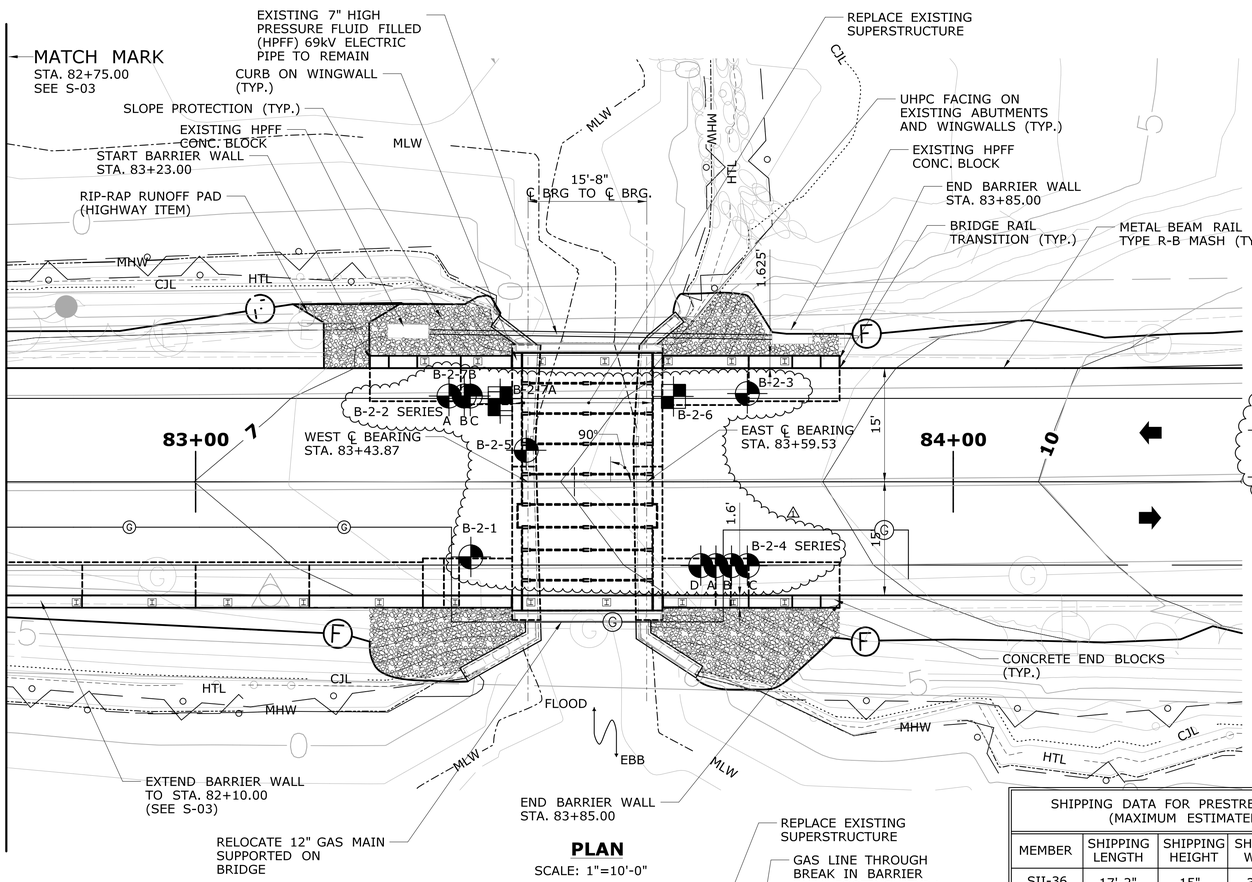


PLAN

SCALE: 1"=10'-0"

LEGEND

- TEST PIT
- BORING

GENERAL NOTES:

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 817 WITH JULY 2018 SUPPLEMENTS.

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION - 2017, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003).

ALLOWABLE DESIGN STRESSES:
PRESTRESSED CONCRETE DECK UNITS.. BASED ON f'c = 6500 PSI PARAPET CONCRETE..... BASED ON f'c = 4000 PSI
UHPC (SHEAR KEY)..... BASED ON f'c = 20,000 PSI BARRIER WALL CONCRETE..... BASED ON f'c = 4000 PSI
UHPC (SUBSTRUCTURE FACING)..... BASED ON f'c = 20,000 PSI COLUMN AND CAP CONCRETE..... BASED ON f'c = 3000 PSI

THE SPECIFIED CONCRETE STRENGTH USED IN DESIGN, F'c, OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 6.01 CONCRETE FOR STRUCTURES.

REINFORCEMENT
(ASTM A615 GRADE 60) ..... Fy = 60000 PSI

FUTURE PAVING ALLOWANCE: NONE LIVE LOAD: AASHTO HL-93

BITUMINOUS CONCRETE OVERLAY: THIS SHALL CONSIST OF THREE COURSES OF TRAFFIC LEVEL 2 MIXES. THE BOTTOM COURSE SHALL BE HOT MIX ASPHALT (1" HMA S0.25). THE MIDDLE COURSE SHALL BE HOT MIX ASPHALT AND SHALL VARY IN THICKNESS OF 1" TO 3.5" MAX FOR EACH LIFT NEEDED TO ATTAIN CROSS SLOPES. THE TOP COURSE SHALL BE HOT MIX ASPHALT (2" HMA S0.5).

DIMENSIONS: WHEN DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS

EXISTING DIMENSIONS: DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ONTHESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM SURVEY DATA, AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL BE INCLUDED FOR REFERENCE.

HPFF UTILITY - CONTRACTOR SHALL PROTECT HPFF LINE DURING ALL CONSTRUCTION ACTIVITIES. CARE SHALL ALSO BE TAKEN TO NOT UNDERMINE THE HPFF CONCRETE BLOCKS TO EITHER SIDE OF THE PROJECT DURING CONSTRUCTION ACTIVITIES.

GAS UTILITY - CONTRACTOR SHALL PROTECT GAS LINE DURING ALL CONSTRUCTION ACTIVITIES.

CONCRETE NOTES:

REMAIN-IN-PLACE FORMS: THE USE OF REMAIN-IN-PLACE FORMS ON THIS STRUCTURE IS NOT ALLOWED.

CLASS OF CONCRETE: PARAPET CONCRETE SHALL BE USED FOR CONCRETE CURBS, BARRIER WALL CONCRETE SHALL BE USED FOR BARRIER WALLS, AND ABUTMENT AND WALL CONCRETE SHALL BE USED FOR ABUTMENT STEMS, WING WALLS AND BRIDGE SEATS.

ULTRA HIGH PERFORMANCE CONCRETE: UHPC SHALL BE USED FOR SHEAR KEYS AND ABUTMENT/WINGWALL REFACING

JOINT SEAL: SEE SPECIAL PROVISIONS.

PENETRATING SEALER: PENETRATING SEALER PROTECTIVE COMPOUND SHALL BE APPLIED TO ALL EXPOSED SURFACES, SEE SPECIAL PROVISIONS.

EXPOSED EDGES: EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" x 1" UNLESS DIMENSIONED OTHERWISE.

CONCRETE COVER: ALL REINFORCEMENT SHALL HAVE TWO INCHES COVER UNLESS DIMENSIONED OTHERWISE.

REINFORCEMENT: ALL REINFORCEMENT SHALL BE ASTM A615 GRADE 60.

EPOXY COATED REINFORCING BARS: ALL REINFORCEMENT IN THE SUPERSTRUCUTRE, INCLUDING THE PRESTRESSED DECK UNITS AND CURBS, BARRIER WALLS, END BLOCKS, ABUTMENT SEATS AND WINGWALL MODIFICATION SHALL BE EPOXY COATED UNLSS OTHERWISE STATED.

