STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLAN LEGEND

Town, County, State		Centerline-Existing	
Property Lines		Centerline-Proposed	10+00
R/W Lines-Existing		Travelway-Existing	
R/W Lines-Proposed		Travelway-Proposed	
Culvert-Existing		Railroad	
Culvert Proposed		Catch Basins	Existing ■ Proposed
Curbing	Existing / Proposed	Manholes	Existing ● Proposed
Type 1		Proposed Underdrain	
Type 3		Proposed Ditch	
Type 5		Existing Ditch	
Outline of Bodies of Water		Utlity Poles	Existing ♦ Proposed
Ledge		Fire Hydrants	Existing ◉ Proposed
Buildings		Existing Water Line	
Trees	Conifer / Deciduous	Existing San. Sewer	
Tree Line		Existing San. Sewer Manhole	
Clearing Limit Line	CLL	Guardrail-Existing	
		Guardrail-Proposed	
		Guardrail-Cable, Other	

TRAFFIC DATA

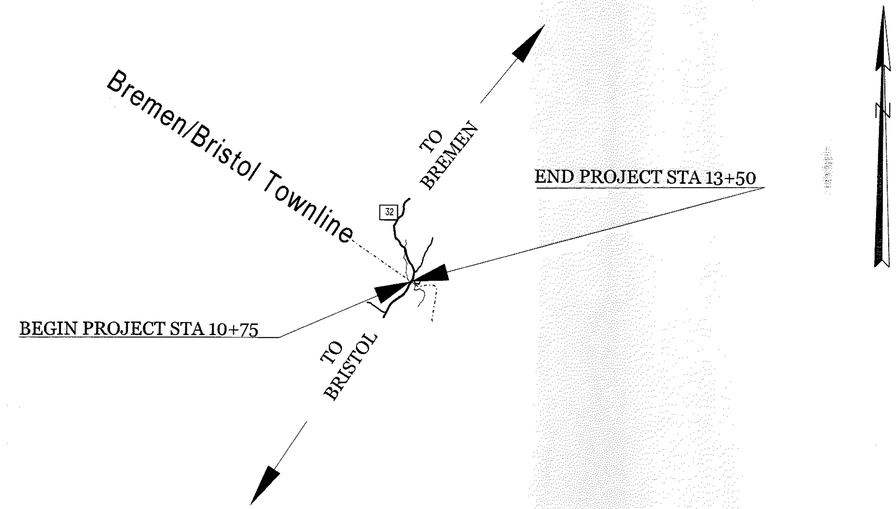
Current (2012) AADT	960
Future (2032) AADT	1150
DHV - % of AADT	15%
Design Hour Volume	173
% Heavy Trucks (AADT)	9%
% Heavy Trucks (DHV)	6%
Directional Distribution (DHV)	55%
18 kip Equivalent P 2.0	34
18 kip Equivalent P 2.5	32
Design Speed (mph)	45
Functional Class:Major/Urb Collector	

HYDROLOGIC DATA

Drainage Area	3.63 sq mi
Design Discharge (Q50)	181.1 cfs
Check Discharge (Q100)	208.8 cfs
Headwater Elevation (Q50)	32.9 ft
Headwater Elevation (Q100)	33.1 ft
Discharge Velocity (Q50)	7.7 fps
Discharge Velocity (Q100)	8.1 fps

BREMEN
LINCOLN COUNTY
ROUTE 32 STRUT

STATE PROJECT NO. 18104.00
PROJECT LENGTH : 0.03 MILES



INDEX OF SHEETS

PROJECT LOCATION:	LOCATED 0.01 MILES NORTHERLY OF THE BRISTOL/BREMEN TOWNLINE
PROGRAM AREA:	HIGHWAY PROGRAM
OUTLINE OF WORK:	STRUCTURAL REPLACEMENT OF EXISTING CULVERT.

18104.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED
COMMISSIONER
CHIEF ENGINEER
DATE 11/13/12

STATE OF MAINE — Kelda Bresnahan — REGISTERED PROFESSIONAL ENGINEER

Kelda Bresnahan
SIGNATURE
8581
P.E. NUMBER
10/24/2012
DATE

PROJECT INFORMATION

PROGRAM	HIGHWAY
PROJECT MANAGER	SHAWN SMITH
DESIGNER	BERTA ESTES
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

BREMEN
ROUTE 32 STRUT

TITLE SHEET

SHEET NUMBER
1
OF 20

Filename: ...\00\HIGHWAY\MSTA\001_Title.dgn Division: GEOTECH Username: kitty.breskin Date:10/24/2012

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
201.23	REMOVING SINGLE TREE TOP ONLY	1	EA
203.20	COMMON EXCAVATION	1600	CY
203.242	DIRTY BORROW	10	CY
203.51	OPEN GRADED BACKFILL	160	CY
206.082	STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	240	CY
206.092	STRUCTURAL ROCK EXCAVATION - MAJOR STRUCTURES	4	CY
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	800	CY
403.208	HOT MIX ASPHALT 12.5 MM HMA SURFACE	142	T
403.209	HOT MIX ASPHALT 9.5 MM HMA (SIDEWALKS, DRIVES, INCIDENTALS)	6	T
403.213	HOT MIX ASPHALT 12.5 MM BASE	142	T
409.15	BITUMINOUS TACK COAT - APPLIED	33	G
502.326	STRUCTURAL CONCRETE - FISH WEIRS (4 CY)	1	LS
502.56	CONCRETE FILL	36	CY
511.07	COFFERDAM: UPSTREAM	1	LS
511.07	COFFERDAM: DOWNSTREAM	1	LS
531.51	BRIDGE STRUCTURE - DETAIL BUILD	1	LS
606.23	GUARDRAIL TYPE 3C - SINGLE RAIL	50	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	10	EA
606.79	GUARDRAIL 350 FLARED TERMINAL	3	EA
609.31	CURB TYPE 3	85	LF
610.16	HEAVY RIPRAP	50	CY
615.07	LOAM	5	CY
618.1301	SEEDING METHOD NUMBER 1 - PLAN QUANTITY	1	UN
618.1401	SEEDING METHOD NUMBER 2 - PLAN QUANTITY	5	UN
619.12	MULCH	6	UN
619.1401	EROSION CONTROL MIX	2	CY
620.62	GEOSYNTHETIC REINFORCEMENT	935	SY
627.733	WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	364	LF
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	8	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)	8	HR
635.15	CONCRETE FACING BLOCKS	650	SF
652.312	TYPE III BARRICADE	5	EA
652.34	CONE	20	EA
652.33	DRUM	20	EA
652.36	MAINTENANCE OF TRAFFIC CONTROL DEVICES	45	CD
652.35	CONSTRUCTION SIGNS	600	SF
652.38	FLAGGER	300	HR
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	1	LS
659.10	MOBILIZATION	1	LS

GENERAL CONSTRUCTION NOTES

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

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

3. 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.

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

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

6. Any material excavated at the inlet/outlet pools, below the normal water line, of the existing culverts is considered dredge material and must be re-used on site as directed by the Resident. Payment for this work shall be considered incidental to relatated Contract items.

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. Removal of the existing culverts and any surrounding existing backfill material that falls beyond the pay limits of excavation items 203.20 & 206.082 shall be considered incidental to to item 531.51 Bridge Structure - Detail Build.

9. All embankment material, except as otherwise shown, placed below EL. 33 shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.

10. Construct the riprap shelf at each abutment at EL. 32.

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.
Top of abutment backwalls/wingwalls and to one foot below the top of backwalls/wingwalls on the back side.

payment for protective coating shall be considered incidental to item 531.51 Bridge Struture - Detail Build.

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

14. The project geotechnical report titled: Soils Report No. 2012-05 Bremen, Lincoln Co. 18104.00 Stare Route 32 Strut, April 4, 2012 may be accessed at the MaineDOT web address.

15. 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.

16. 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.

17. Item number 203.51, Open Graded Backfill, will be used as abutment fill in this construction. This material will be compacted to a minimum of 95 percent of the maximum dry density according to AASHTO T-99 and +/- 2% of optimum moisture content. In the bearing reinforcement zone, compact to 100% of maximum dry density according to AASHTO T-99. Only hand operated compaction equipment is allowed within 3-feet of the wall face.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

		BY	DATE
PROJ. MANAGER	SHAWN SMITH		
DESIGN-DETAILED	BERTA ESTES	-----	-----
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	K.BRESKIN	ADN	-----
DESIGN3-DETAILED3		T. WHITE	-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

SIGNATURE

P.E. NUMBER

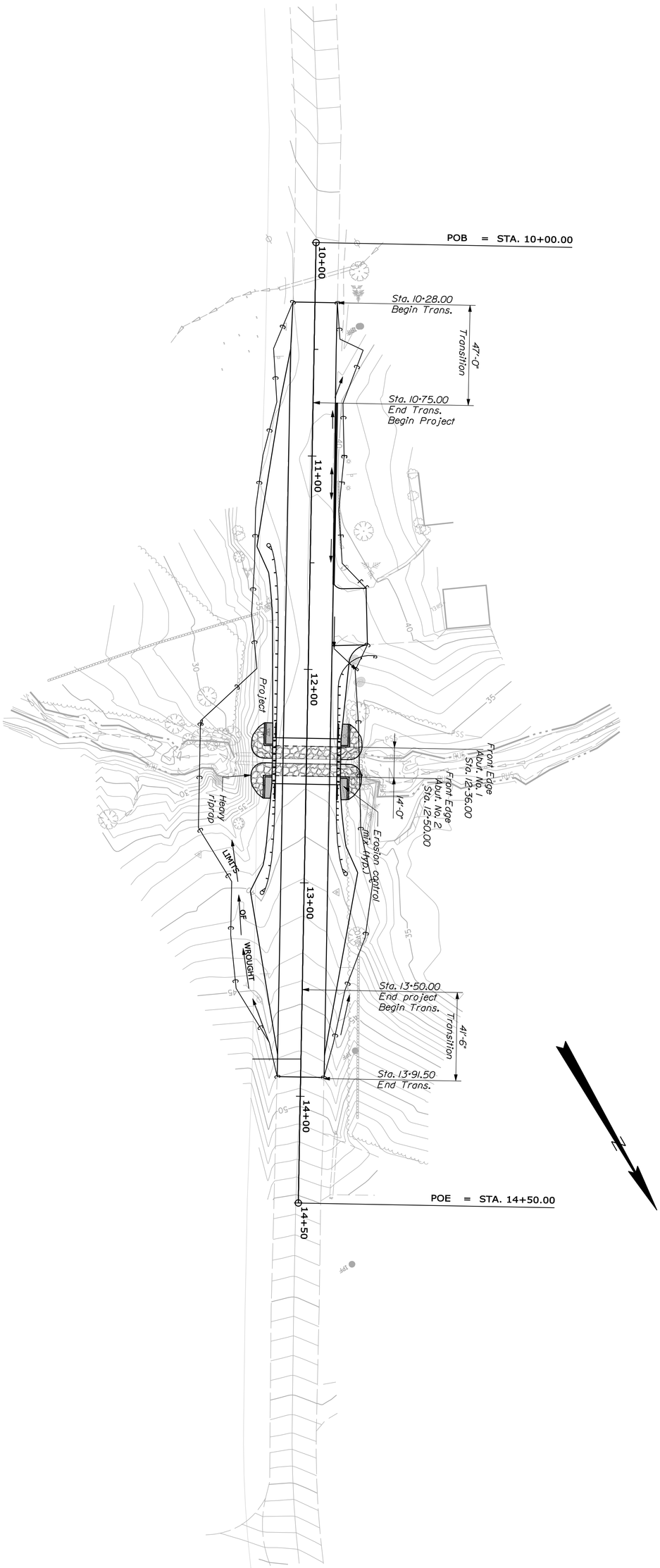
DATE

ESTIMATED QUANTITIES

SHEET NUMBER

2

OF 20



PROJ. MANAGER	SHAWN SMITH	BY	DATE
DESIGN-DETAILED	BERTA ESTES		
CHECKED-REVIEWED	_____	_____	_____
DESIGN2-DETAILED2	K.BRESKIN	ADN	_____
DESIGN3-DETAILED3		T.WHITE	_____
REVISIONS 1	_____		_____
REVISIONS 2	_____		_____
REVISIONS 3	_____		_____
REVISIONS 4	_____		_____
FIELD CHANGES	_____		_____

