STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BENTON
KENNEBEC
FIFTEEN MILE STREAM BRIDGE
OVER
FIFTEEN MILE STREAM
US ROUTE 139

FEDERAL AID PROJECT NO. BH-1823(100)X

PROJECT LENGTH 0.208 mi.

BRIDGE NO. 5069

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Sixth Edition 2012.

DESIGN LOADING

Live Load ..... HL - 93 Modified

TRAFFIC DATA

Current (2013) AADT	2590
Future (2033) AADT	3110
DHV - % of AADT	11
Design Hour Volume	342
% Heavy Trucks (AADT)	10
% Heavy Trucks (DHV)	5
Directional Distribution (DHV)	52
18 kip Equivalent P 2.0	225
18 kip Equivalent P 2.5	214
Design Speed (mph)	50

HYDROLOGIC DATA

Drainage Area	66.58 sq mi
Design Discharge (Q50)	2255 cfs
Check Discharge (Q100)	2546 cfs
Headwater Elevation (Q50)	123.66 ft
Headwater Elevation (Q100)	124.06 ft
Discharge Velocity (Q50)	4.95 fps
Discharge Velocity (Q100)	5.15 fps
Headwater Elevation (Q1.1)	120.58 ft
Discharge Velocity (Q1.1)	3.79 fps
Headwater Elevation (Q25)	123.28 ft

MATERIALS

Concrete:
- Curbs & Transition Barriers ..... Class "LP"
- All Other ..... Class "A"

Reinforcing Steel ..... ASTM A615/A615M, Grade 60

Structural Steel:
- All Material (except as noted) ..... ASTM A709/A709M, Grade 50W
- High Strength Bolts ..... ASTM A325, Type 3

BASIC DESIGN STRESSES

Concrete ..... f 'c = 4,350 psi

Reinforcing Steel ..... f y = 60,000 psi

Structural Steel:

ASTM A 709/A 709M, Grade 50W	F y = 50,000 psi
ASTM A 709/A 709M, 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

MAINTENANCE OF TRAFFIC

Staged Construction: Maintain one 13' lane of alternating one - way traffic using single lane with temporary traffic signals.

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PROJECT LOCATION:	Fifteen Mile Stream Bridge #5069 carries Route 139 over Fifteen Mile Stream. Lat./Long. 44°-36'-06" N, 69°-28'-07" W
PROGRAM AREA:	Bridge Program
OUTLINE OF WORK:	Bridge Replacement on new upstream alignment with 1,150 feet of approach work.

ERDMAN ANTHONY

WIN 18231.00

BH-1823(100)X

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED — DATE 3/7/14

COMMISSIONER:

CHIEF ENGINEER: 3-7-14

STATE OF MAINE — EDWIN S. ANTHONY No. 7617 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE 7617 — P.E. NUMBER — DATE 02/04/2014

PROJECT INFORMATION

PROGRAM	BRIDGE PROGRAM
PROJECT MANAGER	FRANK DAHAR
DESIGNER	ROBERT FARRELL
CONSULTANT	ERDMAN ANTHONY
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

BENTON
FIFTEEN MILE STREAM BRIDGE

TITLE SHEET

SHEET NUMBER 1 OF 34

Filename: ...\00\Bridge\MSTA\001_Title.dgn Division: BRIDGE Username: LindoT Date:2/4/2014

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.19	REMOVING EXISTING BRIDGE (600CY)	1	LS
202.202	REMOVING PAVEMENT SURFACE	245	SY
203.20	COMMON EXCAVATION	4800	CY
203.24	COMMON BORROW	800	CY
203.25	GRANULAR BORROW	490	CY
206.082	STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	530	CY
304.10	AGGREGATE BASE COURSE - GRAVEL	4030	CY
403.208	HOT MIX ASPHALT 12.5 MM NOMINAL MAXIMUM SIZE, SURFACE	410	TON
403.209	HOT MIX ASPHALT 9.5 MM HMA (SIDEWALKS, DRIVES, ECT.)	5	TON
403.213	HOT MIX ASPHALT 12.5 MM NOMINAL MAXIMUM SIZE, BASE	1115	TON
409.15	BITUMINOUS TACK COAT, APPLIED	300	GAL
501.231	DYNAMIC LOADING TEST	2	EA
501.50	STEEL H-BEAM PILES 89 LB/FT, DELIVERED	242	LF
501.501	STEEL H-BEAM PILES 89 LB/FT, IN PLACE	242	LF
501.90	PILE TIPS	10	EA
501.92	PILE DRIVING EQUIPMENT MOBILIZATION	1	LS
502.219	STRUCTURAL CONCRETE ABUTMENTS & RETAINING WALLS (116 CY)	1	LS
502.26	STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLAB ON STEEL BRIDGES (107 CY)	1	LS
502.31	STRUCTURAL CONCRETE APPROACH SLAB (23 CY)	1	LS
502.49	STRUCTURAL CONCRETE CURBS AND SIDEWALKS (15 CY)	1	LS
503.14	EPOXY-COATED REINFORCING STEEL, FABRICATED & DELIVERED	54500	LB
503.15	EPOXY-COATED REINFORCING STEEL, PLACING	54500	LB
503.171	MECHANICAL / WELDING SLEEVE (79 EA)	1	LS
504.702	STRUCTURAL STEEL FABRICATED AND DELIVERED, WELDED (144700 LBS)	1	LS
504.71	STRUCTURAL STEEL ERECTION (144700 LBS)	1	LS
505.08	SHEAR CONNECTORS (1440 EA)	1	LS
507.0811	STEEL BRIDGE RAILING, 2 BAR (224 LF)	1	LS
508.14	HIGH PERFORMANCE WATERPROOFING MEMBRANE (430 SY)	1	LS
511.07	COFFERDAM: ABUTMENT 1	1	LS
511.07	COFFERDAM: ABUTMENT 2	1	LS
511.07	COFFERDAM: PIER	1	LS
512.081	FRENCH DRAINS (100 LF)	1	LS
514.06	CURING BOX FOR CONCRETE CYLINDERS	1	EA
515.21	PROTECTIVE COATING FOR CONCRETE SURFACES (1173SY)	1	LS
520.232	EXPANSION DEVICE - ASPHALTIC PLUG JOINT	60	LF
524.301	TEMPORARY STRUCTURAL SUPPORT	1	LS
526.301	TEMPORARY CONCRETE BARRIER, TYPE 1 (900 LF)	1	LS
526.34	PERMANENT CONCRETE TRANSITION BARRIER	4	EA
527.34	WORK ZONE CRASH CUSHIONS	2	UN
606.1721	BRIDGE TRANSITION - TYPE 1	4	EA
606.23	GUARDRAIL TYPE 3C - SINGLE RAIL	225	LF
606.232	GUARDRAIL TYPE 3C - OVER 15 FOOT RADIUS	25	LF
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	6	EA
606.78	LOW VOLUME GUARDRAIL END - TYPE 3	1	EA
606.79	GUARDRAIL 350 FLARED TERMINAL	3	EA
610.08	PLAIN RIPRAP	670	CY
610.18	STONE DITCH PROTECTION	140	CY
613.319	EROSION CONTROL BLANKET	920	SY
615.07	LOAM	275	CY
618.1401	SEEDING METHOD NUMBER 2 - PLAN QUANTITY	48	UN
619.1201	MULCH - PLAN QUANTITY	48	UN
619.1401	EROSION CONTROL MIX	50	CY
620.58	EROSION CONTROL GEOTEXTILE	1177	SY
627.733	WHITE OR YELLOW PAVEMENT MARKING LINE	5800	LF
627.76	TEMPORARY PAVEMENT MARKING LINE, WHITE OR YELLOW (6200 LF)	1	LS
627.77	REMOVING PAVEMENT MARKINGS	1334	SF
629.05	HAND LABOR, STRAIGHT TIME	20	HR

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
631.12	ALL-PURPOSE EXCAVATOR (INCLUDING OPERATOR)	40	HR
631.14	GRADER (INCLUDING OPERATOR)	40	HR
631.15	ROLLER, EARTH AND BASE (INCLUDING OPERATOR)	40	HR
631.172	TRUCK-LARGE (INCLUDING OPERATOR)	40	HR
637.071	DUST CONTROL	1	LS
639.18	FIELD OFFICE, TYPE A	1	EA
643.72	TEMPORARY TRAFFIC SIGNAL - EAST OF 15 MILE STREAM BRIDGE	1	LS
643.72	TEMPORARY TRAFFIC SIGNAL - WEST OF 15 MILE STREAM BRIDGE	1	LS
652.312	TYPE III BARRICADES	2	EA
652.33	DRUM	50	EA
652.34	CONE	80	EA
652.35	CONSTRUCTION SIGNS	253	SF
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES (120 CD)	1	LS
652.38	FLAGGERS	400	HR
656.75	TEMPORARY SOIL EROSION AND POLLUTION CONTROL	1	LS
659.10	MOBILIZATION	1	LS

GENERAL CONSTRUCTION NOTES

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

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

3. The Centerline Construction Line shown on the plans is different than the Right Of Way Condemnation Line. See Right Of Way Sheet.

4. During construction, the road will be reduced to a single lane of alternating one-way traffic for a time period specified in the Special Provisions.

5. All embankment material, except as otherwise shown, placed below Elevation 120.58, shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.

6. The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.

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

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

9. 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.

10. An NCHRP350 compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.

11. 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.

12. 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.
Top of abutment backwalls and to 1 foot below the top of backwalls on the back side.

GENERAL CONSTRUCTION NOTES CONT.

13. 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 Specification 619, Mulch. Payment will be made under Item 619.1401, Erosion Control Mix.

14. Construct the riprap shelf at abutment no. 1 at EL. 128.75 and EL. 129.25 at Abutment no. 2.

15. 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.

16. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction..

17. Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidders' or Contractor's interpretations of, or conclusions drawn from, the geotechnical information. The boring logs contained in the plan set present factual and interpretive subsurface information collected at discrete locations. Data provided may not be representative of the subsurface conditions between the boring locations.

18. 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.

19. 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.

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

21. The Project geotechnical report titled: Final Geotechnical Design Report, Bridge No. 5069 over Fifteen Mile Stream Bridge, MaineDOT WIN 18231.00, Benton, Maine, dated January 15, 2014 may be accessed at the MaineDOT web address.

22. Loose fill was encountered in borings taken through the approach embankments. Descriptions can be found on the boring logs included in the project geotechnical report. These materials shall be densified in place after excavation is made to the proposed subgrade level. The surface of existing fill shall be proof-compacted prior to placement of fill by making at least 4 passes with a heavy roller. Subgrade that exhibits weaving, rutting or otherwise unsuitable performance shall be excavated and the unsuitable material replaced with compacted Granular Borrow meeting the requirements of MaineDOT Section 203.

23. The existing bridge shall be removed by and become the property of the Contractor. 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.

24. Cofferdams or water control devices are required for removing the abutments and pier. A fully dewatered cofferdam may not be necessary to fulfill the debris containment requirements of Special Provision 656 for center pier removal.

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

PROJ. MANAGER STEPHEN BODGE #	BY	DATE
DESIGN-DETAILED R. F.ARRELL	T. LINDO	2/2014
CHECKED-REVIEWED F. DAHAR		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

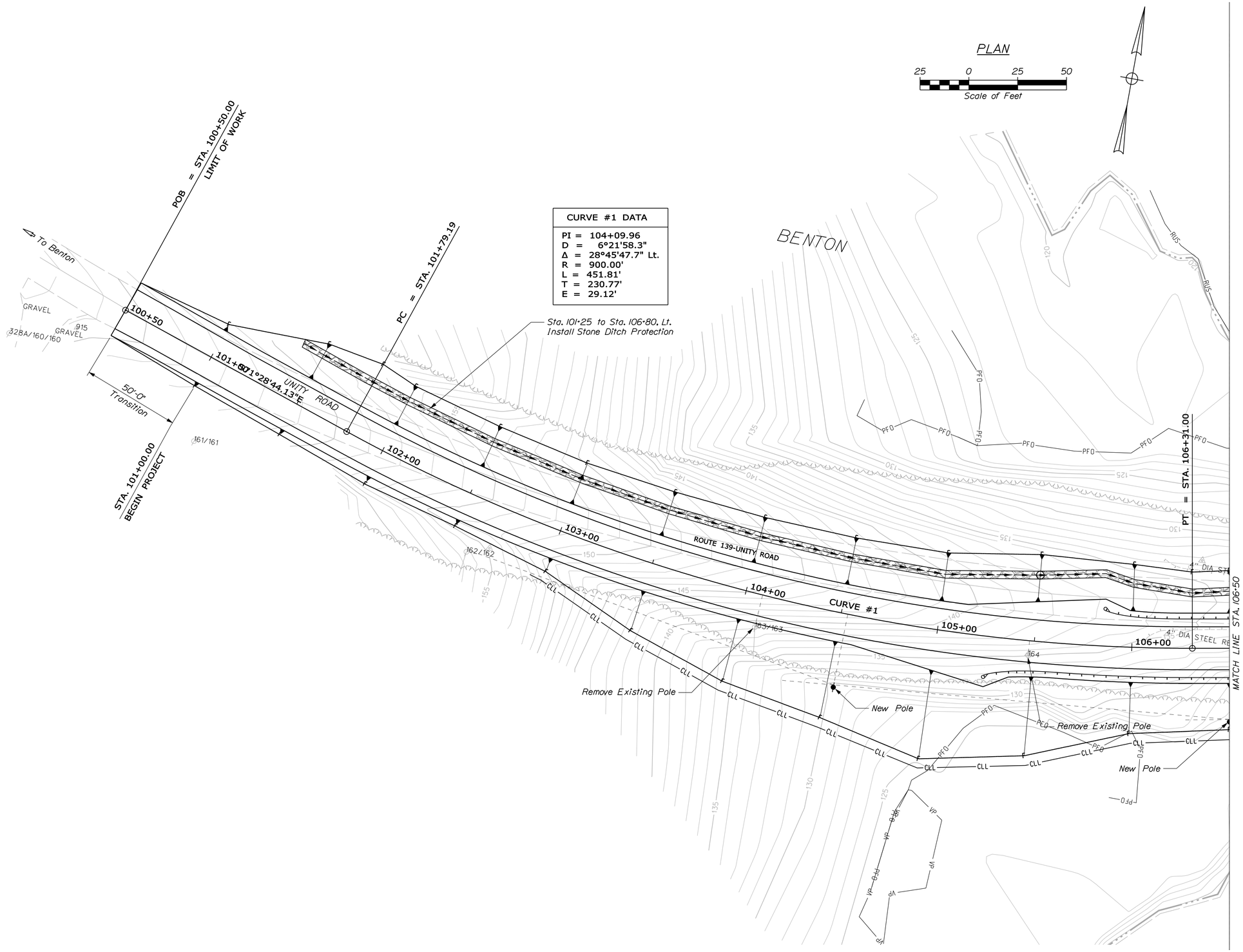
DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

ESTIMATED QUANTITIES
& GENERAL CONSTRUCTION NOTES

SHEET NUMBER
2
OF 34

Filename: ...\BRIDGE\MSTA\002_Estimate.dgn Division: BRIDGE Username: david.shaw Date:2/6/2014



CURVE #1 DATA
PI = 104+09.96
D = 6°21'58.3"
Δ = 28°45'47.7" Lt.
R = 900.00'
L = 451.81'
T = 230.77'
E = 29.12'

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BODGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	1/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

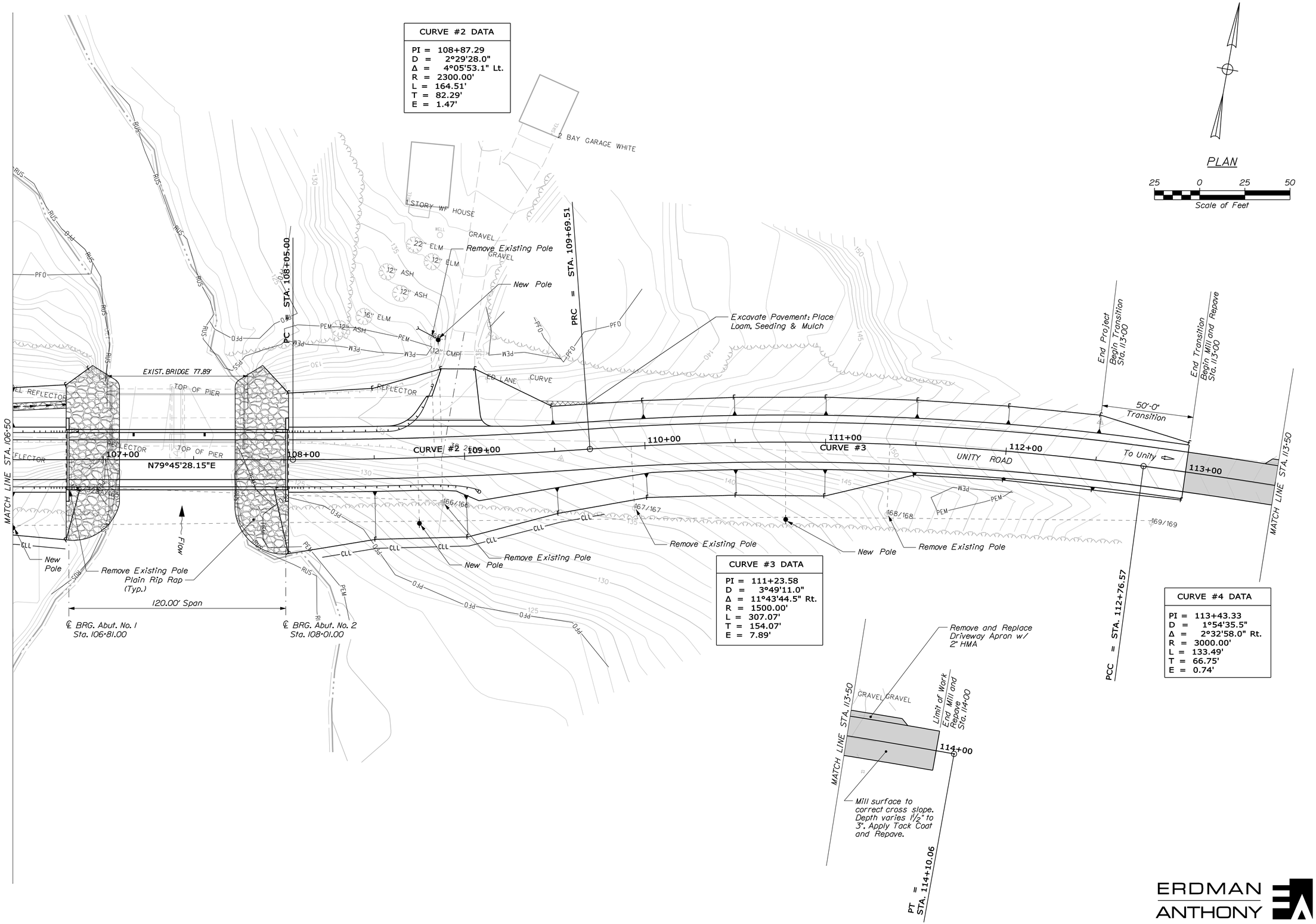
DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

PLANS

SHEET NUMBER
3
OF 34

Filename: ...\00\Bridge\MSTA\003_BDPlan1.dgn Division: BRIDGE Username: LindoT Date:1/16/2014



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER STEPHEN BODGE II		
DESIGN-DETAILED F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED F. DAHAR		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

PLANS

ERDMAN ANTHONY

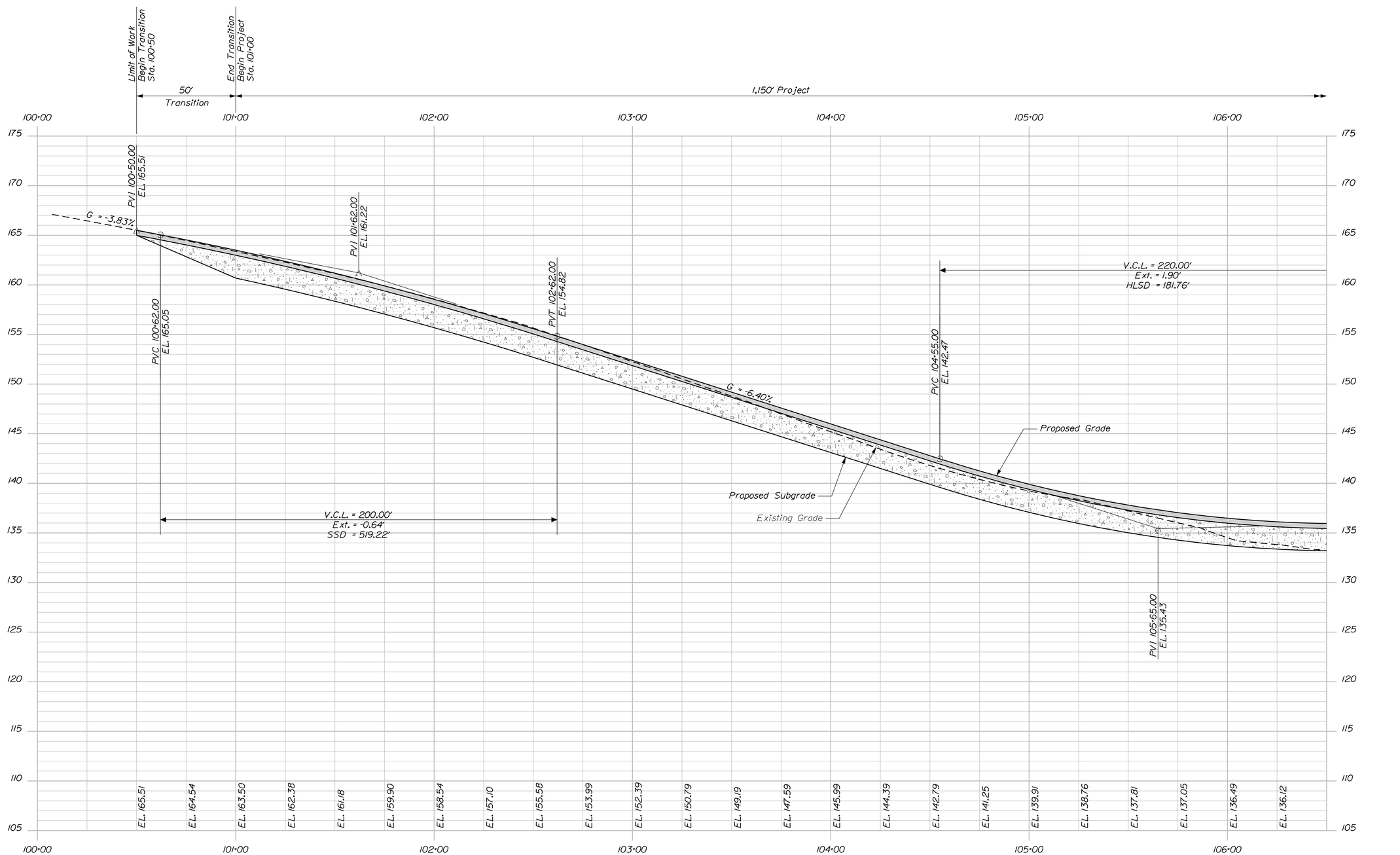
SHEET NUMBER

4

OF 34

Filename: ...\00\Bridge\MSTA\004_BDPlan2.dgn Division: BRIDGE Username: LindoT Date:2/4/2014

