

Appendix I



TOWN OF CONCORD
COMMUNITY PRESERVATION COMMITTEE

141 KEYES ROAD, CONCORD, MA 01742
TEL. (978) 318-3290 FAX (978) 318-3291

Application for CPC Funding

Due no later than 12:00 noon on Friday, September 19, 2025

Applicant*: Town of Concord
Federal Tax Id. No.*: 04-6001121
Co-Applicant (if applicable): _____

Project Name*: Assabet River Multi-use Bridge & Trail Project
Location/Address (if applicable): Between 68 Commonwealth Ave. & 300-310 Baker Ave.
Purpose*: (Select all that apply)

Open Space Community Housing Historic Preservation Recreation

Project Budget*:
Amount of CPC Funds Requested: \$ 490,570
Amount from Other Funding Sources: \$ _____
Total Project Budget: \$ 490,570
(If multi-year project, note current phase only)

Please check which of the following is included with this Application:

- | | |
|---|---|
| <input checked="" type="checkbox"/> One Paragraph Project Summary * | <input checked="" type="checkbox"/> Architectural plans, site plans, photographs (if appropriate) |
| <input checked="" type="checkbox"/> Map (if applicable) | <input type="checkbox"/> Copy of IRS determination letter (Non-profit Organizations only)* |
| <input checked="" type="checkbox"/> Narrative * | <input type="checkbox"/> Completed W-9 Form (Non-profits only)* |
| <input checked="" type="checkbox"/> Selection Criteria and Needs Assessment | <input type="checkbox"/> Copy of Audit or most recent Financial Information (Non-profits only)* |
| <input checked="" type="checkbox"/> Detailed Project Budget * | <input type="checkbox"/> Letters of Support (if any) |
| <input checked="" type="checkbox"/> Feasibility Assessment | |
| <input type="checkbox"/> Statement of Sustainability (if applicable) | |
| <input checked="" type="checkbox"/> Timeline * | |

Project Contact Person*: Elizabeth Hughes, Concord Town Planner
Project Contact Address*: 141 Keyes Road, Concord, MA 01742
Project Contact Phone*: 978-318-3290 Email*: ehughes@concordma.gov

Authorized Signature of Applicant*: Elizabeth Hughes
Authorized Signature of Property Owner* (if different): Kerry A. Soffera

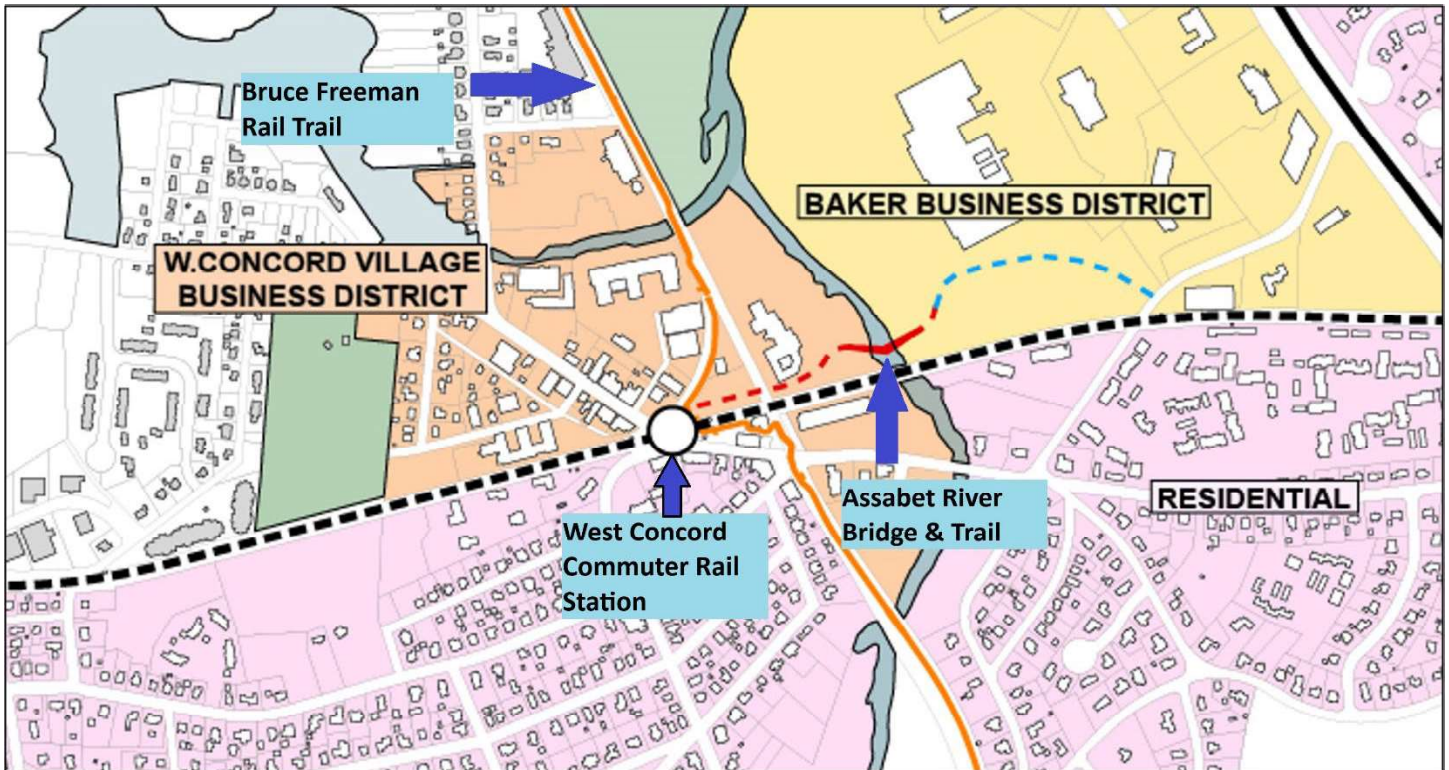
* Required

For Historic Preservation Projects Only – please check the box below left and acknowledge:
 I/We have read the U.S. Secretary of the Interior’s Standards for the Treatment of Historic Properties and understand that planning for and execution of this project must meet these standards.

Brief Project Summary

The Assabet River Multi-Use Bridge and Trail (ARBT) is a long-term community goal and the linchpin that will bring together existing and planned open space and trail resources in West Concord that will benefit and enhance community life, as well as provide more people with access to this scenic river corridor. The project involves construction of a shared use path and bridge over the Assabet River which will connect the West Concord Village business district, the Bruce Freeman Rail Trail, and the West Concord Commuter Rail Station to the businesses on Baker Avenue and Baker Avenue Extension, which has some of the largest employment centers in town and the future NOVO Riverside Commons multi-family development of 201 rental units. The project will close a significant first mile/last mile gap and expand potential trail connections in the community.

Map



Narrative

This CPA application for the Assabet River Multi-use Bridge and Trail is for the fourth funding request for the project and will bring the development of the plans, engineering and permitting to 100% design, completing the architectural plans, full structural and construction drawings that meet the requirements of MassDOT, specification, estimates and all local, State and Federal permitting needed for construction. Additionally, the funding will be used to have a surveyor and Town Counsel assist with the amendments to the existing Conservation Restrictions and boundary plans for the west side of the Assabet River (68 Commonwealth Ave.) and the east side of the river (300-310 Baker Ave.) and the drafting of a new conservation restriction on the Junction Village property. The amendments to the existing CRs and execution of a new CR will help facilitate the construction of the project.

Currently, the Town's consultant team is finalizing the MassDOT 25% Design Plans for submission to MassDOT in November 2025. This milestone represents almost 50% of the work for completion of the project design, engineering and permitting so it can advance to construction.

This CPA application request is for \$490,570 and is eligible in the Open Space and Recreation CPA category.

CPC's Selection Criteria

The application meets the criteria for Open Space and Recreation under the CPA legislation as it will provide funding for the support of recreational use and access to open space and directly relates to the preservation, protection and support of Concord's open space and recreation opportunities by providing access for all and all abilities to the Assabet River.

As noted in the 2010 West Concord Master Plan, the ARBT has been identified as an important link between the Baker Ave. businesses and the services available in West Concord Village that will provide an alternative means of transportation and recreation for residents and visitors, as well as connecting to the Bruce Freeman Rail Trail. The need for this connection has increased with the approval of the NOVO Riverside Commons Comprehensive Permit and the future construction of 201 residential units.

Additionally, the 2014 Recreation Facilities Strategic Plan identifies the importance of providing connectivity between parks and facilities and waterway access, which this bridge would address. The 2018 Envision Concord Comprehensive Plan Open Space Core Action Item highlights the need to ensure that village centers are well connected, and potential improvements include a pedestrian bridge over the Assabet River in West Concord.

There has been extensive Town-wide support for this project by almost every board and committee, businesses and property owners in West Concord and Town Meeting through votes to grant CPA funds. Additionally, the Planning Division has met with the River Stewardship Council and the National Park Service because this portion of the Assabet River is a designated Wild and Scenic River, and they have indicated their support for the development of the bridge in this location.

This project has the potential to serve multiple and underserved populations by providing a more direct link from the West Concord Commuter Rail station to various business locations along Baker Avenue that include high tech, manufacturing, hospitality, medical offices, a flight school, and the future 201 residential units. Additionally, the project will address the significant safety issue of people walking along the MBTA Commuter Rail bridge in this location. Due to the State and Federal funding that has been secured for the design of the project and the future construction, the ARBT is required to be accessible and open to the public from a public way. For this project, the public will be able to access the trail and the bridge from Baker Avenue through the NOVO Riverside Commons development, which has incorporated a publicly trail in the approved project design, and the West Concord Commuter parking lot.

The project will be administered through the Town of Concord's Planning Division. The Planning Division has extensive experience in administering CPA funded grants and projects. The Town Planner has overseen the advancement of this project since 2015 and the management of funding since 2020 for a total of \$810,000 in MassTrails Grants funds and \$785,000 in CPA funds.

The Town holds an existing Conservation Restriction on both sides of the Assabet River in this location. The CR specifically speaks to the Town's ability to construct a bridge. Additionally, the abutting property owners for 68 Commonwealth Avenue and 300-310 Baker Avenue have been actively involved in the development of the design and plans to date. In discussion with the Natural Resources Director, the Town and the property owners will be moving forward with amending the existing CRs to exclude the area of the bridge and trail, which will facilitate the construction. As part of that amendment, the Town will be working with the Concord Housing Development Corporation on the development of a new CR on the Junction Village property. This new CR will be required by the State because the Town has to show a net benefit when removing the area of the ARBT from the existing CRs.

To keep the project on track to begin construction in 2028 or 2029, the funding for the completion of 100% design plans is necessary now. As shown in the Project Timeline (Attachment B), the MassDOT process is slow and extensive.

As the final design of the project nears completion, the Town will have a better understanding of the required

maintenance and will be able to develop a plan to ensure that the yearly and long-term maintenance needs are met. The yearly needs will likely include electricity to adequately light the bridge and the plowing of snow in the winter. The Town will also explore the creation of a public/private partnership with adjacent property owners and businesses.

The location, engineering and architectural design of this project has from the beginning focused on reducing the impact to the Assabet River and the adjacent sensitive environment. By creating this connection between the Baker Avenue commercial area and now the proposed residential project, to the West Concord Village business district, it can only enhance the walkability and vibrancy of the area. It is not known at this time whether it will be possible to use recyclable materials in the construction of the project.

It is clear that the ARBT meets all four of the CPA criteria sustainability principles by providing a much needed pedestrian and bicycle connection to reduce dependency on vehicles (Item #1 & #2), by being located and designed in a manner that first and foremost takes into consideration the impact on the environment in the sensitive location (Item #3), and by being designed to meet all ADA requirements so that it can be enjoyed by all ages and abilities (Item #4).

Detailed Project Budget

See attached detailed project budget sheet (Attachment A).

Feasibility Assessment

The Town conducted an initial feasibility study in 2017, which led to the selection of the current location. As part of the MassDOT process, a feasibility analysis of the project is also conducted as part of the MassDOT Bridge Type Selection process. MassDOT has approved the Bridge Type Selection Worksheet for the ARBT, which is a critical milestone because it represents a culmination of the project development phase. Alternative bridge types, locations, and alignments are reviewed, and a recommendation of a preferred bridge alternative is made by the Town's consulting engineering firm. MassDOT reviews this report to concur with the recommendation of the consulting engineer. Considerations include feasibility, overall project goals, and cost. MassDOT also confirms the preliminary design is sound and complete enough to move towards final design. Now that the MassDOT State Bridge Engineer has granted his approval, the project can proceed to the 25% Design Submission.

Timeline

See attached detailed project timeline (Attachment B).

Architectural plans, site plans, photographs

See attached detailed architectural and site plans (Attachment C). Additionally, the consulting architect has created a video rendering of the bridge and the trail:

<https://www.youtube.com/watch?reload=9&v=qkKHzBowzcM&feature=youtu.be>

ATTACHMENT A

FY2027 CPA Application – Assabet River Multi-use Bridge & Trail Budget

Consulting Engineer Costs

Final Architectural Design Plans	\$100,000.00
Final Environmental Permitting (State & Federal)	\$ 55,000.00
Final Bridge Design	\$ 75,000.00
MassDOT 100% Design Submission	\$ 60,000.00
MassDOT Second Structural Submission	\$ 45,000.00
MassDOT Final Right-of-way Submission	\$ 25,000.00
<u>MassDOT Final Plans, Specifications & Engineering Submission</u>	<u>\$ 45,000.00</u>
Subtotal	\$405,000.00
Escalation (4% for 3 years)	\$ 50,570.00
Subtotal #1	\$450,570.00

Conservation Restriction Costs

Town Counsel Assistance	\$ 10,000.00
Surveyor – CR Plans	\$ 20,000.00
<u>CR Permanent Bounds Installation</u>	<u>\$ 10,000.00</u>
Subtotal #2	\$ 40,000.00

Subtotal #1	\$450,570.00
<u>Subtotal #2</u>	<u>\$ 40,000.00</u>
Total Estimate Budget	\$490,570.00

Massachusetts Department of Transportation
612870 Concord - Assabet River Multi-Use Trail and Bridge
BL PDS Schedule Grouped by Area of Work



WBS	ID	Task Name	Start	Finish	Duration	Responsibility	Predecessors	22	2023		2024		2025		2026		2027		2028		2029		2030									
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1				
CNT	1	Contract/Project Management	Thu 9/29/22	Wed 8/15/29	2512.13d				Contract/Project Management																							
CNT.MS	2	Project Milestones	Thu 9/29/22	Wed 8/15/29	2512.13d				Project Milestones																							
CNT.MS.005	3	PRC Approval	Thu 9/29/22	Fri 9/30/22	1d	MassDOT.PC																										
CNT.MS.010	4	Issue Design Contract NTP	Wed 5/3/23	Wed 5/3/23	0d	MassDOT.PM 16			◆ Issue Design Contract NTP																							
CNT.MS.020	5	PM Submits Advertising Documents to FAPRO	Mon 4/3/28	Mon 4/3/28	1d	MassDOT.PM 218,142,162,368,143,94			◆ PM Submits Advertising Documents																							
CNT.MS.030	6	Submit Mylar Title Sheet and Final Plans	Mon 4/3/28	Mon 4/3/28	0d	MassDOT.PM 5,142			◆ Submit Mylar Title Sheet and Final Plans																							
CNT.MS.040	7	Prepare for Advertise	Tue 4/4/28	Fri 4/14/28	11d	MassDOT.PM 5,38,39																										
CNT.MS.050	8	Project Readiness Date	Fri 4/14/28	Fri 4/14/28	0d	MassDOT.PM 144,6,7			◆ Project Readiness Date																							
CNT.MS.060	9	Advertise Construction Contract	Sat 4/15/28	Sat 4/15/28	1d	MassDOT.PM 144,7																										
CNT.MS.070	10	Release Bid Documents	Wed 5/10/28	Wed 5/10/28	1d	MassDOT.PM 9,153,157																										
CNT.MS.080	11	Contractor Prepares Bids	Thu 5/11/28	Sat 6/10/28	31d	Consultants.Other 10																										
CNT.MS.090	12	Bid Opening	Tue 6/13/28	Tue 6/13/28	1d	MassDOT.PM 11																										
CNT.MS.100	13	Issue Construction Contract NTP	Tue 8/15/28	Tue 8/15/28	0d	MassDOT.PM 12FS+45d			◆ Issue Construction Contract NTP																							
CNT.MS.110	14	Scope of Service Complete	Wed 8/15/29	Wed 8/15/29	0d	MassDOT.PM 13FS+365d,17			◆ Scope of Service Complete																							
PD	15	Project Development	Mon 4/3/23	Fri 4/14/28	1838.13d				Project Development																							
PD.100	16	Review and Approve Consultant Proposal and Schedule	Mon 4/3/23	Wed 5/3/23	30d	MassDOT.PM 42																										
PD.200	17	Project Design Schedule Updates	Wed 1/17/24	Fri 4/14/28	1550d	Consultants.DES 16,7FF																										
HWY	18	Design	Fri 9/30/22	Fri 5/5/28	2044.13d				Design																							
HWY.303	19	Survey	Wed 5/3/23	Tue 8/1/23	90d				Survey																							
HWY.303.010	20	Conduct Survey	Wed 5/3/23	Tue 8/1/23	90d	Consultants.Other 4																										
HWY.303.020	21	Submit Survey	Tue 8/1/23	Tue 8/1/23	0d	Consultants.Other 20			◆ Submit Survey																							
HWY.303.030	22	Review Survey	Tue 8/1/23	Tue 8/1/23	0d	Consultants.DES 21			◆ Review Survey																							
HWY.303.040	23	Approval of Survey	Tue 8/1/23	Tue 8/1/23	0d	Consultants.DES 22			◆ Approval of Survey																							
HWY.200	24	Functional Design Report	Tue 3/11/25	Tue 2/3/26	329.88d				Functional Design Report																							
HWY.200.010	25	Prepare Functional Design Report	Tue 3/11/25	Sun 6/8/25	90d	Consultants.DES 4,48,50																										
HWY.200.020	26	Submit Functional Design Report	Wed 11/5/25	Wed 11/5/25	0d	Consultants.DES 25,77SS			◆ Submit Functional Design Report																							
HWY.200.030	27	Review Functional Design Report	Wed 11/5/25	Tue 2/3/26	90d	MassDOT.HW 26																										
HWY.200.040	28	Approval of Functional Design Report	Tue 2/3/26	Tue 2/3/26	0d	MassDOT.HW 27FF			◆ Approval of Functional Design Report																							
HWY.220	29	Design Justification Workbook (DJW)	Tue 3/11/25	Tue 2/3/26	329.88d				Design Justification Workbook (DJW)																							
HWY.220.010	30	Prepare Design Justification Workbook	Tue 3/11/25	Sun 6/8/25	90d	Consultants.DES 4,48,50																										
HWY.220.020	31	Submit Design Justification Workbook	Wed 11/5/25	Wed 11/5/25	0d	Consultants.DES 30,77			◆ Submit Design Justification Workbook																							
HWY.220.030	32	Review Design Justification Workbook	Wed 11/5/25	Tue 2/3/26	90d	MassDOT.HW 31																										
HWY.220.040	33	Complete Streets Engineer Concurrence (DJW)	Tue 2/3/26	Tue 2/3/26	0d	MassDOT.HW 32			◆ Complete Streets Engineer Concurrence (DJW)																							
HWY.220.050	34	District Project Development Concurrence (DJW)	Tue 2/3/26	Tue 2/3/26	0d	MassDOT.HW 32			◆ District Project Development Concurrence (DJW)																							
HWY.220.060	35	Approval of Design Justification Workbook by Chief Engineer	Tue 2/3/26	Tue 2/3/26	0d	MassDOT.HW 32			◆ Approval of Design Justification Workbook by Chief Engineer																							
HWY.220.070	36	Submit DJW for Administrator/Secretary Review	Sun 6/8/25	Sun 6/8/25	0d	MassDOT.HW 30			◆ Submit DJW for Administrator/Secretary Review																							
HWY.220.080	37	Review of DJW by Administrator/Secretary	Mon 6/9/25	Tue 7/8/25	30d	MassDOT.HW 36																										
HWY.220.090	38	Approval of Design Justification Workbook by FHWA	Tue 2/3/26	Tue 2/3/26	0d	MassDOT.HW 35,34,33			◆ Approval of Design Justification Workbook by FHWA																							
HWY.220.100	39	Approval of Design Justification Workbook by Secretary/Administr	Tue 2/3/26	Tue 2/3/26	0d	MassDOT.HW 35,34,33,37			◆ Approval of Design Justification Workbook by Secretary/Administr																							
HWY.250	40	Pre-25% Design	Mon 2/27/23	Mon 3/10/25	742.13d				Pre-25% Design																							
HWY.250.010	41	Prepare and Submit Draft Project Scoping Checklist	Mon 2/27/23	Tue 2/28/23	1d	MassDOT.PM 3FS+150d																										
HWY.250.020	42	Project Scoping Meeting	Fri 3/31/23	Mon 4/3/23	1d	MassDOT.PM 54FS+10d,66,221,41																										
HWY.250.030	43	Prepare and Submit Final Project Scoping Checklist	Mon 4/3/23	Sat 2/3/24	306d	MassDOT.PM 42																										
HWY.250.040	44	Develop Reasonable Alternatives and Alternative Analysis	Sat 2/3/24	Sat 2/24/24	21d	Consultants.DES 43																										
HWY.250.050	45	Prepare Pre-25% OTS Conceptual Design Package	Sat 2/24/24	Mon 3/25/24	30d	Consultants.DES 44																										
HWY.250.060	46	Submit Pre-25% OTS Conceptual Design Package	Wed 3/27/24	Wed 3/27/24	1d	Consultants.DES 45,58FS+10d,62FS+10d																										
HWY.250.070	47	Schedule Pre-25% OTS Review Meeting	Thu 3/28/24	Thu 4/11/24	15d	MassDOT.PM 46																										
HWY.250.080	48	Conduct Pre-25% OTS Review Meeting	Fri 4/12/24	Fri 4/12/24	1d	MassDOT.PM 47,64																										

Task █ Milestone ◆ Summary ▬ Critical Path ▬ Path Successor Normal Task ▬ Path Successor Summary Task ▬ Path Successor Milestone Task ◆

Massachusetts Department of Transportation
612870 Concord - Assabet River Multi-Use Trail and Bridge
BL PDS Schedule Grouped by Area of Work



WBS	ID	Task Name	Start	Finish	Duration	Responsibility	Predecessors	2022		2023		2024		2025		2026		2027		2028		2029		2030	
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
HWY.250.090	49	Schedule Public Information Meeting	Sat 4/13/24	Mon 3/10/25	332d	MassDOT.PM 48																			
HWY.250.100	50	Conduct Public Information Meeting	Mon 3/10/25	Mon 3/10/25	0d	MassDOT.PM 49																			
HWY.275	51	Traffic and Safety	Fri 9/30/22	Fri 9/30/22	0d																				
HWY.275.100	52	Intersection Control Evaluation (ICE)	Fri 9/30/22	Fri 9/30/22	0d																				
HWY.275.200	65	Roadway Safety Audit (RSA)	Fri 9/30/22	Fri 9/30/22	0d																				
HWY.300	75	25% Design Package	Thu 8/7/25	Tue 3/17/26	222d																				
HWY.300.010	76	Prepare 25% Design Submission	Thu 8/7/25	Wed 11/5/25	90d	Consultants.DES 50,222,187FF+7d																			
HWY.300.020	77	Submit 25% Design Submission	Wed 11/5/25	Wed 11/5/25	0d	Consultants.DES 76,225,333,194,187FF																			
HWY.300.030	78	Send to FHWA (if PODI)	Wed 11/5/25	Wed 11/5/25	0d	MassDOT.PM 77																			
HWY.300.040	79	Review 25% Design Submission	Wed 11/5/25	Tue 2/3/26	90d	MassDOT.HW 77,195,78																			
HWY.300.050	80	All Sections 25% Design Comments sent to DE	Tue 2/3/26	Tue 2/3/26	0d	MassDOT.PM 79,335,227,28																			
HWY.300.060	81	Prepare 25% Design Responses	Tue 2/3/26	Tue 2/24/26	21d	Consultants.DES 80																			
HWY.300.070	82	Schedule Comment Resolution Meeting @25% (Full Team)	Tue 2/24/26	Tue 3/17/26	21d	MassDOT.PM 81																			
HWY.300.080	83	Comment Resolution Meeting @25% (Full Team)	Tue 3/17/26	Tue 3/17/26	0d	MassDOT.PM 82																			
HWY.302	84	Utility Coordination	Tue 8/1/23	Fri 4/9/27	1347d																				
HWY.302.010	85	Subsurface Utility Exploration	Tue 8/1/23	Mon 10/30/23	90d	Consultants.DES 23																			
HWY.302.020	86	Schedule Utility Early Coordination Field Meeting	Tue 3/17/26	Tue 4/7/26	21d	Consultants.DES 85,83																			
HWY.302.030	87	Utility Early Coordination Field Meeting	Tue 4/7/26	Wed 4/8/26	1d	Consultants.DES 86																			
HWY.302.100	88	Third Party Utility Coordination	Wed 4/8/26	Fri 4/9/27	366d																				
HWY.350	97	25% Design Public Hearing	Wed 4/8/26	Mon 8/17/26	131d																				
HWY.350.352	98	Prepare for 25% Design Public Hearing	Wed 4/8/26	Sun 4/19/26	11d																				
HWY.350.352.062	99	Submit DPH Request to District Project Development	Wed 4/8/26	Wed 4/8/26	0d	MassDOT.PM 83SS,87,228																			
HWY.350.352.061	100	Concurrence by District Project Development	Wed 4/8/26	Wed 4/8/26	0d	MassDOT.PM 99																			
HWY.350.352.010	101	Prepare Hearing Notice	Wed 4/8/26	Wed 4/15/26	7d	MassDOT.PM 87,228,100																			
HWY.350.352.020	102	Submit Hearing Notice	Wed 4/15/26	Wed 4/15/26	0d	MassDOT.PM 101																			
HWY.350.352.050	103	Send DPH Request to Section Director	Wed 4/15/26	Thu 4/16/26	1d	MassDOT.PM 102																			
HWY.350.352.060	104	Approval by Section Director	Thu 4/16/26	Sun 4/19/26	3d	MassDOT.PM 103																			
HWY.350.353	105	Conduct 25% Design Public Hearing	Sun 4/19/26	Mon 8/17/26	120d																				
HWY.350.353.010	106	Schedule Public Hearing	Sun 4/19/26	Sat 7/18/26	90d	MassDOT.PM 104																			
HWY.350.353.020	107	Conduct Public Hearing	Sat 7/18/26	Sat 7/18/26	0d	MassDOT.PM 106																			
HWY.350.353.030	108	Respond to Comments (DPH)	Sat 7/18/26	Mon 8/17/26	30d	MassDOT.PM 107																			
HWY.400	109	75% Design Package	Mon 8/17/26	Fri 4/9/27	235d																				
HWY.400.010	110	Prepare 75% Design Submission	Mon 8/17/26	Tue 12/15/26	120d	Consultants.DES 108																			
HWY.400.020	111	Submit 75% Design Submission	Tue 12/15/26	Tue 12/15/26	0d	Consultants.DES 110,202,326																			
HWY.400.030	112	Review 75% Design Submission	Tue 12/15/26	Mon 3/15/27	90d	MassDOT.HW 111																			
HWY.400.040	113	All Sections 75% Design Comments sent to DE	Mon 3/15/27	Mon 3/15/27	0d	MassDOT.HW 112,120																			
HWY.400.050	114	Prepare 75% Design Responses	Mon 3/15/27	Sun 4/4/27	20d	Consultants.DES 113																			
HWY.400.060	115	Schedule Comment Resolution Meeting @75% (Full Team)	Sun 4/4/27	Fri 4/9/27	5d	MassDOT.PM 114																			
HWY.400.070	116	Comment Resolution Meeting @75% (Full Team)	Fri 4/9/27	Fri 4/9/27	0d	MassDOT.PM 206,115																			
HWY.428	117	75% Contract Time Determination	Mon 8/17/26	Thu 1/14/27	150d																				
HWY.428.010	118	Prepare 75% Contract Time Determination	Mon 8/17/26	Wed 9/16/26	30d	Consultants.DES 110SS,91																			
HWY.428.020	119	Submit 75% Contract Time Determination	Tue 12/15/26	Tue 12/15/26	0d	Consultants.DES 118,111SS																			
HWY.428.030	120	Review 75% Contract Time Determination	Tue 12/15/26	Thu 1/14/27	30d	MassDOT.PC 119																			
HWY.450	121	100% Design Package	Fri 4/9/27	Wed 12/15/27	250.13d																				
HWY.450.010	122	Prepare 100% Design Submission	Fri 4/9/27	Wed 6/23/27	75d	Consultants.DES 116																			
HWY.450.020	123	Submit 100% Design Submission	Sat 8/28/27	Sat 8/28/27	0d	Consultants.DES 122,330,266																			
HWY.450.030	124	Review 100% Design Submission	Sun 8/29/27	Fri 11/26/27	90d	MassDOT.HW 123																			
HWY.450.040	125	All Sections 100% Design Comments sent to DE	Fri 11/26/27	Fri 11/26/27	0d	MassDOT.HW 124,132																			



Massachusetts Department of Transportation
612870 Concord - Assabet River Multi-Use Trail and Bridg
BL PDS Schedule Grouped by Area of Work



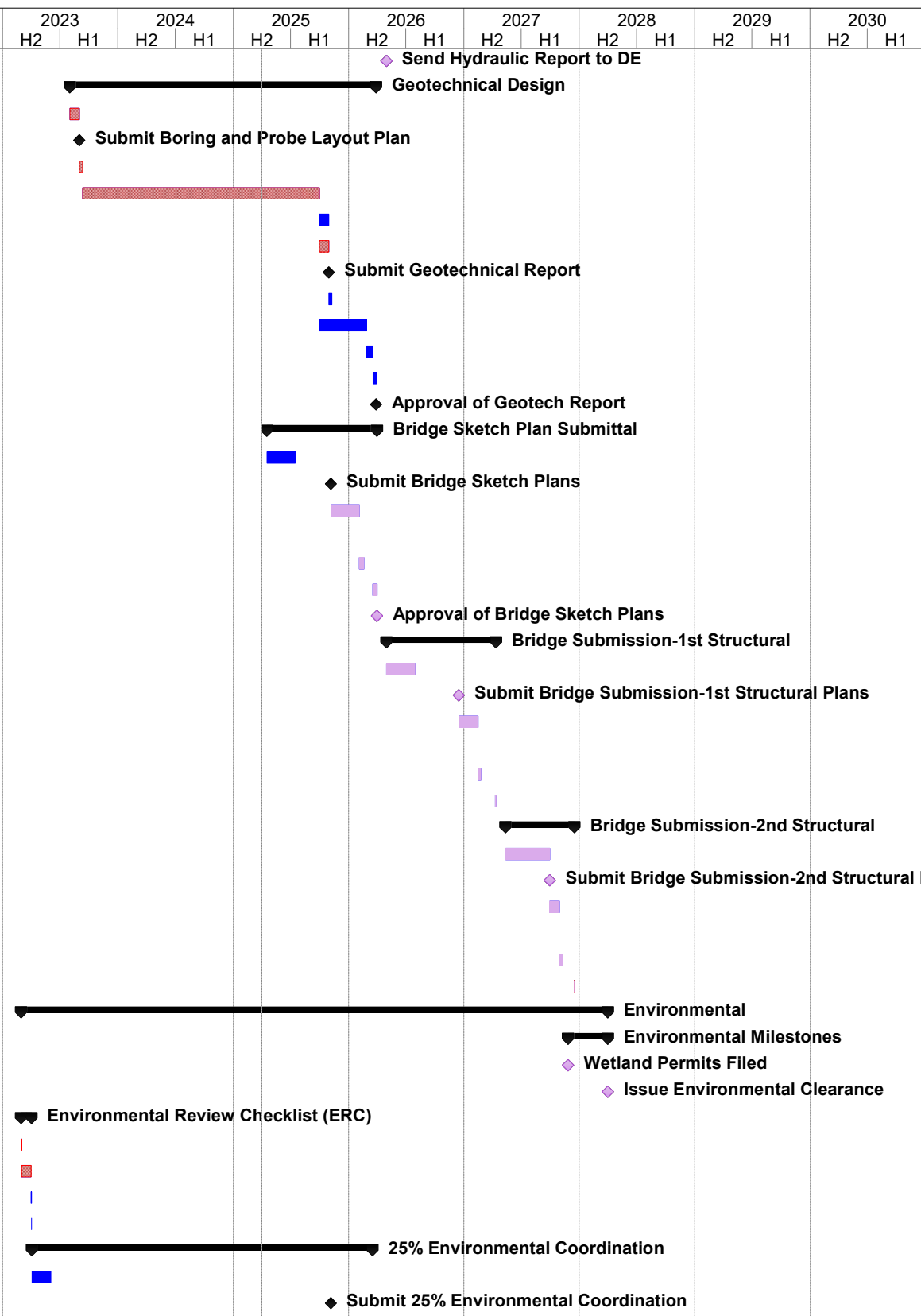
WBS	ID	Task Name	Start	Finish	Duration	Responsibility	Predecessors	2022		2023		2024		2025		2026		2027		2028		2029		2030	
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
HWY.450.050	126	Prepare 100% Design Responses	Sat 11/27/27	Fri 12/10/27	14d	Consultants.DES	125																		
HWY.450.060	127	Schedule Comment Resolution Meeting @100% (Full Team)	Sat 12/11/27	Wed 12/15/27	5d	MassDOT.PM	126																		
HWY.450.070	128	Comment Resolution Meeting @100% (Full Team)	Wed 12/15/27	Wed 12/15/27	0d	MassDOT.PM	127																		
HWY.450.458	129	100% Contract Time Determination	Fri 4/9/27	Tue 9/28/27	172.13d																				
HWY.450.458.010	130	Prepare 100% CTD utilizing PUC Form durations	Fri 4/9/27	Sun 5/9/27	30d	Consultants.DES	122SS,93,96																		
HWY.450.458.020	131	Submit 100% Contract Time Determination	Sat 8/28/27	Sat 8/28/27	0d	Consultants.DES	130,123SS																		
HWY.450.458.030	132	Review 100% Contract Time Determination	Sun 8/29/27	Mon 9/27/27	30d	MassDOT.PC	131																		
HWY.450.458.040	133	Request Construction Duration IOM from Area Engineer	Tue 9/28/27	Tue 9/28/27	1d	MassDOT.PM	132																		
HWY.800	134	PS&E Submittal	Mon 11/29/27	Fri 5/5/28	159d																				
HWY.800.001	135	Request Federal Aid Number from FAPRO	Mon 11/29/27	Mon 11/29/27	1d	MassDOT.PM	124																		
HWY.800.002	136	FAPRO provides Federal Aid Number	Tue 11/30/27	Wed 12/29/27	30d	MassDOT.FAPO	135																		
HWY.800.010	137	Prepare PS&E Submission	Fri 12/17/27	Mon 2/14/28	60d	Consultants.DES	128,214																		
HWY.800.020	138	Submit PS&E Submission	Mon 2/14/28	Mon 2/14/28	0d	Consultants.DES	137,136																		
HWY.800.030	139	Review PS&E Submission	Tue 2/15/28	Mon 2/21/28	7d	MassDOT.PM	138																		
HWY.800.040	140	Send PS&E to FHWA (If Required)	Tue 2/15/28	Tue 2/15/28	1d	MassDOT.PM	138																		
HWY.800.050	141	FHWA Review PS&E Submission (If Required)	Wed 2/16/28	Thu 3/16/28	30d	Agencies.FHWA	140																		
HWY.800.060	142	Approval of PS&E Submission	Thu 3/16/28	Thu 3/16/28	0d	MassDOT.HW	139,141																		
HWY.800.070	143	Prepare Advertising Documents for FAPRO	Tue 2/15/28	Fri 2/25/28	11d	MassDOT.PM	138																		
HWY.800.080	144	Review Advertising Documents by FAPRO	Tue 4/4/28	Fri 4/14/28	11d	MassDOT.FAPO	5																		
HWY.800.090	145	Prepare Draft Contract Documents for Specs	Fri 3/17/28	Thu 3/30/28	14d	Consultants.DES	142																		
HWY.800.100	146	Submit Draft Contract Documents to Specs	Wed 4/5/28	Wed 4/5/28	1d	MassDOT.PM	145																		
HWY.800.110	147	Ready for Initial Review	Thu 4/6/28	Fri 4/7/28	2d	MassDOT.Specification	146																		
HWY.800.120	148	Initial Review of Contract Documents By Specs	Mon 4/10/28	Wed 4/19/28	8d	MassDOT.Specification	147																		
HWY.800.130	149	Prepare Bid Documents - Rev 1	Thu 4/20/28	Fri 4/21/28	2d	Consultants.DES	148																		
HWY.800.140	150	Submit Bid Documents to Specs - Rev 1	Fri 4/21/28	Fri 4/21/28	0d	MassDOT.PM	149																		
HWY.800.150	151	Ready For Final Review	Mon 4/24/28	Tue 4/25/28	2d	MassDOT.Specification	150																		
HWY.800.160	152	Final Review of Bid Documents	Wed 4/26/28	Fri 4/28/28	3d	MassDOT.Specification	151																		
HWY.800.170	153	Prepare CDSP Bid Package	Mon 5/1/28	Fri 5/5/28	5d	MassDOT.Specification	152																		
HWY.800.180	154	Prepare Final Plans for Plans and Records	Fri 3/17/28	Thu 3/30/28	14d	MassDOT.Specification	142																		
HWY.800.190	155	Submit Final Plans for Plans and Records	Fri 3/31/28	Fri 3/31/28	1d	MassDOT.Specification	154																		
HWY.800.200	156	Review Final Plans by Plans and Records	Sat 4/1/28	Fri 4/14/28	14d	MassDOT.Specification	155																		
HWY.800.210	157	Approve Final Plans by Plans and Records	Fri 4/14/28	Fri 4/14/28	0d	MassDOT.Specification	156																		
HWY.800.807	158	PS&E Contract Time Determination	Fri 12/17/27	Tue 3/21/28	96d																				
HWY.800.807.010	159	Prepare PS&E CTD utilizing PUC Form durations	Fri 12/17/27	Fri 12/31/27	15d	Consultants.DES	132,137SS																		
HWY.800.807.020	160	Submit PS&E CTD utilizing PUC Form durations	Mon 1/3/28	Mon 1/3/28	1d	Consultants.DES	159																		
HWY.800.807.030	161	Review PS&E CTD utilizing PUC Form durations	Tue 2/15/28	Tue 2/29/28	15d	MassDOT.PC	160,138																		
HWY.800.807.040	162	Area Engineer Provides Construction Duration IOM to PM	Wed 3/1/28	Tue 3/21/28	15d	MassDOT.CON	161,133																		
BRD	163	Bridge Design	Thu 9/29/22	Thu 12/16/27	1904.13d																				
BRD.705	164	Preliminary Structures Report	Mon 9/29/25	Mon 9/29/25	0d																				
BRD.706	170	Bridge Type Selection Worksheet	Thu 9/29/22	Wed 4/16/25	930d																				
BRD.706.010	171	Prepare Type Selection Worksheet	Thu 9/29/22	Sat 10/29/22	30d	Consultants.DES																			
BRD.706.020	172	Submit Type Selection Worksheet	Sat 10/29/22	Sat 10/29/22	0d	Consultants.DES	171																		
BRD.706.030	173	Review Type Selection Worksheet	Sat 10/29/22	Mon 2/6/23	100d	MassDOT.BRD	172																		
BRD.706.040	174	Send Type Selection Worksheet Comments to DE	Mon 2/6/23	Mon 2/6/23	0d	MassDOT.PM	173																		
BRD.706.050	175	Approval of Type Selection Worksheet	Mon 2/6/23	Wed 4/16/25	800d	MassDOT.BRD	174																		
BRD.708	176	Preliminary Hydraulic Analysis and Report	Wed 10/29/25	Thu 4/30/26	183d																				
BRD.708.010	177	Prepare Preliminary Hydraulic Analysis	Wed 10/29/25	Tue 1/27/26	90d	MassDOT.HYD	4,185,23																		
BRD.708.020	178	Prepare Hydraulic Report	Tue 3/31/26	Thu 4/30/26	30d	MassDOT.HYD	177,200																		

