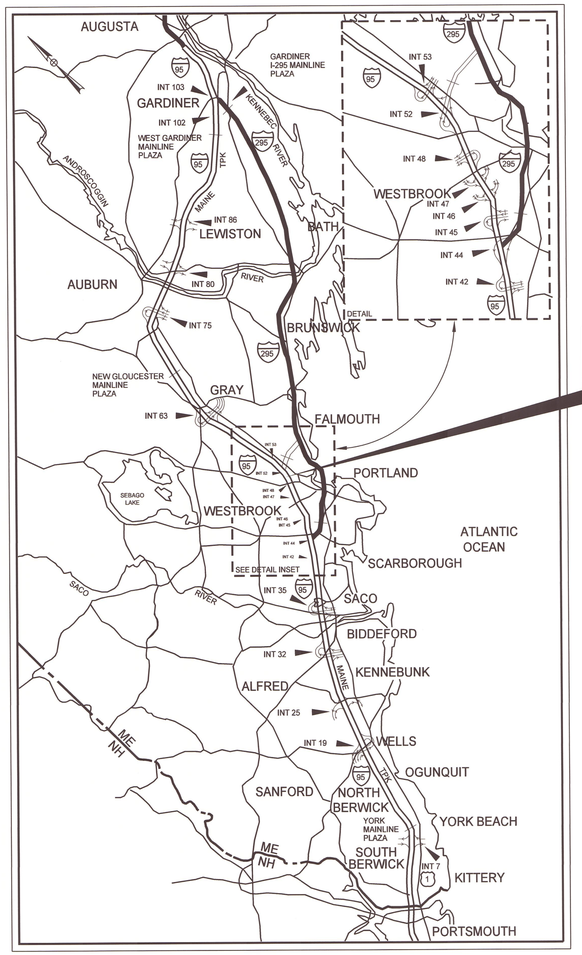
Date:3/22/2019



LOCATION MAP

Contract 2019.10
Bridge Replacement
Warren Avenue Overpass
(Mile 49.0)

MAINE TURNPIKE

THE GOLD STAR
MEMORIAL HIGHWAY

MAINE TURNPIKE AUTHORITY

DANIEL E. WATHEN, CHAIR
ROBERT D. STONE, VICE CHAIR
MICHAEL J. CIANCHETTE, MEMBER
ANN R. ROBINSON, MEMBER
JOHN E. DORITY, MEMBER
THOMAS J. ZUKE, MEMBER
BRUCE A. VAN NOTE, EX-OFFICIO MEMBER

S. PETER MILLS, EXECUTIVE DIRECTOR

CONTRACT 2019.10

BRIDGE REPLACEMENT
WARREN AVENUE OVERPASS
MILE 49.0

APPROVED:

MAINE TURNPIKE AUTHORITY

Peter S. Merfeld — 3-22-19
PETER S. MERFELD, P.E. - CHIEF OPERATIONS OFFICER — DATE

Stephen R. Tartre — 3/22/19
STEPHEN R. TARTRE, P.E., - DIRECTOR OF ENGINEERING & BUILDING MAINTENANCE — DATE

INDEX OF SHEETS

STATE OF MAINE
TIMOTHY S. BRYANT
No. 12080
LICENSED PROFESSIONAL ENGINEER

vhb

Timothy S. Bryant — 3/22/2019
Timothy S. Bryant, P.E. — DATE
Consultant Project Manager

Contract 2019.10

Filename: ...\BRIDGE\MSTA\001_title_01.dgn

Date:3/26/2019

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.15	Removing Manhole or Catch Basin	2	EA
202.151	Abandoning Existing Manhole or Catch Basin	2	EA
202.16	Removing Existing Pipe	230	LF
202.161	Abandoning Existing Pipe	200	LF
202.19	Removing Existing Bridge	1	LS
202.202	Removing Pavement Surface - Mainline	61,500	SY
202.2026	Removing Pavement Surface - Drainage Paths	460	SF
202.203	Pavement Butt Joints	3,000	SY
202.205	Rumble Strips - Shoulder	19,400	LF
203.20	Common Excavation	19,050	CY
203.24	Common Borrow	9,950	CY
203.25	Granular Borrow	11,560	CY
203.33	Lightweight Fill	7,000	CY
304.10	Aggregate Subbase Course - Gravel	8,550	CY
304.14	Aggregate Base Course - Type A	4,450	CY
403.207	Hot Mix Asphalt - 19.0 mm	10,850	Ton
403.208	Hot Mix Asphalt - 12.5 mm	120	Ton
403.2081	Hot Mix Asphalt, 12.5 mm (Polymer Modified) - RAP	6,850	Ton
403.209	Hot Mix Asphalt - 9.5 mm (sidewalks, drives, & incidentals)	34	Ton
403.212	Hot Mix Asphalt - 4.75mm (Shim)	1,700	Ton
403.213	Hot Mix Asphalt - 12.5mm HMA (base and intermediate course)	2,500	Ton
409.15	Bituminous Tack Coat RS-1 or RSlh - Applied	8,950	Gallon
419.30	Sawing Bituminous Pavement	8,500	LF
461.131	Temporary Pavement	40	Ton
470.08	Berm Dropoff Correction - Grindings	660	Ton
470.081	Berm Correction	20,000	LF
501.231	Dynamic Loading Test	4	EA
501.50	Steel H-Beam Piles 89 lb/ft, delivered	2,400	LF
501.501	Steel H-Beam Piles 89 lb/ft, in place	2,400	LF
501.90	Pile Tips	40	EA
501.91	Pile Splices	40	EA
501.92	Pile Driving Equipment Mobilization	1	LS
502.21	Structural Concrete, Abutments and Retaining Walls	250	CY
502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges (610 CY)*	1	LS
502.264	Structural Concrete Parapets	52	CY
502.31	Structural Concrete Approach Slab (190 CY)*	1	LS
502.72	FRP Bridge Drain - Type F	12	EA
503.14	Epoxy-Coated Reinforcing Steel, Fabricated and Delivered	250,000	LB
503.15	Epoxy-Coated Reinforcing Steel, Placing	250,000	LB
503.17	Mechanical/Welded Splice	1,560	EA
503.26	Stainless Steel Reinforcement, Fabricated and Delivered	21,800	LB
503.27	Stainless Steel Reinforcement, Placing	21,800	LB
504.70	Structural Steel Fabricated and Delivered (746,500 LB)*	1	LS
504.71	Structural Steel Erection (746,500 LB)*	1	LS
505.08	Shear Connectors (8,064 EA)*	1	LS
506.9104	Thermal Spray Coating (Shop Applied)	1	LS
507.091	Aluminum Bridge Railing, 1 Bar (475 LF)*	1	LS
508.14	High Performance Waterproofing Membrane (1550 SY)*	1	LS
508.15	Membrane Waterproofing (5 SY)*	1	LS
511.091	Temporary Earth Support Systems	1	LS
514.06	Curing Box for Concrete Cylinders	1	EA
515.202	Clear Protective Coating for Concrete Surfaces	850	SY
520.23	Asphaltic Plug Joint	242	LF
524.40	Protective Shielding - Steel Girders	1,940	SY
526.301	Temporary Concrete Barrier, Type 1 (7,800 LF)*	1	LS
526.304	Temporary Concrete Barrier, Anchored (900 LF)*	1	LS
526.35	Median Barrier	2,850	LF
526.361	Bridge Endpost Median Barrier Transition	2	EA
526.362	Guardrail Median Barrier Transition	2	EA
527.341	Work Zone Crash Cushions - TL-3	4	U
603.159	12 inch Culvert Pipe Option III	64	LF
603.28	Concrete Collar for Reinforcing Concrete Pipe	2	EA
603.431	36" RCP Class 5	40	LF
604.092	Catch Basin Type BI-C	7.375	EA
604.164	Rebuilding Catch Basin	1	EA
604.18	Adjusting Manhole or Catch Basin to Grade	2	EA
604.247	Catch Basin Type F5-C	5	EA
604.262	Catch Basin Type B5-C	9	EA
605.09	6 inch Underdrain Pipe Type B	600	LF
605.10	6 inch Underdrain Outlet	160	LF
605.11	12 inch Underdrain Pipe Type C	2,050	LF
605.12	15 inch Underdrain Pipe Type C	740	LF
606.1301	31" W-Beam Guardrail - Mid-way Splice (8' Steel Posts, 8" Offset Blocks, Single Faced)	1,537.5	LF
606.1306	31" W-Beam Guardrail - Mid-way Splice Tangent Terminal	2	EA
606.1351	Terminal End - Anchored End - 31" W-Beam Guardrail	2	EA
606.1723	Bridge Transition - Type III	4	EA
606.1725	Guardrail Transition Type III (Modified)	2	EA
606.352	Reflectorized Beam Guardrail Delineator	34	EA
606.356	Underdrain Delineator Post	36	EA

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
606.3561	Delineator Post - Remove and Reset	18	EA
606.3606	Guardrail Remove, Modify and Reset, Double Rail	175	LF
607.17	Chain Link Fence - 6 foot	280	LF
607.23	Chain Link Fence Gate	2	EA
607.32	Bracing Assembly Type I - Metal Posts	10	EA
607.33	Bracing Assembly Type II - Metal Posts	8	EA
609.11	Vertical Curb Type I	640	LF
609.12	Vertical Curb Type I - Circular	13	LF
609.15	Sloped Curb Type I	516	LF
609.191	Concrete Curb Type 2	88	LF
609.234	Terminal Curb Type 1 - 4 foot	1	EA
609.2341	Terminal Curb Type I- 4 ft - Circular	1	EA
609.238	Terminal Curb Type 1 - 8 foot	1	EA
610.08	Plain Riprap	1,050	CY
610.181	Temporary Stone Check Dam	10	CY
613.319	Erosion Control Blanket	700	SY
615.07	Loam	1,600	CY
618.14	Seeding Method Number 2	130	Unit
618.143	Special Seeding	40	Unit
619.1201	Mulch - Plan Quantity	170	Unit
619.1202	Temporary Mulch	1	LS
619.14	Erosion Control Mix	200	CY
620.58	Erosion Control Geotextile	1,200	SY
620.70	HDPE Geomembrane	600	SY
624.01	Stormwater Soil Filter Bed	140	CY
626.12	Quazite Junction Box	3	EA
626.204	3" Schedule 80 PVC Conduit	510	LF
626.341	Light Standard Foundation	3	EA
627.30	Grooving for Painted Pavement Markings	19,750	SF
627.712	White or Yellow Pavement Marking Line	23,165	LF
627.73	Temporary 6 Inch Pavement Marking Tape	25,000	LF
627.77	Removing Existing Pavement Marking	21,100	SF
627.78	Temporary Pavement Marking Type, White or Yellow	185,000	LF
627.812	Temporary Raised Pavement Markers	1,300	EA
627.94	Pavement Marking Tape	7,575	LF
629.05	Hand Labor, Straight Time	100	HR
631.10	Air Compressor (Including Operator)	40	HR
631.11	Air Tool (Including Operator)	80	HR
631.12	All Purpose Excavator (Including Operator)	30	HR
631.171	Truck - Small (Including Operator)	50	HR
631.18	Chain Saw Rental (Including Operator)	10	HR
631.22	Front End Loader (Including Operator)	70	HR
631.32	Culvert Cleaner (Including Operator)	10	HR
631.36	Foreperson	30	HR
634.208	Remove and Reset Light Standard	3	EA
639.18	Field Office, Type A	1	EA
645.105	Remove and Stack Sign	1	EA
645.106	Demount Regulatory, Warning, Confirmation and Route Marker Assembly Sign	7	EA
645.109	Remove and Reset Sign	4	EA
645.271	Regulatory, Warning, Confirmation and Route Assembly Sign, Type I	97.5	SF
645.272	Regulatory, Warning and Bridge Number Signs, Type I - Supplied by Authority	2	EA
645.511	LED Flashing Sign	2	EA
652.30	Flashing Arrow	2	EA
652.312	Type III Barricades	8	EA
652.33	Drum	425	EA
652.34	Cone	100	EA
652.35	Construction Signs	2,331	SF
652.361	Maintenance of Traffic Control Devices	1	LS
652.38	Flaggers	160	HR
652.381	Traffic Officers	160	HR
652.41	Portable-Changeable Message Sign	5	EA
652.45	Truck Mounted Attenuator	60	CD
652.452	Automated Trailer Mounted Speed Limit Sign	2	EA
656.50	Baled Hay, In Place	50	EA
656.632	30 inch Temporary Silt Fence	6,150	LF
659.10	Mobilization	1	LS
802.182	20" Class 52 DI Restrained Joint Pipe	300	LF
802.32	Casing Spacers	21	EA
830.279	Horizontal Directional Drilling, 18-inch HDPE Culvert	140	LF

* Quantities are Estimated Only

Scale:

No.	Revision	By	Date

Designed by:

vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

ESTIMATED QUANTITIES

VHB: 55191.01 SHEET NUMBER: 2

CONTRACT: 2019.10

Filename: ...\BRIDGE\MSTA\002_qnty_01.dgn

Date:3/24/2019

GENERAL

1. All work shall be in conformance with Maine Department of Transportation (MaineDOT) 2014 Standard Specifications and Standard Details for Highways and Bridges with all updates, and MaineDOT Best Management Practices for Erosion and Sediment Control latest revision unless otherwise noted in these plans or project specifications.

2. For construction limits and right of way lines, refer to General Plans. There are no permanent or temporary easements associated with this project. All work must be completed within the existing Right of Way.

3. Chain link fence gates shall be 3 feet wide single gates. A gate shall be located on each side of the turnpike roadway. Exact location of the gate shall be determined in the field by the Resident.

4. Connections to existing fence shall be incidental to the proposed fence items.

5. Existing ROW fence within the limits of work, as shown on the plans or as directed by the Resident, shall be removed and disposed. This work shall be incidental to the proposed fence items.

6. The Contractor shall submit his proposed staging area(s) and field trailer location to the Resident for approval prior to starting work.

7. All portions of the existing bridge to be removed shall become the property of the Contractor.

8. Copies of the As-Built plans are Posted on the Maine Turnpike Authority website at www.maineturnpike.com/Projects/Construction-Contracts. The completeness and accuracy of these plans is not guaranteed.

9. Chamfer all exposed concrete edges ¾" unless otherwise noted.

10. The proposed elevations are based on the NAVD 88 datum. The as-built plans are based on NGVD 29 datum.

11. The Contractor shall take all precautions necessary to avoid impacts to delineated wetland areas beyond what is shown in these plans.

12. Contractor shall to maintain access to all driveways and side roads during construction unless otherwise shown on the plans.

13. All existing roadways used in accessing the site shall remain clean in accordance with the MaineDOT Standard Specifications.

14. Access through areas beyond the limits of disturbance are to be approved by the Resident.

15. All existing delineator and mile marker posts shall be removed and reset upon completion of the contract. Payment for resetting delineator posts will be made under Item 606.354. Delineator Posts supplied by the Contractor shall be paid for under Item 606.353.

16. All bridge parapet, barrier, wingwall and endpost concrete, inside face and top face, shall have a rubbed finish prior to the application of the protective coating for concrete surface.

17. The Contractor shall profile the tops of girders before the deck formwork is started and shall submit to the resident the final blocking distances for review. Five (5) working days shall be allowed for the blocking point submittal review time.

18. Surface pavement south of the Warren Avenue overpass (Sta 2436+39) will be placed by others under a future contract. All elevations in this area are shown to future finish grade after surface pavement placement. The Contractor shall plan and conduct their work so final elevation for this contract is set to top of 1-1/2" HMA 12.5mm intermediate course.

19. All reinforcement shall be epoxy coated unless noted otherwize. The reinforcement in the parapets shall be stainless steel. All stainless steel reinforcement is noted with "-S" at the end of the bar mark throughout these plans.

20. Geotechnical information furnished or referred to in this plan set and the project's Geotechnical Report is for the Bidder's and Contractor's use. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the time of construction. The Authority shall not be responsible for Bidder's and 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 boring locations.

21. The proposed elevations are based on the NAVD 88 datum.

ABUTMENT

1. Reinforcing steel shall have a minimum concrete cover of 2 inches in walls.

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

3. Abutments and wingwalls shall be backfilled with Lightweight Fill as shown in the plans. See Special Provision 203 for additional requirements

GUARDRAIL NOTES

1. At the end of the workday, everyday, the Contractor is required to have an approved crashworthy end treatment on all guardrail and barrier within all work areas that are accessible to traffic.

2. Connections for proposed guardrail to existing guardrail shall be incidental to the proposed guardrail items.

3. All proposed guardrail and reset guardrail shall be installed in a manner to avoid all existing subsurface features.

4. One guardrail delineator post shall be installed at each guardrail terminal. Two guardrail delineator posts shall be installed at each end of the guardrail terminals.

5. In non-guardrail areas, delineators shall be spaced at 264' on the Maine Turnpike. Confirm layout with the Resident.

6. Guardrail which is removed and not reused on the project shall become the property of the contractor.

7. Damage to existing pavement or new pavement due to the installation of new or reset guardrail shall be repaired and payment shall be incidental to guardrail items.

UTILITY

1. Existing utilities on these plans were compiled from field survey and various other sources. Locations are not guaranteed to be accurate nor is it guaranteed that all utilities are shown. No separate or additional compensation will be allowed to the Contractor due to any variance between the data shown on the plans and the actual field conditions encountered. No work shall be started until the owners of the various utilities are notified by the Contractor of the proposed construction. The Contractor shall contact Dig Safe (1-888-DIG-SAFE or 811) at least 72 hours prior to starting work.

2. The Contractor shall notify the Resident 10 days prior to construction so the Resident can arrange for Maine Turnpike underground utility location. All proposed sign locations and excavation locations shall be marked at the notification time. Excavating will not be permitted until the Authority has located and marked its underground utilities, or notified the Resident that there are no underground utilities in the marked areas.

3. The Authority has programmed two field visits for Maine Turnpike underground utility location on this project. Should the Contractor need additional excavation locations marked, or should the Contractor fail to maintain the Authority's previously established Dig Safe marks, the Authority shall deduct the added marking costs from the Contractor's payments.

4. See specifications for required utility coordination.

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

6. The utilities involved in this contract are:
   - Central Maine Power (CMP)
   - FirstLight
   - Time Warner Cable
   - Portland Water District
   - City of Portland (Sewer)
   - Unitil Gas

LIGHTING

1. Existing light standards shall be removed and reset to a new location shown on the plans. The Contractor shall maintain lighting equivalent to the existing lighting throughout the duration of the project. The Contractor shall provide temporary lighting as required. Temporary lighting shall be incidental to the 634 pay items.

2. If necessary, cut and splice existing wiring to new wiring indicated. All splices shall be made in accessible junction boxes. See notes and specifications. Payment shall be incidental to proposed wiring items.

3. Proposed conduit shall have a minimum 2' offset down slope of existing conduit. Approximate location of existing conduit is shown on the plans.

4. Contractor may encounter existing asbestos cement conduit and shall take extreme care not to damage it. All existing conduit that requires removal due to new construction shall be removed per the specifications, Special Provision 202 and as directed by the Resident.

5. All wire shall be copper, no aluminum wire is allowed.

6. All light standard foundations and conduit trenches shall be installed in a manner to avoid drainage structures and utilities.

7. Contractor shall only excavate an amount of utility trench that can be backfilled in the same day. Utility trenches shall not be left open overnight.

8. The Contractor shall verify the voltage to the highway lighting and shall note voltage in shop drawing submittals.

9. Existing light standard foundations shall be abandoned in place or removed as directed. Payment shall be incidental to the Common Excavation. See Specifications for additional information.

10. Proposed non-metallic conduit shall be 2" schedule 40 PVC and contain 2 #2 and 1 #6 (ground) wires.

EROSION CONTROL

1. The anticipated erosion control devices are shown on the plans. The Contractor shall propose actual type and location of devices for approval by the Resident. Additional devices may be proposed by the Contractor to implement additional measures. Any additional measures approved by the Resident will be measured for payment.

2. Temporary seed shall be applied to all disturbed areas that will not be completed within 30 days.

3. All temporary and permanent erosion control devices shall be installed in accordance with the MaineDOT Best Management Practices (BMPs).

4. Temporary stone check dams shall be installed in accordance with the MaineDOT BMPs.

5. Erosion Control Blanket, Item 613.319 shall be installed on 2:1 slopes from the top to toe of slope. Loam and seed shall be placed prior to the installation of the erosion control blanket.

6. Place loam 4 inches deep on all new or reconstructed side slopes or as directed by the Resident.

7. Newly disturbed earth shall be mulched in accordance with Supplemental Specification 656. This work shall be paid for under Item 619.1201 Temporary Mulch

8. All slopes shall be seeded with seeding method No. 2 unless otherwise noted.

9. Contractor shall be responsible for placement and maintenance of erosion control items around stockpiles, in accordance with "Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices". Payment for these items shall be incidental to the material stockpiled.

DRAINAGE

1. No existing drainage shall be abandoned, removed or plugged without prior approval of the Resident.

2. Inlets and outlets of all culverts shall be riprapped unless otherwise noted on the plans or directed by the Resident.

3. All ditch elevations and offsets shown on the cross sections are for the finished ditch flow line.

4. Any necessary cutting of existing pipes to fit in areas of proposed catch basins and manholes will not be paid for separately and shall be incidental to the proposed catch basin and manhole items.

5. Any necessary coring of existing catch basins to take a proposed pipe will not be paid for separately and shall be incidental to the proposed culvert items.

6. If foundation material is required under culverts, it shall meet the requirements for Granular Borrow - Underwater Backfill and shall be paid for as Granular Borrow.

7. Existing culverts to remain shall be inspected for separation. If reconnection is directed by the Resident, it shall not be paid for separately but will be incidental to the new catch basin, manhole or pipe being added to the existing culvert. If concrete collars are required as directed by the Resident, payment will be under Item 603.28, Concrete Collar.

8. When called for on the plans, existing headwalls and a portion of the existing pipe shall be removed and disposed of. This work shall be incidental to Common Excavation.

9. Connecting proposed drainage pipes to existing pipes shall be incidental to the proposed drainage pipe items unless a Concrete Collar is required. Concrete collars shall be paid for under Item 603.28.9.

10. Catch basins with Type C frame and grate shall have 2" thick, 2' minimum paved apron all sides, set flush with rim elevation. The apron shall drop in elevation to allow free flow of runoff into the open throat flange. Extend paved apron as necessary to maintain surrounding grades. Aprons shall be paid for under Item 403.209.

11. Catch basins shall be set to final grade utilizing concrete. Brick and mortar will not be allowed.

12. Existing median drainage shall be maintained until proposed drainage is in place. No seperate payment will be made, and all work and materials required to maintain existing drainage shall be considered incidental to existing drainage items.

EARTHWORK

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

2. Existing pavement removal in fill areas will be paid for under Item 203.20, Common Excavation. Shim material required for these areas below the subbase will be paid under Item 304.10, Aggregate Subbase Course - Gravel or Item 203.24, Common Borrow as shown in the typical sections.

3. The Contractor shall minimize slope disturbances where possible, as directed by the Resident.

4. Waste materials shall be disposed of off the project site, in accordance with all environmental regulations.

5. Granular borrow shall be used to back fill muck/peat excavation or in low wet areas as directed by the resident to 1' above water level or old ground.
Granular borrow shall meet the requirements of Granular Borrow - Underwater Backfill and will be paid for as Granular Borrow.

6. All ramp shoulders or surfaces carrying traffic during construction phasing shall be paved up to, but not including the surface course at a minimum.

Filename: ...\MSTA\003_gen_notes_01.dgn

Scale: AS NOTED

No.	Revision	By	Date

Designed by:

vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

GENERAL NOTES

VHB: 55191.01 SHEET NUMBER: 3

CONTRACT: 2019.10

ITEM 526.35 - MEDIAN BARRIER (PRECAST)

STATION TO STATION	OFFSET	QUANTITY (LF)
MAINE TURNPIKE		
2423+28 TO 2436+21	--	1303.4
2437+43 TO 2452+84	--	1511.4

ITEM 526.362 - GUARDRAIL MEDIAN BARRIER TRANSITION (PRECAST)

STATION TO STATION	OFFSET	QUANTITY (EA)
MAINE TURNPIKE		
2423+18 TO 2423+28	--	1
2452+84 TO 2452+94	--	1

ITEM 603.159 - 12" CULVERT PIPE OPTION III

LOCATION	QUANTITY (LF)
MAINE TURNPIKE	
CB-1A TO CB-1B	4
CB-1C TO CB-2	4
CB-3 TO CB-4	4
CB-5 TO CB-6	4
CB-7 TO CB-8	4
CB-11 TO CB-12	29
CB-16 TO CB-17	4
WARREN AVE	
224+08, 27.3' RT TO CB-100	5
224+52, 27.3' LT TO CB-101	5

ITEM 606.1301 - 31" W-BEAM GUARDRAIL MID-WAY SPLICE (8' STEEL POST, 8' OFFSET BLOCKS, SINGLE FACED)

STATION TO STATION	OFFSET	QUANTITY (LF)
MAINE TURNPIKE		
2432+87 TO 2436+49	RT	362.5
2435+40 TO 2435+90	LT	50.0
2437+56 TO 2446+81	LT	925.0
2438+14 TO 2440+14	RT	200.0

ITEM 606.1306 - 31" W-BEAM GUARDRAIL - MID-WAY SPLICE TANGENT TERMINAL

STATION TO STATION	OFFSET	QUANTITY (EA)
MAINE TURNPIKE		
2432+40 TO 2432+87	RT	1
2446+81 TO 2447+28	LT	1

ITEM 606.1351 - TERMINAL END - ANCHORED END 31" W-BEAM GUARDRAIL

LOCATION	OFFSET	QUANTITY (EA)
MAINE TURNPIKE		
2435+30	LT	1
2440+20	RT	1

ITEM 606.1723 - BRIDGE TRANSITION TYPE III

STATION TO STATION	OFFSET	QUANTITY (EA)
MAINE TURNPIKE		
2435+90 TO 2436+09	LT	1
2436+49 TO 2436+67	RT	1
2437+38 TO 2437+56	LT	1
2437+96 TO 2438+14	RT	1

ITEM 606.1725 - GUARDRAIL TRANSITION TYPE III (MODIFIED)

STATION TO STATION	OFFSET	QUANTITY (EA)
MAINE TURNPIKE		
2423+00 TO 2423+18	--	1
2452+94 TO 2453+13	--	1

ITEM 606.352 - REFLECTORIZED BEAM GUARDRAIL DELINEATOR

LOCATION	QUANTITY (EA)
MAINE TURNPIKE	
ALL LOCATIONS	34

ITEM 606.356 - UNDERDRAIN DELINEATOR POST

LOCATION	QUANTITY (EA)
MAINE TURNPIKE	
ALL LOCATIONS	36

ITEM 606.3561 - DELINEATOR POST REMOVE AND RESET

LOCATION	QUANTITY (EA)
MAINE TURNPIKE	
ALL LOCATIONS	18

ITEM 606.3606 - GUARDRAIL REMOVE, MODIFY AND RESET (DOUBLE RAIL)

STATION TO STATION	OFFSET	QUANTITY (LF)
MAINE TURNPIKE		
2422+24 TO 2423+00	--	76.0
2453+13 TO 2454+09	--	96.0

ITEM 607.17 - CHAIN LINK FENCE - 6 FOOT

STATION TO STATION	OFFSET	QUANTITY (LF)
MAINE TURNPIKE		
2435+40 TO 2436+10	LT	81.4
2436+20 TO 2436+75	RT	78.5
2437+25 TO 2437+60	LT	61.5
2437+95 TO 2438+40	RT	53.7

ITEM 607.23 - CHAIN LINK FENCE GATE

LOCATION	QUANTITY (EA)
MAINE TURNPIKE	
ALL LOCATIONS	2

ITEM 609.191 - VERTICAL CURB TYPE 2

STATION TO STATION	OFFSET	QUANTITY (EA)
MAINE TURNPIKE		
2423+00 TO 2423+18	-	18.1
2435+97 TO 2436+09	LT	11.9
2436+55 TO 2436+67	RT	11.9
2437+38 TO 2437+49	LT	11.9
2437+96 TO 2438+08	RT	11.9
2452+94 TO 2453+13	-	18.1

ITEM 610.08 - PLAIN RIPRAP

STATION	OFFSET	QUANTITY (CY)
MAINE TURNPIKE		
2422+44	103.0' RT	0.5
2423+62	69.1' RT	3.4
2436+41 TO 2436+70	--	486.1
2436+01	65.6' LT	11.1
2436+60	66.4' RT	9.0
2437+34 TO 2437+63	--	486.1
2443+98	76.3' LT	2.1

ITEM 620.58 - EROSION CONTROL GEOTEXTILE

STATION	OFFSET	QUANTITY (SY)
MAINE TURNPIKE		
2422+44	103.0' RT	4.0
2423+62	69.1' RT	15.2
2436+41 TO 2436+70	--	532.8
2436+01	65.6' LT	36.4
2436+60	66.4' RT	29.9
2437+34 TO 2437+63	--	532.8
2443+98	76.3' LT	12.0

ITEM 620.70 - HDPE GEOMEMBRANE

LOCATION	QUANTITY (SY)
MAINE TURNPIKE	
2424+00 TO 2430+00 RT	600

ITEM 624.01 - STORMWATER SOIL FILTER BED

LOCATION	QUANTITY (CY)
MAINE TURNPIKE	
2424+00 TO 2430+00 RT	140

EARTHWORK SUMMARY

COMMON EXCAVATION FOR ESTIMATE	PHASE 1 CONSTRUCTION		PHASES 2, 3, AND WARREN AVE CONSTRUCTION	
COMMON EXCAVATION (FROM MODEL OR PLANS)	9047		4445	
GRUBBING IN FILL	3926		365	
PAVEMENT SALVAGE IN FILL	1065		1119	
TOTAL COMMON EXCAVATION		14038		5929
FILL FOR BORROW CALCULATIONS				
COMMON FILL (FROM MODEL OR PLANS)	12712		250	
GRUBBING IN FILL	3926		365	
PAVEMENT SALVAGE IN FILL	1065		1119	
TOTAL FILL		17703		1734
AVAILABLE COMMON EXCAVATION FOR BORROW CALCULATIONS				
ALL DEDUCTIONS:				
GRUBBING IN CUT		3120		1028
GRUBBING IN FILL		3926		365
PAVEMENT SALVAGE (CUT & FILL)		1357		2008
TOTAL DEDUCTIONS		8403		3401
TOTAL AVAILABLE COMMON EXCAVATION (-) TOTAL DEDUCTIONS		5635		2528
TOTAL AVAILABLE STRUCTURAL EXCAVATION (UNDERDRAIN ONLY)		167		775
RIPRAP EXCAVATION		27		0
TOTAL AVAILABLE NON-ROCK EXCAVATION		5829		3303
COMPUTATION OF WASTE STORAGE & WASTE MATERIAL				
TOTAL AVAILABLE WASTE STORAGE AREA (FROM CROSS SECTIONS)		0		0
GRUBBING IN CUT		3120		1028
GRUBBING IN FILL		3926		365
TOTAL WASTE MATERIAL		7046		1393
TOTAL WASTE MATERIAL TO BE UTILIZED		0		0
TOTAL WASTE MATERIAL TO BE WASTED		7046		1393
COMPUTATION FOR GRANULAR BORROW FOR ESTIMATE				
LIGHT WEIGHT FILL		2545		4424
GRANULAR BORROW TO MAINTAIN TRAFFIC		50		0
TOTAL GRANULAR BORROW		2595		4424
COMPUTATION FOR SURPLUS MATERIAL OR COMMON BORROW FOR ESTIMATE				
TOTAL AVAILABLE NON-ROCK EXCAVATION	5829 x 0.90 =	5246	3303 x 0.90 =	2972.7
TOTAL WASTE MATERIAL TO BE UTILIZED	0 x 0.90 =	0	0 x 0.90 =	0
TOTAL AVAILABLE EXCAVATION		5246		2973
BORROW NEEDED = TOTAL FILL (-) TOTAL AVAILABLE EXCAVATION		12457		0
LIGHT WEIGHT FILL	2545			
GRANULAR BORROW TO MAINTAIN TRAFFIC	50			
BORROW NEEDED (-) REQUIRED GRANULAR BORROW WITHIN FILL	9862			
COMMON BORROW	**9862 CY**		**SURPLUS MATERIAL**	**2632 CY**

Scale:

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

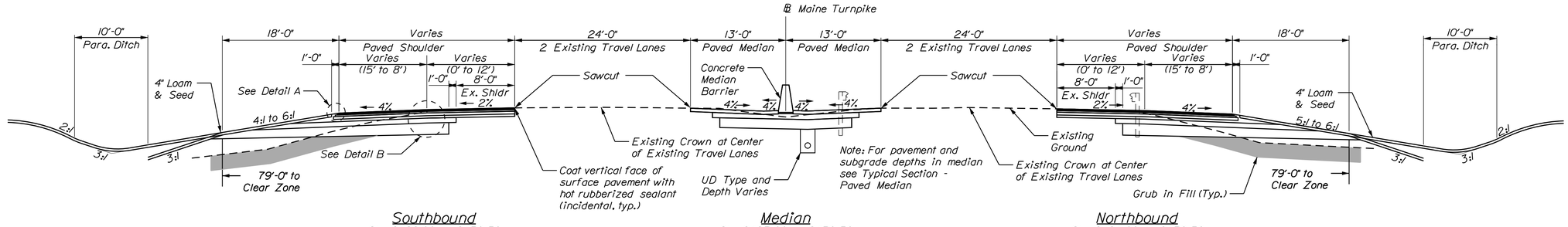
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT CONSTRUCTION NOTES & EARTHWORK SUMMARY

VHB: 55191.01 SHEET NUMBER: 4
CONTRACT: 2019.10 4 OF 141

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\004_ConstructionNotes.dgn Date:3/26/2019

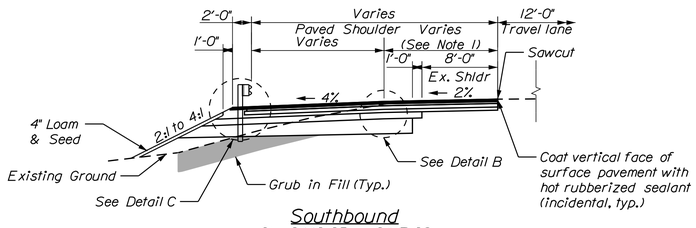


Southbound
Sta. 2426+00 to 2430+50
Sta. 2447+28 to 2453+13

Median
Sta. 2423+00 to 2430+50
Sta. 2442+25 to 2453+13

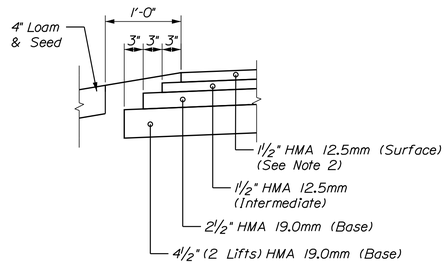
Northbound
Sta. 2424+00 to 2430+50
Sta. 2442+25 to 2453+13

Typical Section - Median and Shoulder Reconstruction without Guardrail
Not to Scale

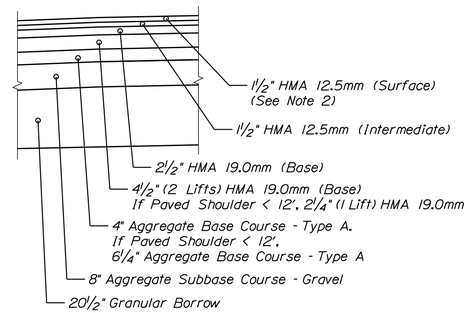


Southbound
Sta. 2442+25 to 2447+28

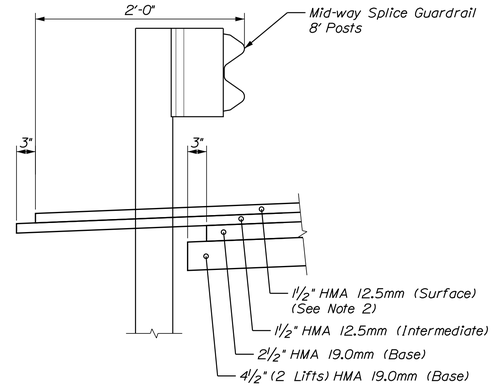
Typical Section - Shoulder Reconstruction with Guardrail
Not to Scale



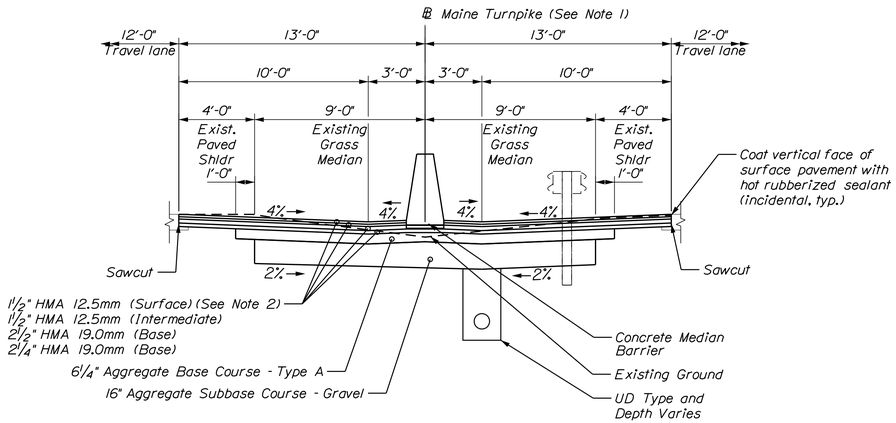
Detail A
Not to Scale



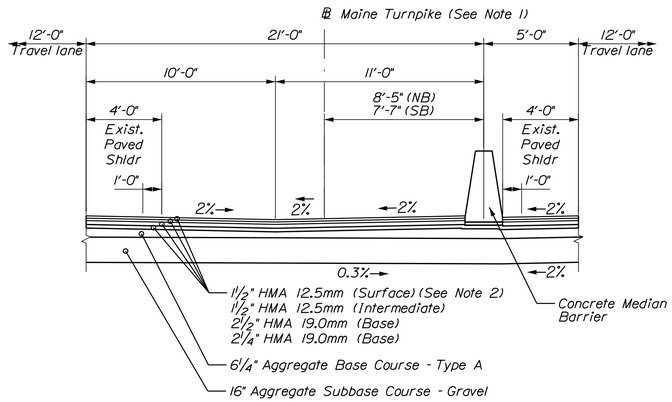
Detail B
Not to Scale



Detail C
Not to Scale



Typical Section - Paved Median (Full Depth Construction)
(Existing Grass Median)
Sta. 2423+00 to 2433+75
Sta. 2440+25 to 2453+13
Not to Scale



Typical Section - Paved Median (Full Depth Construction)
(Proposed Bridge Approaches)
Sta. 2436+00 to ±2436+37
Sta. ±2437+63 to 2438+00 (See Note 6)
Not to Scale

Notes:

1. The proposed geometric layout shifts 5" to the right from station 2430+50 to station 2432+50. This 5" shift is maintained through station 2440+25. The proposed geometric layout shifts 5" back to the left from station 2440+25 to station 2442+25. See Table A, on Sheet 6.
2. 1½" HMA 12.5mm Surface pavement layer south of the Warren Avenue Overpass to be placed by others. See General Note 18 on Sheet 3.
3. The pavement, base, and subbase depths as shown on the plans are nominal.
4. Crowns for all courses of subbase and pavement shall be straight.
5. Bituminous tack coat is required between all lifts of pavement.
6. Mirror typical for this station range.

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

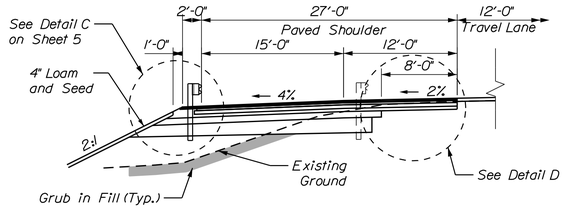
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE TYPICAL SECTIONS (1 OF 4)

VHB: 55191.01 SHEET NUMBER: 5
CONTRACT: 2019.10 5 OF 141

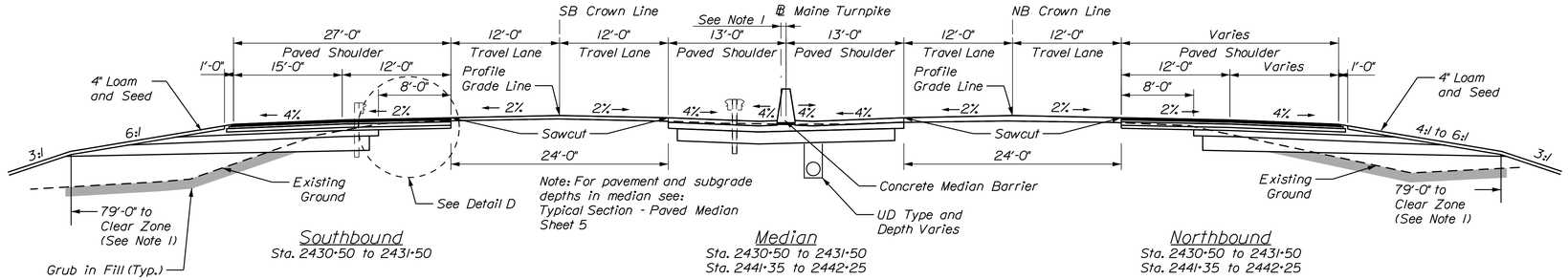
Date:3/24/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\005_Typicals01.dgn



Southbound
Sta. 2441+35 to 2442+25

Typical Section - Variable Depth Shim with Guardrail
Not to Scale

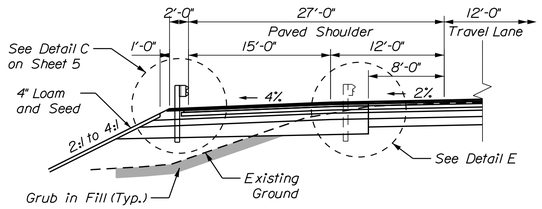


Southbound
Sta. 2430+50 to 2431+50

Median
Sta. 2430+50 to 2431+50
Sta. 2441+35 to 2442+25

Northbound
Sta. 2430+50 to 2431+50
Sta. 2441+35 to 2442+25

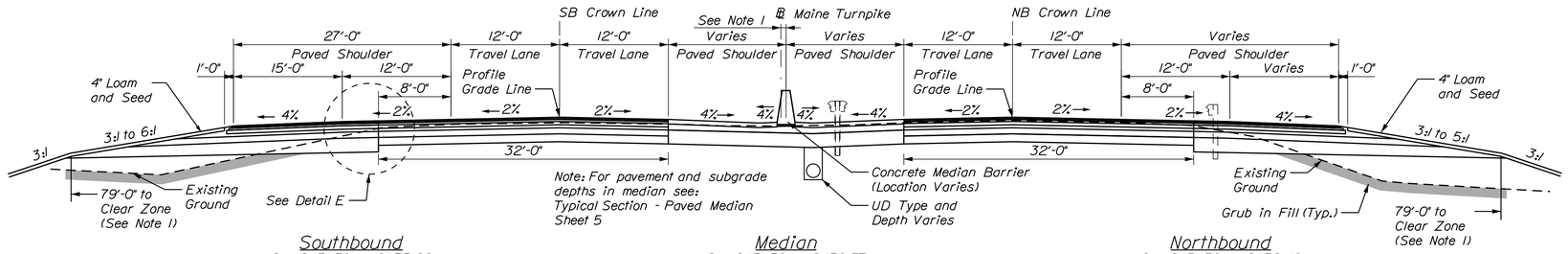
Typical Section - Variable Depth Shim without Guardrail
Not to Scale



Southbound
Sta. 2435+28 to 2435+90
Sta. 2437+56 to 2441+35

Northbound
Sta. 2432+40 to 2436+49 (See Note 6)
Sta. 2438+14 to 2440+25 (See Note 6)

Typical Section - Variable Depth Gravel with Guardrail
Not to Scale

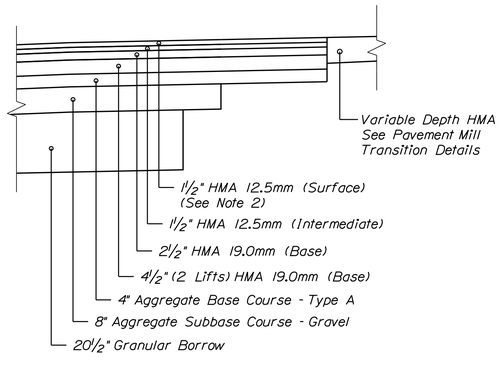


Southbound
Sta. 2431+50 to 2435+28

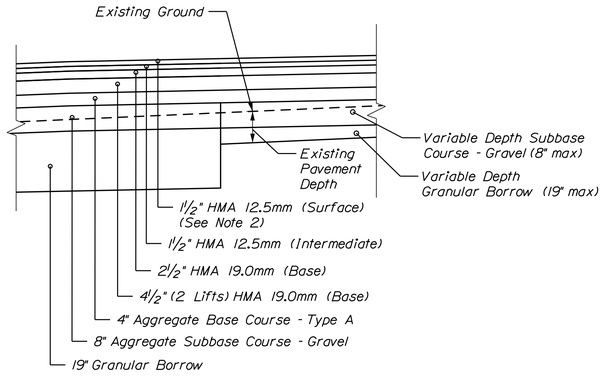
Median
Sta. 2431+50 to 2436+37
Sta. 2437+63 to 2441+35

Northbound
Sta. 2431+50 to 2432+40
Sta. 2440+25 to 2441+35

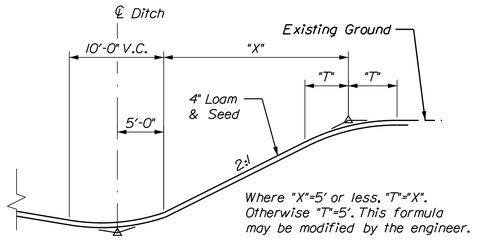
Typical Section - Variable Depth Gravel without Guardrail
Not to Scale



Detail D
Not to Scale



Detail E
Not to Scale



Backslope Rounding Detail
Not to Scale

SB Crown Line Offset	BL Maine Turnpike Station	NB Crown Line Offset
25'-0"	2430+50.00	25'-0"
24'-7"	2432+50.00	25'-5"
24'-7"	2440+25.00	25'-5"
25'-0"	2442+25.00	25'-0"

Table A
NB and SB Crown Line Shifts

Notes:

1. The proposed geometric layout shifts 5' to the right from station 2430+50 to station 2432+50. This 5' shift is maintained through station 2440+25. The proposed geometric layout shifts 5' back to the left from station 2440+25 to station 2442+25. See Table A.
2. 1½" HMA 12.5 mm Surface pavement layer south of the Warren Avenue Overpass to be placed by others. See General Note 18 on Sheet 3.
3. The pavement, base and subbase depths as shown on the plans are intended to be nominal.
4. Crowns for all courses of subbase and pavement shall be straight.
5. Bituminous tack coat is require between all lifts of pavement.
6. Mirror typical for Northbound sections.

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE TYPICAL SECTIONS (2 OF 4)

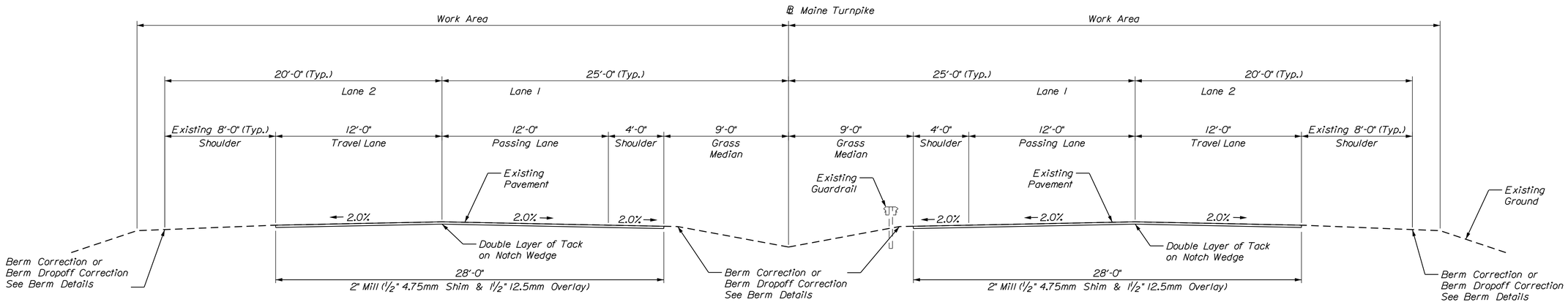
VHB: 55191.01 SHEET NUMBER: 6
CONTRACT: 2019.10 6 OF 141

Date:3/24/2019

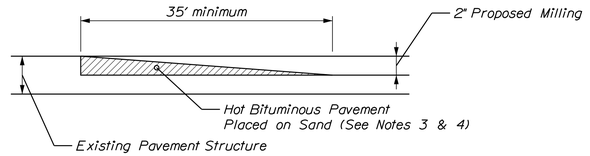
Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDoT\MaineDOT\HIGHWAY\MSTA\006_Typicals02.dgn

Reference:

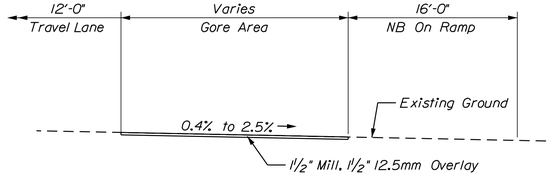
MM 49.3 = Sta. 2453+13
MM 51.2 = Sta. 2551+93



Pavement Mill & Overlay - NB & SB
MM 49.3 - MM 51.2
Not to Scale



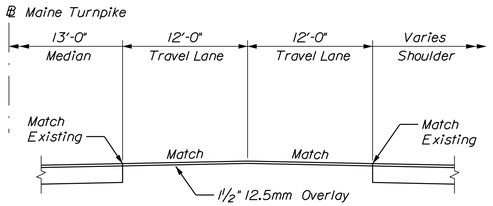
Temporary Bituminous Ramp
Not to Scale



Notes:

1. Cross slope of gore area shall be straight.
2. Mill around existing catch basin as directed.

Pavement Mill & Overlay - NB On Ramp Gore
Sta. 2411+18 to 2418+95 Rt
Not to Scale



Note: Northbound lanes shown. Mirror typical for Southbound lanes.

Typical Section - 1 1/2" Overlay
Sta. 2442+25 to 2453+13
Not to Scale

Notes:

1. A coating of hot rubberized asphalt ASTM D6690 Type IV shall be applied to all transverse butt joints and longitudinal joints except where the notch wedge is used.
2. Bituminous tack coat is required between existing pavement and HMA, 12.5mm or shim.
3. Hot Mix Asphalt for temporary ramps will not be measured for payment, but shall be incidental to Hot Mix Asphalt 12.5mm.
4. Removal of temporary bituminous ramps will not be measured for payment, but shall be incidental to Hot Mix Asphalt 12.5mm.
5. Bituminous tack coat is required between all lifts of pavement. Bituminous tack coat is required on all existing paved or milled surfaces prior to placing proposed pavement.
6. Crowns for all courses of pavement shall be straight.
7. Pavement depths as shown on the plan are intended to be nominal.

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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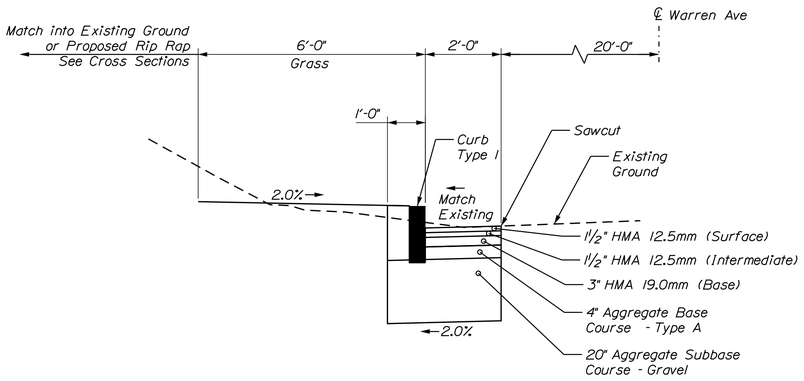
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

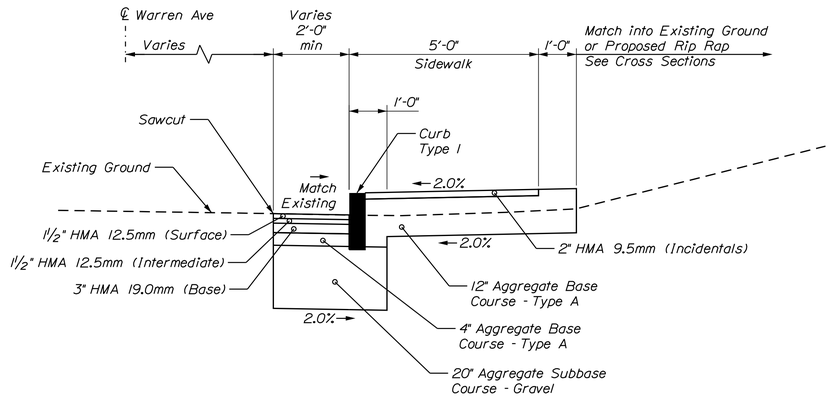
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MILL & OVERLAY LOCATIONS TYPICAL SECTIONS (3 OF 4)

VHB: 55191.01 SHEET NUMBER: 7
CONTRACT: 2019.10 7 OF 141



Typical Section - Shoulder Reconstruction
Without Sidewalk

Sta. 222+50 to 225+50 Lt
Not to Scale



Typical Section - Shoulder Reconstruction
With Sidewalk

Sta. 222+23 to 225+86 Rt
Not to Scale

Notes:

1. The pavement, base and subbase depths as shown on the plans are intended to be nominal.
2. Bituminous tack coat is required between all lifts of pavement.

Date:3/24/2019

Filename: \\vhb\gbl\proj\Portland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\008_Typicals04_WarrenAve.dgn

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

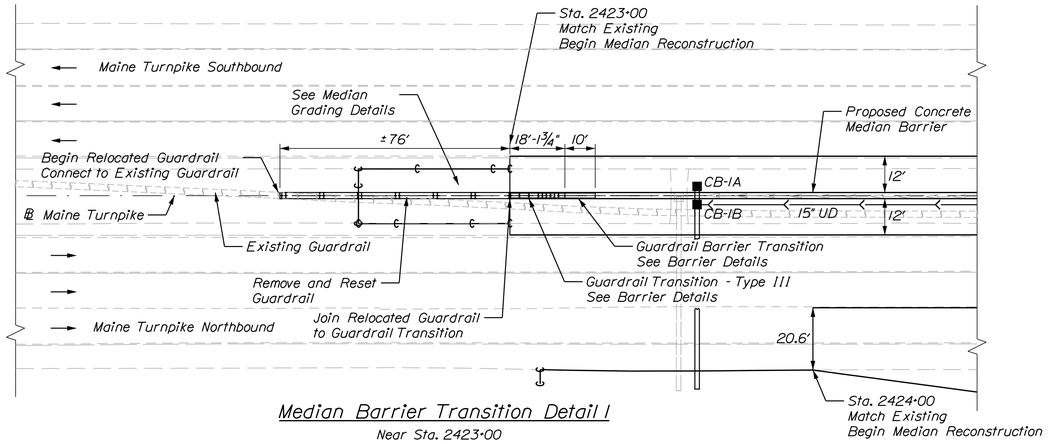
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WARREN AVENUE TYPICAL SECTIONS (4 OF 4)

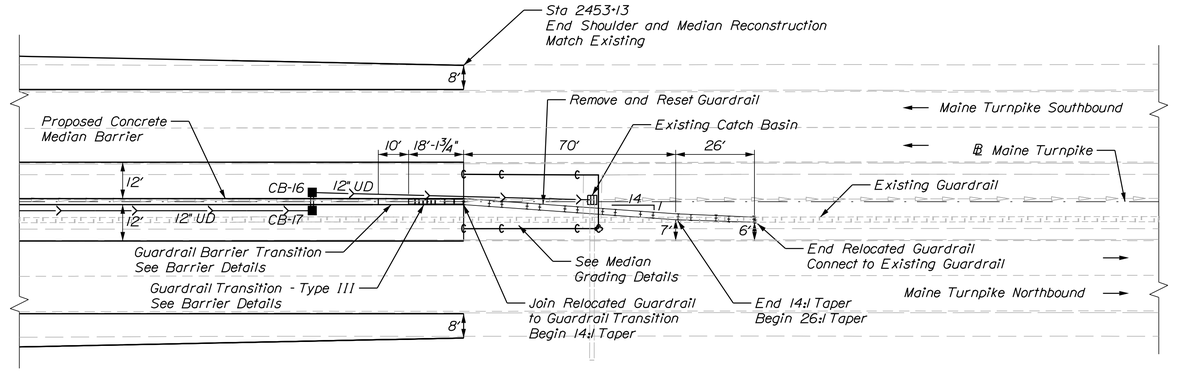
VHB: 55191.01 SHEET NUMBER: 8

CONTRACT: 2019.10 8 OF 141



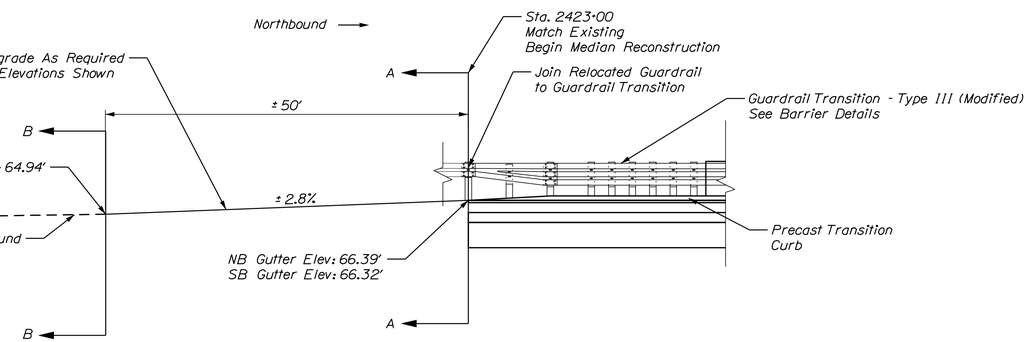
Median Barrier Transition Detail 1

Near Sta. 2423+00
Not to Scale



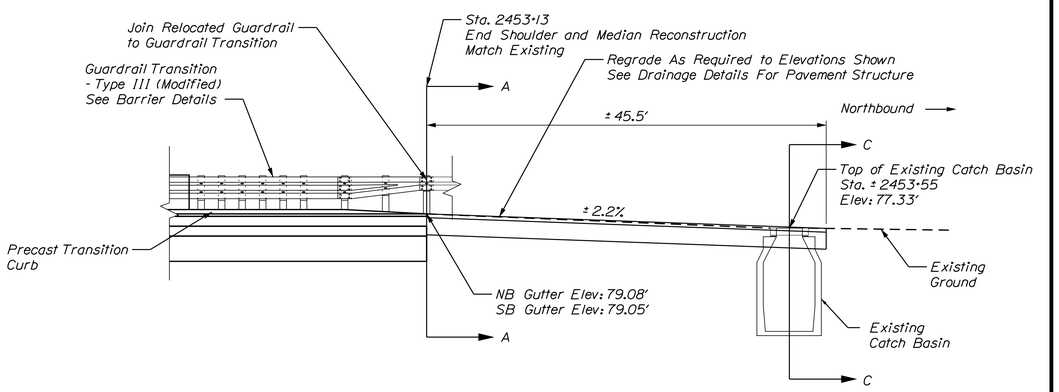
Median Barrier Transition Detail 2

Near Sta. 2453+13
Not to Scale



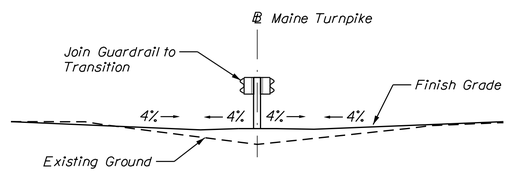
Median Profile Grading Detail 1

Near Sta. 2423+00
Not to Scale



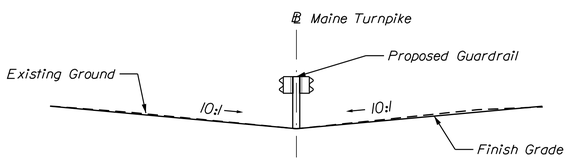
Median Profile Grading Detail 2

Near Sta. 2453+13
Not to Scale



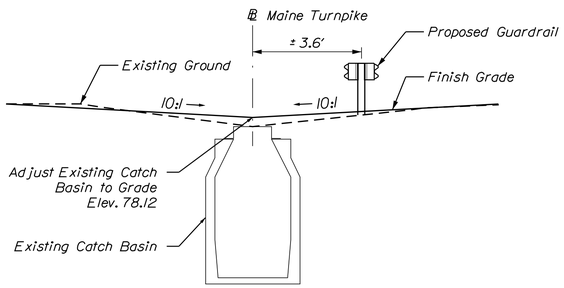
Section A-A

Not to Scale



Section B-B

Not to Scale



Section C-C

Not to Scale

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

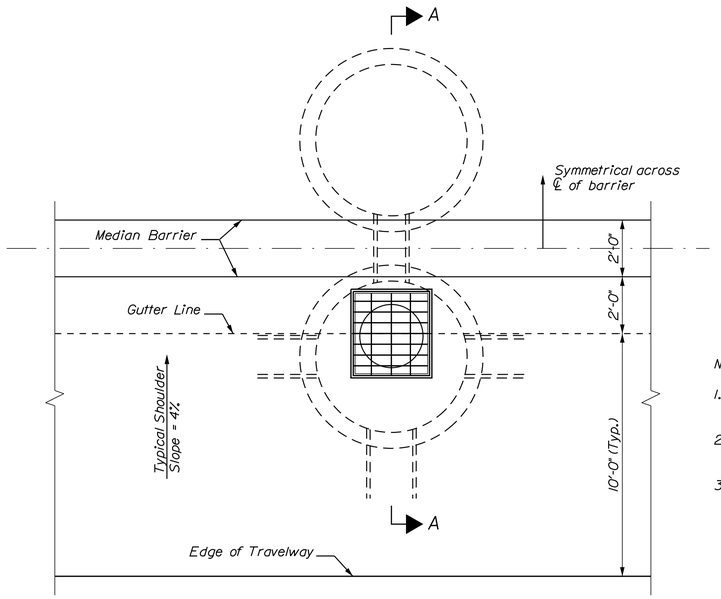
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MEDIAN BARRIER TRANSITION AND GRADING DETAILS

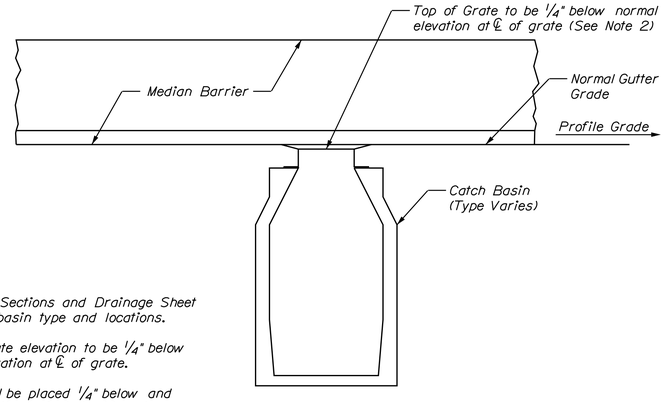
VHB: 55191.01 SHEET NUMBER: 9
CONTRACT: 2019.10 9 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\009_Details_Median_1.dgn



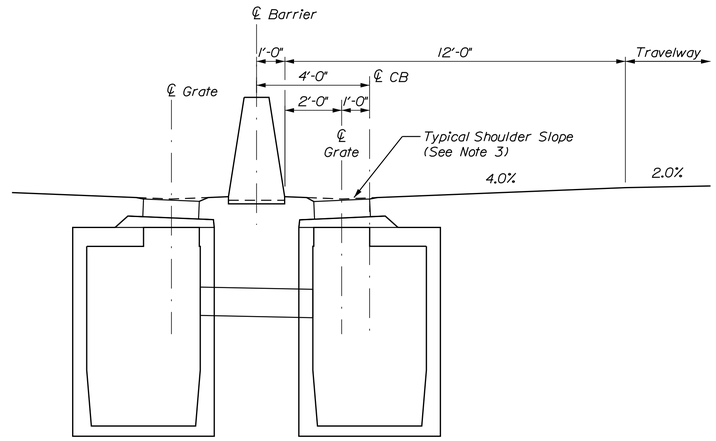
Plan View



Elevation

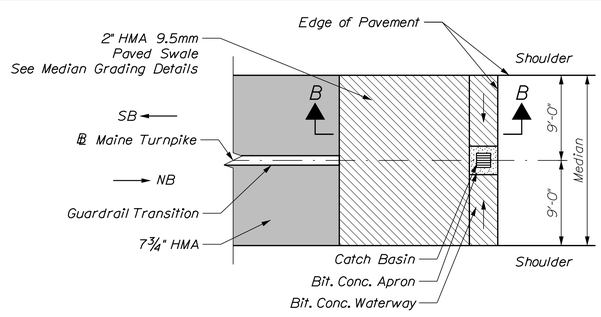
Notes:

1. See Cross Sections and Drainage Sheet for catch basin type and locations.
2. Top of grate elevation to be 1/4" below normal elevation at ℄ of grate.
3. Grate shall be placed 1/4" below and parallel to the typical shoulder slope.

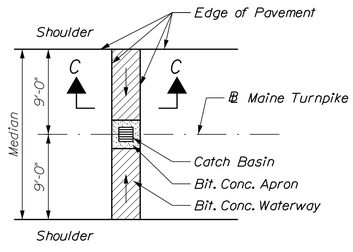


Section A-A

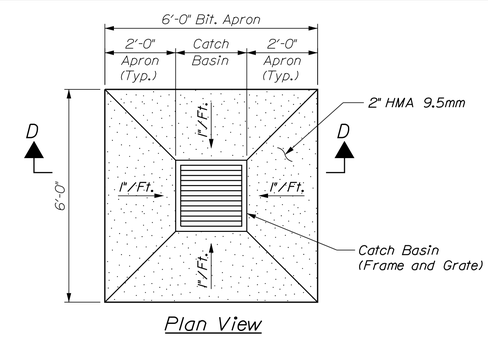
Placement of Drainage Structures
Along Median Barrier
Not to Scale



Plan View



Plan View



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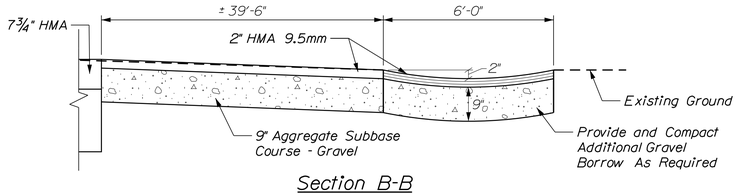
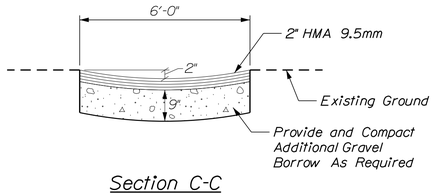


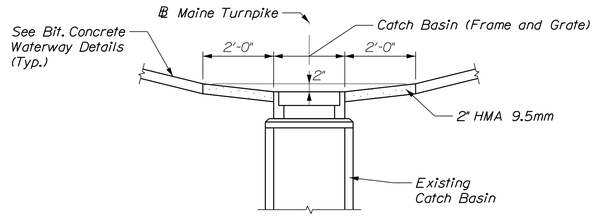
Section B-B

Bituminous Concrete Waterway
At Limits of Reconstruction (No Median Barrier)
Near Sta. 2453+13
Not to Scale



Section C-C

Bituminous Concrete Waterway
At Roadway Low Points
Not to Scale



Section D-D

Catch Basin In Median
Not to Scale

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

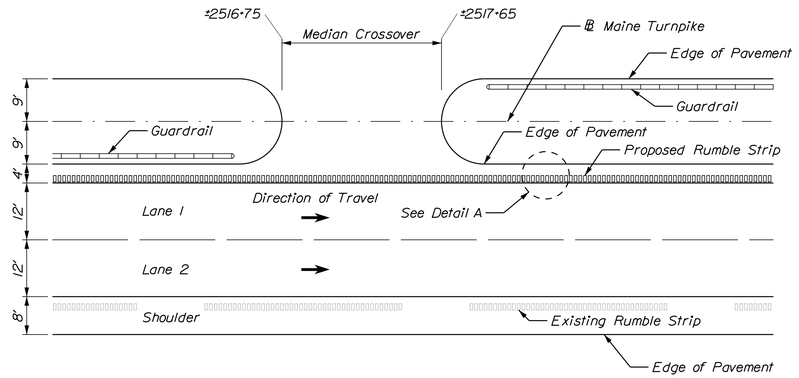
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DRAINAGE DETAILS

VHB: 55191.01 SHEET NUMBER: 10
CONTRACT: 2019.10 10 OF 141

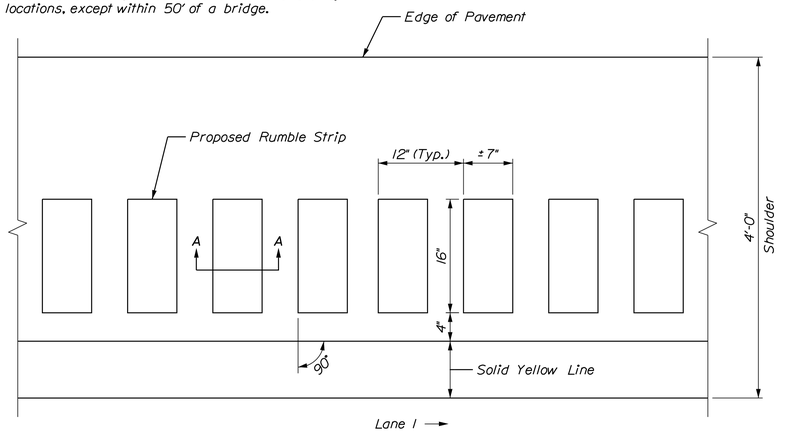
Date:3/24/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\010_Details_Drainage.dgn

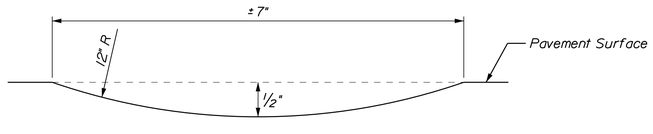


Median Crossover Rumble Strip Locations
Not to Scale

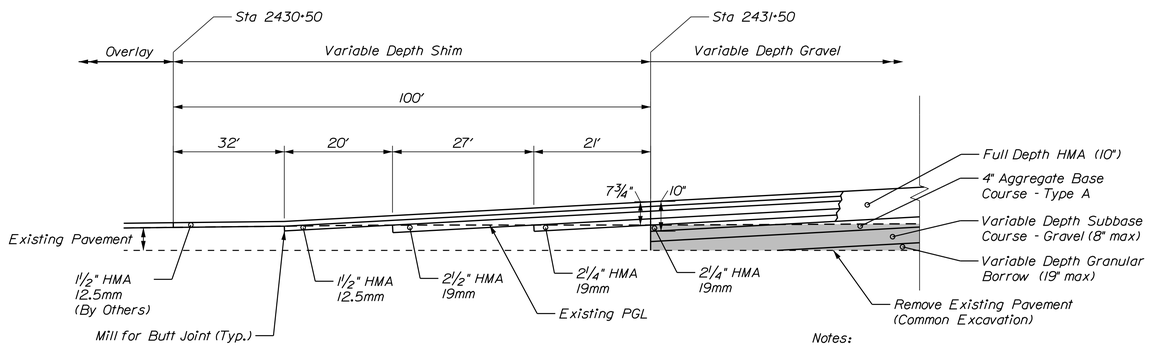
Note: Lane 1 rumble strips needed at all mill and overlay locations, except within 50' of a bridge.



Detail A
Plan View - Lane 1
Not to Scale



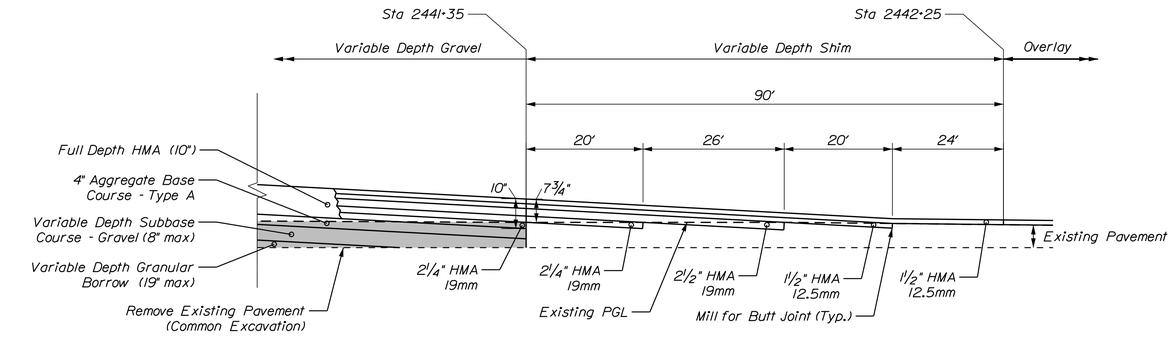
Section A-A
Not to Scale



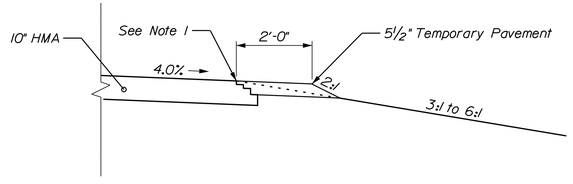
Pavement Mill Transition Detail 1
Sta. 2430+50 to 2431+50
Not to Scale

Notes:

1. Full depth pavement removal shall be paid for as common excavation.
2. Bituminous tack coat is required between all lifts of pavement or as directed by the Resident. Bituminous tack coat is required on all existing paved or milled surfaces prior to placing proposed pavement.
3. A coating of hot rubberized asphalt shall be applied to the surface layer of all sawcut and pavement joints prior to paving. Remainder of sawcut to be bituminous tack coat. Payment shall be incidental to the pavement items.
4. Shoulder pavement transitions shall align with mainline transitions.
5. Dimensions shown are approximate. Final butt joint locations will be determined in the field by the resident.



Pavement Mill Transition Detail 2
Sta. 2441+35 to 2442+25
Not to Scale



Temporary Pavement For Traffic Control Detail
Not to Scale

Notes:

1. After traffic phasing saw cut and remove temporary pavement and regrade inslope as needed. All work shall be considered incidental to 461.131 Temporary Pavement.
2. Approximate locations:
   2428+95 to 2431+70 Rt
   2440+25 to 2443+25 Rt

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
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MAINE TURNPIKE

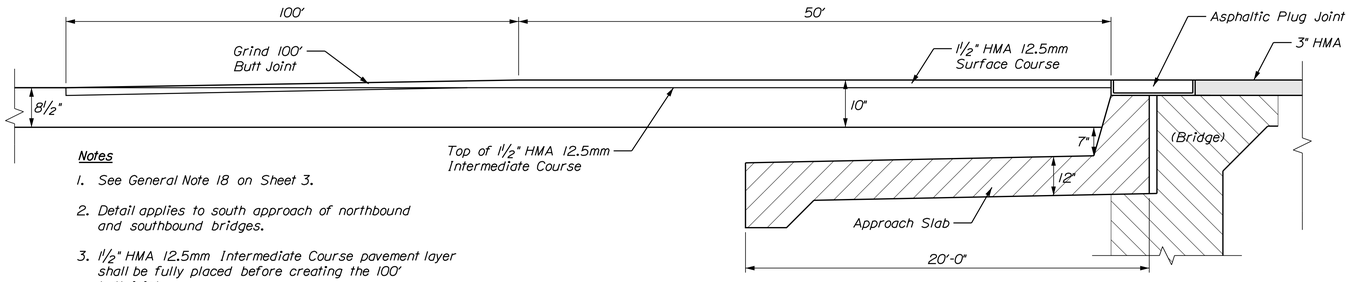
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MISCELLANEOUS HIGHWAY DETAILS (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 11
CONTRACT: 2019.10 11 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\011_Details_Misc_1.dgn
Date:3/24/2019

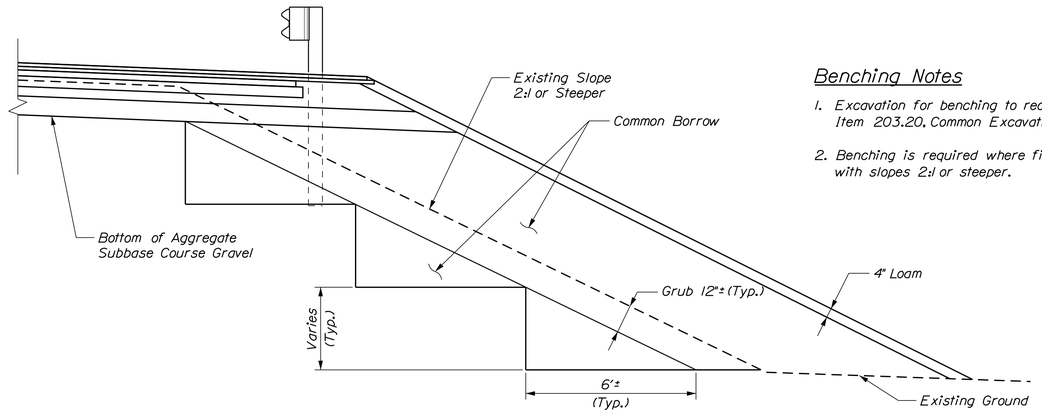


Notes

1. See General Note 18 on Sheet 3.
2. Detail applies to south approach of northbound and southbound bridges.
3. 1½" HMA 12.5mm Intermediate Course pavement layer shall be fully placed before creating the 100' butt joint.

Southern Bridge Approaches Paving Detail

Not to Scale

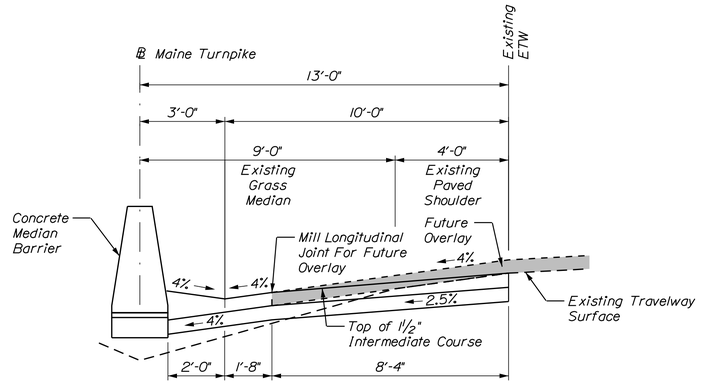


Embankment and Bench Detail

Scale: 3/8" = 1'-0"

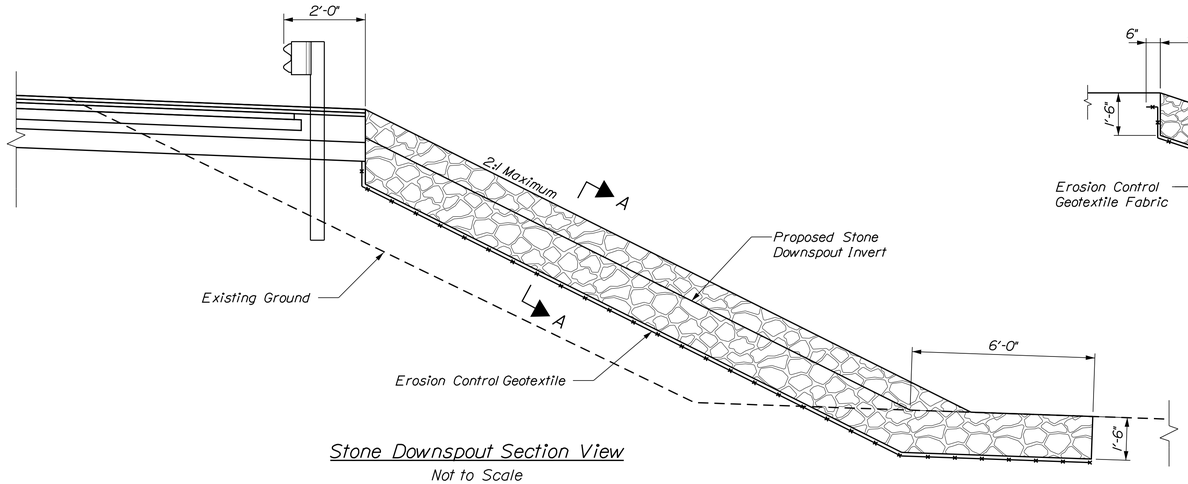
Benching Notes

1. Excavation for benching to receive embankments shall be incidental to Item 203.20, Common Excavation.
2. Benching is required where fill is to be placed on existing embankments with slopes 2:1 or steeper.



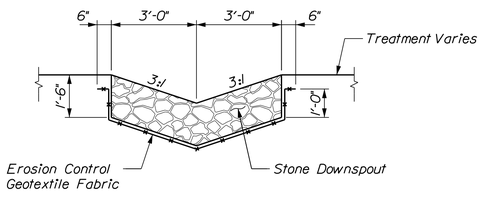
Median Barrier/Inside Shoulder Treatment Detail

Not to Scale



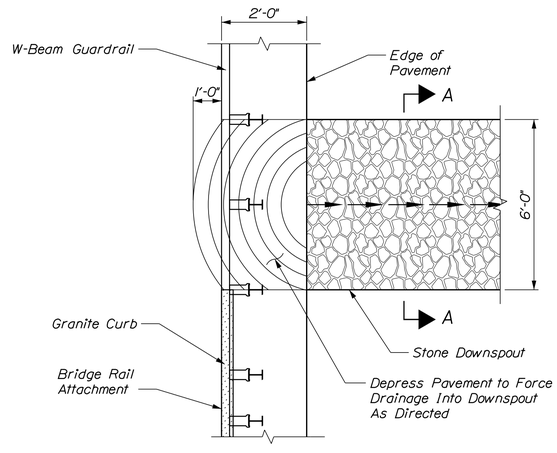
Stone Downspout Section View

Not to Scale



Section A-A

Not to Scale



Stone Downspout Plan View

Not to Scale

Scale: As Noted

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

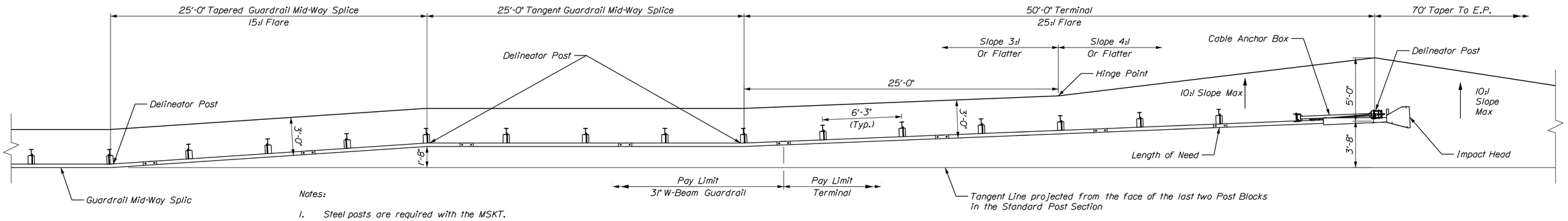
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MISCELLANEOUS HIGHWAY DETAILS (2 OF 2)

VHB: 55191.01 SHEET NUMBER: 12

CONTRACT: 2019.10 12 OF 141

Date:3/24/2019

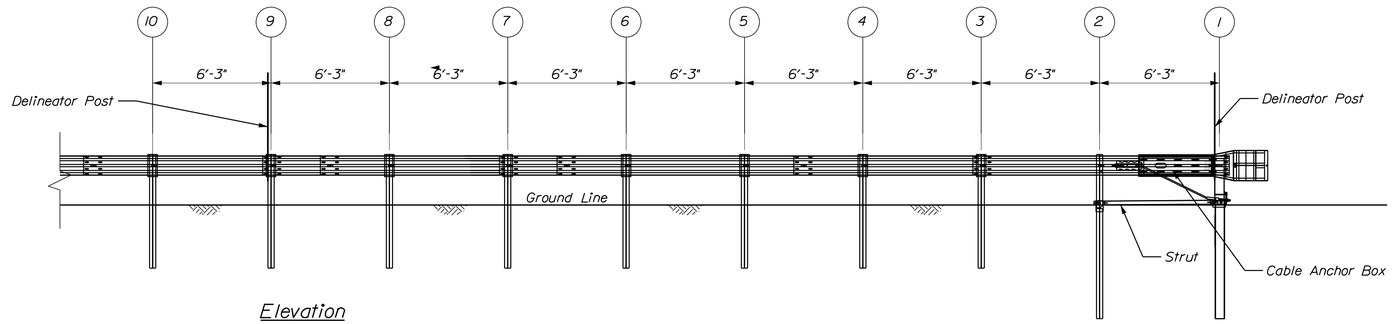
Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\012_Details_Misc_2.dgn



Notes:

1. Steel posts are required with the MSKT.
2. See Specifications for reflective sheeting requirements.

Plan

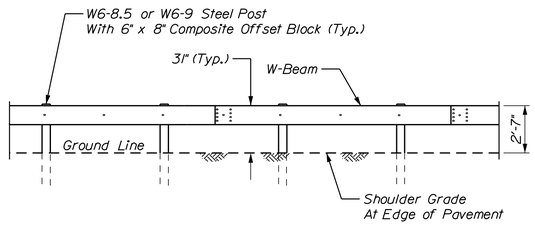


Elevation

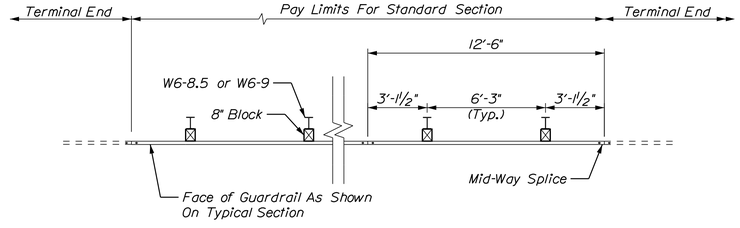
GENERAL GUARDRAIL INSTALLATION NOTES:

1. The Contractor shall follow all manufacturer's installation instructions for the installation of all guardrail components to be installed. The Contractor shall notify the Resident Engineer of any conflicts or irregularities between the manufacturer's installation instructions and the contract documents.
2. The Contractor is required to have an approved crash end treatment on all guardrail ends prior to the removal of any MOT features.
3. Guardrail height shall be 31". Guardrail height shall be measured from ground elevation adjacent to each post.
4. The Contractor shall remove and dispose of all cut bolts, discard parts, trash, pavement debris, etc., after completing the guardrail installation.

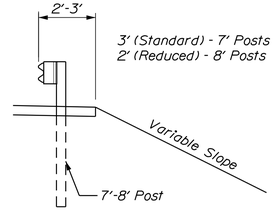
31" W-Beam Guardrail Mid-Way Splice Tangent Terminal
(Item 606.1306)
Not to Scale



Elevation

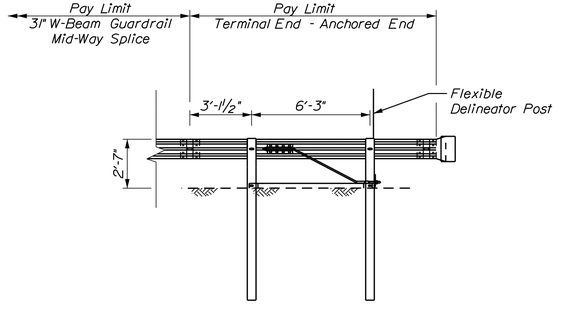


Plan - Single Faced



Cross Section

31" W-Beam Guardrail - Mid-Way Splice
(8' Steel Post, 8" Offset Blocks, Single Faced)
(Item 606.1301)
Not to Scale



Terminal End - Anchored End - 31" W-Beam Guardrail
(Item 606.1351)
Not to Scale

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Date: 3/26/2019

Scale: Not to Scale			
No.	Revision	By	Date

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CONSULTANT PROJECT MANAGER: T. Bryant

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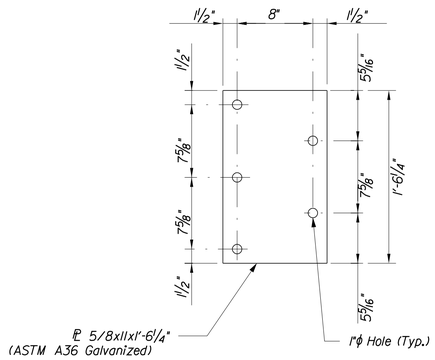
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

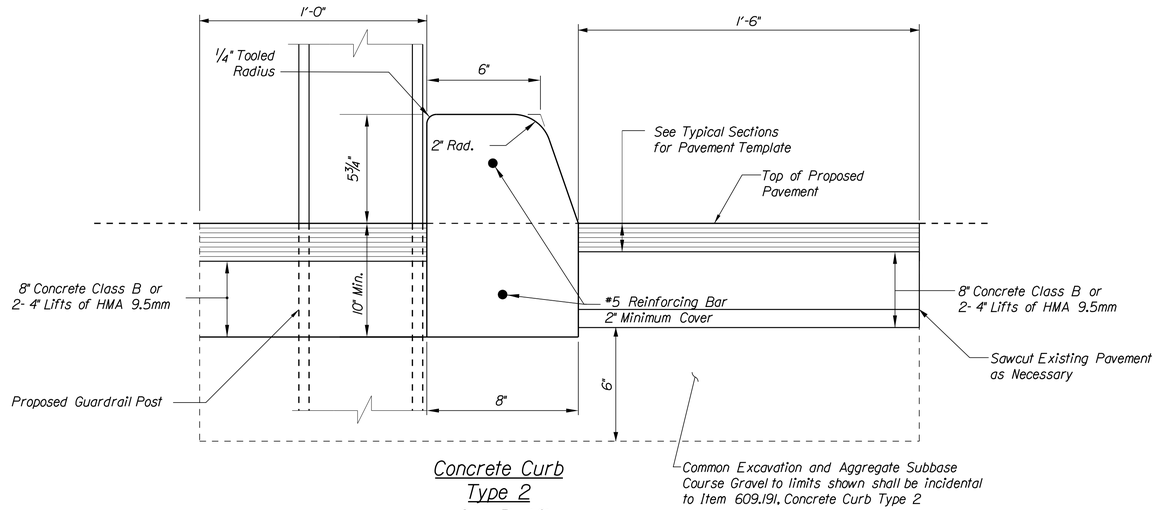
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT GUARDRAIL DETAILS MID-WAY SPLICE

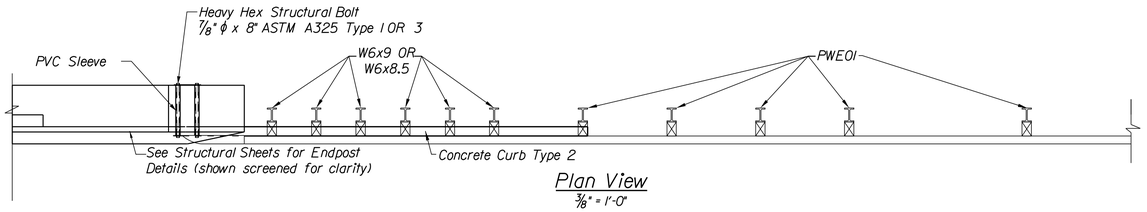
VHB: 55191.01 SHEET NUMBER: 13
CONTRACT: 2019.10 13 OF 141



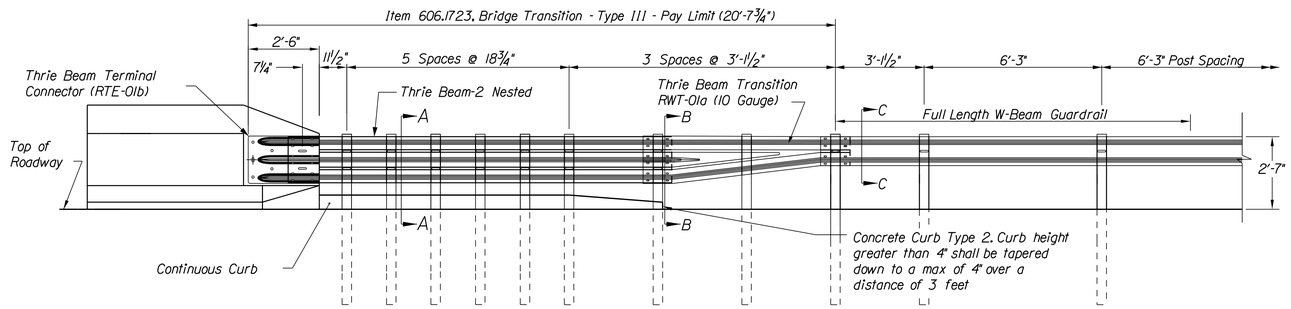
Offset Plate
1½" = 1'-0"



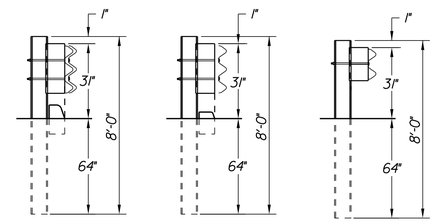
Concrete Curb Type 2
Scale: 3" = 1'-0"



Plan View
⅜" = 1'-0"



Bridge Transition - Type III
Scale: ⅜" = 1'-0"



Section A-A Section B-B Section C-C

CURB NOTES:

1. Curbing shall be either precast concrete, cast-in-place concrete or granite to meet dimensions shown on the plans.
2. Concrete curbs used in conjunction with thrie beam bridge transitions shall be Type 2, see details this sheet. Concrete curbs shall be set to form a continuous gutterline without any drainage cuts.
3. Sawcutting existing pavement, concrete fill, and pavement to limits shown shall be incidental to the Bridge Transition pay item.

GENERAL NOTES:

1. Additional holes may be made in the thrie beam panels by drilling, punching, or other means that produce a neat, clean hole. Burning holes will not be allowed.
2. Thrie beam shall be placed with the composite blockout face in front of or directly above the curb face.
3. Rail element shall meet all requirements of AASHTO M-180 except as modified on the plans. The thrie beam transition to W-Beam shall be of the same material, but shall not be less than 10 gauge.
4. After installation is complete, upset the thread on the anchor bolts in three places around each bolt, at the junction of the nut and the exposed thread, with a center punch or similar tool.
5. Standard barrier hardware has been used to develop these guardrail attachments. Designations provided in parentheses relate to standard elements detailed in "A Guide to Standardized Barrier Rail Hardware," 1979, AASHTO-AGC-ARTBA Joint Cooperate Committee.
6. 1" hole in concrete shall be formed by a method approved by the engineer.
7. Guardrail height shall be adjusted uniformly between section callouts.

