STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Ninth Edition 2020.

DESIGN LOADING

Live Load	HL - 93 Modified for Strength I

TRAFFIC DATA

Current (2019) AADT	770
Future (2039) AADT	850
DHV - % of AADT	11
Design Hour Volume	89
Heavy Trucks (% of AADT)	6
Heavy Trucks (% of DHV)	6
Directional Distribution (% of DHV)	63
18 kip Equivalent P 2.0	20
18 kip Equivalent P 2.5	19
Design Speed (mph)	45

HYDROLOGIC DATA

Drainage Area	12 sq mi
Design Discharge (Q50)	760 cfs
Check Discharge (Q100)	875 cfs
Headwater Elevation (Q1.1)	29.03 ft
Headwater Elevation (Q25)	31.89 ft
Headwater Elevation (Q50)	32.35 ft
Headwater Elevation (Q100)	32.82 ft
Discharge Velocity (Q1.1)	3.53 fps
Discharge Velocity (Q50)	7.56 fps
Discharge Velocity (Q100)	8.09 fps

MATERIALS

Concrete:	
Precast	Class "P"
All Other	Class "A"
Reinforcing:	
Plain Reinforcing Steel	ASTM A615, Grade 60

BASIC DESIGN STRESSES

Concrete	f 'c = 4,000 psi
Precast Concrete	f 'c = 5,000 psi
Reinforcing Steel	f y = 60,000 psi

GORHAM-SCARBOROUGH
CUMBERLAND COUNTY
MITCHELL BRIDGE
OVER
NONESUCH RIVER
MITCHELL RD.
FEDERAL AID PROJECT NO. 2223800
PROJECT LENGTH 0.076 mi.
BRIDGE NO. 0216

LIST OF DRAWINGS

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UTILITIES

Town of Gorham

MAINTENANCE OF TRAFFIC

Bridge will be closed to traffic during construction with traffic detoured.

PROJECT LOCATION	Mitchell Bridge (#0216) carrying Mitchell Rd. over the Nonesuch River, located 0.04 miles northwest of the Scarborough town line, in Cumberland County. Lat./Long. 43°37'15.94" N 70°38'38.99" W
PROGRAM AREA	Highway - Bridge Traditional
OUTLINE OF WORK	Bridge Culvert Replacement

WIN 022238.00

022238.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED — DATE 12-6-24

COMMISSIONER: Paul C. Merrill

CHIEF ENGINEER: Kenneth Sawyer — 12-6-2024

STATE OF MAINE — GARRETT A GUSTAFSON 13553 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE — P.E. NUMBER 13553 — DATE 12-4-24

PROJECT INFORMATION

PROGRAM	BRIDGE
PROJECT MANAGER	JULIE BRASK
DESIGNER	ERIN BREWER
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

GORHAM-SCARBOROUGH
MITCHELL BRIDGE

TITLE SHEET

SHEET NUMBER 1 OF 21

Filename: \00\BRIDGE\MSTA\001_Title.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024

ESTIMATED QUANTITIES			
	DESCRIPTION	QUANTITY	UNIT
202.202	REMOVING PAVEMENT SURFACE	620	SY
203.20	COMMON EXCAVATION	510	CY
203.24	COMMON BORROW	50	CY
203.25	GRANULAR BORROW	220	CY
203.33	SPECIAL FILL - STREAMBED MATERIAL	100	CY
203.55	CULVERT BEDDING STONE	80	CY
206.061	STR. EARTH EXCAVATION - DRAINAGE AND MINOR STR. BEL GRADE	90	CY
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	520	CY
403.208	HOT MIX ASPHALT 12.5 MM HMA SURFACE	130	T
403.213	HOT MIX ASPHALT 12.5 MM BASE	120	T
409.15	BITUMINOUS TACK COAT - APPLIED	60	G
508.13	SHEET WATERPROOFING MEMBRANE (180 SY)	1	LS
511.07	COFFERDAM: UPSTREAM	1	LS
511.07	COFFERDAM: DOWNSTREAM	1	LS
515.21	PROTECTIVE COATING FOR CONCRETE SURFACES (18 SY)	1	LS
526.301	PORTABLE CONCRETE BARRIER, TYPE 1 (60 LF)	1	LS
534.71	PRECAST CONCRETE BOX CULVERT (205 CY)	1	LS
606.1301	31" W-BM GR, MID-WAY SPLICE-SGL FACED	379	LF
606.1304	31" W-BM GR, MID-WAY SPLICE-OVER 15' RAD	25	LF
606.1305	31" W-BM GR, MID-WAY SPLICE FLARED TERMINAL	3	EA
606.265	TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	1	EA
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	8	EA
606.743	GUARDRAIL - CULVERT MOUNTED SINGLE RAIL	50	LF
610.08	PLAIN RIPRAP	230	CY
610.213	VOID-FILLED RIPRAP	160	CY
613.319	EROSION CONTROL BLANKET	170	SY
615.07	LOAM	40	CY
618.14	SEEDING METHOD NUMBER 2	6	UN
619.12	MULCH	6	UN
619.14	EROSION CONTROL MIX	70	CY
620.54	STABILIZATION/REINFORCEMENT GEOTEXTILE	240	SY
620.58	EROSION CONTROL GEOTEXTILE	520	SY
627.733	4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	1200	LF
629.05	HAND LABOR, STRAIGHT TIME	20	HR
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20	HR
631.14	GRADER (INCLUDING OPERATOR)	20	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)	20	HR
639.19	FIELD OFFICE TYPE B	1	EA
652.312	TYPE III BARRICADE	8	EA
652.33	DRUM	20	EA
652.34	CONE	40	EA
652.35	CONSTRUCTION SIGNS	300	SF
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES	1	LS
652.38	FLAGGER	150	HR
652.41	PORTABLE CHANGEABLE MESSAGE SIGN	2	EA
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	1	LS
659.10	MOBILIZATION	1	LS
834.322	DRY HYDRANT - INSTALL ONLY	1	LS

GENERAL CONSTRUCTION NOTES

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

2. 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.

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

4. Existing signs within the Project limits shall be removed and reset as directed by the Resident. Payment for removal and reinstallation of existing signs will be considered incidental to the Contract. No separate payment will be made.

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

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

7. All embankment material, except as otherwise shown, placed below EL. 32.35 shall be Granular Borrow meeting the requirements of Standard Specifications Subsection 703.19, Granular Borrow, for Material for Underwater Backfill. Backfill material for the precast box culvert shall conform with the requirements for Granular Borrow for Underwater Backfill with a maximum aggregate size of 4 inches per Standard Spec 534.

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

9. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Pay Item 619.14, Erosion Control Mix.

10. Place a 24 inch wide strip of Erosion Control Blanket on the sideslopes along the top of the riprap and behind the wingwalls.

11. Guardrail posts as shown in the Standard Details shall be modified from the indicated length of 7 feet to a length of 8 feet with an embedment of 5.25 feet. Payment will be considered incidental to the guardrail pay items. Guardrail posts over the Box Culvert shall be modified as shown on Top Mounted Guardrail System Details sheet.

12. A MASH compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.

13. Where it is apparent that runoff will cause continual erosion, Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Plain Riprap shall be constructed after paving and shoulder work is completed. Payment will be made under the appropriate Contract items.

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

    Box Culvert Headwalls

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

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

17. Reports on hydrology and/or hydraulics applicable to the bridge site may be accessed at the MaineDOT web address. The reports are based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.

18. The project geotechnical report titled: Geotechnical Design Report, Mitchell Bridge Culvert Replacement, Bridge No. 0216, Gorham, Maine, dated October 2024, may be accessed at the MaineDOT web address.

19. 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.

20. 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 and Time.

21. Parcel(s) #1, #2, #3, and #4 are held in reserve as indicated in Special Provision 104 General Rights and Responsibilities (Reserved Limits)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

ESTIMATED QUANTITIES AND GENERAL CONSTUCTION NOTES

SHEET NUMBER

2

OF 21

Username: Brian.Nichols Date:12/4/2024

Division: BRIDGE

Filename: ...\BRIDGE\MSTA\002_Estimate.dgn

CURVE DATA #1
PI = 1+92.54
D = 4°46'28.7"
Δ = 18°13'51.6" Lt.
R = 1200.00'
L = 381.83'
T = 192.54'
E = 15.35'

PCC = STA. 3+81.83

CURVE DATA #2
PI = 4+50.92
D = 1°54'35.5"
Δ = 2°38'19.5" Lt.
R = 3000.00'
L = 138.16'
T = 69.09'
E = 0.80'

PT = STA. 5+19.99

Nonesuch River
Flow

℄ Precast Concrete Box Culvert
Sta. 5+76.00
25' Span x 8' Rise

11' Skew

5' Clearing Limit Line (Typ.)

Approximate Location of
Proposed Dry Hydrant

2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00

To Gorham

Mitchell Hill Rd.

S26°54'59.25"E

To Scarborough

31" W-Beam Guardrail
35' Radius

31" W-Beam Guardrail
Flared Terminal (Typ.)

Plain Riprap
(Typ.)

Void Filled Plain
Riprap Apron (Typ)

PC = STA. 7+71.89

CURVE DATA #3
PI = 8+76.51
D = 0°51'44.6"
Δ = 1°48'15.3" Rt.
R = 6643.93'
L = 209.22'
T = 104.62'
E = 0.82'

PLAN

25 0 25 50
Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

	JULIE BRASH	DATE
PROJ. MANAGER		
DESIGN-DETAILED	EDB	BJN 08\2024
CHECKED-REVIEWED	DCE	DCE 08\2024
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

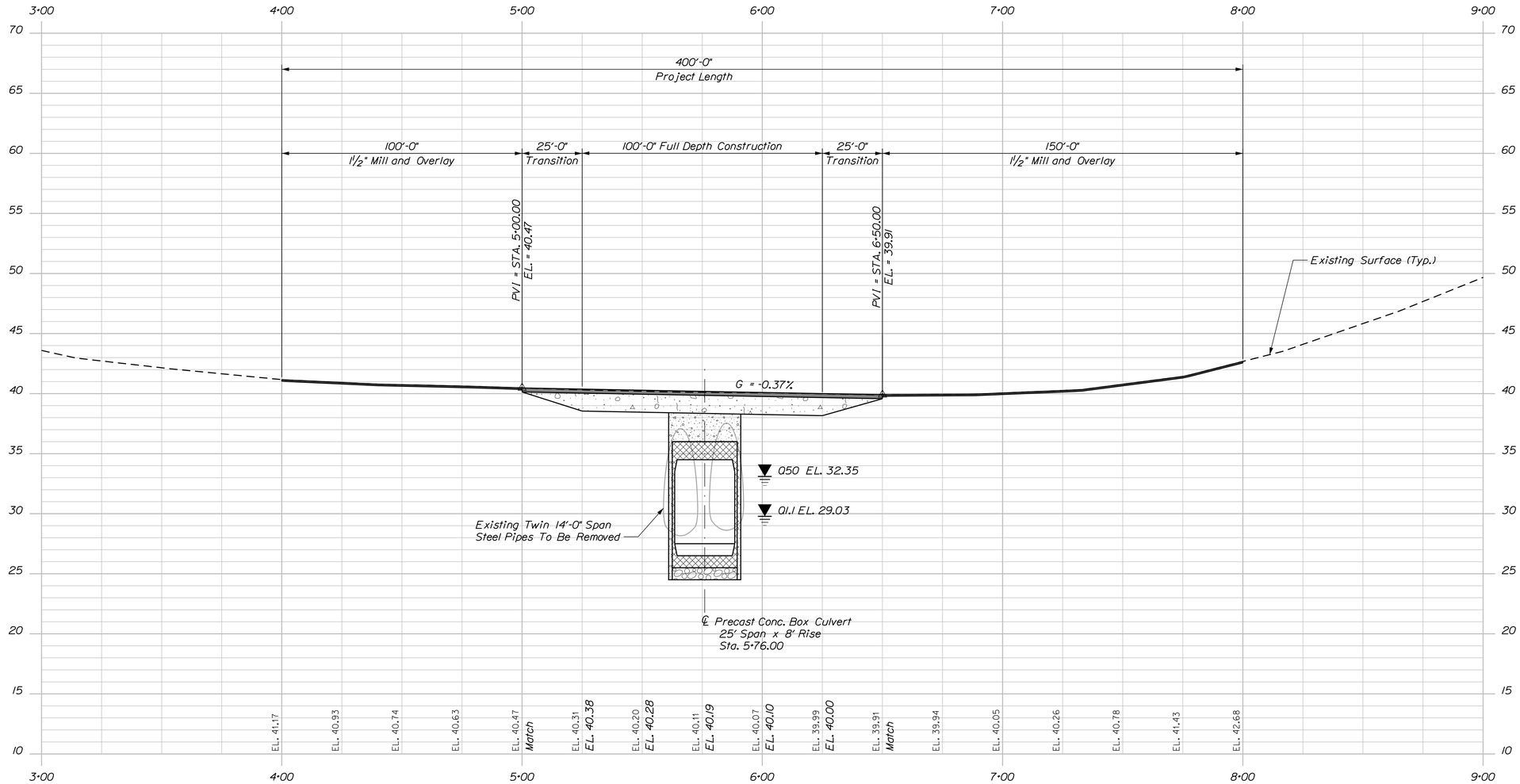
MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

