STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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 (2012) AADT	1710
Future (2032) AADT	1880
DHV - % of AADT	9%
Design Hour Volume	185
Heavy Trucks (% of AADT)	22%
Heavy Trucks (% of DHV)	13%
Directional Distribution (% of DHV)	60%
18 kip Equivalent P 2.0	597
18 kip Equivalent P 2.5	568
Design Speed (mph)	45

HYDROLOGIC DATA

Drainage Area	4.18 sq mi
Design Discharge (Q50)	360.7 cfs
Check Discharge (Q100)	420.1 cfs
Headwater Elevation (Q50)	385.1 ft
Headwater Elevation (Q100)	385.7 ft
Discharge Velocity (Q50)	5.2 fps
Discharge Velocity (Q100)	6.0 fps

MATERIALS

Concrete:	
Precast	Class "P"
Headwall & Toewall	Class "P"
Reinforcing Steel	ASTM A 615/A 615M, Grade 60

BASIC DESIGN STRESSES

Precast Concrete	f 'c = 6,000 psi
Reinforcing Steel	f.y.= 60,000 psi

UTILITIES

Central Maine Power Company
Oxford Networks
Time Warner Cable
Canton Water District
Canton Sewer District

MAINTENANCE OF TRAFFIC

Maintain one 11'-0" wide lane of alternating two-way traffic on Route 140.

CANTON
OXFORD COUNTY
BOG BROOK BRIDGE
OVER
BOG BROOK
ROUTE 140
STATE PROJECT NO. 19292.00
PROJECT LENGTH 0.011 mi.
BRIDGE NO. 0645

LIST OF DRAWINGS

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Profile	4
Boring Location Plan	5
Interpretive Subsurface Profile	6
Boring Logs	7
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Stage Construction	12
Precast Box Culvert Details	13
Right of Way Map	14

PROJECT LOCATION:	Bog Brook bridge #0645 in Canton which carries Rte 140 over Bog Brook. Latitude 44 ° 26' 40.92" N, Longitude 70 ° 18' 38.28" W
PROGRAM AREA:	Bridge Program
OUTLINE OF WORK:	Replacement of Bog Brook bridge #0645 in Canton

WIN 19292.00

19292.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED
COMMISSIONER: DATE 11/5/12
CHIEF ENGINEER: DATE 11/5/12

STATE OF MAINE Nathaniel D. Benoit 10651 PROFESSIONAL ENGINEER

SIGNATURE Nate Benoit
P.E. NUMBER 10651
DATE 10/30/12

PROJECT INFORMATION

PROGRAM	BRIDGE PROGRAM
PROJECT MANAGER	MARK A. PARLIN
DESIGNER	MARK A. PARLIN
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

CANTON
BOG BROOK BRIDGE

TITLE SHEET

SHEET NUMBER
1
OF 14

Filename:\00\BRIDGE\MSTA\001_Title.dgn Division: BRIDGE Username: Alan.Nadeau Date:10/30/2012

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.19	REMOVING EXISTING BRIDGE (80 CY)	1	LS
203.20	COMMON EXCAVATION	410	CY
203.24	COMMON BORROW	105	CY
203.25	GRANULAR BORROW	70	CY
203.33	SPECIAL FILL	100	CY
203.35	CRUSHED STONE FILL	105	CY
304.09	AGGREGATE SUBBASE COURSE - CRUSHED	235	CY
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	235	CY
403.207	HOT MIX ASPHALT 19.0 MM HMA	65	T
403.208	HOT MIX ASPHALT 12.5 MM HMA SURFACE	85	T
403.213	HOT MIX ASPHALT 12.5 MM BASE	73	T
409.15	BITUMINOUS TACK COAT - APPLIED	32	G
508.13	WATERPROOFING MEMBRANE (125 SY)	1	LS
511.07	COFFERDAM: UPSTREAM	1	LS
511.07	COFFERDAM: DOWNSTREAM	1	LS
524.301	TEMPORARY STRUCTURAL SUPPORT	1	LS
526.301	TEMPORARY CONCRETE BARRIER TYPE I (400 LF)	1	LS
527.34	WORK ZONE CRASH CUSHIONS	4	EA
527.303	ENERGY ABSORBING SYSTEM (ET-PLUS)	1	EA
534.71	PRECAST CONCRETE BOX CULVERT (126 CY)	1	LS
606.23	GUARDRAIL TYPE 3C - SINGLE RAIL	165	LF
606.231	GUARDRAIL TYPE 3C - 15 FOOT RADIUS AND LESS	25	LF
606.265	TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	1	EA
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	7	EA
606.79	GUARDRAIL 350 FLARED TERMINAL	2	EA
610.08	PLAIN RIPRAP	440	CY
615.07	LOAM	6	CY
618.1401	SEEDING METHOD NUMBER 2 - PLAN QUANTITY	1	UN
619.1201	MULCH - PLAN QUANTITY	1	UN
620.54	STABILIZATION GEOTEXTILE	400	SY
620.58	EROSION CONTROL GEOTEXTILE	300	SY
620.65	REINFORCEMENT GEOGRID	165	SY
627.733	4 INCH WHITE OR YELLOW PAINTED PAVE MRK LINE	665	LF
629.05	HAND LABOR, STRAIGHT TIME	40	HR
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20	HR
631.14	GRADER (INCLUDING OPERATOR)	20	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)	20	HR
639.19	FIELD OFFICE TYPE B	1	EA
645.103	DEMOUNT GUIDE SIGN	1	EA
645.113	REINSTALL GUIDE SIGN	1	EA
643.72	TEMPORARY TRAFFIC SIGNAL	1	LS
652.312	TYPE III BARRICADE	4	EA
652.33	DRUM	10	EA
652.34	CONE	20	EA
652.35	CONSTRUCTION SIGNS	150	SF
652.36	MAINTENANCE OF TRAFFIC CONTROL DEVICES	30	CD
652.38	FLAGGER	250	HR
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	1	LS
659.10	MOBILIZATION	1	LS

GENERAL CONSTRUCTION NOTES

1. The existing bridge shall be removed to below subgrade, and shall be removed to the limits of granular borrow within 1.5 feet (min.) of the existing structure.

2. The Resident shall determine if a Temporary Traffic Signal is needed. No payment for this item will be made unless the Resident determines it is necessary.

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

4. 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.

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

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

7. 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.

8. All embankment material, except as otherwise shown, placed below EL. 383.00 shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.

9. Place riprap on sideslopes up to edge of berm.

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

11. Erosion Control Mix may be substituted in those areas normally receiving loam as directed by the Resident. Placement shall be inaccordance with Standard Specifications Section 619, Mulch. Payment will be made under the Loam pay item.

12. Place a 24-in. wide strip of Temporary Erosion Control Blanket on the sideslopes along the top of the riprap.

13. 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.

14. 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.

15. Project information referred to in these notes may be accessed at the following MaineDOT web address: http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php.

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. 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. If a temporary diversion pipe is used as shown on the Staged Construction Sheet and it is left in place, then it shall be filled with fill concrete when it is no longer needed. Payment for the diversion pipe, fill concrete and other materials and labor shall be considered as incidental to contract items.

20. The Maine Department of Environmental Protection (MDEP) has reported spills and releases involving petroleum products adjacent to the project. The releases were due to flooding in 2003 which caused the fuel oil tanks at the adjacent residents to tip and leak. MDEP initiated a clean up of the adjacent area. Based on the scope of work presented, available data suggests that this contamination may only be adjacent to the immediate areas of any excavation proposed by the Maine Department of Transportation (MDOT). However, in light of MDEP's findings, the contractor shall employ appropriate health and safety measures to protect its workers against hazards associated with working near petroleum-impacted soils. Furthermore, the Contractor shall remain alert for any additionally evidence of contamination. If the Contractor encounters evidence of soil or groundwater contamination, the Contractor shall secure the excavation, stop work in the contaminated area, and immediately notify the Resident. The Resident shall contact the Hydrogeologist in MDOT's Environmental Office at 207-624-3100 and the Maine Department of Environmental Protection at 800-482-0777. Work may only continue with authorization from the Resident.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

BRIDGE NO. 0845

WIN 19292.00

BRIDGE PLANS

PROJ. MANAGER	MARK P.ARLIN	BY	DATE
DESIGN-DETAILED	MARK P.ARLIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

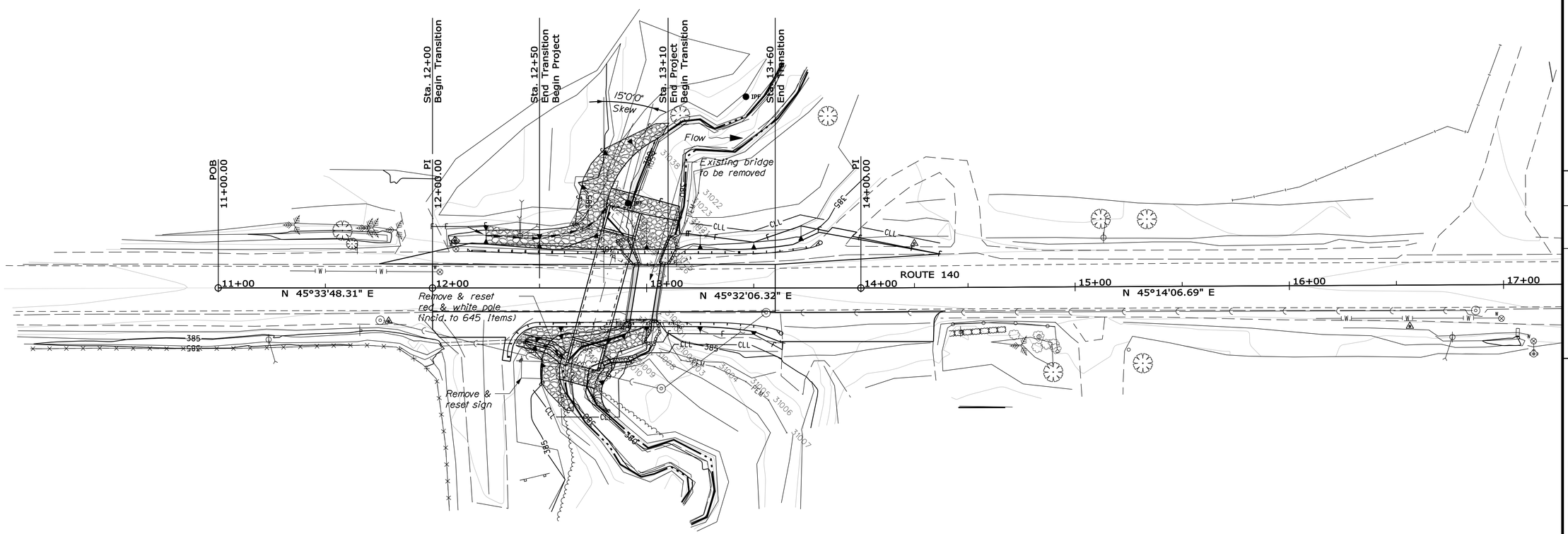
DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