SIGNATURE

P.E. NUMBER

DATE

SHEET NUMBER 3 OF 20

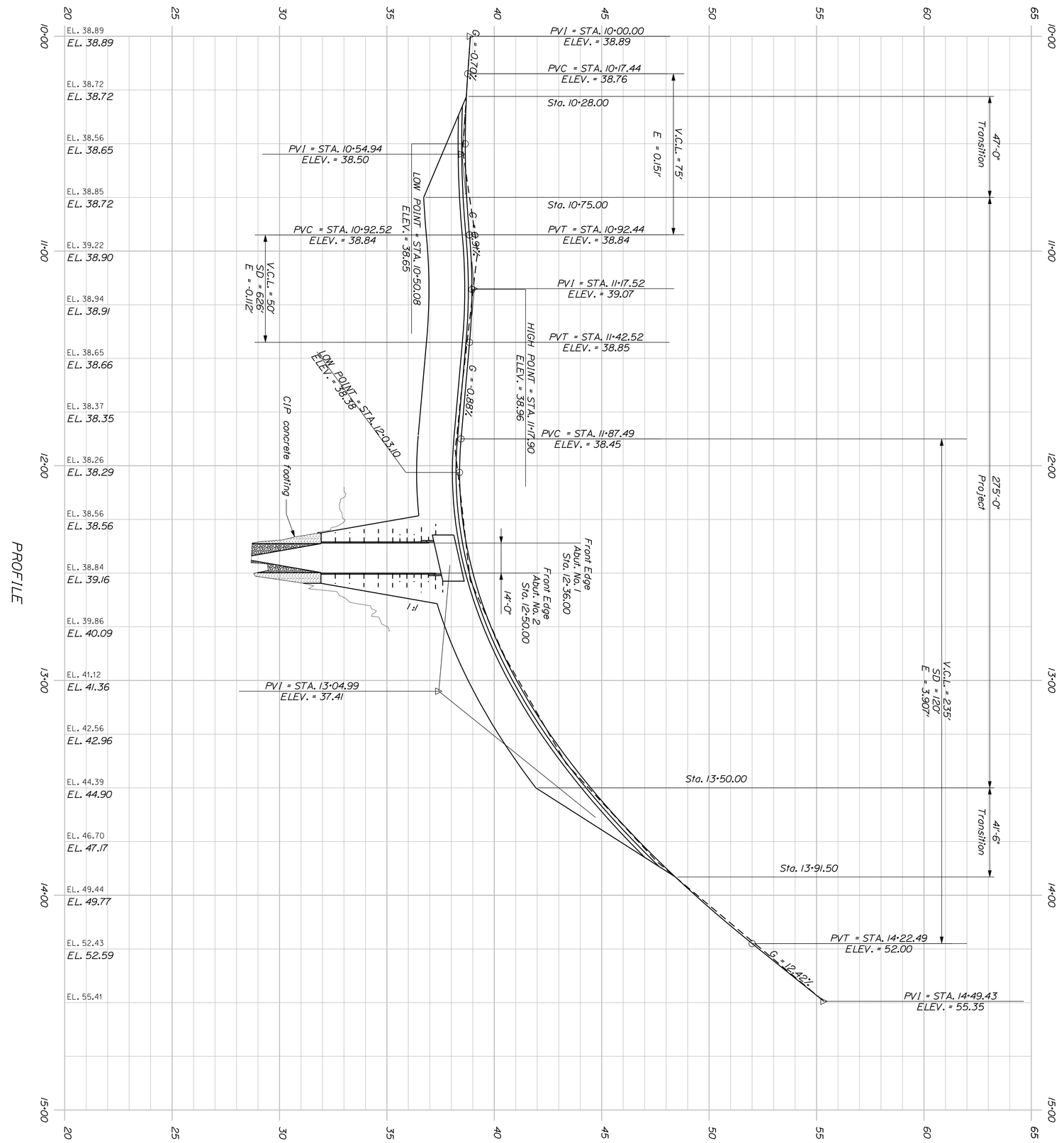
BREMEN
ROUTE 32 STRUT

PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN 18104.00 HIGHWAY PLANS



SHEET NUMBER 4 OF 20	BREMEN ROUTE 32	PROJ. MANAGER SHAWN SMITH / BY / DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION
	PROFILE	DESIGN-DETAILED BERTA ESTES CHECKED-REVIEWED DESIGN2-DETAILED2 K.BRESKIN ADN DESIGN3-DETAILED3 T.WHITE REVISIONS 1 REVISIONS 2 REVISIONS 3 REVISIONS 4 FIELD CHANGES	SIGNATURE P.E. NUMBER DATE
			WIN -18104.00 WIN 18104.00 HIGHWAY PLANS

POB = STA. 10+00.00

POE = STA. 14+50.00

MAG. 19XX-47°-00' Transition

Sta. 10+28.00 Begin Trans.

Sta. 10+75.00 End Trans. Begin Project

Front Edge Abut. No. 1 Sta. 12+36.00

Front Edge Abut. No. 2 Sta. 12+50.00

41'-6" Transition

Sta. 13+50.00 End project Begin Trans.

Sta. 13+91.50 End Trans.

14'-0"

Erosion control mix (typ.)

Project

Heavy riprap

HB-BREM-201

HB-BREM-101

HB-BREM-101A

P-6.5R

P-9.0R

P-6.1R

1/2" DIA REBAR PLS 225

1/2" DIA REBAR PLS 1246

1/2" DIA REBAR PLS 1248

PEAPOD JEWELRY

BLUE PEAPOD

12" APPLE

PAVED

GRAVEL

15" CMP

HIDDEN DRIVE

TOP OF BANK

TOP OF WATER

STREAM BED

10+00 11+00 12+00 13+00 14+00 14+50

PLAN

25 0 25 50

Scale in Feet

LEGEND

HB- SOLID STEM AUGER W/DESCRIPTIONS

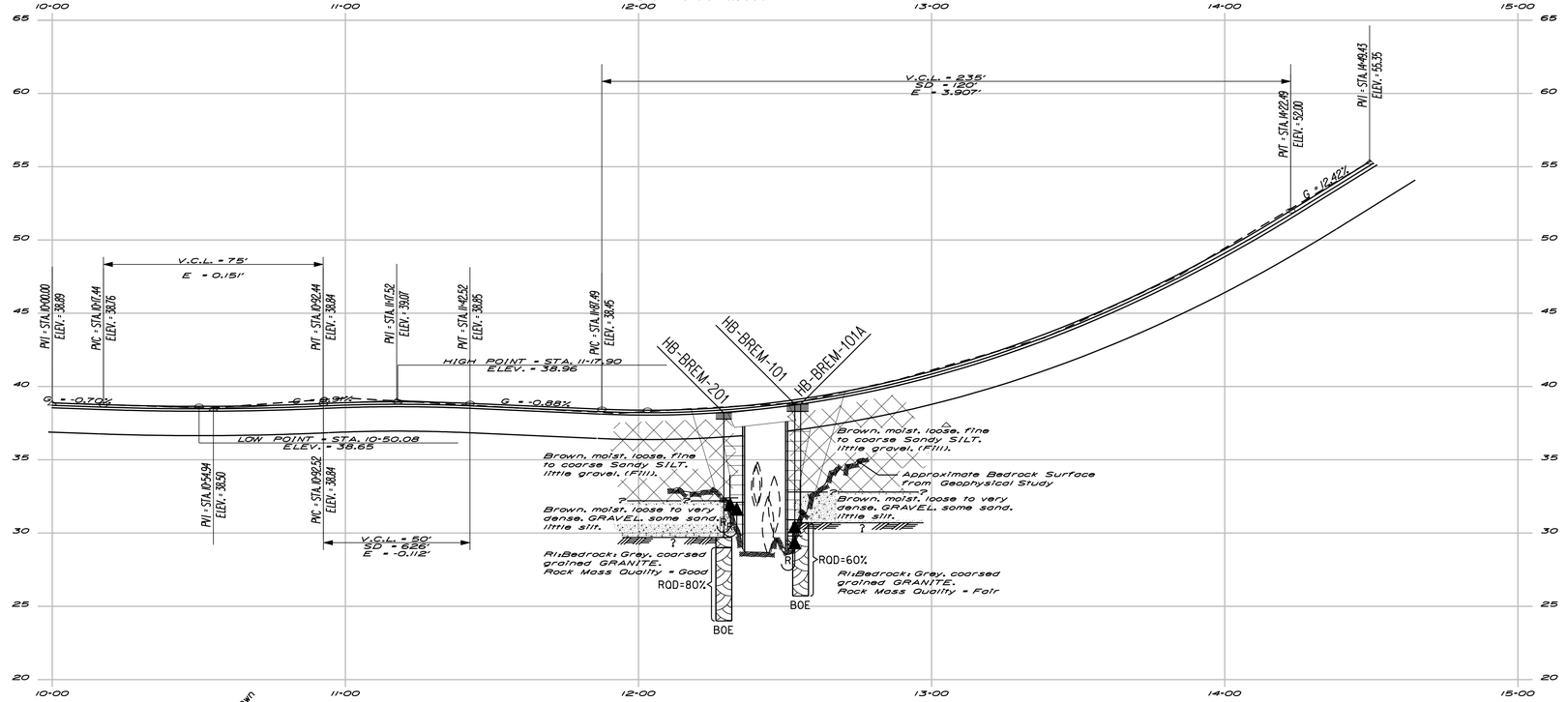
P- POWER AUGER PROBE

KEY

R = Refusal of augers (actual nature of refusal surface unknown)

NR = No Refusal surface encountered

W = Weathered Rock, top of



LEGEND

Boring No. Offset, if shown

Pavement Thickness if applicable

Strata Interface

Boring

RQD: Rock Quality Designation for Rock Core Sample

BOE: Bottom Of Exploration

Refusal (R)