GENERAL PLAN

SHEET NUMBER

3

OF 21

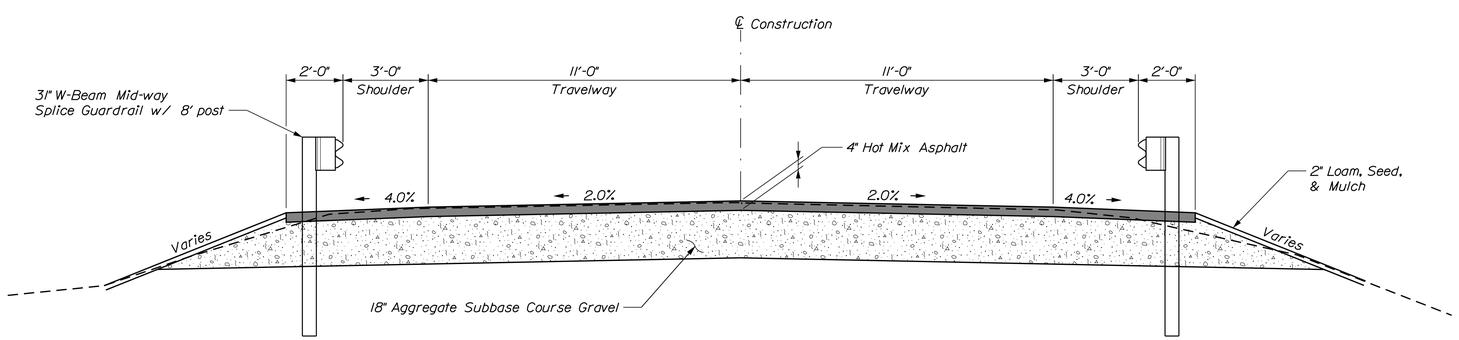


PROFILE

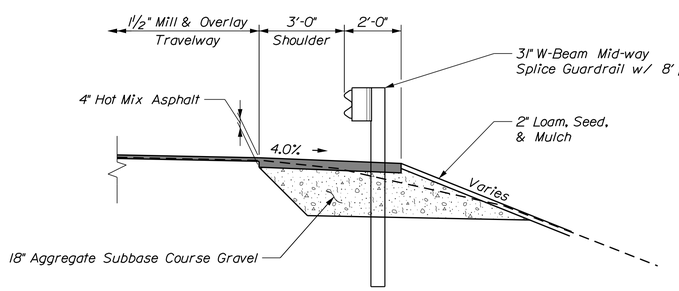
Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet



APPROACH DESIGN SECTION



SHOULDER RECONSTRUCTION SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASH		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	DCE	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BY | DATE | SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

PROFILE

SHEET NUMBER

4

OF 21

Filename: ...\00\BRIDGE\MSTA\004_Profile.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024

CURVE DATA #1
PI = 1+92.54
D = 4°46'28.7"
Δ = 18°13'51.6" Lt.
R = 1200.00'
L = 381.83'
T = 192.54'
E = 15.35'

PCC = STA. 3+81.83

CURVE DATA #2
PI = 4+50.92
D = 1°54'35.5"
Δ = 2°38'19.5" Lt.
R = 3000.00'
L = 138.16'
T = 69.09'
E = 0.80'

PT = STA. 5+19.99

Nonesuch River Flow

℄ Precast Concrete Box Culvert
Sta. 5+76.00
25' Span x 8' Rise

11° Skew

5' Clearing Limit Line (Typ.)

Approximate Location of Proposed Dry Hydrant

2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00

To Gorham

Mitchell Hill Rd.

BB-GNR-102
BB-GNR-101A
BB-GNR-101

S26°54'59.25"E

To Scarborough

3I" W-Beam Guardrail
35' Radius

3I" W-Beam Guardrail
Flared Terminal (Typ.)

Plain Riprap
(Typ.)

Flow

NONESUCH RIVER

Void Filled Plain
Riprap Apron (Typ)

PC = STA. 7+71.89

CURVE DATA #3
PI = 8+76.51
D = 0°51'44.6"
Δ = 1°48'15.3" Rt.
R = 6643.93'
L = 209.22'
T = 104.62'
E = 0.82'

Notes:

1) Base map developed from elecatronic files (alignments.dgn, Bridge.dgn, Contours.dgn, and Topo.dgn) provide by MaineDOT.

2) The as-drilled locations of BB-GNR-101, -101A, and -102 test borings were surveyed by and provided by MaineDOT in an electronic file (borings (06-01-2021).dng) on June 6, 2021.

PLAN

25 0 25 50
Scale of Feet

Legend

Location and designation of BB-GNR-100 Series borings drilled by MaineDOT between May 20, 2021 and May 27, 2021.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216 BRIDGE PLANS

	DEVAN EATON	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2	B.CARDALI	T. WHITE	10/2024
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

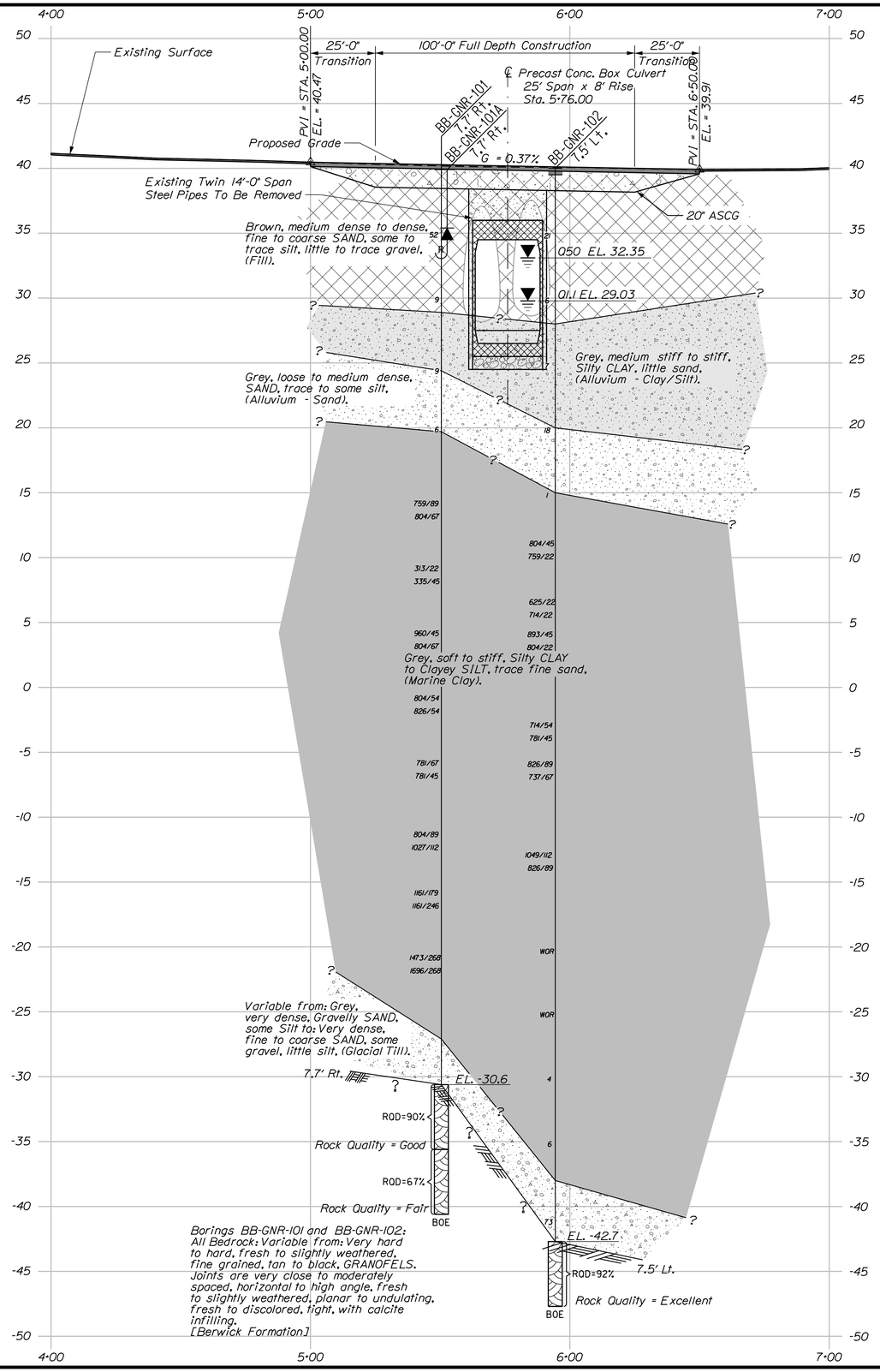
MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

BORING LOCATION PLAN

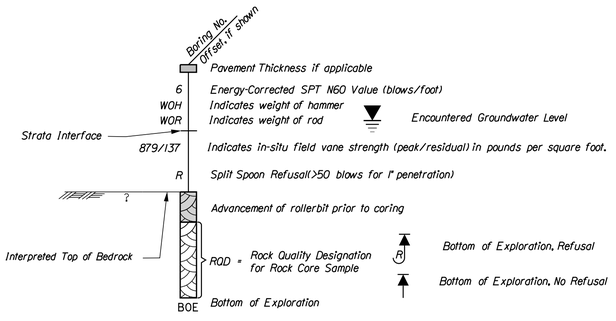
SHEET NUMBER

5

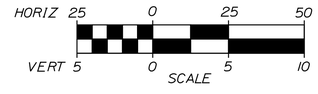
OF 21



LEGEND



PROFILE



Notes:

1) Base Profile developed from electronic file (Profile.dgn) provide by MaineDOT.

2) The as-drilled locations of BB-GNR-101, -101A, and -102 test borings were surveyed by and provided by MaineDOT in an electronic file (borings (06-01-2021).dng) on June, 6, 2021.

3) 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 and bedrock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216 — BRIDGE PLANS

PROJ. MANAGER	DEVAN EATON	BY	DATE
DESIGN-DETAILED		EDB	08\2024
CHECKED-REVIEWED		GAG	08\2024
DESIGN2-DETAILED2		B.CARDALI	10/2024
DESIGN3-DETAILED3		T.WHITE	
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER

6

OF 21

Filename: ...\00\GEOTECH\MSTA\006_ISP1.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024

Filename: ...\MSTA\007_BORING LOGS1.dgn   Division: BRIDGE   Username: Brian.Nichols   Date:12/4/2024

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Mitchell Bridge #0216 carries Mitchell Hill Road over Nonesuch
Location: Gorham, Maine

Boring No.: BB-GNR-101
WIN: 22238.00

Driller:	MaineDOT	Elevation (ft.)	39.9	Auger ID/OD:	5" Solid Stem
Operator:	Daggett/Jay	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	J. Manahan	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	5/20/2021, 5/25/2021	Drilling Method:	Cased Wash Boring	Core Barrel:	NQ-2"
Boring Location:	5+50.5, 7.7 ft Rt.	Casing ID/OD:	NW-3"	Water Level*:	10.0 ft bgs.
Hammer Efficiency Factor: 0.89		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			
5	1D	24/8	5.00 - 7.00	15/21/14/13	35	52			Brown, damp, very dense, fine to coarse SAND, little gravel, (Fill).	
10	2D/A	24/16	10.00 - 12.00	WOH/3/3/5	6	9	4	28.9	2D (10.0-11.0 ft bgs.) Brown, moist, loose, fine to coarse SAND, some silt, little gravel, wood (timber cribbing), (Fill). ——11.0 2D/A (11.0-12.0 ft bgs.) Grey, damp, stiff, Silty CLAY, little sand, (Alluvium-Clay/Silt).	
							15			
							17			
							26			
							27			
15	3D/MV	24/16	15.50 - 17.50	3/3/3/3	6	9	a14	24.4	a Casing sunk to 15.5 ft bgs. ——15.5 Grey, wet, loose, fine SAND, some silt, trace clay, trace medium sand (Alluvium-Sand). Failed 55x110 mm vane attempt, would not push.	G#340968 A-2-4, SC-SM WC=21.1% Non-Plastic
							25			
							27			
							30			
							29			
20	4D/A	24/24	20.00 - 22.00	1/2/2/2	4	6	HYD PUSH	19.7	4D (20.0-20.2 ft bgs.) Grey, moist, loose, SAND, trace silt, (Alluvium-Sand). ——20.2 4D/A (20.2-22.0 ft bgs.) Grey, moist, medium stiff, Silty CLAY, trace fine sand (Marine Clay).	G#340969 A-6, CL WC=38.8% LL=39 PL=23 PI=16
25	5D V1	24/24	25.00 - 27.00 25.63 - 26.00	WOR/WOR/WOR/WOH Su=759/89 psf	---		OPEN HOLE		Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x100 mm vane raw torque readings: V1: 17.0/2.0 ft-lbs	
	V1/2		26.63 - 27.00	Su=804/67 psf					V1/2: 18.0/1.5 ft-lbs	
30	6D V2	24/24	30.00 - 32.00 30.63 - 31.00	WOR/WOR/WOR/WOR Su=313/22 psf	---				Grey, wet, soft, Silty CLAY, trace fine sand, (Marine Clay). 55x100 mm vane raw torque readings: V2: 7.0/0.5 ft-lbs	G#340970 A-6, CL WC=37.6% LL=33 PL=22 PI=11
	V2/2		31.63 - 32.00	Su=335/45 psf					V2/2: 7.5/1.0 ft-lbs	
35	7D V3	24/14	35.00 - 37.00 35.63 - 36.00	WOR/WOR/WOR/WOR Su=960/45 psf	---		HYD PUSH		Similar to 6D, except medium stiff. 55x100 mm vane raw torque readings: V3: 21.5/1.0 ft-lbs	
	V3/2		36.63 - 37.00	Su=804/67 psf					V3/2: 18.0/1.5 ft-lbs	
40	8D V4	24/15	40.00 - 42.00 40.63 - 41.00	WOR/WOR/WOR/WOR Su=804/54 psf	---				Similar to above. 55x100 mm vane raw torque readings: V4: 18.0/1.2 ft-lbs	
	V4/2		41.63 - 42.00	Su=826/54 psf					V4/2: 18.5/1.2 ft-lbs	
45	9D V5	24/13	45.00 - 47.00 45.63 - 46.00	WOR/WOR/WOR/WOR Su=781/67 psf	---				Similar to above.Grey, wet, medium stiff, Silty CLAY, trace fine sand, (Marine Clay). 55x100 mm vane raw torque readings: V5: 17.5/1.5 ft-lbs	G#340971 A-6, CL WC=37.0% LL=36 PL=23 PI=13
	V5/2		46.63 - 47.00	Su=781/45 psf					V5/2: 17.5/1.0 ft-lbs	
50	10D	24/24	50.50 - 52.50	WOR/WOR/WOR/WOR	---				Grey, wet, medium stiff, Silty CLAY, trace fine sand, (Marine Clay). 55x100 mm vane raw torque readings:	
	V6		51.13 - 51.50	Su=804/89 psf					V6: 18.0/2.0 ft-lbs	
	V6/2		52.13 - 52.50	Su=1027/112 psf					V6/2: 23.0/2.5 ft-lbs	
55	11D V7	24/24	55.00 - 57.00 55.63 - 56.00	WOR/WOH/WOR/WOR Su=1161/179 psf	---				Grey, wet, stiff, Silty CLAY, (Marine Clay). 55x100 mm vane raw torque readings: V7: 26.0/4.0 ft-lbs	
	V7/2		56.63 - 57.00	Su=1161/246 psf					V7/2: 26.0/5.5 ft-lbs	
60	12D V8	24/24	60.00 - 62.00 60.63 - 61.00	WOR/WOR/WOR/WOR Su=1473/268 psf	---				Similar to above. 55x100 mm vane raw torque readings: V8: 33.0/6.0 ft-lbs	
	V8/2		61.63 - 62.00	Su=1696/268 psf					V8/2: 38.0/6.0 ft-lbs	
65	13D MV	24/24	65.00 - 67.00 65.63 - 65.63	WOR/WOR/WOH/14 Would Not Push	---		17		Grey, wet, stiff, Clayey SILT, little fine sand, (Marine Clay). Failed 4=55x110 mm vane attempt.	
							31	-27.1	——67.0	
							29			
							62			
							47			
70	14D R1	6/5 60/60	70.00 - 70.50 70.50 - 75.50	50 RQD = 90%	---		NQ-2	-30.6	Grey, wet, very dense, Gravelly SAND, some silt, (Glacial Till). ——70.5 Top of Bedrock at Elev. -30.6 ft. R1: Bedrock: Tan to black, fine-grained, GRANOFELS, hard, fresh to slightly weathered. Joints are very close to moderately spaced, horizontal to low angle, fresh to slightly weathered, planar, smooth, fresh to discolored, tight, with calcite infilling. [Berwick Formation] Rock Quality = Good R1: Core Times (min:sec) 70.5-71.5 ft (4:02)	
75										