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\014_Details_BridgeTransition.dgn
Date: 3/24/2019

Scale: As Noted

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CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
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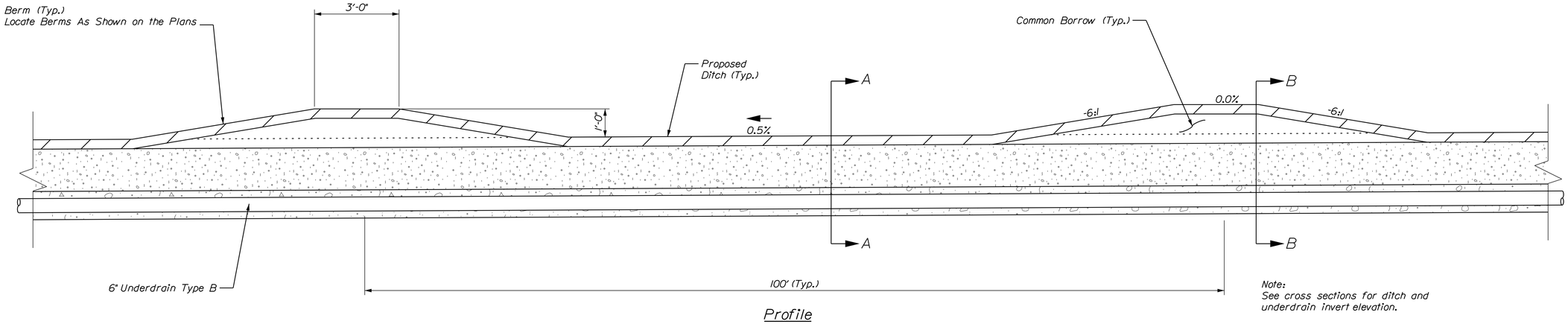
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

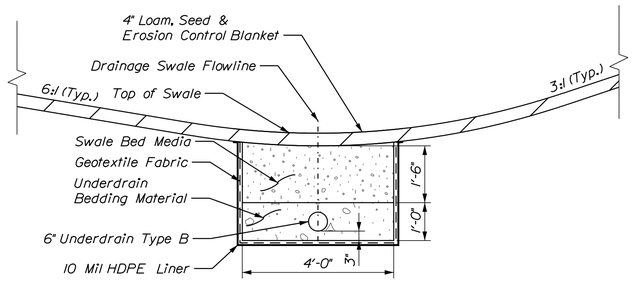
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT GUARDRAIL DETAIL BRIDGE TRANSITION

VHB: 55191.01 SHEET NUMBER: 14
CONTRACT: 2019.10 14 OF 141

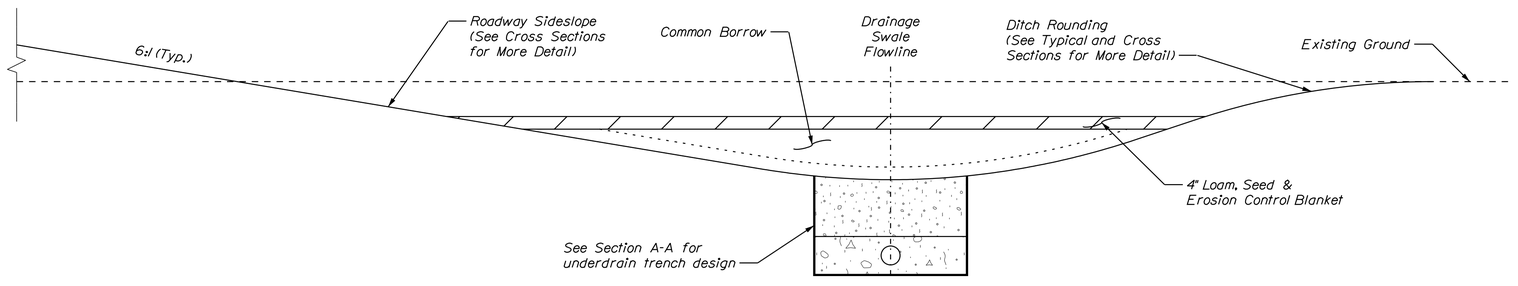


Profile

Note:
See cross sections for ditch and underdrain invert elevation.



Section A-A



Section B-B

Notes:

1. The swale bed media shall meet Special Provisions 624.02, Swale Bed Media Filter Media, and shall be paid for under Item 624.01. The swale bed media shall be lightly compacted, thoroughly blended, mixture of the following:
   a. Sand (50-55% by volume): MaineDOT Specification Section 703.01 - Fine Aggregate for Concrete.
   b. Topsoil (20-30% by volume): loamy sand topsoil with minimal clay content and between 15-25% fines passing the #200 sieve.
   c. Mulch (20-30% by volume): moderately fine shredded bark mulch or wood fiber mulch with less than 5% passing the #200 sieve.
2. Underdrain bedding material shall consist of well-graded, clean, coarse gravel meeting MaineDOT specification Section 703.22 - Underdrain Backfill for Type B Underdrain. No more than 2% by weight shall pass the #200 sieve.
3. Geotextile fabric shall conform to MaineDOT Specification 722.02 - Class A designation.
4. A 10 mil HDPE liner shall be installed along the entire length of the underdrain treatment swale around the underdrain bedding and swale bed media as shown on the detail. The liner shall meet Special Provisions 620.02, HDPE Geomembrane, and shall be paid for under Item 620.70.
5. Underdrain pipe shall be MaineDOT standard 6" Underdrain Type "B". Extend underdrain to connect to underdrain outlet pipe as shown on the plans.
6. The surface of the swale bed shall be planted with wetland seed "New England Erosion Control/Restoration Mix" as supplied by New England Wetland Plants, Inc. or approved equal. Seed mix shall be applied at double the manufacturer's application rate. Surface shall be stabilized with an approved erosion control matting. Seed shall meet Special Provisions 618.02, Special Seeding, and shall be paid for under Item 618.143.
7. Erosion control blankets conforming to the MaineDOT Standard Detail 802(02) shall be provided on the underdrain swale channel, all underdrain treatment swale sideslopes, and on all berm slopes.
8. Swale bed shall be constructed to the limits and details shown on the plans and the above specifications unless otherwise approved by the Resident Engineer.
9. Swale bed material shall not be placed until the tributary drainage area is permanently stabilized against erosion.

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT STORMWATER UNDERDRAIN TREATMENT SWALE DETAILS

VHB: 55191.01 SHEET NUMBER: 15

CONTRACT: 2019.10 15 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\015_Details_BMP.dgn

Date:3/24/2019

DIMENSIONS FOR SLOPE OF 2:1

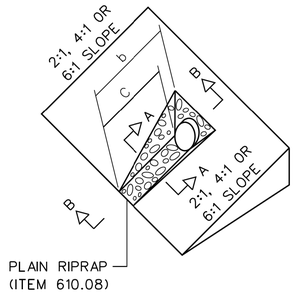
D	a (FT)	b (FT)	c (FT)	e (FT)	f (FT)	g (FT)	STONE DEPTH (FT)	STONE (CY)
12"	1.00	4.00	3.00	2.00	6.00	1.00	1.50	1.30
15"	1.00	4.50	3.37	2.25	6.75	1.63	1.50	1.70
18"	1.00	5.00	3.75	2.50	7.50	2.25	1.50	2.09
21"	1.00	5.50	4.13	2.75	8.25	2.88	1.50	2.58
24"	1.00	6.00	4.50	3.00	9.00	3.50	1.50	3.12
30"	1.00	7.00	5.25	3.50	10.50	4.75	1.50	4.33
36"	1.00	8.00	6.00	4.00	12.00	6.00	1.50	5.75
42"	1.00	9.00	6.75	4.50	13.50	7.25	1.50	7.37
48"	1.00	10.00	7.50	5.00	15.00	8.50	1.50	9.18
54"	1.00	11.00	8.25	5.50	16.50	9.75	1.50	11.19
60"	1.00	12.00	9.00	6.00	18.00	11.00	1.50	13.40
66"	1.00	13.00	9.75	6.50	19.50	12.25	1.50	15.81
72"	1.00	14.00	10.50	7.00	21.00	13.50	1.50	18.41
84"	1.00	16.00	12.00	8.00	24.00	16.00	1.50	24.22

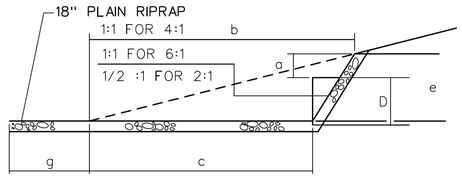
DIMENSIONS FOR SLOPE OF 4:1

D	a (FT)	b (FT)	c (FT)	e (FT)	f (FT)	g (FT)	STONE DEPTH (FT)	STONE (CY)
12"	1.00	8.00	6.00	2.00	6.00	0.00	1.50	2.20
15"	1.00	9.00	6.75	2.25	6.75	0.00	1.50	2.80
18"	1.00	10.00	7.50	2.50	7.50	0.00	1.50	3.40
21"	1.00	11.00	8.25	2.75	8.25	0.00	1.50	4.10
24"	1.00	12.00	9.00	3.00	9.00	0.00	1.50	4.86
30"	1.00	14.00	10.50	3.50	10.50	0.00	1.50	6.58
36"	1.00	16.00	12.00	4.00	12.00	0.00	1.50	8.56
42"	1.00	18.00	13.50	4.50	13.50	0.50	1.50	10.92
48"	1.00	20.00	15.00	5.00	15.00	1.00	1.50	13.57
54"	1.00	22.00	16.50	5.50	16.50	1.50	1.50	16.50
60"	1.00	24.00	18.00	6.00	18.00	2.00	1.50	19.72
66"	1.00	26.00	19.50	6.50	19.50	2.50	1.50	23.22
72"	1.00	28.00	21.00	7.00	21.00	3.00	1.50	27.01
84"	1.00	32.00	24.00	8.00	24.00	4.00	1.50	35.45

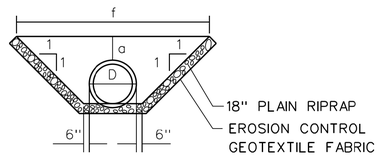
DIMENSIONS FOR SLOPE OF 6:1

D	a (FT)	b (FT)	c (FT)	e (FT)	f (FT)	g (FT)	STONE DEPTH (FT)	STONE (CY)
12"	0.50	9.00	7.50	1.50	4.50	0.00	1.50	2.30
15"	0.50	10.50	8.75	1.75	5.50	0.00	1.50	2.93
18"	0.50	12.00	10.00	2.00	6.50	0.00	1.50	3.57
21"	0.50	13.50	11.25	2.25	7.25	0.00	1.50	4.46
24"	0.50	15.00	12.50	2.50	8.00	0.00	1.50	5.44
30"	0.50	18.00	15.00	3.00	9.50	0.00	1.50	7.71
36"	0.50	21.00	17.50	3.50	11.00	0.00	1.50	10.37
42"	0.50	24.00	20.00	4.00	12.50	0.00	1.50	13.42
48"	0.50	27.00	22.50	4.50	14.00	0.00	1.50	16.87
54"	0.50	30.00	25.00	5.00	15.50	0.00	1.50	20.70
60"	0.50	33.00	27.50	5.50	17.00	0.00	1.50	24.93
66"	0.50	36.00	30.00	6.00	18.50	0.00	1.50	29.55
72"	0.50	39.00	32.50	6.50	20.00	0.00	1.50	34.56
84"	0.50	45.00	37.50	7.50	23.00	0.00	1.50	45.76





SECTION B-B

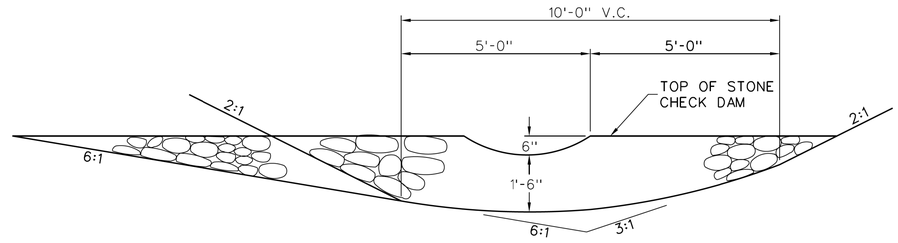


SECTION A-A

ROADWAY CULVERT END SLOPE TREATMENT

NOTES:

1. THE DIMENSIONS SHOWN ARE APPROXIMATE AND MAY BE MODIFIED BY THE RESIDENT.
2. STONE QUANTITIES ARE FOR ONE END OF THE PIPE.



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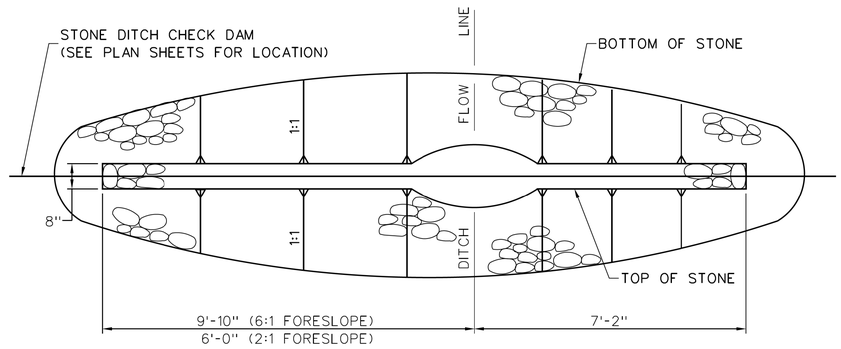

PLAN

STONE CHECK DAM

1" = 2-0"

FORESLOPE	BACKSLOPE	QUANTITY C.Y. STONE
6:1	3:1	2.5
2:1	3:1	2.0

NOTES:

1. STONE FOR TEMPORARY AND PERMANENT STONE CHECK DAMS SHALL MEET THE REQUIREMENTS OF MDOT SPECIFICATION 703.29, STONE DITCH PROTECTION.
2. TEMPORARY STONE CHECK DAMS WILL BE PAID FOR UNDER ITEM 610.181.
3. PERMANENT STONE CHECK DAMS WILL BE PAID FOR UNDER ITEM 610.182.
4. CHECK DAMS SHALL BE REGULARLY MAINTAINED SO AS TO BE FREE OF LEAVES, DEBRIS, AND SILT BUILD UP.

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

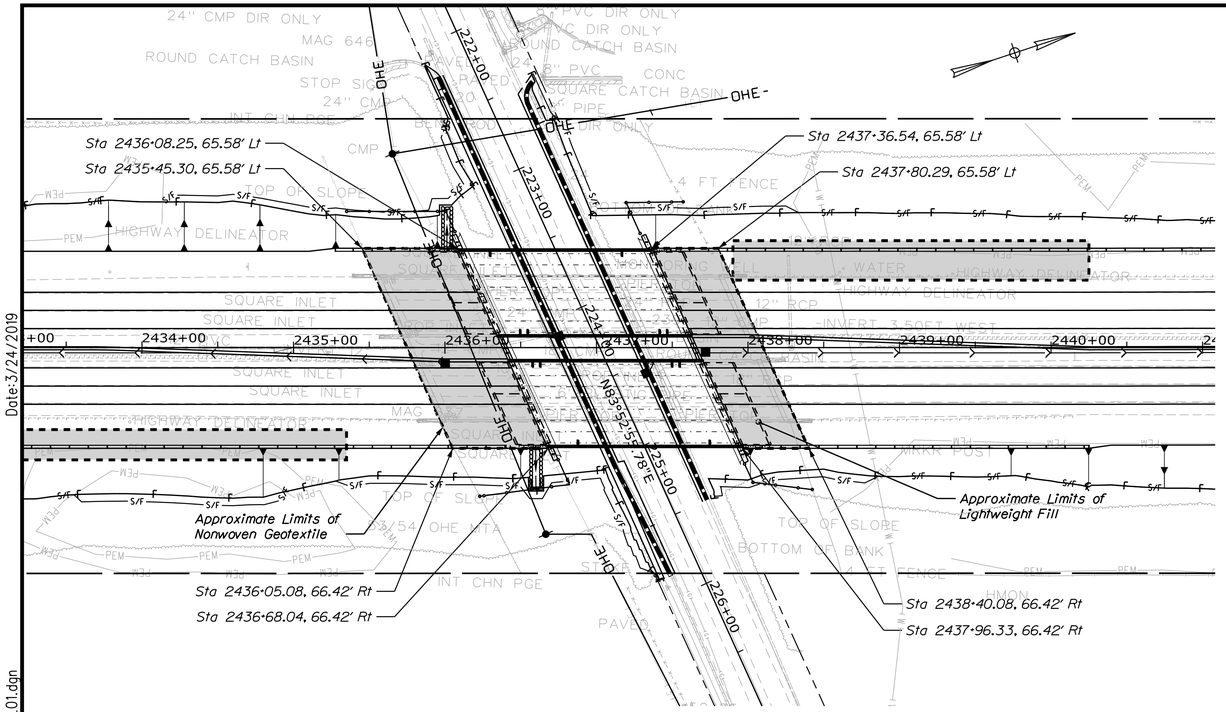
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

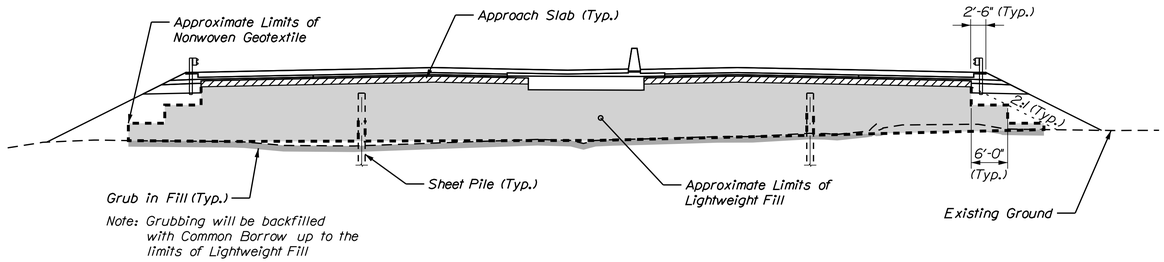
EROSION CONTROL DETAILS

VHB: 55191.01 SHEET NUMBER: 16

CONTRACT: 2019.10 16 OF 141

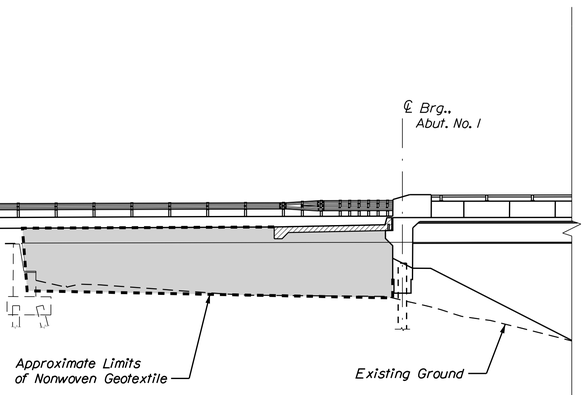


Plan
Not to Scale

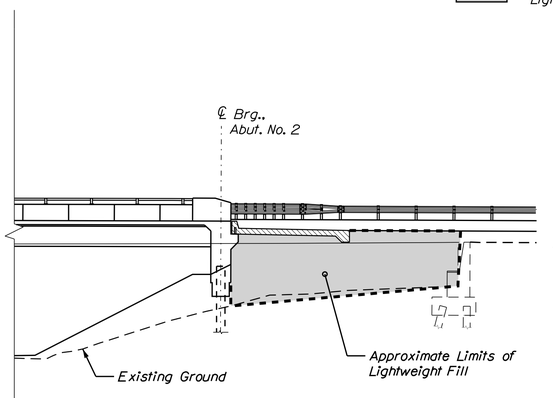


Typical Section With Approach Slab
Not to Scale

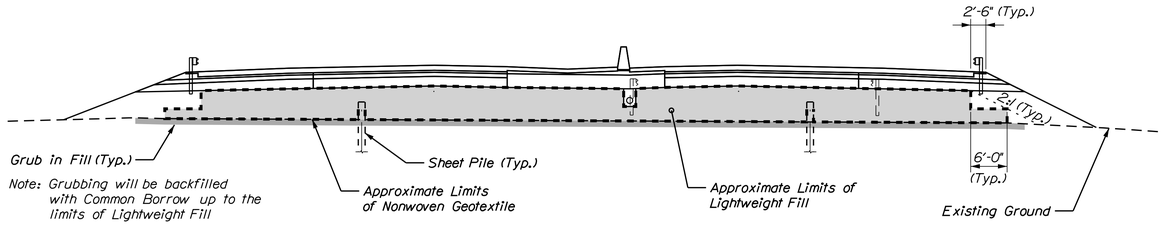
Approximate Limits of Lightweight Fill



Elevation - South Side
Not to Scale



Elevation - North Side
Not to Scale



Typical Section Without Approach Slab
Not to Scale

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

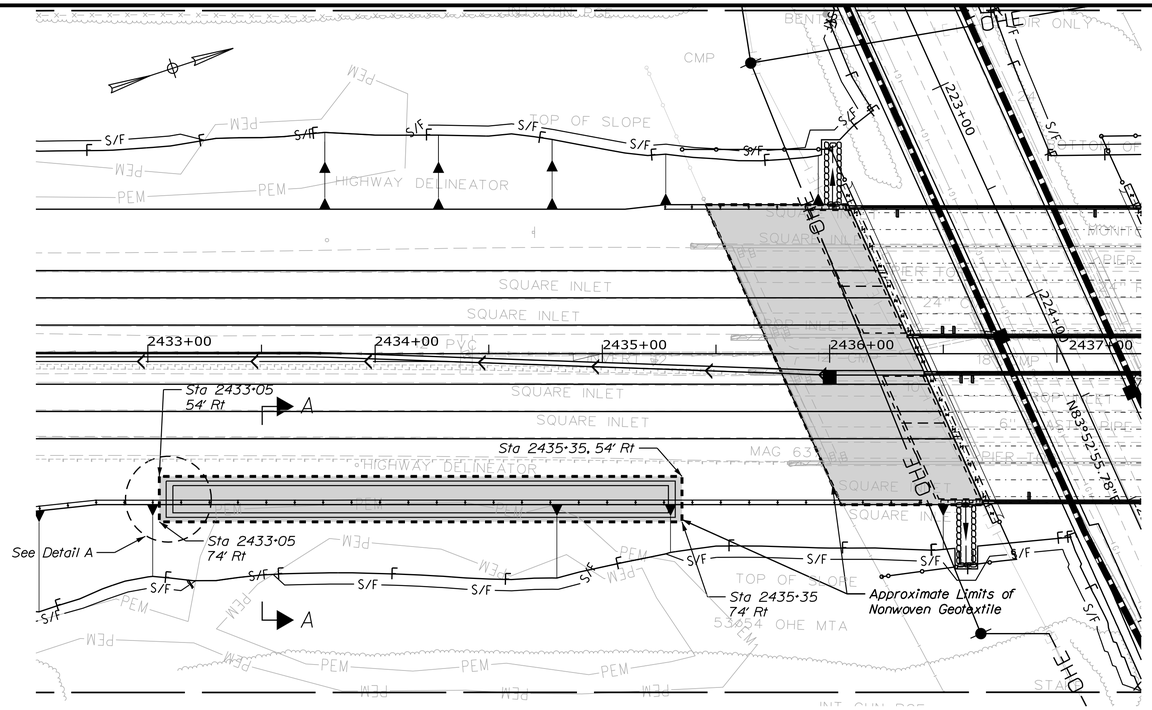
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

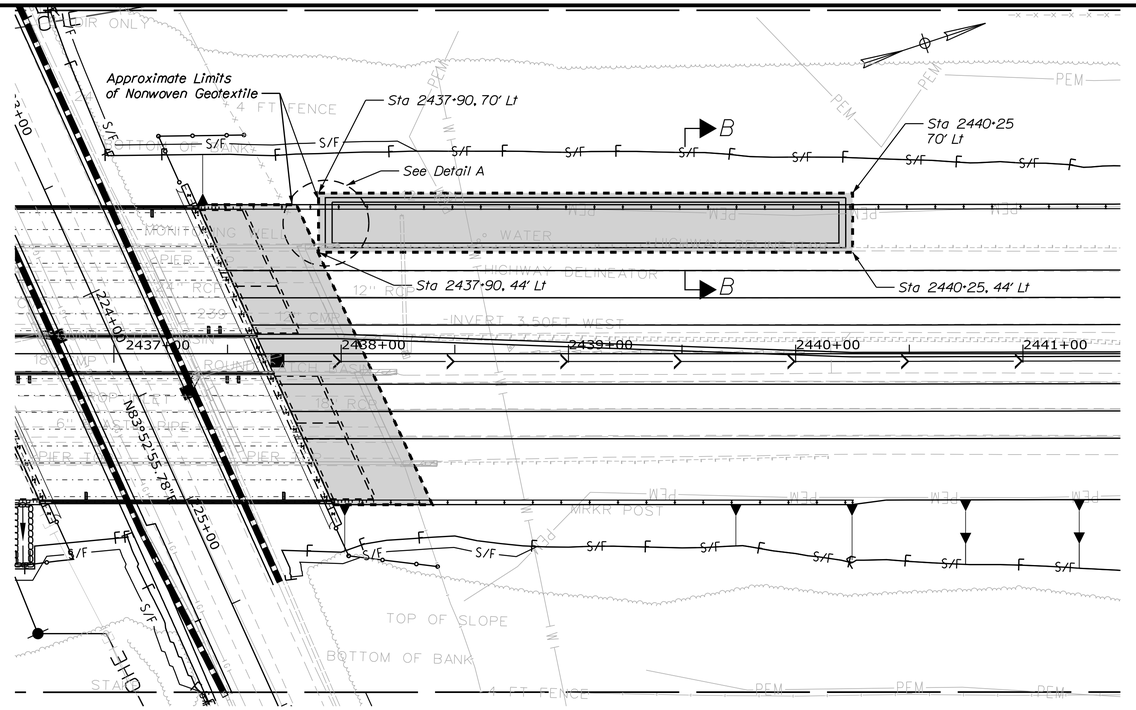
LIGHTWEIGHT FILL DETAILS (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 17
CONTRACT: 2019.10 17 OF 141

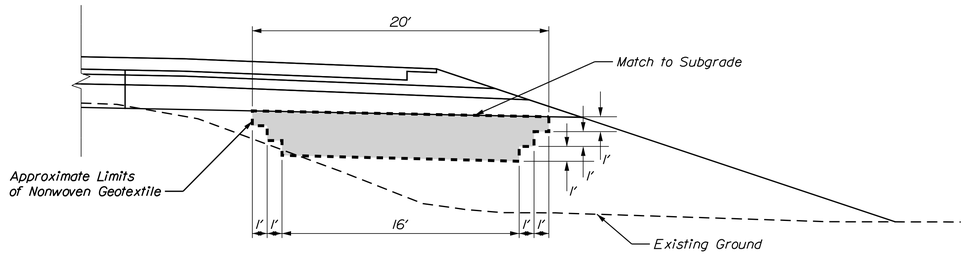
Date:3/24/2019
Filename: \\vhb\ab\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDoT\MaineDOT\HIGHWAY\MSTA\017_LightweightFill_Detail_01.dgn



Plan - South Side
Not to Scale



Plan - North Side
Not to Scale



Section A-A
Sta. 2433·50
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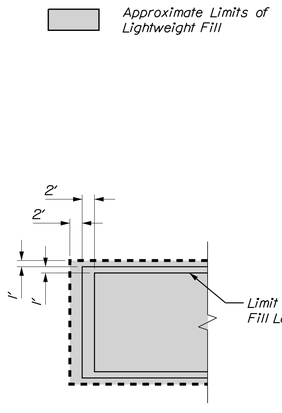
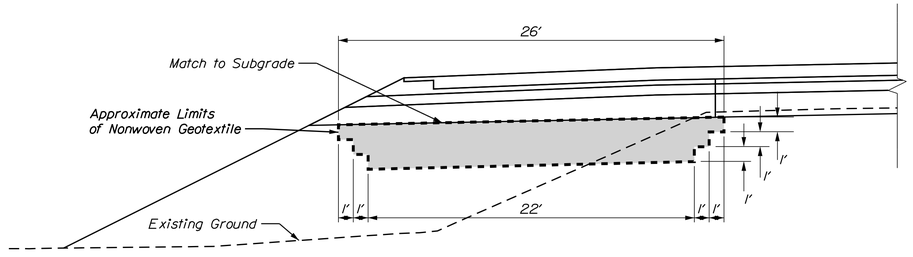


Detail A
Not to Scale

Note: Mirror this Detail at
Sta. 2435·35 and 2440·25



Section B-B
Sta. 2439·50
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Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDoT\MaineDOT\HIGHWAY\MSTA\018_LightweightFill_Detail_02.dgn
Date:3/24/2019

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

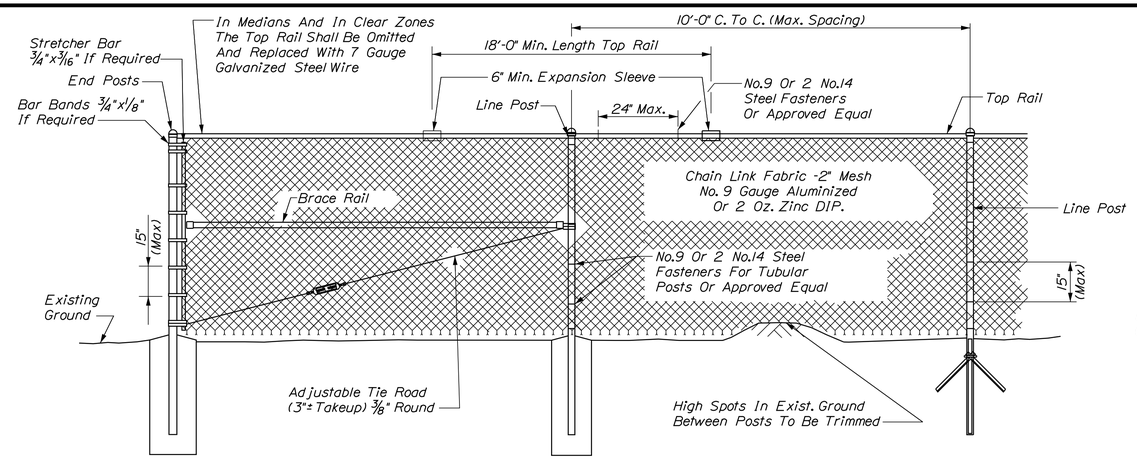
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

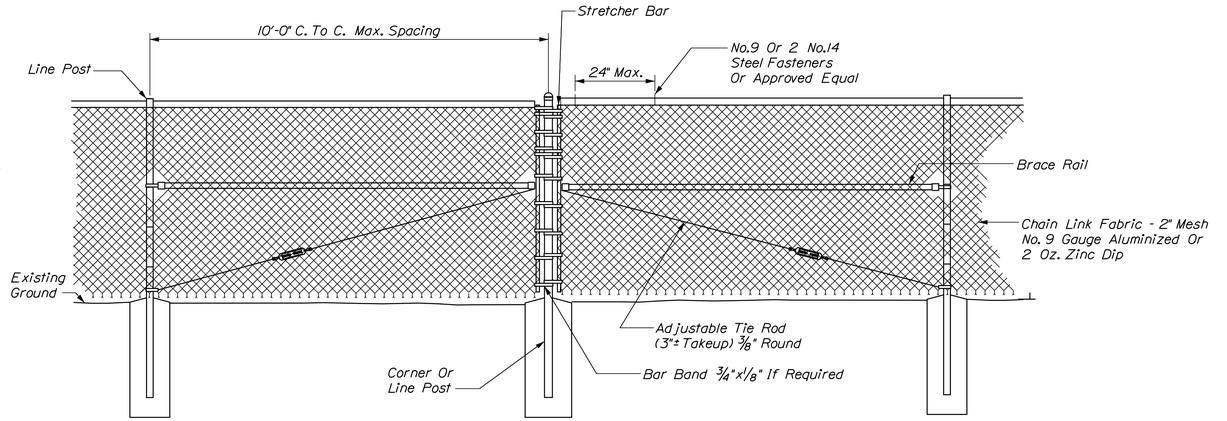
LIGHTWEIGHT FILL DETAILS (2 OF 2)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 18
18 OF 141

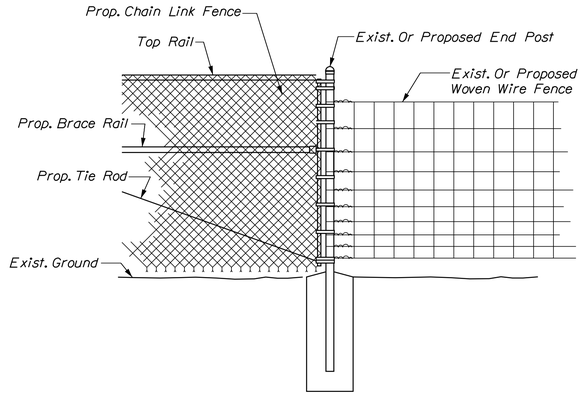


TYPICAL TYPE I END PANEL
N.T.S.

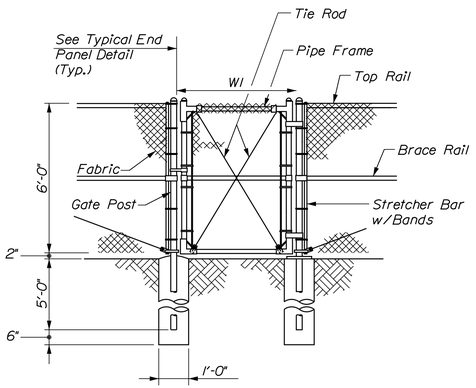


TYPICAL TYPE II BRACE PANEL
N.T.S.

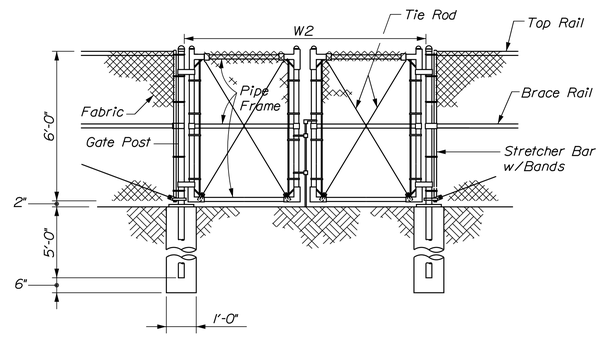
TYPICAL INTERMEDIATE PANEL
N.T.S.



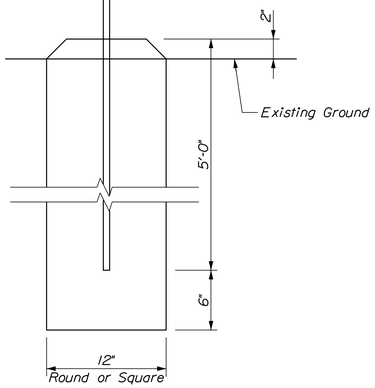
METHOD OF ATTACHING CHAIN LINK FENCE TO WOVEN WIRE FENCE
N.T.S.



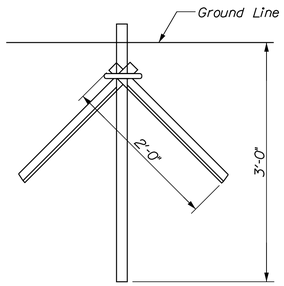
SINGLE GATE



DOUBLE GATE



BRACE, GATE AND END POST BASE DETAIL
N.T.S.



LINE POST DRIVE ANCHOR DETAIL
N.T.S.

Gate Width		Gate Post
W1	W2	O.D.
to 6'	to 12'	3"
6' to 12'	12' to 24'	4"
12' to 18'	24' to 36'	6"

Bending moments based on grade 1 (schedule 40 steel)

Chain Link Fence	Shape	Nominal Size (Inches)	Bending Moment* (lbs.-in.)
End & Corner Posts	ϕ	2 I.D.	14,025
Line Posts	ϕ	1-1/2 I.D.	8,150
Top & Brace Rails	ϕ	1-1/4 I.D.	5,875

* Material for grade 2 end, corner & line posts and top & brace rails must meet or exceed bending moments for grade 1 steel as noted above.

NOTES

1. Brace panels shall be installed where the change in grade between any three posts exceeds 15 percent.
2. No additional payment will be made for longer posts necessitated by large grade differential.
3. Type I bracing will be used at fence ends. Type II bracing will be used at corner posts.
4. When ledge is encountered, steel posts shall be set and grouted 12" deep unless the posts penetrate the ground to the depth indicated on the drawings.
5. Concrete for post foundation shall be Class B.
6. Brace, gate and end posts shall be set in concrete.
7. Chain link fence shall be installed with barbs down.
8. All components of chain link fence shall be in accordance with AASHTO M181.

Date:3/24/2019

Filename: ...\MSTA\019_Fence_Dt_01.dgn

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

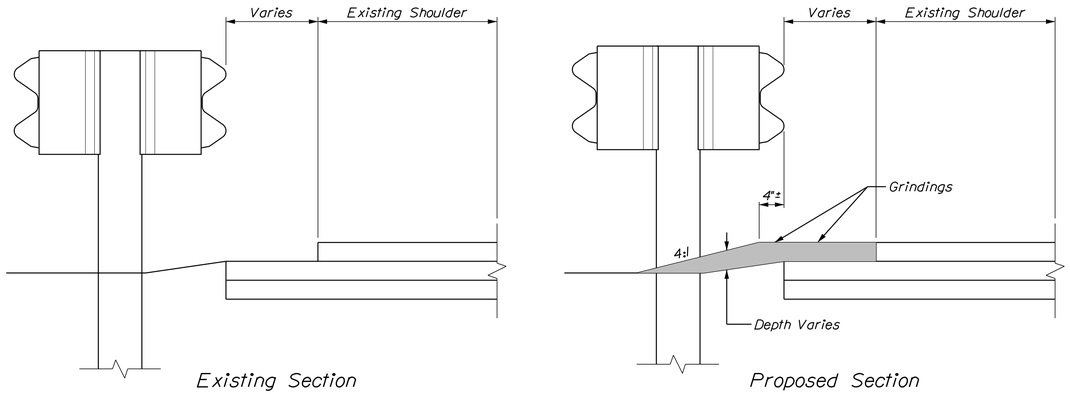
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

FENCING DETAILS

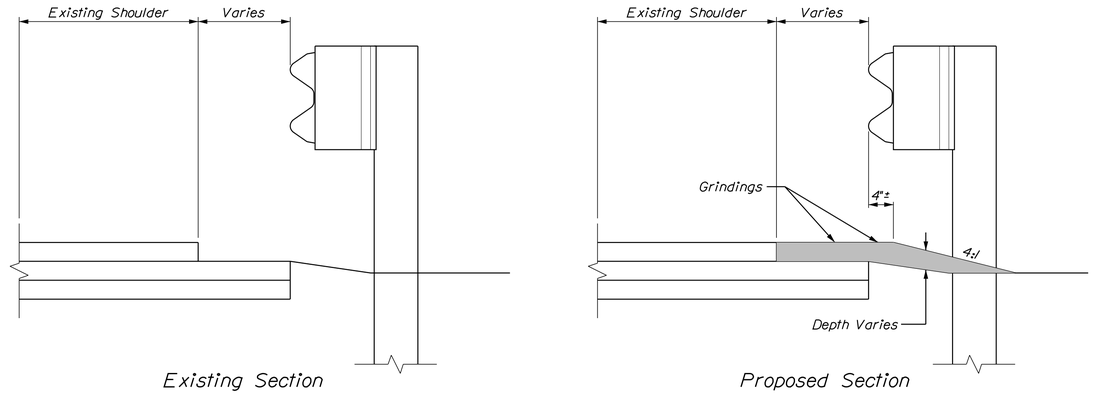
VHB: 55191.01 SHEET NUMBER: 19

CONTRACT: 2019.10 19 OF 141



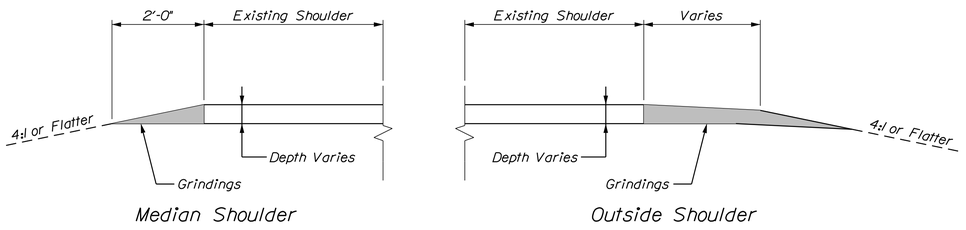
Berm Dropoff Correction With Guardrail
Median Guardrail

Not To Scale



Berm Dropoff Correction With Guardrail
Outside Shoulder

Not To Scale



Berm Dropoff Correction Without Guardrail

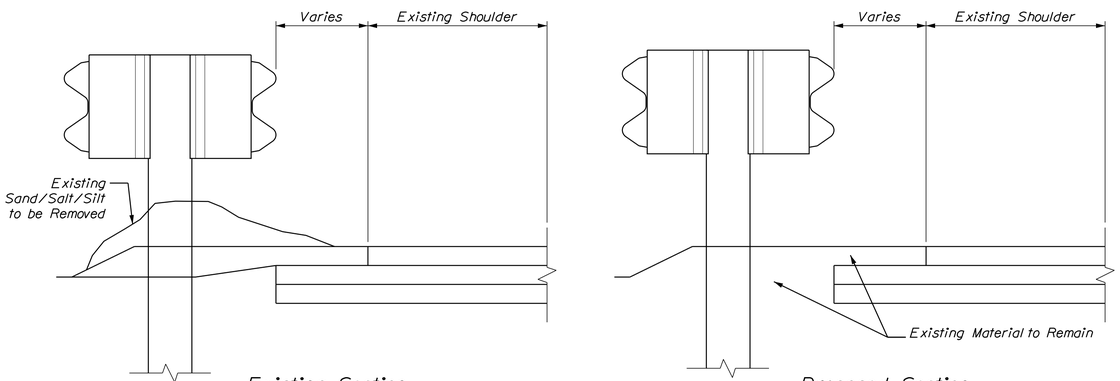
Not To Scale

Berm Correction Locations:

Southbound	2463+28 to 2486+54 (Outside Shoulder)
	2488+25 to 2499+97 (Outside Shoulder)
	2488+35 to 2513+00 (Median)
	2506+13 to 2510+89 (Outside Shoulder)
	2517+66 to 2543+01 (Median)
	2523+67 to 2531+93 (Outside Shoulder)
	2541+29 to 2550+98 (Outside Shoulder)
Northbound	2453+13 to 2486+59 (Median)
	2469+38 to 2486+60 (Outside Shoulder)
	2488+43 to 2501+56 (Outside Shoulder)
	2506+43 to 2511+21 (Outside Shoulder)
	2515+75 to 2516+74 (Outside Shoulder)
	2524+06 to 2533+07 (Outside Shoulder)
	2540+00 to 2544+95 (Outside Shoulder)
	2546+17 to 2551+15 (Median)
	2547+77 to 2551+52 (Outside Shoulder)

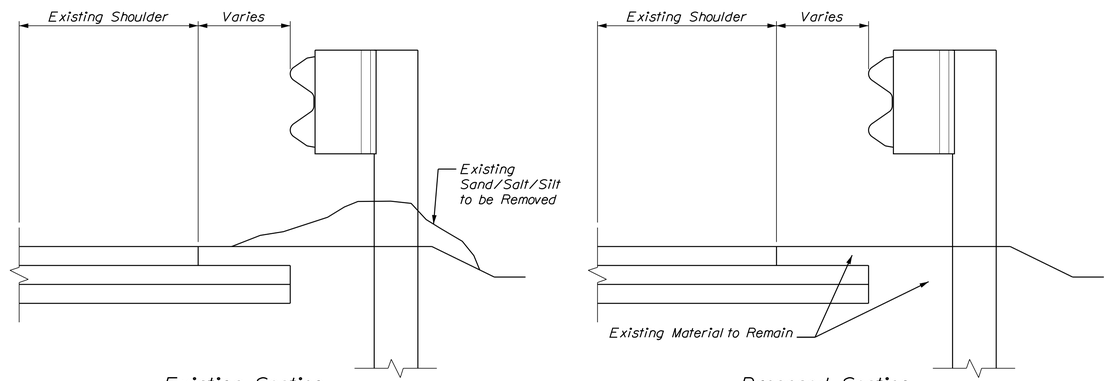
Notes:

1. Berm dropoff correction will be placed at all noted locations unless otherwise directed by the Resident.
2. Median and Outside Shoulder are specific to whether traveling northbound or southbound.
3 Berm dropoff correction of 3" or more shall be placed prior to shifting traffic to the lane adjacent to the shoulder requiring correction.



Berm Correction With Guardrail
Median Guardrail

Not To Scale



Berm Correction With Guardrail
Outside Shoulder

Not To Scale

Scale: Not to Scale			
No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

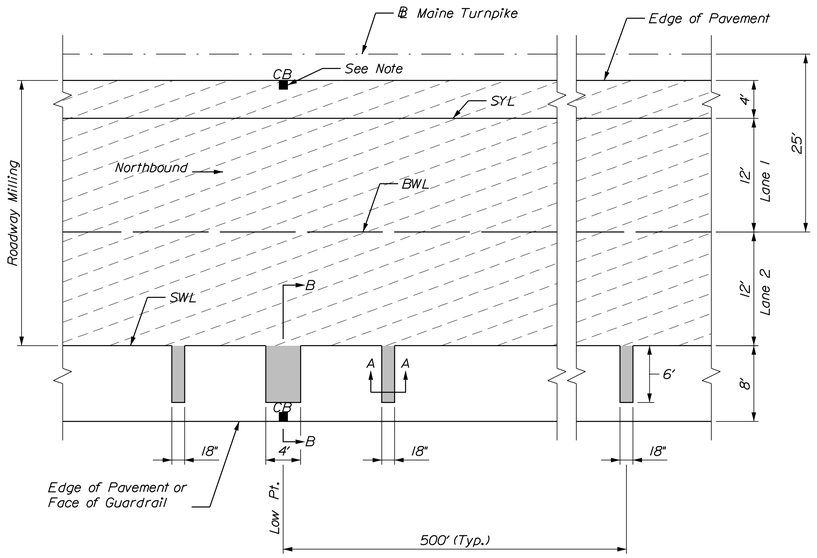
BERM DETAILS

VHB: 55191.01 SHEET NUMBER: 20

CONTRACT: 2019.10 20 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\020_Details_BermCorr.dgn

Date:3/24/2019



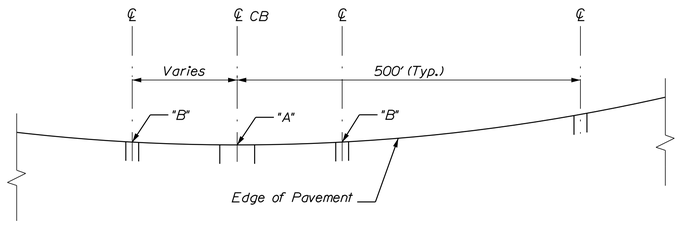
Drainage Path Detail
Plan View
Not to Scale

Legend:

= Roadway Milling

= Drainage Path Milling

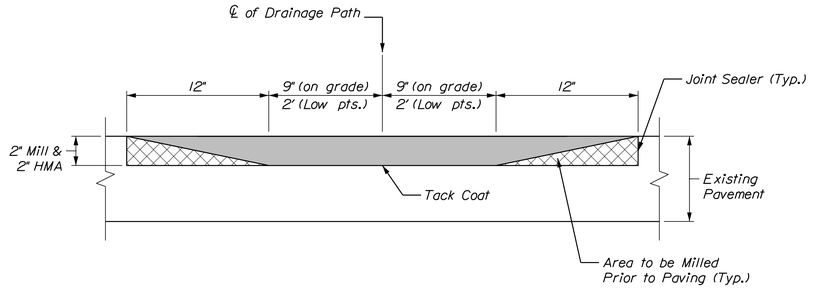
Note: The catch basins in the four foot median shoulders shall have a ten foot temporary bituminous ramp on both sides parallel with the Maine Turnpike and shall be incidental to Hot Mix Asphalt 12.5mm.



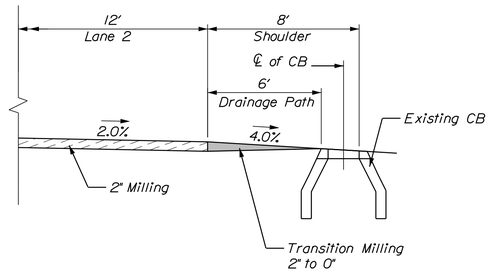
Drainage Path Detail
Profile
Not to Scale

Notes:

1. Point "B" is 1" higher than Point "A".
2. Drainage path required at all low points. See table.
3. Median low points just inside the four foot shoulder that is milled shall be opened for water flow if the existing material is high. This shall be incidental to milling.
4. Drainage paths shall be paved back in flush with existing pavement.
5. Approximate high and low point stationing is shown in schedule to the right. The contractor shall locate actual high and low points in the field and submit to the resident for approval.



Section A-A
Not to Scale



Section B-B
Not to Scale

MM 49.3 to 51.2

Northbound		Southbound	
Low Point Sta.	High Point Sta.	Low Point Sta.	High Point Sta.
2472+65		2472+65	
	2488+26		2488+16
2532+10		2532+10	
	2548+27		2548+27

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

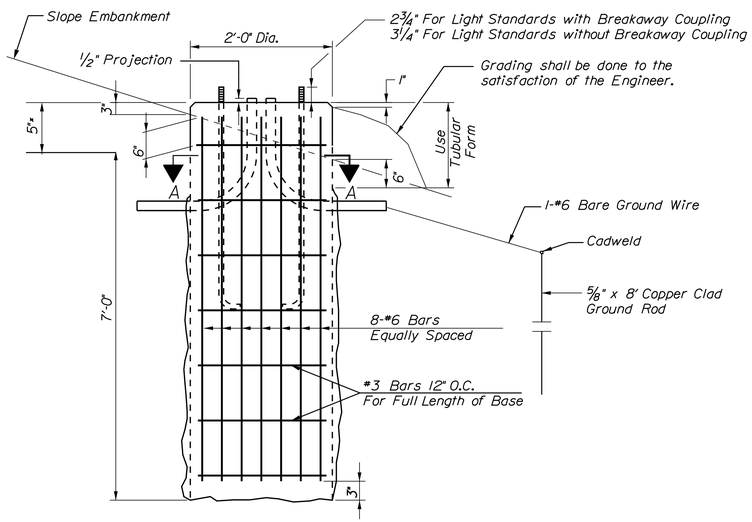
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DRAINAGE PATH DETAILS

VHB: 55191.01 SHEET NUMBER: 21

CONTRACT: 2019.10 21 OF 141

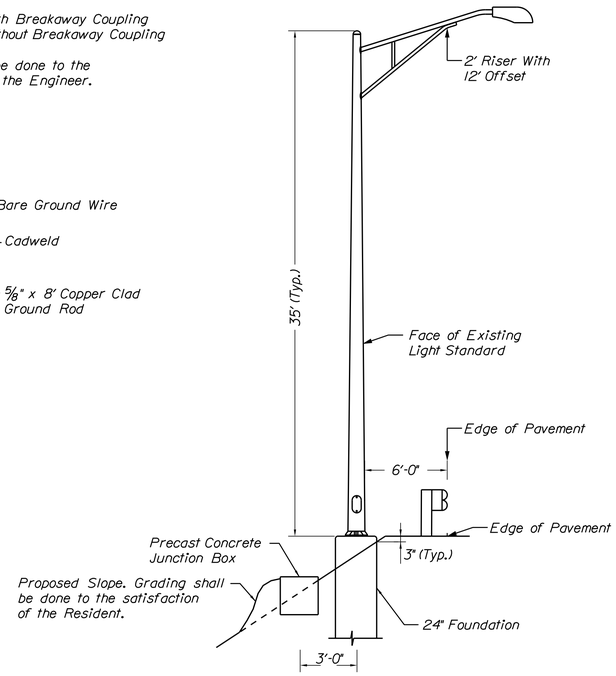
Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\021_Details_DrainagePath.dgn Date:3/24/2019



24 Inch Foundation

Not to Scale

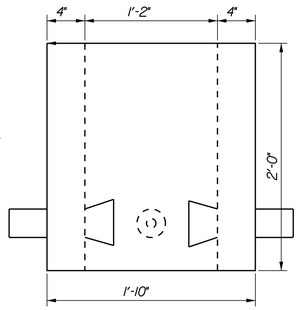
Note:
Where solid rock is encountered at less than the required distance below ground level, reinforcing steel shall be doweled into ledge as shown on MaineDOT Standard Detail 626(06). Payment shall be incidental to the foundation pay item.



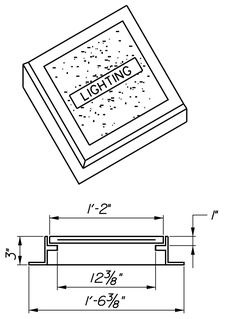
Placement of Light Standard

Not to Scale

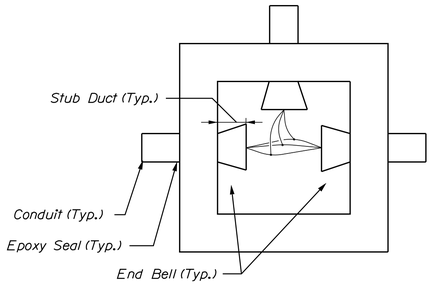
Note:
Splices in box shall be made with ILSCO USPA-350-SS-DB Safetysub water tight direct bury splice wire range 350MCM-10-STR. only. Provide enough slack in the wire to allow removal of splices and nearly arrange wire in box.



Elevation



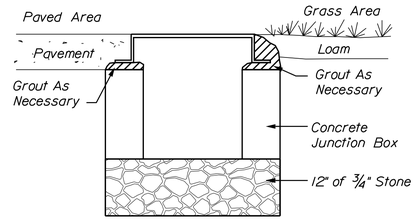
Electrical Pull Box Cover



Top

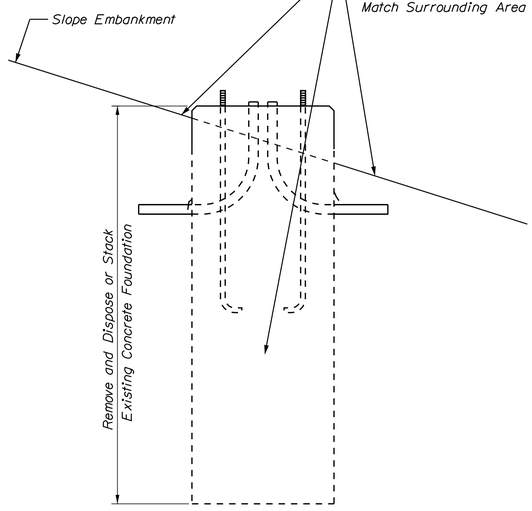
Precast Concrete Junction Box

Not to Scale



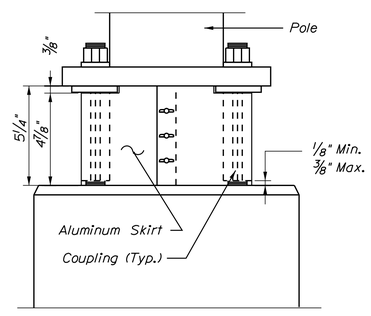
Junction Box Cover & Frame

Note: Install junction boxes on grade, grout as necessary as shown above.



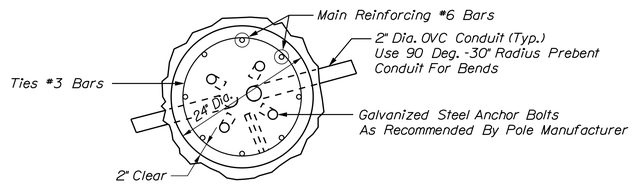
Removal of Concrete Foundation

Not to Scale

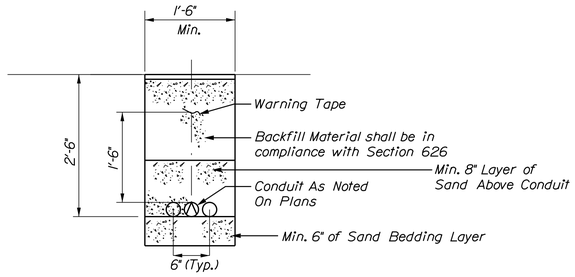


Breakaway Couplings and Skirt Detail

Not to Scale

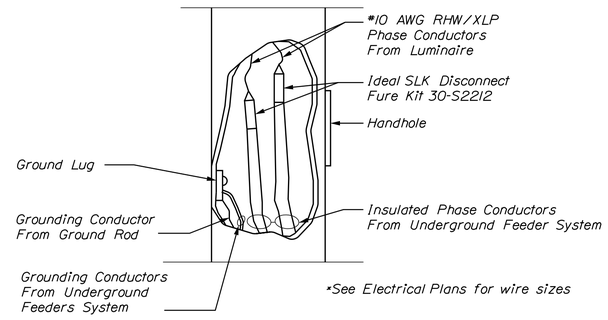


Section A-A



Trench Cross Section

Not to Scale



Typical Pole Wiring Detail

Not to Scale

Date:3/24/2019

Filename: ...\MSTA\21A_Details_Lighting.dgn

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

LIGHTING DETAILS

VHB: 55191.01 SHEET NUMBER: 21A

CONTRACT: 2019.10 21A OF 141

STRUCTURE NUMBER	STATION	CULVERT PIPE											CATCH BASIN				PIPE ARCH				MH	UNDERDRAIN						ELBOWS, TEES, WYES AND INLET GRATE UNITS	REMARKS
		RCP			CMP		OPTION I		OPTION III													TYPE B		TYPE C					
									SMOOTHLINED		CORRUGATED											TYPE B	OUTLET	SMOOTHLINED		CORRUGATED			
		SIZE	LENGTH	CLASS	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	A1-C	B1-C	B5-C	F	SPAN	RISE	LENGTH	GAGE OR WALL THICKNES		LENGTH	LENGTH	SIZE	LENGTH	SIZE	LENGTH	DESCRIPTIONS	
Catch Basins																													
CB-1A	*Sta 2423+61.78, 3.0 Lt*														*1*														*With flat top*
CB-1B	*Sta 2423+61.78, 3.0 Rt*														*1*														*With flat top*
CB-1C	*Sta 2426+50.00, 3.0 Lt*														*1*														*With flat top*
CB-2	*Sta 2426+50.00, 3.0 Rt*														*1*														*With flat top*
CB-3	*Sta 2428+50.00, 3.0 Lt*															*1*													*Type F5-C*
CB-4	*Sta 2428+50.00, 3.0 Rt*														*1*														*With flat top*
CB-5	*Sta 2429+50.00, 3.0 Lt*															*1*													*Type F5-C*
CB-6	*Sta 2429+50.00, 3.0 Rt*															*1*													*Type F5-C*
CB-7	*Sta 2431+50.00, 2.8 Lt*														*1*														*With flat top*
CB-8	*Sta 2431+50.00, 3.2 Rt*														*1*														*With flat top*
CB-9	*Sta 2436+00.00, 10.4 Rt*													*1*															*2' Cone*
CB-10	*Sta 2437+72.00, 3.4 Rt*													*1*															*2' Cone*
CB-11	*Sta 2441+74.50, 3.2 Rt*													*1*															*2' Cone*
CB-12	*Sta 2442+06.93, 3.0 Lt*													*1*															*2' Cone*
CB-13	*Sta 2443+98.20, 3.0 Lt*													*1 2/8*															*2' Cone*
CB-14	*Sta 2444+74.75, 3.0 Lt*													*1 1/8*															*2' Cone*
CB-15	*Sta 2445+55.55, 3.0 Rt*													*1*															*2' Cone*
CB-16	*Sta 2452+62.50, 3.0 Lt*														*1*														*With flat top*
CB-17	*Sta 2452+62.50, 3.0 Rt*														*1*														*With flat top*
CB-100	*Sta 224+11.57, 21.0 Rt*															*1*													*Type F5-C*
CB-101	*Sta 224+57.10, 21.0 Lt*															*1*													*Type F5-C*
Drainage Culverts																													
	CB-1A to CB-1B								*12"*	*4'*																			
	CB-1B to Sta 2423+61.78, 69.1 Rt								*18"*	*63'*																			*Directional drill*
	CB-1C to CB-2								*12"*	*4'*																			
	CB-3 to CB-4								*12"*	*4'*																			
	CB-5 to CB-6								*12"*	*4'*																			
	CB-7 to CB-8								*12"*	*4'*																			
	CB-11 to CB-12								*12"*	*29'*																			
	CB-13 to Sta 2443+98.20, 76.7 Lt								*18"*	*71'*																			*Directional drill*
	CB-16 to CB-17								*12"*	*4'*																			
	Sta 224+07.67, 27.3 Rt (CB) to CB-100								*12"*	*5'*																			*Connect to existing CB*
	Sta 224+52.09, 27.3 Lt (CB) to CB-101								*12"*	*5'*																			*Connect to existing CB*
Underdrain																													
	CB-1B to CB-2																							*15"*	*284'*				
	CB-2 to CB-4																							*15"*	*196'*				
	CB-4 to CB-6																							*12"*	*96'*				
	CB-6 to CB-8																							*12"*	*196'*				
	CB-8 to CB-9																							*12"*	*446'*				
	CB-10 to CB-11																							*12"*	*399'*				
	CB-12 to CB-13																							*15"*	*187'*				
	CB-13 to CB-14																							*15"*	*73'*				
	CB-14 to CB-15																							*12"*	*77'*				
	CB-15 to CB-17																							*12"*	*703'*				
	CB-16 to Sta 2453+54.95, 0.6 Lt (CB)																							*12"*	*88'*				*Connect to existing CB*
	Sta 2422+43.60, 103.0 Rt to Sta 2424+00, 100.3 Rt																						*157'*						
	Sta 2424+00, 100.3 Rt to Sta 2430+00, 91.0 Rt																					*600'*							*UD Treatment Swale*

Date:3/24/2019

Filename: \\vhb\vgbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\022_DrainageSheet.dgn

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

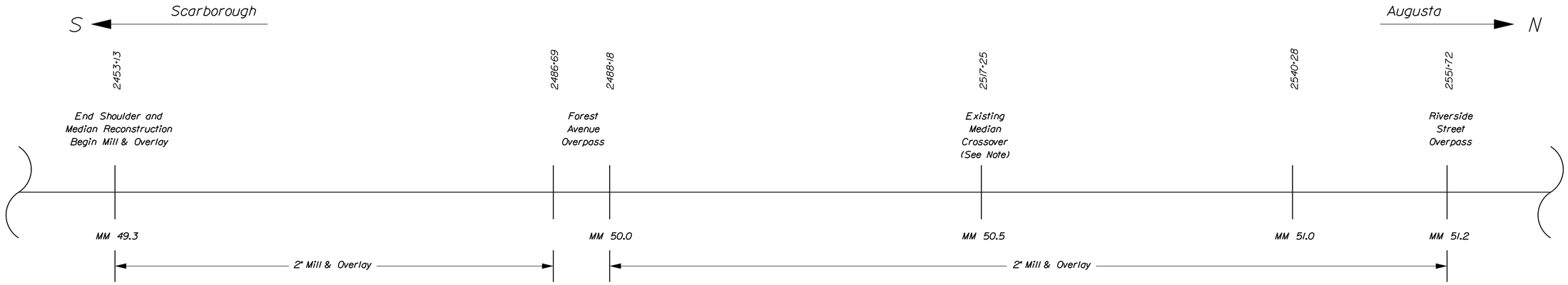
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DRAINAGE SUMMARY

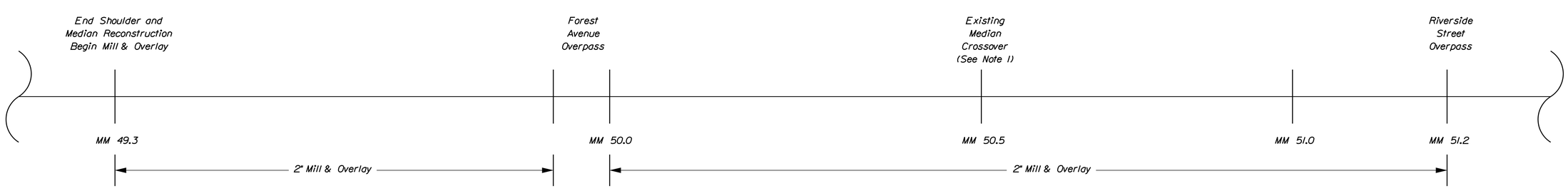
VHB: 55191.01 SHEET NUMBER: 22

CONTRACT: 2019.10



Southbound Mainline Paving Work Limits

Not to Scale



Northbound Mainline Paving Work Limits

Not to Scale

Note: Mill and Overlay crossover as directed. Sta. 2516+75 to Sta. 2517+65 (90 LF).

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDoT\MaineDOT\HIGHWAY\MSTA\023_PavingWorkLimits.dgn

Date: 3/24/2019

Scale: Not to Scale

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

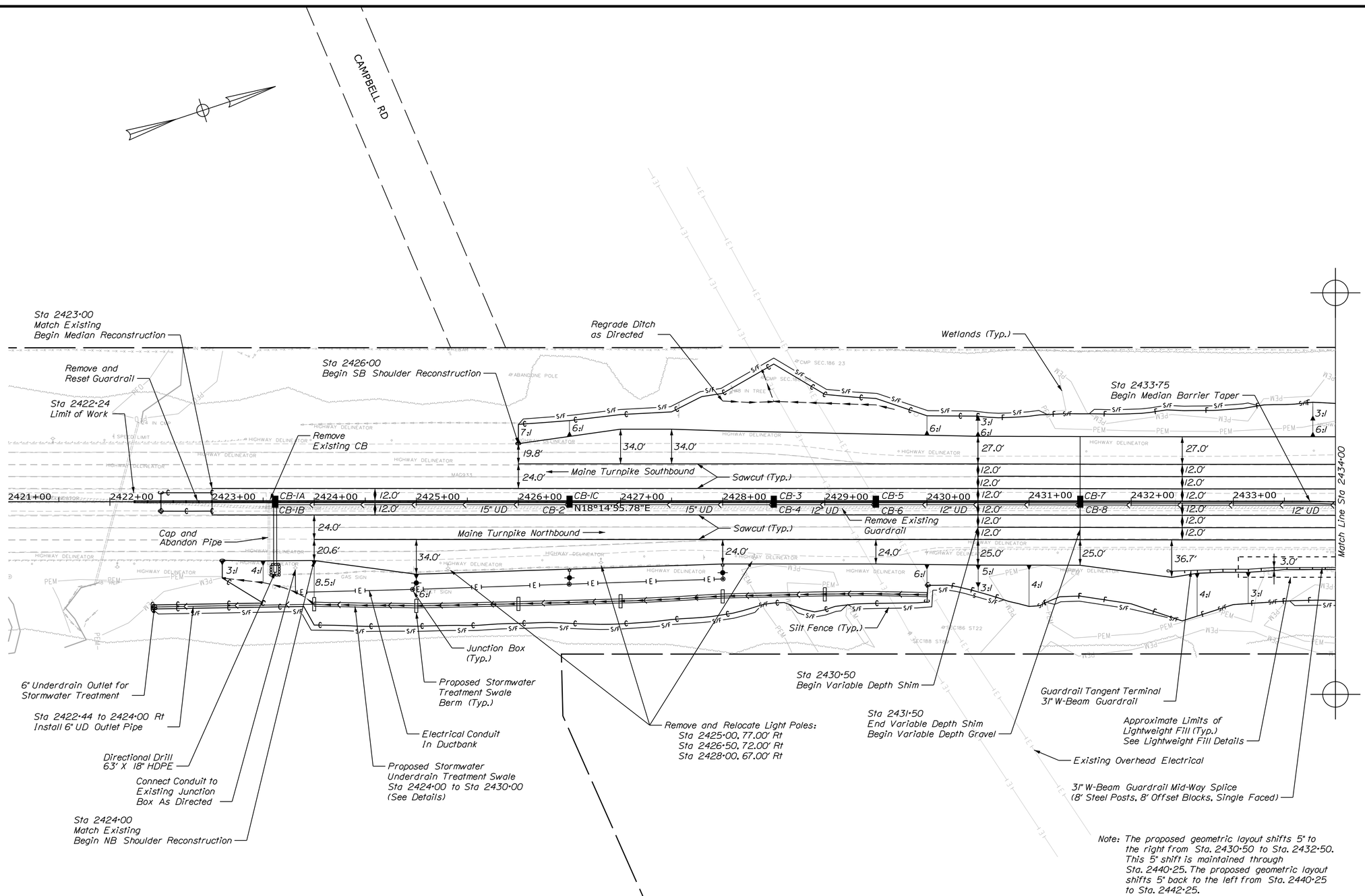
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WORK SUMMARY PAVING LINE DIAGRAM

VHB: 55191.01 SHEET NUMBER: 23

CONTRACT: 2019.10 23 OF 141



Note: The proposed geometric layout shifts 5' to the right from Sta. 2430+50 to Sta. 2432+50. This 5' shift is maintained through Sta. 2440+25. The proposed geometric layout shifts 5' back to the left from Sta. 2440+25 to Sta. 2442+25.

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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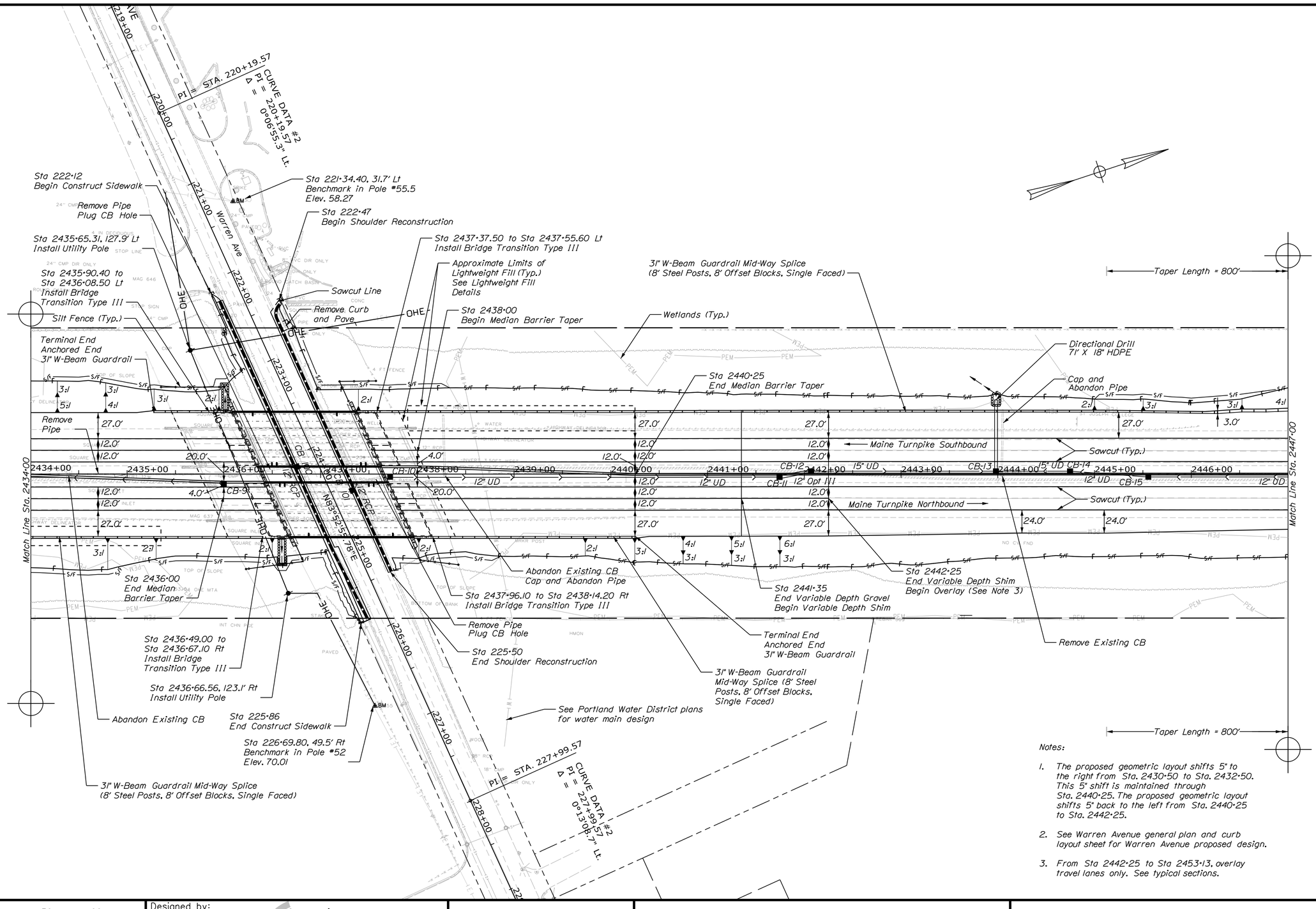
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE GENERAL PLANS (1 OF 3)

VHB: 55191.01 SHEET NUMBER: 24
CONTRACT: 2019.10 24 OF 141



Notes:

1. The proposed geometric layout shifts 5" to the right from Sta. 2430+50 to Sta. 2432+50. This 5" shift is maintained through Sta. 2440+25. The proposed geometric layout shifts 5" back to the left from Sta. 2440+25 to Sta. 2442+25.
2. See Warren Avenue general plan and curb layout sheet for Warren Avenue proposed design.
3. From Sta 2442+25 to Sta 2453+13, overlay travel lanes only. See typical sections.

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

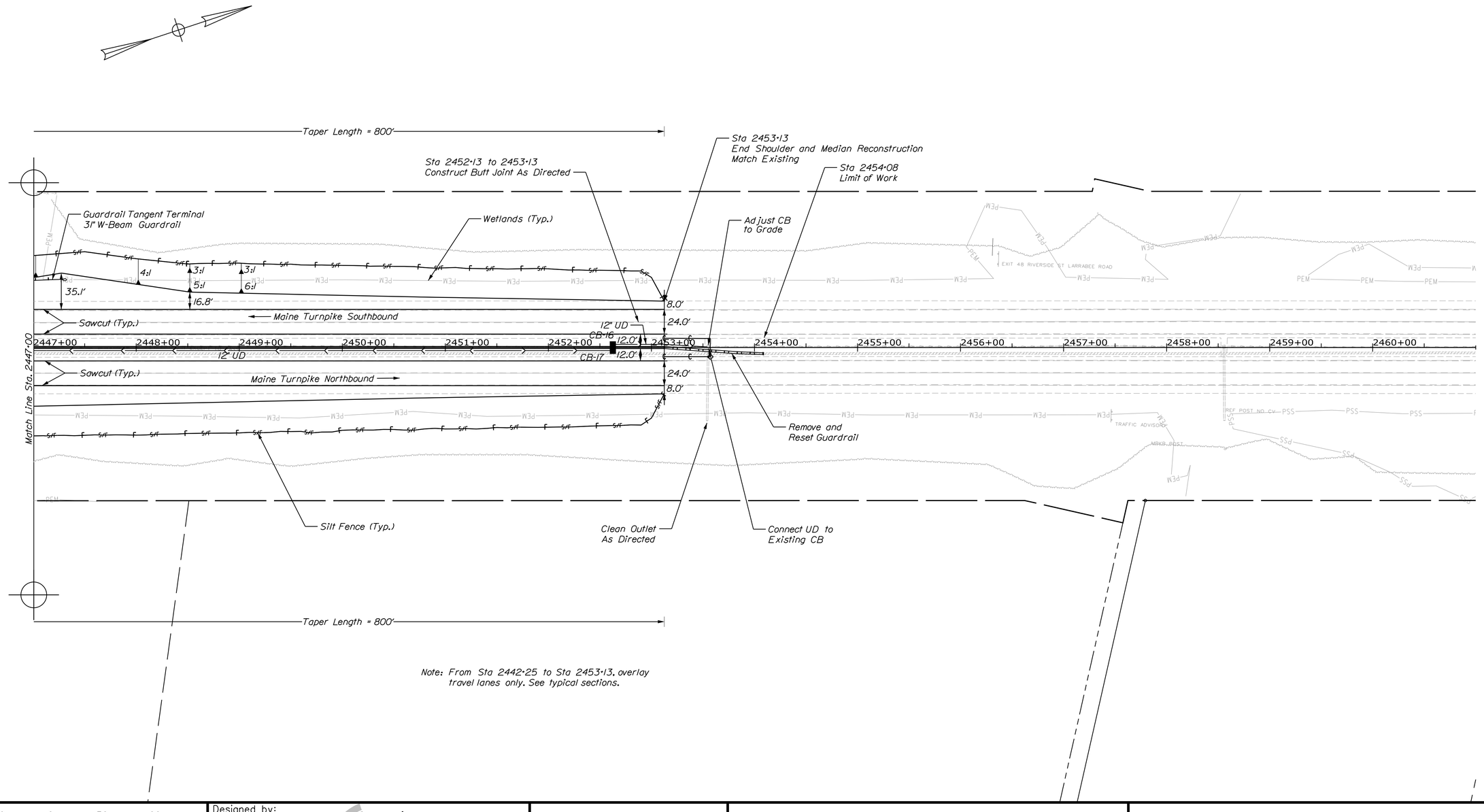
MTA PROJECT MANAGER: Ralph Norwood, IV

THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE GENERAL PLANS (2 OF 3)

VHB: 55191.01 SHEET NUMBER: 25
CONTRACT: 2019.10 25 OF 141

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\025_HDPlan3_6A.dgn
Date: 3/26/2019



Note: From Sta 2442+25 to Sta 2453+13, overlay travel lanes only. See typical sections.

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

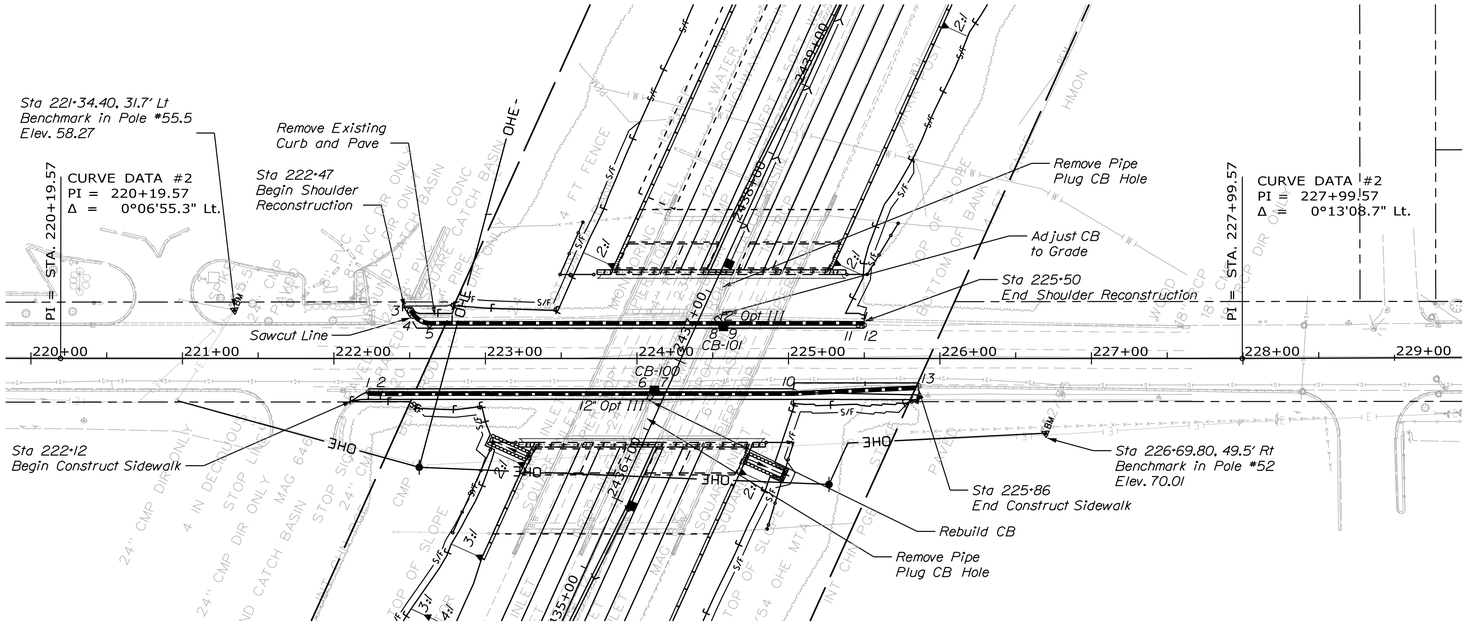
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE GENERAL PLANS (3 OF 3)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 26
26 OF 141

Date:3/26/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\026_HDPlan4_6A.dgn



CONTROL POINTS				
POINT	STATION	OFFSET	Y. COORD.	X. COORD
1	222+22.70	22.0 RT.	311003.60	2911329.68
2	222+30.70	22.0 RT.	311004.50	2911337.63
3	222+50.00	31.5 LT.	311059.76	2911351.12
4	222+52.00	27.9 LT.	311056.43	2911353.49
5	222+63.00	22.0 LT.	311051.72	2911365.06
6	224+09.57	22.0 RT.	311023.56	2911515.48
7	224+13.57	22.0 RT.	311023.99	2911519.46
8	224+55.10	22.0 LT.	311072.16	2911556.06
9	224+59.10	22.0 LT.	311072.59	2911560.04
10	225+04.00	22.0 RT.	311033.62	2911609.38
11	225+46.00	22.0 LT.	311081.85	2911646.45
12	225+50.00	22.0 LT.	311082.28	2911650.42
13	225+86.00	18.2 RT.	311046.18	2911690.50

ITEM 609.11 - VERTICAL CURB TYPE 1		
PT. TO PT.	RADIUS	LENGTH
2 TO 6	-	178.9'
5 TO 8	-	192.1'
7 TO 10	-	90.4'
9 TO 11	-	86.9'
10 TO 13	-	82.1'

ITEM 609.12 - VERTICAL CURB TYPE 1 - CIRCULAR		
PT. TO PT.	RADIUS	LENGTH
4 TO 5	15.0'	12.9'

ITEM 609.234 - TERMINAL CURB TYPE 1 - 4 FOOT		
PT. TO PT.	RADIUS	LENGTH
11 TO 12	-	4.0'

ITEM 609.2341 - TERMINAL CURB TYPE 1 - 4 FOOT - CIRCULAR		
PT. TO PT.	RADIUS	LENGTH
3 TO 4	15.0'	4.0'

ITEM 609.238 - TERMINAL CURB TYPE 1 - 8FOOT		
PT. TO PT.	RADIUS	LENGTH
1 TO 2	-	8.0'

CURB INLET (INCIDENTAL TO CATCH BASIN ITEM)		
PT. TO PT.	RADIUS	LENGTH
6 TO 7	-	4.0'
8 TO 9	-	4.0'

Note: Curb inlets shall be considered incidental to CB Type F5-C, Item 604.247

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

VANASSE HANGEN BRUSTLIN, INC.
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FAX (207) 253-5596

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

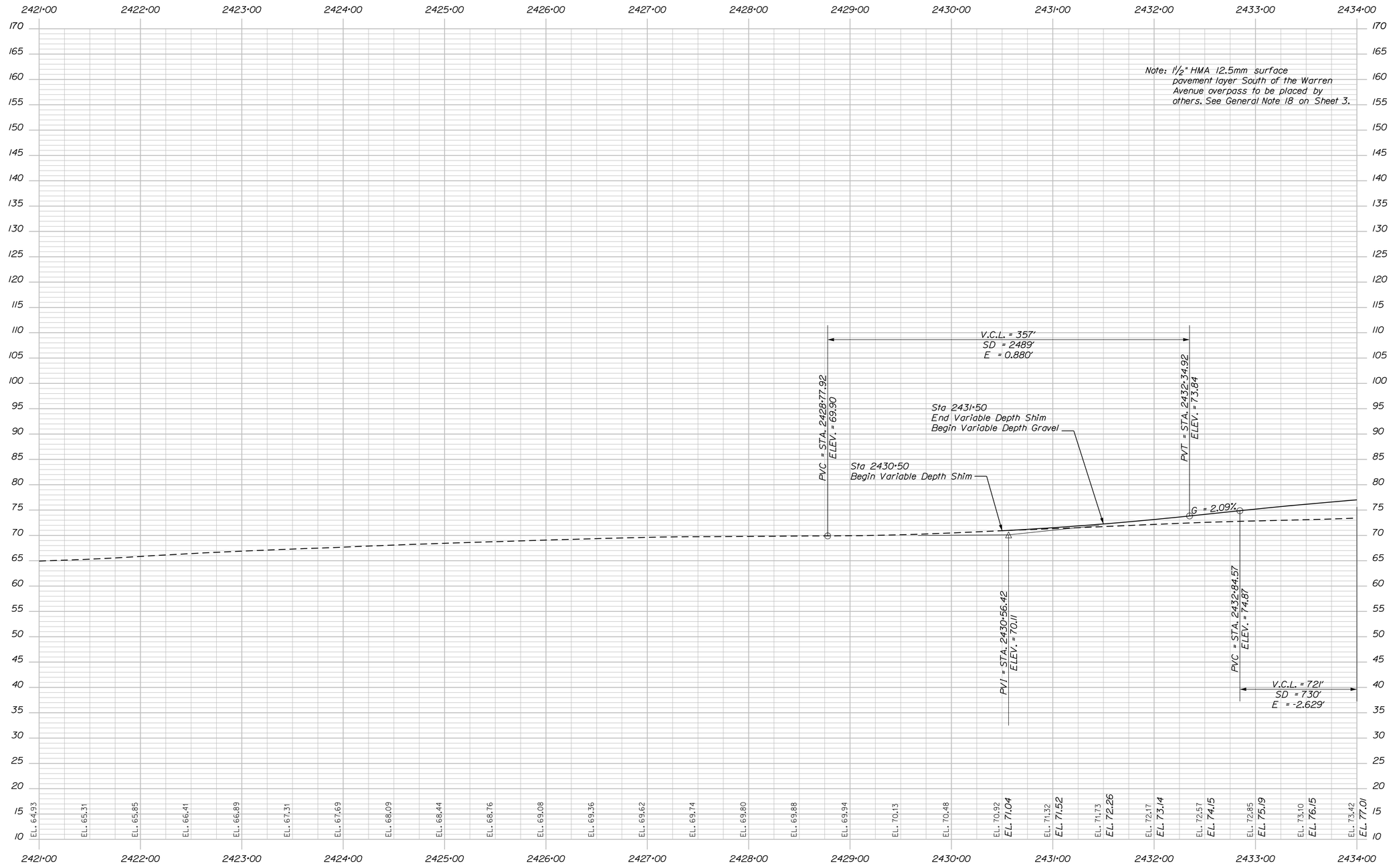
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WARREN AVENUE GENERAL PLAN & CURB LAYOUT

VHB: 55191.01 SHEET NUMBER: 27

CONTRACT: 2019.10 27 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\027_HDPlan_WarrenAve_6A.dgn

Date:3/24/2019



PROFILE NB (Shown at Proposed Crown Line)

Scale: Horiz. 50 0 50 100
Vert. 10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

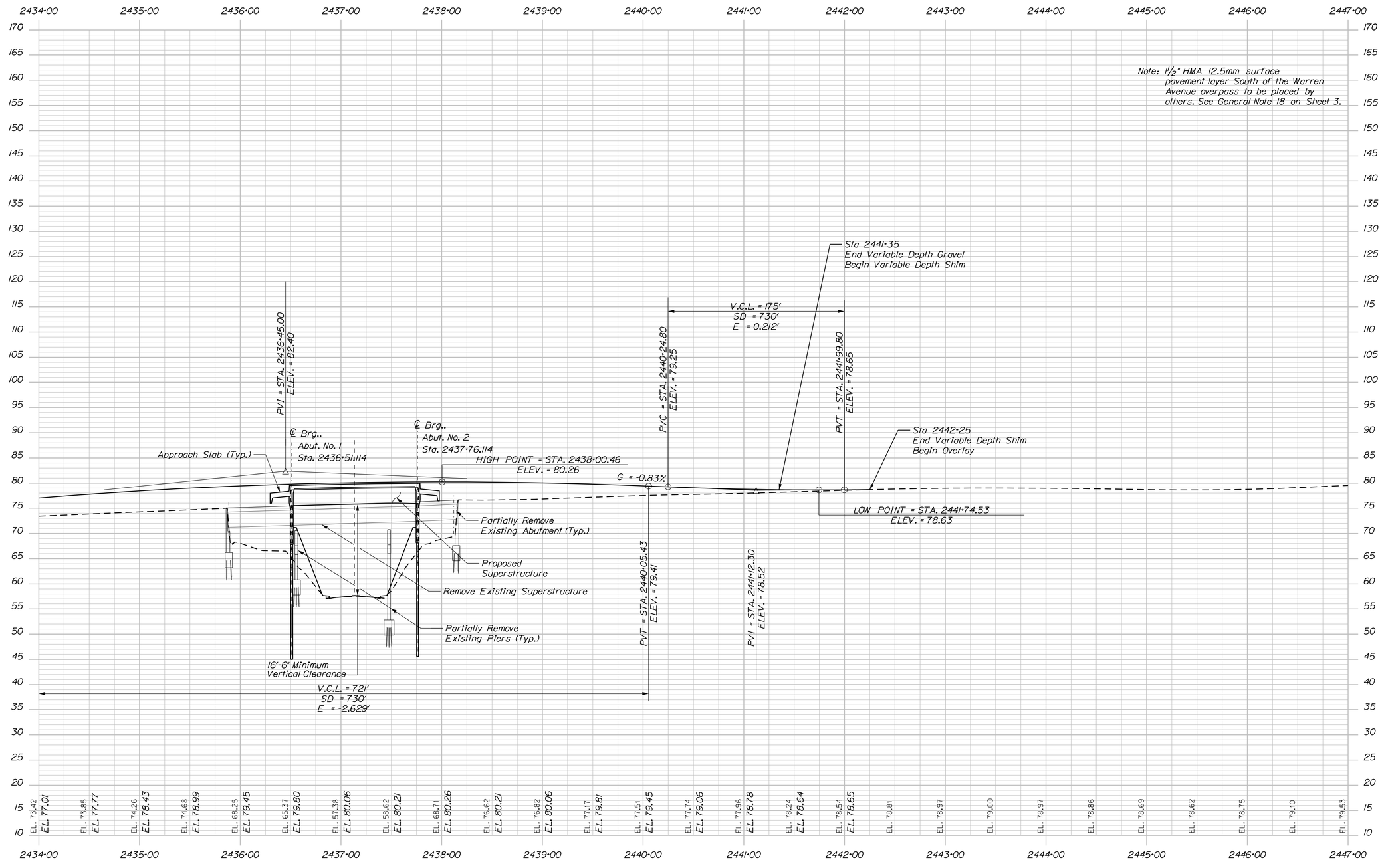
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE NORTHBOUND PROFILES (1 OF 4)

VHB: 55191.01 SHEET NUMBER: 28
CONTRACT: 2019.10 28 OF 141

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\028_Profile_Mainline_6A-NB_1.dgn Date:3/24/2019



PROFILE NB (Shown at Proposed Crown Line)

Scale: Horiz. 50 0 50 100
Vert. 10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

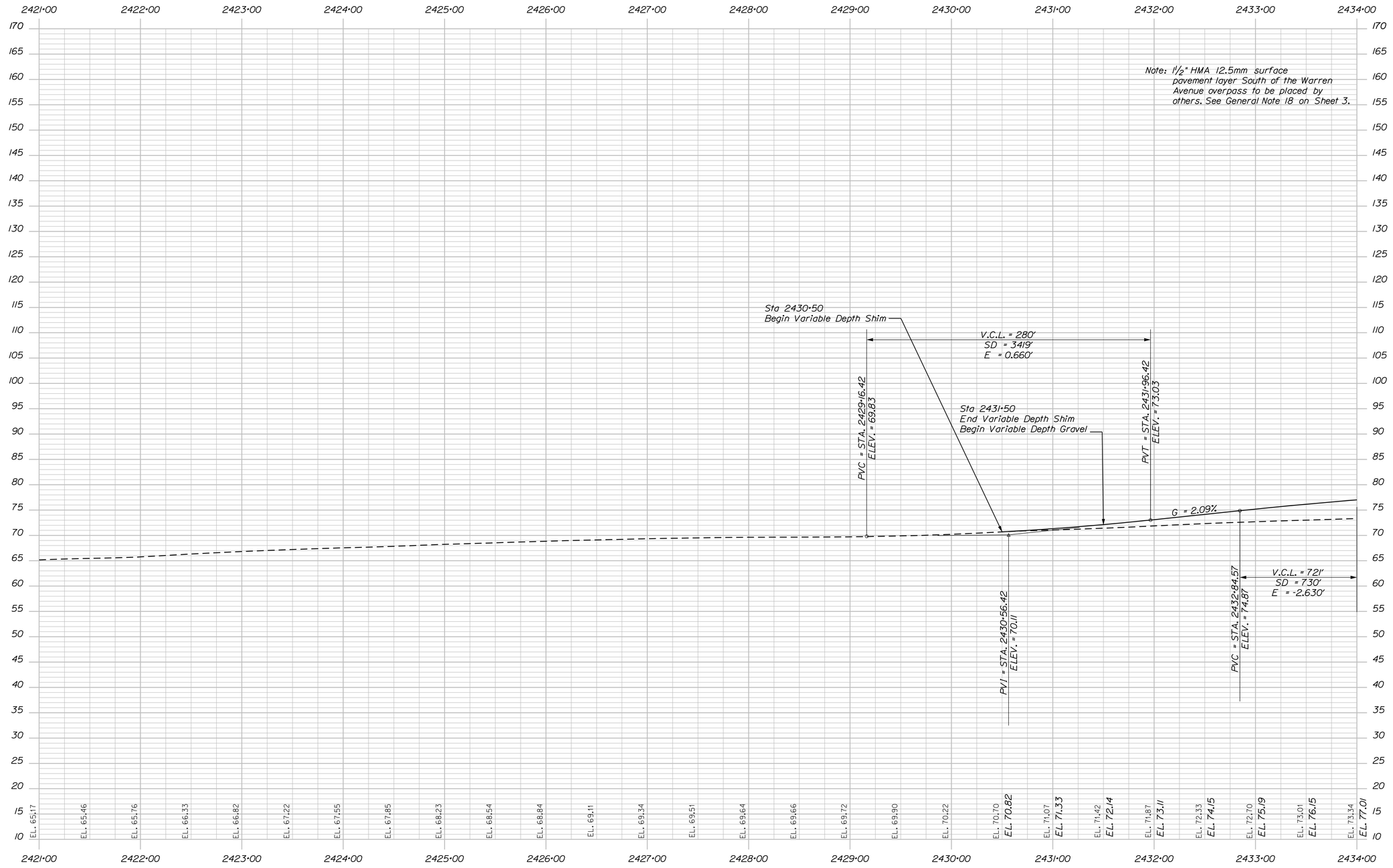
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE NORTHBOUND PROFILES (2 OF 4)