CONSTRUCTION JOINTS: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

PREFORMED EXPANSION JOINT FILLER: THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSION JOINT FILLER SHALL BE INCLUDED IN THE COST OF THE ITEM " 1" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES."

PRECAST CONCRETE NOTES:

THE CONTRACTOR SHALL MANUFACTURE AND CONSTRUCT PRESTRESSED DECK UNITS IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "PRESTRESSED DECK UNITS" TO THE INSIDE DIMENSIONS, LENGTH AND DETAILS SHOWN ON THESE PLANS.

ALL INSERTS OR HOLES CAST INTO THE DECK UNITS FOR THE SOLE PURPOSE OF HANDLING AND SETTING THE UNITS SHALL BE SEALED WITH GROUT TO A SMOOTH FINISH UPON COMPLETION OF THE WORK.

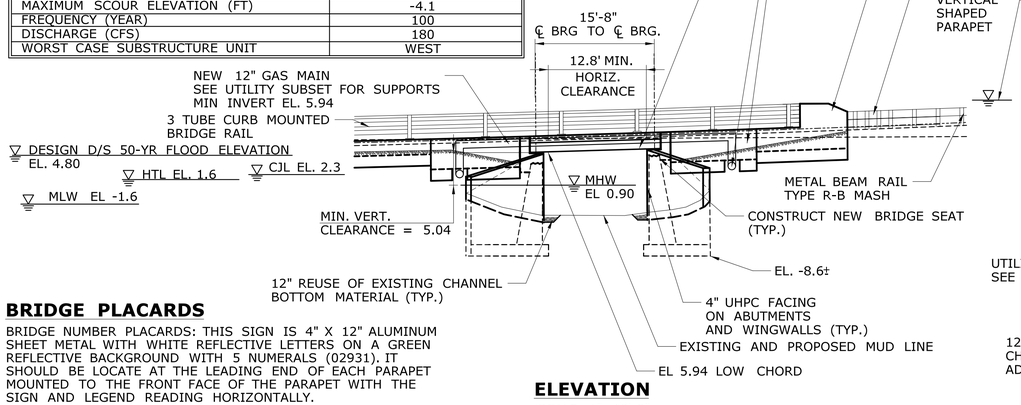
UHPC CONCRETE SHALL BE USED TO CONSTRUCT THE SHEAR KEYS

THE COST OF FURNISHING AND INSTALLING THE INSERTS SHALL BE INCLUDED IN THE ITEM "PRESTRESSED DECK UNIT" CORRESPONDING TO EACH SIZE. ALL INSERTS SHALL HAVE A CORROSIVE RESISTANT COATING.

ALL REINFORCEMENT TO HAVE 2" COVER UNLESS OTHERWISE NOTED.

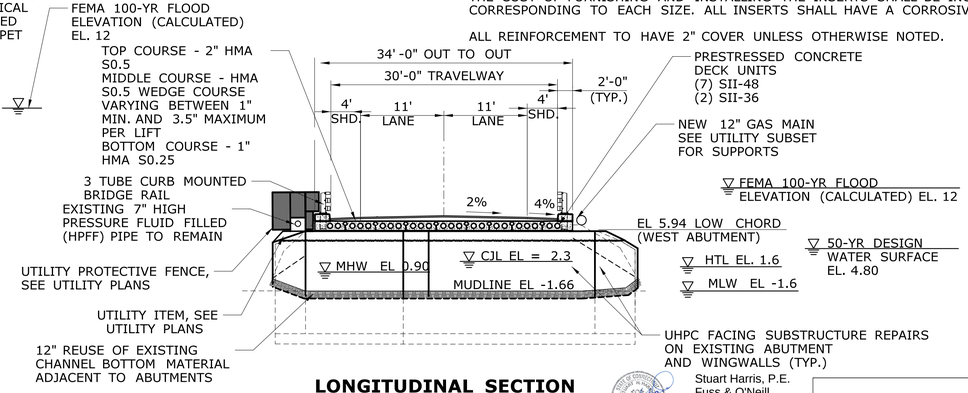
SHIPPING DATA FOR PRESTRESSED DECK UNIT (MAXIMUM ESTIMATED VALUE)				
MEMBER	SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	SHIPPING WEIGHT
SII-36	17'-2"	15"	35.5"	7,865 LB
SII-36K	18'-4"	15"	35.5"	8,400 LB
SII-48	17'-2"	15"	47.5"	10,180 LB
SII-48E	17'-2"	15"	47.75"	11,075 LB

HYDRAULIC SUMMARY DATA	
DRAINAGE AREA (MI^2)	0.046
DESIGN FREQUENCY (YEAR)	50 YEAR
DESIGN DISCHARGE (CFS)	140
AVERAGE DAILY FLOW ELEVATION (FT)	0.9 (MHW)
DESIGN WATER SURFACE ELEVATIONS (FT)	4.84 (UP) 4.80 (DOWN)
MAXIMUM SCOUR ELEVATION (FT)	-4.1
FREQUENCY (YEAR)	100
DISCHARGE (CFS)	180
WORST CASE SUBSTRUCTURE UNIT	WEST



ELEVATION

SCALE: 1"=10'-0"



LONGITUDINAL SECTION

SCALE: 1"=10'-0"

NOTICE TO BRIDGE INSPECTORS

THE DEPARTMENT'S BRIDGE SAFETY PROCEDURES REQUIRE THIS BRIDGE TO BE INSPECTED FOR, BUT NOT LIMITED TO, ALL APPROPRIATE COMPONENTS INDICATED IN THE GOVERNING MANUALS FOR BRIDGE INSPECTION. ATTENTION MUST BE GIVEN TO INSPECTING THE FOLLOWING SPECIAL COMPONENTS AND DETAILS. (THE LISTING FOR COMPONENTS FOR SPECIFIC ATTENTION SHALL NOT BE CONSTRUED TO REDUCE THE IMPORTANCE OF INSPECTION OF ANY OTHER COMPONENT OF THE STRUCTURE.) THE FREQUENCY OF INSPECTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE GOVERNING MANUALS FOR BRIDGE INSPECTION, UNLESS OTHERWISE DIRECTED BY THE MANAGER OF BRIDGE SAFETY AND EVALUATION.

COMPONENT OR DETAIL	STRUCTURE SHEET REFERENCE
NONE	NONE

BRIDGE PLACARDS

BRIDGE NUMBER PLACARDS: THIS SIGN IS 4" X 12" ALUMINUM SHEET METAL WITH WHITE REFLECTIVE LETTERS ON A GREEN REFLECTIVE BACKGROUND WITH 5 NUMERALS (02931). IT SHOULD BE LOCATE AT THE LEADING END OF EACH PARAPET MOUNTED TO THE FRONT FACE OF THE PARAPET WITH THE SIGN AND LEGEND READING HORIZONTALLY.

