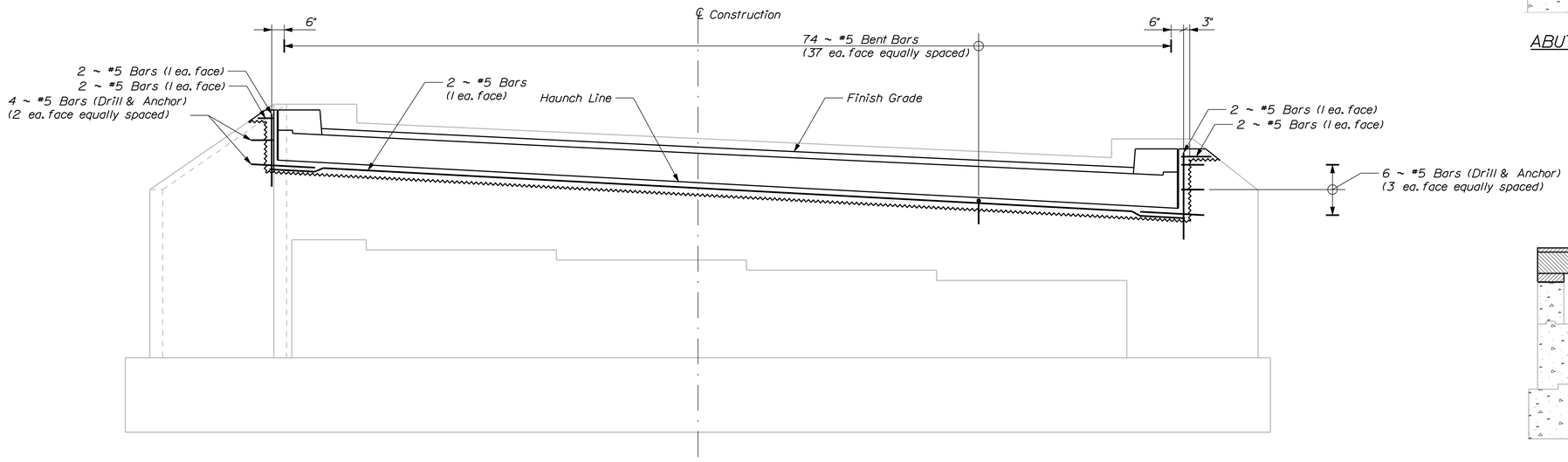
1. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.

2. Existing granular material to be excavated in order to reconstruct the backwalls and wingwalls as shown shall be used to backfill the excavated areas. The material shall be compacted as directed by the Resident. Payment for excavation and backfill of existing granular material will be considered incidental to Contract items.

3. Payment for removal of all existing concrete and expansion joint armor required to reconstruct the back- walls and wingwalls as shown will be paid for under Item No. 202.17, Removing Existing Structural Concrete.

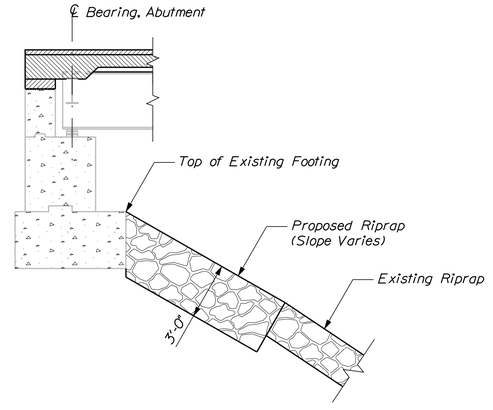


ABUTMENT SECTION



ABUTMENT ELEVATION

Abutment No. 1 Shown - Abutment No. 2 Similar



TYPICAL RIPRAP DETAIL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
GRAY CUMBERLAND COUNTY

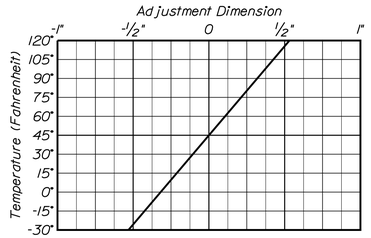
ABUTMENT DETAILS

SHEET NUMBER

17

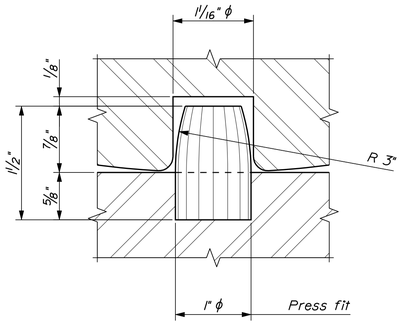
OF 23

Filename: ...\mst0\017_Abutment_Details.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011