ESTIMATED QUANTITIES

SHEET NUMBER
2
OF 14

Filename: ...\bridge\msto\002_Estimate.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012



PLAN

25 0 25 50

Scale of Feet

Filename: ...\00\bridge\msta\003_GenPlan.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0845

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	MARK P-MILIN		
DESIGN-DETAILED	MARK P-MILIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

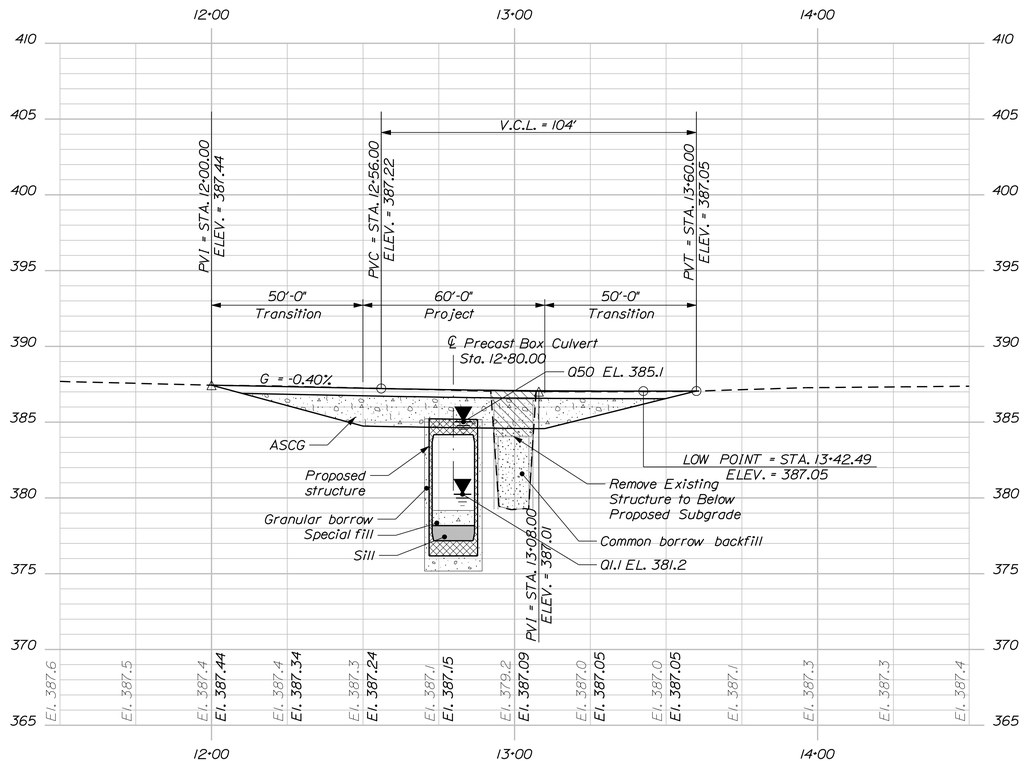
BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

GENERAL PLAN

SHEET NUMBER

3

OF 14



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

Filename: ...\00\bridge\msta\004_Profile.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0845

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	MARK P-ARLIN		
DESIGN-DETAILED	MARK P-ARLIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

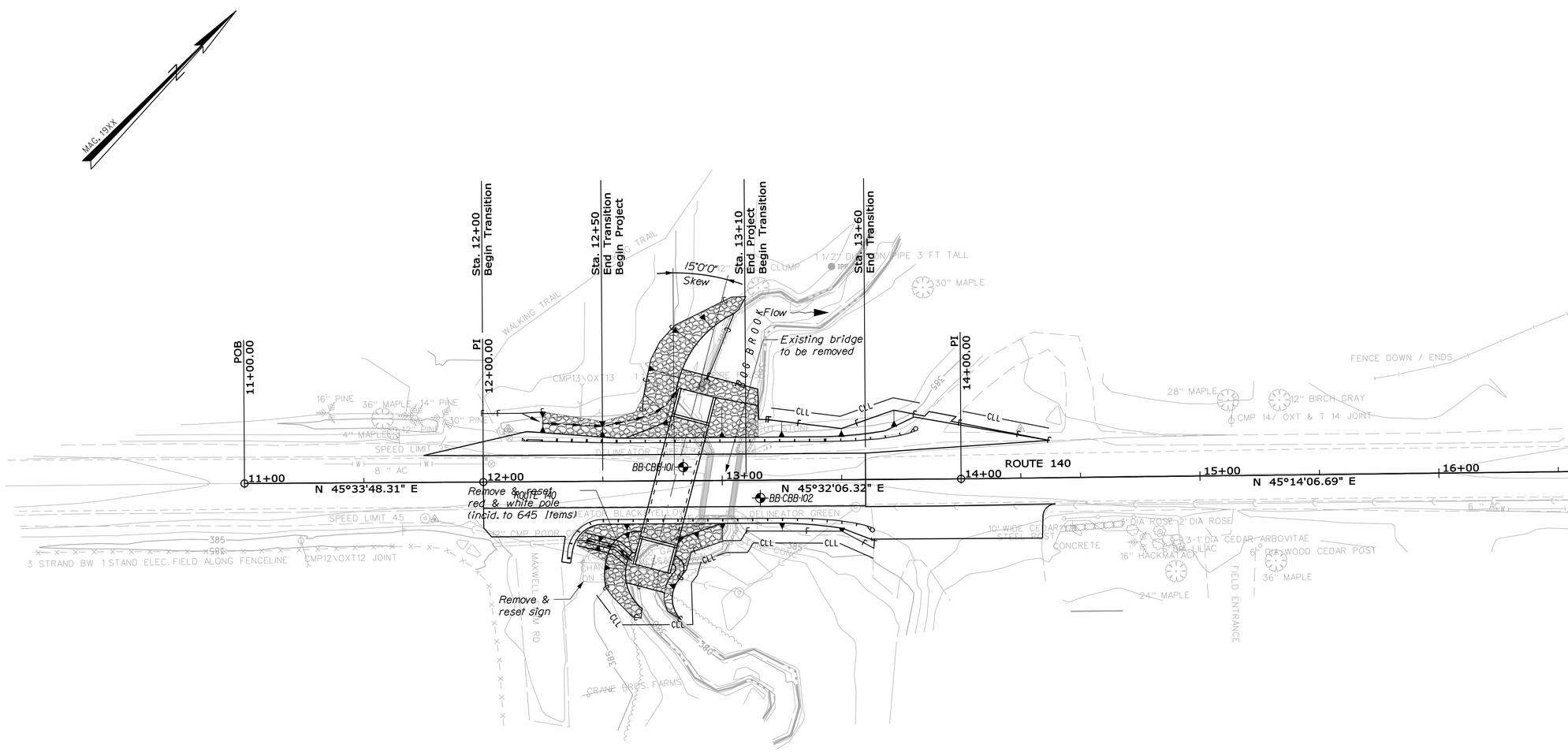
BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

PROFILE

SHEET NUMBER

4

OF 14



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0845

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	K.MAGUIRE	JAN 2012
CHECKED-REVIEWED	T.WHITE	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

