FORM 1.

1.1. Primary Location:

West Newbury
Please save the form after selecting Primary Location.

EOHED Region	*Northeast*	**MassDOT District**	*District 4*	**Rural or Small Town**	*Both*
MDFA Regional Office	*North*	**Gateway City**	*N/A*	**Housing Choice**	*No*
Regional Planning Agency	*Merrimack Valley Planning Commission*	**MVP Community**	*Yes - MVP*	**MBTA Community**	*Yes - MBTA*

1.2. Organization Type
[X] Public Entity
[X] Municipality
Public Housing Authority
Redevelopment Authority
Regional Planning Agency
Quasi-Governmental Agency (i.e. Economic Development Industrial Corporation, etc.)
Water or Sewer District
Non-Public Entity

1.3. Applicant Organization Name:

Town of West Newbury

1.4. Applicant Organization Legal Address:

381 Main Street

1.5. City/Town: **1.6. State:** **1.7. Zip Code:**

West Newbury *Massachusetts* *01985*

1.8. CEO Name: **1.9 CEO Title:**

Angus Jennings *Town Manager*

1.10. CEO Tel.: **1.11. CEO Email:**

(978) 363-1100 *townmanager@wnewbury.org*

1.12. Project Contact Name

Angus Jennings

1.13. Project Contact Title

Town Manager

1.14. Contact Tel.: **1.15. Contact Email**

(978) 363-1100 *townmanager@wnewbury.org*

1.16. Organization Description – Describe your organization's structure, including staff capacity, and economic development goals.

West Newbury, located in Essex County, has a population of 4,500 (2020 Census) and is governed by an Open Town Meeting, 3-member Select Board and Town Manager form of government. The Town is a member of the Merrimack Valley Planning Commission, and an active participant in many regional planning efforts, including participating in shared provision of public services with one or more neighboring communities in the areas of Conservation, Animal Control, and Harbormaster. The Town also employs approximately 55 full- and part-time employees in the areas of Police, DPW, Water, Library, and General Governance. The Town's annual budget in the current FY23 is approximately $17.4M (incl. non-Education budget of $8.3M), with a separate Water enterprise budget of approximately $950k. West Newbury is primarily residential in nature, with more than 97% of its tax base being residential. With very limited land zoned for commercial development, and no public sewer, the Town has not prioritized economic development as a policy objective. However, the Town and its people have close economic relationships with its neighboring communities in the region, including immediate neighbors Newburyport and Haverhill. The subject of the present MassWorks grant application represents the Town's continued effort to rebuild the Middle Street Bridge, and to restore one of its primary vehicular connections to Newburyport.

1.17. Is this a joint application between two or more municipalities (and/or entities), which will entail a formal arrangement for a shared scope of work and allocation of funds?

Yes *[X]*No

MBTA Community Questions

1.19. Chose the option below that best reflects your municipality's compliance status with the Guidelines for Multi-family Zoning Districts Under Section 3A of the Zoning Act (MGL c. 40A). Has your municipality:

Submitted an Action Plan to DHCD and NOT YET received a letter confirming Interim Compliance
*[X]*Submitted an Action Plan to DHCD and HAVE received a letter confirming Interim Compliance
Received a determination of District Compliance from DHCD or
Have not submitted an Action Plan nor application for District Compliance to DHCD in accordance with the Guidelines for Multi-family Zoning Districts

1.19.a. Does the community anticipate any changes to its approved Section 3A Action Plan that may result in delays to the plan's schedule of more than 180 days?

Yes *[X]*No

FORM 2.

SECTION 2. PROJECT INFORMATION

2.1. Project Name: *West Newbury - Bridge Replacement*

2.2. Short Project Description / Abstract – Provide a concise description of the project, with a focus on how the grant funds would be used if awarded.

The proposed project will replace the desperately needed Middle Street Bridge, connecting West Newbury to Newburyport, across the Artichoke Reservoir. The bridge was closed in July 2018 due to substantial deterioration. Since then, Newburyport and West Newbury secured MassDOT and MassWorks grant funding, and successfully brought the project through permitting; but for a gap in construction funding - which this proposed MassWorks grant would help fill - this important project is "shovel ready."

2.3. Project Category for Grant Consideration. Select the **Development Continuum** category, Project Type and Project Focus that best fits the project. Applicants can see the One Stop grant program most likely to review each type of project by hovering over the radio button next to each Project Focus option.

ATTENTION APPLICANT: Save form after answering or changing answer to question 2.3.

Development Continuum Category:

Community Activation and Placemaking
Planning and Zoning
Site Preparation
Building
[X] Infrastructure

Project Type:

Infrastructure Predevelopment
*[X]*Infrastructure Construction*

Project Focus:

Public Infrastructure to Support Growth
*[X]*Small Town Road improvements to enhance public safety (aka STRAP)

*Infrastructure Construction projects may include predevelopment components in addition to capital construction activities.

ATTENTION APPLICANT: Save form after answering or changing answer to question 2.3.

2.4. Narrative / Scope of Work –Explain the project. Describe the proposed work that would be funded by the grant and carried out to execute this project.

The proposed bridge replacement will replace Bridge No. N-11-007=W-20-001 which crosses from West Newbury easterly over the Artichoke Reservoir into the neighboring City of Newburyport. The project will replace the desperately needed Middle Street Bridge over the Artichoke Reservoir allowing it to be reopened for public use.

The project site is located on Middle Street (West Newbury) and turns into Plummer Spring Road (in Newburyport), and crosses the Artichoke Reservoir. The Artichoke Reservoir is a tributary flowing south to north into the Merrimack River and is a public water supply for the nearby towns. The southern face of the original structure, which was a granite arch built in the late 19th century, collapsed in July of 2018, forcing the town and Newburyport to agree to close the bridge.

The bridge was closed in July of 2018 due to its deteriorated condition and partial collapse. Unfortunately, due to the nature of the collapse and the materials originally used, none of the existing structure is salvageable. There are no utilities located at the bridge site, eliminating potential delays and complications resulting from their relocation. The road will remain closed throughout the construction period, which is estimated to take approximately 10 months from start to completion.

The Town, in coordination with the City of Newburyport, has been working to design, permit and secure funding for a replacement bridge since the bridge closing. Supported by a $500,000 MassDOT Small Bridge grant awarded to the City of Newburyport (of which half remains, allocated for construction) and a $1M MassWorks grant awarded to West Newbury in 2020 (which is due to expire on June 30, 2023), the project has reached 100% design and is fully permitted.

Upon securing sufficient grants and appropriations for construction, the Town intends to put the project out to bid. However, the procurement process cannot begin until all funding is in place.

2.5. Project Need – Describe why this project is necessary in enhancing community economic development.

Note: For Small Town Road Improvements to Enhance Public Safety projects, the applicant should describe why the project is necessary to enhance roadway safety.

Reopening the Bridge is crucial because it provides vital access for first responders servicing the Town of West Newbury from Newburyport. Middle Street Bridge is also an evacuation route for the Seabrook Nuclear Power Station. Federal lawmandates that an evacuation route be provided for communities within a 10-mile radius of the emergency planning zone. This evacuation route has been severed for residents seeking safe passage due to the bridge collapse.

The bridge closure has resulted in residents' restricted access to the Anna Jaques hospital in Newburyport, and to many of the area's largest employers located across the bridge in Newburyport.

Safety improvements will be made by adding standardized bridge rails, precast guardrail transitions, and by increasing roadway width and improving the alignment. The permitted bridge design includes a sidewalk to increase the safety of pedestrians and people who fish off the side of the bridge.

2.6. Target Population Description – Describe the specific population(s),neighborhood(s), or census block that will be served and how they will be supported by the outcomes of the project. If the project is city/town wide, provide the description for the whole community. If applicable, describe how the project aligns with recommendations of the Governor's Black Advisory Commission and/or Latino Advisory Commission and focuses on Black and/or Latino communities.

The proposed project will greatly benefit residents of West Newbury whose commuting or other travel routinely takes them to/from Newburyport. Although there are fewer Newburyport residents traveling west than there are West Newbury residents traveling east, the re-opening of this regional transportation route will better allocate traffic along a broader network of streets.

The closure of this portion of road and resulting 3.4-mile detour has been costly for local business, and has increased vehicle miles traveled due to effects on commuting and commerce. Additionally, West Newbury's aging population requires unrestricted access to the most direct route to the Anna Jaques Hospital located 2.5 miles from the closure.

2.7. Is the project area located within an Environmental Justice census block group? **CLICK HERE** to access the Commonwealth's Environmental Justice Map Viewer.

Yes *[X]*No

2.8. Anticipated Outcomes and Impacts – Explain how the project will catalyze community economic development. Describe the tangible outcomes, including impacts on housing production, job growth, workforce development, entrepreneurship, local business and/or other social benefits.

Note: For Small Town Road Improvements to Enhance Public Safety projects, the applicant should describe the anticipated outcomes related to roadway safety.

The proposed bridge will be a single span structure constructed of concrete beams supported by integral abutments to increase longevity, and to decrease maintenance and construction costs. Full pavement depth will be used throughout the limits of the roadway reconstruction.

The project is not projected to have impacts on housing production, job growth, or workforce development. However, due to its restoration of an important intermunicipal transportation route, the project could be expected to have tangential impacts on entrepreneurship and local businesses, including facilitating greater commerce between West Newbury and Newburyport residents and businesses. Social benefits can also be expected to accrue, including a reduction of vehicle miles traveled, owing to the re-routing of traffic that resulted from the Bridge's closure in 2018.

The bridge closure has resulted in residents' restricted access to the Anna Jaques hospital in Newburyport, and to many of the area's largest employers located across the bridge in Newburyport.

Safety improvements will be made by adding standardized bridge rails, precast guardrail transitions, and by increasing roadway width and improving the alignment. The permitted bridge design includes a sidewalk to increase the safety of pedestrians and people who fish off the side of the bridge.

2.9. Does the community have any active housing restrictions, such as phased growth zoning or an active housing moratorium?

Yes *[X]*No Unknown

2.10. Leadership and Ability to Execute – Describe the leadership and project management group for this project and why it is an effective team to advance this project. Identify the full name of the person(s) that will serve as the applicant's project contact. If the applicant is partnering with other organizations, list the partner organization(s), and briefly describe their role in accomplishing the project.

The applicant's primary project contact is West Newbury Town Manager Angus Jennings. The Town Manager oversees a local project team including the DPW Director and personnel. Through the duration of this project (dating back to 2018), the Town has worked in very close coordination with the City of Newburyport, primarily through the Office of the Mayor, and the Newburyport Department of Public Services and City Engineer. These collaborations are ongoing, and will continue through the duration of the project.

The Town has proven its leadership and project management capabilities in bringing this project this far, and seeks support from the MassWorks program to assist in filling the funding gap necessary to bring this project through construction.

2.11. Progress to date – What progress has the applicant/partner organization(s) made on this project to date? Include details about planning, community engagement, prior State/Federal funding, development tools used, noting if the project is included in any adopted municipal or regional plans (e.g. Master Plan, CEDS, HPP, etc.).

Working collaboratively, and with the ongoing support of design engineers BSC Group, the Town and City have brought the project through full permitting. This work was supported by a $500k MassDOT Small Bridge grant awarded to the City of Newburyport in 2018 (of which $250k remains, allocated for construction) and a $1M MassWorks grant awarded to the Town of West Newbury in 2020 (which is due to expire on June 30, 2023).

The Town held a widely publicized public hearing in Fall 2019, at which multiple design options were reviewed. A preferred design option, including the addition of a sidewalk, was selected, and carried forward through design and permitting.

Due to the work taking place within sensitive environmental areas, including a public drinking water source, the project required permitting from MassDEP, MassDOT, Massachusetts Historical Commission, the Massachusetts Executive Office of Energy and Environmental Affairs (under MA Environmental Policy Act, or MEPA), the U.S. Fish & Wildlife Services, the U.S. Army Corps of Engineers, and both West Newbury and Newburyport Conservation Commissions.

Following a very lengthy and time-intensive process with each of these local, State and Federal agencies, the Middle Street Bridge is nowfully permitted! Although it is good news is that the project is now"shovel ready," the bad news is that there is a sizable funding gap that will need to be filled in order for the project to be put out for bid.

The initial goal was for the bridge to be fully constructed by June 30, 2023, but the length of the required permitting processes - including delays related to COVID-19 - made this goal impossible.

2.12. Timeline Information – Describe the timeline for the project. Include any tasks that the applicant would need to complete before expending grant funds, if awarded (i.e. procurement, hiring contractors, issuing RFPs, etc.), as well as information about any notable dates and/or milestones. Note: Grants awards will be announced in Fall 2023 for contracts starting in FY24.

Prior to expending the requested MassWorks grant funds, the Town and City will need to secure and appropriate sufficient funding, together, to fill the gap between available funds and estimated total funds that will be needed to reconstruct the bridge.

On May 5th, 2023, the Town received an updated opinion-of-probable-cost from the project engineer, BSC Group. Unfortunately – but not unexpectedly – the updated project cost estimate showed a significant increase from the prior cost estimate. This exacerbated what was already known to be a funding shortfall. This project will require additional local and/or non-local (i.e. grant) funding in order for the Town and City to award a construction contract.

During the term of the proposed MassWorks grant, the Town and City will, collectively, either appropriate, authorize as debt, and/or secure (from non-local sources) the balance of funding needed to bring this project through construction.

2.13. Budget – In the table below, provide a breakdown, by spending category, of the total grant funding requested for the proposed project.

Spending Category	Funding Requested
Pre-Construction (Design, Engineering, Permitting, Bidding, etc)	*$0*
Environmental Remediation	*$0*
Construction (Including Demolition)	*$1,000,000*
Construction Admin.	*$0*
Contingency	*$0*
Other / Miscellaneous	*$0*
TOTAL	***$1,000,000***

2.14. Provide line item explanations, justifications, and/or notes for the funding requested in question 2.13. Include an explanation of the methods for estimating project costs.

On May 5th, 2023, the Town received an updated opinion-of-probable-cost from the project engineer, BSC Group. BSC reviewed the construction estimate of quantities and item costs. The estimate was updated to include MassDOT and municipal comments and revisions to date. The unit prices were updated in accordance with MassDOT standards and based on MassDOT current weighted bid averages. The summary sheet for the construction bid items, calculated quantities and unit prices is provided as an attachment to this grant application.

2.15. Will the applicant provide a match to supplement any grant funds awarded?

*[X]*Yes No

2.15.a. If yes, what is the match amount? *$850,000*

2.15b. Describe the source(s) and status of all matching funds.

In 2018, Newburyport secured a $500k MassDOT Small Bridge grant. Half of those funds were authorized for engineering/design, and have been fully expended. The remaining $250k were authorized for construction, and remain available. The Small Bridge grant, initially due to expire on June 30, 2022, were successfully extended upon petition to MassDOT, and are available through June 30, 2024.

In June 2020, West Newbury Town Meeting voters appropriated $600,000 for this project from the Town's Stabilization Fund.

Newburyport Mayor Sean Reardon included a proposed $700,000 in additional local funding as part of his FY24 Capital Budget proposal to the City Council. The availability of this funding will depend on whether it is approved by the Council as part of its overall budget reviewprocess (which is ongoing). The amount of funding appropriated by the City Council within its FY24 budget process will have direct bearing on the amount of funding needed to put the project out to bid.

2.15.c. Does the match include local ARPA funds?

Yes *[X]*No

2.16. Attach an engineer's cost estimate or similar document that details and substantiates the requested grant amount for construction. Applicant may submit a pre-filled worksheet, such as from the MassDOT Construction Project Estimator. Contingencies should be clearly identified using a separate line item(s).

ATTACHMENT HERE: Attach cost estimate.
BSC updated cost estimate 5-5-23.pdf

Site Information

2.17. Project Address(es): (If multiple, enter the ID for each parcel individually. Add lines as necessary)

Middle Street right-of-way, West Newbury

Plummer Spring Road right-of-way, Newburyport

2.18. Parcel ID(s): (If multiple, enter the ID for each parcel individually. Add lines as necessary.)

Not applicable

ATTACHMENT HERE: Attach a map showing the project location.

Project Location map - BSC Group.pdf

2.19. Describe the project site(s) or building, include square footage, ownership history, past/present uses and operators, conditions of any existing building(s), historic considerations, unique challenges that may exist at this location, etc. If applicable, indicate whether the applicant has site control.

The proposed bridge replacement is located entirely within public rights-of-way under the control of the Town of West Newbury (through its Select Board) and the City of Newburyport.

Although the project has faced unique challenges, including environmental considerations, due to its crossing of the Artichoke Reservoir, the primary public water supply for Newburyport, West Newbury, and parts of Newbury, it has successfully navigated all required permitting. The project has secured approvals from MassDOT, Massachusetts Historical Commission, the Massachusetts Executive Office of Energy and Environmental Affairs (under MA Environmental Policy Act, or MEPA), the U.S. Fish & Wildlife Services, the U.S. Army Corps of Engineers, and both the West Newbury and Newburyport Conservation Commissions.

Both the Town and City, as the landowners, signed the applications for permitting, including to the local Conservation Commissions, which required demonstration of site control.

2.20. What type of use is currently allowed by zoning on the project site(s)? (Check all that apply)

Industrial/Commercial
Mixed - Use
Residential – Single Family / Townhome
Other:
Residential – Multi-family
*[X]*None of the above

2.21. Would you like this application to be reviewed for potential 43D expedited permitting designation of the site? (*If site is already designated, check No*)

Yes *[X]*No

Special Designation: Housing Choice Community

Special Designation: Rural and Small Town

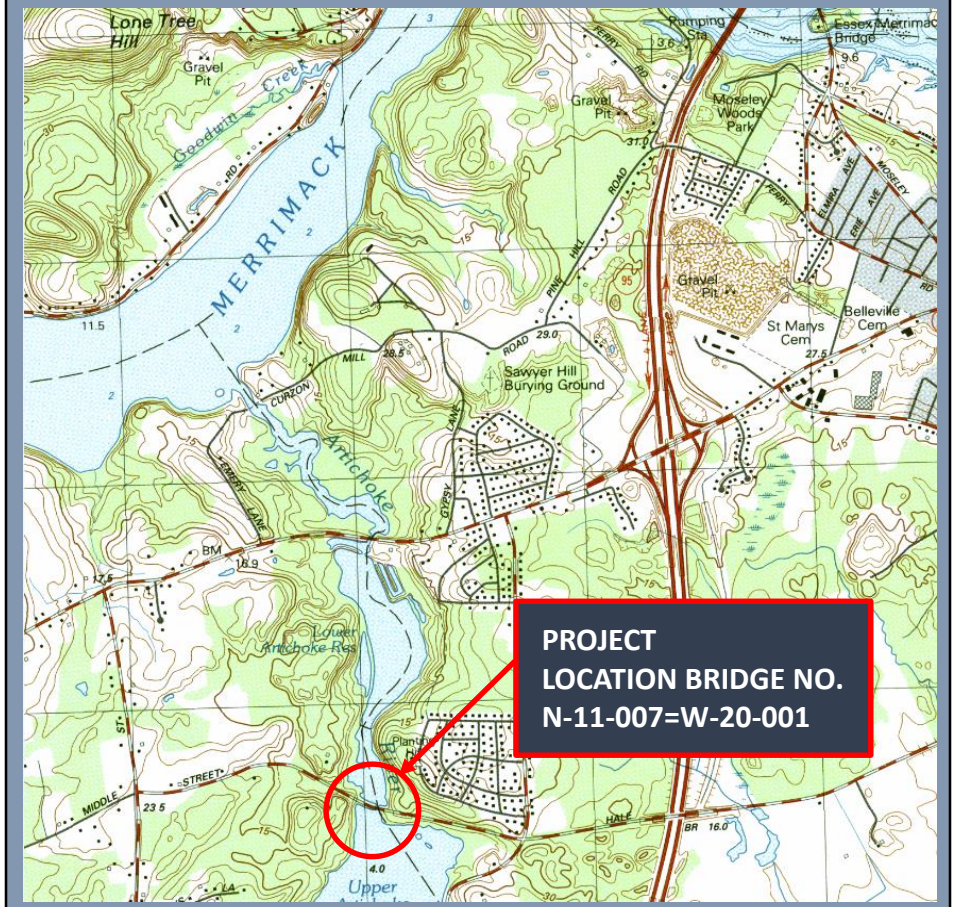
By virtue of the applicant's status as a Rural and/or Small Town, this project may be eligible for the Rural and Small Town Development Fund. Please note that the maximum Rural and Small Town Development Fund award is $500,000. To be considered for funding through this program, you must complete **Section 8. Special Designation Additional Questions**, located on Form 3.a. of the application**.**

2.23. Do you intend to complete Section 8. Special Designation Additional Questions in order to be considered by the Rural and Small Town Development Fund?

Yes *[X]*No

Project Location

NEWBURYPORT/ WEST NEWBURY –
Plummer Spring Rd. Over Artichoke Reservoir



PROJECT LOCATION MAP

BSC GROUP

Town Manager

From: Morrison, Micah <mmorrison@bscgroup.com>
Sent: Friday, May 5, 2023 2:04 PM
To: Town Manager; Jon-Eric White
Subject: Construction Estimate Summary and Estimate of Cost increases from 2019 to 2023
Attachments: 20230505_SUMMARY _CONSTRUCTION EST._NEWBURYPORT_WEST NEWBURY.pdf

BSC has reviewed the construction estimate of quantities and item costs. The estimate has been updated to include MassDOT and municipal comments and revisions to date. The unit prices have been updated in accordance with MassDOT standards and based on MassDOT current weighted bid averages. Attached is the summary sheet for the construction bid items calculated quantities and unit prices. This is the current estimated construction cost. The summary sheet is based on approximately 100 pages of quantity calculations.

Below is a summary of estimated project cost increases from 2019 to 2023.

		Original Project Cost in 2019		**$2,600,000**
1	2019	Order of Magnitude Cost Estimate	$2,150,000	
	2021	Detailed Cost Estimate	$2,485,000	
	2023	Final Cost Estimate 5/5/2023	$3,315,000	
		Increase		**$1,165,000**
2	2019	Design/permitting estimate	$410,000	
	2021	Design/permitting	$436,000	
	2023	Final Permitting and Design	$550,000	
		Increase		**$140,000**
	2019	Contingency	$0	
3	2021	Contingency Added	$270,000	
	2023	Minimum Recommended Contingency 10%	$331,500	
		Increase		**$331,500**
4	2019	Resident Engineer (none BSC employee)	$40,000	
	2021	Resident Engineer (none BSC employee)	$150,000	
	2023	Resident Engineer (none BSC employee)	$150,000	
		Increase		**$110,000**
5	2023	Est. Construction Engineering Services*	$60,000	
		Increase		**$60,000**
		Total Estimated Project Cost May 2023		**$4,406,500**

* Construction Engineering services: shop drawing review, milestone inspection permitting and engineering, RFI's, meetings, review of contractor invoices, etc.