ERDMAN ANTHONY



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BODGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	1/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

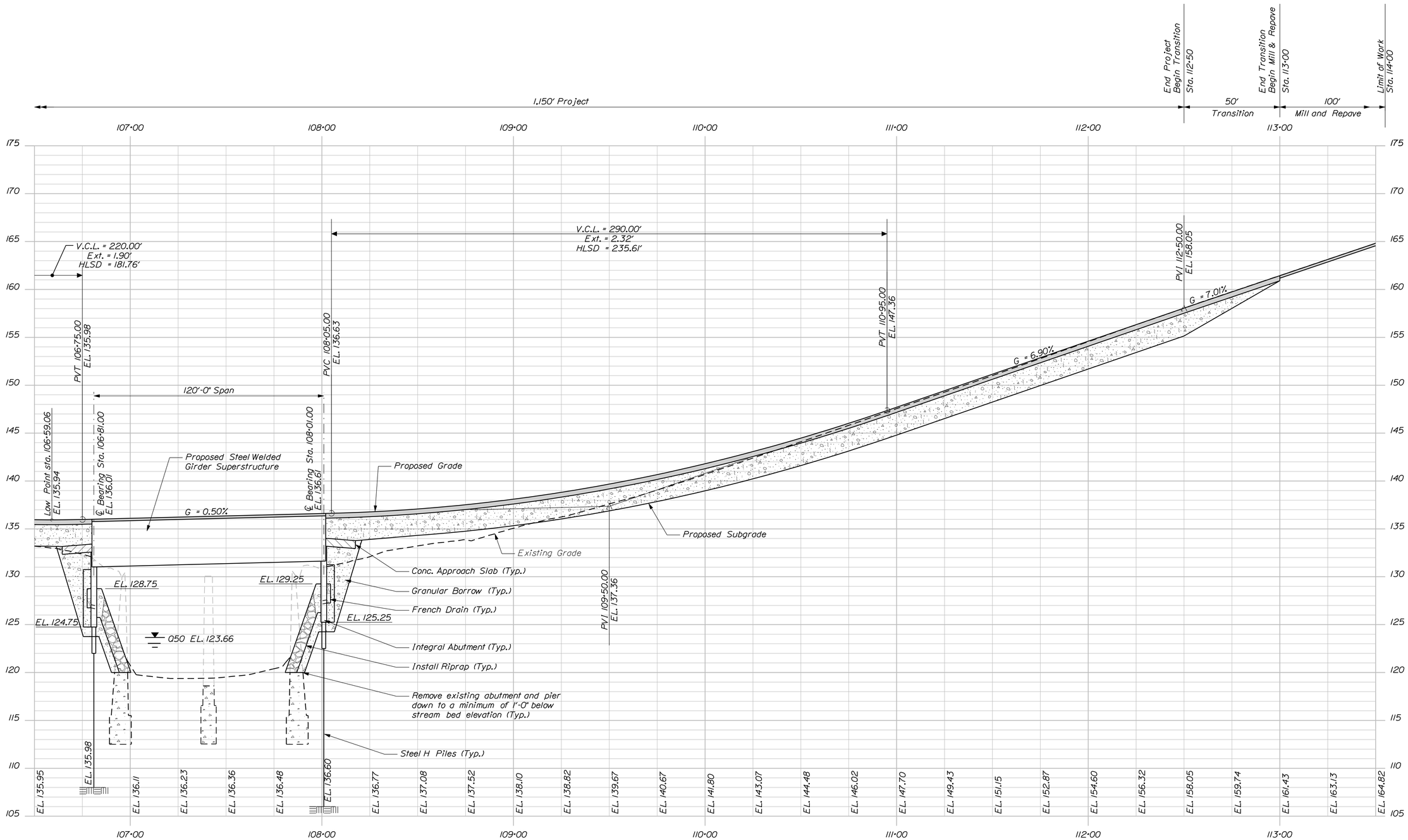
PROFILE

SHEET NUMBER

5

OF 34

Filename: ...\Bridge\MSTA\005_Profile1.dgn Division: BRIDGE Username: LindoT Date:1/16/2014



ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BODGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	1/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

PROFILE

SHEET NUMBER

6

OF 34

Filename: ...\Bridge\MSTA\006_Profile2.dgn Division: BRIDGE Username: LindoT Date:1/16/2014

NOTES:

1) BASE MAP DEVELOPED FROM ELECTRONIC FILES DATED NOVEMBER 14, 2013 PROVIDED BY ERDMAN ANTHONY (FILES INCLUDED Alignments.dgn, Bridge.dgn, Contours.dgn, Topo.dgn, z_Layout.dgn, and z_Alignments_Exist.dgn).

2) THE APPROXIMATE LOCATION OF THE GZA BORINGS WERE ESTIMATED USING TAPED MEASUREMENTS FROM SITE FEATURES AND SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED.

3) GZA BORINGS WERE PERFORMED BY MAINE TEST BORINGS OF HERMON, MAINE BETWEEN MAY 17, 2012 AND MAY 18, 2012 AND OBSERVED BY GZA PERSONNEL.

4) UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

LEGEND

BB-BB-102

APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING (DRILLED BY MAINE TEST BORING FOR GZA)

N

0 10 20 40 60
SCALE IN FEET

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

PIN
18231.00

BRIDGE PLANS

STATE OF MAINE
ANDREW R. BLAISDELL
NO. 10957
LICENSED
PROFESSIONAL ENGINEER

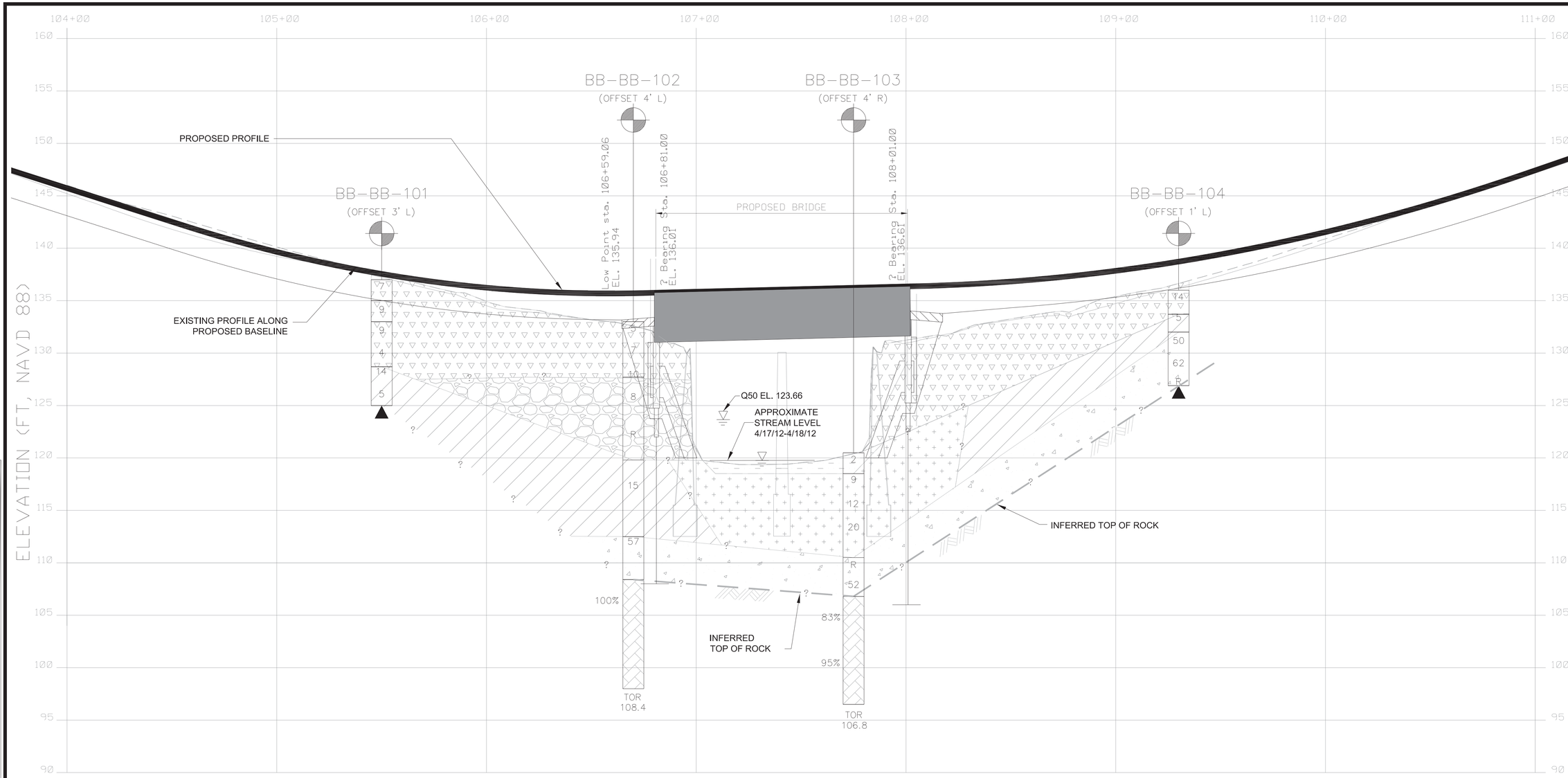
SIGNATURE
10957
P.E. NUMBER
2-3-2014
DATE

PROJ. MANAGER		BY	DATE
DESIGN1-DETAILED		EIL	
CHECKED-REVIEWED	ARB	CLS	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BRIDGE #5069 OVER
FIFTEEN MILE STREAM
BENTON KENNEBEC COUNTY

BORING LOCATION PLAN

SHEET NUMBER
7
OF 32



LEGEND:

BB-BB-101 — INDICATES BOREHOLE DESIGNATION

(OFFSET 0') — INDICATES LOCATION AND DIRECTION OFFSET FROM BASELINE OF PROPOSED BRIDGE

30 — INDICATES ENERGY-CORRECTED STANDARD PENETRATION TEST (SPT) VALUE, N60

R — INDICATES REFUSAL

30% — INDICATES RQD OF CORE RUN

ROCK CORE

DRILLING TERMINATED WITHOUT ROCK CORE

TOR 106.8 — TOP OF CORED BEDROCK (FT-NAVD 1988)

FILL

POSSIBLE ROCK FILL

RECENT ALLUVIUM

SAND AND GRAVEL

MARINE DEPOSIT

GLACIAL TILL

BEDROCK

NOTES:

1) BASE PROFILE DEVELOPED FROM ELECTRONIC FILE DATED NOVEMBER 14, 2013 PROVIDED BY ERDMAN ANTHONY ENTITLED z_Profile.DGN.

2) THIS GENERALIZED INTERPRETIVE SUBSURFACE PROFILE IS INTENDED TO CONVEY TRENDS IN SUBSURFACE CONDITIONS. THE BOUNDARIES BETWEEN STRATA ARE APPROXIMATE AND IDEALIZED, AND HAVE BEEN DEVELOPED BY INTERPRETATIONS OF WIDELY SPACED EXPLORATIONS AND SAMPLES. ACTUAL SOIL AND BEDROCK TRANSITIONS MAY VARY AND ARE PROBABLY MORE ERRATIC. FOR MORE SPECIFIC INFORMATION REFER TO THE EXPLORATION LOGS.

3) GROUND SURFACE ELEVATIONS OF AS-DRILLED BORINGS WERE INTERPOLATED BETWEEN CONTOURS ON SITE PLANS PROVIDED BY ERDMAN ANTHONY ON APRIL 9, 2012 ENTITLED "CONTOURS.DGN." THESE ELEVATIONS ARE APPROXIMATE AND SHOULD BE CONSIDERED ACCURATE TO THE DEGREE IMPLIED BY THE METHOD USED TO ESTIMATE THEM.

4) UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

PIN 18231.00

BRIDGE PLANS

STATE OF MAINE
ANDREW R. BLASDELL
NO. 10957
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE
10957
P.E. NUMBER
02-03-2014
DATE

PROJ. MANAGER		BY	DATE
DESIGN-DETAILED		EIL	
CHECKED-REVIEWED	ARB	CLS	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BRIDGE #5069 OVER
FIFTEEN MILE STREAM
BENTON KENNEBEC COUNTY

INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER

8

OF 32

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: 15 Mile Stream Bridge
Location: Benton, Maine

Boring No. BB-BB-101
PIN: 18231.00

Driller: Tom Schafer	Elevation (ft.) 137±	Auger ID/OD 2 1/4	
Operator: Tom Schafer	Datum: NAVD 88	Sampler: Split Spoon	
Logged By: Eric Baron	Rig Type: Mobile B48	Hammer Wt./Fall: 140/30	
Date Start/Finish: 04-18-12	Drilling Method: SSA/HSA	Core Barrel: -	
Boring Location: See Plan	Casing ID/OD: -	Water Level*: Dry	
Hammer Efficiency Factor: 0.6	Hammer Type: Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
Nuncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*Nuncorrected
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	Nuncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0	1D	24/16	0.0 - 2.0	4-4-3-4	7	7	SSA		Loose, brown, fine to coarse SAND, little Gravel, trace Silt, frequent inclusions of gray SILT, dry. -FILL-	
	2D	24/12	2.0 - 4.0	4-4-5-8	9	9			Loose, brown, fine to coarse SAND, some Gravel, trace Silt, dry. -FILL-	G#1 A-1-b, SW-SM WC = 5.2%
5	3D	24/14	4.0 - 6.0	6-5-4-2	9	9			Loose, brown-gray, fine to coarse SAND, some to little Gravel, some Silt, moist. (Possible reworked till.) -FILL-	G#2 A-1-b, SM WC = 13.7%
	4D	24/7	6.0 - 8.0	2-2-2-3	4	4			Very loose, brown, fine to coarse SAND, little to some Silt, little Gravel, moist to wet. (Possible reworked till.)	
	5D	24/10	8.0 - 10.0	3-5-9-9	14	14	HSA	128.7	Top 4": Brown, fine to medium SAND, some Silt, trace Gravel, wet. Organics throughout. 8.3	
10	6D	24/16	10.0 - 12.0	4-2-3-2	5	5		125.0	Bottom: Very stiff, olive-gray, Clayey SILT, some fine to medium Sand, little Gravel, moist. -MARINE DEPOSIT- Stiff, olive-gray, Clayey SILT, little fine to medium Sand, wet.	WC = 29.0%
15									Bottom of Exploration at 12.00 feet below ground surface. 12.0	
20										
25										

Remarks:
1. Boring terminated at 12.0 feet BGS. No Refusal.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-BB-101

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: 15 Mile Stream Bridge
Location: Benton, Maine

Boring No. BB-BB-102
PIN: 18231.00

Driller: Tom Schafer	Elevation (ft.) 133±	Auger ID/OD 2 1/4	
Operator: Tom Schafer	Datum: NAVD 88	Sampler: Split Spoon	
Logged By: Eric Baron	Rig Type: Mobile B-48	Hammer Wt./Fall: 140/30	
Date Start/Finish: 04-17-12	Drilling Method: Driven & Spun Casing	Core Barrel: -	
Boring Location: See Plan	Casing ID/OD: 4" / 3"	Water Level*: 14.2	
Hammer Efficiency Factor: 0.6	Hammer Type: Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
Nuncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*Nuncorrected
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	Nuncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0	1D	24/6	0.0 - 2.0	1-3-2-1	5	5		132.8	Topsoil 0.2	
	2D	24/8	2.0 - 4.0	3-4-3-3	7	7	SSA		Loose, brown, fine to coarse SAND, some Silt, rootlets throughout, moist. -FILL- Loose, brown, fine to coarse SAND, some Gravel, some Silt, moist. -FILL-	G#4 A-1-b, SM WC = 14.7%
5	3D	24/10	4.0 - 6.0	2-1-9-7	10	10			Loose, brown-olive, fine to coarse Silty SAND, some Gravel, moist. Possible Reworked till. -FILL- 5.3	G#5 A-2, SM WC = 14.8%
	4D	24/3	6.0 - 8.0	1-4-4-3	8	8		127.7	See Remark 1 Loose, brown, fine to medium Sandy GRAVEL, little Silt, moist. -FILL- Drilling efforts indicate persistent Cobbles/Boulders from 6.0' to 13.2'. (Possible Rock Fill.)	
10	5D	7/2	10.0 - 10.6	46-50/1"	-		RC		Gray GRAVEL, little Silt, trace fine to medium Sand, moist. -FILL- (Possible Rock Till)	
								119.8	Drill action indicates change from cobbles/ boulders to soil at 13.2 feet. 13.2	
15	6D	24/14	15.0 - 17.0	4-6-9-9	15	15	21		Very stiff, olive-gray to gray, Clayey SILT, some fine to medium Sand, trace Gravel, wet. -MARINE DEPOSIT-	WC = 18.8%
							26			
							34			
							37			
							42	112.5	Very dense, gray, GRAVEL, some fine to coarse Sand, little Silt, wet. -GLACIAL TILL- See Remark 2. 20.5	
20	7D	19/5	20.5 - 22.1	27-25-32-50/1"	57	57			R1 Top: Cobbles and Boulders, Gravel Pieces between Cobbles. See Remark 2.	
	R1	34/8	22.2 - 25.0	RQD = 0%			NQ2			
25								108.4	R1 Bottom 5 inches: Hard, fresh, fine grained, gray METASANDSTONE. Hard, fresh, fine-grained, gray, METASANDSTONE with Calcite Stringers throughout. Joint is high angle, planar, rough, fresh, tight. Core Rates (minutes/foot): 2.0, 2.25, 2.2, 2. Rock Mass Quality = Excellent 24.6	
	R2	60/60	25.0 - 30.0	RQD = 100%						
30	R3	60/39	30.0 - 35.0						Hard, fresh, fine-grained gray METASANDSTONE with Calcite Stringers throughout. See Remark 3. Core Rates (minutes/foot): 2, 2.25, 1.75, 2, 2.	
35								98.0	Bottom of Exploration at 35.00 feet below ground surface. 35.0	
40										

Remarks:
1. Cobble at 5.4', likely giving higher blows from 5' - 6'.
2. Practical casing refusal at 22.1'. Removed casing, added spin shoe, and spun 3" casing to 25'.
3. R3 was not recovered on first attempt; barrel catch did not work, had to recore to retrieve Rock. Core was highly fractured upon retrieval. Original drill action was similar to R1, fracturing and lost recovery believed to have resulted from recoring, not representative of rock mass. Hole open to 34.7' after core retrieved.
4. Boring was terminated at 35' BGS in bedrock.
5. Water level measured on 4/18/12, about 16 hours after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-BB-102

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: 15 Mile Stream Bridge
Location: Benton, Maine

Boring No. BB-BB-103
PIN: 18231.00

Driller: Tom Schafer	Elevation (ft.) 120.5±	Auger ID/OD 2 1/4	
Operator: Tom Schafer	Datum: NAVD 88	Sampler: Split Spoon	
Logged By: Eric Baron	Rig Type: Mobile B-48	Hammer Wt./Fall: 140/30	
Date Start/Finish: 04-18-12	Drilling Method: Driven Casing	Core Barrel: NQ2	
Boring Location: See Plan	Casing ID/OD: 3"	Water Level*: 1.0	
Hammer Efficiency Factor: 0.6	Hammer Type: Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
Nuncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*Nuncorrected
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	Nuncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0	1D	24/13	0.0 - 2.0	1-1-1-4	2	2	SSA		Brown/gray SILT, some fine to coarse Sand, with organics, moist. -RECENT ALLUVIUM- 2.0	
	2D	24/10	2.0 - 4.0	4-5-4-5	9	9		118.5	Loose, gray, fine to medium Sandy SILT, some Gravel, wet. -SAND and GRAVEL-	
5	3D	24/4	4.0 - 6.0	9-7-5-6	12	12			Medium dense, gray, fine to coarse Gravelly SAND, little Silt, wet. -SAND and GRAVEL-	
	4D	24/14	6.0 - 8.0	15-8-12-12	20	20			6-6.8': Medium dense, olive, fine to medium SAND, little Gravel, trace Silt, wet. 6.8-7.2': Medium dense, olive, fine SAND, trace Silt, wet. -SAND and GRAVEL-	
							36			
							34	110.5		
10	5D	11/9	10.0 - 10.9	22-75/5"			12		Brown-gray, fine to coarse SAND, some Silt, little Gravel, oxidation staining on matrix, wet. -GLACIAL TILL- 10.0 Very dense, 10.6 - 11.2'	G#7 A-2, SM WC = 12.2%
	6D	24/16	11.5 - 13.5	18-22-30-27	52	52	28		Very dense, brown, fine to coarse SAND, some Gravel, trace to little Silt, wet. -GLACIAL TILL-	
							47			
15								106.8		
	R1	60/57	14.0 - 19.0	RQD = 83%			NQ2		Hard, fresh, medium-grained, gray METASANDSTONE with Calcite Stringers throughout. Primary Joints are close to moderately spaced, low angle, undulating, rough, fresh, tight. Secondary Joints close to moderately spaced, high angle, planar, rough, fresh to discolored, tight. Core Rates (minutes/foot): 2.5, 2.5, 2.25, 2.5, 2.5 Rock Mass Quality = Good 13.7	
20	R2	60/59	19.0 - 24.0	RQD = 95%					Hard, fresh, fine-grained gray METASANDSTONE with Calcite Stringers throughout. Primary Joints are moderately spaced, low angle, planar, rough, iron stained, tight. Secondary Joint is near vertical, planar, rough, tight. Core Rates (minutes/foot): 1.5, 1.5, 2, 1.5, 2 Rock Mass Quality = Excellent	
								96.5	Bottom of Exploration at 24.00 feet below ground surface. 24.0	
25										
30										
35										
40										

Remarks:
1. Boring terminated at 24' BGS in Bedrock.
2. Water level measured about 1 hour after completion of drilling; corresponded roughly to stream water level at time of measurement.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-BB-103

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: 15 Mile Stream Bridge
Location: Benton, Maine