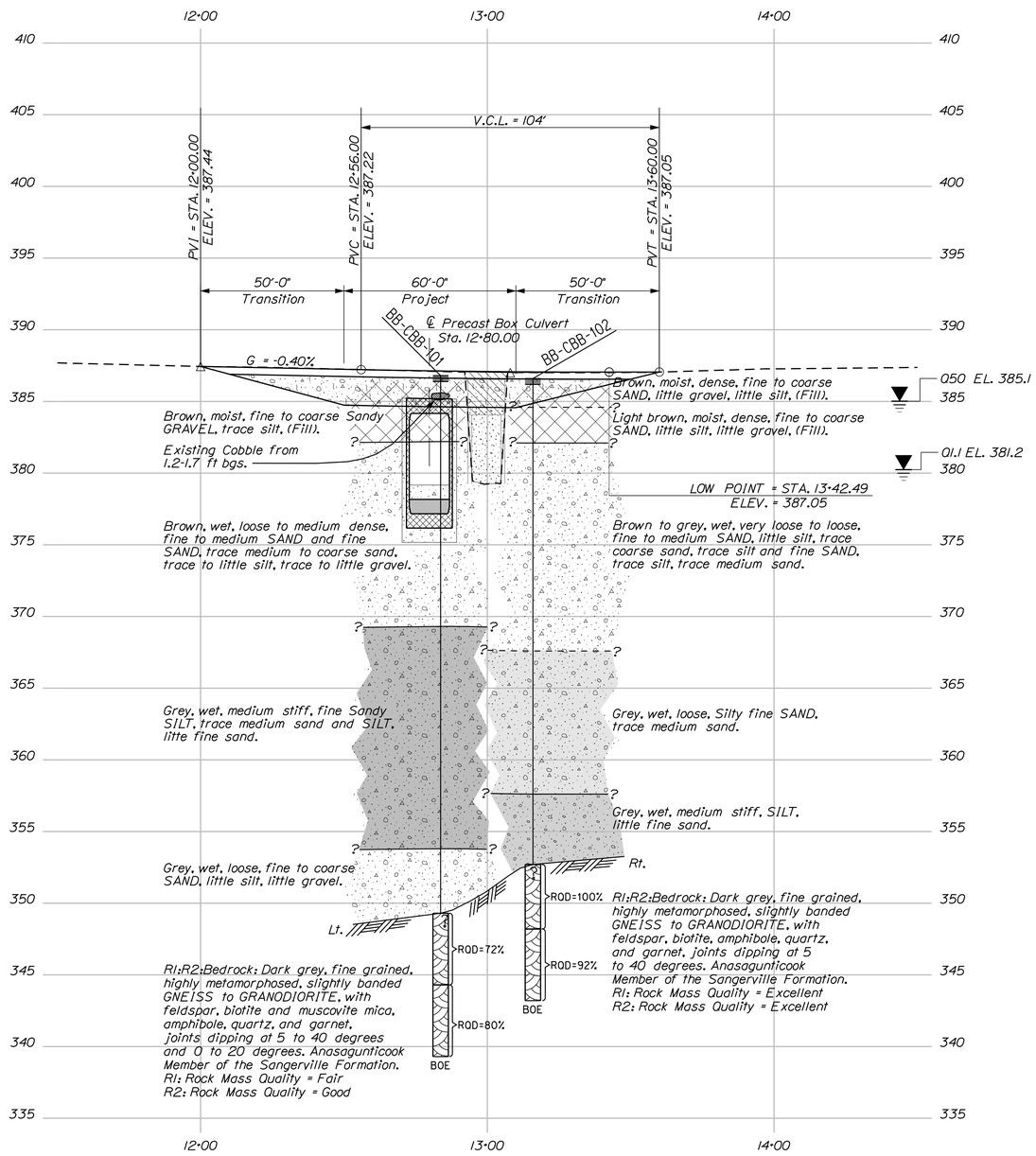
DATE

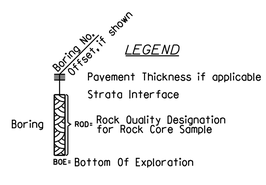
BOG BROOK BRIDGE
BOG BROOK
OXFORD COUNTY
CANTON

BORING LOCATION PLAN

SHEET NUMBER
5
OF 14

Filename: ...\00\GEOTECH\MSTA\005_BLP1.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012





Note: This generalized interpretive soil 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 transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0845

BRIDGE PLANS

PROJ. MANAGER		BY	DATE
DESIGN-DETAILED	K.MAGUIRE	T.WHITE	MAY 2012
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER
6
OF 14

Filename: ...\00\GEOTECH\MSTA\006_ISP1.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Bog Brook Bridge #0645 carries Route 140 over Bog Brook
Location: Canton, Maine

Boring No.: BB-CBB-101
WIN: 19292.00

Driller:	Northern Test Boring	Elevation (ft.)	386.8	Auger ID/OD:	2.75/6.25" HSA
Operator:	Mike/Adam	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	B. Wilder	Rig Type:	Diedrick D-50 Track	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	1/10/2012; 08:00-15:00	Drilling Method:	Cased Wash Boring	Core Barrel:	NQ-2
Boring Location:	12+83.7, 5.7 ft Lt.	Casing ID/OD:	HW	Water Level*:	6.0 ft bgs
Hammer Efficiency Factor: 0.768		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, PP = Pocket Penetrometer
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/C = weight of rods or casing
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = 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%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0	S1		0.42 - 4.60				HSA	386.38	5" Pavement (0.42)	
									Brown, moist, fine to coarse Sandy GRAVEL, trace silt. (Fill). Sample off auger flights. Cobble from 1.2-1.7 ft bgs.	G#244701 N-1=0, GW-GM WC=1.9%
								382.20	(4.60)	
5	1D	24/16	5.00 - 7.00	2/2/2/2	4	5			Brown, wet, loose, fine to medium SAND, little silt, little gravel, trace coarse sand. (Alluvium).	G#244702 A-2-4, SM WC=24.3%
10	2D	24/17	10.00 - 12.00	2/2/3/2	5	6			Brown, wet, loose, fine SAND, trace silt, trace medium to coarse sand. (Alluvium). WHP = Hydraulic Push	G#244703 A-3, SP-SM WC=27.5%
							WHP			
							WHP			
							18			
							37			
15	3D	24/14	14.00 - 16.00	4/4/5/6	9	12	22		Brown, wet, medium dense, fine SAND, trace silt, trace gravel, trace medium to coarse sand. (Alluvium).	G#244704 A-3, SP-SM WC=26.5%
							36			
							40			
							53	369.30	(17.50)	
							53			
20	4D	24/19	19.00 - 21.00	2/2/2/3	4	5	48		Grey, wet, medium stiff, fine Sandy SILT, trace medium sand. (Glacial Lake Deposits).	G#244705 A-4, ML WC=28.9%
							52			
							57			
							58			
							57			
25	5D	24/18	24.00 - 26.00	1/2/2/2	4	5	62		Grey, wet, medium stiff, fine Sandy SILT, trace medium sand. (Glacial Lake Deposits).	
							66			
							76			
							83			
							111			
30	6D	24/16	29.00 - 31.00	2/2/2/2	4	5	78		Grey, wet, medium stiff, SILT, little fine sand. (Glacial Lake Deposits).	G#244706 A-4, ML WC=29.1%
							72			
							60			
							67	353.80	(33.00)	
							88			
35	7D	24/2	34.00 - 36.00	11/4/4/3	8	10	42		Grey, wet, loose, fine to coarse SAND, little silt, little gravel.	
							40			
							47		Roller Coned ahead from 36.0-37.5 ft bgs.	
	R1	60/60	37.50 - 42.50	RQD = 72%			b80 NQ-2	349.30	b80 blows for 0.5 ft. (37.50)	
40									Top of Bedrock at Elev. 349.3 ft. R1:Bedrock: Dark grey, fine grained, highly metamorphosed, slightly banded GNEISS to GRANODIORITE, with feldspar, biotite, amphibole, quartz, and garnet, joints dipping at 5 to 40 degrees. Anasagunticook Member of the Sangerville Formation. Rock Mass Quality = Fair. R1:Core Times (min:sec) 37.5-38.5 ft (5:30) 38.5-39.5 ft (5:00) 39.5-40.5 ft (5:30) 40.5-41.5 ft (7:30) 41.5-42.5 ft (8:00) 100% Recovery	
	R2	60/60	42.50 - 47.50	RQD = 80%					R2:Bedrock: Similar to R1 with muscovite mica, joints dipping at 0 to 20 degrees. Anasaguntcook Member of the Sangerville Formation. Rock Mass Quality = Good. R2:Core Times (min:sec) 42.5-43.5 ft (5:00) 43.5-44.5 ft (5:30) 44.5-45.5 ft (5:00) 45.5-46.5 ft (4:30) 46.5-47.5 ft (4:30) 100% Recovery	
45								339.30	(47.50) Bottom of Exploration at 47.50 feet below ground surface.	
50										

Remarks:
Auto hammer #283

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-CBB-101

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Bog Brook Bridge #0645 carries Route 140 over Bog Brook
Location: Canton, Maine

Boring No.: BB-CBB-102
WIN: 19292.00

Driller:	Northern Test Boring	Elevation (ft.)	386.6	Auger ID/OD:	2.75/6.25" HSA
Operator:	Mike/Adam	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	B. Wilder	Rig Type:	Diedrick D-50 Track	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	1/9/2012; 09:00-15:00	Drilling Method:	Cased Wash Boring	Core Barrel:	NQ-2
Boring Location:	13+15.9, 7.5 ft Rt.	Casing ID/OD:	HW	Water Level*:	5.0 ft bgs
Hammer Efficiency Factor: 0.768		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, PP = Pocket Penetrometer
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/C = weight of rods or casing
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = 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%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0							HSA	386.18	5" Pavement (0.42)	
	1D/A	24/18	1.00 - 3.00	40/17/8/7	25	32		384.60	1D (1.0-2.0 ft bgs) Brown, moist, dense, fine to coarse SAND, little gravel, little silt. (Fill). (2.00) 1D/A (2.0-3.0 ft bgs) Light brown, moist, dense, fine to coarse SAND, little silt, trace gravel. (Fill).	G#244707 A-2-4, SM WC=6.6% G#244708 A-2-4, SM WC=13.5%
								382.10	(4.50)	
5	2D	24/20	5.00 - 7.00	1/1/1/2	2	3			Brown, wet, very loose, fine to medium SAND, little silt, trace coarse sand. (Alluvium).	G#244709 A-2-4, SM WC=31.7%
10	3D	24/17	10.00 - 12.00	1/WOH/WOH/1	---		WHP		WHP = Hydraulic Push Grey, wet, very loose, fine SAND, trace silt, trace medium sand. (Alluvium).	G#244710 A-3, SP-SM WC=30.7%
							12			
							22			
							37			
15	4D	24/16	14.00 - 16.00	2/2/2/2	4	5	19		Similar to above, loose.	
							12			
							29			
							65			
							81			
20	5D	24/17	19.00 - 21.00	2/2/2/2	4	5	62	367.60	(19.00) Grey, wet, loose, Silty fine SAND, trace medium sand. (Alluvium).	G#244711 A-4, SM WC=25.8%
							52			
							55			
							71			
							93			
25	6D	24/18	24.00 - 26.00	1/1/1/2	2	3	70		Similar to above, very loose.	
							59			
							56			
							65			
							78	357.60		
30	7D	24/20	29.00 - 31.00	1/2/2/2	4	5	68		Grey, wet, medium stiff, SILT, little fine sand. (Glacial Lake Deposits). (29.00)	G#244712 A-4, ML WC=29.6%
							77			
							128			
							155			
	R1	54/54	33.90 - 38.40	RQD = 100%			b202 NQ-2	352.70	b202 blows for 0.9 ft. (33.90)	
35									Top of Bedrock at Elev. 352.7 ft. R1:Bedrock: Dark grey, fine grained, highly metamorphosed, slightly banded GNEISS to GRANODIORITE, with feldspar, biotite, amphibole, quartz, and garnet, joints dipping at 5 to 40 degrees. Anasaguntcook Member of the Sangerville Formation. Rock Mass Quality = Excellent. R1:Core Times (min:sec) 33.9-34.9 ft (6:0) 34.9-35.9 ft (5:00) No water return 35.9-36.9 ft (5:30) 36.9-37.9 ft (4:30) 37.9-38.4 ft (1:00) 100% Recovery Core Bit Plugged	
40	R2	60/55	38.40 - 43.40	RQD = 92%					R2:Bedrock: Similar to R1, Anasaguntcook Member of the Sangerville Formation. Rock Mass Quality = Excellent. R2:Core Times (min:sec) 38.4-39.4 ft (5:00) 39.4-40.4 ft (5:10) 40.4-41.4 ft (5:15) 41.4-42.4 ft (5:00) 42.4-43.4 ft (5:00) 92% Recovery	
45								343.20	(43.40) Bottom of Exploration at 43.40 feet below ground surface.	
50										