Micah Morrison, P.E., S.E.
Senior Associate / Manager of Structural Engineering
D: 617-896-4356 / C: 978-257-2213
mmorrison@bscgroup.com
www.bscgroup.com

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

ESTIMATE OF QUANTITIES & ITEM COST

CITY	NEWBURYPORT/WEST NEWBURY	**OVER**	UPPER ARTICHOKE RESERVOIR
TYPE	CONCRETE BOX BEAM	**CLASS**	HL-93
SPAN	45'-0"	**BR. WIDTH**	32'-6"
ROAD	PLUMMER SPRING ROAD/MIDDLE STREET	**ROAD WIDTH**	24'-0"
CALC.	SSF/AK 2023	**CHKD.**	KLE/MCM 2023

HIGHWAY ITEMS

ITEM NO.		UNITS	ITEM DESCRIPTION	Unit Price	Bridge Quantity	Highway Quantity	Combined Quantity	Bridge Cost	Highway Cost	Total Cost
102.01	*	LS	SELECTIVE CLEARING AND GRUBBING	$3,000.00	0	1	1	$0.00	$3,000.00	$3,000.00
102.511	*	EA	TREE PROTECTION - ARMORING & PRUNING	$452.50	0	6	6	$0.00	$2,715.00	$2,715.00
102.521	*	FT	TREE AND PLANT PROTECTION FENCE	$14.50	0	200	200	$0.00	$2,900.00	$2,900.00
103.		EA	TREE REMOVED - DIAMETER UNDER 24 INCHES	$1,850.00	0	15	15	$0.00	$27,750.00	$27,750.00
115.1	*	LS	DEMOLITION OF BRIDGE NO. N-11-007=W-20-001(8BC)	$240,000	1	0	1	$240,000.00	$0.00	$240,000.00
120.		CY	EARTH EXCAVATION	$60.00	0	180	180	$0.00	$10,800.00	$10,800.00
121.		CY	CLASS A ROCK EXCAVATION	$135.00	0	10	10	$0.00	$1,350.00	$1,350.00
140.		CY	BRIDGE EXCAVATION	$65.00	570	0	570	$37,050.00	$0.00	$37,050.00
141.1		CY	TEST PIT FOR EXPLORATION	$120.00	0	50	50	$0.00	$6,000.00	$6,000.00
143.		CY	CHANNEL EXCAVATION	$65.00	390	0	390	$25,350.00	$0.00	$25,350.00
144.	*	CY	CLASS B ROCK EXCAVATION	$185.00	90	0	90	$16,650.00	$0.00	$16,650.00
151.		CY	GRAVEL BORROW	$60.00	0	220	220	$0.00	$13,200.00	$13,200.00
151.1		CY	GRAVEL BORROW FOR BRIDGE FOUNDATION	$75.00	290	0	290	$21,750.00	$0.00	$21,750.00
151.2		CY	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	$62.00	35	0	35	$2,170.00	$0.00	$2,170.00
153.1	*	CY	CONTROLLED DENSITY FILL - NON-EXCAVATABLE	$250.00	14	0	14	$3,500.00	$0.00	$3,500.00
156.13	*	TON	CRUSHED STONE FOR INTEGRAL ABUTMENT PILES	$72.00	35	0	35	$2,520.00	$0.00	$2,520.00
156.5		CY	CRUSHED STONE FOR FILTER BLANKET	$72.50	44	0	44	$3,190.00	$0.00	$3,190.00
170.		SY	FINE GRADING AND COMPACTING - SUBGRADE AREA	$15.00	0	720	720	$0.00	$10,800.00	$10,800.00
290.	*	LS	DRAINAGE SYSTEM	$100,000.00	0	1	1	$0.00	$100,000.00	$100,000.00
402.		CY	DENSE GRADED CRUSHED STONE FOR SUB-BASE	$125.00	0	80	80	$0.00	$10,000.00	$10,000.00
443.		MGL	WATER FOR ROADWAY DUST CONTROL	$60.00	0	3	3	$0.00	$180.00	$180.00
450.22		TON	SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5)	$300.00	0	70	70	$0.00	$21,000.00	$21,000.00
450.31		TON	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5)	$215.00	0	90	90	$0.00	$19,350.00	$19,350.00
450.41		TON	SUPERPAVE BASE COURSE - 25.0 (SBC - 25.0)	$220.00	0	180	180	$0.00	$39,600.00	$39,600.00
450.60		TON	SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B - 9.5)	$395.00	15	0	15	$5,925.00	$0.00	$5,925.00
450.70		TON	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 (SPC-B - 9.5)	$300.00	20	0	20	$6,000.00	$0.00	$6,000.00
452.		GAL	ASPHALT EMULSION FOR TACK COAT	$10.00	0	150	150	$0.00	$1,500.00	$1,500.00
453.		FT	HMA JOINT SEALANT	$2.00	0	450	450	$0.00	$900.00	$900.00
470.		TON	HOT MIX ASPHALT BERM	$360.00	0	15	15	$0.00	$5,400.00	$5,400.00
472.		TON	TEMPORARY ASPHALT PATCHING	$400.00	0	5	5	$0.00	$2,000.00	$2,000.00
504.		FT	GRANITE CURB TYPE VA4 - STRAIGHT	$85.00	0	80	80	$0.00	$6,800.00	$6,800.00
504.2		EA	GRANITE CURB TYPE VA-4 - SPLAYED END	$150.00	0	10	10	$0.00	$1,500.00	$1,500.00
620.136		FT	GUARDRAIL, TL-3 STIFFENING WITH HALF POST SPACING (SINGLE FACE)	$150.00	0	320	320	$0.00	$48,000.00	$48,000.00
620.137		FT	GUARDRAIL, TL-3 STIFFENING WITH HALF POST SPACING, DEEP POST (SINGLE FACE)	$200.00	0	80	80	$0.00	$16,000.00	$16,000.00
627.1		EA	TRAILING ANCHORAGE	$2,500.00	0	1	1	$0.00	$2,500.00	$2,500.00
628.24		EA	TRANSITION TO BRIDGE RAIL	$6,750.00	0	4	4	$0.00	$27,000.00	$27,000.00
630.2		FT	HIGHWAY GUARD REMOVED AND DISCARDED	$8.00	0	500	500	$0.00	$4,000.00	$4,000.00
657.	*	FT	TEMPORARY FENCE	$30.00	0	150	150	$0.00	$4,500.00	$4,500.00
698.4	*	SY	GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL	$24.50	390	0	390	$9,555.00	$0.00	$9,555.00
741.	*	MO	ENGINEERS FIELD OFFICE AND EQUIPMENT (TYPE B)	$3,000.00	0	22	22	$0.00	$66,000.00	$66,000.00
748.		LS	MOBILIZATION	$97,000.00	0.75	0.25	1	$63,000.00	$34,000.00	$97,000.00
751.		CY	LOAM FOR ROADSIDES	$80.00	0	20	20	$0.00	$1,600.00	$1,600.00
765.		SY	SEEDING	$3.00	0	125	125	$0.00	$375.00	$375.00
767.121	*	FT	SEDIMENT CONTROL BARRIER	$8.00	0	1000	1000	$0.00	$8,000.00	$8,000.00
769.01	*	SY	PAVEMENT MILLING MULCH UNDER GUARD RAIL	$30.00	0	200	200	$0.00	$6,000.00	$6,000.00
833.7		EA	DELINEATION FOR GUARD RAIL TERMINI	$75.00	0	1	1	$0.00	$75.00	$75.00
853.1		EA	PORTABLE BREAKAWAY BARRICADE TYPE III	$150.00	0	4	4	$0.00	$600.00	$600.00
853.21		FT	TEMPORARY BARRIER REMOVED AND RESET	$15.00	0	75	75	$0.00	$1,125.00	$1,125.00
853.22	*	FT	TEMPORARY BARRIER REMOVED AND STACKED	$50.00	0	175	175	$0.00	$8,750.00	$8,750.00
942.124		FT	STEEL PILE HP 12 X 84	$233.00	380	0	380	$88,540.00	$0.00	$88,540.00
948.41		EA	DYNAMIC LOAD TEST BY CONTRACTOR	$10,000.00	2	0	2	$20,000.00	$0.00	$20,000.00
948.5		EA	PILE SHOES	$175.00	10	0	10	$1,750.00	$0.00	$1,750.00
983.12	*	TON	RIPRAP WITH GRAVEL PACKED VOIDS	$125.00	440	0	440	$55,000.00	$0.00	$55,000.00
983.521	*	CY	STREAM/BANK RESTORATION	$93.00	86	0	86	$7,998.00	$0.00	$7,998.00
991.1	*	LS	CONTROL OF WATER - STRUCTURE NO. N-11-007=W-20-001	$330,000.00	1	0	1	$330,000.00	$0.00	$330,000.00
994.01	*	LS	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. N-11-007 = W-20-001	$100,000.00	1	0	1	$100,000.00	$0.00	$100,000.00
995.01		LS	BRIDGE STRUCTURE, BRIDGE NO. N-11-007=W-20-001	$1,116,250.00	1	0	1	$1,116,250.00	$0.00	$1,116,250.00
996.4	*	LS	PREFABRICATED CONCRETE MODULAR BLOCK WALL (WITH GEOGRID REINFORCEMENT)	$643,280.00	0	1	1	$0.00	$643,280.00	$643,280.00
							TOTAL =	$2,156,198.00	$1,158,550.00	**$3,314,748.00**

SAY	**$3,315,000.00**

FORM 3.

DEVELOPMENT CONTINUUM QUESTIONS

Development Continuum sections will populate based on the selection made in question 2.3

SECTION 7. INFRASTRUCTURE

ATTENTION APPLICANT: You are seeing the below questions because you made the following selection in question 2.3:

Development Continuum Category: Infrastructure

Project Type: Infrastructure Construction

Project Focus: Small Town Road Improvements to Enhance Public Safety (aka STRAP)

Before you proceed, we recommend that you read the program guidelines for the MassWorks Infrastructure Program.

As a designated Rural and Small Town, we recommend that you read the program guidelines for the Rural and Small Town Development Fund. Please note that the maximum Rural and Small Town Development Fund award is $500,000. Form 3.a. Special Designation Questions must be completed to be considered for funding by the Rural and Small Town Development Fund.

7.1. Is the project site located at or within a half mile of a transit station (defined as a subway, light rail, ferry, or commuter rail station), and/or is located in a zoning district that allows multi-family by right in accordance with Section 3A of MGL c.40A?

Yes [X]No

ATTACHMENT HERE: Attach an aerial view map showing the limits of work of the public project site in relation to the limits of work of the private project site (if applicable). Clearly delineate the two.

Project Location map - BSC Group.pdf

ATTACHMENT HERE: Attach a site plan, conceptual drawing, and/or construction design that clearly demonstrates the location and proposed work.

Signed_CH85_N-11-007=W-20-001 Bridge Plans.pdf

7.2. Is the project site publicly owned?

[X]Yes No

7.2.a. If Yes, describe the type of public ownership (Check all that apply).

Public Land

[X]Right of Way

Leasehold Easement

Other

7.3. If the applicant is not the municipality, does the applicant have a letter from the municipal CEO outlining knowledge of and support for the proposed project?

Yes No [X]N/A

Infrastructure Predevelopment

Infrastructure Capital

7.9. Provide the planned schedule/timeline for the public infrastructure project.

Milestone	*Start Date*	*End Date*

Design / Engineering / Permitting	*7/3/2017*	*5/5/2023*
Bidding Open / Close	*4/1/2024*	*4/30/2024*
Construction Start	*7/1/2024*	
50% Construction		*12/31/2024*
Construction Complete		*7/31/2025*

7.10. What percentage of the public infrastructure project design is completed? *100*

7.11. Which of the following permits, licenses, and/or approvals are required for the public infrastructure project? For each selected item, indicate if secured and the actual or anticipated dates of filing and issuance. *Note: Do not include any requirements related to associated private development.*

Check if Required	*Check if Secured*	*Filing Date (Actual or Anticipated)*	*Decision Date (Actual or Anticipated)*
Article 97 Land Disposition			
*[X]*Chapter 91 License	*[X]*	*10/21/2022*	*5/5/2023*
*[X]*401 Water Quality Certification	*[X]*	*1/21/2021*	*1/5/2023*
Superseding Order of Conditions			
Water Management Act Permit			
*[X]*MassDOT Access Permit	*[X]*	*1/23/2020*	*3/17/2023*
*[X]*Mass Historic Commission Review	*[X]*	*1/15/2021*	*2/16/2021*
Planning Board			
*[X]*Conservation Commission	*[X]*	*1/4/2021*	*7/14/2021*
Zoning Board			
Sewer Extension Permit			
Utility Relocation			
Building Permit			
*[X]*Other Specify: *U.S. Army Corps of Engineers*	*[X]*	*1/15/2021*	*4/9/2021*

7.12. Is the construction work planned as a non-participating scope item on a MassDOT TIP project?

Yes *[X]*No

7.13. Will the project include work on a state roadway and/or at an intersection with a state roadway?

Yes *[X]*No

7.14. Does the public infrastructure project meet or exceed any of the thresholds for MEPA review set forth in 301 CMR 11.03?

*[X]*Yes No

7.14.a. If Yes, list any filings that the proponent has made or plans to make with the MEPA Office for the project, and indicate whether the review is expected to be full scope or limited scope.

State permit & funding required an exceedance of one or more MEPA ReviewThresholds defined in 301 CMR 11.03. The project filed for a MEPA Certificate on July 15, 2021. A MEPA Certificate was issued to the project on August 23, 2021.

ATTACHMENT HERE: Attach a copy of the project's output report from the Commonwealth's online Climate Resilience Design Standards Tool.

Middle20Street20Bridge_report.pdf

The Climate Resilience Design Standards Tool guides users to input basic project information and will generate a downloadable report for attachment. Please note that only information related to the public infrastructure portion of the project should be entered into the tool. After clicking "Submit Project inside the tool, the project information will be saved, and a "Download Report icon will appear for the user. The entire process, exclusive of registration, should take no more than 15 minutes per project. Click HERE to register and access the Climate Resilience Design Standards Tool.

7.15. Does the project's Climate Resilience Design Standards Tool report provide a "High preliminary exposure score for either Sea Level Rise/Storm Surge, Extreme Precipitation - Urban Flooding, or Extreme Precipitation - Riverine Flooding? (See above attachment)

*[X]*Yes No

7.15.a. If yes, please specify the design storm (return period) that the applicant intends to use in the engineering of the public infrastructure project (e.g., the 25-year storm or 4% storm). Additionally, please describe any design strategies that the public infrastructure project will incorporate, and/or that the applicant plans to investigate as part of the project's design, to mitigate the potential impacts of future flooding.

The current FEMA 10-year and 100-year flood elevation in this location is around 12.6' and 13.0', respectively. The existing lowchord of the bridge is Elev. 16.2'. Putting the lowchord of the newbridge at or above 16.2' will accommodate the MassDOT required 10-year design storm and the 100-year storm. In addition, the newbridge will have a larger hydraulic opening (cross-sectional area, which the water passes through). If an elevation of 16.2' or greater is used the hydraulic capacity of the bridge is improved. This is helpful for future uncertainties of more intense rainstorms and Sea Level Rise (SLR).

Future SLR for year 2100 – which is approx. the end of a 75-year design life of a bridge of this type, per MassDOT req'ts – is projected at 3' to 8', per NOAA. Placing the lowchord at elevation 17.0', and the road surface around elevation 20, will provide assurance that it will survive most SLR scenarios and many future storm events without going much higher than it is today.

7.16. Will the public infrastructure project result in a net increase in impervious area?

Yes *[X]*No

Infrastructure STRAP

7.17. If available, please provide the pavement condition rating for the road. *0.00*

7.18. Describe existing infrastructure conditions and public safety concerns related to this road improvement project. If relevant, please specify accident hazards, traffic details, instances of road closure and impact on emergency vehicles, etc.

Reopening the Bridge is crucial because it provides vital access for first responders servicing the Town of West Newbury from Newburyport. Middle Street Bridge is also an evacuation route for the Seabrook Nuclear Power Station. Federal lawmandates that an evacuation route be provided for communities within a 10-mile radius of the emergency planning zone. This evacuation route has been severed for residents seeking safe passage due to the bridge collapse.

The bridge closure has resulted in residents' restricted access to the Anna Jaques hospital in Newburyport, and to many of the area's largest employers located across the bridge in Newburyport.

Safety improvements will be made by adding standardized bridge rails, precast guardrail transitions, and by increasing roadway width and improving the alignment. The permitted bridge design includes a sidewalk to increase the safety of pedestrians and people who fish off the side of the bridge.

The proposed project will greatly benefit residents of West Newbury whose commuting or other travel routinely takes them to/from Newburyport. Although there are fewer Newburyport residents traveling west than there are West Newbury residents traveling east, the re-opening of this regional transportation route will better allocate traffic along a broader network of streets.

The closure of this portion of road and resulting 3.4-mile detour has been costly for local business, and has increased vehicle miles traveled due to effects on commuting and commerce. Additionally, West Newbury's aging population requires unrestricted access to the most direct route to the Anna Jaques Hospital located 2.5 miles from the closure.
ATTACHMENT HERE: Attach images of the road, particularly focused on the areas that create the public safety hazards and areas in which the work with be focused.

MDOT Bridge Inspection Report 6-1-21.pdf

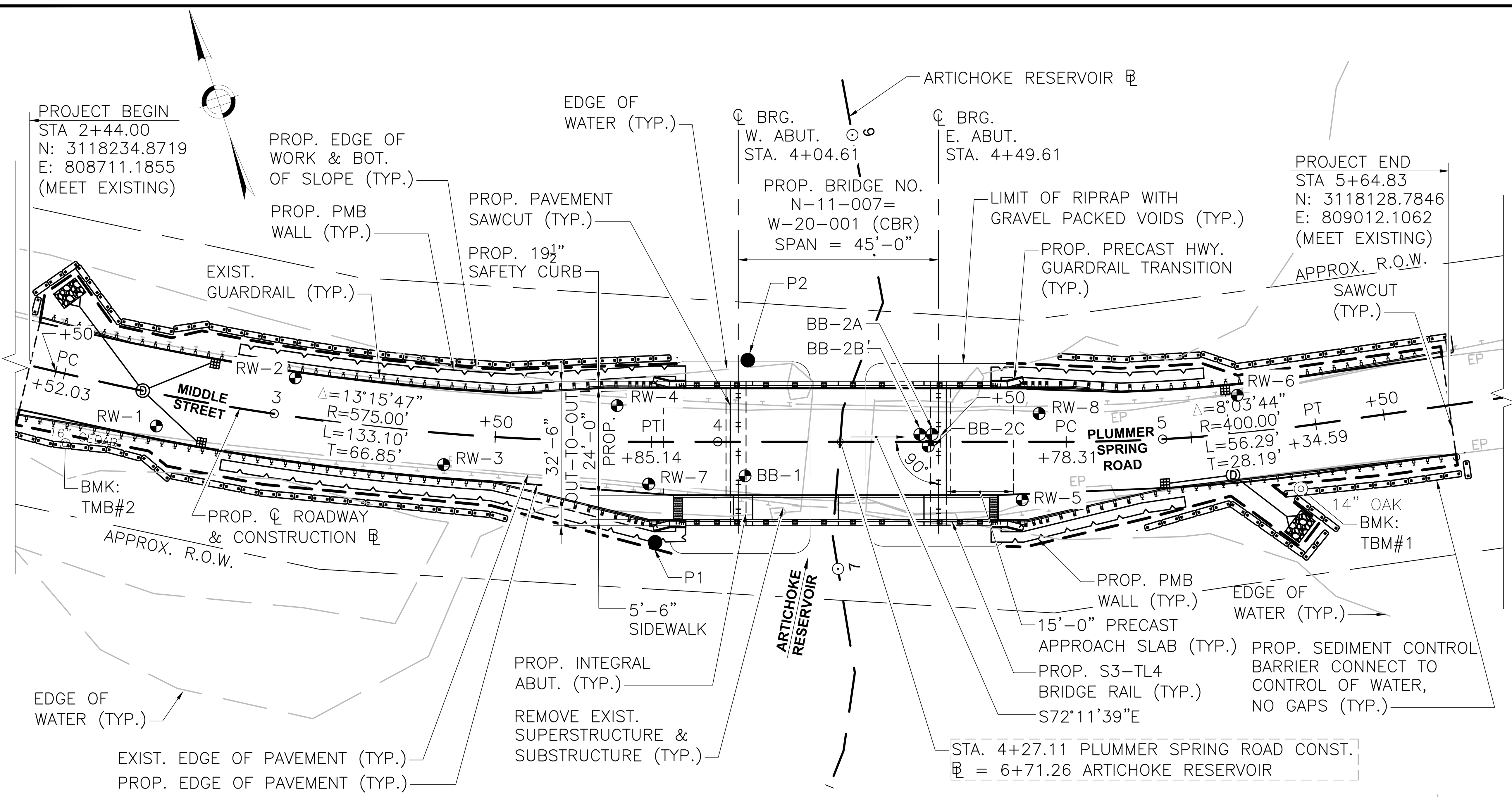
7.19. Please complete the below table with information from the last calendar year. Please be as accurate a possible, and use best estimates if necessary.

Vehicles Per Day	*0.00*
Number of Accidents	*0.00*
Number of Fatalities	*0.00*

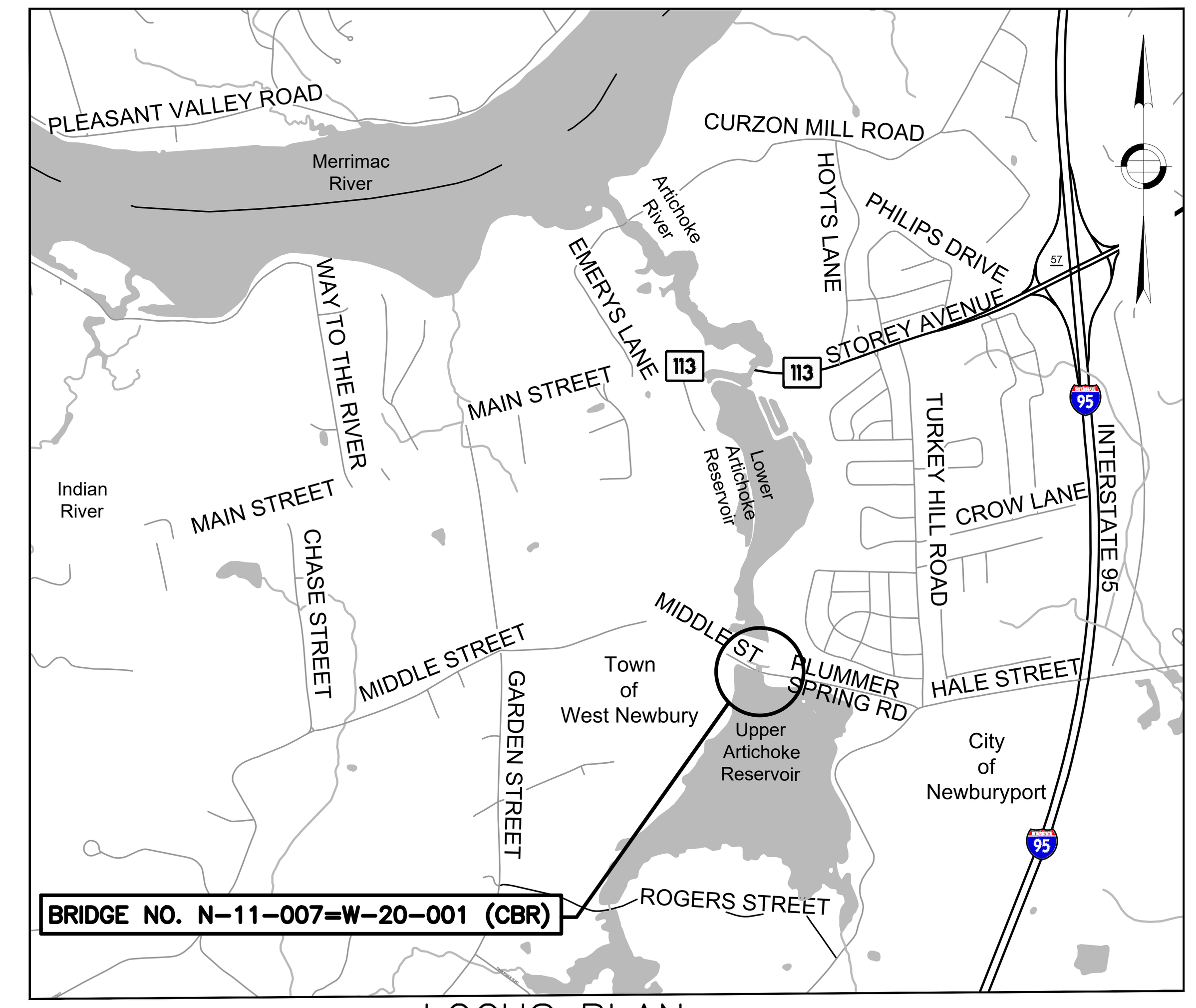
Number of Emergency Calls	*0.00*
Number of Days Road was Fully Closed	*365.00*
Number of Days Road was Partially Closed	*0.00*

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	42
PROJECT FILE NO.	N/A		

KEY PLAN, LOCUS AND PROFILE



KEY PLAN
SCALE: 1" = 20'