Remarks:

Left 50 ft of NW Casing in bore hole on 5/20/2021, until we returned on 5/25/2021.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2

Boring No.: BB-GNR-101

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Mitchell Bridge #0216 carries Mitchell Hill Road over Nonesuch
Location: Gorham, Maine

Boring No.: BB-GNR-101
WIN: 22238.00

Driller:	MaineDOT	Elevation (ft.)	39.9	Auger ID/OD:	5" Solid Stem
Operator:	Daggett/Jay	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	J. Manahan	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	5/20/2021, 5/25/2021	Drilling Method:	Cased Wash Boring	Core Barrel:	NQ-2"
Boring Location:	5+50.5, 7.7 ft Rt.	Casing ID/OD:	NW-3"	Water Level*:	10.0 ft bgs.
Hammer Efficiency Factor: 0.89		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75	R2	60/60	75.50 - 80.50	RQD = 67%				-35.6	71.5-72.5 ft (3:55) 72.5-73.5 ft (2:47) 73.5-74.5 ft (1:30) 74.5-75.5 ft (2:12) 100% Recovery ——75.5 R2: Bedrock: Tan to black, fine-grained, GRANOFELS, fresh to slightly weathered. Primary joints are very close to moderately spaced, horizontal to low angle, fresh to slightly weathered, planar, smooth, fresh to discolored, tight, with calcite infilling. Secondary joints are moderately spaced, high angle, undulating, smooth fresh, tight. [Berwick Formation] Rock Quality = Fair R2: Core Times (min:sec) 75.5-76.5 ft (1:54) 76.5-77.5 ft (1:54) 77.5-78.5 ft (1:47) 78.5-79.5 ft (1:49) 79.5-80.5 ft (1:53) 100% Recovery	
80								-40.6	——80.5 Bottom of Exploration at 80.5 feet below ground surface.	
85										
90										
95										
100										

Remarks:

Left 50 ft of NW Casing in bore hole on 5/20/2021, until we returned on 5/25/2021.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2

Boring No.: BB-GNR-101

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Mitchell Bridge #0216 carries Mitchell Hill Road over Nonesuch
Location: Gorham, Maine

Boring No.: BB-GNR-101A
WIN: 22238.00

Drilling Contractor:	MaineDOT	Elevation (ft.)	39.9	Auger ID/OD:	5" Dia.
Operator:	Daggett/Jay	Datum:	NAVD88	Sampler:	N/A
Logged By:	J. Manahan	Rig Type:	CME 45C	Hammer Wt./Fall:	N/A
Date Start/Finish:	5/20/2021; 08:00-0815	Drilling Method:	Solid Stem Auger	Core Barrel:	N/A
Boring Location:	5+52.2, 7.7 ft Rt.	Casing ID/OD:	N/A	Water Level*:	None Observed

Definitions: D = Split Spoon Sample
S = Sample off Auger Flights
B = Bucket Sample off Auger Flights
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MV = Unsuccessful Field Vane Shear Test Attempt
V = Field Vane Shear Test, PP= Pocket Penetrometer
MU = Unsuccessful Thin Wall Tube Sample Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of 1 Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-value = Raw Field SPT N-value
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0						SSA		Brown Sand and Gravel cuttings.	
5							35.4	——4.5 Bottom of Exploration at 4.5 feet below ground surface. REFUSAL, Boring was terminated due to probable cobble/ boulder. Offset and drilled BB-GNR-101.	
10									
15									
20									
25									

Remarks:

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Page 1 of 1

Boring No.: BB-GNR-101A

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Mitchell Bridge #0216 carries Mitchell Hill Road over Nonesuch
Location: Gorham, Maine

Boring No.: BB-GNR-102
WIN: 22238.00

Driller:	MaineDOT	Elevation (ft.)	40.0	Auger ID/OD:	5" Solid Stem
Operator:	Daggett/Jay	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	J. Manahan	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	5/25-27/2021	Drilling Method:	Cased Wash Boring	Core Barrel:	NQ-2"
Boring Location:	5+94.4, 7.5 ft Lt.	Casing ID/OD:	HW-4" & NW-3"	Water Level*:	None Observed
Hammer Efficiency Factor: 0.89		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	39.5	6" HMA. ——0.5	
5	1D	24/20	5.00 - 7.00	12/7/7/13	14	21			Brown, damp, medium dense, fine to coarse SAND, trace silt, trace gravel, (Fill).	G#340972 A-1-b, SW-SM WC=2.9%
10	2D	24/19	10.00 - 12.00	4/2/2/2	4	6	27		Dark grey, fine to coarse SAND, some silt, little gravel, trace organics, (Fill).	
							36	28.0	——12.0	
							40			
							52			
							64			
15	3D	24/2	15.00 - 17.00	3/2/3/3	5	7	50		Grey, wet, medium stiff, Silty CLAY, little fine sand, (Alluvium-Clay/Silt).	
							53			
							60			
							45		Roller Coned ahead from 19.0-20.0 ft bgs.	
							52			
20	4D	24/3	20.00 - 22.00	5/5/7/7	12	18	55	20.0	——20.0 Grey, wet, medium dense, fine to coarse SAND, trace silt, (Alluvium-Sand).	
							56			
							123			
							96			
							84			
25	5D	24/24	25.00 - 27.00	WOH/WOH/1/WOH	1	1	65	15.0	——25.0 Grey, wet, very soft, Clayey SILT, trace fine sand, trace gravel (Marine Clay).	G#303113 A-6, CL WC=35.9% LL=32 PL=20 PI=12
							47			
							46			
	V1		28.63 - 29.00	Su=804/45 psf			44		55x110 mm vane raw torque readings: V1: 18.0/1.0 ft-lbs	
	V1/2		29.63 - 30.00	Su=759/22 psf			36		V1/2: 17.0/0.5 ft-lbs	
30	1U	24/24	30.50 - 32.50				OPEN HOLE		Grey, moist, medium stiff, Silty CLAY, trace fine sand, (Marine Clay).	G,C#340973 A-6, CL WC=37.0% LL=35 PL=23 PI=12
	V2		33.13 - 33.50	Su=625/22 psf					55x110 mm vane raw torque readings: V2: 14.0/1.0 ft-lbs	
	V2/2		34.13 - 34.50	Su=714/22 psf					V2/2: 16.0/0.5 ft-lbs	
35	MD V3	24/0	35.00 - 37.00 35.63 - 36.00	WOR/WOR/WOR/WOR Su=893/45 psf	---				Failed sample attempt. 55x110 mm vane raw torque readings: V3: 20.0/1.0 ft-lbs	
	V3/2		36.63 - 37.00	Su=804/22 psf					V3/2: 18.0/0.5 ft-lbs	
40	2U	24/24	40.00 - 42.00						Grey, moist, Silty CLAY, trace sand,, trace gravel (Marine Clay).	G,C#340974 A-6, CL WC=35.5% LL=32 PL=21 PI=11
	V4		42.63 - 43.00	Su=714/54 psf					55x110 mm vane raw torque readings: V4: 16.0/1.2 ft-lbs	
	V4/2		43.63 - 44.00	Su=781/45 psf					V4/2: 17.5/1.0 ft-lbs	
45	6D V5	24/16	45.00 - 47.00 45.63 - 46.00	WOR/WOR/WOR/WOR Su=826/89 psf	---				Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane raw torque readings: V5: 18.5/2.0 ft-lbs	
	V5/2		46.63 - 47.00	Su=737/67 psf					V5/2: 16.5/1.5 ft-lbs	
50	3U	24/24	50.00 - 52.00	WOR/WOR					Grey, moist, medium stiff, Silty CLAY, trace sand, (Marine Clay).	G,C#340975 A-4, CL WC=33.8% LL=30 PL=20 PI=10
	V6		52.63 - 53.00	Su=1049/112 psf					55x110 mm vane raw torque readings: V6: 23.5/2.5 ft-lbs	
	V6/2		53.63 - 54.00	Su=826/89 psf					V6/2: 18.5/2.0 ft-lbs	
55									Dropped in NW Casing 55.0 ft bgs., then casing sank to 60.0 ft bgs.	
60	7D	24/24	60.00 - 62.00	WOR/WOR/WOR/WOR	---				Grey, wet, very soft, Silty CLAY, trace fine sand, (Marine Clay).	
65	8D	24/24	65.00 - 67.00	WOR/WOR/WOR/WOR	---				Grey, wet, very soft, Clayey SILT, trace fine sand, trace gravel (Marine Clay).	G#303114 A-6, CL WC=30.3% LL=34 PL=22 PI=12
							WOR			
							WOH			
							10			
70	9D	24/16	70.00 - 72.00	WOR/WOR/3/2	3	4	7		Grey, wet, very soft, Silty CLAY, trace fine sand, (Marine Clay).	
							7			
							10			
							9			
							14			
75										

Remarks:

5/25/2021, left 25.0 ft of casing in hole.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.

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Page 1 of 2

Boring No.: BB-GNR-102

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Mitchell Bridge #0216 carries Mitchell Hill Road over Nonesuch
Location: Gorham, Maine

Boring No.: BB-GNR-102
WIN: 22238.00

Driller:	MaineDOT	Elevation (ft.)	40.0	Auger ID/OD:	5" Solid Stem
Operator:	Daggett/Jay	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	J. Manahan	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	5/25-27/2021	Drilling Method:	Cased Wash Boring	Core Barrel:	NQ-2"
Boring Location:	5+94.4, 7.5 ft Lt.	Casing ID/OD:	HW-4" & NW-3"	Water Level*:	None Observed
Hammer Efficiency Factor: 0.89		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75	10D	24/24	75.00 - 77.00	WOR/1/3/10	4	6	12		Grey, wet, medium stiff, SILT, some clay, some fine to medium sand, trace gravel (Marine Clay).	
							16			
							9	-38.0	——78.0	
							18			
80							20			
							23			
	11D	19.2/16	81.00 - 82.60	13/19/30/30(1.2)	49	73	38		Brown, wet, very dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).	
	R1	60/60	82.70 - 87.70	RQD = 92%			NQ-2	-42.7	——82.7 Top of Bedrock at Elev. -42.7 ft. R1: Bedrock: Black, fine-grained, GRANOFELS, very hard, fresh. Joints are close to moderately spaced, low angle, fresh, planar, smooth, tight, with calcite infilling. Rock Quality = Excellent [Berwick Formation] R1: Core Times (min:sec) 82.7-83.7 ft (1:08) 83.7-84.7 ft (1:40) 84.7-85.7 ft (1:29) 85.7-86.7 ft (1:51) 86.7-87.7 ft (1:50) 100% Recovery	
85								-47.7	——87.7 Bottom of Exploration at 87.7 feet below ground surface.	
90										
95										
100										

Remarks:

5/25/2021, left 25.0 ft of casing in hole.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2

Boring No.: BB-GNR-102

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

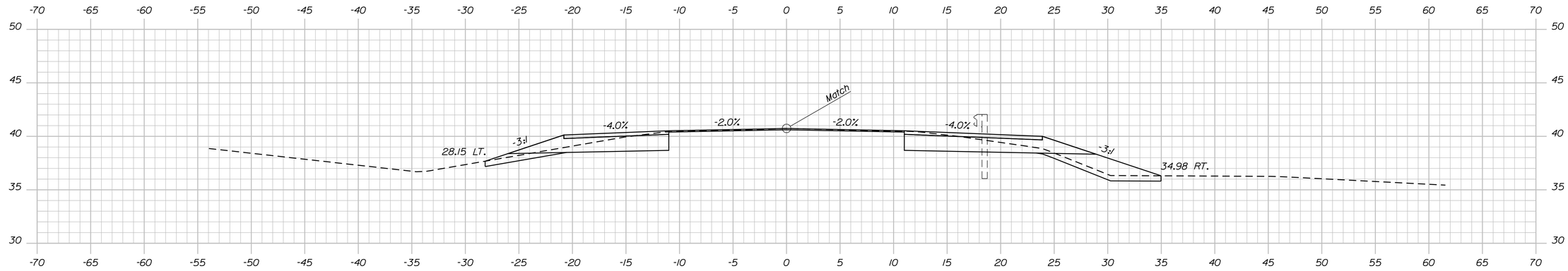
02223800

BRIDGE NO. 0216   WIN 022238.00   BRIDGE PLANS

PROJ. MANAGER	DEVAN EATON		
	BY	DATE	
DESIGN-DETAILED	EDB	08\2024	SIGNATURE
CHECKED-REVIEWED	GAG	08\2024	
DESIGN2-DETAILED2	B.CARDALI	10/2024	
DESIGN3-DETAILED3	T.WHITE		P.E. NUMBER
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			DATE
REVISIONS 4			
FIELD CHANGES			