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BL PDS Schedule Grouped by Area of Work



WBS	ID	Task Name	Start	Finish	Duration	Responsibility	Predecessors	22	2023		2024		2025		2026		2027		2028		2029		2030	
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1
BRD.708.030	179	Send Hydraulic Report to DE	Thu 4/30/26	Thu 4/30/26	0d	MassDOT.PM	178																	
BRD.600	180	Geotechnical Design	Tue 8/1/23	Sat 3/28/26	970d																			
BRD.600.010	181	Prepare Boring and Probe Layout Plan	Tue 8/1/23	Thu 8/31/23	30d	Consultants.DES	23																	
BRD.600.020	182	Submit Boring and Probe Layout Plan	Thu 8/31/23	Thu 8/31/23	0d	Consultants.DES	181																	
BRD.600.030	183	Review Boring and Probe Layout Plan	Thu 8/31/23	Sun 9/10/23	10d	MassDOT.BRD	182																	
BRD.600.040	184	Perform Bridge and Wall Borings	Sun 9/10/23	Mon 9/29/25	750d	Consultants.DES	183																	
BRD.600.050	185	Prepare and Submit Soil Sample Report for Hydraulics Analysis	Mon 9/29/25	Wed 10/29/25	30d	Consultants.DES	184																	
BRD.600.060	186	Prepare Geotechnical Report	Mon 9/29/25	Wed 10/29/25	30d	Consultants.DES	184																	
BRD.600.070	187	Submit Geotechnical Report	Wed 10/29/25	Wed 10/29/25	0d	Consultants.DES	186,194																	
BRD.600.080	188	Review Geotechnical Report	Wed 10/29/25	Sat 11/8/25	10d	MassDOT.GEO	187																	
BRD.600.*	189	Perform Final Bridge Borings	Mon 9/29/25	Thu 2/26/26	150d		184																	
BRD.600.*	190	Prepare Geotechnical Report Rev1	Thu 2/26/26	Wed 3/18/26	20d		189																	
BRD.600.*	191	Review Geotechnical Report Rev1	Wed 3/18/26	Sat 3/28/26	10d		190																	
BRD.600.090	192	Approval of Geotech Report	Sat 3/28/26	Sat 3/28/26	0d	MassDOT.BRD	191																	
BRD.710	193	Bridge Sketch Plan Submittal	Wed 4/16/25	Tue 3/31/26	349d																			
BRD.710.010	194	Prepare Bridge Sketch Plans	Wed 4/16/25	Tue 7/15/25	90d	Consultants.DES	175																	
BRD.710.020	195	Submit Bridge Sketch Plans	Wed 11/5/25	Wed 11/5/25	0d	Consultants.DES	194,48,77																	
BRD.710.030	196	Review Bridge Sketch Plans	Wed 11/5/25	Tue 2/3/26	90d	MassDOT.BRD	195																	
BRD.710.040	197	Send Sketch Plan Comments to DE	Tue 2/3/26	Tue 2/3/26	0d	Consultants.DES	196																	
BRD.710.050	198	Prepare Sketch Plan Design Responses	Tue 2/3/26	Tue 2/17/26	14d	Consultants.DES	197																	
BRD.710.060	199	Comment Resolution Meeting @ Sketch Plans	Tue 3/17/26	Tue 3/31/26	14d	MassDOT.BRD	198,83SS																	
BRD.710.070	200	Approval of Bridge Sketch Plans	Tue 3/31/26	Tue 3/31/26	0d	MassDOT.BRD	199,192																	
BRD.755	201	Bridge Submission-1st Structural	Thu 4/30/26	Mon 4/12/27	347d																			
BRD.755.010	202	Prepare Bridge Submission-1st Structural Plans	Thu 4/30/26	Wed 7/29/26	90d	Consultants.DES	200,179																	
BRD.755.020	203	Submit Bridge Submission-1st Structural Plans	Tue 12/15/26	Tue 12/15/26	0d	Consultants.DES	202,111SS																	
BRD.755.030	204	Review Bridge Submission-1st Structural Plans	Tue 12/15/26	Sat 2/13/27	60d	MassDOT.BRD	203																	
BRD.755.040	205	Send 1st Structural Comments to DE	Sat 2/13/27	Sat 2/13/27	0d	Consultants.DES	204																	
BRD.755.050	206	Prepare 1st Structural Design Responses	Sat 2/13/27	Tue 2/23/27	10d	Consultants.DES	205																	
BRD.755.060	207	Comment Resolution Meeting @ 1st Structural	Fri 4/9/27	Mon 4/12/27	1d	MassDOT.BRD	206,116SS																	
BRD.758	208	Bridge Submission-2nd Structural	Wed 5/12/27	Thu 12/16/27	218.13d																			
BRD.758.010	209	Prepare Bridge Submission-2nd Structural Plans	Wed 5/12/27	Wed 9/29/27	140d	Consultants.DES	207FS+30d																	
BRD.758.020	210	Submit Bridge Submission-2nd Structural Plans	Wed 9/29/27	Wed 9/29/27	0d	Consultants.DES	123FF,209																	
BRD.758.030	211	Review Bridge Submission-2nd Structural Plans	Wed 9/29/27	Fri 10/29/27	30d	MassDOT.BRD	210																	
BRD.758.040	212	Send 2nd Structural Review Comments to DE	Fri 10/29/27	Fri 10/29/27	0d	Consultants.DES	211																	
BRD.758.050	213	Prepare 2nd Structural Design Responses	Fri 10/29/27	Mon 11/8/27	10d	Consultants.DES	212																	
BRD.758.060	214	Comment Resolution Meeting @ 2nd Structural	Thu 12/16/27	Thu 12/16/27	1d	MassDOT.BRD	213,128SS																	
ENV	215	Environmental	Tue 2/28/23	Fri 3/31/28	1858.13d																			
ENV.MS	216	Environmental Milestones	Fri 11/26/27	Fri 3/31/28	126d																			
ENV.MS.010	217	Wetland Permits Filed	Fri 11/26/27	Fri 11/26/27	0d	MassDOT.ENV	295,277,289,290																	
ENV.MS.020	218	Issue Environmental Clearance	Fri 3/31/28	Fri 3/31/28	0d	MassDOT.ENV	253,217,330,300,314,317																	
ENV.150	219	Environmental Review Checklist (ERC)	Tue 2/28/23	Sun 4/2/23	33d																			
ENV.150.010	220	Assign Environmental Analyst	Tue 2/28/23	Wed 3/1/23	1d	MassDOT.ENV	41																	
ENV.150.020	221	Prepare Draft Environmental Review Checklist (ERC) (formerly EE	Wed 3/1/23	Fri 3/31/23	30d	MassDOT.ENV	220																	
ENV.150.030	222	Prepare Final Environmental Review Checklist (ERC)	Fri 3/31/23	Sat 4/1/23	1d	MassDOT.ENV	221																	
ENV.150.040	223	Prepare Response to ERC	Sat 4/1/23	Sun 4/2/23	1d	Consultants.DES	222																	
ENV.151	224	25% Environmental Coordination	Mon 4/3/23	Tue 3/17/26	1079d																			
ENV.151.010	225	Perform 25% Environmental Coordination	Mon 4/3/23	Fri 6/2/23	60d	Consultants.DES	42																	
ENV.151.020	226	Submit 25% Environmental Coordination	Wed 11/5/25	Wed 11/5/25	0d	Consultants.DES	77SS,225																	



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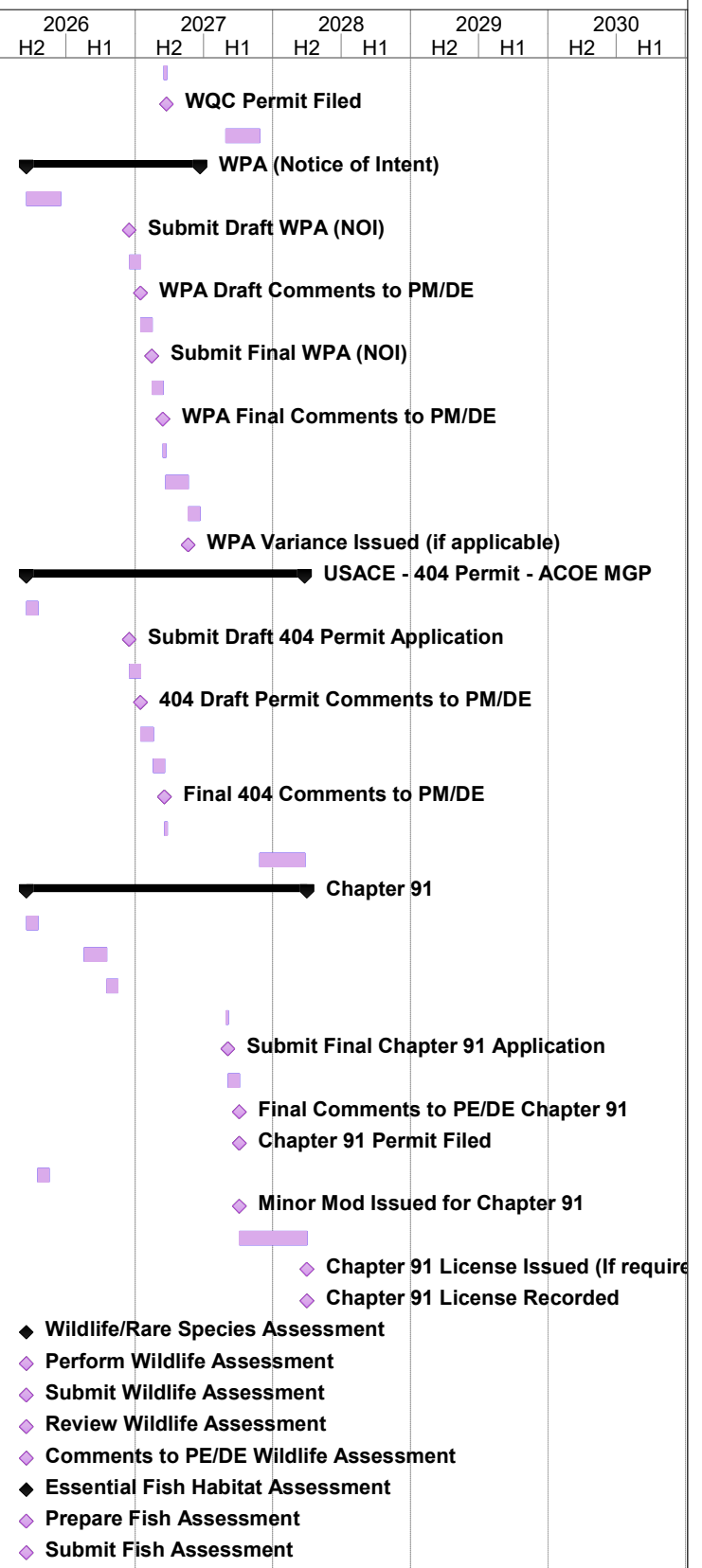
WBS	ID	Task Name	Start	Finish	Duration	Responsibility	Predecessors	2022		2023		2024		2025		2026		2027		2028		2029		2030	
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
ENV.151.030	227	Review 25% Environmental Coordination	Wed 11/5/25	Fri 12/5/25	30d	MassDOT.ENV	226																		
ENV.151.040	228	Approve 25% Environmental Coordination for DPH	Tue 3/17/26	Tue 3/17/26	0d	MassDOT.ENV	227,83																		
ENV.152	229	Historic / Archeology (Section 106) Review	Wed 11/5/25	Tue 2/3/26	90d																				
ENV.152.010	230	Conduct Historic Impact Analysis	Wed 11/5/25	Fri 12/5/25	30d	MassDOT.ENV	226,77																		
ENV.152.020	231	No Effect Finding Determined	Fri 12/5/25	Sun 1/4/26	30d	MassDOT.ENV	230																		
ENV.152.030	232	Submit No Effect Finding to Agency	Sun 1/4/26	Sun 1/4/26	0d	MassDOT.ENV	231																		
ENV.152.040	233	Agency Review of No Effect Finding	Sun 1/4/26	Tue 2/3/26	30d	Agencies.MHC	232																		
ENV.152.050	234	Sec 106 Approve No Effect Finding	Tue 2/3/26	Tue 2/3/26	0d	Agencies.MHC	233																		
ENV.173	235	Section 4(f) De Minimis	Wed 11/5/25	Mon 7/27/26	264d																				
ENV.173.010	236	Prepare 4(f) De Minimis	Wed 11/5/25	Fri 12/5/25	30d	MassDOT.ENV	226																		
ENV.173.020	237	Publication of Legal Notice	Fri 12/5/25	Sat 12/20/25	15d	MassDOT.ENV	236																		
ENV.173.021	238	Submit De Minimis	Sat 12/20/25	Sat 12/20/25	0d	MassDOT.ENV	237																		
ENV.173.030	239	Official w/Jurisdiction App of De Minimis	Sat 12/20/25	Sun 1/4/26	15d	Other.Municipality	238																		
ENV.173.040	240	FHWA Approval of De Minimis	Mon 1/5/26	Fri 1/9/26	5d	Other.Municipality	239																		
ENV.173.100	241	Section 7 (Endangered Species Act)	Tue 3/17/26	Mon 7/27/26	132d																				
ENV.173.100.1	242	Perform Section 7 Review	Tue 3/17/26	Sat 5/16/26	60d	Consultants.DES	228																		
ENV.173.100.2	243	Submit Section 7	Sat 5/16/26	Sat 5/16/26	0d	Consultants.DES	319,242																		
ENV.173.100.3	244	Review Section 7	Sat 5/16/26	Mon 6/15/26	30d	MassDOT.ENV	243																		
ENV.173.100.4	245	Comments to PE/DE for Section 7	Mon 6/15/26	Mon 6/15/26	0d	MassDOT.ENV	244																		
ENV.173.100.5	246	Review type-programatic or individual consultation for Section 7	Mon 6/15/26	Mon 7/27/26	30d	MassDOT.ENV	245																		
ENV.157	247	NEPA-Categorical Exclusion (CE)	Mon 8/17/26	Thu 8/5/27	353d																				
ENV.157.010	248	Prepare Categorical Exclusion	Mon 8/17/26	Wed 9/16/26	30d	Consultants.DES	108																		
ENV.157.020	249	Submit Categorical Exclusion	Fri 3/26/27	Fri 3/26/27	0d	Consultants.DES	248,111,299,324																		
ENV.157.030	250	Review Categorical Exclusion	Mon 6/21/27	Tue 7/6/27	15d	MassDOT.ENV	249,289																		
ENV.157.040	251	Environmental App of Programmatic CE	Tue 7/6/27	Tue 7/6/27	0d	MassDOT.ENV	250																		
ENV.157.050	252	Review Individual CE by FHWA	Tue 7/6/27	Thu 8/5/27	30d	Agencies.FHWA	250,234,251																		
ENV.157.060	253	FHWA Approval of Individual CE	Thu 8/5/27	Thu 8/5/27	0d	ENV or Agencies.FHWA	252,240,246																		
ENV.163	254	MEPA (EENF & EIR)	Tue 3/17/26	Sat 8/28/27	529.13d																				
ENV.163.010	255	Prepare Environ. Justice Analysis	Tue 3/17/26	Thu 4/16/26	30d	Consultants.DES	228																		
ENV.163.020	256	Prepare MEPA ENF	Thu 4/16/26	Fri 8/14/26	120d	Consultants.DES	255																		
ENV.163.030	257	Prepare MEPA EIR	Thu 4/16/26	Fri 4/17/26	1d	Consultants.DES	228,255																		
ENV.163.031	258	Submit Draft EENF / EIR	Tue 12/15/26	Tue 12/15/26	0d	Consultants.DES	111FF																		
ENV.163.032	259	Review Draft EENF/EIR	Tue 12/15/26	Thu 1/14/27	30d	MassDOT.ENV	258																		
ENV.163.033	260	Submit Advance Notification	Thu 1/14/27	Sun 2/28/27	45d	MassDOT.ENV	259																		
ENV.163.040	261	Submit MEPA EENF	Mon 3/1/27	Mon 3/1/27	1d	MassDOT.ENV	260																		
ENV.163.050	262	Submit MEPA EIR	Sun 2/28/27	Sun 2/28/27	0d	MassDOT.ENV	260																		
ENV.163.060	263	Review MEPA EENF	Tue 3/2/27	Fri 4/30/27	60d	Agencies.MEPA	261																		
ENV.163.070	264	Review MEPA EIR	Sun 2/28/27	Thu 4/29/27	60d	Agencies.MEPA	262																		
ENV.163.080	265	MEPA Comments to PM/DE	Sat 5/1/27	Sat 8/28/27	120d	Agencies.MEPA	263,264																		
ENV.163.090	266	MEPA issued	Sat 8/28/27	Sat 8/28/27	0d	Agencies.MEPA	265																		
ENV.182	267	Water Quality Certification (401)	Tue 3/17/26	Fri 11/26/27	619.13d																				
ENV.182.005	268	Prepare Draft WQC	Tue 3/17/26	Thu 4/16/26	30d		228																		
ENV.182.010	269	Submit Draft WQC Application	Tue 12/15/26	Tue 12/15/26	0d	Consultants.DES	257,111,268																		
ENV.182.015	270	Review Draft WQC	Tue 12/15/26	Thu 1/14/27	30d	MassDOT.ENV	269																		
ENV.182.020	271	WQC Comments to PM/DE	Thu 1/14/27	Thu 1/14/27	0d	MassDOT.ENV	270																		
ENV.182.020.1	272	Prepare Final WQC	Thu 1/14/27	Sat 2/13/27	30d	Consultants.DES	271																		
ENV.182.020.2	273	Submit Final WQC	Sat 2/13/27	Sat 2/13/27	0d	Consultants.DES	272																		
ENV.182.020.3	274	Review Final WQC	Sat 2/13/27	Wed 3/17/27	32d	Agencies.DEP	273																		

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WBS	ID	Task Name	Start	Finish	Duration	Responsibility	Predecessors	2022		2023		2024		2025		2026		2027		2028		2029		2030	
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
ENV.182.202.4	275	Revise WQC	Wed 3/17/27	Wed 3/24/27	5d	Consultants.DES	274																		
ENV.182.030	276	WQC Permit Filed	Wed 3/24/27	Wed 3/24/27	0d	MassDOT.ENV	275																		
ENV.182.040	277	WQC Permit Issued	Sun 8/29/27	Fri 11/26/27	90d	Agencies.DEP	276,266																		
ENV.177	278	WPA (Notice of Intent)	Tue 3/17/26	Mon 6/21/27	461d																				
ENV.177.010	279	Perform Field Work and Prepare Draft Application	Tue 3/17/26	Mon 6/15/26	90d	Consultants.DES	228																		
ENV.177.020	280	Submit Draft WPA (NOI)	Tue 12/15/26	Tue 12/15/26	0d	Consultants.DES	279,111																		
ENV.177.020.1	281	Review Draft WPA (NOI)	Tue 12/15/26	Thu 1/14/27	30d	MassDOT.ENV	280																		
ENV.177.020.200	282	WPA Draft Comments to PM/DE	Thu 1/14/27	Thu 1/14/27	0d	MassDOT.ENV	281																		
ENV.177.030	283	Prepare Final WPA (NOI)	Thu 1/14/27	Sat 2/13/27	30d	Consultants.DES	282																		
ENV.177.040	284	Submit Final WPA (NOI)	Sat 2/13/27	Sat 2/13/27	0d	Consultants.DES	283																		
ENV.177.050	285	Review Final WPA (NOI)	Sat 2/13/27	Mon 3/15/27	30d	MassDOT.ENV	284																		
ENV.177.050.1	286	WPA Final Comments to PM/DE	Mon 3/15/27	Mon 3/15/27	0d	MassDOT.ENV	285																		
ENV.177.060	287	WPA Permit Filed	Mon 3/15/27	Mon 3/22/27	5d	MassDOT.ENV	286																		
ENV.177.070	288	Municipality Review WPA (NOI)	Mon 3/22/27	Fri 5/21/27	60d	Agencies.LCC	287																		
ENV.177.080	289	Issue Order of Conditions	Fri 5/21/27	Mon 6/21/27	21d	Agencies.LCC	288																		
ENV.177.090	290	WPA Variance Issued (if applicable)	Fri 5/21/27	Fri 5/21/27	0d	Agencies.DEP	288																		
ENV.170	291	USACE - 404 Permit - ACOE MGP	Tue 3/17/26	Sat 3/25/28	739.13d																				
ENV.170.005	292	Prepare 404 Permit	Tue 3/17/26	Thu 4/16/26	30d	Consultants.DES	228																		
ENV.170.010	293	Submit Draft 404 Permit Application	Tue 12/15/26	Tue 12/15/26	0d	Consultants.DES	228,292,111																		
ENV.170.010.1	294	Review Draft 404 Permit Application	Tue 12/15/26	Thu 1/14/27	30d	Agencies.ACOE	293																		
ENV.170.020	295	404 Draft Permit Comments to PM/DE	Thu 1/14/27	Thu 1/14/27	0d	MassDOT.ENV	293,294																		
ENV.170.020.1	296	Submit Final 404 Permit Application	Thu 1/14/27	Wed 2/17/27	24d	MassDOT.ENV	295																		
ENV.170.020.2	297	Review Final 404 Permit Application	Wed 2/17/27	Fri 3/19/27	30d	Agencies.ACOE	296																		
ENV.170.020.3	298	Final 404 Comments to PM/DE	Fri 3/19/27	Fri 3/19/27	0d	Agencies.ACOE	297																		
ENV.170.030	299	404 Permit Filed	Fri 3/19/27	Fri 3/26/27	5d	Agencies.ACOE	295,298																		
ENV.170.040	300	404 Permit Issued	Sat 11/27/27	Sat 3/25/28	120d	Agencies.ACOE	299,324,246,277,289,234																		
ENV.181	301	Chapter 91	Tue 3/17/26	Fri 3/31/28	745.13d																				
ENV.181.005	302	Prepare Minor Mod	Tue 3/17/26	Thu 4/16/26	30d	Consultants.DES	228																		
ENV.181.010	303	Submit Draft Chapter 91 Application	Mon 8/17/26	Fri 10/16/26	60d	Consultants.DES	110SS																		
ENV.181.011	304	Review Draft Chapter 91	Fri 10/16/26	Sun 11/15/26	30d	MassDOT.ENV	303																		
ENV.181.012	305	Comments to PE/DE Chapter 91	Mon 8/30/27	Fri 9/3/27	5d	MassDOT.ENV	266,304																		
ENV.181.013	306	Submit Final Chapter 91 Application	Fri 9/3/27	Fri 9/3/27	0d	MassDOT.ENV	305																		
ENV.181.014	307	Review Final Chapter 91 Application	Sat 9/4/27	Sun 10/3/27	30d	Agencies.DEP	306																		
ENV.181.020	308	Final Comments to PE/DE Chapter 91	Sun 10/3/27	Sun 10/3/27	0d	Agencies.DEP	307																		
ENV.181.030	309	Chapter 91 Permit Filed	Sun 10/3/27	Sun 10/3/27	0d	MassDOT.ENV	305,308																		
ENV.181.031	310	Minor Mod Reviewed	Thu 4/16/26	Sat 5/16/26	30d	Agencies.DEP	302																		
ENV.181.040	311	Minor Mod Issued for Chapter 91	Sun 10/3/27	Sun 10/3/27	0d	Agencies.DEP	309,310																		
ENV.181.041	312	Chapter 91 License Reviewed	Mon 10/4/27	Fri 3/31/28	180d	Agencies.DEP	309																		
ENV.181.050	313	Chapter 91 License Issued (If required)	Fri 3/31/28	Fri 3/31/28	0d	Agencies.DEP	309,289,312,277,290																		
ENV.181.060	314	Chapter 91 License Recorded	Fri 3/31/28	Fri 3/31/28	0d	Agencies.DEP	313																		
ENV.184	315	Wildlife/Rare Species Assessment	Tue 3/17/26	Tue 3/17/26	0d																				
ENV.184.010	316	Perform Wildlife Assessment	Tue 3/17/26	Tue 3/17/26	0d	Consultants.DES	228																		
ENV.184.020	317	Submit Wildlife Assessment	Tue 3/17/26	Tue 3/17/26	0d	Consultants.DES	316																		
ENV.184.030	318	Review Wildlife Assessment	Tue 3/17/26	Tue 3/17/26	0d	MassDOT.ENV	317																		
ENV.184.040	319	Comments to PE/DE Wildlife Assessment	Tue 3/17/26	Tue 3/17/26	0d	MassDOT.ENV	318																		
ENV.185	320	Essential Fish Habitat Assessment	Tue 3/17/26	Tue 3/17/26	0d																				
ENV.185.010	321	Prepare Fish Assessment	Tue 3/17/26	Tue 3/17/26	0d	Consultants.DES	228																		
ENV.185.020	322	Submit Fish Assessment	Tue 3/17/26	Tue 3/17/26	0d	Consultants.DES	321,319																		

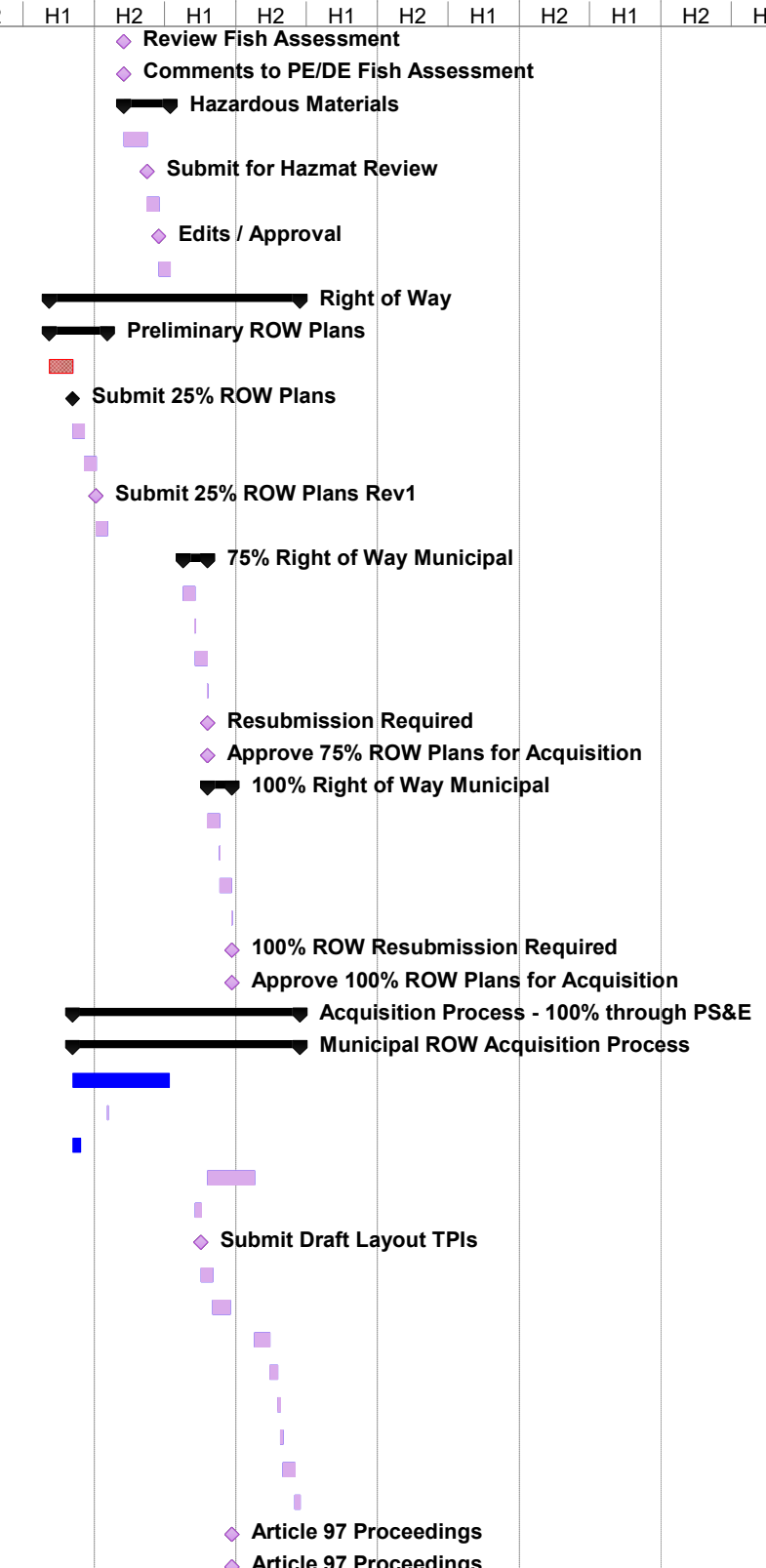


Task █ Milestone ◆ Summary █ Critical Path █ Path Successor Normal Task █ Path Successor Summary Task █ Path Successor Milestone Task ◆

Massachusetts Department of Transportation
612870 Concord - Assabet River Multi-Use Trail and Bridge
BL PDS Schedule Grouped by Area of Work



WBS	ID	Task Name	Start	Finish	Duration	Responsibility	Predecessors	2022		2023		2024		2025		2026		2027		2028		2029		2030	
								H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
ENV.185.030	323	Review Fish Assessment	Tue 3/17/26	Tue 3/17/26	0d	MassDOT.ENV	322																		
ENV.185.040	324	Comments to PE/DE Fish Assessment	Tue 3/17/26	Tue 3/17/26	0d	MassDOT.ENV	323																		
ENV.154	325	Hazardous Materials	Tue 3/17/26	Wed 7/15/26	120d																				
ENV.154.010	326	Complete Env. Assessment / Initial Inclusion of Spec. Prov. Items	Tue 3/17/26	Sat 5/16/26	60d	Consultants.DES	228																		
ENV.154.020	327	Submit for Hazmat Review	Sat 5/16/26	Sat 5/16/26	0d	Consultants.DES	326																		
ENV.154.030	328	Hazmat Review / Inclusion of SP Items	Sat 5/16/26	Mon 6/15/26	30d	MassDOT.ENV	327																		
ENV.154.040	329	Edits / Approval	Mon 6/15/26	Mon 6/15/26	0d	MassDOT.ENV	328																		
ENV.154.050	330	Perform pre-demo survey and issuing report	Mon 6/15/26	Wed 7/15/26	30d	MassDOT.ENV	329																		
ROW	331	Right of Way	Sat 9/6/25	Mon 6/14/27	646.13d																				
ROW.501	332	Preliminary ROW Plans	Sat 9/6/25	Tue 2/3/26	150d																				
ROW.501.010	333	Prepare 25% ROW Plans	Sat 9/6/25	Wed 11/5/25	60d	Consultants.DES	50,4,76FF																		
ROW.501.020	334	Submit 25% ROW Plans	Wed 11/5/25	Wed 11/5/25	0d	Consultants.DES	333																		
ROW.501.030	335	Review 25% ROW Plans	Wed 11/5/25	Fri 12/5/25	30d	MassDOT.ROW	334,195																		
ROW.501.030.1	336	Prepare 25% ROW Plans Rev1	Fri 12/5/25	Sun 1/4/26	30d	Consultants.DES	335																		
ROW.501.020.1	337	Submit 25% ROW Plans Rev1	Sun 1/4/26	Sun 1/4/26	0d	Consultants.DES	336																		
ROW.501.030.2	338	Review 25% ROW Plans Rev1	Sun 1/4/26	Tue 2/3/26	30d	MassDOT.ROW	337																		
ROW.510	339	75% Right of Way Municipal	Mon 8/17/26	Mon 10/19/26	63.13d																				
ROW.510.010	340	Prepare 75% ROW Plans Muni	Mon 8/17/26	Wed 9/16/26	30d	Consultants.DES	108,338																		
ROW.510.020	341	Submit 75% ROW Plans Muni	Wed 9/16/26	Thu 9/17/26	1d	Consultants.DES	340																		
ROW.510.030	342	Review 75% ROW Plans Muni	Thu 9/17/26	Sat 10/17/26	30d	and Other.Municipality	341																		
ROW.510.040	343	Send 75% ROW Comments to DE	Mon 10/19/26	Mon 10/19/26	1d	and Other.Municipality	342																		
ROW.510.050	344	Resubmission Required	Mon 10/19/26	Mon 10/19/26	0d	Consultants.DES	343																		
ROW.510.060	345	Approve 75% ROW Plans for Acquisition	Mon 10/19/26	Mon 10/19/26	0d	and Other.Municipality	344																		
ROW.512	346	100% Right of Way Municipal	Tue 10/20/26	Mon 12/21/26	63d																				
ROW.512.010	347	Prepare 100% ROW Plans Muni	Tue 10/20/26	Wed 11/18/26	30d	Consultants.DES	345																		
ROW.512.020	348	Submit 100% ROW Plans Muni	Thu 11/19/26	Thu 11/19/26	1d	Consultants.DES	347																		
ROW.512.030	349	Review 100% ROW Plans Muni	Fri 11/20/26	Sat 12/19/26	30d	and Other.Municipality	348																		
ROW.512.040	350	Send 100% ROW Commentws to DE	Mon 12/21/26	Mon 12/21/26	1d	and Other.Municipality	349																		
ROW.512.050	351	100% ROW Resubmission Required	Mon 12/21/26	Mon 12/21/26	0d	Consultants.DES	350																		
ROW.512.060	352	Approve 100% ROW Plans for Acquisition	Mon 12/21/26	Mon 12/21/26	0d	and Other.Municipality	351																		
ROW.502	353	Acquisition Process - 100% through PS&E	Wed 11/5/25	Mon 6/14/27	586.13d																				
ROW.502.02	354	Municipal ROW Acquisition Process	Wed 11/5/25	Mon 6/14/27	586.13d																				
ROW.502.02.064	355	Perform Title Exams (All TPI)	Wed 11/5/25	Sun 7/12/26	249d	Other.Municipality	77																		
ROW.502.02.065	356	Hold Town Meeting (Verify Warrant Deadline)	Tue 2/3/26	Wed 2/4/26	1d	Other.Municipality	338																		
ROW.502.02.066	357	Contact Property Owners	Wed 11/5/25	Tue 11/25/25	20d	Other.Municipality	77																		
ROW.502.02.067	358	Perform Appraisals (All TPI)	Tue 10/20/26	Tue 2/16/27	120d	Other.Municipality	345																		
ROW.502.02.068	359	Prepare Draft Layout Taking Plans & Instrument (TPI)	Thu 9/17/26	Fri 10/2/26	15d	Consultants.DES	341																		
ROW.502.02.069	360	Submit Draft Layout TPIs	Fri 10/2/26	Fri 10/2/26	0d	Consultants.DES	359																		
ROW.502.02.070	361	Review Draft Layout TPIs	Fri 10/2/26	Sun 11/1/26	30d	and Other.Municipality	360																		
ROW.502.02.071	362	Approve Layout Taking Plans	Sun 11/1/26	Wed 12/16/26	45d	and Other.Municipality	361																		
ROW.502.02.072	363	Offer & Negotiations	Wed 2/17/27	Sun 3/28/27	40d	Other.Municipality	358,362																		
ROW.502.02.073	364	Municipal Approval, Record & File	Mon 3/29/27	Sat 4/17/27	20d	Other.Municipality	355,356,363																		
ROW.502.02.074	365	Submit Community Compliance Package	Sun 4/18/27	Sat 4/24/27	7d	Other.Municipality	364																		
ROW.502.02.075	366	Review Community Compliance Package	Sun 4/25/27	Sat 5/1/27	7d	MassDOT.ROW	365																		
ROW.502.02.076	367	Pay Award of Damages	Sun 5/2/27	Mon 5/31/27	30d	Other.Municipality	357,364,366																		
ROW.502.02.077	368	Issue ROW Certificate	Tue 6/1/27	Mon 6/14/27	10d	MassDOT.ROW	370,367																		
ROW.502.03	369	Article 97 Proceedings	Mon 12/21/26	Mon 12/21/26	0d		352																		
ROW.502.03.010	370	Article 97 Proceedings	Mon 12/21/26	Mon 12/21/26	0d	MassDOT.ROW	345																		



Task █ Milestone ◆ Summary █ Critical Path █ Path Successor Normal Task █ Path Successor Summary Task █ Path Successor Milestone Task ◆

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	42
PROJECT FILE NO.		612870	

TITLE SHEET & INDEX

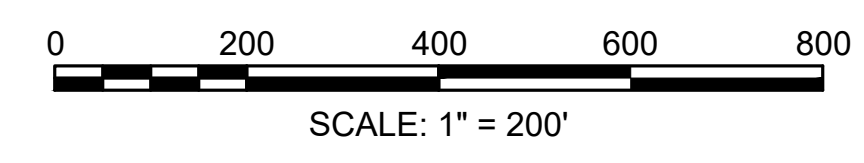
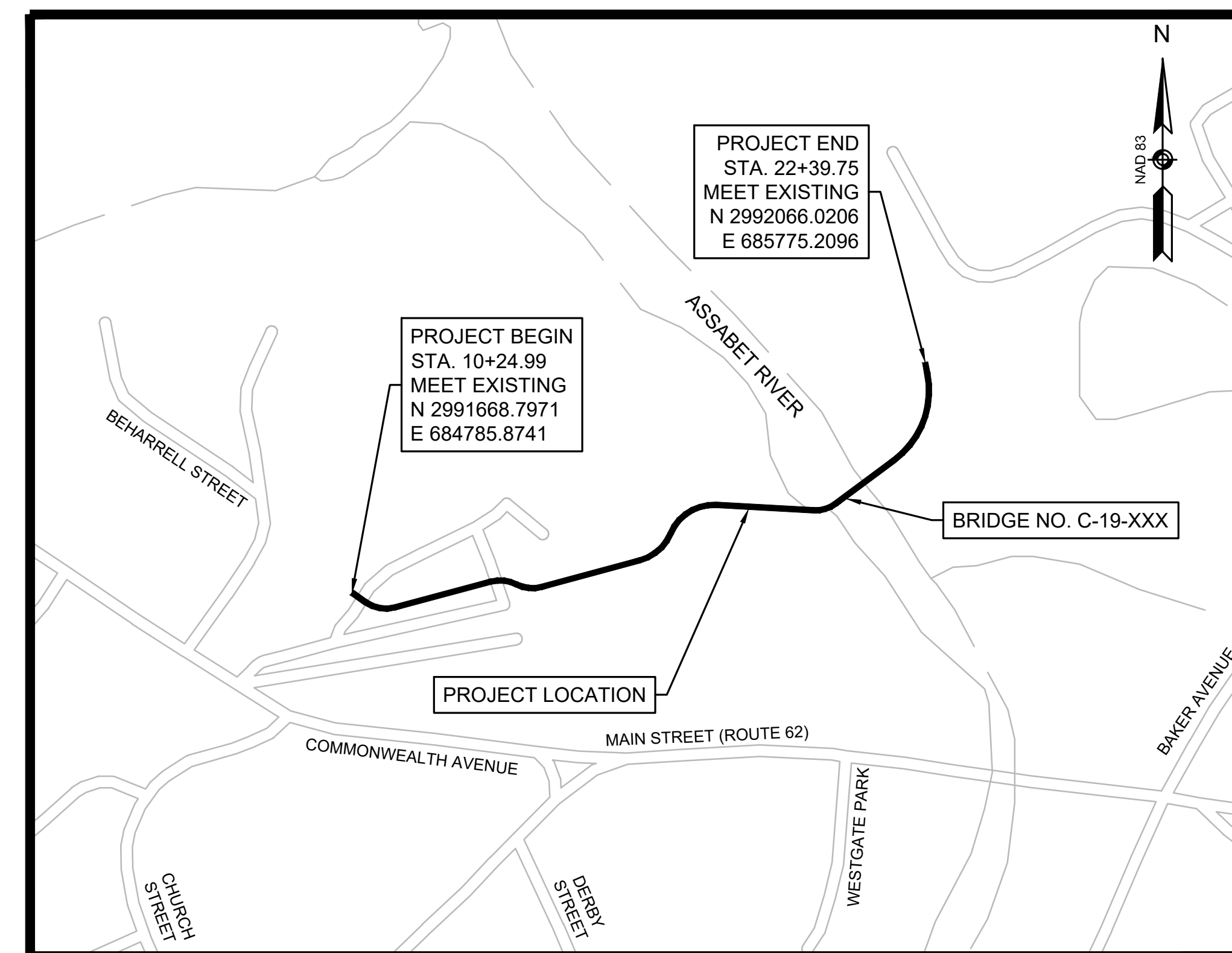
PLAN AND PROFILE OF
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE
(BRIDGE NO. C-19-XXX)
IN THE TOWN OF
CONCORD
MIDDLESEX COUNTY