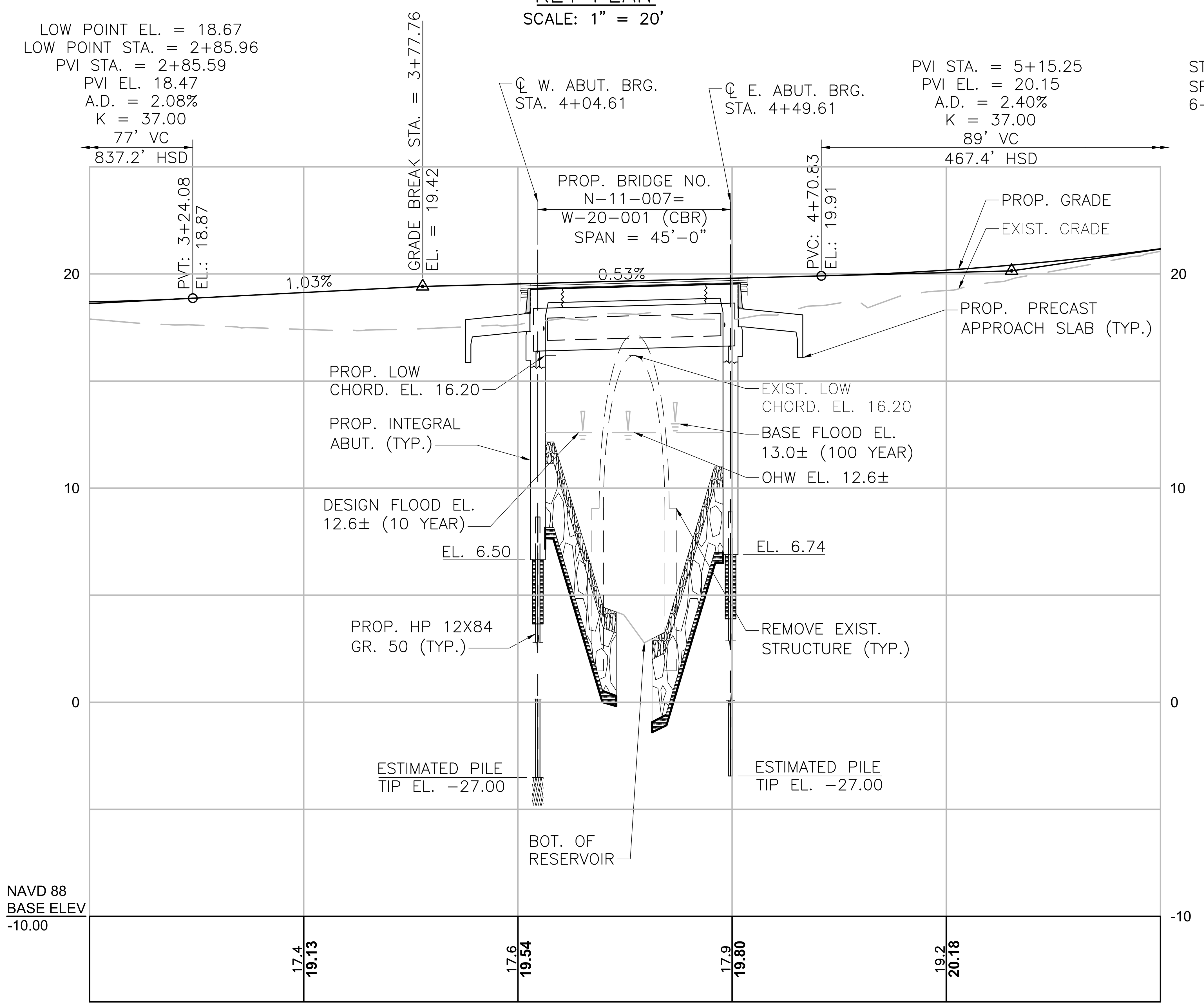


LOCUS PLAN
SCALE: 1" = 2000'

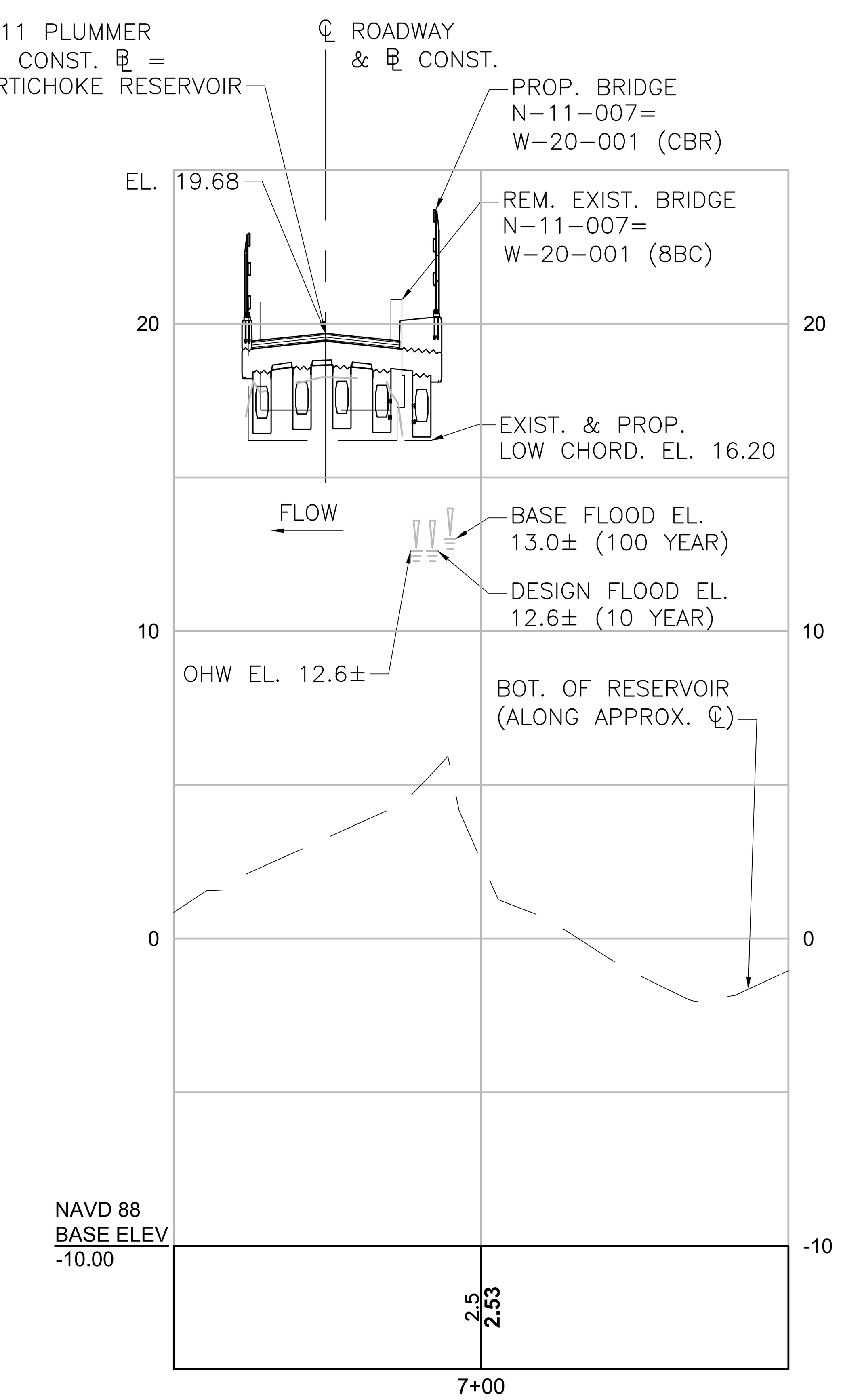
INDEX

NOTE:

CONTRACTOR TO REFER TO HIGHWAY PLAN 4 OF 42 AND GEOTECHNICAL REPORT FOR BORING LOCATIONS/BORING LOGS/PROBES (RW-1 – RW-8 AND P1 & P2) AND DESIGN PARAMETERS RELATED TO THE PMB WALLS



ROADWAY PROFILE
1" = 20' HORIZONTAL
1" = 4' VERTICAL



ARTICHOKE RESERVOIR PROFILE
1" = 20' HORIZONTAL
1" = 4' VERTICAL

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — DATE 3/17/2023

COMMONWEALTH OF MASSACHUSETTS MICAH C MORRISON STRUCTURAL No. 46726 REGISTERED PROFESSIONAL ENGINEER 3-15-2023

BSC GROUP
803 SUMMER STREET
BOSTON, MA 02127
(617) 896-4300
www.bscgroup.com

MONTH DD, YYYY — ISSUED FOR CONSTRUCTION

PROPOSED BRIDGE
NEWBURYPORT/WEST NEWBURY
PLUMMER SPRING RD./MIDDLE ST. OVER ARTICHOKE RESERVOIR

GENERAL NOTES:

DESIGN:

IN ACCORDANCE WITH THE 2020 (9TH EDITION) AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

BENCH MARK:

BENCH MARK 1: TBM#1
NAIL IN 14" OAK
N=3118121.019, E=808974.433, EL.=22.17

BENCH MARK 2: TBM#2
SPIKE IN 5" CEDAR
N=3118215.642, E=808713.356, EL.=18.40

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

SURVEY:

AN INSTRUMENT FIELD SURVEY WAS PERFORMED BY BSC GROUP IN SEPTEMBER 2018.
THE COORDINATES, IN FEET, ARE BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAD 83)

DATE:

TO BE PLACED ON THE INSIDE FACE OF THE NORTHEASTERLY AND SOUTHWESTERLY HIGHWAY GUARDRAIL TRANSITIONS. A SHEET SHOWING THE SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF THE CONTRACT COMPLETION AS OF THE DATE THE BRIDGE IS CONSTRUCTED. BOTH ENDS OF THE BRIDGE SHALL FEATURE THE SAME DATE. SEE SHEET 6 OF 20.

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZED PRINTS (A3).

FOUNDATIONS:

FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.

UNSUITABLE MATERIAL:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY A TEMPLATE BEFORE THE CONCRETE IS PLACED.
(SEE SHEETS 19 & 20)

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWING, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS	#7 BARS	#8 BARS
1. NONE	16"	19"	23"	33"	38"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"	43"	49"
3. COATED BARS, COVER < $3d_b$, OR CLEAR SPACING < $6d_b$	23"	29"	34"	50"	57"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"	40"	46"
5. CONDITION 2. AND 3.	26"	32"	39"	56"	64"
6. CONDITION 2. AND 4.	24"	30"	36"	52"	59"

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.
ALL REINFORCEMENT SHALL BE EPOXY COATED.

MEMBRANE WATERPROOFING:

ALL MEMBRANE WATERPROOFING USED ON BRIDGE DECKS SHALL BE MEMBRANE WATERPROOFING (SPRAY-APPLIED) FOR NEW BRIDGE DECKS.

CONCRETE:

CONCRETE TYPE	APPLICATION
CAST IN PLACE	
4000 PSI, 1.5 INCH, 565 CEMENT CONCRETE	LOWER INTEGRAL ABUTMENTS & WINGWALLS
4000 PSI, ¾ INCH, 585 HP CEMENT CONCRETE	DECK SLAB, UPPER INTEGRAL ABUTMENTS & WINGWALLS
4000 PSI, ¾ INCH, 610 CEMENT CONCRETE	BEAM PEDESTALS
5000 PSI, ¾ INCH, 685 HP CEMENT CONCRETE	SAFETY CURB & SIDEWALK
PRECAST	
5000 PSI, ¾ INCH, 685 HP CEMENT CONCRETE	GUARDRAIL TRANSITIONS
4000 PSI, 1.5 INCH, 565 CEMENT CONCRETE	APPROACH SLABS

* SEE SHEET 11 OF 20 FOR PRESTRESSED B36-24 BEAM DETAILS.

CONTRACTOR MUST BE MASSDOT PRE-QUALIFIED IN BRIDGE CONSTRUCTION

STRUCTURAL STEEL:

PILES SHALL CONFORM TO AASHTO M270 GRADE 50.

EXISTING CONDITIONS:

ALL DIMENSIONS AND DETAILS SHOWN FOR THE EXISTING STRUCTURE ARE NOT GUARANTEED TO BE CORRECT. MASSDOT, THE CITY OF NEWBURYPORT AND TOWN OF WEST NEWBURY DO NOT HAVE ANY EXISTING PLANS OF THE STRUCTURE. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR THE COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY AND ADEQUACY THEREOF AND SHALL NOT COMMENCE ANY FABRICATION UNTIL THEY HAVE MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE SUBMITTED SHOP DRAWINGS HAVE BEEN APPROVED BY THE ENGINEER. SHOP DRAWINGS SHALL STATE THAT THE EXISTING DIMENSIONS, ANGLES, ELEVATIONS AND FIELD CONDITIONS HAVE BEEN FIELD VERIFIED BY THE CONTRACTOR.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS REQUIRED FOR THE PROPER PERFORMANCE OF THE WORK. FIELD CONDITIONS MAY EXIST, WHICH DEVIATE FROM THE TYPICAL WORK AND THEORETICAL DIMENSION SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FABRICATION AND FIT OF THEIR WORK.

TRAFFIC NOTES:

THE BRIDGE IS CURRENTLY CLOSED WITH A DETOUR IN PLACE. THE BRIDGE WILL REMAIN CLOSED FOR THE DURATION OF BRIDGE CONSTRUCTION.

UTILITIES:

THE CONTRACTOR SHALL PROTECT THE RESERVOIR FROM DAMAGE/CONTAMINATION. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE WATER DEPARTMENT. THERE ARE NO KNOWN UTILITIES ABOVE GROUND OR BELOW AT THE SITE LOCATION. THE CONTRACTOR SHALL CONTACT DIG-SAFE BEFORE WORK BEGINS.

CONSTRUCTION:

ANY PERMIT MODIFICATIONS REQUIRED DUE TO THE CONTRACTOR'S MEANS AND METHODS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL MODIFY ALL REQUIRED PERMITS AND LICENSES AND PAY ALL CHARGES AND FEES INCURRED. THE CONTRACTOR SHALL GIVE ALL NOTICES NECESSARY AND INCIDENT TO THE DUE AND LAWFUL PROSECUTION OF THE WORK, AND SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES, AND REGULATIONS OF THE FEDERAL GOVERNMENT, THE STATE, THE TOWN/CITY, AND OTHER BODIES HAVING JURISDICTION OVER THE WORK AND ENCOMPASSED BY THE CONTRACT. THE COMPLETION DATE WILL REMAIN AS STATED IN THE CONTRACT DOCUMENTS.

AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION JOINTS:

CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF BSC GROUP.

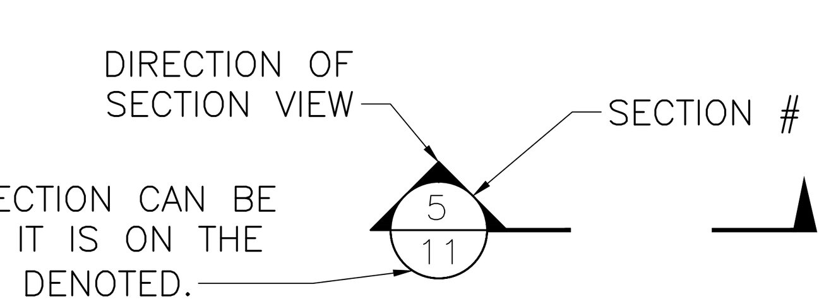
ESTIMATED QUANTITIES
(NOT GUARANTEED)

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
115.1	DEMOLITION OF BRIDGE NO. N-11-007 = W-20-001	1	LS
140.	BRIDGE EXCAVATION	570	CY
143.	CHANNEL EXCAVATION	505	CY
144.	CLASS B ROCK EXCAVATION	90	CY
151.1	GRAVEL BORROW FOR BRIDGE FOUNDATION	290	CY
151.2	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	35	CY
153.1	CONTROLLED DENSITY FILL - NON-EXCAVATABLE	14	CY
156.13	CRUSHED STONE FOR INTEGRAL ABUTMENT PILES	35	TON
156.5	CRUSHED STONE FOR FILTER BLANKET	105	CY
450.60	SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B-9.5)	15	TON
450.70	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 (SPC-B-9.5)	20	TON
698.4	GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL	315	SY
942.124	STEEL PILE HP 12 X 84	360	FT
948.41	DYNAMIC LOAD TEST BY CONTRACTOR	2	EA
948.5	PILE SHOES	10	EA
983.12	RIPRAP WITH GRAVEL PACKED VOIDS	555	TON
983.521	STREAMBED/BANK RESTORATION	110	CY
991.1	CONTROL OF WATER - STRUCTURE NO. N-11-001 = W-20-001	1	LS
994.01	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. N-11-001 = W-20-001	1	LS
995.01	BRIDGE STRUCTURE, BRIDGE NO. N-11-001 = W-20-001	1	LS

GENERAL NOTE:

THE CONTRACTOR MUST COORDINATE ALL WORK WITH THE CITY OF NEWBURYPORT, THE TOWN OF WEST NEWBURY, THE WATER DEPARTMENT, THE ENGINEER, AND ANY AFFECTED ABUTTERS. WORK SHALL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE CITY OF NEWBURYPORT AND THE TOWN OF WEST NEWBURY.

SECTION MARK:



NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	42
PROJECT FILE NO.	N/A		

GENERAL NOTES

TRAFFIC DATA	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2039	
AVERAGE DAILY TRAFFIC - PRESENT	920	
AVERAGE DAILY TRAFFIC - DESIGN YEAR	1120	
DESIGN HOURLY VOLUME	125	
DIRECTIONAL DISTRIBUTION	53% WB	
TRUCK PERCENTAGE - AVERAGE DAY	2.9%	
TRUCK PERCENTAGE - PEAK HOUR	1.6%	
DESIGN SPEED	30 MPH	
DIRECTIONAL DESIGN HOURLY VOLUME	65	

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000 YEARS
DESIGN SPECTRA	
A_S	0.149
SD_S	0.290
SD1	0.101
SITE CLASS	D
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA		
DRAINAGE AREA:	5.60	SQ. MILES
DESIGN FLOOD DISCHARGE:	80.0	C.F.S.
DESIGN FLOOD FREQUENCY:	10	YEARS
DESIGN FLOOD VELOCITY:	0.32	F.P.S.
DESIGN FLOOD ELEVATION:	12.60	FEET, NAVD
BASE (100-YEAR) FLOOD DATA		
BASE FLOOD DISCHARGE:	240	C.F.S.
BASE FLOOD ELEVATION:	13.00	FEET, NAVD
DESIGN AND CHECK SCOUR DATA		
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY:	25	YEARS
DESIGN FLOOD ABUTMENT SCOUR DEPTH:	0.00	FEET
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY:	50	YEARS
CHECK FLOOD ABUTMENT SCOUR DEPTH:	0.00	FEET
FLOOD OF RECORD		
DISCHARGE:	N/A	C.F.S.
FREQUENCY:	N/A	YEARS
MAXIMUM ELEVATION:	N/A	FEET, NAVD
DATE:	N/A	MONTH, YEAR
HISTORY OF ICE FLOES:	N/A	N.A.
EVIDENCE OF SCOUR AND EROSION:	N/A	N.A.
TEMPORARY WATER CONTROL DESIGN DATA		
DESIGN FLOOD DISCHARGE:	50	C.F.S.
DESIGN FLOOD FREQUENCY:	5	YEARS
DESIGN FLOOD VELOCITY:	0.93	(F.P.S.)
DESIGN FLOOD ELEVATION:	12.63	FEET, NAVD

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — 3/17/2023 DATE

DATE	DESCRIPTION
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

SHEET 2 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

GEOSCIENCES TESTING AND RESEARCH, INC.
55 Middlesex Street, Suite 225, North Chelmsford, MA.
Phone: (978) 251-9395 www.gtrinc.net

GTR ENGINEERING SINCE 1995

Boring No.	BB-1
Page:	1 of 2
GTR Job #:	22.219
GTR Rep:	C. George
Reviewer:	C. George

Project Name: Plummer Spring Road
Location: Newburyport, MA

Drilling Co.: Car-Dee Corporation
Driller: Steve DeSimone Helper(s): Joe/Frank
Start Date: 2/4/2019 End Date: 2/5/2019
Gnd Surface Elev (ft): ~ 17.7'
Location: 808857.91 E , 3118163.09 N
Note: Truck mounted Deidrich D50 with Automatic Hammer

Equipment	Casing	Sampler	Core
Type	HW	SS	NX
Size I.D.	4"	1.75"	2.16"
Hammer Wt.	300 lb	140 lb	-
Hammer Fall	30 in	30 in	-

Groundwater Date	Time	Water (Depth (ft))	Casing	Hole
2/5	7am	5.5'	45'	

Depth	Case BPF	No.	Pen/ Rcvy	Depth (ft)	Blows per 6in	Field Test	Description and Classification	Stratum Description	Additional Data	Notes
		SS-1A	24/16	0.7-1.7	59-20		S-1A,Dry, brown, dense, fine SAND, little Silt, trace Gravel	ASPHALT		1,2
		SS-1B		1.7-2.7	14-8		S-1B, Dry, brown, Hard, Clayey SILT, trace fine Sand	8"		
5		S-2	24/15	5-7	2-3		Wet, Brown, very loose, fine to medium SAND, little Clayey Silt, trace Gravel			
					1 for 12"					
10		SS-3	24/14	10-12	3-2		Wet, Brown, very loose, fine to medium SAND, trace Silt, trace Gravel	FILL		
					1 for 12"					
15		SS-4	24/12	15-17	20-7		Wet, Brown, loose, fine to medium SAND, some Gravel			
					3-7			18.5'		
20		SS-5	24/20	20-22	3-2		Gray, medium stiff, CLAY & SILT	CLAY		
					3-3			23.5'		
25		SS-6	24/12	25-27	4-4		Gray, loose, fine to medium SAND, little Silt, trace Gravel	SAND		
					5-7					

ELEVATION (FEET): 15.00, 10.00, 5.00, 00.00, −5.00, −10.00

OBSERVED GROUND WATER EL. 12.2± FEBRUARY 5, 2019

BOT. OF WEST INTEGRAL ABUT. EL. 6.50

NOTES:
CONTINUATION
1. Water level checked prior to starting the second day of drilling.
2. The upper 15 feet of the boring was completed with 4-inch hollow stem augers.

Order of Sample Description (Modified Burmister)
1. Moisture Content: Dry, Moist, Wet
2. Soil Relative Density or Consistency
3. Color
4. Major Component: Should be capitalized
5. Minor Component: "and" - 35% to 50% minor grain size
"some" - 20% to 35% minor grain size
"little" - 10% to 20% minor grain size
"trace" - < 10% of minor grain size

PENETRATION RESISTANCE (N) GUIDE

Cohesionless Soils (Sands) Relative Density / Blows per Foot	Cohesive Soils (Clays) Consistency / Blows per Foot
Very Loose >> 0 - 4	Very Soft >> Below 2
Loose >> 4 - 10	Soft >> 2 - 4
Medium Dense >> 10 - 30	Medium Stiff >> 4 - 8
Dense >> 30 - 50	Stiff >> 8 - 15
Very Dense >> Over 50	Very Stiff >> 15 - 30
	Hard >> Over 30

CONTINUATION

Depth	Case BPF	No.	Pen/ Rcvy	Depth (ft)	Blows per 6in	Field Test Results	Description and Classification	Stratum Description	Additional Data	Notes
30		SS-7A	24/14	30-31	10-7		SS-7A, Gray, medium dense, fine to medium SAND, little Gravel, trace Silt	SAND		
		SS-7B		31-32	17-12		SS-7B, Gray, medium dense, fine to medium SAND, some Clayey Silt, some Gravel	31'		
35		S-8	24/12	35-37	17-24		Gray, very dense, GRAVEL, some fine to coarse Sand, trace Clayey Silt			
					36-31			GLACIAL TILL		
40		SS-9	24/10	40-42	37-37		Gray, very dense, fine to medium SAND, little Gravel, little Silt			
					45-51					3
45		SS-10	2/0	45-45.2	100 for 2"		No Recovery	44'		
		C-1	60/51	45.2-50.2	5:45 min		Gray, slightly to moderately weathered, moderately to highly fractured, medium grained, moderately hard, TONALITE/ GRANODIORITE			
					6:30 min					
					6:45 min					
					6:15 min					
50					5:45 min			BEDROCK		
		C-2	60/54	50.2-55.2	4:45 min		Gray, slightly to moderately weathered, moderately to highly fractured, medium grained, moderately hard, TONALITE/ GRANODIORITE			
					4:00 min					
					6:00 min					
55					6:30 min					
					6:30 min					
							Bottom of boring at 55.2 feet below ground surface with 10 foot rock core.	55.2'		

ELEVATION (FEET): −15.00, −20.00, −25.00, −30.00, −35.00, −40.00

APPROX. PILE TIP EL. −27.00 (±)

NOTES:
3. Based on drilling action top of rock is at approximately 44 feet below ground surface.

Order of Sample Description (Modified Burmister)
1. Moisture Content: Dry, Moist, Wet
2. Soil Relative Density or Consistency
3. Color
4. Major Component: Should be capitalized
5. Minor Component: "and" - 35% to 50% minor grain size
"some" - 20% to 35% minor grain size
"little" - 10% to 20% minor grain size
"trace" - < 10% of minor grain size

PENETRATION RESISTANCE (N) GUIDE

Cohesionless Soils (Sands) Relative Density / Blows per Foot	Cohesive Soils (Clays) Consistency / Blows per Foot
Very Loose >> 0 - 4	Very Soft >> Below 2
Loose >> 4 - 10	Soft >> 2 - 4
Medium Dense >> 10 - 30	Medium Stiff >> 4 - 8
Dense >> 30 - 50	Stiff >> 8 - 15
Very Dense >> Over 50	Very Stiff >> 15 - 30
	Hard >> Over 30

NOTES:

1. LOCATION OF BORINGS FROM FEBRUARY 2019 ARE SHOWN ON THE PLAN THUS: BB-# ◒. LOCATION OF BORINGS FROM JULY 2022 ARE SHOWN ON THE PLANS AS THUS: RW-# ◒. LOCATIONS OF PROBES FROM JULY 2022 ARE SHOWN ON THE PLANS AS THUS: P# ●.
2. 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.
3. WATER LEVELS SHOWN ON THE BORINGS LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1⅜" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
5. ALL BORINGS WERE MADE IN FEBRUARY, 2019 & JULY, 2022.
6. FEBRUARY 2019 & JULY 2022 BORINGS WERE MADE BY CAR-DEE TEST BORING & CONSTRUCTION, LOCATED AT 37 LINDEN ST., MEDFORD, MA 02155.
7. ALL PROBES FROM JULY 2022 WHERE MADE BY GEOSCIENCES TESTING AND RESEARCH INC. LOCATED AT 55 MIDDLESEX ST. NORTH CHELMSFORD, MA 01863
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.
9. BORING LOG FOR BORING BB-2B IS NOT AVAILABLE. BORING BB-2B ENCOUNTERED OBSTRUCTION AT 10 FEET BELOW GROUND SURFACE AND RELOCATED TO BB-2C.