Boring No. BB-BB-104
PIN: 18231.00

Driller: Tom Schafer	Elevation (ft.) 136±	Auger ID/OD 2 1/4	
Operator: Tom Schafer	Datum: NAVD 88	Sampler: Split Spoon	
Logged By: Eric Baron	Rig Type: Mobile B-48	Hammer Wt./Fall: 140/30	
Date Start/Finish: 04-18-12	Drilling Method: HSA	Core Barrel: -	
Boring Location: See Plan	Casing ID/OD: -	Water Level*: Dry	
Hammer Efficiency Factor: 0.6	Hammer Type: Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
Nuncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*Nuncorrected
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	Nuncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0	1D	24/16	0.0 - 2.0	3-6-8-6	14	14	HSA		Top 6": Dark brown, fine to medium SAND, trace Silt. Bottom: Medium dense, brown, fine to coarse SAND, some Gravel, little Silt, dry. -FILL- Top 4" same as 1D 2.3	
	2D	24/15	2.0 - 4.0	6-3-2-5	5	5		133.7	Medium stiff to stiff, olive-gray, CLAY & SILT, some fine to medium Sand, trace Gravel, moist, oxidation staining throughout. -MARINE DEPOSIT- 4.0	G#8 A-6, CL LL=32, PI=13 WC=21.8%
5	3D	24/19	4.0 - 6.0	9-23-27-24	50	50		132.0	Very dense, olive-brown, Gravelly, fine to coarse SAND, little Silt, moist. -GLACIAL TILL- Very dense, olive-brown, Gravelly, fine to coarse SAND, little Silt, moist. -GLACIAL TILL-	G#9 A-1-b, SM WC=9.1%
	4D	24/20	6.0 - 8.0	22-32-30-28	62	62			Dense to very dense, brown, fine to medium SAND, little Gravel, trace Silt, moist. -GLACIAL TILL-	
	5D	13/8	8.0 - 9.1	18-23-50/1"	-			126.9	Bottom of Exploration at 9.10 feet below ground surface. 9.1	
10										
15										
20										
25										
30										
35										
40										

Remarks:
1. Boring terminated at 9.1' BGS on split spoon refusal.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-BB-104

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

PIN
18231.00

BRIDGE PLANS

PROJ. MANAGER	BY	DATE
DESIGN-DETAILED		
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

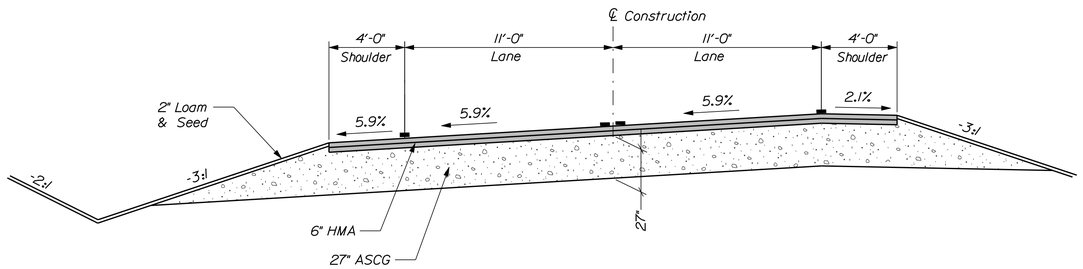
STATE OF MAINE
ANDREW BLASDELL
NO. 10957
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE
10957
P.E. NUMBER
2-3-2014
DATE

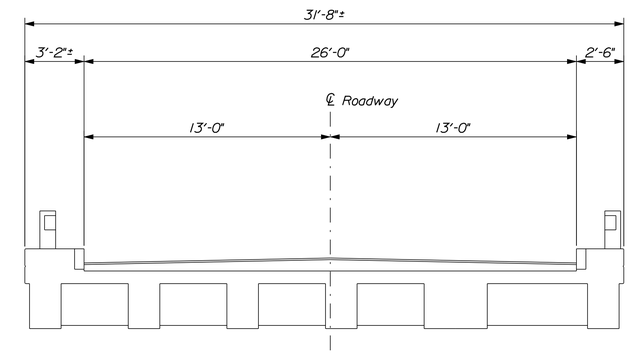
BRIDGE #5069 OVER
FIFTEEN MILE STREAM
BENTON KENNEBEC COUNTY

BORING LOGS

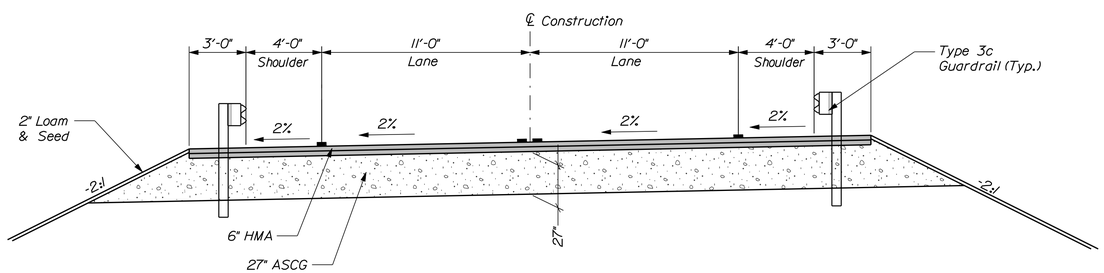
SHEET NUMBER
9
OF 32



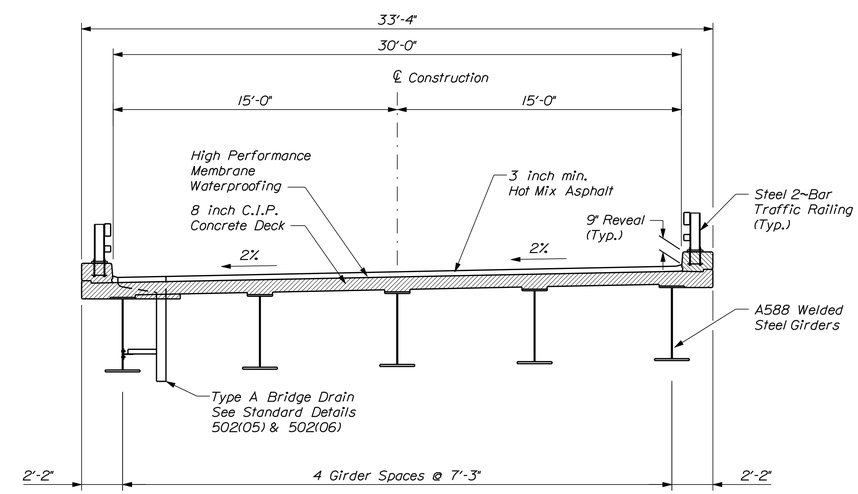
PROPOSED APPROACH SECTION
SCALE: 1/4" = 1'-0"



EXISTING TRANSVERSE SECTION
SCALE: 1/4" = 1'-0"



PROPOSED APPROACH SECTION W/ GUARD RAIL
SCALE: 1/4" = 1'-0"



PROPOSED TRANSVERSE SECTION
SCALE: 1/4" = 1'-0"

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

PROJ. MANAGER STEPHEN BODGE #	BY	DATE
DESIGN-DETAILED	R. FARRELL	T. LINDO	1/2014
CHECKED-REVIEWED	F. DAHAR
DESIGN2-DETAILED2
DESIGN3-DETAILED3
REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

TYPICAL SECTIONS

SHEET NUMBER
10
OF 34

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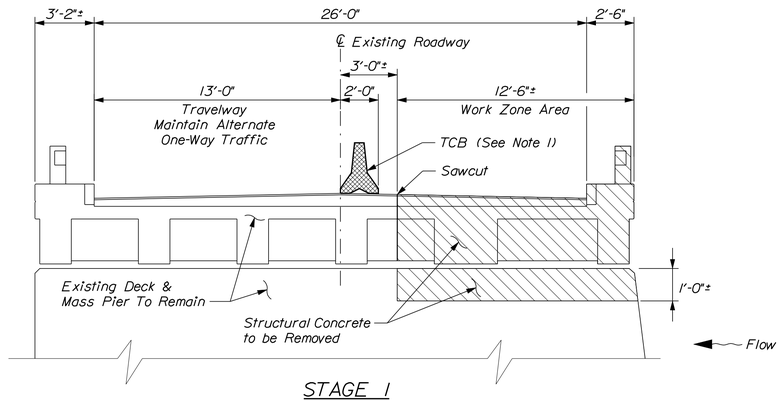
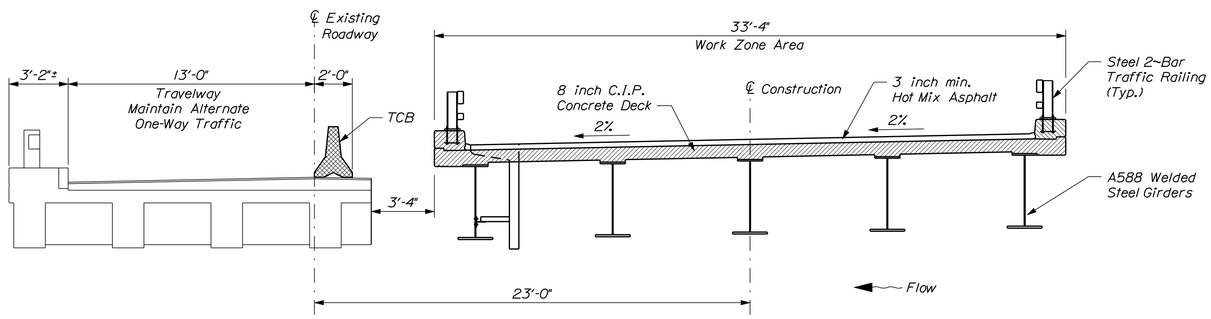
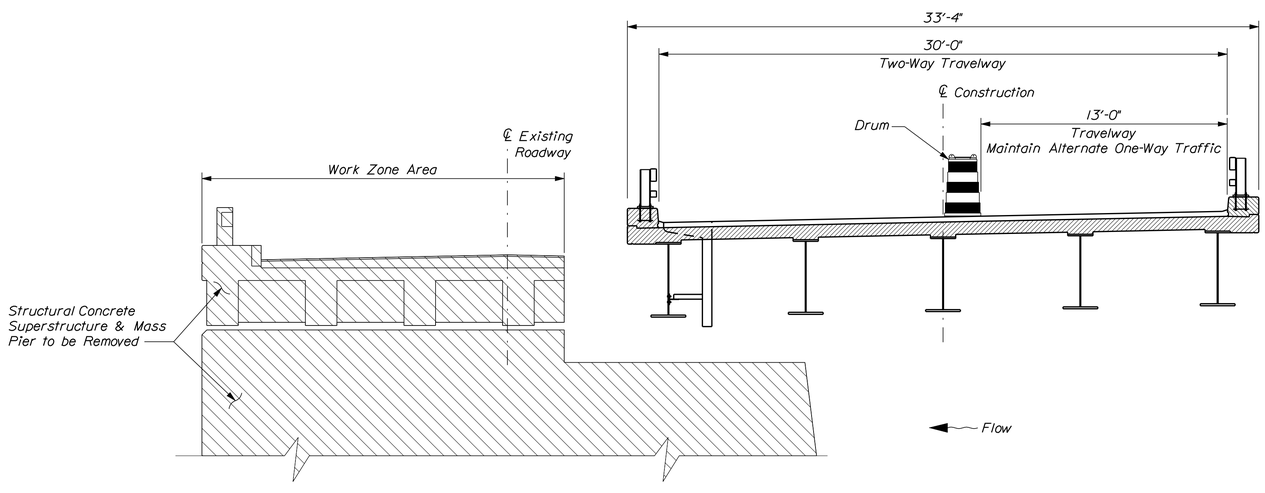


STAGE 1
SCALE: 1/4" = 1'-0"



STAGE 2
SCALE: 1/4" = 1'-0"



STAGE 3
SCALE: 1/4" = 1'-0"

STAGED CONSTRUCTION NOTES

Stage 1:

1. Install the temporary traffic signals in accordance with the MDOT Approved Traffic Control Plan and establish an alternating one-way traffic pattern on the downstream side of the existing bridge.
2. Install the Temporary Concrete Barrier, sawcut the deck and remove the upstream half of the existing bridge as shown.
3. Install half of the cofferdam around the upstream half of the existing bridge pier.
4. Install temporary longitudinal sheeting between the existing and proposed bridge as needed.

Stage 2:

1. While maintaining traffic on the existing bridge, construct the new bridge in its entirety, except downstream wingwalls, and the bridge approaches up through binder course, from approximate Station 103+00 to 109+50. See Cross-sections for details.
2. Construct the south side of the approach pavement up through binder course from Sta. 100+50 to 103+00, Rt.; and from 109+50 to 114+00, Rt.

Stage 3:

1. Shift traffic to the southernmost lane of the new bridge, maintaining alternating one-way traffic.
2. Remove the balance of the existing bridge superstructure. Install the balance of the cofferdam and remove the mass pier to stream bed elevation.
3. Complete the remainder of wingwalls on the left side.
4. Construct the balance of the approach pavement up through binder course from Sta. 100+50 to 103+00, Lt. and from Sta. 109+50 to 114+00, Lt.
5. Install final pavement, striping, loam and seed.

NOTES

1. Temporary Concrete Barrier shall be attached to the existing bridge deck. Attachments shall meet the requirements of AASHTO LRFD for a TL-4 loading condition. Payment for the attachment shall be considered incidental to Item 526.301, Temporary Concrete Barrier.

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER STEPHEN BODGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED	F. DAHAR	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

STAGED CONSTRUCTION

SHEET NUMBER
11
OF 34

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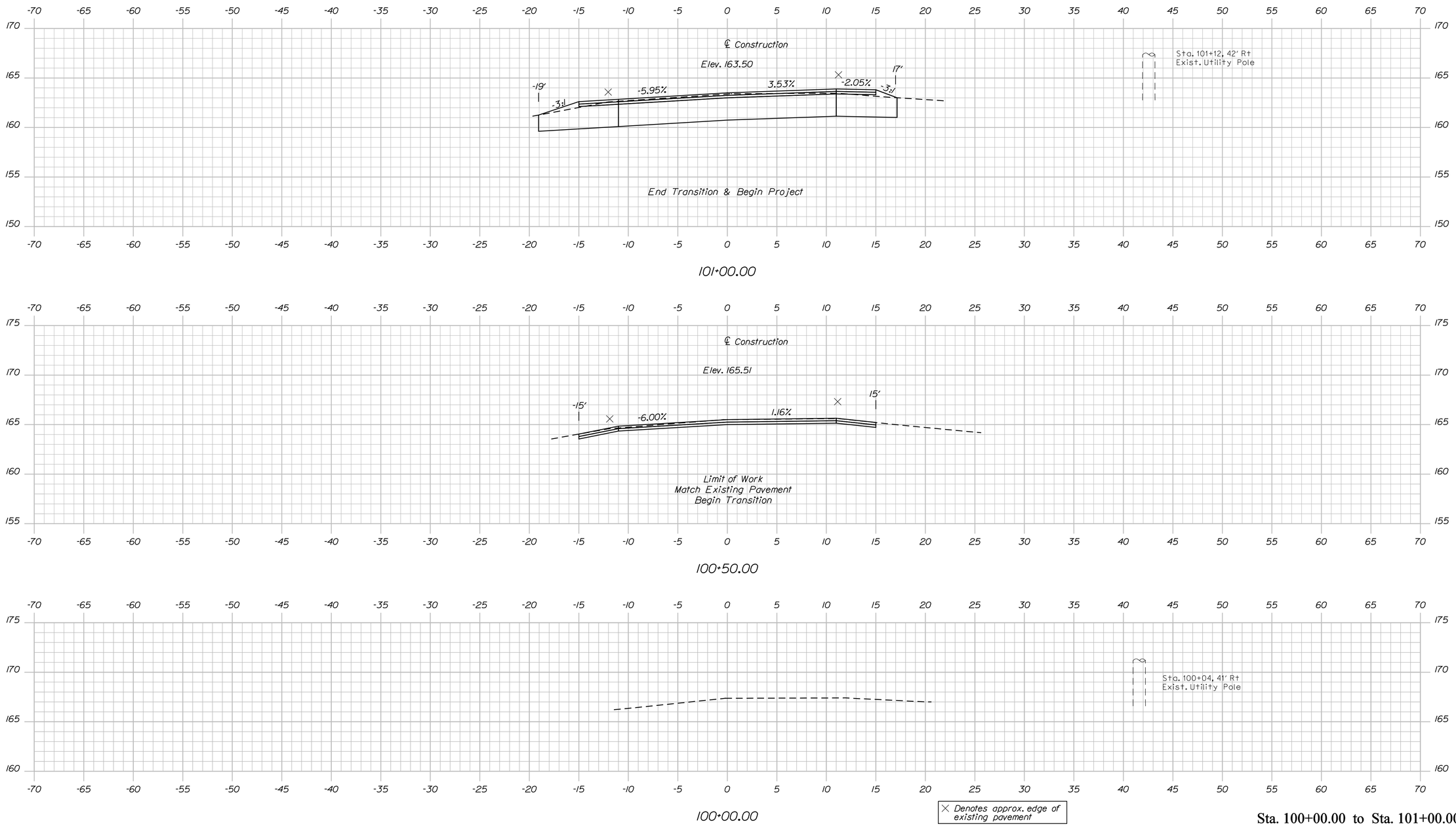
ERDMAN ANTHONY



Sta. 100+00.00 to Sta. 101+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

PROJ. MANAGER STEPHEN BODGE II	BY	DATE
DESIGN-DETAILED F. DAHAR	R. PARKER	1/2014
CHECKED-REVIEWED F. DAHAR		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

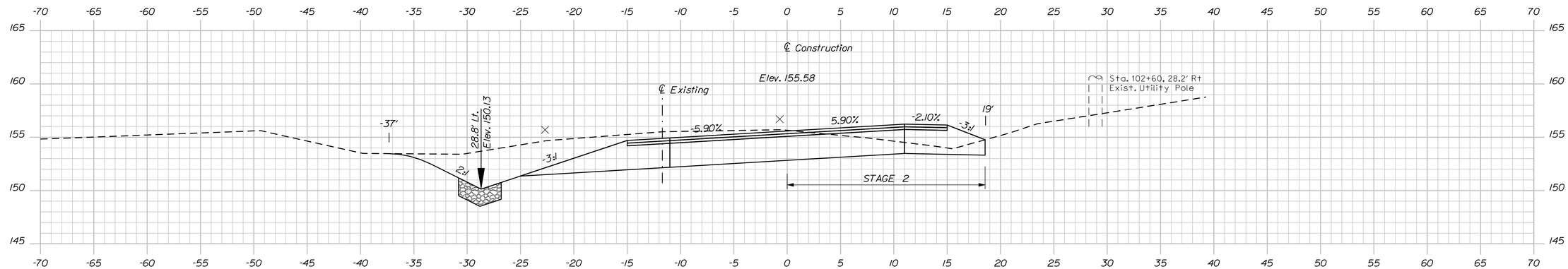
FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

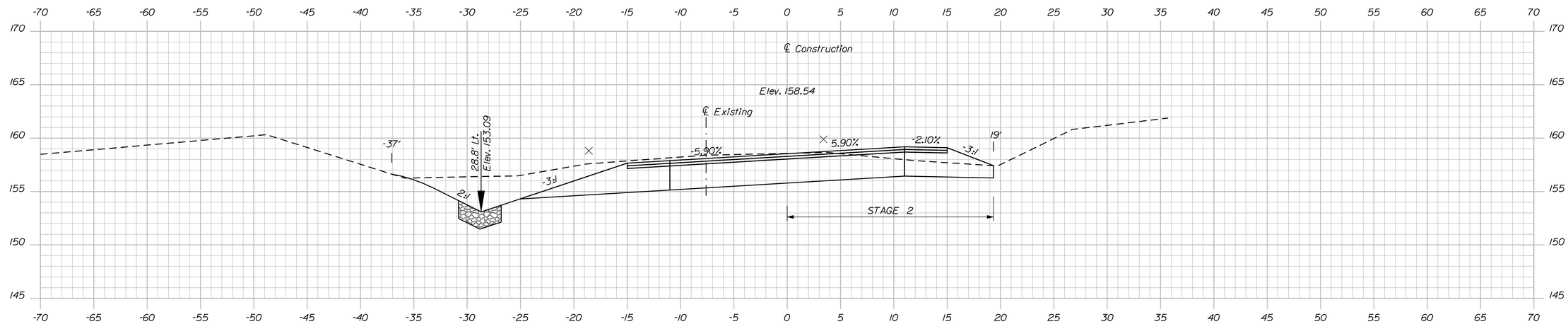
SHEET NUMBER
12
OF 34

Filename: ...\00\Bridge\MSTA\012_Xsect1.dgn Division: BRIDGE Username: LindoT Date:1/16/2014

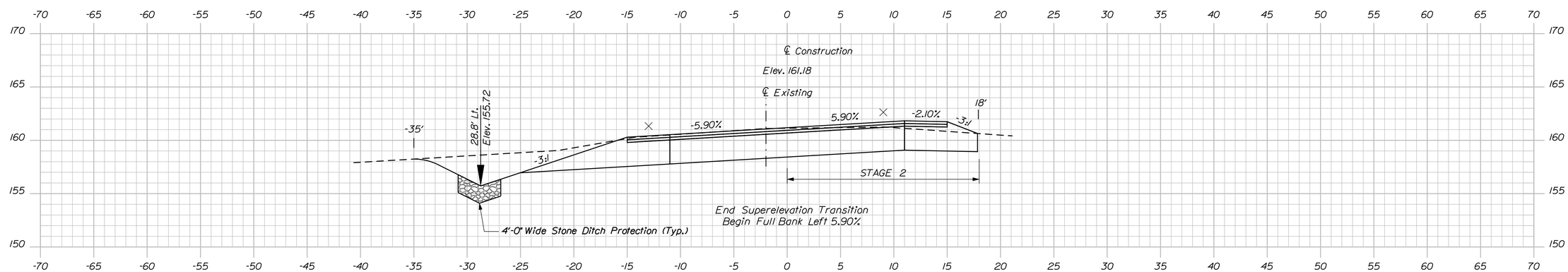
ERDMAN ANTHONY



102+50.00



102+00.00



101+50.00

× Denotes approx. edge of existing pavement

Sta. 101+50.00 to Sta. 102+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE PLANS

BRIDGE NO. 5069

	BY	DATE
PROJ. MANAGER STEPHEN BODGE II		
DESIGN-DETAILED	F. DAHAR	
CHECKED-REVIEWED	F. DAHAR	R. PARKER	1/2014
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