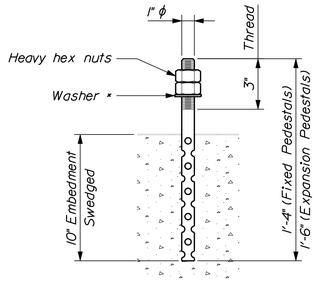


BEARING SETTING CHART

A postive dimension is toward the abutment backwall

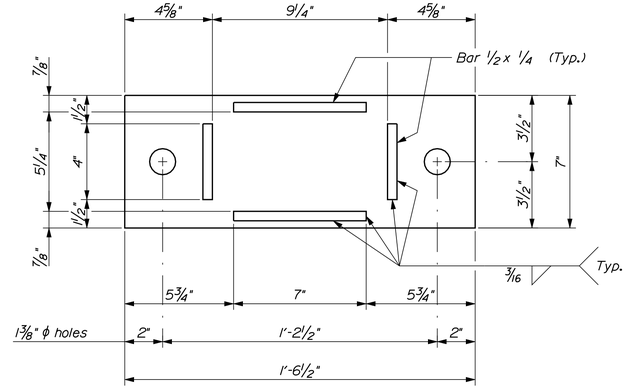


PINTLE DETAIL

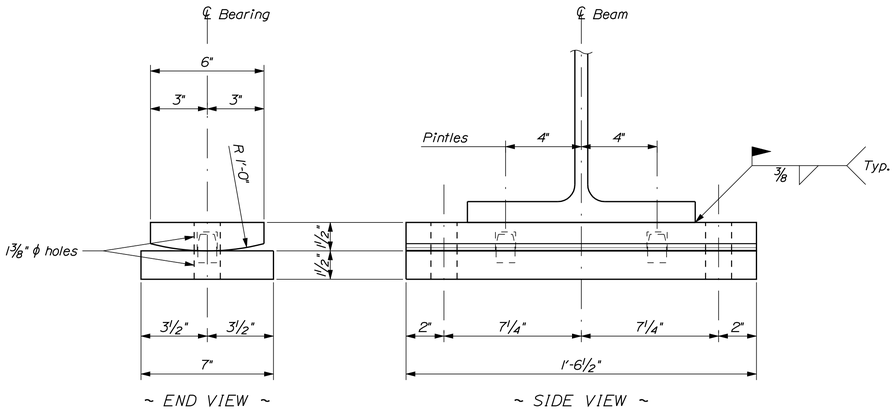


ANCHOR BOLT DETAIL

* Plain hardended washer (Fixed Pedestals) or
Plate washer 3x1/4x 0'-4" (Expansion Pedestals)

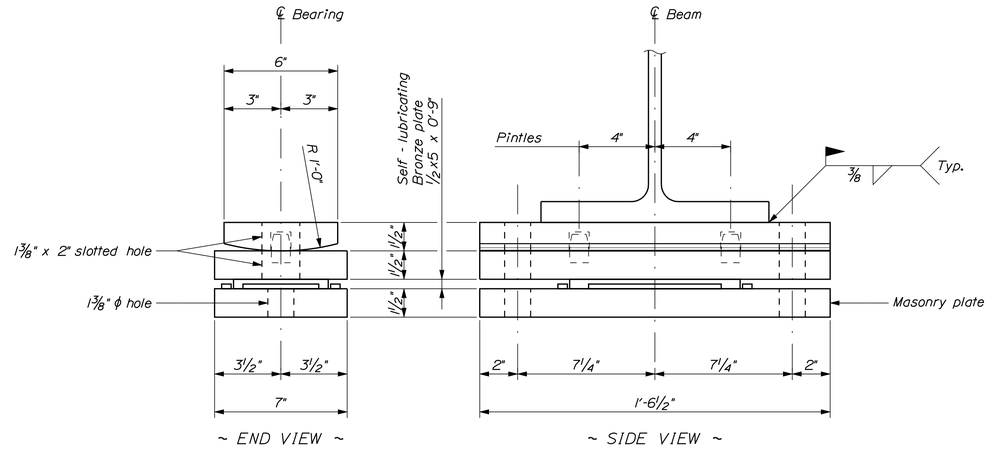


MASONRY PLATE PLAN



FIXED BEARING PEDESTAL

5 pedestals located at Abutment No. 2



EXPANSION BEARING PEDESTAL

5 pedestals located at Abutment No. 1

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		05/2011
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
GRAY CUMBERLAND COUNTY