Stuart Harris, P.E.
Fuss & O'Neill
2019.12.12
16:44:35-05'00'

ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
1	11/15/19	BORINGS LOCATIONS ADDED	01.05.02.A2

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: SHH
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\04_SB_MSH_Br02931_GPE.dgn

SIGNATURE/BLOCK: STATE OF CONNECTICUT STUART H. HARRIS No. 16313 LICENSED PROFESSIONAL ENGINEER

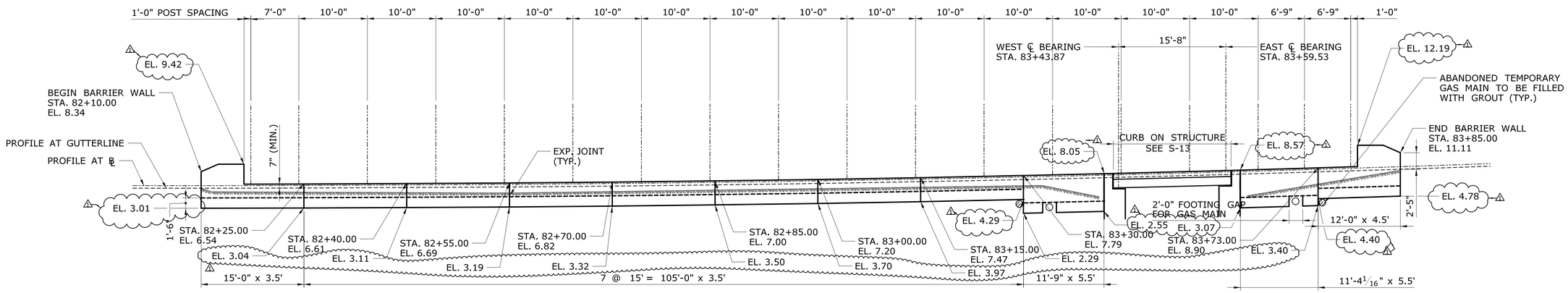
FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931
ROUTE 2A
OVER POQUETANUCK COVE

TOWN: **PRESTON**

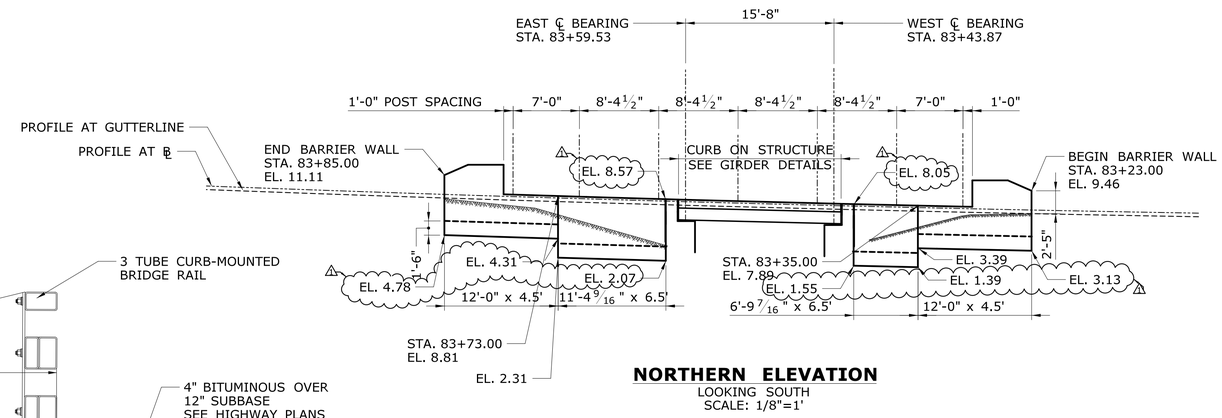
DRAWING TITLE: **GENERAL PLAN ELEVATION AND SECTION**

PROJECT NO. **113-107**
DRAWING NO. **S-02**
SHEET NO. **01.05.02.A2**



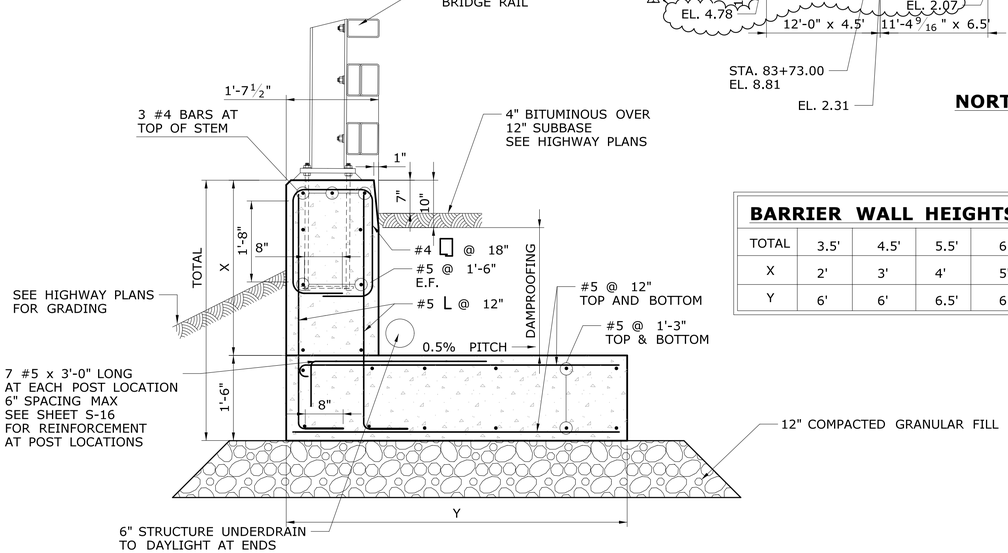
SOUTHERN ELEVATION

LOOKING NORTH
SCALE: 1/8"=1'



NORTHERN ELEVATION

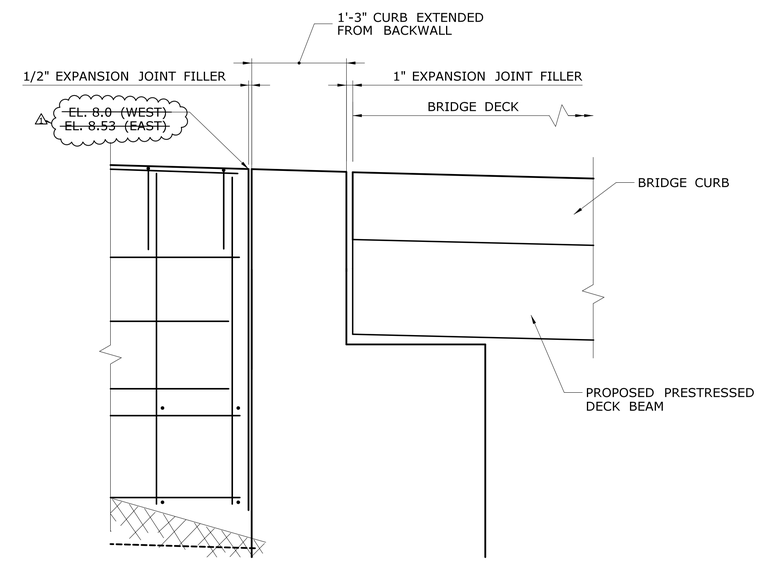
LOOKING SOUTH
SCALE: 1/8"=1'



BARRIER WALL SECTION

SCALE: 3/4"=1'

BARRIER WALL HEIGHTS				
TOTAL	3.5'	4.5'	5.5'	6.5'
X	2'	3'	4'	5'
Y	6'	6'	6.5'	6.5'



BARRIER WALL/BRIDGE CONNECTION

SCALE: 3/4"=1'

ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
1	11/15/19	ADDED ELEV. TO BOTTOM OF BARRIER WALL	01.05.14.A2

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: -
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ..\04_SB_MST_Br02931_BAR.dgn

SIGNATURE/BLOCK:
STATE OF CONNECTICUT — STUART H. HARRIS — No. 14313 — LICENSED PROFESSIONAL ENGINEER

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931
ROUTE 2A
OVER POQUETANUCK COVE

TOWN: **PRESTON**

DRAWING TITLE: **BARRIER WALL ELEVATIONS**

PROJECT NO. **113-107**
DRAWING NO. **S-14**
SHEET NO. **01.05.14.A2**

Driller:	Ray Cook	**Connecticut DOT Boring Report**		Hole No.:	B-2-1
Inspector:	C. Gibb	Town:	Preston, Connecticut	Stat./Offset:	83+51.3/8.8'
Engineer:	M. Chartier	Project No.:	113-107	Northing:	739107.89
Start Date:	04/25/2017 8:45 AM	Route No.:	2A	Easting:	1193076.91
Finish Date:	05/01/2017 3:10 PM	Bridge No.:	02931	Surface Elevation:	7.3 NAVD88
Project Description:	Preston Bridge No. 02931 over Poquetanuck Cove				
Casing Size/Type:	HW 4"	Sampler Type/Size:	1.5" Split Spoon Sampler	Core Barrel Type:	N/A
Hammer Wt.:	300 lb. Fall: 24 in.	Hammer Wt.:	140 lb. Fall: 30 in.		
Groundwater Observations:	6.3 ft depth after 0 hours				