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

BORING LOGS



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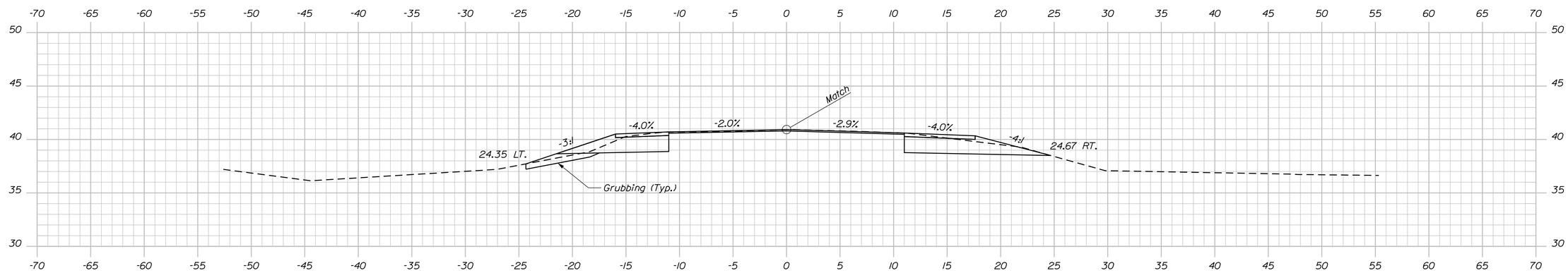

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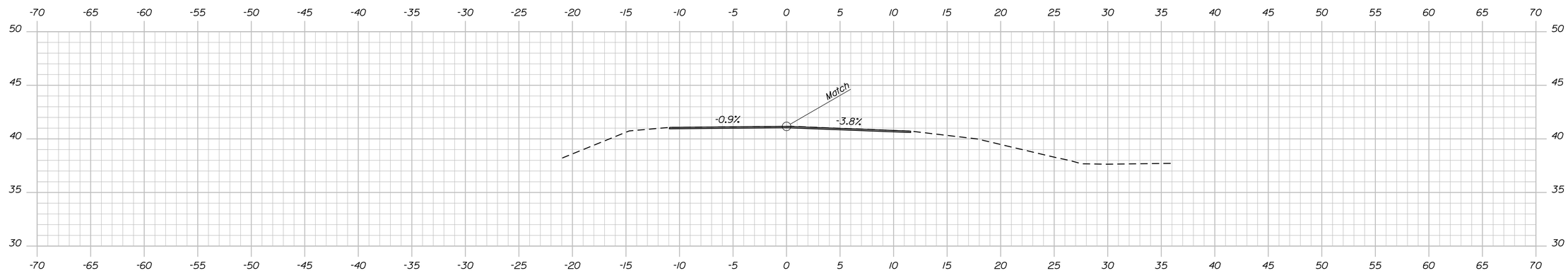


4+00.00
MATCH EXISTING
BEGIN MILL & OVERLAY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	JULIE BRASK	
DESIGN-DETAILED	EDB	08\2024
CHECKED-REVIEWED	GAG	08\2024
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

CROSS SECTIONS

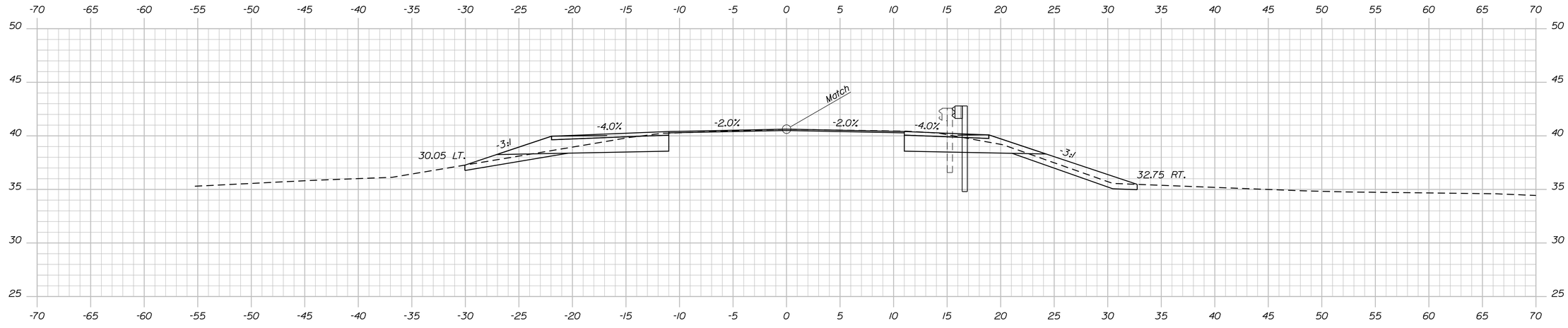
SHEET NUMBER

8

OF 21

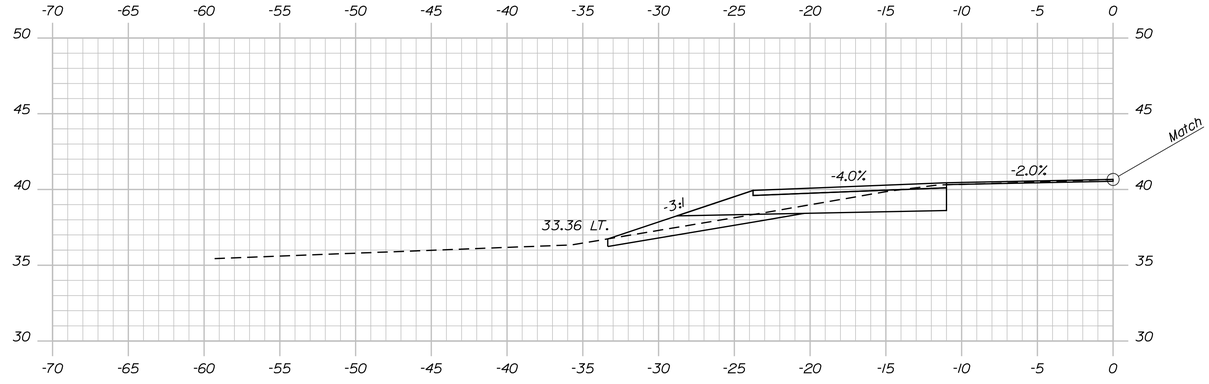
Filename: ...\MSTA\008_XSECT_4+00_001.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024

Sta. 4+00.00 to Sta. 4+50.00

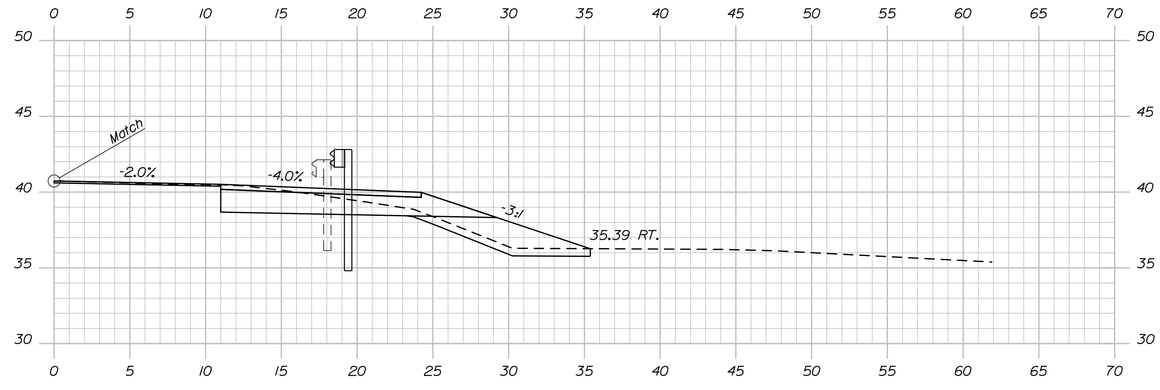


4+75.00

Sta. 4+88 to 7+35 ±
Install 256.3 LF 31" W-Beam Mid-way Splice Guardrail



4+65.98



4+51.30

Sta. 4+51.30 to Sta. 4+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

P.E. NUMBER

DATE

PROJ. MANAGER	JULIE BRASK	
DESIGN-DETAILED	EDB	BJN
CHECKED-REVIEWED	CAG	DCE
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

	BY	DATE
	BJN	08\2024
	DCE	08\2024

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

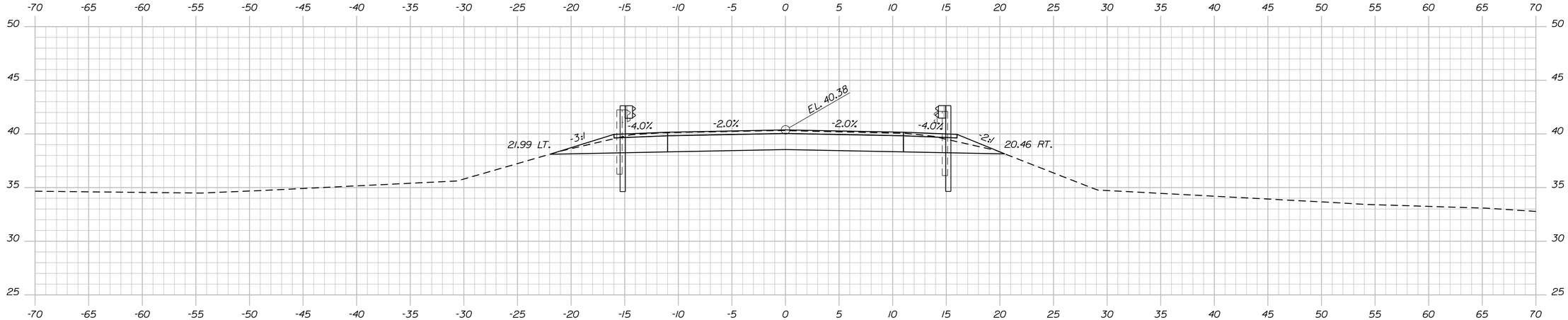
CROSS SECTIONS

SHEET NUMBER

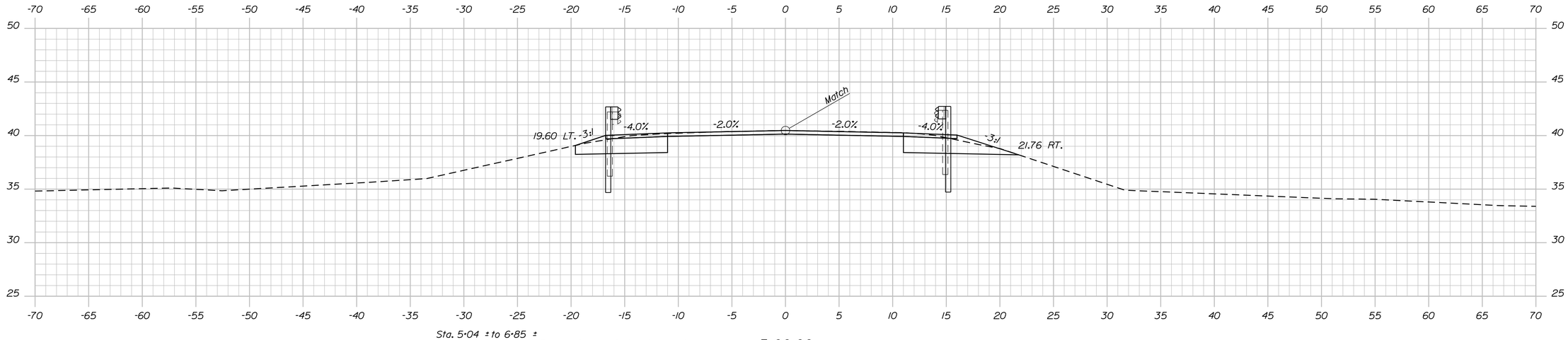
9

OF 21

Filename: ...\MSTA\009_XSECT_4+51_002.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024



5+25.00
END TRANSITION
BEGIN PROJECT



Sta. 5+04 ± to 6+85 ±
Install 171.8 LF 31" W-Beam Mid-way Splice Guardrail

5+00.00
END MILL & OVERLAY
BEGIN TRANSITION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASK		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