Remarks:
Auto hammer #283

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-CBB-102

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN
19292.00

BRIDGE PLANS

BRIDGE NO. 0645

PROJ. MANAGER		BY	DATE
DESIGN-DETAILED	K.MAGUIRE	T.WHITE	MAY 2012
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

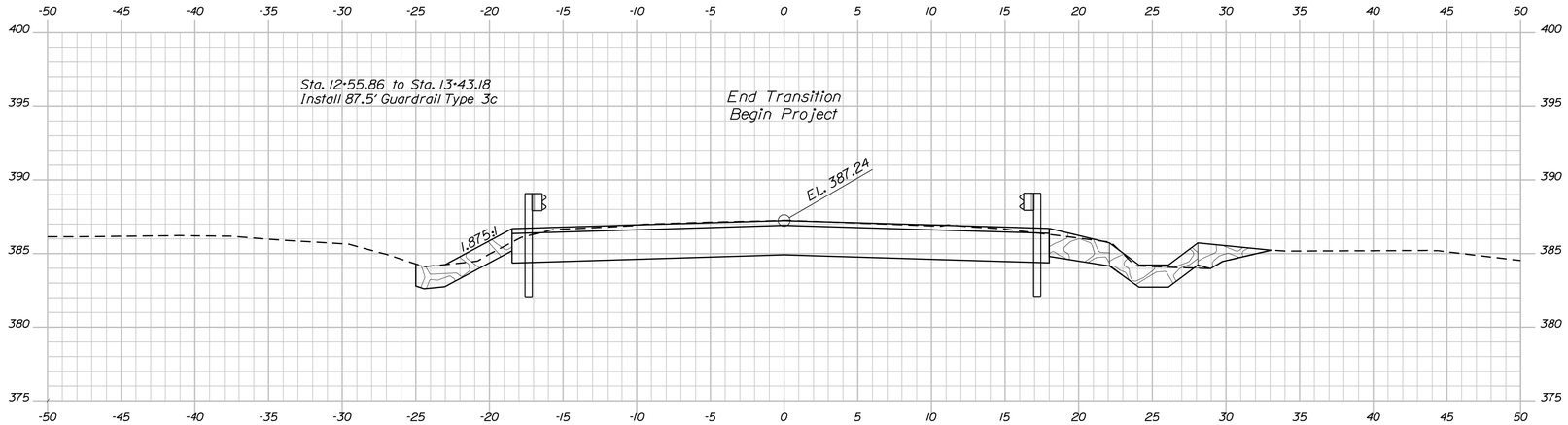
DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

BORING LOGS

SHEET NUMBER
7
OF 14

Filename: ...\MSTA\007_BORING LOGS1.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012



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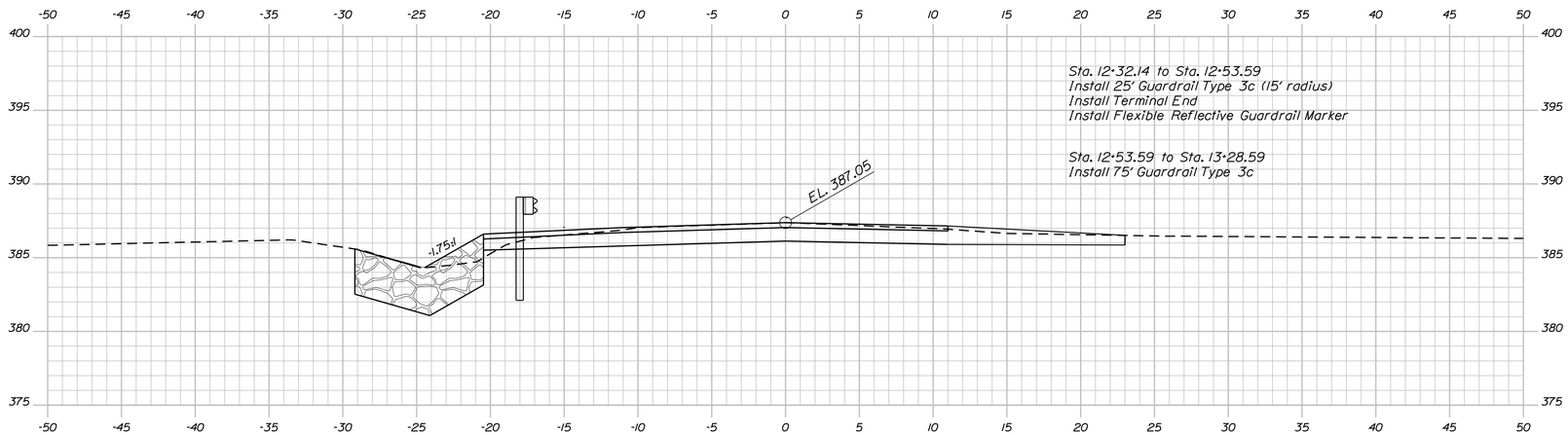

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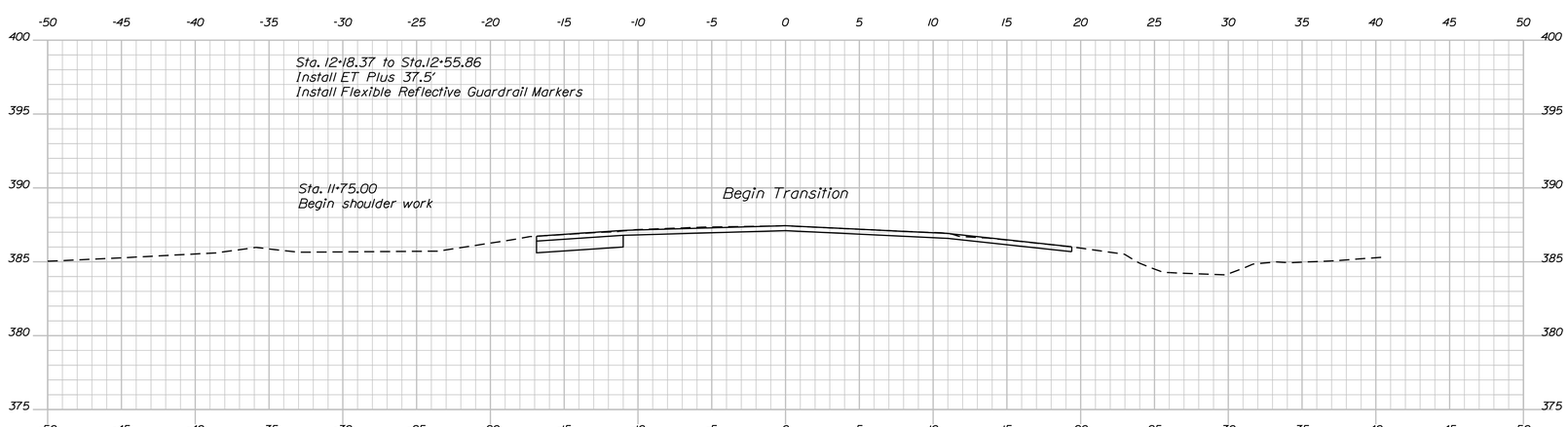


12+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0645

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	MARK P-MLIN		
DESIGN-DETAILED	MARK P-MLIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

CROSS SECTIONS

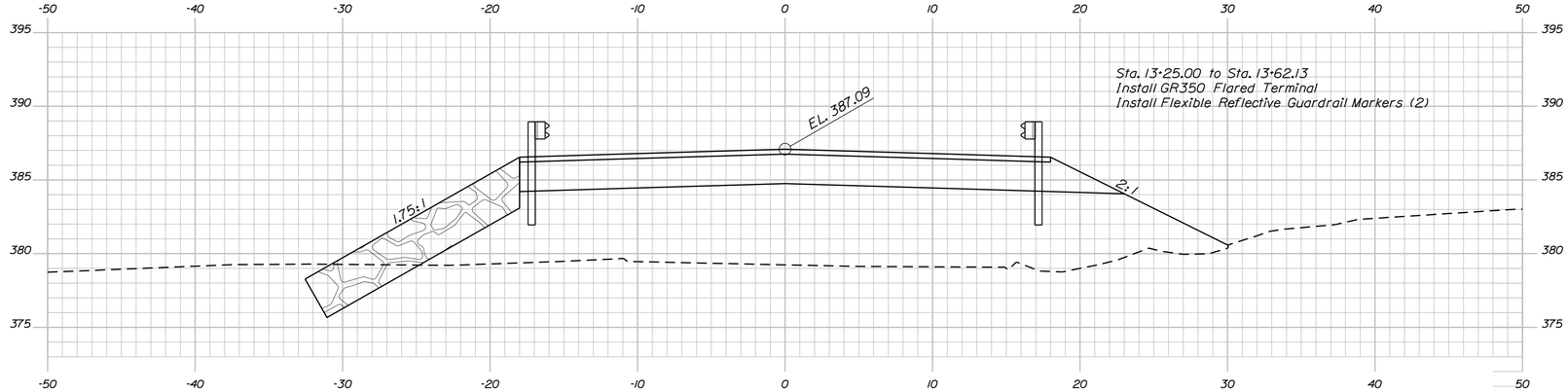
SHEET NUMBER

8

OF 14

Sta. 12+00.00 to Sta. 12+50.00

Filename: ...\msta\008_xsect_12+00-12+50.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012