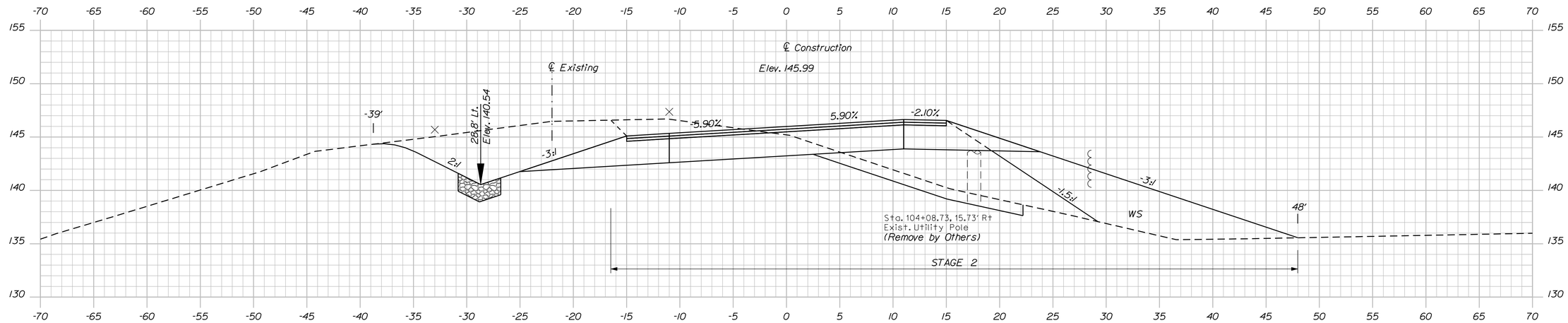
SHEET NUMBER

13

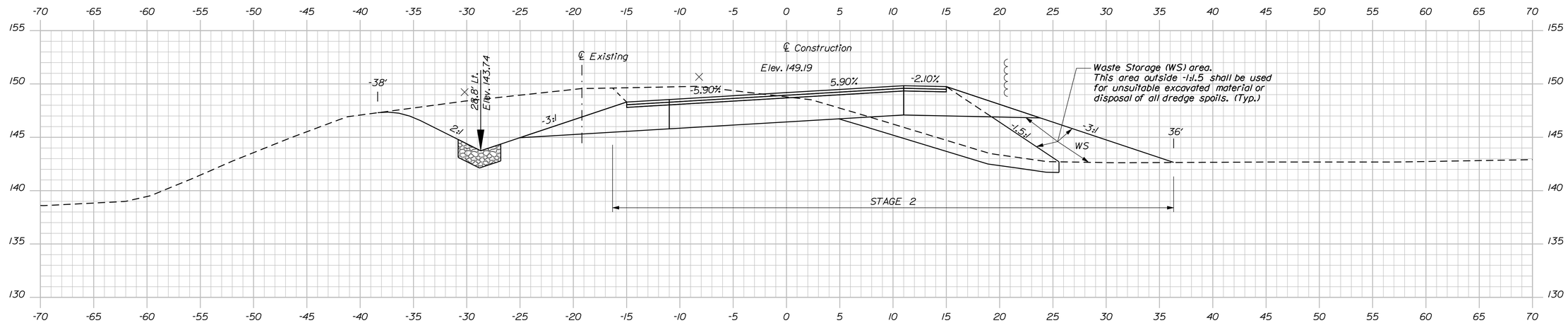
OF 34

Filename: ...\00\Bridge\MSTA\013_Xsect2.dgn Division: BRIDGE Username: LindoT Date:1/16/2014

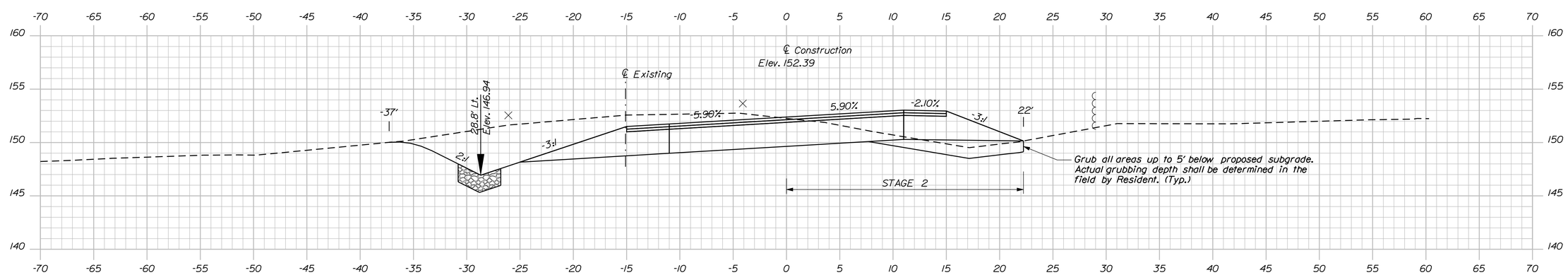
ERDMAN ANTHONY



104+00.00



103+50.00



103+00.00

× Denotes approx. edge of existing pavement

Sta. 103+00.00 to Sta. 104+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	STEPHEN BOGGE II	
DESIGN-DETAILED	F. DAHAR	
CHECKED-REVIEWED	R. PARKER	2/2014
DESIGN2-DETAILED2	F. DAHAR	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

SHEET NUMBER

14

OF 34

Filename: ...\00\Bridge\MSTA\014_Xsect3.dgn Division: BRIDGE Username: LindoT Date:2/3/2014

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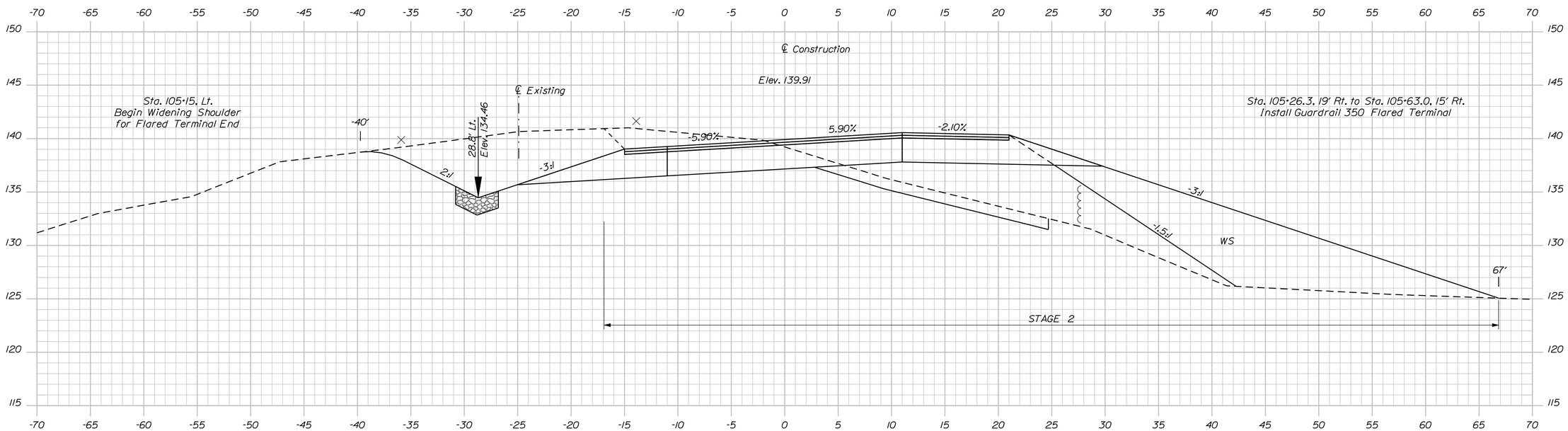
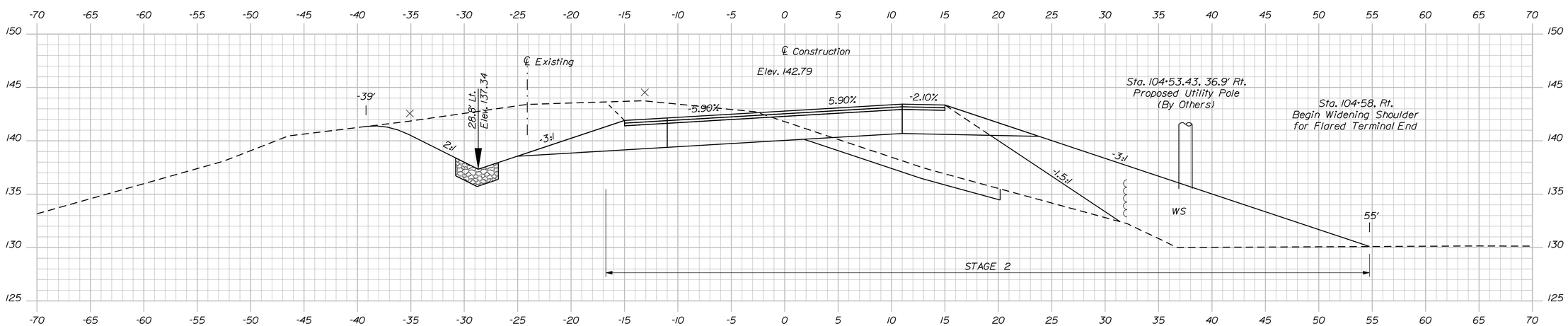


105+00.00



104+50.00

× Denotes approx. edge of existing pavement

Sta. 104+50.00 to Sta. 105+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER STEPHEN BODGE II			
DESIGN-DETAILED	F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

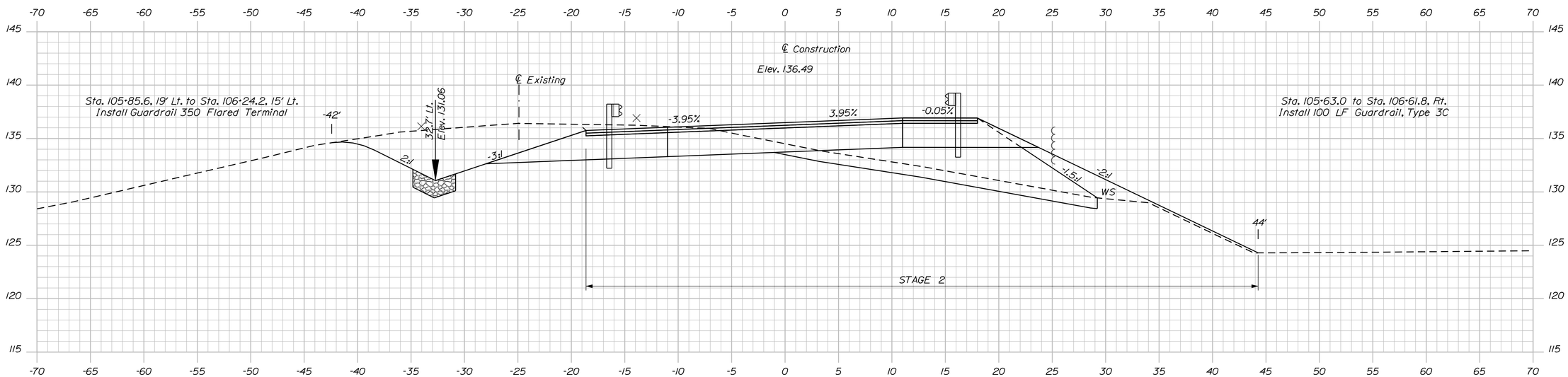
SHEET NUMBER

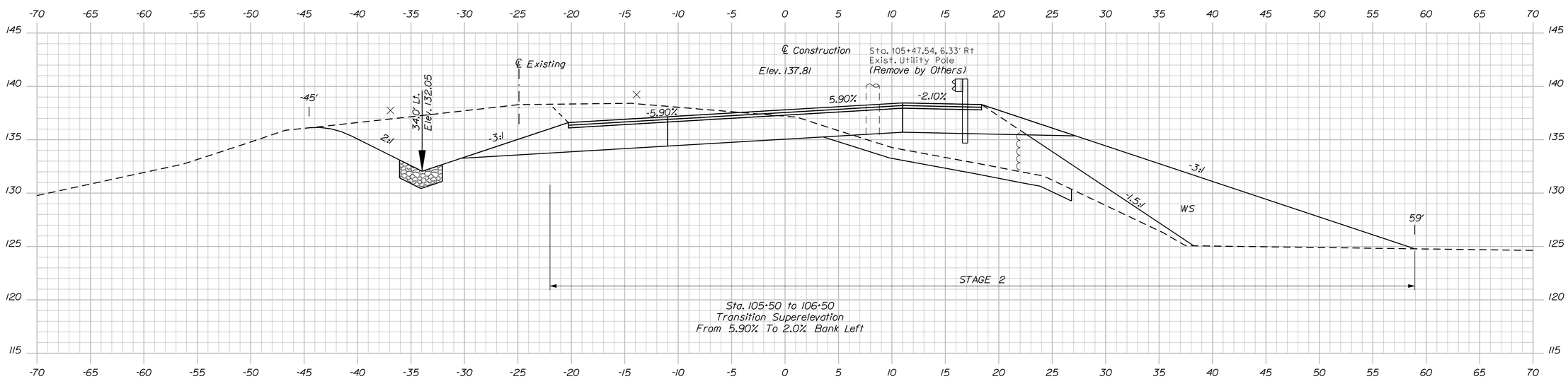
15

OF 34

Filename: ...\00\Bridge\MSTA\015_Xsect4.dgn Division: BRIDGE Username: LindoT Date:2/3/2014

ERDMAN ANTHONY





Sta. 105+50.00 to Sta. 106+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BOOGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

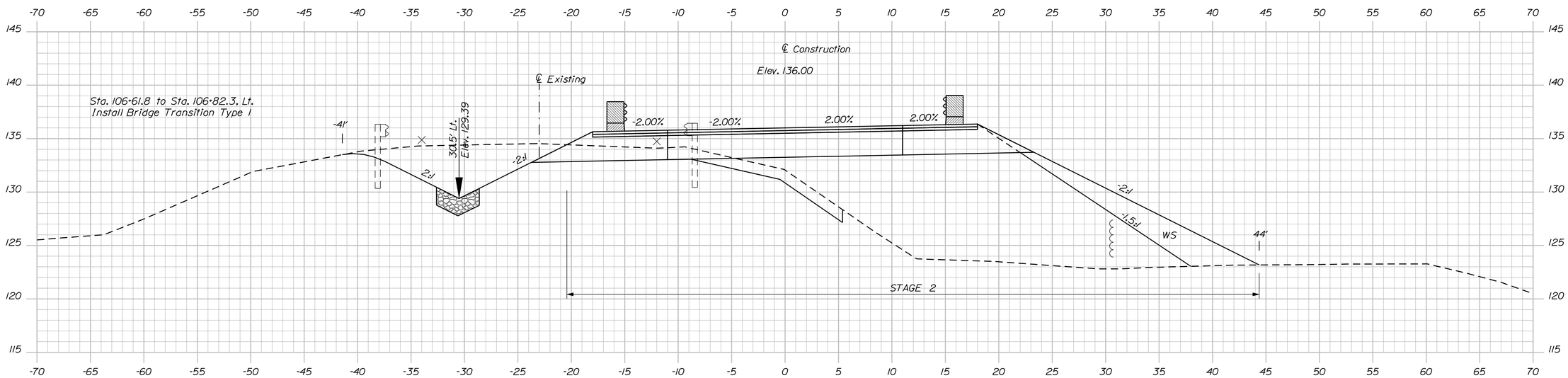
SHEET NUMBER

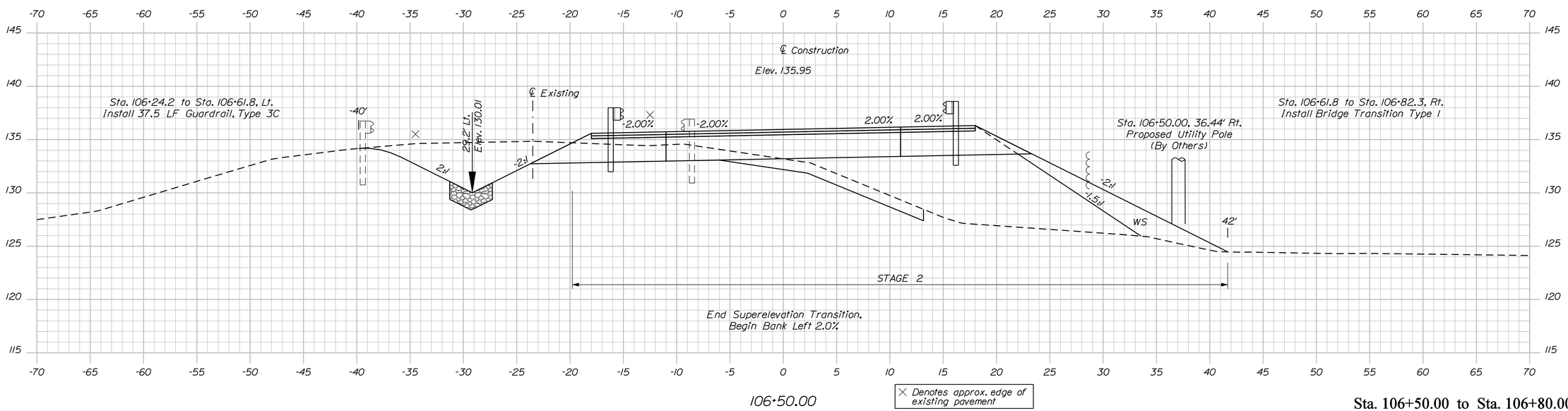
16

OF 34

Date:2/3/2014 Username: LindoT Division: BRIDGE Filename: ...\00\Bridge\MSTA\016_Xsect5.dgn

ERDMAN ANTHONY





Sta. 106+50.00 to Sta. 106+80.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BODGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

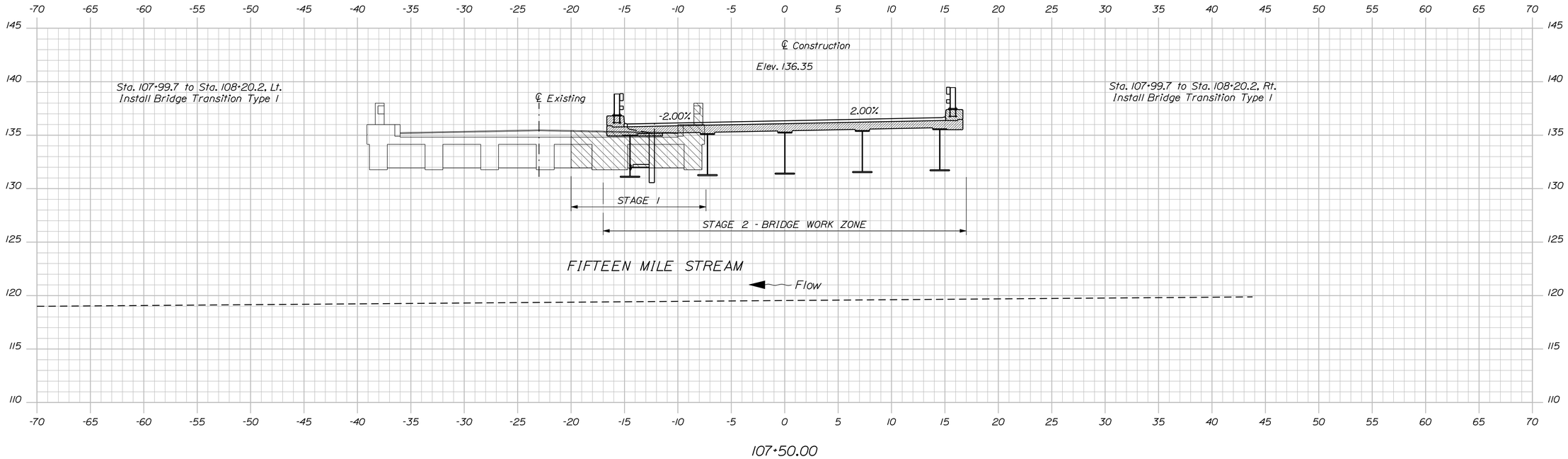
SHEET NUMBER

17

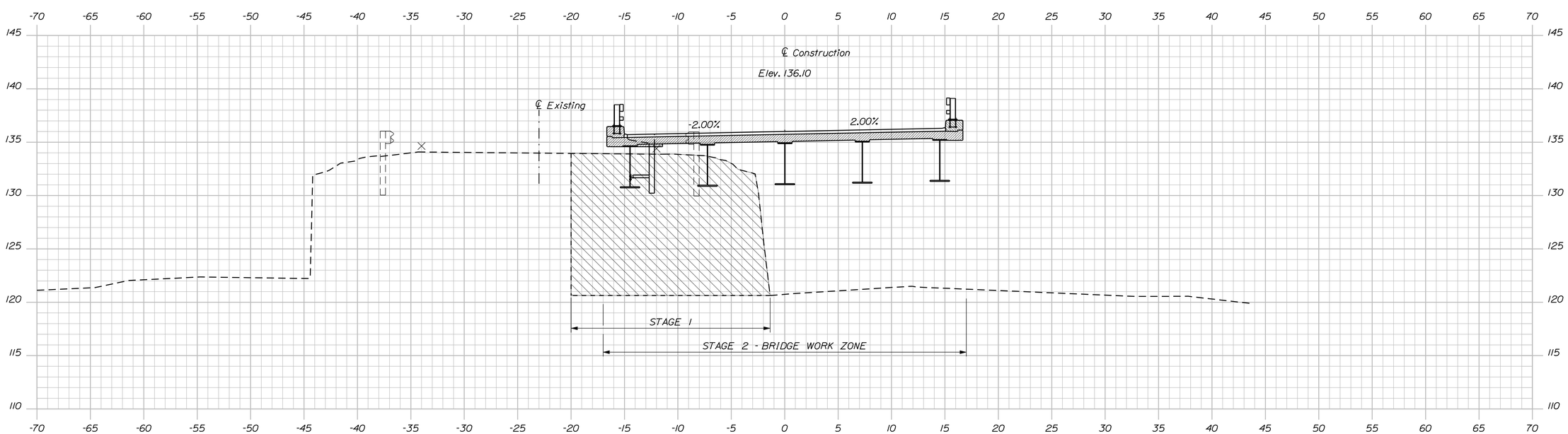
OF 34

Filename: ...\00\Bridge\MSTA\017_Xsect6.dgn Division: BRIDGE Username: LindoT Date:2/3/2014

ERDMAN ANTHONY



107+50.00



107+00.00

× Denotes approx. edge of existing pavement

Sta. 107+00.00 to Sta. 107+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

PROJ. MANAGER STEPHEN BOOGE II	BY	DATE
DESIGN-DETAILED F. DAHAR	R. PARKER	1/2014
CHECKED-REVIEWED F. DAHAR		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