PROFILE

HORIZ 25 0 25 50

VERT 5 0 5 10

SCALE

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

FUNDING WITH NOAA

WIN 18104.00

HIGHWAY PLANS

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

SIGNATURE

P.E. NUMBER

DATE

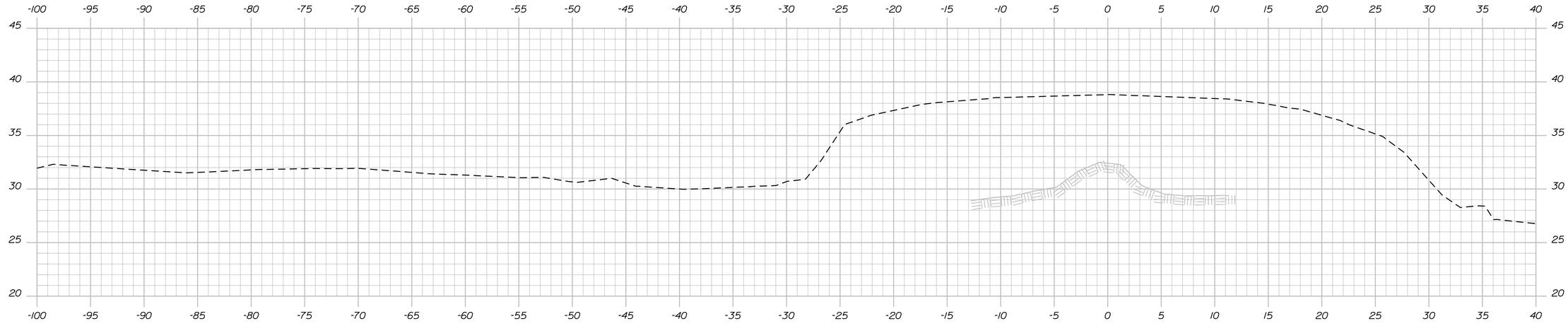
BREMEN
ROUTE 32 STRUT

GEOPLANS & INTERPRETIVE SUBSURFACE PROFILE

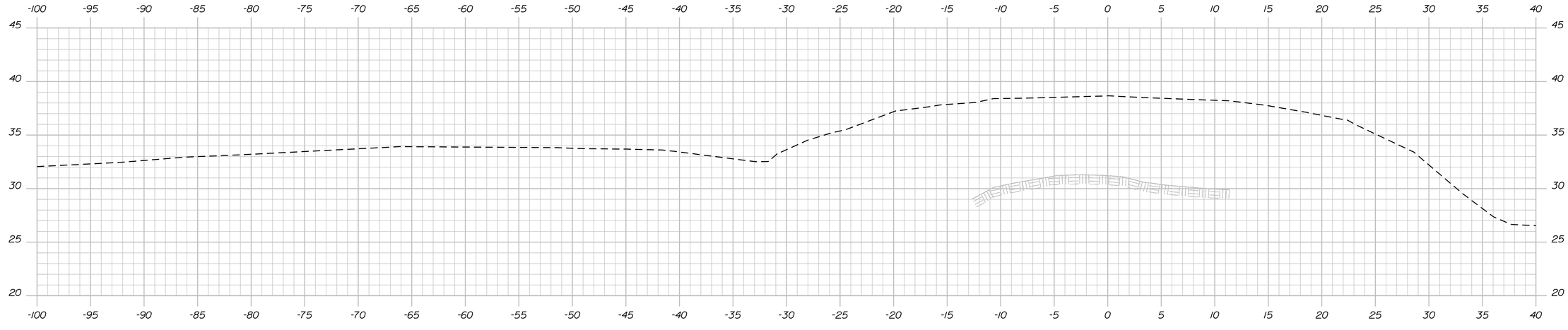
SHEET NUMBER

5

OF 20



12+48.00



12+36.00

LEGEND

Approximate Bedrock Surface from Geophysical Study by Hager-Richter Geoscience, Inc (2012)

CROSS SECTION

HORIZ 5 0 5 10

VERT 5 0 5 10

SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

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

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

CROSS SECTIONS

SHEET NUMBER

6

OF 20

Filename: ...\002_Xsect_12+38_12+50 1.dgn Division: HIGHWAY Username: randall.barrows Date:11/27/2012

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Strut Replacement Route 32
Location: Bremen, Maine

Boring No.: HB-BREM-201
WIN: 18104.00

Driller:	MaineDOT	Elevation (ft.)	38.2	Auger ID/OD:	5" Dia.
Operator:	Giguere/Giles	Datum:	NAVD88	Sampler:	N/A
Logged By:	K. Breskin	Rig Type:	CME 45C	Hammer Wt./Fall:	N/A
Date Start/Finish:	7/18/11-7/18/11	Drilling Method:	Solid Stem Auger	Core Barrel:	NQ-2"
Boring Location:	12+29.1, 9.9 ft Lt.	Casing ID/OD:	HW	Water Level*:	None Observed
Hammer Efficiency Factor: 0.84		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MS = 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
WOH = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_u = 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 ROD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
							SSA	37.80		5" Pavement	
										Similar to HB-BREM-101. (Fill)	
5											
								29.70		8.5	
	R1	60/57	9.20 - 14.20	ROD = 80%			NQ-2			Top of Bedrock at Elev. 29.7 ft. Roller Coned ahead to 9.2 ft bgs. R1:Bedrock: Grey, coarse-grained, GRANITE, with two joint sets: steeply dipping - tight, and flat - open, with iron staining. Rock Mass Quality = Good. R1:Core Times (min:sec) 9.2-10.2 ft (5:50) 10.2-11.2 ft (3:30) 11.2-12.2 ft (3:10) 12.2-13.2 ft (4:50) 13.2-14.2 ft (5:00) 95% Recovery	
10											
15											
								24.00		14.2	
										Bottom of Exploration at 14.20 feet below ground surface.	
20											
25											

Remarks:
9.9 ft Left of CL heading North, 50.0 ft North of TL sign, and west of culvert.

Stratification lines represent approximate boundaries between soil typesst 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.: HB-BREM-201

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Strut Replacement Route 32
Location: Bremen, Maine

Boring No.: HB-BREM-101
WIN: 18104.00

Driller:	MaineDOT	Elevation (ft.)	38.8	Auger ID/OD:	5" Dia.
Operator:	Giguere/Giles	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	B. Wilder	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	4/28/11 12:00-12:30	Drilling Method:	Solid Stem Auger	Core Barrel:	N/A
Boring Location:	12+53.3, 7.3 Rt.	Casing ID/OD:	N/A	Water Level*:	None Observed
Hammer Efficiency Factor: 0.84		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. hammer
WOR/C = weight of rods or casing
WOH = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_u = 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 ROD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
							SSA	38.30		6" Pavement	
										0.5	
	1D/A	24/18	1.00 - 3.00	6/3/3/4	6	8				1D (1.0-2.0 ft) Brown, moist, loose, fine to coarse Sandy SILT, little gravel. (Fill). 1D/A (2.0-3.0 ft) Brown, moist, loose, SILT, some fine to coarse sand, little gravel. (Fill).	GM245128 A-4, SM WC=16.9% GM245129 A-4, ML WC=27.7%
5											
	2D	24/14	5.00 - 7.00	4/2/2/14	4	6					GM245130 A-1-b, GM WC=6.4%
								32.30		Brown, moist, loose, GRAVEL, some fine to coarse sand, little silt.	
								30.90		6.5 Changed to very dense at 6.5 ft bgs.	
										2.9 Bottom of Exploration at 7.90 feet below ground surface. REFUSAL	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil typesst 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.: HB-BREM-101

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Strut Replacement Route 32
Location: Bremen, Maine

Boring No.: HB-BREM-101A
WIN: 18104.00

Driller:	MaineDOT	Elevation (ft.)	38.8	Auger ID/OD:	5" Dia.
Operator:	Giguere/Giles	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	B. Wilder	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	4/28/11 12:30-14:00	Drilling Method:	SSA/Cased Wash Boring	Core Barrel:	NQ-2"
Boring Location:	12+55.3, 7.3 ft Rt.	Casing ID/OD:	HW	Water Level*:	None Observed
Hammer Efficiency Factor: 0.84		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MS = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. hammer
WOR/C = weight of rods or casing
WOH = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_u = 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)
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LL = Liquid Limit
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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 ROD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
							SSA	38.30		6" Pavement	
										See HB-BREM-101 for soil descriptions. (Fill)	
										0.5	
5											
							36				
							69				
							0100			0100 blows for 0.8 ft.	
	R1	60/60	8.10 - 13.10	ROD = 60%			NQ-2	30.70		Roller Coned through Cobble from 7.8-8.1 ft bgs.	
										8.1 Top of Bedrock at Elev. 30.7 ft. R1:Bedrock: Grey, coarse-grained, GRANITE, with two joint sets: steeply dipping, tight and flat, open, with iron staining. Rock Mass Quality = Fair. R1:Core Times (min:sec) 8.1-9.1 ft (2:30) 9.1-10.1 ft (3:45) 10.1-11.1 ft (4:00) 11.1-12.1 ft (3:50) 12.1-13.1 ft (4:00) 100% Recovery	
10											
15											
								25.70		13.1	
										Bottom of Exploration at 13.10 feet below ground surface.	
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil typesst 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.: HB-BREM-101A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	K.BRESKIN	JAN 2012
CHECKED-REVIEWED		
DESIGN2-DETAILED2	WED	ED2
DESIGN3-DETAILED3		ED3
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

BORING LOGS

SHEET NUMBER
7
OF 20

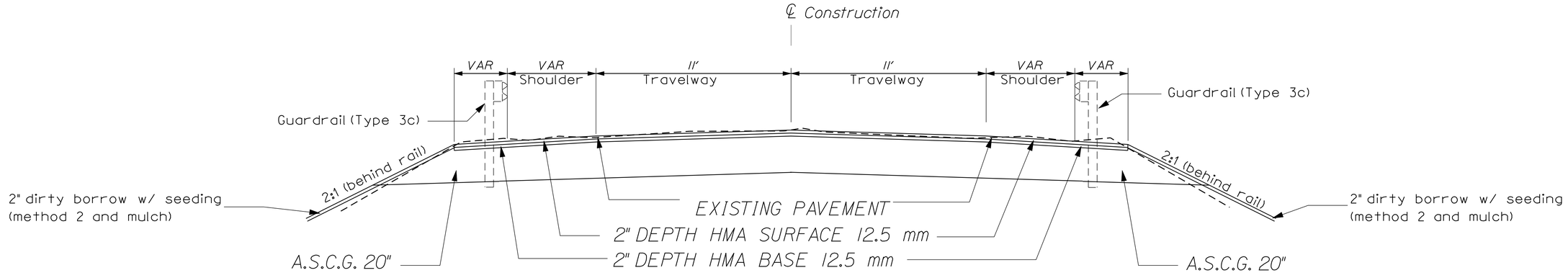
FULL CONSTRUCTION
W/ 4" HMA & 20" ASCG

NOTE:

1. THE PAVEMENT, BASE AND SUBBASE DEPTHS AS SHOWN ON THE PLANS ARE INTENDED TO BE NOMINAL

2. THE GRAVEL QUANTITY CALCULATION IS BASED ON A 2" LOAM OR DIRTY BORROW DEPTH. THE ACTUAL DEPTH MAY VARY. SEE THE GENERAL NOTES.