Depth (ft)	Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			
	S-1	17 12 15 9	24	9			Embankment Fill	S-1: Brown c-f SAND, some c-f Gravel, trace Silt, medium dense, moist		5
5	S-2	4 2 4 8	24	11		Casing Dropped 0' to 11'		S-2: Brown c-f SAND, little fine Gravel, little Silt, loose, moist		0
10	S-3A/B	1 1 13 50/4"	20	13		190, 160, 170, 150, 170, 140, 100, 20, 14, 10		S-3A: Brown c-f SAND, some fine Gravel, trace Silt, loose to medium dense, wet S-3B: Gray c-f SAND and c-f Gravel, loose to medium dense, wet		-5
15	S-4A/B	7 9 5 2	24	5		5, 2, 5, 2, 5, 8, 2, 2, 4, 5, 4, 3, 10, 10, 15	Organic Silt	S-4A: Gray c-f SAND, some c-f Gravel, some Silt, loose, wet S-4B: Dary gray to dark brown SILT, some fine SAND, loose, wet		-10
20	S-5A/B	1 2 10 24	24	5		70, 100, 130, 80, 70, 90, 60, 50, 60, 50, 70, 90, 80		S-5A: Dark brown ORGANIC SILT, trace fine Sand, loose, wet S-5B: Gray ORGANIC SILT, some fine Sand, loose, wet		-15
25	S-6	37 35 34 36	24	10			Terrace Deposit	S-6: Tan fine SAND, some Silt, very dense, wet		-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 50.3 ft Rock: 0 ft No. of Soil Samples: 14 No. of Core Runs: 0	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 48.5' bgs. Boring terminated at 50.3' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 2 SM-001-M REV. 1/02

Driller:	Ray Cook	**Connecticut DOT Boring Report**		Hole No.:	B-2-1
Inspector:	C. Gibb	Town:	Preston, Connecticut	Stat./Offset:	83+51.3/8.8'
Engineer:	M. Chartier	Project No.:	113-107	Northing:	739107.89
Start Date:	04/25/2017 8:45 AM	Route No.:	2A	Easting:	1193076.91
Finish Date:	05/01/2017 3:10 PM	Bridge No.:	02931	Surface Elevation:	7.3 NAVD88
Project Description:	Preston Bridge No. 02931 over Poquetanuck Cove				
Casing Size/Type:	HW 4"	Sampler Type/Size:	1.5" Split Spoon Sampler	Core Barrel Type:	N/A
Hammer Wt.:	300 lb. Fall: 24 in.	Hammer Wt.:	140 lb. Fall: 30 in.		
Groundwater Observations:	6.3 ft depth after 0 hours				

Depth (ft)	Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
30										
	S-7	14 14 13 35	24	11		70, 100, 70, 80, 100, 70, 70, 90, 60, 60, 50, 70, 50, 50, 65, 80, 60, 100, 80, 80, 75, 95, 80, 100, 50, 70, 100, 80, 80, 70, 90, 100, 150, 200, 400, 500		S-7: Tan SILT, little fine Sand, medium dense, wet		-25
35	S-8	18 50/4"	16	16*				S-8: Grayish brown c-f SAND, some c-f Gravel, trace Silt, very dense, wet		-30
40	S-9	50/4"	4	4				S-9: Grayish brown c-f GRAVEL, some c-f Sand, trace Silt, very dense, wet		-35
45	S-10	50/0"	0	0				S-10: Gray c-f GRAVEL, trace coarse Sand, very dense, wet (Wash)		-40
50	S-11	50/1"	3	1"			Glacial Till	S-11: Grayish brown SILT and c-f GRAVEL, some c-f Sand, very dense, wet End of Boring at 50.3' bgs.		-45
55										-50
60										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 50.3 ft Rock: 0 ft No. of Soil Samples: 14 No. of Core Runs: 0	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 48.5' bgs. Boring terminated at 50.3' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 2 of 2 SM-001-M REV. 1/02

Driller:	Ray Cook	**Connecticut DOT Boring Report**		Hole No.:	B-2-2A
Inspector:	C. Gibb	Town:	Preston, Connecticut	Stat./Offset:	83+49.3/-11.3'
Engineer:	M. Chartier	Project No.:	113-107	Northing:	739128.01
Start Date:	05/02/2017 9:00 AM	Route No.:	2A	Easting:	1193074.94
Finish Date:	05/02/2017 2:30 PM	Bridge No.:	02931	Surface Elevation:	7.3 NAVD88
Project Description:	Preston Bridge No. 02931 over Poquetanuck Cove				
Casing Size/Type:	HW 4"	Sampler Type/Size:	1.5" Split Spoon Sampler	Core Barrel Type:	N/A
Hammer Wt.:	300 lb. Fall: 24 in.	Hammer Wt.:	140 lb. Fall: 30 in.		
Groundwater Observations:	7.0 ft depth after 0 hours				

Depth (ft)	Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			
	S-1	10 9 7 5	24	9			Embankment Fill	S-1: Dark tan to brown c-f SAND, trace fine Gravel, trace Silt, medium dense, moist		5
5	S-2	5 5 5 5	24	8		Casing Dropped from 0' to 10'		S-2: Dark brown c-f SAND, some fine Gravel, trace Silt, loose, moist		
	S-3	6 5 3 7	24	7				S-3: Brown c-f SAND, some Silt, little fine Gravel, loose, wet		0
10	S-4	2 1 5 10	24	5		20, 20, 15, 23, 21, 19, 50, 50, 50, 40		S-4: Dark brown to gray c-f SAND, some Silt, little fine Gravel, loose, wet		
	S-5A/B	10 7 18 9	24	11				S-5A: Dark brown fine SAND, trace c-m Sand, medium dense, wet S-5B: Dark brown c-f SAND, some fine Gravel, trace Silt, medium dense, wet		-5
	S-6	9 8 8 10	24	3				S-6: Black to brown coarse SAND, some fine Gravel, medium dense, wet (Wash)		
15	S-7	1 1 2 3	24	14		1, 1, 1, 1, 1, 1, 1, 2, 25, 50, 100, 150, 80, 160, 140, 90, 50, 50, 60, 40	Organic Silt	S-7: Black ORGANIC SILT, trace m-f Sand, loose, wet		
	S-8A/B/C	2 3 4 5	24	20				S-8A: Dark gray to brown ORGANIC SILT, loose, wet S-8B: Dark gray to brown m-f Sand, trace fine Gravel, trace Organics, loose, wet S-8C: Dark gray to brown ORGANIC SILT, loose, wet		-10
20	S-9	50/0"	1	4*				S-9: Black ORGANIC SILT, trace fine Sand, very dense, wet		
	S-10A/B	60 68/6"	12	21*			Terrace Deposit	S-10A: Black to Dark gray ORGANIC SILT, very dense, wet S-10B: Brown c-f SAND, some Silt, trace Gravel, very dense, wet		-15
25	S-11	16 50/6"	12	15*				S-11: Brown c-f SAND, some fine Gravel, trace Silt, very dense, wet		-20
								End of Boring at 26' bgs. Boring terminated due to damaged casing.		
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 26 ft Rock: 0 ft No. of Soil Samples: 15 No. of Core Runs: 0	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 26' bgs due to damage during driving. Boring terminated at 26' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and cold patched at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1 SM-001-M REV. 1/02