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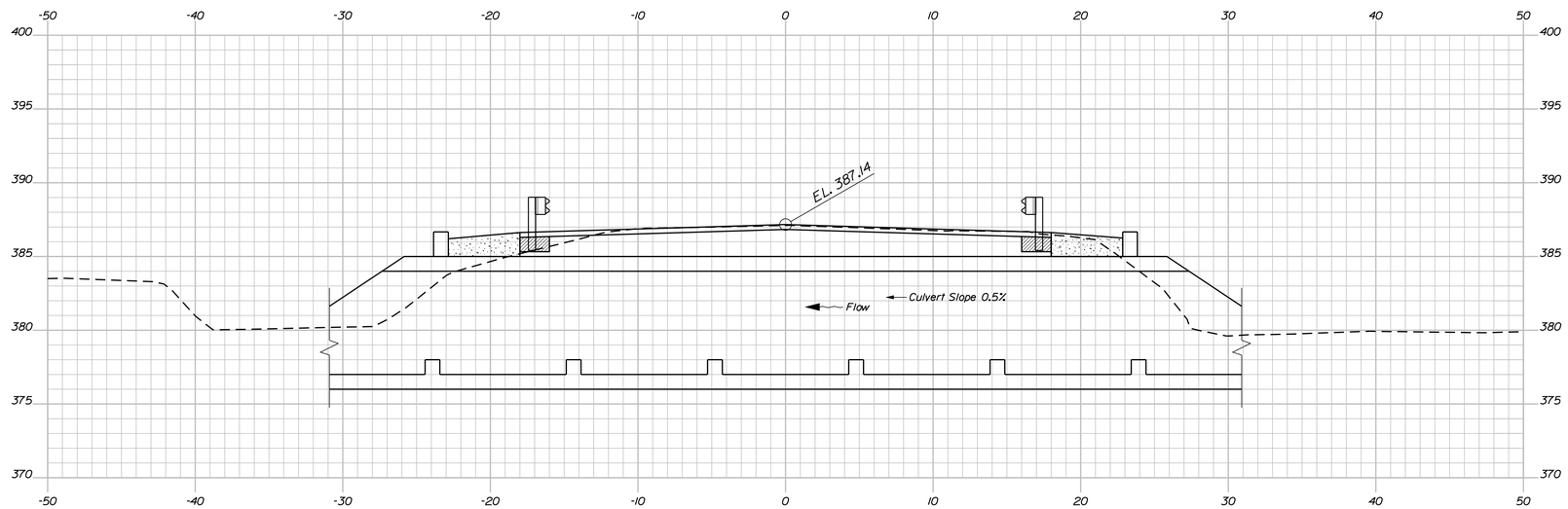

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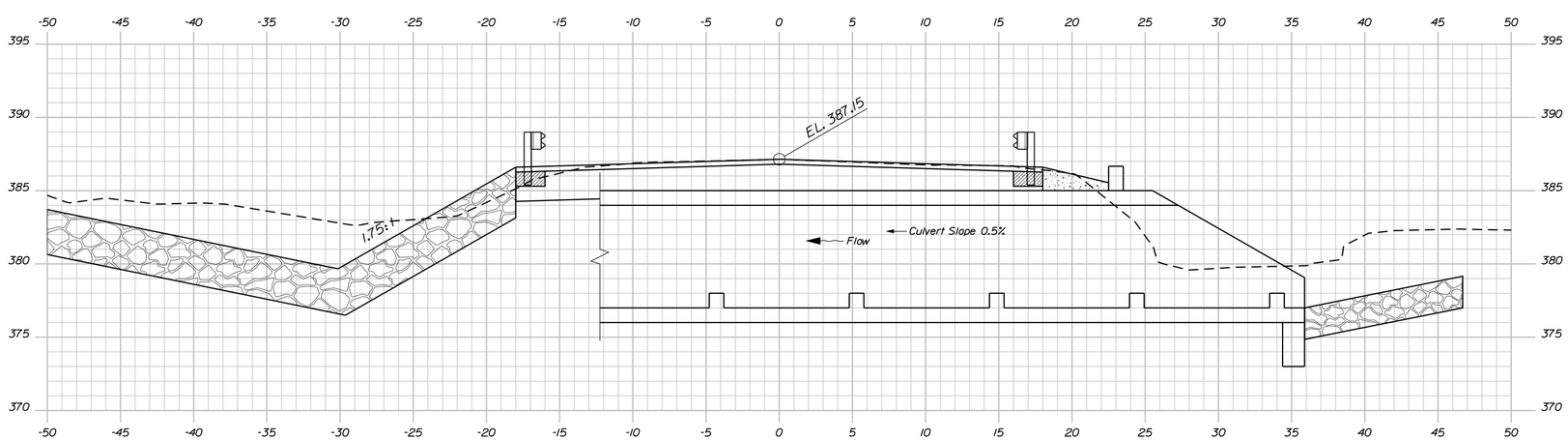


12+75.00

Sta. 12+75.00 to Sta. 13+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0645

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	MARK P-MILLIN		
DESIGN-DETAILED	MARK P-MILLIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

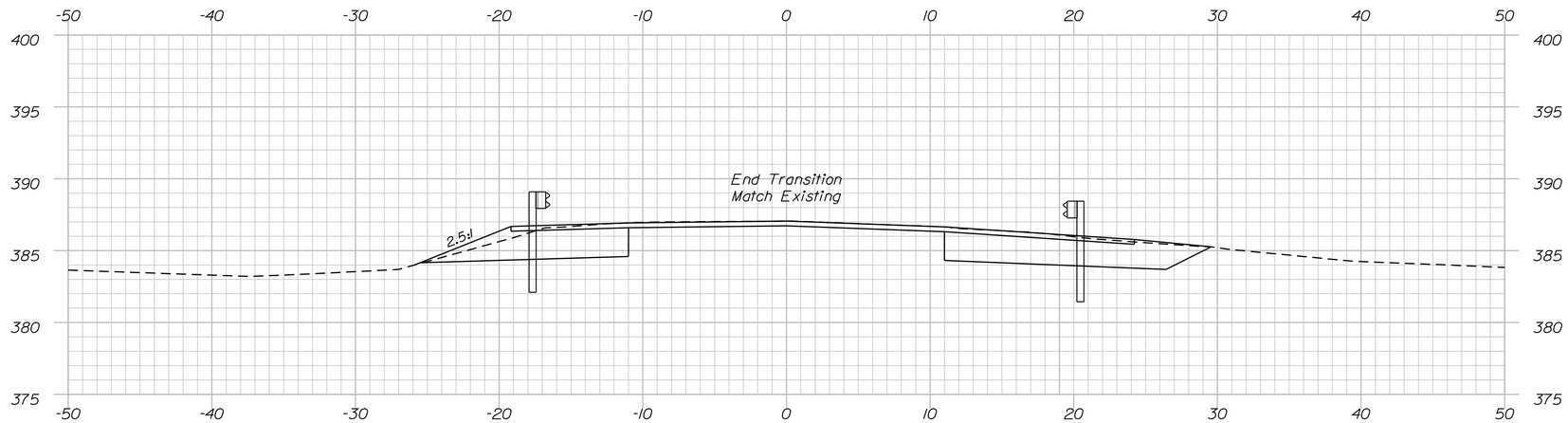
DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

CROSS SECTIONS

SHEET NUMBER
9
OF 14

Filename: ...\msta\009_xsect_12+75-13+00.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012



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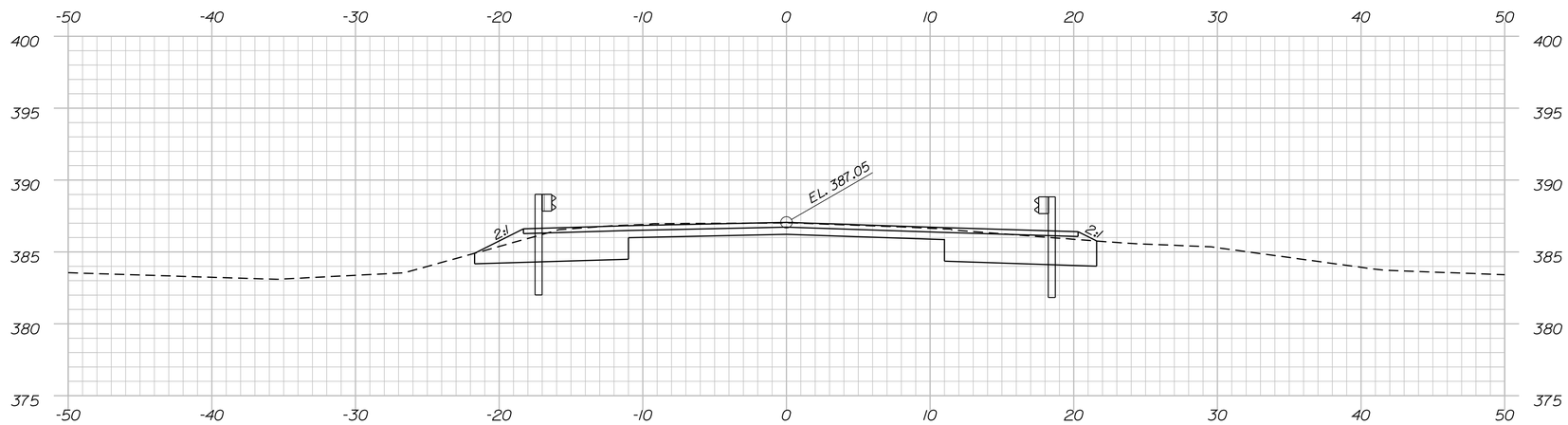