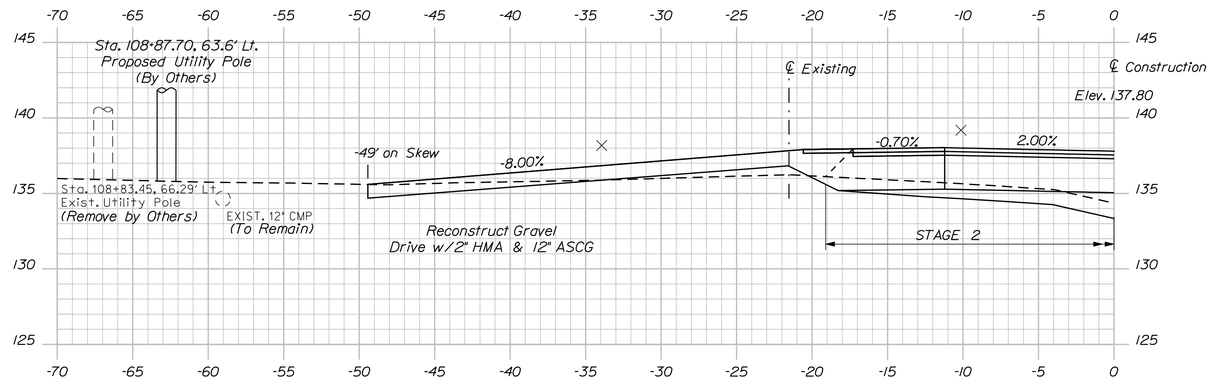
CROSS SECTIONS

SHEET NUMBER

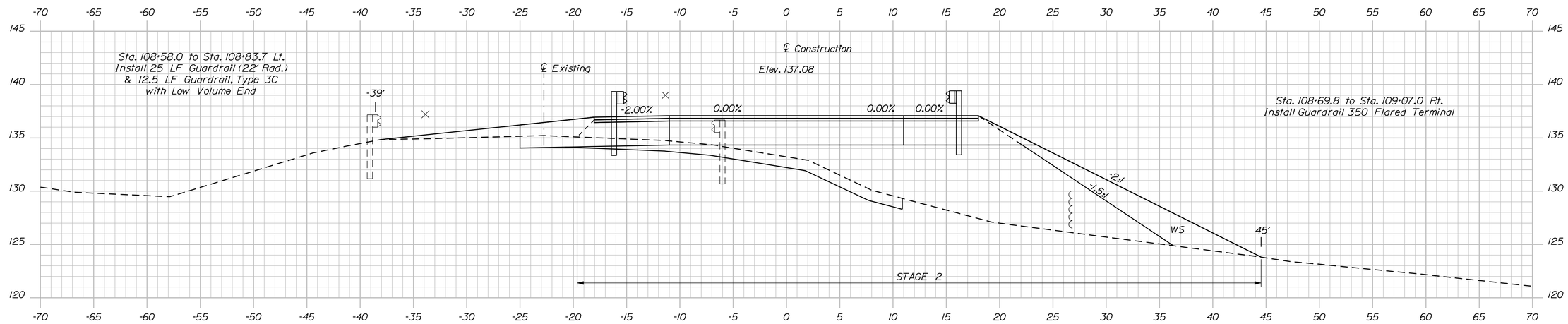
18

OF 34

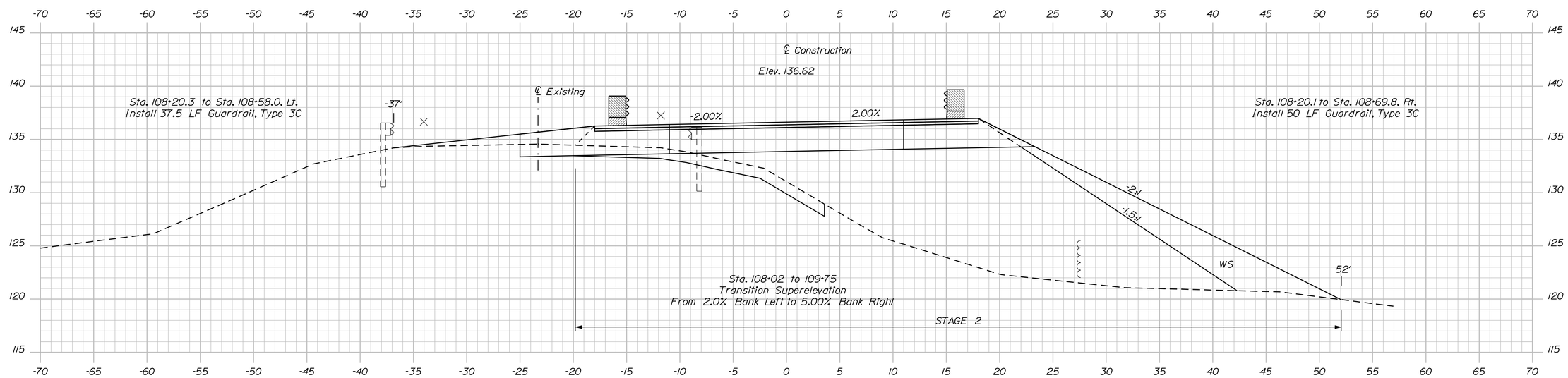
Filename: ...\00\Bridge\MSTA\018_Xsect7.dgn Division: BRIDGE Username: LindoT Date:1/16/2014



108+87.49 (Skewed Ahead 12°±)



108+50.00



108+02.00

× Denotes approx. edge of existing pavement

Sta. 108+02.00 to Sta. 108+87.49

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

PROJ. MANAGER STEPHEN BODGE II	BY	DATE
DESIGN-DETAILED F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED F. DAHAR		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

SHEET NUMBER

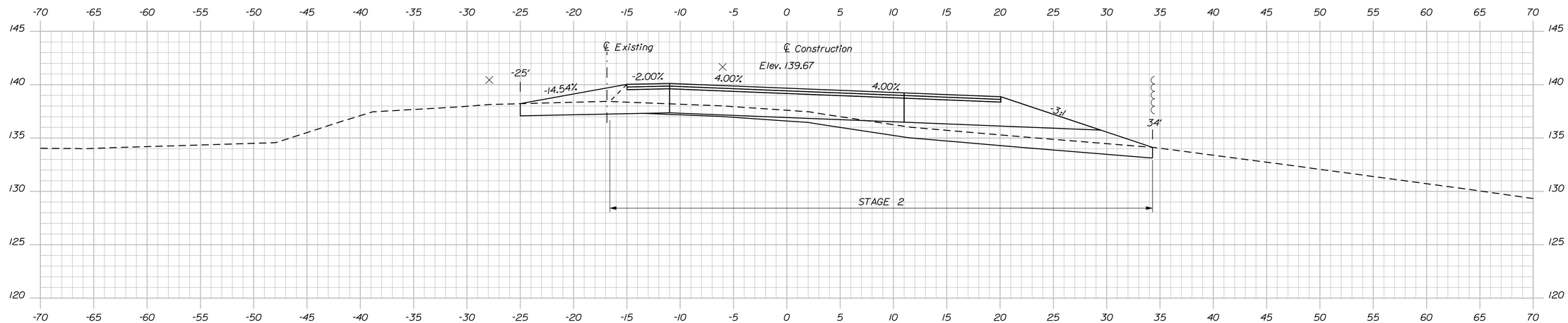
19

OF 34

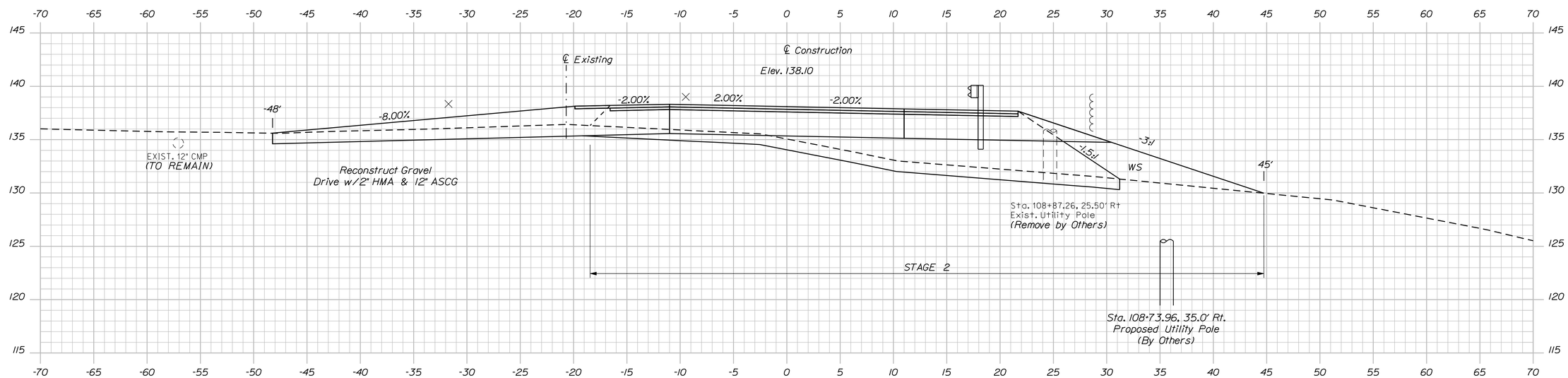
Date:2/4/2014 Username: LindoT Division: BRIDGE Filename: ...\00\Bridge\MSTA\019_Xsect8.dgn

ERDMAN ANTHONY

Sta. 109+75
End Superelevation Transition
Begin Full Bank Right 5.00%



109+50.00



109+00.00

× Denotes approx. edge of existing pavement

Sta. 109+00.00 to Sta. 109+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BOOGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

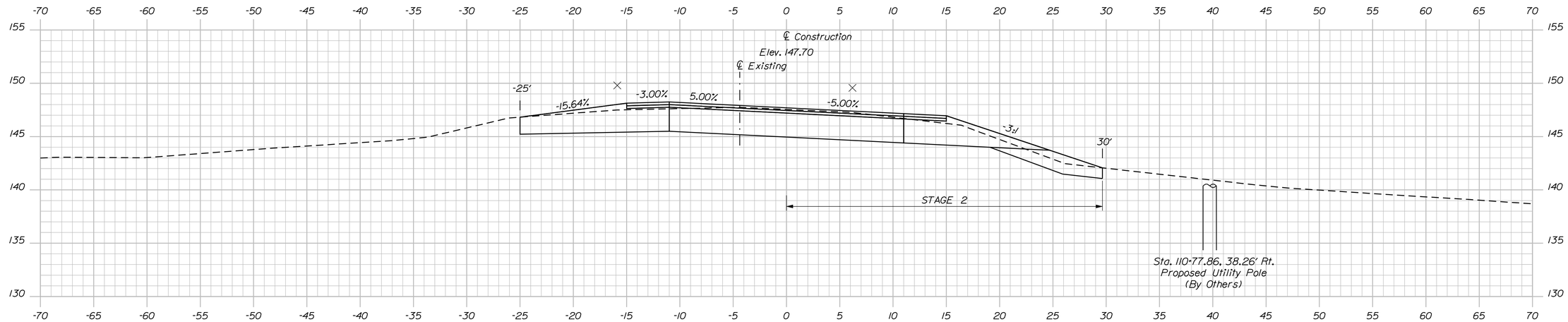
DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

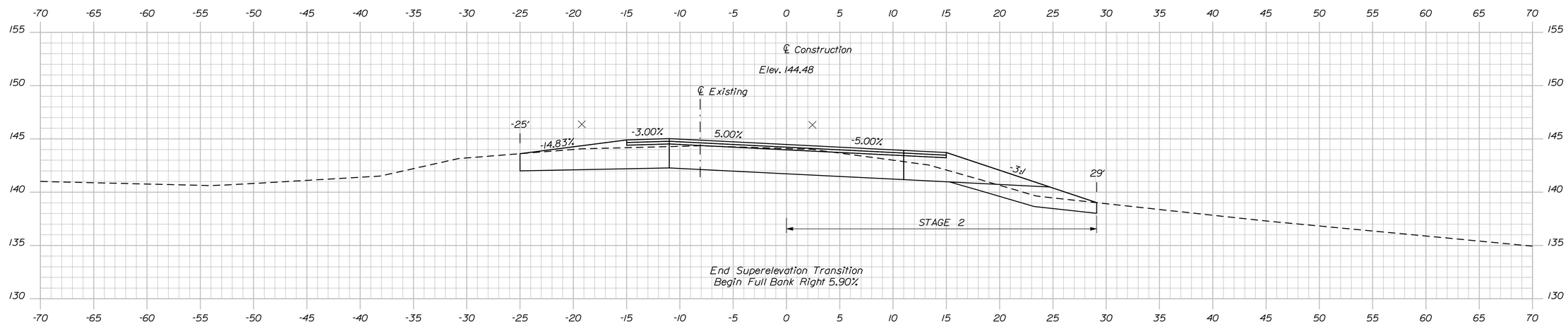
CROSS SECTIONS

SHEET NUMBER
20
OF 34

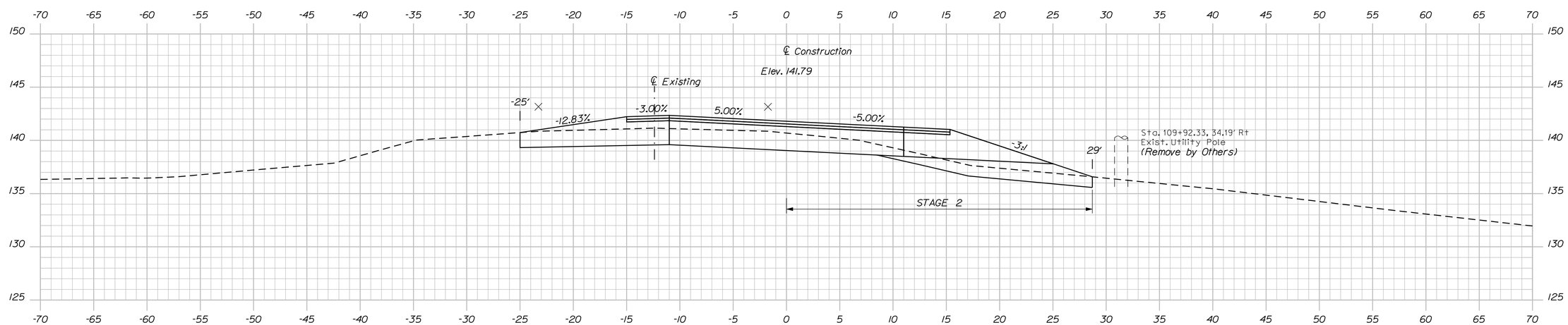
Filename: ...\00\Bridge\MSTA\020_Xsec19.dgn Division: BRIDGE Username: LindoT Date:2/3/2014



111+00.00



110+50.00



110+00.00

Sta. 110+00.00 to Sta. 111+00.00

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BOOGE II		
DESIGN-DETAILED	F. DAVIAR	R. PARKER	1/2014
CHECKED-REVIEWED	F. DAVIAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

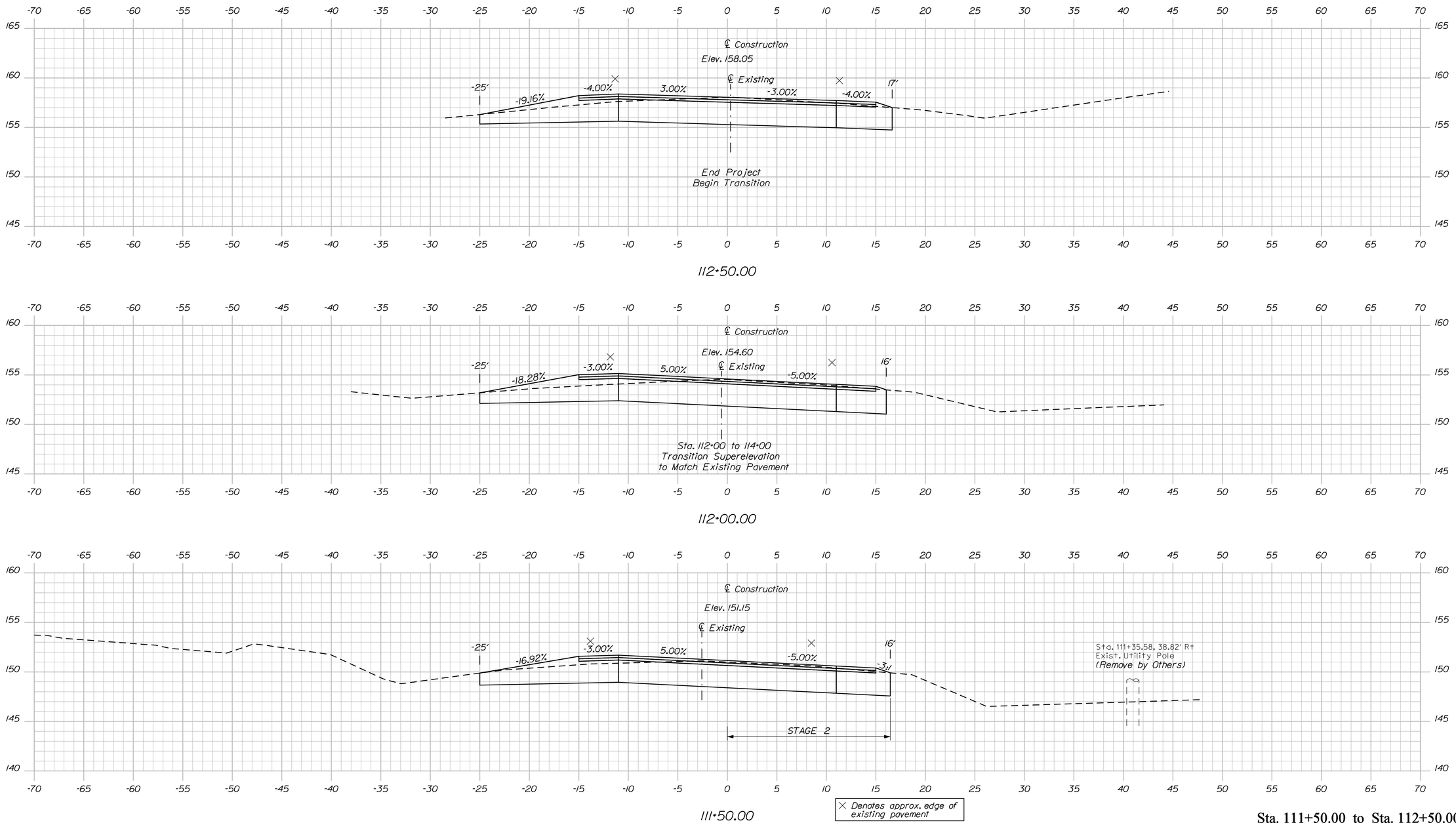
SHEET NUMBER

21

OF 34

Filename: ...\00\Bridge\MSTA\021_Xsect10.dgn Division: BRIDGE Username: LindoT Date:1/16/2014

ERDMAN ANTHONY



Sta. 111+50.00 to Sta. 112+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BODGE II		
DESIGN-DETAILED	F. DAHAR	R. PARKER	2/2014
CHECKED-REVIEWED	F. DAHAR		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

CROSS SECTIONS

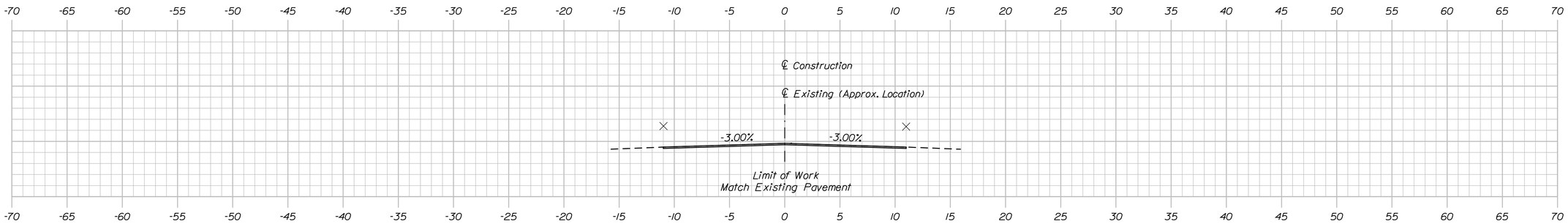
SHEET NUMBER

22

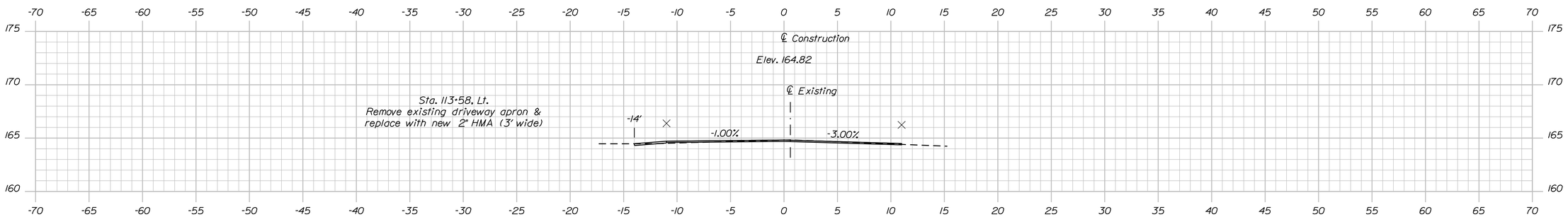
OF 34

Filename: ...\00\Bridge\MSTA\022_Xsect11.dgn Division: BRIDGE Username: LindoT Date:2/3/2014

ERDMAN ANTHONY

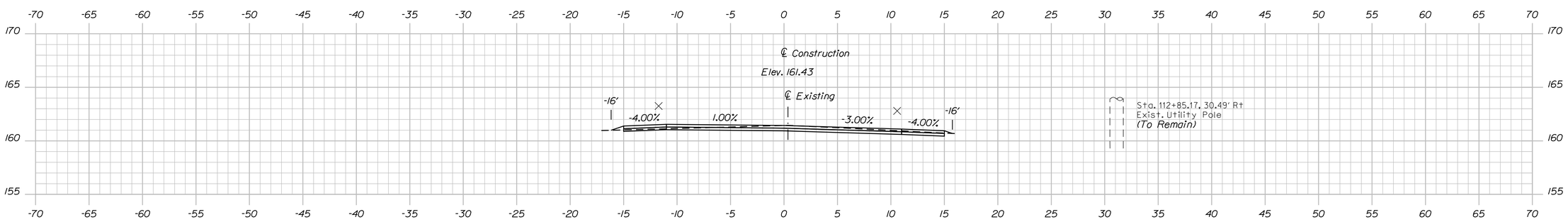


114+00.00



113+50.00

Sta. 113+00 to Sta. 114+00
Transition Superelevation to Match Existing Pavement
Mill to Depth 1-1/2". Apply Tack Coat & Repave



113+00.00

× Denotes approx. edge of existing pavement

Sta. 113+00.00 to Sta. 114+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER/STEPHEN BODGE		
DESIGN-DETAILED	F. DAHAR	
CHECKED-REVIEWED	F. DAHAR	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

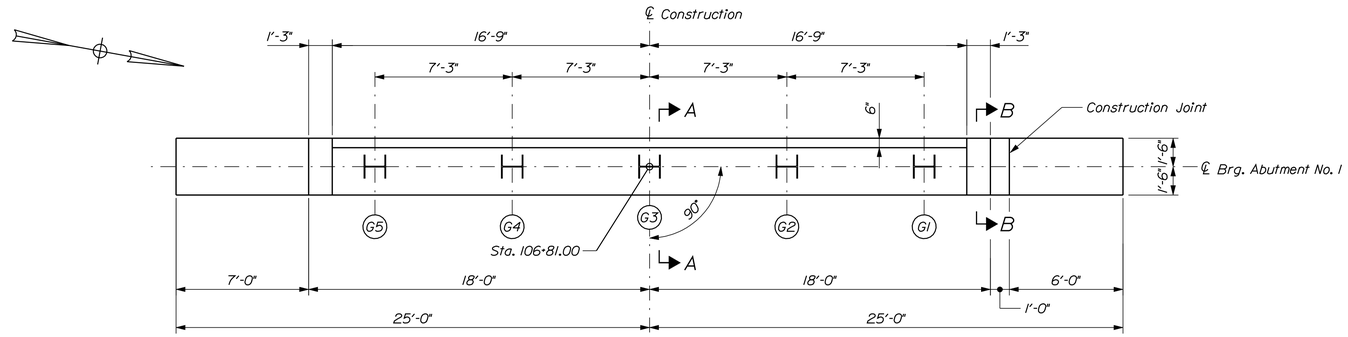
DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