P.E. NUMBER

SIGNATURE

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

CROSS SECTIONS

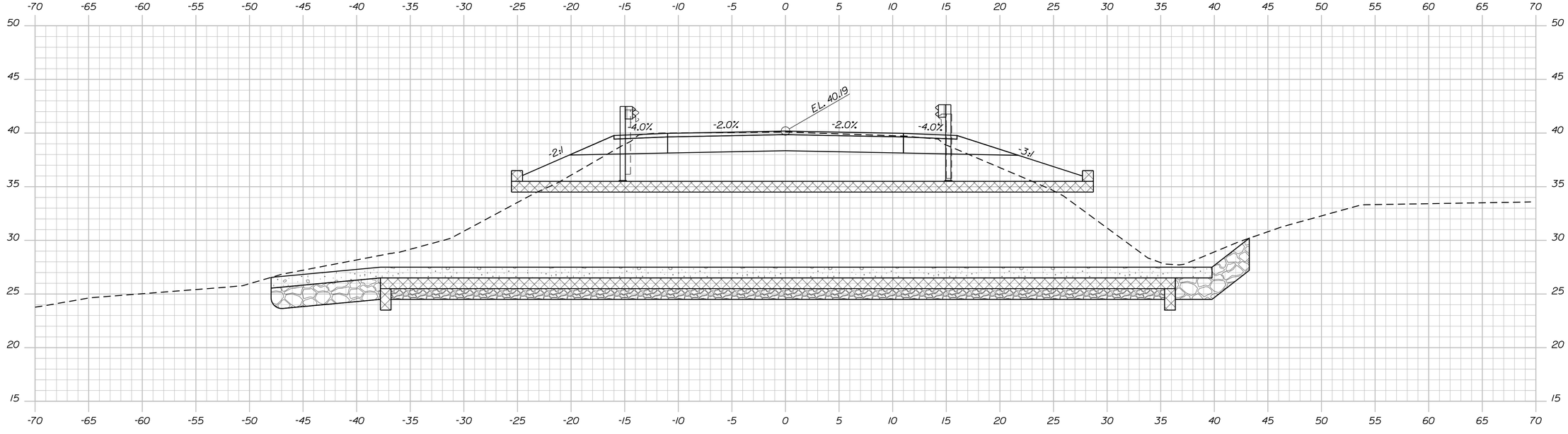
SHEET NUMBER

10

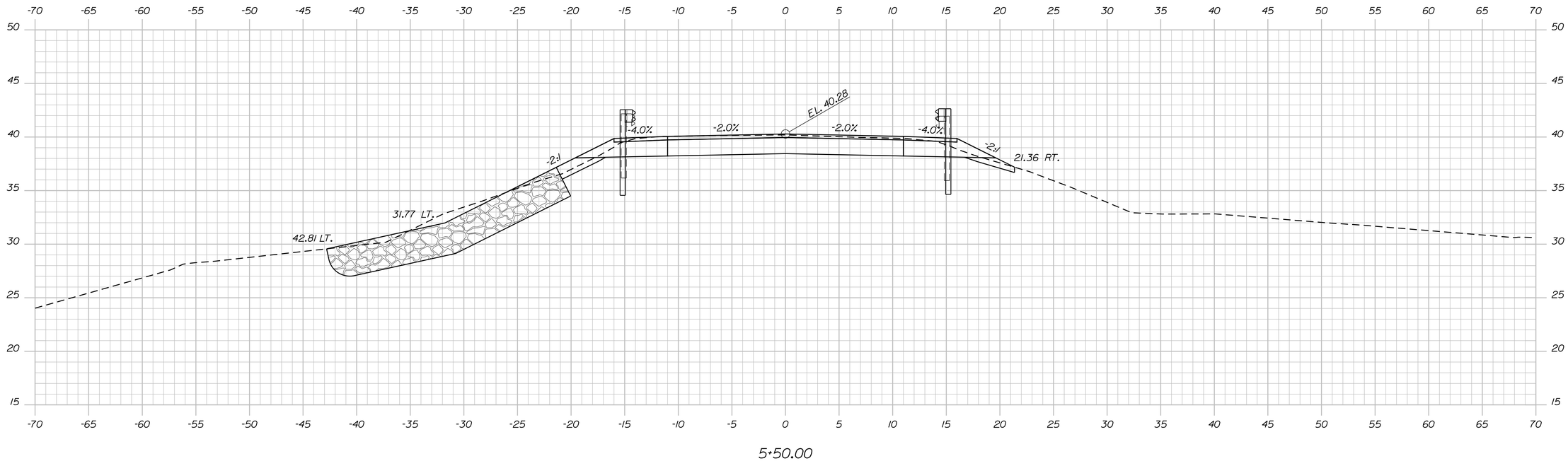
OF 21

Username: Brian.Nichols Date:12/4/2024
Division: BRIDGE
Filename: ...\MSTA\010_XSECT_5+00_003.dgn

Sta. 5+00.00 to Sta. 5+25.00



5+75.00



5+50.00

Sta. 5+50.00 to Sta. 5+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASK		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

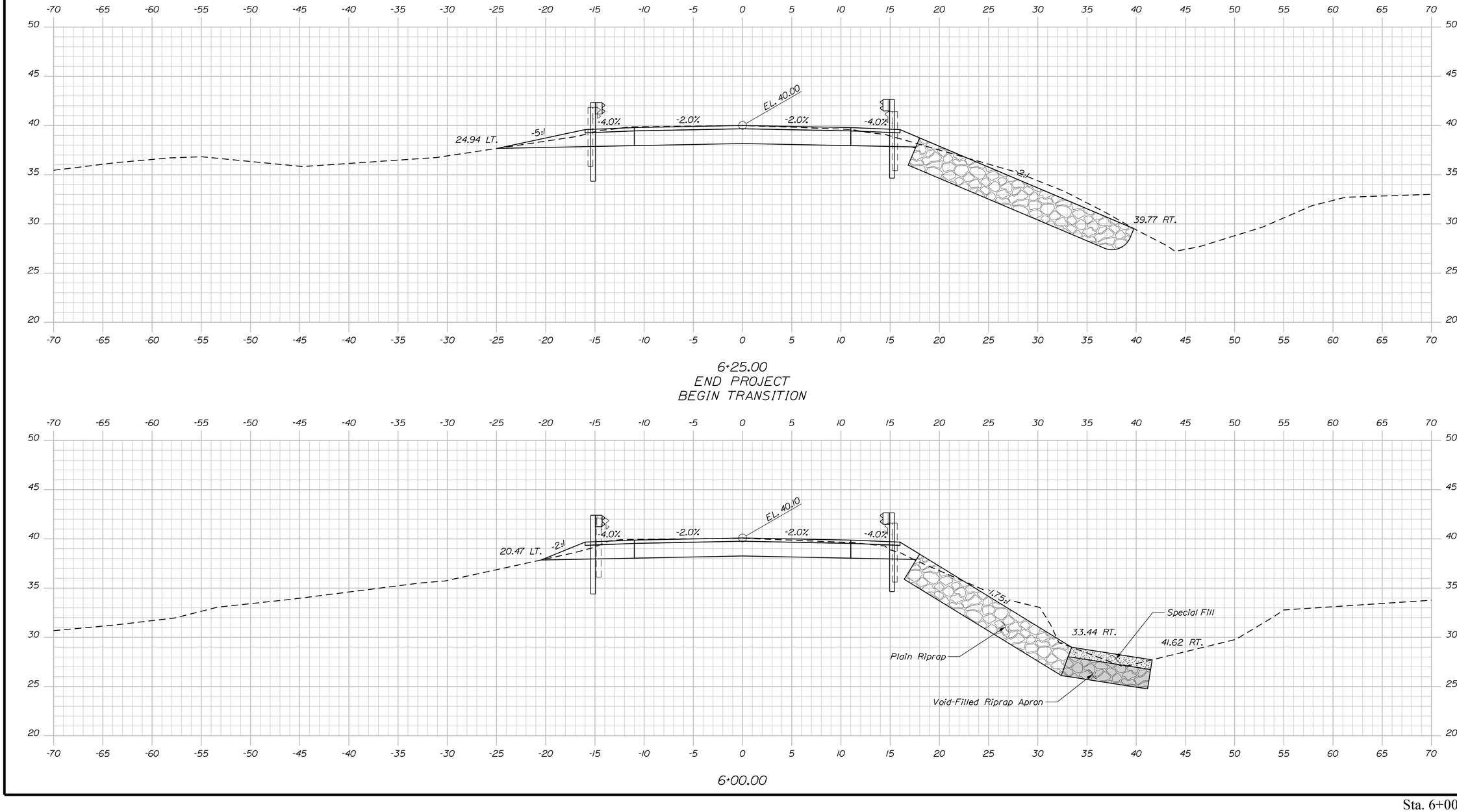
CROSS SECTIONS

SHEET NUMBER

11

OF 21

Filename: ...\MSTA\011_XSECT_5+50_004.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024



Sta. 6+00.00 to Sta. 6+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASH		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

CROSS SECTIONS

SHEET NUMBER

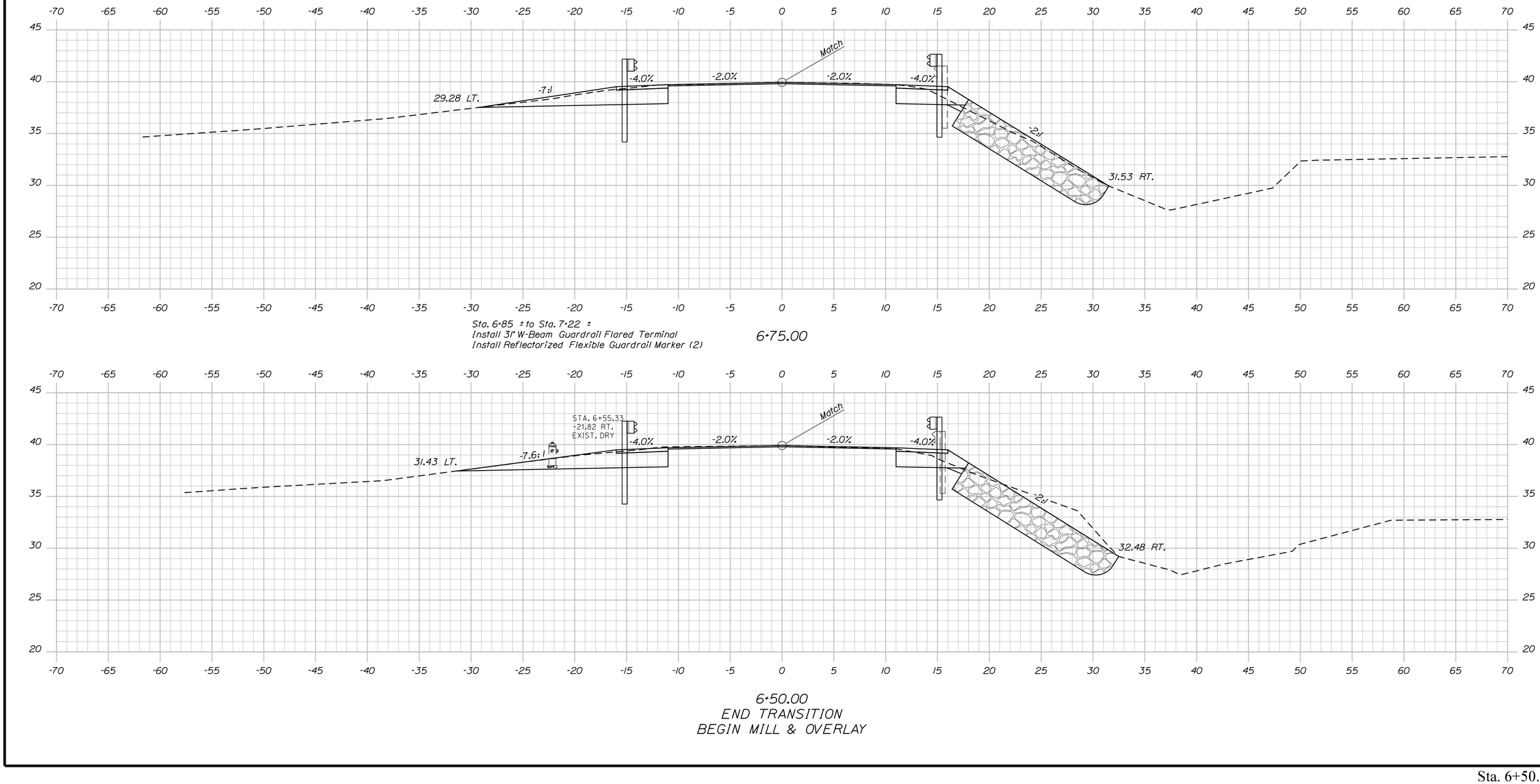
12

OF 21

Username: Brian.Nichols Date:12/4/2024

Division: BRIDGE

Filename: ...\MSTA\012_XSECT_6+00_005.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASK		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

CROSS SECTIONS

SHEET NUMBER

13

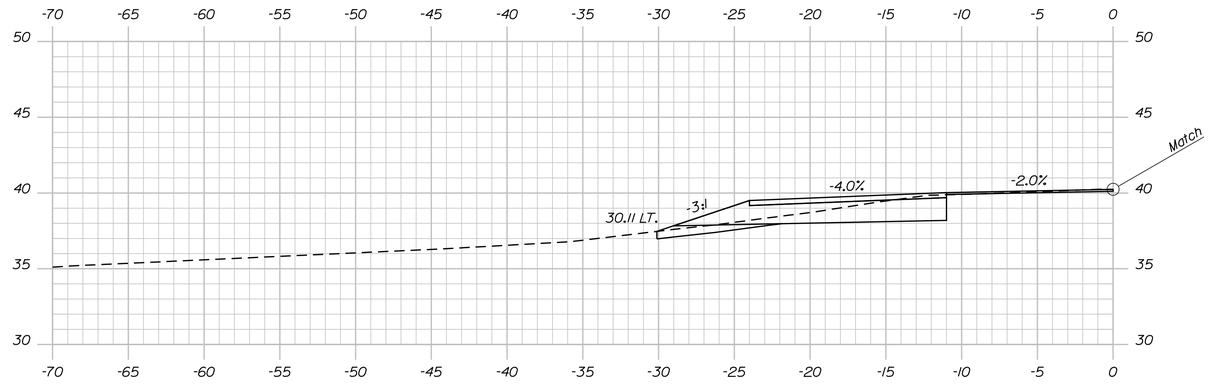
OF 21

Username: Brian.Nichols Date:12/4/2024

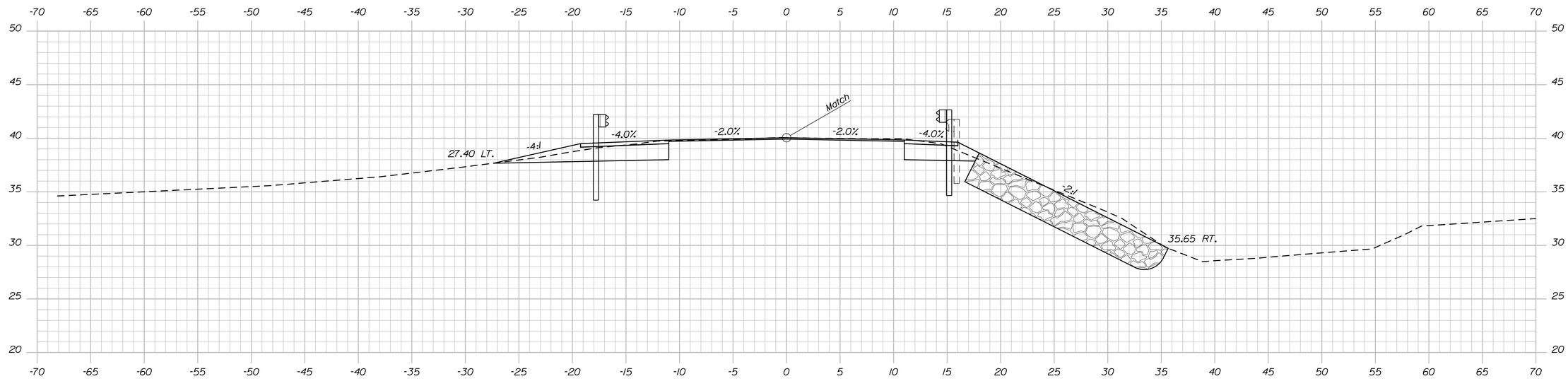
Division: BRIDGE

Filename: ...\MSTA\013_XSECT_6+50_006.dgn

Sta. 6+50.00 to Sta. 6+75.00



7+22.17



7+00.00

Sta. 7+00.00 to Sta. 7+22.17

Username: Brian.Nichols Date:12/4/2024
Division: BRIDGE
Filename: ...\MSTA\014_XSECT_7+00_007.dgn