VHB: 55191.01 SHEET NUMBER: 29
CONTRACT: 2019.10 29 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\029_Profile_Mainline_6A-NB_2.dgn Date:3/24/2019



PROFILE SB (Shown at Proposed Crown Line)

Scale: Horiz. 50 0 50 100
Vert. 10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

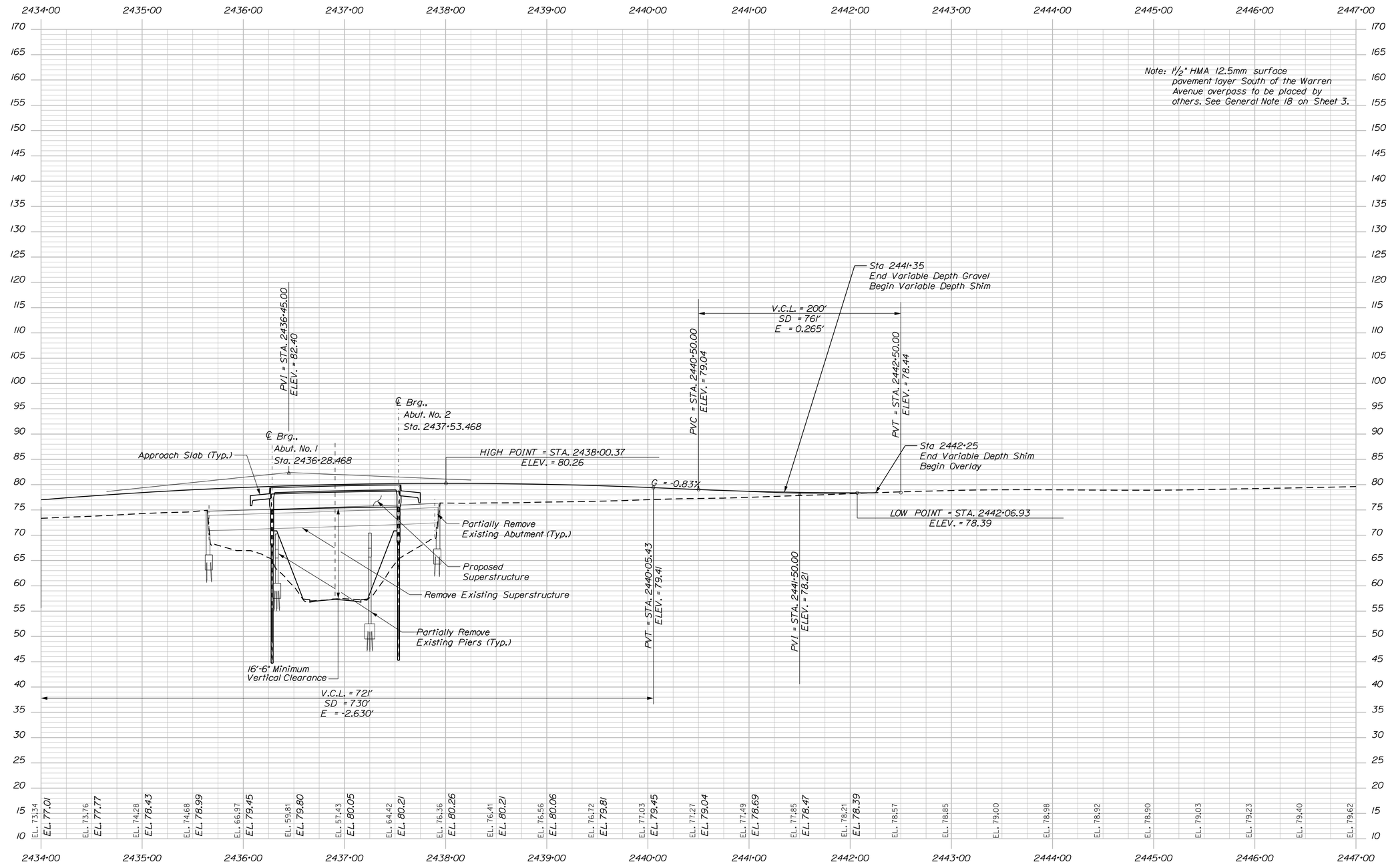
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE SOUTHBOUND PROFILES (3 OF 4)

VHB: 55191.01 SHEET NUMBER: 30
CONTRACT: 2019.10 30 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\030_Profile_Mainline_6A-SB_1.dgn Date:3/24/2019



PROFILE SB (Shown at Proposed Crown Line)

Scale: Horiz. 50 0 50 100
Vert. 10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

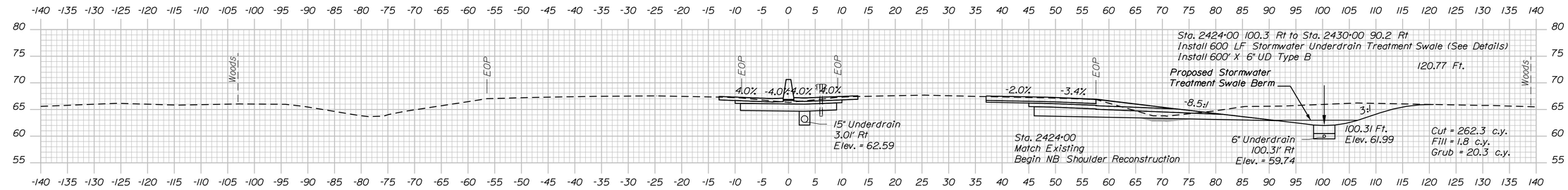
MTA PROJECT MANAGER: Ralph Norwood, IV

THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE SOUTHBOUND PROFILES (4 OF 4)

VHB: 55191.01 SHEET NUMBER: 31
CONTRACT: 2019.10 31 OF 141

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\031_Profile_Mainline_6A-SB_2.dgn Date:3/24/2019



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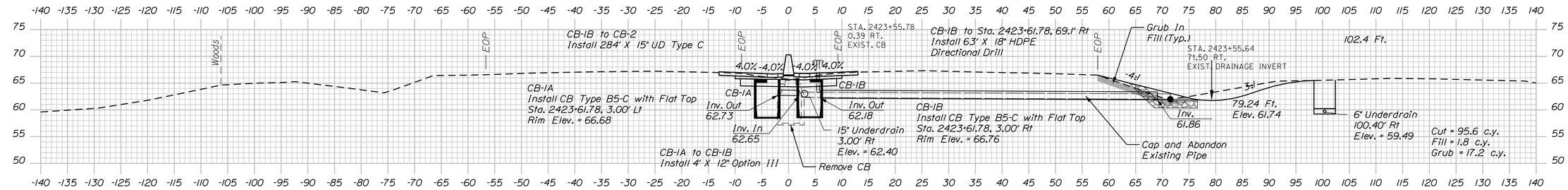

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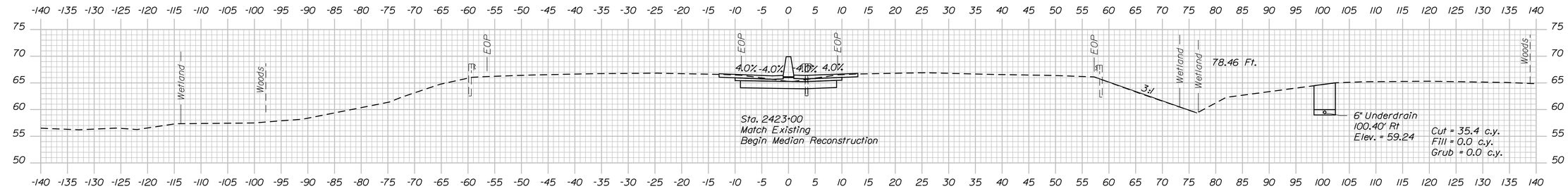

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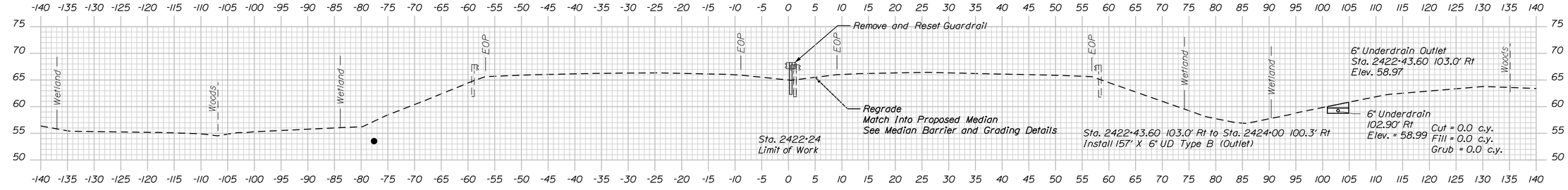

2422+50.00

Sta. 2422+50.00 to Sta. 2424+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

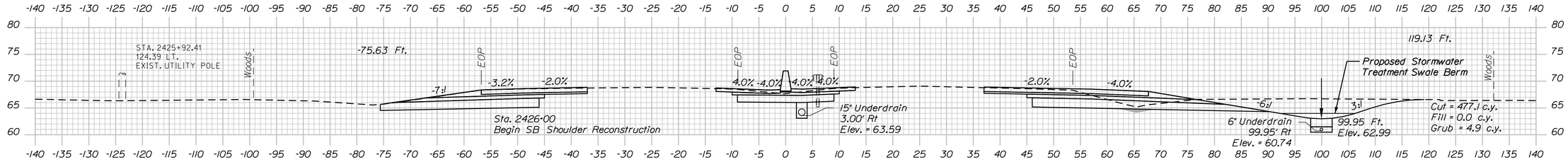
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 32
CONTRACT: 2019.10 32 OF 141

Date:3/26/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\032_Xsect_Mainline_6A_01.dgn



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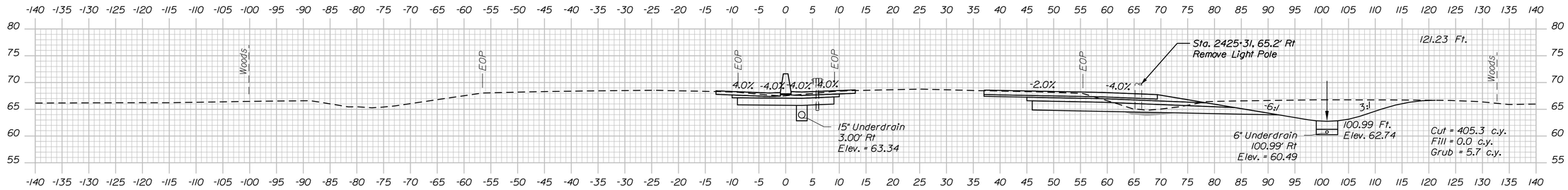

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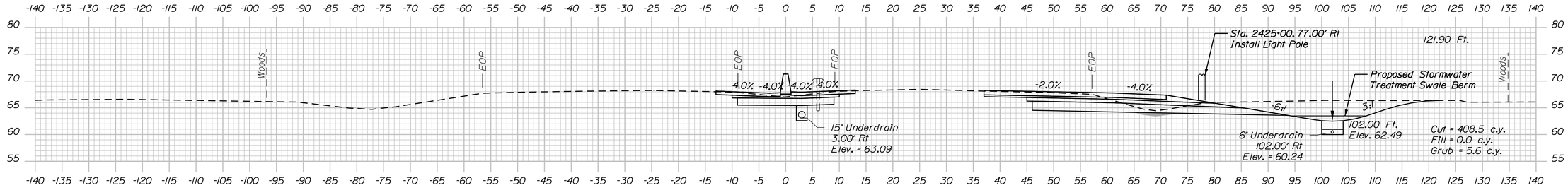

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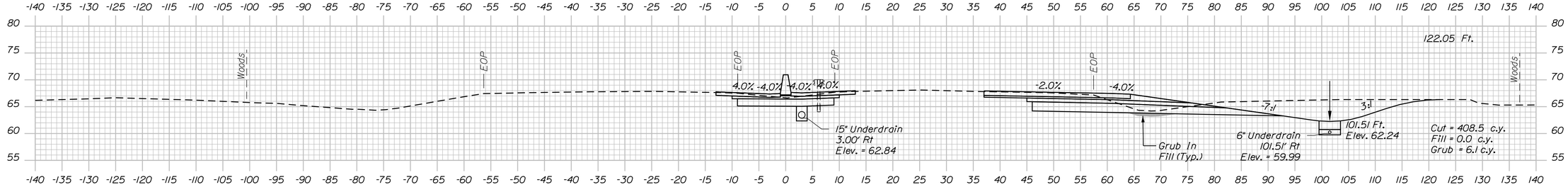

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Sta. 2424+50.00 to Sta. 2426+00.00

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA033_Xsect_Mainline_6A_02.dgn

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

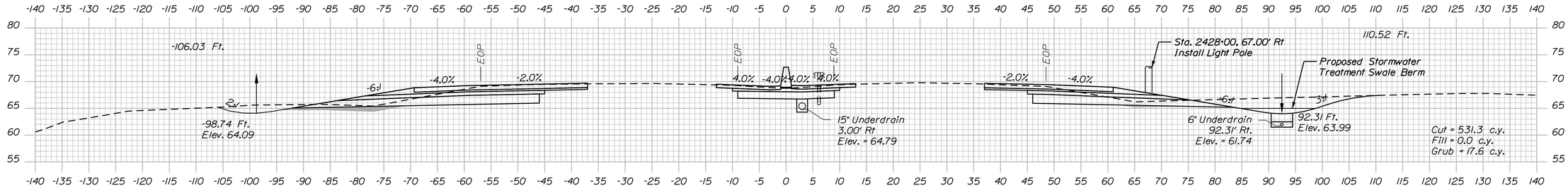
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 33

CONTRACT: 2019.10



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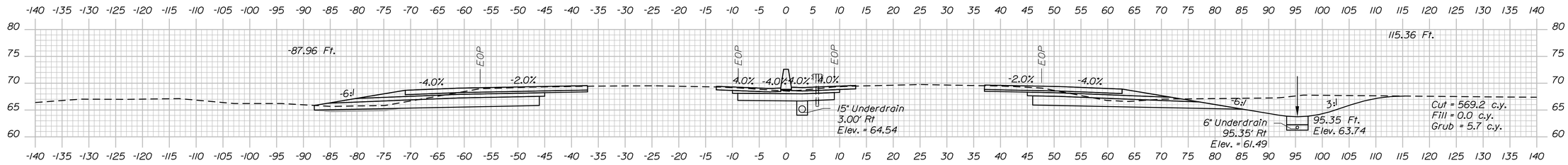

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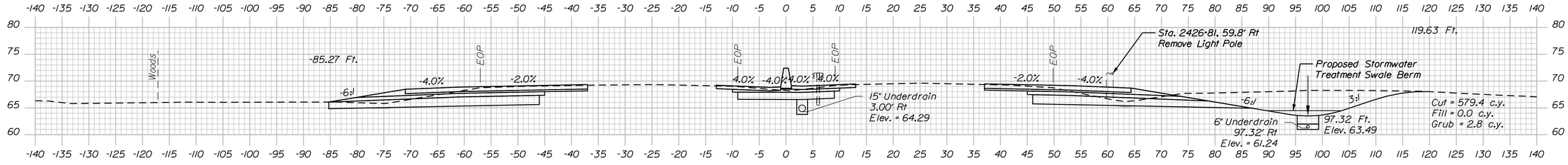

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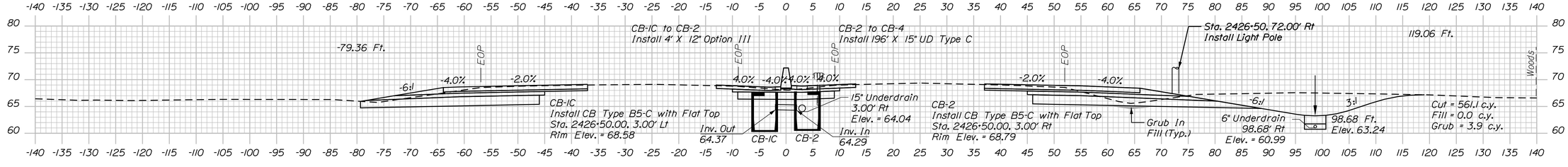

2426+50.00

Sta. 2426+50.00 to Sta. 2428+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

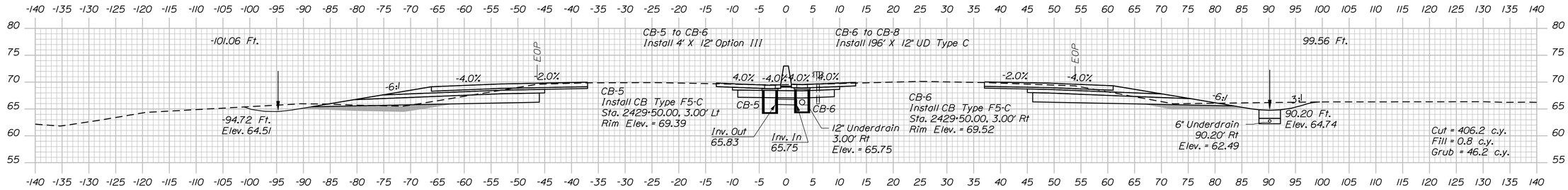
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 34
34 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\034_Xsect_Mainline_6A_03.dgn



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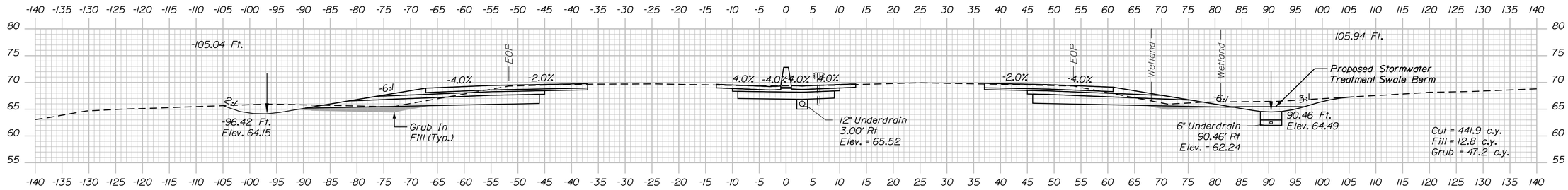

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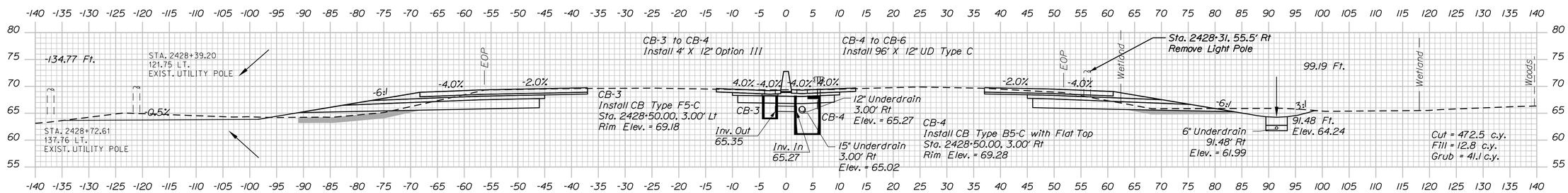

2428+50.00

Sta. 2428+50.00 to Sta. 2429+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

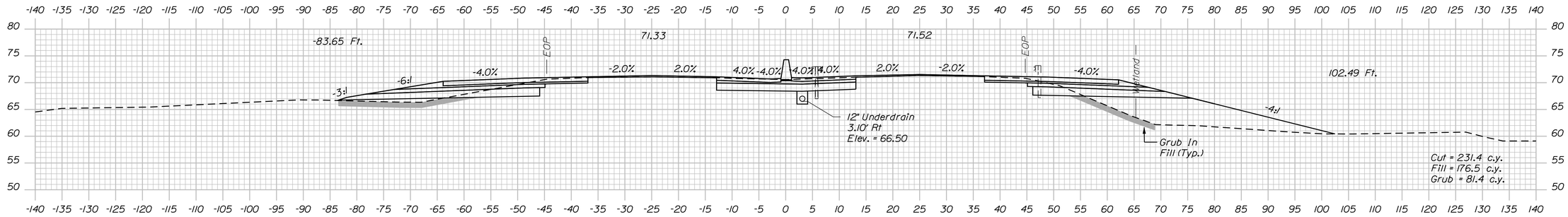
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 35
CONTRACT: 2019.10 35 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\035_Xsect_Mainline_6A_04.dgn



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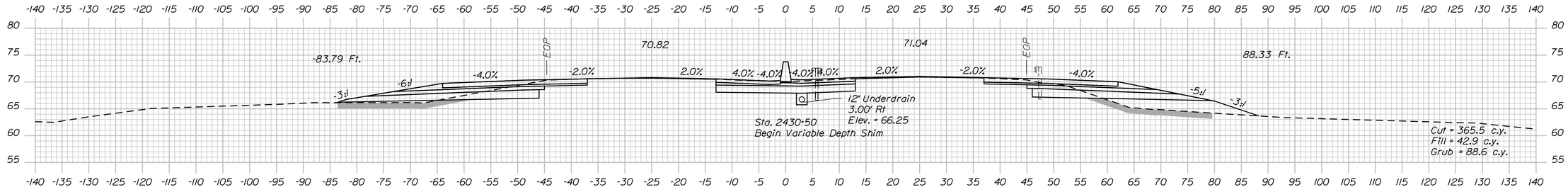

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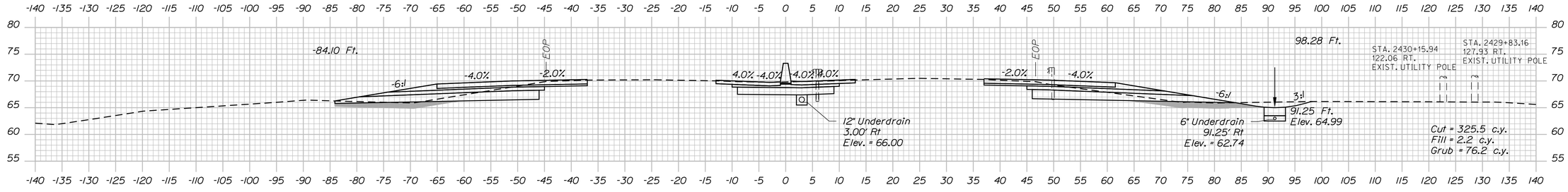

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Sta. 2430+00.00 to Sta. 2431+00.00

Date:3/24/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\036_Xsect_Mainline_6A_05.dgn

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

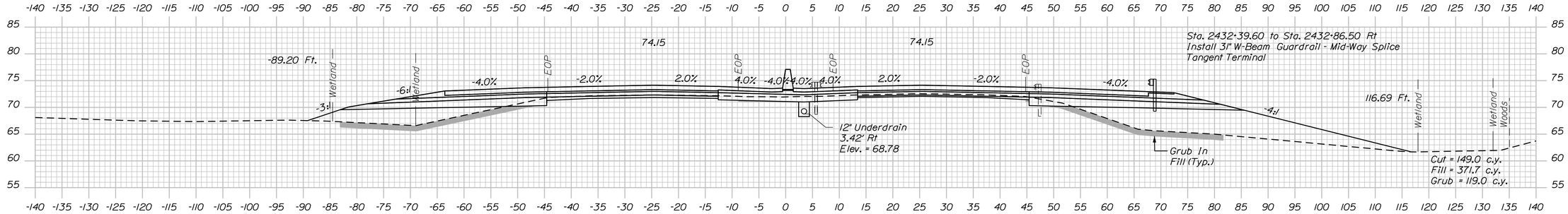
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 36



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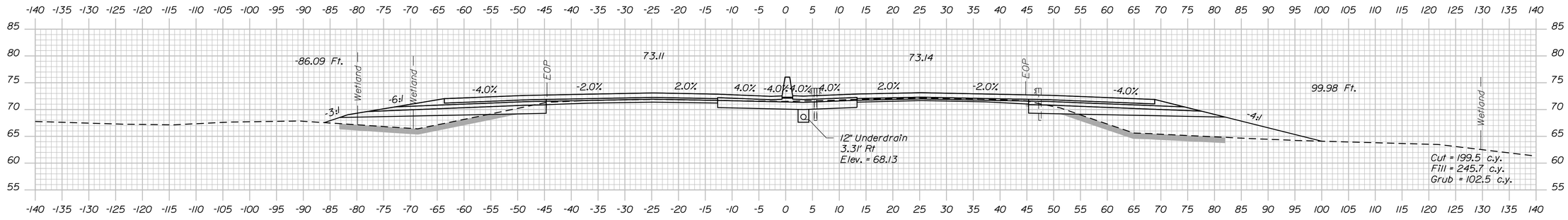

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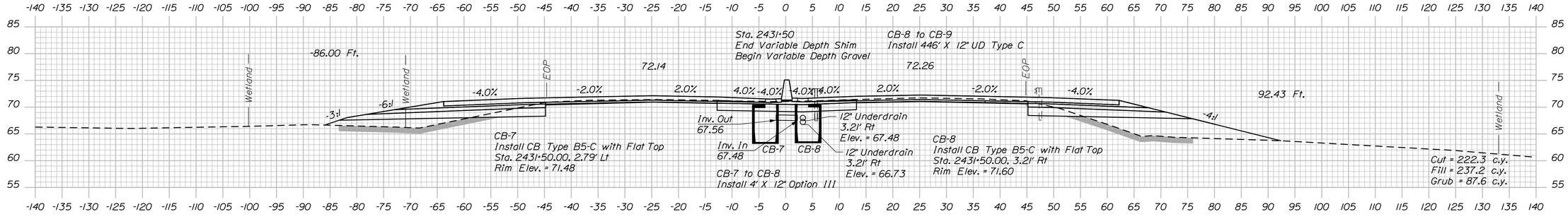

2431+50.00

Sta. 2431+50.00 to Sta. 2432+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

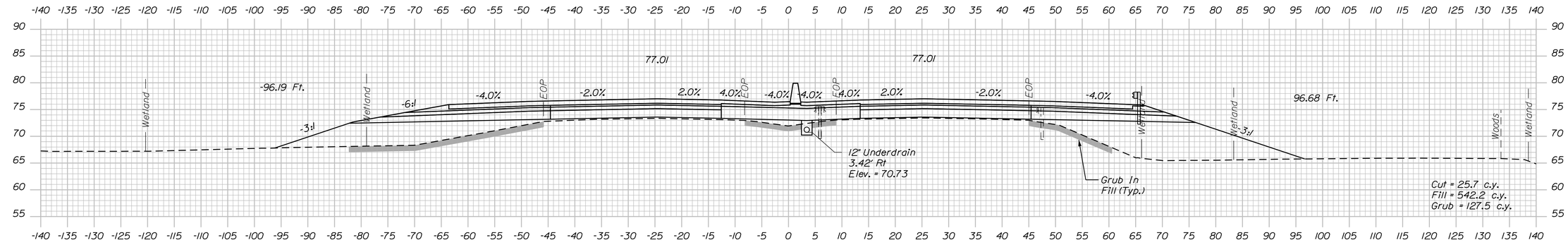
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 37

CONTRACT: 2019.10 37 OF 141

Date:3/26/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\037_Xsect_Mainline_6A_06.dgn



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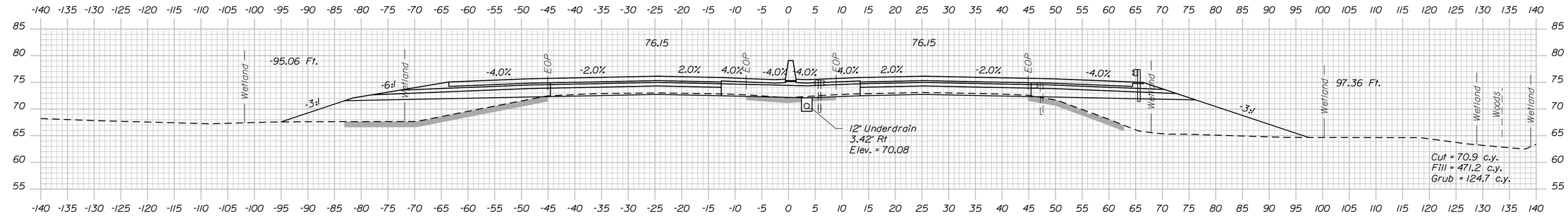

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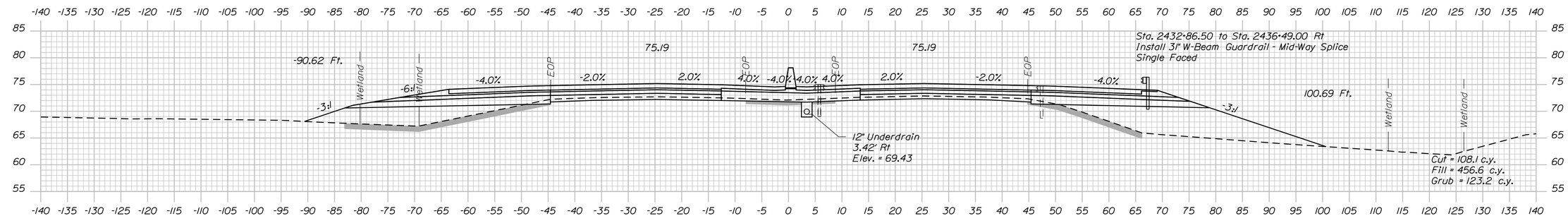

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Sta. 2433+00.00 to Sta. 2434+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

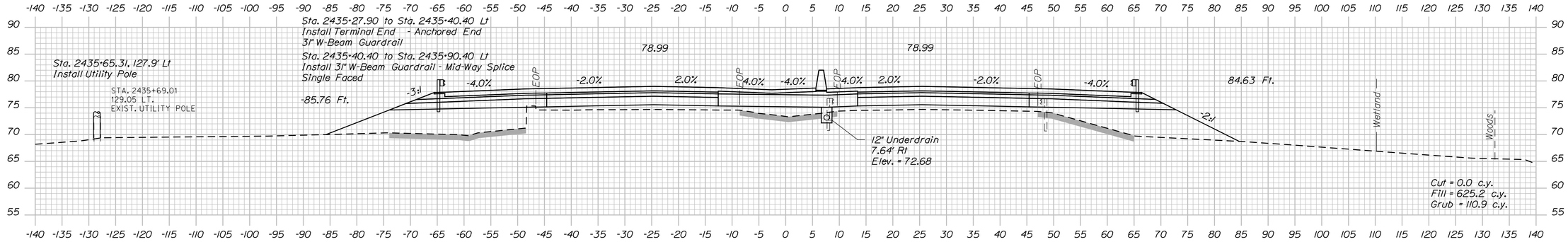
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

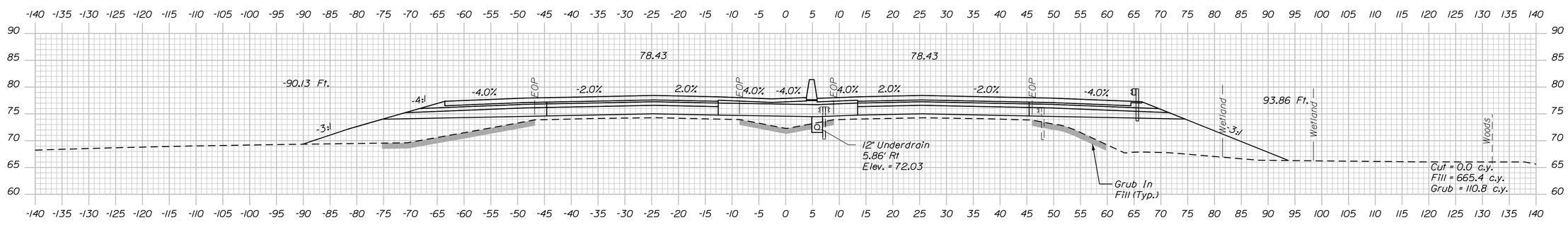
VHB: 55191.01 SHEET NUMBER: 38
CONTRACT: 2019.10 38 OF 141

Date:3/26/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\038_Xsect_Mainline_6A_07.dgn



2435+50.00



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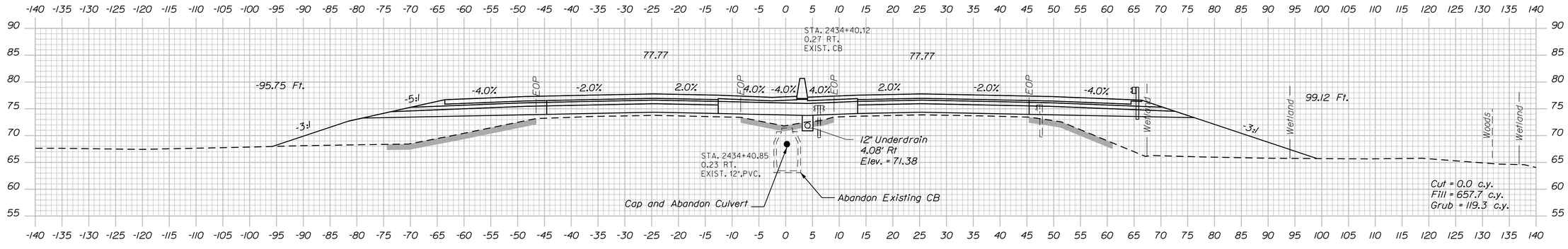

2434+50.00

Sta. 2434+50.00 to Sta. 2435+50.00

Scale: 1" = 10'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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FAX (207) 253-5596

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

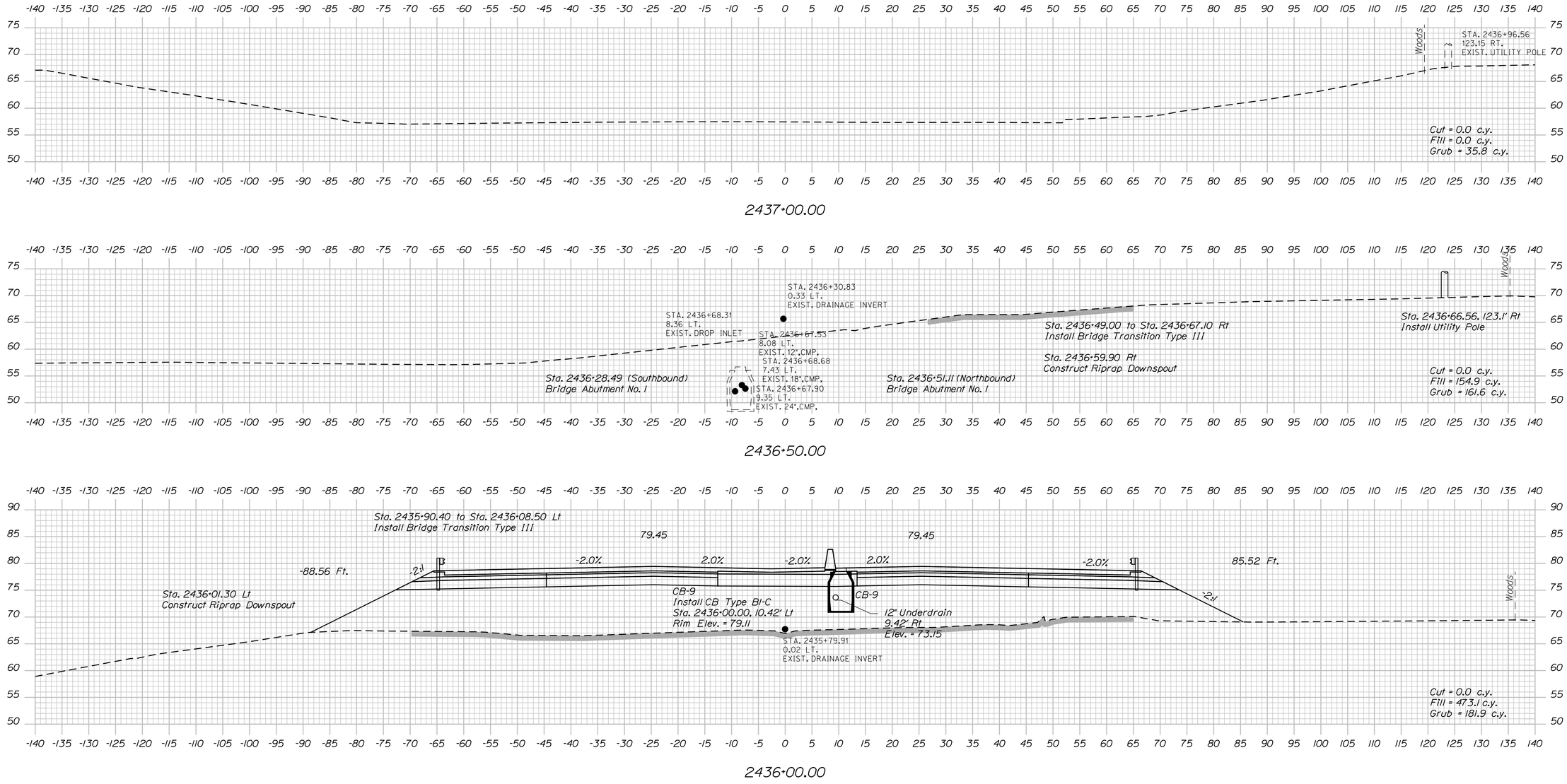
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 39

CONTRACT: 2019.10 39 OF 141

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDoT\MaineDOT\HIGHWAY\MSTA\039_Xsect_Mainline_6A_08.dgn

Date:3/26/2019



Sta. 2436+00.00 to Sta. 2437+00.00

Date:3/24/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\040_Xsect_Mainline_6A_09.dgn

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

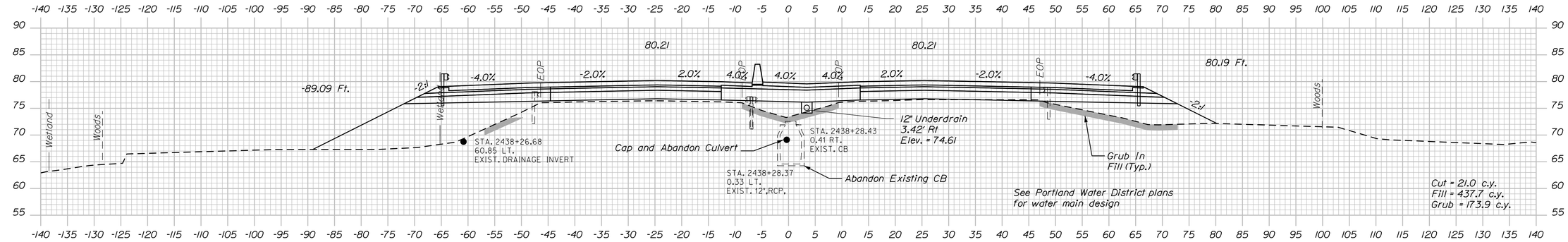
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 40



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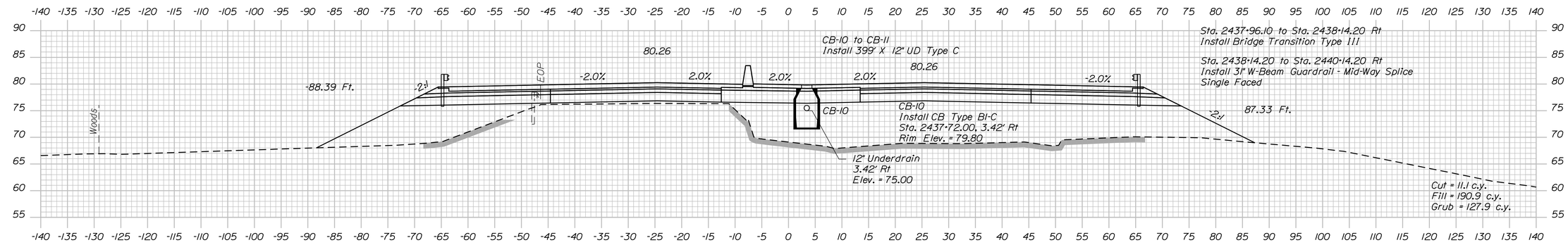

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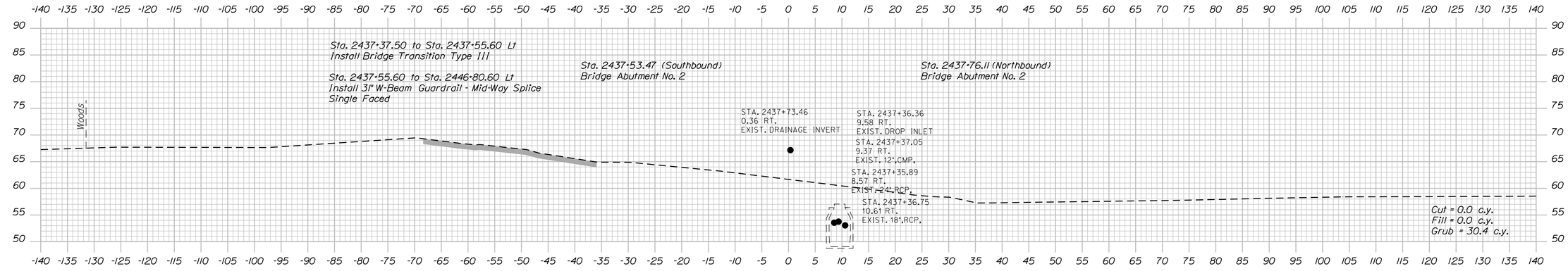

2437+50.00

Sta. 2437+50.00 to Sta. 2438+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

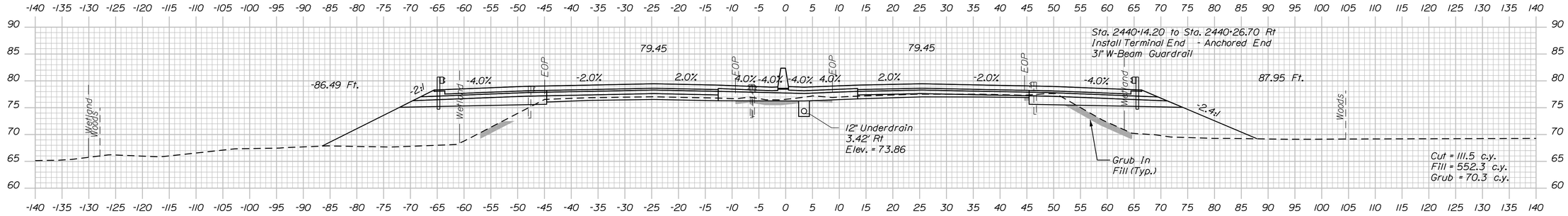
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 41
CONTRACT: 2019.10 41 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\041_Xsect_Mainline_6A_10.dgn
Date: 3/26/2019



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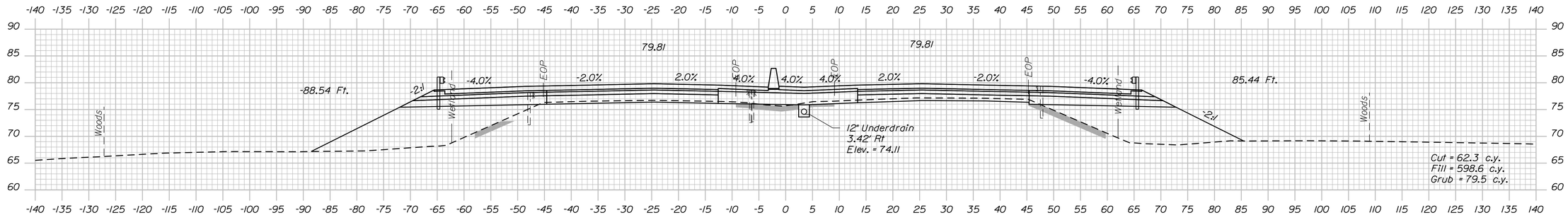
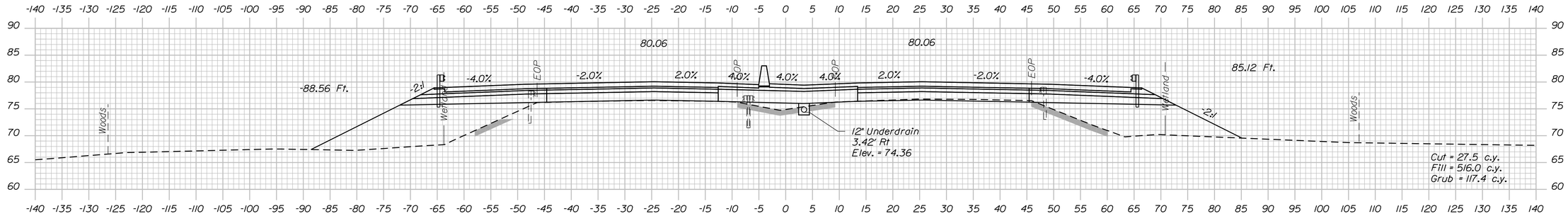


2439+50.00



2439+00.00

Sta. 2439+00.00 to Sta. 2440+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

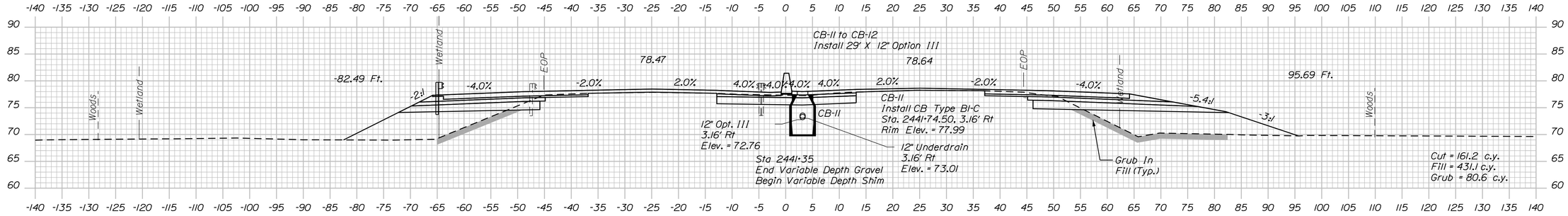
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 42

CONTRACT: 2019.10 42 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\042_Xsect_Mainline_6A_11.dgn

Date:3/26/2019



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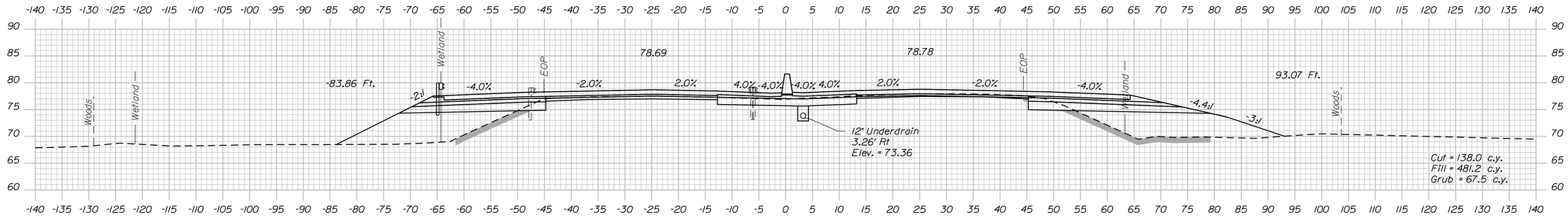

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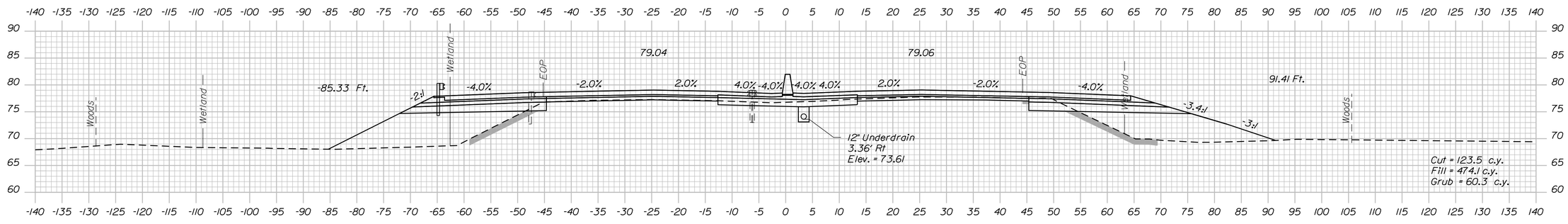

2440+50.00

Sta. 2440+50.00 to Sta. 2441+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

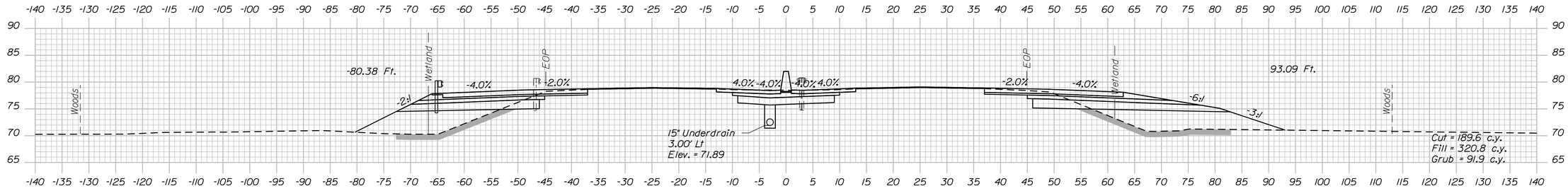
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 43

CONTRACT: 2019.10 43 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\043_Xsect_Mainline_6A_12.dgn

Date:3/24/2019



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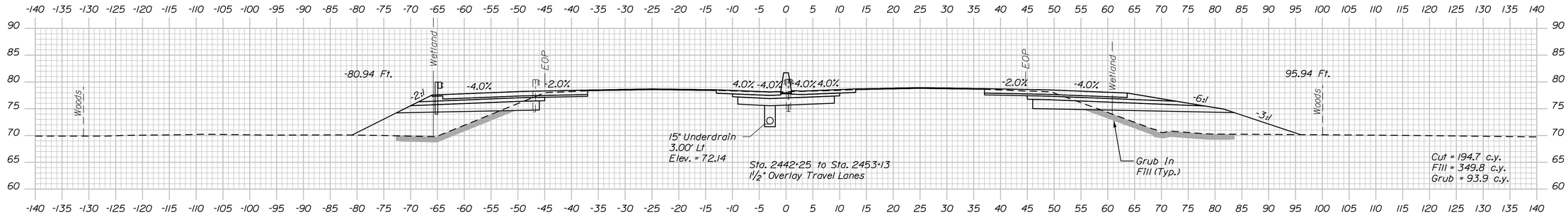
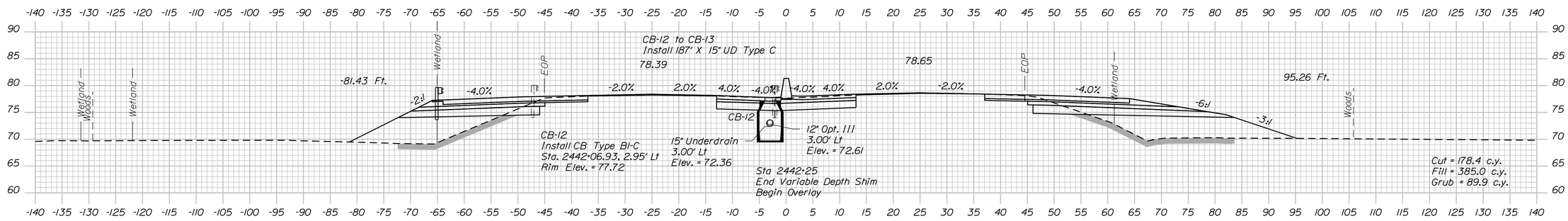


2442+50.00



2442+00.00

Sta. 2442+00.00 to Sta. 2443+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

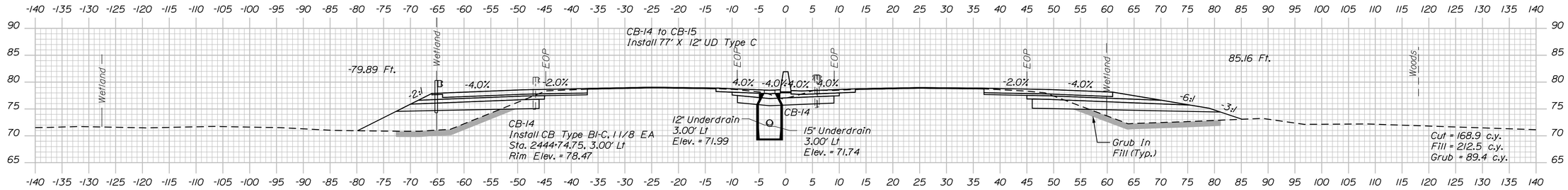
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 44
CONTRACT: 2019.10 44 OF 141

Date:3/24/2019

Filename: \\vhb\vgb\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\044_Xsect_Mainline_6A_13.dgn



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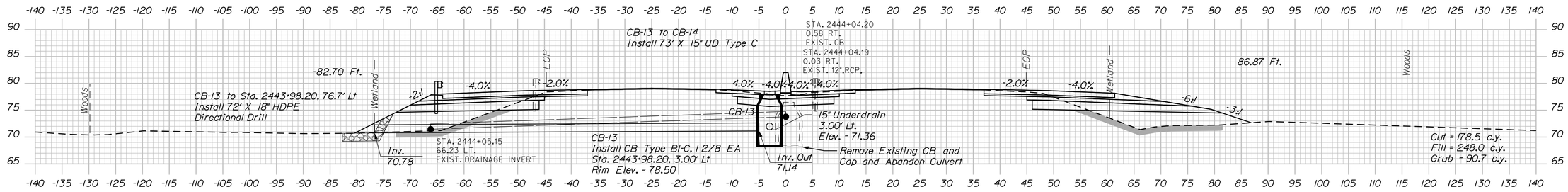

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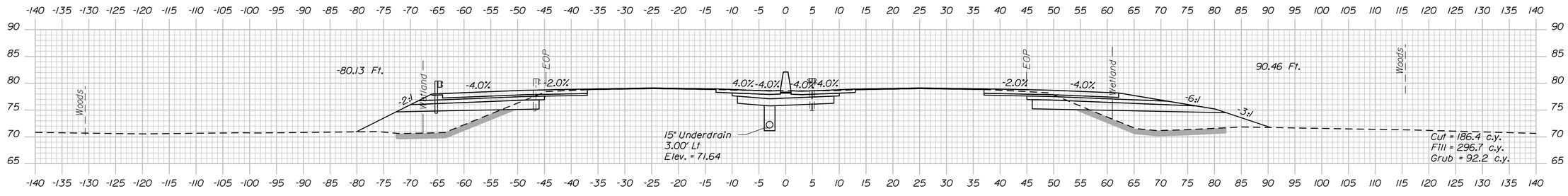

2443+50.00

Sta. 2443+50.00 to Sta. 2444+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

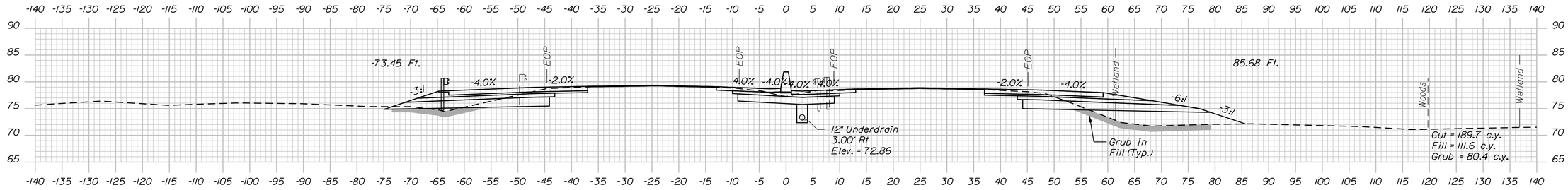
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

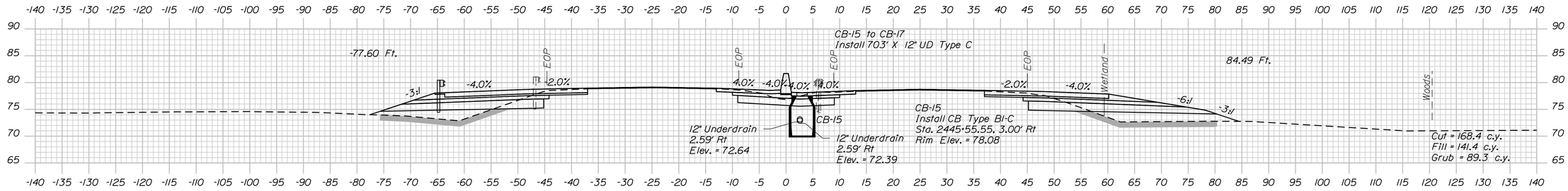
VHB: 55191.01 SHEET NUMBER: 45
CONTRACT: 2019.10 45 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\045_Xsect_Mainline_6A_14.dgn



2446+00.00



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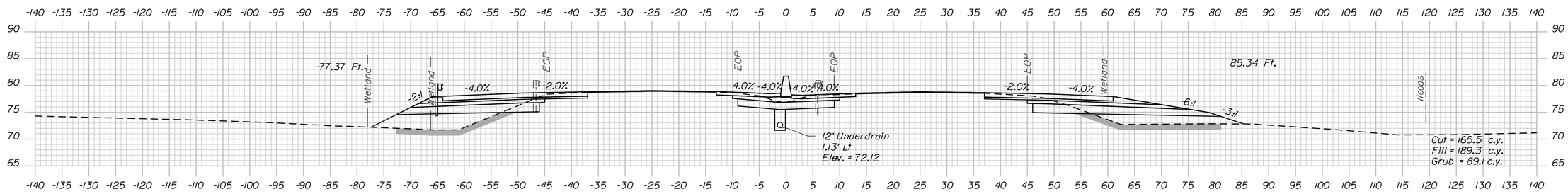

2445+00.00

Sta. 2445+00.00 to Sta. 2446+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

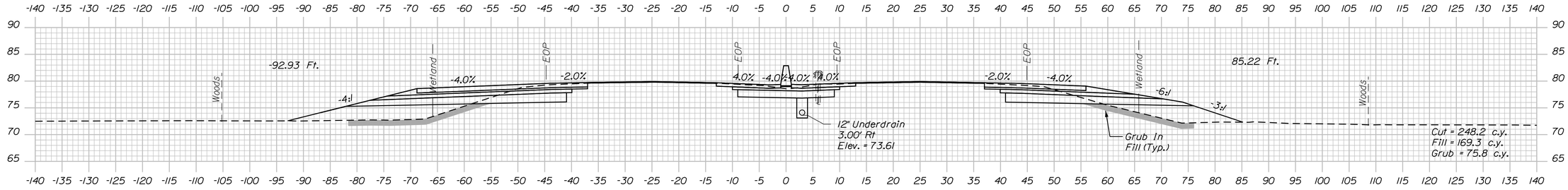
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 46
CONTRACT: 2019.10 46 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\046_Xsect_Mainline_6A_15.dgn



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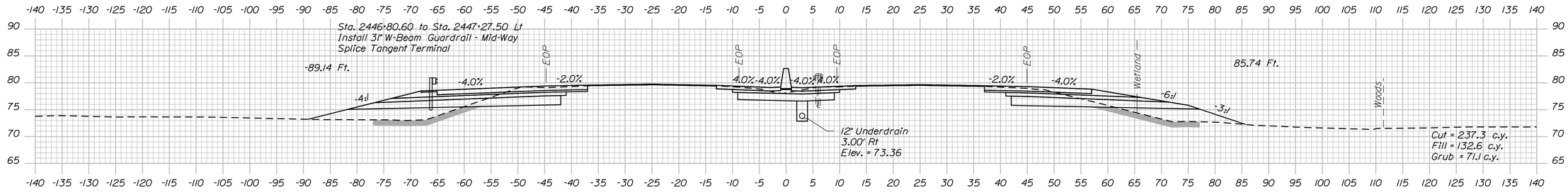

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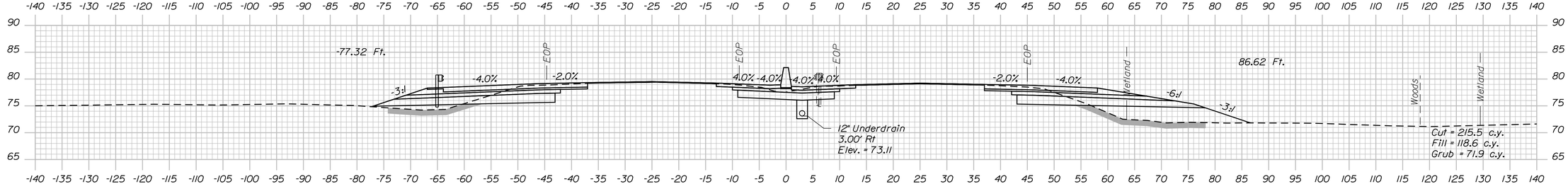

2446+50.00

Sta. 2446+50.00 to Sta. 2447+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

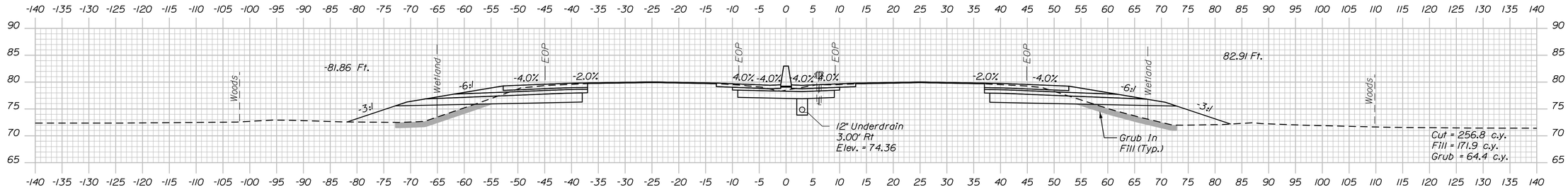
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 47
CONTRACT: 2019.10 47 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\047_Xsect_Mainline_6A_16.dgn
Date:3/26/2019



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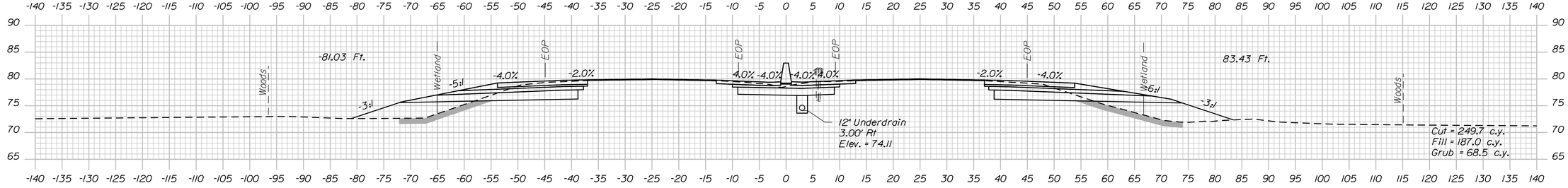
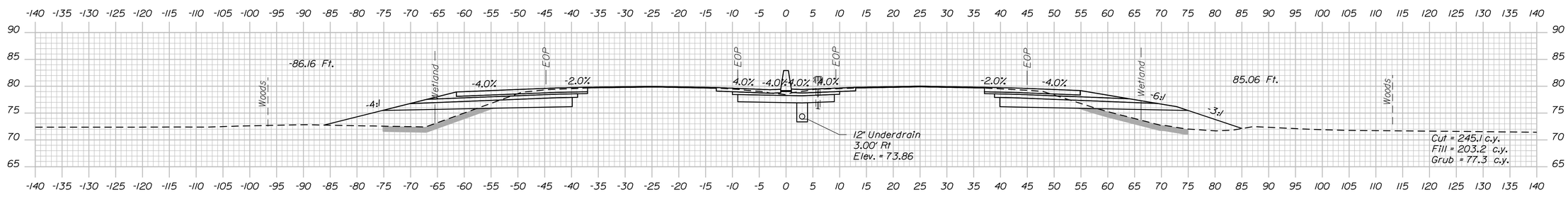


2448+50.00



2448+00.00

Sta. 2448+00.00 to Sta. 2449+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

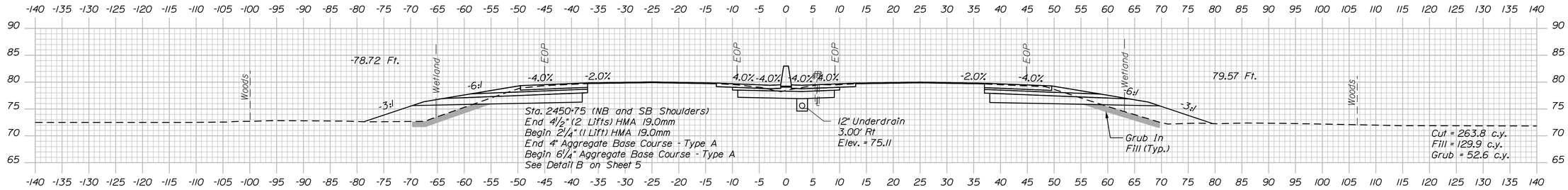
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 48
CONTRACT: 2019.10 48 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\048_Xsect_Mainline_6A_17.dgn
Date:3/26/2019



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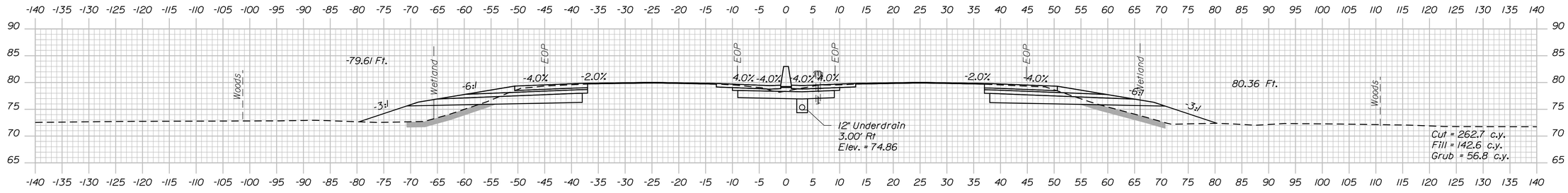

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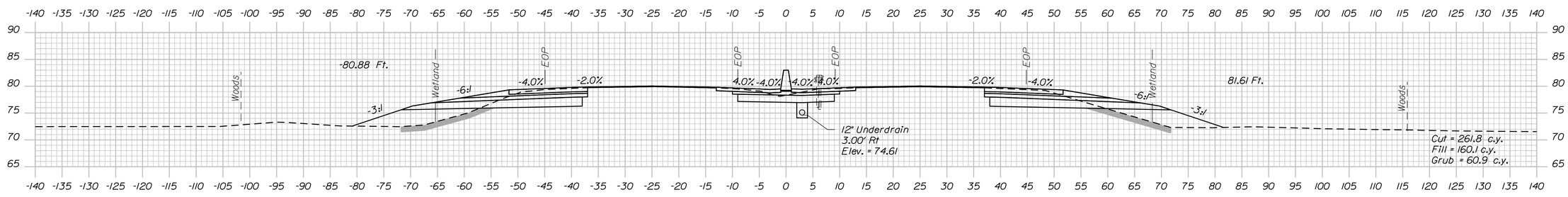

2449+50.00

Sta. 2449+50.00 to Sta. 2450+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

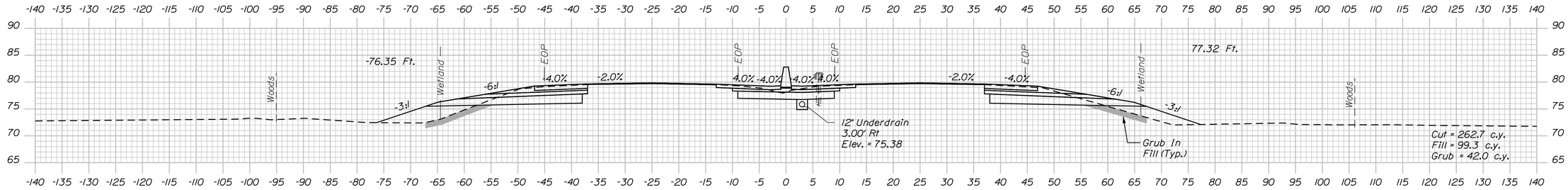
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

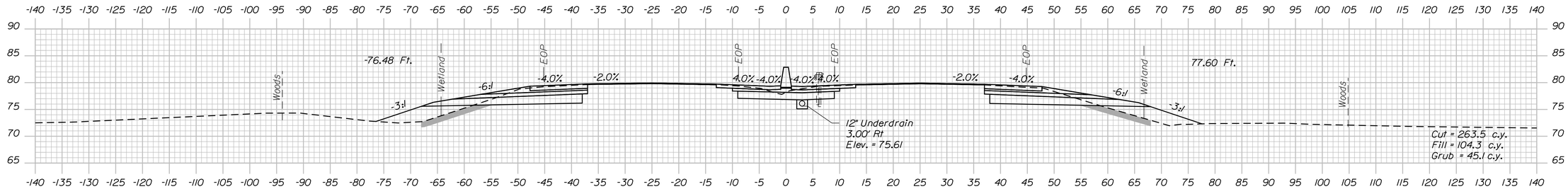
VHB: 55191.01 SHEET NUMBER: 49
CONTRACT: 2019.10 49 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\049_Xsect_Mainline_6A_18.dgn



2452+00.00



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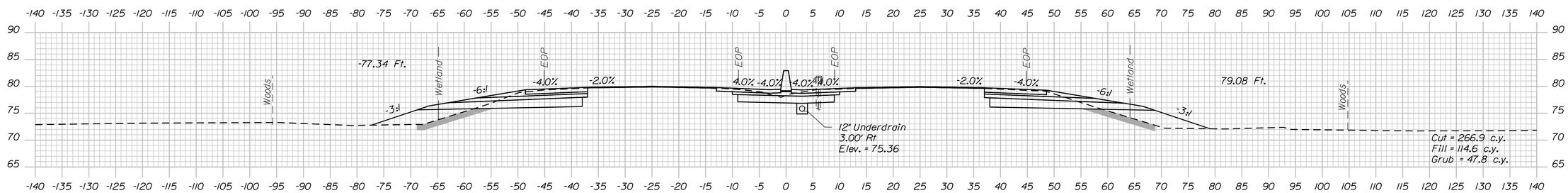

2451+00.00

Sta. 2451+00.00 to Sta. 2452+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

VANASSE HANGEN BRUSTLIN, INC.
500 Southborough Dr.
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TEL (207) 889-3150
FAX (207) 253-5596

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

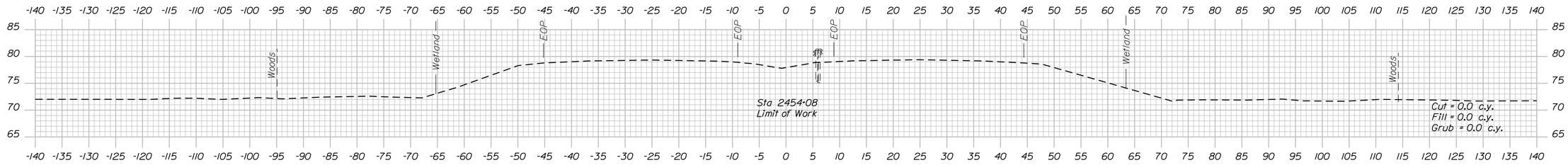
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINE TURNPIKE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 50
CONTRACT: 2019.10 50 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\050_Xsect_Mainline_6A_19.dgn



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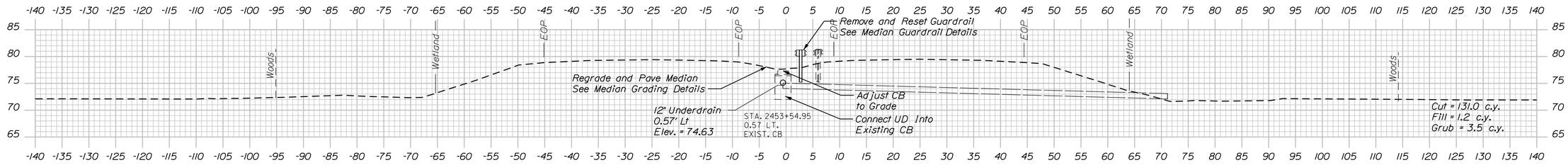

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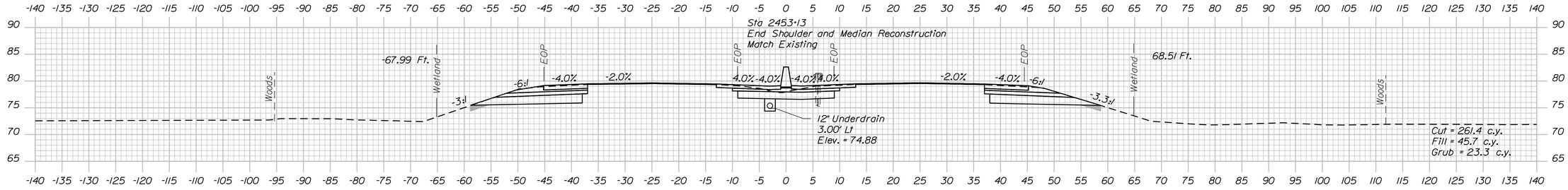

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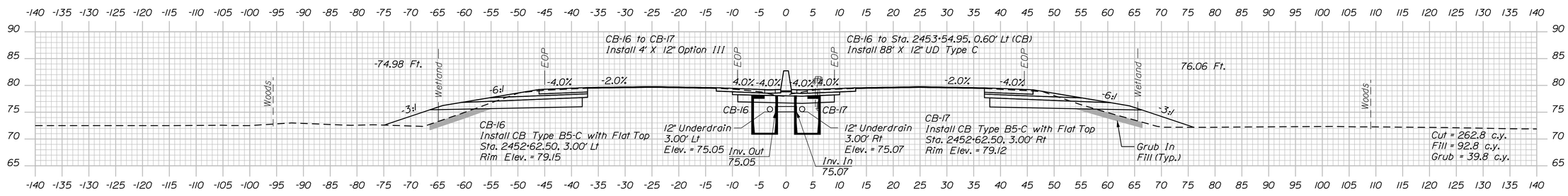

2452+50.00

Sta. 2452+50.00 to Sta. 2454+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR
MEMORIAL HIGHWAY

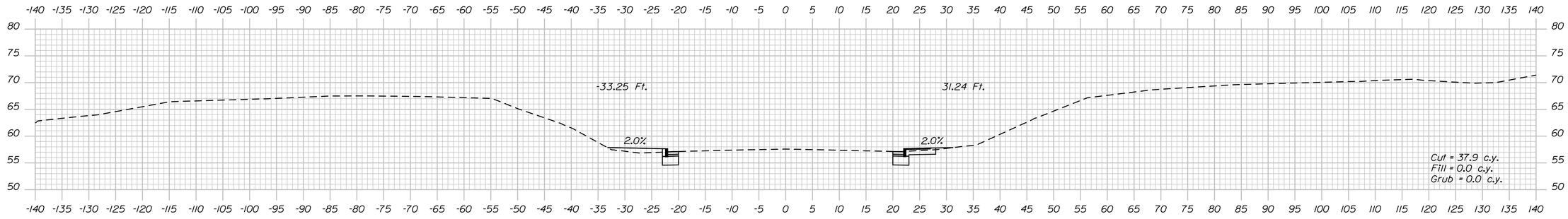
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS
BRIDGE REPLACEMENT
MAINE TURNPIKE
CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 51
CONTRACT: 2019.10 51 OF 141

Date:3/24/2019

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\051_Xsect_Mainline_6A_20.dgn



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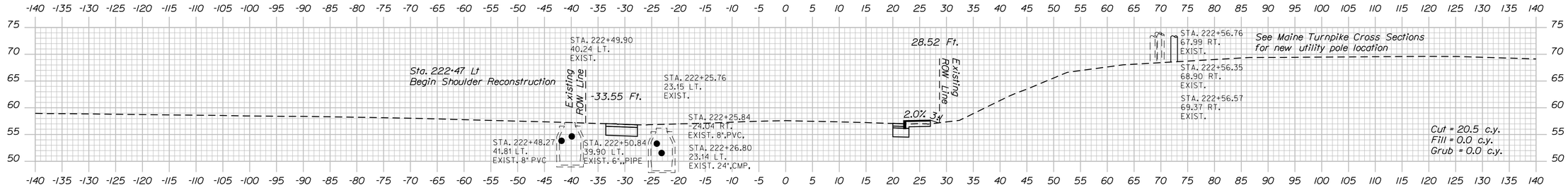

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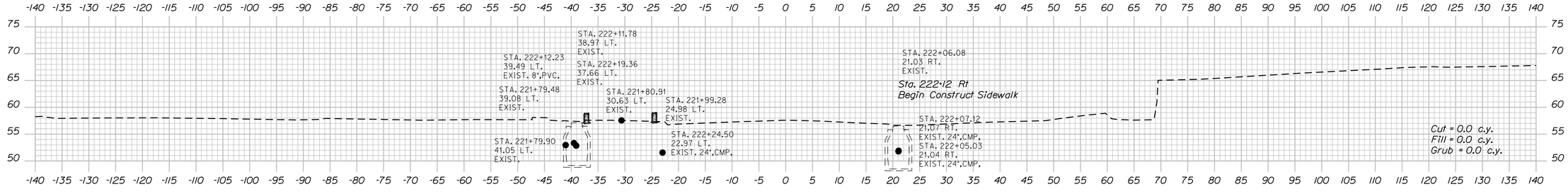

222+00.00

Sta. 222+00.00 to Sta. 223+00.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by:

vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

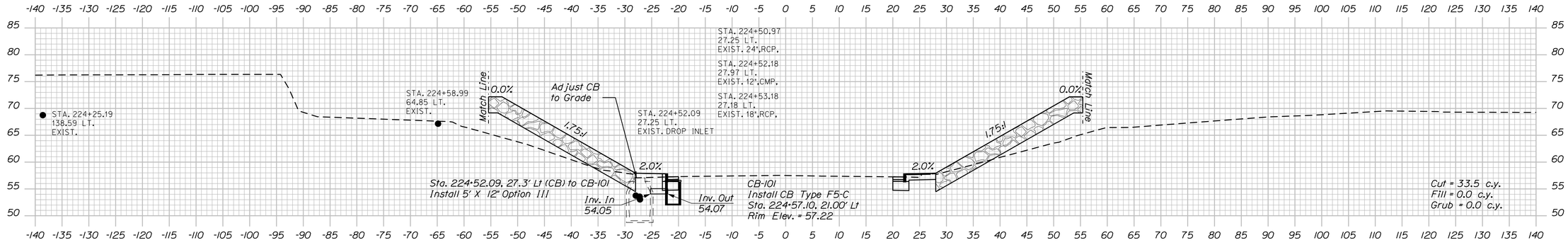
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WARREN AVENUE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 52

CONTRACT: 2019.10 52 OF 141

Filename: \\vhb\gbl\proj\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\052_Xsect_WarrenAve_6A_01.dgn

Date:3/24/2019



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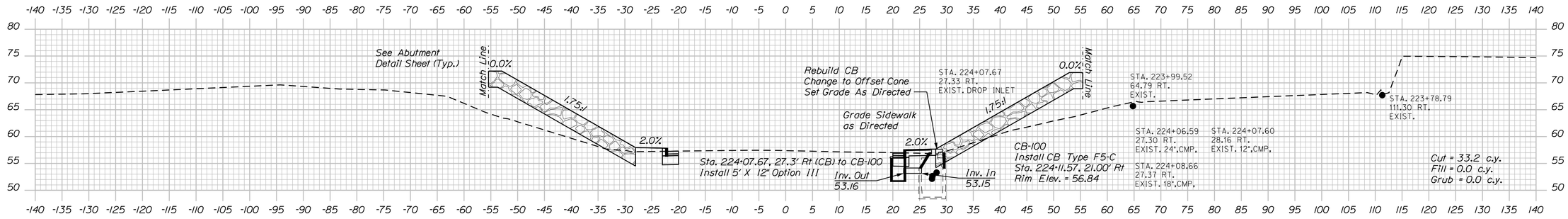

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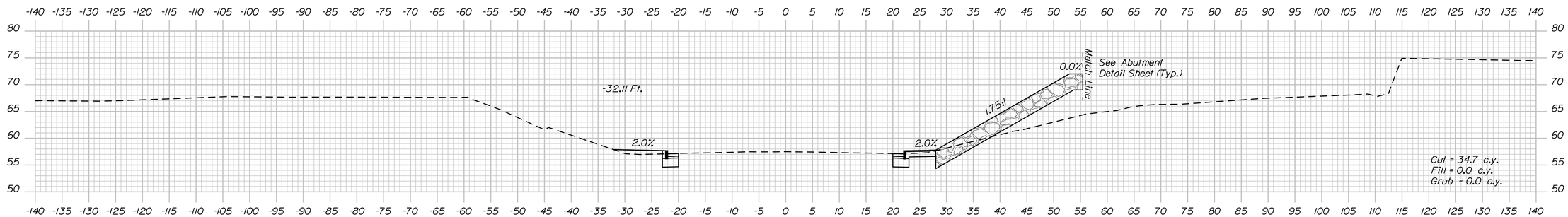

223+50.00

Sta. 223+50.00 to Sta. 224+50.00

Scale: 10 0 10 20
1" = 10' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

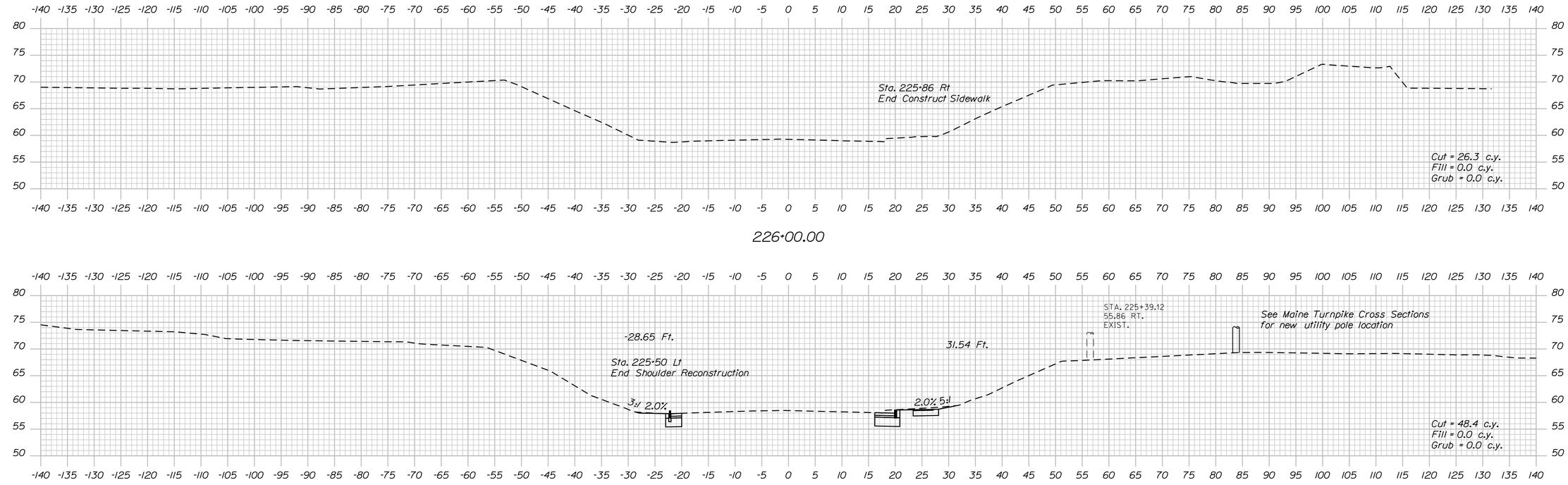
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WARREN AVENUE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 53
CONTRACT: 2019.10 53 OF 141

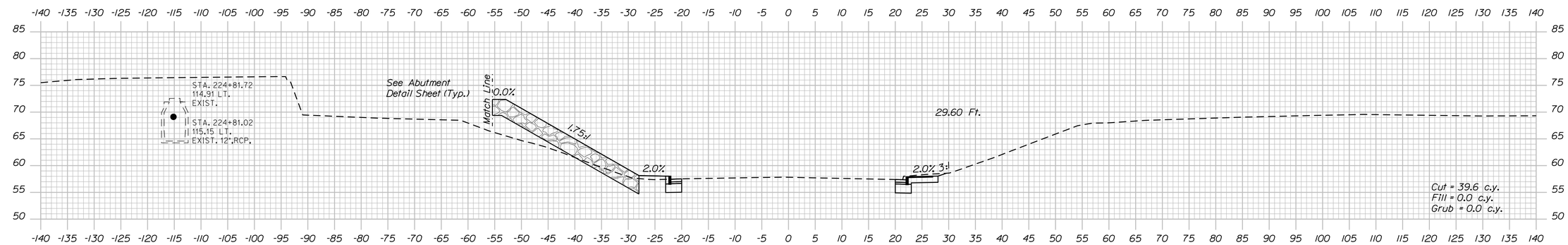
Date:3/24/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\053_Xsect_WarrenAve_6A_02.dgn



226+00.00

225+50.00



225+00.00

Sta. 225+00.00 to Sta. 226+00.00

Scale: 1" = 10'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WARREN AVENUE CROSS SECTIONS

VHB: 55191.01 SHEET NUMBER: 54

CONTRACT: 2019.10 54 OF 141

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\054_Xsect_WarrenAve_6A_03.dgn

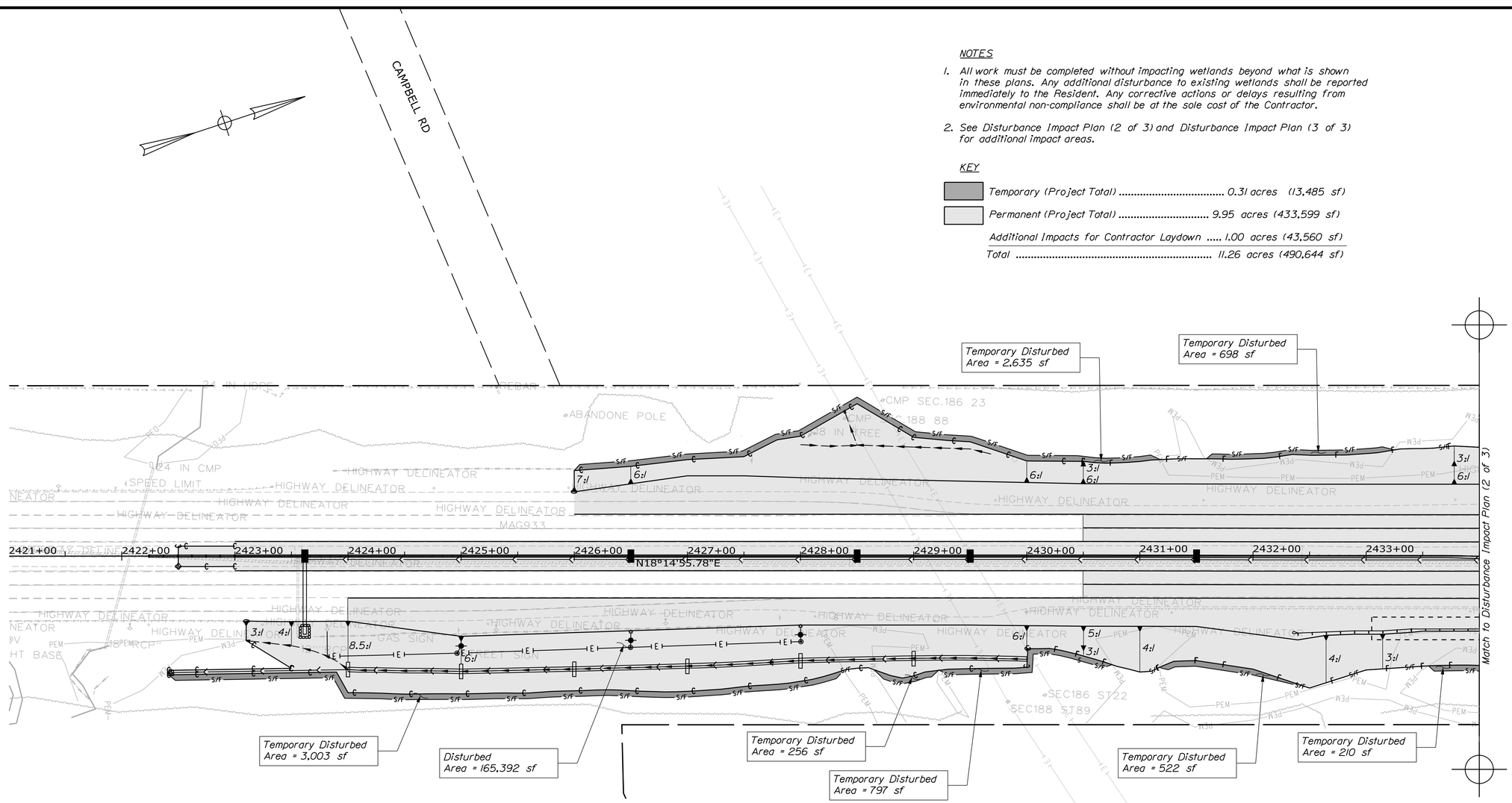
Date:3/24/2019

NOTES

1. All work must be completed without impacting wetlands beyond what is shown in these plans. Any additional disturbance to existing wetlands shall be reported immediately to the Resident. Any corrective actions or delays resulting from environmental non-compliance shall be at the sole cost of the Contractor.
2. See Disturbance Impact Plan (2 of 3) and Disturbance Impact Plan (3 of 3) for additional impact areas.

KEY

Temporary (Project Total)	0.31 acres (13,485 sf)
Permanent (Project Total)	9.95 acres (433,599 sf)
Additional Impacts for Contractor Laydown	1.00 acres (43,560 sf)
Total	11.26 acres (490,644 sf)



Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DISTURBANCE IMPACT PLAN (1 OF 3)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 55
55 OF 141

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\055_Disturbance_Plan1_6A.dgn
Date:3/26/2019

Date:3/26/2019

Filename: \\vhb\gbl\pro\SPortland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\056_Disturbance_Plan2_6A.dgn

Match to Disturbance Impact Plan (1 of 3)

Match to Disturbance Impact Plan (3 of 3)

Temporary Disturbed
Area = 1,139 sf

Disturbed
Area = 53,008 sf

Temporary Disturbed
Area = 1,067 sf

Temporary Disturbed
Area = 862 sf

Temporary Disturbed
Area = 571 sf

Temporary Disturbed
Area = 1,262 sf

Temporary Disturbed
Area = 463 sf

Disturbed
Area = 145,609 sf

P1 = STA. 220+19.57
Δ = 0°06'55.3" Lt.
CURVE DATA #2
R = 220+19.57

P1 = STA. 227+99.57
Δ = 0°13'08.7" Lt.
CURVE DATA #2
R = 227+99.57

N83°52'15"E 78.1'

KEY

Temporary Impacts

Permanent Impacts

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

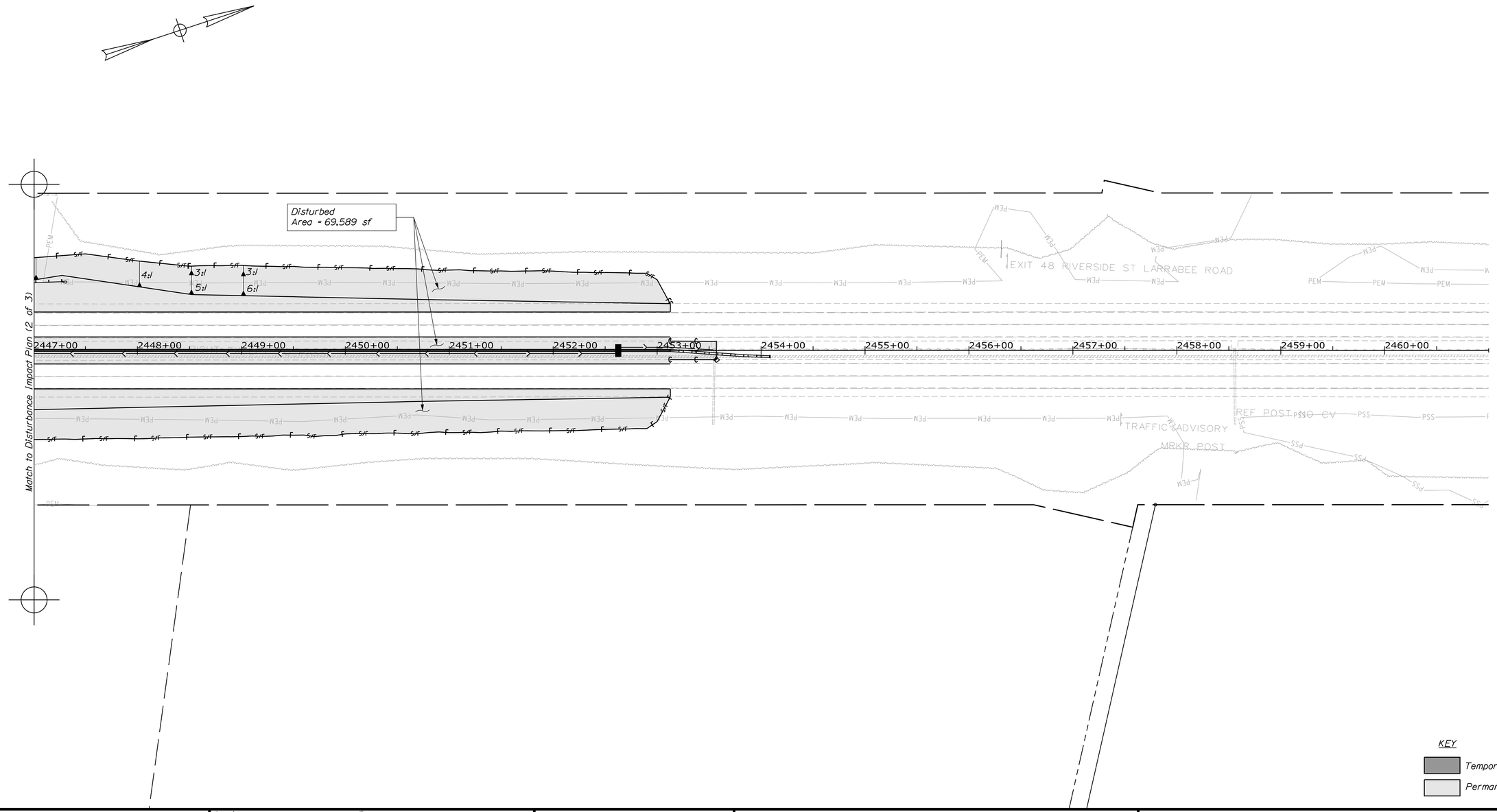
DISTURBANCE IMPACT PLAN (2 OF 3)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 56
56 OF 141

Date:3/26/2019

Filename: \\vhb\gbl\proj\Portland\55191.01 Warren Ave Final Design\Cad_MEDot\MaineDOT\HIGHWAY\MSTA\057_Disturbance_Plan3_6A.dgn



Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	AGC	3/22/19	Checked	ECF	3/22/19
Drawn	BMD	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

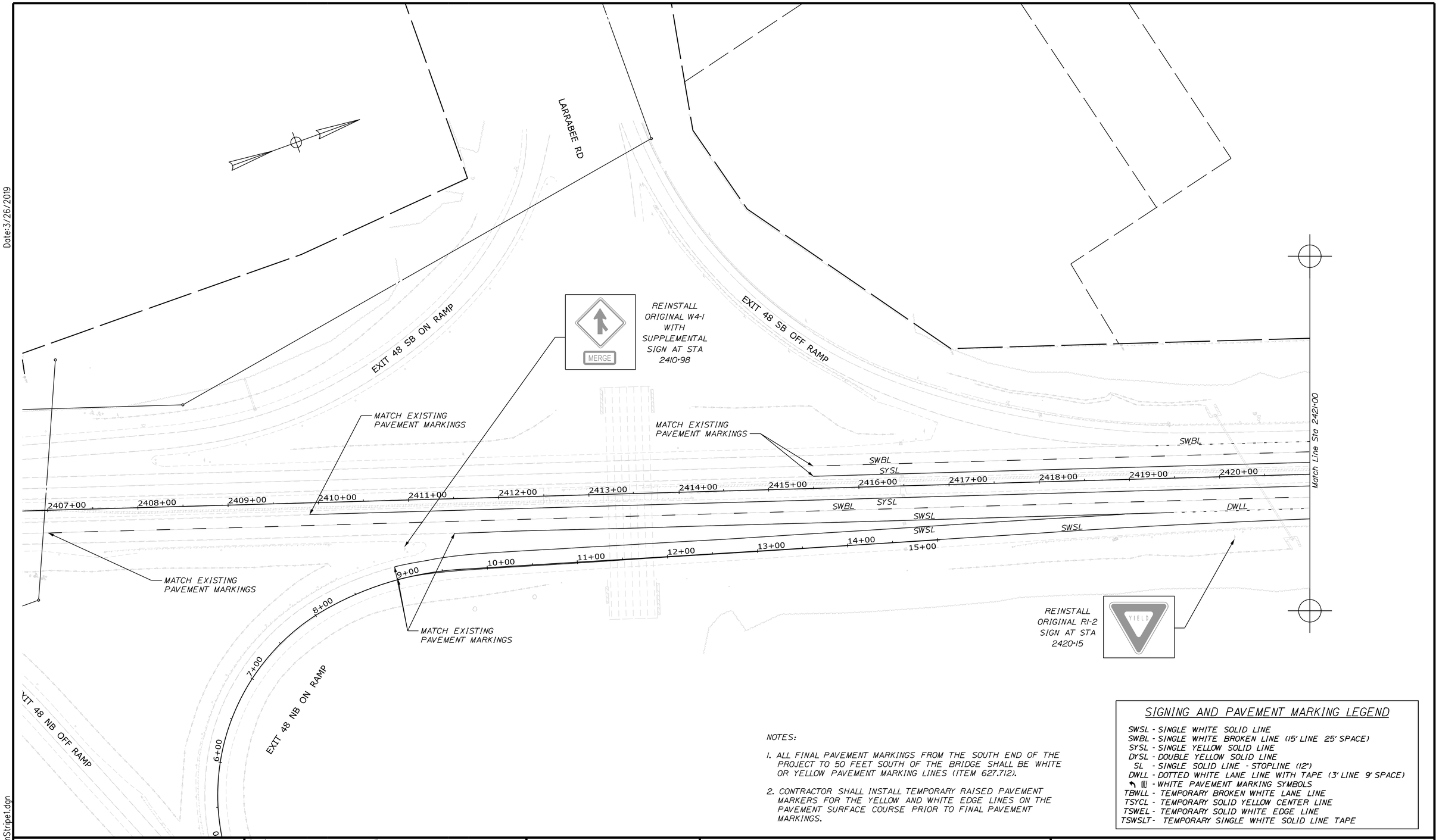
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DISTURBANCE IMPACT PLAN (3 OF 3)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 57
57 OF 141

Date:3/26/2019



SIGNING AND PAVEMENT MARKING LEGEND

SWSL - SINGLE WHITE SOLID LINE
SWBL - SINGLE WHITE BROKEN LINE (15' LINE 25' SPACE)
SYSL - SINGLE YELLOW SOLID LINE
DYSL - DOUBLE YELLOW SOLID LINE
SL - SINGLE SOLID LINE - STOPLINE (12")
DWLL - DOTTED WHITE LANE LINE WITH TAPE (3' LINE 9' SPACE)
↰ W - WHITE PAVEMENT MARKING SYMBOLS
TBWLL - TEMPORARY BROKEN WHITE LANE LINE
TSYCL - TEMPORARY SOLID YELLOW CENTER LINE
TSWEL - TEMPORARY SOLID WHITE EDGE LINE
TSWSLT - TEMPORARY SINGLE WHITE SOLID LINE TAPE

NOTES:

1. ALL FINAL PAVEMENT MARKINGS FROM THE SOUTH END OF THE PROJECT TO 50 FEET SOUTH OF THE BRIDGE SHALL BE WHITE OR YELLOW PAVEMENT MARKING LINES (ITEM 627.712).