BEARING DETAILS

SHEET NUMBER

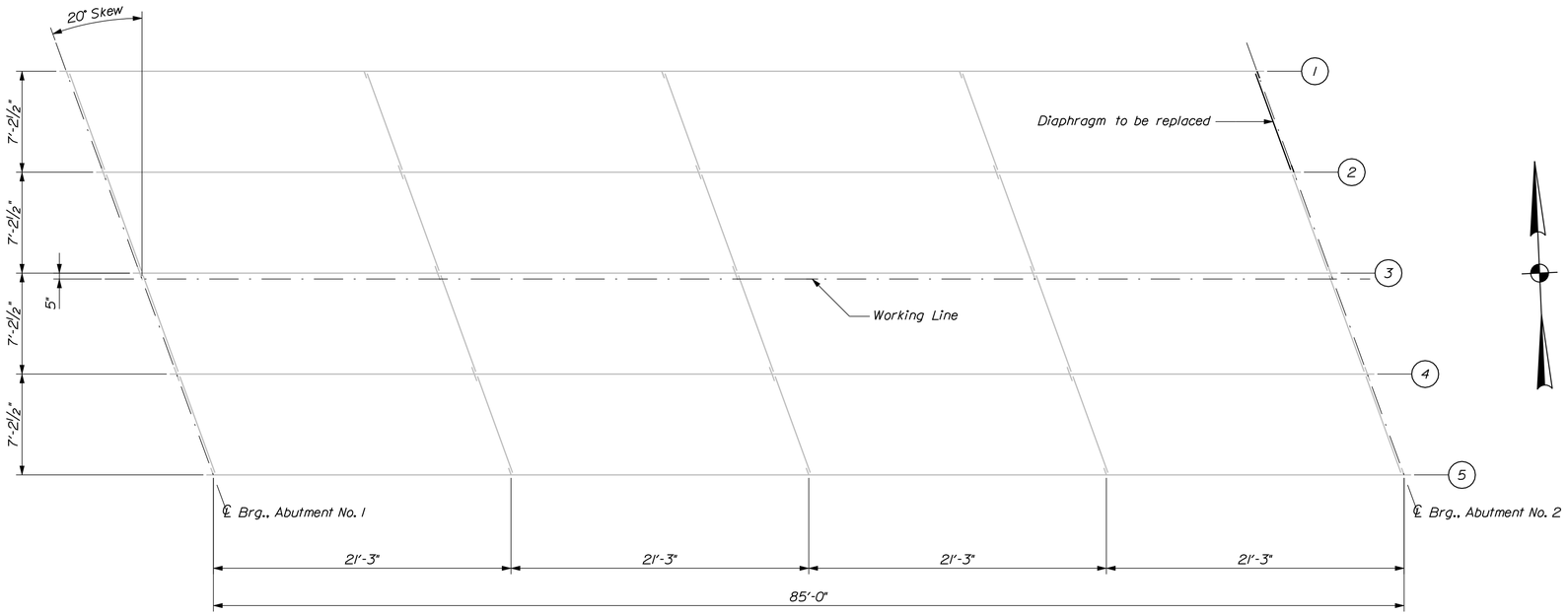
18

OF 23

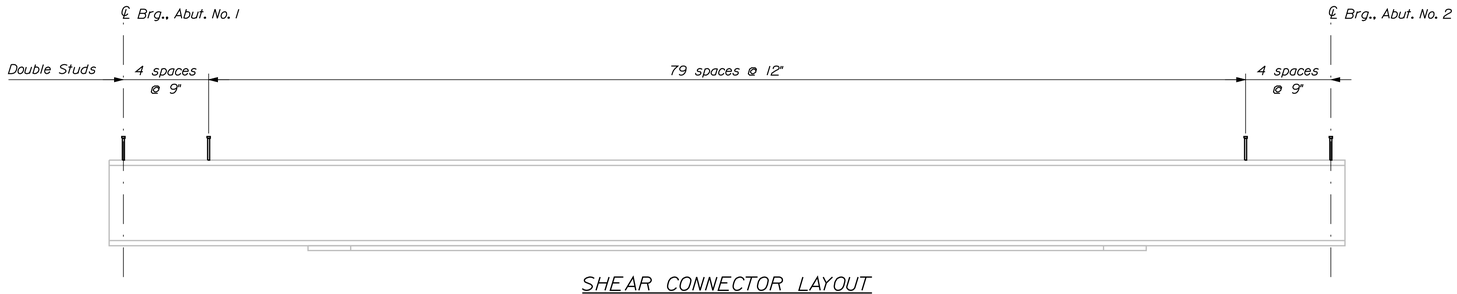
Username: richard.nimon Date:5/12/2011

Division: BRIDGE

Filename: ...\bridge\msto\018_Bearings.dgn

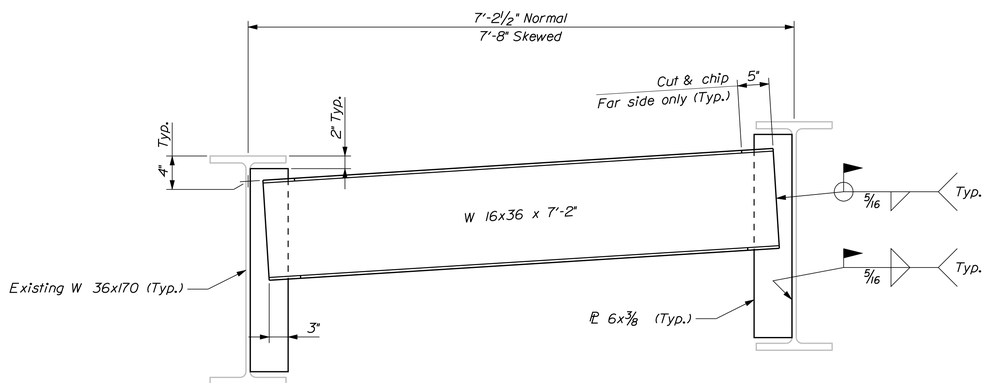


EXISTING FRAMING PLAN



SHEAR CONNECTOR LAYOUT

Total Shear Connectors = 176 each beam



REPLACEMENT DIAPHRAGM

STRUCTURAL STEEL NOTES

1. Care shall be taken during the removal of the existing diaphragm such that no base metal is removed from the beam web.