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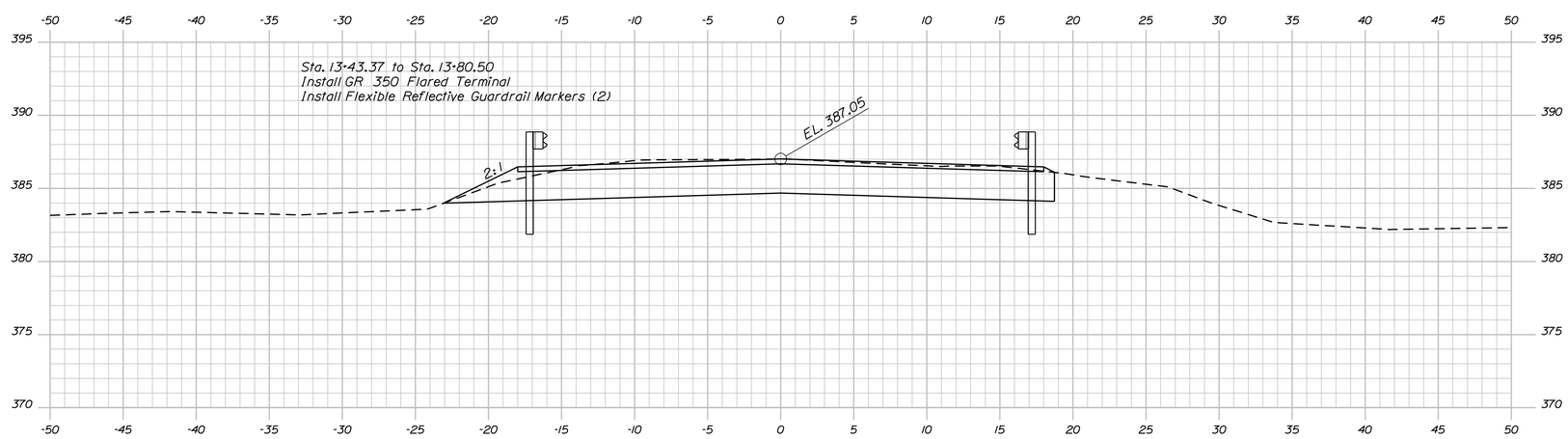


13+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0645

BRIDGE PLANS

PROJ. MANAGER	MARK P.ARLIN	BY	DATE
DESIGN-DETAILED	MARK P.ARLIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

CROSS SECTIONS

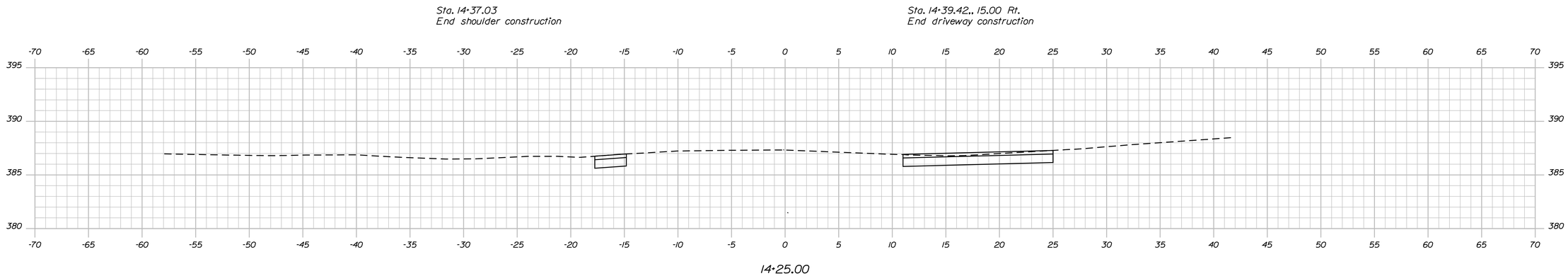
SHEET NUMBER

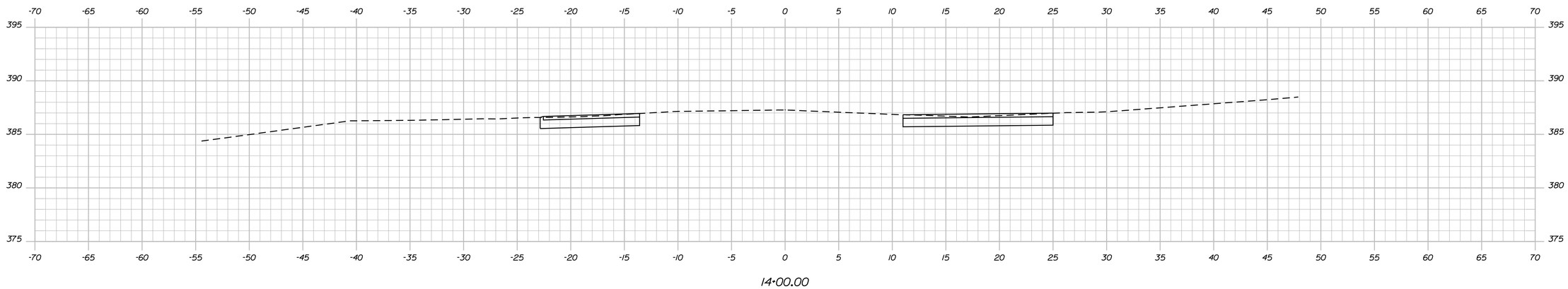
10

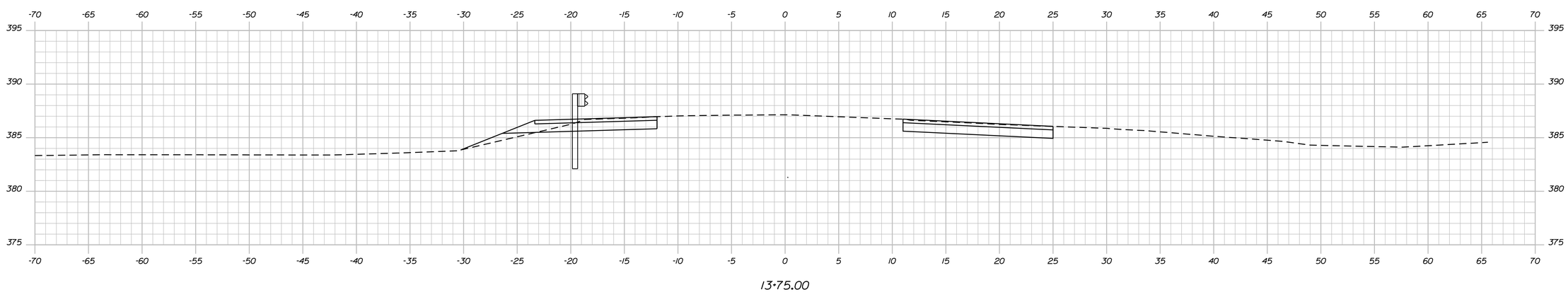
OF 14

Filename: ...\msto\010_xsect_13+25-13+60.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012

Sta. 13+25.00 to Sta. 13+60.00







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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0645