2. CONTRACTOR SHALL INSTALL TEMPORARY RAISED PAVEMENT MARKERS FOR THE YELLOW AND WHITE EDGE LINES ON THE PAVEMENT SURFACE COURSE PRIOR TO FINAL PAVEMENT MARKINGS.

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

SIGNING AND STRIPING PLANS (1 OF 4)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 58
58 OF 141

Filename: ...\MSTA\058_SignStripe1.dgn

Date:3/26/2019

CAMPBELL RD

RETAIN

EXIT 48
TO 25 302
Riverside St
Larrabee Rd

MATCH EXISTING
PAVEMENT MARKINGS

20.0′
32.3′
27.0′
12.0′
12.0′
12.0′
12.0′
12.0′
12.0′
12.0′
25.0′
24.0′

SWBL
SWSL
SYSL
SWBL
SYSL
SWSL
SWBL
SYSL
SWSL
DWLL
SWSL

2421+00
2422+00
2423+00
2424+00
2425+00
2426+00
2427+00
2428+00
2429+00
2430+00
2431+00
2432+00
2433+00
Match Line Sta 2434+00

NORTH
INTERSTATE 95
MAINE TURNPIKE

REMOVE
STA 2424•97 RT

NORTH
INTERSTATE 95
MAINE TURNPIKE

SIGN ASSEMBLY I
STA 2425•03 RT

MAINE STATE LAW
NO EXCUSES
BUCKLE UP

STA 2427•81 RT
REMOVE & RESET TO
STA 2427•91 RT

SPEED LIMIT
60
MINIMUM
45

REMOVE
STA 2430•00 RT

SPEED LIMIT
60
MINIMUM
45

R2-4A(60/45)
STA 2434•25 RT

Scale: 50 0 50 100
1" = 50′ - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

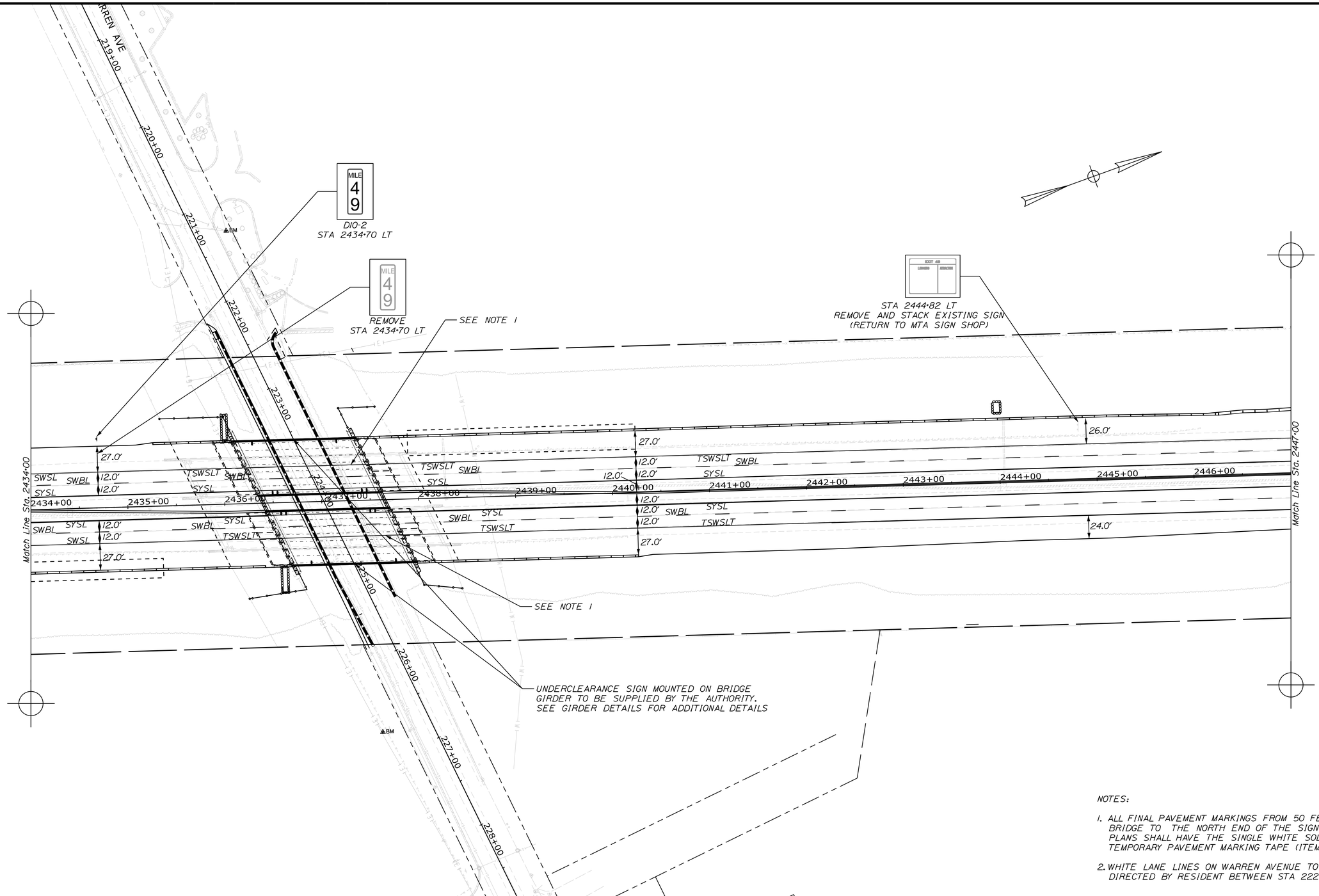
SIGNING AND STRIPING PLANS (2 OF 4)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 59
59 OF 141

Filename: ...\MSTA\059_SignStripe2.dgn

Date:3/26/2019



NOTES:

1. ALL FINAL PAVEMENT MARKINGS FROM 50 FEET SOUTH OF THE BRIDGE TO THE NORTH END OF THE SIGNING AND STRIPING PLANS SHALL HAVE THE SINGLE WHITE SOLID LINE BE TEMPORARY PAVEMENT MARKING TAPE (ITEM 627.73)

2. WHITE LANE LINES ON WARREN AVENUE TO REPLACED AS DIRECTED BY RESIDENT BETWEEN STA 222+00 AND STA 226+00.

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

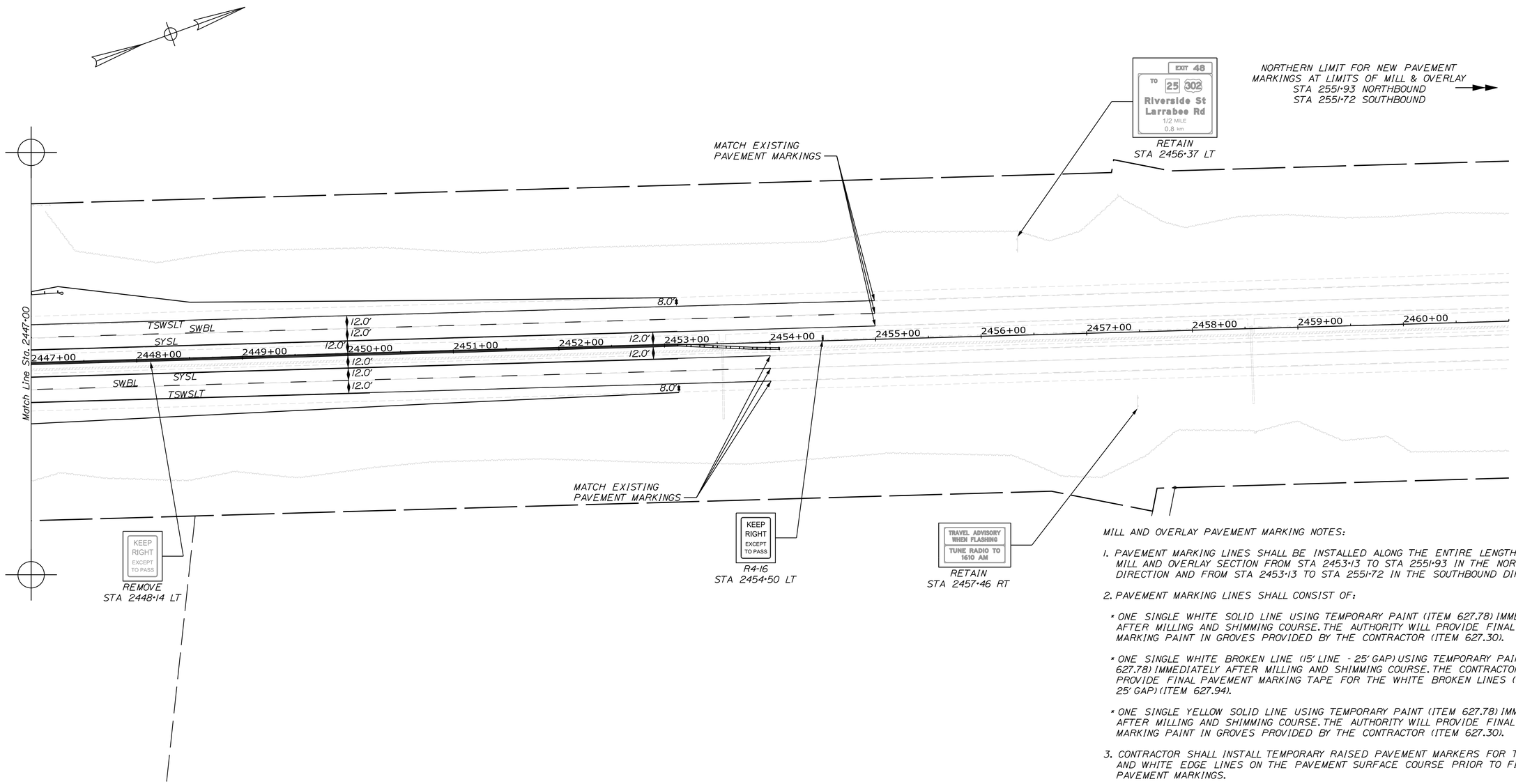
SIGNING AND STRIPING PLANS (3 OF 4)

VHB: 55191.01 SHEET NUMBER: 60

CONTRACT: 2019.10 60 OF 141

Filename: ...\MSTA\060_SignStripe3.dgn

Date:3/26/2019



MILL AND OVERLAY PAVEMENT MARKING NOTES:

1. PAVEMENT MARKING LINES SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE MILL AND OVERLAY SECTION FROM STA 2453+13 TO STA 2551+93 IN THE NORTHBOUND DIRECTION AND FROM STA 2453+13 TO STA 2551+72 IN THE SOUTHBOUND DIRECTION.

2. PAVEMENT MARKING LINES SHALL CONSIST OF:

   - ONE SINGLE WHITE SOLID LINE USING TEMPORARY PAINT (ITEM 627.78) IMMEDIATELY AFTER MILLING AND SHIMMING COURSE. THE AUTHORITY WILL PROVIDE FINAL PAVEMENT MARKING PAINT IN GROVES PROVIDED BY THE CONTRACTOR (ITEM 627.30).

   - ONE SINGLE WHITE BROKEN LINE (15' LINE - 25' GAP) USING TEMPORARY PAINT (ITEM 627.78) IMMEDIATELY AFTER MILLING AND SHIMMING COURSE. THE CONTRACTOR SHALL PROVIDE FINAL PAVEMENT MARKING TAPE FOR THE WHITE BROKEN LINES (15' LINE - 25' GAP) (ITEM 627.94).

   - ONE SINGLE YELLOW SOLID LINE USING TEMPORARY PAINT (ITEM 627.78) IMMEDIATELY AFTER MILLING AND SHIMMING COURSE. THE AUTHORITY WILL PROVIDE FINAL PAVEMENT MARKING PAINT IN GROVES PROVIDED BY THE CONTRACTOR (ITEM 627.30).

3. CONTRACTOR SHALL INSTALL TEMPORARY RAISED PAVEMENT MARKERS FOR THE YELLOW AND WHITE EDGE LINES ON THE PAVEMENT SURFACE COURSE PRIOR TO FINAL PAVEMENT MARKINGS.

Scale: 50 0 50 100
1" = 50' - 0"

No.	Revision	By	Date

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CONSULTANT PROJECT MANAGER: T. Bryant

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Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

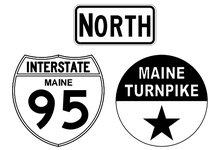
SIGNING AND STRIPING PLANS (4 OF 4)

VHB: 55191.01 SHEET NUMBER: 61
CONTRACT: 2019.10 61 OF 141

Filename: ...\MSTA\061_SignStripe4.dgn

Identification Number	Size of Sign		Text	Text Dimensions (Inches)			Number of Signs Required	Color		Border Radius	Area in Square Feet	Post
	Width	Height		Letter Height	Vertical Spacing	Arrow RTE.MKR.		Background	Legend Border			
R2-4a (60/45)	48	96	SPEED LIMIT 60 MINIMUM 45	SHSB	SHSB	SHSB	1	SHSB	SHSB	SHSB	32.00 (32.00)	Two U-Channel Post
R4-16	48	60	KEEP RIGHT EXCEPT TO PASS				2				20.00 (40.00)	Bracket Mount on Barrier
MI-1(95)	36	36	INTERSTATE MAINE 95				1				9.00 (9.00)	See Route Assembly 1
MI-1(MT)	36	36	MAINE TURNPIKE				1				9.00 (9.00)	See Route Assembly 1
M3-1	36	18	NORTH				1				4.50 (4.50)	See Route Assembly 1
D10-2	12	36	MILE 49				1				3.00 (3.00)	One U-Channel Post

SHSB - Text Dimensions Shall Conform to "Standard Highway Signs Book" - 2012 Edition.



Route Assembly 1
Sta 2425+03.78' RT
One 6"x6" Breakaway Wood Post
Area = 22.50 SF

Date:3/26/2019

Filename: ...\MSTA\062_SignSummary.dgn

Scale:

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	AG	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

SIGN SUMMARY

VHB: 55191.01 SHEET NUMBER: 62
CONTRACT: 2019.10 62 OF 141

MAINTENANCE OF TRAFFIC GENERAL NOTES

1. All traffic control equipment and devices shall conform to the latest edition of the Maine Department of Transportation (MaineDOT) Standard Specifications, Maine Turnpike Authority (MTA) Supplemental Specifications, contract specifications and applicable traffic control standards and practices.

2. All traffic control equipment and layouts shall conform to the 2009 edition of the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), chapter 6. All traffic control signs, sign support structures, channelizing devices, flashing arrow panels (FAP), portable changeable message signs (PCMS), and other traffic control equipment along the roadside shall meet or exceed NCHRP 350 test level 3 (TL-3) requirements regardless of where implemented on the project.

3. All temporary traffic control signs shall have ASTM D4956 Type VII, Type VIII, or Type IX super high intensity or prismatic fluorescent retroreflective sheeting and shall be maintained in like-new condition. All orange construction signs shall be fluorescent orange with Type IX sheeting. Placement of construction signs shall be adjusted to avoid obstructing existing signs and to ensure proper sight lines to the construction signs as determined by the Resident

4. Any signs, equipment, or devices found to be damaged or unserviceable shall be replaced at the Contractor's expense.

5. During night operations, temporary work lighting shall be directed away from approaching lanes of traffic.

6. Temporary lane closures will be required, with advanced approval, whenever work will occur within four feet of the I-95 traveled way. Temporary lane closures shall be removed if no work is occurring. See Special Provisions for more information.

7. All lane closures shall require approval of the Resident a minimum of two working days in advance of the lane closure.

8. Contractor shall provide advanced notice of all changes in traffic patterns, to include lane closures, with PCMS at least seven working days prior to the implementation of the traffic pattern change. PCMS for bridge work shall be placed within 500 feet of the bridges. PCMS for turnpike mainline road work shall be placed at least 500 feet in advance of the work site at a location approved by the Resident.

9. In the event that lane closure(s) begin to cause back-ups in through traffic of more than five minutes, the Contractor shall deploy the additional signs as indicated in the single lane closure set-up details.

10. Construction signs south of Exit 48 shall be coordinated with MTA Project 2019.09. Northbound work zone speed limit will be established by Project 2019.09.

11. Signs with (FLASH) in the title shall be LED Flashing signs. See Special Provisions for details.

WARREN AVE LANE SHIFT & FLAGGING

CONSTRUCTION SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
G20-2 END ROAD WORK	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		48"x24"	2 - Black on Orange
W20-1 ROAD WORK AHEAD			48"x48"	2 - Black on Orange
W20-4 ONE LANE ROAD AHEAD			48"x48"	2 - Black on Orange
W20-7			48"x48"	2 - Black on Orange (For Flagging)
W24-1L			48"x48"	1 - Black on Orange

TURNPIKE LANE SHIFTS (PHASE 1A, 1B, 2)

CONSTRUCTION SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
G20-1 (2) ROAD WORK NEXT 2 MILES	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		48"x24"	2 - Black on Orange
G20-2 END ROAD WORK			48"x24"	2 - Black on Orange
W1-4b(L)			48"x48"	4 - Black on Orange
W1-4b(R)			48"x48"	4 - Black on Orange
W20-1 ROAD WORK AHEAD			48"x48"	3 - Black on Orange
W3-2			48"x48"	1 - Red and White and Black on Orange
W3-5(50) SPEED LIMIT 50			48"x48"	2 - Black on Orange
W4-5P NO MERGE AREA			24"x30"	2 - Black on Orange
W5-1(MOD) LANE NARROWS			48"x48"	4 - Black on Orange
G20-5aP WORK ZONE			36"x24"	4 - Black on Orange
R2-1(50) SPEED LIMIT 50			48"x60"	4 - Black on White
R2-6aP FINES DOUBLE			36"x24"	4 - Black on White
R2-12 END WORK ZONE SPEED LIMIT			36"x54"	2 - Black on White

TEMPORARY SINGLE LANE CLOSURES (PHASE 3B)

CONSTRUCTION SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
CS-3 EXPECT STOPPED TRAFFIC	7" 7" 7"	4" 4"	48"x48"	4 - Black on Orange
G20-2 END ROAD WORK	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		48"x24"	4 - Black on Orange
G20-5aP WORK ZONE			36"x24"	4 - Black on Orange
R2-1(50) SPEED LIMIT 50			48"x60"	4 - Black on White
R2-6aP FINES DOUBLE			36"x24"	4 - Black on White
R2-12 END WORK ZONE SPEED LIMIT			36"x54"	4 - Black on White
W3-4 BE PREPARED TO STOP			48"x48"	4 - Black on Orange
W3-5(50) SPEED LIMIT 50			48"x48"	4 - Black on Orange
W4-2(L)			48"x48"	4 - Black on Orange
W20-1 (1 MILE) ROAD WORK 1 MILE			48"x48"	4 - Black on Orange
W20-1 (AHEAD) ROAD WORK AHEAD			48"x48"	1 - Black on Orange
W20-5L LEFT LANE CLOSED X MILE			48"x48"	4 - Black on Orange

Date:3/26/2019

Filename: ...\MSTA\063_workzone_01.dgn

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINTENANCE OF TRAFFIC DETAILS (1 OF 3)

VHB: 55191.01 SHEET NUMBER: 63

CONTRACT: 2019.10 63 OF 141

TEMPORARY LANE SPLIT (PHASE 3A)

CONSTRUCTION SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
CS-4 ALL LANES THRU	10D	76" 10"	132"x96"	4 - Black on White
G20-2 END ROAD WORK	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		48"x24"	4 - Black on Orange
G20-5aP WORK ZONE			36"x24"	4 - Black on Orange
R2-1(50) SPEED LIMIT 50			48"x60"	4 - Black on White
R2-6aP FINES DOUBLE			36"x24"	4 - Black on White
R2-12 END WORK ZONE SPEED LIMIT			36"x54"	4 - Black on White
R4-7a(MOD) KEEP RIGHT	16E	10" 10"	174"x36"	1 - Black on Orange
R4-9 STAY IN LANE	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		36"x48"	4 - Black on White
W3-5(50) SPEED LIMIT 50			48"x48"	4 - Black on Orange
W4-3			48"x48"	1 - Black on Orange
W12-1			36"x36" 48"x48"	1 - Black on Orange 1 - Black on Orange
W20-1 ROAD WORK AHEAD			48"x48"	5 - Black on Orange
W21-1cM ALL LANES THRU			30"x48"	1 - Black on Orange

TURNPIKE MILL & OVERLAY ADVANCED SIGNING

CONSTRUCTION SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
CS-3 EXPECT STOPPED TRAFFIC	7" 7" 7"	4" 4"	48"x48"	4 - Black on Orange
G20-1 ROAD WORK NEXT 5 MILES	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		48"x24"	2 - Black on Orange
G20-2 END ROAD WORK			48"x24"	4 - Black on Orange
G20-5aP WORK ZONE			36"x24"	5 - Black on Orange
R2-1(50) SPEED LIMIT 50			48"x60"	5 - Black on White
R2-6aP FINES DOUBLE			36"x24"	5 - Black on White
R1-2 YIELD			48"x48"x48"	1 - Red on White
R2-12 END WORK ZONE SPEED LIMIT			36"x54"	4 - Black on Orange
W3-2			48"x48"	1 - Red and White and Black on Orange
W3-4 BE PREPARED TO STOP			48"x48"	4 - Black on Orange
W3-5(50) SPEED LIMIT 50			48"x48"	4 - Black on Orange
W4-2 (L)			48"x48"	4 - Black on Orange
W4-2(R)			48"x48"	4 - Black on Orange
W8-1 BUMP			48"x48"	4 - Black on Orange
W8-24a RUMBLE STRIPS AHEAD			48"x48"	4 - Black on Orange

TURNPIKE MILL & OVERLAY ADVANCED SIGNING (cont.)

CONSTRUCTION SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
W20-1 ROAD WORK AHEAD	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		48"x48"	2 - Black on Orange
W20-1 (1 MILE) ROAD WORK 1 MILE			48"x48"	4 - Black on Orange
W20-5L LEFT LANE CLOSED X MILE			48"x48"	4 - Black on Orange
W20-5R RIGHT LANE CLOSED X MILE			48"x48"	4 - Black on Orange
W20-5L (AHEAD) LEFT LANE CLOSED AHEAD			48"x48"	1 - Black on Orange
W20-5R (AHEAD) RIGHT LANE CLOSED AHEAD			48"x48"	1 - Black on Orange

TURNPIKE SHOULDER CLOSURES

CONSTRUCTION SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
G20-2 END ROAD WORK	Text Dimensions Shall Conform to "Standard Highway Signs" - 2012		48"x24"	4 - Black on Orange
W20-1 (AHEAD) ROAD WORK AHEAD			48"x48" 36"x36"	4 - Black on Orange 2 - Black on Orange (For Flagging)
W21-5aL LEFT SHOULDER CLOSED 1000 FT			48"x48"	4 - Black on Orange
W21-5aR RIGHT SHOULDER CLOSED 1000 FT			48"x48"	4 - Black on Orange
W21-5bL LEFT SHOULDER CLOSED			48"x48"	4 - Black on Orange
W21-5bR RIGHT SHOULDER CLOSED			48"x48"	4 - Black on Orange

Date:3/26/2019

Filename: ...\MSTA\064_workzone_02.dgn

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

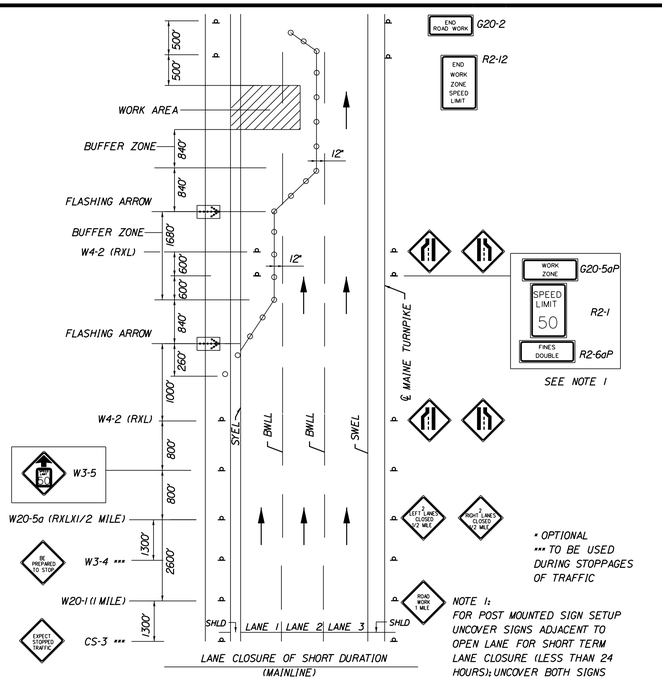
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINTENANCE OF TRAFFIC DETAILS (2 OF 3)

VHB: 55191.01 SHEET NUMBER: 64

CONTRACT: 2019.10 64 OF 141

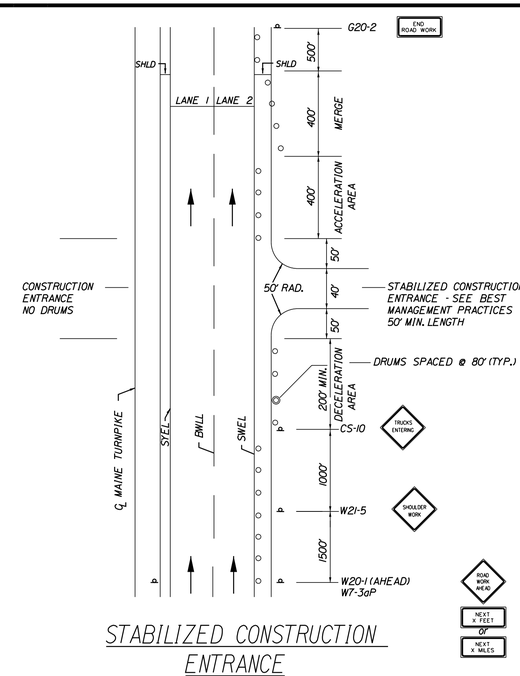
Date:3/26/2019



DOUBLE LANE CLOSURE

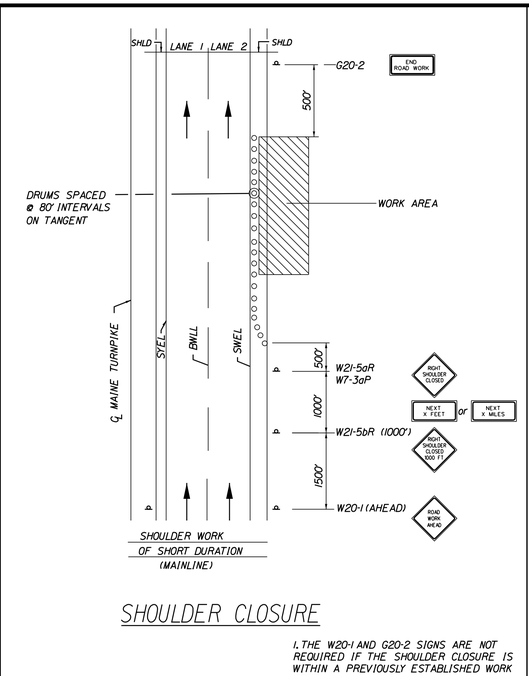
* OPTIONAL
*** TO BE USED DURING STOPPAGES OF TRAFFIC

NOTE 1:
FOR POST MOUNTED SIGN SETUP UNCOVER SIGNS ADJACENT TO OPEN LANE FOR SHORT TERM LANE CLOSURE (LESS THAN 24 HOURS); UNCOVER BOTH SIGNS FOR PERMANENT LANE CLOSURE (GREATER THAN 24 HOURS).



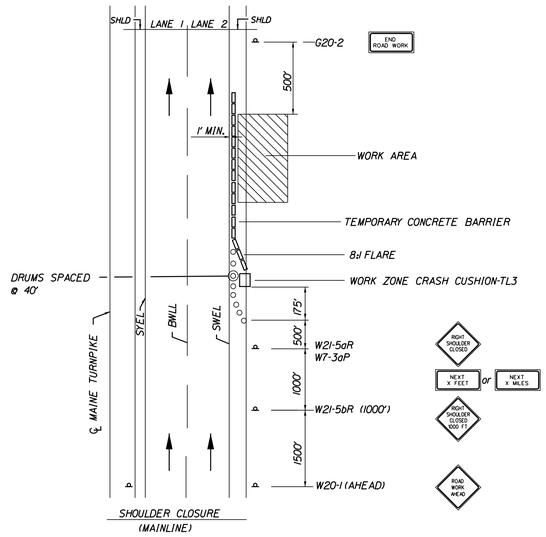
STABILIZED CONSTRUCTION ENTRANCE

1. SIGN G20-2 IS NOT REQUIRED IF ENTRANCE IS WITHIN THE WORK ZONE.



SHOULDER CLOSURE

1. THE W20-1 AND G20-2 SIGNS ARE NOT REQUIRED IF THE SHOULDER CLOSURE IS WITHIN A PREVIOUSLY ESTABLISHED WORK ZONE.

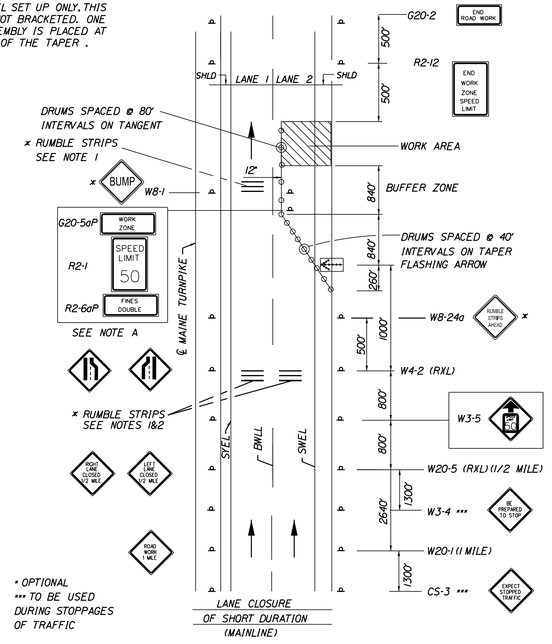


SHOULDER CLOSURE WITH CONCRETE BARRIER

1. THE W20-1 AND G20-2 SIGNS ARE NOT REQUIRED IF THE SHOULDER CLOSURE IS WITHIN A PREVIOUSLY ESTABLISHED WORK ZONE.

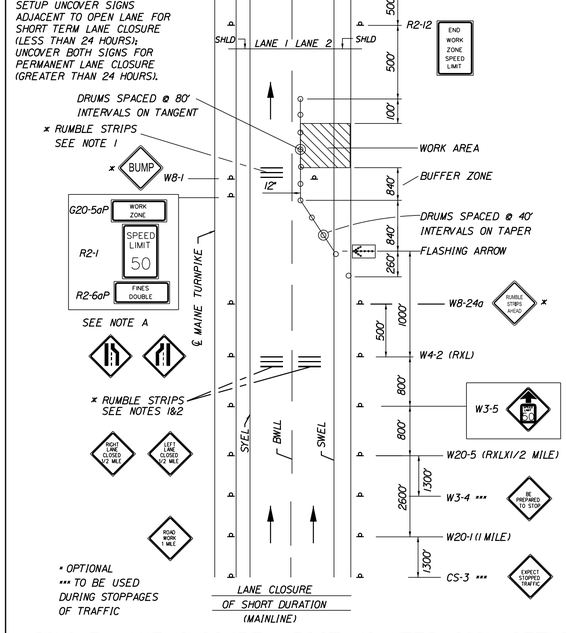
2. ONLY ONE SHOULDER CLOSURE PERMITTED PER BOUND AT ONE TIME.

NOTE A:
FOR EASEL SET UP ONLY. THIS SIGN IS NOT BRACKETED. ONE SIGN ASSEMBLY IS PLACED AT THE END OF THE TAPER .

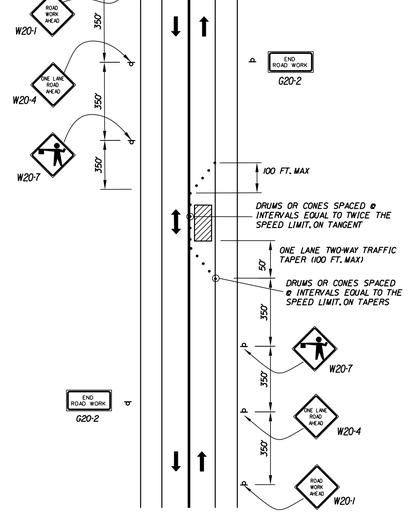


SINGLE LANE CLOSURE - SIGNS ON EASELS

NOTE A:
FOR POST MOUNTED SIGN SETUP UNCOVER SIGNS ADJACENT TO OPEN LANE FOR SHORT TERM LANE CLOSURE (LESS THAN 24 HOURS); UNCOVER BOTH SIGNS FOR PERMANENT LANE CLOSURE (GREATER THAN 24 HOURS).



SINGLE LANE CLOSURE - POST MOUNTED SIGN SETUP



LOCAL ROAD SINGLE LANE CLOSURE

NOTES:
1. ROAD WORK AHEAD & END ROAD WORK SIGNS MAY BE OMITTED FOR SHORT DURATION OPERATIONS (LESS THAN 1 HOUR).

2. FLAGGERS SHALL BE LOCATED SO THEY ARE CLEARLY VISIBLE TO APPROACHING DRIVERS.

3. SIGN SPACING ASSUMES LOCAL ROAD SPEED IS 40 MPH OR LESS.

GENERAL MAINTENANCE OF TRAFFIC NOTES:

1. ALL PAVEMENT STRIPING & SIGNING SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", U.S.D.O.T., F.H.W.A., LATEST EDITION.
2. THESE PLANS SHOW THE GENERAL CONDITION FOR TURNPIKE MAINLINE TRAFFIC CONTROL DURING CONSTRUCTION. SLIGHT MODIFICATIONS IN CONSTRUCTION PROCEDURE MAY OCCUR AND MAY REQUIRE SOME MINOR ADJUSTMENTS TO BE MADE IN THE FIELD. ALL PROCEDURES MUST BE APPROVED BY THE RESIDENT.
3. THE CONTRACTOR SHALL REMOVE ALL PAVEMENT MARKINGS THAT CONFLICT WITH PROPOSED PAVEMENT MARKINGS IN ACCORDANCE WITH THE SPECIFICATIONS AND MUTCD. PAYMENT SHALL BE MADE UNDER ITEM 627.77 - REMOVING PAVEMENT MARKINGS.
4. EXPOSED BARRIER ENDS ON THE MAINE TURNPIKE SHALL BE PROTECTED BY A WORK ZONE CRASH CUSHION. PAYMENT WILL BE UNDER ITEM 527.341 - WORK ZONE CRASH CUSHION - TL-3.
5. SPEED LIMIT, STOP, YIELD AND EXIT SIGNS SHALL BE A MINIMUM OF 5' ABOVE THE PAVEMENT.
6. WORK ZONE SPEED LIMIT ASSEMBLY MAY BE REPLACED WITH AN AUTOMATED WORK ZONE SPEED LIMIT SIGN (ITEM 652.451)

ABBREVIATIONS FOR ALL M.O.T. PLANS

BWLL = BROKEN WHITE LANE LINE
SWEL = SOLID WHITE LANE LINE
SYEL = SOLID YELLOW LANE LINE
TBWLL = TEMPORARY BROKEN WHITE LANE LINE
TDWEL = TEMPORARY DOTTED WHITE EDGE LINE
TSWEL = TEMPORARY SOLID WHITE EDGE LINE
TSWLL = TEMPORARY SOLID WHITE LANE LINE
TSYCL = TEMPORARY SOLID YELLOW CENTER LINE

TEMPORARY RUMBLE STRIP NOTES

1. IF RUMBLE STRIPS ARE USED THEY SHALL BE PLACED IN ONE OF THE FOLLOWING CONFIGURATIONS:
   - ADJACENT TO THE WORK ZONE (1 UNIT)
   - UPSTREAM FROM THE TAPER FOR THE WORKZONE (2 UNITS)
   - BOTH ADJACENT TO THE WORKZONE AND PRIOR TO THE TAPER (3 UNITS)

   W8-1 SIGNS SHALL BE PLACED ADJACENT TO THE FIRST RUMBLE STRIP AT ANY LOCATION. ONLY ONE SET OF W8-24a SIGNS ARE REQUIRED FOR ANY OF THE ABOVE CONFIGURATIONS.
2. RUMBLE STRIPS MAY BE PLACED UPSTREAM OF THE TAPER BETWEEN THE W3-5 SIGNS AND THE W4-2 SIGNS. IF RUMBLE STRIPS ARE INSTALLED PRIOR TO TAPER, W8-1 SIGNS SHALL BE PLACED ADJACENT TO THE FIRST STRIP AND THE W8-24a SIGNS SHALL BE MOVED TO 400' AFTER THE W20-5 SIGNS.

Filename: ...\MSTA\065_workzone_03.dgn

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by:

vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

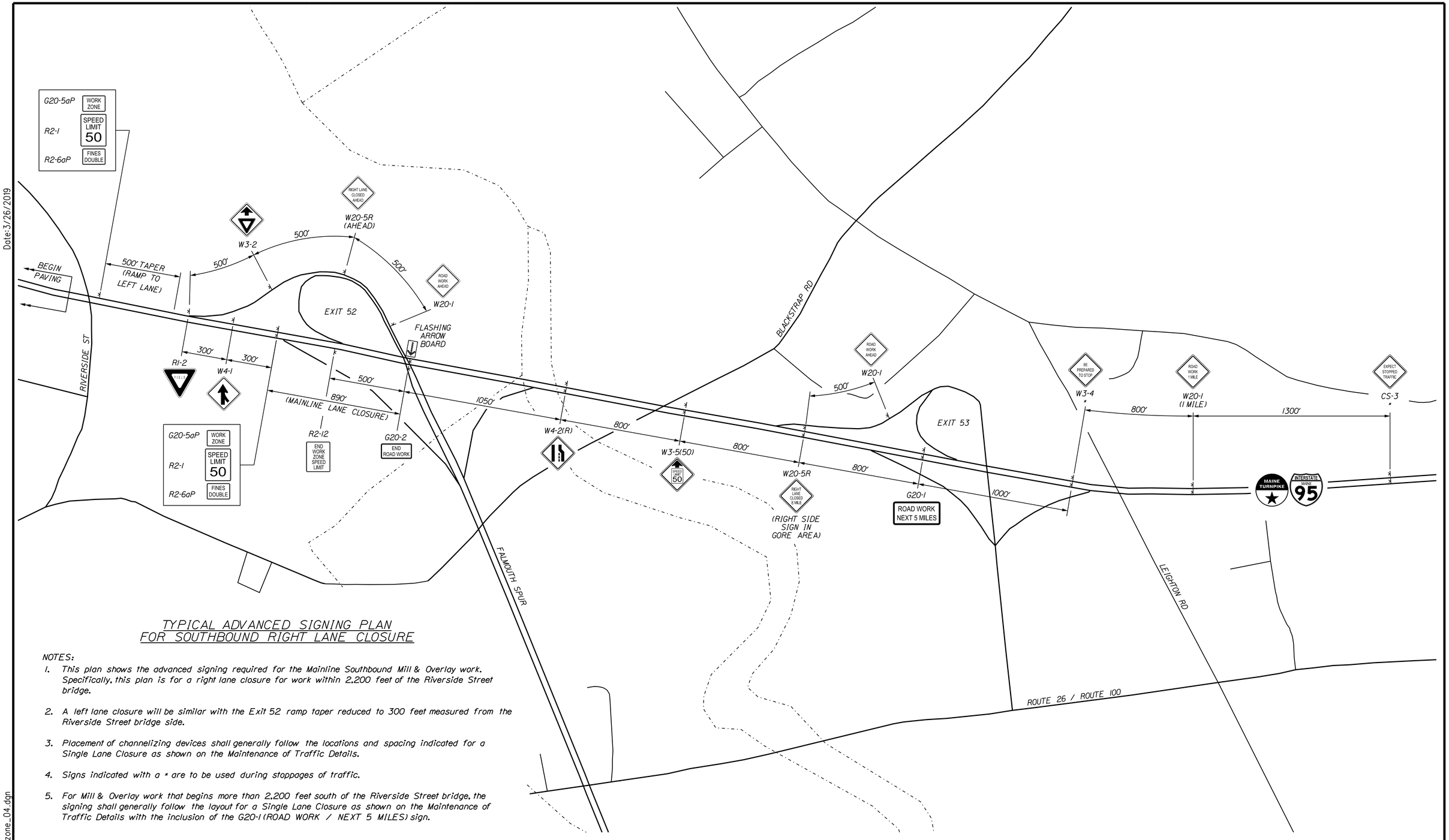
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINTENANCE OF TRAFFIC DETAILS (3 OF 3)

VHB: 55191.01
SHEET NUMBER: 65
CONTRACT: 2019.10
65 OF 141

Date:3/26/2019



TYPICAL ADVANCED SIGNING PLAN FOR SOUTHBOUND RIGHT LANE CLOSURE

NOTES:

1. *This plan shows the advanced signing required for the Mainline Southbound Mill & Overlay work. Specifically, this plan is for a right lane closure for work within 2,200 feet of the Riverside Street bridge.*
2. *A left lane closure will be similar with the Exit 52 ramp taper reduced to 300 feet measured from the Riverside Street bridge side.*
3. *Placement of channelizing devices shall generally follow the locations and spacing indicated for a Single Lane Closure as shown on the Maintenance of Traffic Details.*
4. *Signs indicated with a * are to be used during stoppages of traffic.*
5. *For Mill & Overlay work that begins more than 2,200 feet south of the Riverside Street bridge, the signing shall generally follow the layout for a Single Lane Closure as shown on the Maintenance of Traffic Details with the inclusion of the G20-1 (ROAD WORK / NEXT 5 MILES) sign.*

Scale: 300 0 300 600
1" = 300' - 0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

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Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

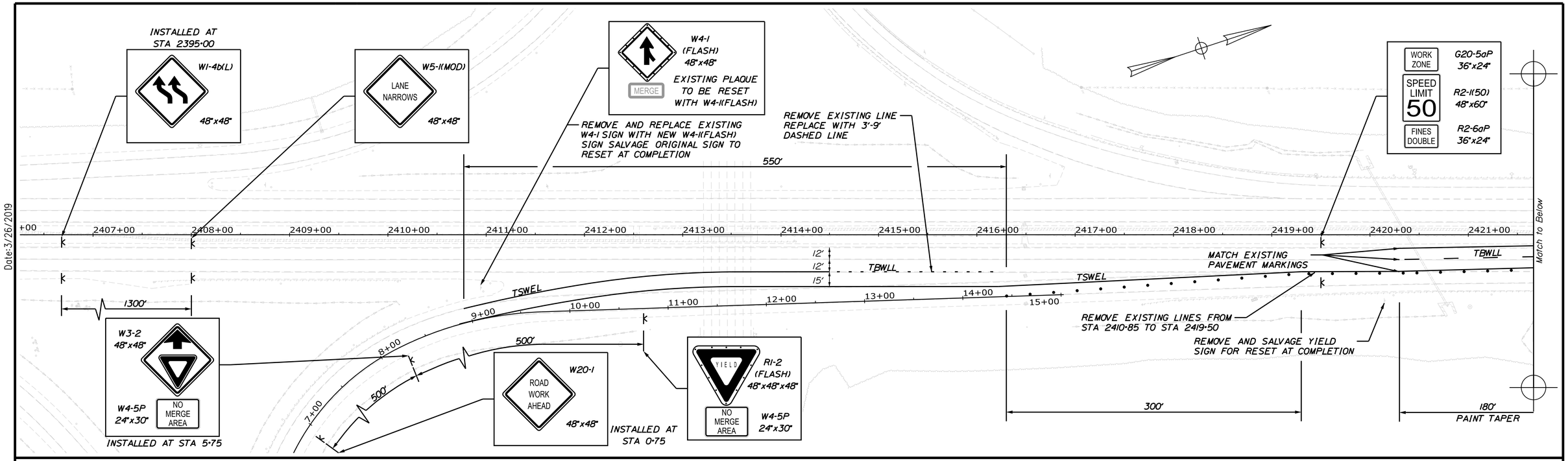
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MILL & OVERLAY ADVANCED SIGNING PLAN

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 66
66 OF 141

Filename: ...\MSTA\066_workzone_04.dgn



Date:3/26/2019

Filename: ...\MSTA\067_MainLineTCP_01.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

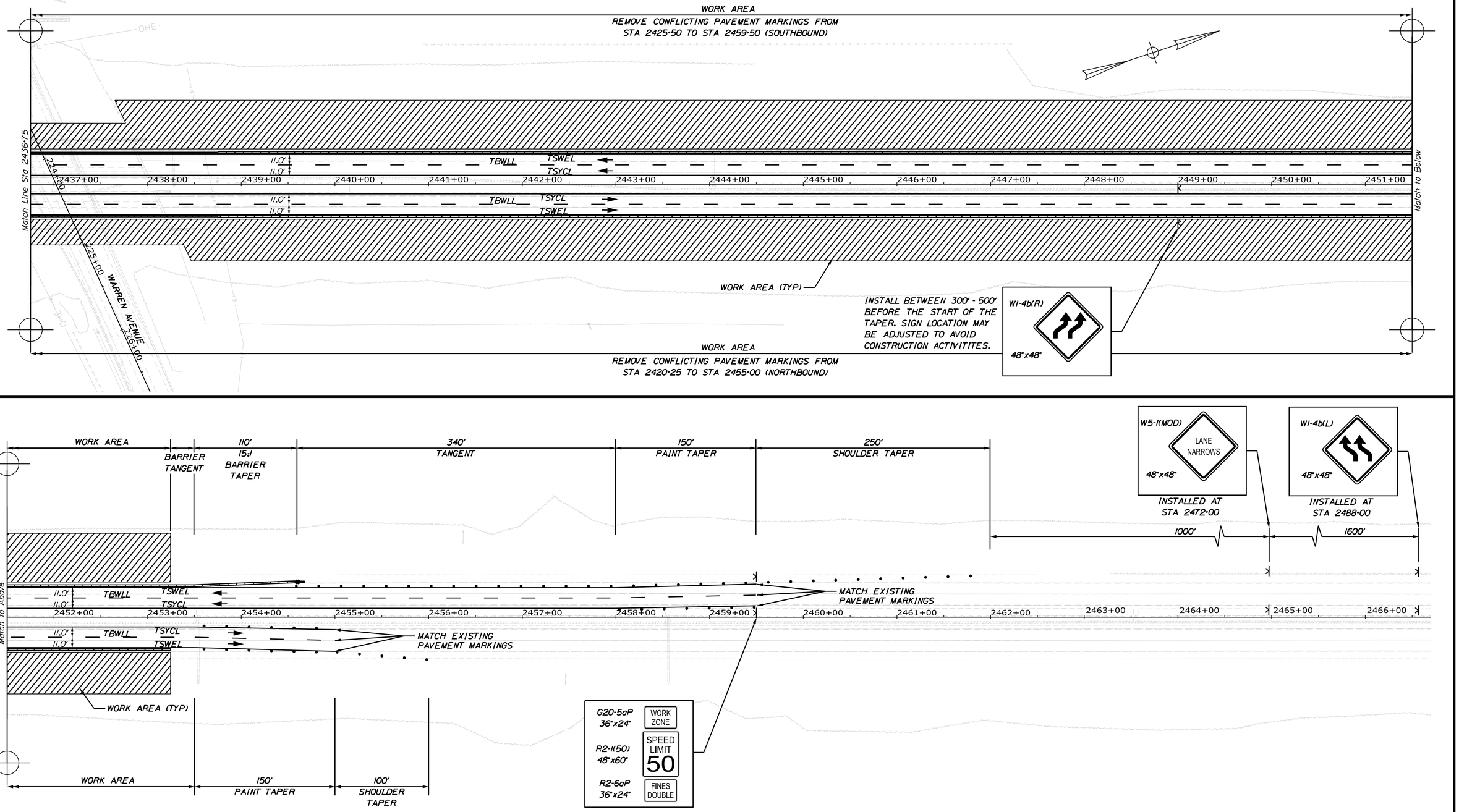
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE TRAFFIC CONTROL PLAN PHASE 1A (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 67

CONTRACT: 2019.10 67 OF 141



Date:3/26/2019

Filename: ...\MSTA\068_MainLineTCP_02.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

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	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

VANASSE HANGEN BRUSTLIN, INC.
500 Southborough Dr.
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FAX (207) 253-5596

MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE TRAFFIC CONTROL PLAN PHASE 1A (2 OF 2)

VHB: 55191.01 SHEET NUMBER: 68

CONTRACT: 2019.10 68 OF 141

Date:3/26/2019

Filename: ...\MSTA\069_MainLineTCP_03.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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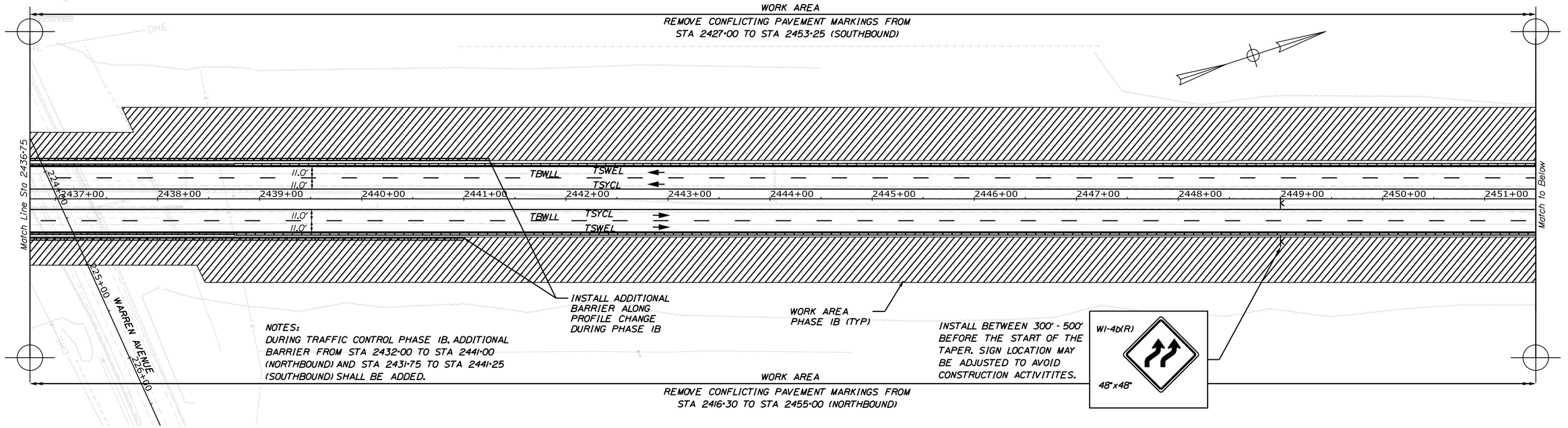
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT
MAINLINE
TRAFFIC CONTROL PLAN PHASE 1B (1 OF 2)

VHB: 55191.01
CONTRACT: 2019.10



NOTE:
IF MILL & OVERLAY IS COMPLETED BEFORE THE SHIFT TO TCP PHASE 2, CONTRACTOR SHALL INSTALL W20-1, W3-5, AND G20-1 FROM TCP PHASE 2

Date:3/26/2019

Filename: ...\MSTA\070_MainLineTCP_04.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE TRAFFIC CONTROL PLAN PHASE 1B (2 OF 2)

VHB: 55191.01 SHEET NUMBER: 70
CONTRACT: 2019.10 70 OF 141

Date:3/26/2019

INSTALLED AT STA 2395+00

W1-4b(R) 48"x48"

W5-1(MOD) LANE NARROWS 48"x48"

MERGE MAINTAIN FROM IB

REMOVE EXISTING LINE REPLACE WITH 3'-9" DASHED LINE

MATCH EXISTING PAVEMENT MARKINGS

WORK ZONE G20-5aP 36"x24"

SPEED LIMIT 50 R2-1(50) 48"x60"

FINES DOUBLE R2-6aP 36"x24"

550'

TBWLL

+00 2407+00 2408+00 2409+00 2410+00 2411+00 2412+00 2413+00 2414+00 2415+00 2416+00 2417+00 2418+00 2419+00 2420+00 2421+00

12' 12' 15'

TSWEL

1300'

MATCH EXISTING PAVEMENT MARKINGS

9+00 10+00 11+00 12+00 13+00 14+00 15+00

8+00 7+00

W20-1 ROAD WORK AHEAD 48"x48"

INSTALLED AT STA 0+75

YIELD RI-2 (FLASH) 48"x48"x48"

MAINTAIN FROM IB

MATCH EXISTING PAVEMENT MARKINGS

Match to Below

840' SHIFTING TAPER
REMOVE CONFLICTING PAVEMENT MARKINGS BETWEEN STA 2423+25 AND STA 2431+00

INSTALL BETWEEN 300' - 500' BEFORE THE START OF THE TAPER. SIGN LOCATION MAY BE ADJUSTED TO AVOID CONSTRUCTION ACTIVITIES.

W1-4b(L) 48"x48"

222+00 WARREN AVENUE 223+00

BARRIER INSTALLED UNDER PHASE IB RETAINED

MATCH EXISTING PAVEMENT MARKINGS

MATCH EXISTING PAVEMENT MARKINGS

Match to Above

TBWLL TSYCL TSWEL

2422+00 2423+00 2424+00 2425+00 2426+00 2427+00 2428+00 2429+00 2430+00 2431+00 2432+00 2433+00 2434+00 2435+00 2436+00

11.0' 11.0' 12.8'

WORK AREA (TYP)

BARRIER INSTALLED UNDER PHASE IB RETAINED

Match Line Sta 2436+75

100' SHOULDER TAPER

300' 15:1 BARRIER TAPER

900' SHIFTING TAPER
REMOVE CONFLICTING PAVEMENT MARKINGS BETWEEN STA 2419+00 AND STA 2431+00

Filename: ...\MSTA\071_MainLineTCP_05.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

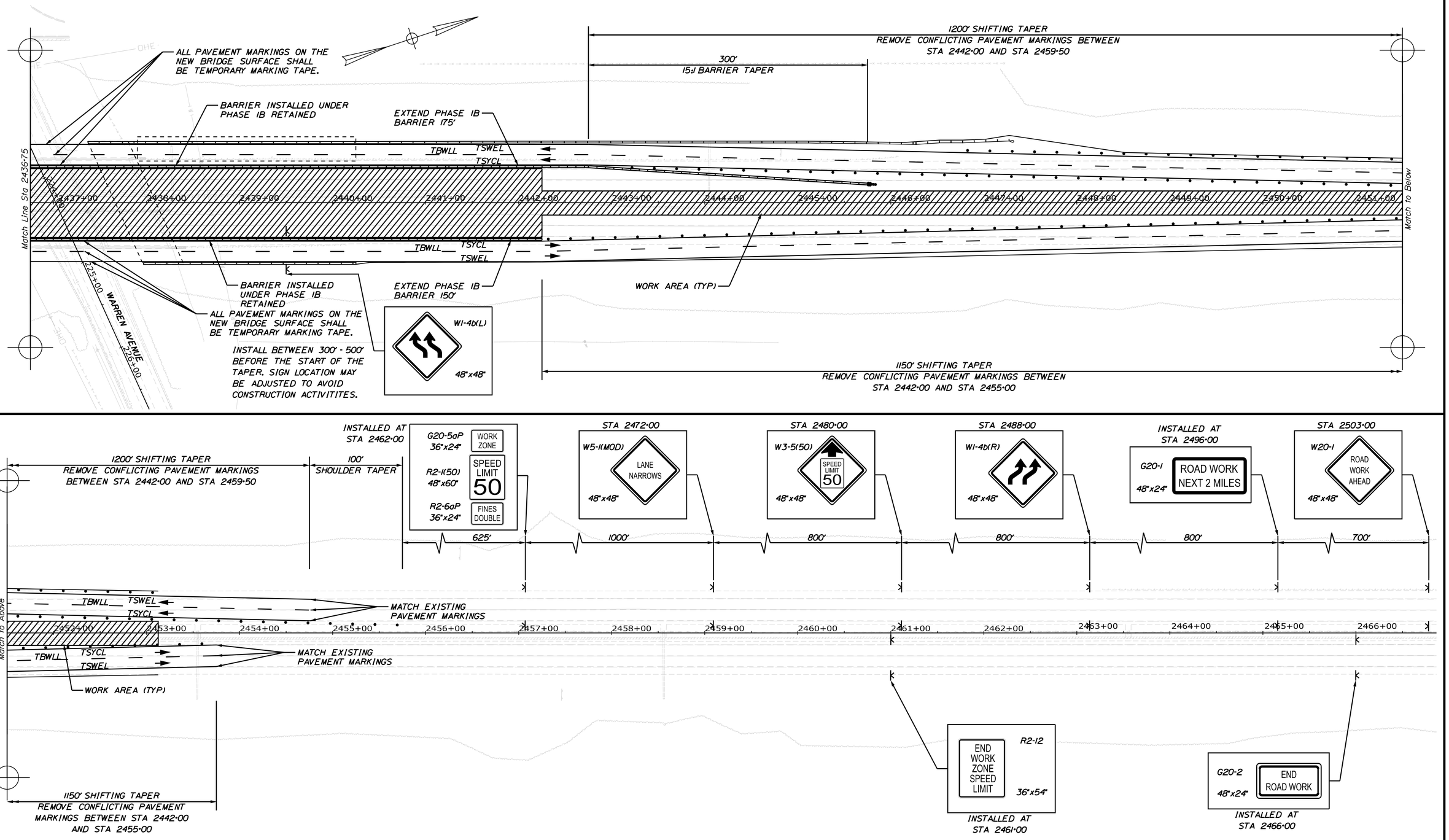
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE TRAFFIC CONTROL PLAN PHASE 2 (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 71

CONTRACT: 2019.10 71OF 141



Date:3/26/2019

Filename: ...\MSTA\072_MainLineTCP_06.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE TRAFFIC CONTROL PLAN PHASE 2 (2 OF 2)

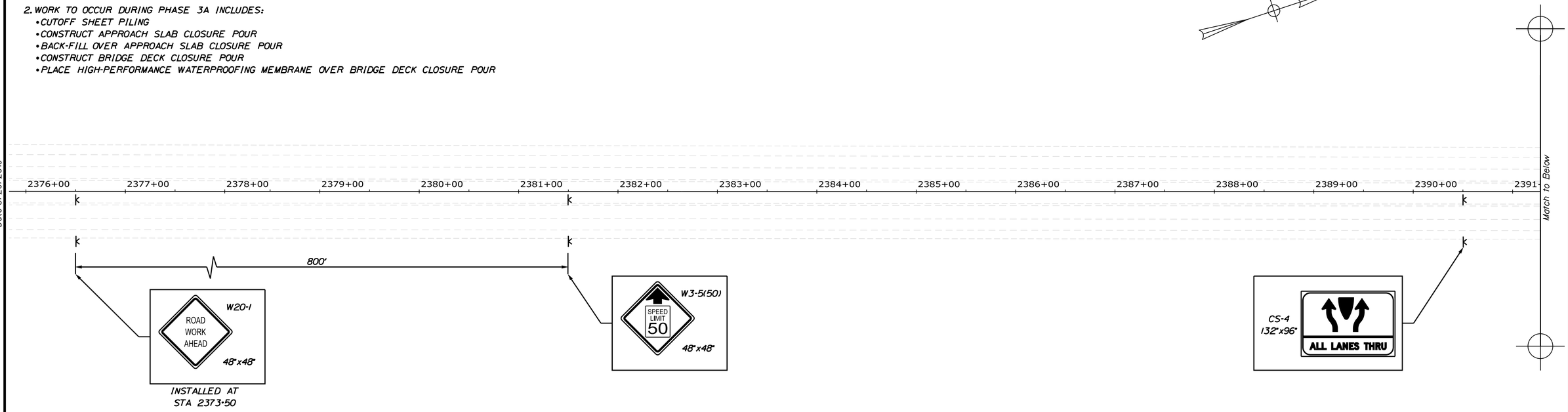
VHB: 55191.01 SHEET NUMBER: 72

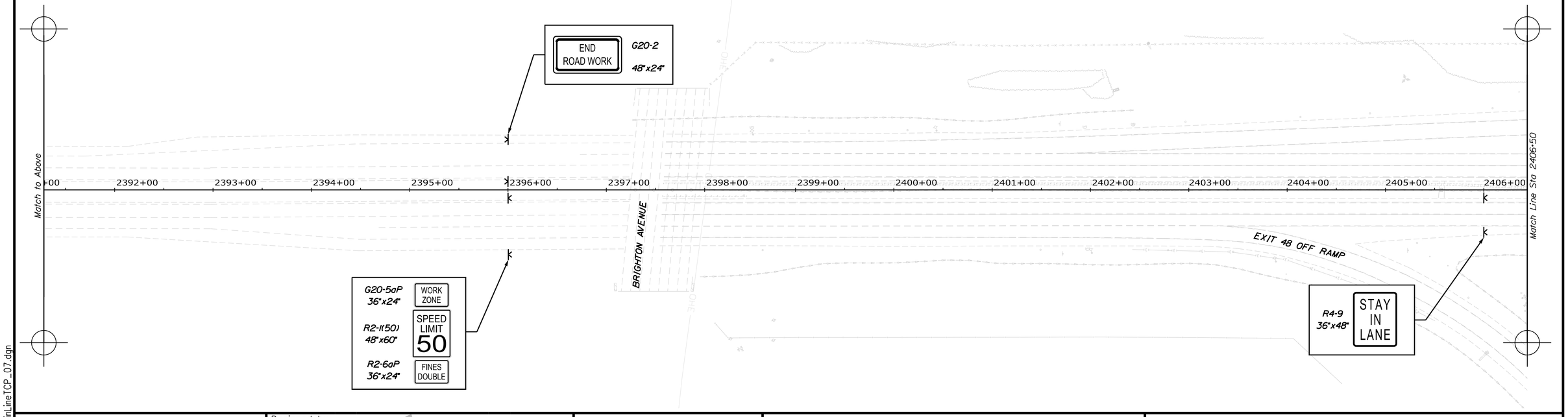
CONTRACT: 2019.10 72 OF 141

NOTE:

1. PHASE 3A IS THE DEFAULT CONDITION DURING PHASE 3.

2. WORK TO OCCUR DURING PHASE 3A INCLUDES:
   - CUTOFF SHEET PILING
   - CONSTRUCT APPROACH SLAB CLOSURE POUR
   - BACK-FILL OVER APPROACH SLAB CLOSURE POUR
   - CONSTRUCT BRIDGE DECK CLOSURE POUR
   - PLACE HIGH-PERFORMANCE WATERPROOFING MEMBRANE OVER BRIDGE DECK CLOSURE POUR





Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

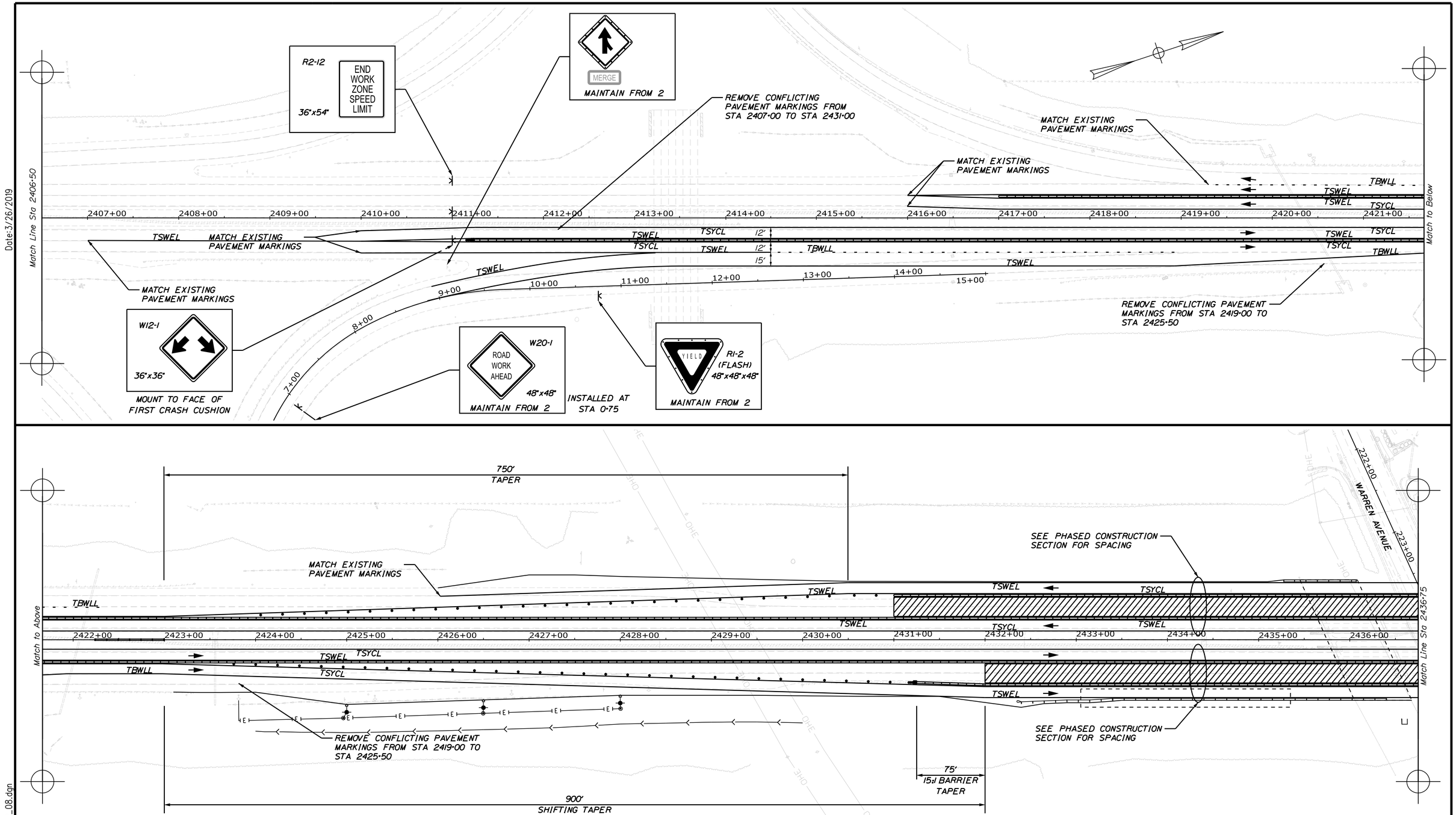
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE TRAFFIC CONTROL PLAN PHASE 3A (1 OF 4)

VHB: 55191.01 SHEET NUMBER: 73
CONTRACT: 2019.10 73 OF 141

Date:3/26/2019

Filename: ...\MSTA\073_MainLineTCP_07.dgn



Date:3/26/2019

Filename: ...\MSTA\074_MainLineTCP_08.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

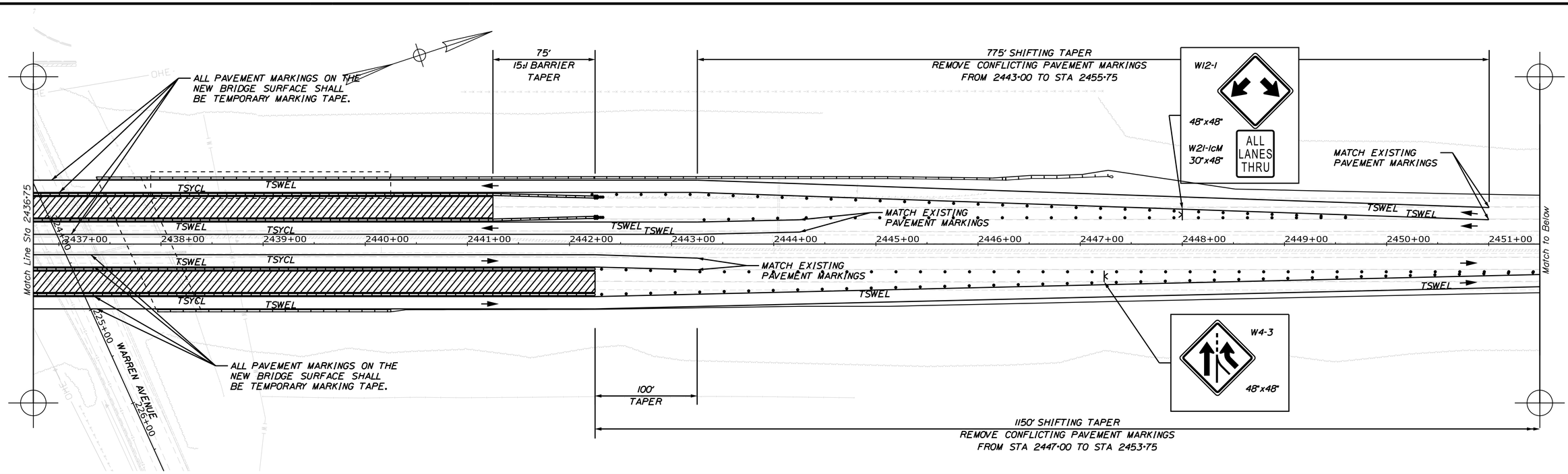
THE GOLD STAR MEMORIAL HIGHWAY

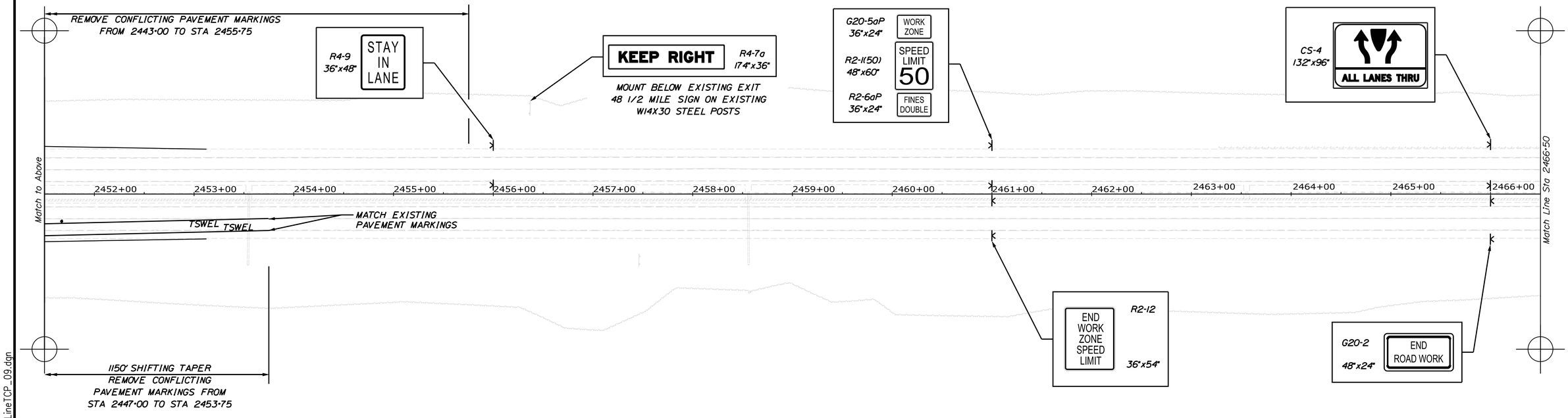
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE
TRAFFIC CONTROL PLAN PHASE 3A (2 OF 4)

VHB: 55191.01 SHEET NUMBER: 74

CONTRACT: 2019.10 74 OF 141





Date:3/26/2019

Filename: ...\MSTA\075_MainLineTCP_09.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

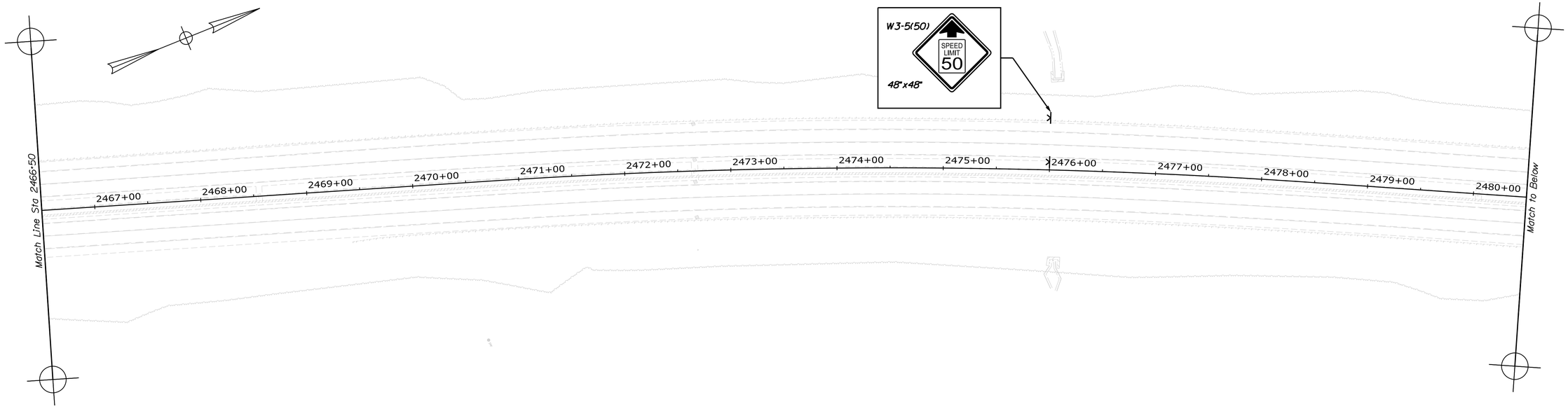
THE GOLD STAR MEMORIAL HIGHWAY

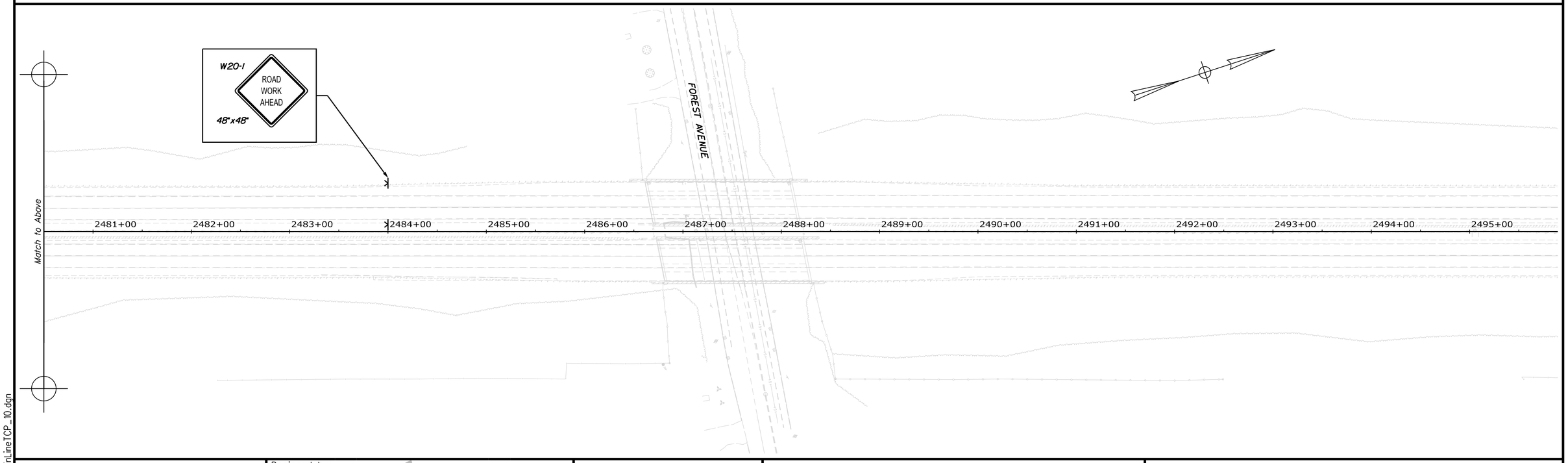
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE
TRAFFIC CONTROL PLAN PHASE 3A (3 OF 4)

VHB: 55191.01 SHEET NUMBER: 75
CONTRACT: 2019.10 75 OF 141

Date:3/26/2019





Filename: ...\MSTA\076_MainLineTCP_10.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

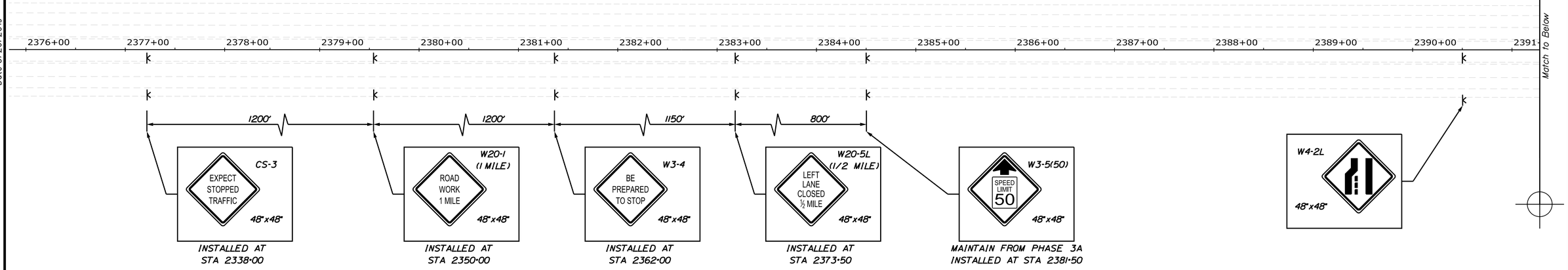
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE
TRAFFIC CONTROL PLAN PHASE 3A (4 OF 4)

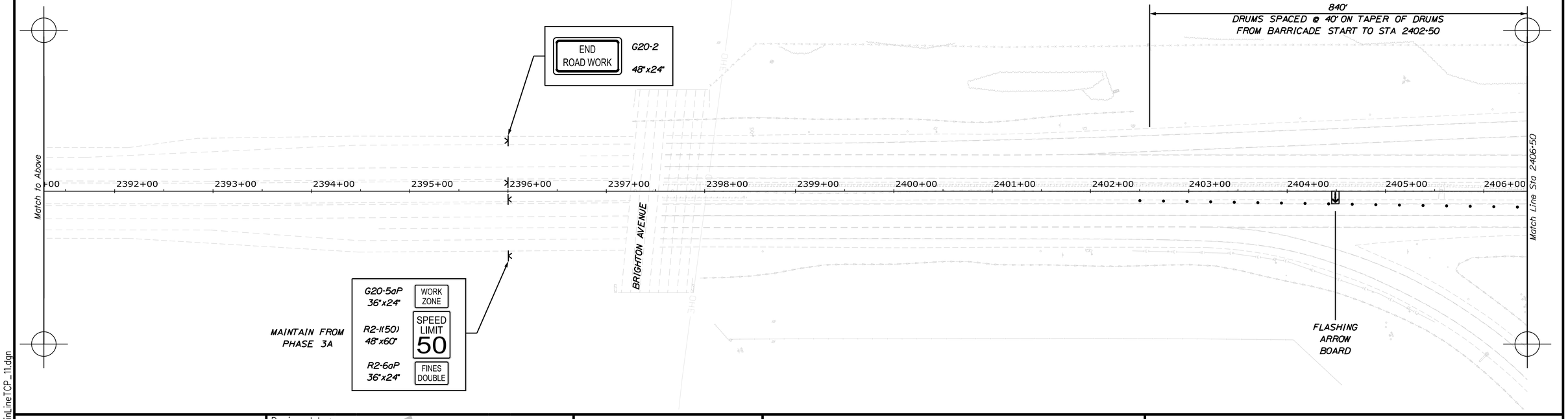
VHB: 55191.01 SHEET NUMBER: 76
CONTRACT: 2019.10 76 OF 141

NOTE:

1. PHASE 3B HAS ONE OPEN LANE OF TRAVEL THAT MATCHES THE RIGHT LANE IN PHASE 3A.
2. PHASE 3B SHALL ONLY OCCUR AT NIGHT. SEE SPECIAL PROVISIONS FOR MORE DETAILS.
3. THE NORTH END OF THE NORTHBOUND APPROACH SHALL BE COMPLETED BEFORE THE SOUTH END OF THE NORTHBOUND BARREL TO ALLOW FOR THE REMOVAL OF BARRIER WITHOUT REPLACEMENT.
4. THE SOUTH END OF THE SOUTHBOUND APPROACH SHALL BE COMPLETED BEFORE THE NORTH END OF THE SOUTHBOUND BARREL TO ALLOW FOR THE REMOVAL OF BARRIER WITHOUT REPLACMENT.
5. PHASE 3B SHALL OCCUR OVER ONE CONSECUTIVE WEEK.
6. WORK TO OCCUR DURING PHASE 3B INCLUDES:
   - ESTABLISH TEMPORARY TRAFFIC CONTROL FOR PHASE 3B
   - SAWCUT AND REMOVE PAVEMENT TO THE CROWN LINE
   - PAVE FROM CROWN LINE TO PHASE 2 PAVING LIMITS
   - RETURN TO TEMPORARY TRAFFIC CONTROL FOR PHASE 3A

Date:3/26/2019





Filename: ...\MSTA\077_MainLineTCP_11.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE TRAFFIC CONTROL PLAN PHASE 3B (1 OF 4)

VHB: 55191.01 SHEET NUMBER: 77

CONTRACT: 2019.10 77 OF 141

840'
DRUMS SPACED @ 40' ON TAPER OF DRUMS
FROM BARRICADE START TO STA 2402+50

R2-12
END WORK ZONE SPEED LIMIT
36"x54"

MERGE
MAINTAIN FROM 3A

REMOVE CONFLICTING PAVEMENT MARKINGS FROM STA 2407+00 TO STA 2431+00

INSTALL TYPE 3 BARRICADE DURING CONSTRUCTION

MATCH EXISTING PAVEMENT MARKINGS

MATCH EXISTING PAVEMENT MARKINGS

MATCH EXISTING PAVEMENT MARKINGS

Match Line Sta 2406+50

Match to Below

2407+00 2408+00 2409+00 2410+00 2411+00 2412+00 2413+00 2414+00 2415+00 2416+00 2417+00 2418+00 2419+00 2420+00 2421+00

TSYCL TSWEL 12' 15' TBWLL

TSWEL

7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00

W20-1
ROAD WORK AHEAD
48"x48"
MAINTAIN FROM 3A

INSTALLED AT STA 0+75

RI-2 (FLASH)
48"x48"x48"
MAINTAIN FROM 3A

750'
TAPER

MATCH EXISTING PAVEMENT MARKINGS

TBWLL

TSYCL TSWEL

Match to Above

2422+00 2423+00 2424+00 2425+00 2426+00 2427+00 2428+00 2429+00 2430+00 2431+00 2432+00 2433+00 2434+00 2435+00 2436+00

TBWLL TSYCL TSWEL

WARREN AVENUE

222+00 223+00

Match Line Sta 2436+75

900'
TAPER

Date:3/26/2019

Filename: ...\MSTA\078_MainLineTCP_12.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

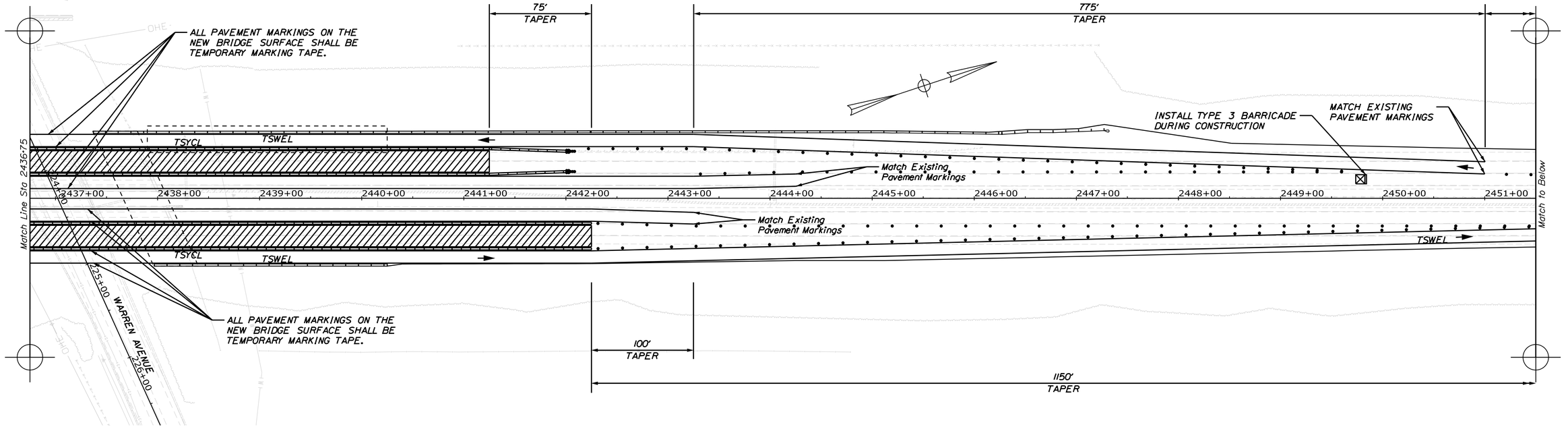
THE GOLD STAR MEMORIAL HIGHWAY

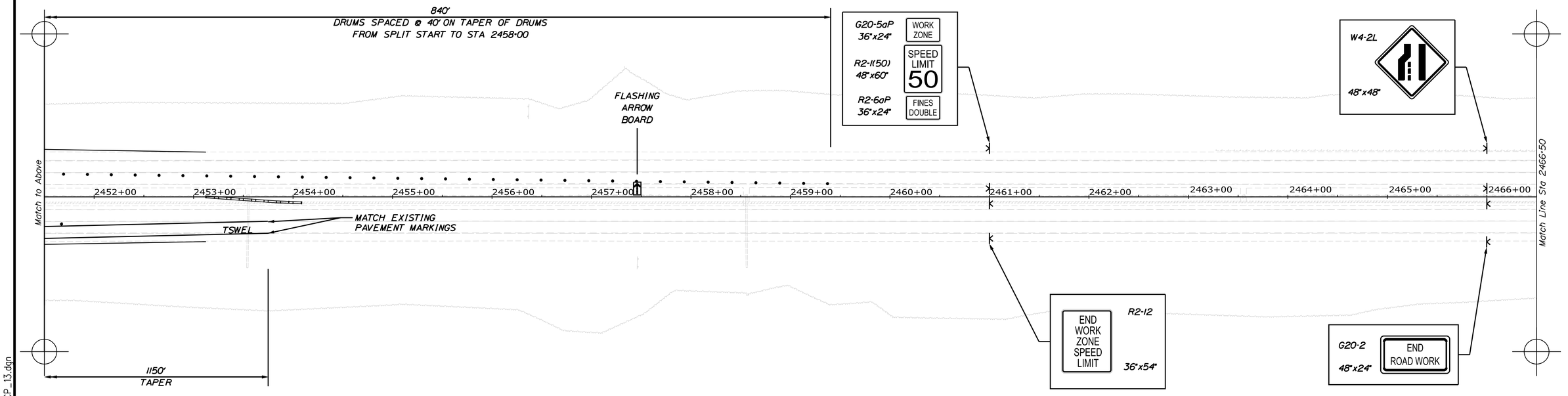
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE
TRAFFIC CONTROL PLAN PHASE 3B (2 OF 4)

VHB: 55191.01 SHEET NUMBER: 78
CONTRACT: 2019.10 78 OF 141

Date:3/26/2019





Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

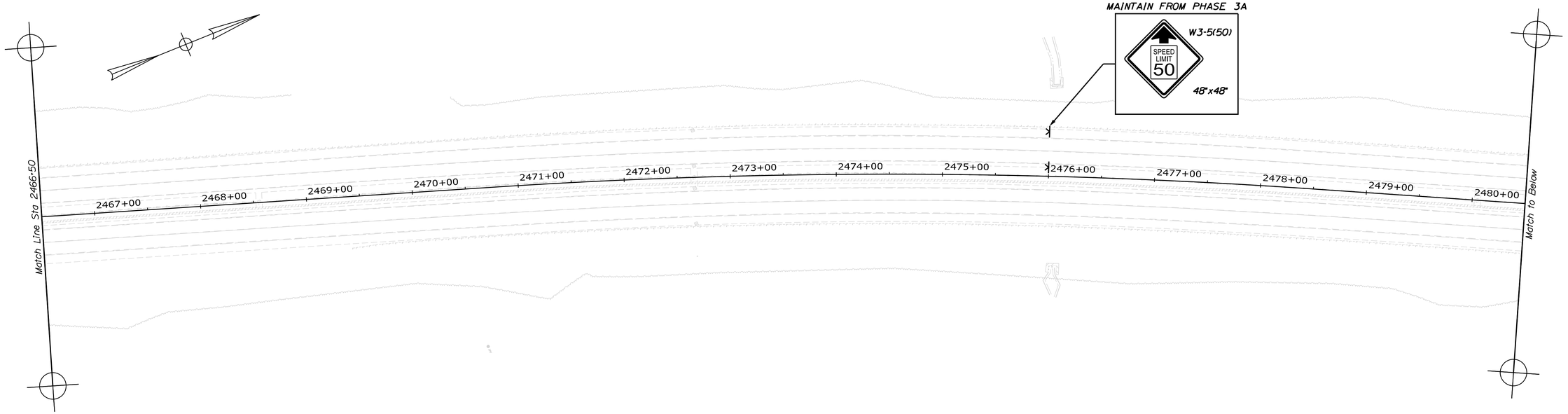
MTA PROJECT MANAGER: Ralph Norwood, IV

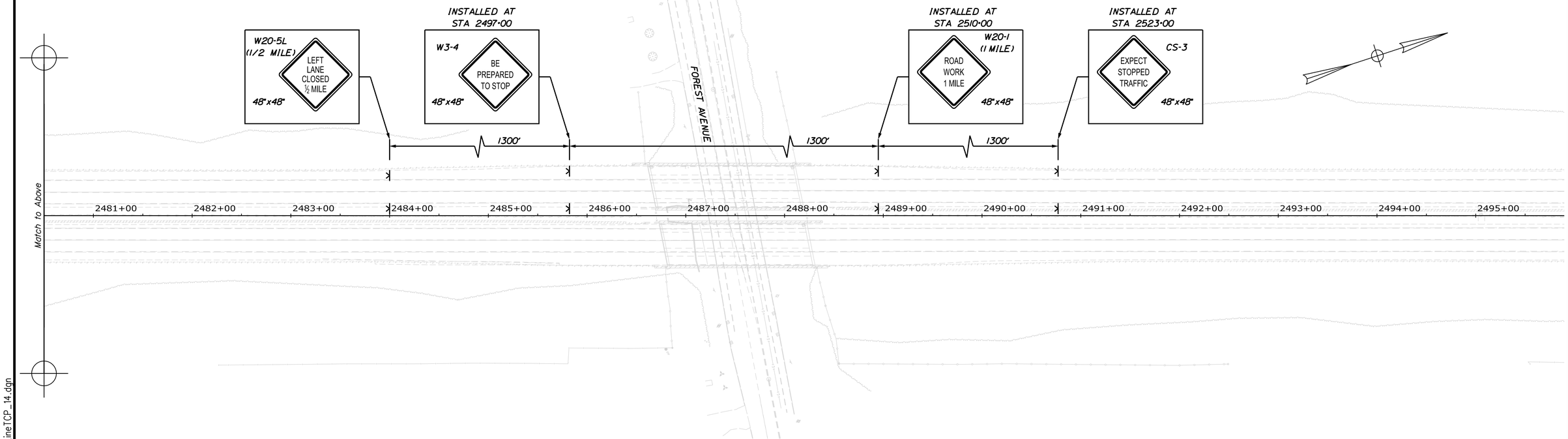
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE
TRAFFIC CONTROL PLAN PHASE 3B (3 OF 4)