NEW SHEET ADDED BY ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: -
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\05_SB_MST_Br02931_ADD_BOR1.dgn

SIGNATURE/BLOCK:
STATE OF CONNECTICUT JULIAN H. HARRIS No. 14313 LICENSED PROFESSIONAL ENGINEER

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931 ROUTE 2A OVER POQUETANUCK COVE

TOWN: **PRESTON**

DRAWING TITLE: **BORING LOGS**

PROJECT NO. **113-107**
DRAWING NO. **S-19**
SHEET NO. **01.05.19.A2**

Driller: Ray Cook	**Connecticut DOT Boring Report**		Hole No.: B-2-2B
Inspector: C. Gibb	Town: Preston, Connecticut		Stat./Offset: 83+52.3/-11.3
Engineer: M. Chartier	Project No.: 113-107		Northing: 739128.01
Start Date: 05/03/2017 8:40 AM	Route No.: 2A		Easting: 1193077.94
Finish Date: 05/03/2017 12:00 PM	Bridge No.: 02931		Surface Elevation: 7.1 NAVD88
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" Split Spoon Sampler		Core Barrel Type: N/A
Hammer Wt.: 300 lb. Fall: 24 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 6.0 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			
						Casing Dropped from 0' to 10'	Embankment Fill			5
5										0
10						5, 7, 5, 3, 4, 6, 5, 7, 4, 5				-5
15	S-1	2 1 2 1	24	15		8, 7, 9, 5, 8, 9, 6, 8	Organic Silt	S-1: Dark brown to black ORGANIC SILT, some c-f Sand, loose, wet		-10
	S-2	2 3 8 13	24	16				S-2: Dark brown to black ORGANIC SILT, some c-f SAND, loose, wet		
20								End of Boring at 19' bgs. Boring terminated due to damaged casing.		-15
25										-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 19 ft Rock: 0 ft	1. Casing damaged during driving 15' to 19'. Roller bit could not advance past 18' bgs due to damaged casing. Boring terminated at 19' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and coldpatched at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2015, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 2 No. of Core Runs: 0		SM-001-M REV. 1/02

Driller: Ray Cook	**Connecticut DOT Boring Report**		Hole No.: B-2-2C
Inspector: C. Gibb	Town: Preston, Connecticut		Stat./Offset: 83+53.3/-11.3'
Engineer: M. Chartier	Project No.: 113-107		Northing: 739128.01
Start Date: 05/03/2017 12:10 PM	Route No.: 2A		Easting: 1193078.94
Finish Date: 05/04/2017 10:30 AM	Bridge No.: 02931		Surface Elevation: 7.2 NAVD88
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" Split Spoon Sampler		Core Barrel Type: N/A
Hammer Wt.: 300 lb. Fall: 24 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 6.0 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			
						Casing Dropped from 0' to 15'	Embankment Fill			5
5										0
10	S-1	GRAB	N/A	N/A				S-1: Dark brown to black c-f SAND, some c-f Gravel, some Silt with Wood, wet		-5
	S-2	GRAB	N/A	N/A			Organic Silt	S-2: Dark brown to black ORGANIC SILT, some c-f SAND, wet		
15						5, 3, 2, 2, 1, 1, 2, 1, 20, 80, 300, 150, 150, 200, 300, 400				-10
20	S-3	44*	6	15			Terrace Deposit	S-3: Brown c-f SAND and c-f GRAVEL, little Silt, very dense, wet		
	S-4	50/3"*	3	9				S-4: Brown to dark brown c-f SAND, some c-f Gravel, some Silt, very dense, wet		-15
25								End of Boring at 25' bgs. Boring terminated due to casing refusal.		-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 25 ft Rock: 0 ft	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 23' bgs. Boring terminated at 25' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and coldpatched at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2015, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 4 No. of Core Runs: 0		SM-001-M REV. 1/02

Driller: Ray Cook	**Connecticut DOT Boring Report**		Hole No.: B-2-2C
Inspector: C. Gibb	Town: Preston, Connecticut		Stat./Offset: 83+53.3/-11.3'
Engineer: M. Chartier	Project No.: 113-107		Northing: 739128.01
Start Date: 05/03/2017 12:10 PM	Route No.: 2A		Easting: 1193078.94
Finish Date: 05/04/2017 10:30 AM	Bridge No.: 02931		Surface Elevation: 7.2 NAVD88
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" Split Spoon Sampler		Core Barrel Type: N/A
Hammer Wt.: 300 lb. Fall: 24 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 6.0 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			
						Casing Dropped from 0' to 15'	Embankment Fill			5
5										0
10	S-1	GRAB	N/A	N/A				S-1: Dark brown to black c-f SAND, some c-f Gravel, some Silt with Wood, wet		-5
	S-2	GRAB	N/A	N/A			Organic Silt	S-2: Dark brown to black ORGANIC SILT, some c-f SAND, wet		
15						5, 3, 2, 2, 1, 1, 2, 1, 20, 80, 300, 150, 150, 200, 300, 400				-10
20	S-3	44*	6	15			Terrace Deposit	S-3: Brown c-f SAND and c-f GRAVEL, little Silt, very dense, wet		
	S-4	50/3"*	3	9				S-4: Brown to dark brown c-f SAND, some c-f Gravel, some Silt, very dense, wet		-15
25								End of Boring at 25' bgs. Boring terminated due to casing refusal.		-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 25 ft Rock: 0 ft	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 23' bgs. Boring terminated at 25' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and coldpatched at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2015, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 4 No. of Core Runs: 0		SM-001-M REV. 1/02

NEW SHEET ADDED BY ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: -
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\05_SB_MST_Br02931_ADD_BOR2.dgn

SIGNATURE/BLOCK:
STATE OF CONNECTICUT · STUART H. HARRIS · No. 14513 · LICENSED PROFESSIONAL ENGINEER

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931
ROUTE 2A
OVER POQUETANUCK COVE

TOWN: **PRESTON**

DRAWING TITLE: **BORING LOGS**

PROJECT NO. **113-107**
DRAWING NO. **S-20**
SHEET NO. **01.05.20.A2**

Driller: Ray Cook	**Connecticut DOT Boring Report**		Hole No.: B-2-3
Inspector: C. Gibb	Town: Preston, Connecticut		Stat./Offset: 83+87.4/-11.4
Engineer: M. Chartier	Project No.: 113-107		Northing: 739128.11
Start Date: 04/24/2017 8:45 AM	Route No.: 2A		Easting: 1193116.07
Finish Date: 04/24/2017 2:30 PM	Bridge No.: 02931		Surface Elevation: 8.3 NAVD88
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" Split Spoon Sampler		Core Barrel Type: N/A
Hammer Wt.: 300 lb. Fall: 24 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 7.0 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
	S-1A/B	12 13 13 15	24	9		Casing Dropped 0' to 10"	Asphalt / Embankment Fill	S-1A: Black fine SAND, some Silt, trace fine Gravel, medium dense, moist S-1B: Brown c-f SAND, trace fine Gravel, trace Silt, medium dense, moist		
5	S-2	4 4 3 4	24	9				S-2: Brown to dark brown fine SAND, some medium Gravel, some Silt, loose, moist		0
10	S-3	4 2 1 2	24	16		7 6 8 5 8 8 7 6 8 9		S-3: Black fine SAND and Silt, loose, wet		-5
15	S-4	6 10 50/3"	9	6		30 80 100 170 200		S-4: Dark gray c-f SAND, some Silt, trace fine Gravel, very dense, wet		-10
20	S-5	50/3"	3	3		210 190 220 170 150 400 800	Terrace Deposit	S-5: Brown to gray c-f SAND, some m-f Gravel, some Silt, very dense, wet		-15
25								End of Boring at 25' bgs. Boring terminated due to damaged casing.		-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 25 ft Rock: 0 ft	1. Casing refusal at 21' bgs due to damage during driving. Boring terminated at 25' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 6 No. of Core Runs: 0		SM-001-M REV. 1/02