2. Payment for removing the existing diaphragm will be considered incidental to related Contract items.

3. The top flanges of the beams shall be prepared for welding of the shear studs in accordance with Subsection 505.03 of the Standard Specifications. Payment will be considered incidental to Item No. 505.08, Shear Connectors.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

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BRIDGE PLANS

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P.E. NUMBER

DATE

PROJ. MANAGER	R.J. NIMON	
DESIGN-DETAILED	TEAM SOUTH	R. NIMON 05/2011
CHECKED-REVIEWED	TEAM SOUTH	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

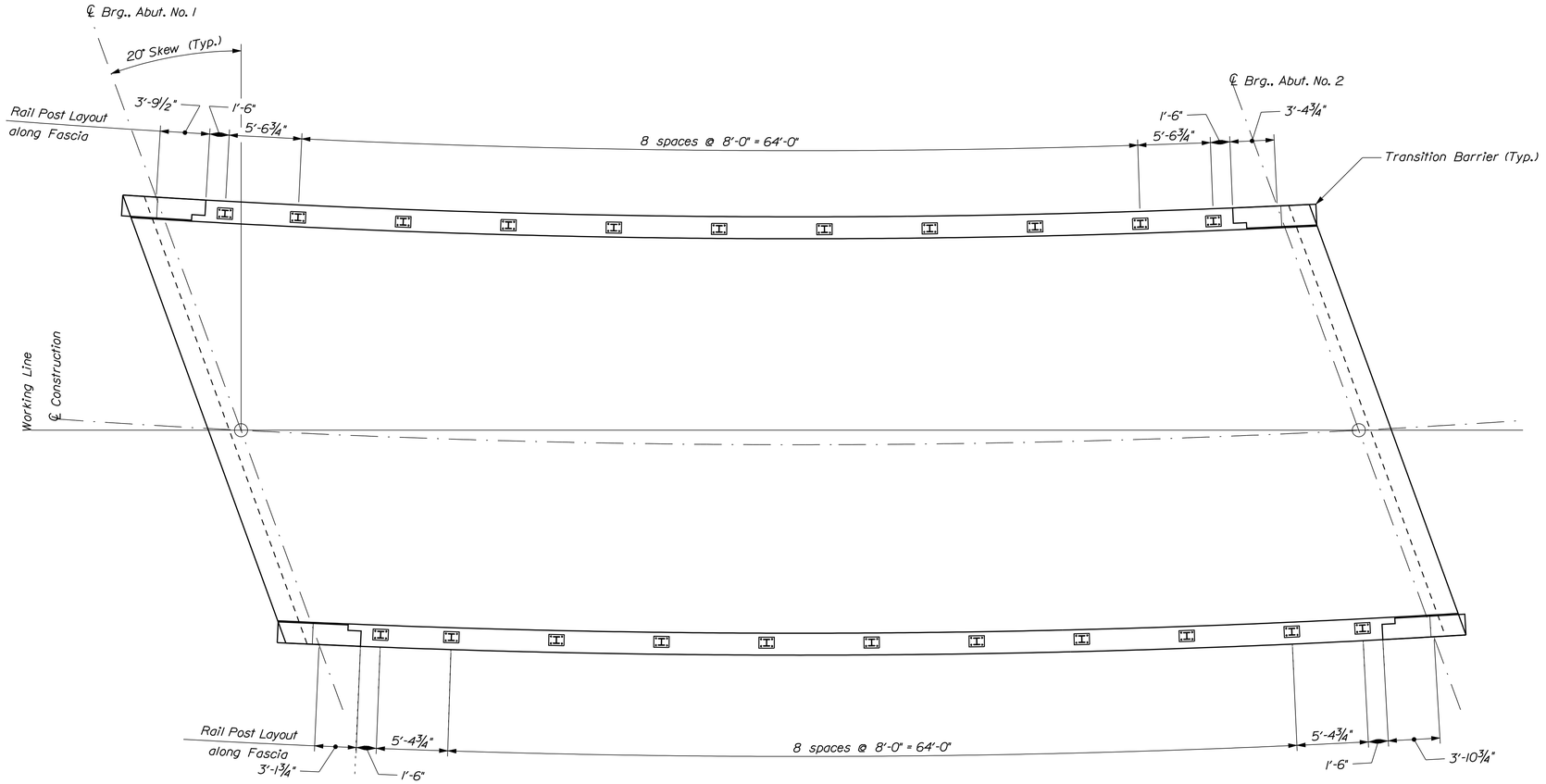
STRUCTURAL STEEL

SHEET NUMBER

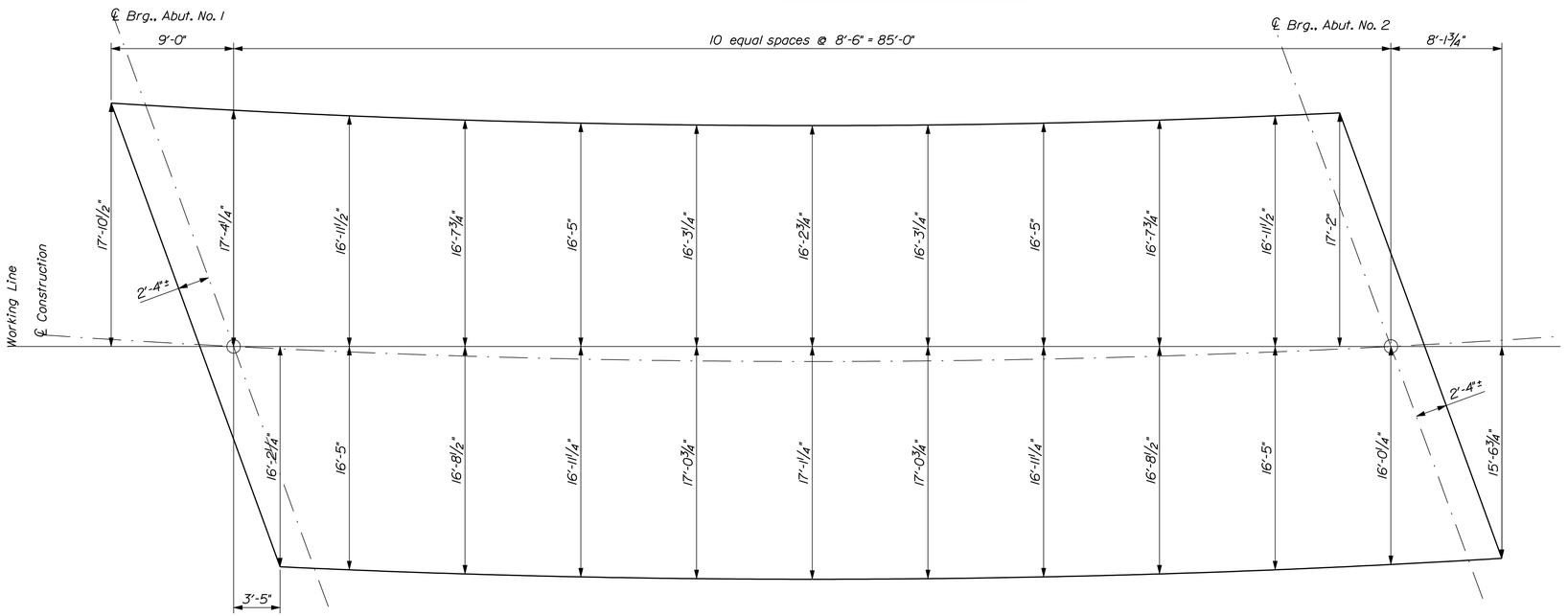
19

OF 23

Filename: ...\mst\019_Structural Steel.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



SUPERSTRUCTURE PLAN



FASCIA LAYOUT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

PROJ. MANAGER	R.J. NIMON		
DESIGN-DETAILED	TEAM SOUTH	R. NIMON	05/2011