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

25% SUBMISSION

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGEND & ABBREVIATIONS
3	KEY PLAN & BORING LOCATIONS
4 - 5	TYPICAL SECTIONS
6 - 9	CONSTRUCTION BASELINE TIES
10 - 13	CONSTRUCTION PLANS
14 - 16	CONSTRUCTION PROFILE
17 - 20	DRAINAGE & UTILITY PLANS
21 - 24	TRAFFIC SIGN & PAVEMENT MARKING PLANS
X	TRAFFIC SIGN SUMMARY SHEET
26 - ##	TEMPORARY TRAFFIC CONTROL PLANS
28 - 29	CONSTRUCTION DETAILS
30	PEDESTRIAN CURB RAMP & DRIVEWAY DETAILS
31 - X	BRIDGE PLANS
39 - ##	CROSS SECTIONS



LENGTH OF PROJECT = 1,214.76 FEET = 0.230 MILES

DRAFT

07/27/2024

DATE	DESCRIPTION	REV #

massDOT
Massachusetts Department of Transportation
Highway Division

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

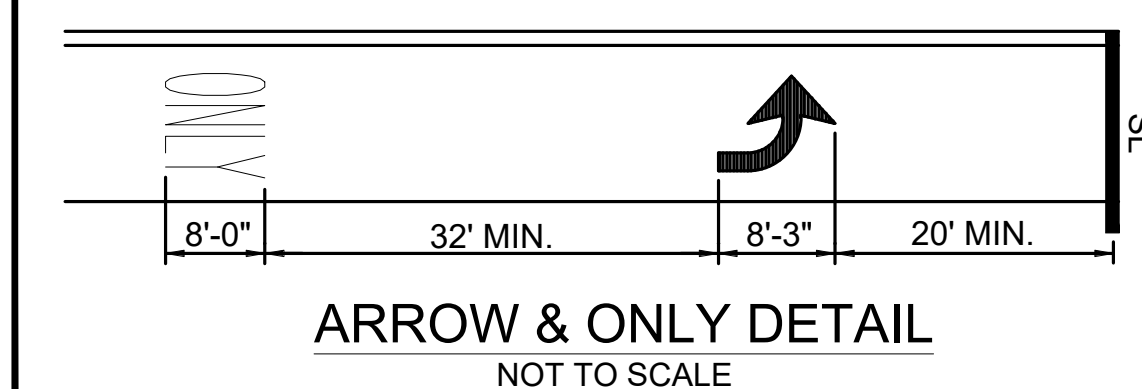
APPROVED

CHIEF ENGINEER, P.E. DATE

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND MONUMENT
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER

	OVERHEAD CABLE/WIRE
	CURBING
	CONTOURS (ON-THE-GROUND SURVEY DATA)
	CONTOURS (PHOTOGRAMMETRIC DATA)
	UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
	BALANCED STONE WALL
	GUARD RAIL - STEEL POSTS
	GUARD RAIL - WOOD POSTS
	CHAIN LINK OR METAL FENCE
	WOOD FENCE
	EROSION CONTROL/SILT FENCE
	TREE LINE
	SAWCUT LINE
	TOP OR BOTTOM OF SLOPE
	LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
	BANK OF RIVER OR STREAM
	BORDER OF WETLAND
	100 FT WETLAND BUFFER
	200 FT RIVERFRONT BUFFER
	STATE HIGHWAY LAYOUT
	TOWN OR CITY LAYOUT
	COUNTY LAYOUT
	RAILROAD SIDELINE
	TOWN OR CITY BOUNDARY LINE
	PROPERTY LINE OR APPROXIMATE PROPERTY LINE
	EASEMENT



PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER

GENERAL NOTES

- THE EXISTING CONDITIONS SHOWN ON THIS PLAN WERE COMPILED BASED UPON AN ACTUAL FIELD SURVEY SUPPLEMENTED WITH UAS LIDAR CONDUCTED BY GREENMAN-PEDEREN, INC. IN APRIL 2021 AND MAY 2022 (978-570-2999). VERTICAL DATUM IS BASED ON NAVD 1988. HORIZONTAL DATUM IS BASED ON MASS. GRID SYSTEM, NAD 1983 (2011) 2010.00 EPOCH.
- THE LOCATIONS AND SIZES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CALL "DIG-SAFE" 1-888-DIGSAFE (344-7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION.
- WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R&R).
- ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.
- ALL PROPOSED PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
- THE RIGHT-OF-WAY, PROPERTY BOUNDARY AND EASEMENTS WERE ESTABLISHED VIA CADASTRAL SURVEY, FOUND MONUMENTATION AND RECORD INFORMATION INCLUDING DEEDS, PLANS AND ASSESSORS INFORMATION OBTAINED AT THE MIDDLESEX SOUTH REGISTRY OF DEEDS, AND THE TOWN ENGINEERING AND ASSESSING DEPARTMENTS.
- ALL TRANSVERSE JOINTS, AND ALL LONGITUDINAL JOINTS BETWEEN NEW SURFACE PAVEMENT AND EXISTING SURFACE PAVEMENT TO REMAIN SHALL BE COATED WITH A HMA JOINT SEALANT (ITEM 453.).
- ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM BORROW PLACED AND SEEDED. THE LOAM BORROW SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.
- THE LIMIT OF WORK AREA SHALL BE THE STREET RIGHT OF WAY UNLESS SHOWN OTHERWISE.
- PRIOR TO THE START OF ANY NEW UTILITY WORK, ALL ELEVATIONS OF EXISTING UTILITIES IN THOSE AREAS ARE TO BE VERIFIED. THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY SHOULD ANY DISCREPANCIES OCCUR.
- ALL CASTINGS SHALL BE SET FLUSH WITH FINISHED GRADE.
- ALL PUBLICLY OWNED GATE BOXES, SERVICE BOXES, MANHOLE FRAMES AND COVERS SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR.
- ALL NEW SIDEWALKS AND DRIVEWAY GRADES SHALL MATCH EXISTING GRADES AT BACK OF SIDEWALK LINE UNLESS SHOWN OTHERWISE ON THE PLANS AND CROSS-SECTIONS.
- THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PROTECT ALL EXISTING TREES AND ROOTS THAT ARE NOT DESIGNATED FOR REMOVAL.
- CONTRACTOR TO CONTACT ENGINEER PRIOR TO INSTALLATION OF BOUNDS FOR FINAL LOCATIONS.
- DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.

GENERAL ABBREVIATIONS

DIP	DUCTILE IRON PIPE	NIC	NOT IN CONTRACT	SHLD	SHOULDER
DW	STEADY DON'T WALK - PORTLAND ORANGE	NO.	NUMBER	SMH	SEWER MANHOLE
DWY	DRIVEWAY	PC	POINT OF CURVATURE	ST	STREET
ELEV (or EL.)	ELEVATION	PCC	POINT OF COMPOUND CURVATURE	STA	STATION
EMB	EMBANKMENT	PCR	PEDESTRIAN CURB RAMP	SSD	STOPPING SIGHT DISTANCE
EOP	EDGE OF PAVEMENT	P.G.L.	PROFILE GRADE LINE	SHLO	STATE HIGHWAY LAYOUT LINE
EXIST (or EX)	EXISTING	PI	POINT OF INTERSECTION	SW	SIDEWALK
EXC	EXCAVATION	POC	POINT ON CURVE	T	TANGENT DISTANCE OF CURVE/TRUCK %
F&C	FRAME AND COVER	POT	POINT ON TANGENT	TAN	TANGENT
F&G	FRAME AND GRATE	PRC	POINT OF REVERSE CURVATURE	TEMP	TEMPORARY
FDN.	FOUNDATION	PROJ	PROJECT	TC	TOP OF CURB
FLDSTN	FIELDSTONE	PROP	PROPOSED	TOS	TOP OF SLOPE
GAR	GARAGE	PSB	PLANTABLE SOIL BORROW	TYP	TYPICAL
GD	GROUND	PT	POINT OF TANGENCY	UP	UTILITY POLE
GG	GAS GATE	PVC	POINT OF VERTICAL CURVATURE	VAR	VARIABLE
GI	GUTTER INLET	PVCC	POINT OF VERTICAL COMPOUND CURVATURE	VERT	VERTICAL
GIP	GALVANIZED IRON PIPE	PVI	POINT OF VERTICAL INTERSECTION	VC	VERTICAL CURVE
GRAN	GRANITE	PVRC	POINT OF VERTICAL REVERSE CURVATURE	WG	WATER GATE
GRAV	GRAVEL	PVT	POINT OF VERTICAL TANGENCY	WIP	WROUGHT IRON PIPE
GRD	GUARD	PVMT	PAVEMENT	WM	WATER METER/WATER MAIN
HDW	HEADWALL	PWW	PAVED WATER WAY	X-SECT	CROSS SECTION
HMA	HOT MIX ASPHALT	R	RADIUS OF CURVATURE		
HOR	HORIZONTAL	R&D	REMOVE AND DISPOSE		
HYD	HYDRANT	RCP	REINFORCED CONCRETE PIPE		
INV	INVERT	RD	ROAD		
JCT	JUNCTION	RDWY	ROADWAY		
L	LENGTH OF CURVE	REM	REMOVE		
LB	LEACH BASIN	RET	RETAIN		
LP	LIGHT POLE	RET WALL	RETAINING WALL		
LT	LEFT	ROW	RIGHT OF WAY		
MAX	MAXIMUM	RR	RAILROAD		
MB	MAILBOX	R&R	REMOVE AND RESET		
MH	MANHOLE	R&S	REMOVE AND STACK		
MHB	MASSACHUSETTS HIGHWAY BOUND	RT	RIGHT		
MIN	MINIMUM	SB	STONE BOUND		

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	42
PROJECT FILE NO.		612870	

LEGEND & ABBREVIATIONS

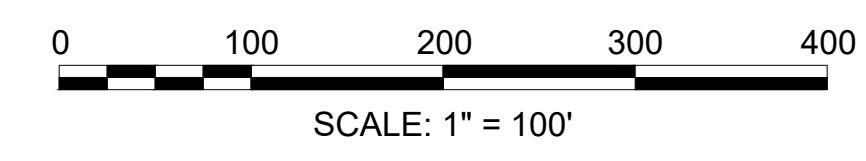
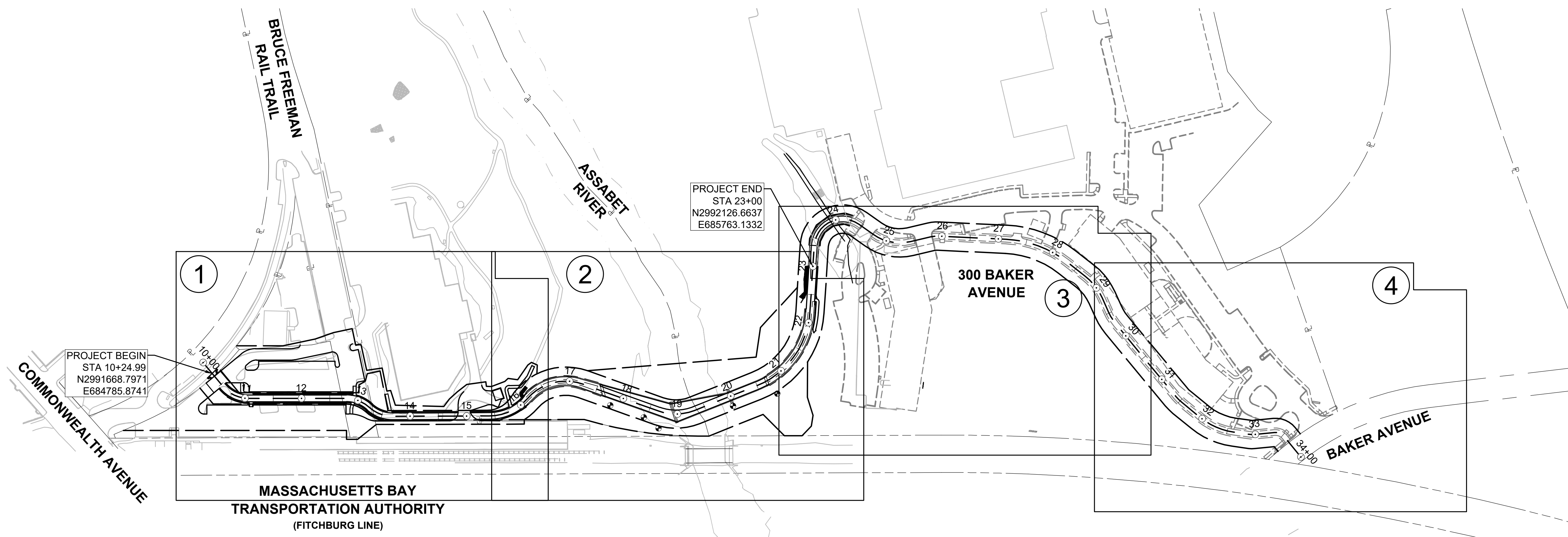
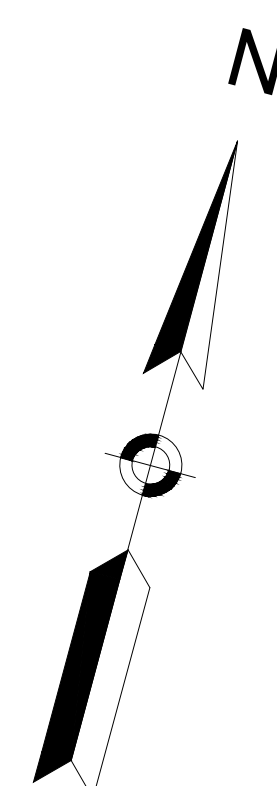
CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	42
PROJECT FILE NO.		612870	

KEY PLAN & BORING LOCATIONS

SHEET REFERENCE:	1	2	3	4
Drawing Title:	Drawing Number:			
CONSTRUCTION BASELINE TIES	6	7	8	9
CONSTRUCTION PLANS	10	11	12	13
CONSTRUCTION PROFILE	14	15/16	16	-
DRAINAGE & UTILITY PLANS	17	18	19	20
TRAFFIC SIGN & PAVEMENT MARKING PLANS	21	22	23	24

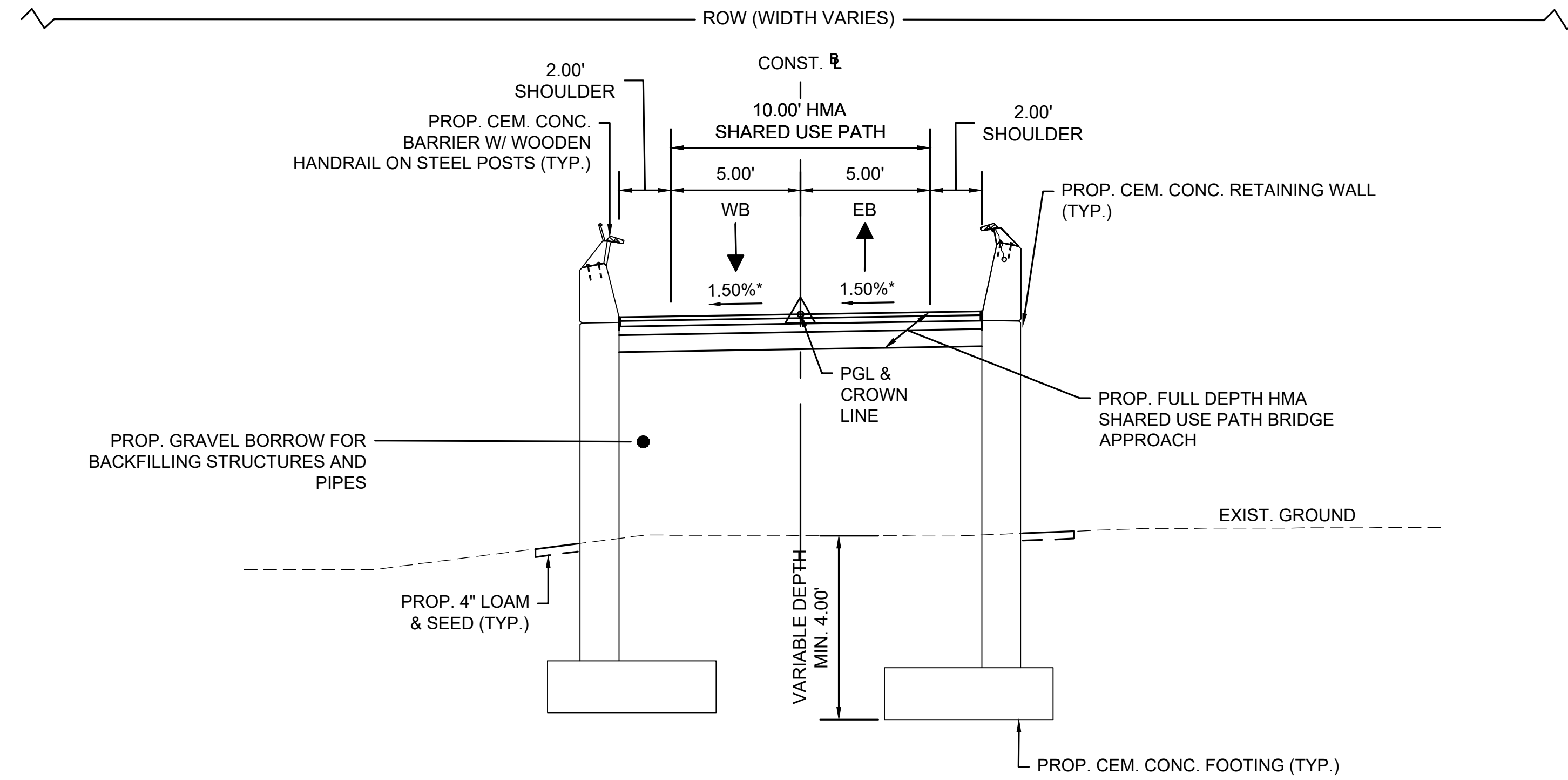
◆ B-# = BORING LOCATION AND NUMBER



**CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE**

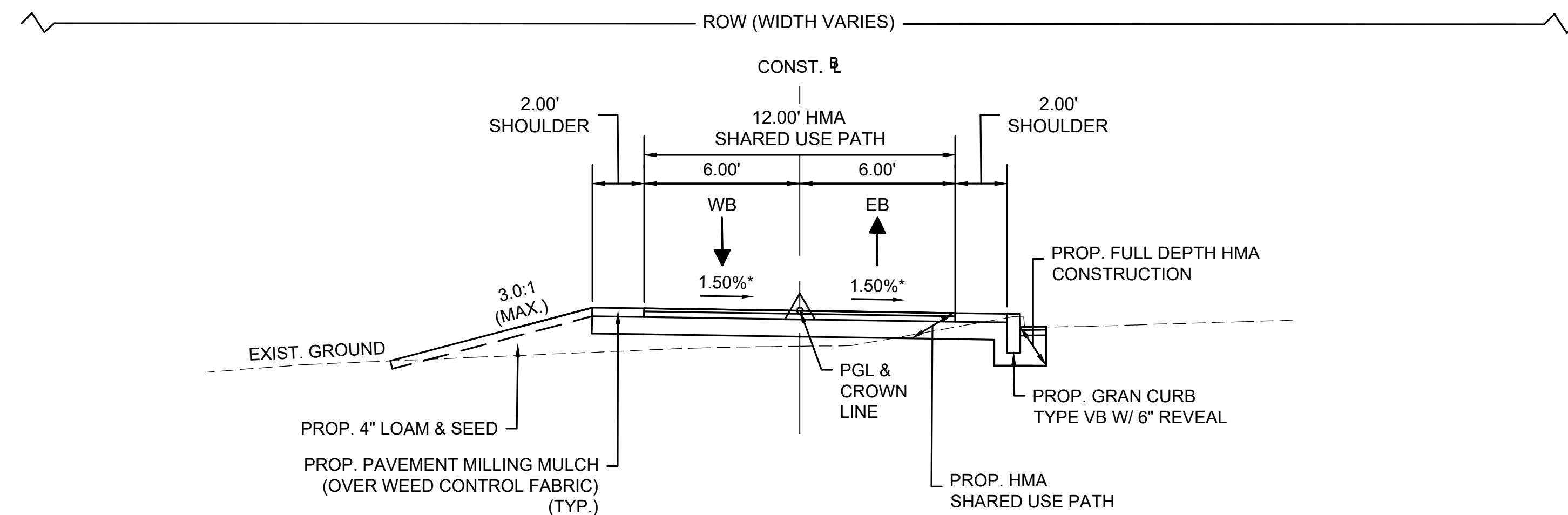
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	42
PROJECT FILE NO.		612870	

TYPICAL SECTIONS



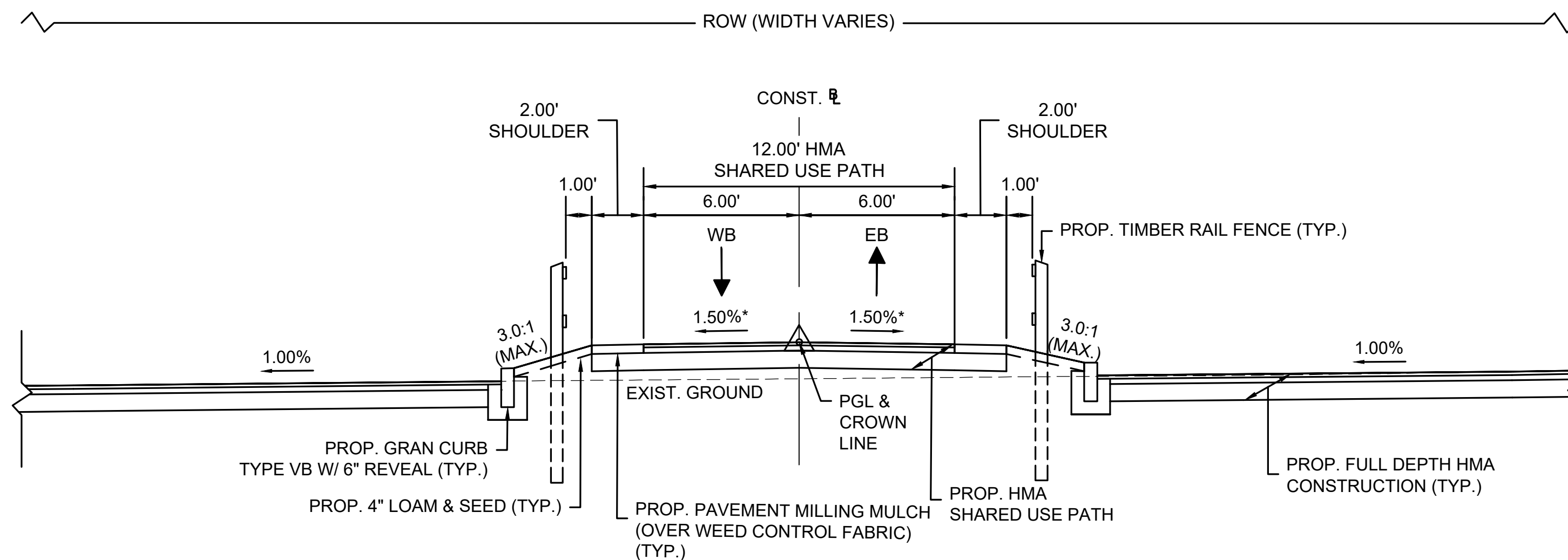
TYPICAL SECTION - ASSABET RIVER SUP & BRIDGE
STA. 16+20± TO STA. 17+60±
STA. 20+70± TO STA. 22+40±
NTS

* ±0.5% TOLERANCE FOR CONSTRUCTION



TYPICAL SECTION - ASSABET RIVER SUP & BRIDGE
STA. 12+80± TO STA. 16+20±
NTS

* ±0.5% TOLERANCE FOR CONSTRUCTION



TYPICAL SECTION - ASSABET RIVER SUP & BRIDGE
STA. 11+15± TO STA. 12+80±
NTS

* ±0.5% TOLERANCE FOR CONSTRUCTION

PAVEMENT NOTES

HMA SHARED USE PATH

SURFACE COURSE: 1 1/4\"/>

INTERMEDIATE COURSE: 2 1/2\"/>

SUBBASE: 8\"/>

STONE DUST SHOULDER & PATH

SURFACE COURSE: 4\"/>

SUBBASE: 8\"/>

FULL DEPTH HMA SHARED USE PATH BRIDGE APPROACH

SURFACE COURSE: 1 1/4\"/>

INTERMEDIATE COURSE: 2 1/2\"/>

SUBBASE: 4\"/>

FULL DEPTH HMA CONSTRUCTION

SURFACE COURSE: 1 1/4\"/>

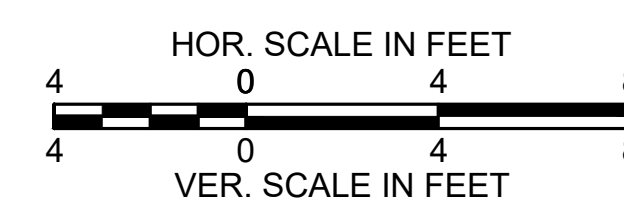
INTERMEDIATE COURSE: 2 1/2\"/>

SUBBASE: 8\"/>

GENERAL NOTES:

- ALL HMA PAVING SHALL BE IN ACCORDANCE WITH SECTION 450 HMA PAVEMENT AND M3 ASPHALTIC MATERIALS SPECIFICATION.
- THE SHARED USE PATH SHALL HAVE A CROSS SLOPE OF 1.5% (0.015 FT/FT). TOLERANCE FOR CONSTRUCTION SHALL BE ±0.50%. IN NO CASE SHALL THE SHARED USE PATH CROSS SLOPE EXCEED 2.0% (0.02 FT/FT). THE SHARED USE PATH SHALL HAVE A MINIMUM CLEAR PATH OF 36\"/>
- THE SECTIONS OF PROPOSED SHARED USE PATH NOT COVERED IN THE RANGE OF STATIONS ASSOCIATED WITH THE TYPICAL SECTIONS ARE EITHER AT INTERSECTIONS OR ARE IN AREAS OF TRANSITION AND THEREFORE HAVE NOT BEEN SHOWN. THESE SECTIONS ARE:

STA. 10+25± TO STA. 11+15± ASSABET RIVER SUP & BRIDGE
- THE CONTRACTOR SHALL REMOVE EXISTING ORGANIC MATERIAL THAT IS UNSUITABLE FOR REUSE AND DISPOSE OF THIS MATERIAL OUTSIDE OF THE PROJECT LIMITS. IT IS ASSUMED THAT ALL OTHER EXCAVATED SUITABLE MATERIAL WILL REMAIN WITHIN THE PROJECT LIMITS. SEE SPECIAL PROVISIONS FOR DETAILS.

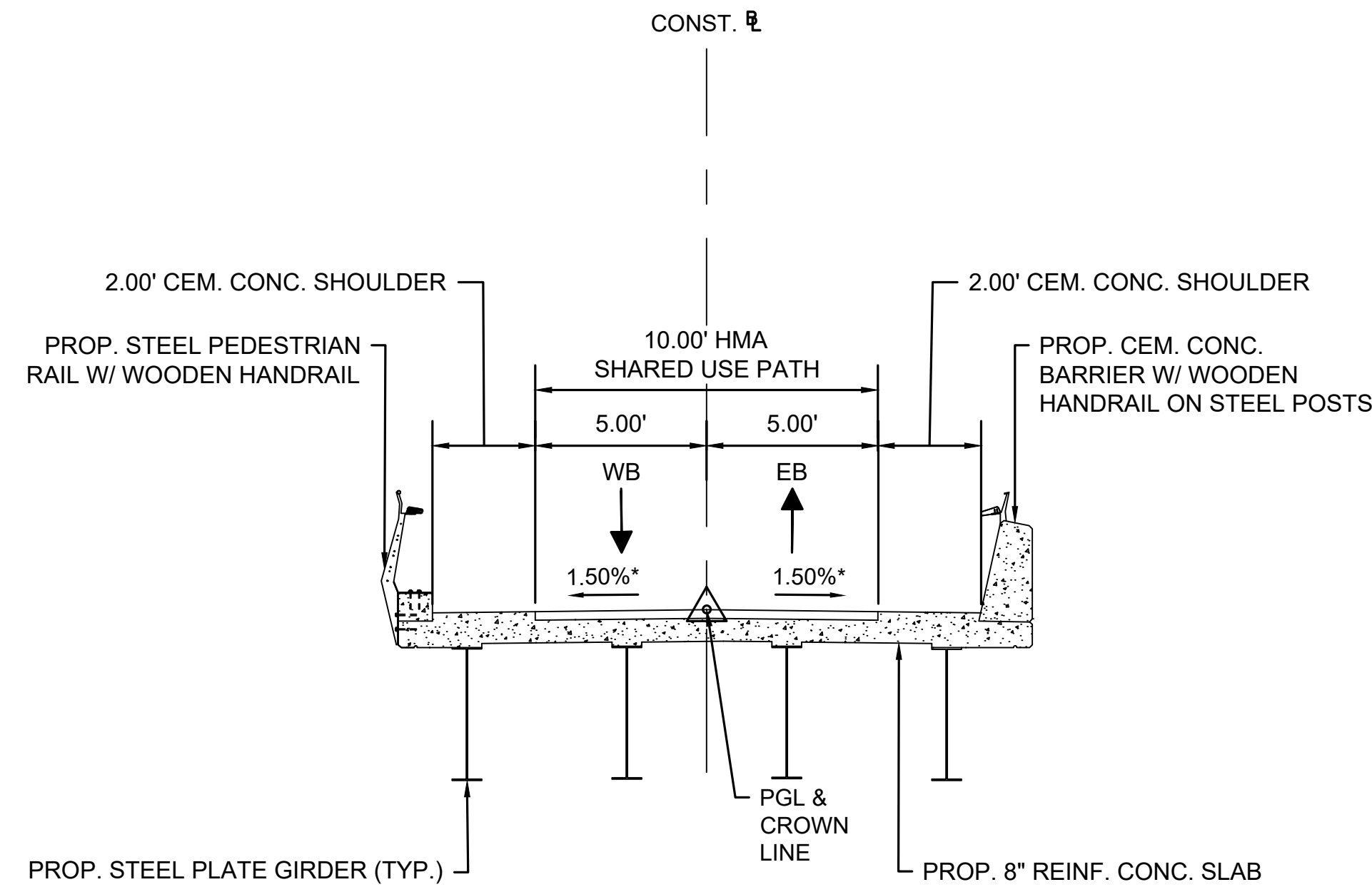


CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	42
PROJECT FILE NO.		612870	

TYPICAL SECTIONS

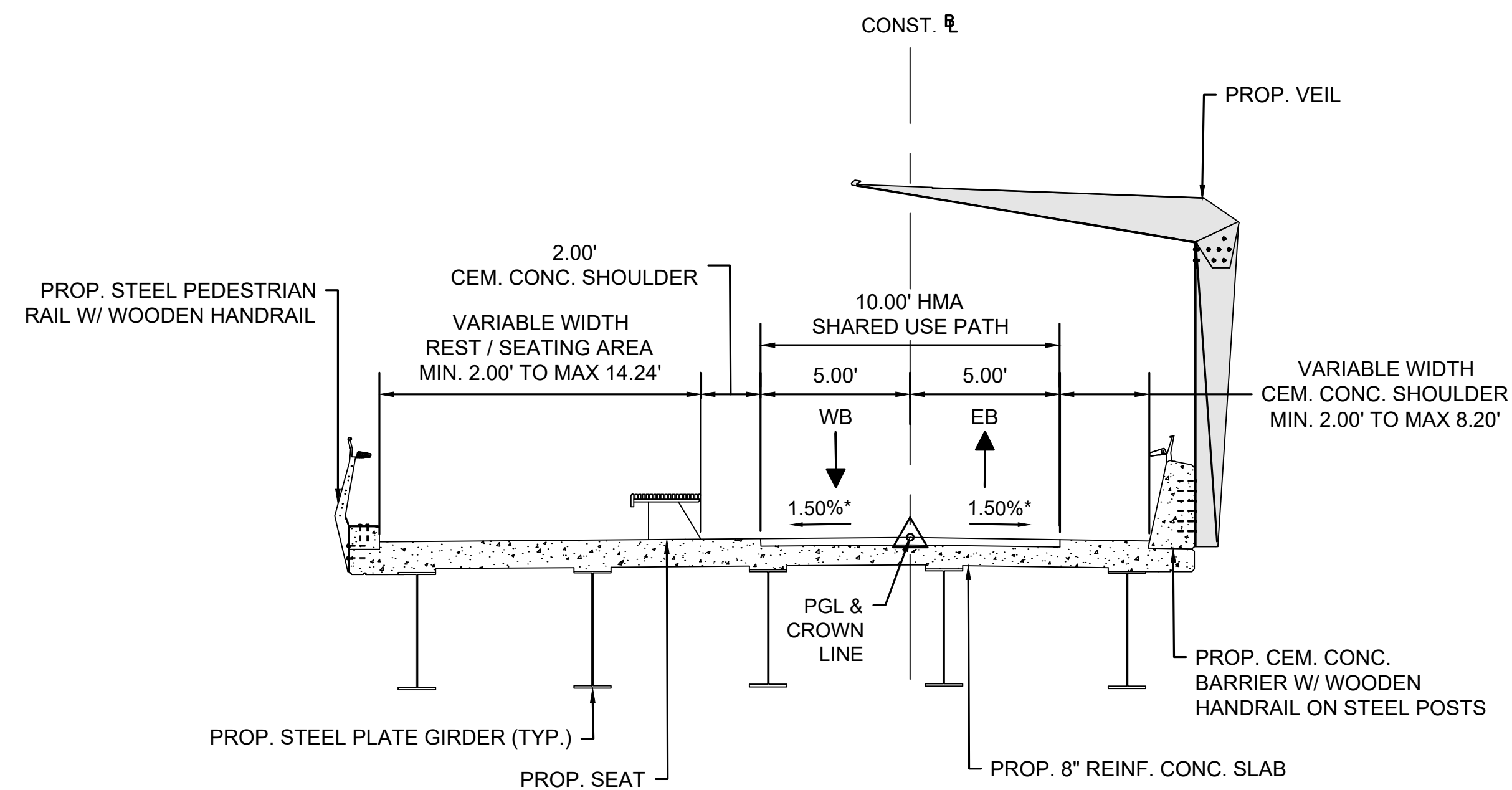
ROW (WIDTH VARIES)



TYPICAL SECTION - ASSABET RIVER SUP & BRIDGE
STA. 19+80± TO STA. 20+70±
NTS

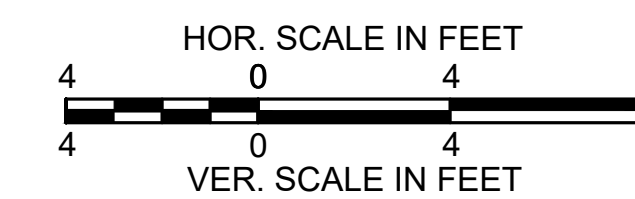
* ±0.5% TOLERANCE FOR CONSTRUCTION

ROW (WIDTH VARIES)



TYPICAL SECTION - ASSABET RIVER SUP & BRIDGE
STA. 17+60± TO STA. 19+80±
NTS

* ±0.5% TOLERANCE FOR CONSTRUCTION



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

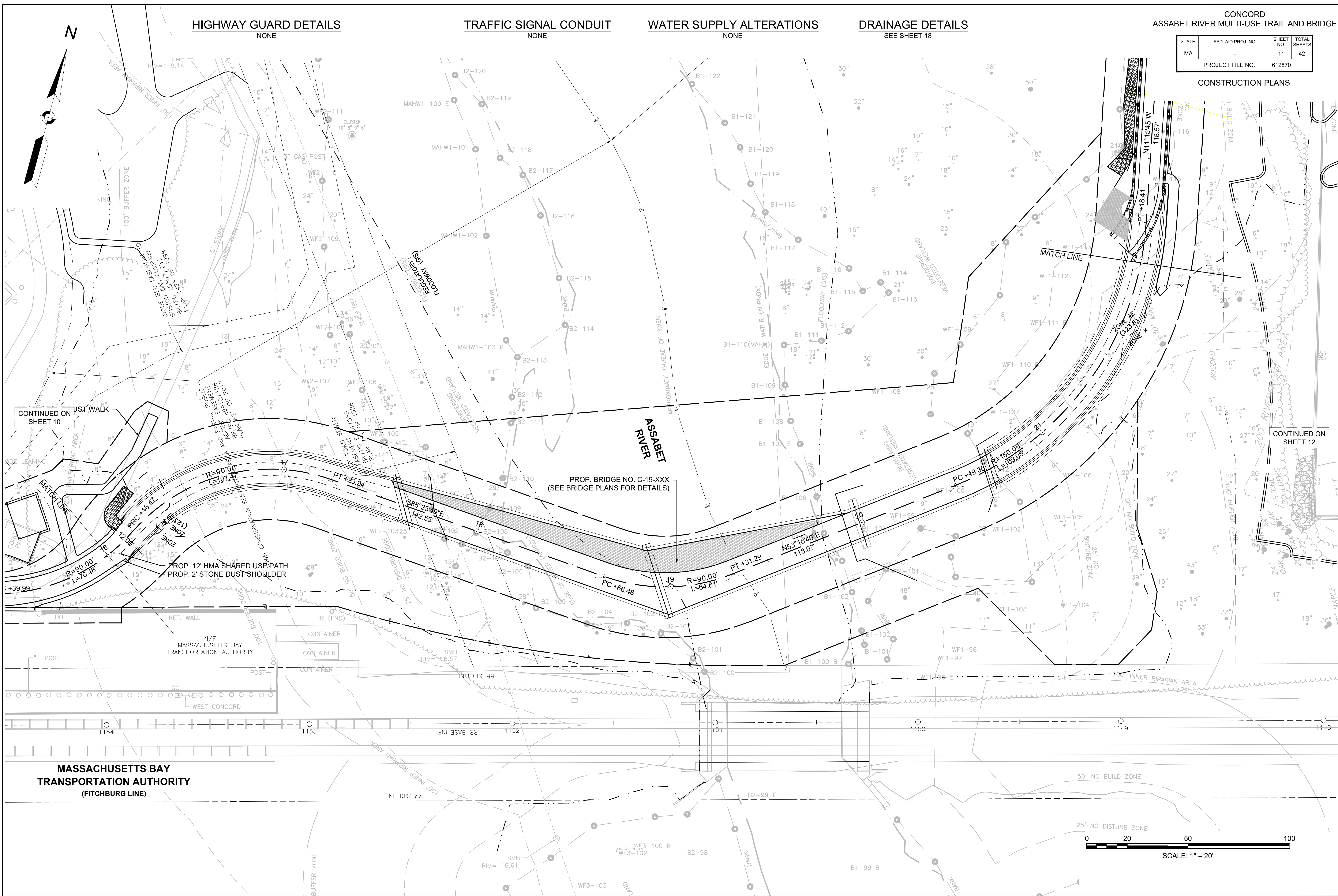
DRAINAGE DETAILS

SEE SHEET 18

CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		11	42
PROJECT FILE NO.		612870	