Driller: Ray Cook	**Connecticut DOT Boring Report**		Hole No.: B-2-3
Inspector: C. Gibb	Town: Preston, Connecticut		Stat./Offset: 83+87.4/-11.4
Engineer: M. Chartier	Project No.: 113-107		Northing: 739128.11
Start Date: 04/24/2017 8:45 AM	Route No.: 2A		Easting: 1193116.07
Finish Date: 04/24/2017 2:30 PM	Bridge No.: 02931		Surface Elevation: 8.3 NAVD88
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" Split Spoon Sampler		Core Barrel Type: N/A
Hammer Wt.: 300 lb. Fall: 24 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 7.0 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
	S-1A/B	12 13 13 15	24	9		Casing Dropped 0' to 10"	Asphalt / Embankment Fill	S-1A: Black fine SAND, some Silt, trace fine Gravel, medium dense, moist S-1B: Brown c-f SAND, trace fine Gravel, trace Silt, medium dense, moist		
5	S-2	4 4 3 4	24	9				S-2: Brown to dark brown fine SAND, some medium Gravel, some Silt, loose, moist		0
10	S-3	4 2 1 2	24	16		7 6 8 5 8 8 7 6 8 9		S-3: Black fine SAND and Silt, loose, wet		-5
15	S-4	6 10 50/3"	9	6		30 80 100 170 200		S-4: Dark gray c-f SAND, some Silt, trace fine Gravel, very dense, wet		-10
20	S-5	50/3"	3	3		210 190 220 170 150 400 800	Terrace Deposit	S-5: Brown to gray c-f SAND, some m-f Gravel, some Silt, very dense, wet		-15
25								End of Boring at 25' bgs. Boring terminated due to damaged casing.		-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 25 ft Rock: 0 ft	1. Casing refusal at 21' bgs due to damage during driving. Boring terminated at 25' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 6 No. of Core Runs: 0		SM-001-M REV. 1/02

Driller: Ray Cook	**Connecticut DOT Boring Report**		Hole No.: B-2-4A
Inspector: C. Gibb	Town: Preston, Connecticut		Stat./Offset: 83+84.5/10.4'
Engineer: M. Chartier	Project No.: 113-107		Northing: 739105.93
Start Date: 05/15/2017 9:00 AM	Route No.: 2A		Easting: 1193110.20
Finish Date: 05/15/2017 3:00 PM	Bridge No.: 02931		Surface Elevation: 8.2 NAVD88
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" Split Spoon Sampler		Core Barrel Type: N/A
Hammer Wt.: 300 lb. Fall: 24 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 7.5 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
	S-1	8 5 5 5	24	6		Casing Dropped 0' to 10"	Asphalt / Embankment Fill	S-1: Brown c-f SAND, some c-f Gravel, trace Silt, loose, moist		
5	S-2	2 3 3 3	24	0				S-2: No Recovery		0
10	S-3	2 14 7 4	24	3		20 18 14 15 13 16 15 10 5		S-3: Brown c-f SAND, some c-f Gravel, some Silt, medium dense, wet		-5
15	S-4	2 3 1 2	24	10		3 1 4 7 4 3 6 4 2	Organic Silt	S-4: Dark brown very high plasticity ORGANIC SILT, little c-f Sand, loose, wet		-10
20	S-5	3 2 3 4	24	17		30 40		S-5: Dark brown to black very high plasticity ORGANIC SILT, trace c-f Sand, loose, wet		
	S-6	50/0"*	0	2				S-6: Black ORGANIC SILT and c-f GRAVEL, very dense, wet		
	S-7	50/0"	0	0			Terrace Deposit	S-7: No Recovery		
	S-8	50/5"	5	2				S-8: Light brown to brown c-f SAND and c-f GRAVEL, some Silt, very dense, wet		-15
25								End of Boring at 25' bgs.		-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 25 ft Rock: 0 ft	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 20' bgs. HSA refusal at 20.7' bgs. Boring terminated at 25' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and coldpatched at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 8 No. of Core Runs: 0		SM-001-M REV. 1/02

NEW SHEET ADDED BY ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: -
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\05_SB_MST_Br02931_ADD_BOR3.dgn

SIGNATURE/BLOCK: STATE OF CONNECTICUT JUNIOR H. HARTER No. 14313 LICENSED PROFESSIONAL ENGINEER

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931
ROUTE 2A
OVER POQUETANUCK COVE

TOWN: **PRESTON**

DRAWING TITLE: **BORING LOGS**

PROJECT NO. **113-107**
DRAWING NO. **S-21**
SHEET NO. **01.05.21.A2**

Driller: Ray Cook	**Connecticut DOT Boring Report**	Hole No.: B-2-4B	
Inspector: C. Gibb	Town: Preston, Connecticut	Stat./Offset: 83+87.5/10.8'	
Engineer: M. Chartier	Project No.: 113-107	Northing: 739105.93	
Start Date: 05/16/2017 9:00 AM	Route No.: 2A	Easting: 1193113.20	
Finish Date: 05/16/2017 9:40 AM	Bridge No.: 02931	Surface Elevation: 8.3 NAVD88	
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: N/A	Sampler Type/Size: 1.5" Split Spoon Sampler	Core Barrel Type: N/A	
Hammer Wt.: N/A Fall: N/A	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 9 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			
							Embankment Fill			
5										5
10										0
15							Organic Silt			-5
20								End of Boring at 19' bgs.		-10
25										-15
30										-20

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in
Earth: 19 ft Rock: 0 ft
No. of Soil Samples: 0 No. of Core Runs: 0

1. HSA refusal at 19' bgs due to possible boulder. Boring terminated at 19' bgs.
2. Upon completion, the boring was backfilled with excess drill cuttings and coldpatched at the surface.
3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc.
4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BRD2931 AND DICKERMANS BROOK BRD2932_GRN" dated 2/15/2016.

Sheet 1 of 1

SM-001-M REV. 1/02

Driller: Ray Cook	**Connecticut DOT Boring Report**	Hole No.: B-2-4C	
Inspector: C. Gibb	Town: Preston, Connecticut	Stat./Offset: 83+90.5/10.8'	
Engineer: M. Chartier	Project No.: 113-107	Northing: 739105.93	
Start Date: 05/16/2017 10:00 AM	Route No.: 2A	Easting: 1193116.20	
Finish Date: 05/16/2017 10:40 AM	Bridge No.: 02931	Surface Elevation: 8.3 NAVD88	
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: N/A	Sampler Type/Size: 1.5" Split Spoon Sampler	Core Barrel Type: N/A	
Hammer Wt.: N/A Fall: N/A	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 9 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			
							Embankment Fill			
5										5
10										0
15							Organic Silt			-5
20								End of Boring at 18' bgs.		-10
25										-15
30										-20

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in
Earth: 19 ft Rock: 0 ft
No. of Soil Samples: 0 No. of Core Runs: 0

1. HSA refusal at 18' bgs due to possible boulder. Boring terminated at 18' bgs.
2. Upon completion, the boring was backfilled with excess drill cuttings and coldpatched at the surface.
3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc.
4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BRD2931 AND DICKERMANS BROOK BRD2932_GRN" dated 2/15/2016.