VHB: 55191.01 SHEET NUMBER: 79
CONTRACT: 2019.10 79 OF 141

Filename: ...\MSTA\079_MainLineTCP_13.dgn

Date:3/26/2019





Filename: ...\MSTA\080_MainLineTCP_14.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

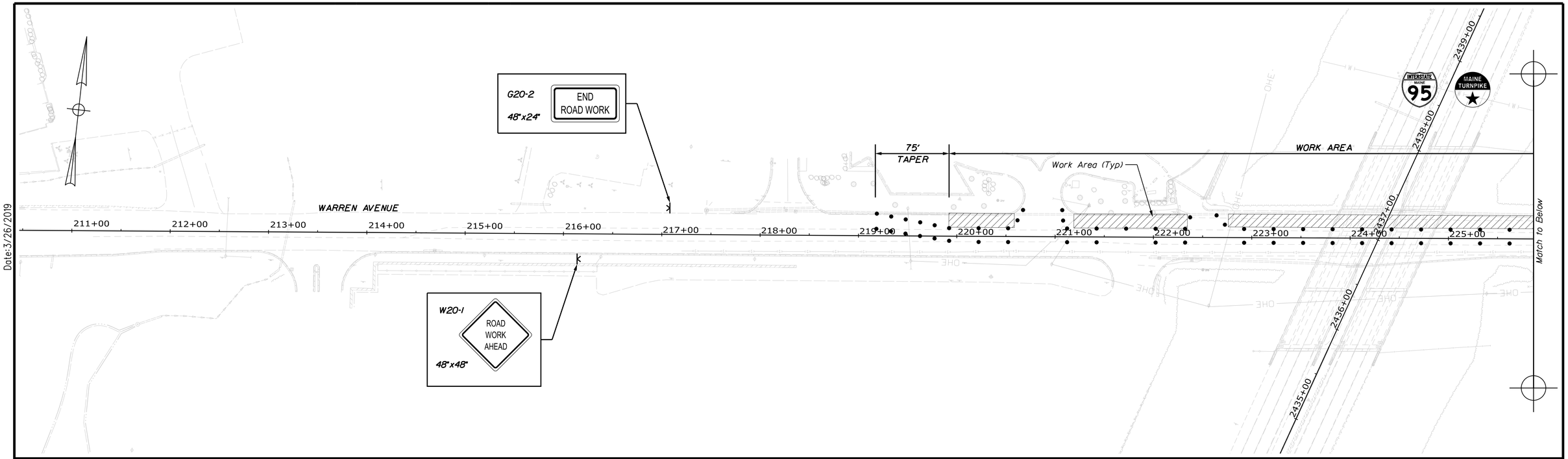
THE GOLD STAR MEMORIAL HIGHWAY

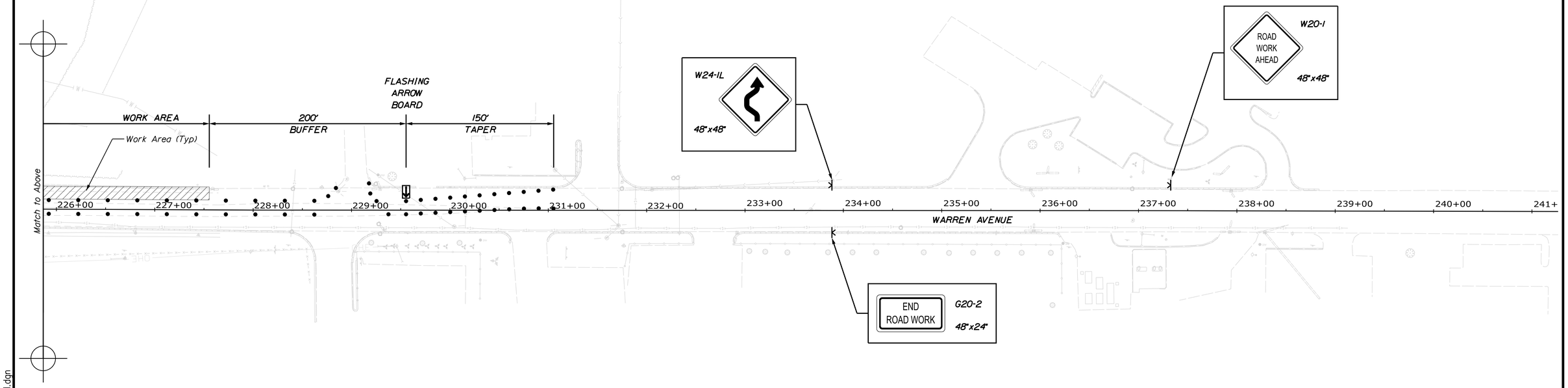
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT MAINLINE
TRAFFIC CONTROL PLAN PHASE 3B (4 OF 4)

VHB: 55191.01 SHEET NUMBER: 80
CONTRACT: 2019.10 80 OF 141

Date:3/26/2019





Filename: ...\WSTA\081_WarrenTCP_01.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

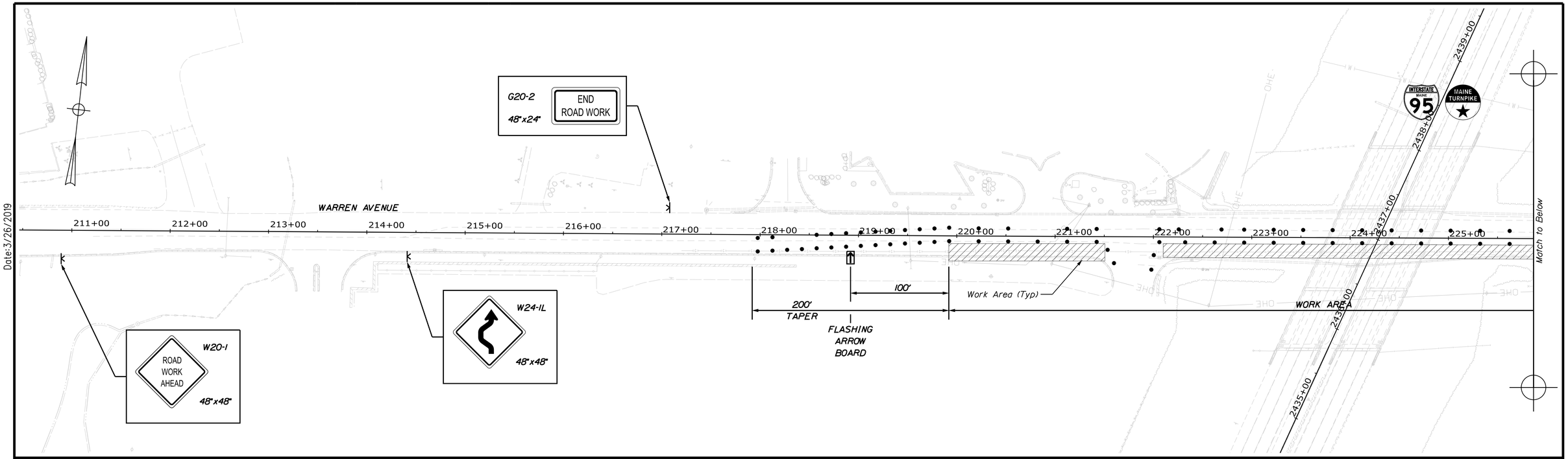
MTA PROJECT MANAGER: Ralph Norwood, IV

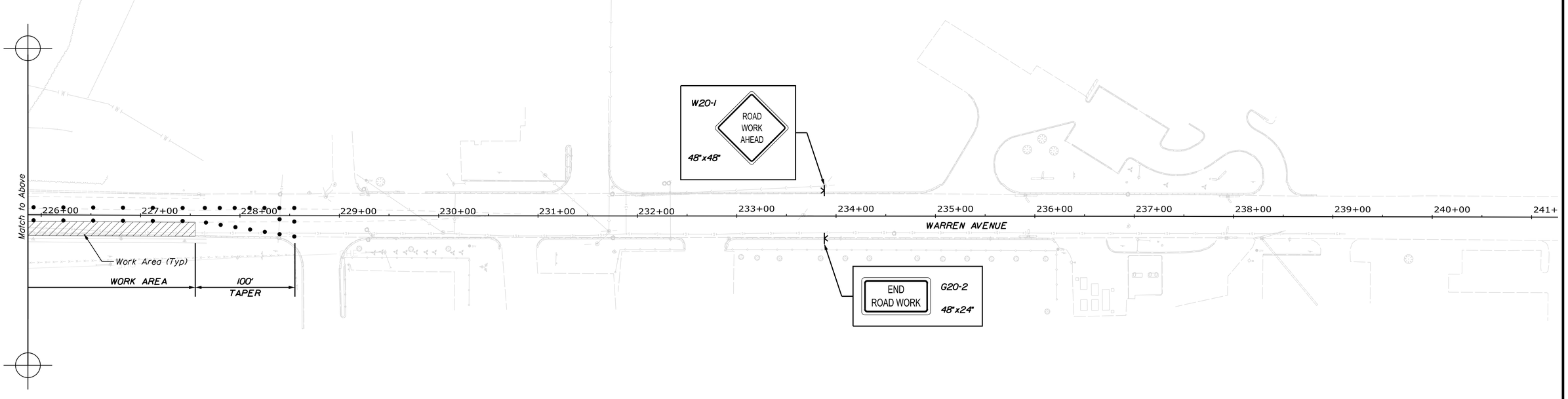
THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT
WARREN AVENUE
TRAFFIC CONTROL PLAN PHASE 1

VHB: 55191.01
CONTRACT: 2019.10

Date:3/26/2019





Filename: ...\MSTA\082_WarrenTCP_02.dgn

Scale: 50 0 50 100
1" = 50'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WARREN AVENUE TRAFFIC CONTROL PLAN PHASE 2

VHB: 55191.01 SHEET NUMBER: 82

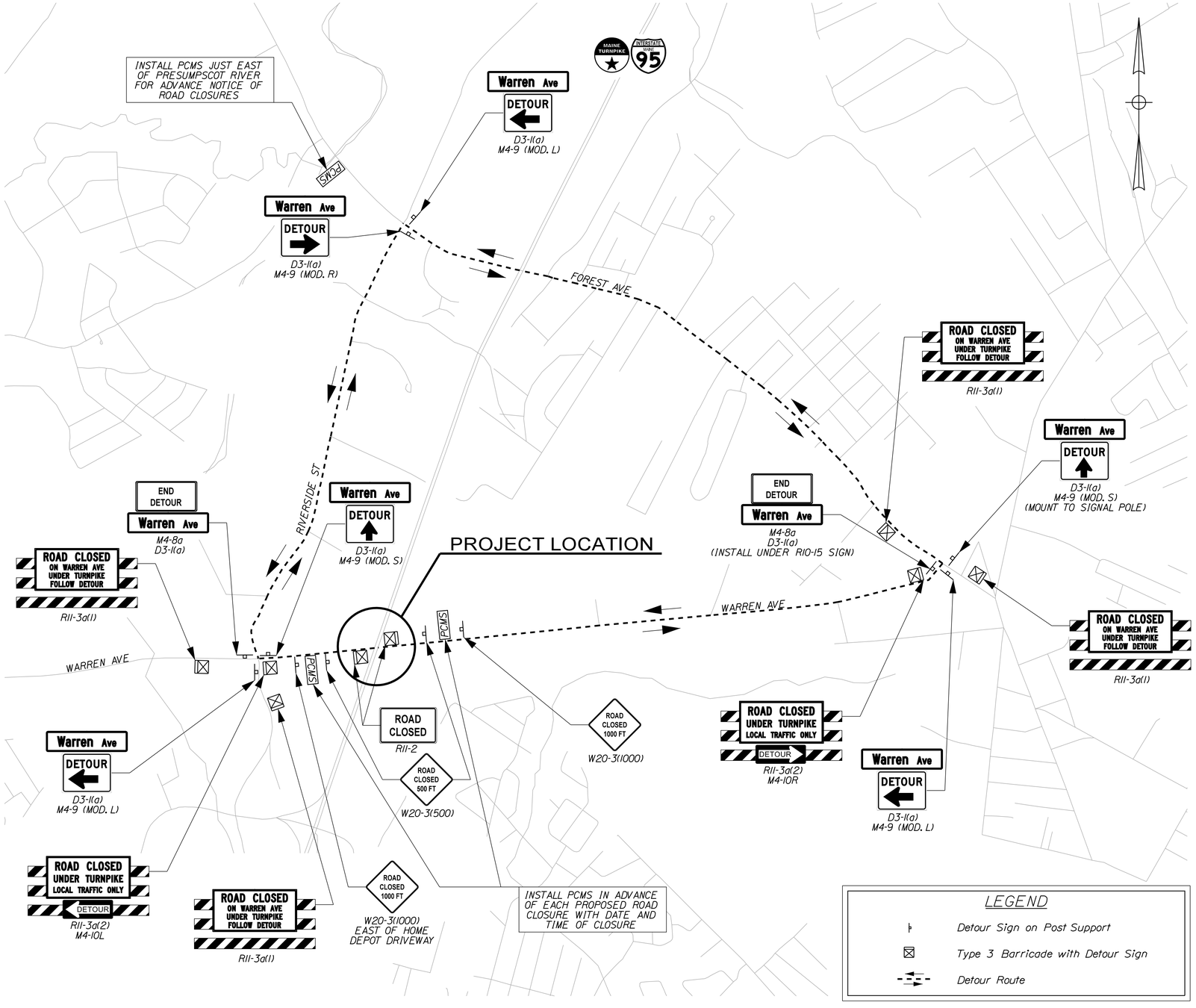
CONTRACT: 2019.10

DETOUR FOR WARREN AVE BRIDGE CLOSURE

DETOUR SIGN SUMMARY

Sign	Text Dimensions (Inches) Letter Height	Text Dimensions (Inches) Vertical Spacing	Size	Quantity and Color
M4-8a END DETOUR	SHSB		24"x18"	2 - Black on Orange
M4-9 (MOD. L) DETOUR			30"x24"	3 - Black on Orange
M4-9 (MOD. R) DETOUR			30"x24"	1 - Black on Orange
M4-9 (MOD. S) DETOUR			30"x24"	2 - Black on Orange
M4-10L DETOUR			48"x18"	1 - Black on Orange
M4-10R DETOUR			48"x18"	1 - Black on Orange
W20-3 (1000) ROAD CLOSED 1000 FT			36"x36"	2 - Black on Orange
W20-3 (500) ROAD CLOSED 500 FT			36"x36"	2 - Black on Orange
D3-1(a) Warren Ave	6/4.5"	3" 3"	48"x12"	8 - Black on Orange
R11-2 ROAD CLOSED	SHSB		48"x30"	2 - Black on White
R11-3a(1) ROAD CLOSED ON WARREN AVE UNDER TURNPIKE FOLLOW DETOUR	6" 4" 4" 4"	3" 2.5" 2" 2" 2.5"	60"x30"	4 - Black on White
R11-3a(2) ROAD CLOSED UNDER TURNPIKE LOCAL TRAFFIC ONLY	6" 5" 4"	4" 3.5" 3.5" 4"	60"x30"	2 - Black on White

SHSB - Text Dimensions Shall Conform to "Standard Highway Signs Book" - 2012 Edition.



Scale: 700 0 1400
1" = 1400'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MLG	3/22/19	Checked	MDS	3/22/19
Drawn	JAR	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

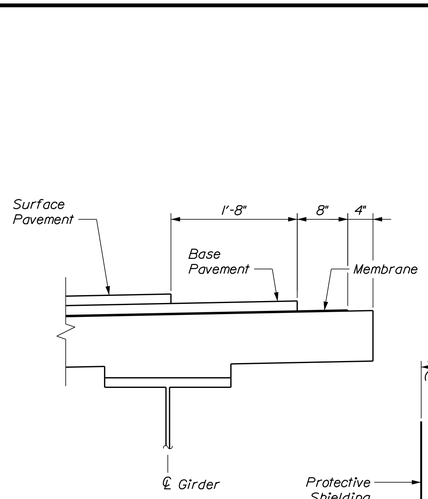
DETOUR PLAN AND SIGN SUMMARY

VHB: 55191.01
CONTRACT: 2019.10

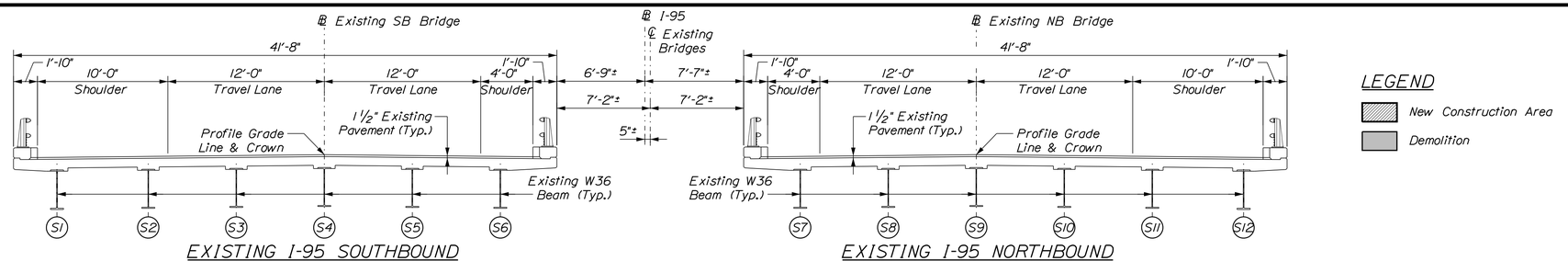
SHEET NUMBER: 83
83 OF 141

Date:3/26/2019

Filename: ...\BRIDGE\MSTA\083_Detour_01.dgn



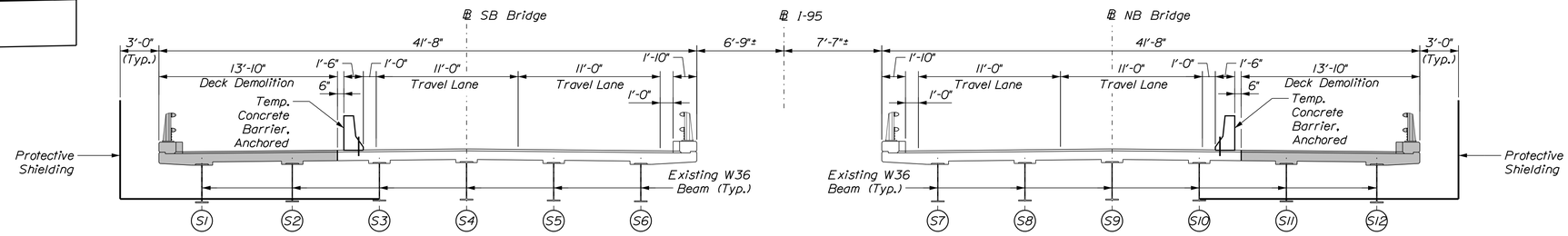
DETAIL A
1" = 1'-0"



EXISTING I-95 SOUTHBOUND

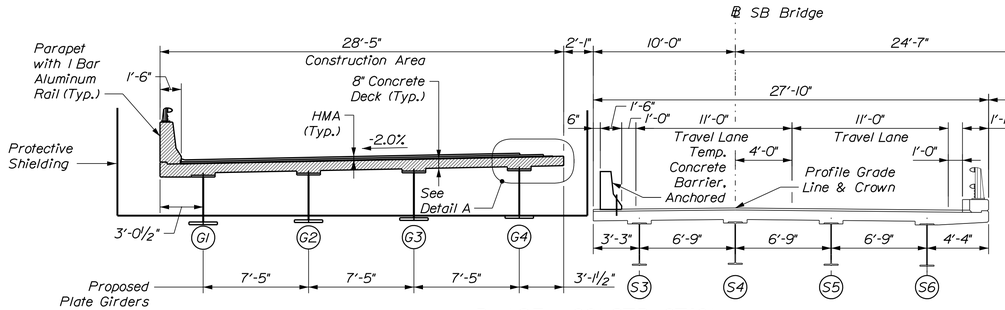
EXISTING I-95 NORTHBOUND

LEGEND
- New Construction Area
- Demolition



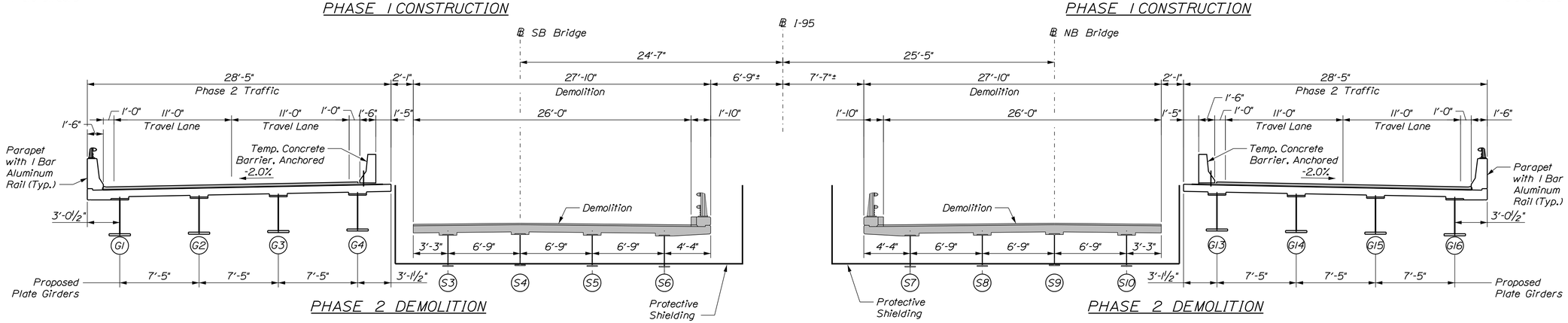
PHASE I DEMOLITION

PHASE I DEMOLITION



PHASE I CONSTRUCTION

PHASE I CONSTRUCTION



PHASE 2 DEMOLITION

PHASE 2 DEMOLITION

Date:3/24/2019

Filename: ...\MSTA\084_Phase_Sect1_Brg01.dgn

Scale:	1 0	15
	3/16" = 1'-0"	

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	GME	3/22/19	Checked	TSB	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

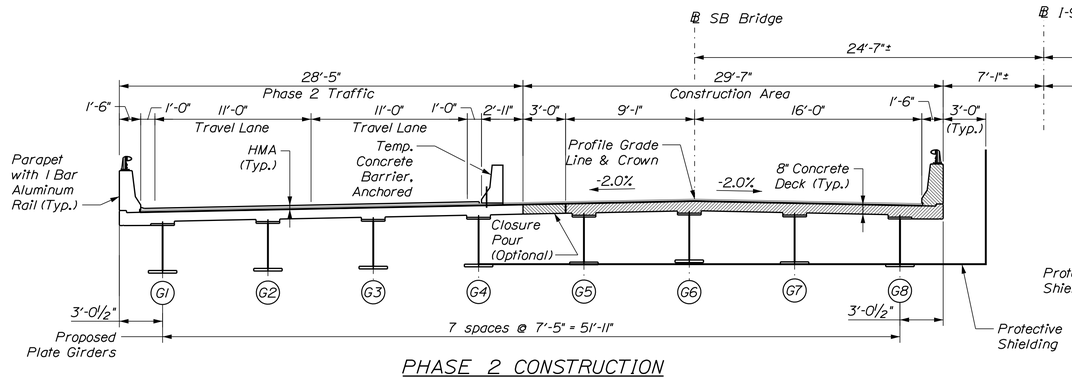
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

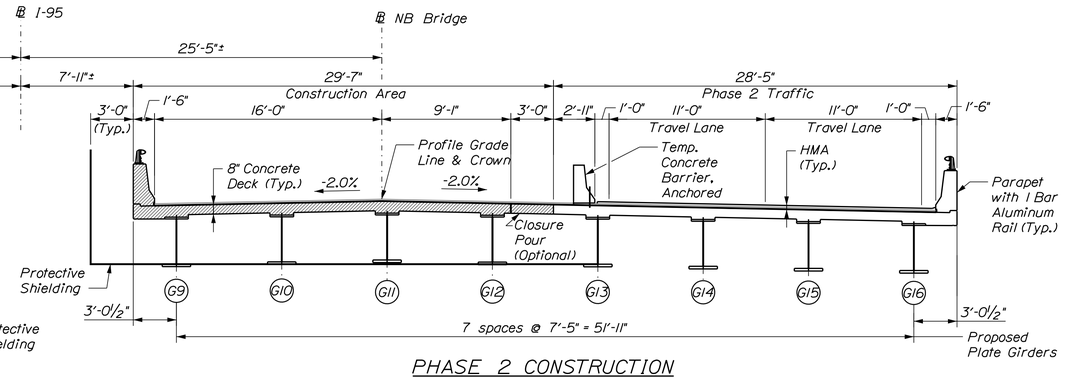
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT PHASED CONSTRUCTION SECTIONS AT BRIDGE (1 of 2)

VHB: 55191.01
CONTRACT: 2019.10

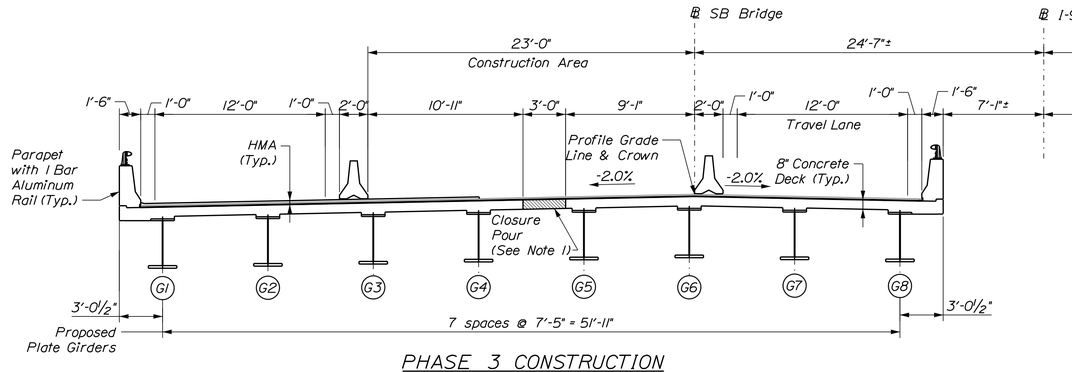
SHEET NUMBER: 84



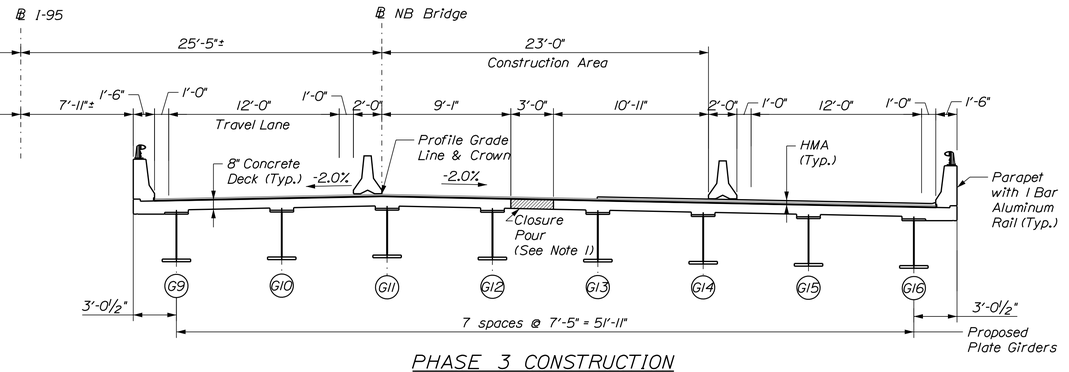
PHASE 2 CONSTRUCTION



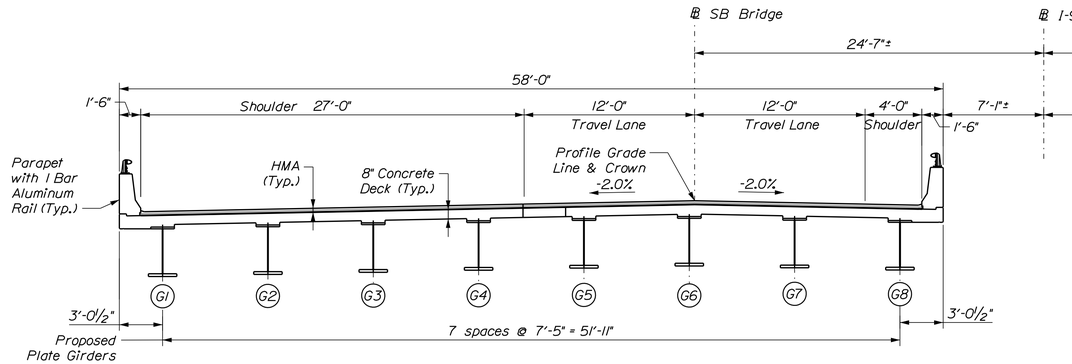
PHASE 2 CONSTRUCTION



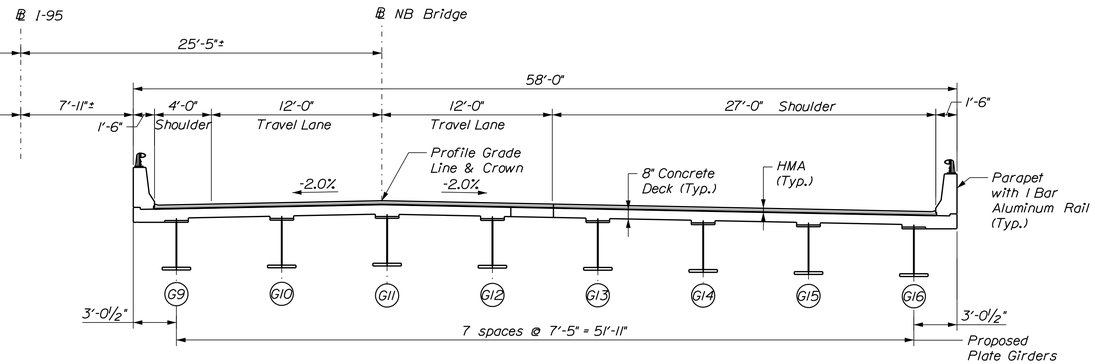
PHASE 3 CONSTRUCTION



PHASE 3 CONSTRUCTION



FINAL I-95 SOUTHBOUND



FINAL I-95 NORTHBOUND

NOTE

1. See Special Provision 107 for requirements for placement of closure pour.

Date:3/26/2019

Filename: ...\MSTA\085_Phase_Sect2_Brg02.dgn

Scale: 1 0 15
3/16" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	GME	3/22/19	Checked	TSB	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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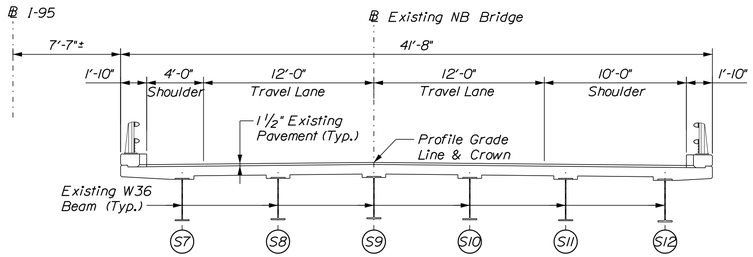
MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

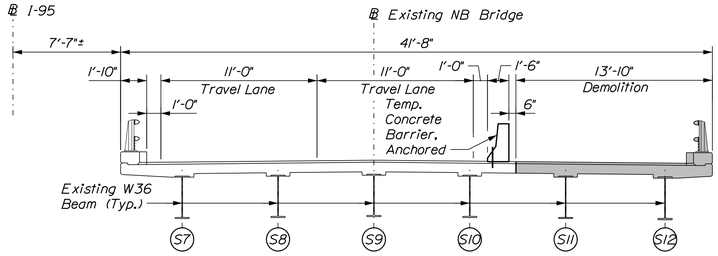
THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT PHASED CONSTRUCTION SECTIONS AT BRIDGE (2 of 2)

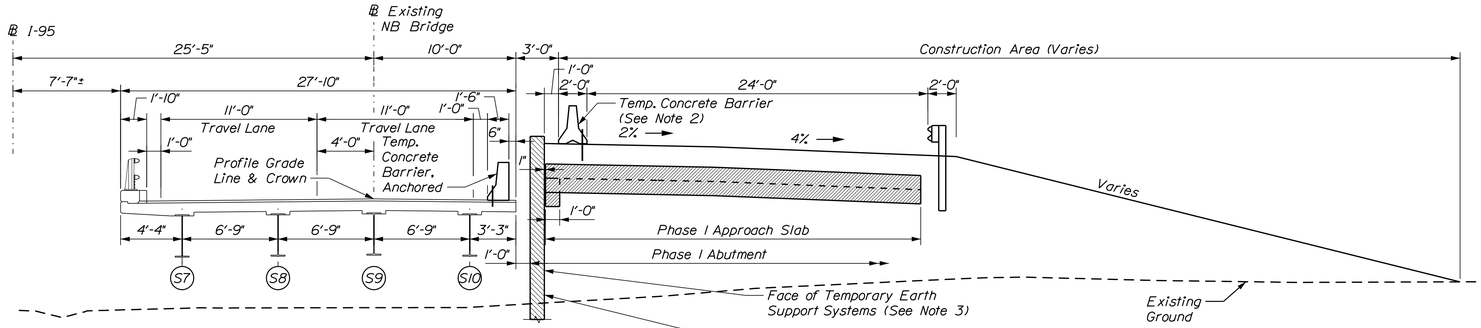
VHB: 55191.01 SHEET NUMBER: 85
CONTRACT: 2019.10 85 OF 141



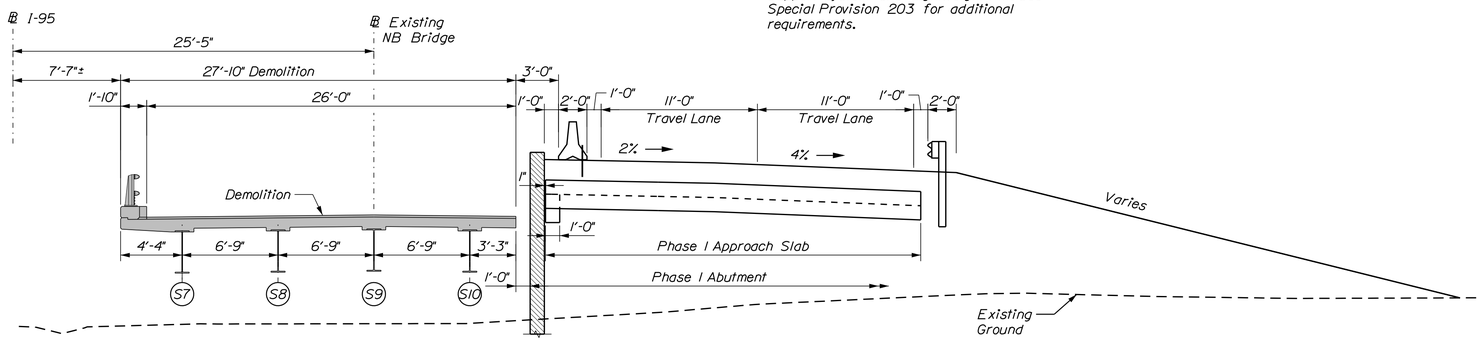
EXISTING I-95 NORTHBOUND



PHASE I DEMOLITION



PHASE I CONSTRUCTION



PHASE 2 DEMOLITION

LEGEND

- New Construction Area
- Demolition

NOTES

1. Phasing for NB Bridge is shown. Phasing for SB Bridge is similar but opposite hand.
2. Temporary concrete barrier shall be anchored and if necessary, stiffened when the available distance between the back or non-roadway side of the barrier to the closest fixed object or edge of open excavation being protected is less than the allowable deflection of unanchored/unstiffened barrier. See Special Provision 526 for additional information.
3. The Contractor shall determine the type of Temporary Earth Support System to use. For illustrative purposes a steel sheet pile wall is shown for the Temporary Earth Support System on the approaches to the new bridge, in the areas between the new bridge abutments and the existing bridge abutments including at the new approach slabs. Temporary Earth Support Systems installed in these areas shall be permanently left in place, except all parts of the system shall be removed to 3'-6" below proposed finished grade. Adjacent to the approach slabs, all parts of the system shall be removed to 1'-0" below the bottom of approach slab.

Date:3/24/2019

Filename: ...\MSTA\086_Phase_Sect3_App01.dgn

Scale: 1 0 15 — 3/16" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	GME	3/22/19	Checked	TSB	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

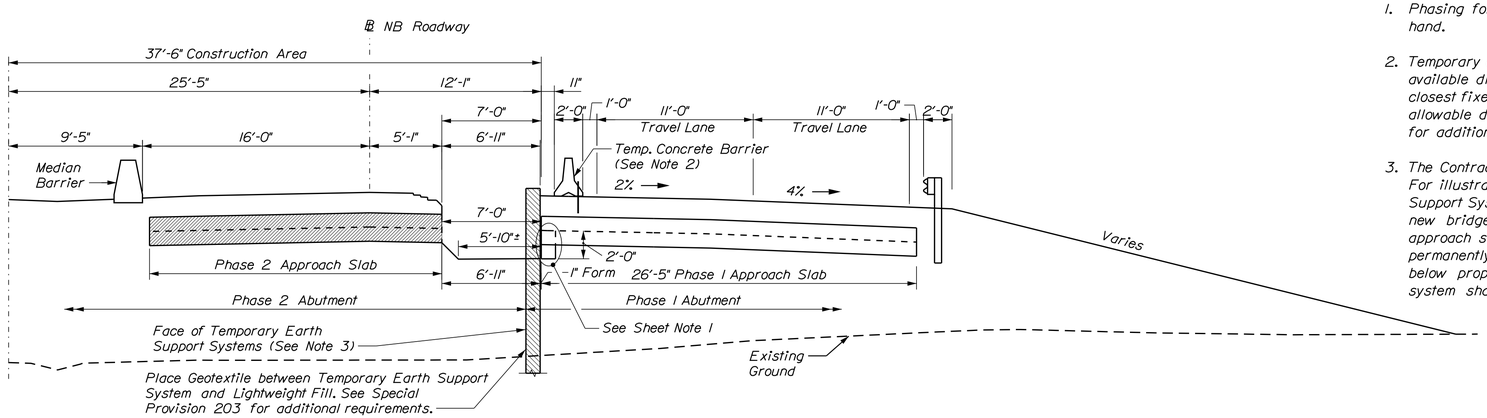
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT PHASED CONSTRUCTION SECTIONS AT APPROACH SLAB (1 of 2)

VHB: 55191.01 SHEET NUMBER: 86

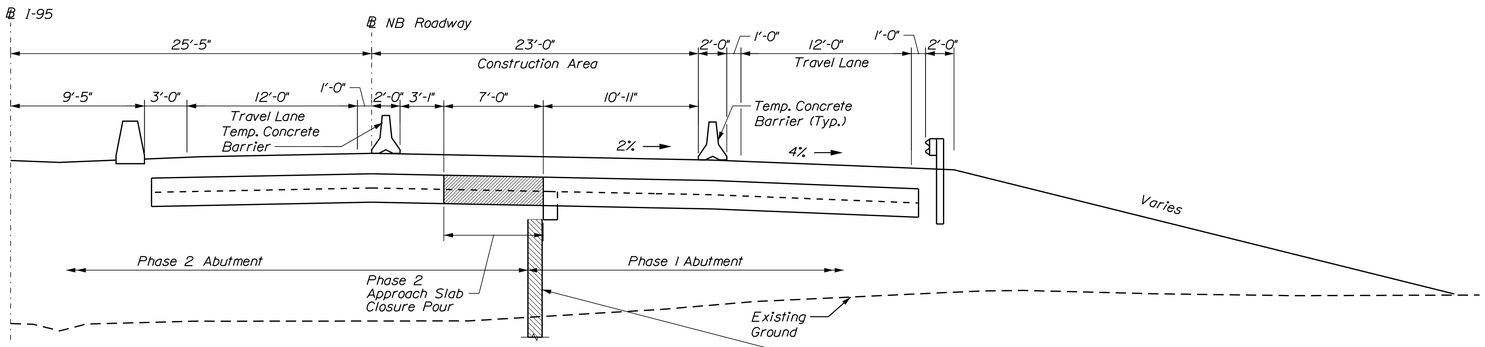
CONTRACT: 2019.10 86 OF 141

NOTES

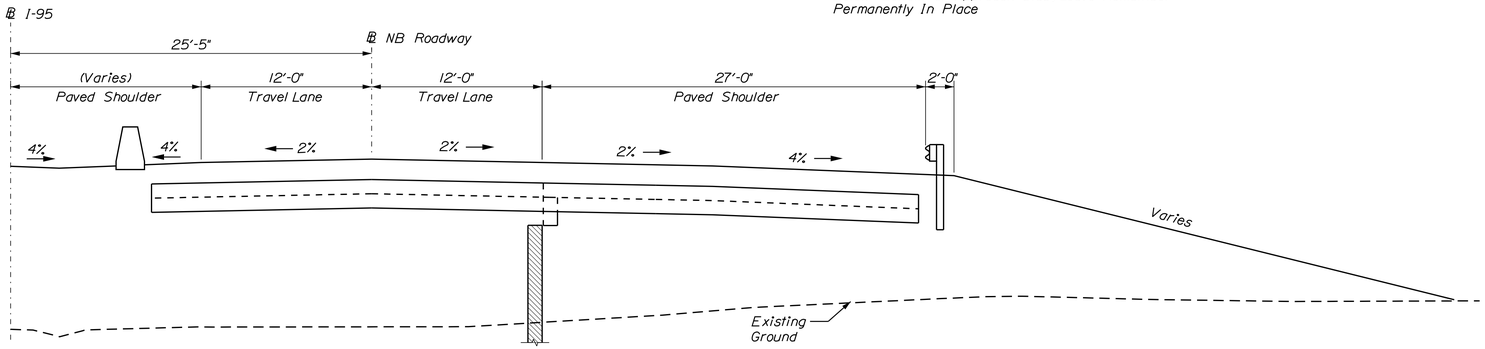
1. Phasing for NB Bridge is shown. Phasing for SB Bridge is similar but opposite hand.
2. Temporary concrete barrier shall be anchored and if necessary stiffened when the available distance between the back or non-roadway side of the barrier to the closest fixed object or edge of open excavation being protected is less than the allowable deflection of unanchored/stiffened barrier. See Special Provision 526 for additional information.
3. The Contractor shall determine the type of Temporary Earth Support System to use. For illustrative purposes a steel sheet pile wall is shown for the Temporary Earth Support System on the approaches to the new bridge, in the areas between the new bridge abutments and the existing bridge abutments including at the new approach slabs. Temporary Earth Support Systems installed in these areas shall be permanently left in place, except all parts of the system shall be removed to 3'-6" below proposed finished grade. Adjacent to the approach slabs, all parts of the system shall be removed to 1'-0" below the bottom of approach slab.



PHASE 2 CONSTRUCTION



PHASE 3 CONSTRUCTION



FINAL I-95 NORTHBOUND

SHEET NOTE

1. See Approach Slab Details (1 of 2) Sheet for additional details.

Date:3/24/2019

Filename: ...\MSTA\087_Phase_Sect4_App02.dgn

Scale: 1 0 15 — 3/16" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	GME	3/22/19	Checked	TSB	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT PHASED CONSTRUCTION SECTIONS AT APPROACH SLAB (2 of 2)

VHB: 55191.01 SHEET NUMBER: 87

CONTRACT: 2019.10 87 OF 141

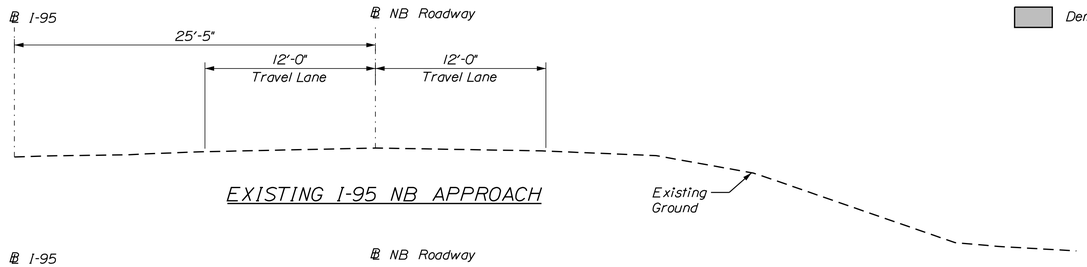
Date:3/24/2019

LEGEND

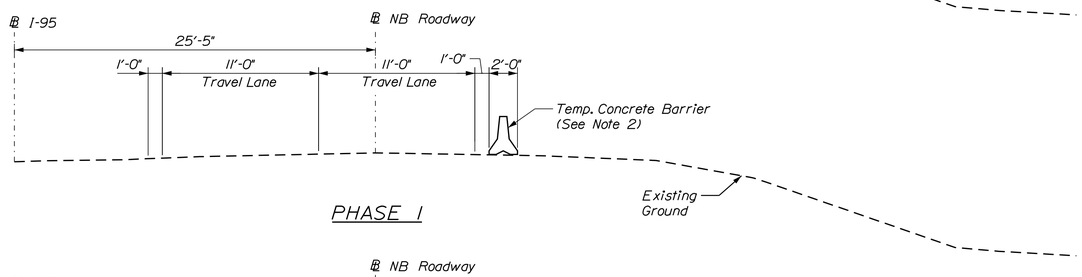
- New Construction Area
- Demolition

NOTES

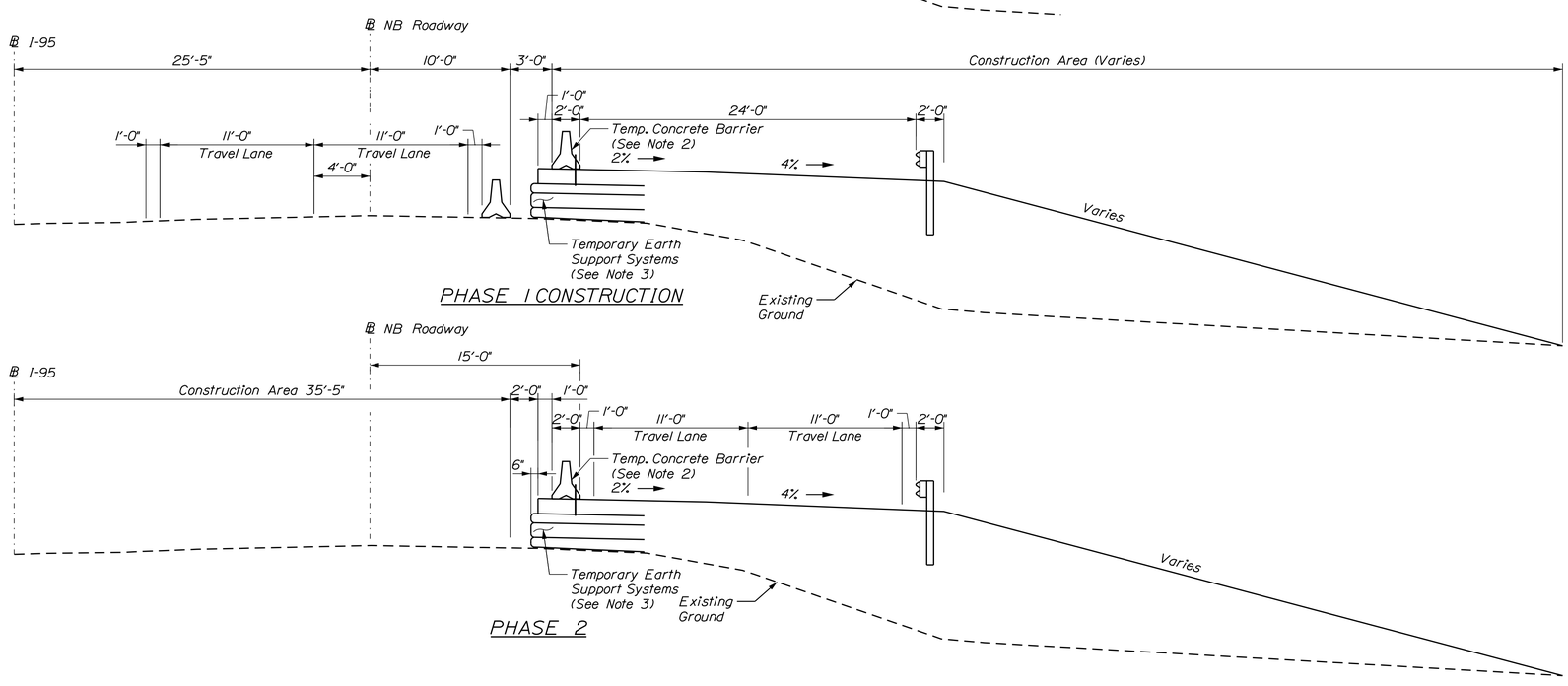
1. Phasing for NB Approach Roadway is shown. Phasing for SB Approach Roadway is similar but opposite hand.
2. Temporary concrete barrier shall be anchored and if necessary stiffened when the available distance between the back or non-roadway side of the barrier to the closest fixed object or edge of open excavation being protected is less than the allowable deflection of unanchored/unstiffened barrier. See Special Provision 526 for additional information.
3. The Contractor shall determine the type of Temporary Earth Support Systems to use. For illustrative purposes, a geosynthetically reinforced soil slope (GRSS) wall is shown for the Temporary Earth Support Systems on the approaches to the bridge, in the areas beyond the existing bridge abutments. If a GRSS wall is used it may be left in place provided the geotextile fabric face wrap at the exposed vertical face of each layer of the wall is horizontally cut full length near the top of the layer when the adjacent layer of roadway material is placed and compacted to within 2" of the top of the layer. If sheet piling systems or other systems are used for the Temporary Earth Support Systems in these areas, they may also be left permanently in place, except all parts of the system shall be removed to 3'-6" below proposed finished grade.



EXISTING I-95 NB APPROACH



PHASE I



PHASE I CONSTRUCTION

PHASE 2

Scale: 1 0 15 — 3/16" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	GME	3/22/19	Checked	TSB	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT PHASED CONSTRUCTION SECTIONS AT APPROACH ROADWAY (1 of 2)

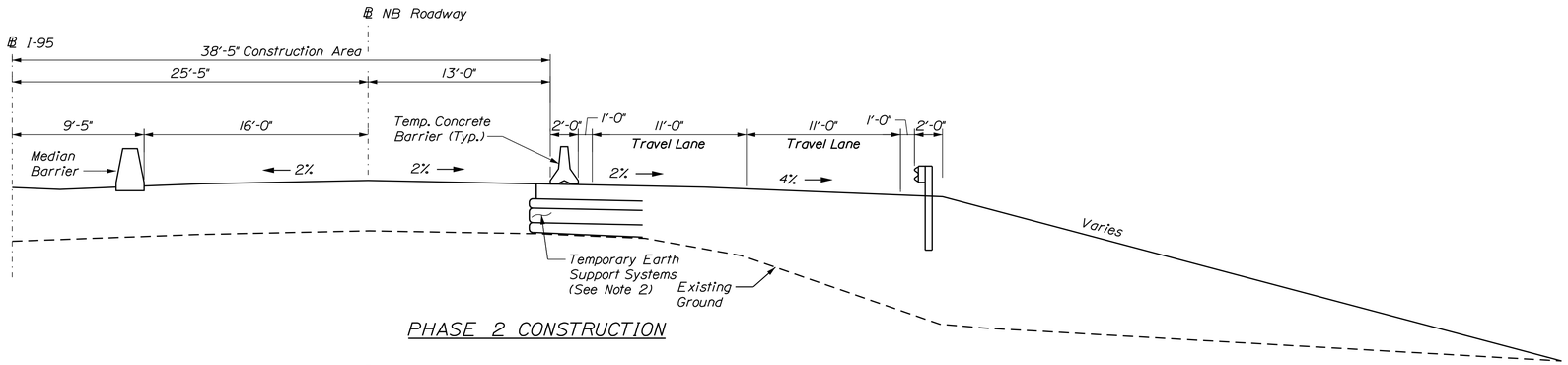
VHB: 55191.01 SHEET NUMBER: 88

CONTRACT: 2019.10 88 OF 141

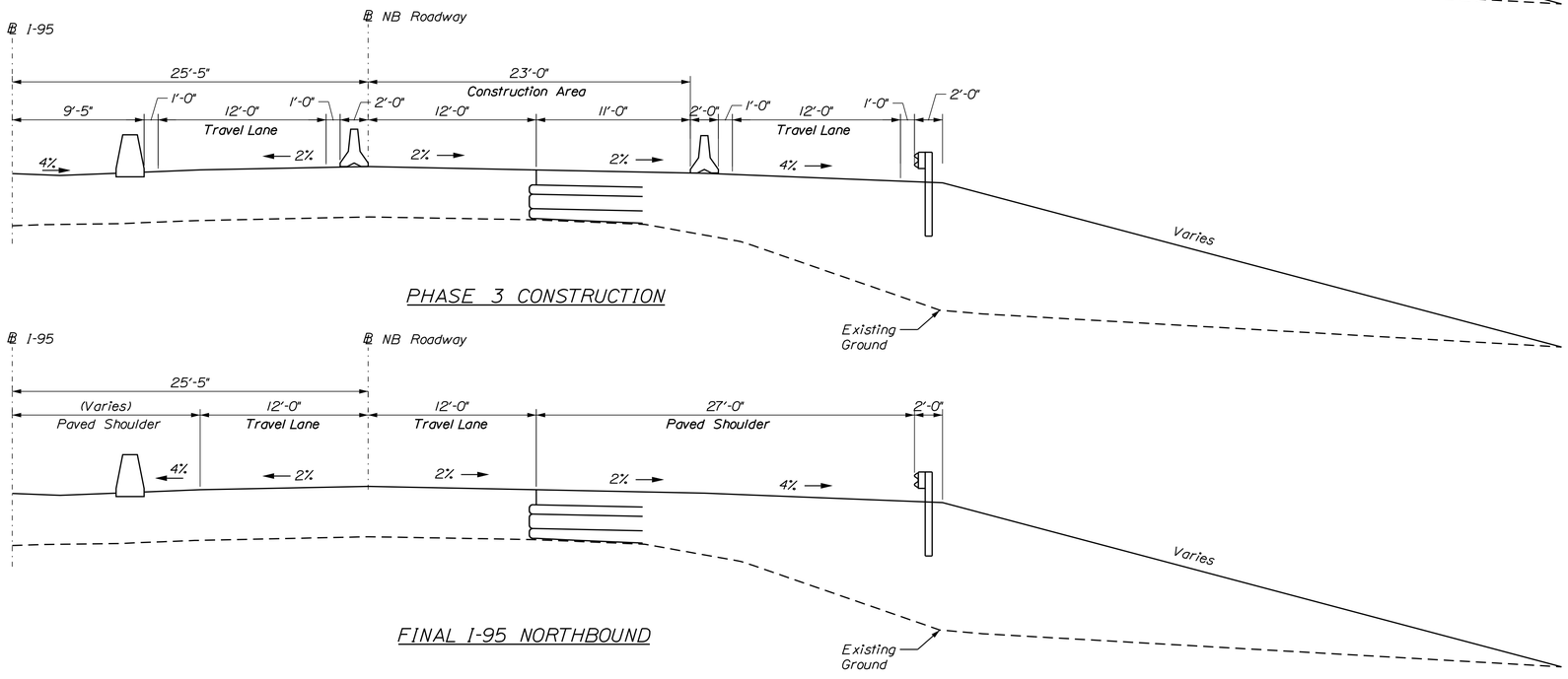
Filename: ...\MSTA\088_Phase_Sect5_Rd01.dgn

NOTES

1. Phasing for NB Approach Roadway is shown. Phasing for SB Approach Roadway is similar but opposite hand.
2. The Contractor shall determine the type of Temporary Earth Support Systems to use. For illustrative purposes, a geosynthetically reinforced soil slope (GRSS) wall is shown for the Temporary Earth Support Systems on the approaches to the bridge, in the areas beyond the existing bridge abutments. If a GRSS wall is used it may be left in place provided the geotextile fabric face wrap at the exposed vertical face of each layer of the wall is horizontally cut full length near the top of the layer when the adjacent layer of roadway material is placed and compacted to within 2" of the top of the layer. If sheet piling systems or other systems are used for the Temporary Earth Support Systems in these areas, they may also be left permanently in place, except all parts of the system shall be removed to 3'-6" below proposed finished grade.



PHASE 2 CONSTRUCTION



PHASE 3 CONSTRUCTION

FINAL I-95 NORTHBOUND

Filename: ...\MSTA\089_Phase_Sect6_Rd02.dgn

Scale: 1 0 1 5 — 3/16" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	GME	3/22/19	Checked	TSB	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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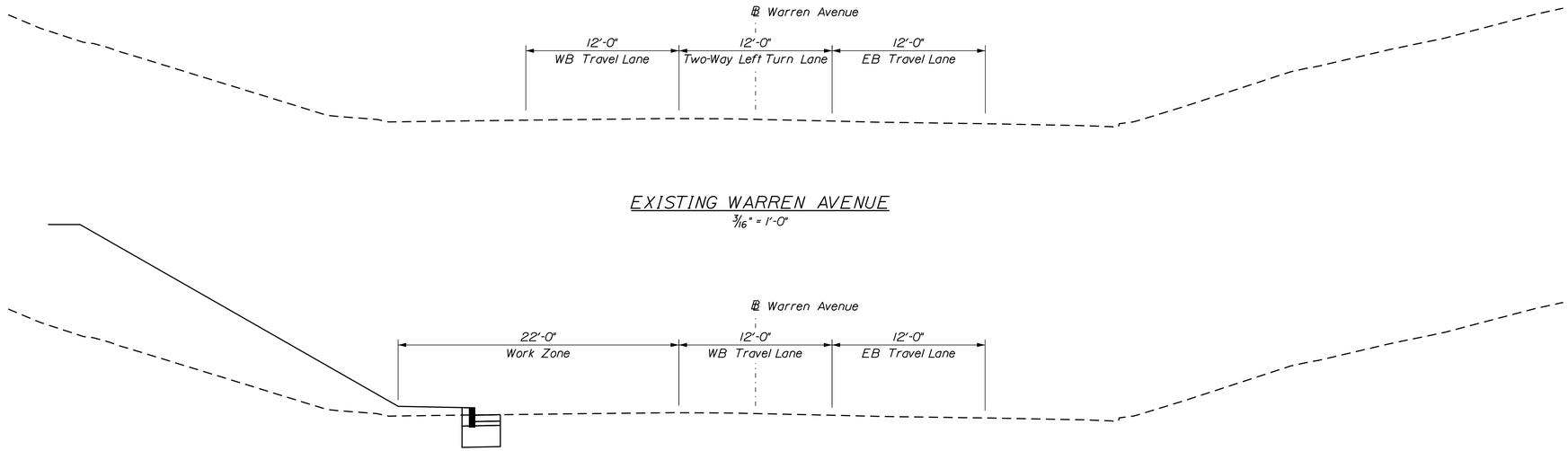
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

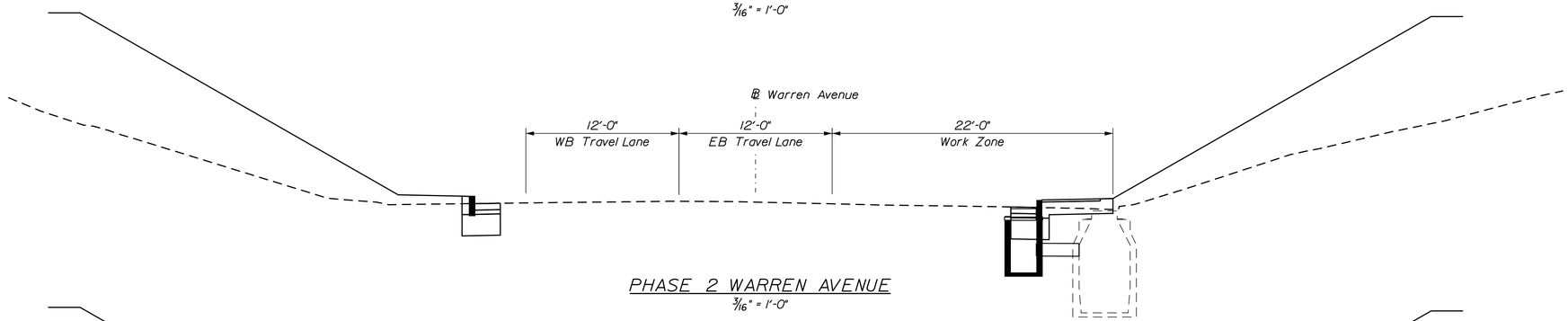
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT PHASED CONSTRUCTION SECTIONS AT APPROACH ROADWAY (2 of 2)

VHB: 55191.01
CONTRACT: 2019.10

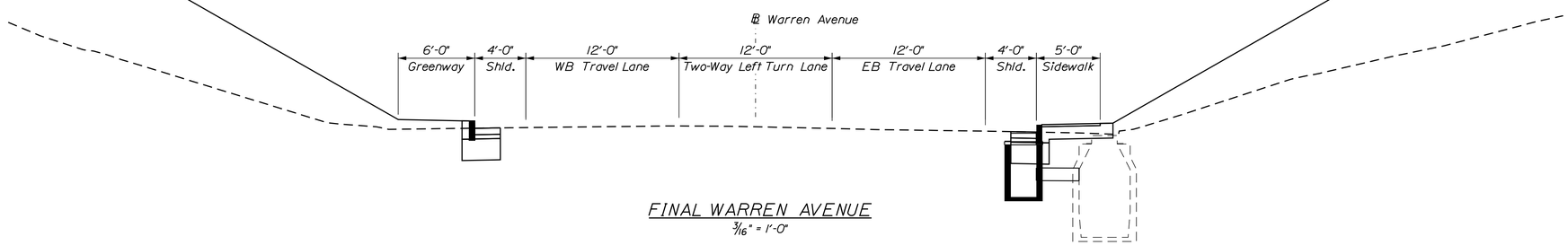


EXISTING WARREN AVENUE
3/16" = 1'-0"

PHASE 1 WARREN AVENUE
3/16" = 1'-0"



PHASE 2 WARREN AVENUE
3/16" = 1'-0"



FINAL WARREN AVENUE
3/16" = 1'-0"

Date:3/24/2019

Filename: ...\MSTA\090_TCP_Typ_Sect_01.dgn

Scale: 1 0 15
3/16" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

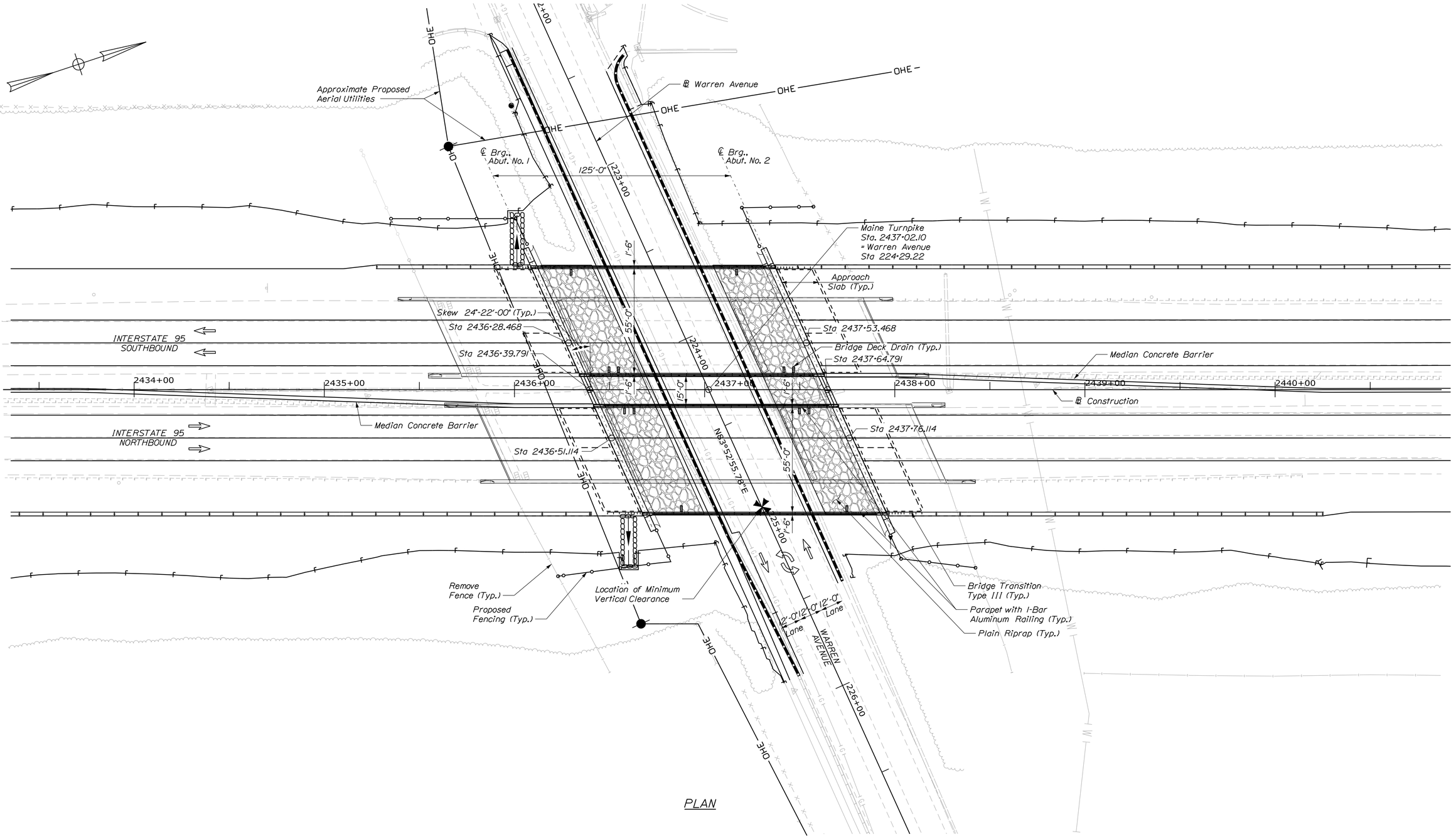
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT WARREN AVENUE PHASED CONSTRUCTION SECTIONS

VHB: 55191.01
CONTRACT: 2019.10

Date:3/24/2019



PLAN

Filename: ...\MSTA\091_Bridge_Plan.dgn

Scale: 25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BRIDGE PLAN

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 91

SPECIFICATIONS

Design: AASHTO LRFD Bridge Design Specifications, 2018.

Construction: State of Maine Department of Transportation Standard Specifications, Revision of November 2014.

State of Maine Department of Transportation Standard Details for Highways and Bridges, 2014, with all revisions thereto.

AASHTO LRFD Bridge Construction Specifications, Forth Edition.

DESIGN LOADING

Live Load ..... HL - 93 (Modified)

MATERIALS

Concrete (Unless noted otherwise) ..... Class "AAA"
Concrete (Deck) ..... Class "AAA-Deck"
Reinforcing Steel ..... ASTM A615, Grade 60, Epoxy Coated
ASTM A955, Grade 60, Stainless

Structural Steel:
Welded Girders ..... ASTM A709/A709M, Grade 50W, Metalized
High Strength Bolts (except as noted) ..... ASTM A325, Type 3
Anchor Rods ..... ASTM F1554, Grade 55
Steel H-Piles ..... ASTM A572, Grade 50
All Other Structural Steel ..... ASTM A709, Grade 36 or Approved Equal

PROTECTIVE COATING

Girder plates, including flanges, webs, connection plates, leveling plates, bearing stiffeners, and intermediate stiffeners, shall be metallized after fabrication in accordance with Special Provision Section 506, Shop Applied Protective Coating - Steel (Thermal Spray Coating - Shop Applied). Crossframes shall either be metallized or hot-dipped galvanized after fabrication. Payment for metallizing and/or galvanizing, as applicable, shall be made under Item 506.9104, Thermal Spray Coating (Shop Applied).

BASIC DESIGN STRESSES

Concrete ..... f'c = 4,500 psi
Reinforcing Steel ..... fy = 60,000 psi

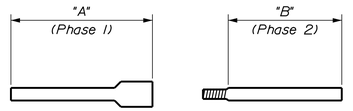
Structural Steel:
ASTM A 709/A 709M, Grade 50W ..... Fy = 50,000 psi
ASTM A 709/A 709M, Grade 36 ..... Fy = 36,000 psi
ASTM A 325 ..... Fu = 120,000 psi
ASTM F1554 ..... Fy = 55,000 psi

TRAFFIC DATA - WARREN AVENUE

AADT 17,710
Heavy Trucks (% AADT) ..... N/A
Design Speed (MPH) 35
Functional Class ..... Minor Arterial

TRAFFIC DATA - MAINE TURNPIKE

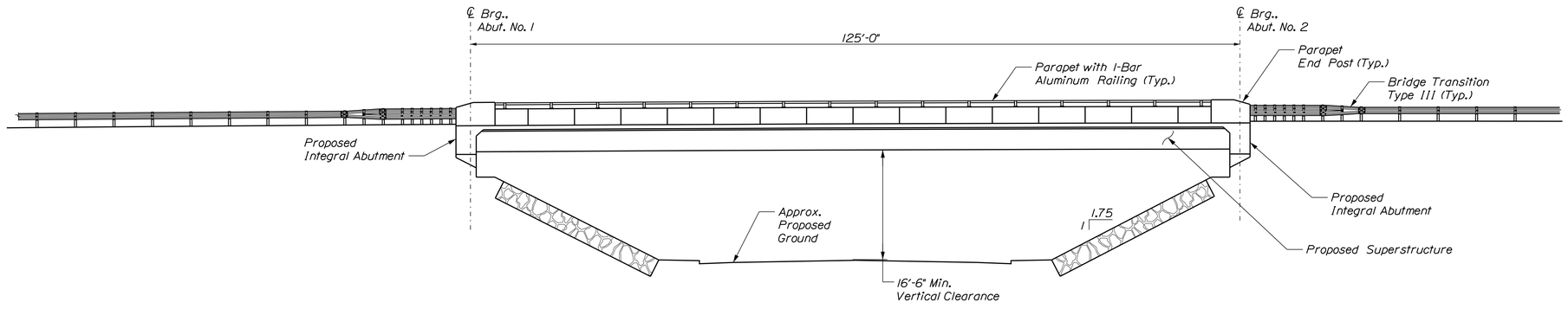
AADT ..... 19,720 NB, 21,350 SB
Heavy Trucks (% AADT) 10%
Design Speed (MPH) 65
Functional Class ..... Principal Arterial Interstate



Location	Bar Size	Dim "A"	Dim "B"	Quantity (EA)
Deck	#5	3'-1"	2'-8"	1028
Approach Slab	#4	5'-0"	2'-5"	368
Abutment	#6	2'-9"	2'-9"	160

MECHANICAL CONNECTOR DETAIL

Not to Scale



ELEVATION

Scale: 3/32" = 1'-0"

Scale: 3/32" = 1'-0" (20 14 30)

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

VANASSE HANGEN BRUSTLIN, INC.
500 Southborough Dr.
Suite 105B
South Portland, ME 04106
TEL (207) 889-3150
FAX (207) 253-5596

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

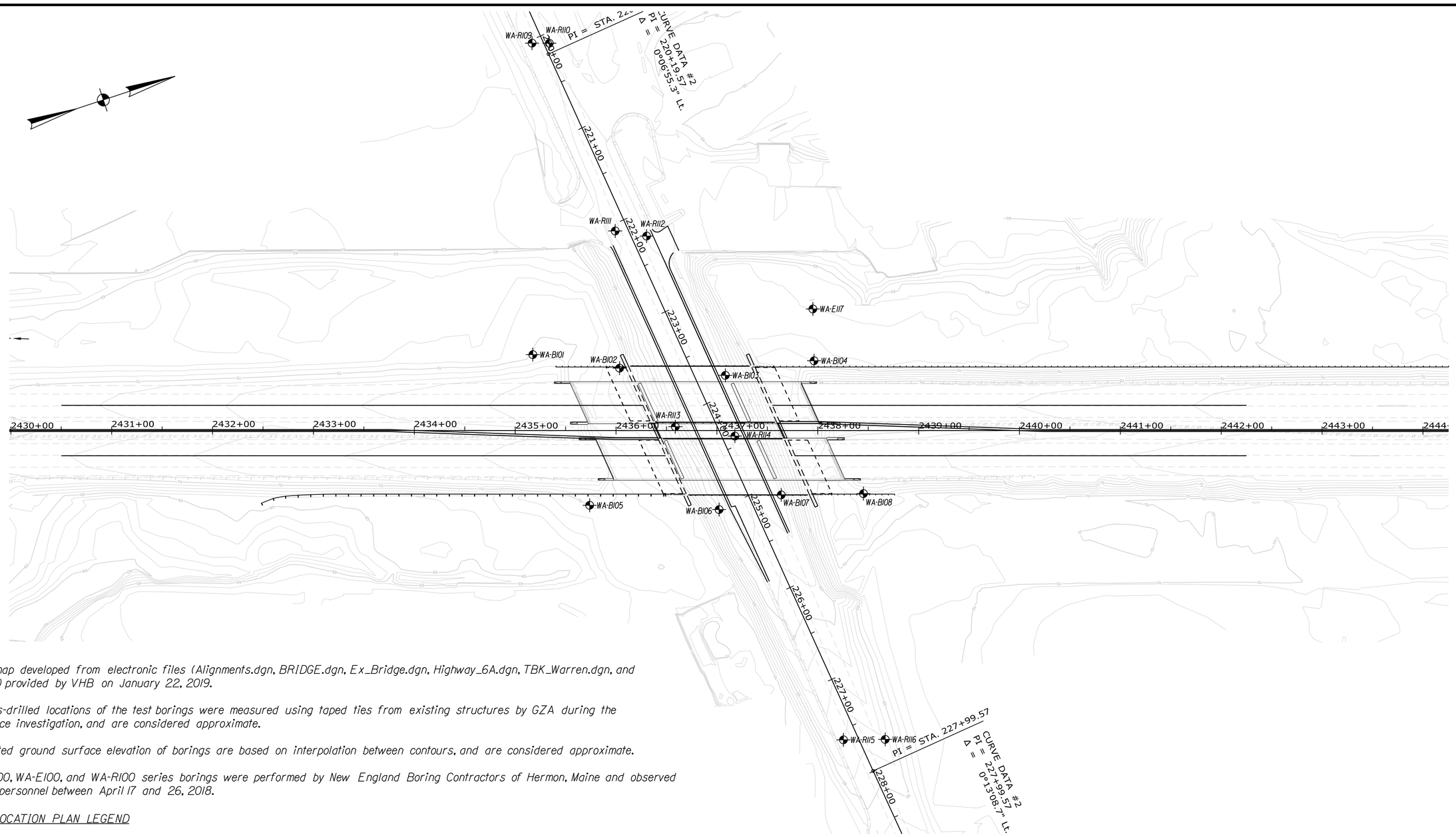
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BRIDGE ELEVATION

VHB: 55191.01
CONTRACT: 2019.10

Date:3/24/2019

Filename: ...\MSTA\092_Bridge_Elev.dgn



NOTES

1) Base map developed from electronic files (Alignments.dgn, BRIDGE.dgn, Ex_Bridge.dgn, Highway_6A.dgn, TBK_Warren.dgn, and Topo.dgn) provided by VHB on January 22, 2019.

2) The as-drilled locations of the test borings were measured using taped ties from existing structures by GZA during the subsurface investigation, and are considered approximate.

3) Reported ground surface elevation of borings are based on interpolation between contours, and are considered approximate.

4) WA-BI00, WA-E100, and WA-RI00 series borings were performed by New England Boring Contractors of Hermon, Maine and observed by GZA personnel between April 17 and 26, 2018.

BORING LOCATION PLAN LEGEND

- WA-BI08 — As-Drilled location and designation of cased wash Bridge boring
- WA-E117 — As-Drilled location and designation of cased wash Embankment Boring
- WA-RI16 — As-Drilled location and designation of cased wash Roadway Boring

Scale: 50 0 50 100 — Scale of Feet

No.	Revision	By	Date

Designed by: GZA

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed			Checked	CLS	3/4/19
Drawn	BMC	2/15/19	In Charge of		

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT BORING LOCATION PLAN

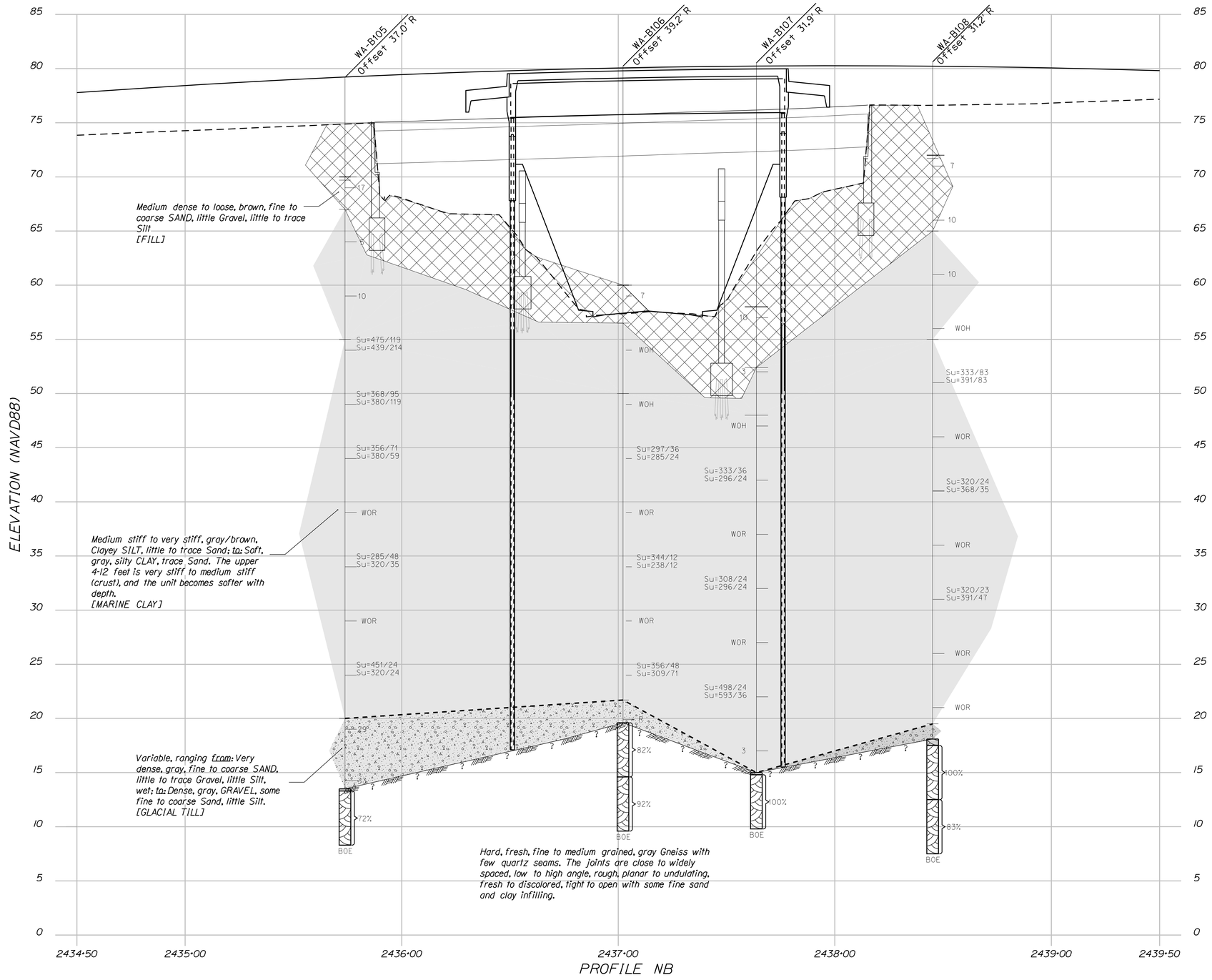
VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 93
93 OF 141

Date:3/22/2019

Filename: ...\From VHB\093_Boring_Plan.dgn

Date:3/22/2019



NOTES

1) Profile developed from electronic files provided by VHB on January 22, 2019 (Files included TBK.dgn, z_Profile.dgn, and Profile_Mainline_6A-NB.dgn).

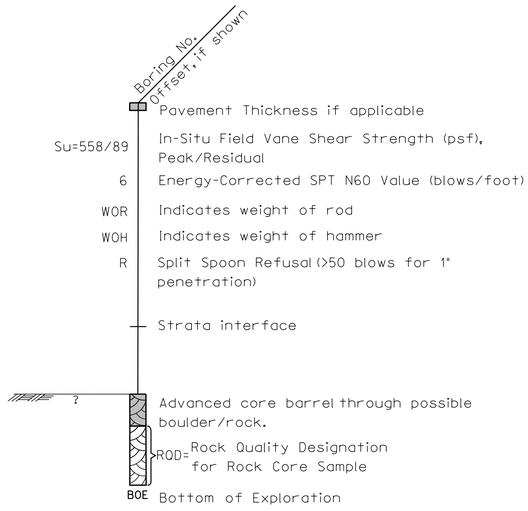
2) The as-drilled locations of the test borings were measured using taped ties from existing structures by GZA during the subsurface investigation, and are considered approximate.

3) Reported ground surface elevation of borings are based on interpolation between contours on the topographic survey, and are considered approximate.

4) This generalized interpretive soil profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

5) Centerline borings are not shown for clarity. Refer to exploration logs for more specific information at individual locations.

LEGEND



Scale: Horiz. 25 0 25 50
Vert. 5 0 5 10
Scale of Feet

No.	Revision	By	Date

Designed by: GZA

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed			Checked	CLS	3/4/19
Drawn	BMC	2/15/19	In Charge of		

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MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

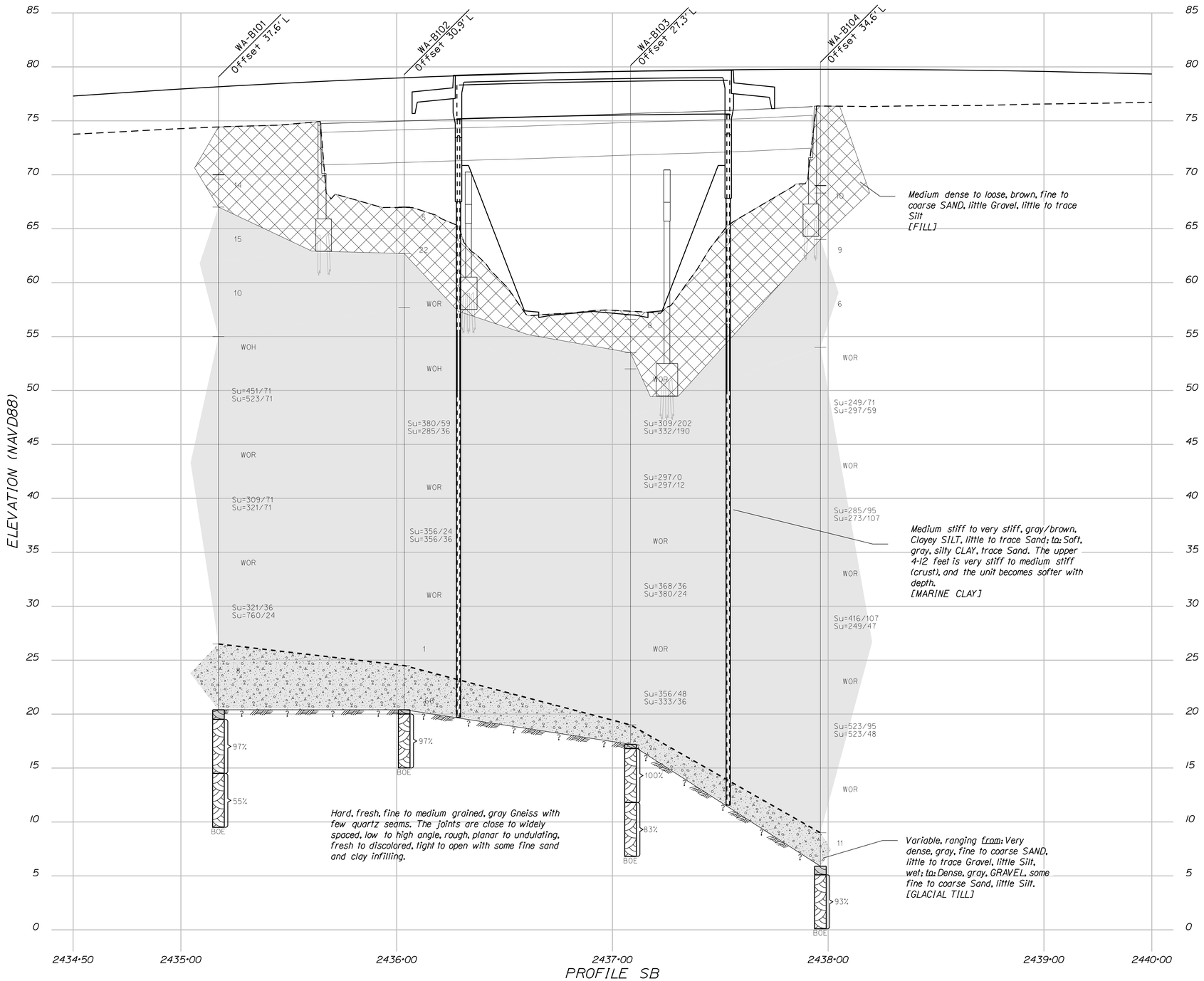
THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT I-95 NORTHBOUND INTERPRETIVE SUBSURFACE PROFILE 1

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 94
94 OF 141

Filename: ...\094_Interp_Profile_NB.dgn



PROFILE SB

NOTES

1) Profile developed from electronic files provided by VHB on January 22, 2019 (Files included TBK.dgn, z_Profile.dgn, and Profile_Mainline_6A-SB.dgn).

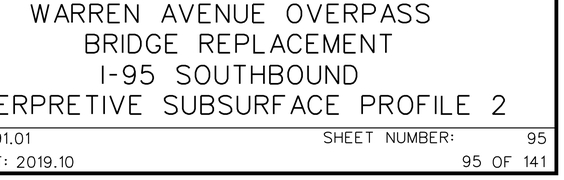
2) The as-drilled locations of the test borings were measured using taped ties from existing structures by GZA during the subsurface investigation, and are considered approximate.

3) Reported ground surface elevation of borings are based on interpolation between contours on the topographic survey, and are considered approximate.

4) This generalized interpretive soil profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

5) Centerline borings are not shown for clarity. Refer to exploration logs for more specific information at individual locations.