3. THE ALGEBRAIC DIFFERENCE BETWEEN THE SHOULDER AND TRAVEWAY CROSS SLOPES "ROLLOVER" SHALL NOT EXCEED 8%.



NOT TO SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN 18104.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	----------		
DESIGN-DETAILED	BERTA ESTES	-----	-----
CHECKED-REVIEWED	-----	KRN	ADN
DESIGN2-DETAILED2	K.BRESKIN	ADN	T.WHITE
DESIGN3-DETAILED3	------	T.WHITE	------
REVISIONS 1	------	------	------
REVISIONS 2	------	------	------
REVISIONS 3	------	------	------
REVISIONS 4	------	------	------
FIELD CHANGES	------	------	------

SIGNATURE

P.E. NUMBER

DATE

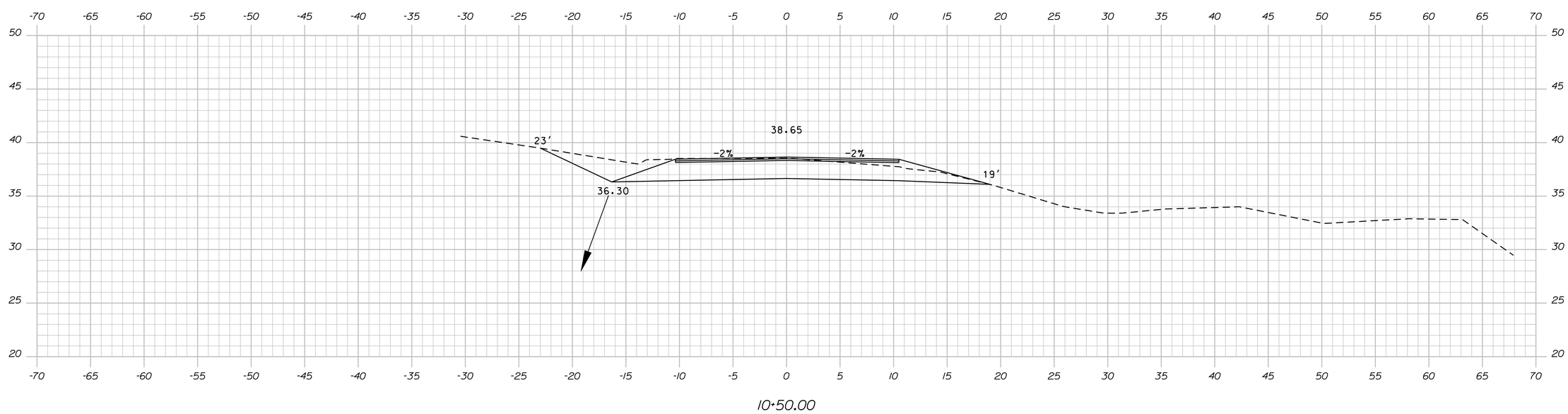
BREMEN
ROUTE 32

TYPICAL SECTION

SHEET NUMBER

8

OF 20



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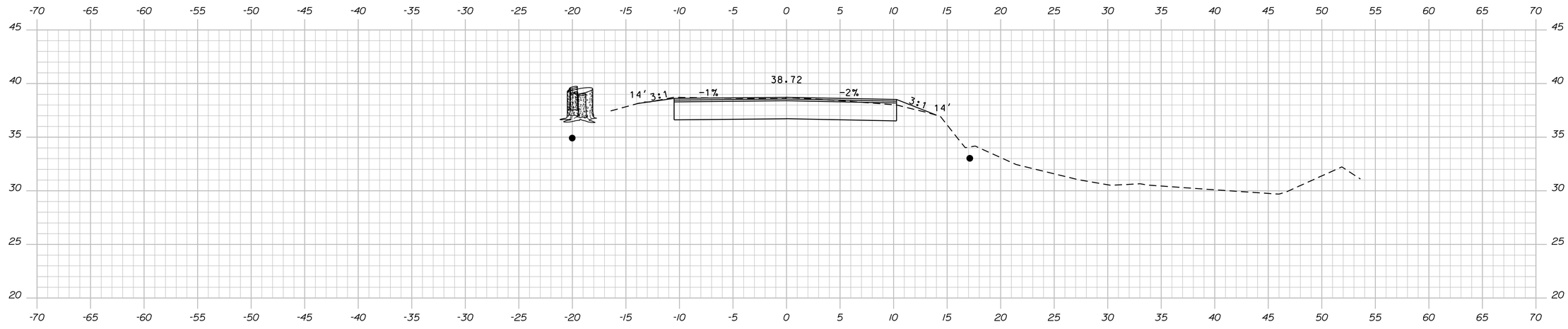

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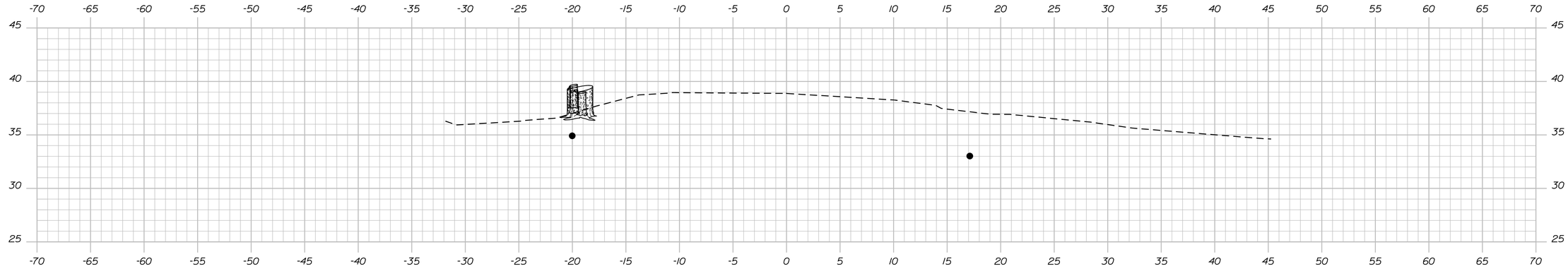

10+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

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

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

CROSS SECTIONS

SHEET NUMBER

9

OF 20

Sta. 10+00.00 to Sta. 10+50.00

Filename: $file$ Division: $wkgroup$ Username: $user$ Date:$date$

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

PROJ. MANAGER	SHAWN SMITH	BY	DATE
DESIGN-DETAILED	B. ESTES	ADN	-----
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	K. BRESKIN	T. WHITE	-----
DESIGN3-DETAILED3			-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

CROSS SECTIONS

SHEET NUMBER

10

OF 20

Sta. 10+75.00 to Sta. 11+25.00

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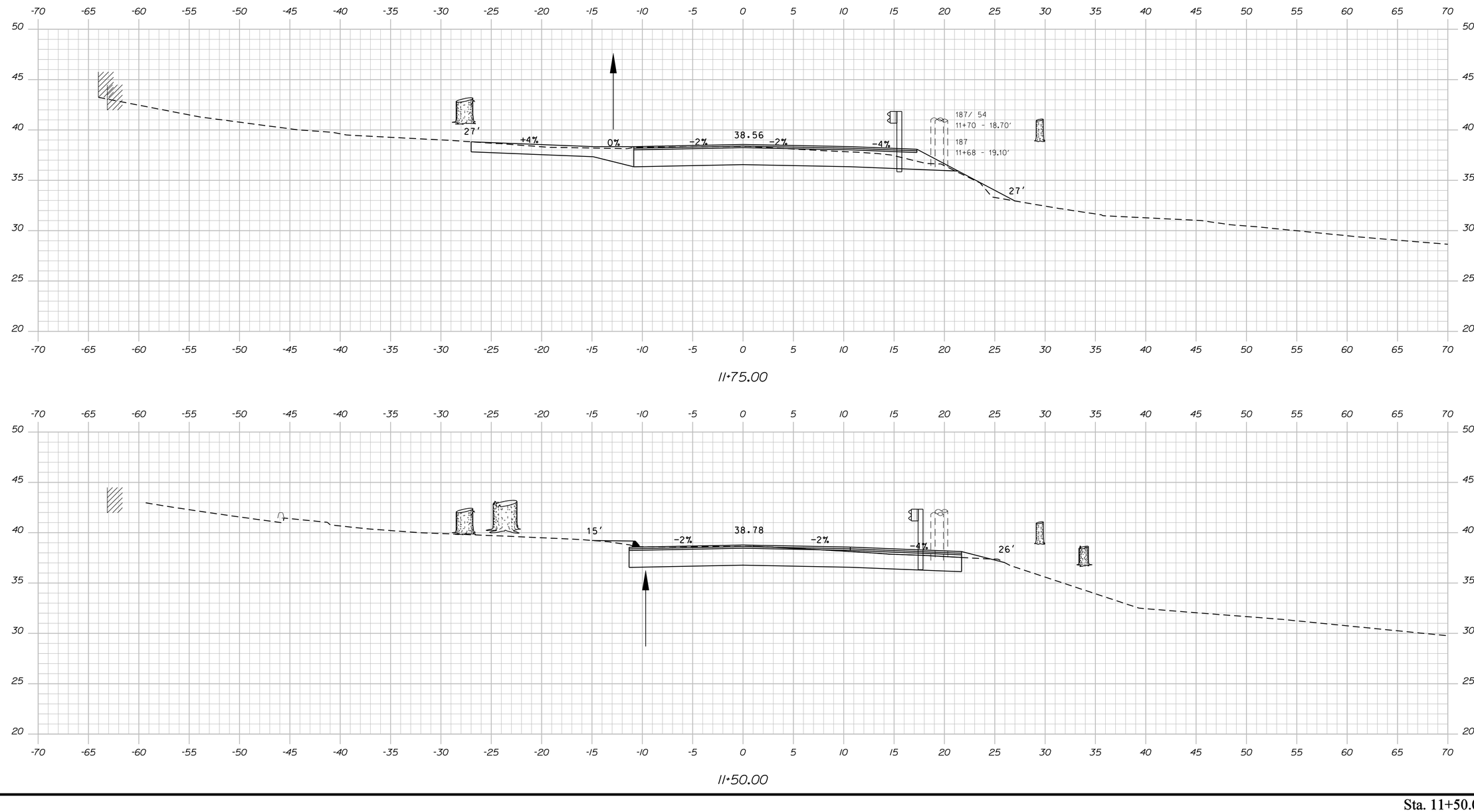

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

PROJ. MANAGER	SHAWN SMITH	BY	DATE
DESIGN-DETAILED	B. ESTES	ADN	
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	B. ESTES	-----	-----
DESIGN3-DETAILED3		T. WHITE	-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