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

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35
[signature] 3/17/2023
STATE BRIDGE ENGINEER DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

USE ONLY PRINTS OF LATEST DATE

2839500_BR2-5(N11007_W20001).DWG Plotted on 15-Mar-2023 10:25 AM
CHAPTER 85 REVIEW 06-24-2021

NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	42
PROJECT FILE NO.	N/A		

BORING LOG BB-2A

GEOSCIENCES TESTING AND RESEARCH, INC.

55 Middlesex Street, Suite 225, North Chelmsford, MA.
Phone: (978) 251-9395 www.gtrinc.net

GTR ENGINEERING SINCE 1995

Project Name:	Plummer Spring Road
Location:	Newburyport, MA
Boring No.	BB-2A
Page:	1 of 2
GTR Job #:	22.219
GTR Rep:	C. George
Reviewer:	C. George

Drilling Co.	Car-Dee Corporation		
Driller:	Steve DeSimone	Helper(s):	Frank
Start Date:	2/5/2019	End Date:	2/6/2019
Gnd Surface Elev (ft):	~ 17.9'		
Location:	808900.72 E, 3118159.80 N		
Note:	Truck mounted Deidrich D50 with Automatic Hammer		

Equipment	Casing	Sampler	Core
Type	HW	SS	-
Size I.D.	4"	1.75"	-
Hammer Wt.	300 lb	140 lb	-
Hammer Fall	30 in	30 in	-

Groundwater		Depth (ft)		
Date	Time	Water	Casing	Hole
2/6	7am	6'	25'	

ELEVATION (FEET): 15.00, 10.00, 5.00, 0.00, -5.00, -10.00

Depth	Case BPF	Sample Data: No.	Pen/ Rcvy	Depth (ft)	Blows per 6in	Field Test	Description and Classification	Stratum Description	Additional Data	Notes
		SS-1A	18/10	0.7-2.2	21-17		Dry, brown, dense, fine to medium SAND, little Silt, little Gravel	ASPHALT		1,2
		SS-1B			39			8"		
5		S-2	24/0	5-7	1-1 WOH for 12"		No Recovery			
		S-3	24/0	7-9	WOH for 24"		No Recovery	FILL		
10		SS-4	15/6	10-11.3	15-18 50 for 3"		Wet, Brown, very dense, GRAVEL, little Sand, trace Silt			3
15		SS-5	24/10	15-17	6-18 9-9		Wet, Brown, medium dense, fine to medium SAND, some Gravel, trace Clayey Silt, trace Wood Fibers			
								18' PEAT		4
20		SS-6	24/6	20-22	7-10 12-16		Gray, medium dense, GRAVEL, some fine Sand, trace Silt	20' GLACIAL TILL		
25		SS-7	24/7	25-27	46-10 14-14		Gray, medium dense,GRAVEL and fine to medium Sand, trace Clayey Silt			5
							Bottom of boring at 27 feet below ground surface due to battered casing.	27'		

OBSERVED GROUND WATER EL. 11.9± FEBRUARY 6, 2019

BOT. OF EAST INTEGRAL ABUT. EL. 6.74

NOTES:
1. Water level checked prior to starting the second day of drilling.
2. The upper 20 feet of the boring was completed with 4-inch hollow stem augers.
3. Boulder/Cobbles encountered at 10 to 15 feet below ground surface
4. Peat/Organic Silt observed on the augers at approximately 18 to 20 feet below ground surface.
5. Due to obstructions encountered casing was battered to much to continue drilling. Casing removed and rig moved ahead for BB-2B

Order of Sample Description (Modified Burmister)

1. Moisture Content: Dry, Moist, Wet
2. Soil Relative Density or Consistency
3. Color
4. Major Component: Should be capitalized
5. Minor Component: "and" - 35% to 50% minor grain size
   "some" - 20% to 35% minor grain size
   "little" - 10% to 20% minor grain size
   "trace" - < 10% of minor grain size

PENETRATION RESISTANCE (N) GUIDE

Cohesionless Soils (Sands)	Cohesive Soils (Clays)
Relative Density / Blows per Foot	Consistency / Blows per Foot
Very Loose >> 0 - 4	Very Soft >> Below 2
Loose >> 4 - 10	Soft >> 2 - 4
Medium Dense >> 10 - 30	Medium Stiff >> 4 - 8
Dense >> 30 - 50	Stiff >> 8 - 15
Very Dense >> Over 50	Very Stiff >> 15 - 30
	Hard >> Over 30

NOTE:
FOR BORING NOTES SEE SHEET 3 OF 20.
SEE BORING LOG NOTE 5 (THIS SHEET) FOR INFORMATION ON BORING BB-2B.

BORING LOG BB-2A
SCALE: 1/4" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

GEOSCIENCES TESTING AND RESEARCH, INC.
55 Middlesex Street, Suite 225, North Chelmsford, MA.
Phone: (978) 251-9395 www.gtrinc.net
GTR ENGINEERING SINCE 1995

Project Name: Plummer Spring Road
Location: Newburyport, MA

Boring No.: BB -2C
Page: 1 of 1
GTR Job #: 22.219
GTR Rep: C. George
Reviewer: C. George

Drilling Co.: Car-Dee Corporation
Driller: Steve DeSimone Helper(s): Frank
Start Date: 2/6/2019 End Date: 2/6/2019
Gnd Surface Elev (ft): ~ 17.9'
Location: 808897.04 E, 3118156.24 E
Note: Truck mounted Deidrich D50 with Automatic Hammer

Equipment	Casing	Sampler	Core
Type	HW	SS	-
Size I.D.	4"	1.75"	-
Hammer Wt.	300 lb	140 lb	-
Hammer Fall	30 in	30 in	-

Groundwater Date	Time	Depth (ft) Water	Casing	Hole
2/6	7am	6'	25'	
Results from boring BB-2A				

Depth	Case BPF	Sample Data No.	Pen/ Rcvy	Depth (ft)	Blows per 6in	Field Test	Description and Classification	Stratum Description	Additional Data	Notes
0								ASPHALT		1,2
								8"		
5										
10								FILL		3
15										
								18'		
								PEAT		
20								20'		
25								GLACIAL TILL		

ELEVATION (FEET): 15.00, 10.00, 5.00, 00.00, −5.00, −10.00

OBSERVED GROUND WATER EL. 11.9± FEBRUARY 6, 2019

BOT. OF EAST INTEGRAL ABUT. EL. 6.74

CONTINUATION

NOTES:
1. Stratum description from boring BB-2A. Boring BB-2B encountered obstruction at 10 feet below ground surface and relocated to BB-2C.
2. The upper 10 feet of the boring was completed with 4-inch hollow stem augers.
3. Boulder/Cobbles encountered at 5 to 15 feet below ground surface

Order of Sample Description (Modified Burmister)
1. Moisture Content: Dry, Moist, Wet
2. Soil Relative Density or Consistency
3. Color
4. Major Component: Should be capitalized
5. Minor Component: "and" - 35% to 50% minor grain size
"some" - 20% to 35% minor grain size
"little" - 10% to 20% minor grain size
"trace" - < 10% of minor grain size

PENETRATION RESISTANCE (N) GUIDE

Cohesionless Soils (Sands) Relative Density / Blows per Foot	Cohesive Soils (Clays) Consistency / Blows per Foot
Very Loose >> 0 - 4	Very Soft >> Below 2
Loose >> 4 - 10	Soft >> 2 - 4
Medium Dense >> 10 - 30	Medium Stiff >> 4 - 8
Dense >> 30 - 50	Stiff >> 8 - 15
Very Dense >> Over 50	Very Stiff >> 15 - 30
	Hard >> Over 30

CONTINUATION

Depth	Case BPF	Sample Data No.	Pen/ Rcvy	Depth (ft)	Blows per 6in	Field Test Results	Description and Classification	Stratum Description	Additional Data	Notes
30		SS-8	24/10	30-32	15-14		Gray, dense, GRAVEL and fine to coarse			
					17-19		Sand, trace Clayey Silt			
										4
35		S-9	24/8	35-37	27-36		Gray, very dense, GRAVEL, some fine to	GLACIAL TILL		
					71-45		coarse Sand, trace Clayey Silt			
40		SS-10	24/10	40-42	37-37		Gray, very dense, fine to medium SAND,			
					45-51		little Gravel, little Clayey Silt			
							Bottom of boring at 42 feet below ground surface with no refusal encountered.	42'		
45										
50										
55										

ELEVATION (FEET): −15.00, −20.00, −25.00, −30.00, −35.00, −40.00

APPROX. PILE TIP EL. −27.00 (±)

NOTES:
3. Based on drilling action a cobble/boulder was encountered at approximately 32 to 33 feet below ground surface.

Order of Sample Description (Modified Burmister)
1. Moisture Content: Dry, Moist, Wet
2. Soil Relative Density or Consistency
3. Color
4. Major Component: Should be capitalized
5. Minor Component: "and" - 35% to 50% minor grain size
"some" - 20% to 35% minor grain size
"little" - 10% to 20% minor grain size
"trace" - < 10% of minor grain size

PENETRATION RESISTANCE (N) GUIDE

Cohesionless Soils (Sands) Relative Density / Blows per Foot	Cohesive Soils (Clays) Consistency / Blows per Foot
Very Loose >> 0 - 4	Very Soft >> Below 2
Loose >> 4 - 10	Soft >> 2 - 4
Medium Dense >> 10 - 30	Medium Stiff >> 4 - 8
Dense >> 30 - 50	Stiff >> 8 - 15
Very Dense >> Over 50	Very Stiff >> 15 - 30
	Hard >> Over 30

NOTE:
FOR BORING NOTES SEE SHEET 3 OF 20.
SEE BORING LOG NOTE 1 (THIS SHEET) FOR INFORMATION ON BORING BB–2B.

BORING LOG BB–2C
SCALE: 1/4" = 1'–0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35
STATE BRIDGE ENGINEER 3/17/2023 DATE

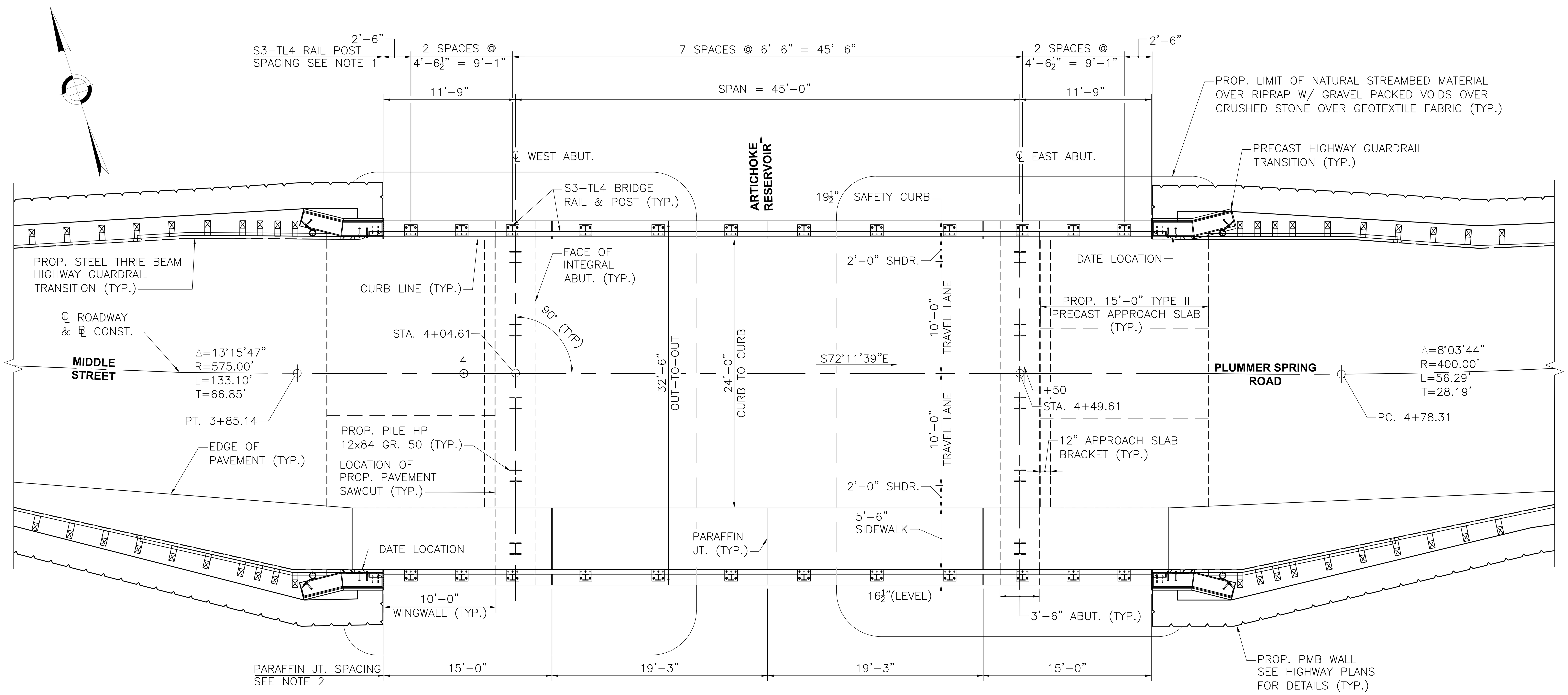
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

USE ONLY PRINTS OF LATEST DATE

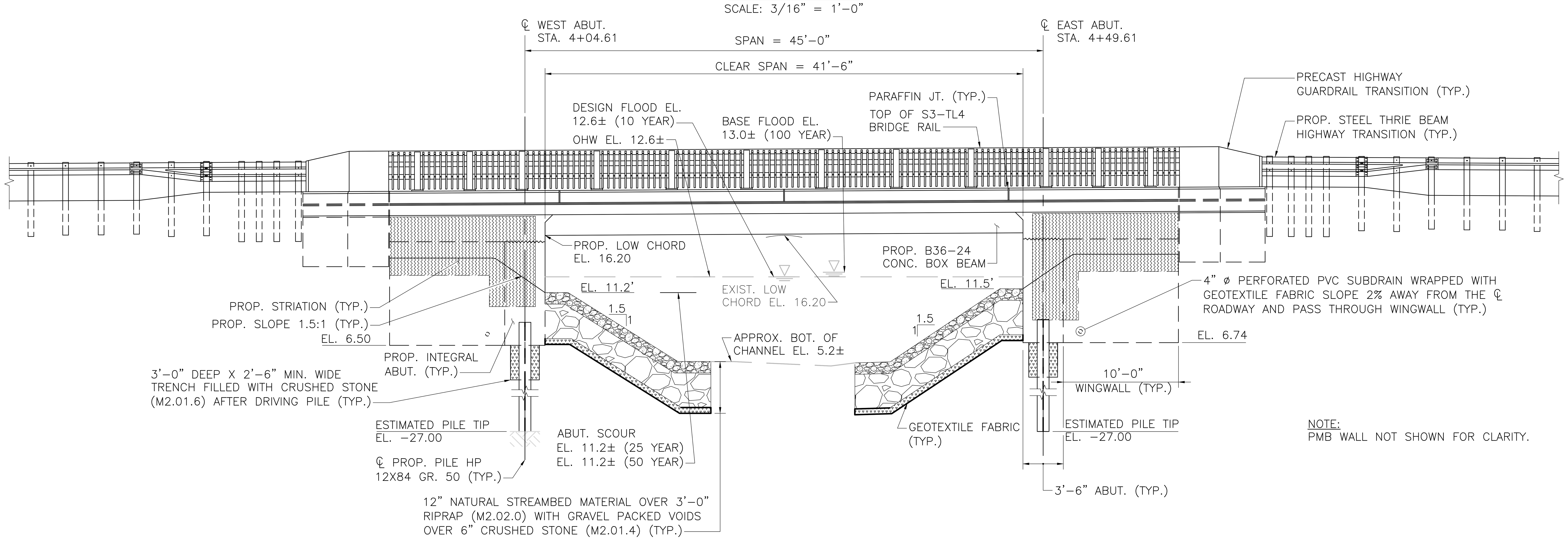
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	42
PROJECT FILE NO.	N/A		

PROPOSED PLAN & ELEVATION

NOTES:
1. BRIDGE RAIL POST SPACING IS DIMENSIONED FROM FACE OF PRECAST HIGHWAY TRANSITION TO CENTER LINE OF POST.
2. PARAFFIN JOINT IS DIMENSIONED FROM START OF BRIDGE SAFETY CURB TO CENTER LINE OF JOINT.
3. SEE SHEET 14 & 15 OF 20 FOR ADDITIONAL ELEVATIONS.
4. PMB WALLS NOT SHOWN IN ELEVATION FOR CLARITY.
5. CONTRACTOR TO REFER TO PERMIT DRAWINGS, WITHIN THE ISSUED PERMITS CONTAINED IN THE CONTRACT DOCUMENTS, FOR LIMITS OF THE PROPOSED CONTROL OF WATER SYSTEM.



GENERAL PLAN
SCALE: 3/16" = 1'–0"



NOTE:
PMB WALL NOT SHOWN FOR CLARITY.

PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1'–0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

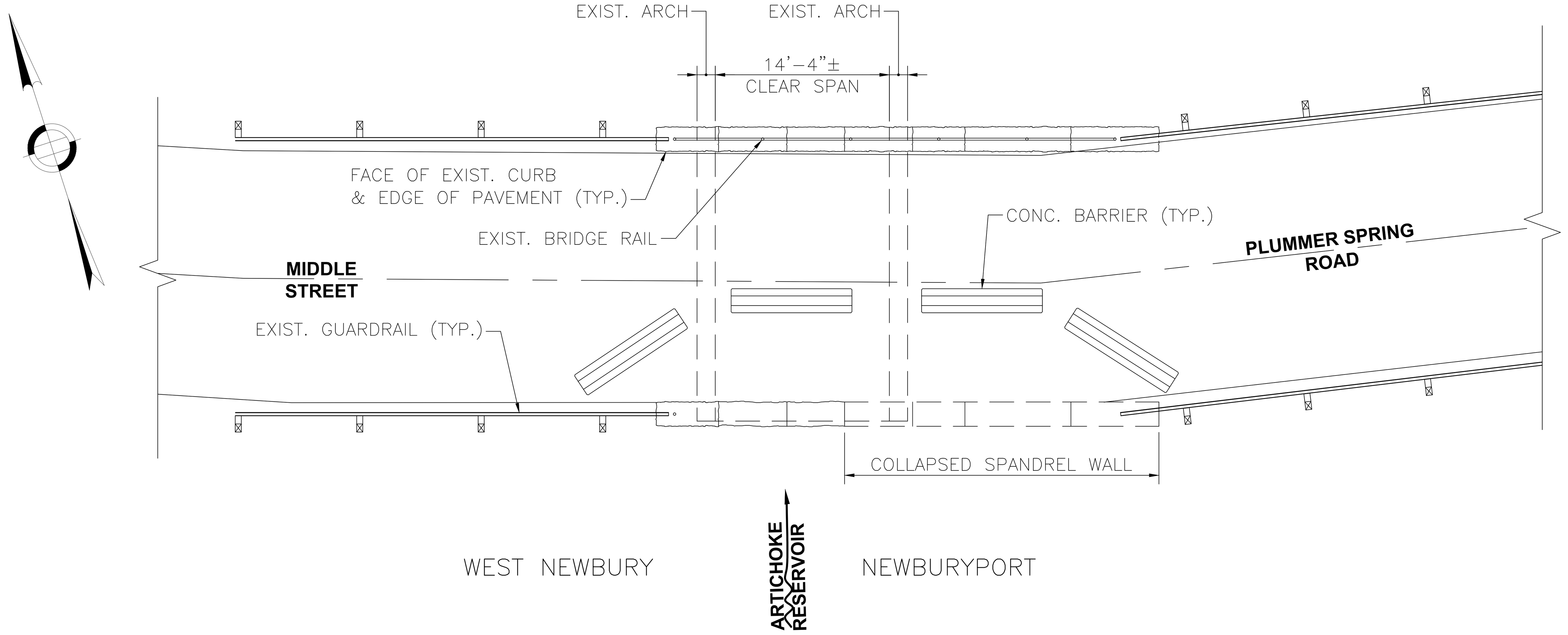
STATE BRIDGE ENGINEER — DATE 3/17/2023

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	42
PROJECT FILE NO.	N/A		

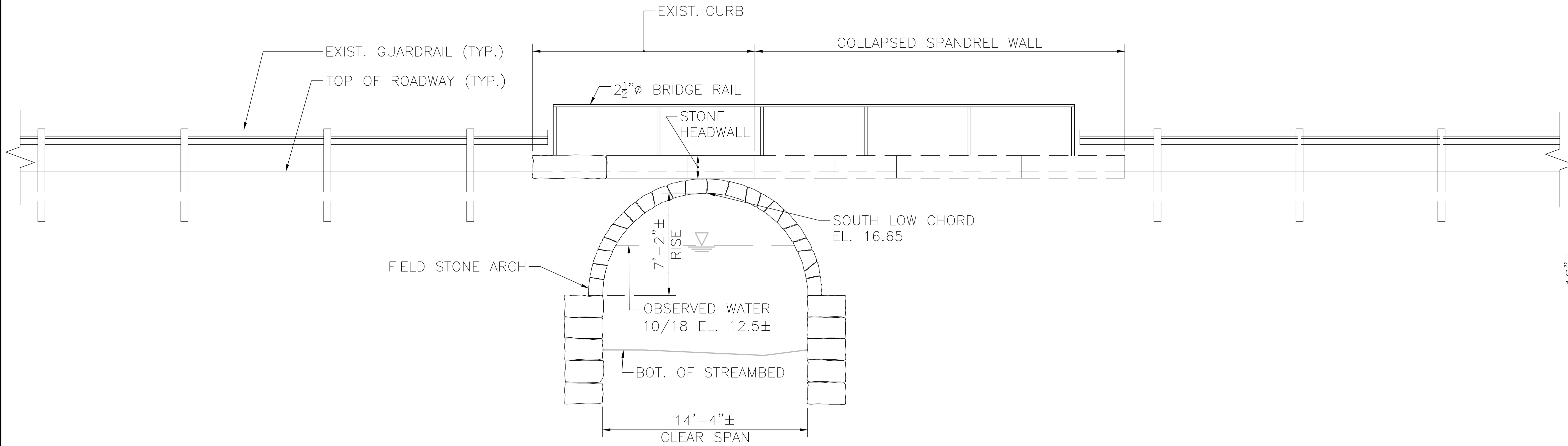
EXISTING CONDITIONS



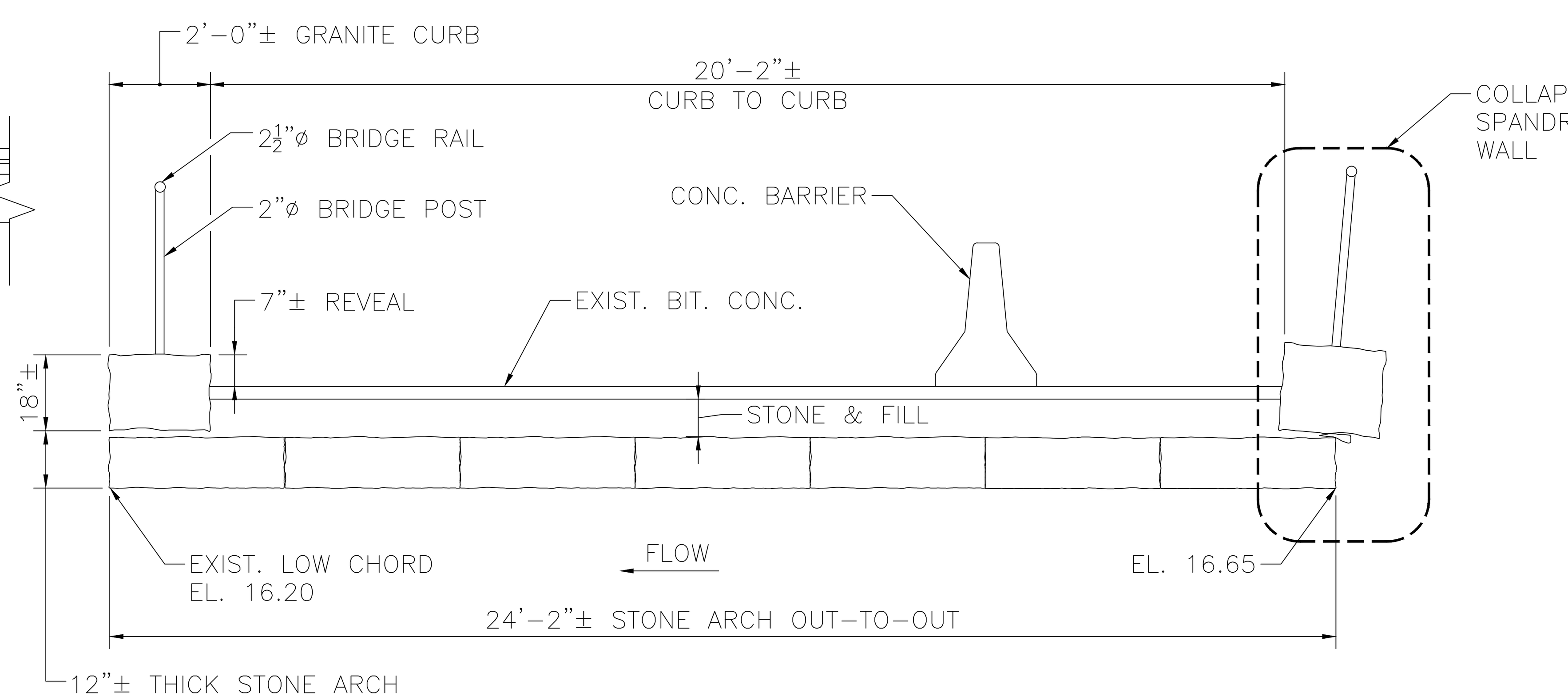
EXISTING PLAN
SCALE: 1/8" = 1'-0"