LEGEND



Date:3/22/2019

Filename: ...\095_Interp_Profile_SB.dgn

Scale: Horiz. 25 0 25 50
Vert. 5 0 5 10
Scale of Feet

No.	Revision	By	Date

Designed by: GZA

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed			Checked	CLS	3/4/19
Drawn	BMC	2/15/19	In Charge of		

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT I-95 SOUTHBOUND INTERPRETIVE SUBSURFACE PROFILE 2

VHB: 55191.01 SHEET NUMBER: 95
CONTRACT: 2019.10 95 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B101 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Cased	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 70 Final Boring Depth (ft.): 60.5 Date Start - Finish: 4/18/2018 - 4/18/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/18/18	1500	8.7	15 min
4/19/18	0800	21.3	14 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	10	3 6 8 14	14	S-1: Top 5": Medium dense, brown, fine to coarse SAND, with organics. Bottom 5": Medium dense, brown/tan, fine to coarse SAND, little Gravel, trace Silt, moist.	1		0.4	TOPSOIL	69.6
											3	FILL	67.0
5	11 20	S-2	5.0-7.0	24	20	5 5 10 18	15	S-2: Very stiff, olive, Clayey SILT, little Sand.					
	16 15											CLAY CRUST	
10	15 44	S-3	10.0-12.0	24	20	4 4 6 5	10	S-3: Stiff, olive, Clayey SILT, little to trace Sand, wet.					
	43 44												
	49 45												
15											15		55.0
		S-4	15.0-17.0	24	24	WOR WOH WOH WOH	0	S-4: Soft, gray, Silty CLAY, wet.					
20		S-5	20.0-22.0	24	24			S-5: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
		V-1	20.4-21.0					V-1: Field Vane: Trow = 190/30 in-lbs (Su = 451/71 psf)					
		V-2	21.4-22.0				2	V-2: Field Vane: Trow = 220/30 in-lbs (Su = 523/71 psf)					
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B101

GZA TEMPLATE TEST BORING 1/24/2019 9:22:19 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B101 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Cased	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 70 Final Boring Depth (ft.): 60.5 Date Start - Finish: 4/18/2018 - 4/18/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/18/18	1500	8.7	15 min
4/19/18	0800	21.3	14 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-6	25.0-27.0	24	24	WOR WOR WOR WOR	0	S-6: Soft, gray, Silty CLAY, wet.					
30		S-7	30.0-32.0	24	24			S-7: Soft, gray, Silty CLAY, wet.					
		V-3						V-3: Field Vane: Trow = 130/30 in-lbs (Su = 309/71 psf)					
		V-4	30.4-31.0 31.4-32.0					V-4: Field Vane: Trow = 135/30 in-lbs (Su = 321/71 psf)					
35		S-8	35.0-37.0	24	24	WOR WOR WOR WOR	0	S-8: Soft, gray, Silty CLAY, trace fine Sand, wet.				SILTY CLAY	
40		S-9	40.0-42.0	24	24			S-9: Soft, gray, Silty CLAY, little fine Sand.					
		V-5						V-5: Field Vane: Trow = 135/15 in-lbs (Su = 321/36 psf)					
		V-6	40.4-41.0 41.4-42.0					V-6: Field Vane: Trow = 320/10 in-lbs (Su = 760/24 psf)					
											43.5		26.5
45		S-10	45.0-47.0	24	10	2 3 5 5	8	S-10: Loose, gray, fine to medium SAND, little Silt, wet. Roller bit encountered increased resistance at 49.6' bgs: probable Top of Rock. Advanced roller bit to 50.3' bgs and set up to core.		3		GLACIAL TILL	
											49.6	GNEISS	20.4
50													

REMARKS

3 - Based on roller bit advancement and wash return, top of Glacial Till at approximately 43.5' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B101

GZA TEMPLATE TEST BORING 1/24/2019 9:22:20 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B101 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Cased	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 70 Final Boring Depth (ft.): 60.5 Date Start - Finish: 4/18/2018 - 4/18/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/18/18	1500	8.7	15 min
4/19/18	0800	21.3	14 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
55		C-1	50.5-55.5	60	60			C-1: Hard, fresh, fine grained, gray, GNEISS with calcite stringers. Joints are close to moderately spaced, low angle, rough, planar to undulating, fresh, open. RQD = 97% Rock Core Times (min/ft): 4.0, 3.75, 4.0, 4.0, 4.0				GNEISS	
60		C-2	55.5-60.5	60	60			C-2: 55.5'-58.3': Hard, fresh, fine grained, gray, GNEISS with calcite stringers. Joints are close to moderately spaced, low angle, rough, planar to undulating, fresh, open. 58.3'-60.5': Hard, fresh, fine grained, gray, GNEISS with calcite stringers. Joints are very close, low to high angle, fresh to slightly weathered, some Sand infilling, undulating, rough, open. RQD = 55% Rock Core Times (min/ft): 3.25, 3.5, 3.75, 4.0, 3.25			60.5		9.5
65								End of exploration at 60.5 feet.					
70													
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B101

GZA TEMPLATE TEST BORING 1/24/2019 9:22:20 AM

Filename: ...\BRIDGE\MSTA\096_Borings_01.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA / vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (1 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 96
96 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B102 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali	Type of Rig: ATV	Boring Location (N,E): See Plan	H. Datum:
Drilling Co.: New England Boring Contractors	Rig Model: B-53	Ground Surface Elev. (ft.): 67	V. Datum:
Foreman: Brad Enos	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 52	
		Date Start - Finish: 4/18/2018 - 4/19/2018	

Hammer Type: Automatic Hammer	Sampler Type: SS	Groundwater Depth (ft.)		
Hammer Weight (lb.): 140	Sampler O.D. (in.): 2.0	Date	Time	Water Depth	Stab. Time
Hammer Fall (in.): 30	Sampler Length (in.): 24	4/19/18	1015	9.7	30 min
Auger or Casing O.D./I.D Dia (in.): 4"/3"	Rock Core Size: NX				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	12	WOH 2 3 4	5	S-1: Loose, brown, fine to coarse SAND, little Silt.	1			FILL	
		S-2	3.0-5.0	24	18	8 13 9 10	22	S-2: Top 16": Medium dense, brown, fine to coarse SAND, little Gravel, little Silt. Bottom 2": Gray/brown, Silty CLAY.			4.3		62.7
5		S-3	8.0-10.0	24	24	WOR WOR WOR WOR	0	S-3: Soft, gray, Silty CLAY, wet.					
10		S-4	14.0-16.0	24	24	WOR WOH WOH WOH	0	S-4: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
15		S-5	20.0-22.0	24	24			S-5: Soft, gray, Silty CLAY, wet.					
20		V-1	20.4-21.0					V-1: Field Vane: Trow = 160/25 in-lbs (Su = 380/59 psf)					
		V-2	21.4-22.0					V-2: Field Vane: Trow = 120/15 in-lbs (Su = 285/36 psf)	2				
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B102

GZA TEMPLATE TEST BORING: 1/24/2019, 9:22:20 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B102 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali	Type of Rig: ATV	Boring Location (N,E): See Plan	H. Datum:
Drilling Co.: New England Boring Contractors	Rig Model: B-53	Ground Surface Elev. (ft.): 67	V. Datum:
Foreman: Brad Enos	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 52	
		Date Start - Finish: 4/18/2018 - 4/19/2018	

Hammer Type: Automatic Hammer	Sampler Type: SS	Groundwater Depth (ft.)		
Hammer Weight (lb.): 140	Sampler O.D. (in.): 2.0	Date	Time	Water Depth	Stab. Time
Hammer Fall (in.): 30	Sampler Length (in.): 24	4/19/18	1015	9.7	30 min
Auger or Casing O.D./I.D Dia (in.): 4"/3"	Rock Core Size: NX				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-6	25.0-27.0	24	24	WOR WOR WOR WOR	0	S-6: Soft, gray, Silty CLAY, wet.					
30		S-7	30.0-32.0	24	24			S-7: Soft, gray, Silty CLAY, wet.					
		V-3	30.4-31.0					V-3: Field Vane: Trow = 150/10 in-lbs (Su = 356/24 psf)					
		V-4	31.4-32.0					V-4: Field Vane: Trow = 150/15 in-lbs (Su = 356/36 psf)				SILTY CLAY	
35		S-8	35.0-37.0	24	8	WOR WOR WOR WOR	0	S-8: Soft, gray, Silty CLAY, trace fine Sand, wet.					
40		S-9	40.0-42.0	24	16	WOR WOR 1 1	1	S-9: Soft, gray, Silty CLAY, little fine to medium Sand, wet, with Sand seams from .5"-1" thick.					
		V-5	40.4-42.4					V-5: Field Vane: Trow = Failed vane attempt. Increased roller bit resistance at 42.5' bgs.			42.5		24.5
45		S-10	45.0-46.6	19	4	10 15 51 50/1"	66	S-10: Dense, gray, GRAVEL, some fine to coarse Sand, little Silt. Splitspoon refusal at 46.6' bgs.				GLACIAL TILL	
		C-1	47.0-52.0	60	60			Roller bit advanced to 47.0' and set up to core. C-1: Hard, fresh, fine to medium grained, gray, GNEISS. Joints are close to widely spaced, undulating, rough, open, discolored to fresh, with some fine sand infilling. RQD = 97%			46.6	GNEISS	20.4
50													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B102

GZA TEMPLATE TEST BORING: 1/24/2019, 9:22:21 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B102 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali	Type of Rig: ATV	Boring Location (N,E): See Plan	H. Datum:
Drilling Co.: New England Boring Contractors	Rig Model: B-53	Ground Surface Elev. (ft.): 67	V. Datum:
Foreman: Brad Enos	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 52	
		Date Start - Finish: 4/18/2018 - 4/19/2018	

Hammer Type: Automatic Hammer	Sampler Type: SS	Groundwater Depth (ft.)		
Hammer Weight (lb.): 140	Sampler O.D. (in.): 2.0	Date	Time	Water Depth	Stab. Time
Hammer Fall (in.): 30	Sampler Length (in.): 24	4/19/18	1015	9.7	30 min
Auger or Casing O.D./I.D Dia (in.): 4"/3"	Rock Core Size: NX				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
								Rock Core Times (min/ft): 2.75, 2.75, 3.25, 2.5, 3.75				GNEISS	
55								End of exploration at 52 feet.			52		15.0
60													
65													
70													
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B102

GZA TEMPLATE TEST BORING: 1/24/2019, 9:22:21 AM

Filename: ...\BRIDGE\MSTA\097_Borings_02.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (2 OF 11)

VHB: 55191.01 SHEET NUMBER: 97
CONTRACT: 2019.10 97 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B103 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 57 Final Boring Depth (ft.): 50.2 Date Start - Finish: 4/26/2018 - 4/26/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.)	
		Date / Time / Water Depth / Stab. Time	
		NOT ENCOUNTERED	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
		S-1	0.0-2.0	24	10	1 4 4 6	8	S-1: Loose, brown, fine to coarse SAND, dry.	1		0.4	TOPSOIL	56.6
											3.5	FILL	53.5
5		S-2	5.0-7.0	24	24	WOR WOR WOR WOR	0	S-2: Soft, gray, Silty CLAY, moist.					
10		S-3	10.0-12.0	24	24			S-3: Soft, gray, Silty CLAY, moist.					
		V-1						V-1: Field Vane: Trow = 130/85 in-lbs (Su = 309/202 psf)					
		V-2	10.4-11.0 11.4-12.0					V-2: Field Vane: Trow = 140/80 in-lbs (Su = 332/190 psf)					
15		S-4	15.0-17.0	24	24			S-4: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
		V-3						V-3: Field Vane: Trow = 125/0 in-lbs (Su = 297/0 psf)					
		V-4	15.4-16.0 16.4-17.0					V-4: Field Vane: Trow = 125/5 in-lbs (Su = 297/12 psf)					
20		S-5	20.0-22.0	24	24	WOR WOR WOR WOR	0	S-5: Soft, gray, Silty CLAY, wet.	2				
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B103

GZA TEMPLATE TEST BORING 1/24/2019 9:22:21 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B103 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 57 Final Boring Depth (ft.): 50.2 Date Start - Finish: 4/26/2018 - 4/26/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.)	
		Date / Time / Water Depth / Stab. Time	
		NOT ENCOUNTERED	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
		S-6	25.0-27.0	24	24			S-6: Soft, gray, Silty CLAY, wet.					
		V-5						V-5: Field Vane: Trow = 155/15 in-lbs (Su = 368/36 psf)					
		V-6	25.4-26.0 26.4-27.0					V-6: Field Vane: Trow = 160/10 in-lbs (Su = 380/24 psf)					
30		S-7	30.0-32.0	24	24	WOR WOR WOR WOR	0	S-7: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
35		S-8	35.0-37.0	24	24			S-8: Soft, gray, Silty CLAY, wet.					
		V-7						V-7: Field Vane: Trow = 150/20 in-lbs (Su = 356/48 psf)					
		V-8	35.4-36.0 36.4-37.0 38.0-39.8					V-8: Field Vane: Trow = 140/15 in-lbs (Su = 333/36 psf)					
								Apparent sand and gravel in wash water return from 38.0'-38.5', probable Glacial Till. Increased resistance during roller cone advancement at 39.8'. Practical refusal with roller cone at 40.2' bgs, probable Bedrock. Set up to core.			38	PROBABLE GLACIAL TILL	19.0
40		C-1	40.2-45.2	60	60			C-1: Hard, fresh, fine to medium grained, gray, GNEISS. Joints are close to widely spaced, moderate to high angle, planar, rough, tight. RQD = 100% Rock Core Times (min/ft): 2.5, 2.75, 3.25, 3.25, 3.5			39.8		17.2
45		C-2	45.2-50.2	60	60			C-2: Hard, fresh, fine to medium grained, gray, GNEISS. Joints are close to widely spaced, moderate to high angle, planar, rough, tight. RQD = 83% Rock Core Times (min/ft): 2.5, 2.75, 3.25, 3.25, 3.5				GNEISS	
50											45.2		11.8

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B103

GZA TEMPLATE TEST BORING 1/24/2019 9:22:22 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B103 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 57 Final Boring Depth (ft.): 50.2 Date Start - Finish: 4/26/2018 - 4/26/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.)	
		Date / Time / Water Depth / Stab. Time	
		NOT ENCOUNTERED	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
								End of exploration at 50.2 feet.					
55													
60													
65													
70													
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B103

GZA TEMPLATE TEST BORING 1/24/2019 9:22:22 AM

Filename: ...\BRIDGE\MSTA\098_Borings_03.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (3 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B104 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 69 Final Boring Depth (ft.): 68.9 Date Start - Finish: 4/17/2018 - 4/17/2018	H. Datum: V. Datum:

		Groundwater Depth (ft.)			
Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Date	Time	Water Depth	Stab. Time
		4/19/18	12:30	8.2	30 min

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		S-1	0.0- 2.0	24	14	1 4 6 12	10	S-1: Top 8": Brown, SILT, little fine to coarse Sand, trace Gravel, with organics. Bottom 6": Loose, brown, fine to coarse SAND, little Gravel, trace Silt.		1	0.7	TOPSOIL	68.3
												FILL	
5	20 43 59 52 40	S-2	5.0- 7.0	24	18	2 3 6 3	9	S-2: Stiff, brown/tan, fine Clayey SILT, seams throughout ranging from .5" to 1.5".			5		64.0
10	OPEN	S-3	10.0- 12.0	24	19	1 3 3 4	6	S-3: Medium stiff, gray, Silty CLAY, trace fine Sand, moist.				CLAY CRUST	
15		S-4	15.0- 17.0	24	24	WOR WOR WOR WOR	0	S-4: Soft, gray, Silty CLAY, wet.			15		54.0
20		S-5 V-1 V-2	20.0- 22.0 20.4- 21.0 21.4- 22.0	24	24			S-5: Soft, gray, Silty CLAY, wet. V-1: Field Vane: Trow = 105/30 in-lbs (Su = 249/71 psf) V-2: Field Vane: Trow = 125/25 in-lbs (Su = 297/59 psf)		2		SILTY CLAY	
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B104

GZA TEMPLATE TEST BORING 1/24/2019 10:22:22 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B104 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 69 Final Boring Depth (ft.): 68.9 Date Start - Finish: 4/17/2018 - 4/17/2018	H. Datum: V. Datum:

		Groundwater Depth (ft.)			
Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Date	Time	Water Depth	Stab. Time
		4/19/18	12:30	8.2	30 min

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		S-6	25.0- 27.0	24	24	WOR WOR WOR WOR	0	S-6: Soft, gray, Silty CLAY, wet.					
30		S-7 V-3 V-4	30.0- 32.0 30.4- 31.0 31.4- 32.0	24	24			S-7: Soft, gray, Silty CLAY, wet. V-3: Field Vane: Trow = 120/40 in-lbs (Su = 285/95 psf) V-4: Field Vane: Trow = 115/45 in-lbs (Su = 273/107 psf)					
35		S-8	35.0- 37.0	24	24	WOR WOR WOR WOR	0	S-8: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
40		S-9 V-5 V-6	40.0- 42.0 40.4- 41.0 41.4- 42.0	24	24			S-9: Soft, gray, Silty CLAY, wet. V-5: Field Vane: Trow = 175/45 in-lbs (Su = 416/107 psf) V-6: Field Vane: Trow = 105/20 in-lbs (Su = 249/47 psf)					
45		S-10	45.0- 47.0	24	24	WOR WOR WOR WOR	0	S-10: Soft, gray, Silty CLAY, wet.					
50													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B104

GZA TEMPLATE TEST BORING 1/24/2019 10:22:23 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B104 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 69 Final Boring Depth (ft.): 68.9 Date Start - Finish: 4/17/2018 - 4/17/2018	H. Datum: V. Datum:

		Groundwater Depth (ft.)			
Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Date	Time	Water Depth	Stab. Time
		4/19/18	12:30	8.2	30 min

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft)	Stratum Description	Elev. (ft.)
		S-11	50.0-	24	24			S-11: Soft, gray, Silty CLAY, wet.					
		V-7	52.0					V-7: Field Vane: Trow = 220/40 in-lbs (Su = 523/95 psf)					
		V-8	50.4- 51.0 51.4- 52.0					V-8: Field Vane: Trow = 220/20 in-lbs (Su = 523/48 psf)					
55		S-12	55.0- 57.0	24	24	WOR WOR WOR WOR	0	S-12: Soft, gray, Silty CLAY, little fine Sand, wet.				SILTY CLAY	
60		S-13	60.0- 62.0	24	10	6 7 4 6	11	S-13: Medium dense, gray, fine to coarse SAND, little Gravel, little to trace Silt, wet.			60		9.0
												GLACIAL TILL	
			63.1-					Roller bit advancement increased at 63.1'. Advanced roller bit to 63.9' and set up to core.			63.9		5.1
65		C-1	63.9- 68.9	60	60			C-1: Hard, fresh, fine grained, gray, GNEISS, with a quartz seam. Joints are close to moderately spaced, low angle to moderately dipping, planar, rough, fresh. RQD = 93% Rock Core Times (min/ft): 4.5, 3.5, 3.5, 3.25, 4.0				GNEISS	
70								End of exploration at 68.9 feet.			68.9		0.1
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B104

GZA TEMPLATE TEST BORING 1/24/2019 10:22:23 AM

Filename: ...\BRIDGE\MSTA\099_Borings_04.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (4 OF 11)

VHB: 55191.01 SHEET NUMBER: 99
CONTRACT: 2019.10 99 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B105 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali / B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 70 Final Boring Depth (ft.): 61.7 Date Start - Finish: 4/19/2018 - 4/19/2018

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.) Date / Time / Water Depth / Stab. Time NOT MEASURED

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	11	2 5 12 14	17	S-1: Brown, fine to medium SAND, some Silt, with organics, dry.		1	0.3	TOPSOIL	69.7
												FILL	
											3		67.0
5		S-2	5.0-7.0	24	22	2 2 3 8	5	S-2: Loose, brown, fine SAND, some Silt, dry.					
												CLAY CRUST	
10		S-3	10.0-12.0	24	20	3 4 6 6	10	S-3: Stiff, light brown, Clayey SILT, moist.					
15		S-4	15.0-17.0	24	24			S-4: Soft, gray, Silty CLAY, wet.			15		55.0
		V-1						V-1: Field Vane: Trow = 200/50 in-lbs (Su = 475/119 psf)					
		V-2	15.4-16.0 16.4-17.0					V-2: Field Vane: Trow = 185/90 in-lbs (Su = 439/214 psf)					
20		S-5	20.0-22.0	24	24			S-5: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
		V-3						V-3: Field Vane: Trow = 155/40 in-lbs (Su = 368/95 psf)					
		V-4	20.4-21.0 21.4-22.0					V-4: Field Vane: Trow = 160/50 in-lbs (Su = 380/119 psf)		2			
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B105

GZA TEMPLATE TEST BORING 12/4/2018 10:22:24 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B105 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali / B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 70 Final Boring Depth (ft.): 61.7 Date Start - Finish: 4/19/2018 - 4/19/2018

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.) Date / Time / Water Depth / Stab. Time NOT MEASURED

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-6	25.0-27.0	24	24			S-6: Soft, gray, Silty CLAY, wet.					
		V-5						V-5: Field Vane: Trow = 150/30 in-lbs (Su = 356/71 psf)					
		V-6	25.4-26.0 26.4-27.0					V-6: Field Vane: Trow = 160/25 in-lbs (Su = 380/59 psf)					
30		S-7	30.0-32.0	24	24	WOR WOR WOR WOR	0	S-7: Soft, gray, Silty CLAY, wet.					
35		S-8	35.0-37.0	24	20			S-8: Soft, gray, Silty CLAY, wet.					
		V-7						V-7: Field Vane: Trow = 120/20 in-lbs (Su = 285/48 psf)					
		V-8	35.4-36.0 36.4-37.0					V-8: Field Vane: Trow = 135/15 in-lbs (Su = 320/35 psf)				SILTY CLAY	
40		S-9	40.0-42.0	24	24	WOR WOR WOR WOR	0	S-9: Soft, gray, Silty CLAY, wet.					
45		S-10	45.0-47.0	24	24			S-10: Soft, gray, Silty CLAY, wet.					
		V-9						V-9: Field Vane: Trow = 190/10 in-lbs (Su = 451/24 psf)					
		V-10	45.4-46.0 46.4-47.0					V-10: Field Vane: Trow = 135/10 in-lbs (Su = 320/24 psf)					
50											50		20.0

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B105

GZA TEMPLATE TEST BORING 12/4/2018 10:22:24 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B105 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali / B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 70 Final Boring Depth (ft.): 61.7 Date Start - Finish: 4/19/2018 - 4/19/2018

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.) Date / Time / Water Depth / Stab. Time NOT MEASURED

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-11	50.0-52.0	24	0	8 14 15 15	29	S-11: No recovery.					
												PROBABLE GLACIAL TILL	
55		S-12	55.0-56.5	24	6	3 3 30 50/1"	33	S-12: Dense, gray, wet, fine to medium SAND, little Silt. Apparent weathered rock in spoon shoe.			56.5		13.5
		C-1	56.7-61.7	60	60			Split spoon refusal at 56.5' bgs; advanced roller bit to 56.7' and set up to core. C-1: Hard, fresh, fine to medium grained, gray, GNEISS. Joints are close, low angle, undulating to planar, rough, partially open to open, fresh to discolored. RQD = 72% Rock Core Times (min/ft): 2.75, 3.25, 3.25, 3.5, 3.75				GNEISS	
60											61.7		8.3
65								End of exploration at 61.7 feet.					
70													
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B105

GZA TEMPLATE TEST BORING 12/4/2018 10:22:24 AM

Filename: ...\BRIDGE\MSTA\100_Borings_05.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA / vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (5 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 100
100 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B106 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 60 Final Boring Depth (ft.): 50.4 Date Start - Finish: 4/26/2018 - 4/26/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.)	
		Date / Time / Water Depth / Stab. Time	
		NOT ENCOUNTERED	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
0		S-1	0.0-2.0	24	15	1 2 5 9	7	S-1: Loose, brown, fine to coarse SAND, trace Silt, dry.	1			FILL	
											3.5		56.5
5		S-2	5.0-7.0	24	24	WOH WOH WOH WOH	0	S-2: Soft, gray, Silty CLAY, wet.				CLAY CRUST	
10		S-3	10.0-12.0	24	18	WOH WOH WOH 1	0	S-3: Soft, gray, Silty CLAY, wet.			10		50.0
15		S-4	15.0-17.0	24	24			S-4: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
		V-1						V-1: Field Vane: Trow = 125/15 in-lbs (Su = 297/36 psf)					
		V-2	15.4-16.0 16.4-17.0					V-2: Field Vane: Trow = 120/10 in-lbs (Su = 285/24 psf)					
20		S-5	20.0-22.0	24	24	WOR WOR WOR WOR	0	S-5: Soft, gray, Silty CLAY, wet.	2				
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7

2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

Exploration No.: WA-B106

GZA TEMPLATE TEST BORING 1/24/2019, 10:22:25 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B106 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 60 Final Boring Depth (ft.): 50.4 Date Start - Finish: 4/26/2018 - 4/26/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.)	
		Date / Time / Water Depth / Stab. Time	
		NOT ENCOUNTERED	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
25		S-6	25.0-27.0	24	24			S-6: Soft, gray, Silty CLAY, wet.					
		V-3						V-3: Field Vane: Trow = 145/5 in-lbs (Su = 344/12 psf)					
		V-4	25.4-26.0 26.4-27.0					V-4: Field Vane: Trow = 100/5 in-lbs (Su = 238/12 psf)					
30		S-7	30.0-32.0	24	24	WOR WOR WOR WOR	0	S-7: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
35		S-8	35.0-37.0	24	24			S-8: Soft, gray, Silty CLAY, wet.					
		V-5						V-5: Field Vane: Trow = 150/20 in-lbs (Su = 356/48 psf)					
		V-6	35.4-36.0 36.4-37.0					V-6: Field Vane: Trow = 130/30 in-lbs (Su = 309/71 psf)					
											38.3		21.7
40		C-1	40.1-40.4 40.4-45.4	60	60			Split spoon refusal at 40.1' bgs. Advanced roller bit to 40.4' and set up to core. C-1: 40.4'-43.9': Hard, fresh, fine to medium grained, gray, GNEISS. Joints are closely spaced, low to moderate angle, undulating to planar, rough, partially open, fresh. 43.9'-45.4': Hard, fresh, coarse grained, gray, PEGMATITE. Joints are close to widely spaced, moderately dipping, planar, rough. Fine to medium Sand infillings. RQD = 82% Rock Core Times (min/ft): 2.75, 2.25, 2.25, 2.75, 4.0	3			PROBABLE GLACIAL TILL	
											40.4		19.6
45		C-2	45.4-50.4	60	60			C-2: 45.4'-47.7': Hard, fresh, fine to medium grained, gray, PEGMATITE. Joints are close to widely spaced, moderately dipping, planar, rough. Fine to medium Sand infillings. 47.7'-50.4': Hard, fresh, fine to medium grained, gray,				GNEISS	
50													

REMARKS

3 - Gravelly sand in wash return at 38.3' bgs, probable Glacial Till.

Exploration No.: WA-B106

GZA TEMPLATE TEST BORING 1/24/2019, 10:22:25 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B106 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 60 Final Boring Depth (ft.): 50.4 Date Start - Finish: 4/26/2018 - 4/26/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.)	
		Date / Time / Water Depth / Stab. Time	
		NOT ENCOUNTERED	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remarks	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
50								GNEISS. Joints are close to widely spaced, low angle, undulating to planar, open, rough, clay in joint at 47.7'. One high angle joint. RQD = 92% Rock Core Times (min/ft): 3.25, 4.25, 3.0, 3.25, 2.25 End of exploration at 50.4 feet.			50.4		9.6
55													
60													
65													
70													
75													

REMARKS

Exploration No.: WA-B106

GZA TEMPLATE TEST BORING 1/24/2019, 10:22:25 AM

Filename: ...\BRIDGE\MSTA\101_Borings_06.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA / vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (6 OF 11)

VHB: 55191.01 SHEET NUMBER: 101

CONTRACT: 2019.10 101 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B107 SHEET: 1 of 2 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 58 Final Boring Depth (ft.): 48.2 Date Start - Finish: 4/24/2018 - 4/24/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
4/24/18	0915	3.4	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		S-1	0.0-2.0	24	16	1 3 7 5	10	S-1: Loose, brown, fine to coarse SAND, trace Silt, dry.	1		0.5	TOPSOIL	57.5
												FILL	
5	20	S-2	5.0-7.0	24	16	4 2 1 1	3	S-2: Top 7": Loose, brown, wet, fine to coarse SAND, trace Silt. Bottom 9": Soft, gray, wet, Silty CLAY, some fine Sand.			5.6		52.4
	12											CLAY CRUST	
	13												
	13												
	15												
10		S-3	10.0-12.0	24	21	WOH WOR WOH WOH	0	S-3: Soft, gray, Silty CLAY, wet.			10		48.0
15		S-4	15.0-17.0	24	20			S-4: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
		V-1						V-1: Field Vane: Trow + 140/15 in-lbs (Su = 333/36 psf)					
		V-2	15.4-16.0 16.4-17.0					V-2: Field Vane: Trow + 125/10 in-lbs (Su = 296/24 psf)					
20		S-5	20.0-22.0	24	24	WOR WOR WOR WOR	0	S-5: Soft, gray, Silty CLAY, wet.	2				
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B107

GZA TEMPLATE TEST BORING 1/24/2019 10:22:26 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B107 SHEET: 2 of 2 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 58 Final Boring Depth (ft.): 48.2 Date Start - Finish: 4/24/2018 - 4/24/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
4/24/18	0915	3.4	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		S-6	25.0-27.0	24	24			S-6: Soft, gray, Silty CLAY, wet.					
		V-3						V-3: Field Vane: Trow + 130/10 in-lbs (Su = 308/24 psf)					
		V-4	25.4-26.0 26.4-27.0					V-4: Field Vane: Trow + 125/10 in-lbs (Su = 296/24 psf)					
30		S-7	30.0-32.0	24	24	WOR WOR WOR WOR	0	S-7: Soft, gray, Silty CLAY, wet.					
												SILTY CLAY	
35		S-8	35.0-37.0	24	24			S-8: Soft, gray, Silty CLAY, wet.					
		V-5						V-5: Field Vane: Trow + 210/10 in-lbs (Su = 498/24 psf)					
		V-6	35.4-36.0 36.4-37.0					V-6: Field Vane: Trow + 250/10 in-lbs (Su = 593/36 psf)					
40		S-9	40.0-42.0	24	24	1 2 1 4	3	S-9: Soft, gray, Silty CLAY, wet, with fine Sand seams ranging from 1"-6".					
											43		15.0
45		C-1	43.0-43.2 43.2-48.2	60	60			Increased roller bit resistance at 43.0', advanced roller bit to 43.2' and set up to core. C-1: Hard, fresh, fine to medium grained, gray, GNEISS. Joints are close to widely spaced, low angle, undulating, rough, tight to open, fresh. RQD = 100% Rock Core Times (min/ft): 3.25, 4.0, 3.5, 3.5, 4.25				GNEISS	
50								End of exploration at 48.2 feet.			48.2		9.8

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B107

GZA TEMPLATE TEST BORING 1/24/2019 10:22:26 AM

Filename: ...\BRIDGE\MSTA\102_Borings_07.dgn

Scale:

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (7 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 102
102 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B108 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 72 Final Boring Depth (ft.): 64.5 Date Start - Finish: 4/20/2018 - 4/20/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft)	Stratum Description	Elev. (ft.)
0		S-1	0.0-2.0	24	12	1 2 5 12	7	S-1: Top 4"- Silty, fine to medium SAND, with organics. Bottom 8"- Loose, brown, fine to medium SAND, dry.	1		0.3	SILTY SAND	71.7
5	6 16 49 80 82	S-2	5.0-7.0	24	12	3 5 5 4	10	S-2: Medium dense, brown to gray, fine to coarse SAND, moist.			7	FILL	65.0
10		S-3	10.0-12.0	24	24	5 5 5 5	10	S-3: Stiff, olive-brown, Clayey SILT, trace fine Sand, moist.				CLAY CRUST	
15		S-4	15.0-17.0	24	24	WOH WOH WOH WOH	0	S-4: Soft, gray, Silty CLAY, wet.			17		55.0
20		S-5 V-1 V-2	20.0-22.0 20.4-21.0 21.4-22.0	24	24			S-5: Soft, gray, Silty CLAY, wet. V-1: Field Vane: Trqw = 140/35 in-lbs (Su = 333/83 psf) V-2: Field Vane: Trqw = 165/35 in-lbs (Su = 391/83 psf)	2			SILTY CLAY	
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trqw = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B108

GZA TEMPLATE TEST BORING 1/24/2019, 9:22:26 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B108 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 72 Final Boring Depth (ft.): 64.5 Date Start - Finish: 4/20/2018 - 4/20/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft)	Stratum Description	Elev. (ft.)
25		S-6	25.0-27.0	24	14	WOR WOR WOR WOR	0	S-6: Soft, gray, Silty CLAY, wet.					
30		S-7 V-3 V-4	30.0-32.0 30.4-31.0 31.4-32.0	24	12			S-7: Soft, gray, Silty CLAY, wet. V-3: Field Vane: Trqw = 135/10 in-lbs (Su = 320/24 psf) V-4: Field Vane: Trqw = 155/.5 in-lbs (Su = 368/35 psf)					
35		S-8	35.0-37.0	24	24	WOR WOR WOR WOR	0	S-8: Soft, gray, Silty CLAY, wet.				SILTY CLAY	
40		S-9 V-5 V-6	40.0-42.0 40.4-41.0 41.4-42.0	24	24			S-9: Soft, gray, Silty CLAY, wet. V-5: Field Vane: Trqw = 135/10 in-lbs (Su = 320/23 psf) V-6: Field Vane: Trqw = 165/20 in-lbs (Su = 391/47 psf)					
45		S-10	45.0-47.0	24	9	WOR WOR WOR WOR	0	S-10: Soft, gray, Silty CLAY, wet.					
50													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B108

GZA TEMPLATE TEST BORING 1/24/2019, 9:22:27 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-B108 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Woodman Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Drive & Wash Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 72 Final Boring Depth (ft.): 64.5 Date Start - Finish: 4/20/2018 - 4/20/2018	H. Datum: V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4"/3"

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NX

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft)	Stratum Description	Elev. (ft.)
50		S-11	50.0-52.0	24	0	WOR WOR WOR 2	0	S-11: No recovery. V-7: Field Vane: Trqw = 305/20 in-lbs (Su = 724/48 psf)					
		V-7	50.4-51.0 52.5-54.5					Increased roller bit resistance at 52.5', probable top of rock. Advanced roller bit to 54.5' and set up to core.			53.9	SILTY CLAY	18.1
55		C-1	54.5-59.5	60	60			C-1: Hard, fresh, fine to medium grained, gray, GNEISS, with a quartz seam. Joints are close to widely spaced, moderate to high angle, undulating to planar, rough, open, with some sand infilling. RQD = 100% Rock Core Times (min/ft): 3.5, 4.5, 5.25, 5.5, 6.5					
60		C-2	59.5-64.5	60	60			C-2: Hard, fresh, fine to medium grained, gray, GNEISS, with a quartz seam. Joints are close to widely spaced, moderate to high angle, undulating to planar, rough, open, with some sand infilling. RQD = 83% Rock Core Times (min/ft): 3.5, 4.5, 3.0, 3.75, 4.0				GNEISS	
65								End of exploration at 64.5 feet.			64.5		7.5
70													
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-B108

GZA TEMPLATE TEST BORING 1/24/2019, 9:22:27 AM

Filename: ...\BRIDGE\MSTA\103_Borings_08.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (8 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 103
103 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-E117 SHEET: 1 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Cased	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 67 Final Boring Depth (ft.): 60.2 Date Start - Finish: 4/17/2018 - 4/18/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.) Date / Time / Water Depth / Stab. Time NOT ENCOUNTERED

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	19	1 3 4 3	7	S-1: Medium stiff, brown, Clayey SILT, little fine Sand, moist, with organics.	1				
5		S-2	5.0-7.0	24	13	3 2 2 1	4	S-2: Medium stiff, gray/tan, Silty CLAY, little fine to medium Sand, moist.				CLAY CRUST	
10		S-3	10.0-12.0	24	24	WOH WOH WOH WOH	0	S-3: Soft, gray, Silty CLAY, little to trace fine Sand, moist.			12		
15		U-1	15.0-17.0	24	24	PUSH		U-1: Gray, Silty CLAY, from bottom of tube sample, moist.					
		V-1	17.4-18.0					V-1: Field Vane: Trow = 105/20 in-lbs (Su = 249/48 psf)					
		V-2	18.4-19.0					V-2: Field Vane: Trow = 120/30 in-lbs (Su = 286/71 psf)				SILTY CLAY	
20		S-4	20.0-22.0	24	24			S-4: Soft, gray, Silty CLAY, wet.	2				
25													

REMARKS

1 - Automatic hammer energy transfer rate = 67.7
2 - Tapered vane with 2.5" diameter, 4.5" height and 45 degree taper was used for field tests. Trow = measured torque, Su = Calculated Undrained Shear Strength.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-E117

GZA TEMPLATE TEST BORING 1/24/2019 10:22:28 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-E117 SHEET: 2 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Cased	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 67 Final Boring Depth (ft.): 60.2 Date Start - Finish: 4/17/2018 - 4/18/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.) Date / Time / Water Depth / Stab. Time NOT ENCOUNTERED

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-5	25.0-27.0	24	24			S-5: Soft, gray, Silty CLAY, wet.					
		V-3	25.4-26.0					V-3: Field Vane: Trow = 110/40 in-lbs (Su = 261/95 psf)					
		V-4	26.4-27.0					V-4: Field Vane: Trow = 145/45 in-lbs (Su = 344/107 psf)					
30		U-2	30.0-32.0	24	24			U-2: Gray, Silty CLAY from bottom of tube sample.					
		V-5	32.4-33.0					V-5: Field Vane: Trow = 195/40 in-lbs (Su = 463/95 psf)					
		V-6	33.4-34.0					V-6: Field Vane: Trow = 190/40 in-lbs (Su = 451/95 psf)					
35		S-6	35.0-37.0	24	24	WOR WOR WOR WOR	0	S-6: Soft, gray, Silty CLAY, trace fine Sand, wet.				SILTY CLAY	
40		S-7	40.0-42.0	24	24			S-7: Gray, Silty CLAY, trace Sand, wet.					
		V-7	40.4-41.0					V-7: Field Vane: Trow = 195/10 in-lbs (Su = 463/24 psf)					
		V-8	41.4-42.0					V-8: Field Vane: Trow = 160/10 in-lbs (Su = 380/24 psf)					
45		S-8	45.0-47.0	24	19	WOR WOR WOR WOR	0	S-8: Soft, gray, Silty CLAY, trace fine Sand, wet.					
50													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-E117

GZA TEMPLATE TEST BORING 1/24/2019 10:22:28 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Maine Turnpike Authority Warren Avenue Overpass I-95 Rehabilitation Portland, Maine	EXPLORATION NO.: WA-E117 SHEET: 3 of 3 PROJECT NO: 09.0025970.00 REVIEWED BY:

Logged By: B. Cardali Drilling Co.: New England Boring Contractors Foreman: Brad Enos	Type of Rig: ATV Rig Model: B-53 Drilling Method: Cased	Boring Location (N,E): See Plan Ground Surface Elev. (ft.): 67 Final Boring Depth (ft.): 60.2 Date Start - Finish: 4/17/2018 - 4/18/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4"/3"	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NX	Groundwater Depth (ft.) Date / Time / Water Depth / Stab. Time NOT ENCOUNTERED

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		U-3	50.0-52.0	24	24	PUSH		U-3: Gray, Silty CLAY, trace fine Sand, from bottom of tube sample, wet.					
		V-9	52.4-53.0					V-9: Field Vane: Trow = 275/35 in-lbs (Su = 653/83 psf)					
		V-10	53.4-54.0					V-10: Field Vane: Trow = 215/40 in-lbs (Su = 510/95 psf)					
55		S-9	55.0-57.0	24	18	WOR WOH WOH WOH	0	S-9: Soft, gray, Silty CLAY, little fine Sand, wet.				SILTY CLAY	
60		S-10	59.8-60.0 60.0-60.2	2		50/2"	R	Increased roller bit resistance at 59.8', probable Glacial Till S-10: Very dense, gray, fine to coarse SAND, some Gravel, little Silt, wet. Splitspoon refusal at 60.2', probable top of rock. End of exploration at 60.2 feet.			59.8 60.2' GLACIAL TILL	7.2 6.8	
65													
70													
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-E117

GZA TEMPLATE TEST BORING 1/24/2019 10:22:28 AM

Filename: ...\BRIDGE\MSTA\104_Borings_09.dgn

Scale:

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (9 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 104
104 OF 141

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R109
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 56
Final Boring Depth (ft.): 6
Date Start - Finish: 4/17/2018 - 4/18/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
											0.5	PAVEMENT	55.5
		S-1	0.5-2.0	18	3	46 54 36	90	S-1: Very dense, brown, fine to coarse SAND, little Gravel, dry.	1			ROAD BASE	
		S-2	2.0-4.0	24	16	14 18 13 12	31	S-2: Medium dense, brown, fine to coarse SAND, little Gravel, dry.	2				
5		S-3	4.0-6.0	24	15	10 8 7 6	15	S-3: Medium dense, brown, fine to coarse SAND, little Gravel, wet.			6		50.0
								End of exploration at 6 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R109

GZA TEMPLATE TEST BORING; 1/24/2019; 10:22:28 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R110
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 56
Final Boring Depth (ft.): 6
Date Start - Finish: 4/17/2018 - 4/18/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
											0.5	PAVEMENT	55.5
		S-1	0.5-2.0	18	18	22 24 26	50	S-1: Dense, brown, fine to coarse SAND, little Gravel, dry.	1			ROAD BASE	
		S-2	2.0-4.0	24	19	12 13 12 7	25	S-2: Medium dense, brown, fine to coarse SAND, little Silt, dry.	2				
5		S-3	4.0-6.0	24	19	3 3 4 5	7	S-3: Top 14": Loose, brown, fine to coarse SAND, little Silt. Bottom 5": Gray, Clayey SILT.			5.2		50.8
											5.6	CLAYEY SILT	50.4
								End of exploration at 6 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R110

GZA TEMPLATE TEST BORING; 1/24/2019; 10:22:29 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R111
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 56
Final Boring Depth (ft.): 6
Date Start - Finish: 4/17/2018 - 4/18/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
											0.5	PAVEMENT	55.5
		S-1	0.5-2.0	18	15	21 29 25	54	S-1: Dense, brown, fine to coarse SAND, little Gravel, dry.	1			ROAD BASE	
		S-2	2.0-4.0	24	20	15 25 17 17	42	S-2: Dense, brown, fine to medium SAND, little Gravel, dry.	2				
5		S-3	4.0-6.0	24	12	9 11 25 20	36	S-3: Medium dense, brown, moist, fine to coarse SAND, little Gravel.			5.5		50.5
								End of exploration at 6 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R111

GZA TEMPLATE TEST BORING; 1/24/2019; 10:22:29 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R112
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 56
Final Boring Depth (ft.): 6
Date Start - Finish: 4/17/2018 - 4/18/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
NOT APPLICABLE			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
											0.5	PAVEMENT	55.5
		S-1	0.5-2.0	18	16	26 23 20	43	S-1: Very dense, brown, fine to coarse SAND, little Gravel, dry.	1			ROAD BASE	
		S-2	2.0-4.0	24	21	15 16 21 20	37	S-2: Dense, brown, fine to coarse SAND, little Gravel, dry.	2				
5		S-3	4.0-6.0	24	16	32 13 7 7	20	S-3: Top 8": Medium dense, gray/brown, fine to medium SAND, little coarse Sand. Bottom 8": Gray, Clayey SILT, moist.			5.4		50.6
											6	CLAYEY SILT	50.0
								End of exploration at 6 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R112

GZA TEMPLATE TEST BORING; 1/24/2019; 10:22:29 AM

Filename: ...\BRIDGE\MSTA\105_Borings_10.dgn

Scale:

No.	Revision	By	Date

Designed by: GZA vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (10 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 105

Date:3/24/2019

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R113
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 57
Final Boring Depth (ft.): 6
Date Start - Finish: 4/26/2018 - 4/26/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
4/26/18	--	3.5	0 min

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.5-2.0	18	14	13 14 11	25	S-1: Medium dense, brown, fine to coarse SAND, little Gravel, dry.	1		0.5	PAVEMENT	56.5
		S-2	2.0-4.0	24	7	8 33 49	82	S-2: Top 8": Dense, brown, fine to coarse SAND, little Gravel, trace Silt, dry. Bottom 8": Gray, Silty CLAY, moist.	2			ROAD BASE	
5		S-3	4.0-6.0	24	24	4 5 3 3	8	S-3: Top 2?": Loose, brown/gray, wet, fine to coarse SAND, little Gravel, little Silt. Bottom 3?": Medium stiff, gray, Clayey SILT, wet.			5.4		51.6
											6	SILTY CLAY	51.0
								End of exploration at 6 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R113

GZA TEMPLATE TEST BORING 1/24/2019, 10:22:01 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R114
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 57
Final Boring Depth (ft.): 6
Date Start - Finish: 4/24/2018 - 4/24/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
4/24/2018	--	4.5	0 min

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.5-2.0	18	16	37 26 31	57	S-1: Very dense, brown, fine to coarse SAND, trace Gravel, dry.	1		0.5	PAVEMENT	56.5
		S-2	2.0-4.0	24	21	20 17 16 15	33	S-2: Dense, brown, fine to coarse SAND, dry.	2			ROAD BASE	
5		S-3	4.0-6.0	24	12	10 9 7 12	16	S-3: Medium dense, gray/brown, fine to coarse SAND, moist.					
											6		51.0
								End of exploration at 6 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R114

GZA TEMPLATE TEST BORING 1/24/2019, 10:22:01 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R115
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 63
Final Boring Depth (ft.): 6
Date Start - Finish: 4/26/2018 - 4/26/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
4/26/2018	--	3.9	0 min

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.5-2.0	18	17	47 30 29	59	S-1: Very dense, brown, fine to coarse SAND, little Gravel, dry.	1		0.5	PAVEMENT	62.5
		S-2	2.0-4.0	24	2	26 34 30 42	64	S-2: Very dense, brown, fine to coarse SAND, little Gravel, dry.	2			ROAD BASE	
5		S-3	4.0-6.0	24	16	57 17 9 11	26	S-3: Top 8": Dense, gray/brown, wet, fine to coarse SAND, little Gravel. Bottom 8": Gray, moist, Silty CLAY, some fine Sand.			4.7		58.3
											6	SILTY CLAY	57.0
								End of exploration at 6 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R115

GZA TEMPLATE TEST BORING 1/24/2019, 10:22:01 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Maine Turnpike Authority
Warren Avenue Overpass I-95 Rehabilitation
Portland, Maine

EXPLORATION NO.: WA-R116
SHEET: 1 of 1
PROJECT NO: 09.0025970.00
REVIEWED BY:

Logged By: B. Cardali
Drilling Co.: New England Boring Contractors
Foreman: Brad Enos

Type of Rig: ATV
Rig Model: B-53
Drilling Method: Cased

Boring Location (N,E): See Plan
Ground Surface Elev. (ft.): 63
Final Boring Depth (ft.): 6.4
Date Start - Finish: 4/24/2018 - 4/24/2018

H. Datum:
V. Datum:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): --

Sampler Type: SS
Sampler O.D. (in.): 3.0
Sampler Length (in.): 24
Rock Core Size: --

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.4-2.4	24	20	52 32 26 28	58	S-1: Very dense, brown, fine to coarse SAND, dry.	1		0.5	PAVEMENT	62.5
		S-2	2.4-4.4	24	21	17 14 21 34	35	S-2: Very dense, brown, fine to coarse SAND, trace Silt, moist.	2			ROAD BASE	
5		S-3	4.4-6.4	24	24	37 66 41 7	>100	S-3: Very dense, gray-brown, fine to coarse SAND, little Gravel, dry.			6.4		56.6
								End of exploration at 6.4 feet.					
10													
15													
20													
25													

REMARKS
1 - Automatic hammer energy transfer rate = 67.7
2 - Samples retrieved using a 3" over-sized split spoon.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: WA-R116

GZA TEMPLATE TEST BORING 1/24/2019, 10:22:01 AM

Filename: ...\BRIDGE\MSTA\106_Borings_11.dgn

Scale:

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	EDF	2/22/19	Checked	ARB	2/22/19
Drawn	NVW	2/22/19	In Charge of	ARB	2/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

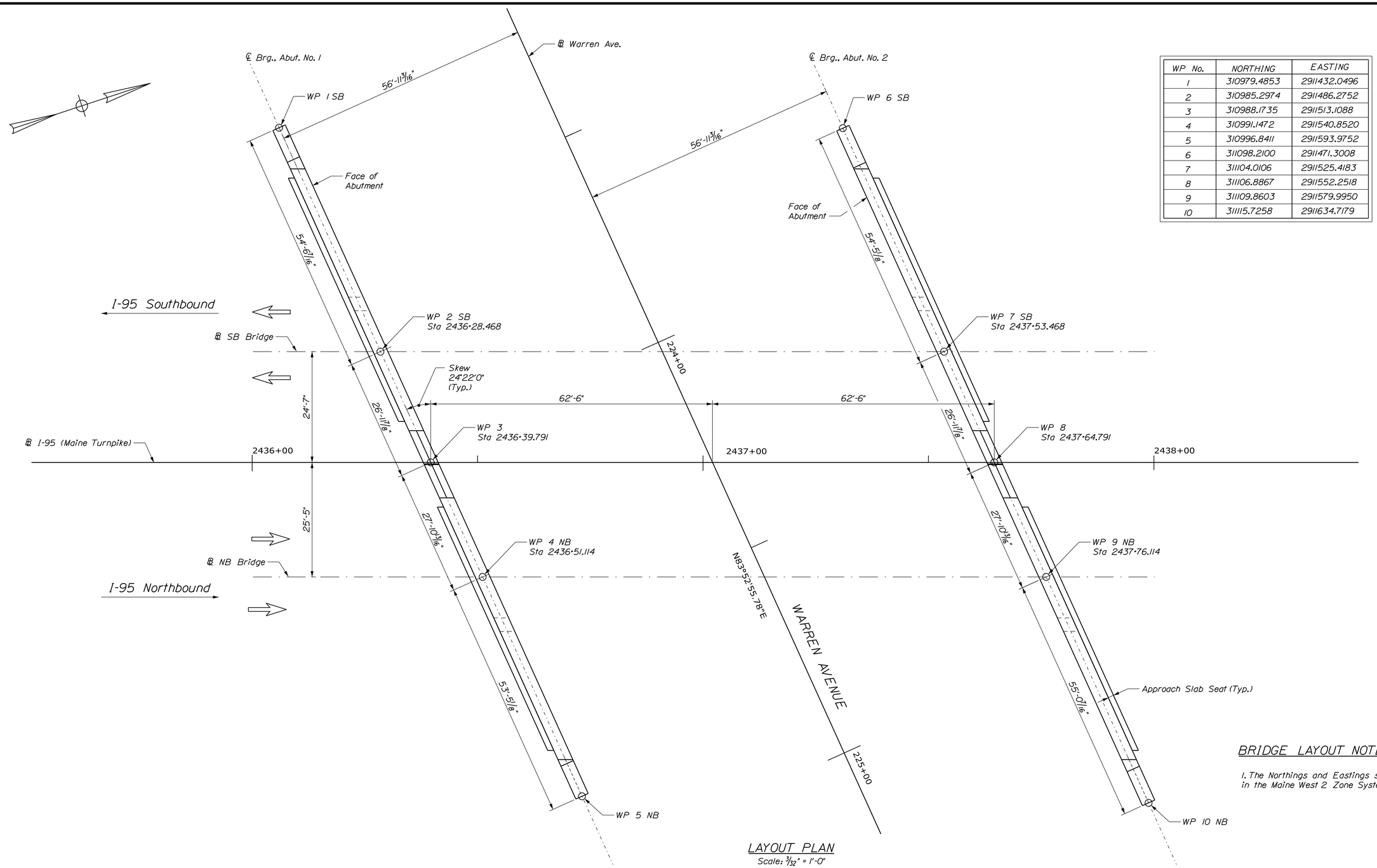
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BORING LOGS (11 OF 11)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 106
106 OF 141

Date:3/24/2019



WP No.	NORTHING	EASTING
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2	310985.2974	2911486.2752
3	310988.1735	2911513.1088
4	310991.1472	2911540.8520
5	310996.8411	2911593.9752
6	311098.2100	2911471.3008
7	311104.0106	2911525.4183
8	311106.8867	2911552.2518
9	311109.8603	2911579.9950
10	311115.7258	2911634.7179

LAYOUT PLAN
Scale: 3/32" = 1'-0"

BRIDGE LAYOUT NOTES

1. The Northings and Eastings shown are in the Maine West 2 Zone System.

Scale: 2 0 14 30
3/32" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

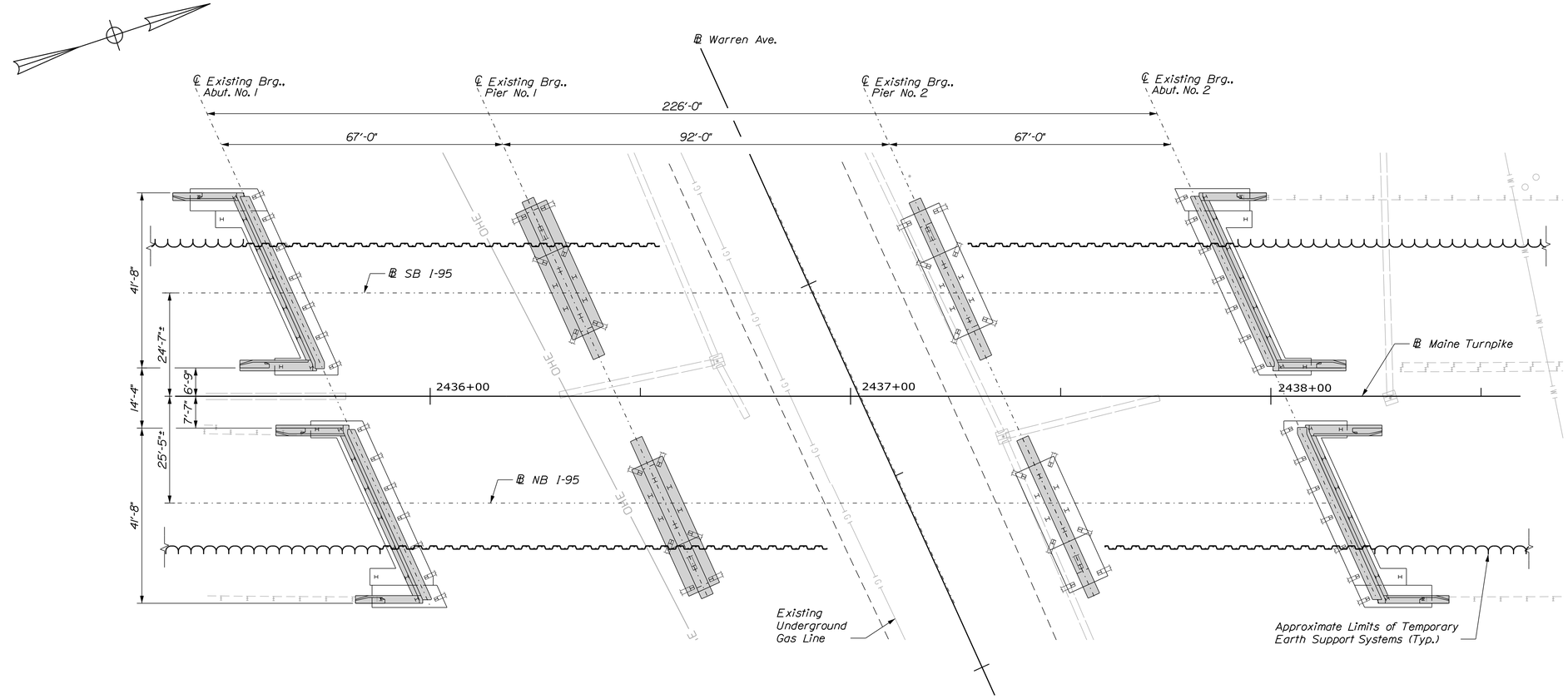
BRIDGE SURVEY LAYOUT PLAN

VHB: 55191.01
CONTRACT: 2019.10

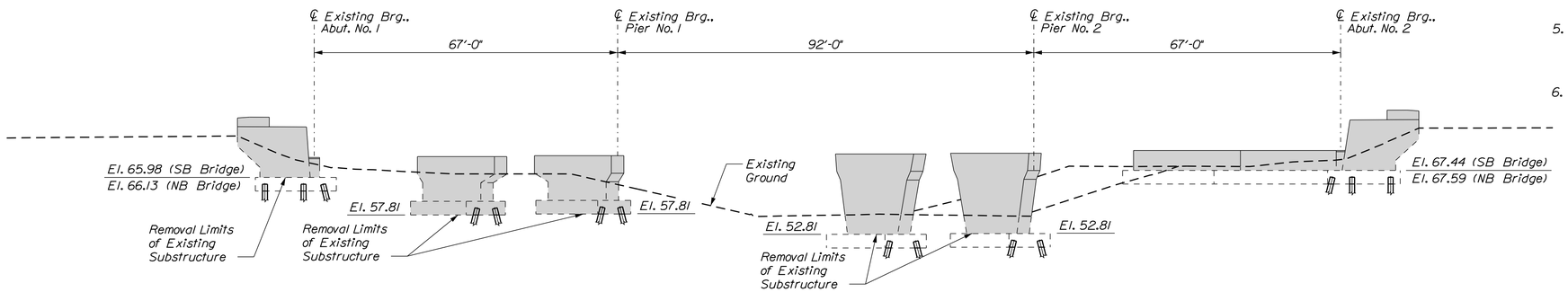
SHEET NUMBER: 107
107 OF 141

Filename: ...\BRIDGE\MSTA\107_survey_01.dgn

Date:3/24/2019



PLAN
Scale: 1" = 15'-0"



ELEVATION
(Not all piles shown for clarity)
Scale: 1" = 15'-0"

NOTES

1. Superstructure not shown for clarity. Superstructure shall be completely removed.
2. All existing abutments, piers and foundation piles shall be removed to the limits shown on the plans. The resulting depressions shall be backfilled with gravel borrow and compacted to 95% of maximum density. Excavation and removal of existing foundations, as well as the cost of furnishing, placing and compacting gravel borrow, shall be incidental to the bridge removal pay items.
3. Where required, Temporary Earth Support Systems shall be provided and installed in accordance with Special Provision Section 511. Payment for Temporary Earth Support Systems shall be made under Item 511.091, Temporary Earth Support Systems.
4. The Contractor shall be responsible for selecting, designing, detailing and constructing Temporary Earth Support Systems as required to complete the work.
5. The Contractor's Temporary Earth Support Systems shall be designed and detailed to avoid damaging or disturbing existing utilities.
6. All Temporary Earth Support Systems installed in the areas between the existing abutments shall be permanently left in place, except all parts of the system shall be removed to 3'-0" below proposed finished grade, unless otherwise noted.

LEGEND

Limit of Removal

Filename: ...\MSTA\108_Sub-Rem_Plan.dgn

Scale: 15 0 15 30
1" = 15'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

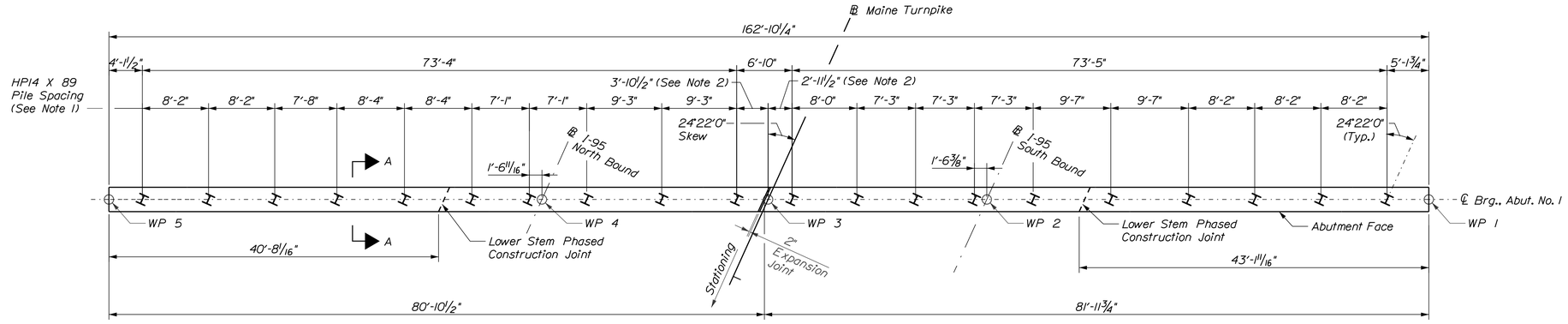
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

SUBSTRUCTURE REMOVAL LIMITS

VHB: 55191.01 SHEET NUMBER: 108
CONTRACT: 2019.10 108 OF 141

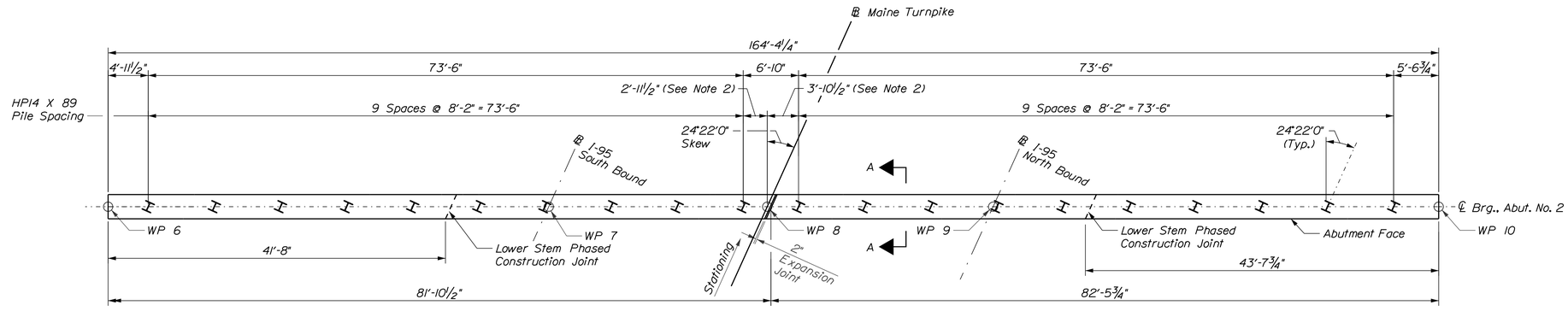


ABUTMENT 1 - FOUNDATION PLAN

Scale: 1/8"=1'-0"

NOTES

1. The pile spacing shown for Abutment 1 has been developed to avoid conflicts with the existing Pier 1 piles. The layout is based on the anticipated location of the existing Pier 1 piles as shown in the existing plans. The Contractor shall adjust the spacing as necessary to avoid conflicts after removal of the existing Pier 1 footing. The maximum allowable pile spacing is 10'-0" and the minimum allowable pile spacing is 7'-0", unless otherwise noted.
2. Dimension is to baseline Maine Turnpike. There is a 2" wide expansion joint between Northbound & Southbound Abutments. See Detail A Median Wall Joint on Abutment Details (3 of 3).
3. 30" Diameter concrete collar at each pile not shown for clarity.



ABUTMENT 2 - FOUNDATION PLAN

Scale: 1/8"=1'-0"

SHEET NOTES

1. See Foundation Details Sheet for Abutment Notes, Pile Notes, and Section A-A.
2. See Bridge Survey Layout Plan Sheet for Working Point (WP) Station and Coordinates.

Scale: 8 0 8 16 — 1/8" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

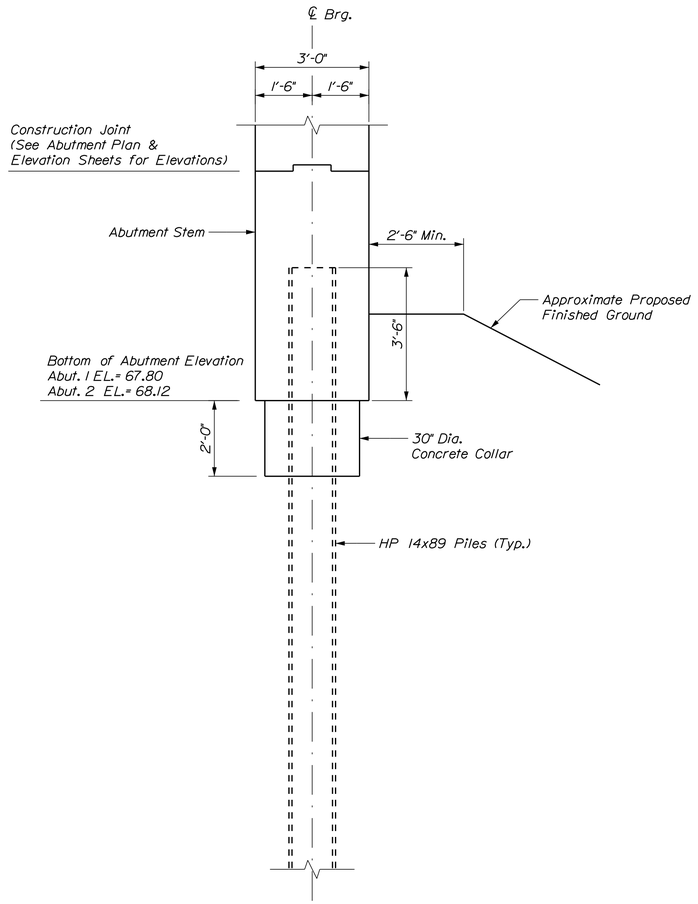
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT NO. 1 & 2 FOUNDATION PLAN

VHB: 55191.01 SHEET NUMBER: 109

CONTRACT: 2019.10 109 OF 141

Date:3/24/2019

Filename: ...\BRIDGE\MSTA\109_Abut-Fnd.dgn



SECTION A-A

Scale: 1/2" = 1'-0"

PILE NOTES

1. The maximum factored pile load is 339 kips (including 102 kips allowed for downdrag).

2. H-pile material shall be ASTM A572, Grade 50.

3. Piles shall be driven to bedrock.

4. Estimate of piles required:

   Abutment No. 1: 20 ~ HP 14x89 @ 55 feet
   Abutment No. 2: 20 ~ HP 14x89 @ 65 feet

5. All piles shall be equipped with a pile tip in accordance with Standard Specifications Section 501.048, Prefabricated Pile Tips.

6. Piles shall not be out of position shown by more than 2 inches in any direction except for allowable pile spacing adjustments required to avoid conflicts with existing pier piles as noted on the Abutment No. 1 & 2 Foundation Plan.

7. The Contractor shall perform and submit a wave equation analysis for review and acceptance by the Resident. The maximum allowable driving stress is 0.90 times Fy. The submitted analyses shall include the proposed stopping criteria based on the wave equation analysis and the proposed driving system. The stopping criteria shall include the blows per inch and the number of 1-in. intervals at which pile installation may be terminated. The cost of performing the wave equation analysis will be considered incidental to Item No. 501.92, Pile Driving Equipment Mobilization.

8. The Contractor shall perform 4 dynamic load test(s) to confirm the ultimate capacity of the piles. The required nominal resistance for the pile is the factored axial pile load divided by a resistance factor of 0.65 per LRFD Specifications. The dynamic test shall be performed on the first production pile driven.

ABUTMENT NOTES

1. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.

2. Cover joints where waterstops are not required in accordance with Standard Details Section 502.

3. Abutments and wingwalls shall be backfilled with Lightweight Fill behind the abutments. Pay limits are shown on the Lightweight Fill Details Sheet.

4. Concrete Collars shall be paid as Item 502.21 - Structural Concrete, Abutments and Retaining Walls.

Date:3/24/2019

Filename: ...\WSTA\110_Found-Det_01.dgn

Scale: 1 0 5
1/2" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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FAX (207) 253-5596

MAINE TURNPIKE

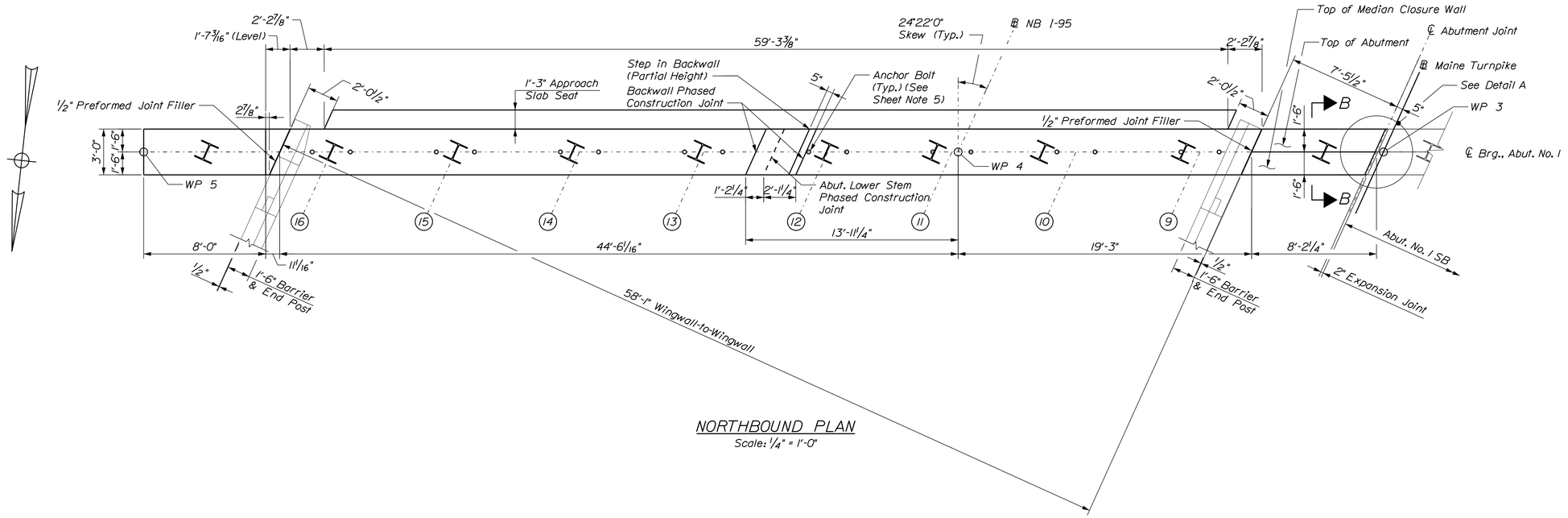
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

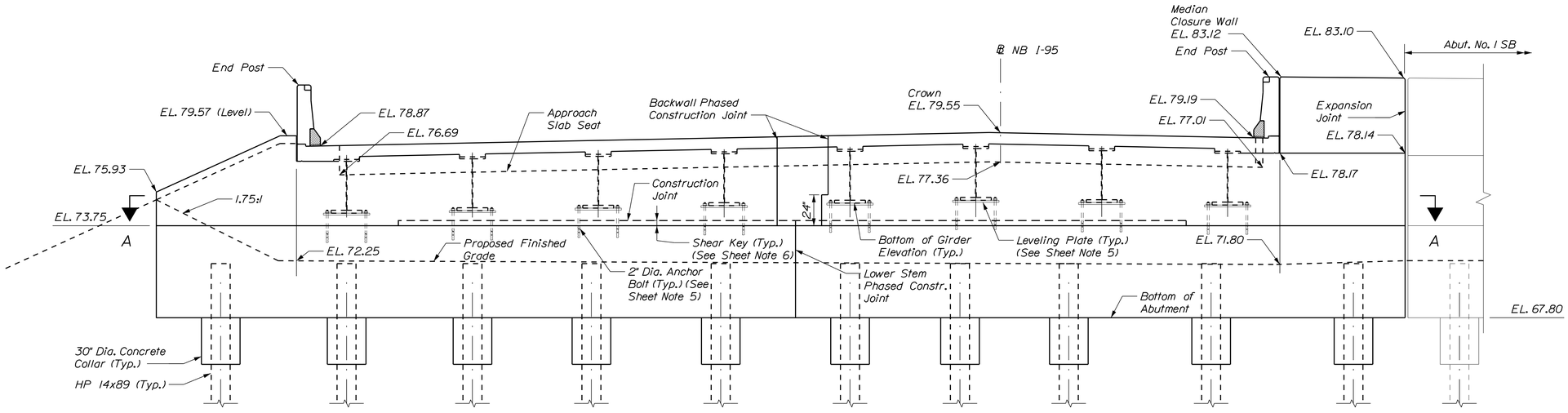
FOUNDATION DETAILS

VHB: 55191.01 SHEET NUMBER: 110
CONTRACT: 2019.10 110 OF 141



NORTHBOUND PLAN

Scale: 1/4" = 1'-0"



NORTHBOUND ELEVATION

(Pavement not shown for clarity)
Scale: 1/4" = 1'-0"

BOTTOM OF GIRDER ELEVATION @ ℄ BEARING							
G16	G15	G14	G13	G12	G11	G10	G9
74.52	74.65	74.78	75.91	75.03	75.18	75.01	74.84

NOTE

1. All abutment elevations are shown to near face of abutment except the top of approach slab seat and bottom of girder which are shown to far face of abutment and centerline of bearing respectively.

SHEET NOTES:

1. See Abutment Details (1 of 3) Sheet for Section A-A.
2. See Abutment Details (3 of 3) Sheet for Section B-B and Detail A.
3. See Survey Layout Sheet for Working Point (WP) Station and Coordinates.
4. See Foundation Plan Sheet for Pile Spacing.
5. See Girder Details (2 of 2) Sheet For Leveling Plate and Anchor Bolt Details.
6. See Abutment Details (1 of 3) Sheet for Shear Key Sections.

Scale: 4 0 8 — 1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

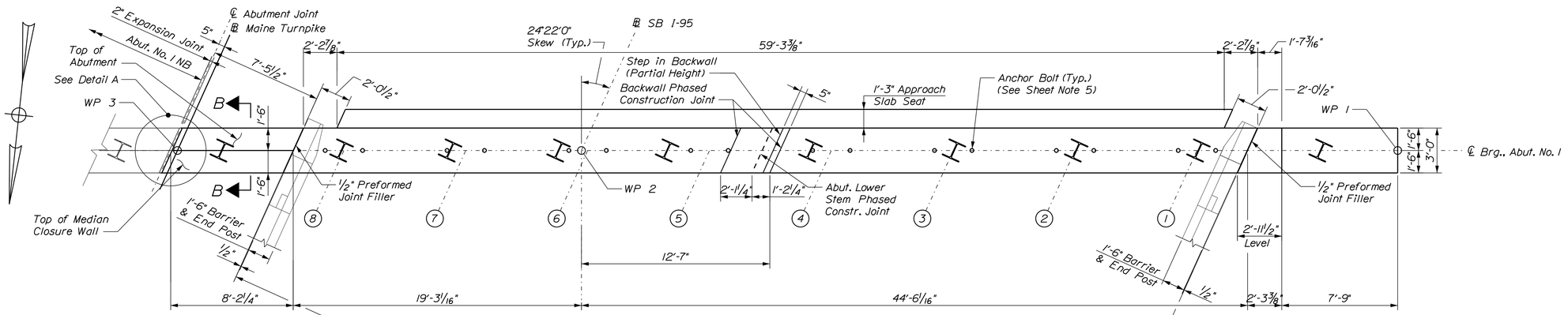
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT NO. 1 PLAN AND ELEVATION (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 111

CONTRACT: 2019.10 111 OF 141

Date:3/24/2019

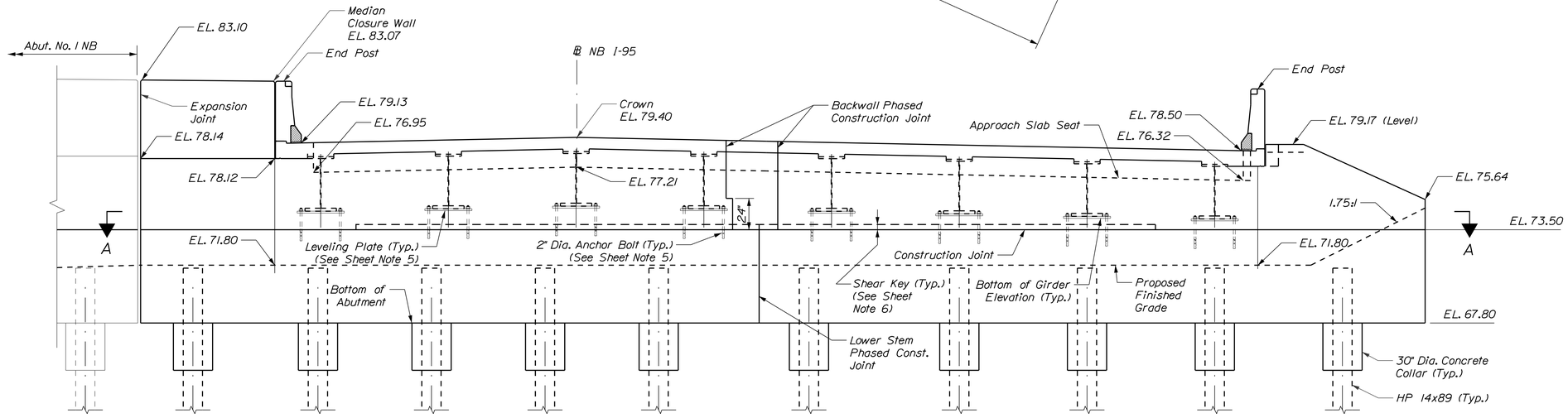
Filename: ...\BRIDGE\MSTA\111_NB-Abut_01.dgn



SOUTHBOUND PLAN

Scale: 1/4" = 1'-0"

58'-1" Wingwall-to-Wingwall



SOUTHBOUND ELEVATION

(Pavement not shown for clarity)
Scale: 1/4" = 1'-0"

BOTTOM OF GIRDER ELEVATION @ ℄ BEARING							
G8	G7	G6	G5	G4	G3	G2	G1
74.78	74.90	75.01	74.84	74.67	74.50	74.32	74.15

NOTE

1. All abutment elevations are shown to near face of abutment except the top of approach slab seat and bottom of girder which are shown to far face of abutment and centerline of bearing respectively.

SHEET NOTES:

1. See Abutment Details (2 of 3) Sheet for Section A-A.
2. See Abutment Details (3 of 3) Sheet for Section B-B and Detail A.
3. See Survey Layout Sheet for Working Point (WP) Station and Coordinates.
4. See Foundation Plan Sheet for Pile Spacing.
5. See Girder Details (2 of 2) Sheet For Leveling Plate and Anchor Bolt Details.
6. See Abutment Details (1 of 3) Sheet for Shear Key Section.

Scale: 4 0 8 — 1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
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MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

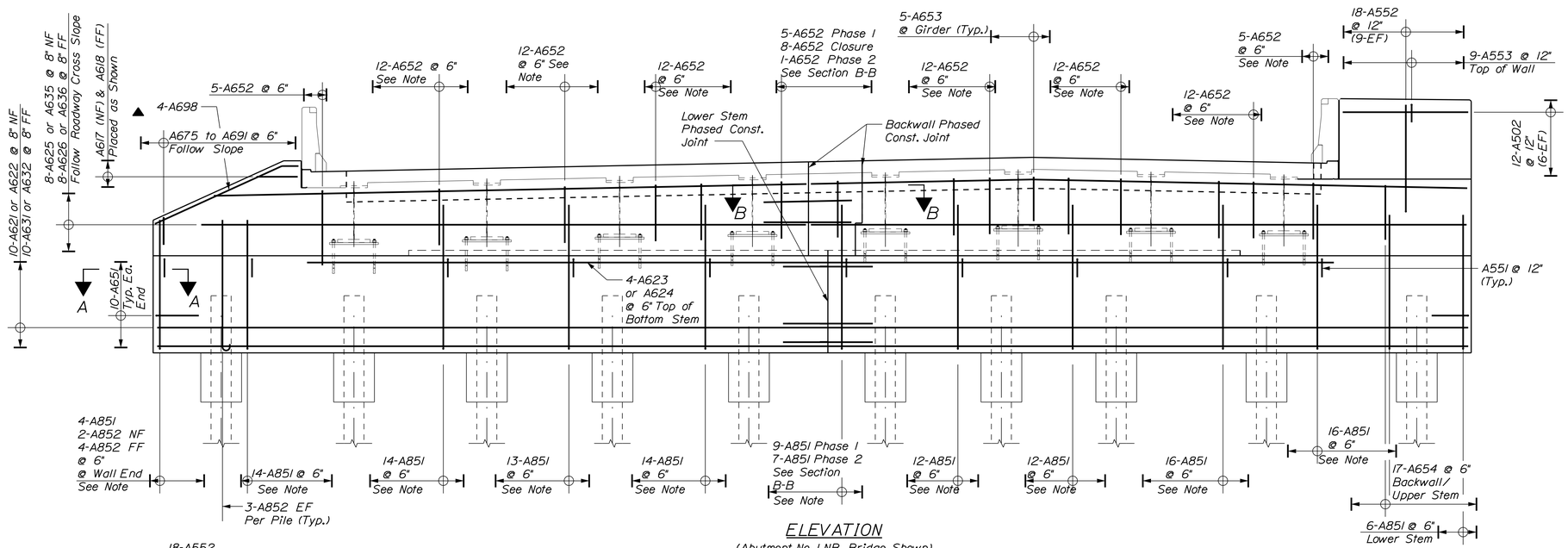
THE GOLD STAR MEMORIAL HIGHWAY

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT NO. 1 PLAN AND ELEVATION (2 OF 2)

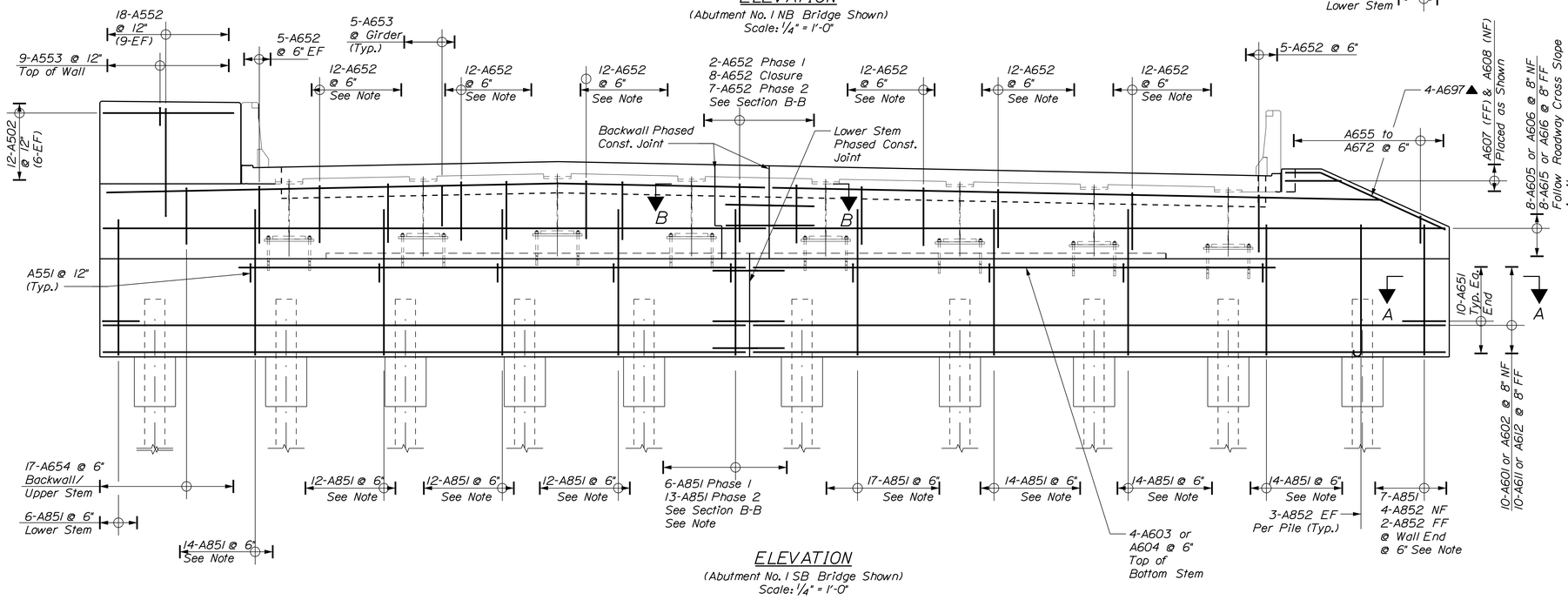
VHB: 55191.01 SHEET NUMBER: 112
CONTRACT: 2019.10 112 OF 141

Date:3/24/2019

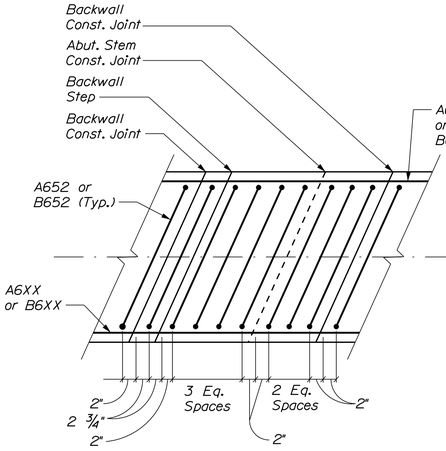
Filename: ...\BRIDGE\MSTA\112_SB-Abut_01.dgn



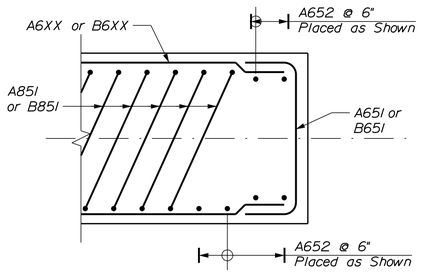
ELEVATION
(Abutment No. 1 NB Bridge Shown)
Scale: 1/4" = 1'-0"



ELEVATION
(Abutment No. 1 SB Bridge Shown)
Scale: 1/4" = 1'-0"



SECTION B-B
(Horizontal lap bars not shown for clarity)
Scale: 1/2" = 1'-0"



SECTION A-A
(Southbound bridge shown, northbound bridge similar)
Scale: 1/2" = 1'-0"

NOTES:

1. Cut in Field A606, A616, A626, A636 as necessary to provide 2" cover at wingwall end.
2. Cut in field near face (NF) vertical leg of A851 or A852 when it interferes with girder bottom flange (Limit 5 per girder location).
3. Place hook of A852 such that it provides 2" of clear distance to a pile.
4. A851, A652, A653, A654, A551, A552, A553 Place Along Skew Parallel to Roadway Alignment.

SHEET NOTES

1. See Abutment Details Sheets for Abutment sections.

REINFORCING KEY

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face
▲ = Cut in Field

Date:3/24/2019

Filename: ...\113_SB-NB_Abut_01_Reinf.dgn

Scale: 4 0 8
1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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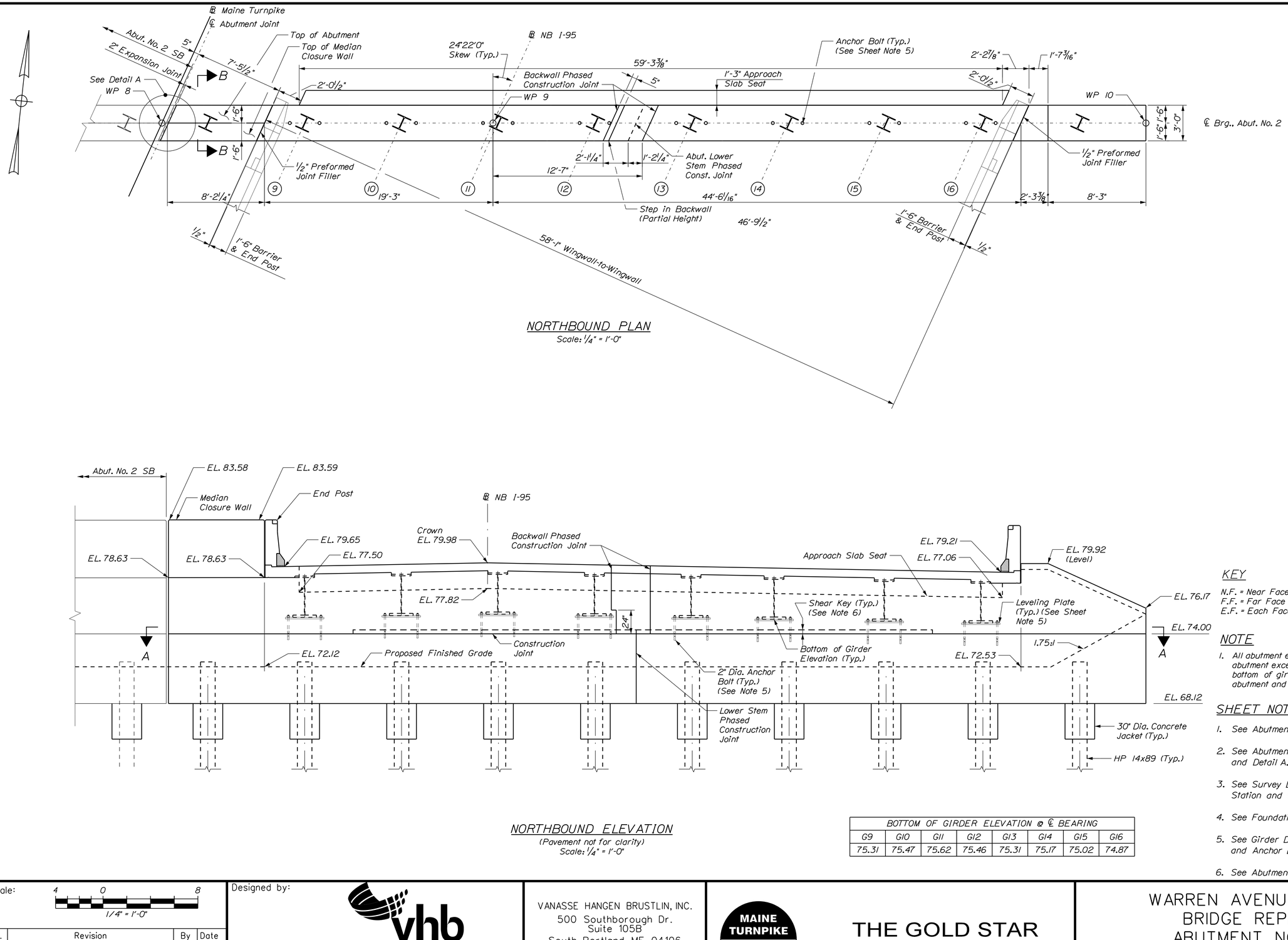
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT NO. 1 REINFORCING

VHB: 55191.01 SHEET NUMBER: 113
CONTRACT: 2019.10 113 OF 141



NORTHBOUND PLAN

Scale: 1/4" = 1'-0"

NORTHBOUND ELEVATION

(Pavement not for clarity)
Scale: 1/4" = 1'-0"

BOTTOM OF GIRDER ELEVATION @ ℄ BEARING							
G9	G10	G11	G12	G13	G14	G15	G16
75.31	75.47	75.62	75.46	75.31	75.17	75.02	74.87

KEY

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

NOTE

1. All abutment elevations are shown to near face of abutment except the top of approach slab seat and bottom of girder which are shown to far face of abutment and centerline of bearing respectively.

SHEET NOTES

1. See Abutment Details (1 of 3) Sheet for Section A-A.
2. See Abutment Details (3 of 3) Sheet for Section B-B and Detail A.
3. See Survey Layout Sheet for Working Point (WP) Station and Coordinates.
4. See Foundation Plan for Pile Spacing.
5. See Girder Details (2 of 2) For Leveling Plate and Anchor Bolt Details.
6. See Abutment Details (1 of 3) for Shear Key Section.

Scale: 4 0 8 — 1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

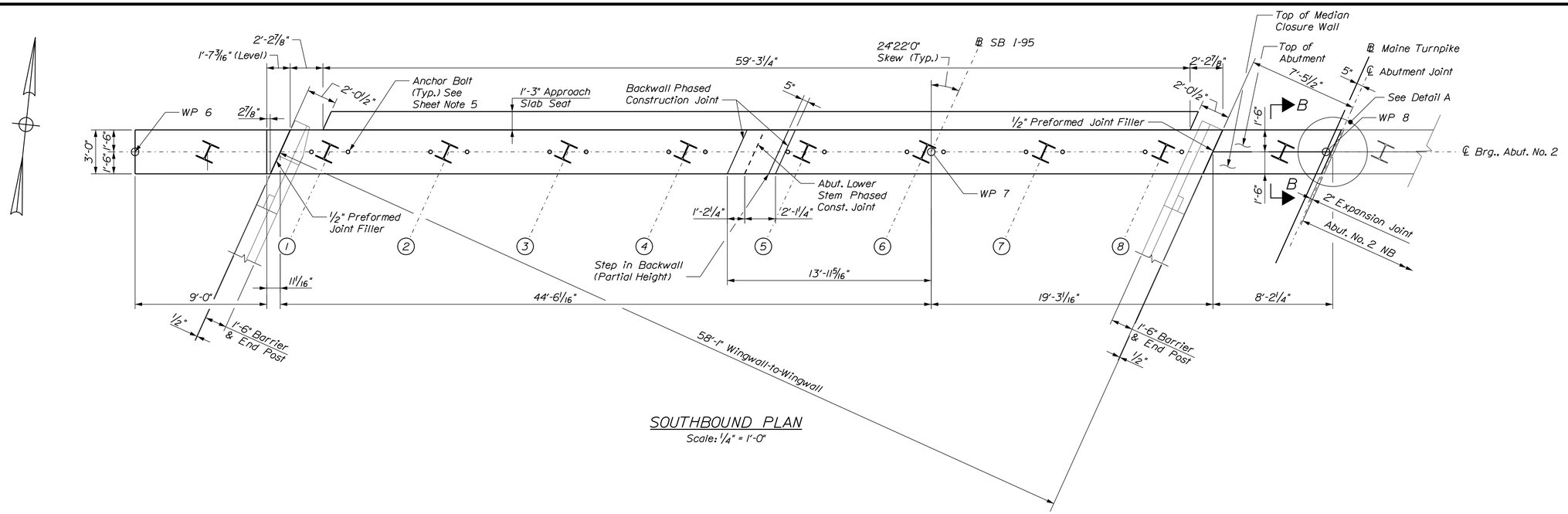
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT NO. 2 PLAN AND ELEVATION (1 OF 2)

VHB: 55191.01
CONTRACT: 2019.10
SHEET NUMBER: 114
114 OF 141

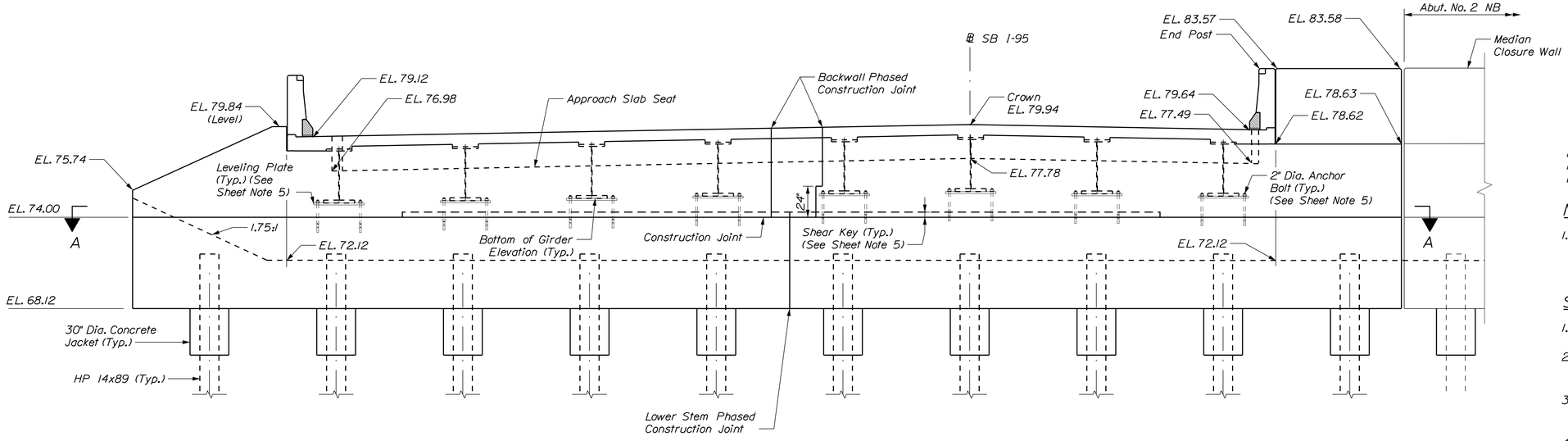
Date:3/24/2019

Filename: ...\BRIDGE\WSTA\114_NB-Abut_02.dgn



SOUTHBOUND PLAN

Scale: 1/4" = 1'-0"



SOUTHBOUND ELEVATION

(Pavement not for clarity)
Scale: 1/4" = 1'-0"

BOTTOM OF GIRDER ELEVATION @ ℄ BEARING							
G1	G2	G3	G4	G5	G6	G7	G8
74.79	74.95	75.10	75.26	75.41	75.57	75.44	75.30

KEY

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

NOTE

1. All abutment elevations are shown to near face of abutment except the top of approach slab seat and bottom of girder which are shown to far face of abutment and centerline of bearing respectively.

SHEET NOTES:

1. See Abutment Details (2 of 3) Sheet for Section A-A.
2. See Abutment Details (3 of 3) Sheet for Section B-B and Detail A.
3. See Survey Layout Sheet for Working Point (WP) Station and Coordinates.
4. See Foundation Plan for Pile Spacing.
5. See Girder Details (2 of 2) For Leveling Plate and Anchor Bolt Details.
6. See Abutments Details (1 of 3) for Shear Key Section.

Scale: 4 0 8 — 1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

MTA PROJECT MANAGER: Ralph Norwood, IV

THE GOLD STAR MEMORIAL HIGHWAY

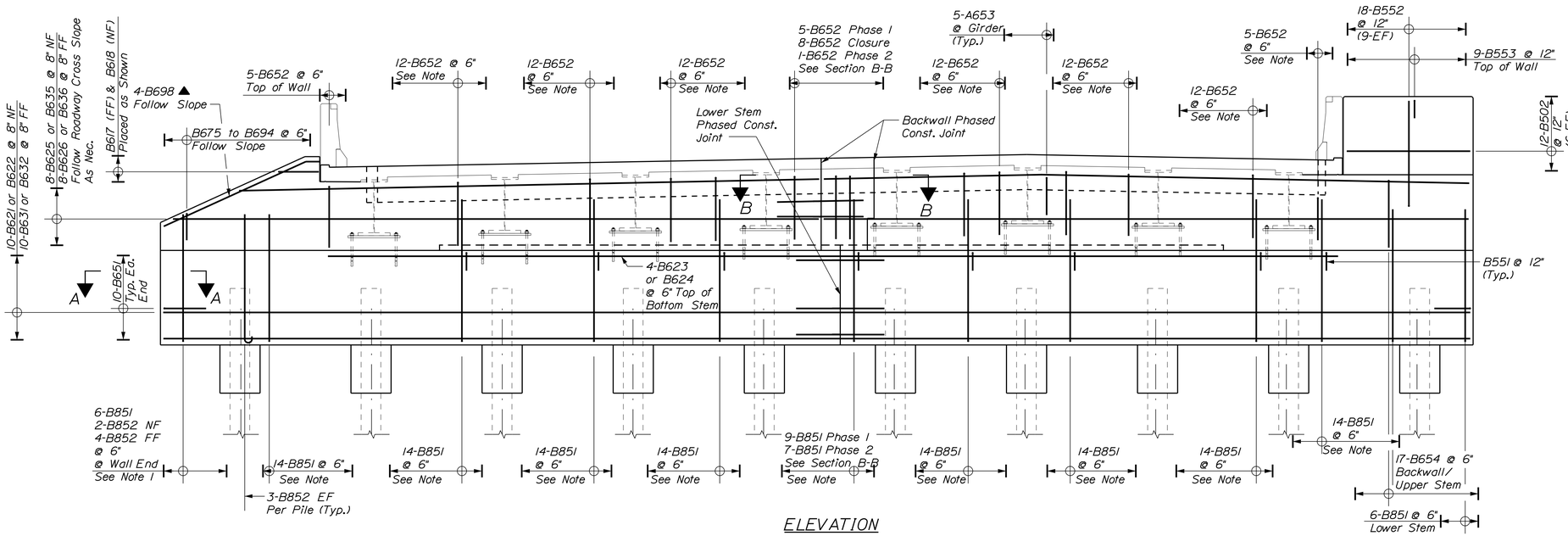
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT NO. 2 PLAN AND ELEVATION (2 OF 2)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 115
115 OF 141

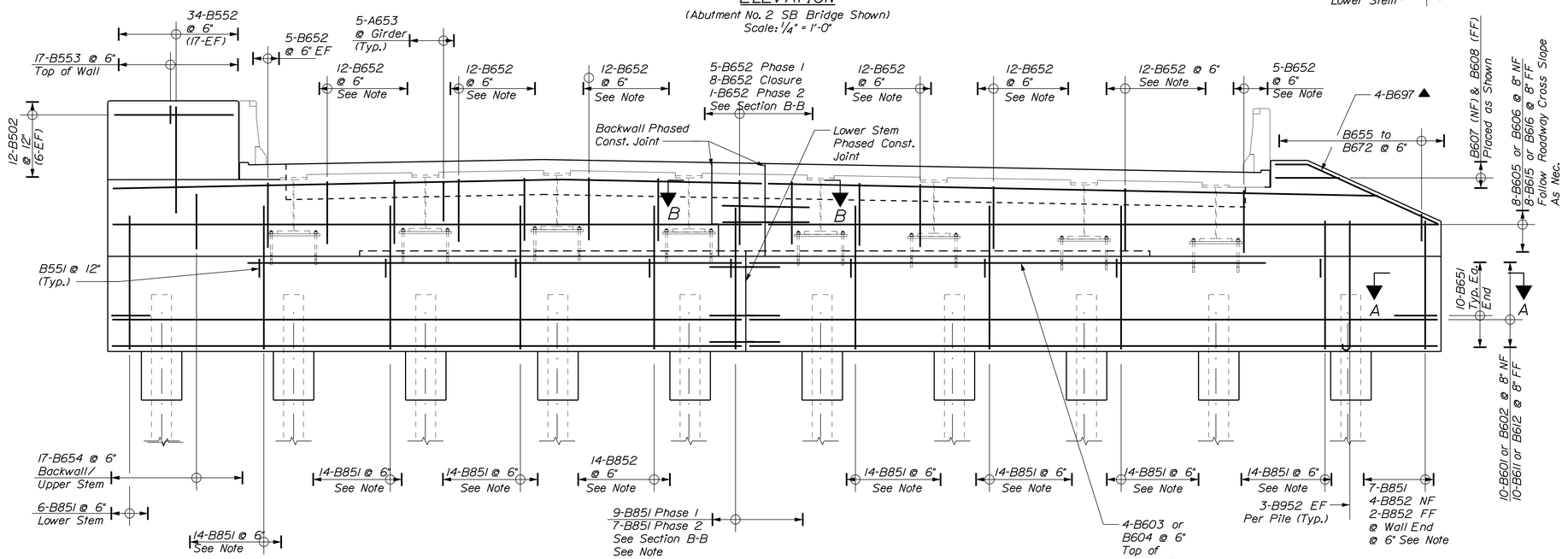
Date:3/24/2019

Filename: ...\BRIDGE\MSTA\115_SB-Abut_02.dgn



ELEVATION

(Abutment No. 2 SB Bridge Shown)
Scale: 1/4" = 1'-0"



ELEVATION

(Abutment No. 2 NB Bridge Shown)
Scale: 1/4" = 1'-0"

NOTES:

1. Cut in Field B606, B616, B626, B636 as necessary to provide 2" cover at wingwall end.
2. Cut in field near face (NF) vertical leg of B851 when it interferes with girder bottom flange. Limit 5 per girder location.
3. Place hook of B852 such that it provides 2" of clear distance to a pile.
4. B851, B852, B652, B653, B654, B551, B552, B553 Place Along Skew Parallel to Roadway Alignment.