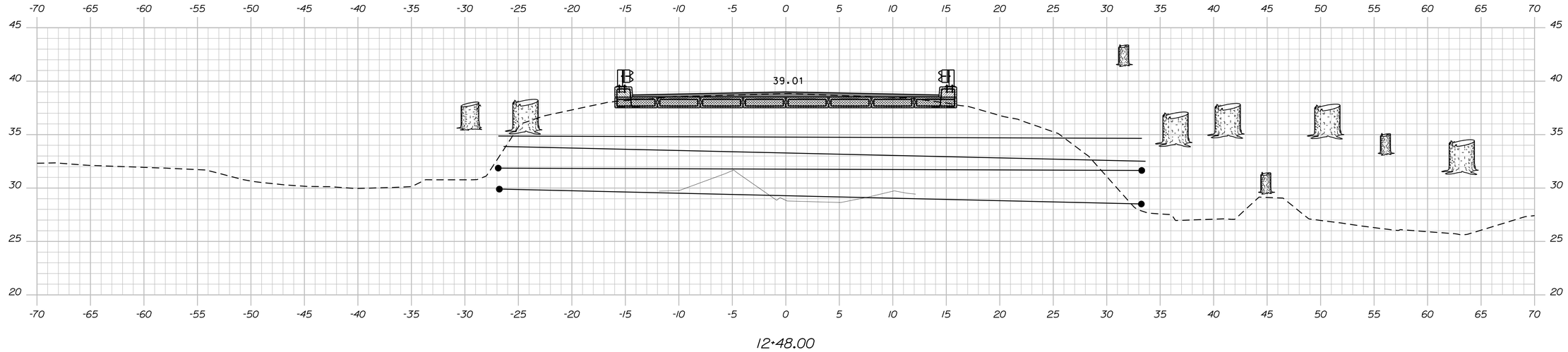
CROSS SECTIONS

SHEET NUMBER

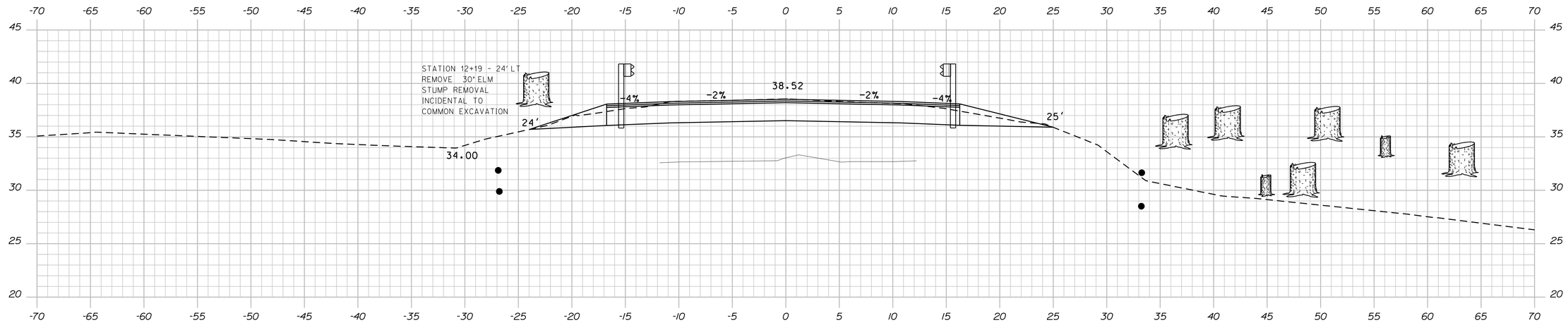
11

OF 20

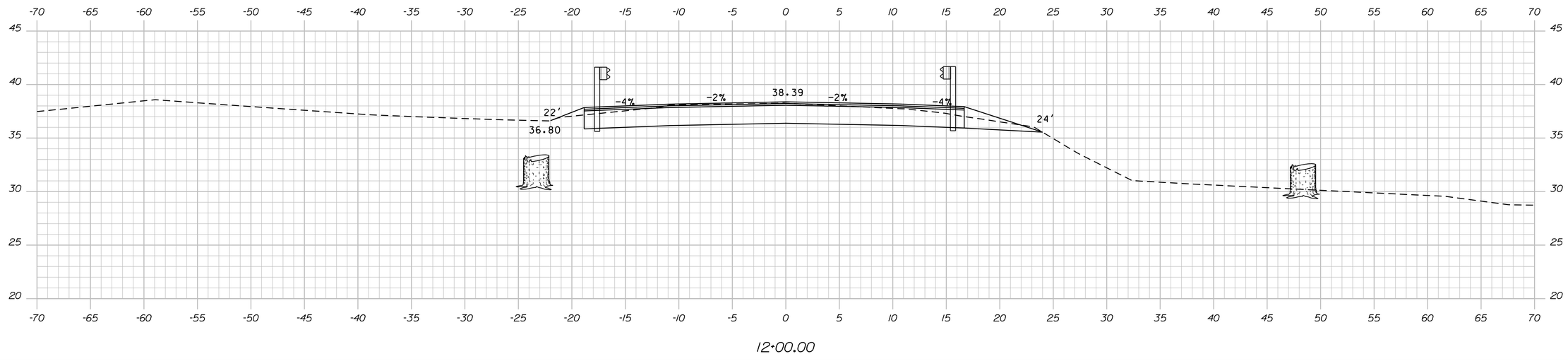
Sta. 11+50.00 to Sta. 11+75.00



12+48.00



12+25.00



12+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	SHAWN SMITH		
DESIGN-DETAILED	B. ESTES	-----	-----
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	K. BRESKIN	ADN	-----
DESIGN3-DETAILED3		T. WHITE	-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32

CROSS SECTIONS

SHEET NUMBER

12

OF 20

Sta. 12+00.00 to Sta. 12+50.00

Filename: ...\012_Xsect_12+00.00_to_12+50.00.dgn Division: HIGHWAY Username: randall.barrows Date:11/27/2012

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	SHAWN SMITH	
DESIGN-DETAILED	B. ESTES	-----
CHECKED-REVIEWED	-----	-----
DESIGN2-DETAILED2	K.BRESKIN	ADN
DESIGN3-DETAILED3		T. WHITE
REVISIONS 1	-----	-----
REVISIONS 2	-----	-----
REVISIONS 3	-----	-----
REVISIONS 4	-----	-----
FIELD CHANGES	-----	-----

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

CROSS SECTIONS

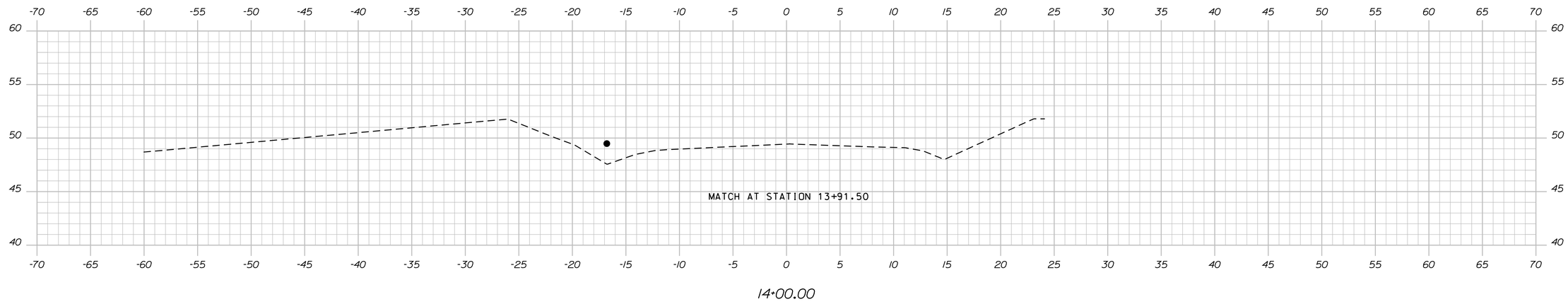
SHEET NUMBER

13

OF 20

Sta. 12+75.00 to Sta. 13+25.00

Filename: ...\013_Xsect_12+75.00_to_13+25.00.dgn Division: HIGHWAY Username: randall.barrows Date:11/27/2012



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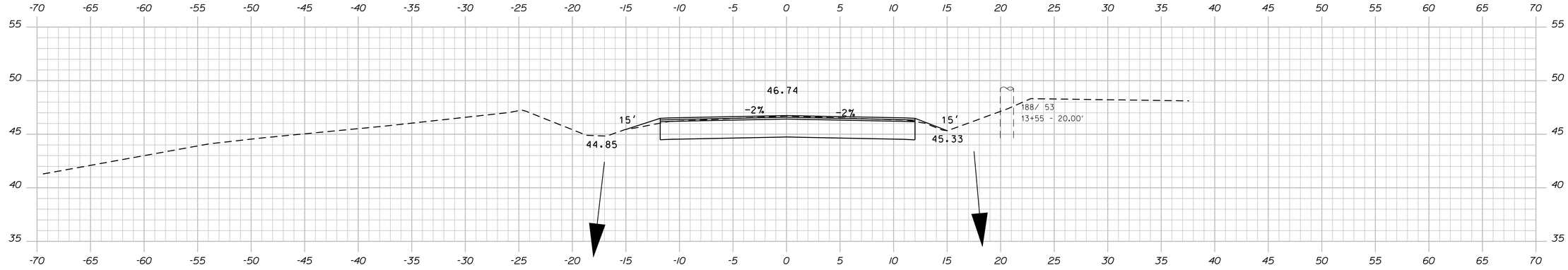

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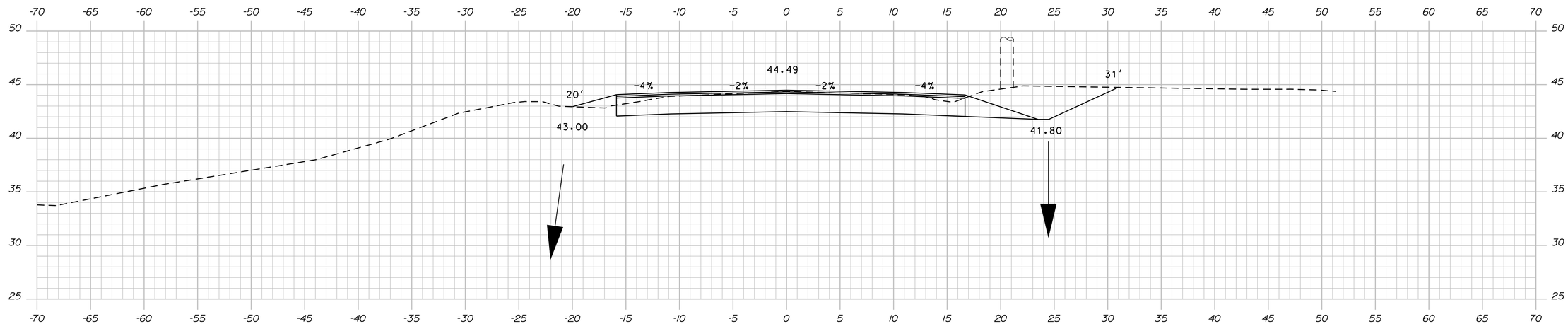


13+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	SHAWN SMITH		
DESIGN-DETAILED	B. ESTES	ADN	-----
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	B. ESTES	T. WHITE	-----
DESIGN3-DETAILED3	-----	-----	-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

CROSS SECTIONS

SHEET NUMBER

14

OF 20

Sta. 13+50.00 to Sta. 14+00.00

Filename: ...\014_Xsect_13+50.00_to_14+00.00.dgn Division: HIGHWAY Username: randall.barrows Date:11/27/2012

Front Edge
Abut. No. 2
Sta. 12+50.00

14'-0"

Erosion control
mix (typ.)

12+00

13+00

BRIDGE MOUNTED
GUARDRAIL (Typ.)