NOTES:

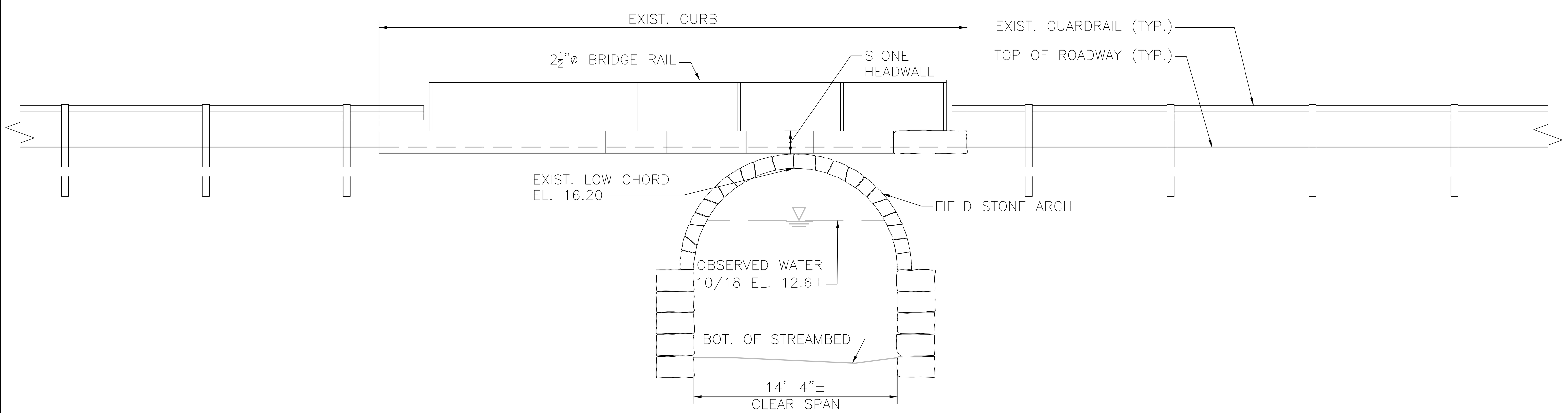
1. THE ENTIRE EXISTING BRIDGE AND SUBSTRUCTURE WILL BE DEMOLISHED INCLUDING ALL WINGWALLS, SPANDREL WALLS, ARCH AND FOOTINGS ETC.
2. SKETCHES WERE BASED OFF LIMITED EXPLORATORY INVESTIGATION AND ARE CONCEPTUAL ONLY. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.
3. ALL DEMOLITION ACTIVITIES SHALL OCCUR IN THE DRY.
4. CONTRACTOR SHALL SUBMIT A CONTROL OF WATER, TEMPORARY PROTECTIVE SHIELDING, DEMOLITION PLAN AND PROCEDURE BEFORE THE START OF DEMOLITION.
5. THE CONTRACTOR SHALL DISPOSE OF ANY DEMOLITION DEBRIS, CONSTRUCTION DEBRIS, WOOD WASTES, CONTAMINATED SOILS, HAZARDOUS MATERIALS AND OTHER MATERIALS OR SPECIAL WASTES IN STRICT ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS.
6. THE CONTRACTOR MUST COORDINATE ALL WORK WITH THE CITY OF NEWBURYPORT, THE WATER DEPARTMENT, THE TOWN OF WEST NEWBURY, THE ENGINEER AND ANY EFFECTED ABUTTERS. WORK SHALL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE CITY OF NEWBURYPORT AND THE TOWN OF WEST NEWBURY.



EXISTING SOUTH ELEVATION
SCALE: 3/16" = 1'-0"



EXISTING TRANSVERSE SECTION
SCALE: 3/8" = 1'-0"



EXISTING NORTH ELEVATION
SCALE: 3/16" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 7 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

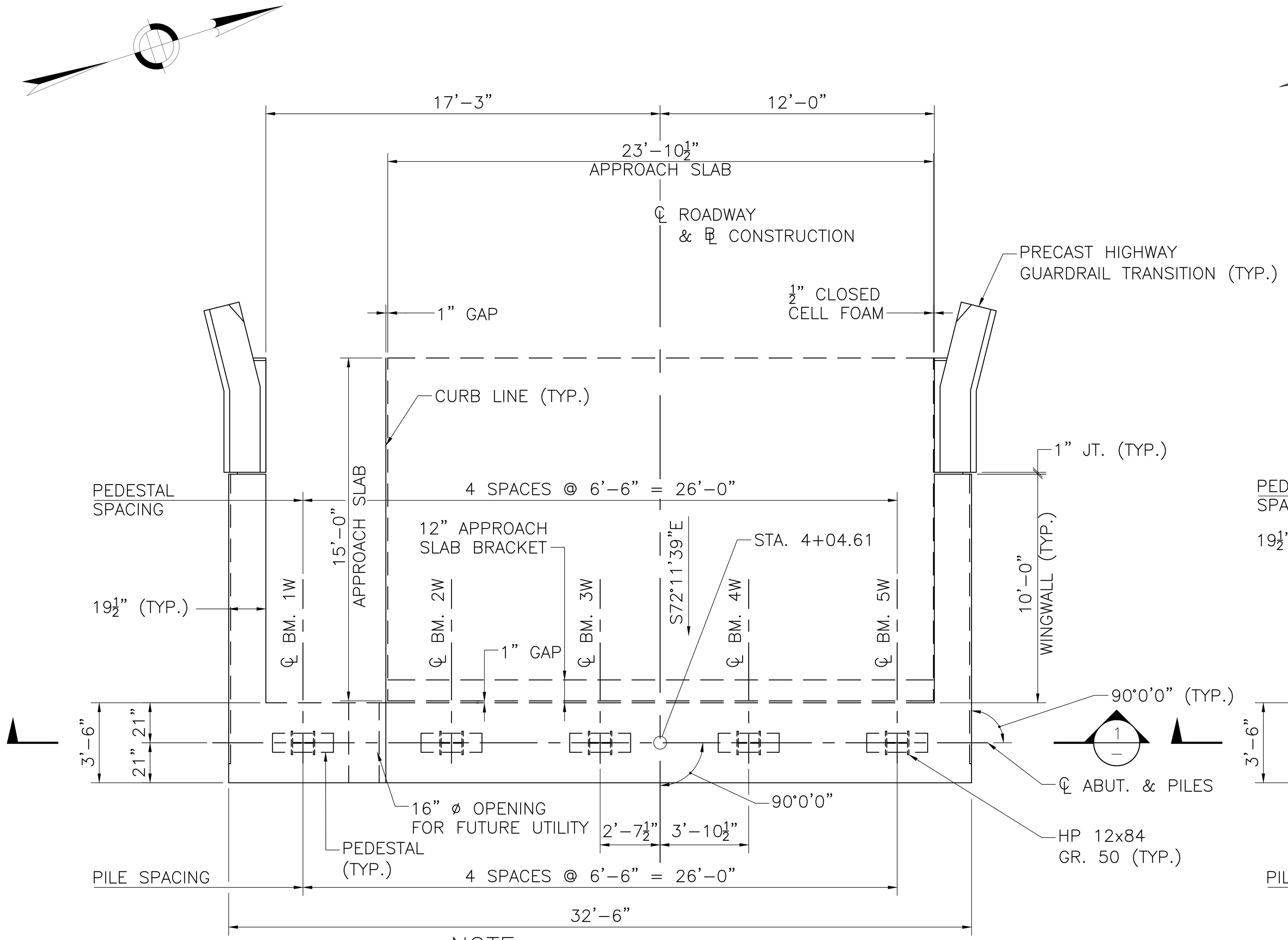
Plotted on 15-Mar-2023 10:26 AM
2839500_BR7(N11007_W20001).DWG
CHAPTER 85 REVIEW 06-24-2021

NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	42
	PROJECT FILE NO.	N/A	

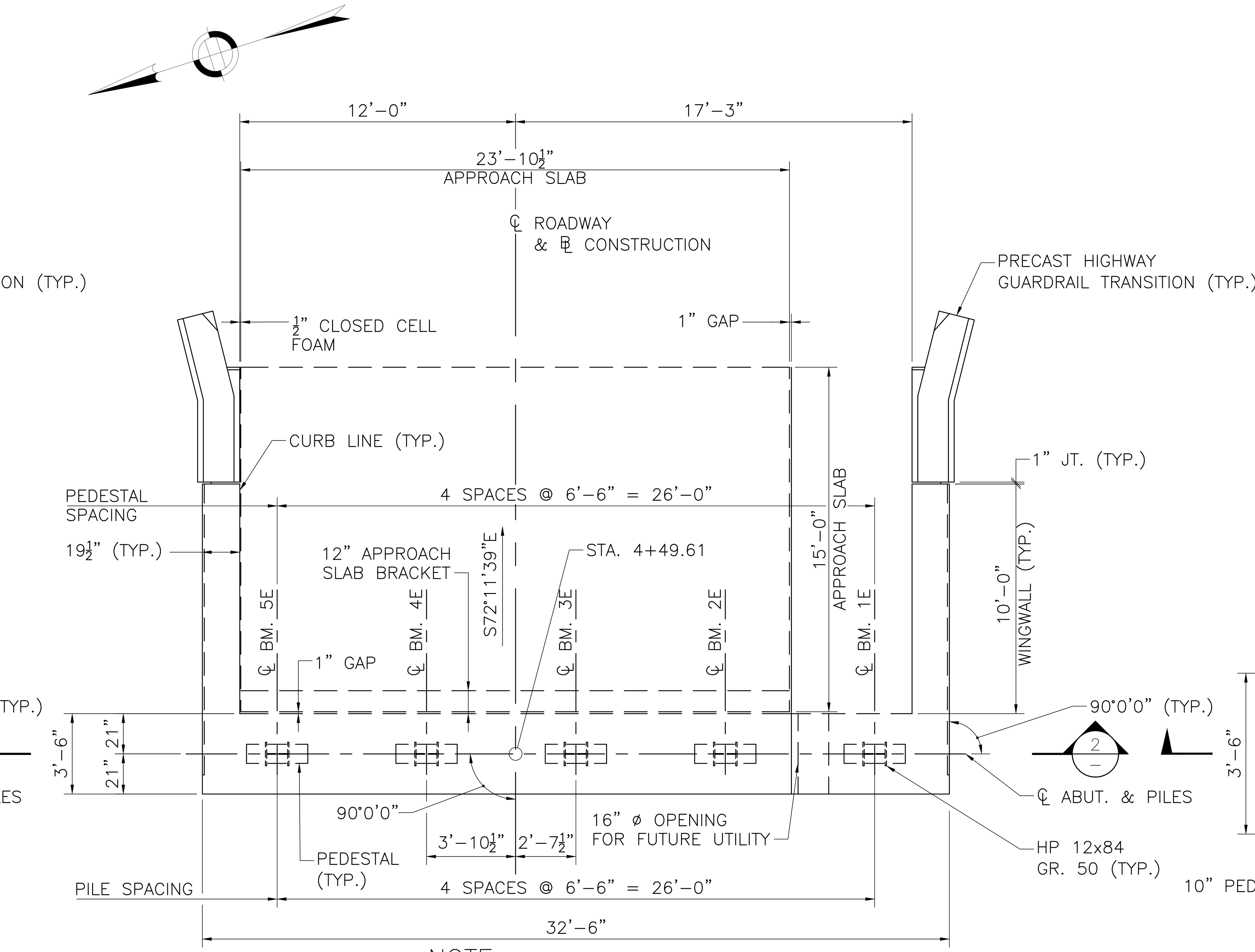
ABUTMENT PLAN & SECTION

NOTES:
1. ALL ELEVATIONS ARE SHOWN AT ABUTMENT CENTERLINE.
2. DETAILS ABOVE DECK LEVEL ARE NOT SHOWN FOR CLARITY.
3. TOP OF PEDESTAL ELEVATIONS DO NOT INCLUDE ERECTION PAD THICKNESS.



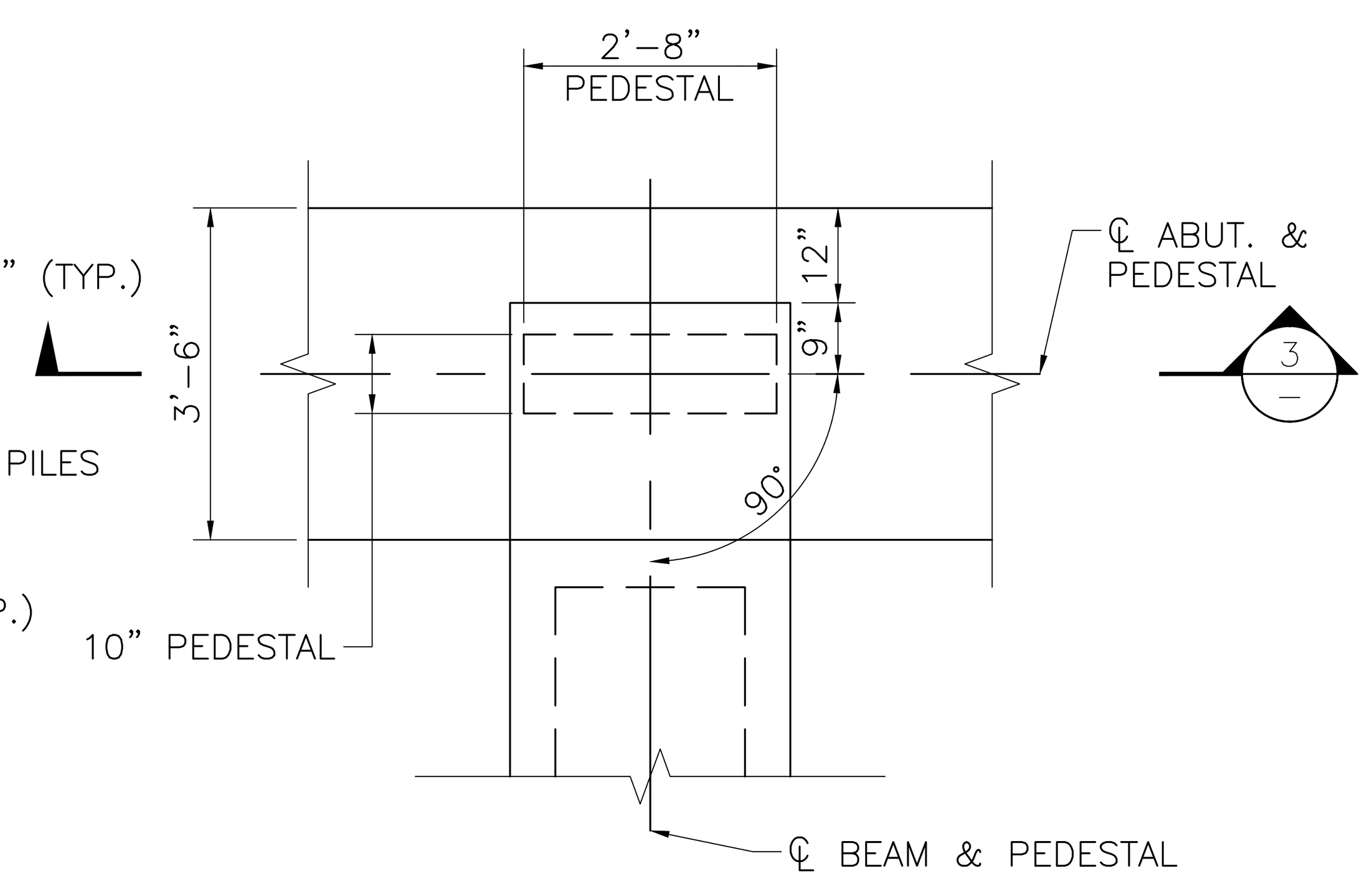
NOTE:
BEAMS NOT SHOWN FOR CLARITY.

WEST ABUTMENT PLAN
SCALE: 1/4" = 1'-0"



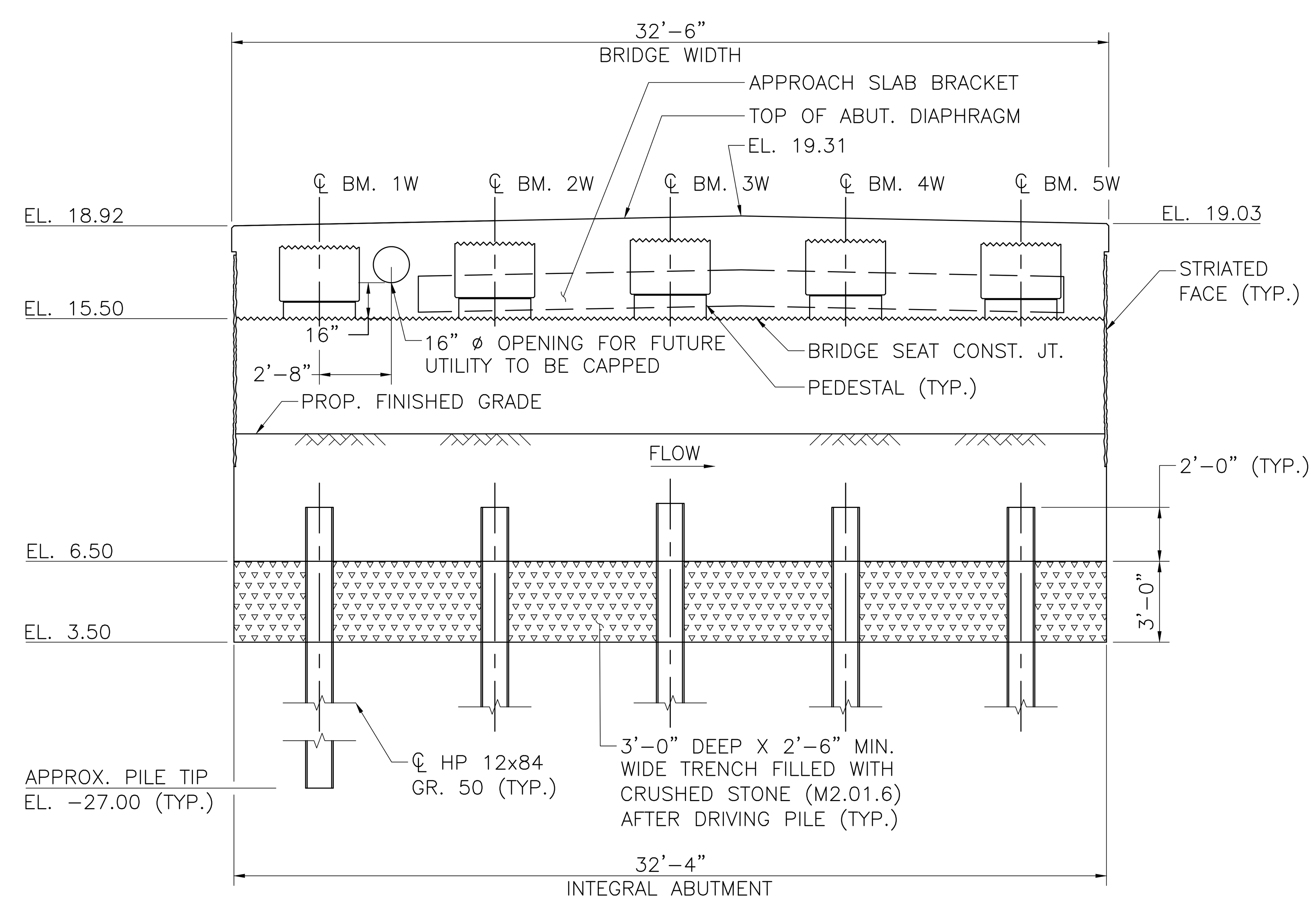
NOTE:
BEAMS NOT SHOWN FOR CLARITY.