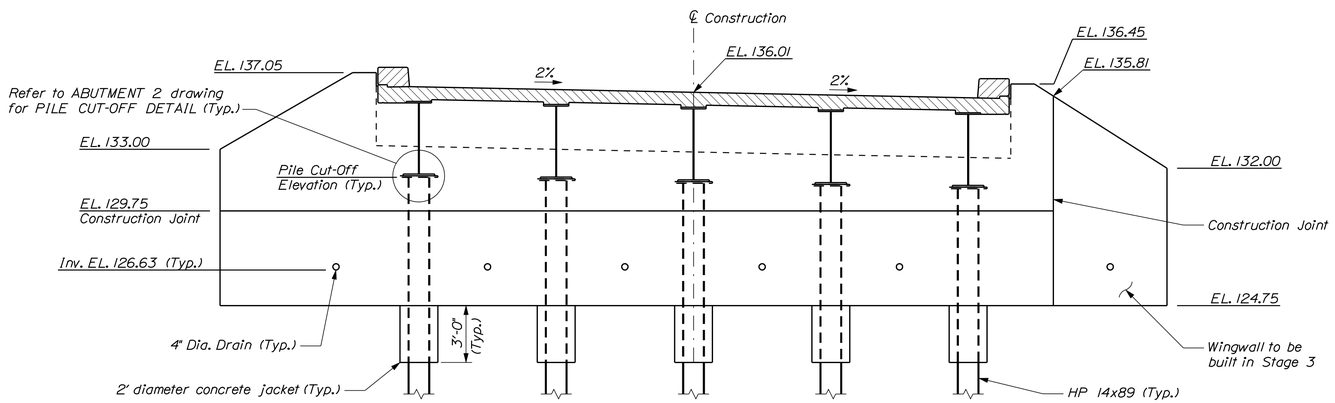
CROSS SECTIONS

SHEET NUMBER
23
OF 34

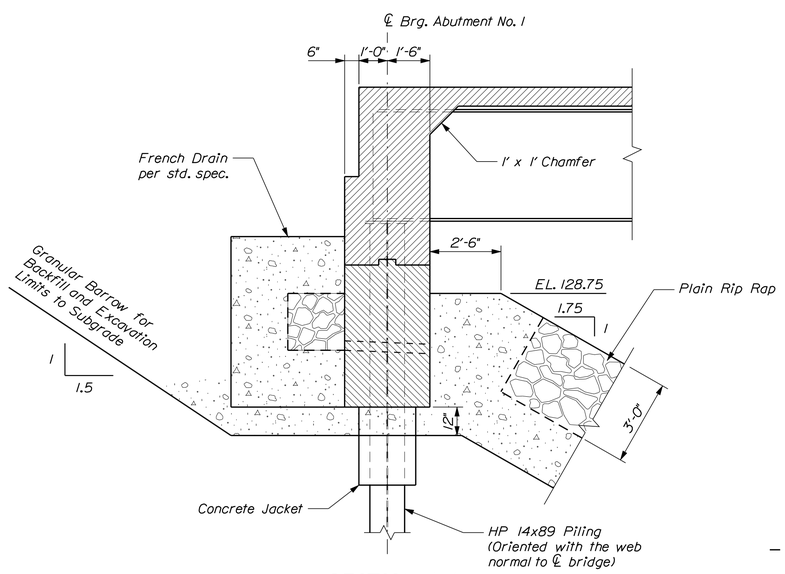
Filename: ...\00\Bridge\MSTA\023_Xsect12.dgn Division: BRIDGE Username: LindoT Date:2/3/2014



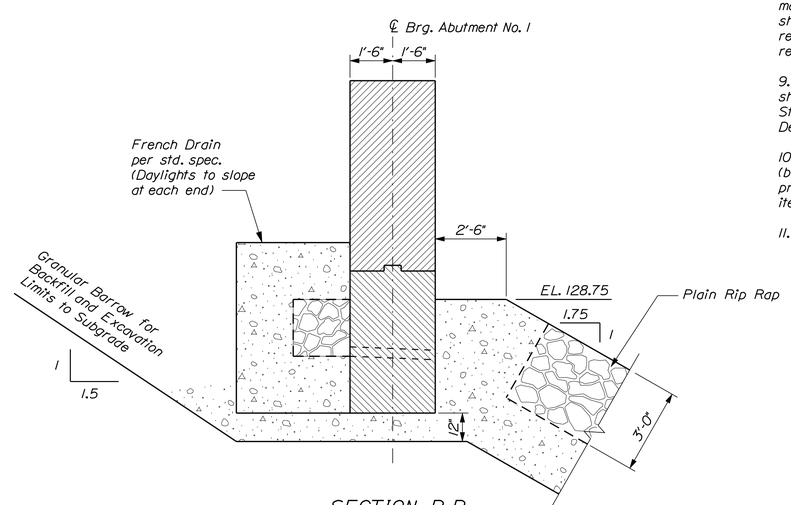
ABUTMENT NO. 1 PLAN



ABUTMENT NO. 1 ELEVATION



SECTION A-A



SECTION B-B

LEGEND

- - - - Class A Erosion Control Geotextile Fabric

ABUTMENT NOTES

1. Reinforcing steel shall have a minimum concrete cover of 2" in the walls and 3" cover on any surface placed against earth unless otherwise noted.

2. All elevations are provided at centerline of bearing unless otherwise noted.

3. Structural Earth Excavation, Abutments and Retaining Walls, required more than 12 inches below the bottom of the structure, will be paid for in accordance with Standard Specifications Section 206, Structural Excavation.

4. Excavate a 24-in. diameter by 36-in. deep hole around the centroid of each pile. The depth is to be measured from the bottom of the abutment. Fill the hole with abutment concrete. Payment for all labor and materials will be considered incidental to contract items.

5. Place 4-in. diameter drains in the breastwall and wingwalls at 10-ft maximum spacing. The exact location will be determined by the Resident.

6. Cover joints where waterstops are not required in accordance with Standard Detail 502(01).

7. Construct French Drains behind the abutments and wingwalls in accordance with Standard Specifications Section 512, French Drains.

8. Abutments, wingwalls and footings shall be backfilled with Granular Borrow. Pay limits will be as shown in the sections.

PILE NOTES

1. Maximum factored pile load: 350 kips.

2. H-pile material shall be ASTM A 572, Grade 50.

3. Estimate of piles required:

   Abutment No. 1: 5 ~ HP 14x89 @ 23 feet
   Abutment No. 2: 5 ~ HP 14x89 @ 25 feet

4. All piles shall be equipped with a pile tip in accordance with Standard Specifications Section 501.90, Prefabricated Pile Tips.

5. Piles shall be driven to or into bedrock.

6. Piles shall not be out of position shown by more than 2 inches in any direction.

7. The Contractor shall perform and submit a wave equation analysis for review and acceptance by the Resident. The maximum allowable driving stress is 0.90 times fy. The submittal analysis shall include the proposed stopping criteria based on the wave equation analysis and the proposed driving system. The stopping criteria shall include the blows per inch and the number of one inch driving intervals at which pile installation may be terminated. The cost of performing the wave equation analysis will be considered incidental to Item No. 501.92, Pile Driving Equipment Mobilization.

8. The Contractor shall perform two (2) dynamic pile load tests with signal matching to confirm the resistance of the piles. The dynamic pile load tests shall be performed on the first production pile driven at each abutment. The required nominal resistance is the maximum factored axial pile load divided by a resistance factor of 0.65 per LRFD Specifications.

9. The sole plates and installation of the sole plates at the top of the H-piles shall not be paid for directly. Payment shall be incidental to Pay Item No. 501.501, Steel H-beam Pile 89 lbs/ft., In Place. For Beam, Sole Plate & Pile Connection Detail, see Sheet 25.

10. Pre-drilling or pre-excavation of obstructions may be necessary to install piles (boulders and rock fill was encountered in BB-BB-102). Payment for pre-drilling, pre-excavation or spudding will be incidental to Item No. 501.501 or related pay items.

11. No Pile splices are allowed, per the Geotechnical Report.

ABUTMENT NO. 1 PILE CUT-OFF ELEVATIONS

Pile	Elevation
G1	130.78
G2	130.93
G3	131.07
G4	131.22
G5	131.36

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE PLANS

BRIDGE NO. 5069

	BY	DATE
PROJ. MANAGER STEPHEN BODGE II		
DESIGN-DETAILED	N. BONNER	T. LINDO	2/2014
CHECKED-REVIEWED	R. FARRELL	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

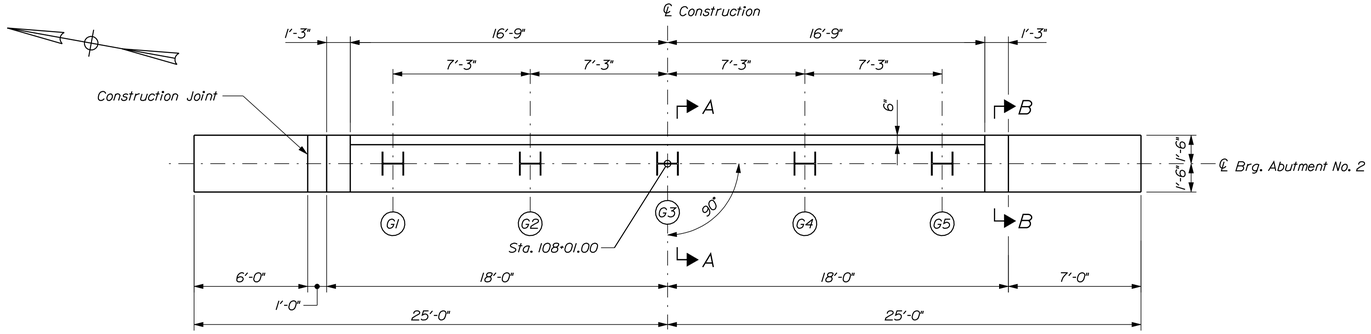
ABUTMENT NO. 1

SHEET NUMBER

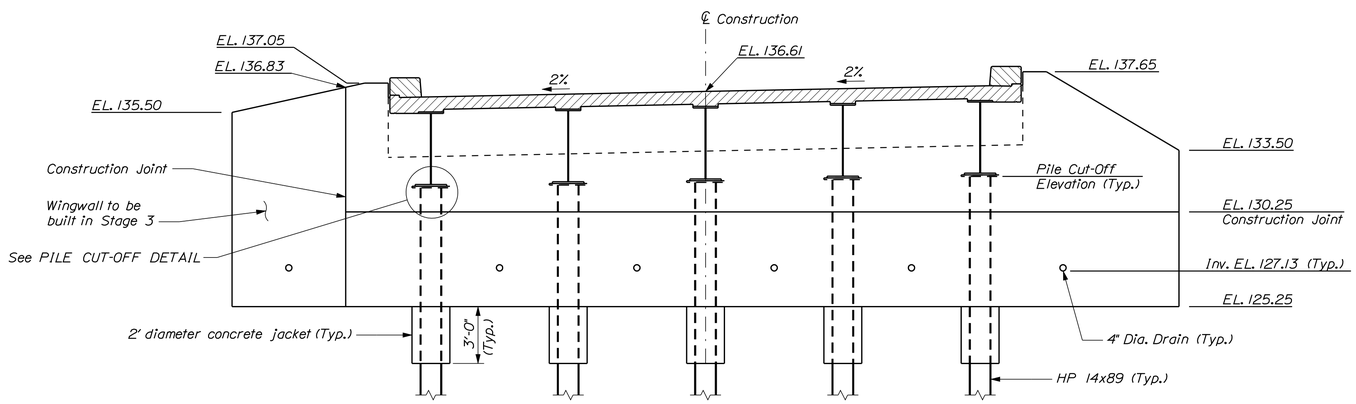
24

OF 34

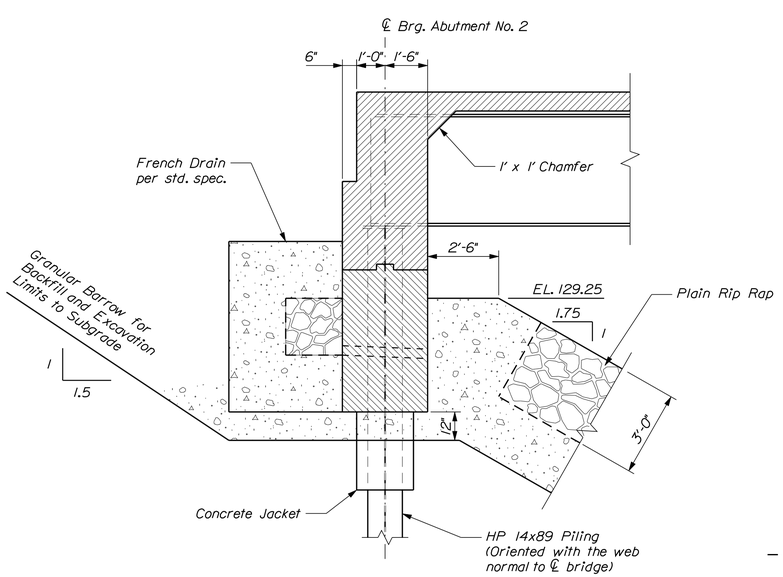
Filename: ...\MSTA\024_Abutment 1 Plan.dgn Division: BRIDGE Username: LindoT Date:2/3/2014



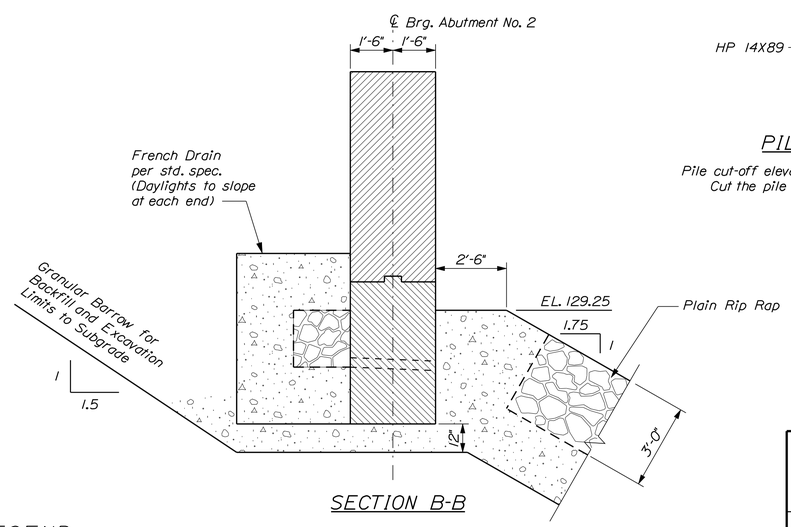
ABUTMENT NO. 2 PLAN



ABUTMENT NO. 2 ELEVATION



SECTION A-A



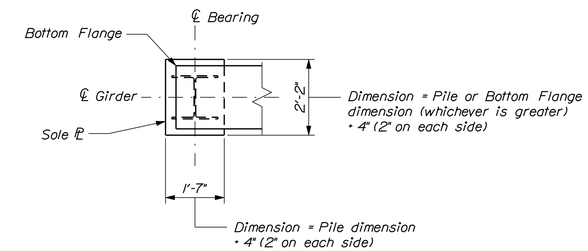
SECTION B-B

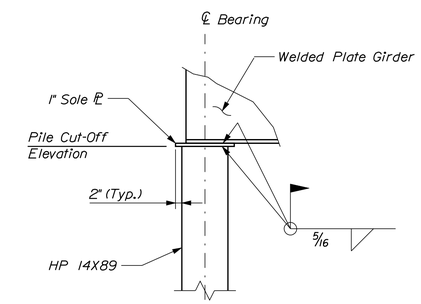
LEGEND

- - - - Class A Erosion Control Geotextile Fabric

NOTES

1. Refer to ABUTMENT No. 1 drawing for Abutment and Pile Notes.





PILE CUT-OFF DETAIL

Pile cut-off elevation shall be located at center of the pile. Cut the pile at a slope to match the profile grade.

ABUTMENT NO. 2 PILE CUT-OFF ELEVATIONS

Pile	Elevation
G1	131.38
G2	131.53
G3	131.67
G4	131.82
G5	131.96

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER STEPHEN BODGE II		
DESIGN-DETAILED	N. BONNER	T. LINDO
CHECKED-REVIEWED	R. FARRELL	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

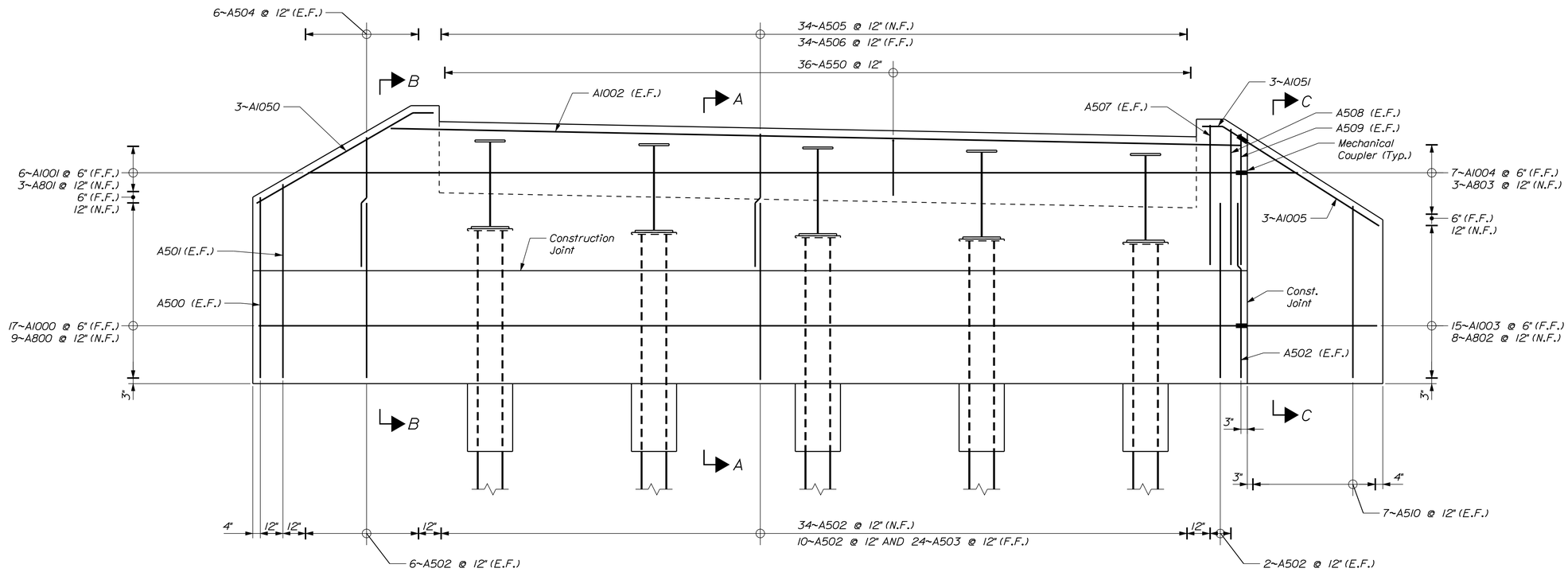
DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

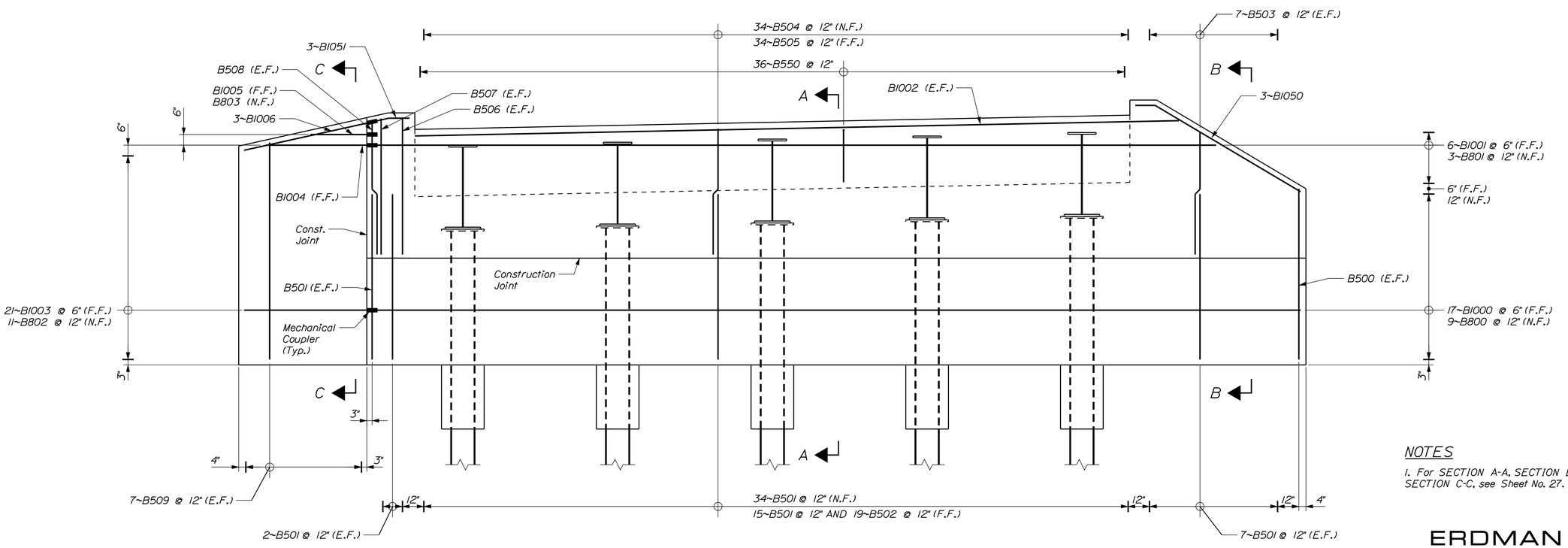
ABUTMENT NO. 2

SHEET NUMBER
25
OF 34

Filename: ...\MSTA\025_Abutment 2 Plan.dgn Division: BRIDGE Username: Lindo T Date:2/3/2014



ABUTMENT No. 1 REINFORCING



ABUTMENT No. 2 REINFORCING

NOTES

1. For SECTION A-A, SECTION B-B and SECTION C-C, see Sheet No. 27.

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE PLANS

BRIDGE NO. 5069

PROJ. MANAGER	STEPHEN BODGE II	BY	DATE
DESIGN-DETAILED	N. BONNER	T. LINDO	2/2014
CHECKED-REVIEWED	R. FARRELL		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