CHECKED-REVIEWED	TEAM SOUTH		05/2011
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
GRAY CUMBERLAND COUNTY

SUPERSTRUCTURE PLAN

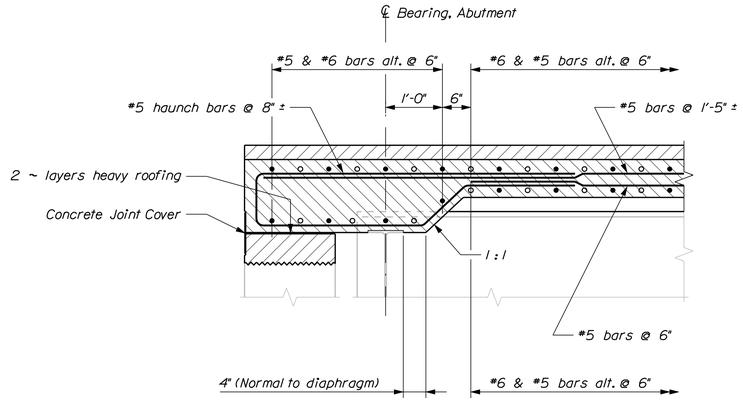
SHEET NUMBER

20

OF 23

Filename: ...\mst0\020_Superstructure.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011

BOTTOM OF SLAB ELEVATIONS												
Beam	℄ Brg. Abut No. 1	·8.5′	·17.0′	·25.5′	·34.0′	·42.5′	·51.0′	·59.5′	·68.0′	·76.5′	℄ Brg. Abut No. 2	Beam
1	107.32	107.20	107.08	106.96	106.84	106.70	106.55	106.39	106.22	106.04	105.86	1
2	107.68	107.58	107.48	107.37	107.25	107.12	106.97	106.81	106.63	106.45	106.27	2
3	108.05	107.96	107.86	107.76	107.64	107.51	107.36	107.20	107.03	106.85	106.67	3
4	108.43	108.34	108.24	108.14	108.03	107.90	107.76	107.60	107.43	107.25	107.07	4
5	108.81	108.71	108.61	108.50	108.38	108.26	108.12	107.97	107.81	107.64	107.48	5



END OF SLAB SECTION

SUPERSTRUCTURE NOTES

1. The theoretical blocking used for design of the structure varies due to the curvature of the existing structural steel. Refer to Standard Detail 502(02) for blocking details.

2. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.

3. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.

4. The superstructure slab concrete shall be placed in one continuous operation and the concrete shall be kept plastic until the entire placement has been completed.

5. At the Contractor's option, Precast Deck Panels may be used in place of the full depth cast-in-place deck slab, in accordance with Special Provisions Section 502, Structural Concrete - Precast Deck Panels, and in accordance with the Standard Details.

6. Payment for reinforcing steel fabricated, delivered, and placed in the cast-in-place portion of the structural concrete slab will be considered incidental to the appropriate Standard Specifications Section 502 pay item.

7. Provide 3 additional stirrups in the curbs at each Transition Barrier location.

8. The Contractor shall install Transition Barrier vertical closed stirrups, as shown in Standard Details Section 526, prior to the placement of the curb or sidewalk concrete.

STATE OF MAINE
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BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

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CHECKED-REVIEWED	TEAM SOUTH		
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SIGNATURE

P.E. NUMBER

DATE

SWEETSER BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
GRAY

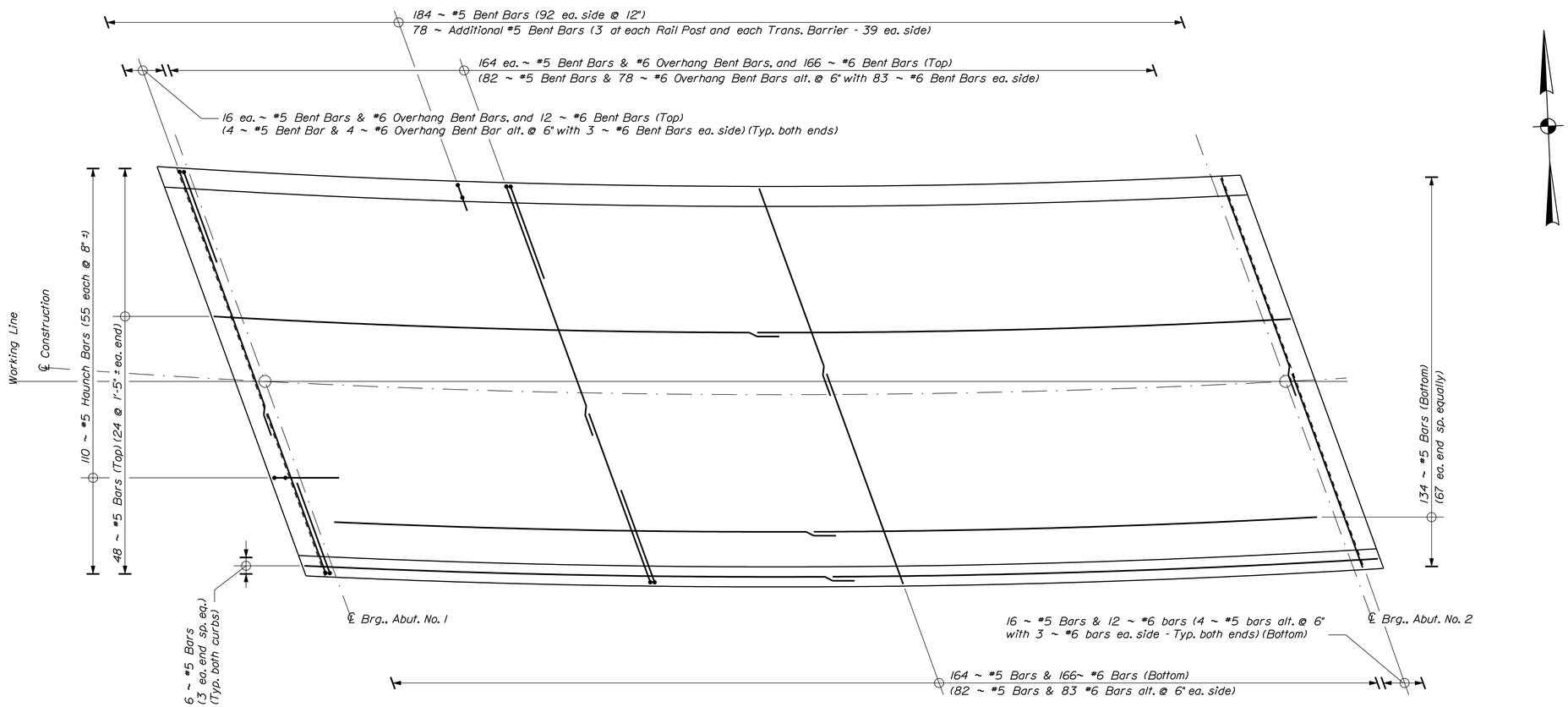
SUPERSTURCTURE DETAILS

SHEET NUMBER

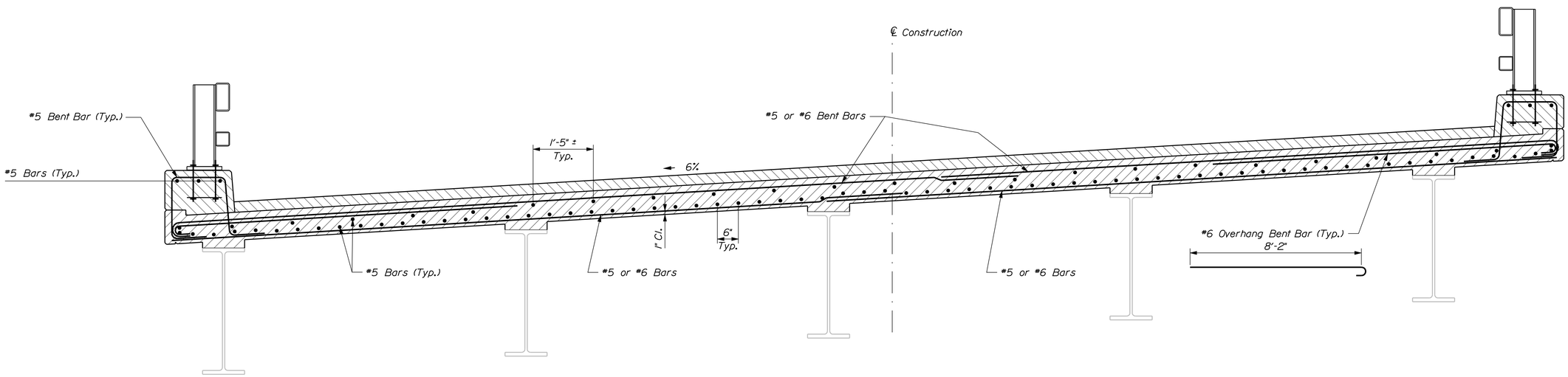
21

OF 23

Filename: ...\021_Superstructure_Details.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



SUPERSTRUCTURE REINFORCING PLAN



TRANSVERSE REINFORCING SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1791(300)X

PIN 17913.00

BRIDGE NO. 5781

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	R.J. NIMON	
DESIGN-DETAILED	TEAM SOUTH	05/2011
CHECKED-REVIEWED	TEAM SOUTH	05/2011
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DATE