EAST ABUTMENT PLAN
SCALE: 1/4" = 1'-0"

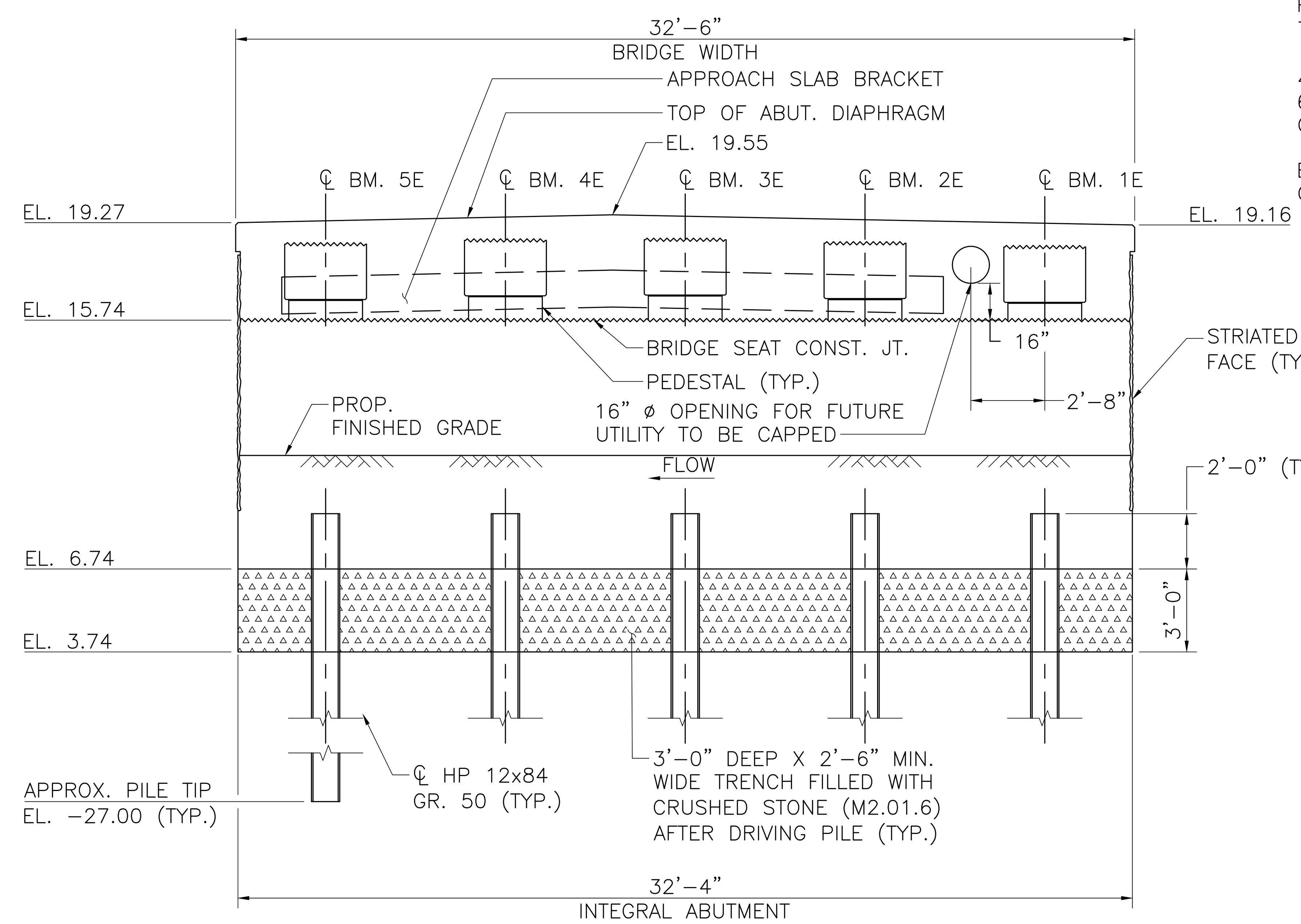


PEDESTAL PLAN
SCALE: 1/2" = 1'-0"

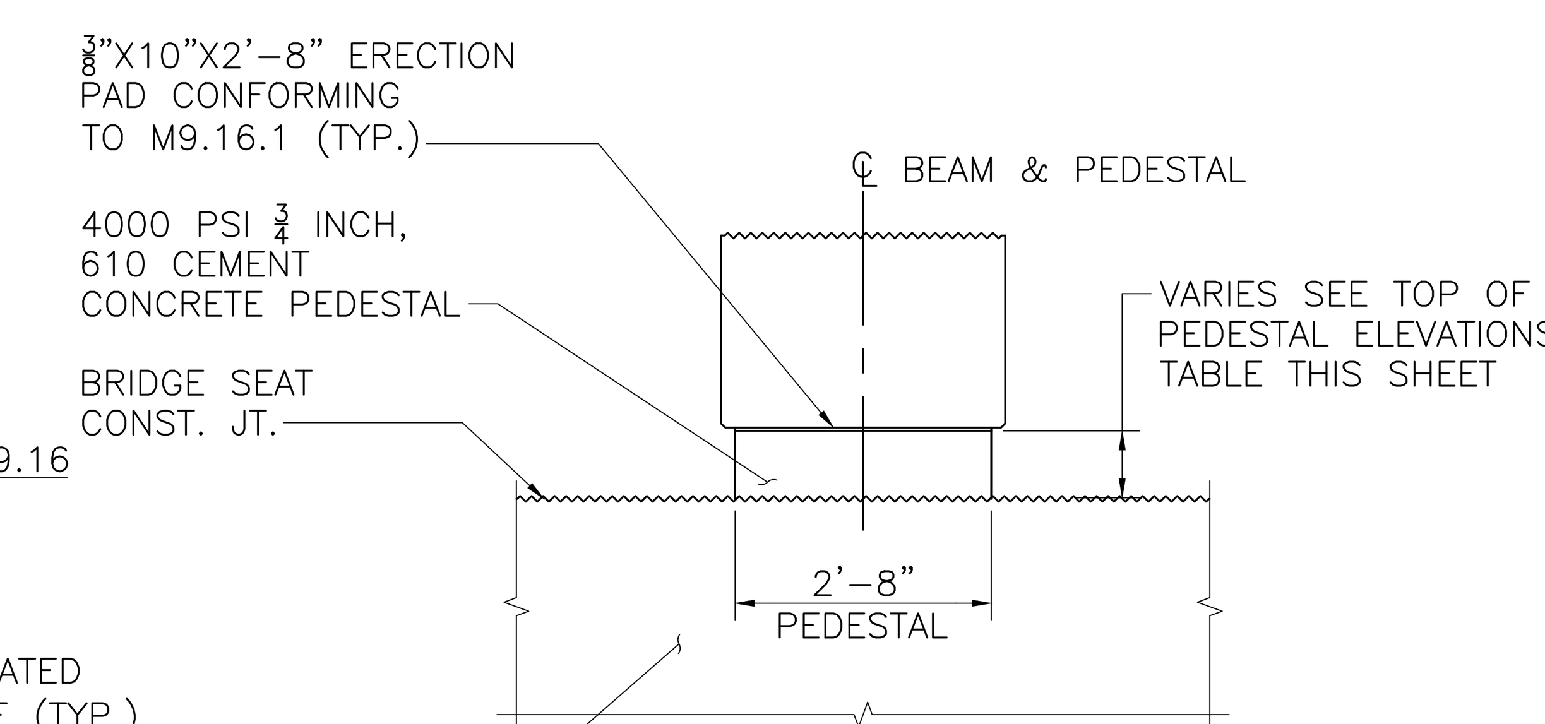
TOP OF PEDESTAL ELEVATIONS			
BM. #1W	16.11	BM. #1E	16.35
BM. #2W	16.24	BM. #2E	16.48
BM. #3W	16.37	BM. #3E	16.61
BM. #4W	16.35	BM. #4E	16.58
BM. #5W	16.21	BM. #5E	16.45



SECTION 1 – WEST ABUTMENT
SCALE: 1/4" = 1'-0"



SECTION 2 – EAST ABUTMENT
SCALE: 1/4" = 1'-0"



SECTION 3
SCALE: 1/2" = 1'-0"

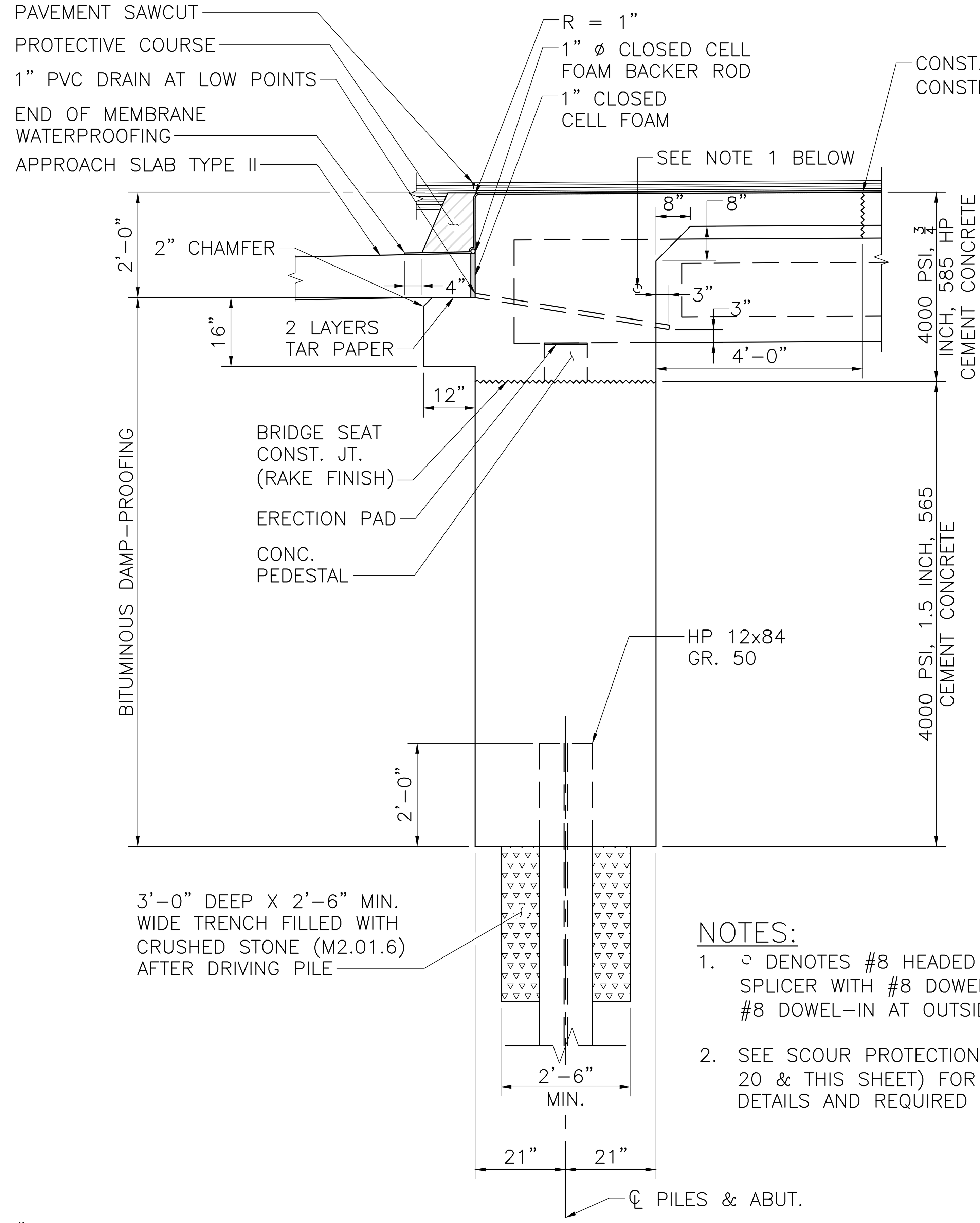
COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

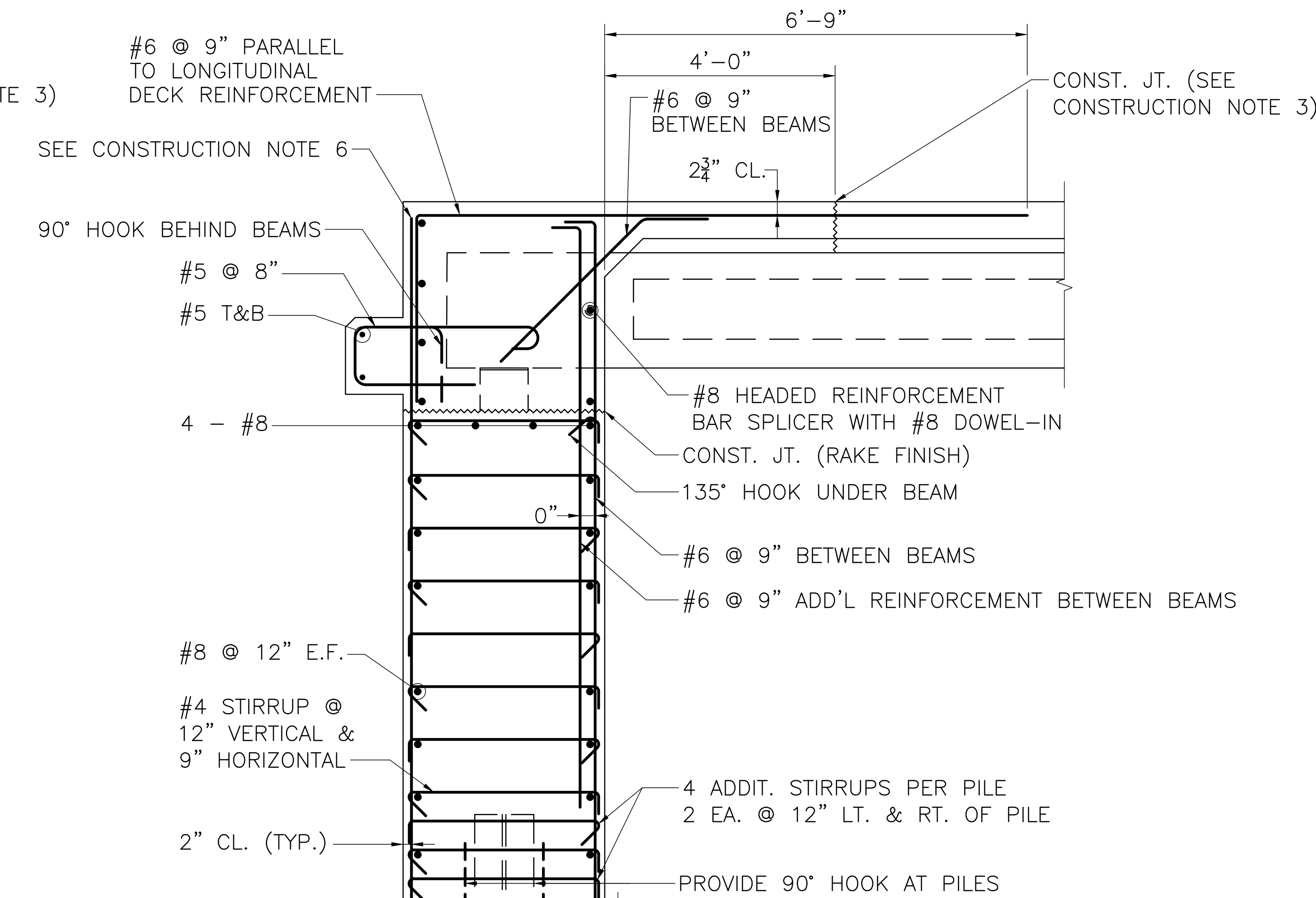
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	42
PROJECT FILE NO.		N/A	

ABUTMENT DETAILS

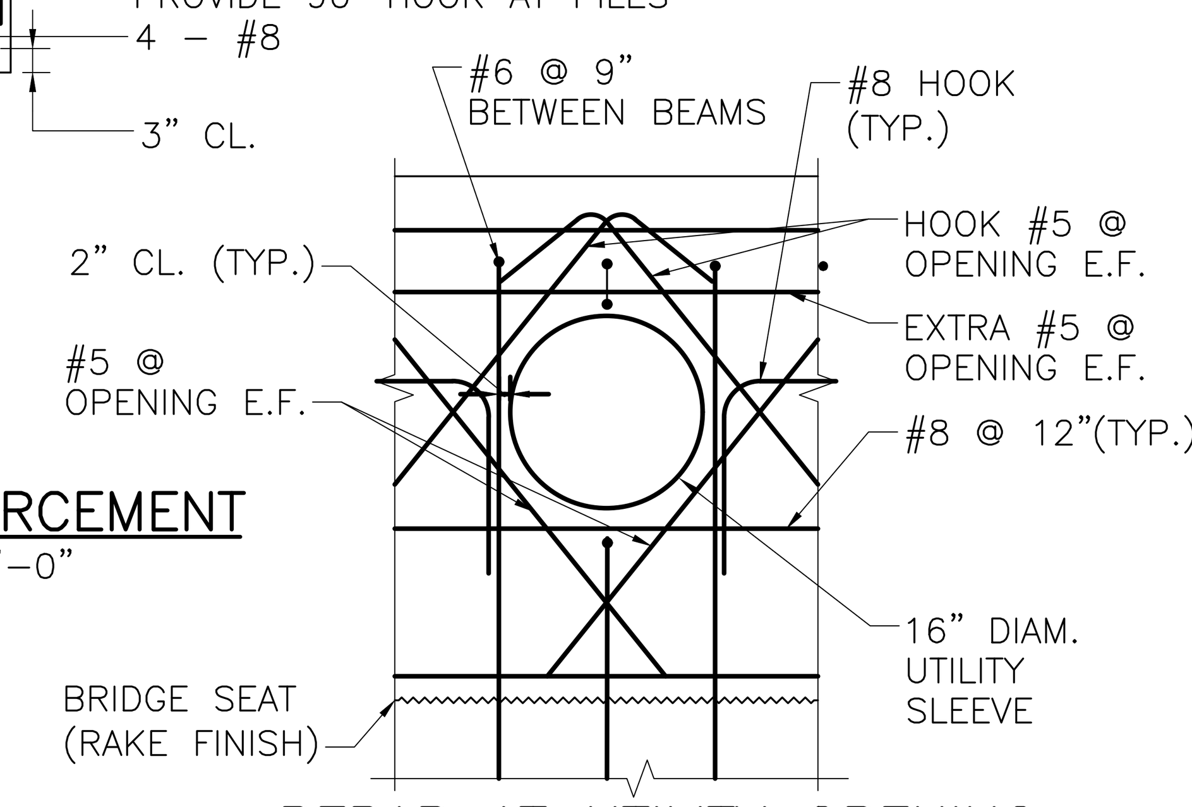


ABUTMENT SECTION
SCALE: 1/2" = 1'–0"

NOTES:
1. ○ DENOTES #8 HEADED REINFORCEMENT BAR SPLICER WITH #8 DOWEL–IN. USE 90° HOOK #8 DOWEL–IN AT OUTSIDES OF FASCIA BEAMS.
2. SEE SCOUR PROTECTION DETAIL (SHEET 6 OF 20 & THIS SHEET) FOR GROUND TREATMENT DETAILS AND REQUIRED CLEARANCES.



ABUTMENT REINFORCEMENT
SCALE: 1/2" = 1'–0"

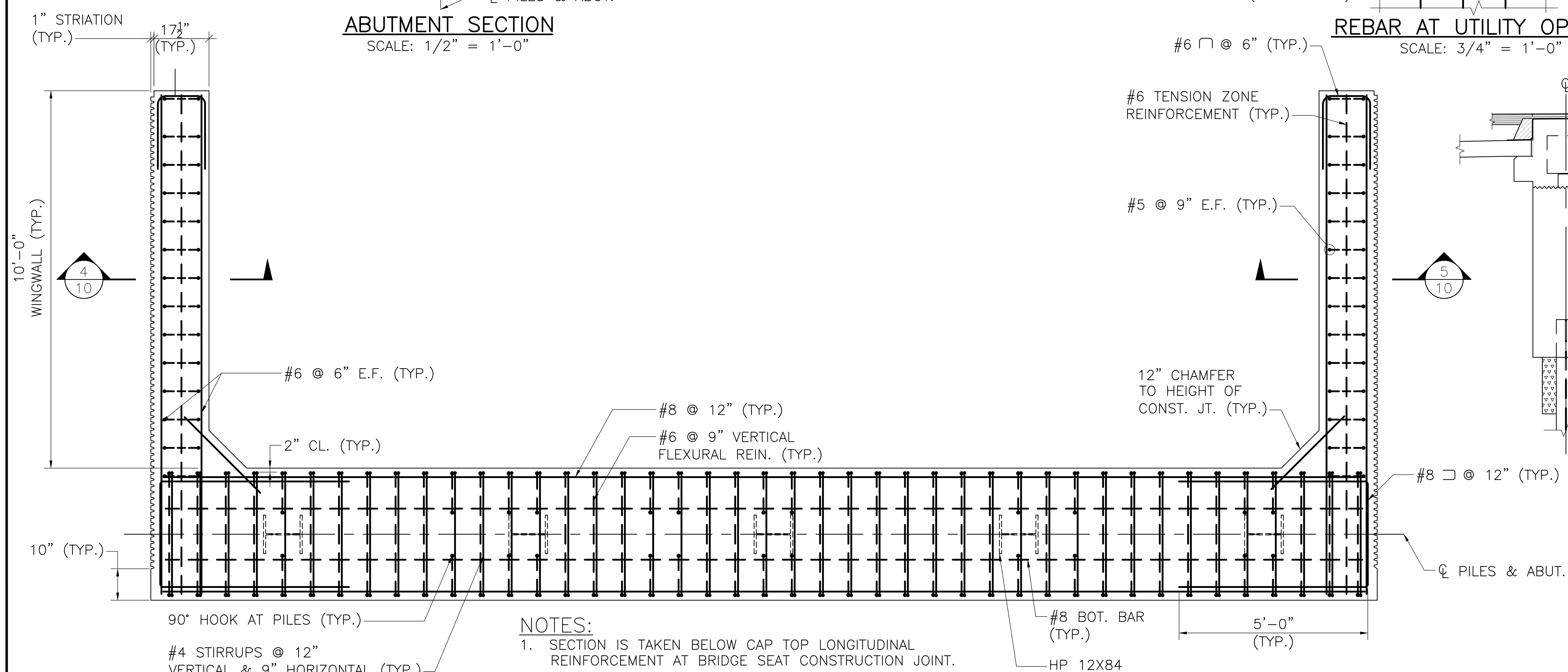


REBAR AT UTILITY OPENING
SCALE: 3/4" = 1'–0"

CONSTRUCTION NOTES:
1. ALL REINFORCEMENT SHALL BE COATED.
2. DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. CONTINUE DECK SLAB REINFORCEMENT TO BACK OF ABUTMENT.
3. THE CONTRACTOR SHALL FOLLOW THE DECK PLACEMENT SEQUENCE AS SHOWN ON THESE CONSTRUCTION DRAWINGS (SEE SHEET 13 OF 20).
4. ALL CONCRETE SHALL CONTAIN SUPERPLASTICIZER TO ENSURE ADEQUATE CONSOLIDATION.
5. BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN TWO (2) FEET OF DIFFERENTIAL BACKFILL HEIGHT SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE ABUTMENT AND DECK CONSTRUCTION IS COMPLETE.
6. THE CONTRACTOR MAY USE MECHANICAL REINFORCING BAR SPLICERS IN LIEU OF TENSION LAP SPLICES TO FACILITATE CONSTRUCTION. HOWEVER, NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR THE USE OF MECHANICAL REINFORCING BAR SPLICERS.
7. THE TOP OF THE APPROACH SLAB WATERPROOFING PROTECTIVE COURSE SHALL MATCH THE TOP OF THE ABUTMENT DIAPHRAGM.

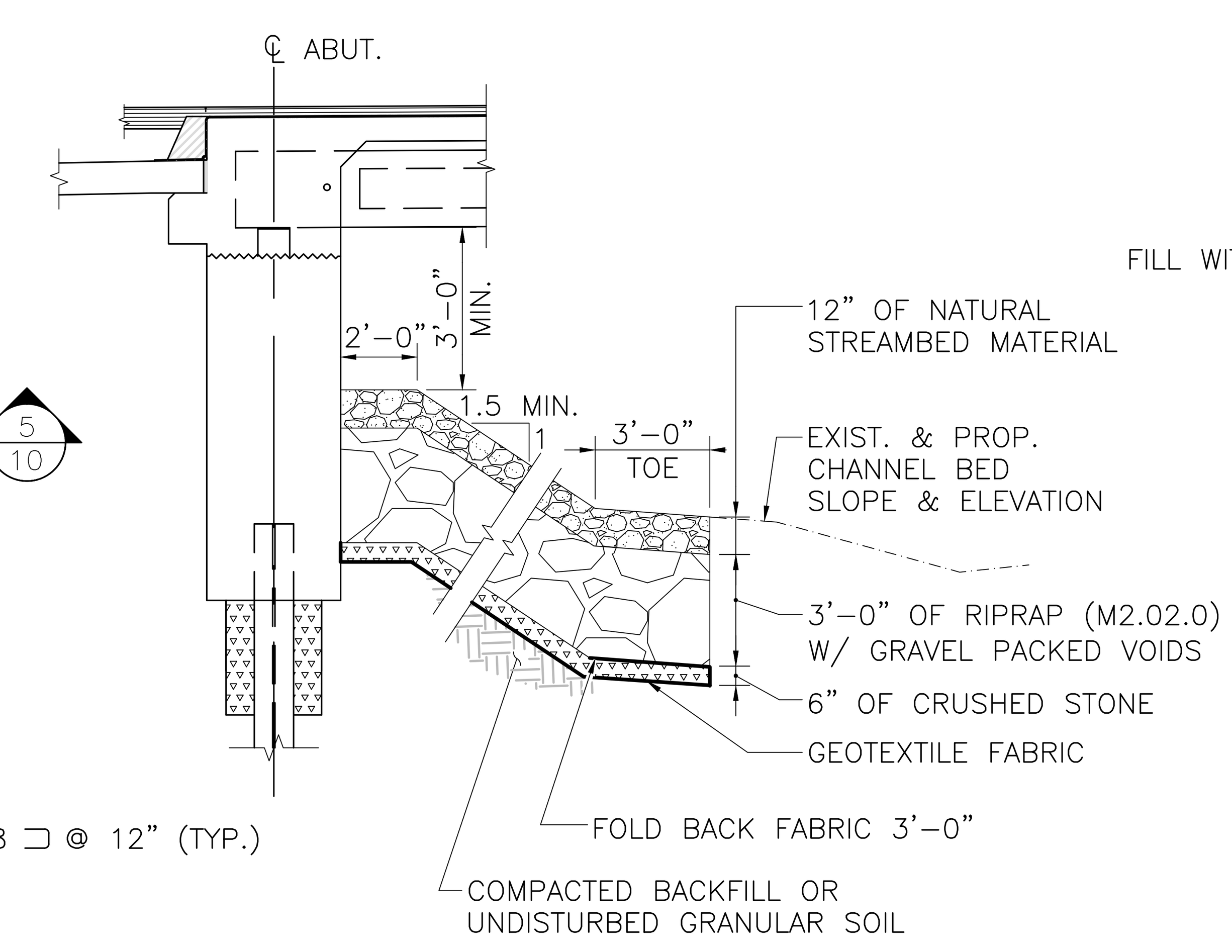
INTEGRAL ABUTMENT PILE NOTES:
1. A TRENCH WITH A DEPTH OF 3'–0" AND A MINIMUM WIDTH OF 2'–6" SHALL BE CONSTRUCTED DIRECTLY BELOW THE BOTTOM OF THE PILE CAP ELEVATION. AFTER THE PILES ARE DRIVEN, THE TRENCH SHALL BE FILLED WITH CRUSHED STONE (M2.01.6).
2. ALL SPLICES SHALL HAVE COMPLETE PENETRATION BUTT WELDS. THERE SHALL BE NO SPLICES WITHIN THE TOP 20 FEET OF PILE. SPLICE WELDS SHALL BE 100% UT.
3. THE FACTORED AXIAL DESIGN LOAD PER PILE IS 200 KIPS AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.
4. THE FACTORED STRUCTURAL RESISTANCE PER PILE IS 615 KIPS AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF 1230 KIPS AND A RESISTANCE FACTOR OF 0.50.
5. THE FACTORED GEOTECHNICAL PILE RESISTANCE IS 306 KIPS. THE ESTIMATED TIP ELEVATION IS –27 FEET. HEAVY DUTY PILE SHOES SHALL BE INSTALLED ON THE TIPS OF ALL PILES. PREFABRICATED PILE SHOES MAY BE USED IF APPROVED BY THE ENGINEER.
6. DETERMINATION OF THE DRIVEN PILE RESISTANCE, PILE DRIVING CRITERIA, AND PILE INTEGRITY SHALL BE PERFORMED USING THE PDA DRIVING/TESTING METHOD WITH A RESISTANCE FACTOR OF 0.65. PILE SHALL BE INSTALLED TO ACHIEVE A FACTORED DRIVEN RESISTANCE EQUAL TO OR GREATER THAN THE FACTORED AXIAL DESIGN LOAD.
7. THE CONTRACTOR SHALL SUBMIT A PILE SCHEDULE, PILE INSTALLATION, AND PILE DRIVING/TESTING PLAN FOR REVIEW AND APPROVAL OF THE ENGINEER.
8. PILES SHALL CONFORM TO AASHTO M270 GRADE 50.
9. ONE (1) INDICATOR PILE AT EACH ABUTMENT SHALL BE TESTED DURING THE END OF INITIAL DRIVING AND DURING RESTRIKE A MINIMUM OF 24 HOURS AFTER INITIAL DRIVING WITH A PDA.
10. THE MINIMUM REQUIRED TIP ELEVATION TO THE POINT OF FIXITY IS APPROXIMATELY EL. –18.5. THE PILES MAY NEED TO BE DRIVEN GREATER THAN THE REQUIRED GEOTECHNICAL PILE RESISTANCE TO ACHIEVE THE MINIMUM TIP ELEVATION.