BRIDGE PLANS

PROJ. MANAGER	MARK P-ARLIN	BY	DATE
DESIGN-DETAILED	MARK P-ARLIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

CROSS SECTIONS

SHEET NUMBER

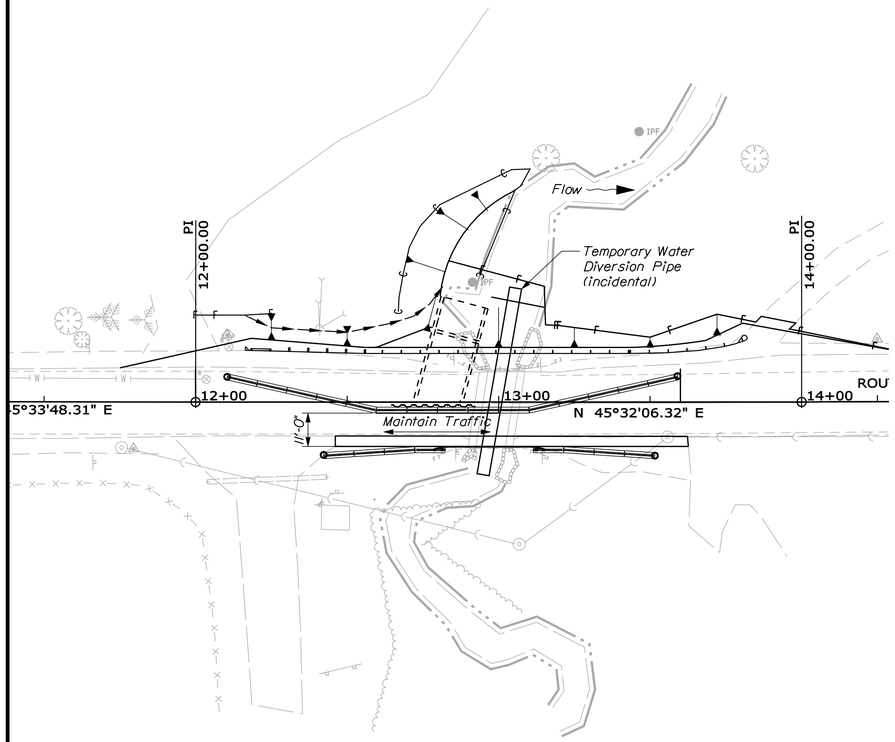
11

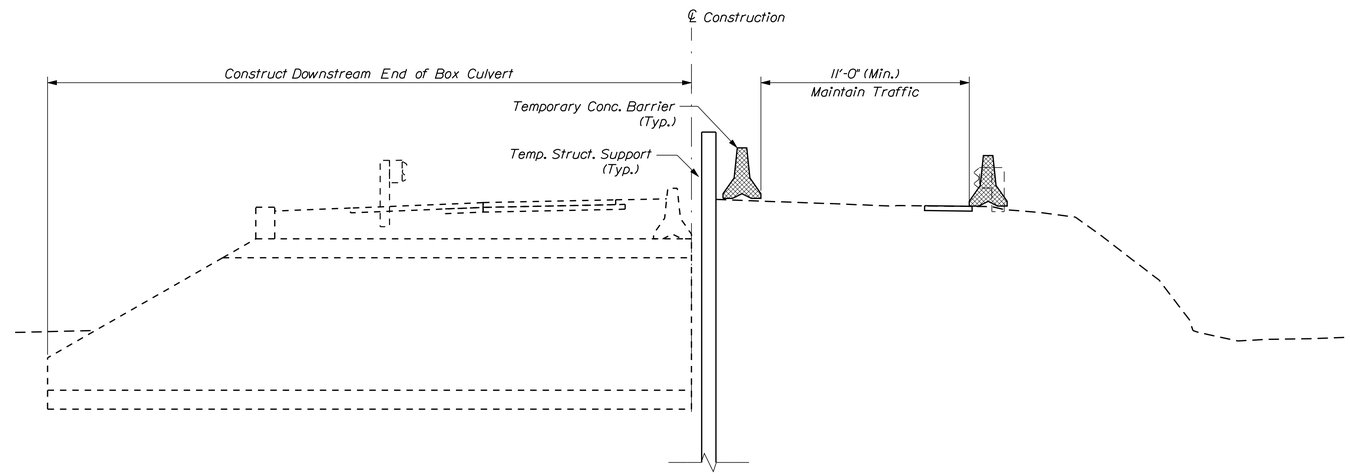
OF 14

Sta. 13+75.00 to Sta. 14+25.00

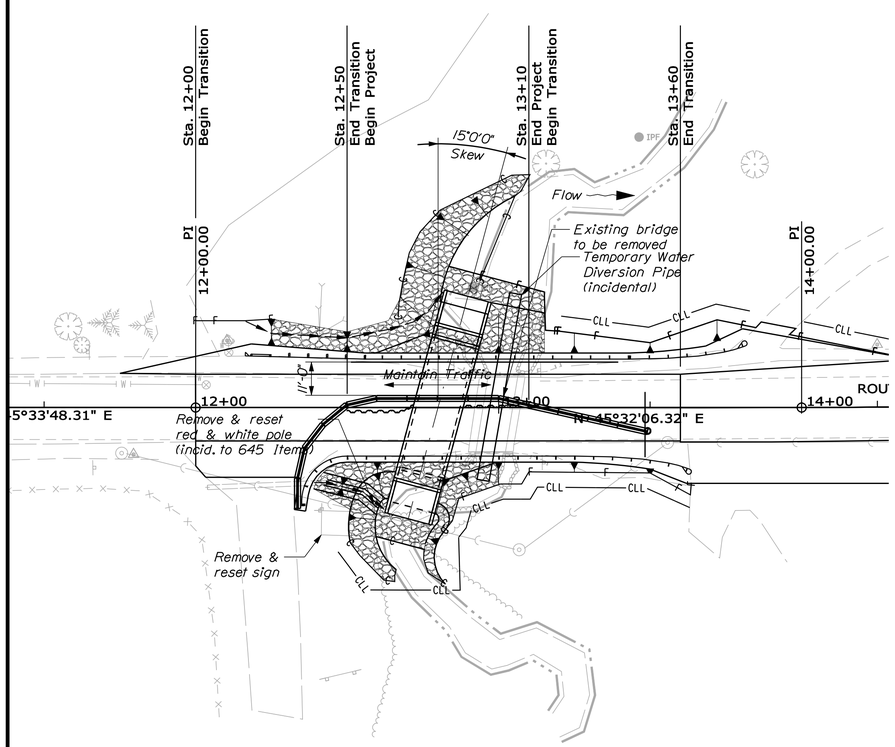
~NOTE~

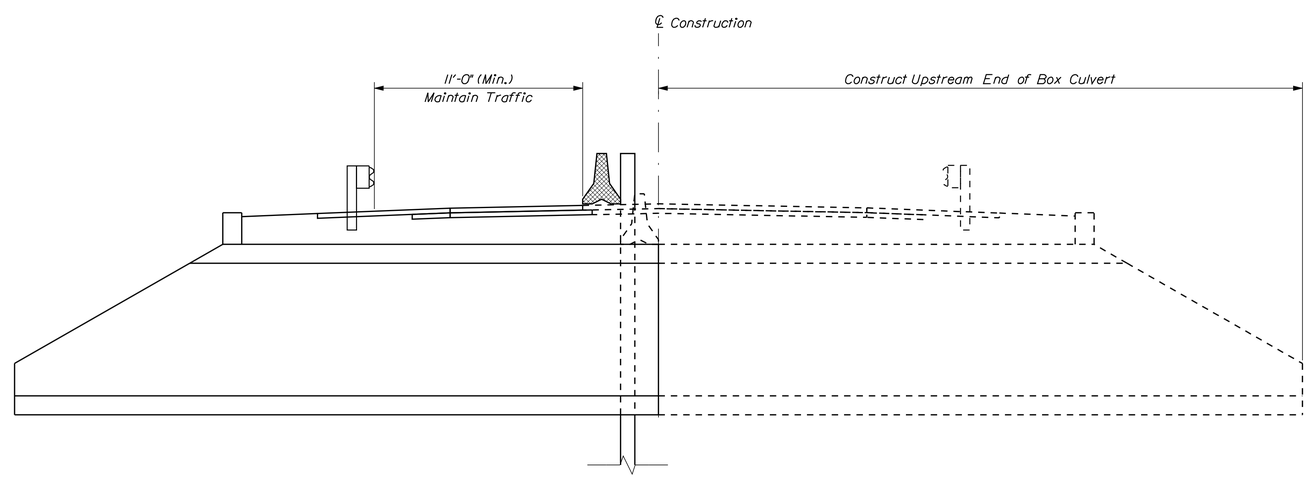
This plan shown is for conceptual purposes only. The contractor shall be responsible for the stage construction plan and approval by the resident





STAGE I





STAGE II

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

BRIDGE NO. 0645

WIN 19292.00

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	MARK PARLIN		
DESIGN-DETAILED	MARK PARLIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

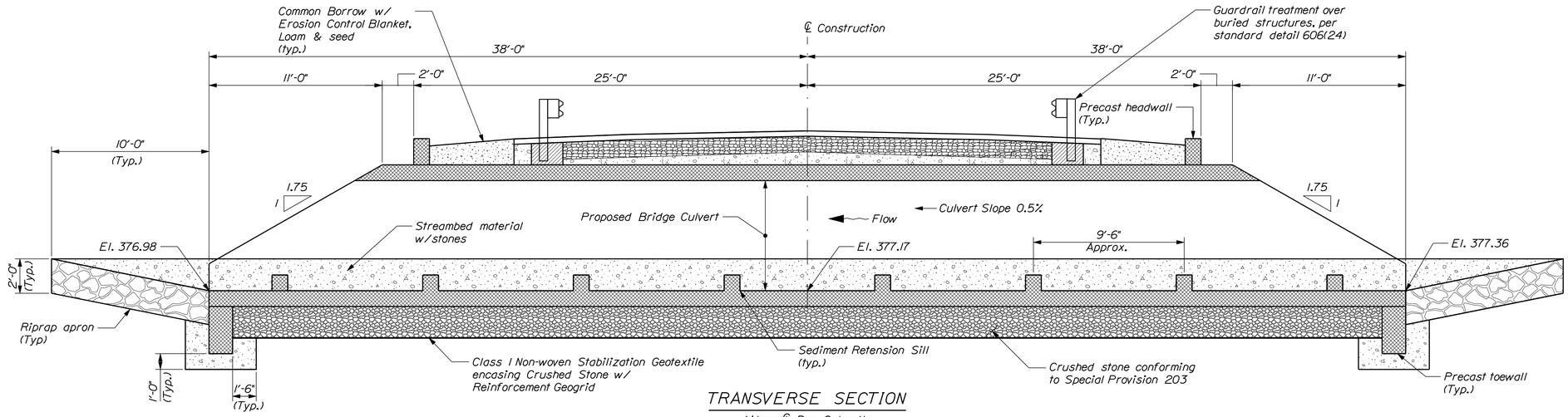
STAGED CONSTRUCTION

SHEET NUMBER

12

OF 14

Filename: ...\bridge\msta\012_StageConst.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012



TRANSVERSE SECTION

(Along ℄ Box Culvert)

PRECAST CONCRETE BOX NOTES

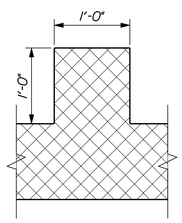
1. The precast units shall be designed to carry construction loadings with a minimum fill cover of 6 inches over the top of the units.

2. The design, construction, handling, and assembly of the precast units shall be inaccordance with Special Provisions Section 534, Precast Structural Concrete and with the manufacturer's specifications as applicable.

3. Install Waterproofing Membrane over the top and to 12 inches down the exterior sides of the precast units. Cover remaining vertical joints with 12 inch wide strips.