SWEETSER BRIDGE
ROYAL RIVER
GRAY CUMBERLAND COUNTY

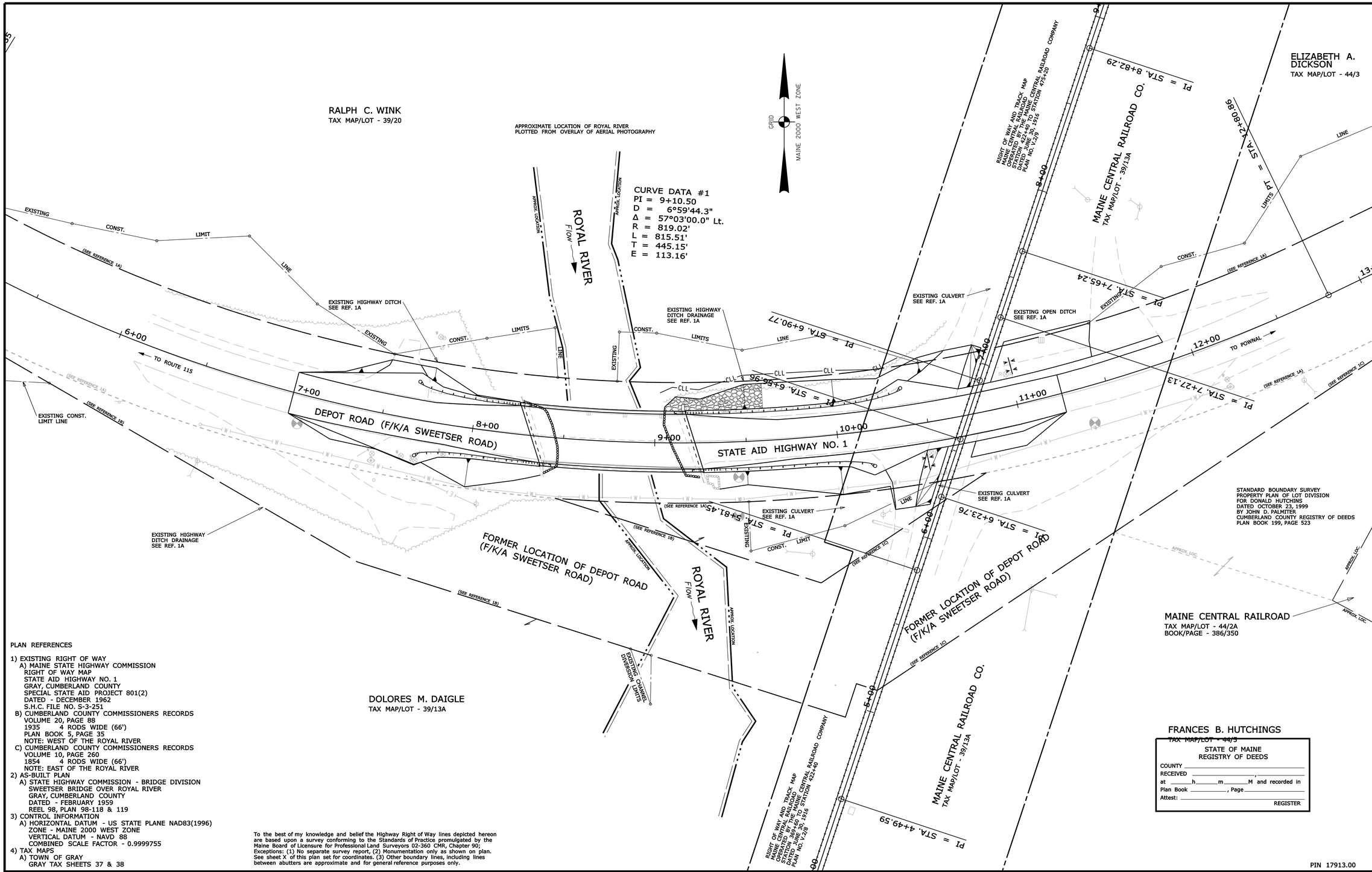
SUPERSTRUCTURE REINFORCING

SHEET NUMBER

22

OF 23

Filename: ...\022_Superstructure_Reinforcing.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011



PLAN REFERENCES

1) EXISTING RIGHT OF WAY
   A) MAINE STATE HIGHWAY COMMISSION
      RIGHT OF WAY MAP
      STATE AID HIGHWAY NO. 1
      GRAY, CUMBERLAND COUNTY
      SPECIAL STATE AID PROJECT 801(2)
      DATED - DECEMBER 1962
      S.H.C. FILE NO. 5-3-251
   B) CUMBERLAND COUNTY COMMISSIONERS RECORDS
      VOLUME 20, PAGE 88
      1935 4 RODS WIDE (66')
      PLAN BOOK 5, PAGE 35
      NOTE: WEST OF THE ROYAL RIVER
   C) CUMBERLAND COUNTY COMMISSIONERS RECORDS
      VOLUME 10, PAGE 260
      1854 4 RODS WIDE (66')
      NOTE: EAST OF THE ROYAL RIVER
2) AS-BUILT PLAN
   A) STATE HIGHWAY COMMISSION - BRIDGE DIVISION
      SWEETSER BRIDGE OVER ROYAL RIVER
      GRAY, CUMBERLAND COUNTY
      DATED - FEBRUARY 1959
      REEL 98, PLAN 98-118 & 119
3) CONTROL INFORMATION
   A) HORIZONTAL DATUM - US STATE PLANE NAD83(1996)
      ZONE - MAINE 2000 WEST ZONE
      VERTICAL DATUM - NAVD 88
      COMBINED SCALE FACTOR - 0.9999755
4) TAX MAPS
   A) TOWN OF GRAY
      GRAY TAX SHEETS 37 & 38