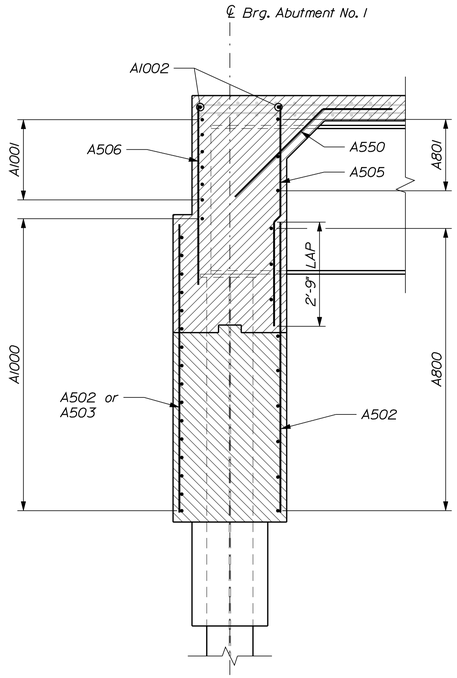
ABUTMENT REINFORCEMENT

SHEET NUMBER

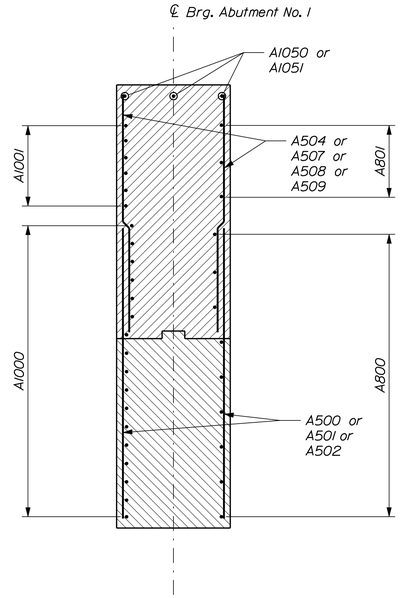
26

OF 34

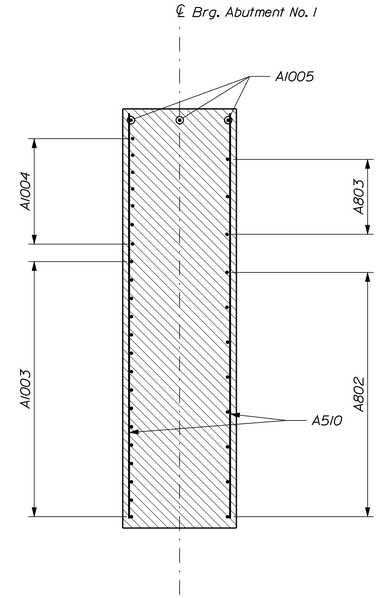
Filename: ...\026_Abutment Reinforcing.dgn Division: BRIDGE Username: LindoT Date:2/3/2014



ABUTMENT NO. 1 SECTION A-A

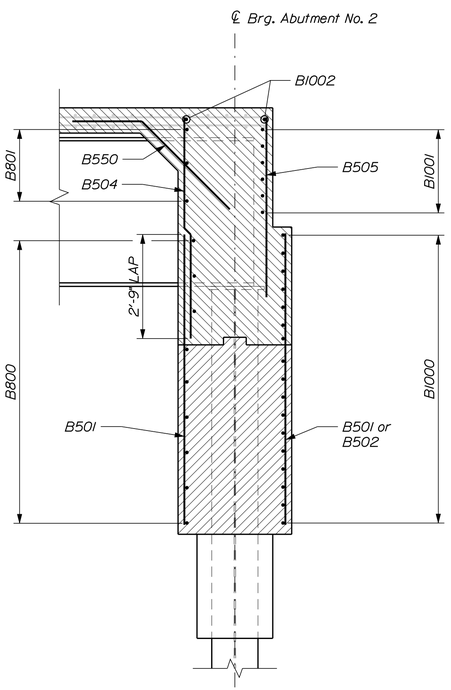


ABUTMENT NO. 1 WINGWALL SECTION B-B

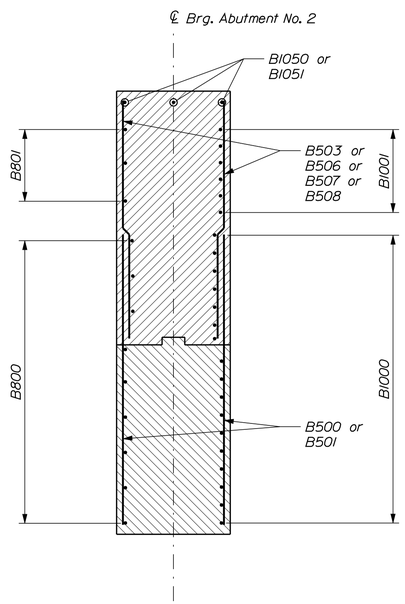


ABUTMENT NO. 1 WINGWALL SECTION C-C

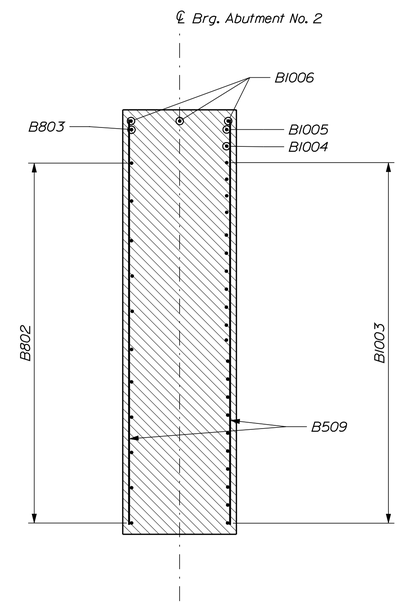
(Stage 3)



ABUTMENT NO. 2 SECTION A-A



ABUTMENT NO. 2 WINGWALL SECTION B-B



ABUTMENT NO. 2 WINGWALL SECTION C-C

(Stage 3)

NOTES

1. Deck reinforcing shown screened for clarity.

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

PROJ. MANAGER	STEPHEN BODGE II	BY	DATE
DESIGN-DETAILED	N. BONNER	T. LINDO	2/2014
CHECKED-REVIEWED	R. FARRELL		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

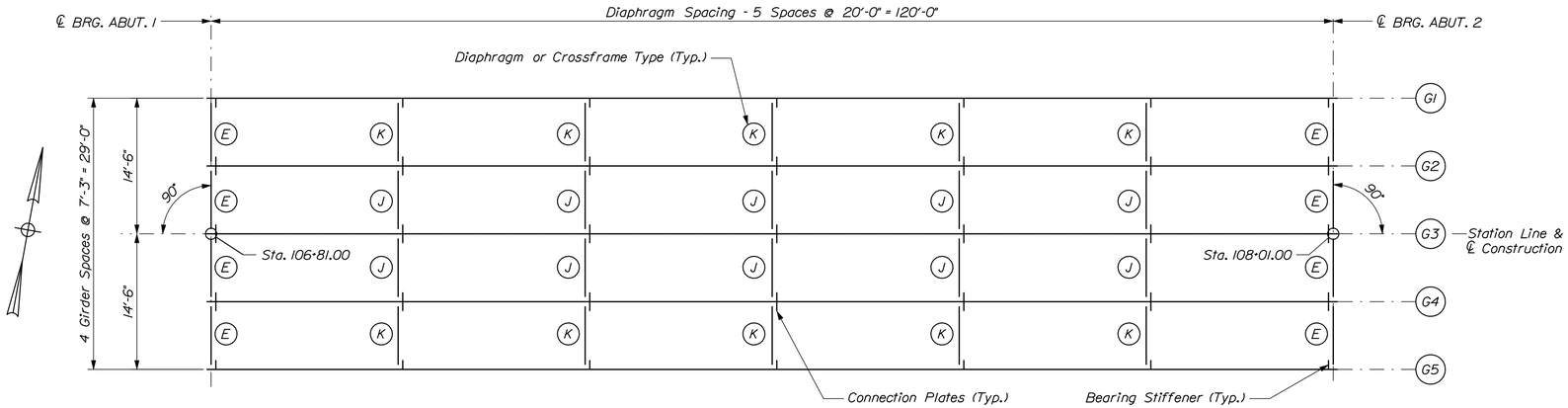
ABUTMENT SECTIONS

SHEET NUMBER

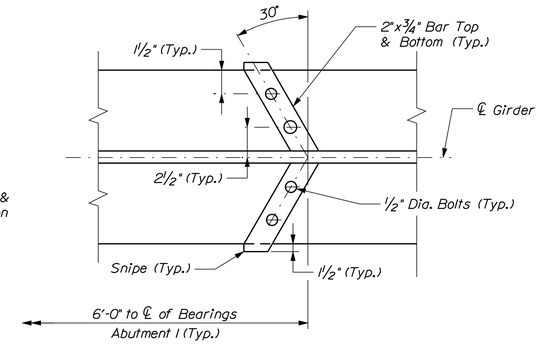
27

OF 34

Filename: ...\MSTA\027_Abutment Sections.dgn Division: BRIDGE Username: LindoT Date:2/4/2014

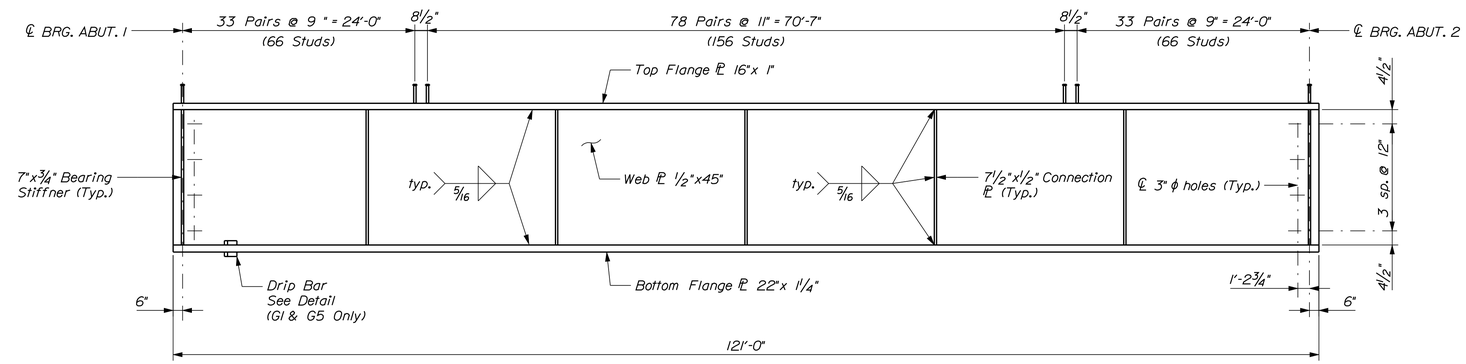


FRAMING PLAN



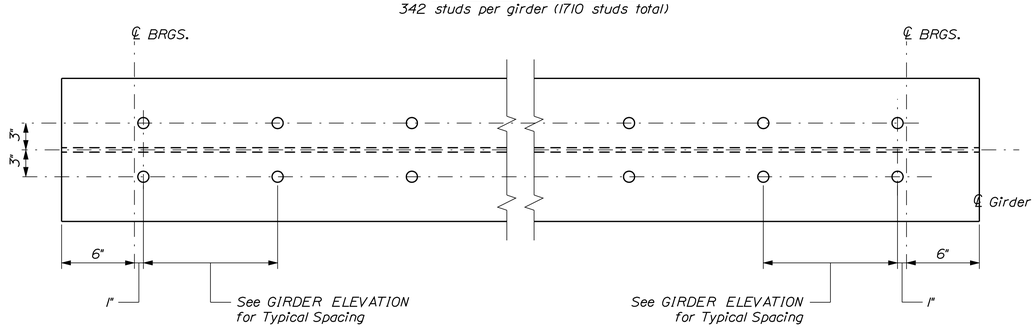
Place brown color silicone sealer between drip bars and flange and web prior to bolting. Bars below flange shall be longer than those above so as to touch at ℄ of girder.

DRIP BAR DETAIL



GIRDER ELEVATION

342 studs per girder (1710 studs total)



STUD LAYOUT PLAN

(Refer to Standard Detail 505(01))

STRUCTURAL STEEL NOTES

1. No transverse butt weld splices will be allowed in the flange plates or web plates within 10 feet or 10 percent of the span length (whichever is greater) from the points of maximum negative moment or maximum positive moment. Butt weld splices in flanges shall be not less than 3 feet from transverse butt welds in the web plates and no transverse web or flange butt welds shall be located within 3 feet of other transverse welds (e.g. connection plates to web welds) on either flange or web. No transverse butt weld splices will be allowed in areas of stress reversal.

2. Sections of flange plates or web plates between transverse shop splices or between a transverse shop splice and a field splice shall be not less than 20 feet in length unless otherwise shown on the plans.

3. Bearing stiffeners shall be plumb after erection and dead loading of the structure. Intermediate web stiffeners may be either plumb or normal to the top flange.

4. Crossframe or diaphragm connection plates may be either plumb or normal to the top flange.

5. All connection plates and stiffeners shall be welded to the top and bottom flanges using 5/16" fillet welds.

6. If Precast Concrete Deck Panels are used to construct the superstructure slab, the heads of the shear connector's shall extend a minimum of 1 inch above the top of the panels.

7. The ends of the girders and the end diaphragms shall be coated with a zinc-rich coating system in accordance with Special Provision Section 506 to a distance of 10 feet from the face of the abutments.

BOTTOM OF SLAB ELEVATIONS (w/DEFLECTIONS)

GIRDER	DISTANCE ALONG GIRDER										
	℄ BRG. ABUT. 1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ BRG. ABUT. 2
G1	134.783	134.980	135.163	135.319	135.440	135.521	135.560	135.559	135.523	135.460	135.383
G2	134.928	135.137	135.331	135.495	135.622	135.704	135.742	135.735	135.691	135.617	135.528
G3	135.073	135.282	135.476	135.640	135.767	135.849	135.887	135.880	135.836	135.762	135.673
G4	135.218	135.427	135.621	135.785	135.912	135.994	136.032	136.025	135.981	135.907	135.818
G5	135.363	135.560	135.743	135.899	136.020	136.101	136.140	136.139	136.103	136.040	135.963

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER STEPHEN BODGE II		
DESIGN-DETAILED	E. ANTHONY	T. LINDO	1/2014
CHECKED-REVIEWED	E. ANTHONY	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

FRAMING PLAN & DETAILS

SHEET NUMBER

28

OF 34

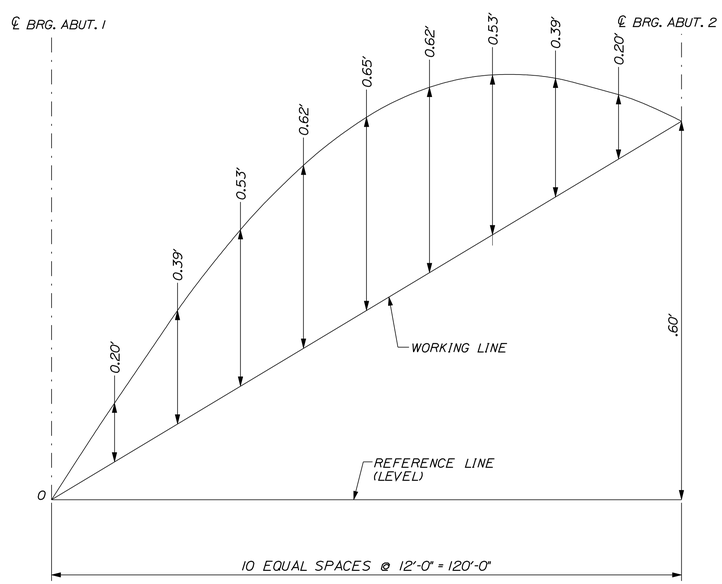
Filename: ...\00\Bridge\MSTA\028_Framing.dgn Division: BRIDGE Username: LindoT Date:1/16/2014

DEAD LOAD DEFLECTIONS (FEET)

GIRDER	DEAD LOAD COMPONENT	DISTANCE ALONG GIRDER										
		℄ BRG. ABUT. 1	12'	24'	36'	48'	60'	72'	84'	96'	108'	℄ BRG. ABUT. 2
INTERIOR (ft.)	Steel Dead Load	0.00	0.06	0.10	0.14	0.17	0.18	0.17	0.14	0.10	0.06	0.00
	Fluid Dead Load	0.00	0.12	0.23	0.31	0.36	0.38	0.36	0.31	0.23	0.12	0.00
	Superimposed Dead Load	0.00	0.03	0.06	0.08	0.09	0.10	0.09	0.08	0.06	0.03	0.00
	Total Dead Load	0.00	0.20	0.39	0.53	0.62	0.65	0.62	0.53	0.39	0.20	0.00

DEAD LOAD DEFLECTIONS (FEET)

GIRDER	DEAD LOAD COMPONENT	DISTANCE ALONG GIRDER										
		℄ BRG. ABUT. 1	12'	24'	36'	48'	60'	72'	84'	96'	108'	℄ BRG. ABUT. 2
EXTERIOR (ft.)	Steel Dead Load	0.00	0.05	0.09	0.12	0.14	0.15	0.14	0.12	0.09	0.05	0.00
	Fluid Dead Load	0.00	0.11	0.20	0.27	0.32	0.33	0.32	0.27	0.20	0.11	0.00
	Superimposed Dead Load	0.00	0.03	0.06	0.08	0.10	0.10	0.10	0.08	0.06	0.03	0.00
	Total Dead Load	0.00	0.19	0.35	0.48	0.56	0.59	0.56	0.48	0.35	0.19	0.00



CAMBER DIAGRAM

(Interior Shown, Exterior Similar, See tables above)

CAMBER & DEFLECTION NOTES

1. Camber ordinates, as shown, are computed to compensate for all dead load deflections and for the curvature of the finished grade profile.

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER STEPHEN BODGE II			
DESIGN-DETAILED	E. ANTHONY	T. LINDO	1/2014
CHECKED-REVIEWED	E. ANTHONY		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

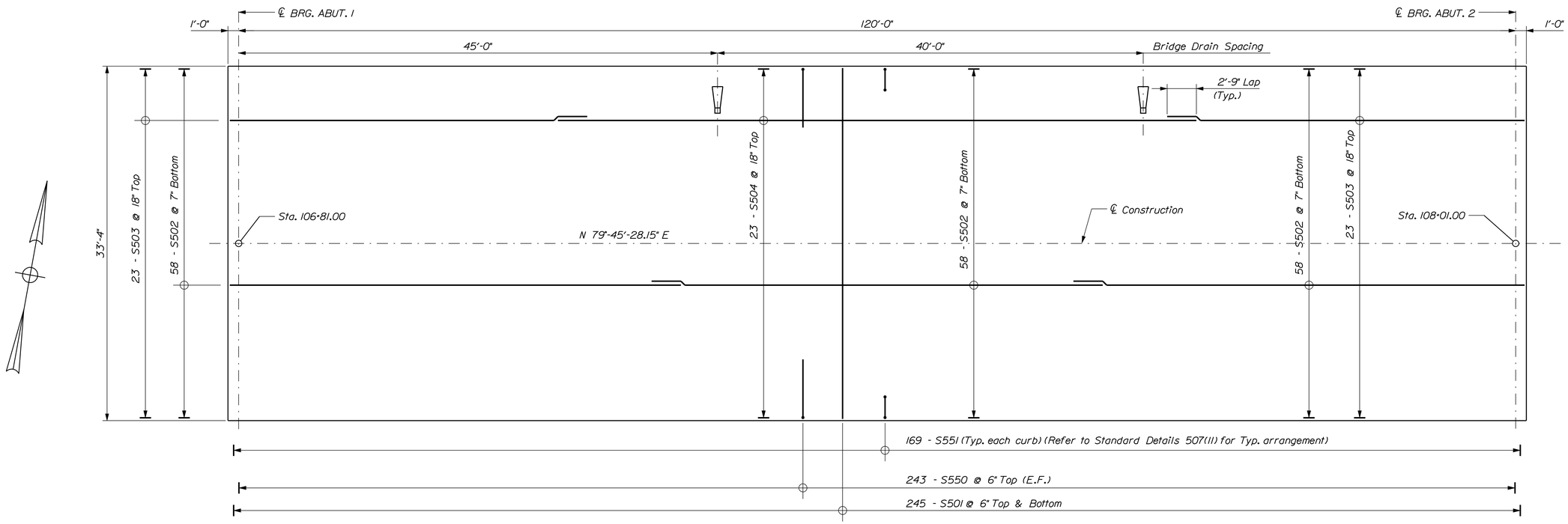
CAMBER DIAGRAM & TABLES

SHEET NUMBER

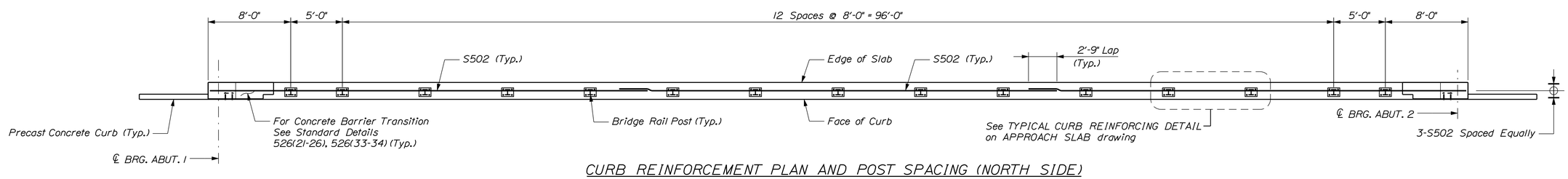
29

OF 34

Filename: ...\00\Bridge\MSTA\029_Camber.dgn Division: BRIDGE Username: LindoT Date:1/16/2014

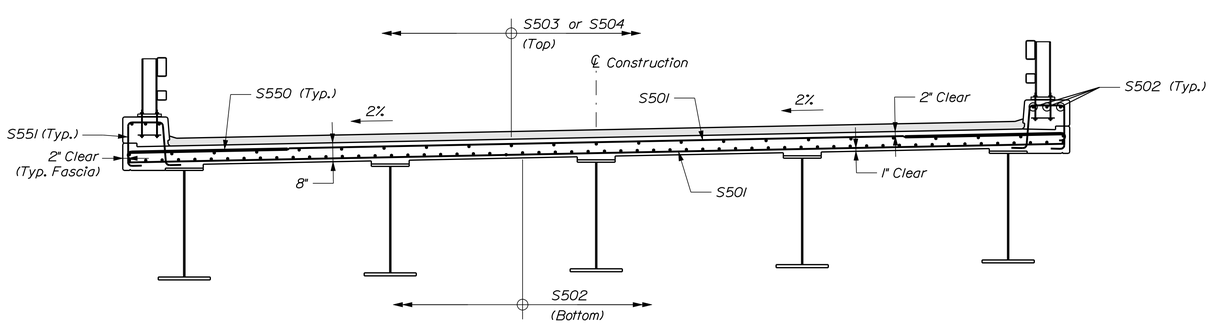


DECK REINFORCING PLAN



CURB REINFORCEMENT PLAN AND POST SPACING (NORTH SIDE)

(SOUTH SIDE OPPOSITE HAND)



TRANSVERSE SECTION

SUPERSTRUCTURE NOTES

1. The theoretical blocking used for design of the structure is 2½ inches at the centerline of bearing at the abutments. Refer to Standard Detail 502(02) for blocking details.

2. Reinforcing steel shall be epoxy coated and 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 for each span shall be placed in one continuous operation and shall be kept plastic until the entire placement has been made.

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 and curb will be considered incidental to the appropriate 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 concrete.

9. Adjust reinforcing steel to fit around the bridge drains in a manner approved by the Resident. Do not cut transverse reinforcing bars.