Sheet 1 of 1

SM-001-M REV. 1/02

Driller: Ray Cook	**Connecticut DOT Boring Report**	Hole No.: B-2-4D	
Inspector: C. Gibb	Town: Preston, Connecticut	Stat./Offset: 83+81.5/10.8'	
Engineer: M. Chartier	Project No.: 113-107	Northing: 739105.93	
Start Date: 05/16/2017 10:50 AM	Route No.: 2A	Easting: 1193107.20	
Finish Date: 05/17/2017 2:00 PM	Bridge No.: 02931	Surface Elevation: 8.1 NAVD88	
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: 3" ID HSA	Sampler Type/Size: 1.5" Split Spoon Sampler	Core Barrel Type: N/A	
Hammer Wt.: N/A Fall: N/A	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: 11 ft depth after 0 hours			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0										
5										5
10										0
15										-5
20										-10
25	S-1	50 50/1**	7	11			Terrace Deposit	S-1: Brown c-f SAND, some Silt, trace c-f Gravel, very dense, wet		-15
										-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in
Earth: 52.3 ft Rock: 0 ft
No. of Soil Samples: 7 No. of Core Runs: 0

* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log.
1. Due to difficulty of drilling, 3" ID HSA was used instead of drive and wash method. Boring terminated at 52.3' bgs.
2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface.
3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc.
4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BRD2931 AND DICKERMANS BROOK BRD2932_GRN" dated 2/15/2016.

Sheet 1 of 2

SM-001-M REV. 1/02

NEW SHEET ADDED BY ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: -
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\05_SB_MST_Br02931_ADD_BOR4.dgn

SIGNATURE/BLOCK:

STATE OF CONNECTICUT — HARRY H. HARRIS — No. 14013 — LICENSED PROFESSIONAL ENGINEER

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931
ROUTE 2A
OVER POQUETANUCK COVE

TOWN: **PRESTON**

DRAWING TITLE: **BORING LOGS**

PROJECT NO. **113-107**
DRAWING NO. **S-22**
SHEET NO. **01.05.22.A2**

Driller:	Ray Cook	**Connecticut DOT Boring Report**		Hole No.:	B-2-4D
Inspector:	C. Gibb	Town:	Preston, Connecticut	Stat./Offset:	83+81.5/10.8'
Engineer:	M. Chartier	Project No.:	113-107	Northing:	739105.93
Start Date:	05/16/2017 10:50 AM	Route No.:	2A	Easting:	1193107.20
Finish Date:	05/17/2017 2:00 PM	Bridge No.:	02931	Surface Elevation:	8.1 NAVD88
Project Description:	Preston Bridge No. 02931 over Poquetanuck Cove				
Casing Size/Type:	3" ID HSA	Sampler Type/Size:	1.5" Split Spoon Sampler	Core Barrel Type:	N/A
Hammer Wt.:	N/A Fall: N/A	Hammer Wt.:	140 lb. Fall: 30 in.		
Groundwater Observations:	11 ft depth after 0 hours				

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
30										
	S-2	50/0"*	0	0				S-2: No Recovery		
	S-3	57 56 50/4"	16	11				S-3: Brown to black c-f SAND, some c-f Gravel, some Silt, very dense, wet		-25
35	S-4	50/1"*	1	4				S-4: Dark brown c-f SAND, some c-f Gravel, some Silt, very dense, wet		-30
40	S-5	50/5"*	5	6				S-5: Gray to black m-f GRAVEL, some c-f Sand, some Silt, very dense, wet		-35
45	S-6	50/2"*	2	3				S-6: Brown c-f SAND, some c-f Gravel, some Silt, very dense, wet		-40
50	S-7	50/5"*	5	8				S-7: Brown c-f SAND, little fine Gravel, little Silt, very dense, wet		-45
								End of Boring at 52.3' bgs.		
55										-50
60										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 52.3 ft Rock: 0 ft	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Due to difficulty of drilling, 3" ID HSA was used instead of drive and wash method. Boring terminated at 52.3' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 2 of 2
No. of Soil Samples: 7 No. of Core Runs: 0		SM-001-M REV. 1/02

Driller:	Ray Cook	**Connecticut DOT Boring Report**		Hole No.:	B-2-5
Inspector:	C. Gibb	Town:	Preston, Connecticut	Stat./Offset:	83+62.0/-4.2'
Engineer:	M. Chartier	Project No.:	113-107	Northing:	739120.89
Start Date:	05/05/2017 11:00 AM	Route No.:	2A	Easting:	1193087.60
Finish Date:	05/05/2017 2:30 PM	Bridge No.:	02931	Surface Elevation:	7.7 NAVD88
Project Description:	Preston Bridge No. 02931 over Poquetanuck Cove				
Casing Size/Type:	HW 4"	Sampler Type/Size:	1.5" SS/3" ID Standard ST	Core Barrel Type:	N/A
Hammer Wt.:	300 lb. Fall: 24 in.	Hammer Wt.:	140 lb. Fall: 30 in.		
Groundwater Observations:	Open Channel Water Levels Encountered				

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
0							Asphalt			5
							Concrete			
5						Casing Dropped 0' to 10'				0
10	S-1	8 6 9 6	24	8		1 1 2	Alluvial Deposit	S-1: Black c-f SAND, some fine Gravel, little Silt, medium dense, wet		
	S-2		24	12		1 3 3	Organic Silt	S-2: Black ORGANIC SILT, wet (Shelby Tube)		-5
15	S-3	WOR WOR WOR WOR	24	1		2 2 1		S-3: Black to dark brown ORGANIC SILT, some c-f Sand, loose, wet		
	S-4A/B	3 4 50/4"	16	11*		1 3 3 5		S-4A: Black to dark brown ORGANIC SILT, trace fine Sand, loose to very dense, wet		-10
20						1 2 2 10 50 100	Boulder	S-4B: Boulder fragments from split spoon tip		
	S-5	21 50/3"	9	14*		75 100 50 30 40 80	Terrace Deposit	S-5: Brown to tan c-f SAND, some c-f Gravel, some Silt, very dense, wet		-15
25	S-6	50/5"	5	5*		50 60 50 50 60 40 20 50 60 60 50 60 50 70 90 80		S-6: Brown to dark gray c-f SAND, some c-f Gravel, some Silt, very dense, wet		-20
30										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 35.5 ft Rock: 0 ft	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 34' bgs due to damaged casing. Boring terminated at 35.5' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 2
No. of Soil Samples: 9 No. of Core Runs: 0		SM-001-M REV. 1/02

Driller:	Ray Cook	**Connecticut DOT Boring Report**		Hole No.:	B-2-5
Inspector:	C. Gibb	Town:	Preston, Connecticut	Stat./Offset:	83+62.0/-4.2'
Engineer:	M. Chartier	Project No.:	113-107	Northing:	739120.89
Start Date:	05/05/2017 11:00 AM	Route No.:	2A	Easting:	1193087.60
Finish Date:	05/05/2017 2:30 PM	Bridge No.:	02931	Surface Elevation:	7.7 NAVD88
Project Description:	Preston Bridge No. 02931 over Poquetanuck Cove				
Casing Size/Type:	HW 4"	Sampler Type/Size:	1.5" SS/3" ID Standard ST	Core Barrel Type:	N/A
Hammer Wt.:	300 lb. Fall: 24 in.	Hammer Wt.:	140 lb. Fall: 30 in.		
Groundwater Observations:	Open Channel Water Levels Encountered				

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
30										
	S-7	19 36 50/5"	17	6		70 60 100 70 60 100 70 300		S-7: Brownish gray to gray c-f SAND, some c-f Gravel, trace Silt, very dense, wet		-25
35	S-8	50/5"	5	3*				S-8: Brownish gray m-f GRAVEL and c-f SAND, some Silt, very dense, wet		
								End of Boring at 35.5' bgs. Boring terminated due to damaged casing.		-30
40										-35
45										-40
50										-45
55										-50
60										