Project

Heavy
riprap

LIMITS

OF

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	SHAWN SMITH	
DESIGN-DETAILED		
CHECKED-REVIEWED	-----	-----
DESIGN2-DETAILED2	K.BRESKIN	ADN
DESIGN3-DETAILED3		T. WHITE
REVISIONS 1	------	------
REVISIONS 2	------	------
REVISIONS 3	------	------
REVISIONS 4	------	------
FIELD CHANGES	------	------

SIGNATURE

P.E. NUMBER

DATE

BREMEN
ROUTE 32 STRUT

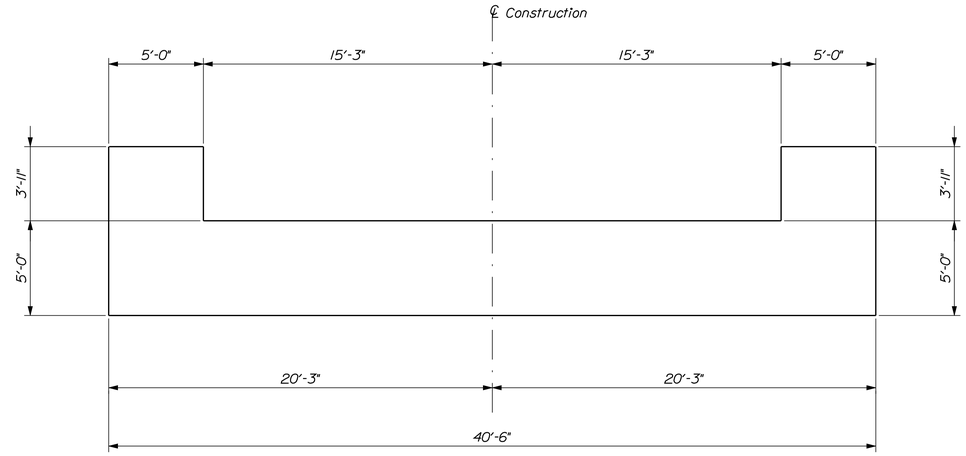
BRIDGE PLAN

SHEET NUMBER

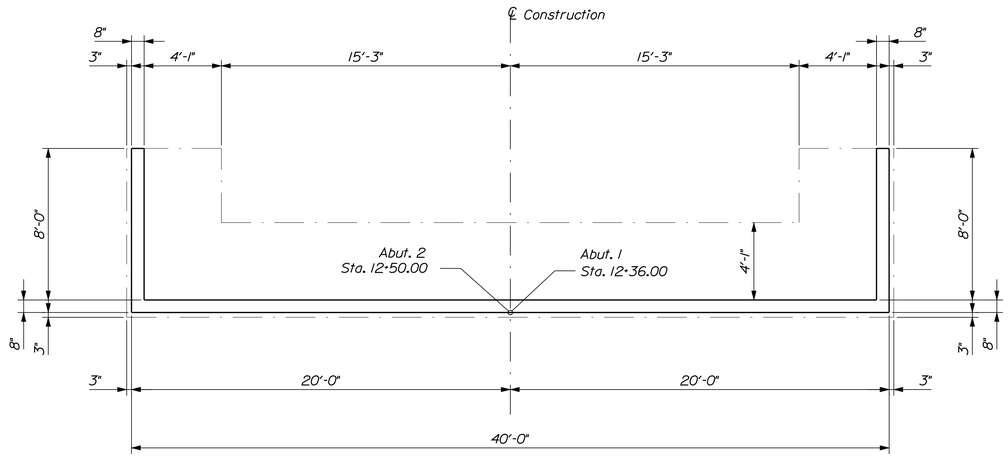
15

OF 20

Filename: ...\mst\015_Bridge_Plan.dgn Division: HIGHWAY Username: randall.barrows Date:11/27/2012



FOOTING PLAN



ABUTMENT PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

PROJ. MANAGER	SHAWN SMITH	BY	DATE
DESIGN-DETAILED	B. ESTES	ADN	
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	K.BRESKIN	ADN	-----
DESIGN3-DETAILED3		T. WHITE	-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