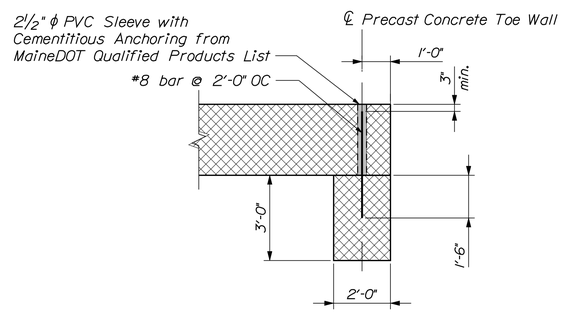
4. Based on field conditions encountered during construction, if the native soils in the bottom of the box culvert excavation are determined by the Resident to be satisfactory bedding material(s) for construction of the box culvert, the 2 foot crushed stone bedding reinforced with geogrid and wrapped with geotextile fabric shown on the Plans can eliminated and replaced with 12 inches of compacted Granular Borrow.

5. If temporary shoring is needed to divert water during construction a Professionally Engineered excavation and shoring plan shall be developed by the Contractor and submitted to the Resident for approval. Payment shall be incidental to the Box Culvert Pay Item.

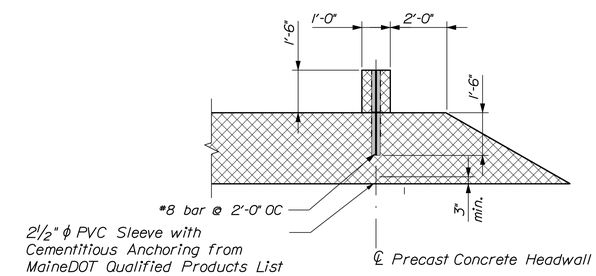


SEDIMENT RETENTION SILL DETAIL

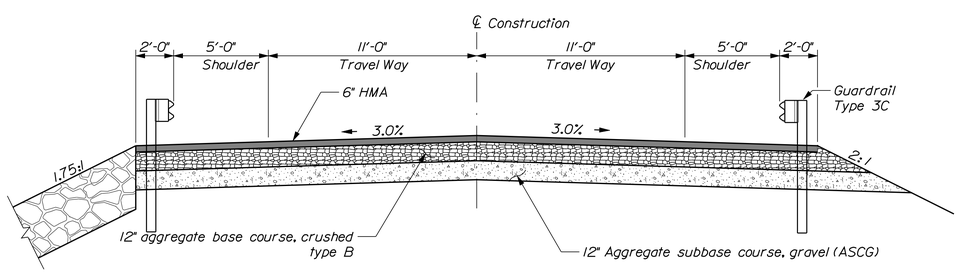
(Typical)



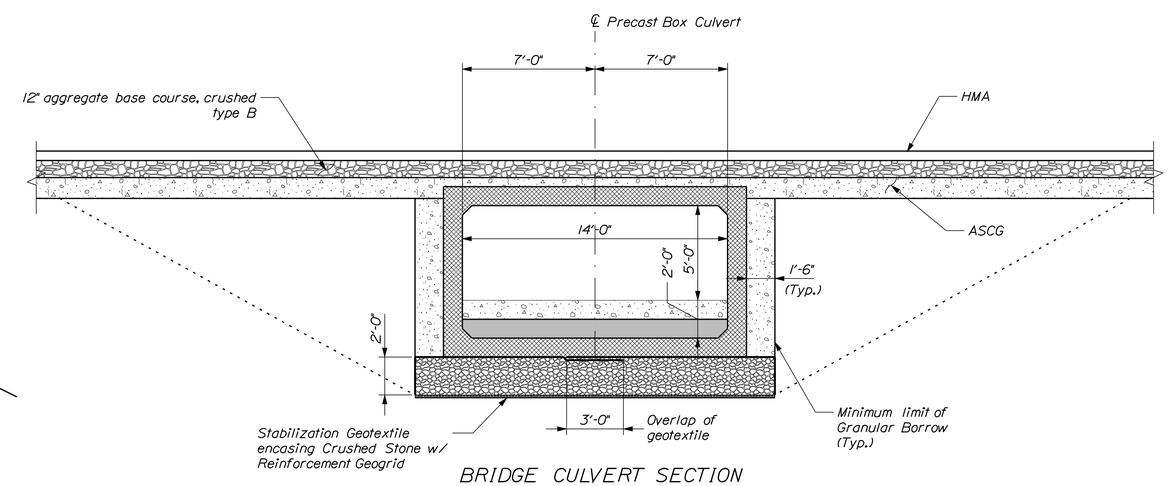
PRECAST CONCRETE TOEWALL DETAIL



PRECAST CONCRETE HEADWALL DETAIL



APPROACH SECTION



BRIDGE CULVERT SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

19292.00

WIN 19292.00

BRIDGE NO. 0845

BRIDGE PLANS

PROJ. MANAGER	MARK P-MILIN	BY	DATE
DESIGN-DETAILED	MARK P-MILIN	ADN	JAN 2012
CHECKED-REVIEWED		BJN	AUG 2012
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

BOG BROOK BRIDGE
BOG BROOK
CANTON OXFORD COUNTY

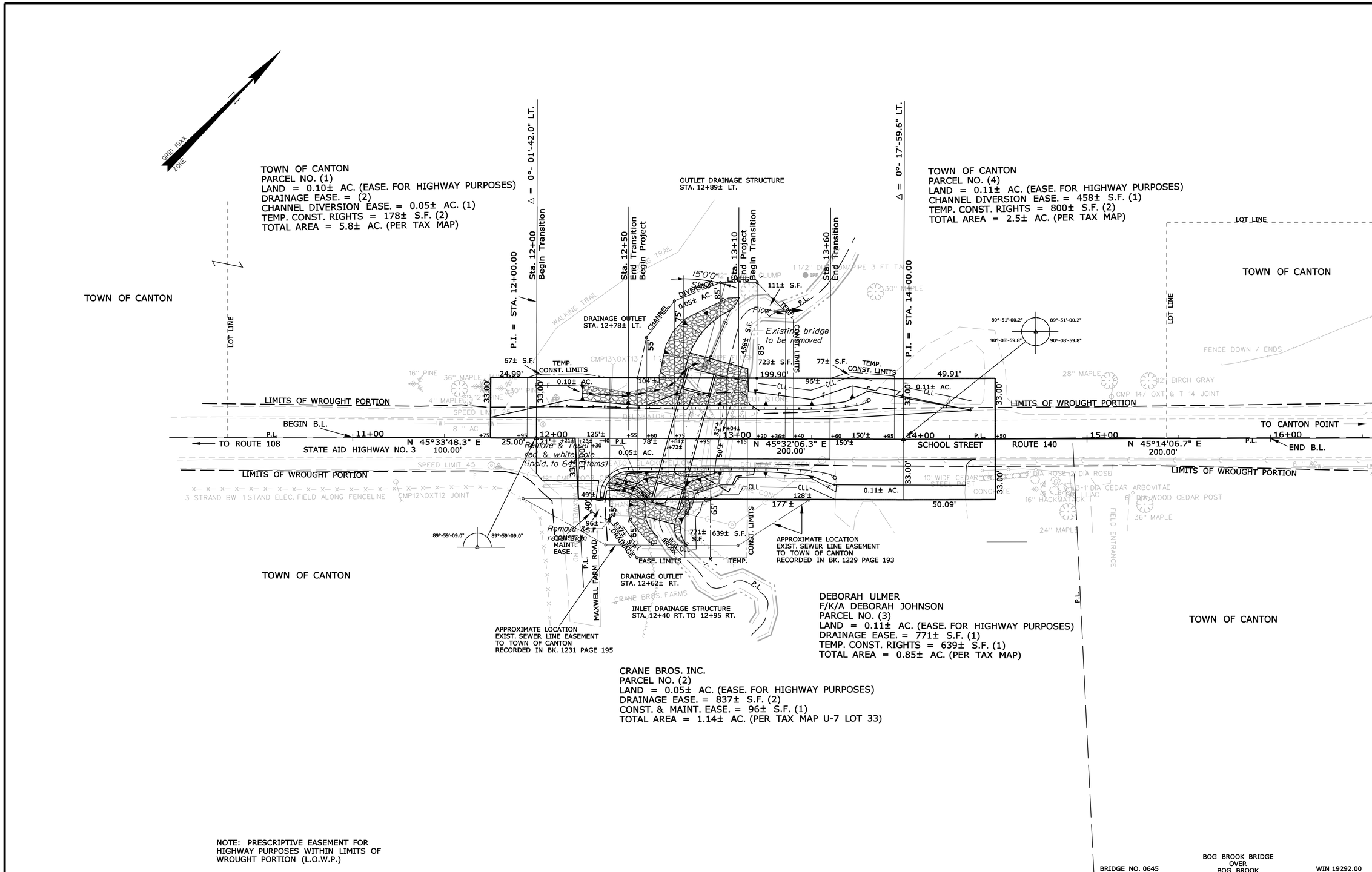
DETAILS

SHEET NUMBER

13

OF 14

Filename: ...\msta\013_Culvert_Details.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012



SYMBOLS

- IP or IPF (IRON PIPE or PIN FOUND)
- ST. (SEPTIC TANK)
- (ROW MONUMENT)
- BM (TRAVERSE POINT)
- WELL (WELL)
- GRADING LIMIT LINE
- CONSTRUCTION LIMIT LINE
- PROPERTY LINE
- LIMITS OF WROUGHT PORTION (L.O.W.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	PNS	
PROP. LINES	PNS	
AREAS		

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

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK — PAGE COUNTY RECORD (EAST DISTRICT)

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE
		COND.	10/29/12	4912	195

DAVID BERNHARDT
COMMISSIONER
KENNETH L. SWEENEY
CHIEF ENGINEER
DATE

STATE OF MAINE — PETER A. BELANGER 1341 — PROFESSIONAL LAND SURVEYOR

STATE AID HIGHWAY NO. 3
SCHOOL STREET ROUTE 140
CANTON OXFORD COUNTY
STATE PROJECT NO. 19292.00

JULY 2012 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 9-372
SCALE 1" = 25' | SHEET 1 OF 1

SHEET NUMBER
14
OF 14

Filename: ...\00\ROW\MSTA\001_RWPLAN1.dgn Division: BRIDGE Username: Alan.Nadeau Date:11/6/2012