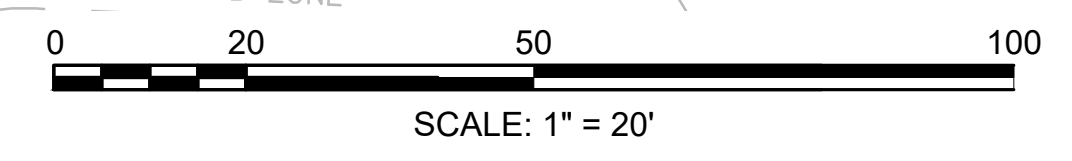
CONSTRUCTION PLANS



CONTINUED ON SHEET 10

CONTINUED ON SHEET 12

MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY
(FITCHBURG LINE)



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		12	42
PROJECT FILE NO.		612870	

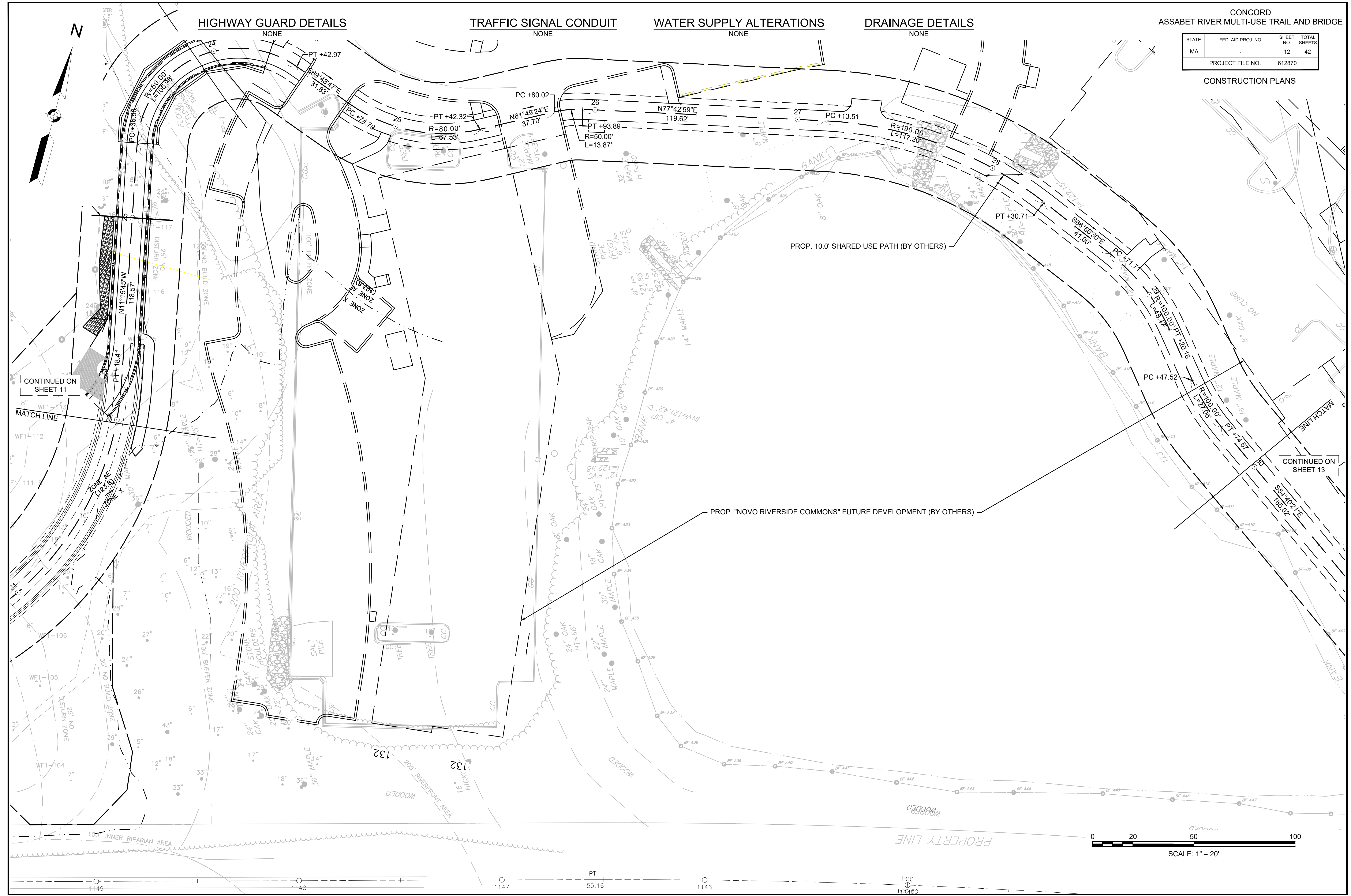
CONSTRUCTION PLANS

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
NONE

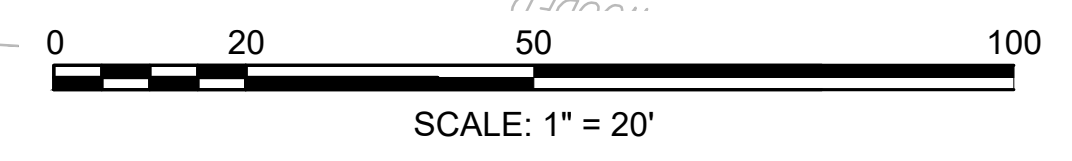
DRAINAGE DETAILS
NONE



CONTINUED ON SHEET 11

CONTINUED ON SHEET 13

PROP. "NOVO RIVERSIDE COMMONS" FUTURE DEVELOPMENT (BY OTHERS)



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

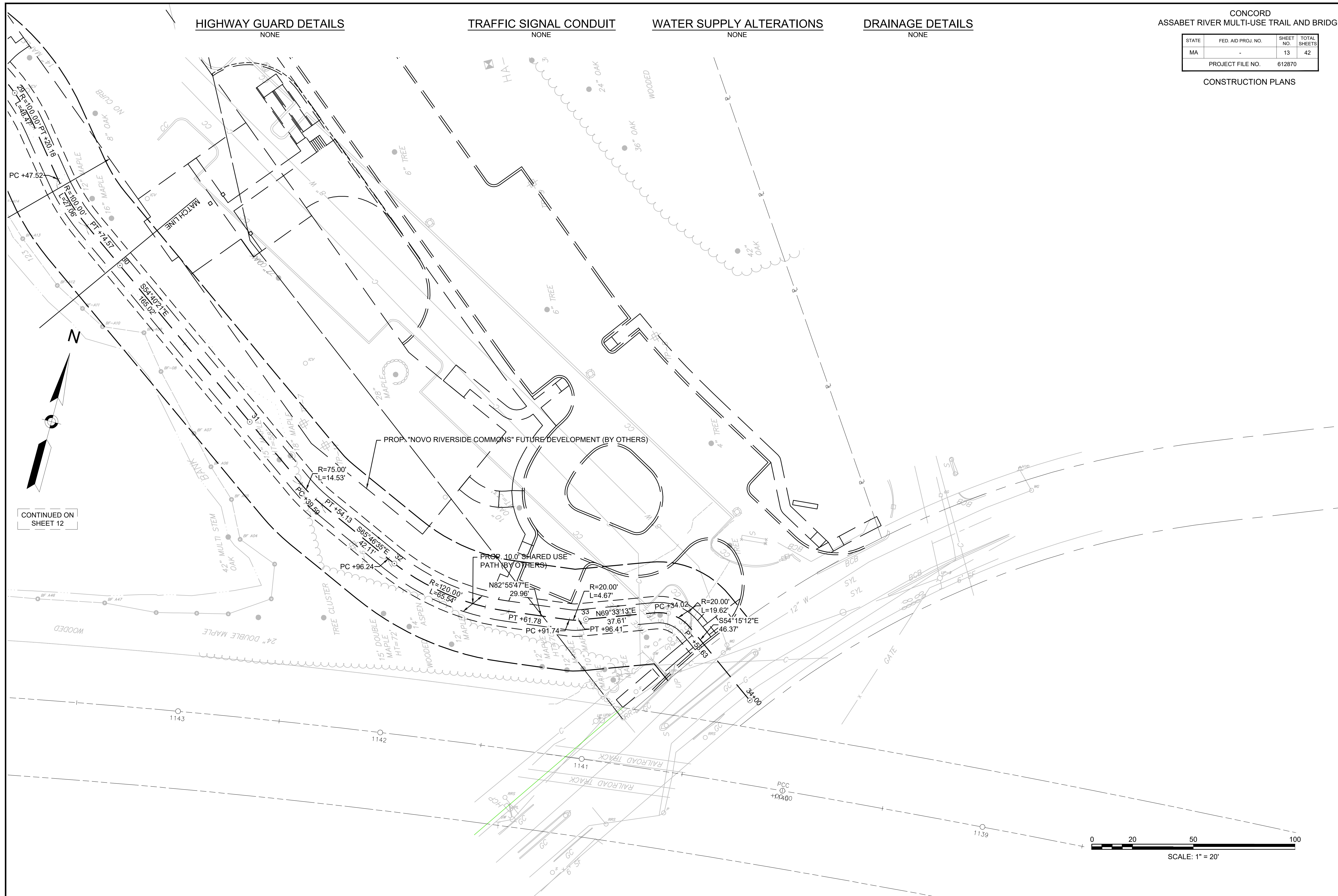
NONE

DRAINAGE DETAILS

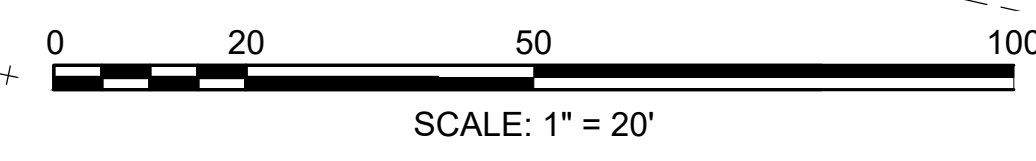
NONE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	42
PROJECT FILE NO.		612870	

CONSTRUCTION PLANS



CONTINUED ON SHEET 12



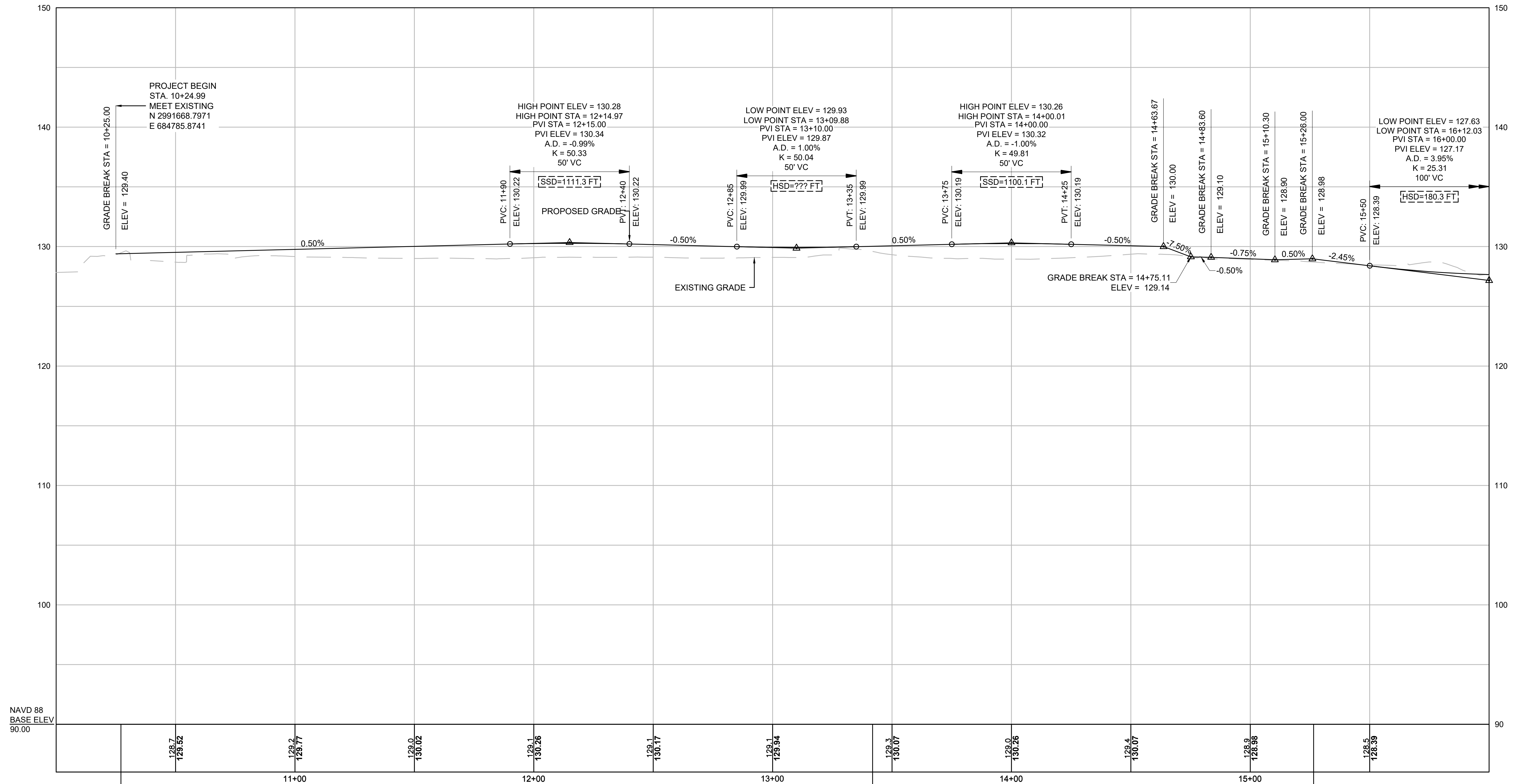
ASSABET RIVER SUP & BRIDGE

CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	42
PROJECT FILE NO.		612870	

CONSTRUCTION PROFILE

CONTINUED ON
SHEET 15

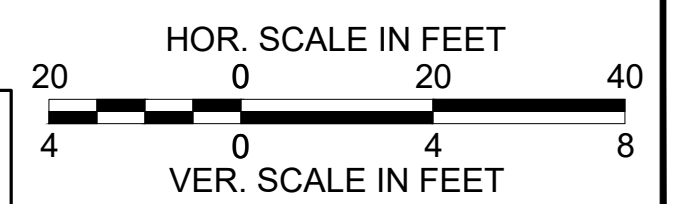


NAVD 88
BASE ELEV
90.00

BENCHMARK: A X-CUTIN DMH RIM
STA. 10+27.17, 58.95' RT
ELEVATION = 129.87

BENCHMARK: C SQUARE CUT IN SIDEWALK
STA. 13+41.85, 9.84' RT
ELEVATION = 129.79

BENCHMARK: CHISELED SQ IN LPL BASE
STA. 15+26.50, 90.87' LT
ELEVATION = 130.36



FOR CONSTRUCTION PLAN: SEE SHEET NO. 10

ASSABET RIVER SUP & BRIDGE

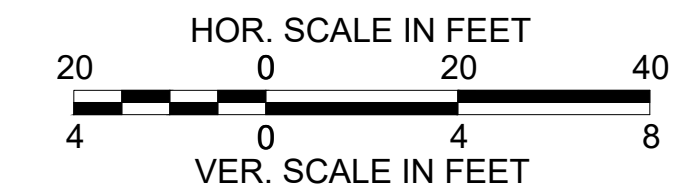
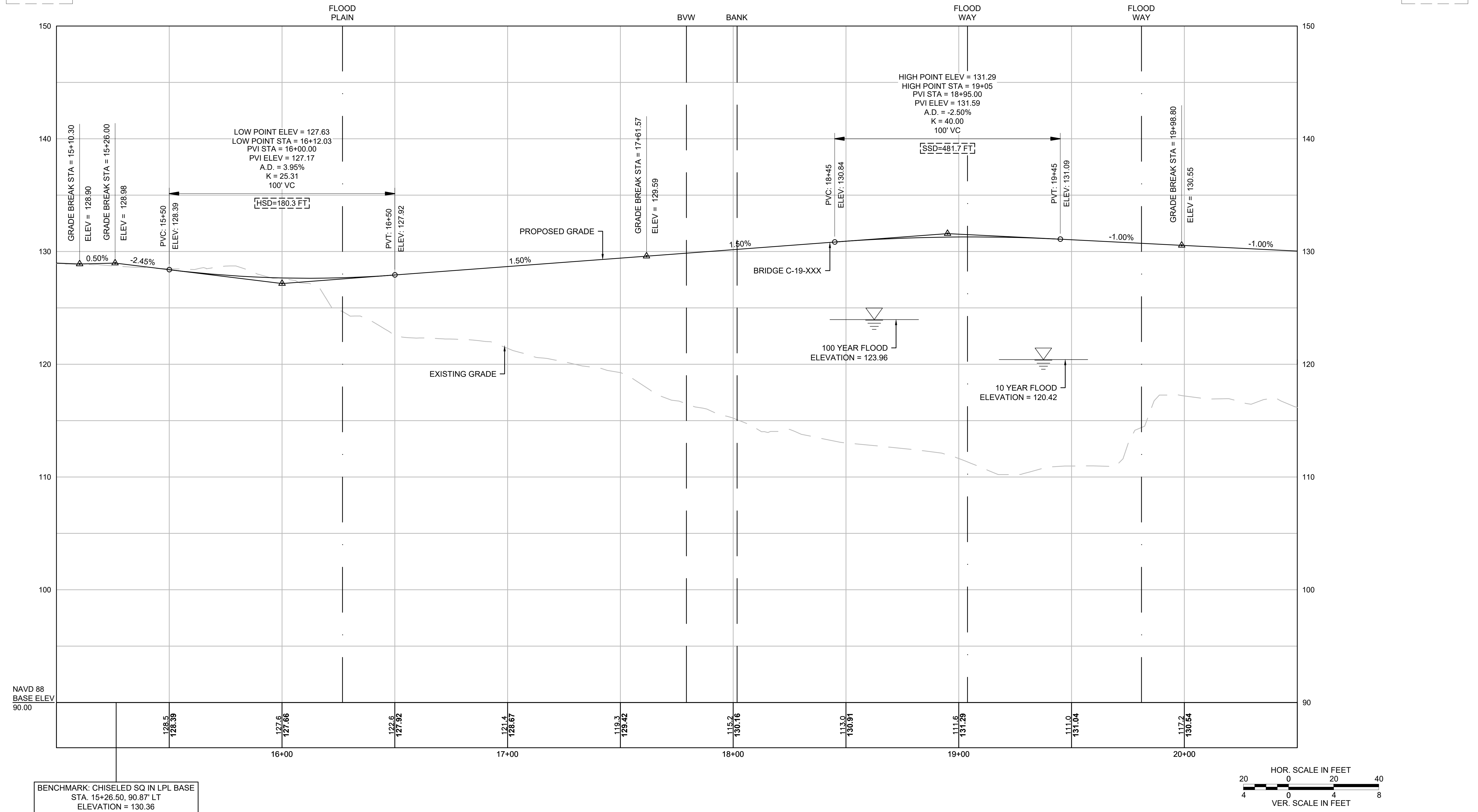
CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	42
PROJECT FILE NO.		612870	

CONSTRUCTION PROFILE

CONTINUED ON
SHEET 14

CONTINUED ON
SHEET 16



FOR CONSTRUCTION PLAN: SEE SHEET NOS. 10 & 11

2020202_HD (PR).DWG Plotted on 10-Sep-2025 2:08 PM

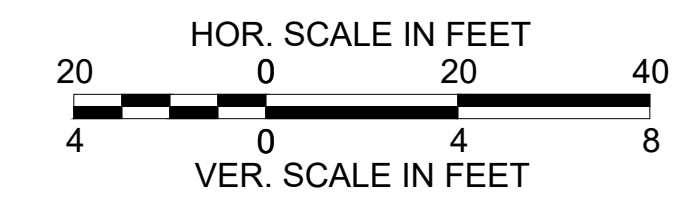
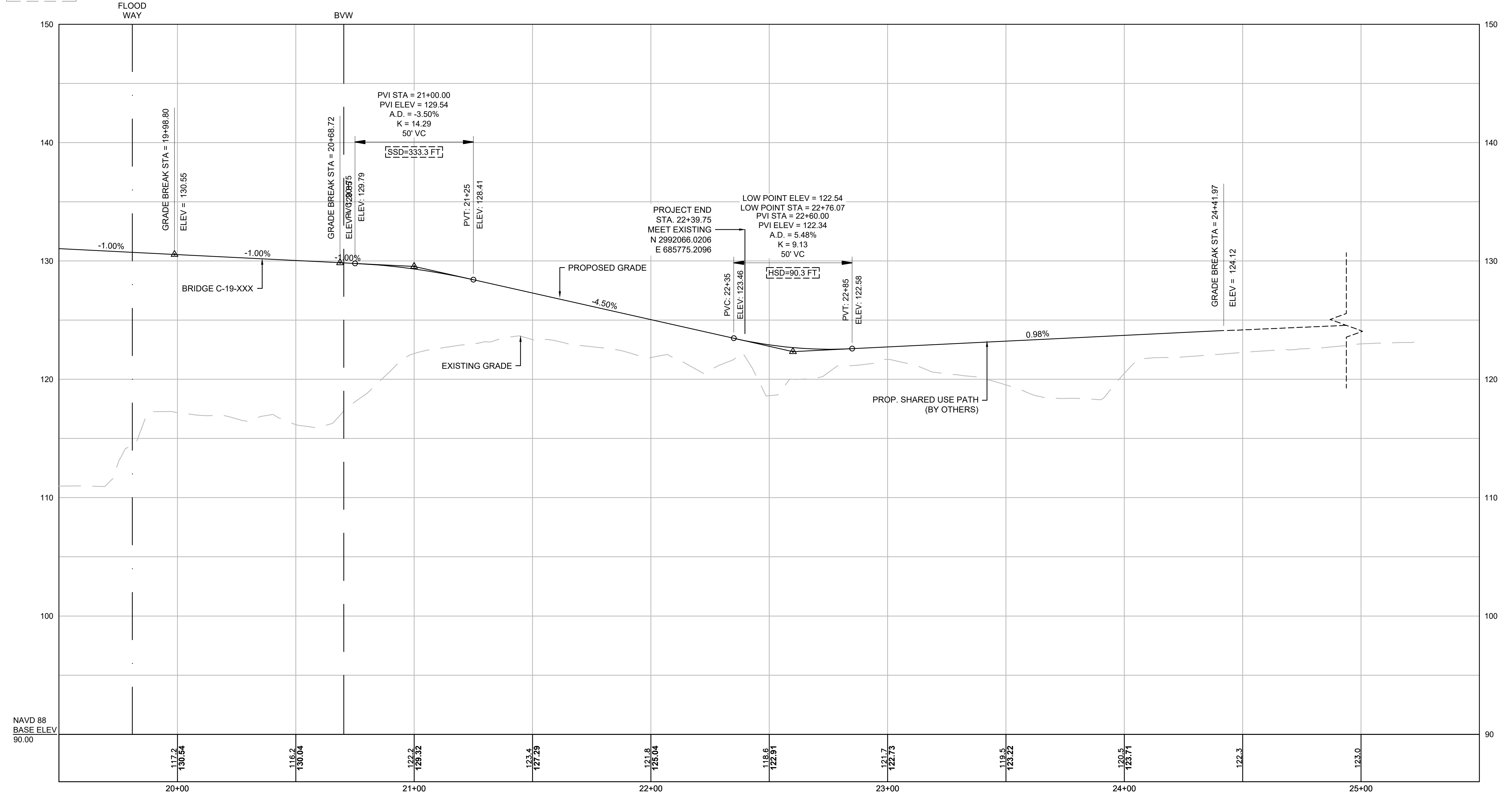
ASSABET RIVER SUP & BRIDGE

CONCORD
ASSABET RIVER MULTI-USE TRAIL AND BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	42
PROJECT FILE NO.		612870	

CONSTRUCTION PROFILE

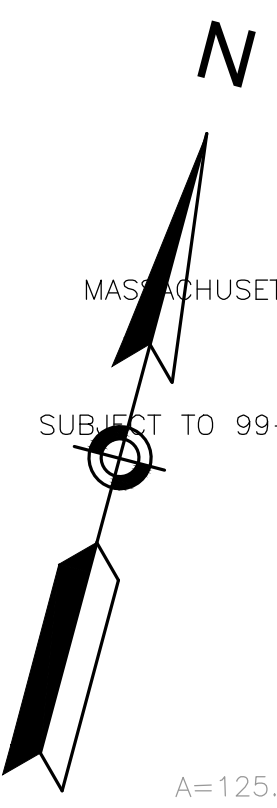
CONTINUED ON
SHEET 15



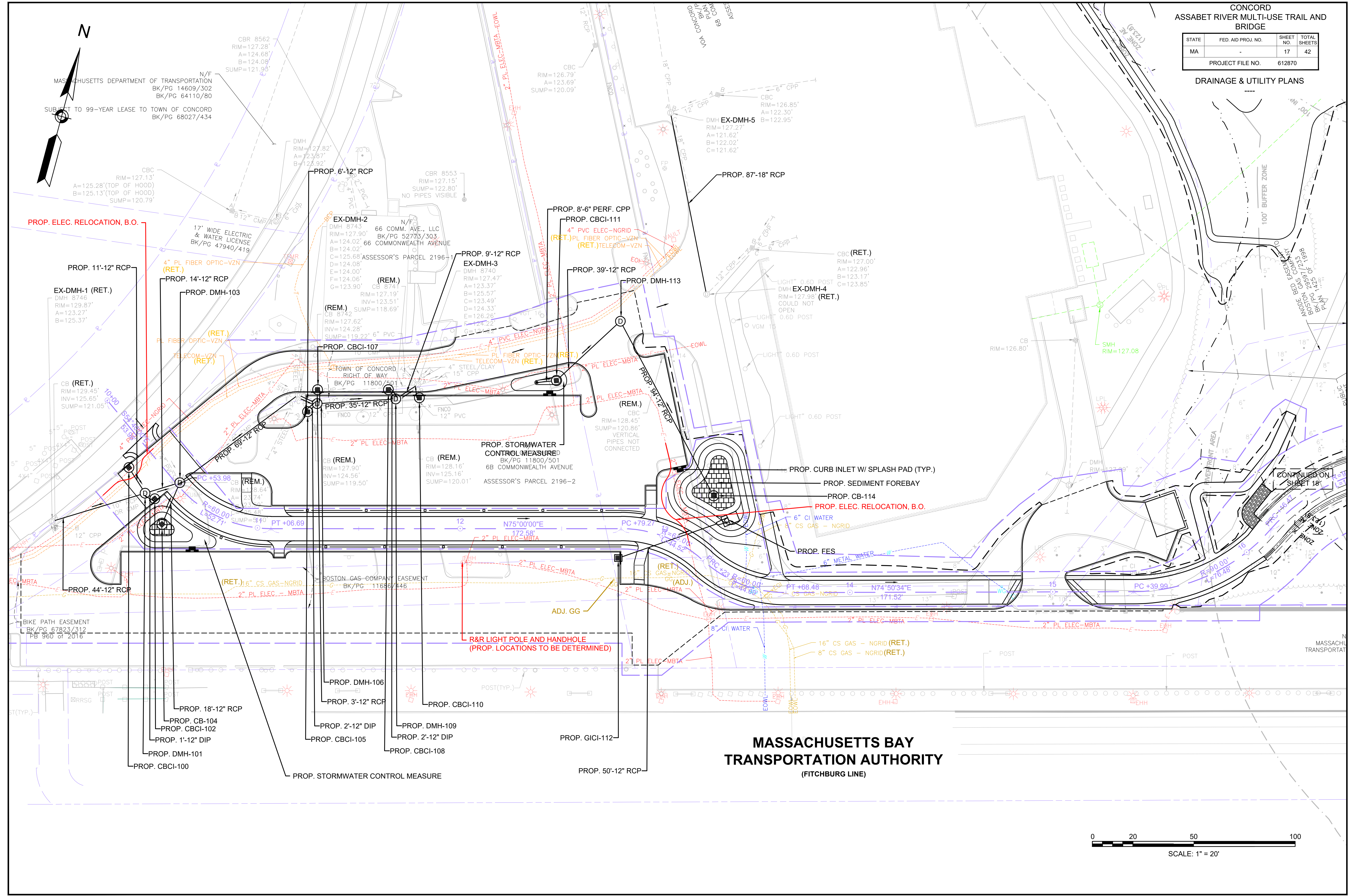
FOR CONSTRUCTION PLAN: SEE SHEET NOS. 11 & 12

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	42
PROJECT FILE NO.		612870	

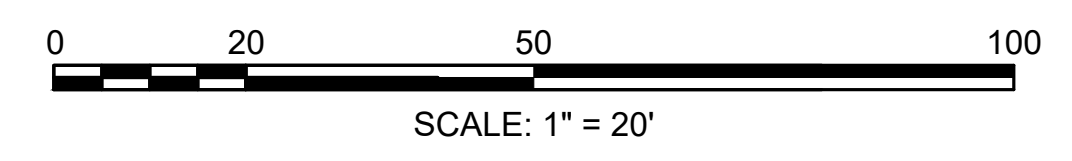
DRAINAGE & UTILITY PLANS



MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
BK/PG 14609/302
BK/PG 64110/80
SUBJECT TO 99-YEAR LEASE TO TOWN OF CONCORD
BK/PG 68027/434



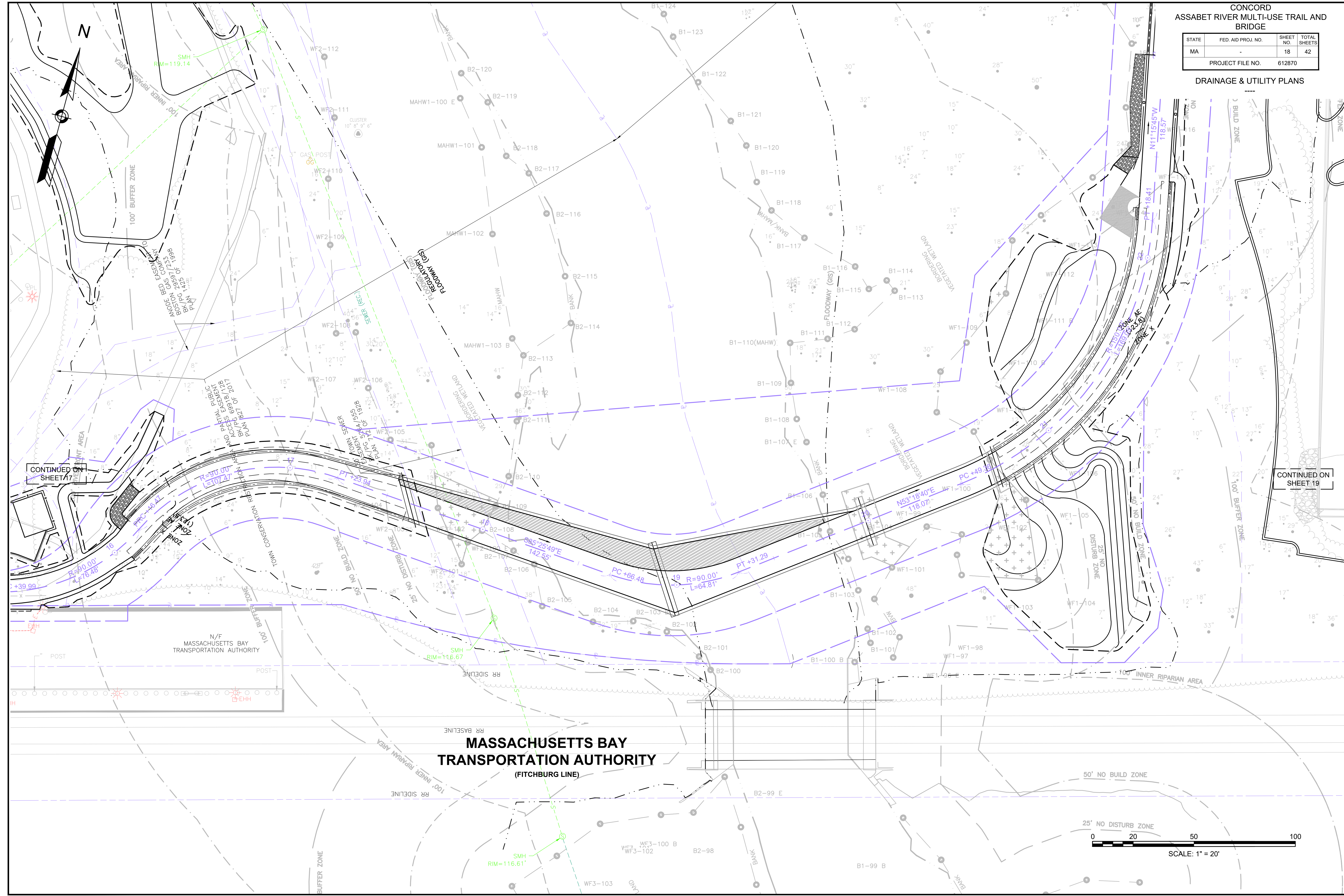
**MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY**
(FITCHBURG LINE)



CONCORD
ASSABET RIVER MULTI-USE TRAIL AND
BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		18	42
PROJECT FILE NO.		612870	

DRAINAGE & UTILITY PLANS

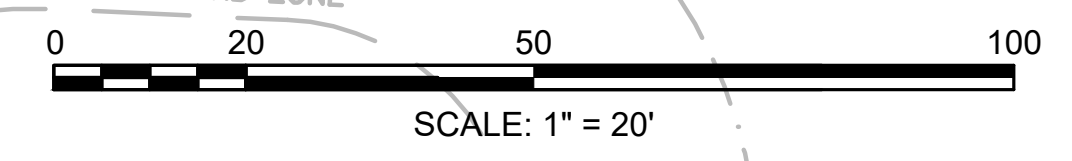


CONTINUED ON SHEET 17

CONTINUED ON SHEET 19

N/F
MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY

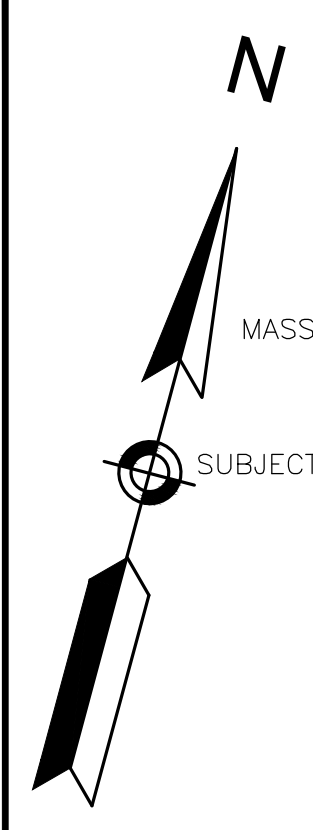
**MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY**
(FITCHBURG LINE)



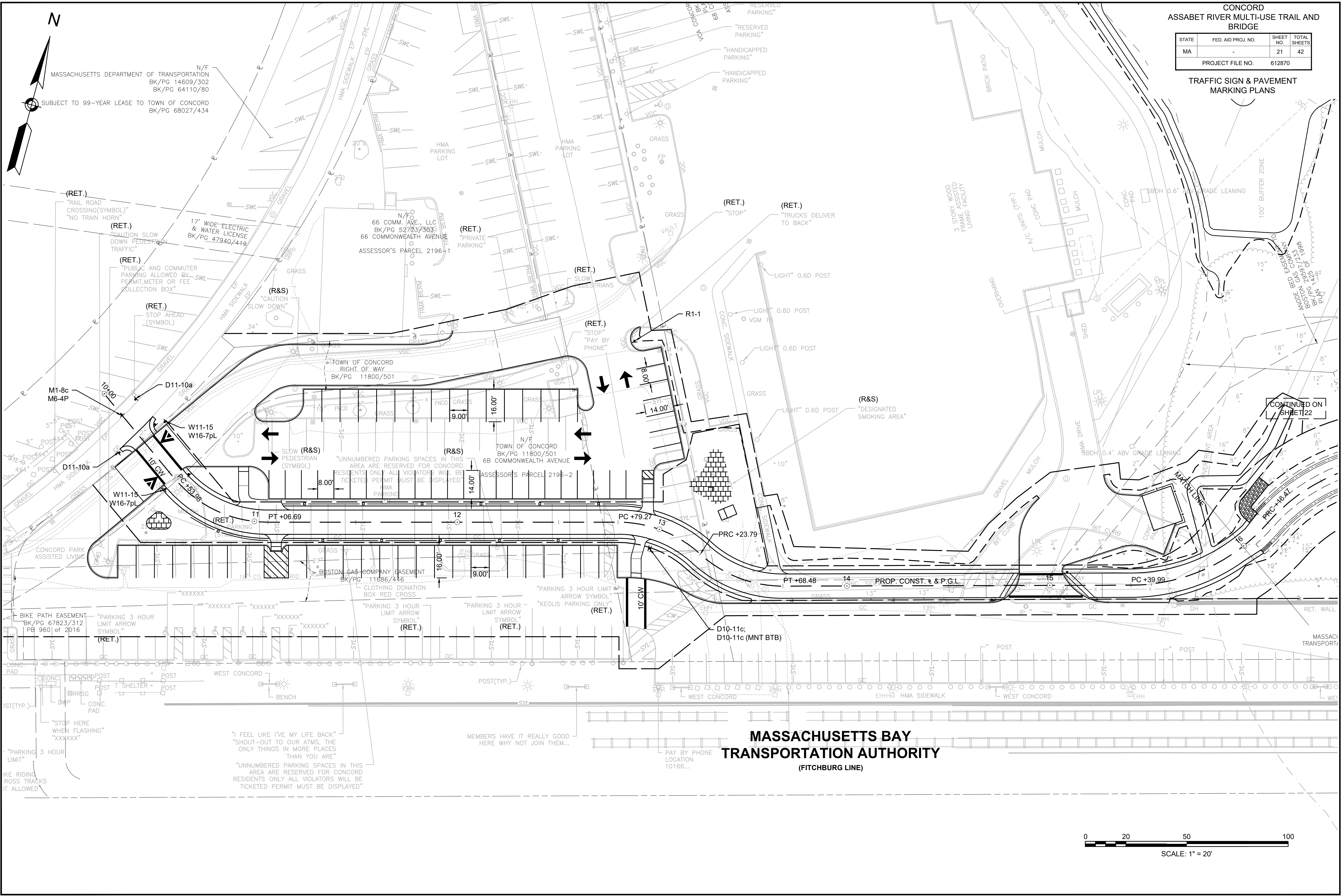
CONCORD
ASSABET RIVER MULTI-USE TRAIL AND
BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	42
PROJECT FILE NO.		612870	