SIGNATURE

P.E. NUMBER

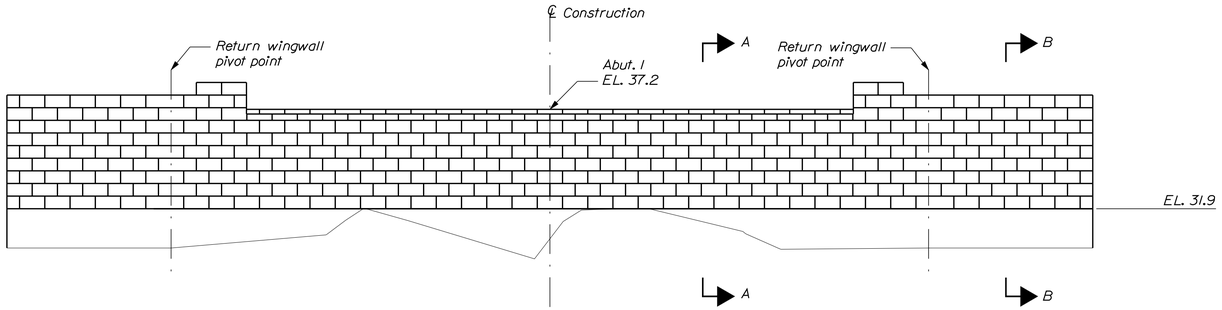
DATE

ABUTMENT PLANS

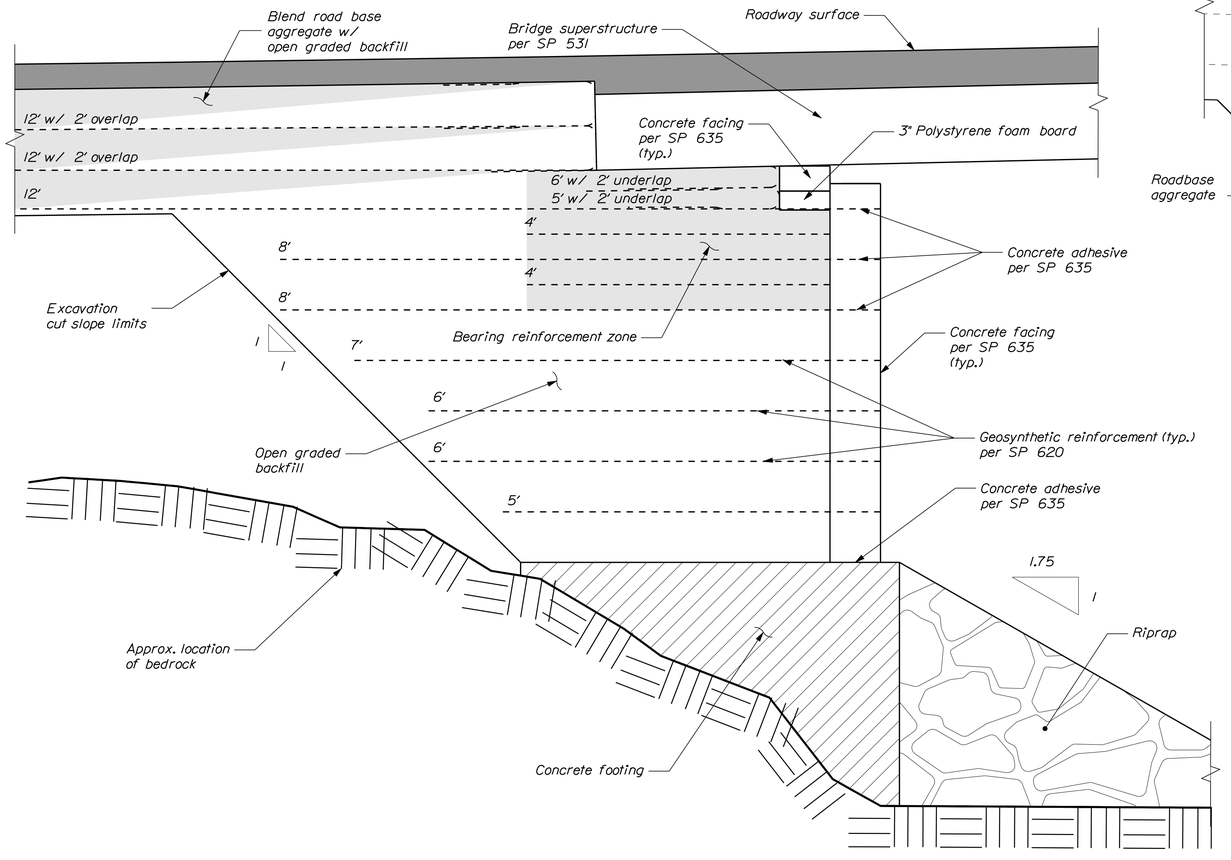
SHEET NUMBER

16

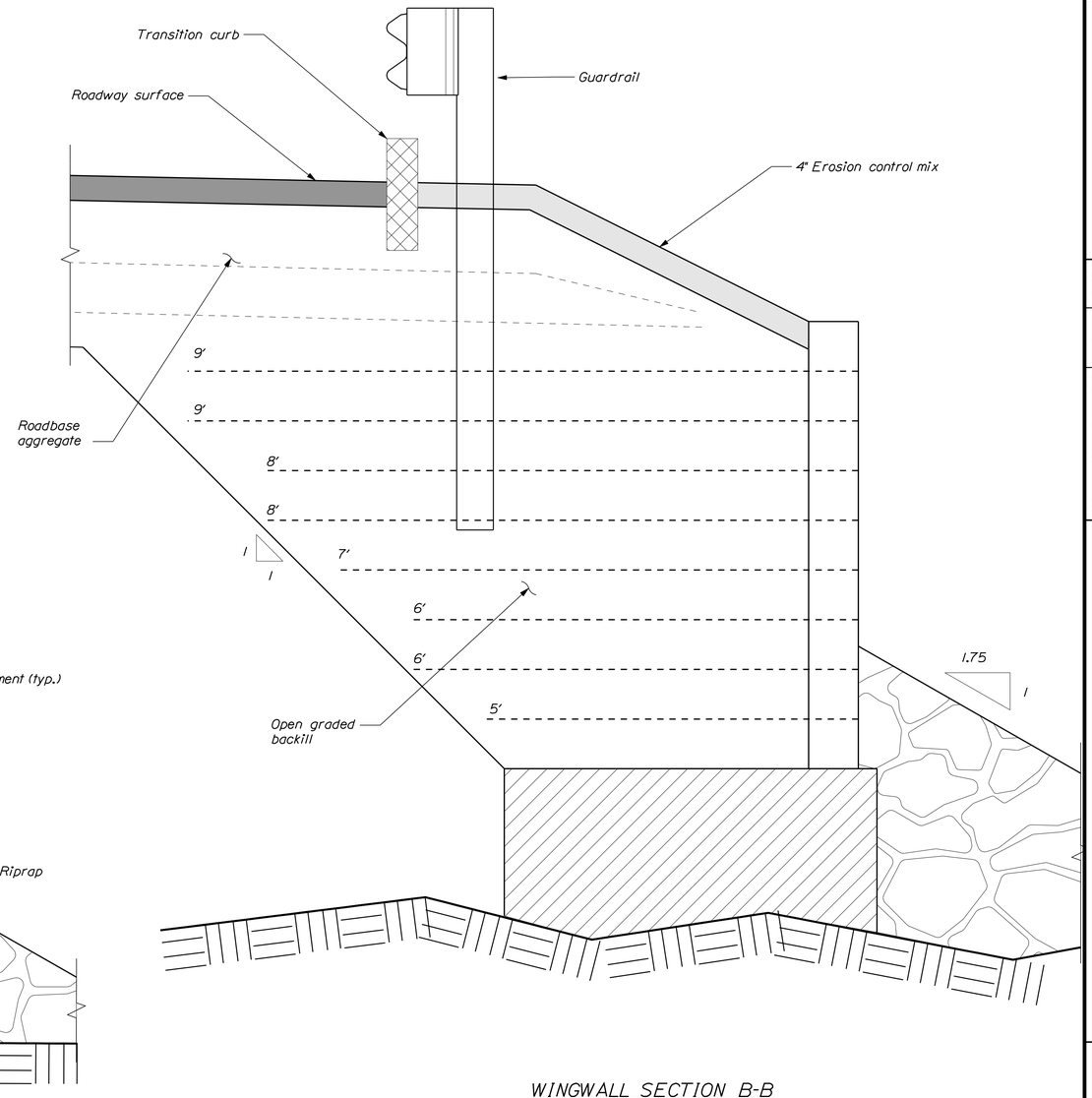
OF 20



ABUTMENT NO. 1 ELEVATION



BREASTWALL SECTION A-A



WINGWALL SECTION B-B

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

	BY	DATE
PROJ. MANAGER	SHAWN SMITH	
DESIGN-DETAILED	B. ESTES	-----
CHECKED-REVIEWED	-----	-----
DESIGN2-DETAILED2	K.BRESKIN	ADN
DESIGN3-DETAILED3		T. WHITE
REVISIONS 1	-----	-----
REVISIONS 2	-----	-----
REVISIONS 3	-----	-----
REVISIONS 4	-----	-----
FIELD CHANGES	-----	-----

SIGNATURE

P.E. NUMBER

DATE

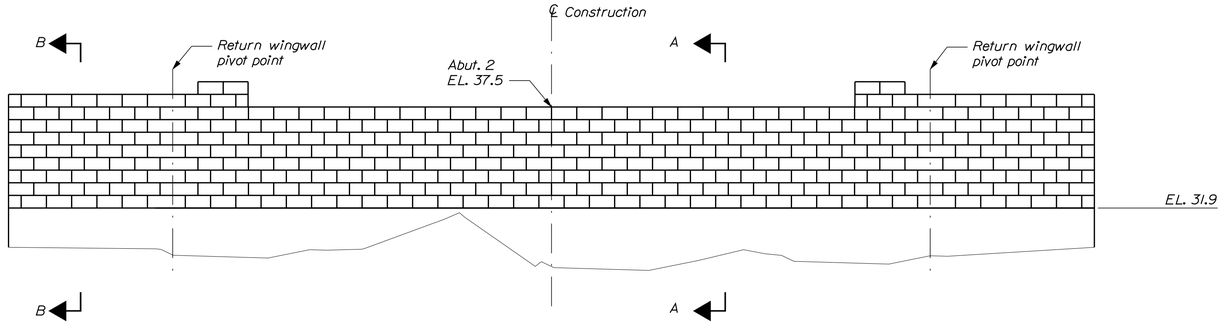
ABUTMENT 1 DETAILS

SHEET NUMBER

17

OF 20

Filename: ...\ms1o\017_Abutment1_Details.dgn Division: HIGHWAY Username: randall.barrows Date:11/27/2012



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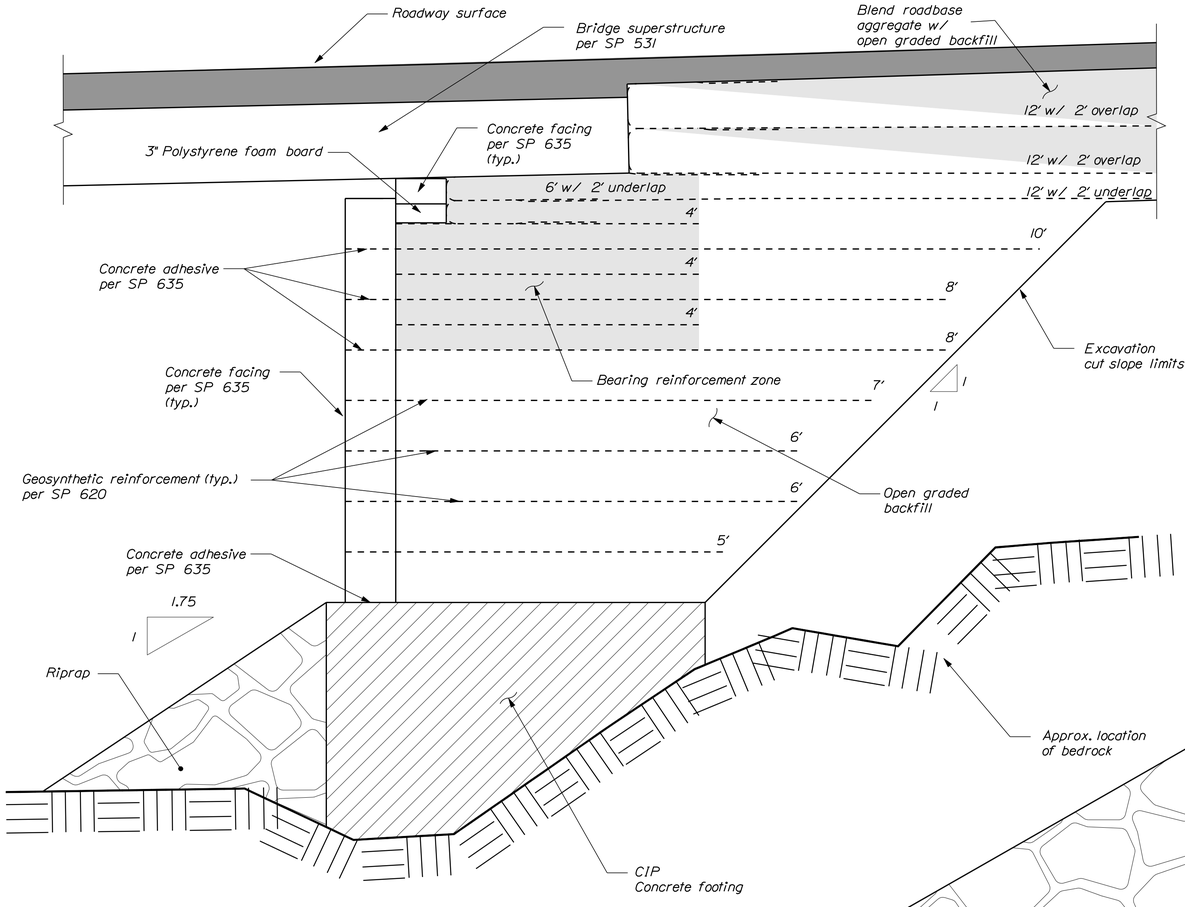
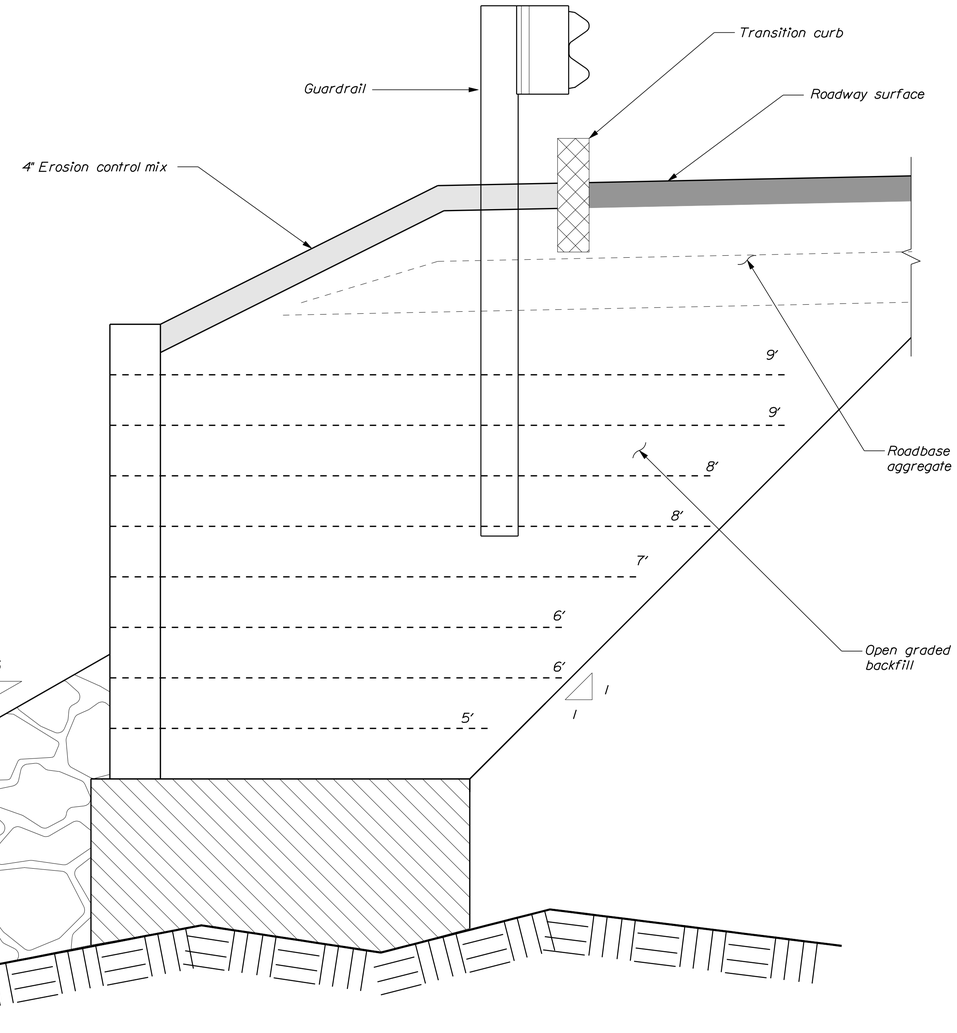


BREASTWALL SECTION A-A



WINGWALL SECTION B-B

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

		BY	DATE
PROJ. MANAGER	SHAWN SMITH		
DESIGN-DETAILED	B. ESTES	ADN	-----
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	K. BRESKIN	ADN	-----
DESIGN3-DETAILED3		T. WHITE	-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

SIGNATURE

P.E. NUMBER

DATE

ABUTMENT 2 DETAILS

SHEET NUMBER

18

OF 20

Username: D.M.Hanks Date: March 2012

Filename: REGION 2

1 — ROAD CLOSED 500 FT.

2 — ROAD CLOSED 1000 FT.