SHEET NOTES

1. See Abutment Details Sheets for Abutment sections.
2. See Abutment No. 1 (NB & SB) Reinforcing for Sections A-A & B-B

REINFORCING KEY

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face
▲ = Cut in Field

Date: 3/24/2019

Filename: ...\116_NB-SB_Abut_02_Reinf.dgn

Scale: 4 0 8
1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

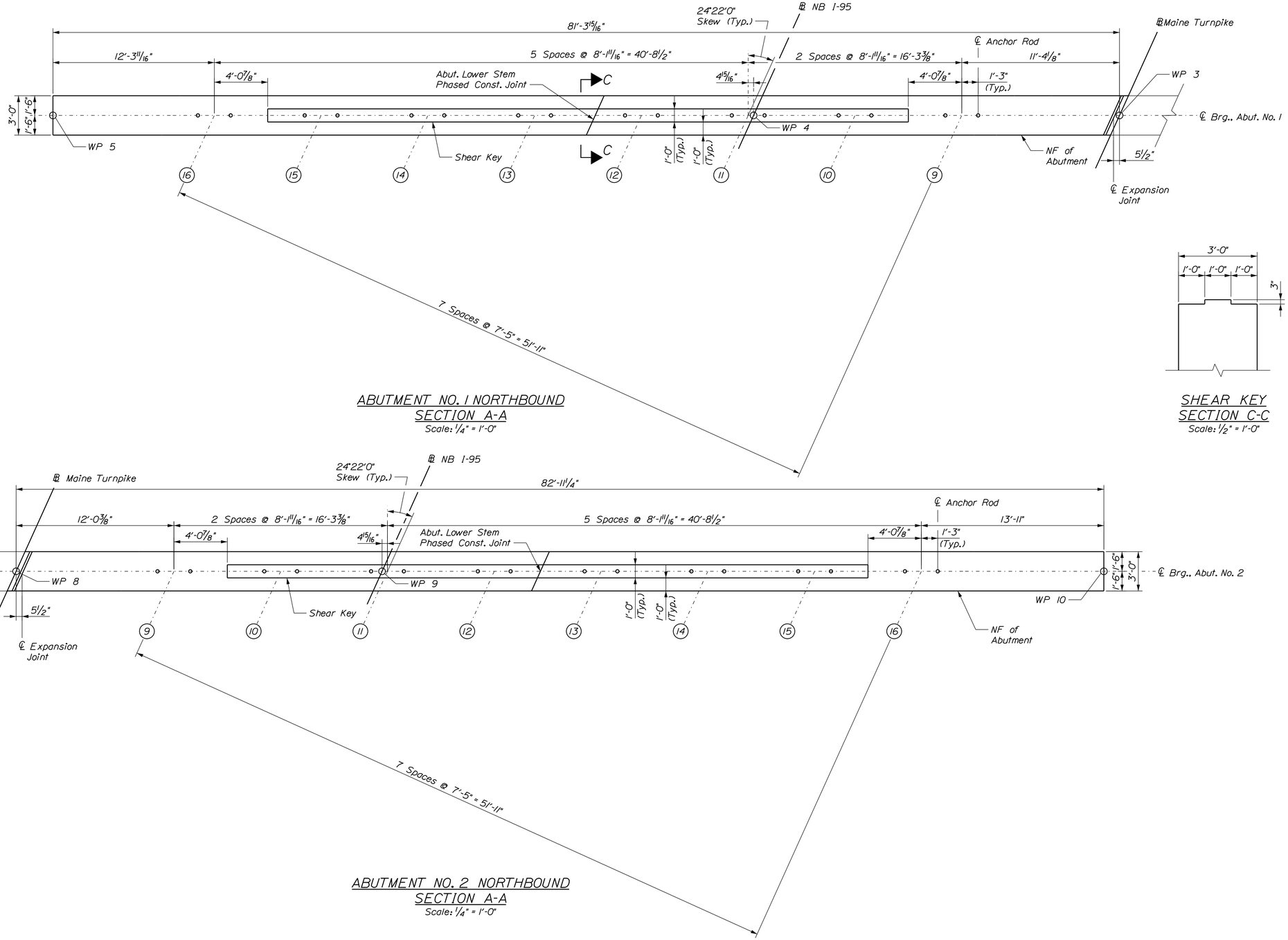
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT NO. 2 REINFORCING

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 116



ABUTMENT NO. 1 NORTHBOUND
SECTION A-A
Scale: 1/4" = 1'-0"

SHEAR KEY
SECTION C-C
Scale: 1/2" = 1'-0"

ABUTMENT NO. 2 NORTHBOUND
SECTION A-A
Scale: 1/4" = 1'-0"

KEY

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

Date:3/24/2019

Filename: ...\MSTA\117_Abut-Det_01.dgn

Scale: 4 0 8
1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
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MAINE TURNPIKE

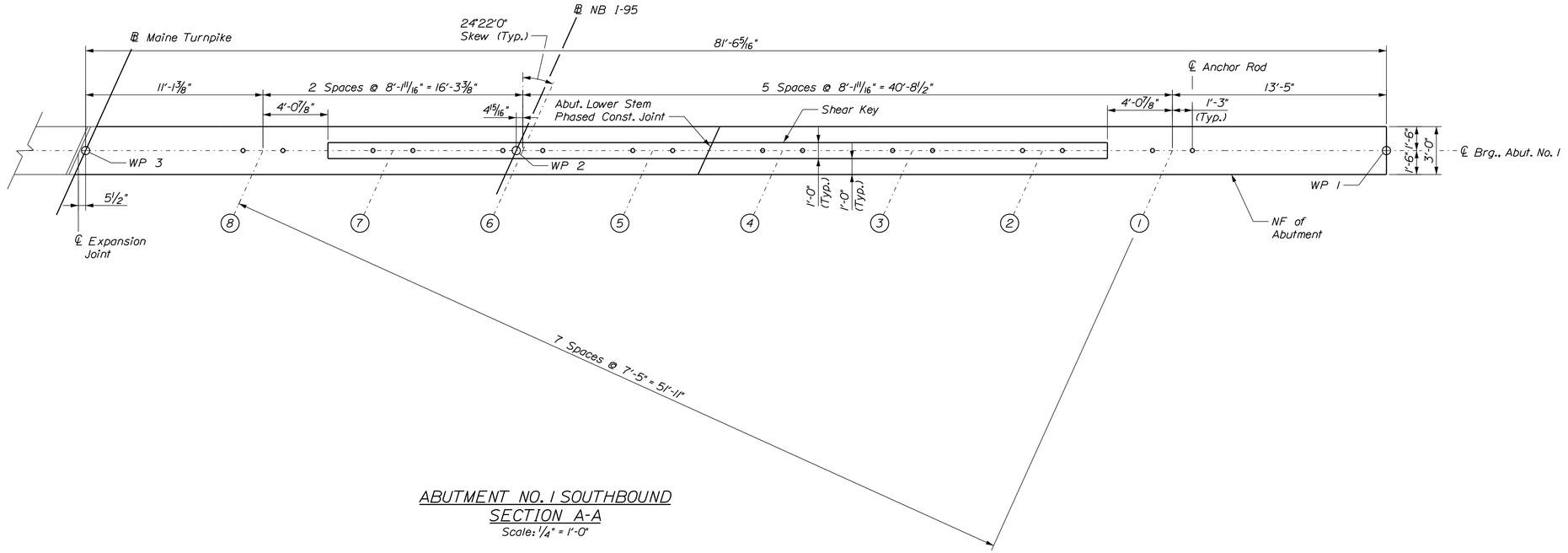
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

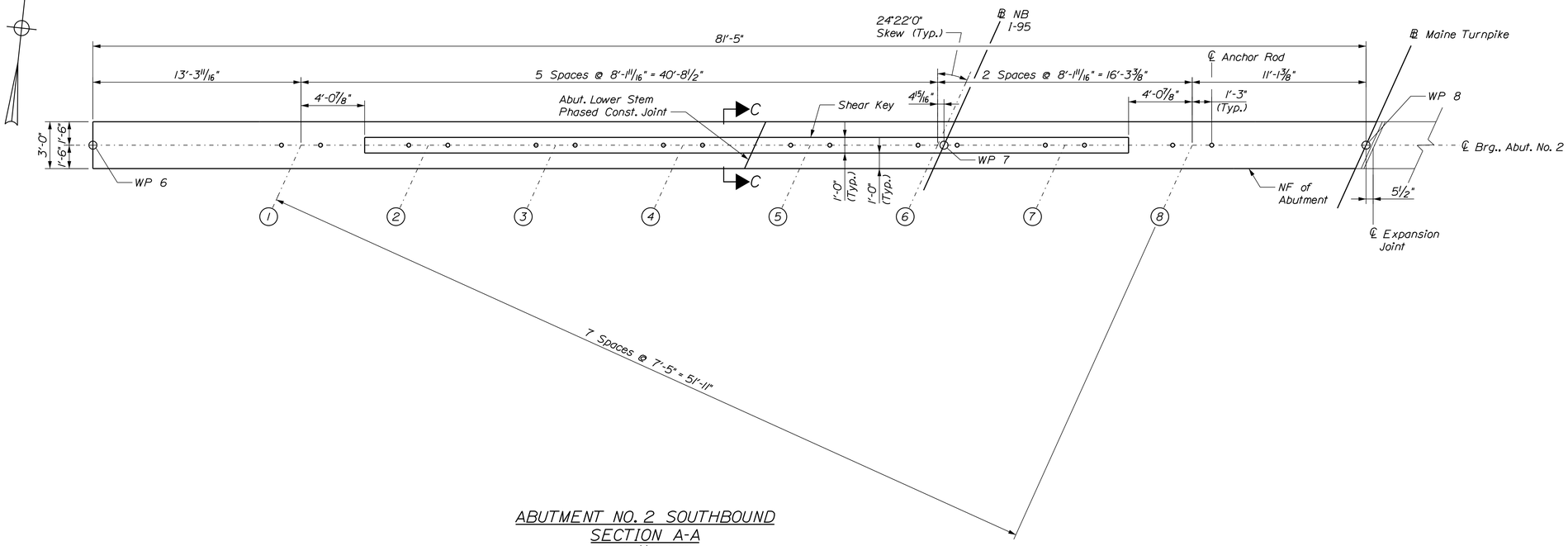
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT DETAILS (1 OF 3)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 117
117 OF 141



ABUTMENT NO. 1 SOUTHBOUND
SECTION A-A
Scale: 1/4" = 1'-0"



ABUTMENT NO. 2 SOUTHBOUND
SECTION A-A
Scale: 1/4" = 1'-0"

SHEET NOTES

1. See Abutment Details Sheet (1 of 3) for Section C-C.

KEY

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

Date:3/24/2019

Filename: ...\MSTA\118_Abut-Det_02.dgn

Scale: 4 0 8
1/4" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

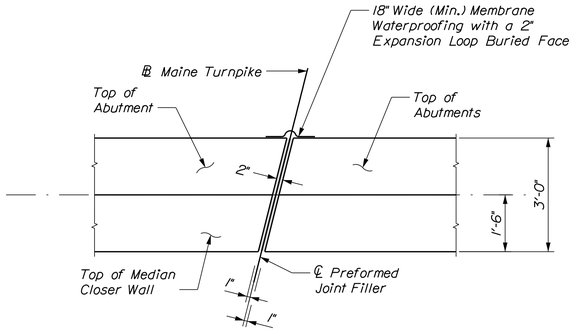
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

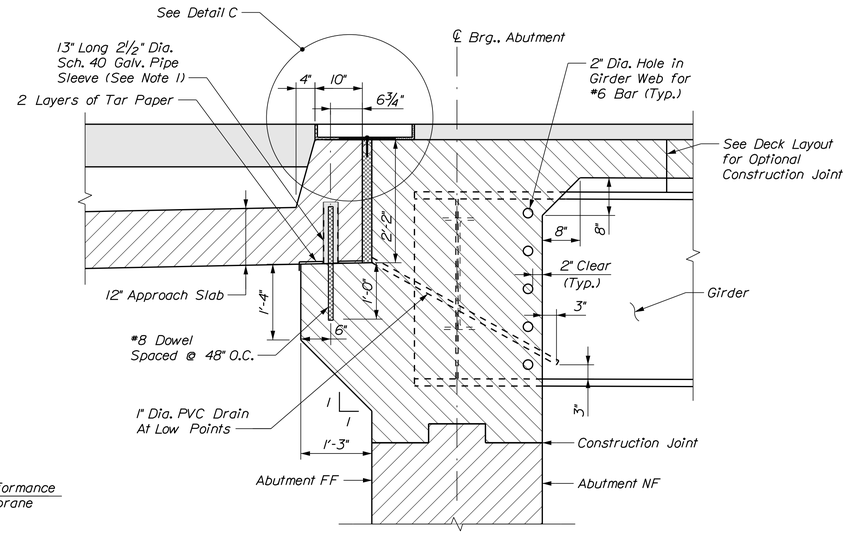
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT DETAILS (2 OF 3)

VHB: 55191.01
CONTRACT: 2019.10

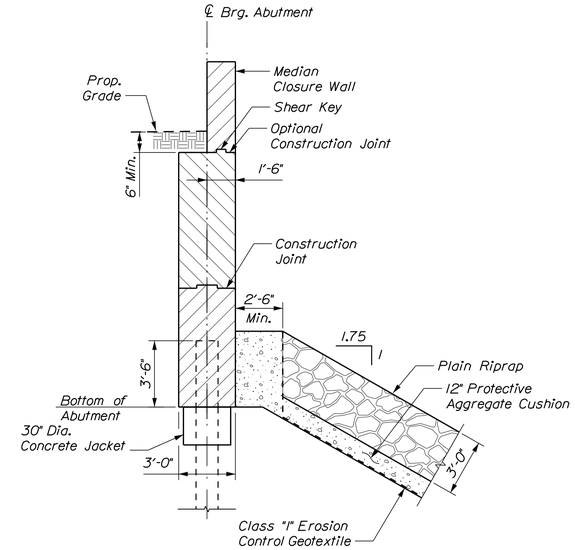
SHEET NUMBER: 118



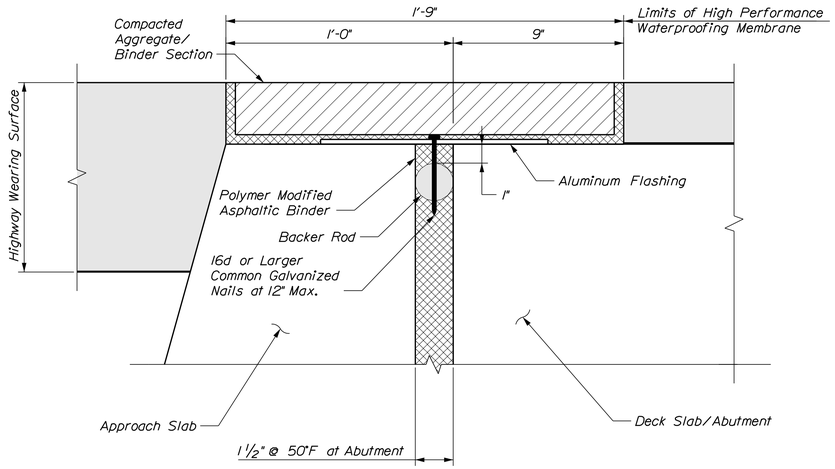
DETAIL A
MEDIAN WALL JOINT
1/2" = 1'- 0'



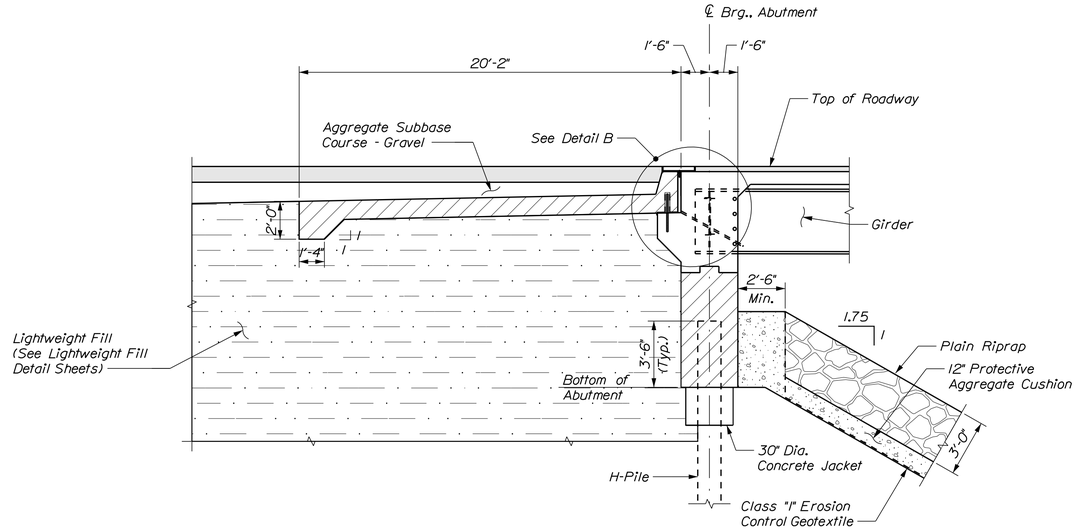
DETAIL B
Scale: ¾" = 1'-0"



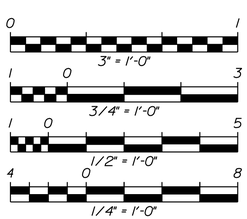
SECTION B-B
1/4" = 1'- 0"

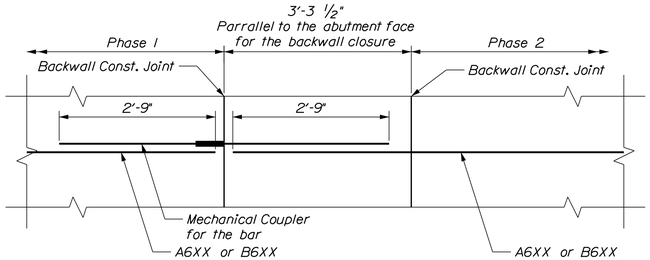


DETAIL C
Scale: 3" = 1'-0"



ABUTMENT SECTION
(Abutment 1 Shown, Abutment 2 Similar)
Scale: 1/4" = 1'-0"





BACKWALL MECHANICAL SPLICE DETAIL
(Mechanical Splice for horizontal bars)
Scale: ½" = 1'-0"

NOTE

1. Pipe sleeve around approach slab dowel bar shall be filled with a silicone sealant from the MaineDOT Qualified Products List.

No.	Revision	By	Date

Scale:

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

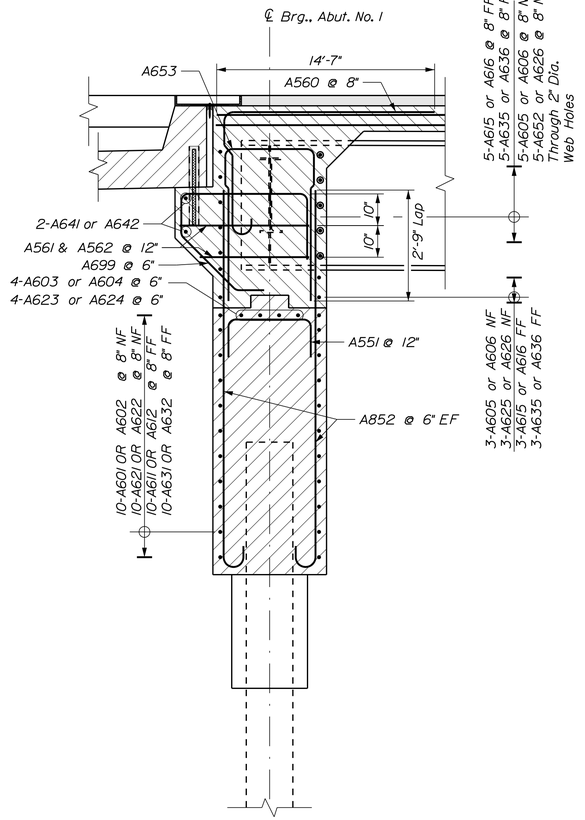
ABUTMENT DETAILS (3 OF 3)

VHB: 55191.01 SHEET NUMBER: 119

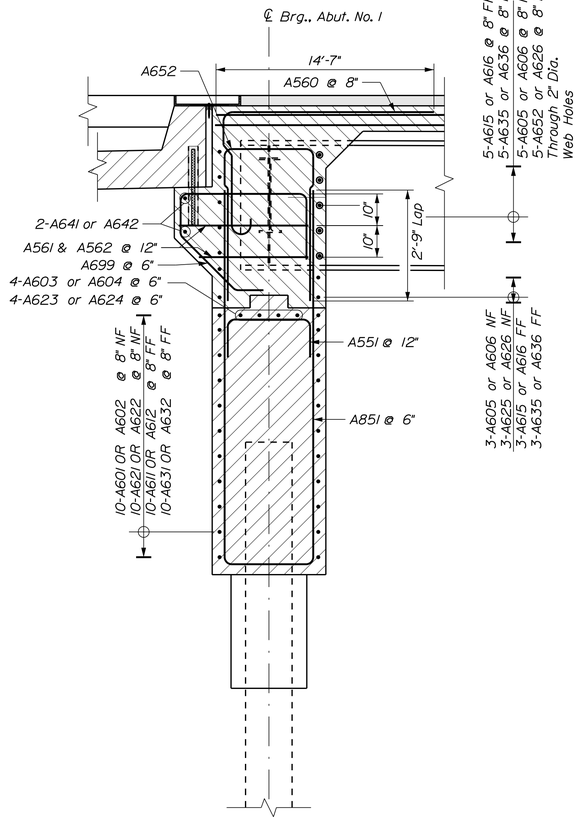
CONTRACT: 2019.10 119 OF 141

Date:3/24/2019

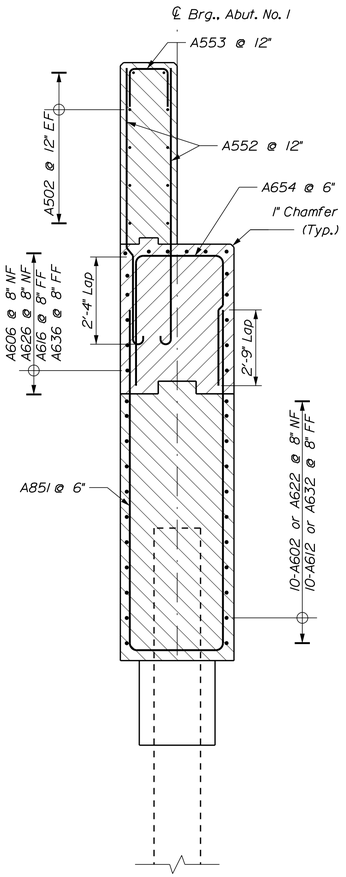
Filename: ...\MSTA\119_Abut-Det_03.dgn



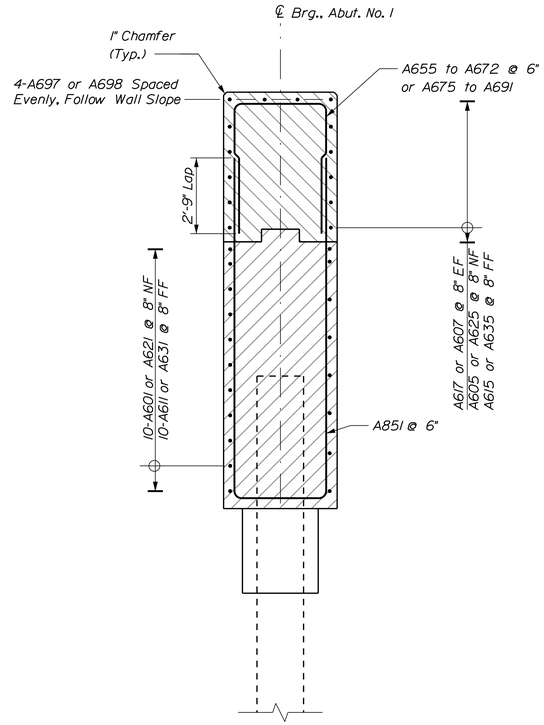
ABUTMENT SECTION
@ ℄ PILE
½" = 1'- 0"



ABUTMENT SECTION
(Abutment 1 Shown)
Scale: ¼" = 1'-0"



ABUTMENT
MEDIAN SECTION
(Abutment 1 Median Shown)
Scale: ¼" = 1'-0"



ABUTMENT
WINGWALL SECTION
½" = 1'- 0"

Date:3/24/2019

Filename: ...\120_Abut_Reinf_Details_01.dgn

Scale:			
No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR
MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT REINFORCEMENT DETAILS (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 120
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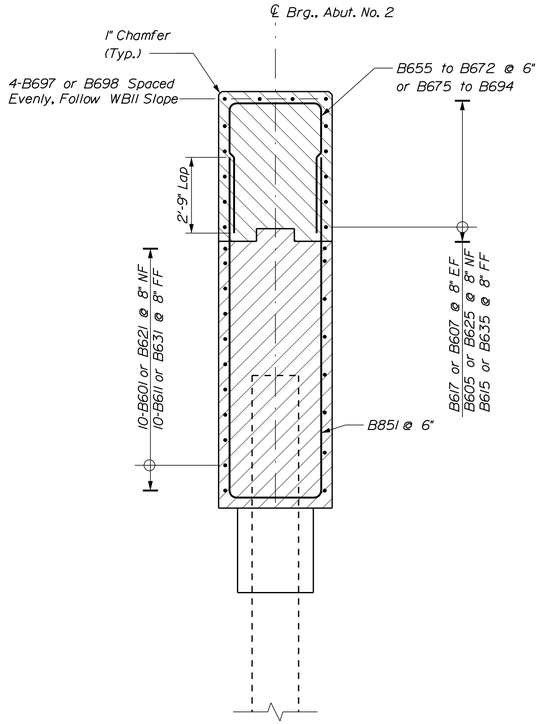
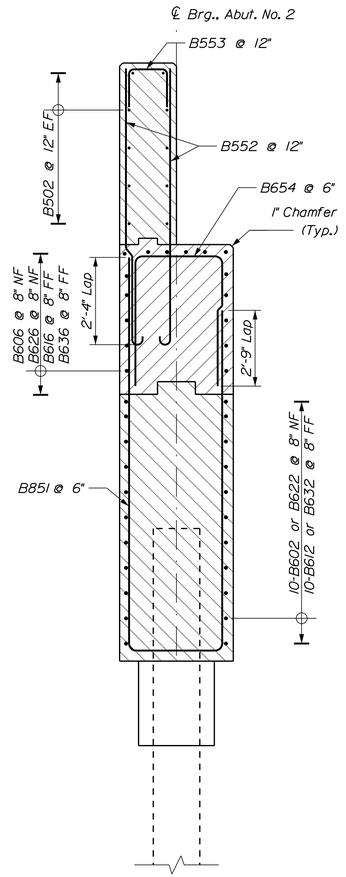
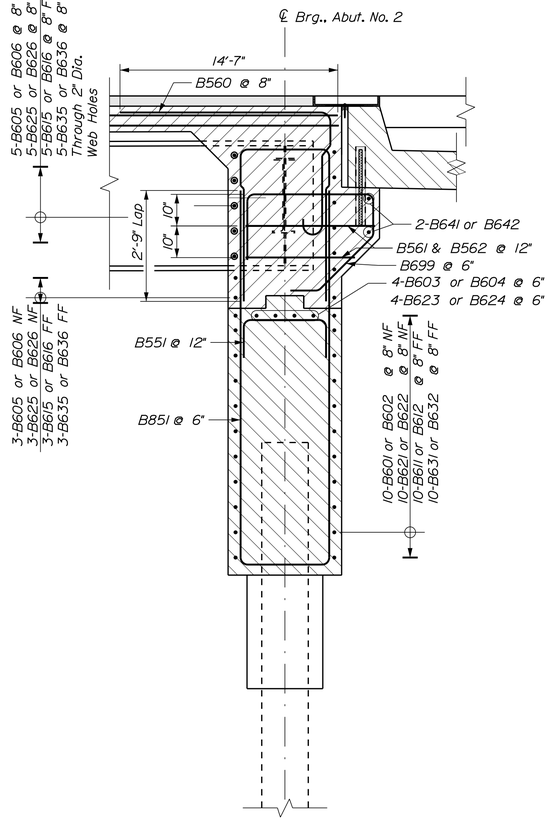


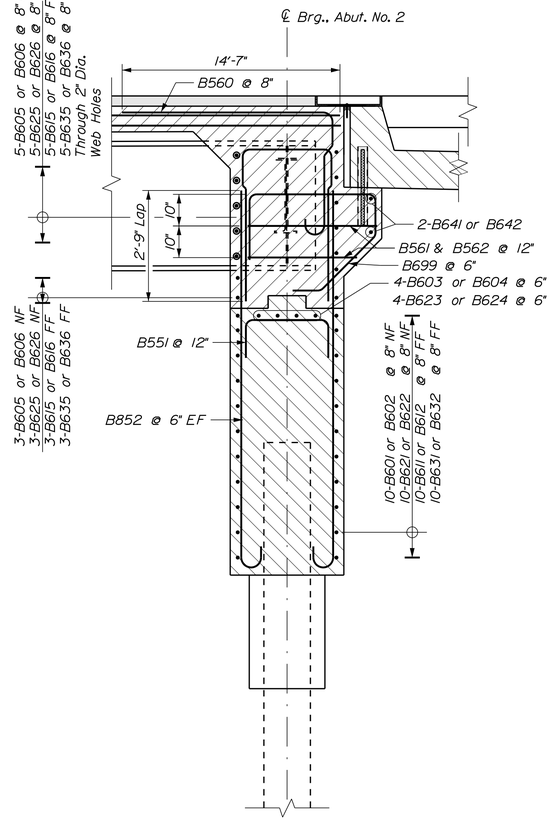
ABUTMENT
WINGWALL SECTION
1/2" = 1'- 0"



ABUTMENT
MEDIAN SECTION
(Abutment 2 Median Shown)
Scale: 1/4" = 1'-0"



ABUTMENT SECTION
(Abutment 2 Shown)
Scale: 1/4" = 1'-0"



ABUTMENT SECTION
@ ℄ PILE
1/2" = 1'- 0"

Date:3/24/2019

Filename: ...\121_Abut_Reinf_Details_02.dgn

Scale:

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

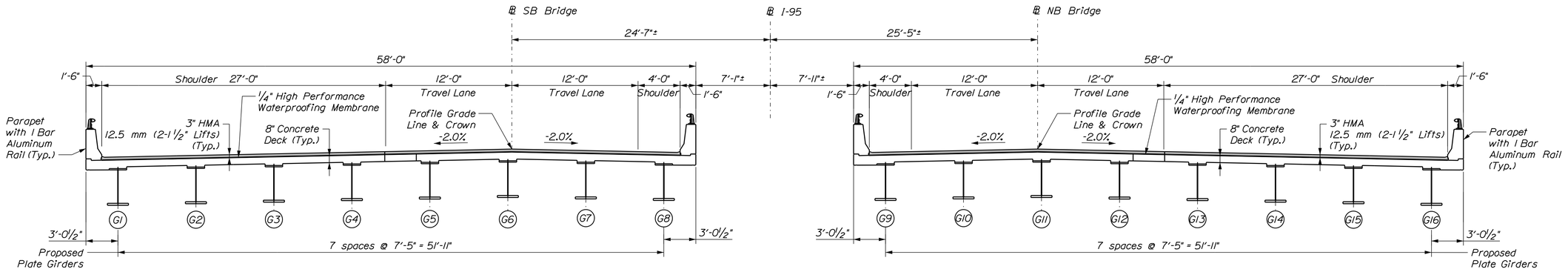
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT ABUTMENT REINFORCEMENT DETAILS (2 OF 2)

VHB: 55191.01 SHEET NUMBER: 121
CONTRACT: 2019.10 121 OF 141

Date:3/24/2019



I-95 SOUTHBOUND
3/16" = 1'-0"

I-95 NORTHBOUND
3/16" = 1'-0"

NOTE

1. Place Hot Rubber at the Longitudinal Pavement Joints of the Surface Course, as Directed by the Resident. Costs for the Hot Rubber Shall be incidental to the related Pavement Items.

Scale: 1 0 15
3/16" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

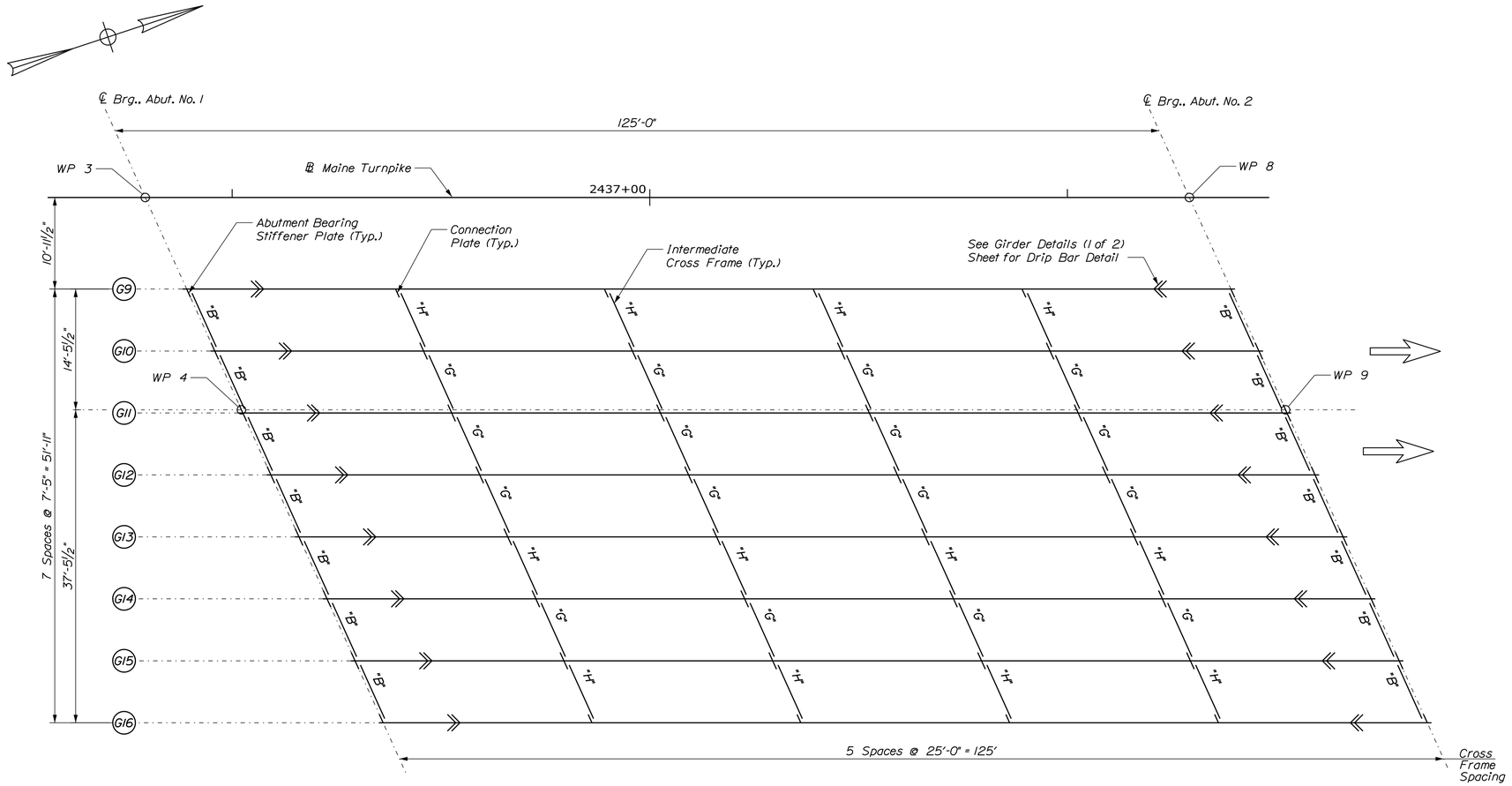
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BRIDGE TRANSVERSE SECTION

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 122
122 OF 141

Filename: ...\122_Bridge_Typ_Sect_01.dgn



NORTHBOUND BRIDGE FRAMING PLAN

Scale: 1/8" = 1'-0"

STRUCTURAL STEEL NOTES

1. For Cross frame Type B, Type G and Type H see MaineDOT Standard Details, 504(01) and 504(03).

2. All Structural Steel including girders, connection plates, bearing stiffeners and diaphragms shall be metalized after fabrication is complete. Any metalizing damaged during shipping and any construction activity shall be field repaired at the Contractor's expense.

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

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

5. Bearing stiffeners and girder ends shall be plumb after erection and dead loading of the structure. Intermediate web stiffeners may be either plumb or normal to the top flange. Girder webs may be plumb in the no-load condition or full dead load condition for erection purposes.

6. Cross frame or diaphragm connection plates may be either plumb or normal to the top flange.

7. Bearing stiffeners shall be mill-to-bear on the bottom flange and tight fit to the top flange. Bearing stiffeners used as connection plates shall be detailed as connection plates.

8. All plan dimensions provided are horizontal at 45 degrees F without accounting for profile grade, unless otherwise noted.

SHEET NOTE

1. See Framing Plan (2 of 2) for Southbound Bridge Framing.

Date:3/24/2019

Filename: ...\MSTA\123_NB_Framing_01.dgn

Scale: 8 0 8 16
1/8" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

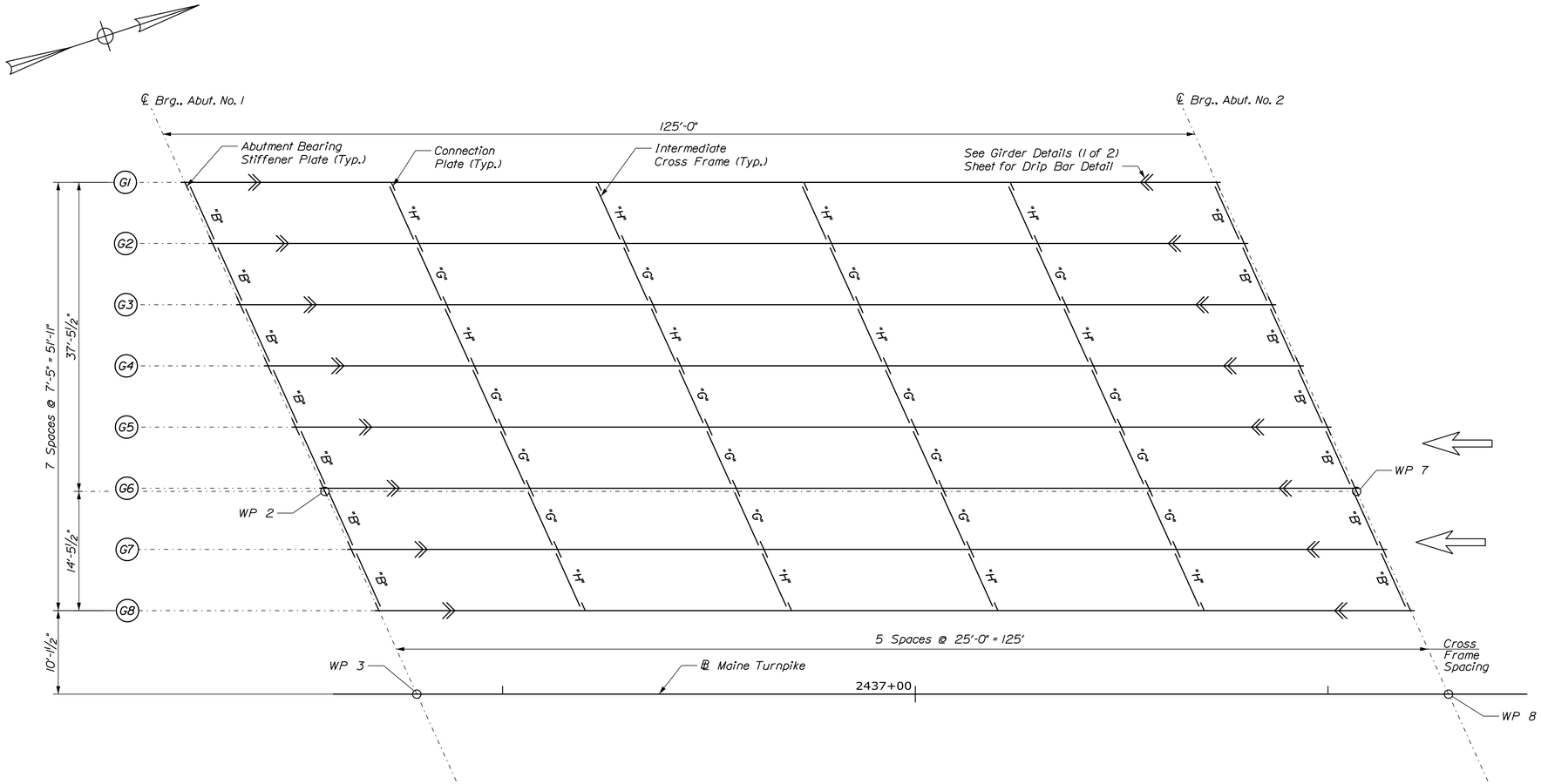
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

FRAMING PLAN (1 OF 2)

VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 123
123 OF 141



SOUTHBOUND BRIDGE
FRAMING PLAN
Scale: ⅛" = 1'-0"

SHEET NOTES

1. See Framing Plan (1 of 2) for Northbound Bridge Framing.
2. See Framing Plan (1 of 2) for Structural Steel Notes.

Scale: 8 0 8 16
1/8" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

FRAMING PLAN (2 OF 2)

VHB: 55191.01 SHEET NUMBER: 124
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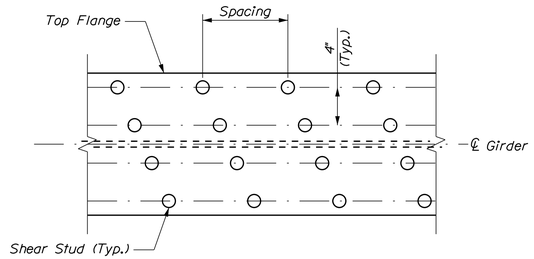
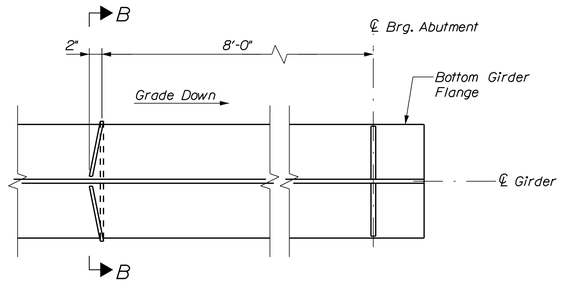
Date:3/24/2019

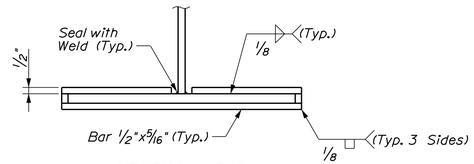
Filename: ...\MSTA\124_SB_Framing_02.dgn



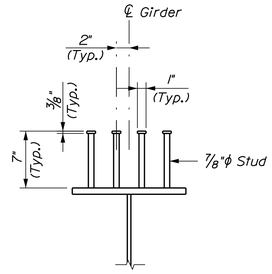
SHEAR CONNECTOR LAYOUT
(Place Shear Connectors Parallel to ℄ Bearing)
Not to Scale



FLANGE DRIP BAR DETAIL
(Abutment Location Shown)
Not to Scale



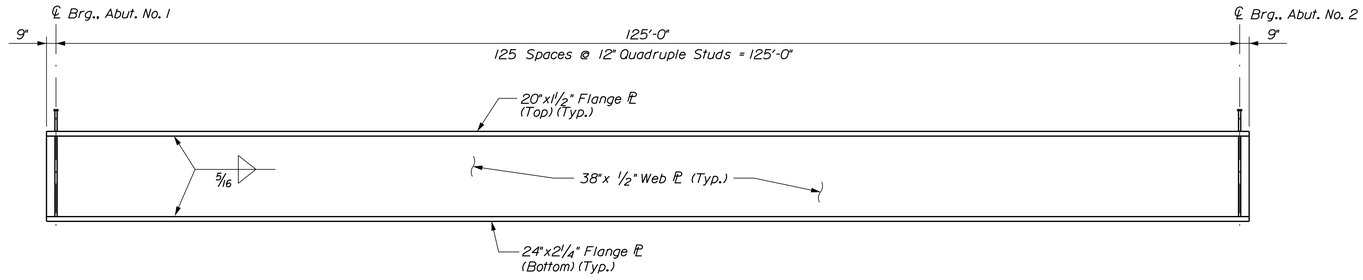
SECTION B-B
Not to Scale



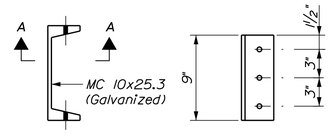
SHEAR CONNECTOR DETAIL
Not to Scale

SHEAR STUD NOTE

1. Shear studs shall extend a minimum of 2" into the slab.



GIRDER ELEVATION AND STUD LAYOUT
(Connection Plates and Drip Bars not Shown)
Not to Scale



SIGN SUPPORT
(4 Required)

SECTION A-A

SIGN SUPPORT DETAILS
Scale: 1 1/2" = 1'-0"

SIGN SUPPORT NOTES

1. One sign shall be placed on each bridge fascia. Location of Sign Support shall be field determined by the Resident.
2. Bolts shall be 1/2" diameter A325 Type I galvanized.
3. Sign Brackets shall be located within two feet of sign ends. Bracket spacing shall be 5' on center maximum.
4. Signs shall be provided by the Authority.
5. Installation of the sign and supports will not be measured for payment and will be considered incidental to Item 504.71.

Date:3/24/2019

Filename: ...\MSTA\125_Beam_Det_01.dgn

Scale: 1 0 1
1 1/2" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

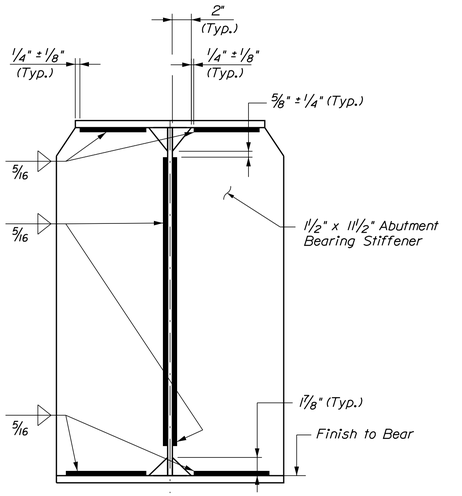
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

GIRDER DETAILS (1 OF 2)

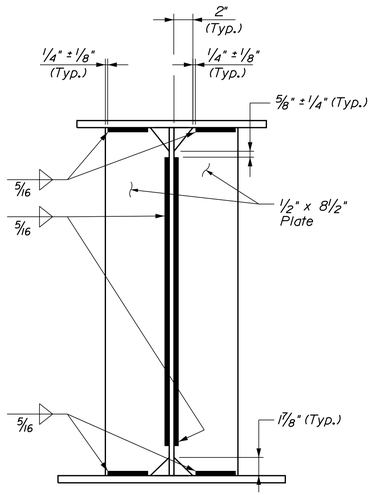
VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 125
125 OF 141

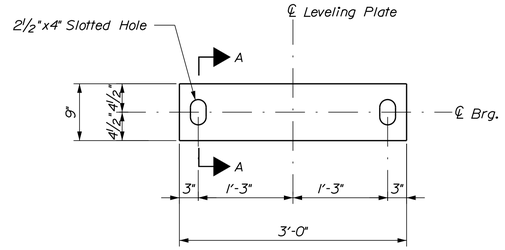
Date:3/24/2019



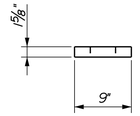
BEARING STIFFENER
Not to Scale



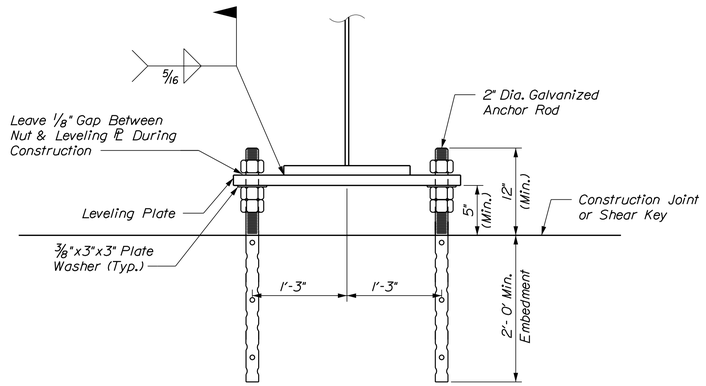
CONNECTION PLATE
(Interior Girder Shown)
Not to Scale



PLAN



SECTION A-A



ELEVATION

LEVELING PLATE DETAIL
1" = 1'- 0"

Filename: ...\MSTA\126_Beam_Det_02.dgn

Scale:

No.	Revision	By	Date

Designed by:

vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

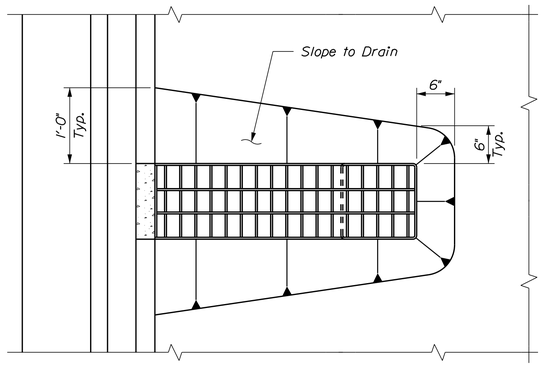
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

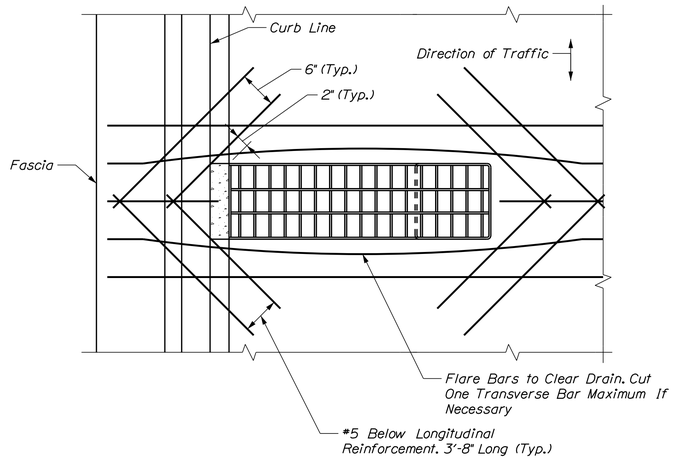
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

GIRDER DETAILS (2 OF 2)

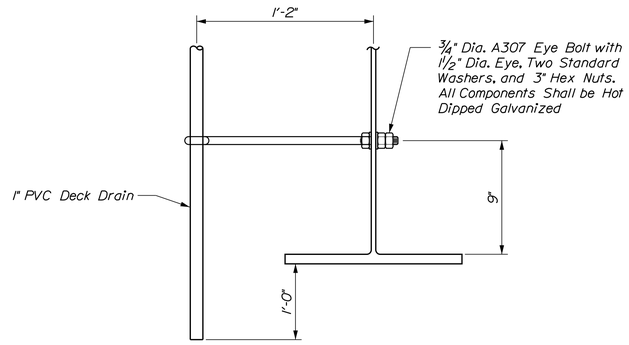
VHB: 55191.01
CONTRACT: 2019.10



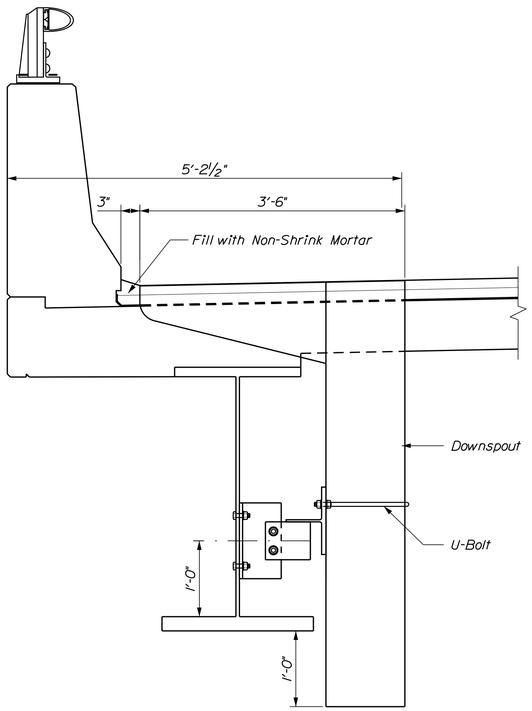
BRIDGE DRAIN - PLAN
1"=1'-0"



DECK REINFORCEMENT AT BRIDGE DRAINS
1"=1'-0"



PVC DECK DRAIN CONNECTION DETAIL
Not to Scale



BRIDGE DRAIN
1"=1'-0"

BRIDGE DRAIN NOTES:

1. Shear connectors welded to top flange of beam may need to be bent out of the way should an interference with the bridge drain occur.
2. The additional reinforcing steel around each bridge drain will not be paid for directly. Payment will be considered incidental to Related Contract Items.
3. See Special Provision 502 for additional requirements.

Date:3/24/2019

Filename: ...\BRIDGE\MSTA\127_Drain_Dets.dgn

Scale: 1 0 2
1" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

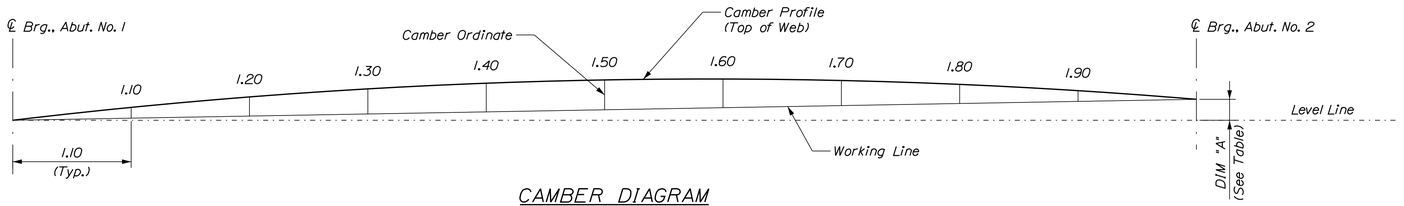
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BRIDGE DRAIN DETAILS

VHB: 55191.01 SHEET NUMBER: 127
CONTRACT: 2019.10 127 OF 141

STRUCTURAL STEEL NOTES

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



CAMBER DIAGRAM

Not to Scale

TABLE OF CAMBER ORDINATES PER SPAN ("COS") (in) @ 10TH POINTS											
SB BRIDGE											
Girder	℄ Brg., Abut.No. 1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	℄ Brg., Abut. No. 2
1	0.00	2.81	5.28	7.19	8.40	8.82	8.40	7.19	5.28	2.81	0.00
2	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
3	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
4	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
5	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
6	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
7	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
8	0.00	2.81	5.28	7.19	8.40	8.82	8.40	7.19	5.28	2.81	0.00

DIM "A"	
SB BRIDGE	
Girder	DIM "A" (ft)
1	0.640
2	0.623
3	0.606
4	0.589
5	0.572
6	0.555
7	0.538
8	0.521

TABLE OF CAMBER ORDINATES PER SPAN ("COS") (in) @ 10TH POINTS											
NB BRIDGE											
Girder	℄ Brg., Abut.No. 1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	℄ Brg., Abut. No. 2
9	0.00	2.81	5.28	7.20	8.40	8.82	8.40	7.20	5.28	2.81	0.00
10	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
11	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
12	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
13	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
14	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
15	0.00	2.81	5.29	7.20	8.41	8.83	8.41	7.20	5.29	2.81	0.00
16	0.00	2.81	5.28	7.20	8.40	8.82	8.40	7.20	5.28	2.81	0.00

DIM "A"	
NB BRIDGE	
Girder	DIM "A" (ft)
9	0.472
10	0.455
11	0.438
12	0.421
13	0.404
14	0.387
15	0.370
16	0.353

Date:3/24/2019

Filename: ...\BRIDGE\MSTA\128_camber_01.dgn

Scale: Scale as Noted

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

CAMBER DIAGRAM

VHB: 55191.01 SHEET NUMBER: 128

CONTRACT: 2019.10 128 OF 141

Date:3/24/2019

TABLE OF DEFLECTIONS (in)

Girder	Load	SPAN NO. 1										
		0/0	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10
All Girders	Steel Dead Load	0.00	-0.68	-1.29	-1.77	-2.08	-2.18	-2.08	-1.77	-1.29	-0.68	0.00
	Fuild Dead Load	0.00	-1.40	-2.65	-3.63	-4.25	-4.46	-4.25	-3.63	-2.65	-1.40	0.00
	Superimposed Dead Load	0.00	-0.39	-0.73	-1.00	-1.17	-1.23	-1.17	-1.00	-0.73	-0.39	0.00
	Sum	0.00	-2.47	-4.67	-6.40	-7.49	-7.87	-7.49	-6.40	-4.67	-2.47	0.00

BOTTOM OF SLAB ELEVATIONS @ 10TH POINTS

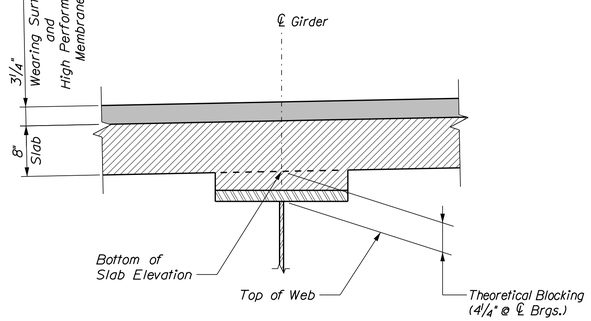
SB BRIDGE

Girder	℄ Brg., Abut. No. 1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	℄ Brg., Abut. No. 2
1	77.85	78.09	78.31	78.49	78.63	78.72	78.76	78.75	78.69	78.60	78.49
2	78.02	78.26	78.48	78.66	78.80	78.89	78.93	78.91	78.85	78.76	78.65
3	78.20	78.44	78.65	78.83	78.97	79.05	79.09	79.07	79.01	78.92	78.80
4	78.37	78.61	78.82	79.00	79.13	79.22	79.25	79.23	79.17	79.08	78.96
5	78.54	78.78	78.99	79.17	79.30	79.38	79.41	79.40	79.33	79.23	79.11
6	78.71	78.95	79.16	79.33	79.46	79.55	79.58	79.56	79.49	79.39	79.27
7	78.60	78.84	79.04	79.22	79.35	79.43	79.46	79.43	79.37	79.27	79.14
8	78.48	78.71	78.92	79.09	79.21	79.29	79.32	79.30	79.23	79.12	79.00

BOTTOM OF SLAB ELEVATIONS @ 10TH POINTS

NB BRIDGE

Girder	℄ Brg., Abut. No. 1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	℄ Brg., Abut. No. 2
9	78.54	78.76	78.97	79.13	79.26	79.33	79.35	79.32	79.25	79.14	79.01
10	78.71	78.93	79.13	79.30	79.42	79.49	79.51	79.48	79.41	79.30	79.16
11	78.86	79.08	79.28	79.45	79.57	79.64	79.65	79.62	79.55	79.44	79.30
12	78.74	78.95	79.15	79.31	79.43	79.50	79.52	79.48	79.40	79.29	79.16
13	78.61	78.82	79.02	79.18	79.30	79.36	79.38	79.34	79.26	79.15	79.01
14	78.48	78.69	78.89	79.05	79.16	79.22	79.24	79.20	79.12	79.00	78.86
15	78.35	78.56	78.75	78.91	79.02	79.09	79.10	79.06	78.98	78.86	78.72
16	78.22	78.43	78.62	78.78	78.89	78.95	78.96	78.92	78.83	78.71	78.57



BLOCKING DETAIL
Not to Scale

Filename: ...\BRIDGE\MSTA\129_table_01.dgn

Scale: Scale as Noted

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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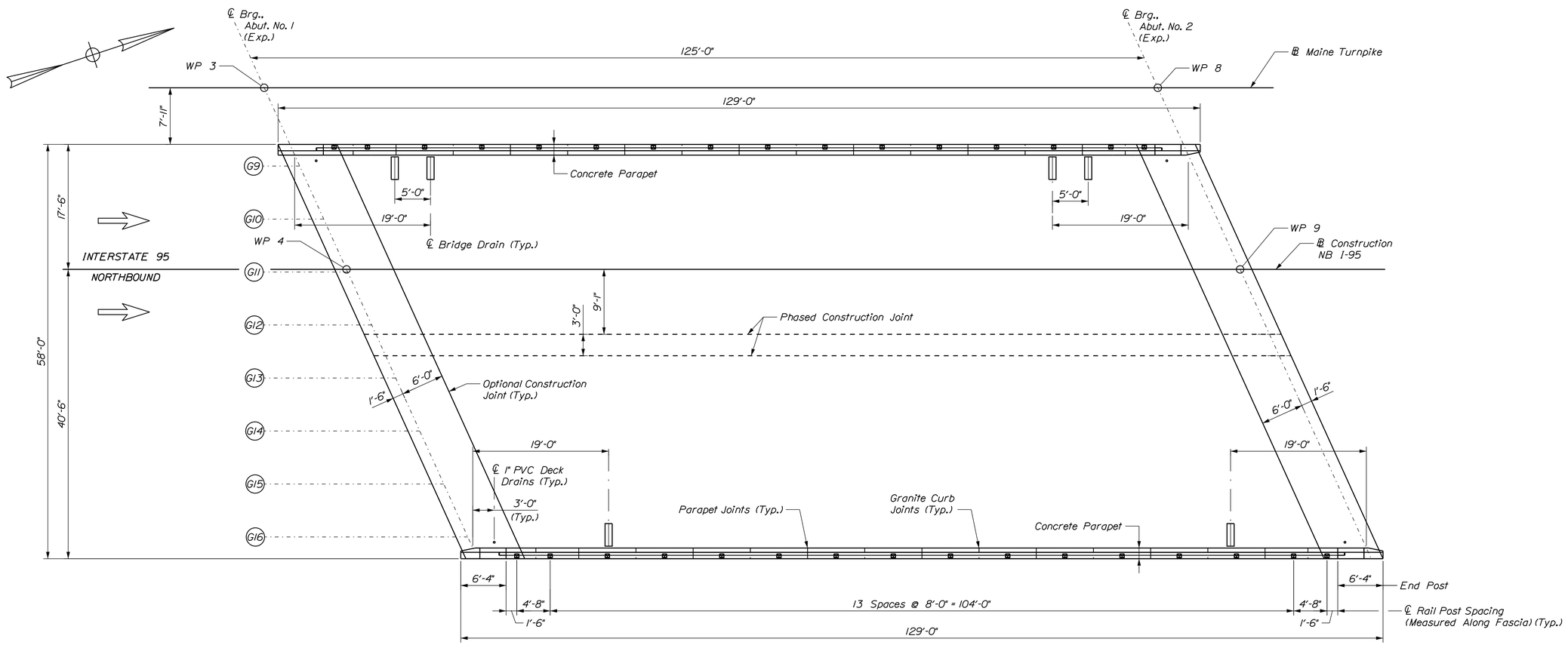
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT TABLE OF DEFLECTIONS AND BOTTOM OF SLAB ELEVATIONS

VHB: 55191.01 SHEET NUMBER: 129
CONTRACT: 2019.10 129 OF 141



NORTHBOUND PLAN

Scale: 1/8" = 1'-0"

DECK PLACEMENT SEQUENCE NOTES:

1. Unless the entire deck slab will be placed at one time, the mid span placement shall be made before the abutment placements.
2. Once the placement of a slab section has been started, it shall be completed without interruption and the concrete shall remain plastic throughout the placement.
3. No superimposed dead loads or construction loads may be placed on the deck until all deck placements are complete.
4. An alternate deck placement sequence may be submitted to the Engineer for approval prior to the deck placement.

SUPERSTRUCTURE NOTES:

1. Clear protective coating for concrete surfaces shall be applied to the following areas: parapet surfaces, fascia and overhang to girder flange.
2. The concrete deck shall be given a smooth bull float or wood float finish.
3. Parapet joints shall be staggered with railing posts. Curb joints shall align with parapet joints.
4. Screed rails required for deck placement shall be located within 3" of the beam centerline.
5. Shop drawings for bar chairs used with reinforcing steel in the slab shall be submitted with required spacing to the Engineer for approval. Bar chairs shall be epoxy-coated or plastic protected.
6. Do not cover pvc drains with waterproofing membrane. Depress drains 1/2" below top of slab. Provide 23 gauge galvanized screens (1/4" mesh) over drains.
7. Form a v-groove on the fascias at the horizontal joint between the parapet and slab.
8. Mortar for bedding and for joints in the granite curb shall contain an approved non-shrink additive. All joints along curbs and bridge joints shall be sealed with one of the two approved products listed in Special Provision 508, Membrane Waterproofing.

Scale: 8 0 8 16 — 1/8" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

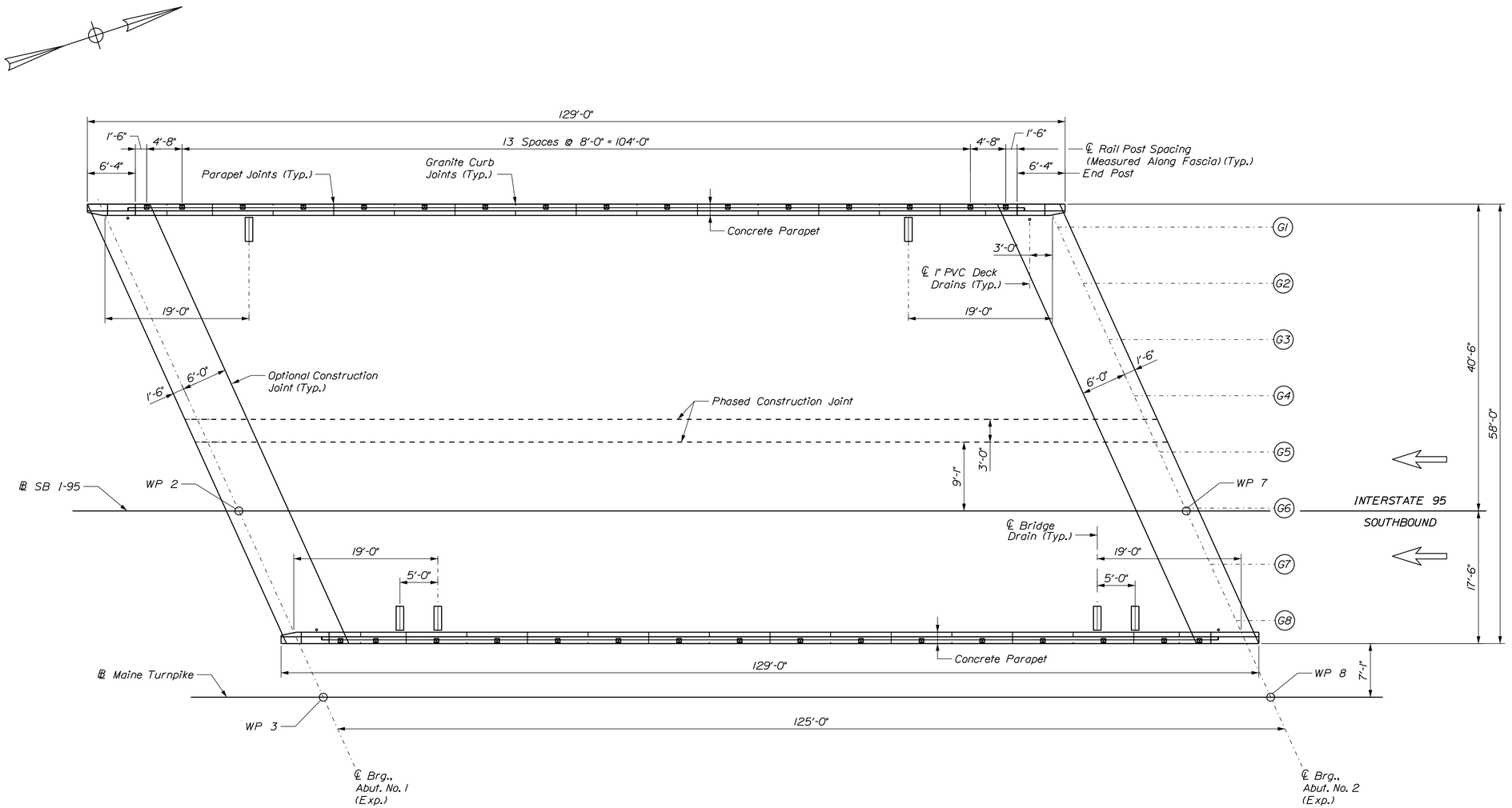
DECK PLAN (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 130

CONTRACT: 2019.10 130 OF 141

Date:3/24/2019

Filename: ...\BRIDGE\MSTA\130_NB_Deck_01.dgn



SOUTHBOUND PLAN

Scale: 1/8" = 1'-0"

SHEET NOTES:

1. See Deck Plan (1 of 2) for Superstructure Notes.
2. See Deck Plan (1 of 2) for Deck Placement Sequence Notes.

Date:3/24/2019

Filename: ...\BRIDGE\MSTA\131_SB_Deck_02.dgn

Scale: 8 0 8 16 — 1/8" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

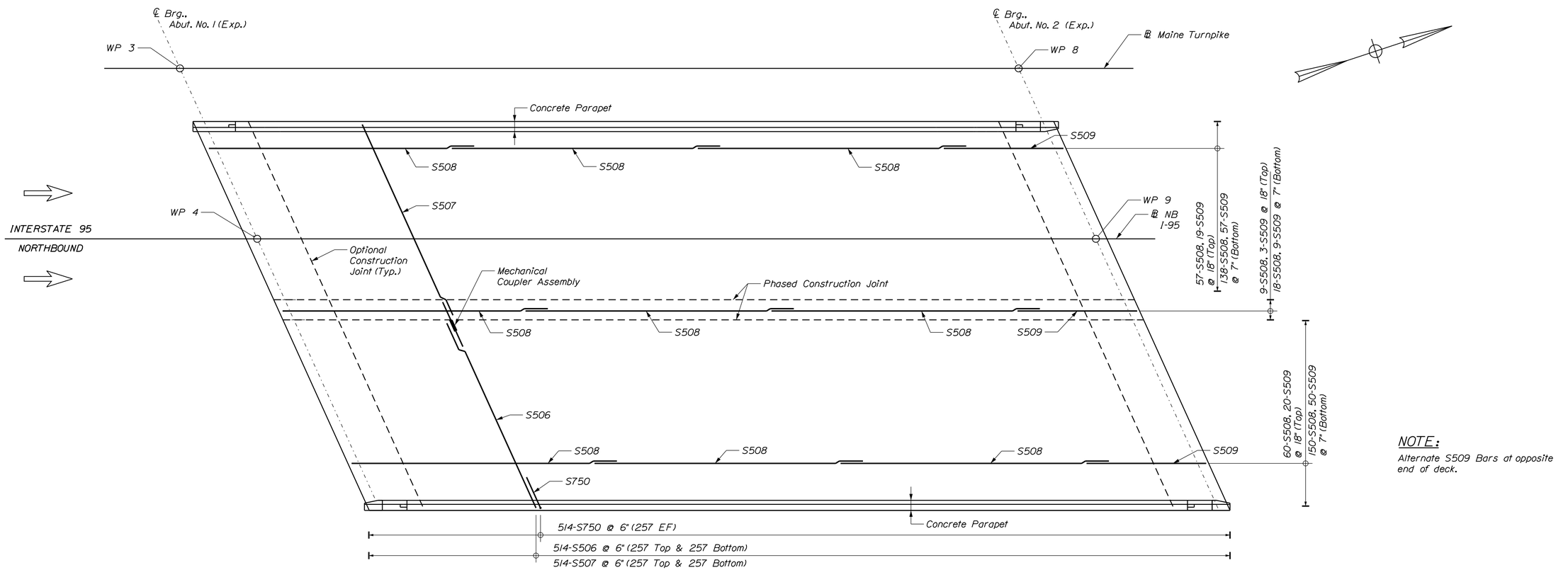
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DECK PLAN (2 OF 2)

VHB: 55191.01
CONTRACT: 2019.10

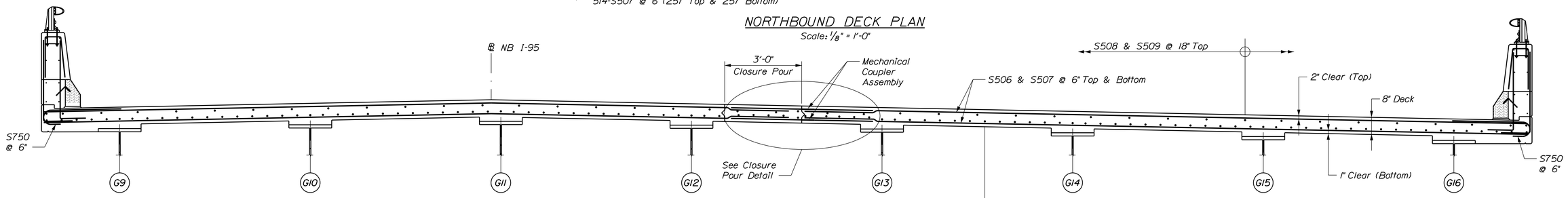
SHEET NUMBER: 131
131 OF 141

Date:3/24/2019

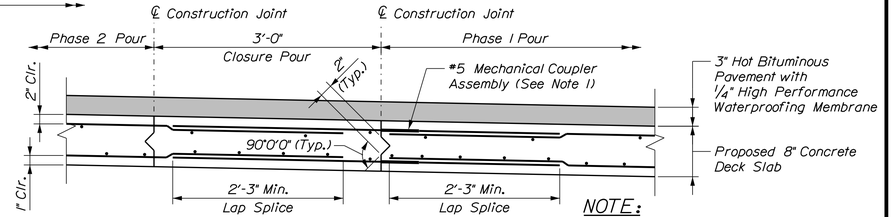


NOTE:
Alternate S509 Bars at opposite end of deck.

NORTHBOUND DECK PLAN
Scale: 1/8" = 1'-0"



TRANSVERSE SECTION
NB Bridge Deck Shown
Scale: 1/2" = 1'-0"



CLOSURE POUR DETAIL
Scale: 1" = 1'-0"

NOTE:
1. #5 Mechanical Coupler Assembly shall be paid for under Item 503.17, Mechanical/Welded Splice.

8 0 8 16
1/8" = 1'-0"

1 0 5
1/2" = 1'-0"

1 0 2
1" = 1'-0"

SHEET NOTES:

1. See Deck Plan (1 of 2) for Superstructure Notes.
2. See Deck Plan (1 of 2) for Deck Placement Sequence Notes.

Filename: ...\MSTA\132_NB_Deck_Reinf_01.dgn

Scale:

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

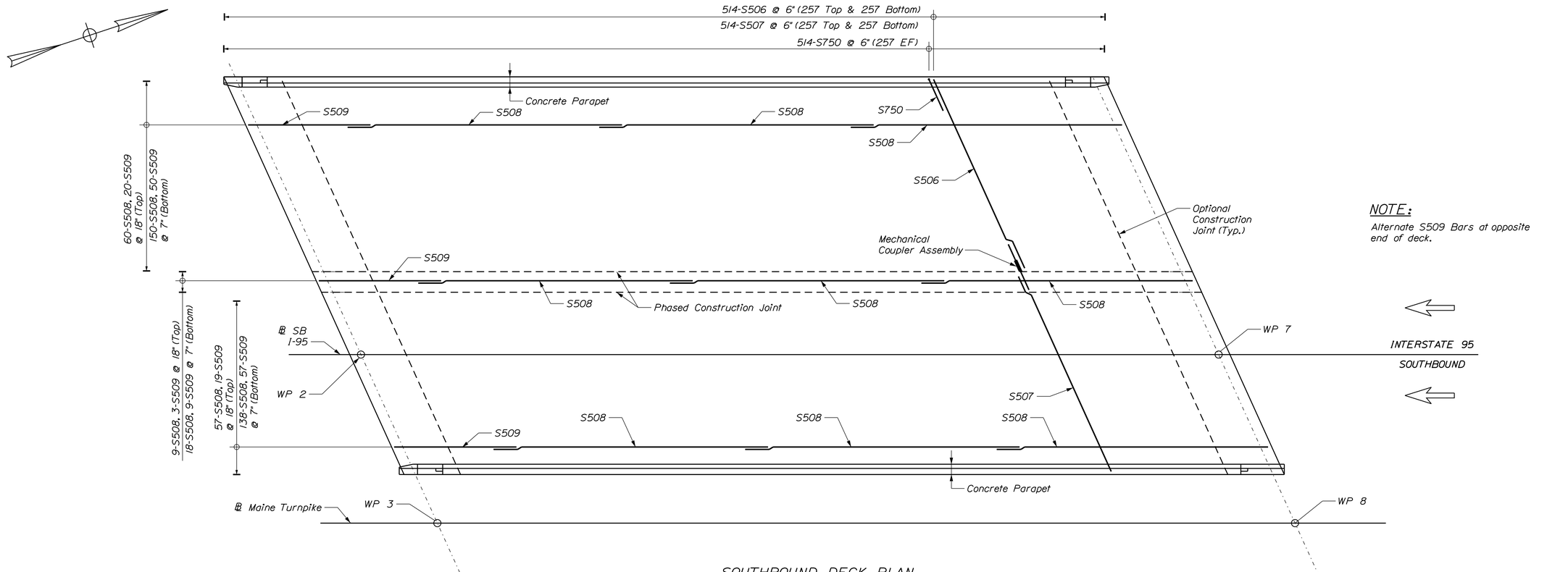
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DECK REINFORCEMENT PLAN (1 OF 2)

VHB: 55191.01
SHEET NUMBER: 132
CONTRACT: 2019.10
132 OF 141

Date:3/24/2019

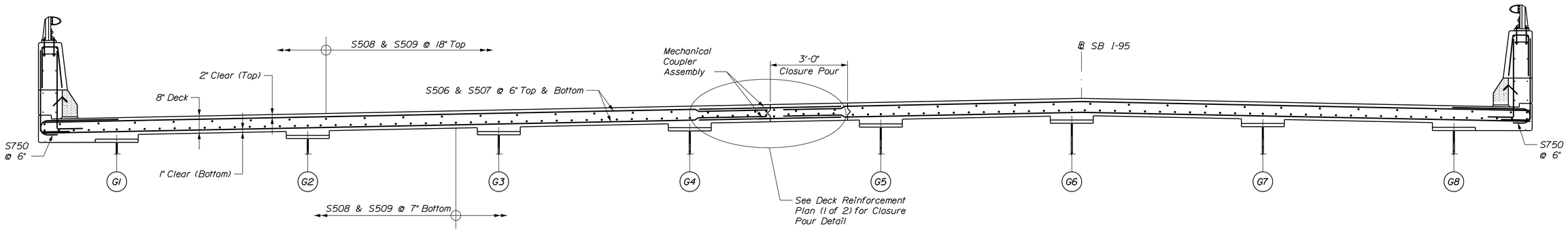


NOTE:
Alternate S509 Bars at opposite end of deck.

SOUTHBOUND DECK PLAN
Scale: 1/8" = 1'-0"

℄ Brg.,
Abut. No. 1
(Exp.)

℄ Brg.,
Abut. No. 2
(Exp.)



TRANSVERSE SECTION
SB Bridge Deck Shown
Scale: 1/2" = 1'-0"

8 0 8 16
1/8" = 1'-0"

1 0 5
1/2" = 1'-0"

SHEET NOTES:

1. See Deck Plan (1 of 2) for Superstructure Notes.
2. See Deck Plan (1 of 2) for Deck Placement Sequence Notes.

Scale:

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

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Designed	MED	3/22/19	Checked	GME	3/22/19
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

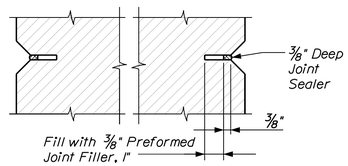
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

DECK REINFORCEMENT PLAN (2 OF 2)

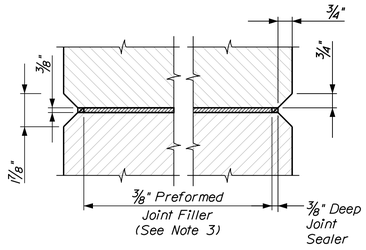
VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 133
133 OF 141

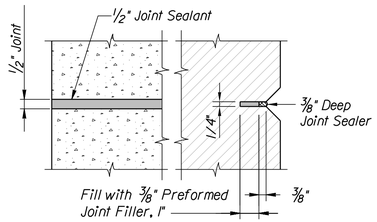
Filename: ...\MSTA\133_SB_Deck_Reinf_02.dgn



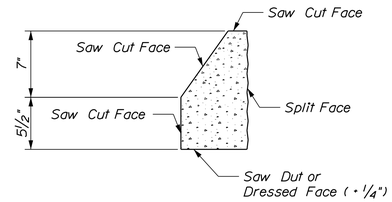
SECTION A-A
(At Dummy Joint)
3" = I'-0"



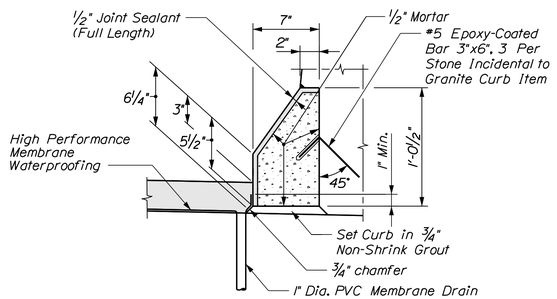
SECTION A-A
(At Paraffin Joint)
3" = I'-0"



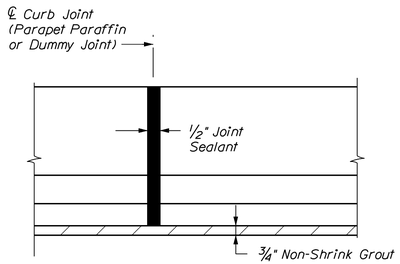
SECTION B-B
(At Dummy and Paraffin Joint Locations)
3" = I'-0"



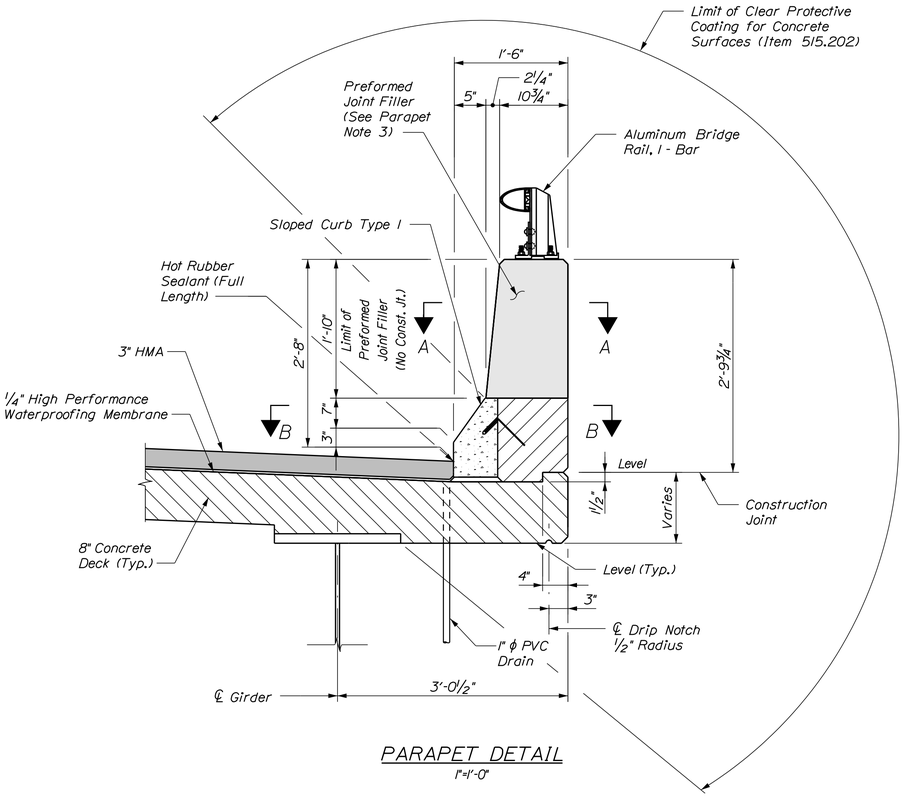
SLOPED CURB TYPE I - CUT DETAIL
1 1/2" = I'-0"



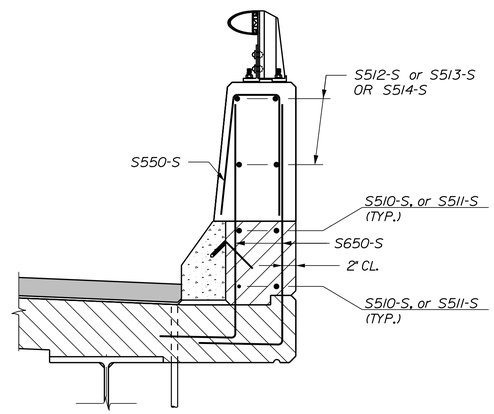
SLOPED CURB TYPE I
1 1/2" = I'-0"



BRIDGE CURB ELEVATION
2" = I'-0"



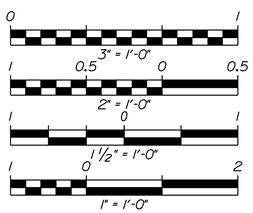
PARAPET DETAIL
I"=I'-0"



PARAPET SECTION
I"=I'-0"

PARAPET NOTES

1. Construction of paraffin and dummy joints, including joint filler, shall be incidental to related Structural Concrete Pay Item.
2. Concrete shall be placed simultaneously on both sides of the joint. The joints shall remain plumb and straight. A thin steel plate may be used to support the joint during concrete placement. The plate shall be carefully removed while the concrete is plastic.
3. Preformed joint filler shall conform to ASTM designation D1752, Type I or ASTM D5249, Type 2. Preformed joint filler shall be a non staining, non bleeding type. Products such as 'Ceramar', manufactured by W. R. Meadows, or an approved equal will be acceptable. Cork is not an acceptable joint filler material.
4. Joint Sealer shall conform with Subsection 714.04 of the Specifications and shall be incidental to related Contract Pay Items.



Date:3/24/2019

Filename: ...\MSTA\134_Parapet Dets 1.dgn

No.	Revision	By	Date

Scale:

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

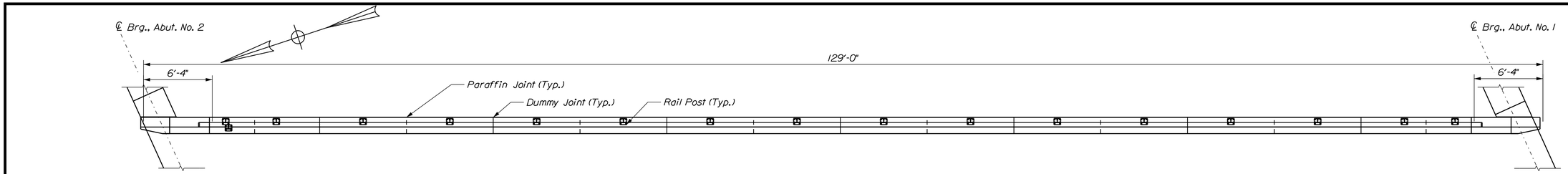
THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

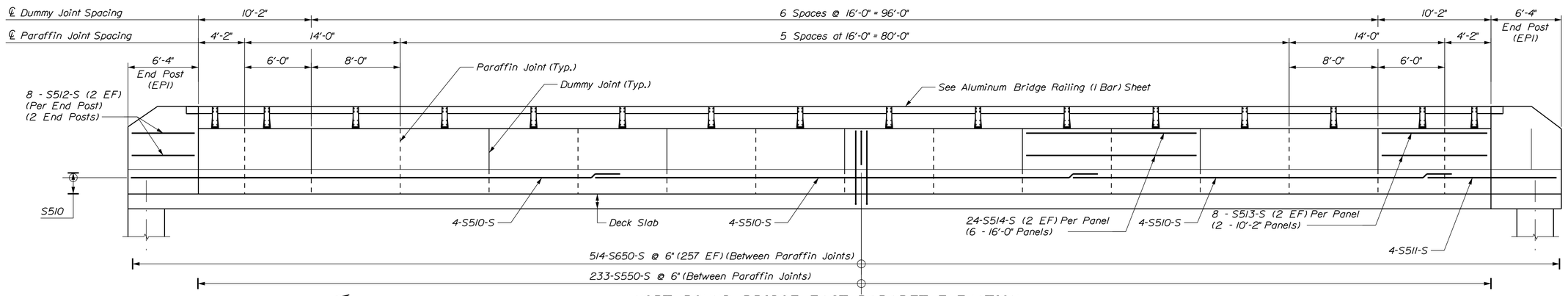
BRIDGE PARAPET DETAILS (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 134
CONTRACT: 2019.10 134 OF 141



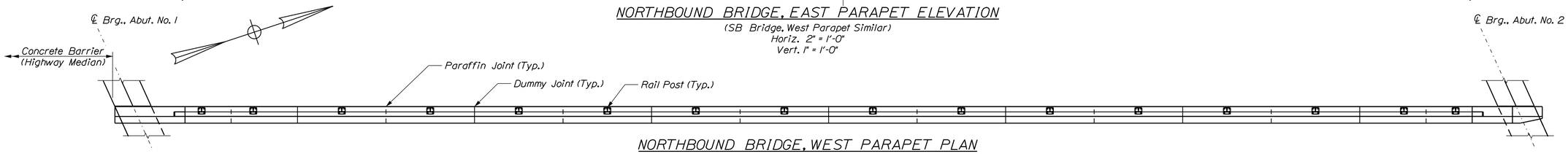
NORTHBOUND BRIDGE, EAST PARAPET PLAN

(SB Bridge, West Parapet Similar)
Scale: 2" = 10'



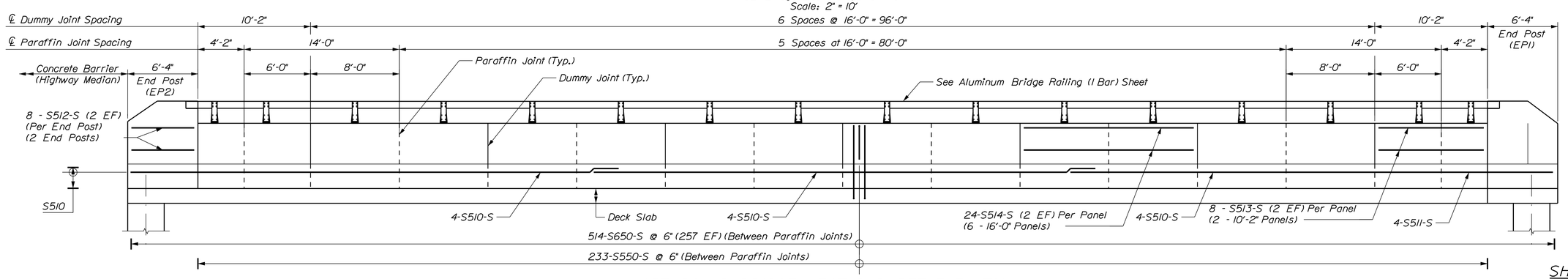
NORTHBOUND BRIDGE, EAST PARAPET ELEVATION

(SB Bridge, West Parapet Similar)
Horiz. 2" = 1'-0"
Vert. 1" = 1'-0"



NORTHBOUND BRIDGE, WEST PARAPET PLAN

(SB Bridge, East Parapet Similar)
Scale: 2" = 10'



NORTHBOUND BRIDGE, WEST PARAPET ELEVATION

(SB Bridge, East Parapet Similar)
Horiz. 2" = 1'-0"
Vert. 1" = 1'-0"

SHEET NOTES

1. See Deck Plans for Rail Post Spacing.

Scale:

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

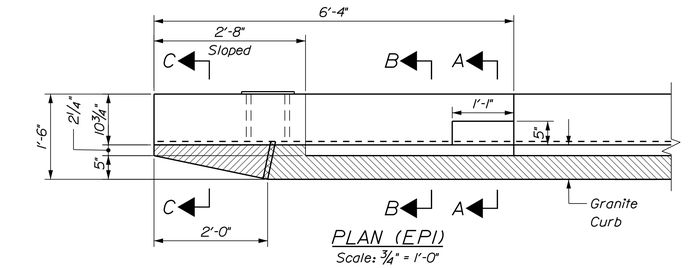
BRIDGE PARAPET DETAILS (2 OF 2)

VHB: 55191.01
CONTRACT: 2019.10

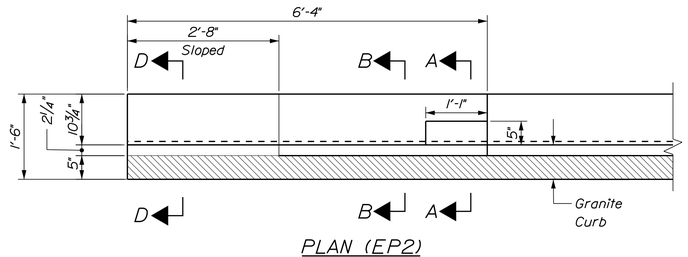
SHEET NUMBER: 135
135 OF 141

Date:3/24/2019

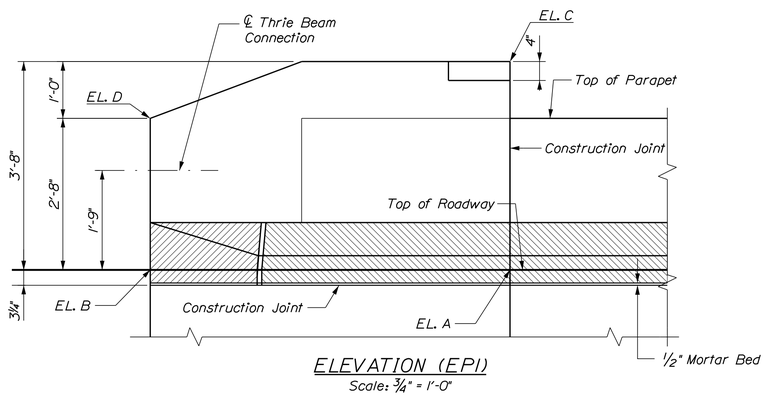
Filename: ...\MSTA\135_Parapet Dets 2.dgn



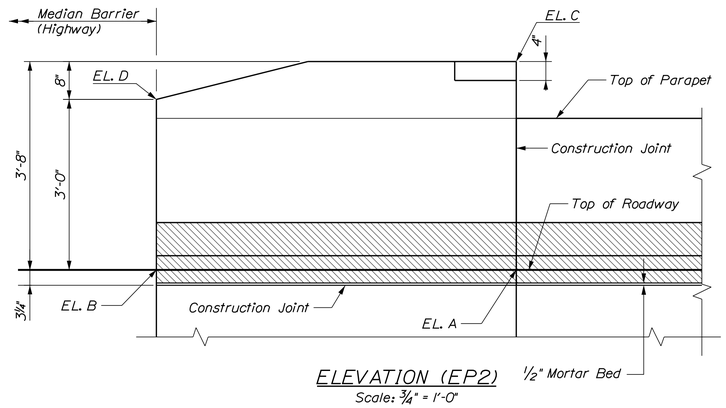
PLAN (EP1)
Scale: ¾" = 1'-0"



PLAN (EP2)
Scale: ¾" = 1'-0"



ELEVATION (EP1)
Scale: ¾" = 1'-0"



ELEVATION (EP2)
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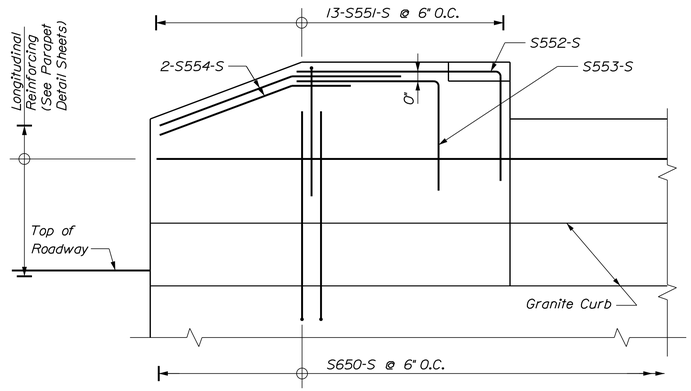
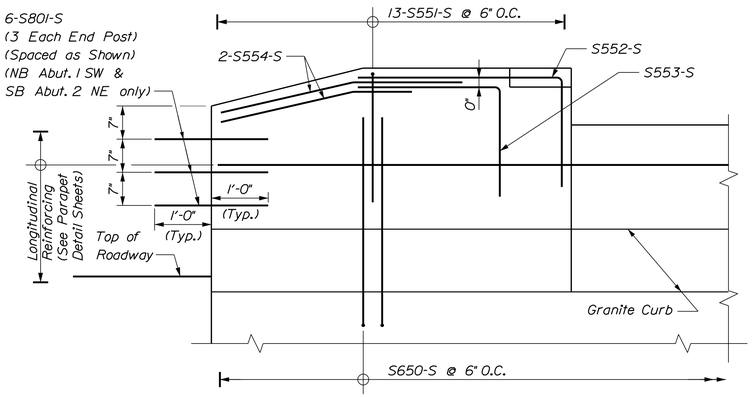


ELEVATION - REINFORCING (EP1)
Scale: ¾" = 1'-0"

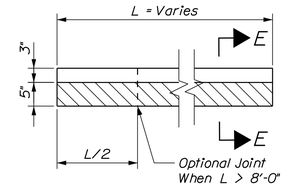


ELEVATION - REINFORCING (EP2)
Scale: ¾" = 1'-0"

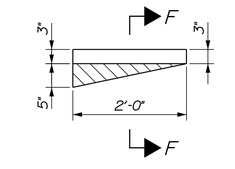
TABLE OF ELEVATIONS				
LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D
SB ABUT. 1W	78.78	78.73	82.45	81.39
SB ABUT. 1E	79.42	79.37	83.09	82.04
NB ABUT. 1W	79.47	79.42	83.14	82.42
NB ABUT. 1E	79.16	79.11	82.82	81.78
SB ABUT. 2W	79.39	79.39	83.05	82.06
SB ABUT. 2E	79.90	79.91	83.57	82.91
NB ABUT. 2W	79.92	79.92	83.58	82.58
NB ABUT. 2E	79.48	79.47	83.15	82.14

NOTE

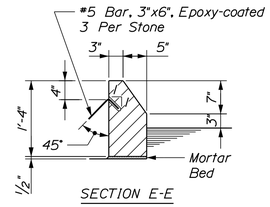
1. Thrie rail connection plate shall be sleeved through the end post. The thrie rail connection plate, thrie rail transition and insulation shall be paid under item 606.1723 Bridge Transition - Type III.