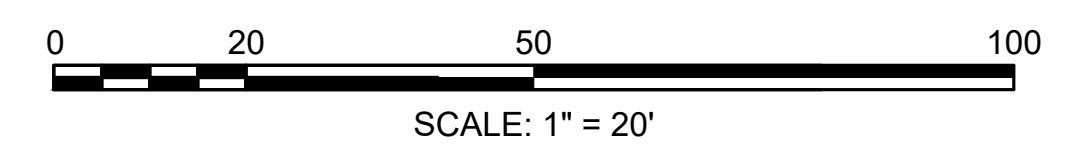
TRAFFIC SIGN & PAVEMENT
MARKING PLANS



N/F
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
BK/PG 14609/302
BK/PG 64110/80
SUBJECT TO 99-YEAR LEASE TO TOWN OF CONCORD
BK/PG 68027/434



**MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY**
(FITCHBURG LINE)

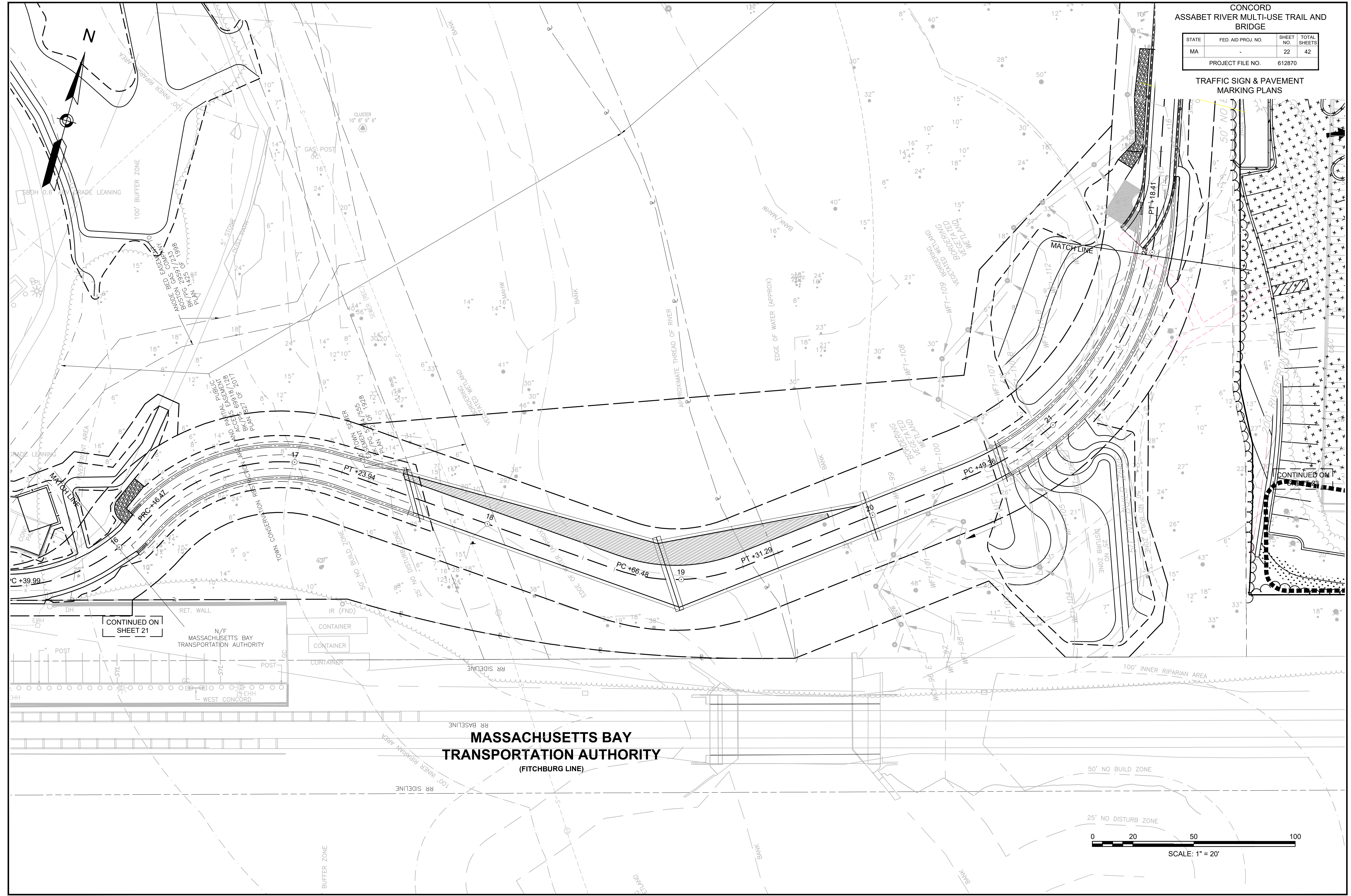


2020202_HD (TSPM).DWG Plotted on 10-Sep-2025 2:10 PM

CONCORD
ASSABET RIVER MULTI-USE TRAIL AND
BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	42
PROJECT FILE NO.		612870	

TRAFFIC SIGN & PAVEMENT
MARKING PLANS



CONTINUED ON
SHEET 21

RET. WALL

N/F
MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY

CONTAINER

CONTAINER

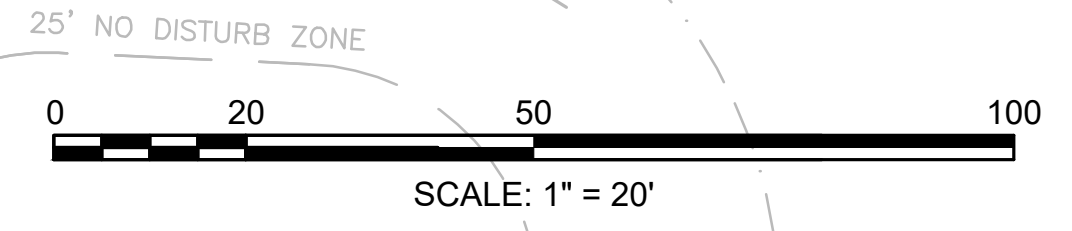
CONTAINER

POST

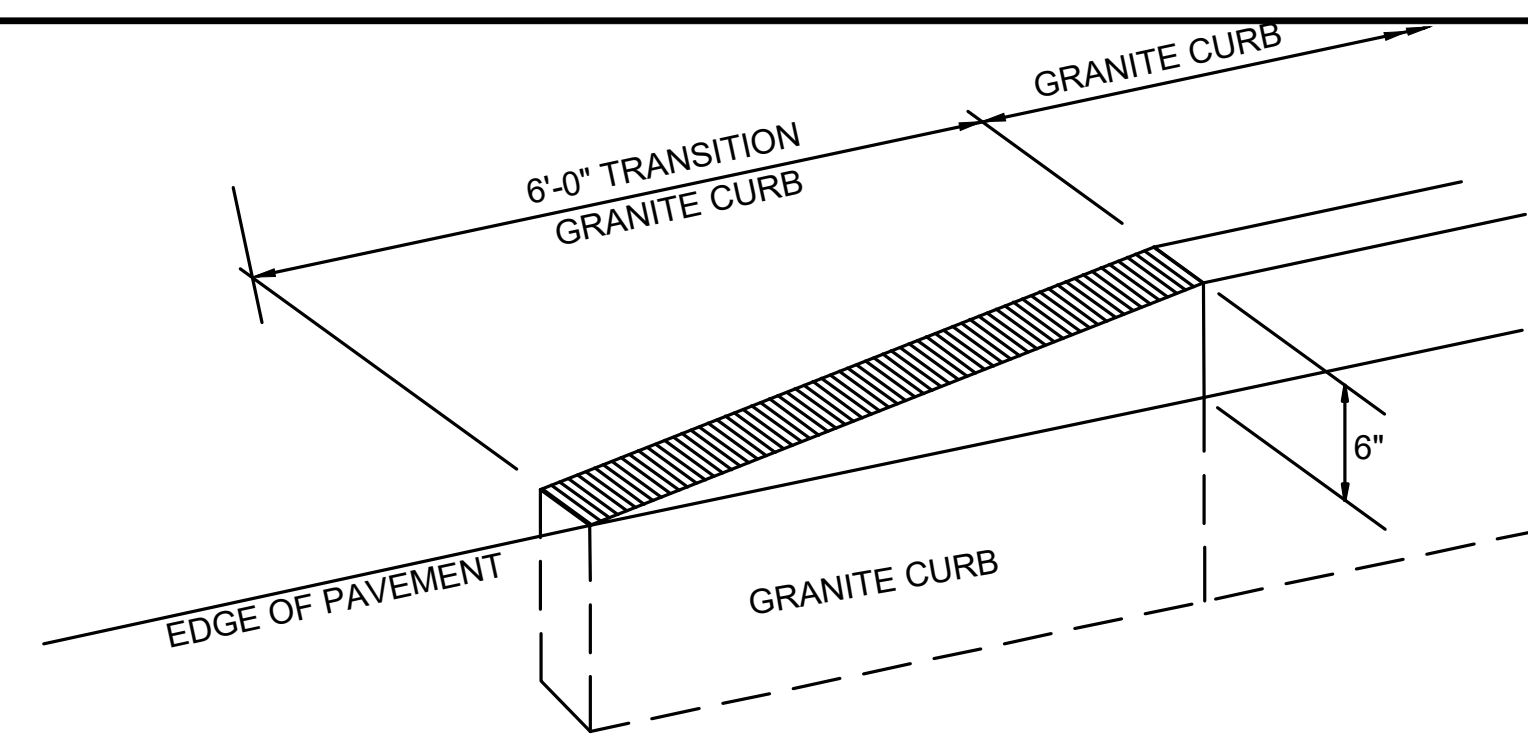
POST

WEST CONCORD

**MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY**
(FITCHBURG LINE)

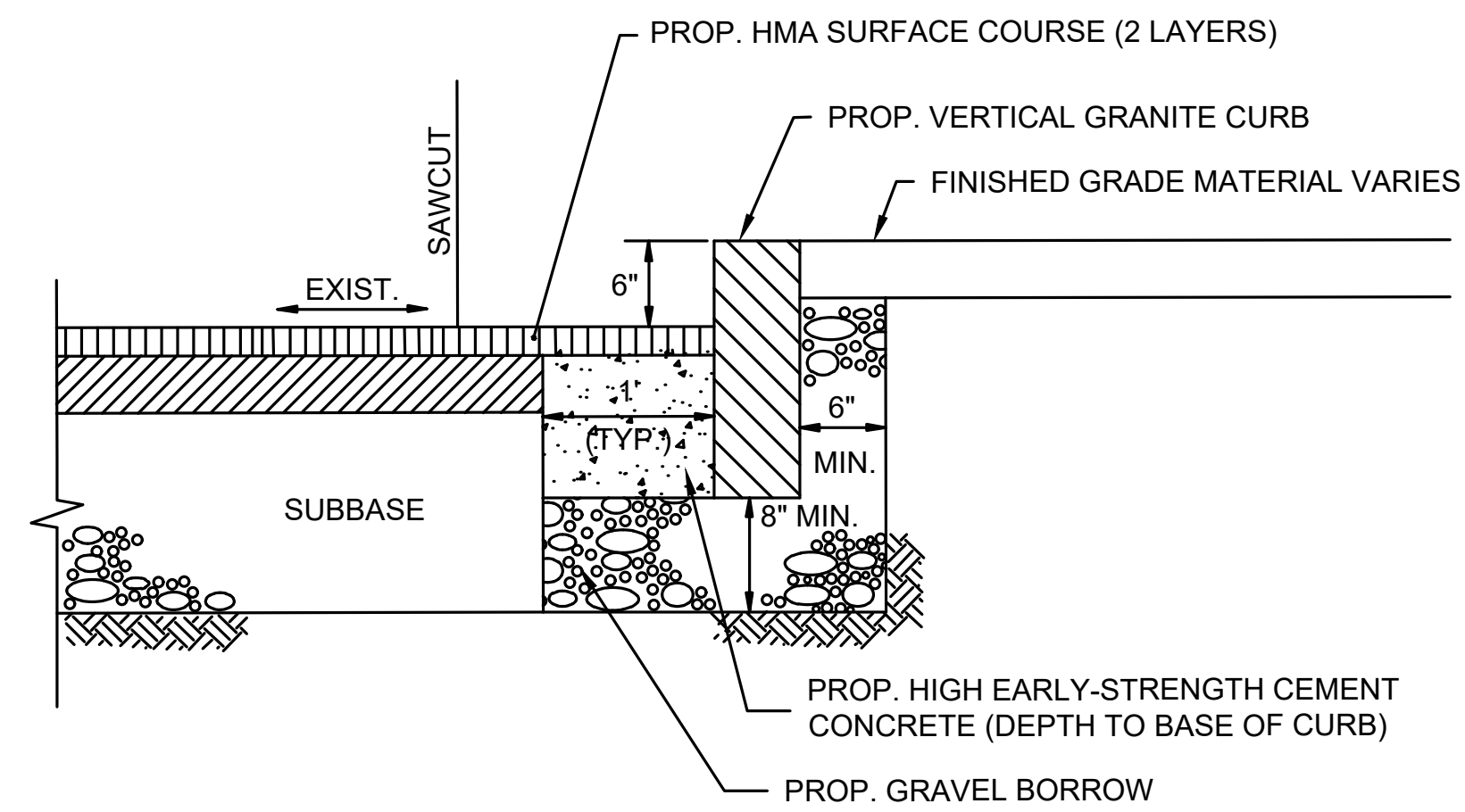


STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	42
PROJECT FILE NO.		612870	



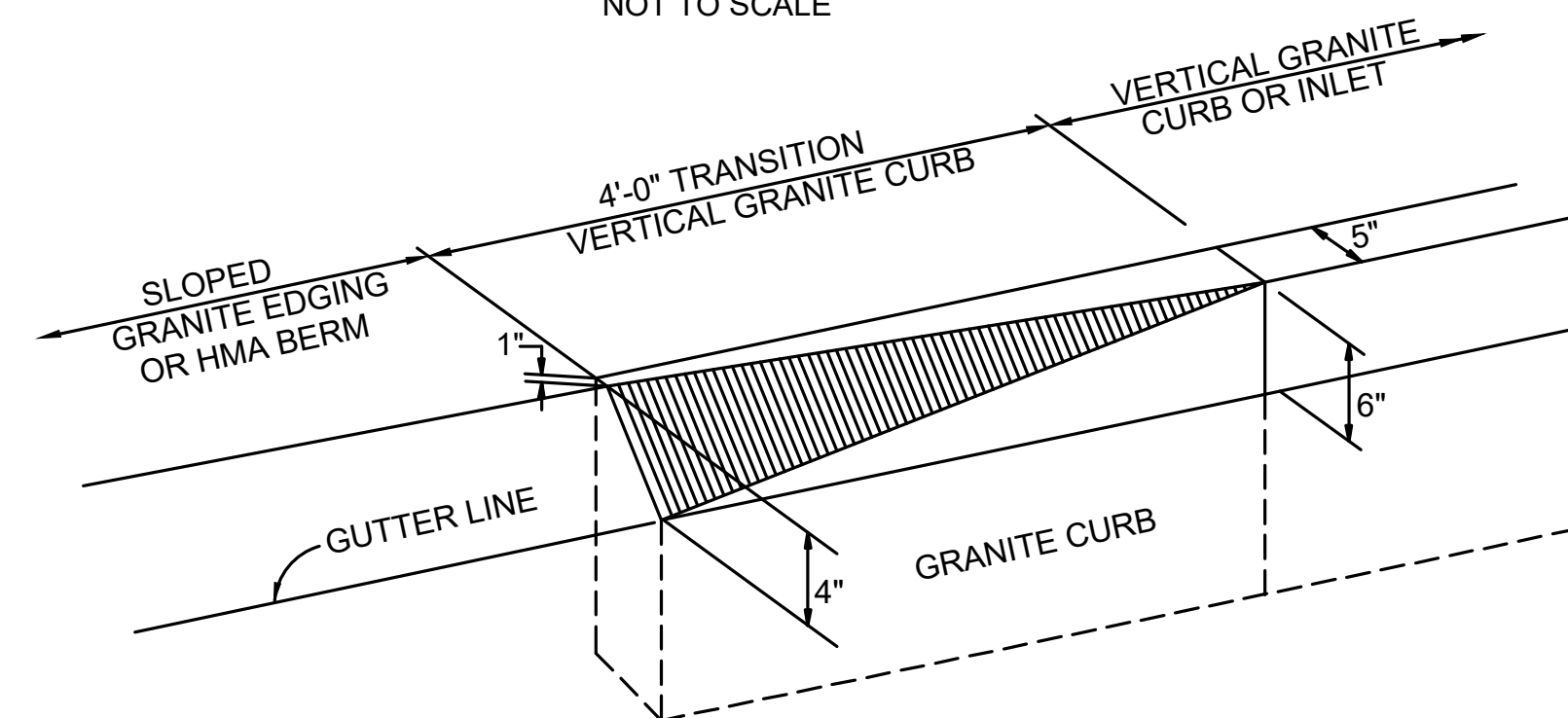
CURB TRANSITION DETAIL

TO BE USED FOR TRANSITION FROM GRANITE CURB TO EDGE OF PAVEMENT
NOT TO SCALE



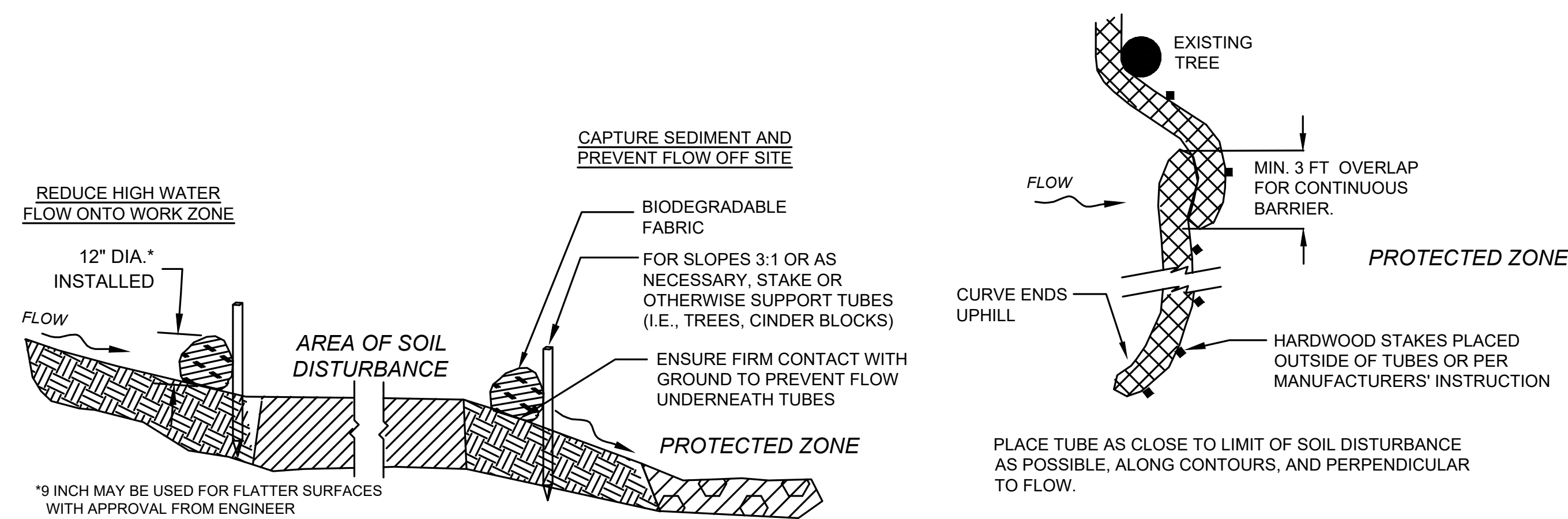
VERTICAL GRANITE CURB DETAIL

NOT TO SCALE



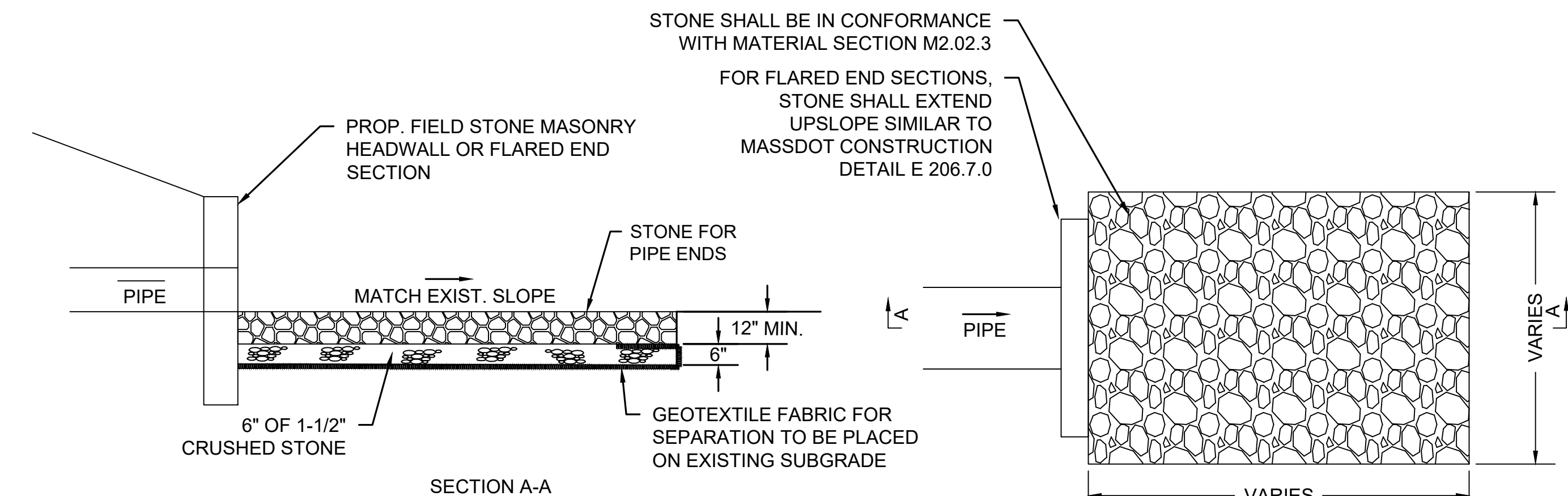
GRANITE CURB TYPE VA4 - SPLAYED END

NOT TO SCALE



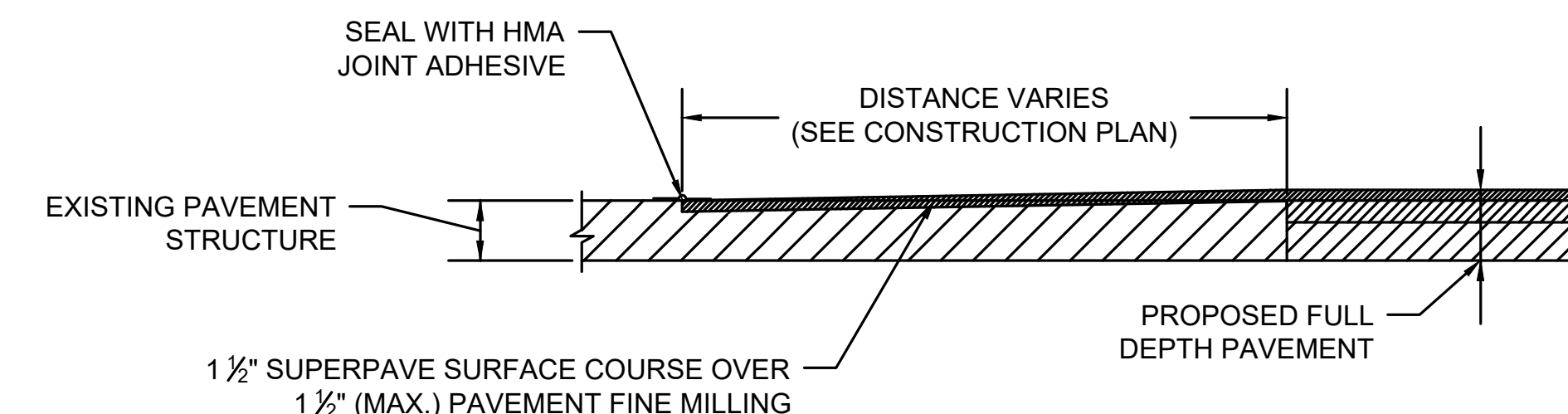
**SECTION
SEDIMENT BARRIER - COMPOST FILTER TUBE**

NOT TO SCALE



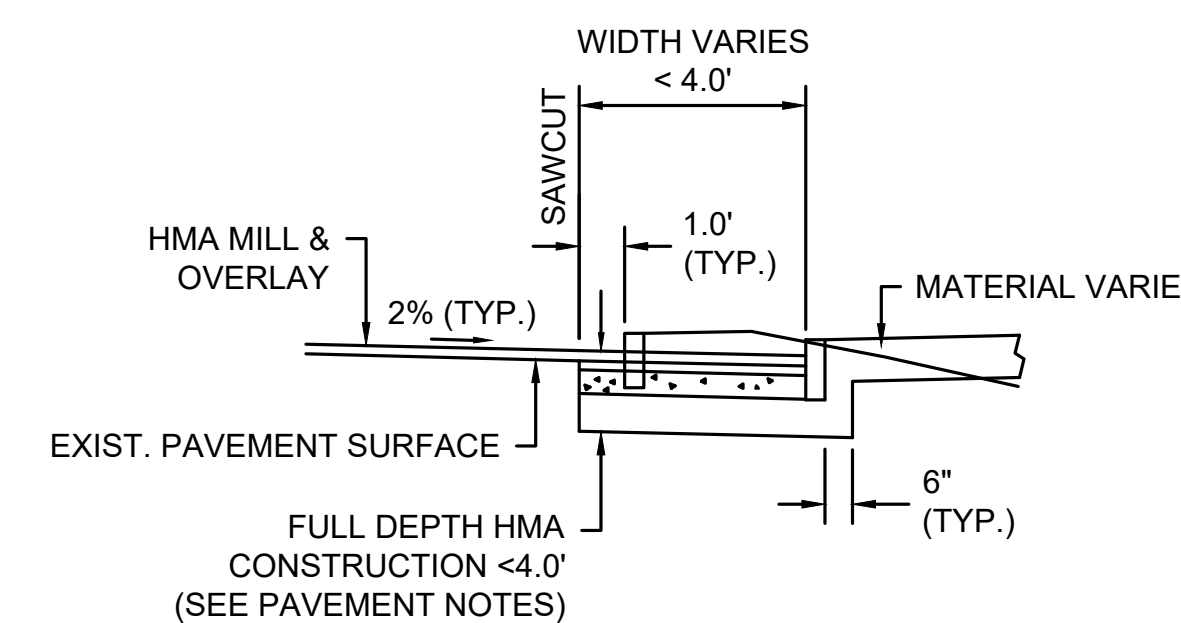
STONE FOR PIPE ENDS

NOT TO SCALE



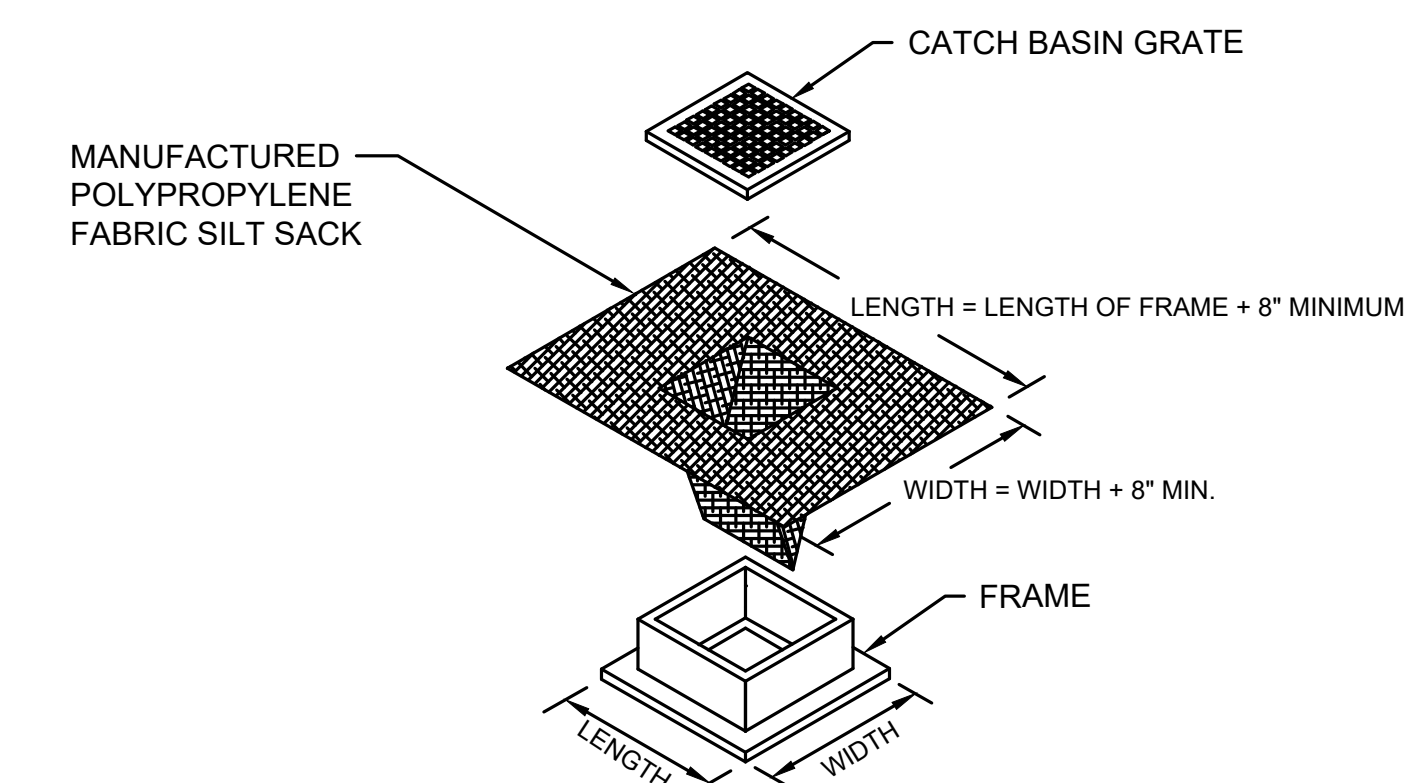
PAVEMENT TRANSITION DETAIL

NOT TO SCALE



**TYPICAL SECTION:
ROADWAY WIDENING <4 FEET**

NOT TO SCALE



NOTES:

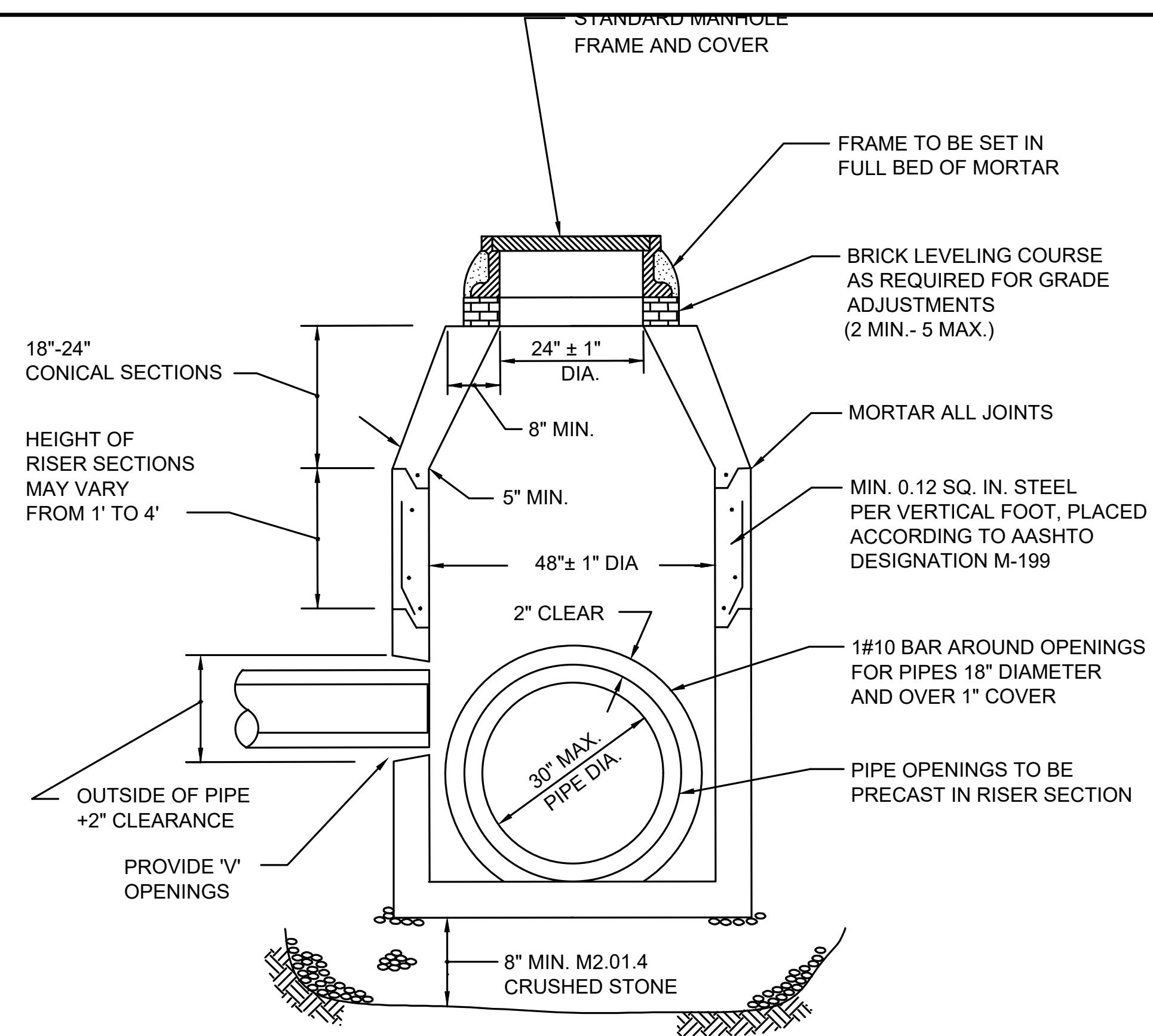
1. LENGTH AND WIDTH OF POLYPROPYLENE FABRIC MUST EXCEED EXISTING CATCH BASIN FRAME DIMENSIONS BY A MINIMUM OF 8".
2. REMOVE CATCH BASIN GRATE AND INSTALL POLYPROPYLENE FABRIC OVER CATCH BASIN FRAME. REPLACE CATCH BASIN GRATE TO SECURE POLYPROPYLENE FABRIC IN PLACE.
3. FOR USE ON ALL EXISTING CATCH BASINS WITHIN THE PROJECT LIMITS AND PROPOSED CATCH BASINS THAT ARE IN OPERATION DURING CONSTRUCTION.