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216 BRIDGE PLANS

PROJ. MANAGER	JULIE BRASK		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

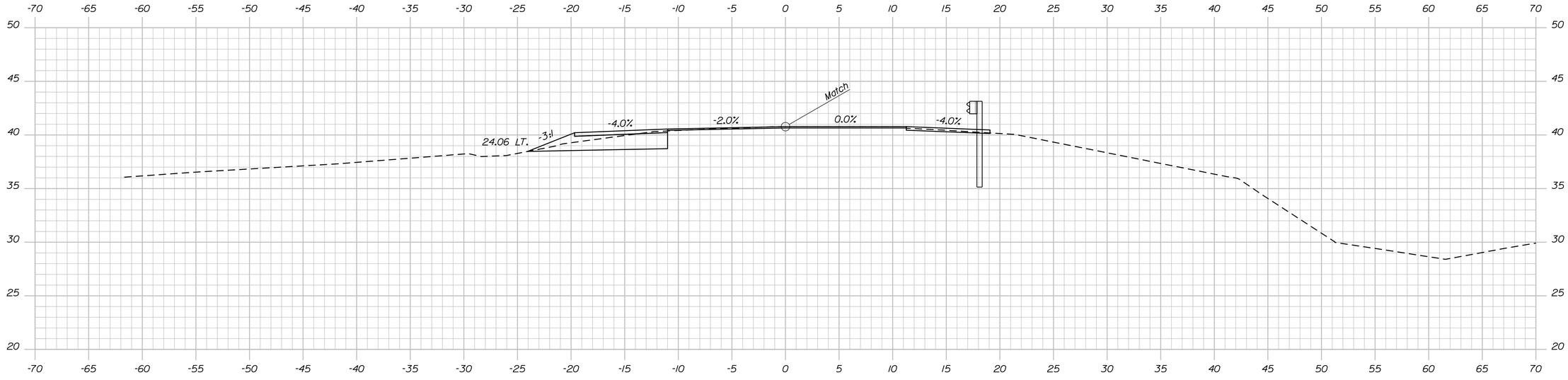
MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

CROSS SECTIONS

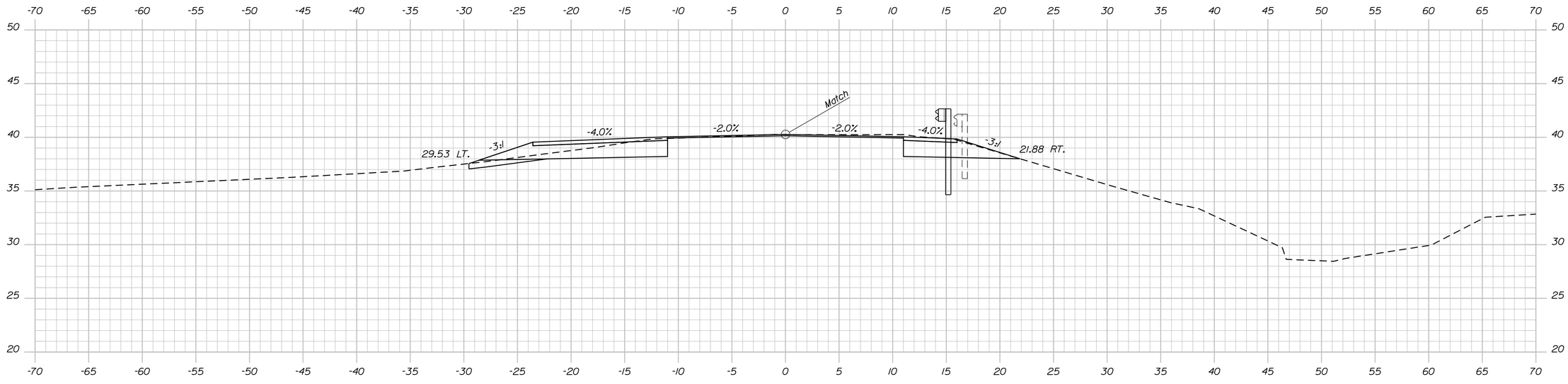
SHEET NUMBER

14

OF 21



7+50.00



7+25.00

Sta. 7+35 ± to Sta. 7+58 ±
Install 25 LF 31" W-Beam Mid-way Splice Guardrail - 35' radius
Install Reflectorized Flexible Guardrail Marker (2)
Install Terminal End

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	JULIE BRASK	
DESIGN-DETAILED	EDB	08\2024
CHECKED-REVIEWED	GAG	08\2024
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

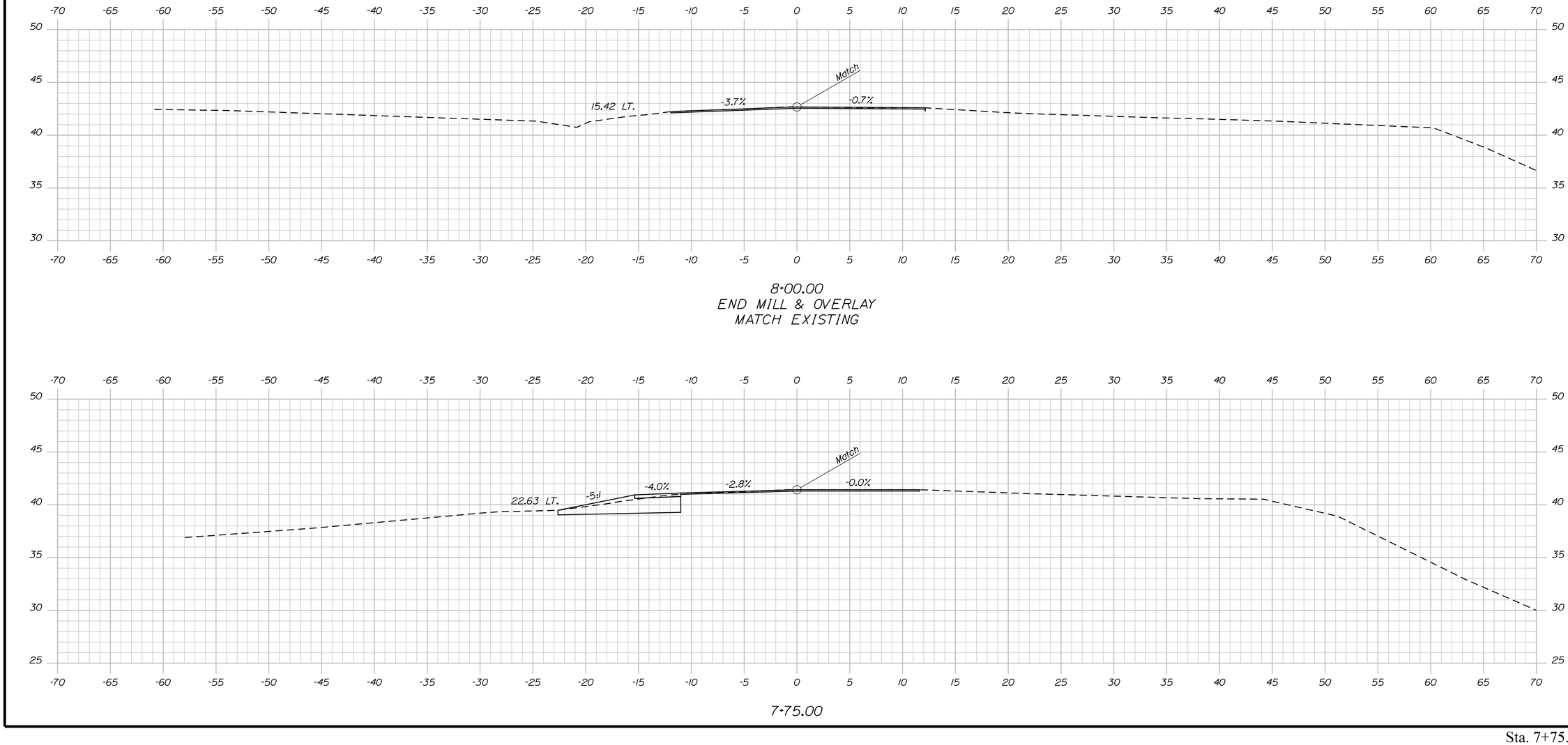
CROSS SECTIONS

SHEET NUMBER

15

OF 21

Filename: ...\MSTA\015_XSECT_7+25_008.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024



8+00.00
END MILL & OVERLAY
MATCH EXISTING

7+75.00

Sta. 7+75.00 to Sta. 8+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASK		
DESIGN-DETAILED	EDB	B.JN	08\2024
CHECKED-REVIEWED	GAG	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

CROSS SECTIONS

SHEET NUMBER

16

OF 21

Division: BRIDGE

Username: Brion.Nichols

Date:12/4/2024

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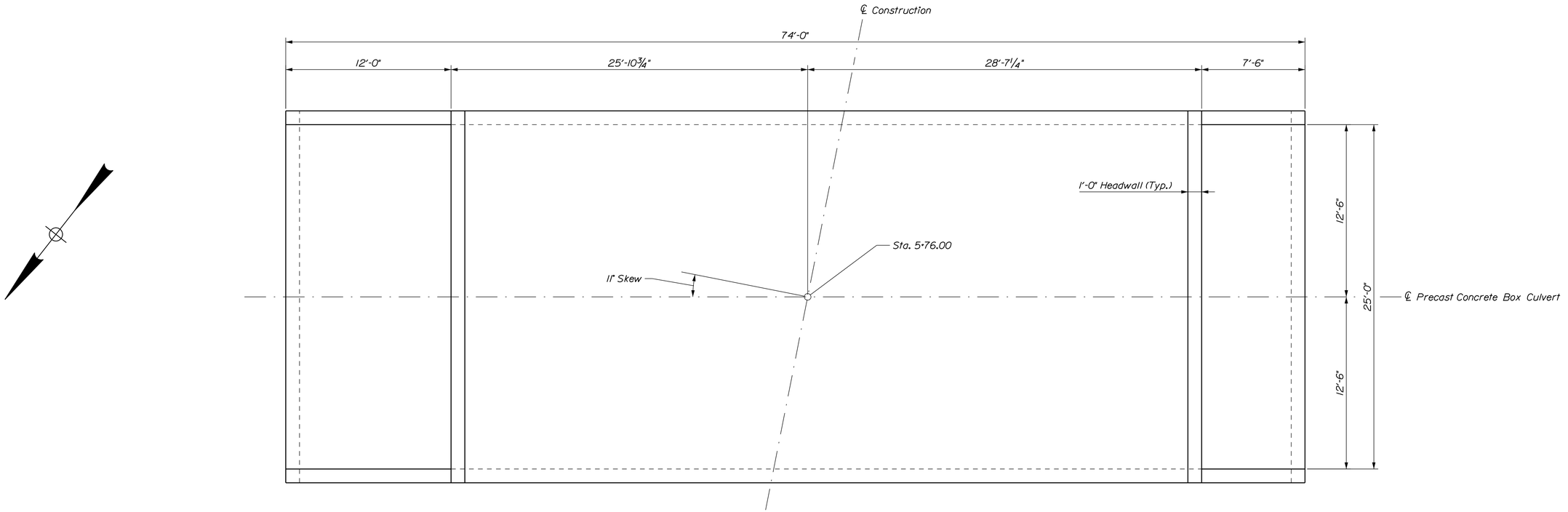
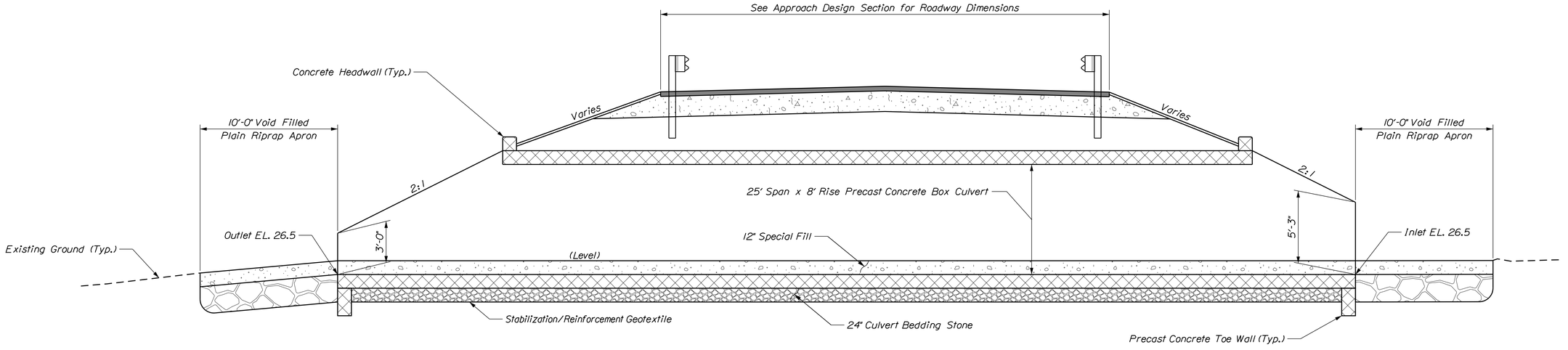


PRECAST BOX CULVERT PLAN
Flow



LONGITUDINAL BOX CULVERT SECTION
Flow

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASK		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	DCE	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