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STATE OF MAINE
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BH-1823(100)X

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BRIDGE NO. 5069

BRIDGE PLANS

PROJ. MANAGER STEPHEN BODGE II	BY	DATE	
DESIGN-DETAILED	E. ANTHONY	T. LINDO	2/2014
CHECKED-REVIEWED	E. ANTHONY		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

SUPERSTRUCTURE PLAN

SHEET NUMBER

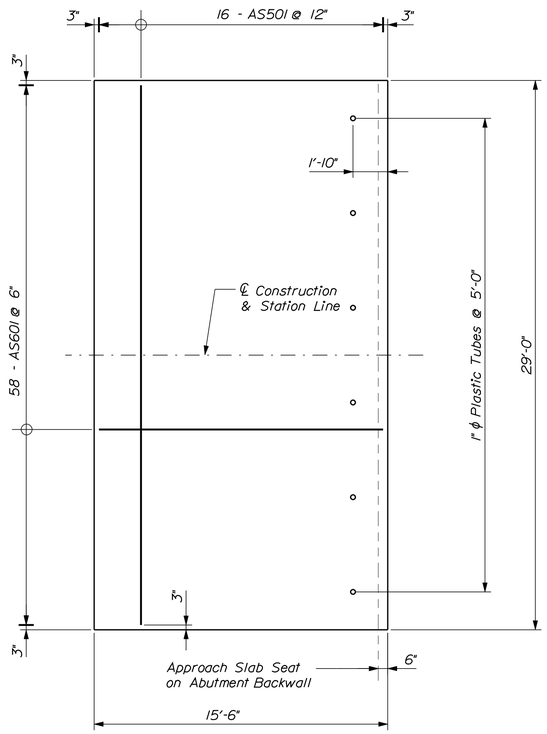
30

OF 34

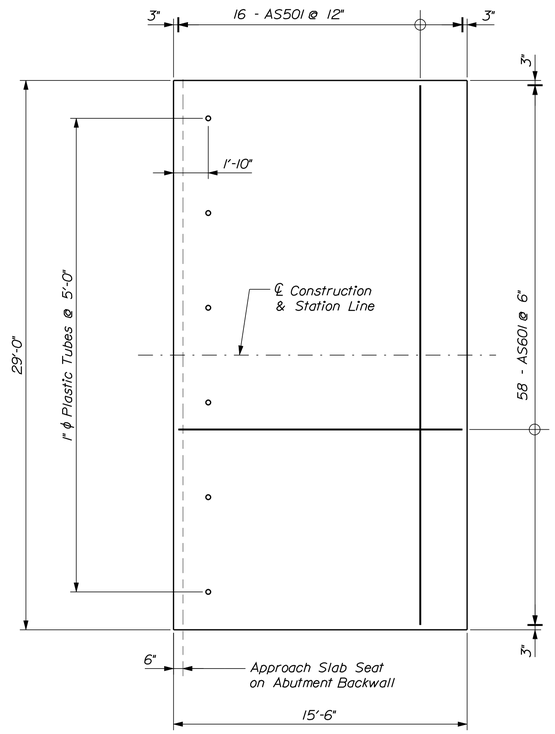
Filename: ...\030_Superstructure Plan.dgn Division: BRIDGE Username: LindoT Date:2/3/2014

NOTE:

1. Approach slab reinforcing to be paid for under Item 503.

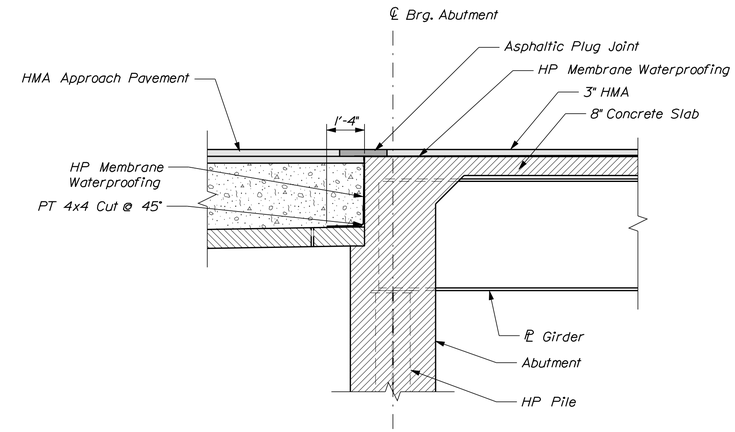


SOUTH APPROACH

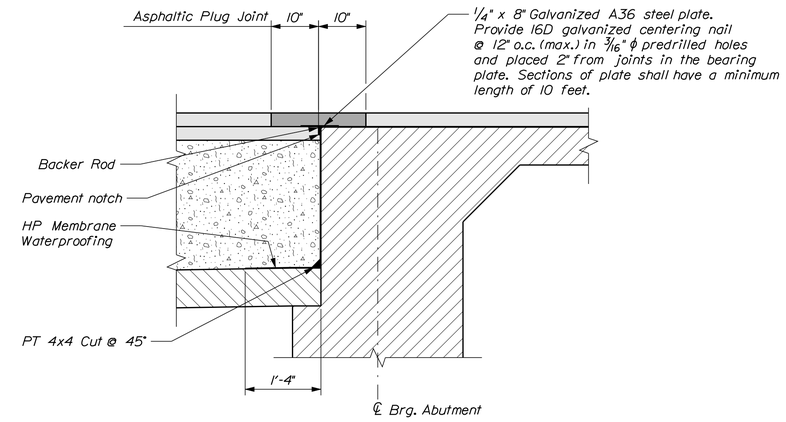


NORTH APPROACH

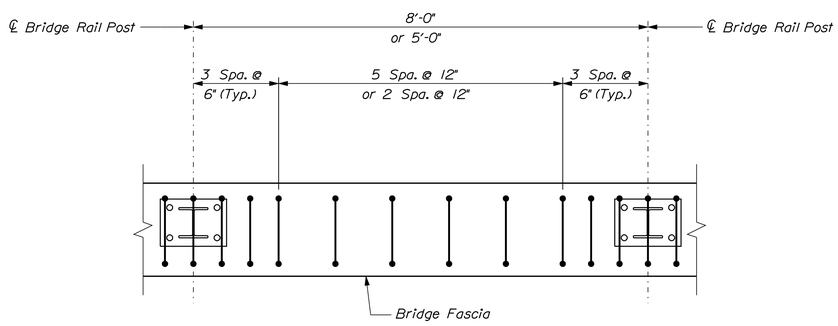
APPROACH SLAB REINFORCEMENT PLAN



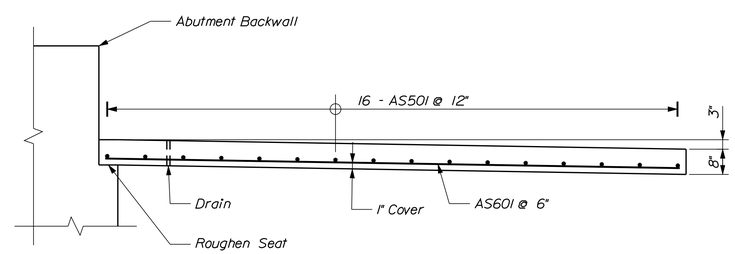
HP MEMBRANE WATERPROOFING DETAIL



ASPHALTIC PLUG JOINT DETAIL



CURB REINFORCING DETAIL



CONCRETE APPROACH SLAB SECTION

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE PLANS

BRIDGE NO. 5069

	BY	DATE
PROJ. MANAGER STEPHEN BODGE II		
DESIGN-DETAILED	E. ANTHONY	T. LINDO
CHECKED-REVIEWED	E. ANTHONY	2/2014
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

APPROACH SLABS

SHEET NUMBER

31

OF 34

Filename: ...\MSTA\031_Approach Slab.dgn Division: BRIDGE Username: LindoT Date:2/4/2014

STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
ABUTMENT 1			
A500	2	8'-0"	E.F. Vertical Wingwall
A501	2	8'-6"	E.F. Vertical Wingwall
A502	62	7'-9"	E.F. Bottom Vertical Abutment
A503	24	7'-3" to 7'-9"	F.F. Bottom Vertical Abutment (Array)
A504	12	4'-3" to 7'-0"	E.F. Top Vertical Wingwall (Array)
A505	34	5'-5" to 6'-1"	N.F. Top Veritcal Abutment (Array)
A506	34	4'-9"	F.F. Top Vertical Abutment
A507	2	6'-2"	E.F. Top Vertical Wingwall
A508	2	6'-0"	E.F. Top Vertical Wingwall
A509	2	5'-10"	E.F. Top Vertical Wingwall
A510	14	7'-0" to 10'-5"	E.F. Vertical Wingwall (Array)
A800	9	43'-9"	N.F. Horizontal Abutment
A801	3	39'-4" to 42'-9"	N.F. Horizontal Abutment (Array)
A802	8	5'-9"	N.F. Horizontal Wingwall
A803	3	1'-9" to 4'-10"	N.F. Horizontal Wingwall (Array)
A1000	17	43'-9"	F.F. Horizontal Abutment
A1001	6	39'-4" to 43'-3"	F.F. Horizontal Abutment (Array)
A1002	2	37'-8"	E.F. Top Abutment
A1003	15	5'-9"	F.F. Horizontal Wingwall
A1004	7	11" to 5'-3"	F.F. Horizontal Wingwall (Array)
A1005	3	6'-11"	Top Wingwall
ABUTMENT 2			
B500	2	7'-11"	E.F. Vertical Wingwall
B501	59	7'-9"	E.F. Bottom Vertical Abutment
B502	19	7'-5" to 7'-9"	F.F. Bottom Vertical Abutment (Array)
B503	14	3'-6" to 5'-3"	E.F. Top Vertical Wingwall (Array)
B504	34	5'-6" to 6'-2"	N.F. Top Veritcal Abutment (Array)
B505	34	4'-9"	F.F. Top Vertical Abutment
B506	2	6'-4"	E.F. Top Vertical Wingwall
B507	2	6'-3"	E.F. Top Vertical Wingwall
B508	2	6'-2"	E.F. Top Vertical Wingwall
B509	14	9'-10" to 11'-0"	E.F. Vertical Wingwall (Array)
B800	9	43'-8"	N.F. Horizontal Abutment
B801	3	39'-3" to 42'-11"	N.F. Horizontal Abutment (Array)
B802	11	5'-9"	N.F. Horizontal Wingwall
B803	1	2'-8"	N.F. Horizontal Wingwall
B1000	17	43'-8"	F.F. Horizontal Abutment
B1001	6	39'-3" to 42'-11"	F.F. Horizontal Abutment (Array)
B1002	2	35'-10"	E.F. Top Abutment
B1003	21	5'-9"	F.F. Horizontal Wingwall
B1004	1	4'-8"	F.F. Horizontal Wingwall
B1005	1	2'-8"	F.F. Horizontal Wingwall
B1006	3	5'-10"	Top Wingwall
SUPERSTRUCTURE DECK			
S501	490	33'-4"	Top & Bottom Transverse Bars
S502	192	42'-5"	Bottom Longitudinal Bars
S503	69	33'-7"	Top Longitudinal Bars
S504	23	60'-0"	Top Longitudinal Bars
APPROACH SLAB			
AS501	32	28'-6"	Transverse Bars
AS601	116	15'-0"	Longitudinal Bars

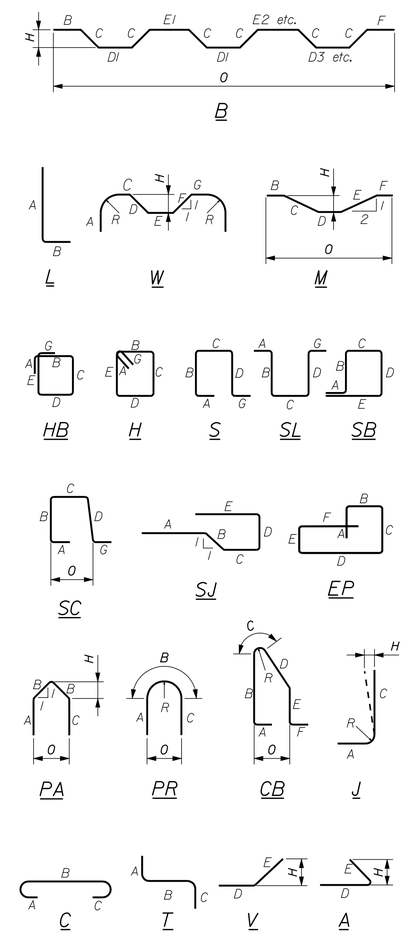
MARK	QTY.	LENGTH	LOCATION

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
ABUTMENT 1														
A550	36	5'-2"	V				3'-4"	1'-10"			1'-4"			Deck Slab Bar
A1050	3	9'-4"	V				8'-5"	0'-11"			0'-7"			Top of Wingwall
A1051	3	3'-2"	V				2'-3"	0'-11"			0'-6"			Top of Wingwall
ABUTMENT 2														
B550	36	5'-2"	V				3'-4"	1'-10"			1'-4"			Deck Slab Bar
B1050	3	8'-10"	V				7'-11"	0'-11"			0'-7"			Top of Wingwall
B1051	3	2'-1"	V				1'-1"	1'-0"			0'-4"			Top of Wingwall
SUPERSTRUCTURE														
S550	486	6'-1"	C	0'-7"	5'-6"	0'-0"								Fascia Hooks
S551	344	4'-10"	SC	0'-6"	1'-4"	1'-2"	1'-4"			0'-6"		1'-4"		Curb Reinforcement

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION

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

1. The first two digits following the letter(s) of the mark indicate the size ofthe bar:

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6

2. Each crank bar, Type B, may be replaced by two (2) straight bars (one top and one bottom) of the same bar size as the crank bar. Payment in either case shall be based on crank bars as schedule on the plans.

ERDMAN ANTHONY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1823(100)X

WIN 18231.00

BRIDGE NO. 5069

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	STEPHEN BOGGE		
DESIGN-DETAILED	N. BONNER	T. LINDO	2/2014
CHECKED-REVIEWED	J. ROJEMS		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

FIFTEEN MILE STREAM BRIDGE
FIFTEEN MILE STREAM
BENTON KENNEBEC

REINFORCING SCHEDULE

SHEET NUMBER

32

OF 34

Filename: ...\032_Reinforcing Schedule.dgn Division: BRIDGE Username: LindoT Date:2/3/2014

Filename: ...\00\ROW\MSTA\001_RWPLAN1.dgn Division: BRIDGE Username: david.show Date:2/6/2014

CURVE #1 DATA
PI = 104+09.96
D = 6°21'58.3"
Δ = 28°45'47.7" Lt.
R = 900.00'
L = 451.81'
T = 230.77'
E = 29.12'

GRID ZONE

BENTON

CENTRAL MAINE POWER COMPANY

JODY WEST

P.L.

POB = STA. 100+50.00
LIMIT OF WORK

PC = STA. 101+79.19

PT = STA. 106+31.00

SEE S.H.C. FILE NO. 6-122 (1961)

BEGIN B.L.

TO BENTON

100+50

101+00

UNITY ROAD

S71°28'44.1"E
129.19'

102+00

103+00

104+00

105+00

106+00

ROUTE 139-UNITY ROAD

ROUTE 139-UNITY ROAD STATE HIGHWAY "224"

SEE S.H.C. FILE NO. 6-122 (1961)

SEE S.H.C. FILE NO. 6-122 (1961)

42'±

+60

451.81'

556'±

50.00'

(1030'± TOTAL)

110'±

LIMITS

0.25± AC.

Remove Existing Pole

CLL

STA. 101+00.00
BEGIN PROJECT

105'±

50.00'

349.39'

0.11± AC.

New Proposed Pole

TEMPORARY

CONSTRUCTION

Remove Existing Pole

New Proposed Pole

JAMES A. DENNIS, II
PARCEL NO. (1)
LAND TAKEN = 0.25± AC.
TEMP. CONST. RIGHTS = 0.11± AC. (1)
TOTAL AREA = 23.5± AC. (SURVEY)
REM. AREA = 23.25± AC.

SEE SURVEY OF
SHARON LEE PETERS PROPERTY
BY HEART OF MAINE SURVEYING
1996
RECORDED KENNEBEC COUNTY REGISTRY OF DEEDS
PLAN FILE E96-135

NOTE: STREAM SUBJECT TO
CENTRAL MAINE POWER, CO.
FLOWAGE AND RIPARIAN RIGHTS

STATE OF MAINE
REGISTRY OF DEEDS
COUNTY _____
RECEIVED _____, _____
at ____h____m____M and recorded in
Plan Book _____, Page _____
Attest: _____
REGISTER

SYMBOLS

- ● IP or ● IPF (IRON PIPE or PIN FOUND)
- ☐ S.T. (SEPTIC TANK)
- ▣ (ROW MONUMENT)
- ⚓BM (TRAVERSE POINT)
- ○WELL (WELL)
- GRADING LIMIT LINE
- CONSTRUCTION LIMIT LINE
- PROPERTY LINE PL
- LIMITS OF "ARROW" RIGHT-OF-WAY (LOW.P.)
- EXISTING RIGHT OF WAY
- NEW RIGHT OF WAY
- NEW ROW WITHIN EXIST. ROW
- CONTROL OF ACCESS
- WATER LINE
- GAS LINE
- ELECTRIC LINE
- TELEPHONE LINE
- SEWER LINE

ITEM	TECH	CHECKED
BASE MAP		
EXIST. R/W	D.W.B.	
PROP. LINES	D.W.B.	
AREAS	D.W.B.	P.N.S.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016

BENTON
RIGHT OF WAY MAP

WIN 18231.00

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK			PAGE	COUNTY RECORD		
NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE	
		COND.	1/21/14	11611	281	

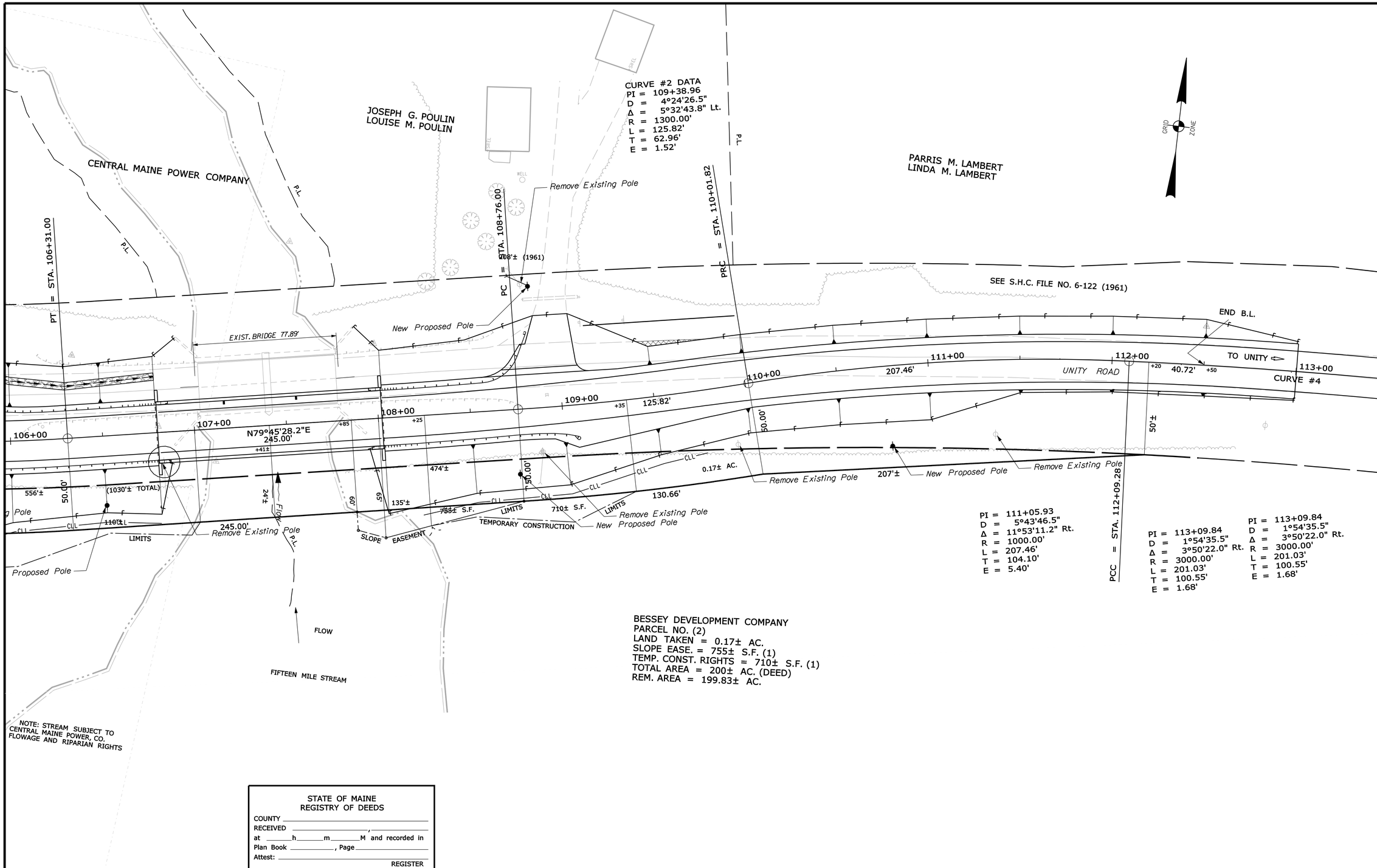
DAVID BERNHARDT
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE OF MAINE
PETER A. BELANGER
1341
PROFESSIONAL LAND SURVEYOR

STATE HIGHWAY "224"
ROUTE 139-UNITY ROAD
BENTON KENNEBEC COUNTY
FEDERAL AID PROJECT NO. BH-1823(100)X

OCTOBER 2013 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 6-449
SCALE 1" = 25' | SHEET 1 OF 2

SHEET NUMBER
33
OF 34



STATE OF MAINE
REGISTRY OF DEEDS
COUNTY _____
RECEIVED _____, _____
at ____h____m____M and recorded in
Plan Book _____, Page _____
Attest: _____
REGISTER

WIN 18231.00

SYMBOLS
IP or IPF (IRON PIPE or PIN FOUND)
S.T. (SEPTIC TANK)
(ROW MONUMENT)
BM (TRAVERSE POINT)
WATER LINE
GAS LINE
ELECTRIC LINE
TELEPHONE LINE
SEWER LINE
WELL (WELL)
GRADING LIMIT LINE
CONSTRUCTION LIMIT LINE
PROPERTY LINE PL
LIMITS OF WROUGHT PORTION (L.O.W.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	D.W.B.	
PROP. LINES	D.W.B.	
AREAS	D.W.B.	P.N.S.

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

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE
		COND.	1/21/14	11611	281

DAVID BERNHARDT
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE OF MAINE
PETER A. BELANGER
1341
PROFESSIONAL LAND SURVEYOR

STATE HIGHWAY "224"
ROUTE 139-UNITY ROAD
BENTON KENNEBEC COUNTY
FEDERAL AID PROJECT NO. BH-1823(100)X

OCTOBER 2013 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 6-449
SCALE 1" = 25' | SHEET 2 OF 2

SHEET NUMBER
34
OF 34

Filename: ...\00\ROW\MSTA\002_RWPLAN2.dgn Division: BRIDGE Username: david.shaw Date:2/6/2014