REQUIRED PILE LOCATION TOLERANCES:
1. CONFORMANCE TO THE FOLLOWING TOLERANCES IS OF EXTREME IMPORTANCE TO FOUNDATIONS OF THIS TYPE.
2. PRIOR TO DRIVING, EACH ABUTMENT PILE SHALL BE HELD BY A TEMPLATE WITHIN 1" OF PLAN LOCATION.
3. AFTER EACH ABUTMENT PILE IS DRIVEN, THE TOP OF THE PILE SHALL BE WITHIN 3" OF PLAN LOCATION.

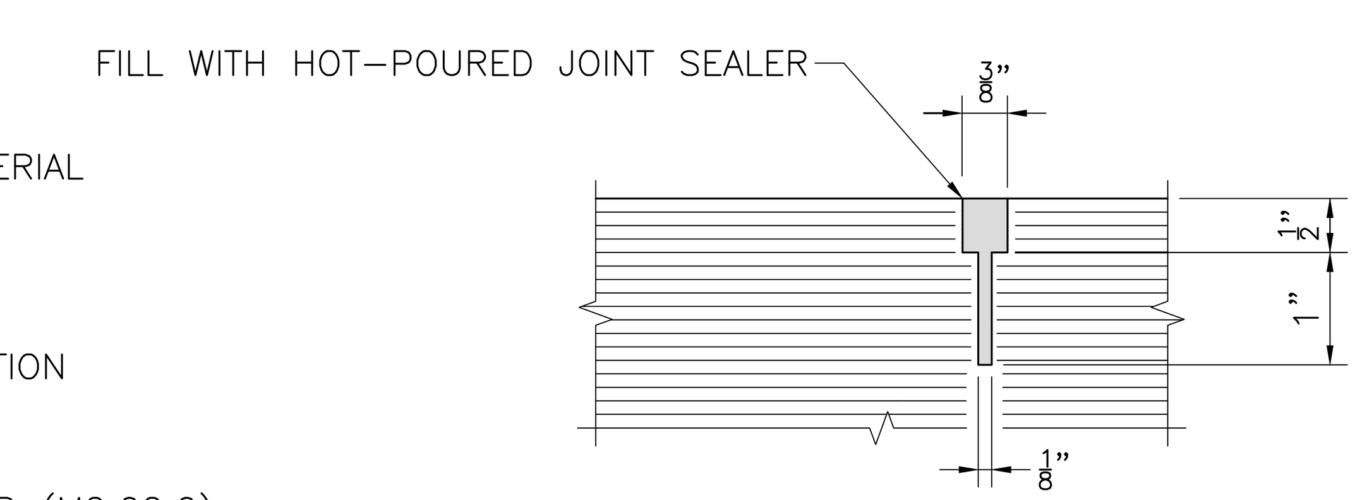


NOTES:
1. SECTION IS TAKEN BELOW CAP TOP LONGITUDINAL REINFORCEMENT AT BRIDGE SEAT CONSTRUCTION JOINT.
2. EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR.

HORIZONTAL SECTION
SCALE: 1/2" = 1'–0"



SCOUR PROTECTION DETAIL
SCALE: 1/4" = 1'–0"

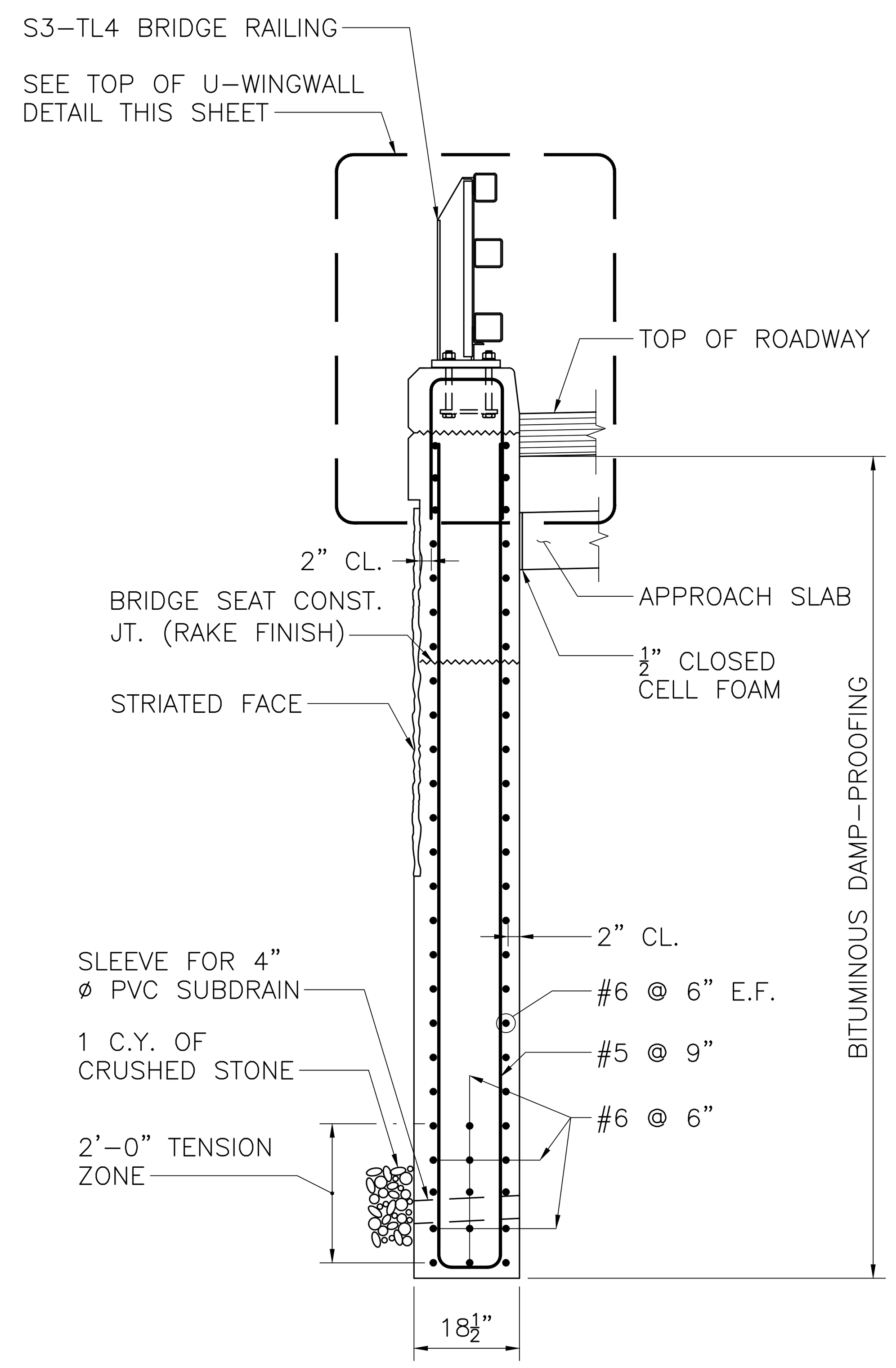


PAVEMENT SAWCUT DETAIL
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

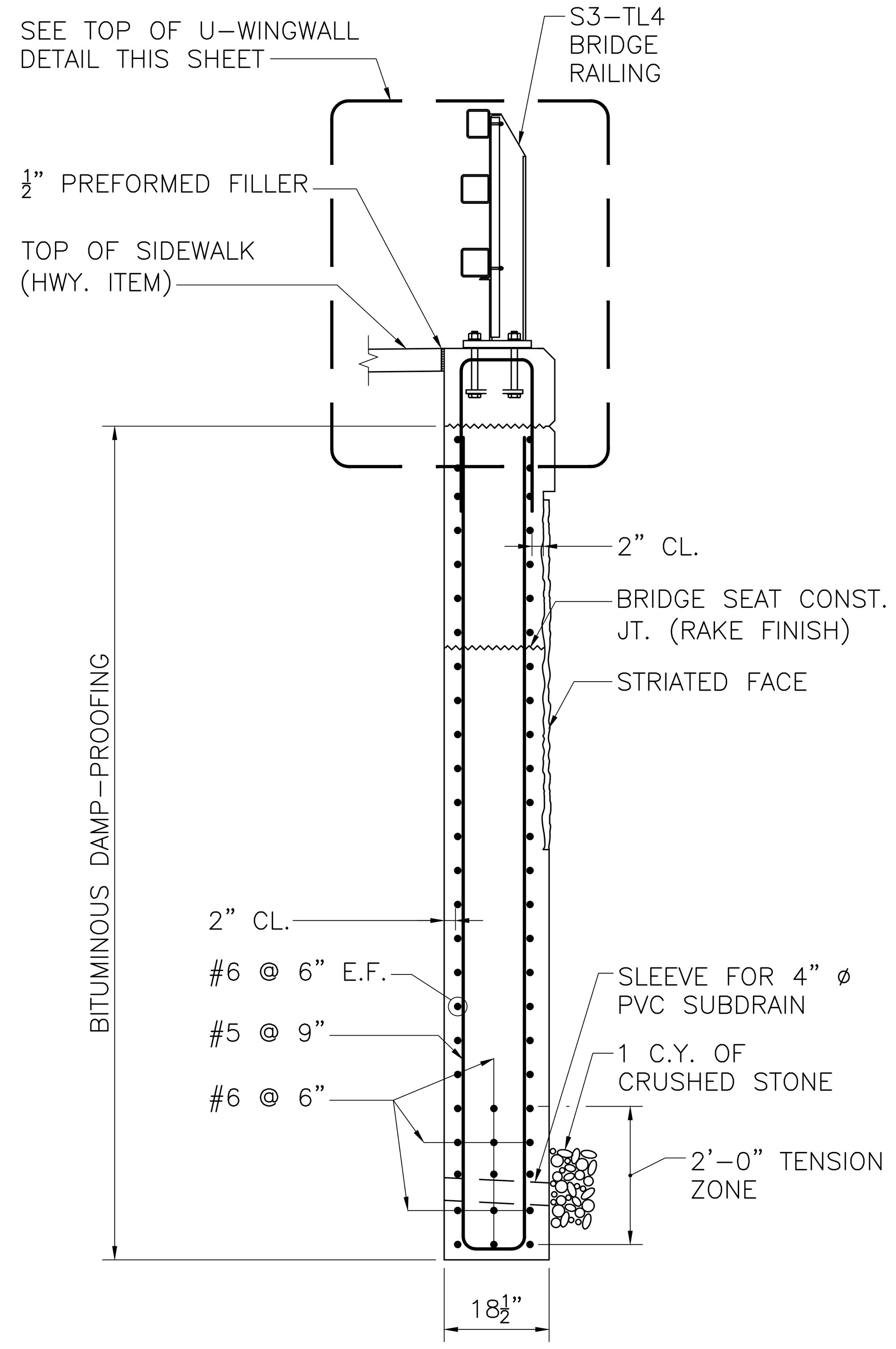
STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



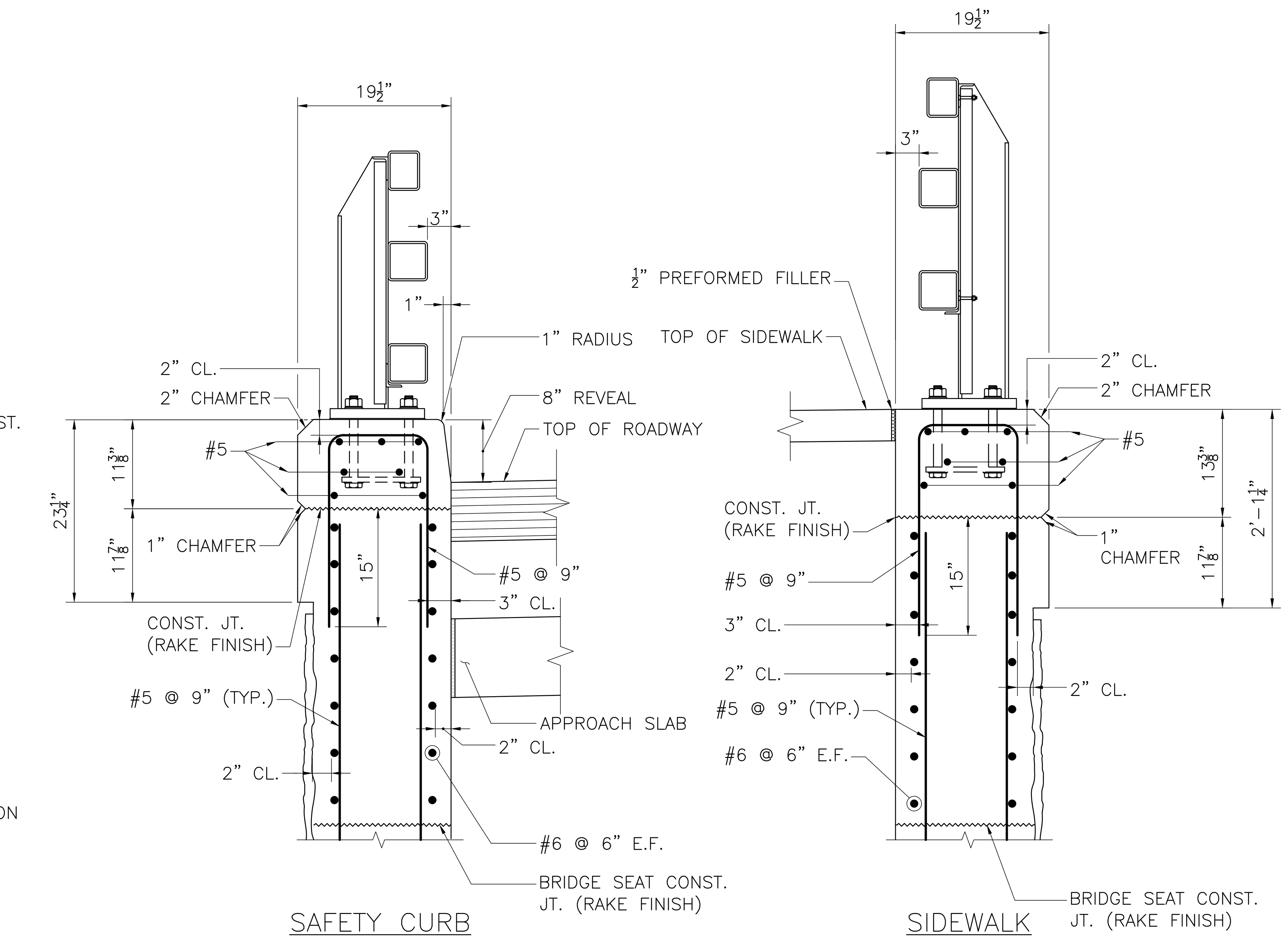
SECTION 4 – NORTH WINGWALL

SCALE: 1/2" = 1'-0"



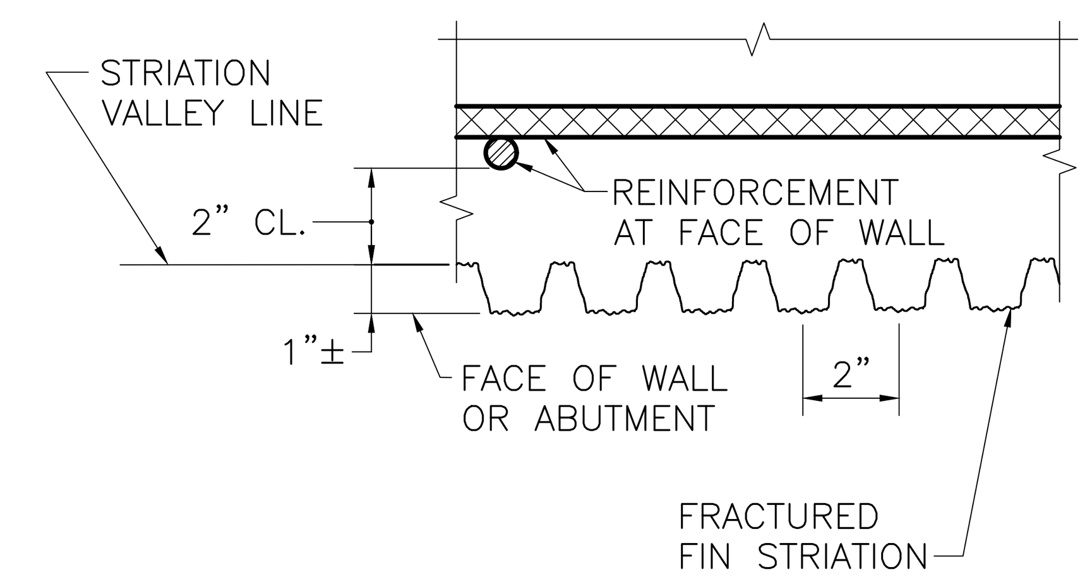
SECTION 5 – SOUTH WINGWALL

SCALE: 1/2" = 1'-0"



TOP OF U-WINGWALL

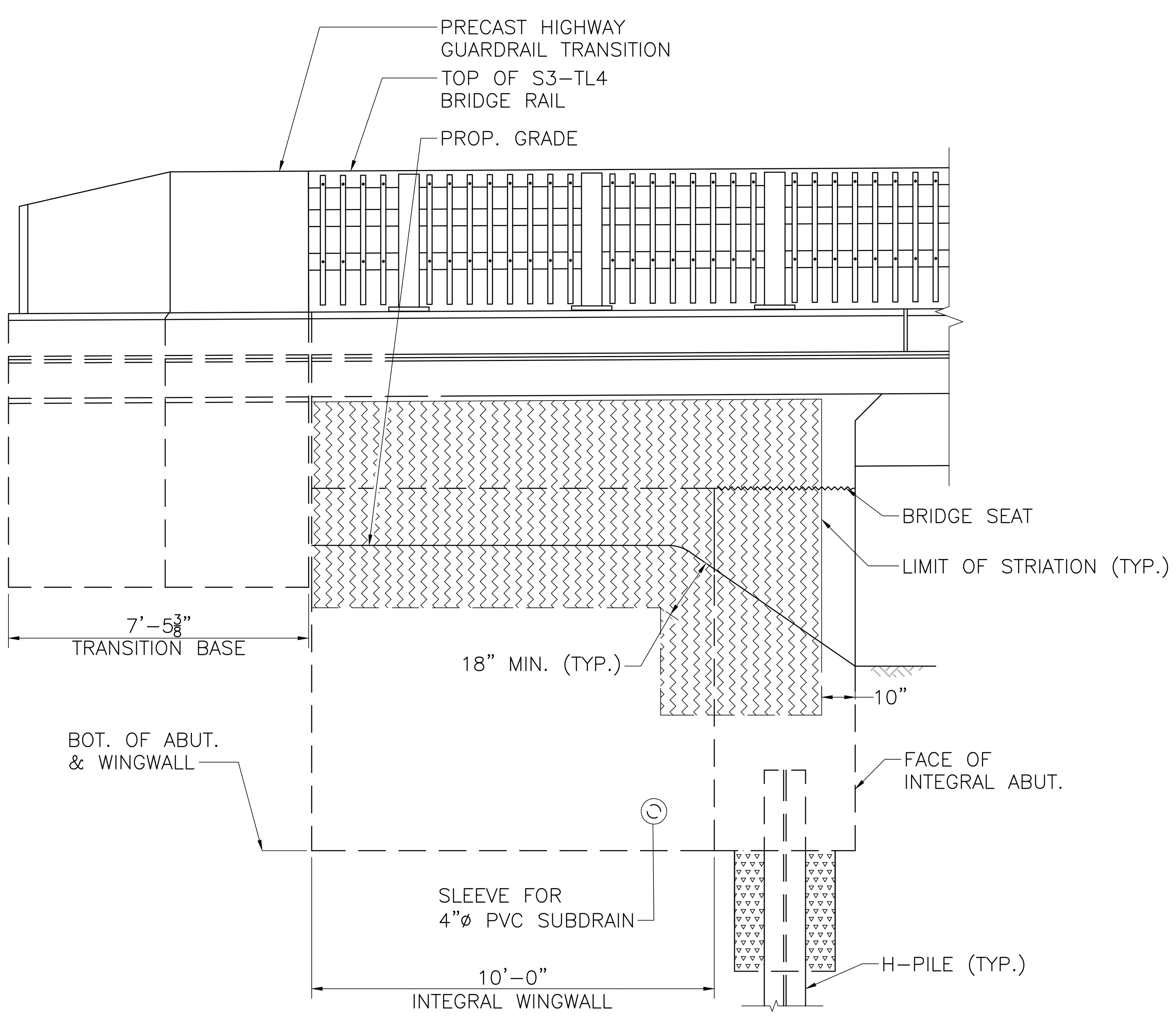
SCALE: 1" = 1'-0"



STRIATION NOTE:
THE CONTRACTOR SHALL MAKE SURE THAT THE STRIATION FINS ARE PLUMB AND LINED UP VERTICALLY FROM PANEL TO PANEL FOR THE FULL HEIGHT OF THE WALL.