INLET SEDIMENT CONTROL DEVICE DETAIL

NOT TO SCALE

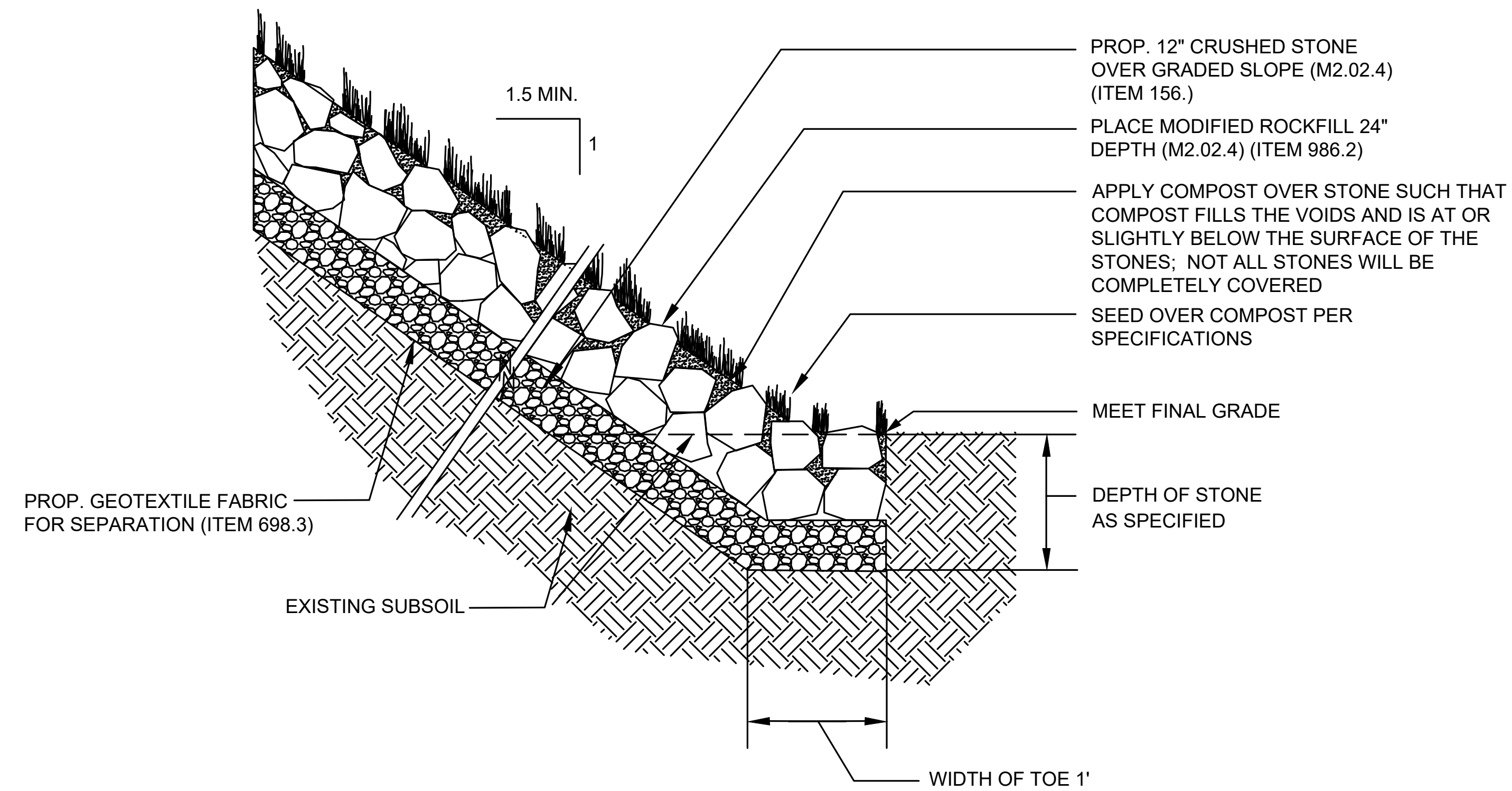
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	42
PROJECT FILE NO.		612870	

CONSTRUCTION DETAILS



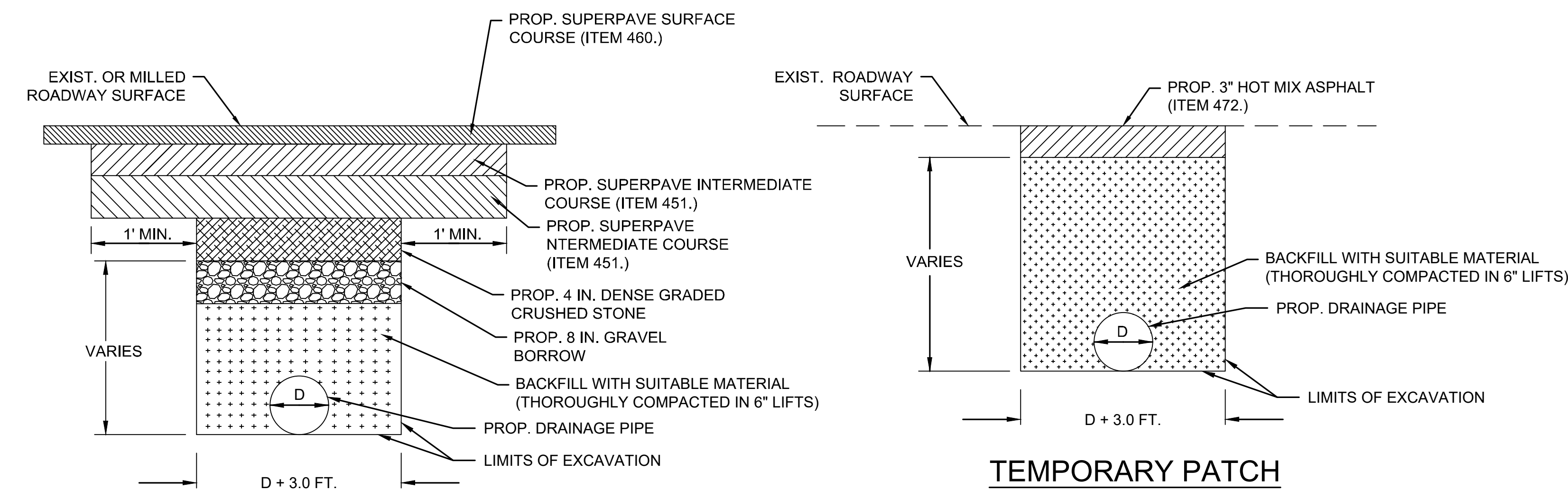
CONCRETE DRAIN MANHOLE (PRECAST) DETAIL

9 FEET OR LESS IN DEPTH
NOT TO SCALE



MODIFIED ROCKFILL DETAIL

FOR SLOPES STEEPER THAN 2H TO 1V
NOT TO SCALE



PERMANENT PATCH

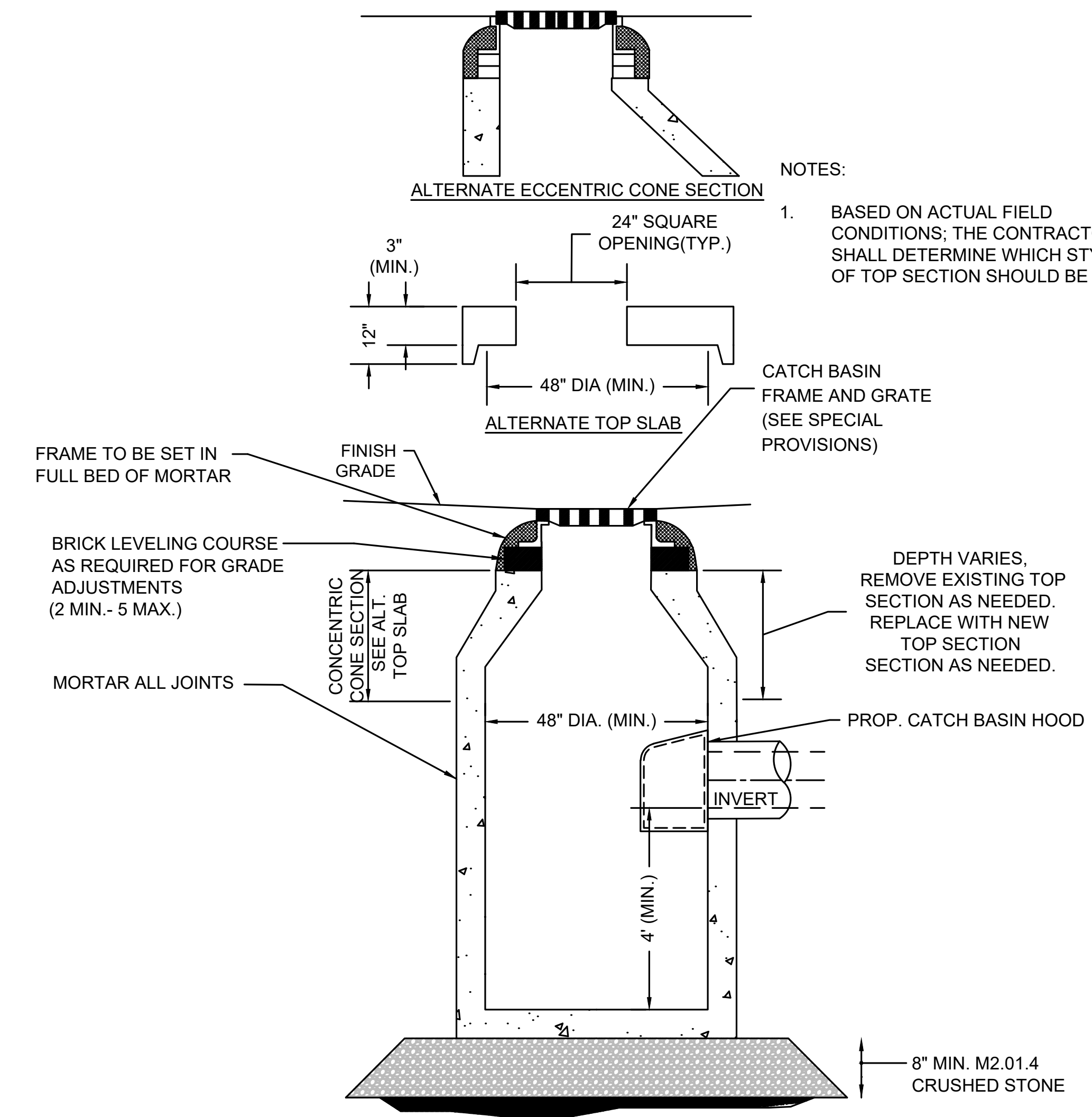
(IN AREAS OF MILLING AND PAVEMENT OVERLAY)

1. PLACE TACK COAT BETWEEN ALL HMA COURSES AND SAWCUT SURFACES PRIOR TO PLACING HMA. SEE PAVEMENT NOTES-FULL DEPTH HMA CONSTRUCTION FOR DEPTH OF HMA.

2. IF UNSUITABLE MATERIAL IS ENCOUNTERED AS DETERMINED BY THE ENGINEER, ADDITIONAL BEDDING SHALL BE PAID FOR UNDER ITEM 151.2.

DRAINAGE TRENCH DETAIL

NOT TO SCALE



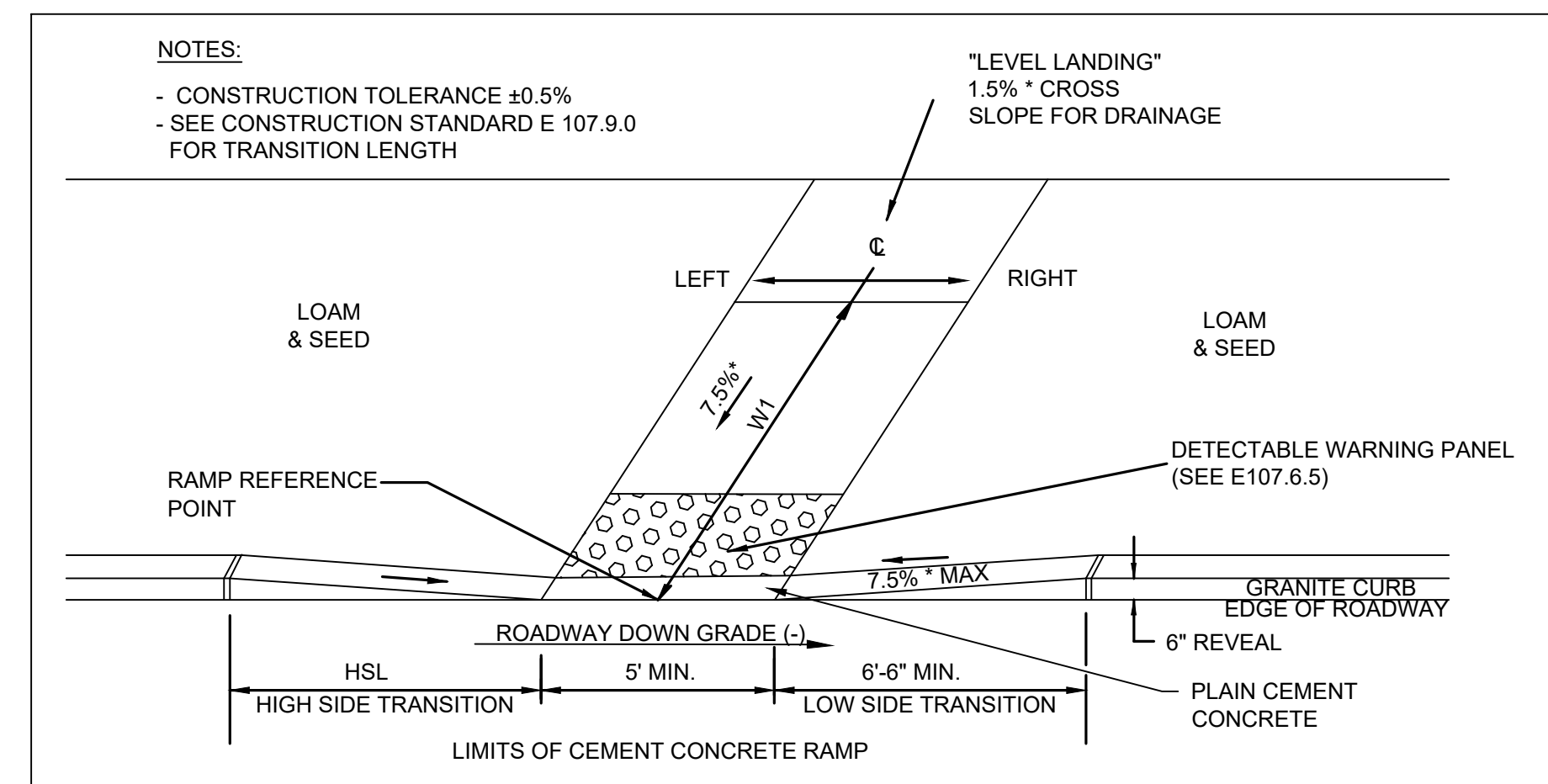
CONCRETE CATCH BASIN

NOT TO SCALE

NOTES:
1. BASED ON ACTUAL FIELD CONDITIONS; THE CONTRACTOR SHALL DETERMINE WHICH STYLE OF TOP SECTION SHOULD BE USED.

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	42
PROJECT FILE NO.		612870	

PEDESTRIAN CURB RAMP &
DRIVEWAY DETAILS



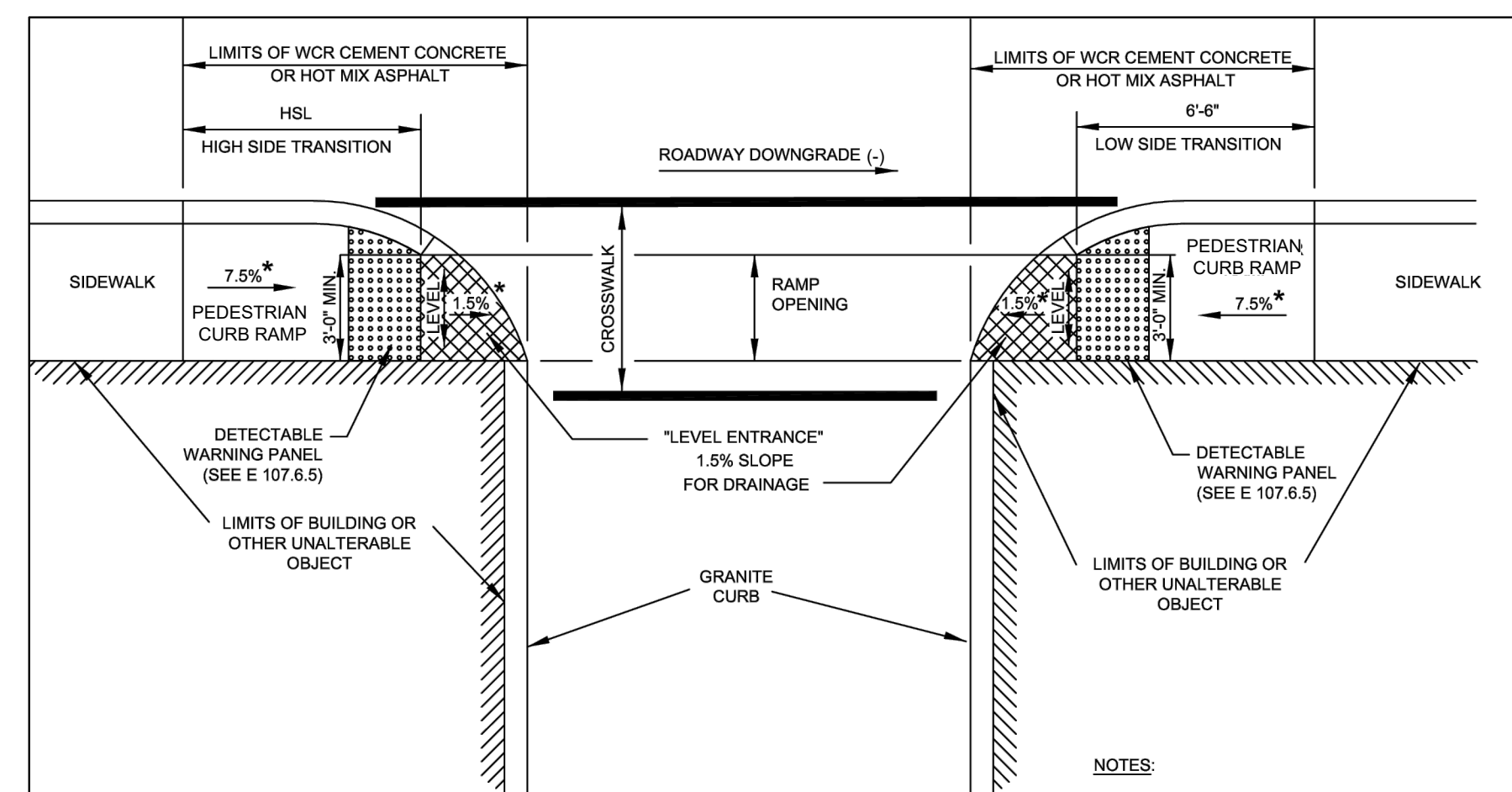
PCR #	RAMP REFERENCE POINT			LENGTH OF PRIMARY RAMP (W1)	WIDTH OF SIDEWALK	WIDTH OF RAMP MIN. 5'-0"	ROADWAY GUTTER SLOPE	TRANSITION LENGTH***	
	BASELINE	STATION	OFFSET					LEFT SIDE	RIGHT SIDE

***AS VIEWED FROM PROPOSED CONSTRUCTION BASELINE

PEDESTRIAN CURB RAMP THROUGH LANDSCAPED STRIP

ROADWAY PROFILE GRADE	* HIGH SIDE TRANSITION LENGTH
%	ENGLISH UNITS
=0%	6'-6"
>0% TO 1%	7'-8"
>1% TO 2%	9'-0"
>2% TO 3%	11'-0"
>3% TO 4%	14'-0"
>4% TO 5%	15'-0" Max

NOTE:
* BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".



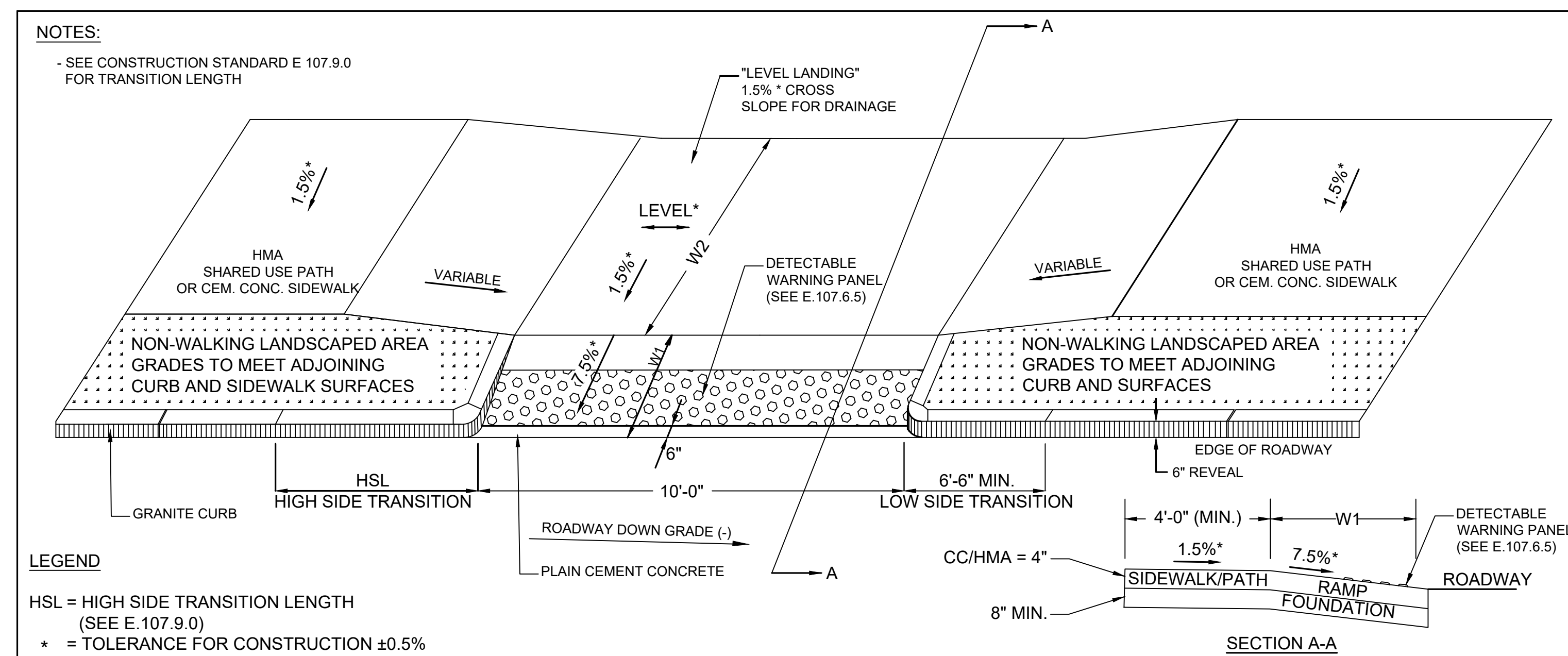
LEGEND
HSL = HIGH SIDE TRANSITION LENGTH (SEE E.107.9.0)
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES
DETECTABLE WARNING PANEL LOCATED NOT LESS THAN 6" OR MORE THAN 24" FROM ROADWAY EDGE (GUTTER LINE). TRUNCATED DOMES TO BE ALIGNED WITH DIRECTION OF TRAVEL FOR DETAILS OF TRUNCATED DOMES SEE DRAWING E.107.6.5.

PCR #	RAMP REFERENCE POINT			WIDTH OF SIDEWALK	WIDTH OF OPENING	ROADWAY GUTTER SLOPE	TRANSITION LENGTH***	
	BASELINE	STATION	OFFSET				LOW SIDE	HIGH SIDE

*** AS VIEWED FROM PROPOSED CONSTRUCTION BASELINE

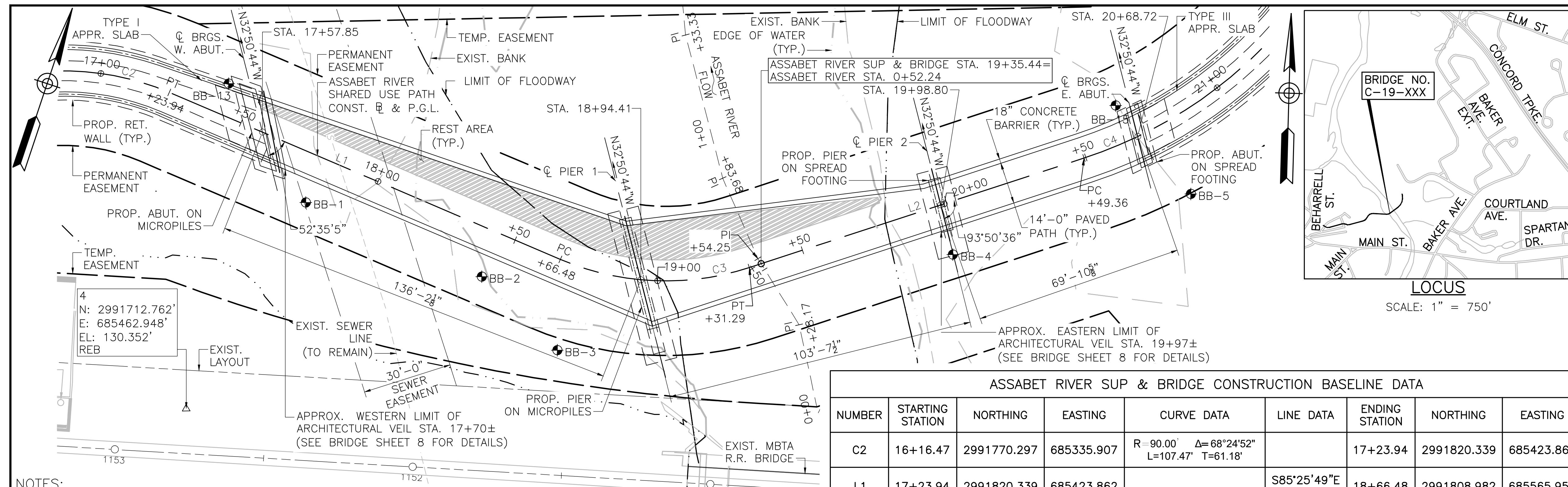
PEDESTRIAN CURB RAMP FOR ONE CONTINUOUS DIRECTION OF PEDESTRIAN TRAVEL



PCR #	RAMP REFERENCE POINT			LENGTH OF PRIMARY RAMP (W1)	WIDTH OF SHARED USE PATH / SIDEWALK (W2)	WIDTH OF RAMP MIN. 5'-0"	DEPTH OF LEVEL LANDING MIN. 4'-0"	ROADWAY GUTTER SLOPE	TRANSITION LENGTH***	
	BASELINE	STATION	OFFSET						LOW SIDE	HIGH SIDE

***AS VIEWED FROM PROPOSED CONSTRUCTION BASELINE

SHARED USE PATH RAMP WITH LANDSCAPING STRIP



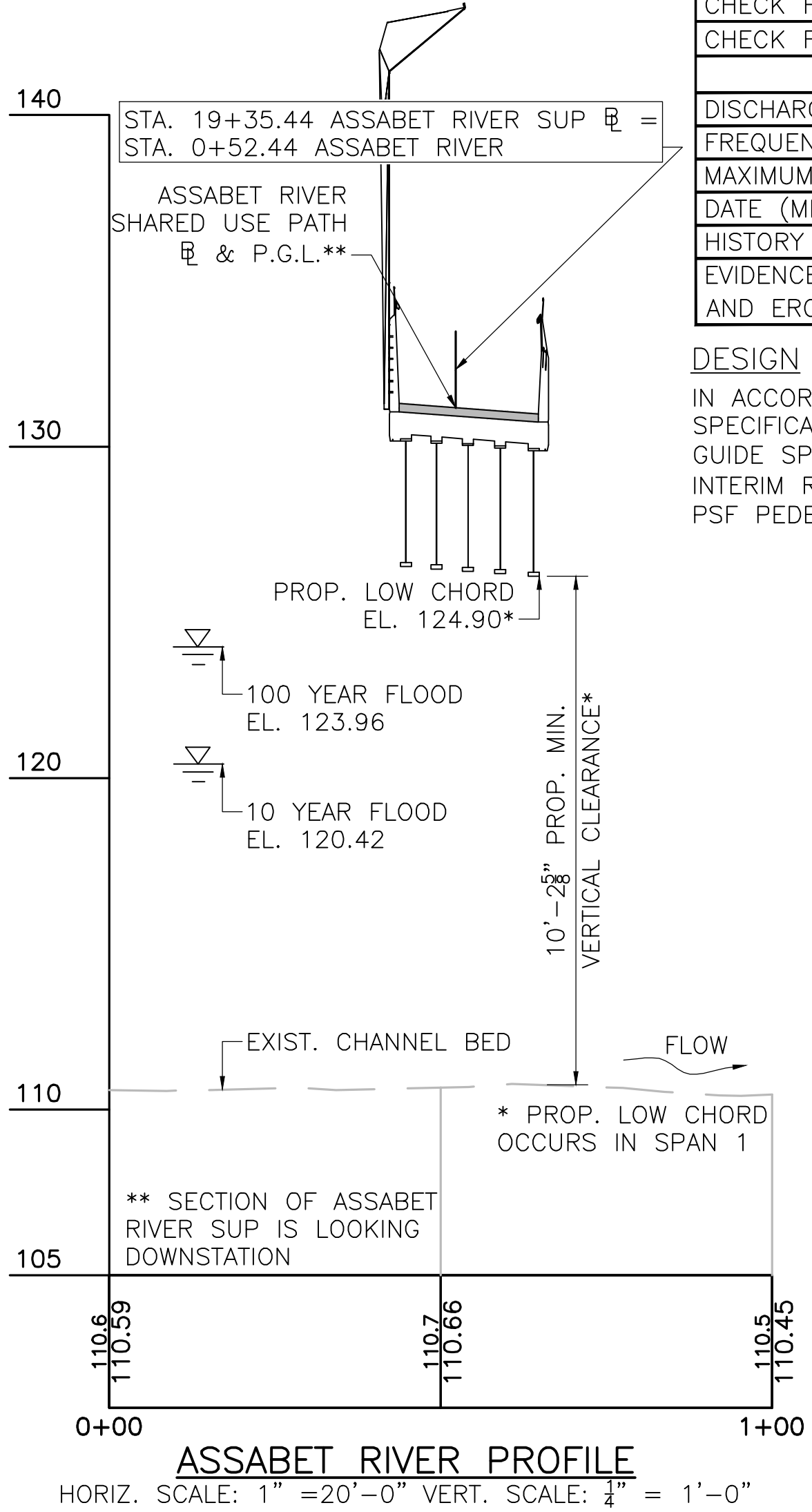
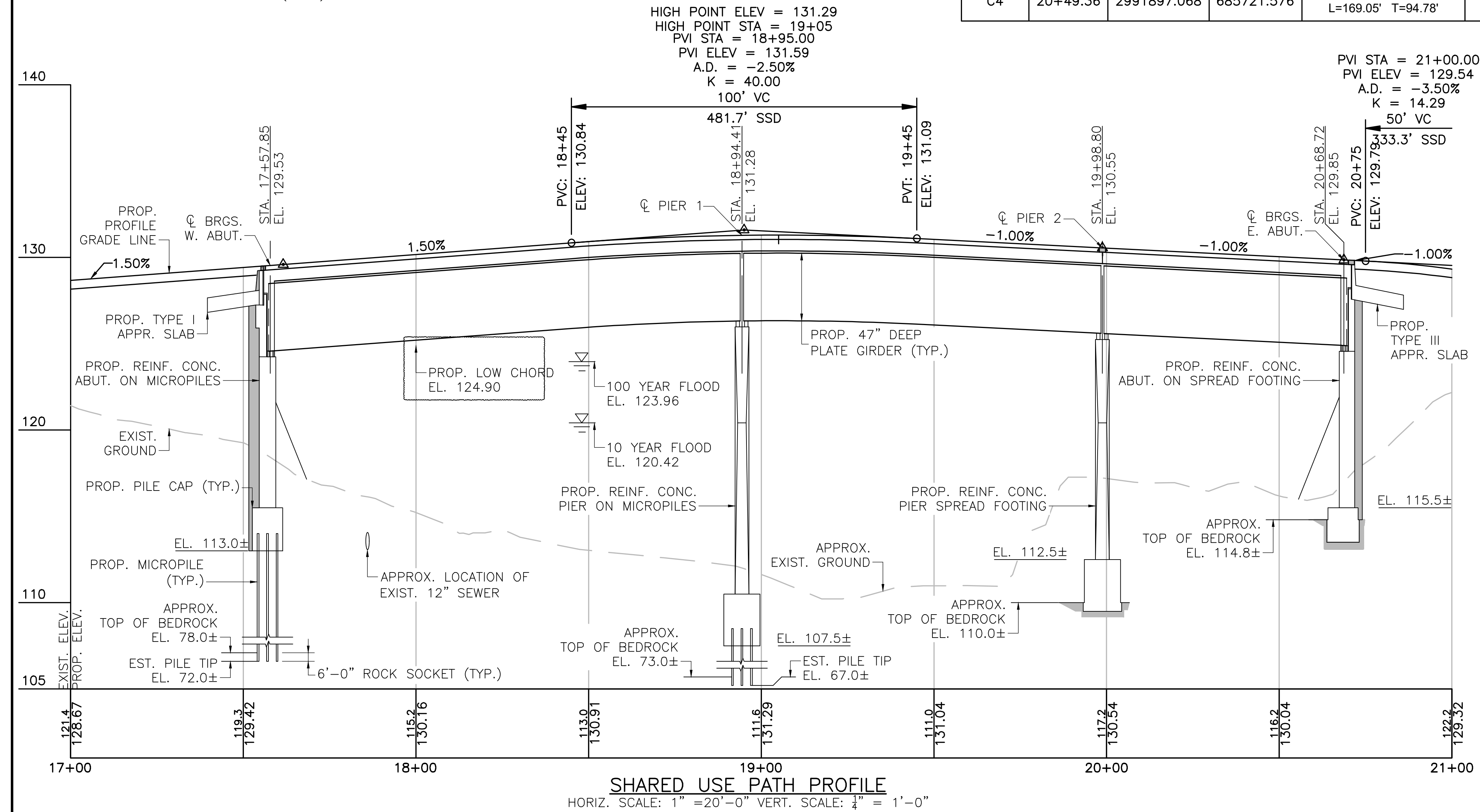
PROJECT INFORMATION	
PROJECT FILE NO.:	612870
PROJECT DESCRIPTION:	PROPOSED BRIDGE
BRIDGE DESIGN LOADING:	HL-93
SURVEY:	ELECTRONIC SURVEY BY GPI
ELEVATION REFERENCE:	NAVD OF 1988
BENCH MARK:	REB 4, N2991712.762, E685462.948 EL. 130.352


SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000-YR
DESIGN SPECTRA	
As	0.112
SDs	0.240
SD1	0.091
SITE CLASS	D
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	120.3
DESIGN FLOOD DISCHARGE (C.F.S.)	2310
DESIGN FLOOD FREQUENCY (YEARS)	10
DESIGN FLOOD VELOCITY (F.P.S.)	2.35
DESIGN FLOOD ELEVATION (FEET, NAVD)	120.42
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	4070
BASE FLOOD ELEVATION (FEET, NAVD)	123.96
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	25
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	0.71
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	6.1
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	0.47
CHECK FLOOD PIER SCOUR DEPTH (FEET)	6.2
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	2530
FREQUENCY (IF KNOWN, YEARS)	N/A
MAXIMUM ELEVATION (FEET, NAVD)	7.11
DATE (MM/YYYY)	03/2019
HISTORY OF ICE FLOES	NONE
EVIDENCE OF SCOUR AND EROSION	N/A


- NOTES:**
- APPROVAL DOES NOT INCLUDE STRUCTURAL ANALYSIS.
 - DIMENSIONS OF STRUCTURAL MEMBERS ARE APPROXIMATE AND WILL BE FINALIZED DURING THE FINAL DESIGN PHASE.
 - SEE GEOTECHNICAL REPORT, DATED xx.
 - NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

ASSABET RIVER SUP & BRIDGE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C2	16+16.47	2991770.297	685335.907	R=90.00' Δ=68°24'52" L=107.47' T=61.18'		17+23.94	2991820.339	685423.862
L1	17+23.94	2991820.339	685423.862		S85°25'49"E 142.55'	18+66.48	2991808.982	685565.954
C3	18+66.48	2991808.982	685565.954	R=90.00' Δ=41°15'31" L=64.81' T=33.88'		19+31.29	2991826.525	685626.897
L2	19+31.29	2991826.525	685626.897		N53°18'40"E 118.07'	20+49.36	2991897.068	685721.576
C4	20+49.36	2991897.068	685721.576	R=150.00' Δ=64°34'25" L=169.05' T=94.78'		22+18.41	2992046.647	685779.067





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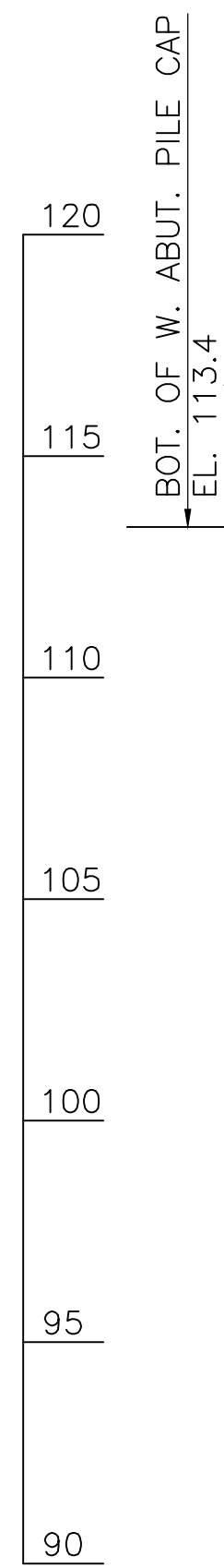
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
Highway Division

SKETCH PLANS OF PROPOSED BRIDGE CONCORD PEDESTRIAN/BIKE PATH OVER ASSABET RIVER

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

APPROVED BY:	DATE:
STRUCTURAL ELEMENTS:	
TITLE:	
HIGHWAY ELEMENTS:	
TITLE:	

BORING BB-13
(1 OF 2)



BORING LOG									
					Project: Assabet River Pedestrian Bridge Location: Concord, Massachusetts Nobis Project No.: 100160.000				
Contractor: New England Boring Contractors Driller: M. Mientkiewicz Nobis Rep.: K. Kocia					Rig Type / Model: ATV / Stratistar-5 Hammer Type: Automatic Hammer Hammer Hoist: Automatic				
Boring No.: BB-13 Boring Location: See Figure 2 Checked by: J. Vanotti Date Start: July 21, 2023 Date Finish: July 21, 2023					Ground Surface Elev.: (+/-) 119 Datum: NAVD 88				
Drilling Method		Sampler		Groundwater Observations					
Type	Casing	Split Spoon		Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Size ID (in.)	4	1-3/8		07/21/23	13:00	2.4	N/A	39	15 min
Advancement		Drive and Wash		140-lb Hammer					
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS					
Type & No.	Rec (in.)	Depth (ft.)	Blows / 6 in.	Stratum Elev. / Depth (ft.)					
1	S-1	17	0-2	117.2 / 17.2	S-1A (11"): Soft, dark brown, Organic SILT and fine to medium Sand, several roots / wood pieces / fragments. Dry - moist.				
2	S-2	16	2-4	117.0 / 22.0	S-1B (6"): Loose, orange-brown - tan, fine to coarse SAND, some fine Gravel, little Silt, few roots / wood pieces. Moist. Redoximorphic staining present.				
3	S-2	16	2-4	117.0 / 22.0	S-2: Stiff, orange-brown - tan, SILT, little fine to medium Sand, very few roots. Wet. Strong redoximorphic staining present.				
4	S-3	14	4-6	117.0 / 22.0	S-3: Stiff, orange-brown - tan, SILT, little fine to medium Sand. Wet. Strong redoximorphic staining present.				
5	S-4	17	6-8	117.0 / 22.0	S-4: Stiff, orange-brown - tan - gray, SILT, some fine to coarse Sand, trace Clay. Wet. Redoximorphic staining present.				
6	S-5	15	9-11	117.0 / 22.0	S-5: Stiff, brownish-gray, Clayey SILT, little fine to medium Sand. Wet.				
7	S-6	16	14-16	117.0 / 22.0	S-6: Very stiff, gray, SILT, some fine Sand, trace Clay. Wet.				
8					LACUSTRINE DEPOSITS				
9	S-7	19	19-21	117.0 / 22.0	S-7: Very stiff, olive gray, SILT, some fine Sand, trace Clay. Wet. Multiple seams of clayey silt / fine sand, ranging in 1/2 to 1-inches thick.				
10					LACUSTRINE DEPOSITS (VARVED)				
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25	S-8	18	24-26	117.0 / 22.0	S-8: Very stiff, olive gray, Clayey SILT, little fine Sand. Wet. Multiple seams of clayey silt / silt & clay, ranging in 1/4 to 1/2-inches thick.				

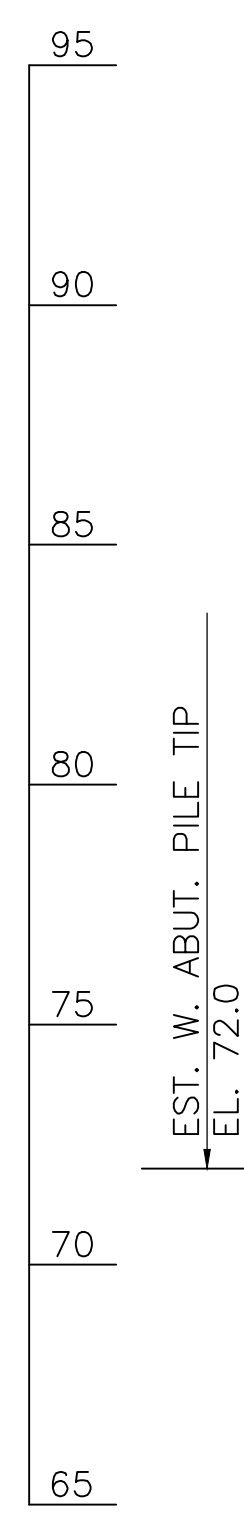
Soil Percentage Non-Soil
 trace 5 - 10 very few
 little 10 - 20 few
 some 20 - 35 several
 and 35 - 50 numerous

NOTES:
 1) Casing driven into borehole, with water introduced, at approximately 4 feet below ground surface (bgs)

BORING NOTES:

- LOCATION OF BORINGS ARE SHOWN ON THE PLAN THUS: BB-1
- BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
- WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
- FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 3/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
- BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.
- BORINGS BB-1 THROUGH BB-5 WERE MADE IN NOVEMBER 2021. BORINGS BB-13 AND BB-15 WERE MADE IN JULY 2023.
- BORINGS WERE MADE BY NEW ENGLAND BORING CONTRACTORS OF DERRY, NH UNDER GUIDANCE OF NOBIS ENGINEERING, INC. OF LOWELL, MA.
- THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS THROUGHOUT.