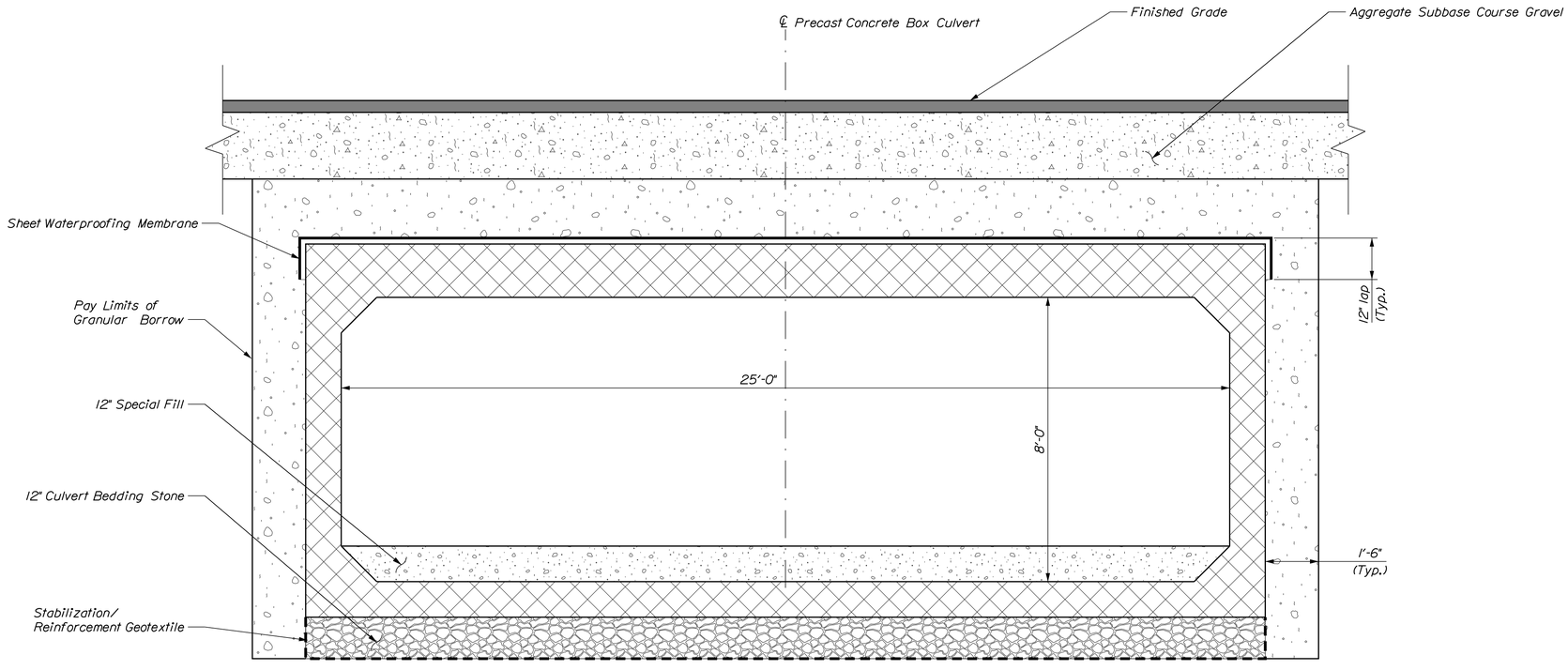
MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

BOX CULVERT DETAILS

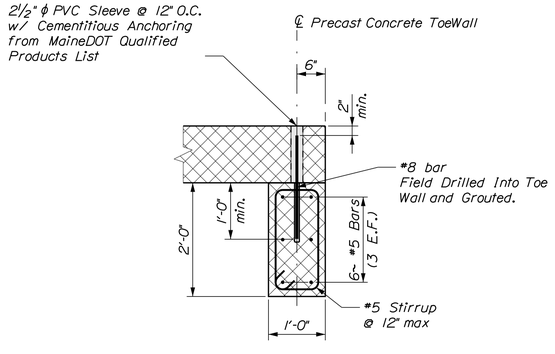
SHEET NUMBER

17

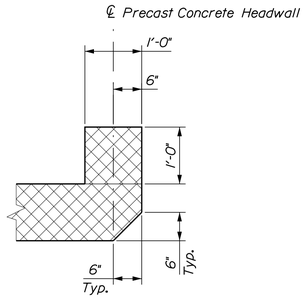
OF 21



PRECAST CONCRETE BOX CULVERT SECTION



PRECAST CONCRETE TOEWALL DETAIL



PRECAST CONCRETE HEADWALL DETAIL

PRECAST CONCRETE ARCHES OR BOXES NOTES

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

2. Install standard membrane waterproofing over the top and to 12 inches down the exterior sides of the precast units.

3. In accordance with Standard Specification Subsection 534.04, Precast Structural Concrete, the Contractor shall submit design calculations for the precast structure to the Department for review. The calculations shall demonstrate that the factored bearing pressures at the Strength Limit and Service Limit States do not exceed the factored geotechnical bearing resistances provided in the project geotechnical design report.

4. The contractor shall maintain the excavation so that the box culvert and crushed stone bedding layer are installed in-the-dry. Groundwater should be controlled by pumping from sumps or other dewatering systems selected by the contractor. Cofferdams may be required to divert flow away from the excavation during construction. Where excavation sides are cut back, excavation slope geometries be in accordance with OSHA regulations, or flatter.

5. The native soil subgrade shall be excavated using a smooth-edged bucket and to avoid disturbance of the subgrade. The contractor shall not operate heavy equipment over the excavated subgrade to minimize subgrade disturbance. Limit vibration-induced disturbance to the saturated, sandy subgrade. If the subgrade is disturbed or weakened, the Contractor shall excavate the disturbed material and replace with compacted Granular Borrow - Material for Underwater Backfill to the subgrade level at the contractor's expense.

6. The Stabilization/Reinforcement Geotextile shall be hand-deployed onto the prepared native soil subgrade prior to installing the crushed stone mat. Adjoining sections of the geotextile shall be overlapped by a minimum of 2 feet. The crushed stone shall be placed in maximum 6-inch-thick lifts and each lift compacted with at least 4 passes of a walk-behind plate compactor.

STATE OF MAINE
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02223800

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BRIDGE NO. 0216

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	JULIE BRASK		
DESIGN-DETAILED	EDB	BJN	08\2024
CHECKED-REVIEWED	DCE	DCE	08\2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

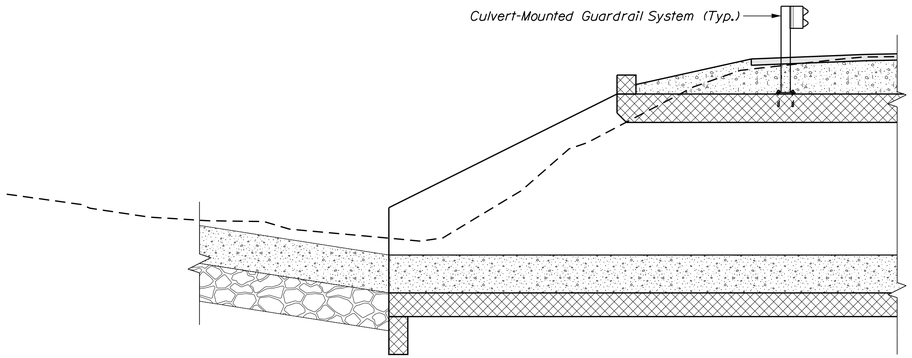
MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

BOX CULVERT DETAILS

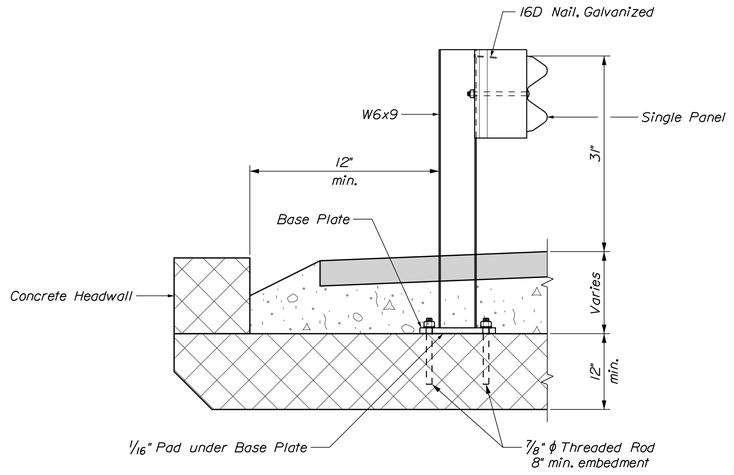
SHEET NUMBER

18

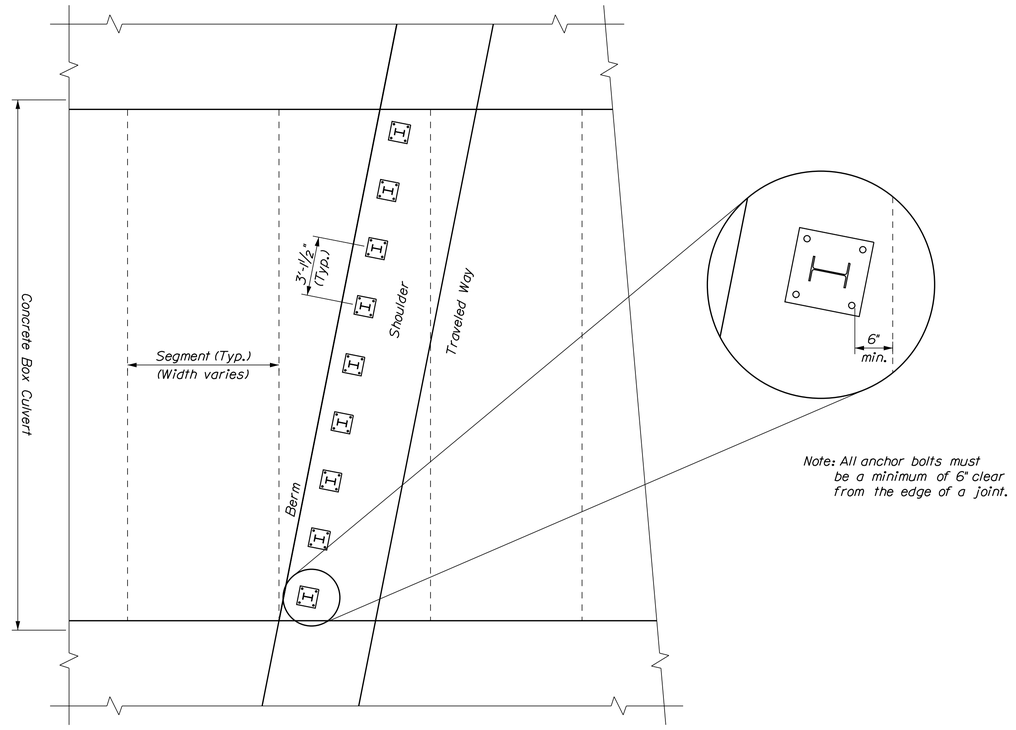
OF 21



LONGITUDINAL END SECTION OF CONCRETE BOX

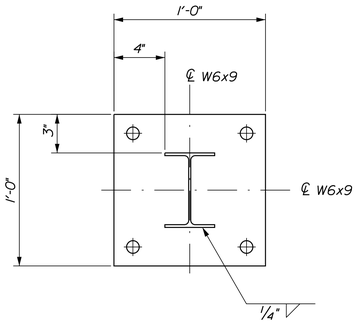


CULVERT-MOUNTED GUARDRAIL SYSTEM

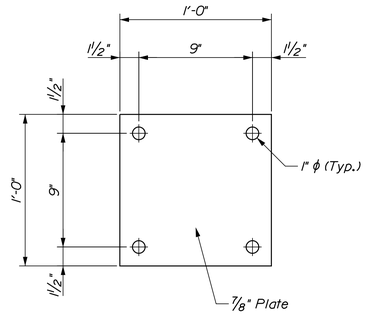


SKEWED BOX POST LAYOUT

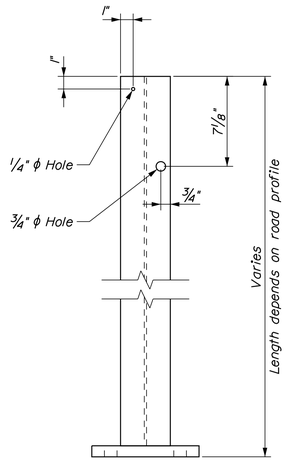
Guardrail Offset Blocks and Rail not shown for clarity



POST ASSEMBLY



BASE PLATE



ELEVATION

BOLTED GUARDRAIL NOTES

1. All work and materials shall comply with Standard Specification Section 606 Guardrail. All work and materials associated with the Culvert-Mounted Guardrail System shall be considered incidental to the 606 Pay Items.

2. Bolted post and materials shall be installed prior to backfilling the concrete box culvert.

3. Pavement around the Culvert-Mounted Posts shall be compacted with a plate compactor prior to installing the W-Beam Rail.

4. Posts may be cut to length and drilled in the field. Cut posts shall be repaired with hot-stick galvanizing. Cold-galv paint is not permitted.

5. Threaded rod shall be ASTM F1554 Grade 55.

6. Anchor bolts drilled and grouted into the precast boxes shall use an approved epoxy bonding agent from MaineDOT's Qualified Products List with a minimum bond strength of 1300 psi. The bolt anchorage shall be installed in strict accordance with the selected manufacturer's recommendations.

The embedment depth of the epoxy anchors shall be the greater of 8" or the manufacturer's requirements. A minimum of 3" of concrete must remain under the drilled hole.

Payment for drilling and grouting anchor bolts shall not be paid for separately, and shall be considered incidental to the guardrail pay item.

7. Anchor bolts shall be set with a template. Nuts securing the post base shall be tightened to a snug fit and given an additional 1/8" turn.