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 35.5 ft Rock: 0 ft	* Sample overdriven w/ 300# hammer to obtain more recovery. Blows from 300# hammer not indicated in log. 1. Casing refusal at 34' bgs due to damaged casing. Boring terminated at 35.5' bgs. 2. Upon completion, the boring was backfilled with excess drill cuttings and grouted at the surface. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 2 of 2
No. of Soil Samples: 9 No. of Core Runs: 0		SM-001-M REV. 1/02

NEW SHEET ADDED BY ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: -
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\05_SB_MST_Br02931_ADD_BOR5.dgn

SIGNATURE/BLOCK:

STATE OF CONNECTICUT JUNIOR H. HARPER No. 14313 LICENSED PROFESSIONAL ENGINEER

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931
ROUTE 2A
OVER POQUETANUCK COVE

TOWN: **PRESTON**

DRAWING TITLE: **BORING LOGS**

PROJECT NO. **113-107**
DRAWING NO. **S-23**
SHEET NO. **01.05.23.A2**

Driller: Scott Marino	**Connecticut DOT Boring Report**	Hole No.: B-2-6	
Inspector: R. Lavorati	Town: Preston, Connecticut	Stat./Offset: 83+76.5/-10.9'	
Engineer: M. Chartier	Project No.: 113-107	Northing: 739127.58	
Start Date: 12/12/18 9:35 AM	Route No.: 2A	Easting: 1193102.09	
Finish Date: 12/12/18 12:20 PM	Bridge No.: 02931	Surface Elevation: 8.0 NAVD88	
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" SS	Core Barrel Type: NX	
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: Not measured			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
						Spun casing	Fill	Spun casing to 10' bgs. Hammered casing from 10' bgs to 13' bgs.		
						5 5 5 5 10 50				
	C-1	4.3 2.3	24	17	71		Granite	C-1: gray/black/pink GRANTE		
							Terrace	Suspected abutment footing @ 13'		
	S-1	8 22 40 14	24	12				S-1: brown/black m-f SAND, some Silt, very dense, moist (fall in)		
	S-2	16 18 18 50/5"	24	18				S-2: broan/tan SAND, some silt, some gravel, dense, moist		
								End of Boring @ 19' bgs.		

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 17.5 ft. Rock: 1.5' Rock	1. Core barrel advance times are given in the "Blows on Sampler per 6 inches" column in minutes per foot. Boring terminated at 19' bgs. 2. Upon completion, the boring was backfilled with grout and excess drill cuttings and grouted at the surface. The boring was sealed on 12/14/18. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 2 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: Scott Marino	**Connecticut DOT Boring Report**	Hole No.: B-2-7A	
Inspector: R. Lavorati	Town: Preston, Connecticut	Stat./Offset: 83+57.3/-9.5'	
Engineer: M. Chartier	Project No.: 113-107	Northing: 739126.23	
Start Date: 12/14/18 9:25 AM	Route No.: 2A	Easting: 1193082.89	
Finish Date: 12/14/18 10:45 AM	Bridge No.: 02931	Surface Elevation: 7.4 NAVD88	
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" SS	Core Barrel Type: NX	
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: Not measured			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
						2 2 1 1 2 1 2 2 1 1 2 2 1 1 2 2 2 2 2 1 1 2 3 3 2 2 50	Fill	Solid stem augered to 10' bgs. Hammered casing to 14' bgs.		
								Color changed from brown with wood chips to black		
	C-1	2.3 4.5	18	10	0		Concrete	C-1: gray/white CONCRETE		
	C-1A	5.2	0	4.5	0			C-1A: gray/white CONCRETE (leftover material from previous run) Metal shavings encountered in return fluid from coring C-1A		
								End of Boring @ 15.5'		

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 14 ft. Rock: 1.5' Conc.	1. Core barrel advance times are given in the "Blows on Sampler per 6 inches" column in minutes per foot. Boring terminated at 15.5' bgs. 2. Upon completion, the boring was backfilled with grout to the surface. The boring was sealed on 12/14/18. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016. 5. While coring C-1A, NEBC and GCC noticed metal cuttings in the return fluid. Boring terminated and offset north.	Sheet 1 of 1
No. of Soil Samples: 0 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: Scott Marino	**Connecticut DOT Boring Report**	Hole No.: B-2-7B	
Inspector: R. Lavorati	Town: Preston, Connecticut	Stat./Offset: 83+57.4/-10.5	
Engineer: M. Chartier	Project No.: 113-107	Northing: 739127.23	
Start Date: 12/14/18 9:25 AM	Route No.: 2A	Easting: 1193083.06	
Finish Date: 12/14/18 10:45 AM	Bridge No.: 02931	Surface Elevation: 7.4 NAVD88	
Project Description: Preston Bridge No. 02931 over Poquetanuck Cove			
Casing Size/Type: HW 4"	Sampler Type/Size: 1.5" SS	Core Barrel Type: NX	
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb. Fall: 30 in.		
Groundwater Observations: Not measured			

Depth (ft)	Sample Type/No.	SAMPLES Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Casing Blows per 6"	Generalized Strata Description	Material Description and Notes	Well Construction	Elevation (ft)
						2 2 1 1 2 1 2 2 1 1 2 2 1 1 2 2 2 2 2 1 1 2 3 3 2 2 50	Fill	Solid stem augered to 10' bgs. Hammered casing to 14' bgs.		
								Color changed from brown to black		
	C-1	4.1 1.3	18	14	28		Concrete	C-1: gray/black/blue CONCRETE, metal shavings encountered in return fluid		
	C-1A	4.5 0.1	12	1	0			C-1A: black/gray REBAR		
	S-1	6 50/0"	5	5			ML	S-1: brown/black SILT, moist		
	C-2	3.2 2.1 3.3 0.9	48	36	63		Boulders	C-2: gray/black/pink GRANITE		
	S-2	33 50/5"	11	6			Terrace	S-2: brown/tan c-f SAND, some fine gravel, some silt, very dense, moist		
	S-3	24 50/4"	10	4				S-3: brown/tan c-f SAND, some fine gravel, some silt, very dense, moist		
	S-4	17 33 50/3"	15	7				S-4: brown/tan c-f SAND, some fine gravel, some silt, very dense, moist		
								Bottom of Boring @ 24'		

Sample type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Total Penetration in Earth: 18' Rock: 2' Conc./4' Rock	1. Core barrel advance times are given in the "Blows on Sampler per 6 inches" column in minutes per foot. Boring terminated at 24' bgs. 2. Upon completion, the boring was backfilled with grout to the surface. The boring was sealed on 12/14/18. 3. Station values are based upon those shown along CT Rt. 2A on the "PD 30% Structure Plans_CT_RPE_0113-0108" dated 10/28/2016, and provided by CME Engineering, Inc. 4. Ground surface elevations were estimated from drawing "SV_D2_170_3250F_PRESTON_CT 2A OVER POQUETANUCK COVE BR02931 AND DICKERMANS BROOK BR02932_GRN" dated 2/16/2016.	Sheet 1 of 1
No. of Soil Samples: 4 No. of Core Runs: 3		SM-001-M REV. 1/02

NEW SHEET ADDED BY ADDENDUM NO. 2

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 12/12/2019

DESIGNER/DRAFTER: DLW
CHECKED BY: -
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\05_SB_MST_Br02931_ADD_BOR6.dgn

SIGNATURE/BLOCK:

STATE OF CONNECTICUT · STUART H. HARRIS · No. 14513 · LICENSED PROFESSIONAL ENGINEER

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
(860)646-2469

PROJECT TITLE:
REHABILITATION OF BRIDGE NO. 02931
ROUTE 2A
OVER POQUETANUCK COVE

TOWN: **PRESTON**

DRAWING TITLE: **BORING LOGS**

PROJECT NO. **113-107**
DRAWING NO. **S-24**
SHEET NO. **01.05.24.A2**