BORING BB-13
(2 OF 2)



BORING LOG									
					Project: Assabet River Pedestrian Bridge Location: Concord, Massachusetts Nobis Project No.: 100160.000				
Contractor: New England Boring Contractors Driller: M. Mientkiewicz Nobis Rep.: K. Kocia					Rig Type / Model: ATV / Stratistar-5 Hammer Type: Automatic Hammer Hammer Hoist: Automatic				
Boring No.: BB-13 Boring Location: See Figure 2 Checked by: J. Vanotti Date Start: July 21, 2023 Date Finish: July 21, 2023					Ground Surface Elev.: (+/-) 119 Datum: NAVD 88				
Drilling Method		Sampler		Groundwater Observations					
Type	Casing	Split Spoon		Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Size ID (in.)	4	1-3/8		07/21/23	13:00	2.4	N/A	39	15 min
Advancement		Drive and Wash		140-lb Hammer					
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS					
Type & No.	Rec (in.)	Depth (ft.)	Blows / 6 in.	Stratum Elev. / Depth (ft.)					
26									
27									
28									
29									
30	S-9	20	29-31	117.0 / 22.0	S-9A (9"): Very stiff, olive gray, SILT, some fine Sand, trace Clay. Wet. Multiple seams of clayey silt ranging in 1/4 to 1/2-inches thick.				
31					S-9B (11"): Medium dense, orange-brown - gray, fine to medium SAND and Silt, trace Clay. Wet. Multiple seams of clayey silt, ranging in 1/4 to 1/2-inches thick.				
32					LACUSTRINE DEPOSITS (VARVED)				
33									
34									
35	S-10	20	34-36	117.0 / 22.0	S-10: Medium dense, gray, fine to coarse SAND, some Silt. Wet. Multiple seams of fine to medium sand, ranging in 1/4 to 1-inches thick.				
36									
37									
38									
39	S-11	0	38-38.3	100.0 / 38.2	S-11: Very dense, No recovery. High resistance during drilling between 38.2 and 39 feet bgs, based on wash, inferred bedrock encountered. Boring terminated at 39 feet.				
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									

Soil Percentage Non-Soil
 trace 5 - 10 very few
 little 10 - 20 few
 some 20 - 35 several
 and 35 - 50 numerous

NOTES:
 2) Boring backfilled with spoils and two (2) bag of gravel to ground surface.

BORING LOGS
SCALE: 1/4" = 1'-0"

BORING BB-1
(1 OF 2)

BOT. OF W. ABUT. PILE CAP
EL. 113.4

BORING LOG										
Project: Assabet River Pedestrian Bridge		Boring No.: BB-1		Boring Location: See Boring Location Plan N.		217.58 E. 399.66		Checked by: J. Vanotti		
Location: Concord, Massachusetts		Date Start: November 12, 2021		Date Finish: November 15, 2021		Ground Surface Elev.: (+/-) 117		Datum: NAVD 88		
Nobis Project No.: 100160.000		Rig Type / Model: ATV / Stratistar-5		Hammer Type: Automatic Hammer		Hammer Hoist: Automatic		Drilling Method: Split Spoon		
Contractor: New England Boring Contractors		Driller: M. Mientkiewicz		Nobis Rep.: K. Kocia		Groundwater Observations:		Type: Casing		
Size ID (in.): 4 & 3		Date: 11/12/21		Time: 15:30		Depth Below Ground (ft.): 5		Depth to Bottom of Hole (ft.): 35.4		
Advancement: Drive and Wash		Drive and Wash: 140-lb Hammer		Date: 11/15/21		Time: 08:15		Depth Below Ground (ft.): 2.5		
Date: 11/15/21		Time: 08:15		Depth Below Ground (ft.): 2.5		Depth to Bottom of Hole (ft.): 35.4		Stabilization Time: 2.5 days		
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burnister)						
Depth (ft.)	REC %	Drilling Rate (min/ft)	Groundwater (feet)	Stratum Elev. / Depth (ft.)	Notes					
1	S-1	12	0-2	1	S-1A (3'): Very loose, dark brown, fine to medium SAND, and Organic Silt, very few roots / leaves. Moist.					
2				2	S-1B (9'): Soft, tan to brown, SILT and fine to coarse Sand, few roots / wood fibers. Moist.					
3	S-2	13	2-4	7	S-2: Very stiff, orange-brown to gray, SILT, some fine to coarse Sand, trace fine Gravel. Moist to wet. Redoximorphic staining present.					
4				9	S-3: Very stiff, brownish-gray, SILT, little fine to medium Sand. Wet. Faint redoximorphic staining present.					
5	S-3	12	4-6	10	ALLUVIAL DEPOSITS					
6				8	S-4: Very stiff, brownish-gray, SILT, little fine Sand. Wet. Faint redoximorphic staining present.					
7				11	105.0 / 12.0					
8	S-4	20	9-11	7	S-5: Very stiff, olive gray, Clayey SILT, trace fine Sand. Wet. Very faint redoximorphic spotting present.					
9				10	LACUSTRINE DEPOSITS					
10				11	S-6: Very stiff, olive gray, SILT, trace fine Sand, trace Clay. Wet. Multiple seams of silt ranging in 1/8 to 1/4-inches thick.					
11				16	94.5 / 22.5					
12	S-5	20	14-16	11	LACUSTRINE DEPOSITS (VARVED)					
13				9	S-7: Very stiff, bluish-gray, SILT, trace fine to medium Sand, trace Clay. Wet. Faint redoximorphic staining present. Multiple seams of silt with sand and clay					
14				10						
15				14						
16				15						
17				12						
18				13						
19	S-6	21	19-21	9						
20				10						
21				12						
22				13						
23										
24										
25	S-7	21	24-26	9						
26				8						
27										
28										
29										
30	S-8	20	29-31	9	S-8: Very stiff, orange-brown to gray, SILT, some fine to medium Sand, trace Clay. Wet. Redoximorphic staining present. Multiple seams of sand and clay ranging in 1/8 to 1/2-inches thick.					
31				10	LACUSTRINE DEPOSITS (VARVED)					
32				12						
33				14						
34										
35	S-9	10	34-35.4	16	S-9: Very dense, gray, SILT and fine to coarse Sand, trace Clay. Wet.					
36				8	B1.6 / 35.4					
37	C-1	19	35.5-38.5	75/5'	C-1: Medium Hard to Hard, fresh, extremely fractured, gray, medium-grained, Cobble pieces / fragments. Wet.					
38				4	GLACIAL TILL (W/ Boulders and Cobbles)					
39				2	78.0 / 39.0					
40				5						
41				5.5						
42				5						
43				3						
44				3						
45	C-2	54	44-49	90/70	C-2: Soft to Hard, fresh to moderately weathered, slightly to extremely fractured, gray - white, fine-grained to aphanitic, GNEISS, slight to vertical dipping angles. Wet. Quartz present in 2nd half of core run.					
46				5	BEDROCK					
47				4.5						
48				5						
49				4	88.0 / 49.0					
50	C-3	55	49-54	92/10	C-3: Medium Hard to Very Hard, fresh to slightly weathered, extremely fractured, gray - white - orange, fine-grained to aphanitic, GNEISS, slight to vertical dipping angles. Wet. Quartz present in core run.					
					Boring terminated at 49 feet.					
Soil Percentage Non-Soil		NOTES:		1) Boring backfilled with spoils and one (1) bag of filter sand to ground surface.						
trace	5 - 10	very few								
little	10 - 20	few								
some	20 - 35	several								
and	35 - 50	numerous								

BORING NOTES:
1. FOR BORING NOTES SEE SKETCH PLAN SHEET 2.

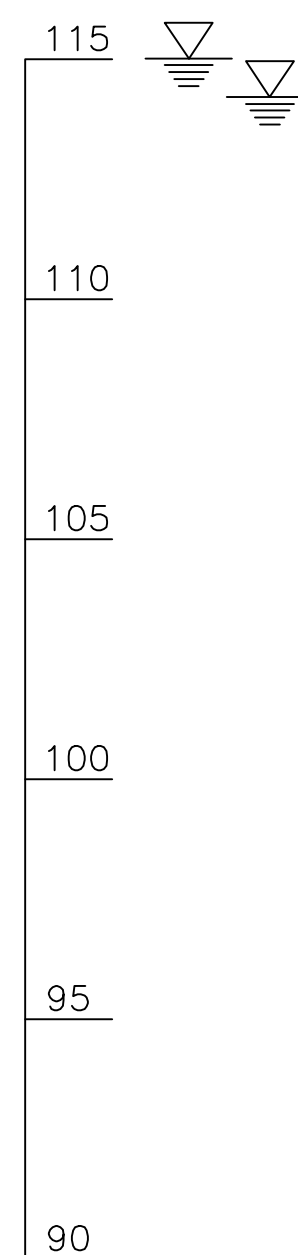
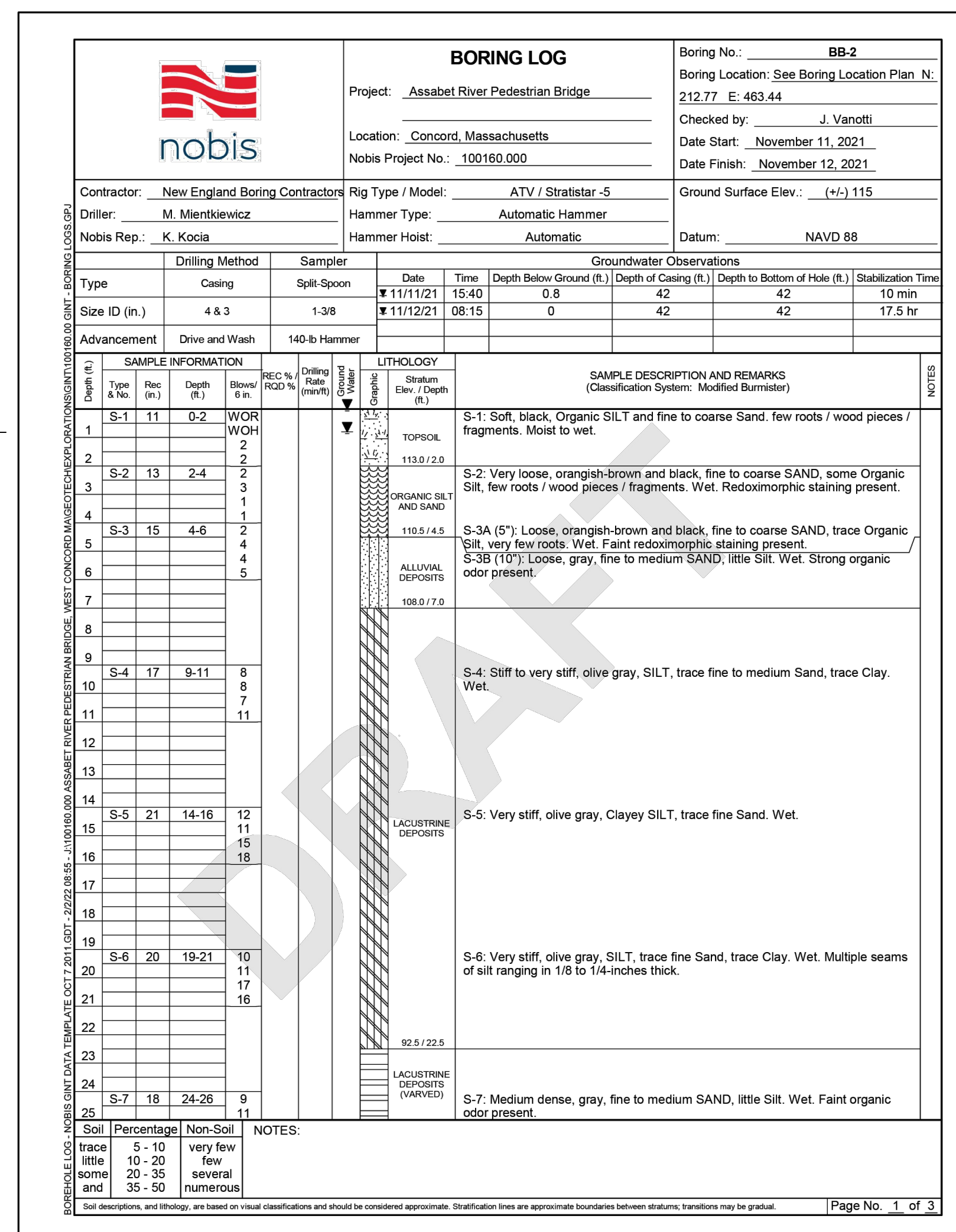
BORING BB-1
(2 OF 2)

EST. W. ABUT. PILE TIP
EL. 72.0

BORING LOG										
Project: Assabet River Pedestrian Bridge		Boring No.: BB-1		Boring Location: See Boring Location Plan N.		217.58 E. 399.66		Checked by: J. Vanotti		
Location: Concord, Massachusetts		Date Start: November 12, 2021		Date Finish: November 15, 2021		Ground Surface Elev.: (+/-) 117		Datum: NAVD 88		
Nobis Project No.: 100160.000		Rig Type / Model: ATV / Stratistar-5		Hammer Type: Automatic Hammer		Hammer Hoist: Automatic		Drilling Method: Split Spoon		
Contractor: New England Boring Contractors		Driller: M. Mientkiewicz		Nobis Rep.: K. Kocia		Groundwater Observations:		Type: Casing		
Size ID (in.): 4 & 3		Date: 11/12/21		Time: 15:30		Depth Below Ground (ft.): 5		Depth to Bottom of Hole (ft.): 35.4		
Advancement: Drive and Wash		Drive and Wash: 140-lb Hammer		Date: 11/15/21		Time: 08:15		Depth Below Ground (ft.): 2.5		
Date: 11/15/21		Time: 08:15		Depth Below Ground (ft.): 2.5		Depth to Bottom of Hole (ft.): 35.4		Stabilization Time: 2.5 days		
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burnister)						
Depth (ft.)	REC %	Drilling Rate (min/ft)	Groundwater (feet)	Stratum Elev. / Depth (ft.)	Notes					
26					ranging in 1/8 to 1/4-inches thick.					
27										
28										
29										
30	S-8	20	29-31	9	S-8: Very stiff, orange-brown to gray, SILT, some fine to medium Sand, trace Clay. Wet. Redoximorphic staining present. Multiple seams of sand and clay ranging in 1/8 to 1/2-inches thick.					
31				10	LACUSTRINE DEPOSITS (VARVED)					
32				12						
33				14						
34										
35	S-9	10	34-35.4	16	S-9: Very dense, gray, SILT and fine to coarse Sand, trace Clay. Wet.					
36				8	B1.6 / 35.4					
37	C-1	19	35.5-38.5	75/5'	C-1: Medium Hard to Hard, fresh, extremely fractured, gray, medium-grained, Cobble pieces / fragments. Wet.					
38				4	GLACIAL TILL (W/ Boulders and Cobbles)					
39				2	78.0 / 39.0					
40				5						
41				5.5						
42				5						
43				3						
44				3						
45	C-2	54	44-49	90/70	C-2: Soft to Hard, fresh to moderately weathered, slightly to extremely fractured, gray - white, fine-grained to aphanitic, GNEISS, slight to vertical dipping angles. Wet. Quartz present in 2nd half of core run.					
46				5	BEDROCK					
47				4.5						
48				5						
49				4	88.0 / 49.0					
50	C-3	55	49-54	92/10	C-3: Medium Hard to Very Hard, fresh to slightly weathered, extremely fractured, gray - white - orange, fine-grained to aphanitic, GNEISS, slight to vertical dipping angles. Wet. Quartz present in core run.					
					Boring terminated at 49 feet.					
Soil Percentage Non-Soil		NOTES:		1) Boring backfilled with spoils and one (1) bag of filter sand to ground surface.						
trace	5 - 10	very few								
little	10 - 20	few								
some	20 - 35	several								
and	35 - 50	numerous								

BORING LOGS
SCALE: 1/4" = 1'-0"

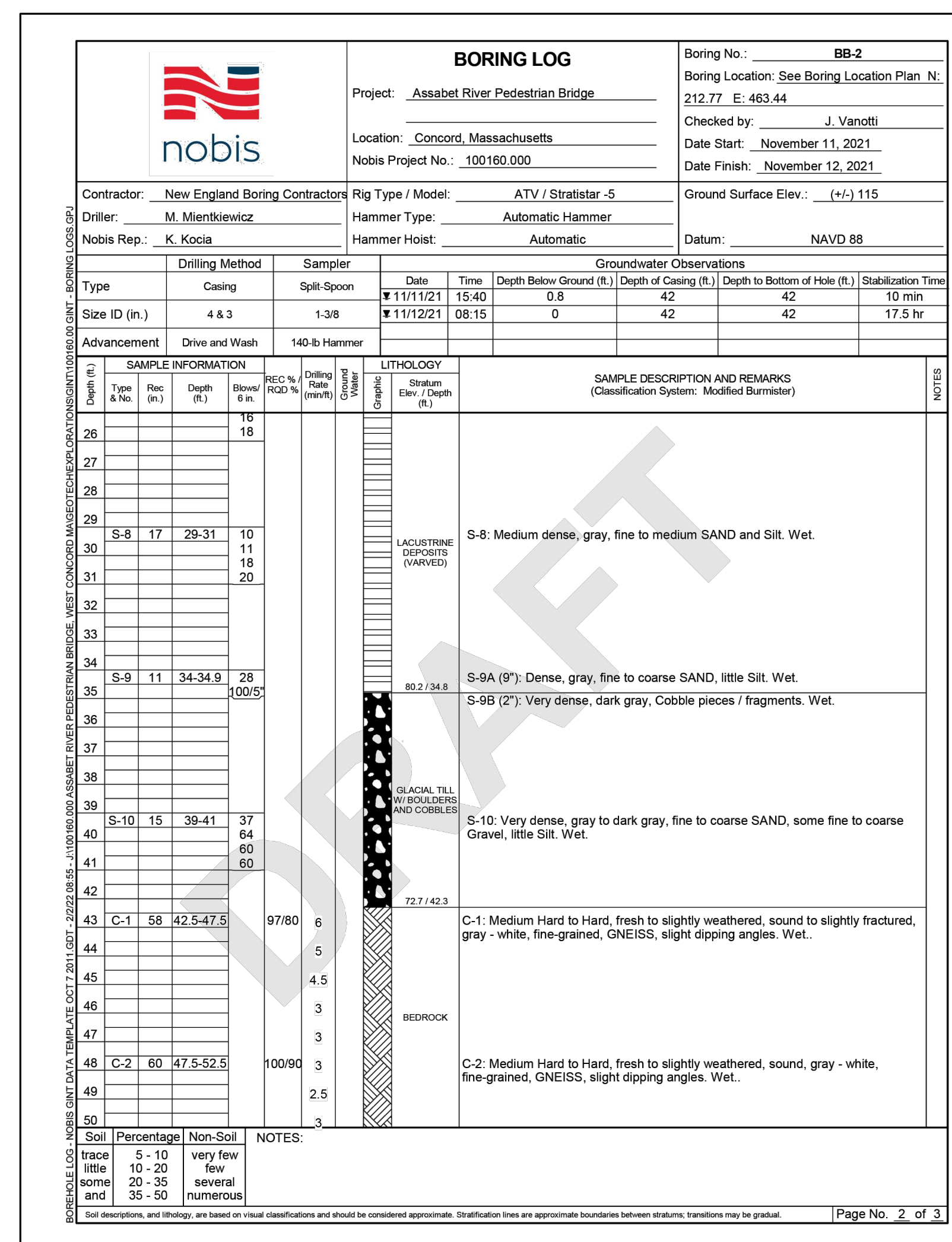
BORING BB-2
(1 OF 3)



Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
Soil descriptions, and lithology, are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between strata; transitions may be gradual.

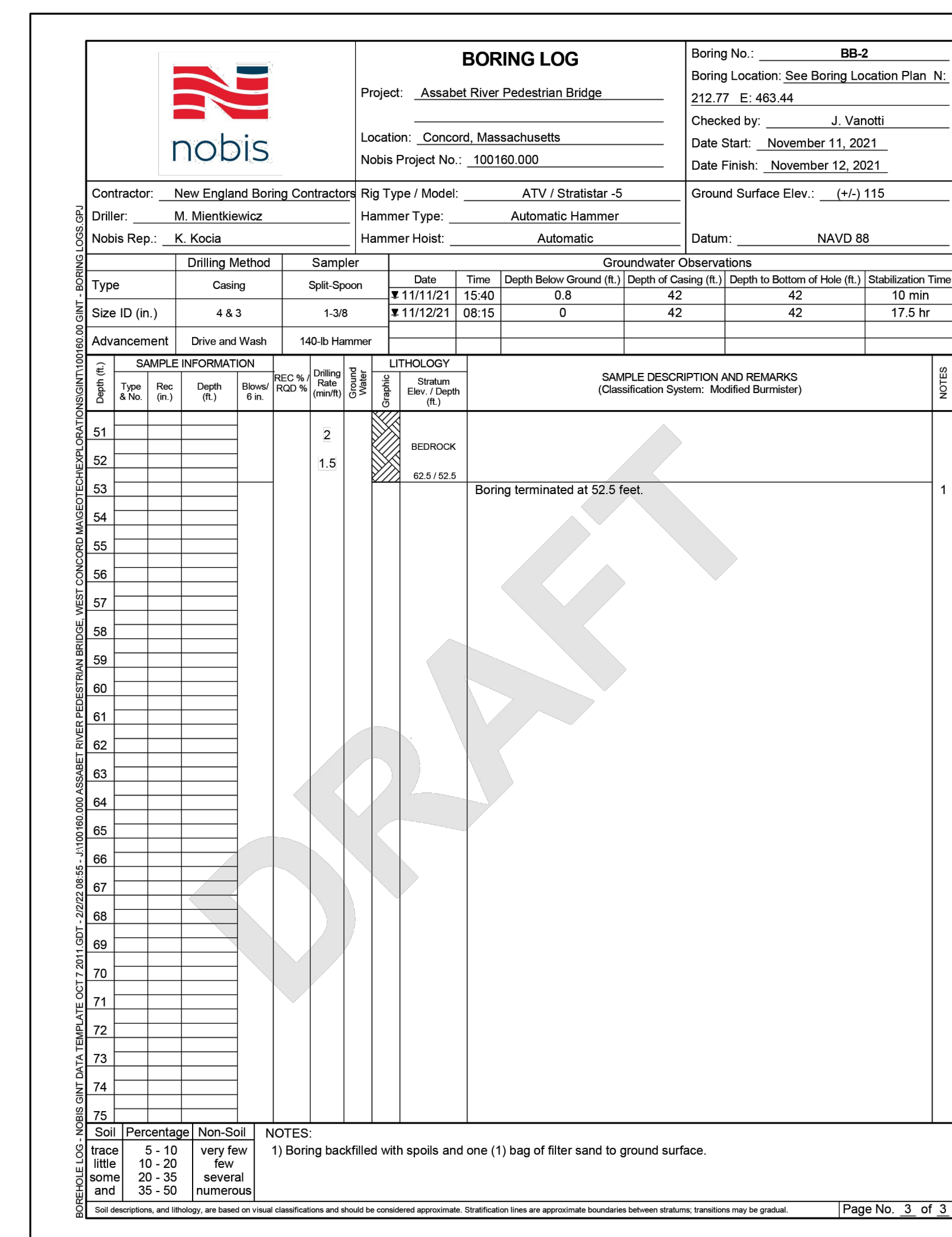
BORING BB-2
(2 OF 3)



Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Boring backfilled with spoils and one (1) bag of filter sand to ground surface.

BORING BB-2
(3 OF 3)



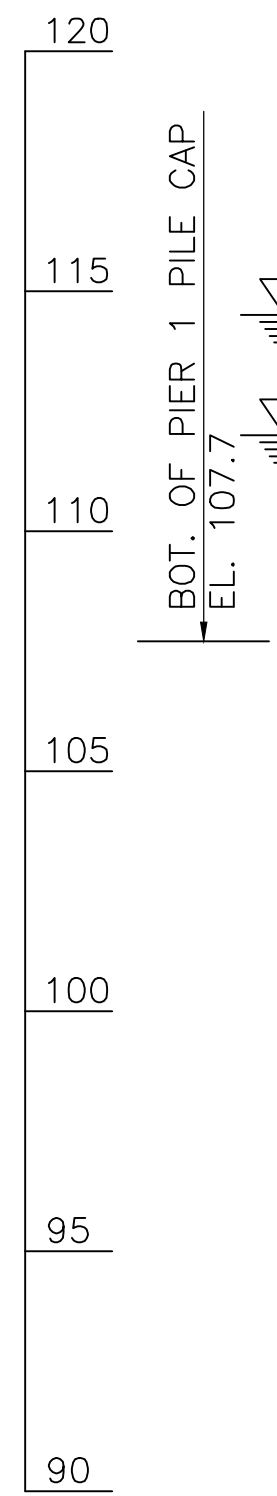
Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Boring backfilled with spoils and one (1) bag of filter sand to ground surface.

BORING LOGS
SCALE: 1/4" = 1'-0"

BORING NOTES:
1. FOR BORING NOTES SEE SKETCH PLAN SHEET 2.

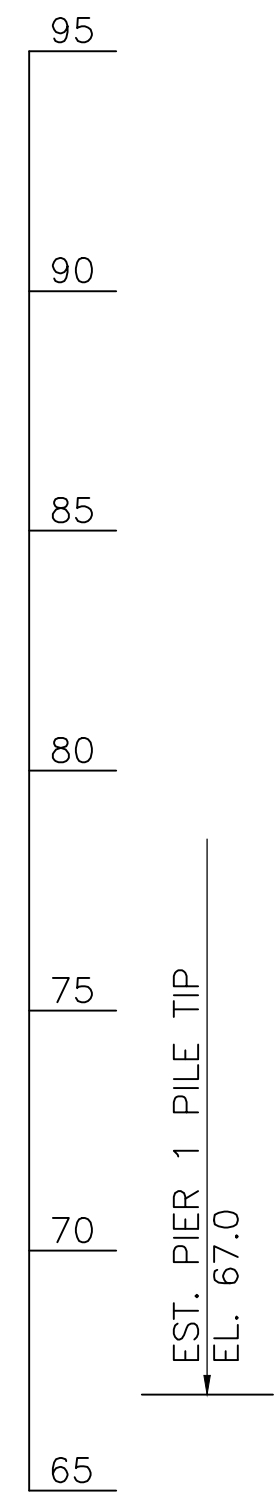
**BORING BB-3
(1 OF 2)**



BORING LOG										
Project: Assabet River Pedestrian Bridge			Boring No.: BB-3			Boring Location: See Boring Location Plan N: 197.46 E: 495.34				
Location: Concord, Massachusetts			Checked by: J. Vanotti			Date Start: November 15, 2021				
Nobis Project No.: 100160.000			Date Finish: November 16, 2021			Ground Surface Elev.: (+) 117				
Contractor: New England Boring Contractors			Rig Type / Model: Acker Soil Scout			Driller: M. Mientkiewicz				
Nobis Rep.: K. Kocia			Hammer Type: Safety Hammer			Datum: NAVD 88				
Hammer Hoist: Rope & Cathead			Drilling Method			Sampler			Groundwater Observations	
Type	Casing	Split Spoon	Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time		
Size ID (in.)	3	1-3/8	11/16/21	15:30	6	35	36	15 min		
Advancement			Drive and Wash			140-lb Hammer				
Depth (ft.)	SAMPLE INFORMATION			LITHOLOGY	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES				
	Type & No.	Rec (ft.)	Blow/6 in.							
1	S-1	8	0-2	5	S-1: Loose to medium dense, dark brown to brown, fine to coarse SAND, some Organic Silt, several roots / wood fibers. Moist.					
2	S-2	5	2-4	10	S-2: Medium dense, brown to black, fine to medium SAND, little Organic Silt, wood pieces / fragments. Moist.					
3	S-3	11	4-6	20	S-3A (5'): Dense, black, fine to coarse SAND, trace fine Gravel, trace Organic Silt, trace organic fibers / roots. Moist to Wet. S-3B (6'): Dense, brown, fine to coarse SAND, little Silt. Wet.					
4	S-4	10	9-11	20	S-4: Very dense, brownish-gray, fine to coarse SAND, little fine Gravel, trace Silt, very few roots / wood fibers. Wet.					
5	S-5	17	19-21	18	S-5: Hard, olive gray, SILT, trace fine Sand, trace Clay. Wet.					
6				18						
7				18						
8				18						
9				18						
10				18						
11				18						
12				18						
13				18						
14				18						
15				18						
16				18						
17				18						
18				18						
19				18						
20				18						
21				18						
22				18						
23				18						
24				18						
25				18						
26				18						
27				18						
28				18						
29				18						
30				18						
31				18						
32				18						
33				18						
34				18						
35				18						
36				18						
37				18						
38				18						
39				18						
40				18						
41				18						
42				18						
43				18						
44				18						
45				18						
46				18						
47				18						
48				18						
49				18						
50				18						

BORING NOTES:
1. FOR BORING NOTES SEE SKETCH PLAN SHEET 2.

**BORING BB-3
(2 OF 2)**



BORING LOG										
Project: Assabet River Pedestrian Bridge			Boring No.: BB-3			Boring Location: See Boring Location Plan N: 197.46 E: 495.34				
Location: Concord, Massachusetts			Checked by: J. Vanotti			Date Start: November 15, 2021				
Nobis Project No.: 100160.000			Date Finish: November 16, 2021			Ground Surface Elev.: (+) 117				
Contractor: New England Boring Contractors			Rig Type / Model: Acker Soil Scout			Driller: M. Mientkiewicz				
Nobis Rep.: K. Kocia			Hammer Type: Safety Hammer			Datum: NAVD 88				
Hammer Hoist: Rope & Cathead			Drilling Method			Sampler			Groundwater Observations	
Type	Casing	Split Spoon	Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time		
Size ID (in.)	3	1-3/8	11/16/21	15:30	6	35	36	15 min		
Advancement			Drive and Wash			140-lb Hammer				
Depth (ft.)	SAMPLE INFORMATION			LITHOLOGY	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES				
	Type & No.	Rec (ft.)	Blow/6 in.							
26										
27										
28										
29										
30	S-6	16	29-31	20	S-6: Hard, olive gray, Clayey SILT, trace fine to medium Sand. Wet. Multiple seams of silt ranging in 1/8 to 1/4-inch thick.					
31				20						
32				20						
33				20						
34				20						
35				20						
36				20						
37				20						
38				20						
39				20						
40				20						
41				20						
42				20						
43				20						
44				20						
45				20						
46				20						
47				20						
48				20						
49				20						
50				20						

BORING LOGS
SCALE: 1/4" = 1'-0"

BORING BB-4
(1 OF 1)

		BORING LOG		Boring No.: BB-4	
Project: Assabet River Pedestrian Bridge		Location: Concord, Massachusetts		Boring Location: See Boring Location Plan N: 270.04 E: 610.88	
Checked by: J. Vanotti		Date Start: November 10, 2021		Date Finish: November 10, 2021	
Nobis Project No.: 100160.000		Ground Surface Elev.: (+/-) 117		Datum: NAVD 88	
Contractor: New England Boring Contractors		Rig Type / Model: ATV / Stratistar-5		Groundwater Observations	
Driller: M. Mientkiewicz		Hammer Type: Automatic Hammer		Date: 11/10/21	
Nobis Rep.: K. Kocia		Hammer Hoist: Automatic		Time: 15:00	
Type: Casing		Sampler: Split Spoon		Depth Below Ground (ft.): 4	
Size ID (in.): 4		Drive and Wash: 140-lb Hammer		Depth to Bottom of Hole (ft.): 8	
Advancement		Drive and Wash		Stabilization Time: 10 min	
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS	
Depth (ft.)	Rec (ft.)	Blow/6 in.	Statum Elev. / Depth (ft.)	Classification System: Modified Burrester	
1	S-1 18	0-2	116.0 / 1.0	TOPSOIL	
2				S-1A (8"): Very loose, dark brown to brown, fine to coarse SAND, some Organic Silt, few roots / grass fibers. Moist.	
3	S-2 17	2-4		S-1B (10"): Very loose, black, Organic SILT and fine to medium Sand, trace fine Gravel, few organic fibers / roots. Moist to wet.	
4				S-2: Very loose, dark brown to black, Organic SILT, some fine to medium Sand, trace fine Gravel, few organic fibers / roots. Wet.	
5	S-3 9	4-6	112.8 / 4.2	S-3A (2"): Medium dense, dark brown to black, Organic SILT, some fine to medium Sand, trace fine Gravel, few organic fibers / roots. Wet.	
6				S-3B (7"): Medium dense, tan to gray, fine to coarse SAND and fine to coarse Gravel, trace Silt, few weathered rock pieces / fragments. Wet.	
7				WEATHERED ROCK	
8				115.0 / 7.0	
9	C-1 56	8-13	93/57	C-1: Medium Hard, fresh to moderately weathered, slightly fractured, gray - light gray, fine-grained, GNEISS, slight to 45-degree dipping angles. Wet.	
10				2.5	
11				2.5	
12				2.5	
13				3	
14	C-2 60	13-18	100/93	C-2: Hard to Very Hard, fresh to slightly weathered, slightly fractured to sound, gray - white - orange, fine-grained to aphanitic, GNEISS, slight to 45-degree dipping angles. Wet. Rock intrusion in 2nd half of core run.	
15				2.5	
16				4	
17				5.5	
18				8	
19				99.0 / 18.0	
20				Boring terminated at 18 feet.	
21					
22					
23					
24					
25					
Soil	Percentage	Non-Soil	NOTES:		
trace	5 - 10	very few	1) Boring backfilled with spoils to ground surface.		
little	10 - 20	few			
some	20 - 35	several			
and	35 - 50	numerous			

BORING LOG BB-4
SCALE: 1/4" = 1'-0"

BORING NOTES:

- FOR BORING NOTES SEE SKETCH PLAN SHEET 2.

BORING BB-5
(1 OF 1)

		BORING LOG		Boring No.: BB-5	
Project: Assabet River Pedestrian Bridge		Location: Concord, Massachusetts		Boring Location: See Boring Location Plan N: 314.69 E: 679.99	
Checked by: J. Vanotti		Date Start: November 10, 2021		Date Finish: November 10, 2021	
Nobis Project No.: 100160.000		Ground Surface Elev.: (+/-) 119		Datum: NAVD 88	
Contractor: New England Boring Contractors		Rig Type / Model: ATV / Stratistar-5		Groundwater Observations	
Driller: M. Mientkiewicz		Hammer Type: Automatic Hammer		Date: 11/10/21	
Nobis Rep.: K. Kocia		Hammer Hoist: Automatic		Time: 11:45	
Type: Casing		Sampler: Split Spoon		Depth Below Ground (ft.): 4	
Size ID (in.): 4		Drive and Wash: 140-lb Hammer		Depth to Bottom of Hole (ft.): 5	
Advancement		Drive and Wash		Stabilization Time: 15 min	
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS	
Depth (ft.)	Rec (ft.)	Blow/6 in.	Statum Elev. / Depth (ft.)	Classification System: Modified Burrester	
1	S-1 13	0-2	117.3 / 1.5	TOPSOIL	
2				S-1A (8"): Very loose, dark brown to black, fine to medium SAND, little Organic Silt, few roots / grass fibers. Dry to moist.	
3	S-2 8	2-4		S-1B (4"): Very loose, orangish-brown to brown, SILT and fine Gravel, some fine to coarse Sand, very few roots. Moist.	
4				S-2: Loose to medium dense, orangish-brown to gray, fine to coarse GRAVEL, some fine to coarse Sand, little Silt. Moist.	
5	S-3 5	4-4.4	114.8 / 4.2	S-3: Very dense, light gray, Rock pieces / fragments. Wet.	
6	C-1 44	5-10	73/22	C-1: Medium Hard, fresh to slightly weathered, slightly to extremely fractured, gray - light gray, fine-grained, GNEISS, slight to 45-degree dipping angles. Wet.	
7				2.5	
8				1.5	
9				2	
10				2	
11	C-2 60	10-15	100/63	C-2: Soft to Moderately Hard, fresh, slightly to moderately fractured, gray - light gray, fine-grained, GNEISS, slight to 45-degree dipping angles. Wet. Possible rock intrusion at end of core run.	
12				2.5	
13				2	
14				2	
15				2.5	
16				Boring terminated at 15 feet.	
17					
18					
19					
20					
21					
22					
23					
24					
25					
Soil	Percentage	Non-Soil	NOTES:		
trace	5 - 10	very few	1) Boring backfilled with spoils to ground surface.		
little	10 - 20	few			
some	20 - 35	several			
and	35 - 50	numerous			

BORING LOG BB-5
SCALE: 1/4" = 1'-0"

BORING BB-15
(1 OF 1)

		BORING LOG		Boring No.: BB-15	
Project: Assabet River Pedestrian Bridge		Location: Concord, Massachusetts		Boring Location: See Figure 2	
Checked by: J. Vanotti		Date Start: July 18, 2023		Date Finish: July 18, 2023	
Nobis Project No.: 100160.000		Ground Surface Elev.: (+/-) 117		Datum: NAVD 88	
Contractor: New England Boring Contractors		Rig Type / Model: ATV / Stratistar-5		Groundwater Observations	
Driller: M. Mientkiewicz		Hammer Type: Automatic Hammer		Date: 07/18/23	
Nobis Rep.: T. Watopa		Hammer Hoist: Automatic		Time: 09:30	
Type: Casing		Sampler: Split Spoon		Depth Below Ground (ft.): 1.8	
Size ID (in.): 4		Drive and Wash: 140-lb Hammer		Depth to Bottom of Hole (ft.): N/A	
Advancement		Drive and Wash		Stabilization Time: 10 min	
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS	
Depth (ft.)	Rec (ft.)	Blow/6 in.	Statum Elev. / Depth (ft.)	Classification System: Modified Burrester	
1	S-1 12	0-2	116.5 / 0.5	TOPSOIL	
2				S-1A (8"): Very loose, dark brown, fine SAND, some Organic Silt. Wet. (TOPSOIL).	
3				S-1B (8"): Very loose, dark brown, fine to coarse SAND and Silt, little fine Gravel. Wet.	
4				ALLUVIAL DEPOSITS	
5				114.6 / 3.8	
6				114.3 / 2.7	
7				100/2	
8	S-2 8	2-2.7		S-2: Very dense, dark brown - gray, fine to coarse SAND, some Silt, little fine Gravel. Wet.	
9				Boring terminated at approximately 2.7-feet on inferred bedrock.	
10				Boring terminated at 2.7 feet.	
Soil	Percentage	Non-Soil	NOTES:		
trace	5 - 10	very few	1) Boring backfilled with drilling spoils to ground surface.		
little	10 - 20	few			
some	20 - 35	several			
and	35 - 50	numerous			

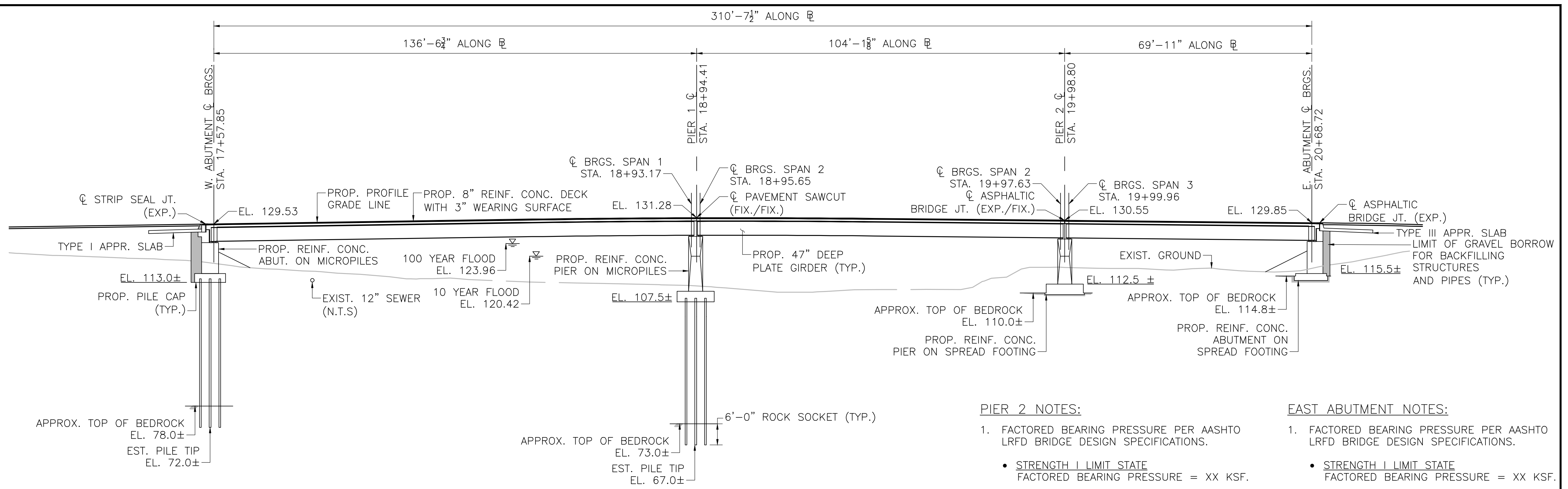
BORING LOG BB-15
SCALE: 5/8" = 1'-0"

WEST ABUTMENT NOTES:

- FACTORED AXIAL DESIGN LOAD PER MICROPILE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 - STRENGTH I LIMIT STATE**
FACTORED AXIAL DESIGN LOAD = XX KIP.
- THE FACTORED STRUCTURAL PILE RESISTANCE IS X KIPS AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF X KIPS AND A RESISTANCE FACTOR OF 0.75.
- THE FACTORED GEOTECHNICAL PILE RESISTANCE IS X KIPS AND IS THE PRODUCT OF THE NOMINAL GEOTECHNICAL RESISTANCE OF X KIPS AND A RESISTANCE FACTOR OF 0.70.
- THE ESTIMATED TIP ELEVATION IS 72.0 FEET.