8. All posts, plates, bolts, nuts, washers, threaded rod, and other misc. hardware shall be galvanized.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	JULIE BRASK	
DESIGN-DETAILED	EDB	08\2024
CHECKED-REVIEWED	CAG	08\2024
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

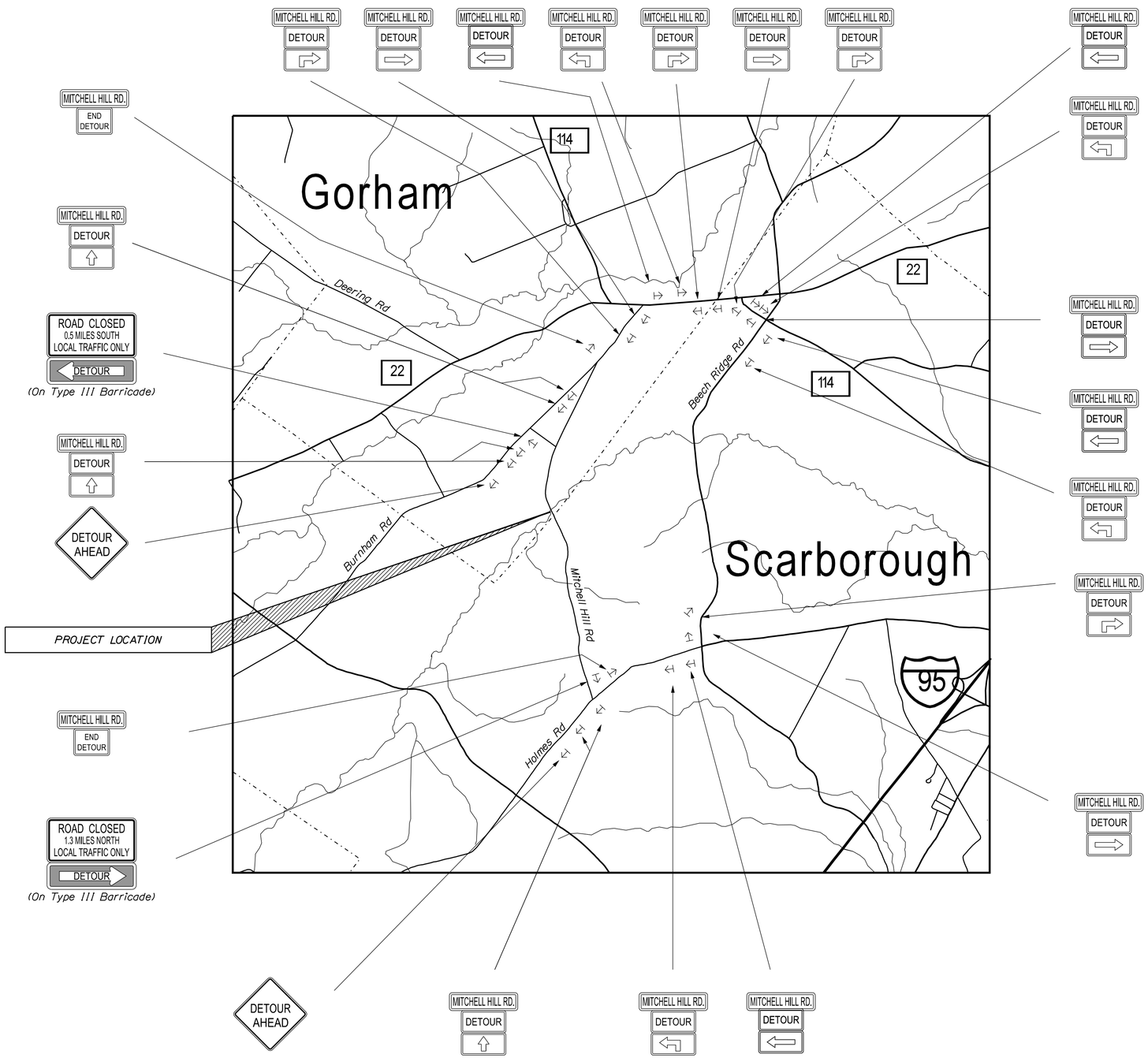
MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

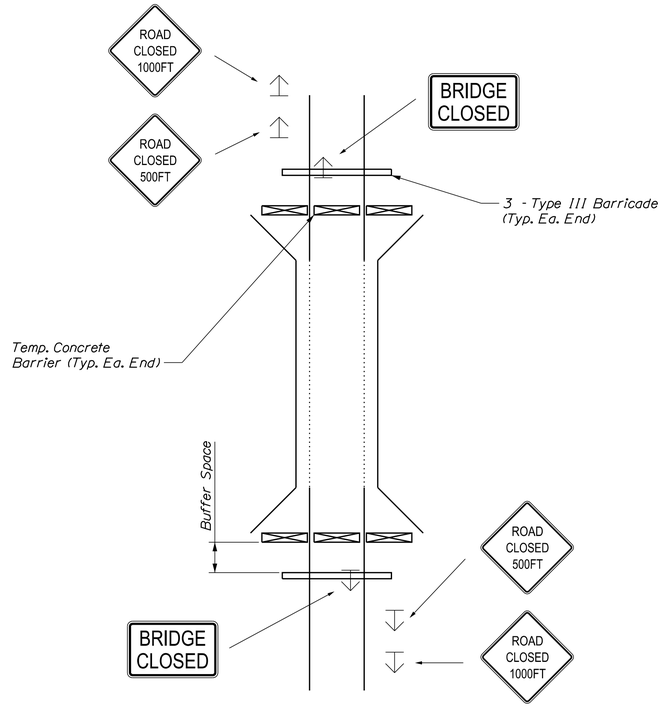
TOP-MOUNTED GUARDRAIL SYSTEM DETAILS (MASH 2009)

SHEET NUMBER

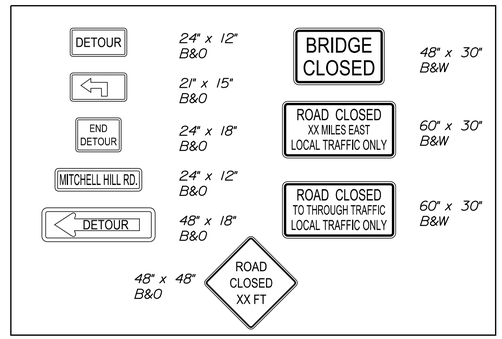
19

OF 21





SIGNAGE AT PROJECT LOCATION



SIGN COLORING AND SIZES

DETOUR NOTES

1. Spacing to be determined by the Resident in accordance with MUTCD
2. Install Temporary Concrete Barrier at each end of the project Payment shall be made under Item No. 526.301, Temporary Concrete Barrier.
3. Install (3) Type III Barricades at each end of project and at each end of detour.
4. Cover or remove all conflicting route signs.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02223800

WIN 022238.00

BRIDGE NO. 0216

BRIDGE PLANS

PROJ. MANAGER	JULIE BRASK			
DESIGN-DETAILED	EDB	BJN	08\2024	
CHECKED-REVIEWED	CAG	DCE	08\2024	
DESIGN2-DETAILED2				
DESIGN3-DETAILED3				
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

SIGNATURE

P.E. NUMBER

DATE

MITCHELL BRIDGE
NONESUCH RIVER
GORHAM-SCARBOROUGH CUMBERLAND COUNTY

DETOUR PLAN

SHEET NUMBER

20

OF 21

PLAN LEGEND

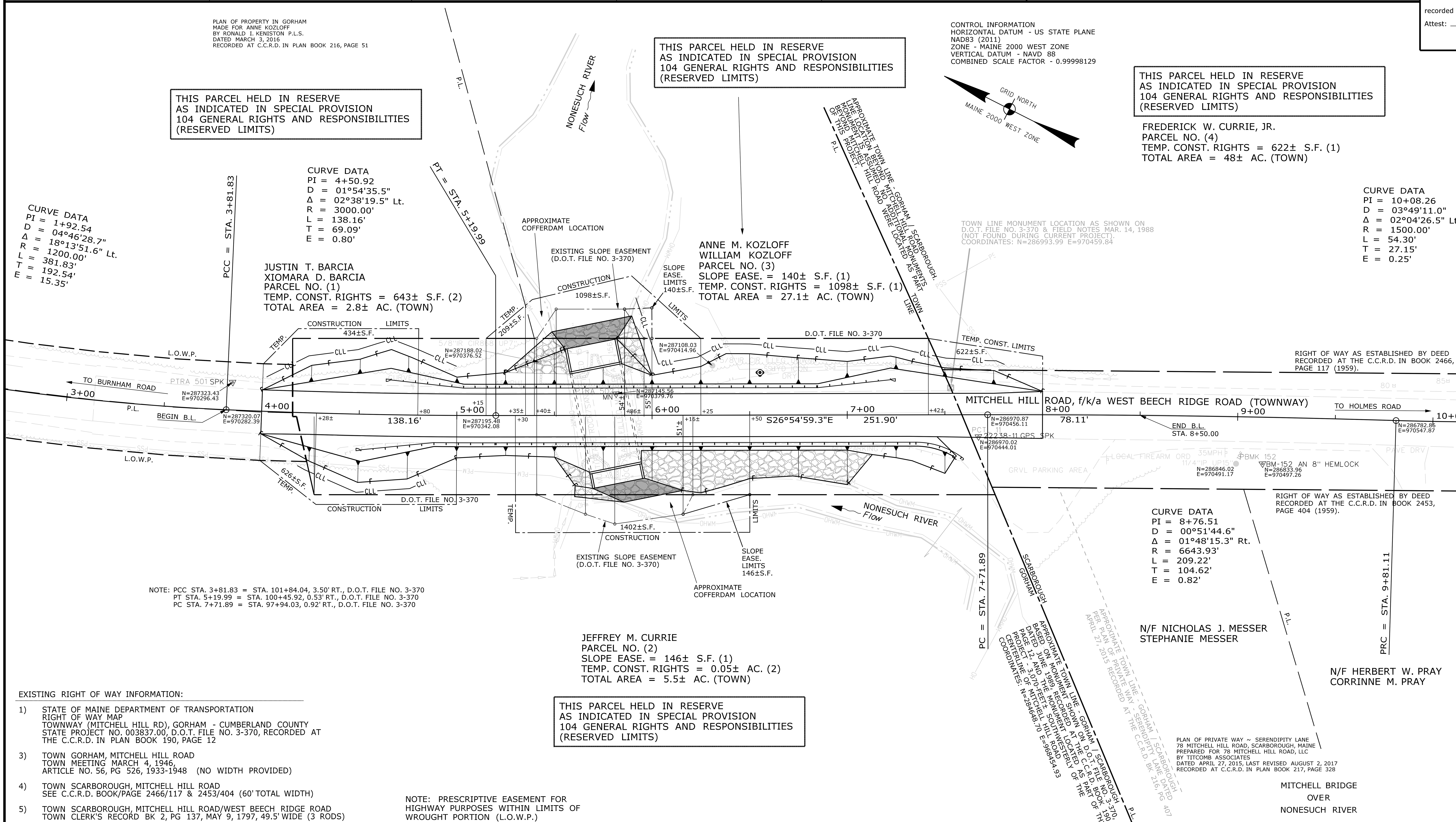
			Existing	Proposed		Existing	Proposed	
Town, County, State — P.L.	New R/W Along Existing R/W	Sanitary Sewer			Traveled Way			Cut Line / Fill Line
Approx. Property Lines	Building / Clearing Limit Line	Telephone Line			Ditch			Stonewall / Retaining Wall
Existing Right of Way	Trees Conifer / Deciduous	Electric Line			Catch Basin			Baseline 10+00 11+00 12+00
Limits of Wrought Portion — L.O.W.P.	Tree Line / Bush Line	Water Line			Manhole			Monument / Traverse Point
Control Of Access — C.O.A.	Water Edge	Underdrain Line			Sewer Manhole			Iron Rod Found IRF / Pipe Found IPF
New Right of Way	Ledge / Rock/Boulder / Flag Pole	Gas Line			Utility Pole			Replacement Pin Set
New Easement	Fence CHAIN LINK / BARB WIRE / STOCKADE	Guardrail			Fire Hydrant			
New Temporary Rights	Sign / Well / Mailbox	Culvert			Curbing			
New R/W Within Existing R/W								

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet

STATE OF MAINE
REGISTRY OF DEEDS

COUNTY ______________
RECEIVED ______________ , ______
at ______h ______m ______M and
recorded in Plan Bk ______ , Pg. ______
Attest: ______________
REGISTER



NOTE: PCC STA. 3+81.83 = STA. 101+84.04, 3.50' RT., D.O.T. FILE NO. 3-370
PT STA. 5+19.99 = STA. 100+45.92, 0.53' RT., D.O.T. FILE NO. 3-370
PC STA. 7+71.89 = STA. 97+94.03, 0.92' RT., D.O.T. FILE NO. 3-370

EXISTING RIGHT OF WAY INFORMATION:

1) STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP TOWNWAY (MITCHELL HILL RD), GORHAM - CUMBERLAND COUNTY STATE PROJECT NO. 003837.00, D.O.T. FILE NO. 3-370, RECORDED AT THE C.C.R.D. IN PLAN BOOK 190, PAGE 12
3) TOWN GORHAM, MITCHELL HILL ROAD TOWN MEETING MARCH 4, 1946, ARTICLE NO. 56, PG 526, 1933-1948 (NO WIDTH PROVIDED)
4) TOWN SCARBOROUGH, MITCHELL HILL ROAD SEE C.C.R.D. BOOK/PAGE 2466/117 & 2453/404 (60' TOTAL WIDTH)
5) TOWN SCARBOROUGH, MITCHELL HILL ROAD/WEST BEECH RIDGE ROAD TOWN CLERK'S RECORD BK 2, PG 137, MAY 9, 1797, 49.5' WIDE (3 RODS)

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

PRELIMINARY PLAN

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	RMC	CWK
FINAL RIGHT OF WAY	MCG	PNS
AREAS	MCG	JH

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460
GORHAM-SCARBOROUGH
RIGHT OF WAY MAP

REVISIONS			
NO.	DATE	DESCRIPTION	BY

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

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

MITCHELL HILL ROAD (TOWNWAY)
MITCHELL HILL ROAD
GORHAM-SCARBOROUGH CUMBERLAND COUNTY
FEDERAL AID PROJECT NO. 2223800

NOVEMBER 2024 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 3-681
SCALE 1" = 25' | SHEET 1 OF 1

SHEET NUMBER
21
OF 21

Filename: ...\00\ROW\MSTA\001_RWPLAN1.dgn Division: BRIDGE Username: Brian.Nichols Date:12/4/2024