3 — DETOUR AHEAD

4 — 32 / ROAD CLOSED 10.5 MILES AHEAD

5 — 32 / ROAD CLOSED 6 MILES AHEAD

6 — 32 / ROAD CLOSED 8.5 MILES AHEAD / DETOUR

7 — 32 / ROAD CLOSED 3 MILES AHEAD

8 — 32 / ROAD CLOSED 2 MILES AHEAD / NO OUTLET

9 — ROAD CLOSED AHEAD

10 — DETOUR SOUTH 32

11 — DETOUR SOUTH 32

12 — DETOUR SOUTH 32

13 — DETOUR SOUTH 32

14 — DETOUR SOUTH 32

15 — DETOUR NORTH 32

16 — DETOUR NORTH 32

17 — ROAD CLOSED

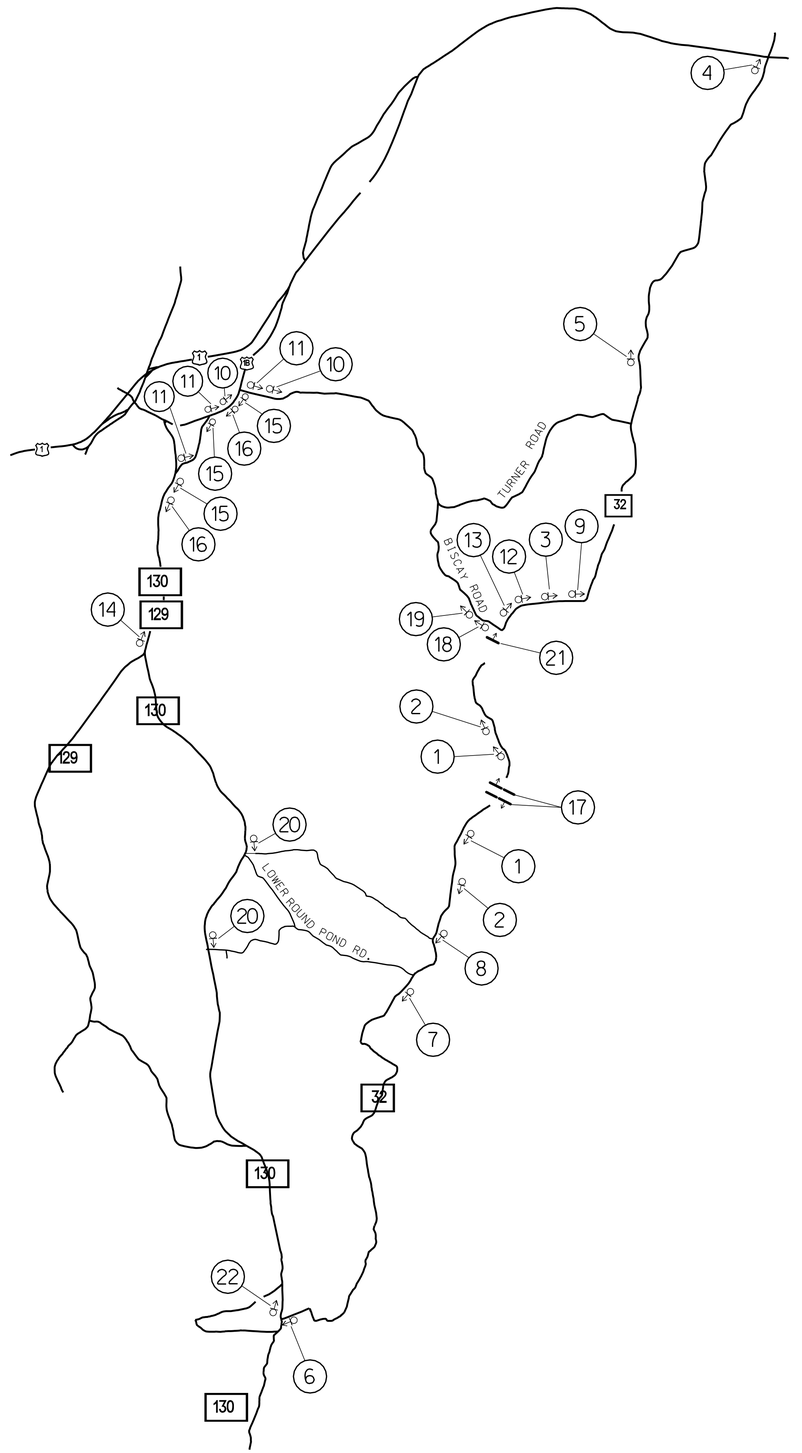
18 — DETOUR NORTH 32

19 — DETOUR NORTH 32

20 — DETOUR NORTH 32

21 — ROAD CLOSED 2 MILES AHEAD LOCAL TRAFFIC ONLY / DETOUR

22 — END DETOUR SOUTH 32



NOT TO SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FUNDING WITH NOAA

WIN
18104.00

PROJ. MANAGER	SHAWN SMITH	BY	DATE
DESIGN-DETAILED	B. ESTES	ADN	-----
CHECKED-REVIEWED	-----	-----	-----
DESIGN2-DETAILED2	K.BRESKIN	ADN	-----
DESIGN3-DETAILED3	-----	T.WHITE	-----
REVISIONS 1	-----	-----	-----
REVISIONS 2	-----	-----	-----
REVISIONS 3	-----	-----	-----
REVISIONS 4	-----	-----	-----
FIELD CHANGES	-----	-----	-----

ROUTE 32
LINCOLN COUNTY
BREMEN

DETOUR PLAN

SHEET NUMBER
19
OF 20

SEE STANDARD BOUNDARY SURVEY
FOR THE HEMAN B. HUNTER LIVING TRUST
BY L.L. BROWN ASSOCIATES
RECORDED LINCOLN COUNTY REGISTRY OF DEEDS
PLAN BOOK 61 PAGE 7A

SEE PRELIMINARY PLAN OF LAND OF
TOWER ESTATE
BRISTOL & BREMEN, ME
BY LINCOLN ENGINEERING COMPANY
1983

KATHERINE M. WEBBER (OWNER PER TAX RECORDS)
HELEN E. WEBBER-LIFE ESTATE
PARCEL NO. (5)
LAND TAKEN = 0.07± AC. (PRESC. EASE.)
LAND TAKEN = 1290± S.F. (OTHER)
TOTAL LAND TAKEN = 0.10± AC.
DRAINAGE EASE. = (1)
TEMP. CONST. RIGHTS = 1650± S.F. (1)
TOTAL AREA = 1.5± AC. (CALC.)
REM. AREA = 1.40± AC.
BREMEN TAX MAP 1
LOT 1C

SEE STANDARD BOUNDARY SURVEY FOR
SARA GOWEN AND MICHAEL NUSSBAUM
BY ROBERT J. BILLS ASSOCIATES
2000
RECORDED LINCOLN COUNTY REGISTRY OF DEEDS
BOOK 66 PAGE 2A

SEE 2007 CONVEYANCE FROM
SARA AND MICHAEL NUSSBAUM
TO VERONICA A. RAGATZ
BY UNKNOWN

EMILE LUGOSCH
RONNA S. LUGOSCH
PARCEL NO. (2)
LAND TAKEN = 0.08± AC. (PRESC. EASE.)
LAND TAKEN = 0.05± AC. (OTHER)
TOTAL LAND TAKEN = 0.13± AC.
TEMP. CONST. RIGHTS = 0.06± AC. (1)
TOTAL AREA = 1.7± AC. (CALC.)
REM. AREA = 1.57± AC.
BRISTOL TAX MAP 9
LOT 69
BREMEN TAX MAP 1
LOT 1B

BRISTOL TAX MAP 9
LOT 68C

N/F
JAN FLETCHER
RICHARD FLETCHER

N/F
ELIZABETH M. EHRENFELD

BRISTOL TAX MAP 9
LOT 71

EMILE LUGOSCH
RONNA S. LUGOSCH
PARCEL NO. (1)
LAND TAKEN = 0.06± AC. (PRESC. EASE.)
LAND TAKEN = 0.06± AC. (OTHER)
TOTAL LAND TAKEN = 0.12± AC.
TOTAL AREA = 0.46± AC. (CALC.)
REM. AREA = 0.34 ± AC.
BRISTOL TAX MAP 9
LOT 70

BREMEN TAX MAP 1
LOT 1D

N/F
VERONICA A. RAGATZ

RUSSELL J. BURNS
CLAY A. BURNS
PARCEL NO. (4)
LAND TAKEN = 0.10± AC. (PRESC. EASE.)
LAND TAKEN = 1550± S.F. (OTHER)
TOTAL LAND TAKEN = 0.14± AC.
CONST. & MAINT. EASE. = 1530± S.F. (1)
SLOPE EASE. = 880± S.F. (1)
DRAINAGE EASE. = (1)
TEMP. CONST. RIGHTS = 860± S.F. (1)
TOTAL AREA = 3.2± AC. (CALC.)
REM. AREA = 3.06± AC.
BREMEN TAX MAP 12
LOT 25

KATHERINE M. WEBBER (OWNER PER TAX RECORDS)
HELEN E. WEBBER-LIFE ESTATE
PARCEL NO. (3)
LAND TAKEN = 0.05± AC. (PRESC. EASE.)
LAND TAKEN = 125± S.F. (OTHER)
TOTAL LAND TAKEN = 0.06± AC.
CONST. & MAINT. EASE. = 1350± S.F. (1)
TEMP. CONST. RIGHTS = 1140± S.F. (1)
TOTAL AREA = 0.15± AC. (CALC.)
REM. AREA = 0.09± AC.
BREMEN TAX MAP 12
LOT 26

SEE PRELIMINARY PLAN OF LAND OF
TOWER ESTATE
BRISTOL & BREMEN, ME
BY LINCOLN ENGINEERING COMPANY
1983

SEE STANDARD BOUNDARY SURVEY
PROPOSED AGREEMENT LINES BETWEEN
WEBBER, EHRENFELD AND RAMSTROM
BY ROBERT J. BILLS ASSOCIATES
1997
RECORDED LINCOLN COUNTY REGISTRY OF DEEDS
BOOK 59 PAGE 71

NOTE: PRESCRIPTIVE EASEMENT FOR
HIGHWAY PURPOSES WITHIN LIMITS OF
WROUGHT PORTION (L.O.W.P.)

WIN 18104.00

SYMBOLS
- IP or ⊙ IPF (IRON PIPE or PIN FOUND)
- ST. (SEPTIC TANK)
- (ROW MONUMENT)
- ⊕DH (TRAVERSE POINT)
- ○WELL (WELL)
- GRADING LIMIT LINE
- CONSTRUCTION LIMIT LINE
- PROPERTY LINE
- PL
- LIMITS OF WROUGHT PORTION (L.O.W.P.)
- W WATER LINE
- G GAS LINE
- E ELECTRIC LINE
- T TELEPHONE LINE
- SEWER LINE
- NEW RIGHT OF WAY
- NEW ROW WITHIN EXIST. ROW
- CONTROL OF ACCESS

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

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

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE
		COND.	8/21/12	4562	24

DAVID BERNHARDT
COMMISSIONER
KENNETH L. SWEENEY
CHIEF ENGINEER
DATE

STATE OF MAINE · MARK A. DAIGLE 2992 · PROFESSIONAL LAND SURVEYOR

STATE AID HIGHWAY NO. 4/NO. 1
ROUTE 32-WALDOBORO ROAD
BRISTOL-BREMEN LINCOLN COUNTY
STATE PROJECT NO. 018104.00

MAY 2012 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 8-173
SCALE 1"= 25' | SHEET 1 OF 1

SHEET NUMBER
20
OF 20