PIER 1 NOTES:

- FACTORED AXIAL DESIGN LOAD PER MICROPILE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 - STRENGTH I LIMIT STATE**
FACTORED AXIAL DESIGN LOAD = XX KIP.
- THE FACTORED STRUCTURAL PILE RESISTANCE IS X KIPS AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF X KIPS AND A RESISTANCE FACTOR OF 0.75.
- THE FACTORED GEOTECHNICAL PILE RESISTANCE IS X KIPS AND IS THE PRODUCT OF THE NOMINAL GEOTECHNICAL RESISTANCE OF X KIPS AND A RESISTANCE FACTOR OF 0.70.
- THE ESTIMATED TIP ELEVATION IS 67.0 FEET.



LONGITUDINAL SECTION ALONG B

SCALE: 1/8" = 1'-0"

PIER 2 NOTES:

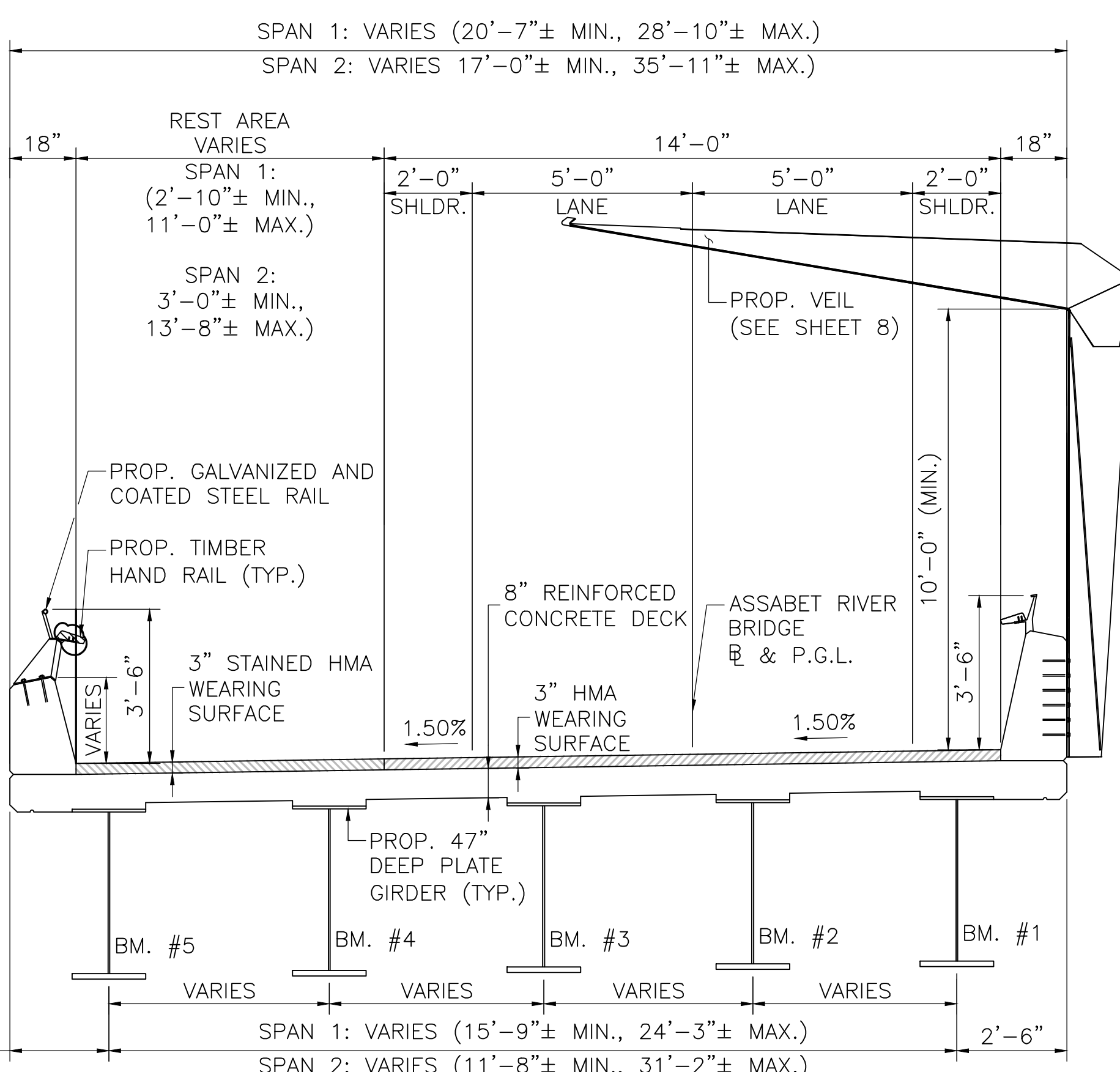
- FACTORED BEARING PRESSURE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 - STRENGTH I LIMIT STATE**
FACTORED BEARING PRESSURE = XX KSF.
- FACTORED BEARING RESISTANCE = XX KSF FOR THE STRENGTH I LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF XX KSF AND A RESISTANCE FACTOR OF 0.45.

EAST ABUTMENT NOTES:

- FACTORED BEARING PRESSURE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 - STRENGTH I LIMIT STATE**
FACTORED BEARING PRESSURE = XX KSF.
- FACTORED BEARING RESISTANCE = XX KSF FOR THE STRENGTH I LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF XX KSF AND A RESISTANCE FACTOR OF 0.45.

MICROPILE NOTES:

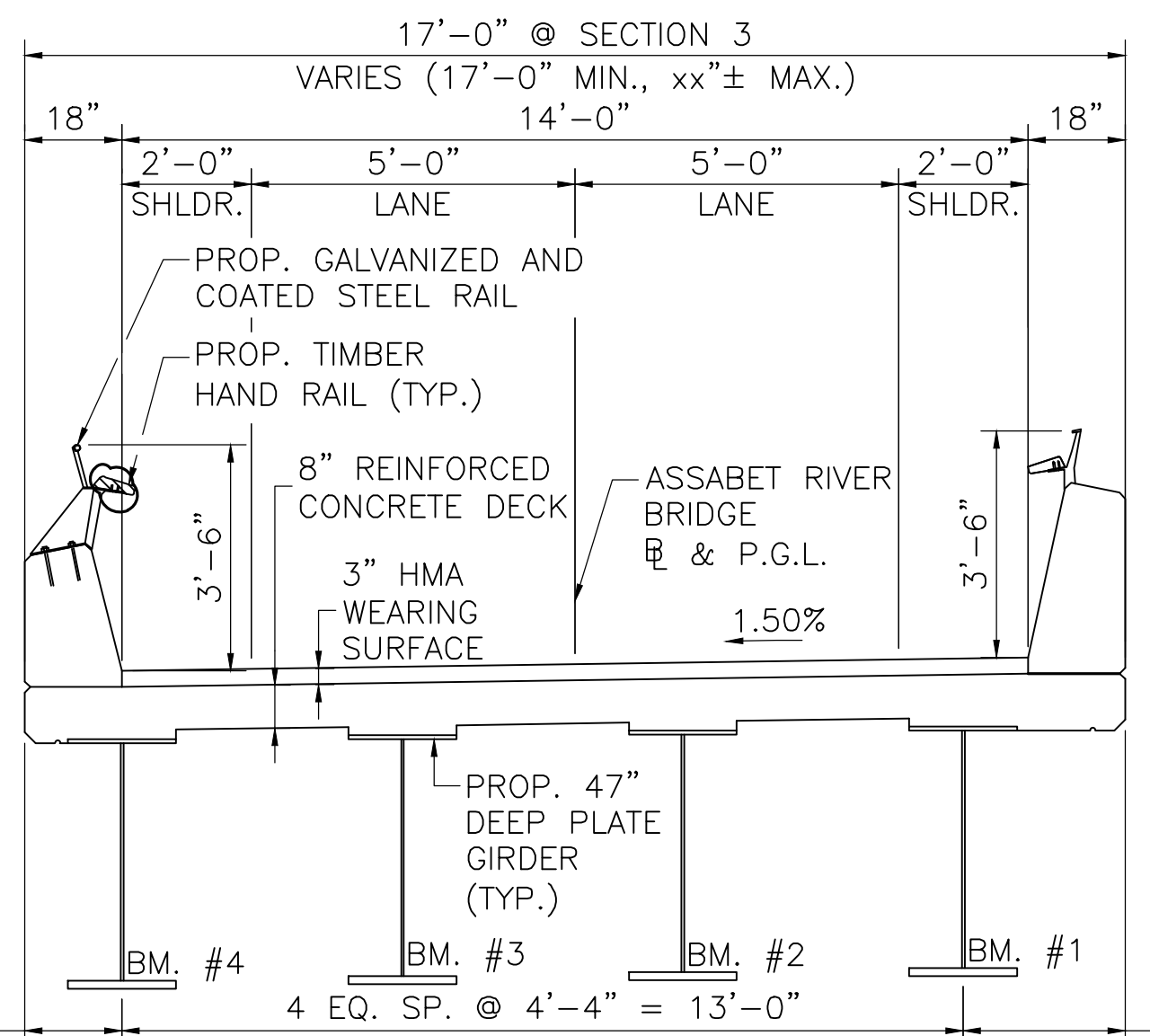
- STEEL CASING SHALL BE PRIME STEEL AND MEET THE REQUIREMENTS OF API 5L PSL1 GRADE X WITH SR 15 SUPPLEMENTAL REQUIREMENTS.
- THREADED STEEL BAR SHALL BE CONTINUOUSLY THREADED FOR THE ENTIRE BAR LENGTH CONFORMING TO AASHTO M31, HAVING A MINIMUM YIELD STRENGTH OF 60 KSI.
- THREADED CASING JOINTS ARE NOT ALLOWED WITHIN 3'-0" OF THE PILE CAP.
- NUT AND BAR COUPLING SHALL BE PROVIDED FROM THE SAME MANUFACTURER AS THE THREADED STEEL BAR.
- BAR COUPLING SHALL BE FULLY ENGAGED ON THE THREADED STEEL BAR AND SHALL NOT BE LOCATED IN THE TOP THIRD OF THE MICROPILE LENGTH.
- ANCHOR PLATE SHALL MEET THE REQUIREMENTS OF AASHTO M270 GRADE 50.
- GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF X PSI AND CEMENT SHALL CONFORM TO AASHTO M85 TYPE X.
- GROUT SHALL BE PLACED USING TREMIE METHODS.
- THE CONTRACTOR SHALL SUBMIT A MICROPILE SCHEDULE, MICROPILE INSTALLATION, AND MICROPILE TESTING PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER.
- SPECIAL PROVISIONS FOR ITEM 945.10 DRILLED MICROPILES, ITEM 948.60 MICROPILE VERIFICATION LOAD TEST, AND ITEM 948.61 MICROPILE PROOF LOAD TEST WILL BE PROVIDED AT 75% DESIGN SUBMISSION.



TRANSVERSE SECTION SPAN 1

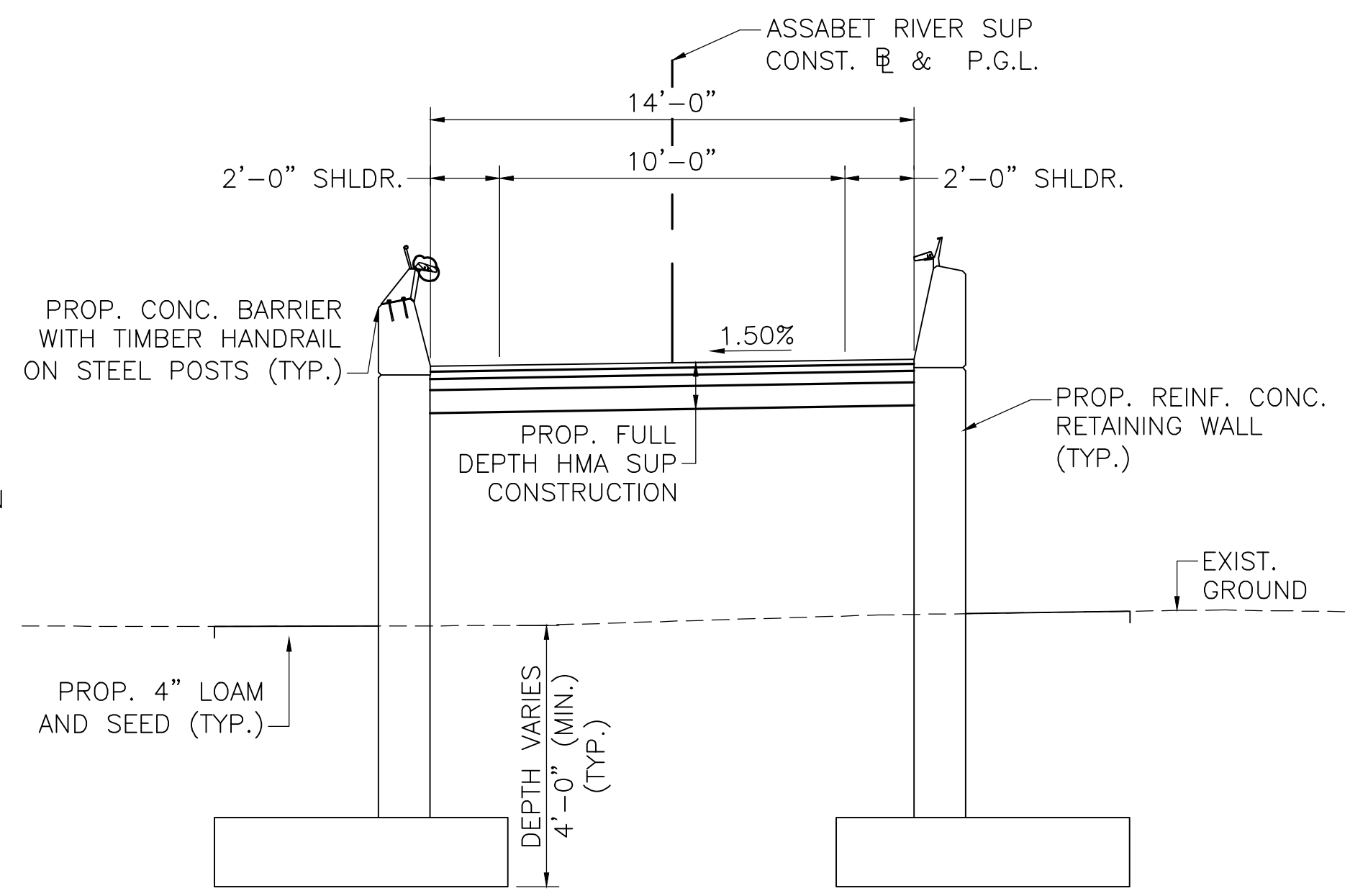
SCALE: 3/8" = 1'-0"

- NOTES:**
- NORTH OVERHANG VARIES IN SPAN 2 BETWEEN STATION 19+94.93 AND STATION 19+98.01 FROM 2'-3" TO 2'-10 1/8".
 - NORTH OVERHANG VARIES IN SPAN 3 BETWEEN STATION 20+49.36 AND STATION 20+69.89 FROM 18" TO 2'-10 1/2".
 - SOUTH OVERHANG VARIES IN SPAN 3 BETWEEN STATION 20+49.36 AND STATION 20+67.37 FROM 2'-6" TO 16 1/2".



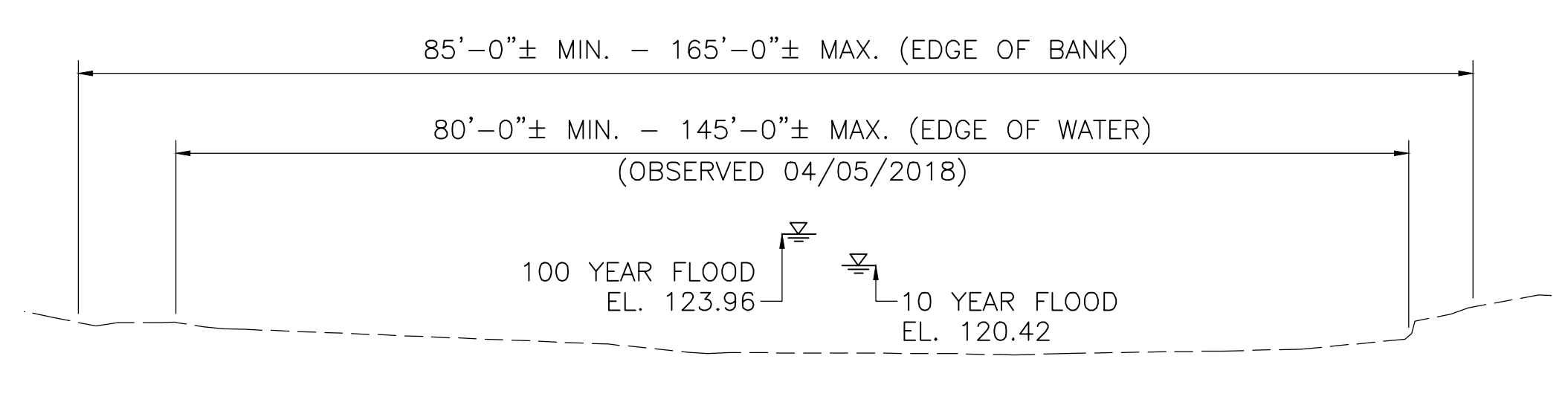
TRANSVERSE SECTION SPAN 3

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



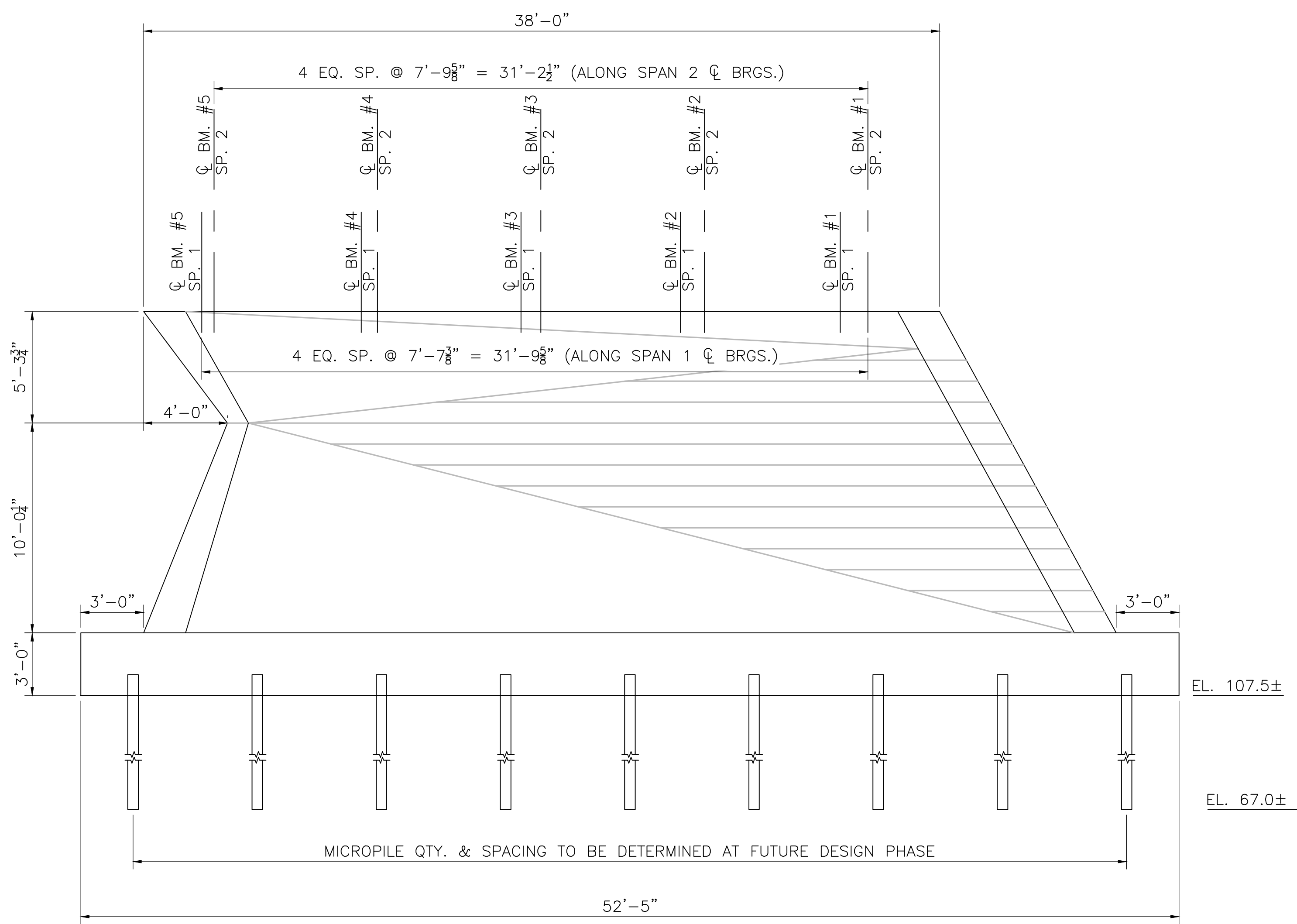
TYPICAL APPROACH SECTION (AT WALLS)

SCALE: 1/4" = 1'-0"

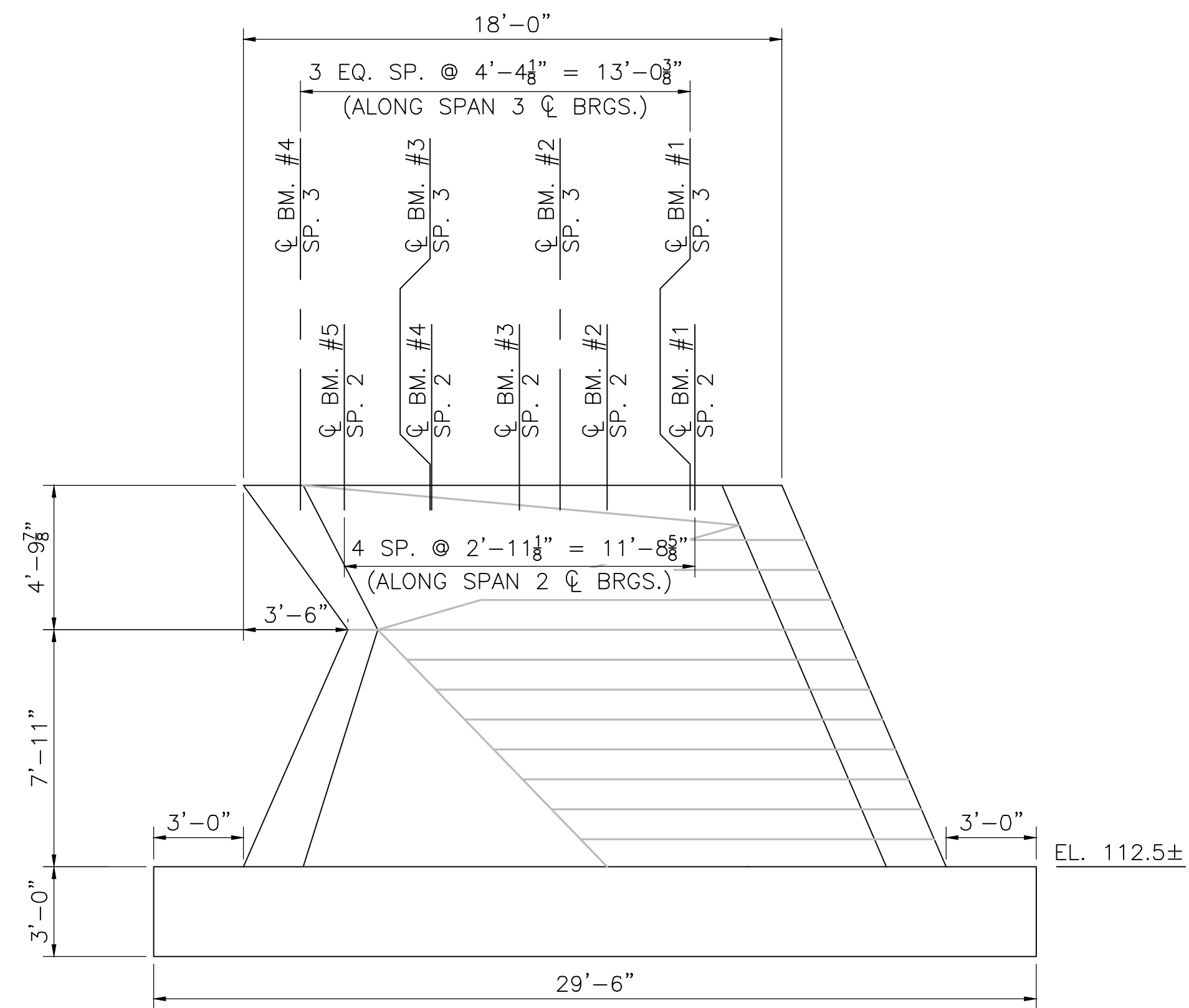


CHANNEL APPROACH SECTION

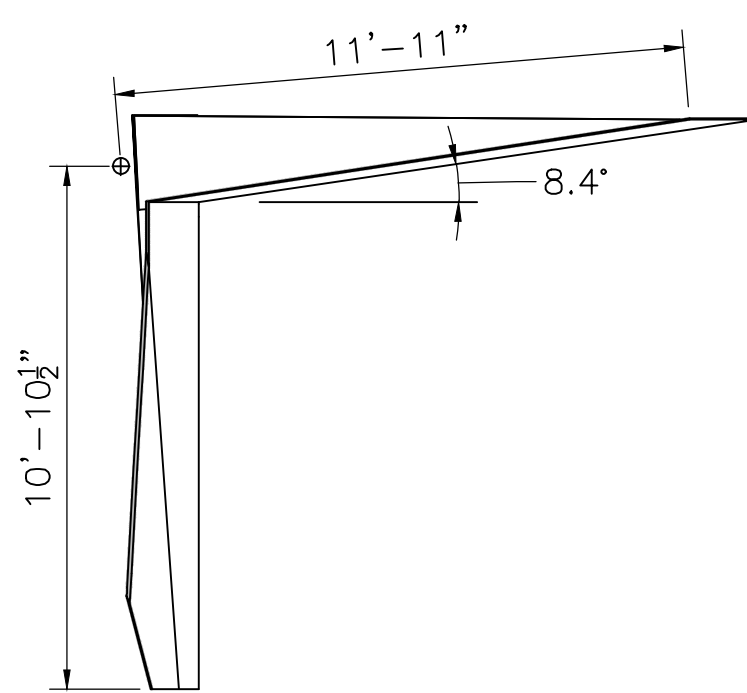
SCALE: 1/8" = 1'-0"



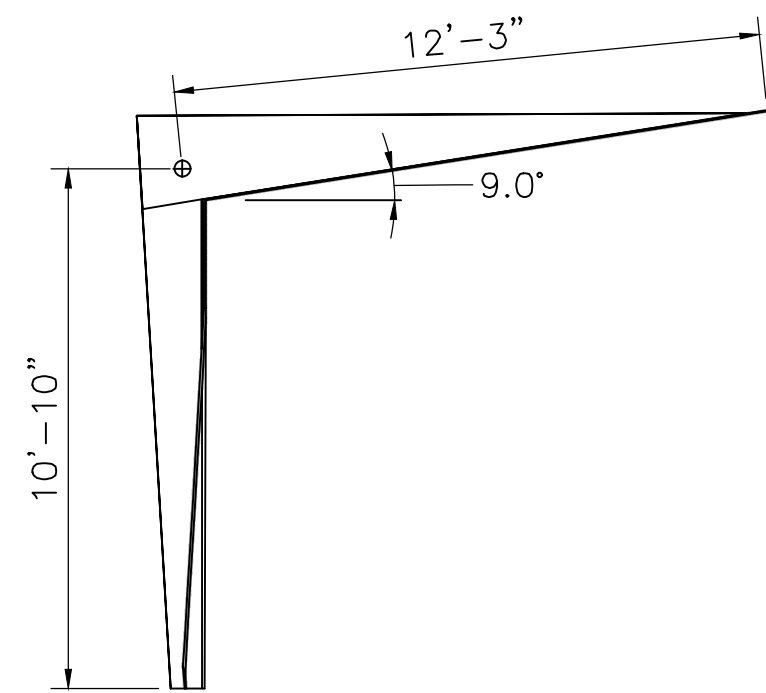
PIER 1 ELEVATION
SCALE: 1/4" = 1'-0"



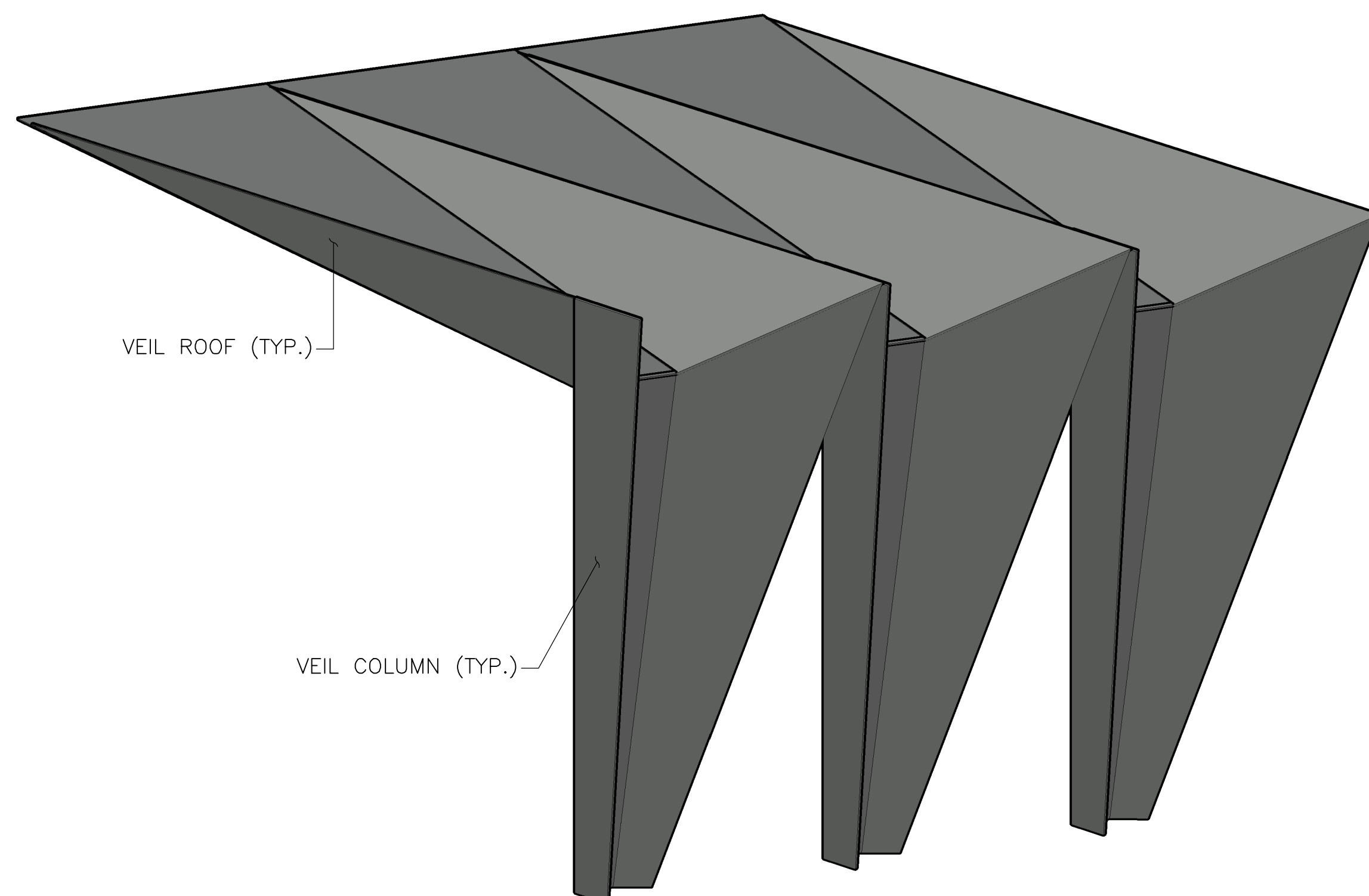
PIER 2 ELEVATION
SCALE: 1/4" = 1'-0"



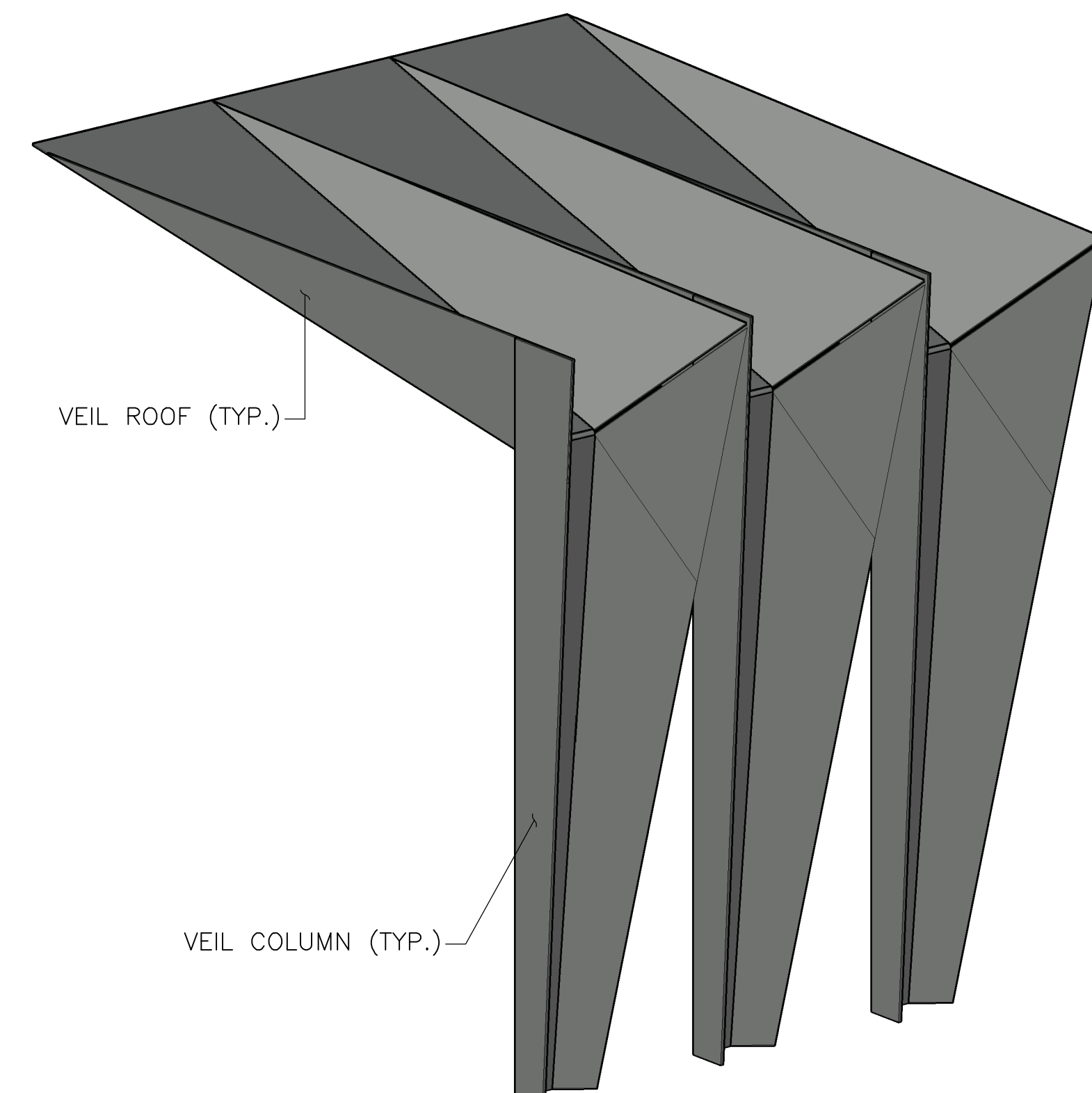
SPAN 1 VEIL SECTION
SCALE: 1/4" = 1'-0"



SPAN 2 VEIL SECTION
SCALE: 1/4" = 1'-0"



SPAN 1 VEIL ISOMETRIC VIEW
(3 MODULES SHOWN)
NOT TO SCALE



SPAN 2 VEIL ISOMETRIC VIEW
(3 MODULES SHOWN)
NOT TO SCALE