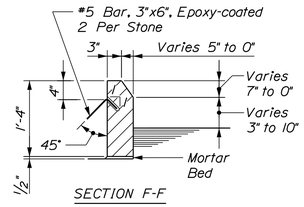
PLAN



PLAN AT END OF ENDPOST

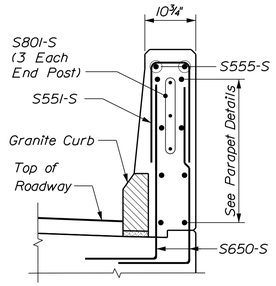


SECTION E-E

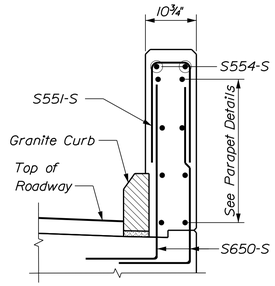


SECTION F-F

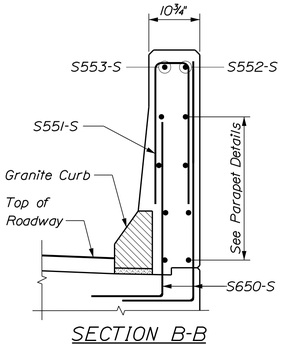
ENDPOST GRANITE CURB DETAILS
Scale: ¾" = 1'-0"



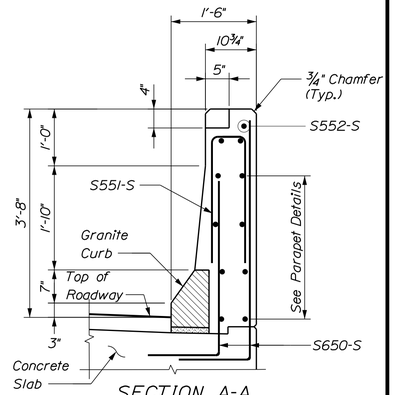
SECTION D-D
¾" = 1'-0"



SECTION C-C
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"



SECTION A-A
¾" = 1'-0"

Date:3/24/2019

Filename: ...\WSTA\136_End_Post_Det_1.dgn

Scale:

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

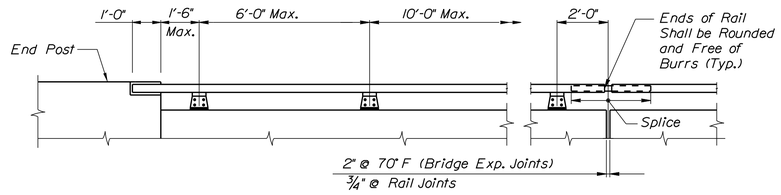
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

ENDPOST DETAILS

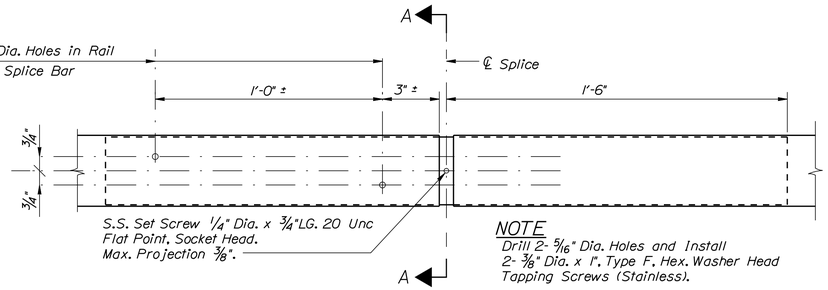
VHB: 55191.01
CONTRACT: 2019.10

SHEET NUMBER: 136
136 OF 141

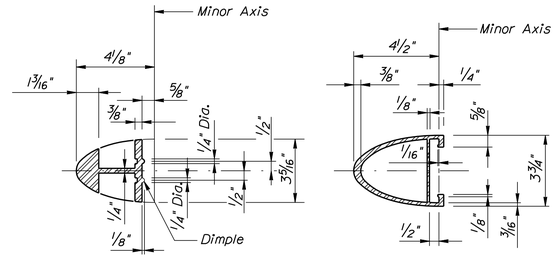
Date:3/24/2019



RAILING - ELEVATION
Scale: 3/8" = 1'-0"

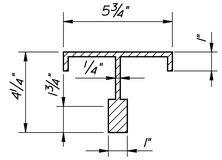


SPLICE DETAIL
Scale: 3" = 1'-0"

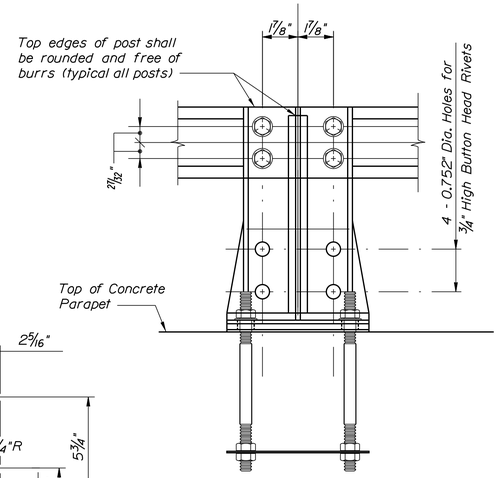


SECTION A-A
Scale: 3" = 1'-0"

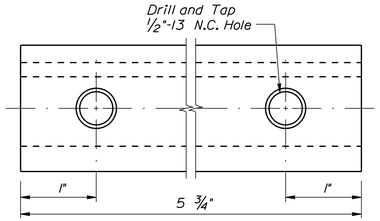
RAIL MEMBER
Scale: 3" = 1'-0"



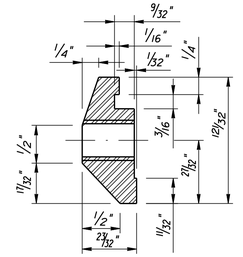
POST SECTION
Scale: 3" = 1'-0"

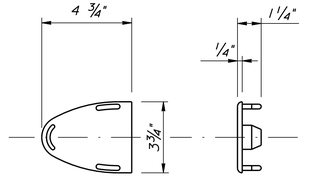


OUTSIDE ELEVATION OF POST
Scale: 3" = 1'-0"

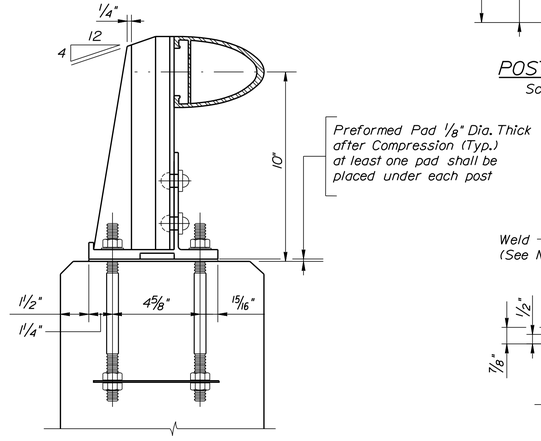


CLAMP BAR DETAILS
Full Size

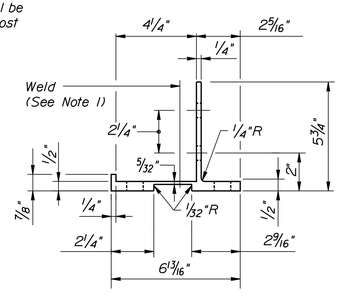




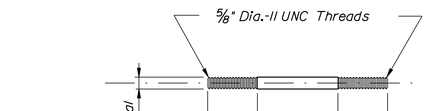
CAST ALUMINUM DRIVE FIT CAP
Scale: 3" = 1'-0"



BRIDGE RAILING ASSEMBLY
Scale: 3" = 1'-0"



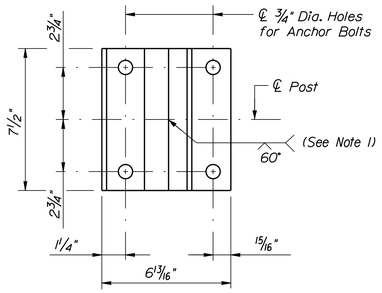
POST BASE SECTION
Scale: 3" = 1'-0"



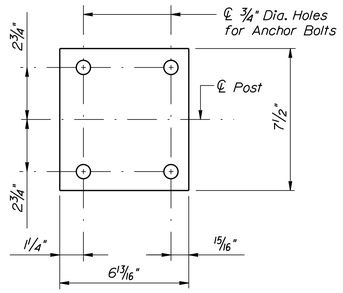
ANCHOR BOLT
(See Notes 2 and 3)
Scale: 3" = 1'-0"

NOTES

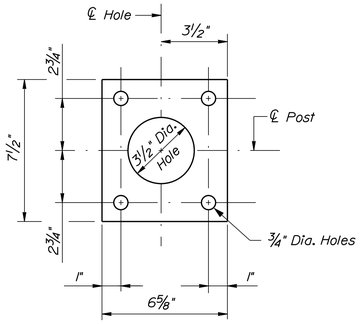
1. One-piece base plate may be substituted, provided that the required length is cut from a one-piece extrusion and has the geometric shape of the two-piece base plate
2. If cut threads are used, body diameter shall be not less than nominal diameter. If rolled threads are used, body diameter shall be not less than pitch diameter of the threads.
3. Four(4) bolt, nut and washer sets are required per assembly. All hardware shall be galvanized.
4. Lengths of rail shall be attached to a min. of four (4) rail posts whenever possible and, in any case, never less than two (2). Rail posts are to be set normal to grade, unless otherwise shown on the bridge plans.



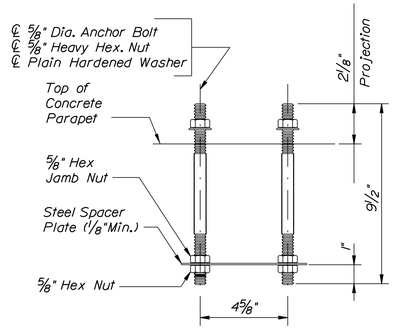
POST BASE
(Bottom View)
Scale: 3" = 1'-0"



PREFORMED PAD
Scale: 3" = 1'-0"



STEEL SPACER PLATE
(For Anchorage)
Scale: 3" = 1'-0"



RAIL POST ANCHORAGE
(Assembly)
Scale: 3" = 1'-0"

Scale:			
No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

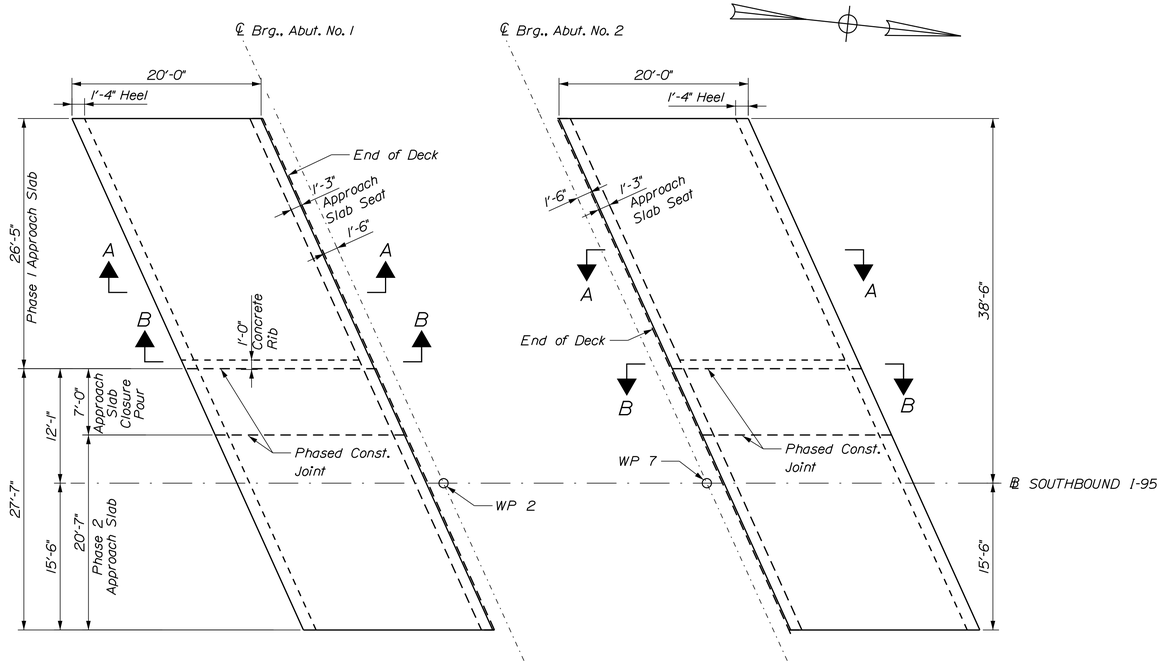
MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

ALUMINUM BRIDGE RAILING (1 BAR)

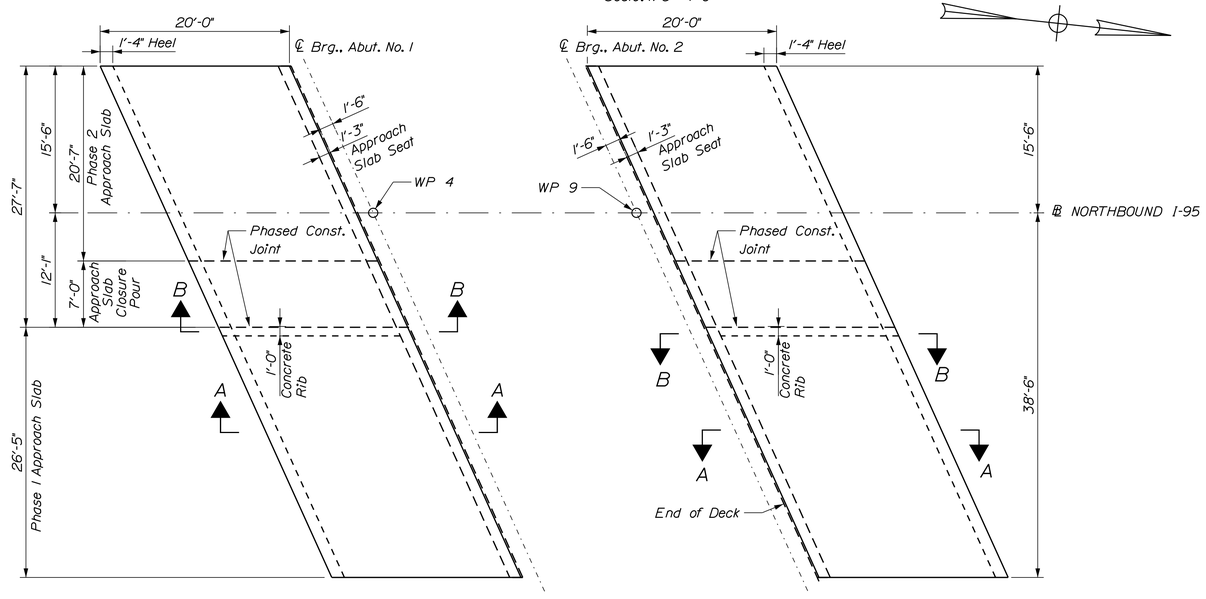
VHB: 55191.01 SHEET NUMBER: 137
CONTRACT: 2019.10 137 OF 141

Filename: ...\MSTA\137_Brg_Alum_Rail.dgn



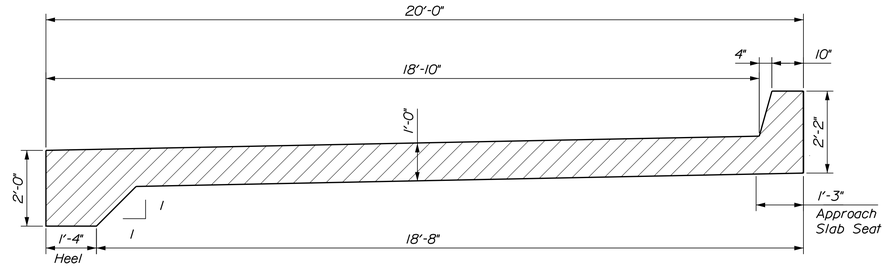
APPROACH SLAB PLAN - SOUTHBOUND

Scale: 1/8" = 1'-0"



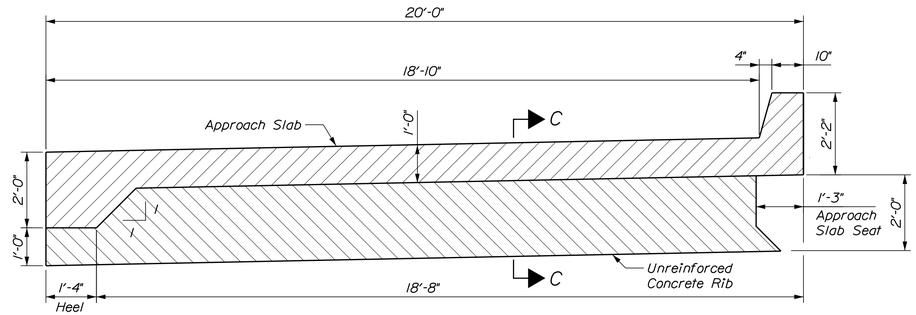
APPROACH SLAB PLAN - NORTHBOUND

Scale: 1/8" = 1'-0"



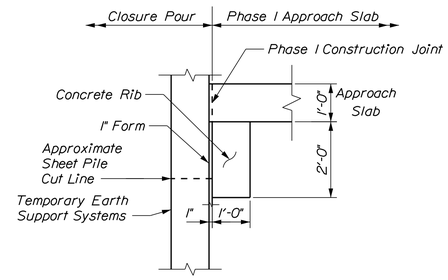
SECTION A-A

Scale: 1/2" = 1'-0"



SECTION B-B

Scale: 1/2" = 1'-0"



SECTION C-C

(Section Shown at Phase 1 Construction)

Scale: 1/2" = 1'-0"

Date:3/24/2019

Filename: ...\138_Approach Slab Detls_01.dgn

Scale: 8 0 8 16 — 1/8" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

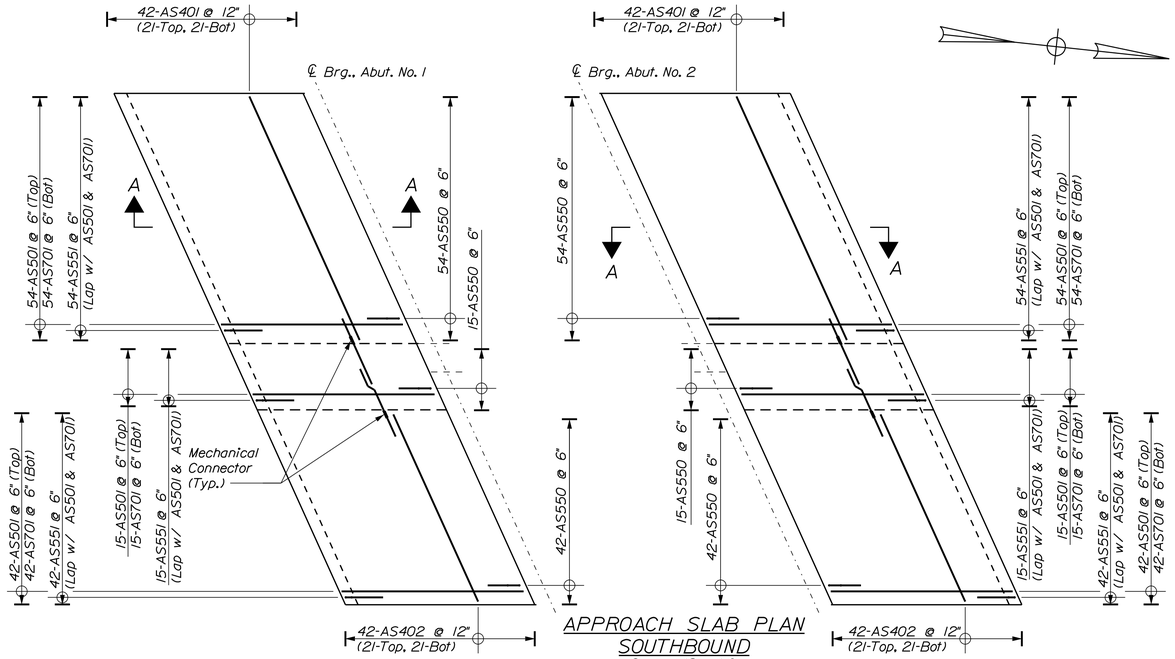
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

APPROACH SLAB DETAILS (1 OF 2)

VHB: 55191.01

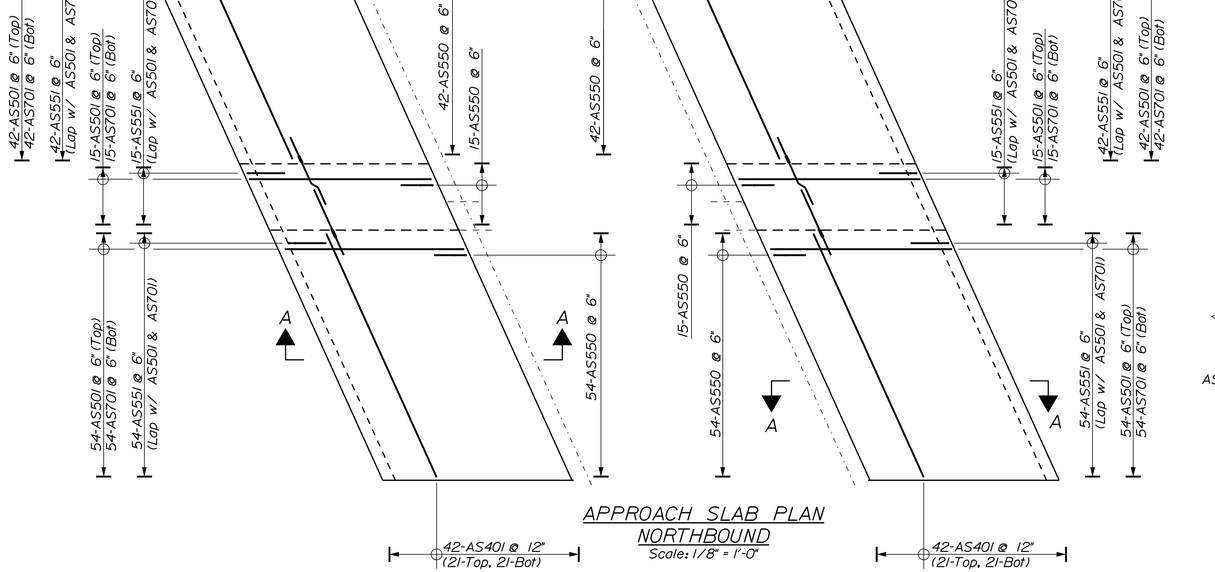
CONTRACT: 2019.10

SHEET NUMBER: 138



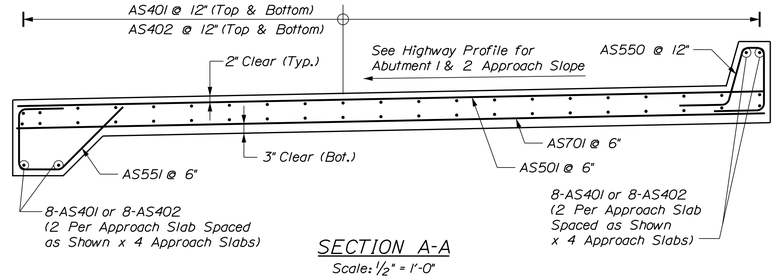
APPROACH SLAB PLAN SOUTHBOUND

Scale: 1/8" = 1'-0"



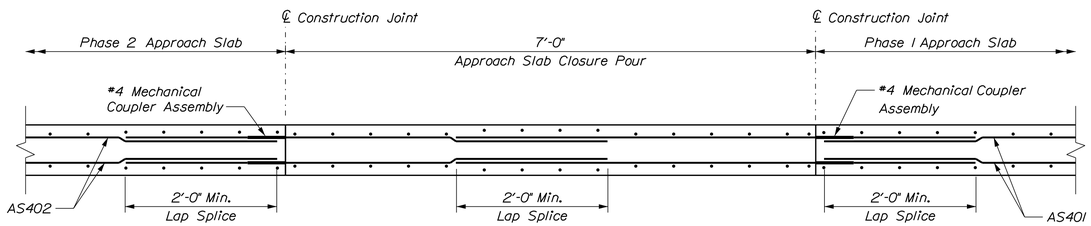
APPROACH SLAB PLAN NORTHBOUND

Scale: 1/8" = 1'-0"



SECTION A-A

Scale: 1/2" = 1'-0"



APPROACH SLAB CLOSURE POUR DETAIL

Scale: 1" = 1'-0"

Date:3/24/2019

Filename: ...\139_Approach Slab Detls_02.dgn

Scale: 8 0 8 16 — 1/8" = 1'-0"

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

APPROACH SLAB DETAILS (2 OF 2)

VHB: 55191.01 SHEET NUMBER: 139

CONTRACT: 2019.10 139 OF 141

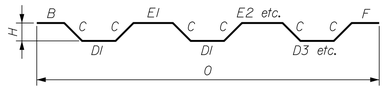
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	LOCATION
A502	24	7'-9"	Abutment 1				
A601	10	42'-8"					
A602	10	39'-1"					
A603	4	32'-6"					
A604	4	31'-3"					
A605	8	41'-6"					
A606	8	36'-11"					
A607	1	3'-6"					
A608	1	4'-7"					
A611	10	41'-6"					
A612	10	39'-1"					
A615	8	40'-3"					
A616	8	36'-11"					
A617	1	2'-2"					
A618	1	3'-3"					
A621	10	40'-4"					
A622	10	39'-1"					
A623	4	32'-6"					
A624	4	31'-3"					
A625	8	39'-2"					
A626	8	36'-11"					
A631	10	41'-7"					
A632	10	39'-1"					
A635	8	40'-5"					
A636	8.00	36'-11"					
A641	4.00	28'-10"					
A642	4.00	26'-8"					

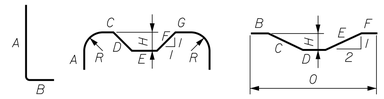
BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
A551	130	4'-9"	SL		1'-0"	2'-9"	1'-0"							Abutment 1
A552	36	7'-8"	C	0'-7"	7'-1"									
A553	18	3'-2"	SL		1'-0"	1'-2"	1'-0"							
A560	182	16'-9"	K2	0'-7"	2'-3"	13'-11"								
A561	124	5'-5.5"	C	0'-7"	4'-3.5"	0'-7"								
A562	124	4'-11"	C	0'-7"	3'-9"	0'-7"								
A651	20	4'-8"	SL		1'-0"	2'-8"	1'-0"							
A652	192	10'-5"	SL		3'-10"	2'-9"	3'-10"							
A653	80	9'-7"	SL		3'-10'	2'-9"	3'-0"							
A654	34	11'-1"	SL		4'-2"	2'-9"	4'-2"							
A655	1	13'-9"	SL		5'-6"	2'-9"	5'-6"							
A656	1	13'-3"	SL		5'-3"	2'-9"	5'-3"							
A657	1	12'-11"	SL		5'-1"	2'-9"	5'-1"							
A658	1	12'-5"	SL		4'-10"	2'-9"	4'-10"							
A659	1	12'-1"	SL		4'-8"	2'-9"	4'-8"							
A660	1	11'-7"	SL		4'-5"	2'-9"	4'-5"							
A661	1	11'-3"	SL		4'-3"	2'-9"	4'-3"							
A662	1	10'-9"	SL		4'-0"	2'-9"	4'-0"							
A663	1	10'-5"	SL		3'-10"	2'-9"	3'-10"							
A664	1	9'-11"	SL		3'-7"	2'-9"	3'-7"							
A665	1	9'-7"	SL		3'-5"	2'-9"	3'-5"							
A666	1	9'-1"	SL		3'-2"	2'-9"	3'-2"							
A667	1	8'-9"	SL		3'-0"	2'-9"	3'-0"							
A668	1	8'-3"	SL		2'-9"	2'-9"	2'-9"							
A669	1	7'-11"	SL		2'-7"	2'-9"	2'-7"							
A670	1	7'-5"	SL		2'-4"	2'-9"	2'-4"							
A671	1	7'-1"	SL		2'-2"	2'-9"	2'-2"							
A672	1	6'-7"	SL		1'-11"	2'-9"	1'-11"							
A675	1	13'-7"	SL		5'-5"	2'-9"	5'-5"							
A676	1	13'-1"	SL		5'-2"	2'-9"	5'-2"							
A677	1	12'-9"	SL		5'-0"	2'-9"	5'-0"							
A678	1	12'-3"	SL		4'-9"	2'-9"	4'-9"							
A679	1	11'-9"	SL		4'-6"	2'-9"	4'-6"							
A680	1	11'-5"	SL		4'-4"	2'-9"	4'-4"							
A681	1	10'-11"	SL		4'-1"	2'-9"	4'-1"							
A682	1	10'-5"	SL		3'-10"	2'-9"	3'-10"							
A683	1	10'-1"	SL		3'-8"	2'-9"	3'-8"							
A684	1	9'-7"	SL		3'-5"	2'-9"	3'-5"							
A685	1	9'-1"	SL		3'-2"	2'-9"	3'-2"							
A686	1	8'-7"	SL		2'-11"	2'-9"	2'-11"							
A687	1	8'-3"	SL		2'-9"	2'-9"	2'-9"							
A688	1	7'-9"	SL		2'-6"	2'-9"	2'-6"							
A689	1	7'-3"	SL		2'-3"	2'-9"	2'-3"							
A690	1	6'-11"	SL		2'-1"	2'-9"	2'-1"							
A691	1	6'-5"	SL		1'-10"	2'-9"	1'-10"							
A697	4	11'-0"	V				2'-8"	8'-4"			3'-6.25"			
A698	4	9'-10"	V				1'-3"	8'-7"			3'-7.75"			
A699	242	10'-2"	K		1'-0"	1'-9.25"	1'-0.75"	4'-2"	2'-2"					
A851	278	21'-3"	SL		9'-3"	2'-9"	9'-3"							
A852	132	10'-4"	C	1'-1"	9'-3"									

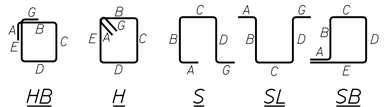
TYPE - BENDING DIAGRAMS



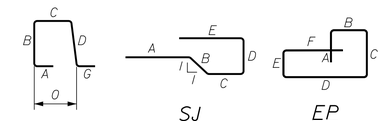
B



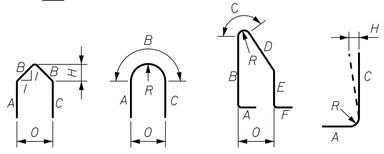
L W M



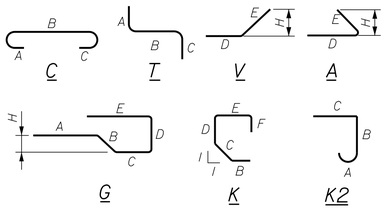
HB H S SL SB



SC SJ EP



PA PR CB J



C T V A

G K K2

All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60

GENERAL NOTES

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

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

Date:3/24/2019

Filename: ...\BRIDGE\MSTA\140_Reinf-Sch.dgn

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

REINFORCING STEEL SCHEDULE (1 OF 2)

VHB: 55191.01 SHEET NUMBER: 140

CONTRACT: 2019.10 140 OF 141

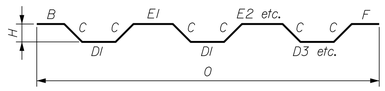
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	LOCATION
B502	24	7'-9"	Abutment 2				
B601	10	43'-2"					
B602	10	39'-1"					
B603	4	32'-6"					
B604	4	31'-3"					
B605	8	42'-0"					
B606	8	36'-11"					
B607	1	4'-8"					
B608	1	3'-6"					
B611	10	42'-0"					
B612	10	39'-1"					
B615	8	40'-10"					
B616	8	36'-11"					
B617	1	3'-3"					
B618	1	2'-2"					
B621	10	41'-5"					
B622	10	39'-1"					
B623	4	32'-6"					
B624	4	31'-3"					
B625	8	40'-2"					
B626	8	36'-11"					
B631	10	42'-7"					
B632	10	39'-1"					
B635	8	41'-5"					
B636	8	36'-11"					
B641	4	28'-10"					
B642	4	26'-8"					
S506	1028	30'-9"	Deck				
S507	1028	32'-1"					
S508	864	40'-0"					
S509	288	17'-8"					
S510-S	48	40'-0"	Parapet				
S511-S	16	17'-8"					
S512-S	32	6'-0"					
S513-S	32	9'-10"					
S514-S	96	15'-8"					
S801-S	6	2'-0"					
AS401	184	28'-7"	Approach Slab				
AS402	184	22'-2"					
AS501	444	19'-8"					
AS701	444	19'-8"					

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
B551	130	4'-9"	SL		1'-0"	2'-9"	1'-0"							Abutment 2
B552	36	7'-8"	C	0'-7"	7'-1"									
B553	18	3'-2"	SL		1'-0"	1'-2"	1'-0"							
B560	182	16'-9"	K2	0'-7"	2'-3"	13'-11"								
B561	124	5'-5.5"	C	0'-7"	4'-3.5"	0'-7"								
B562	124	4'-11"	C	0'-7"	3'-9"	0'-7"								
B651	20	4'-8"	SL		1'-0"	2'-8"	1'-0"							
B652	192	10'-7"	SL		3'-11"	2'-9"	3'-11"							
B653	80	9'-8"	SL		3'-11'	2'-9"	3'-0"							
B654	34	11'-7"	SL		4'-5"	2'-9"	4'-5"							
B655	1	14'-1"	SL		5'-8"	2'-9"	5'-8"							
B656	1	13'-7"	SL		5'-5"	2'-9"	5'-5"							
B657	1	13'-3"	SL		5'-3"	2'-9"	5'-3"							
B658	1	12'-9"	SL		5'-0"	2'-9"	5'-0"							
B659	1	12'-3"	SL		4'-9"	2'-9"	4'-9"							
B660	1	11'-11"	SL		4'-7"	2'-9"	4'-7"							
B661	1	11'-5"	SL		4'-4"	2'-9"	4'-4"							
B662	1	10'-11"	SL		4'-1"	2'-9"	4'-1"							
B663	1	10'-7"	SL		3'-11"	2'-9"	3'-11"							
B664	1	10'-1"	SL		3'-8"	2'-9"	3'-8"							
B665	1	9'-9"	SL		3'-6"	2'-9"	3'-6"							
B666	1	9'-3"	SL		3'-3"	2'-9"	3'-3"							
B667	1	8'-9"	SL		3'-0"	2'-9"	3'-0"							
B668	1	8'-5"	SL		2'-10"	2'-9"	2'-10"							
B669	1	7'-11"	SL		2'-7"	2'-9"	2'-7"							
B670	1	7'-5"	SL		2'-4"	2'-9"	2'-4"							
B671	1	7'-1"	SL		2'-2"	2'-9"	2'-2"							
B672	1	6'-7"	SL		1'-11"	2'-9"	1'-11"							
B675	1	13'-11"	SL		5'-7"	2'-9"	5'-7"							
B676	1	13'-5"	SL		5'-4"	2'-9"	5'-4"							
B677	1	13'-1"	SL		5'-2"	2'-9"	5'-2"							
B678	1	12'-7"	SL		4'-11"	2'-9"	4'-11"							
B679	1	12'-1"	SL		4'-8"	2'-9"	4'-8"							
B680	1	11'-9"	SL		4'-6"	2'-9"	4'-6"							
B681	1	11'-3"	SL		4'-3"	2'-9"	4'-3"							
B682	1	10'-11"	SL		4'-1"	2'-9"	4'-1"							
B683	1	10'-5"	SL		3'-10"	2'-9"	3'-10"							
B684	1	9'-11"	SL		3'-7"	2'-9"	3'-7"							
B685	1	9'-7"	SL		3'-5"	2'-9"	3'-5"							
B686	1	9'-1"	SL		3'-2"	2'-9"	3'-2"							
B687	1	8'-7"	SL		2'-11"	2'-9"	2'-11"							
B688	1	8'-3"	SL		2'-9"	2'-9"	2'-9"							
B689	1	7'-9"	SL		2'-6"	2'-9"	2'-6"							
B690	1	7'-5"	SL		2'-4"	2'-9"	2'-4"							
B691	1	6'-11"	SL		2'-1"	2'-9"	2'-1"							
B692	1	6'-5"	SL		1'-10"	2'-9"	1'-10"							
B693	1	6'-1"	SL		1'-8"	2'-9"	1'-8"							
B694	1	5'-7"	SL		1'-5"	2'-9"	1'-5"							
B697	4	11'-6"	V				2'-8"	8'-10"			3'-9"			
B698	4	10'-11"	V				1'-3"	9'-8"			4'-1.25"			
B699	242	10'-2"	K		1'-0"	1'-9.25"	1'-0.75"	4'-2"	2'-2"					
B851	281	21'-3"	SL		9'-3"	2'-9"	9'-3"							
B852	132	10'-4"	C	1'-1"	9'-3"									
S750	1028	6'-8"	C	0'-10"	5'-10"	0'-0"								Deck
S550-S	932	3'-6"	S	0'-0"	1'-6"	0'-6"	1'-6"			0'-0"				Parapet
S551-S	104	5'-6"	S	0'-0"	2'-6"	0'-6"	2'-6"			0'-0"				
S552-S	8	5'-10"	L	3'-4"	2'-6"									
S553-S	8	4'-9"	L	2'-6"	2'-3"									
S554-S	12	5'-9"	V				2'-3"	2'-6"			1'-0"			
S555-S	4	5'-4"	V				2'-3"	2'-5"			0'-8"			
S650-S	2056	4'-3"	L	3'-3"	1'-0"									
AS550	444	5'-11"	SC	1'-0"	1'-9"	0'-6"	1'-8"			1'-0"		0'-10"		Approach Slab
AS551	444	5'-8"	SJ	0'-0"	2'-2"	0'-11"	1'-7"	1'-0"						

TYPE - BENDING DIAGRAMS



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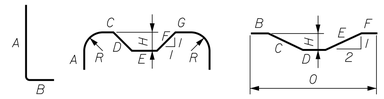
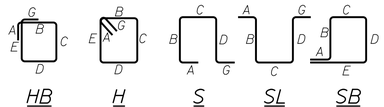
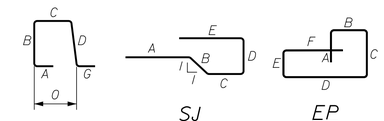


L W M



HB H S SL SB



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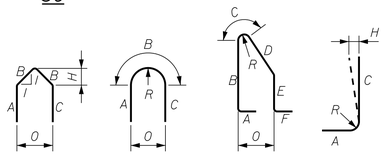
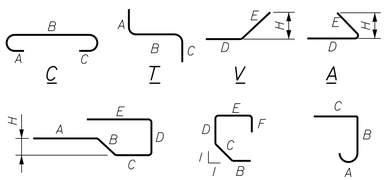


PA PR CB J



C T V A

G K K2

All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60

GENERAL NOTES

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

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

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by: vhb

CONSULTANT PROJECT MANAGER: T. Bryant

	By	Date		By	Date
Designed	MED	3/22/19	Checked	GME	3/22/19
Drawn	DPD	3/22/19	In Charge of	TSB	3/22/19

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South Portland, ME 04106
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FAX (207) 253-5596

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph Norwood, IV

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

REINFORCING STEEL SCHEDULE (2 OF 2)

VHB: 55191.01 SHEET NUMBER: 141
CONTRACT: 2019.10 141OF 141

Date:3/24/2019

Filename: ...\BRIDGE\MSTA\141_Reinf Sch.dgn

BARRIER NOTES

1. INSTALLATION OF BARRIER REFLECTORS WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 526.501, PRECAST CONCRETE MEDIAN BARRIER

2. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY FIELD SURVEY AND THE LAYOUT OF THE CONSTRUCTION BASELINE AS NECESSARY TO COMPLETE THE WORK. ALL BASELINE LAYOUT INFORMATION SHALL BE CHECKED AND APPROVED BY THE RESIDENT PRIOR TO STARTING BARRIER INSTALLATION WORK. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

3. AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL PROVIDE NCHRP 350 COMPLIANT END TREATMENTS.

4. CLEAR PROTECTIVE COATING FOR CONCRETE SURFACES SHALL BE APPLIED TO ALL CONCRETE SURFACES EXPOSED IN THE FINAL CONDITION IN ACCORDANCE WITH SPECIAL PROVISION 515. THE APPLICATION OF APPLICATION OF CLEAR PROTECTIVE COATING FOR CONCRETE SURFACES WILL NOT BE MEASURED FOR PAYMENT SEPARATELY, BUT SHALL BE INCIDENTAL TO THE MEDIAN BARRIER, BRIDGE ENDPOST MEDIAN BARRIER TRANSITION AND GUARDRAIL MEDIAN BARRIER TRANSITION PAY ITEMS.

STRUCTURAL

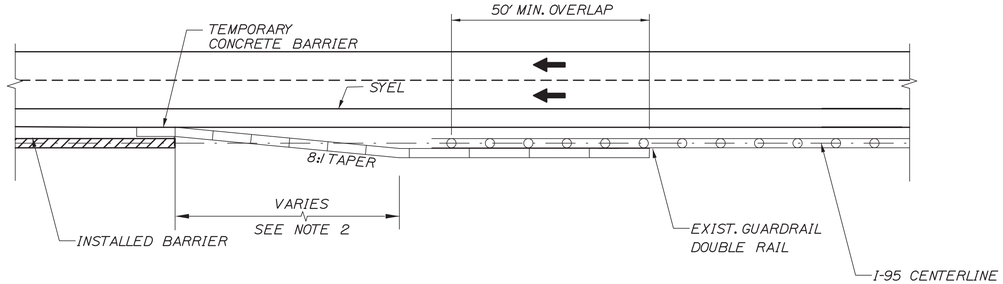
1. PRIOR TO FABRICATING THE PRECAST CONCRETE BARRIER AND REINFORCING THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS OF THE PROPOSED MEDIAN BARRIER LAYOUT AND ITS COMPONENTS IN ACCORDANCE WITH SPECIAL PROVISION 526.

2. REINFORCING SCHEDULES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT FOR ALL WORK ASSOCIATED WITH DEVELOPING REINFORCING SCHEDULES WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 526.501, PRECAST CONCRETE MEDIAN BARRIER.

3. ALL CONCRETE REINFORCING SHALL HAVE A 2.5 INCH MINIMUM COVER UNLESS OTHERWISE NOTED.

4. PROTECTIVE COATING FOR CONCRETE SURFACES SHALL BE APPLIED TO THE FOLLOWING AREAS OF NEW PRECAST OR CAST-IN-PACE CONCRETE: ALL EXPOSED SURFACES OF CONCRETE MEDIAN BARRIERS AND TRANSITION BARRIERS.

5. ALL PROPOSED BARRIER CONNECTION COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.



NOTES:

1. BARRIER ENDS SHALL BE PROTECTED BY A TEMPORARY WORK ZONE CRASH CUSHION OR LAPPED BEHIND GUARDRAIL.
2. 8:1 TAPERED BARRIER LENGTH IS DEPENDENT ON THE LOCATION OF THE BARRIER RELATIVE TO SHOULDERS, LANES, AND THE CONTRACTORS OPERATION.
3. IF A TEMPORARY WORK ZONE CRASH CUSHION IS USED, THE WORK ZONE CRASH CUSHION SYSTEM MUST BE FOUNDED ON A LEVEL SURFACE. ANY WORK NECESSARY TO PROVIDE A LEVEL SURFACE WILL BE INCIDENTAL TO THE WORK ZONE CRASH CUSHION ITEM.
4. AN NCHRP350 COMPLIANT IMPACT ATTENUATION SYSTEM SHALL BE INSTALLED CONCURRENTLY WITH THE PLACEMENT OF EACH RUN OF CONCRETE BARRIER.

CONCRETE BARRIER / GUARDRAIL OVERLAP DETAIL

NOT TO SCALE

STATE OF MAINE
ROLAND A. LAVALLEE
No. 6452
LICENSED PROFESSIONAL ENGINEER

Roland A. Lavallee

Date:3/22/2019

Filename: 001_General Notes.dgn

No.	Revision	By	Date

Scale:

Designed by: HNTB

CONSULTANT PROJECT MANAGER: Dale A. Mitchell, P.E.

	By	Date		By	Date
Designed	JDW	03/19	Checked	TRC	03/19
Drawn	PEB	03/19	In Charge of	RAL	03/19

HNTB CORPORATION
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph C. Norwood, IV, P.E., P.T.O.E.

WARREN AVENUE OVERPASS
BRIDGE REPLACEMENT

MEDIAN BARRIER NOTES

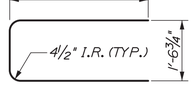
SHEET NUMBER: BD-1

CONTRACT:2019.10

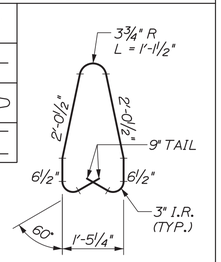
Date:3/22/2019

CONCRETE BARRIER REINFORCING SCHEDULE*

DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
LONGITUDINAL	#4	10	19'-7"	
STIRRUPS	#4	29	8'-10"	
LOOP BAR	#6	2	8'-0"	

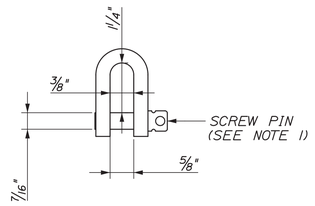


#6 LOOP BAR (TOP VIEW)

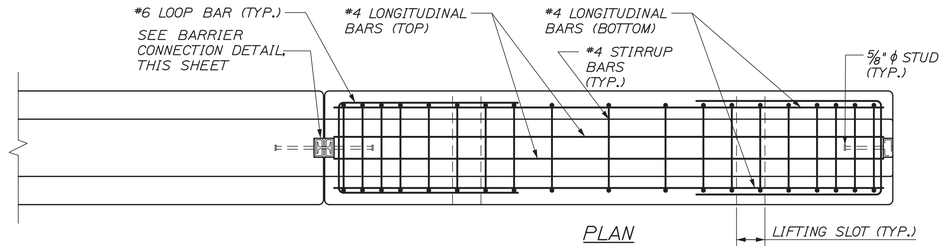


#4 STIRRUP BAR

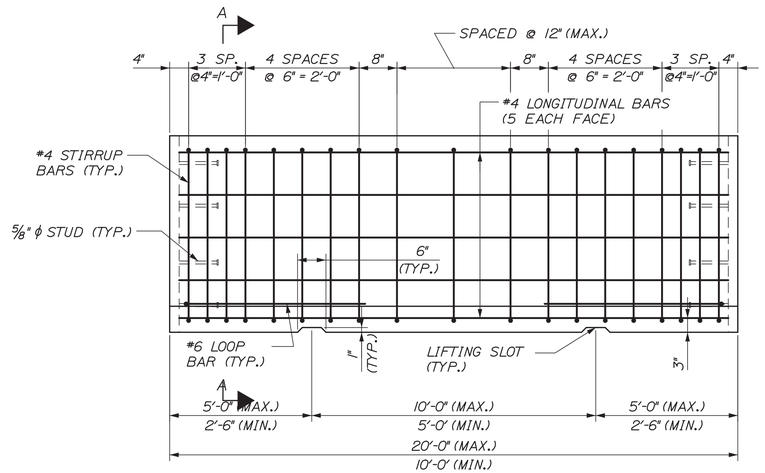
* QUANTITIES BASED ON 20'-0" BARRIER LENGTH.



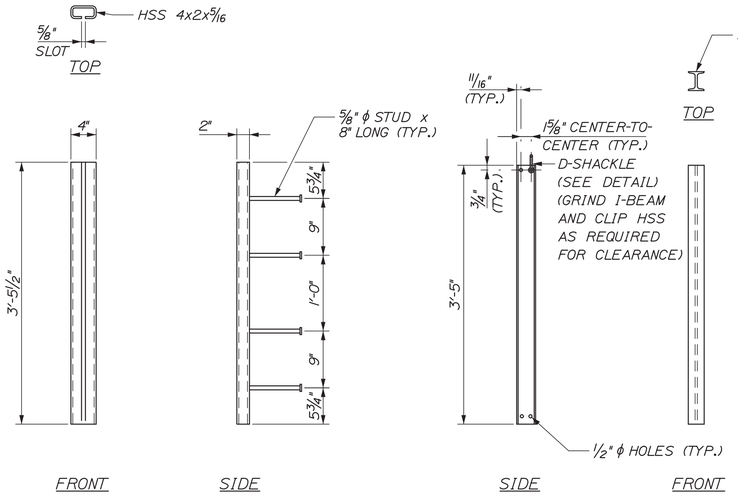
D-SHACKLE DETAIL
(ONE PER I-BEAM)



PLAN



ELEVATION

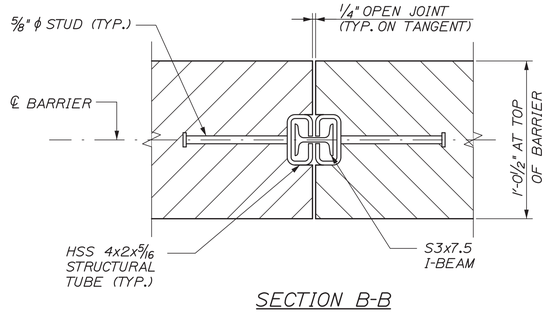


STRUCTURAL TUBE DETAILS

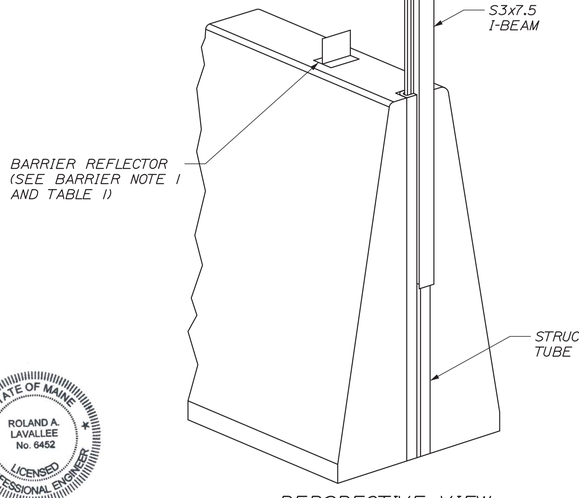
I-BEAM DETAILS

SPACING OF REFLECTORS	
RADIUS OF HORIZONTAL CURVE	℄ TO ℄ DISTANCE BETWEEN REFLECTORS
LESS THAN 2000'	115'
2000' TO 3000'	130'
3000' TO 5000'	160'
OVER 5000'	200'
TANGENT AREA	200'

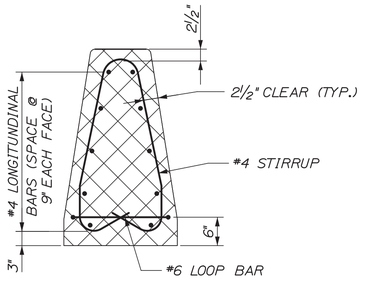
TABLE 1



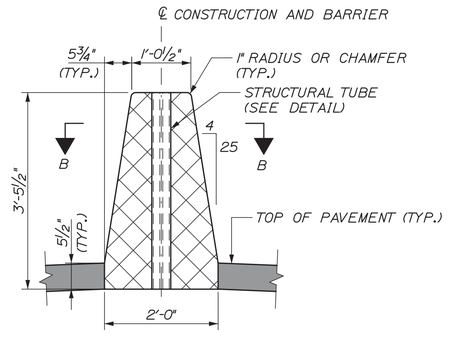
SECTION B-B



PERSPECTIVE VIEW
NOT TO SCALE



SECTION A-A (REINFORCEMENT)



SECTION A-A (MASONRY)

STATE OF MAINE
ROLAND A. LAVALLEE
No. 6452
LICENSED PROFESSIONAL ENGINEER

Roland A. Lavallee

NOTES:

1. SCREW PIN SHALL BE SECURED WITH AN APPROVED THREAD LOCK MATERIAL DURING FINAL ASSEMBLY.
2. A D-SHACKLE SHALL BE ATTACHED TO EACH I-BEAM.

Filename: 002_Barrier Details 1.dgn

Scale: AS NOTED

No.	Revision	By	Date

Designed by: HNTB

CONSULTANT PROJECT MANAGER: Dale A. Mitchell, P.E.

	By	Date		By	Date
Designed	JDW	03/19	Checked	TRC	03/19
Drawn	PEB	03/19	In Charge of	RAL	03/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph C. Norwood, IV, P.E., P.T.O.E.

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BARRIER DETAILS 1
PRECAST MEDIAN BARRIER

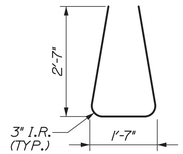
SHEET NUMBER: BD-2

CONTRACT:2019.10

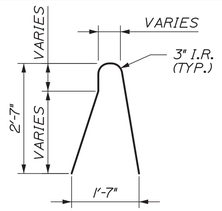
Date:3/22/2019

CONCRETE BARRIER REINFORCING SCHEDULE

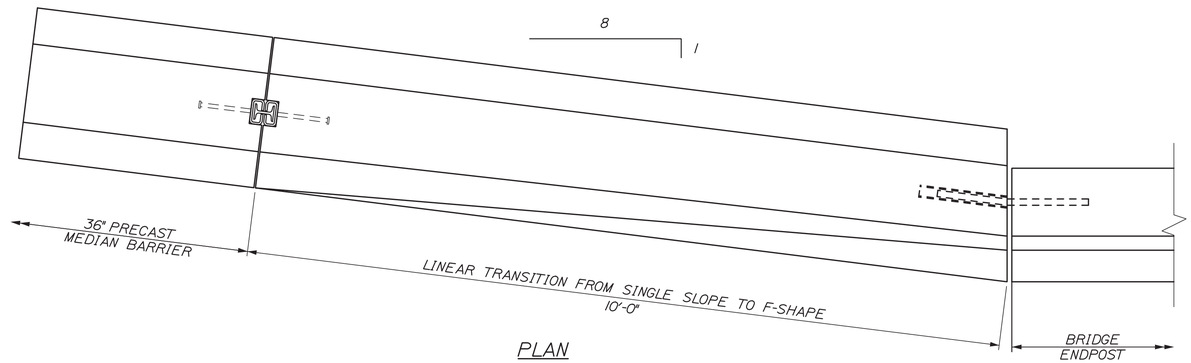
DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
LONGITUDINAL	#4	10	9'-7"	——
STIRRUPS	#4	19	6'-6"	▱
STIRRUPS	#4	19	VARIES	▱



#4 STIRRUP BAR

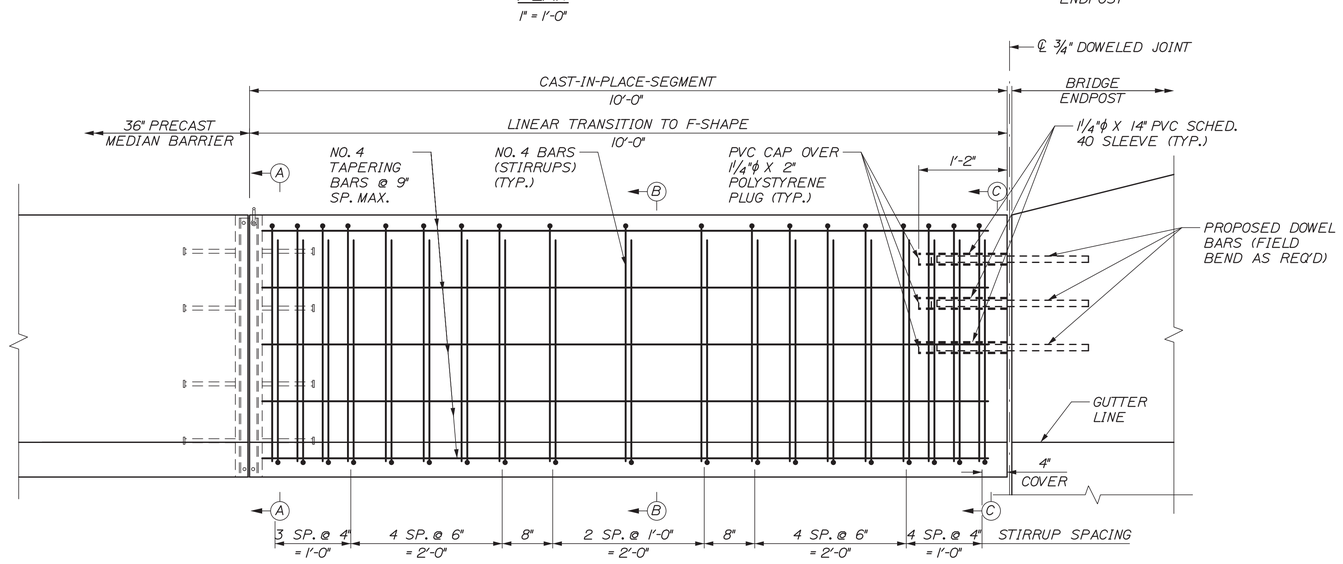


#4 STIRRUP BAR



PLAN

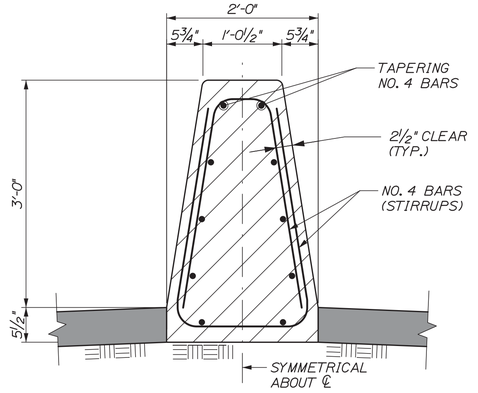
1" = 1'-0"



ELEVATION

(REVERSE DIRECTION SIMILAR BY OPPOSITE HAND)

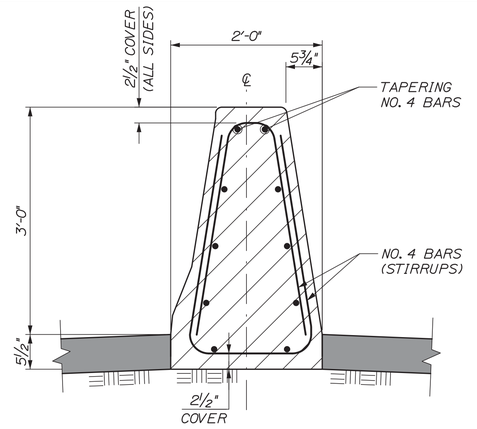
1" = 1'-0"



SECTION A-A

MATCH MEDIAN BARRIER

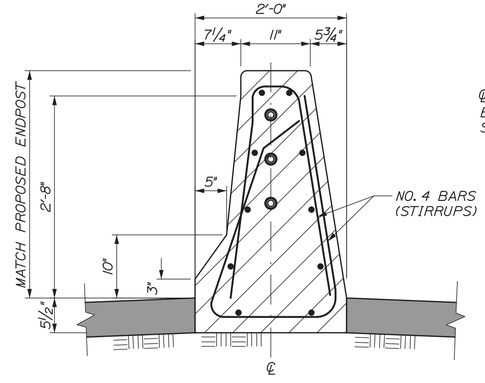
1" = 1'-0"



SECTION B-B

INTERMEDIATE SECTION OF LINEAR TRANSITION

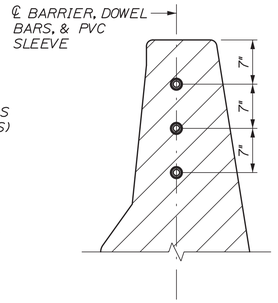
1" = 1'-0"



SECTION C-C

MATCH PROPOSED HEIGHT F-SHAPE SECTION

1" = 1'-0"



SECTION - F-SHAPE DOWEL PLACEMENT

1" = 1'-0"

STATE OF MAINE
ROLAND A. LAVALLEE
No. 6452
LICENSED
PROFESSIONAL ENGINEER

Roland A. Lavallee

NOTES:

1. BARRIER TRANSITION TYPE I SHALL BE CAST-IN-PLACE.

Filename: 003_Barrier Details 2.dgn

Scale: AS NOTED

No.	Revision	By	Date

Designed by: HNTB

CONSULTANT PROJECT MANAGER: Dale A. Mitchell, P.E.

	By	Date		By	Date
Designed	JDW	03/19	Checked	TRC	03/19
Drawn	PEB	03/19	In Charge of	RAL	03/19

HNTB CORPORATION
340 County Road, Suite 6-C
Westbrook, ME 04092
TEL (207) 774-5155
FAX (207) 228-0909

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph C. Norwood, IV, P.E., P.T.O.E.

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BARRIER DETAILS II

BRIDGE ENDPOST BARRIER TRANSITION

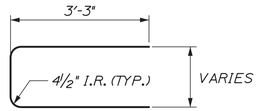
SHEET NUMBER: BD-3

CONTRACT:2019.10

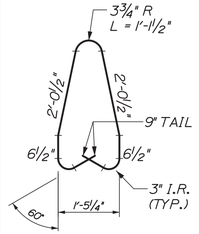
Date:3/22/2019

CONCRETE BARRIER REINFORCING SCHEDULE

DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
LONGITUDINAL	#4	11	9'-7"	——
STIRRUPS	#4	8	8'-10"	
STIRRUPS	#4	8	8'-9"	
STIRRUPS	#4	3	VARIES	
LOOP BAR	#6	2	VARIES	



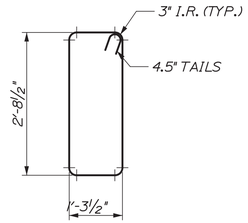
#6 LOOP BAR (TOP VIEW)



#4 STIRRUP BAR

DIMENSIONS VARY

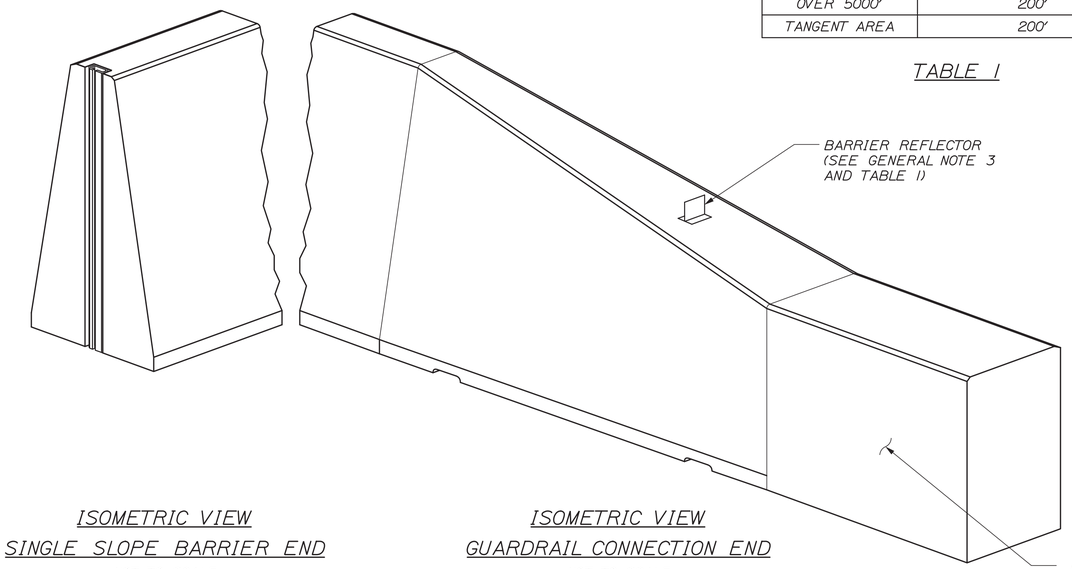
#4 STIRRUP BAR



#4 STIRRUP BAR

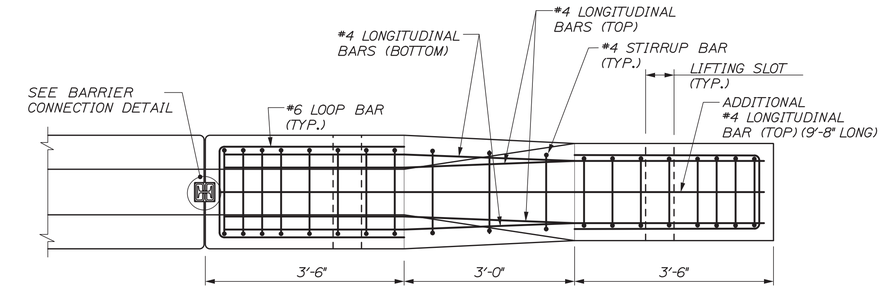
SPACING OF REFLECTORS	
RADIUS OF HORIZONTAL CURVE	℄ TO ℄ DISTANCE BETWEEN REFLECTORS
LESS THAN 2000'	115'
2000' TO 3000'	130'
3000' TO 5000'	160'
OVER 5000'	200'
TANGENT AREA	200'

TABLE I

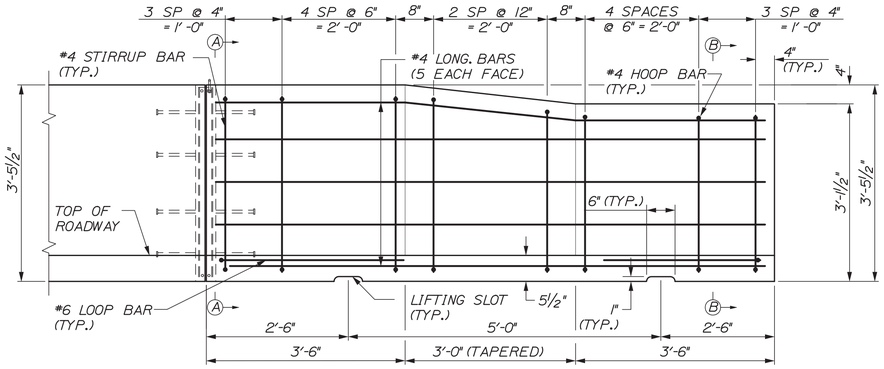


ISOMETRIC VIEW
SINGLE SLOPE BARRIER END
NOT TO SCALE

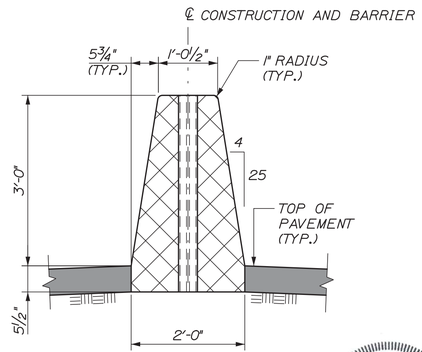
ISOMETRIC VIEW
GUARDRAIL CONNECTION END
NOT TO SCALE



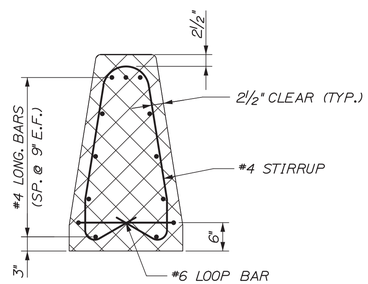
PLAN



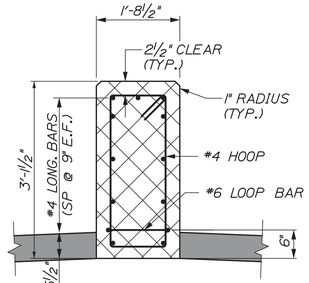
ELEVATION



SECTION A-A (MASONRY)



SECTION A-A (REINFORCEMENT)



SECTION B-B
(MASONRY & REINFORCEMENT)

STATE OF MAINE
ROLAND A. LAVALLEE
No. 6452
LICENSED
PROFESSIONAL ENGINEER

Roland A. Lavallee

NOTES:

1. SEE SHEET "BARRIER DETAILS I" FOR BARRIER CONNECTION DETAIL.
2. PREPARATION OF SUBGRADE SHALL BE PERFORMED TO ENSURE PROPER HEIGHT OF CONNECTING GUARDRAIL PRIOR TO SETTING CONCRETE TRANSITION BARRIER.

Filename: 004_Barrier Details 3.dgn

Scale: AS NOTED

No.	Revision	By	Date

Designed by: HNTB

CONSULTANT PROJECT MANAGER: Dale A. Mitchell, P.E.

	By	Date		By	Date
Designed	JDW	03/19	Checked	TRC	03/19
Drawn	PEB	03/19	In Charge of	RAL	03/19

HNTB CORPORATION
340 County Road, Suite 6-C
Westbrook, ME 04092
TEL (207) 774-5155
FAX (207) 228-0909

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

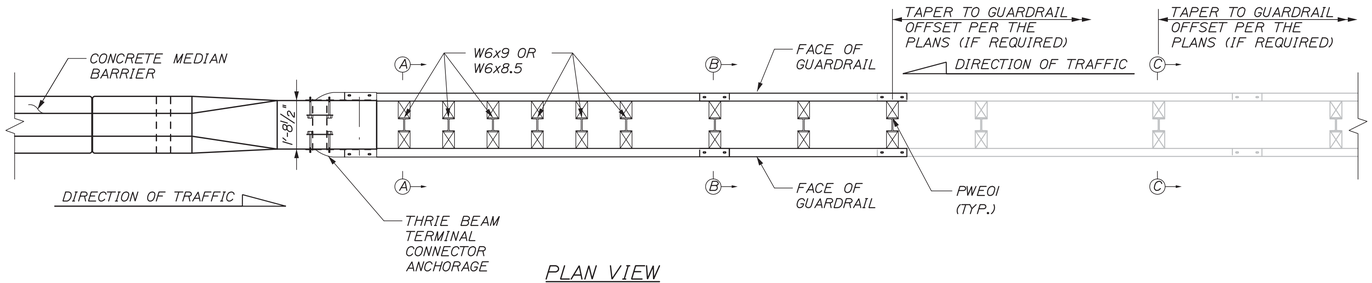
MTA PROJECT MANAGER: Ralph C. Norwood, IV, P.E., P.T.O.E.

WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

BARRIER DETAILS III
GUARDRAIL BARRIER TRANSITION

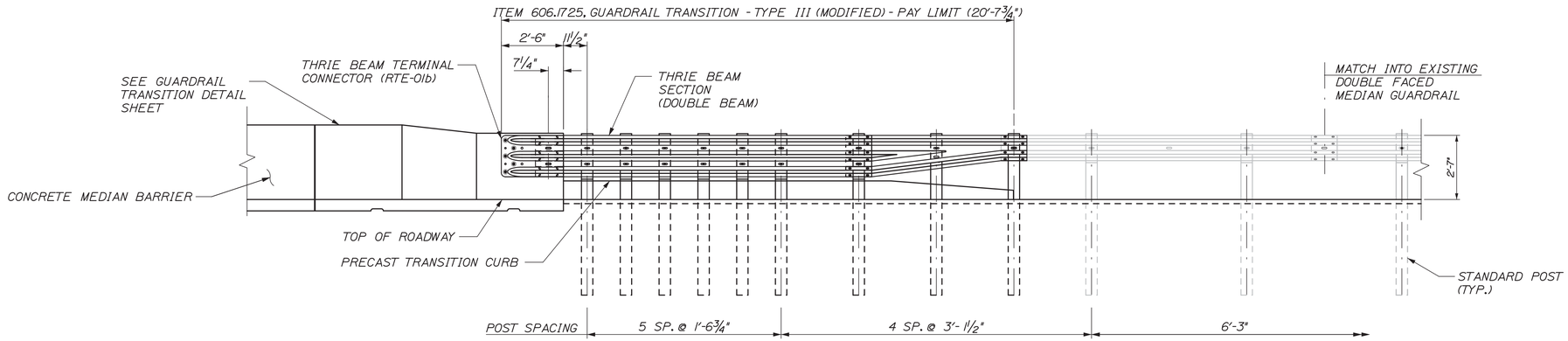
SHEET NUMBER: BD-4

CONTRACT:2019.10



PLAN VIEW

3/8" = 1'-0"



GUARDRAIL ATTACHMENT TO MEDIAN BARRIER (AT NORTH PROJECT TERMINI)

3/8" = 1'-0"

NOTES:

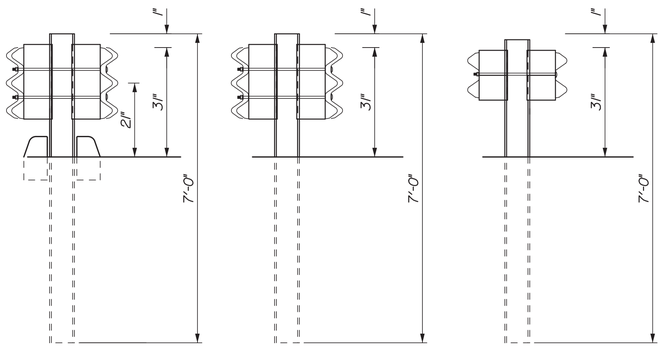
1. ADDITIONAL HOLES MAY BE MADE IN THE THRIE-BEAM PANELS BY DRILLING, PUNCHING, OR OTHER MEANS THAT PRODUCE A NEAT, CLEAN HOLE, BURNING HOLES WILL NOT BE ALLOWED.

2. STANDARD BARRIER HARDWARE HAS BEEN USED TO DEVELOP THESE GUARDRAIL ATTACHMENTS. DESIGNATIONS PROVIDED IN PARENTHESIS RELATE TO STANDARD ELEMENTS DETAILED IN "A GUIDE TO STANDARDIZED BARRIER RAIL HARDWARE." 1979, AASHTO-AGC-ARTBA JOINT COOPERATE COMMITTEE.

3. RAIL ELEMENT SHALL MEET ALL THE REQUIREMENTS OF AASHTO M-180 EXCEPT AS MODIFIED ON THE PLANS. THE THRIE-BEAM TRANSITIONS TO W-BEAM SHALL BE OF THE SAME MATERIAL, BUT SHALL NOT BE LESS THAN 10 GAUGE.

4. AFTER INSTALLATION IS COMPLETE, UPSET THE THREAD ON THE ANCHOR BOLTS IN THREE PLACES AROUND EACH BOLT, AT THE CENTER OF THE JUNCTION OF THE NUT AND THE EXPOSED THREAD, WITH A CENTER PUNCH OR SIMIALAR TOOL.

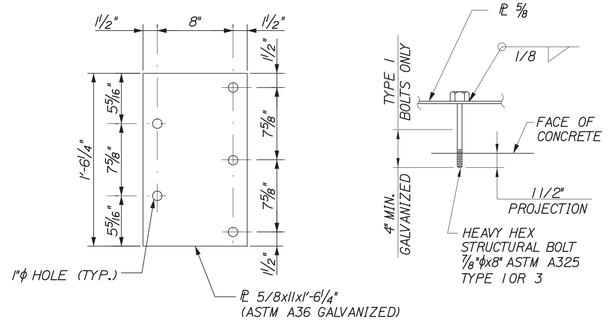
5. EXTRA POSTS REQUIRED TO ATTACH TO EXISTING GUARDRAIL WILL BE INCIDENTAL TO THE MEDIAN BARRIER GUARDRAIL ATTACHMENT.



SECTION A-A

SECTION B-B

SECTION C-C



TERMINAL CONNECTOR ANCHORAGE

1 1/2" = 1'-0"

STATE OF MAINE
ROLAND A. LAVALLEE
No. 6452
LICENSED PROFESSIONAL ENGINEER

Roland A. Lavallee

Date:3/22/2019

Filename: 005_Barrier Details 4.dgn

Scale: AS NOTED

No.	Revision	By	Date

Designed by: HNTB

CONSULTANT PROJECT MANAGER: Dale A. Mitchell, P.E.

	By	Date		By	Date
Designed	JDW	03/19	Checked	TRC	03/19
Drawn	PEB	03/19	In Charge of	RAL	03/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Ralph C. Norwood, IV, P.E., P.T.O.E.

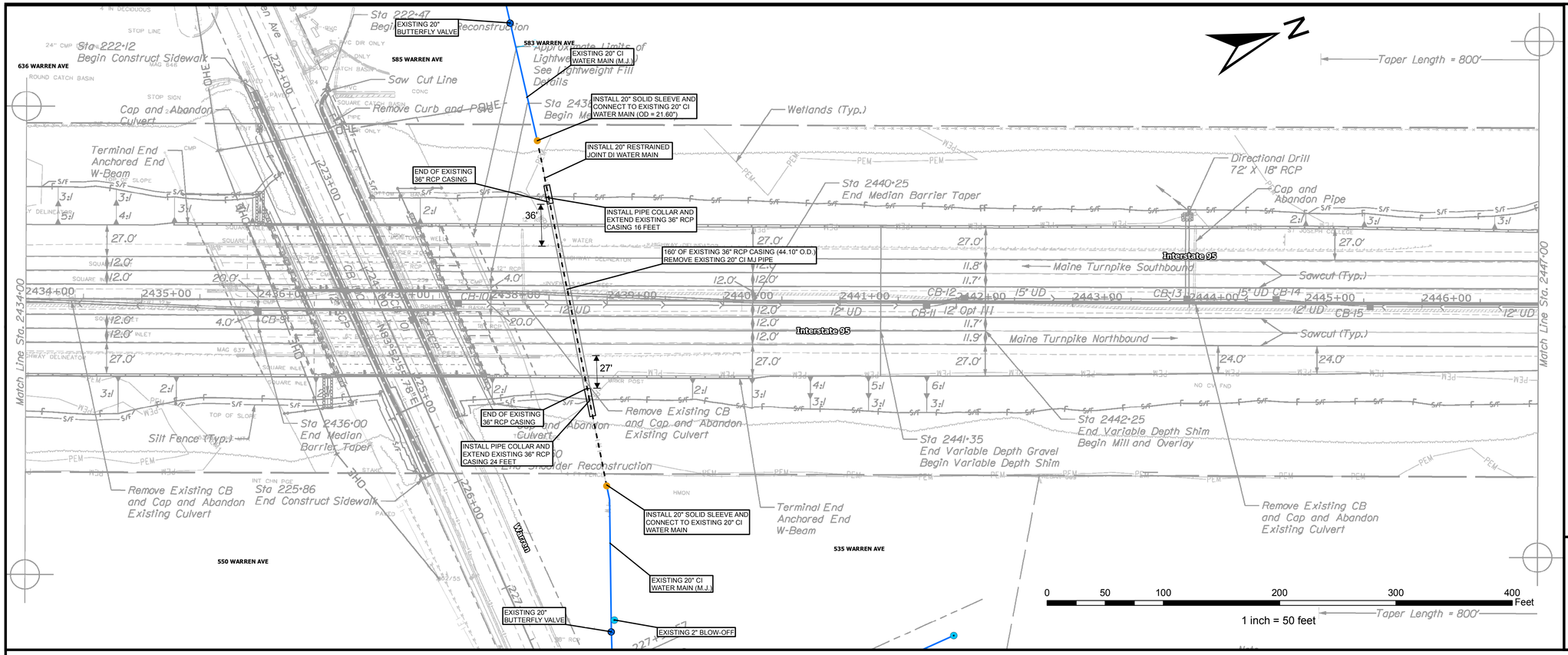
WARREN AVENUE OVERPASS BRIDGE REPLACEMENT

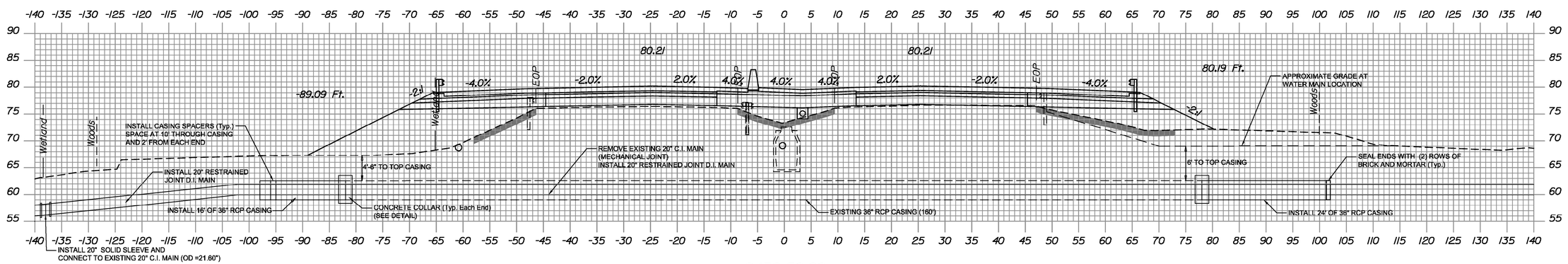
BARRIER DETAILS IV

BARRIER GUARDRAIL TRANSITION DETAIL

SHEET NUMBER: BD-5

CONTRACT:2019.10





NOTES

1. THE RCP CASING SHALL BE TONGUE AND GROOVE CLASS 5 IN ACCORDANCE WITH AASHTO M170. JOINTS SHALL BE SEALED WITH BUTYL INACCORDANCE WITH AASHTO M198.

2. CASING SPACERS SHALL BE STYLE CCS BY CASCADE WATERWORKS OR EQUAL. EACH SPACER SHALL BE A TWO-PIECE SHELL AND MADE FROM T-304 STAINLESS STEEL OF A MINIMUM 14 GAUGE THINKNESS. THE RUNNERS SHALL BE MECHANICALLY BOLTED TO THE SPACER. SPACERS ARE TO BE SIZED SO THE HEIGHT OF THE RISERS AND RUNNERS CENTER THE CARRIER PIPE WITH A TOP CLEARANCE OF 1.5".

3 . ALL DUCTILE IRON PIPE AND FITTINGS OUTSIDE OF THE CASING SHALL BE POLY-WRAPPED PER SPECIICATIONS.

4. THE NEW MAIN WILL BE CONNECTED ON BOTH ENDS AND FLUSHED / CHLORINATED FROM WEST TO EAST. THE MAIN WILL BE PRESSURE TESTED TO STATIC PRESSURE (100 psi).

LEGEND

EXISTING WATER MAIN

PROPOSED WATER MAIN

PROJECT:
441184

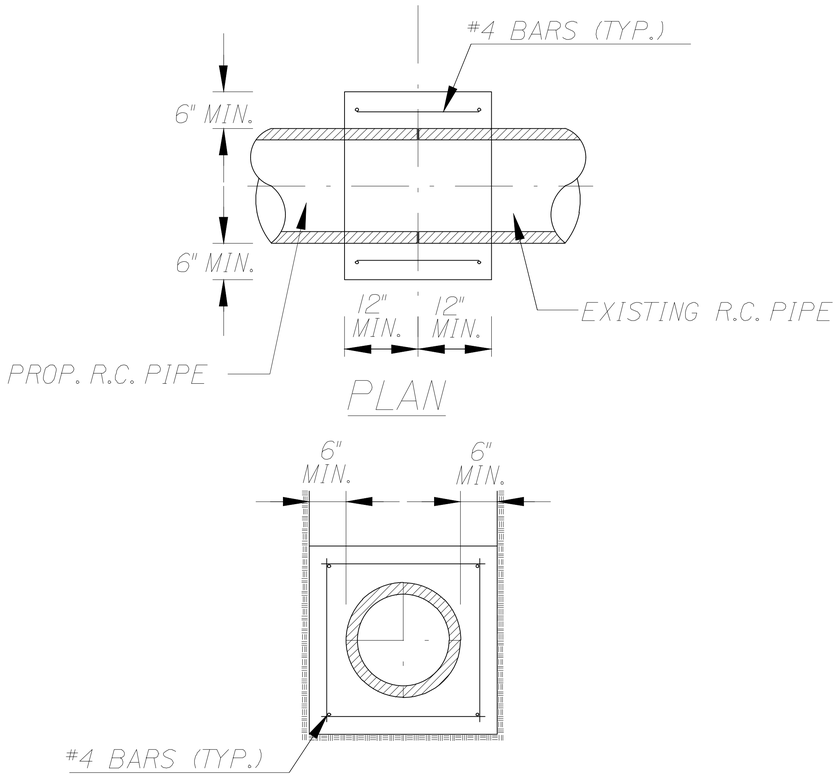
WARREN AVENUE MTA CROSSING
PORTLAND, MAINE
WATER MAIN REPLACEMNET AND CASING EXTENSION

STATE OF MAINE
TIMOTHY J. MCMULLIN
9385
REGISTERED PROFESSIONAL ENGINEER

DRAWN BY: BSJ
DESIGN BY: TM
DATE: 03/15/2019

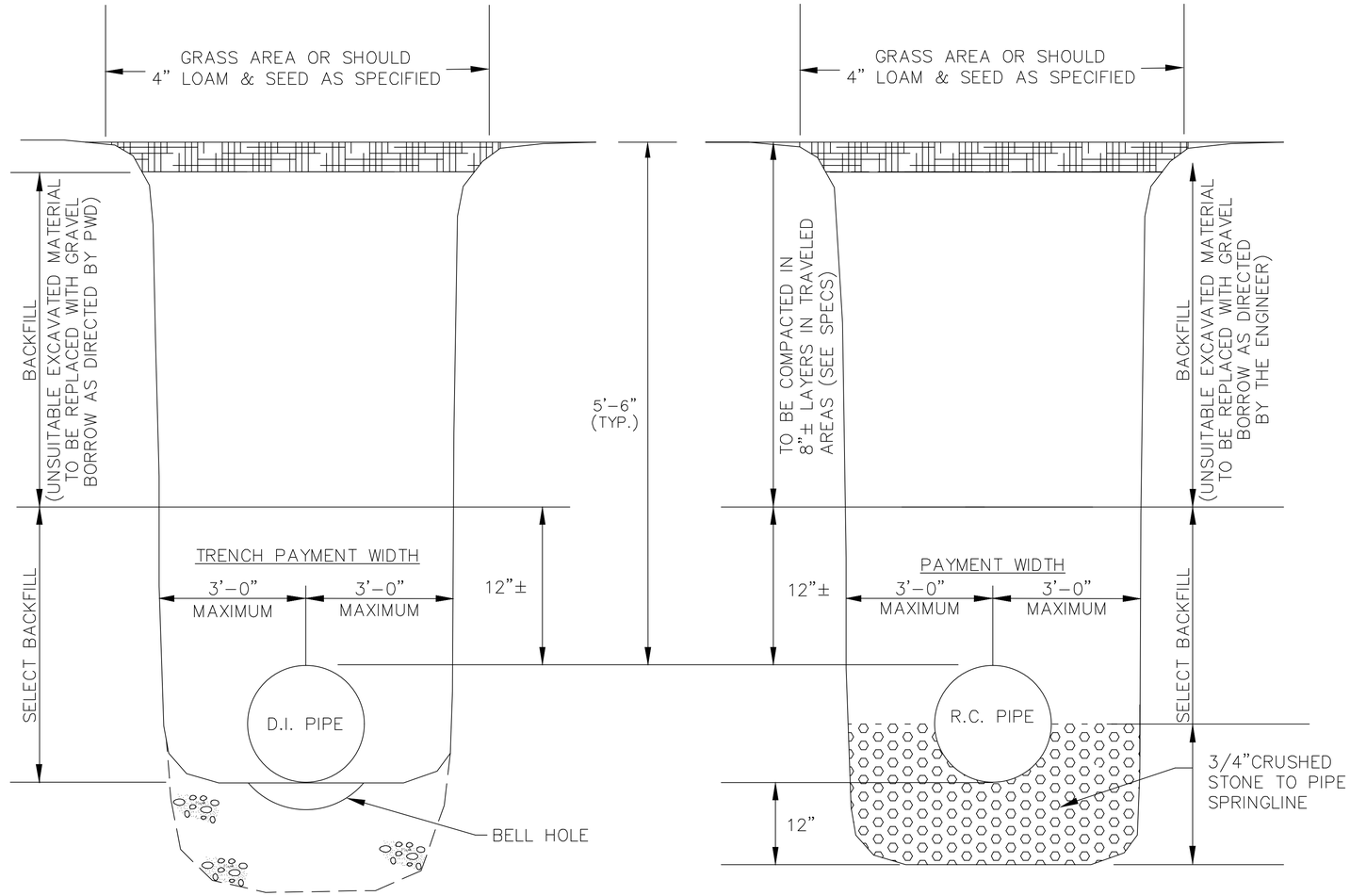
Portland Water District
ASSET MANAGEMENT AND PLANNING DEPARTMENT
225 DOUGLASS STREET, PORTLAND ME 04104
(207) 774-5961 • WWW.PWD.ORG

SHEET:
W1 OF W2



SECTION CONCRETE COLLAR

N.T.S.



SECTION THRU EARTH TRENCH

N.T.S.

PROJECT:
441184

WARREN AVENUE MTA CROSSING
PORTLAND, MAINE
WATER MAIN REPLACEMENT AND CASING EXTENSION
STANDARD DETAILS

STATE OF MAINE
TIMOTHY J. MCMULLIN
9385
REGISTERED PROFESSIONAL ENGINEER

DRAWN BY: BSJ
CHECKED BY: TM
DATE: 03/15/2019

Portland Water District
ASSET MANAGEMENT AND PLANNING DEPARTMENT
225 DOUGLASS STREET, PORTLAND ME 04104
(207) 774-5961 EXT. 3041 • MEANS@PWD.ORG

SHEET:
W2 OF W2