To the best of my knowledge and belief the Highway Right of Way lines depicted hereon are based upon a survey conforming to the Standards of Practice promulgated by the Maine Board of Licensure for Professional Land Surveyors 02-360 CMR, Chapter 90; Exceptions: (1) No separate survey report, (2) Monumentation only as shown on plan. See sheet X of this plan set for coordinates. (3) Other boundary lines, including lines between abutters are approximate and for general reference purposes only.

SYMBOLS
- ● IP or ■ IPF (IRON PIPE or PIN FOUND)
- ST. (SEPTIC TANK)
- (ROW MONUMENT)
- (TRAVERSE POINT)
- W WATER LINE
- G GAS LINE
- E ELECTRIC LINE
- T TELEPHONE LINE
- SEWER LINE
- (WELL)
- GRADING LIMIT LINE
- CONSTRUCTION LIMIT LINE
- PROPERTY LINE
- LIMITS OF "PROJECT" PORTION (LOW P.)
- EXISTING RIGHT OF WAY
- NEW RIGHT OF WAY
- NEW ROW WITHIN EXIST. ROW
- CONTROL OF ACCESS

ITEM	TECH	CHECKED
BASE MAP		
EXIST. R/W	G.L.L.	C.W.K.
PROP. LINES	G.L.L.	
AREAS		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016
GRAY
RIGHT OF WAY MAP

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD					
NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

DAVID A. COLE
COMMISSIONER
KENNETH L. SWEENEY
CHIEF ENGINEER
DATE

STATE OF MAINE
CHRISTOPHER W. KNIGHT 2207
PROFESSIONAL LAND SURVEYOR

STATE AID HIGHWAY NO. 1
DEPOT ROAD
GRAY CUMBERLAND COUNTY
FEDERAL AID PROJECT NO. BH-1791(300)X

DECEMBER 2010	RIGHT-OF-WAY MAP	D.O.T FILE NO. 3-575
SCALE 1" = 25'	SHEET 1 OF 1	

SHEET NUMBER
23
OF 23

Filename: ...\00\ROW\MSTA\023_RWPLAN1.dgn Division: BRIDGE Username: richard.nimon Date:5/12/2011