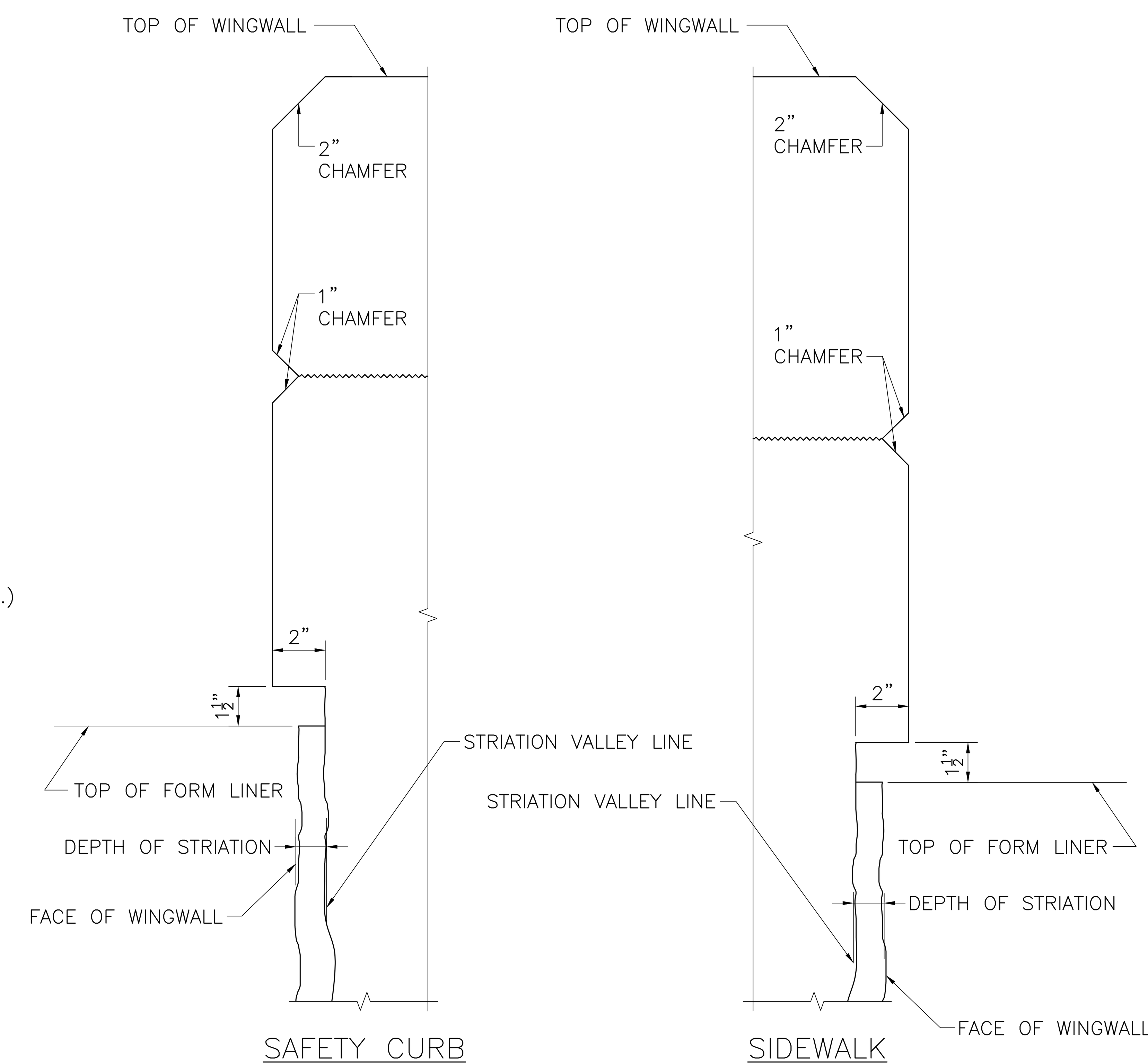
TYPICAL STRIATION DETAIL

SCALE: 3" = 1'-0"



STRIATION ELEVATION

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



STRIATION DETAIL AT TOP OF WINGWALL

SCALE: 3" = 1'-0"

NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	42
PROJECT FILE NO.		N/A	

WINGWALL & STRIATION DETAILS

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — 3/17/2023 DATE

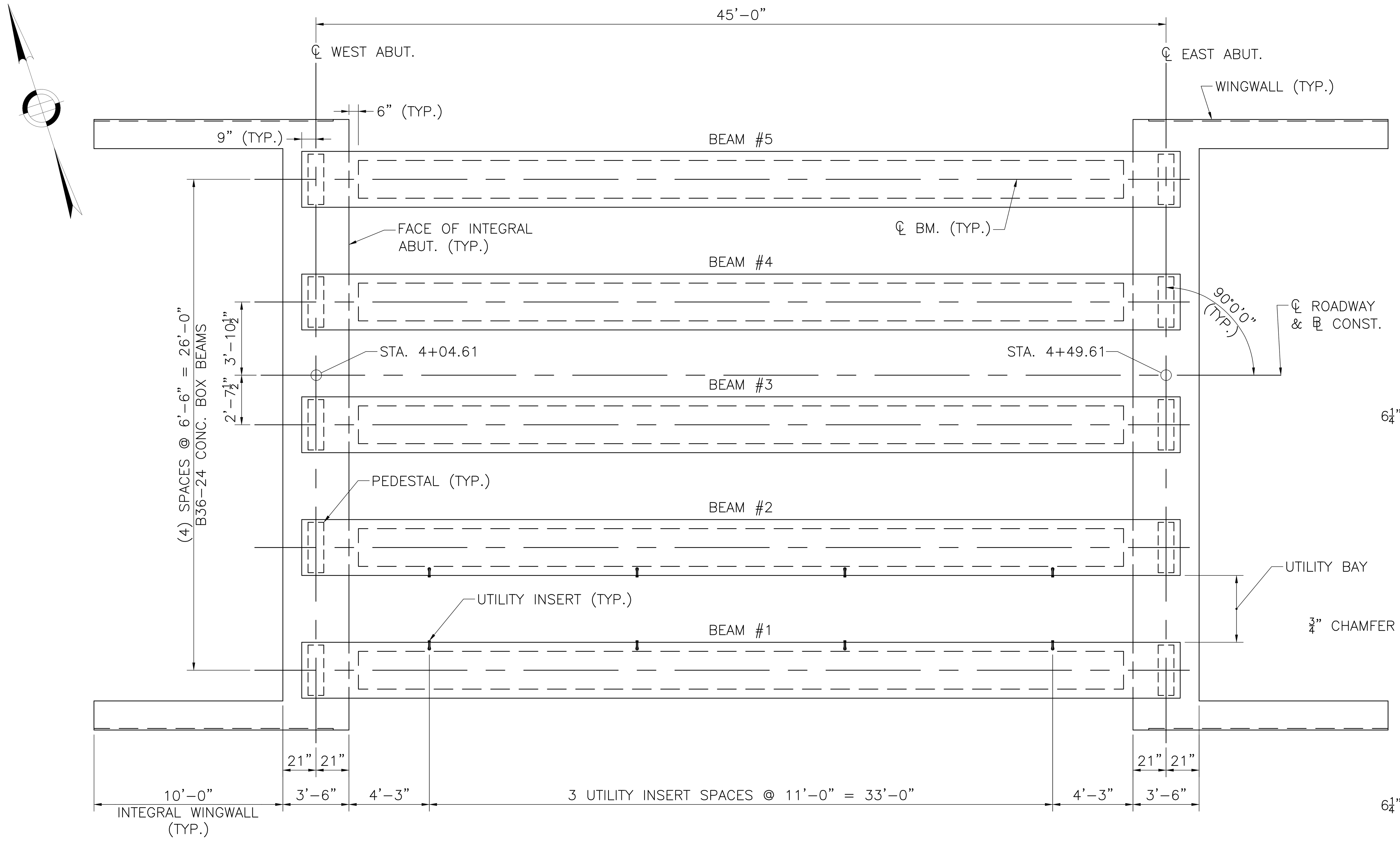
DATE	DESCRIPTION
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

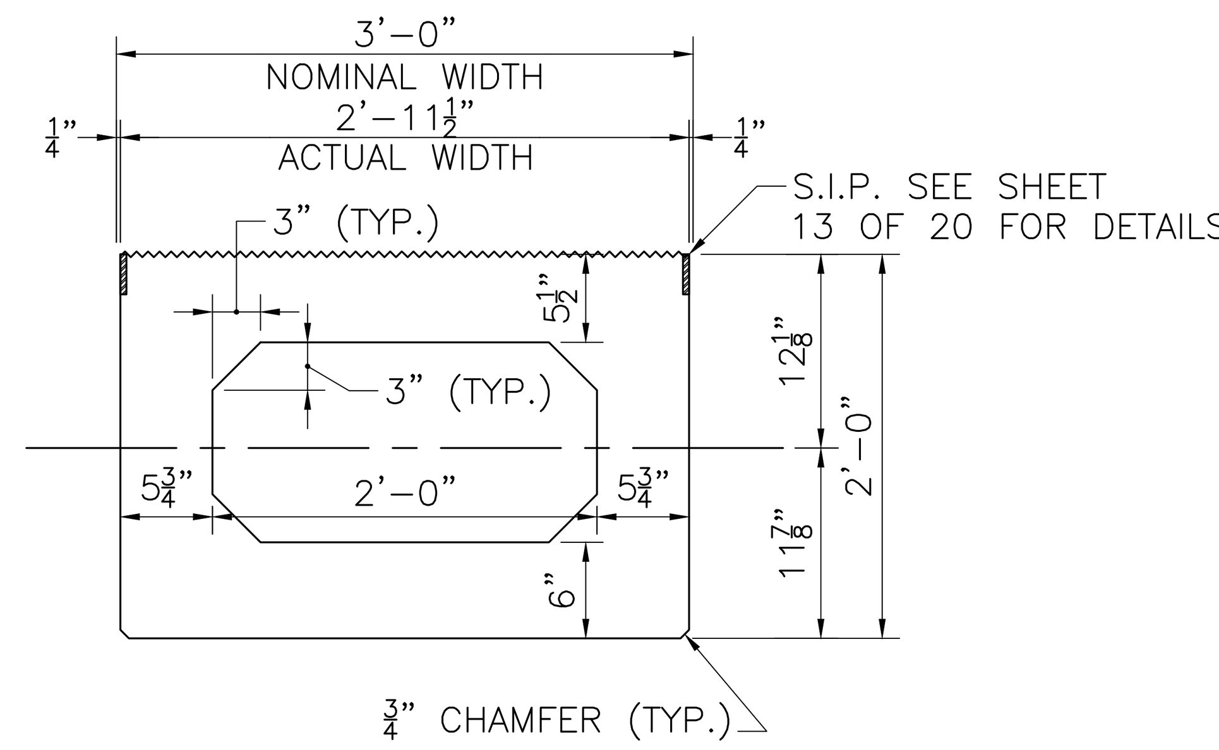
SHEET 10 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	42
PROJECT FILE NO.	N/A		

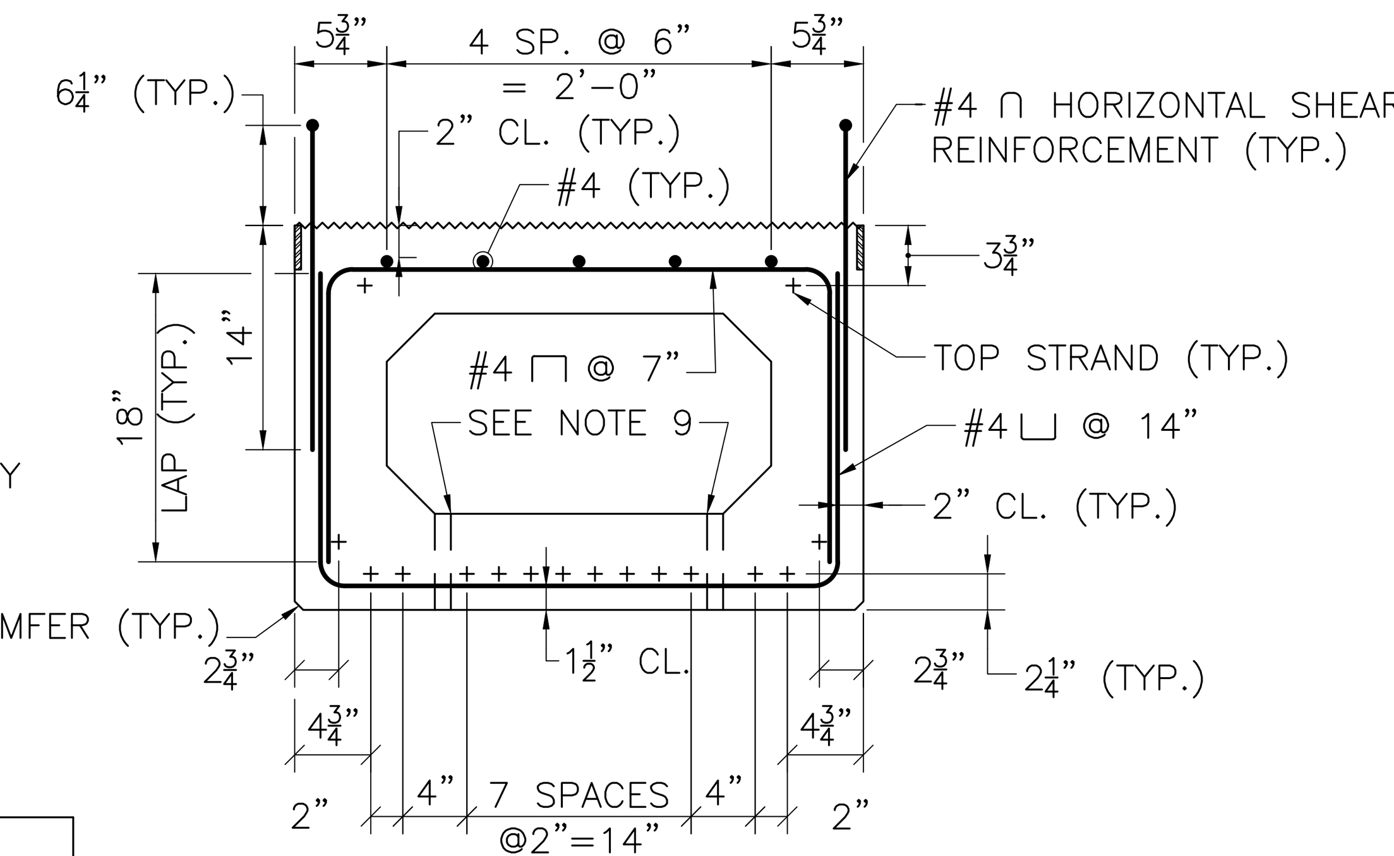
FRAMING PLAN & BEAM DETAILS



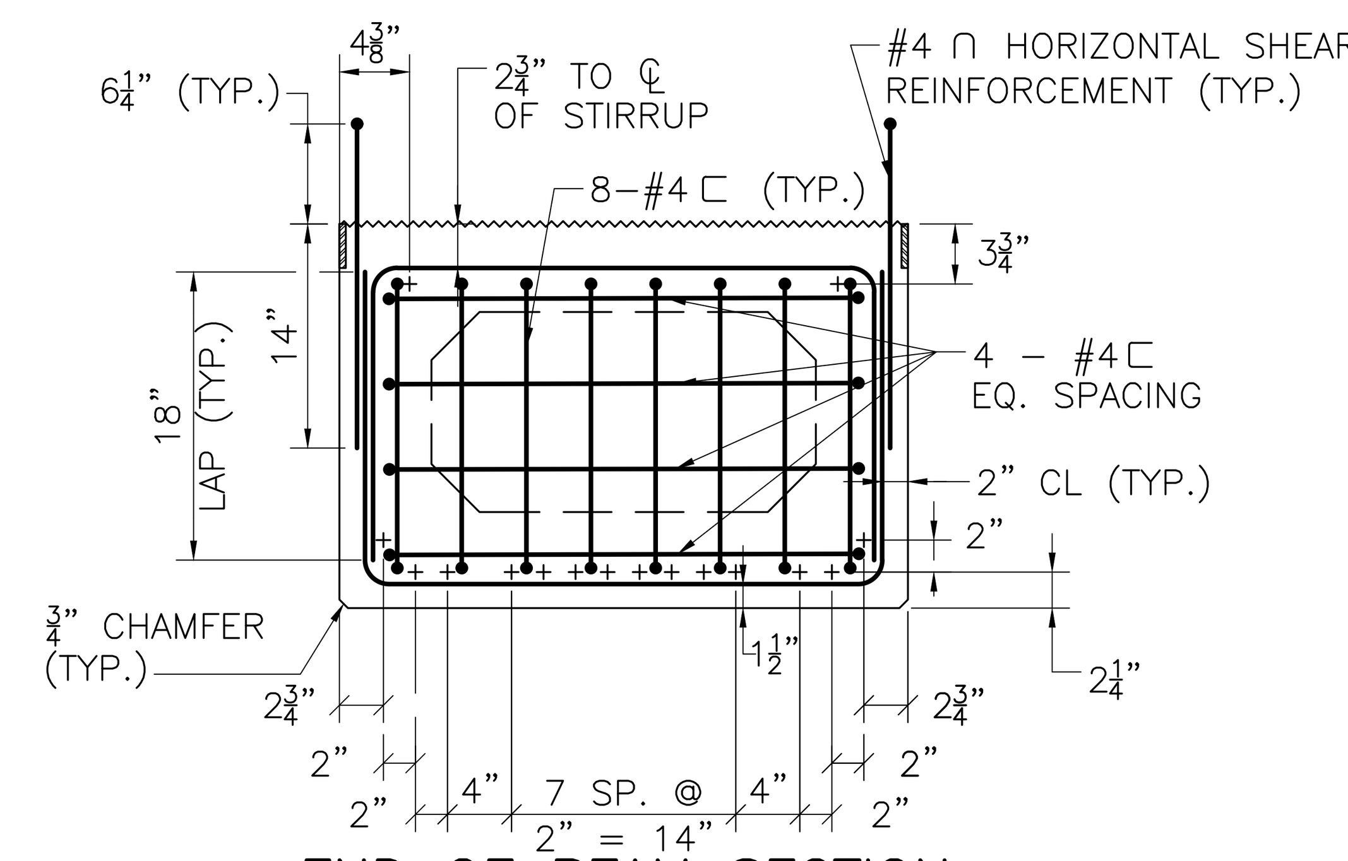
FRAMING PLAN
SCALE: 1/4" = 1'-0"



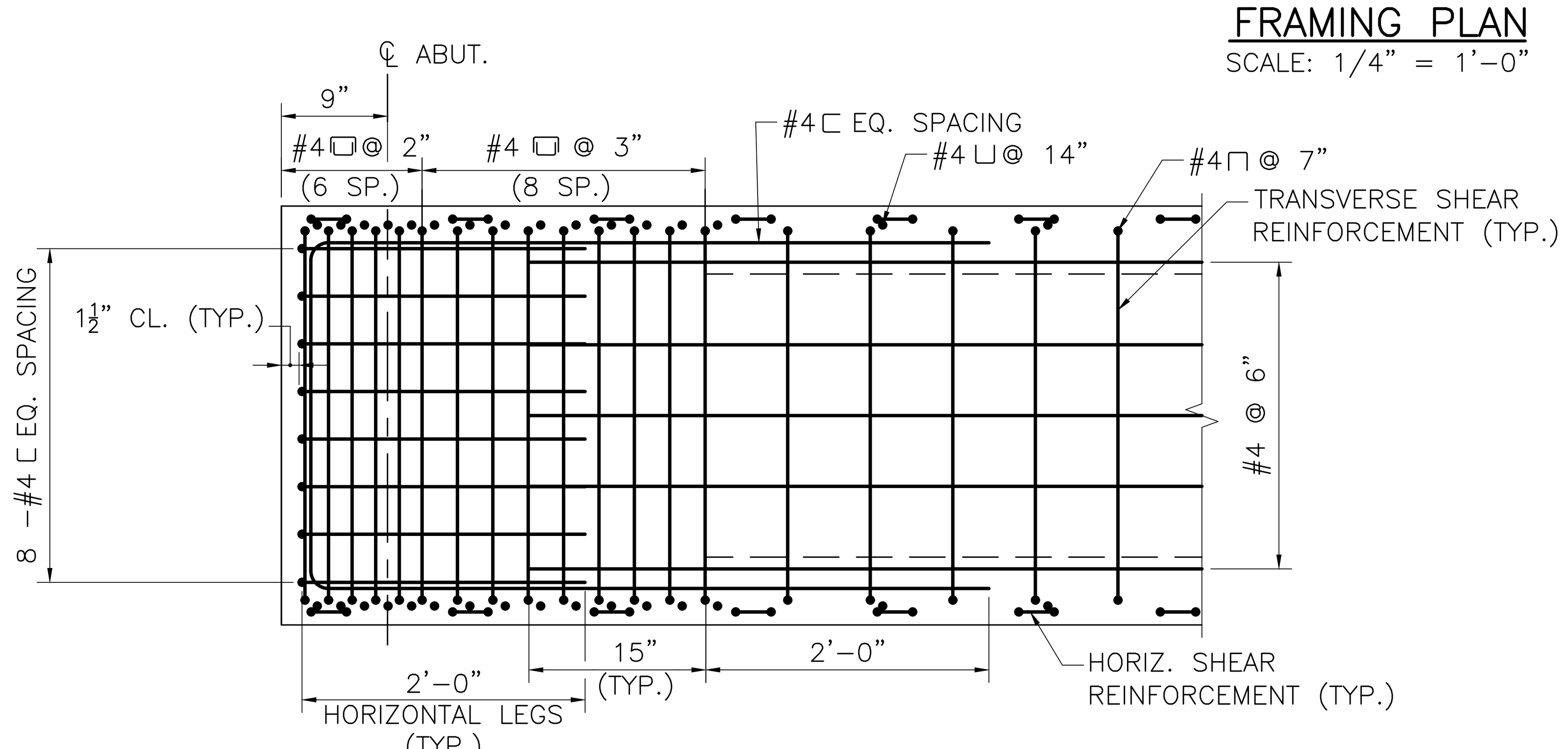
BOX BEAM PROPERTIES B36-24
SCALE: 1" = 1'-0"



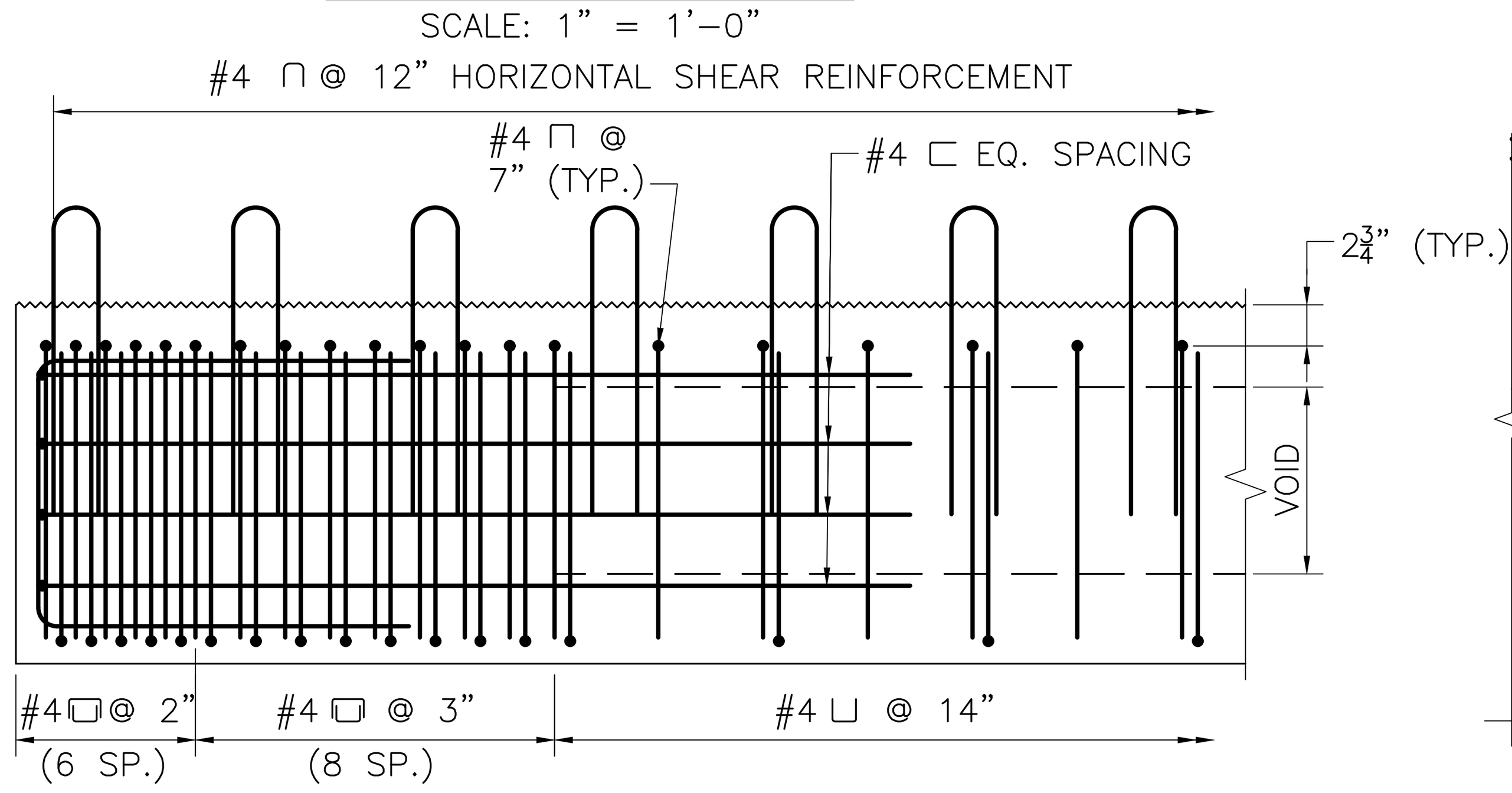
TYPICAL MIDSPAN SECTION
SCALE: 1" = 1'-0"



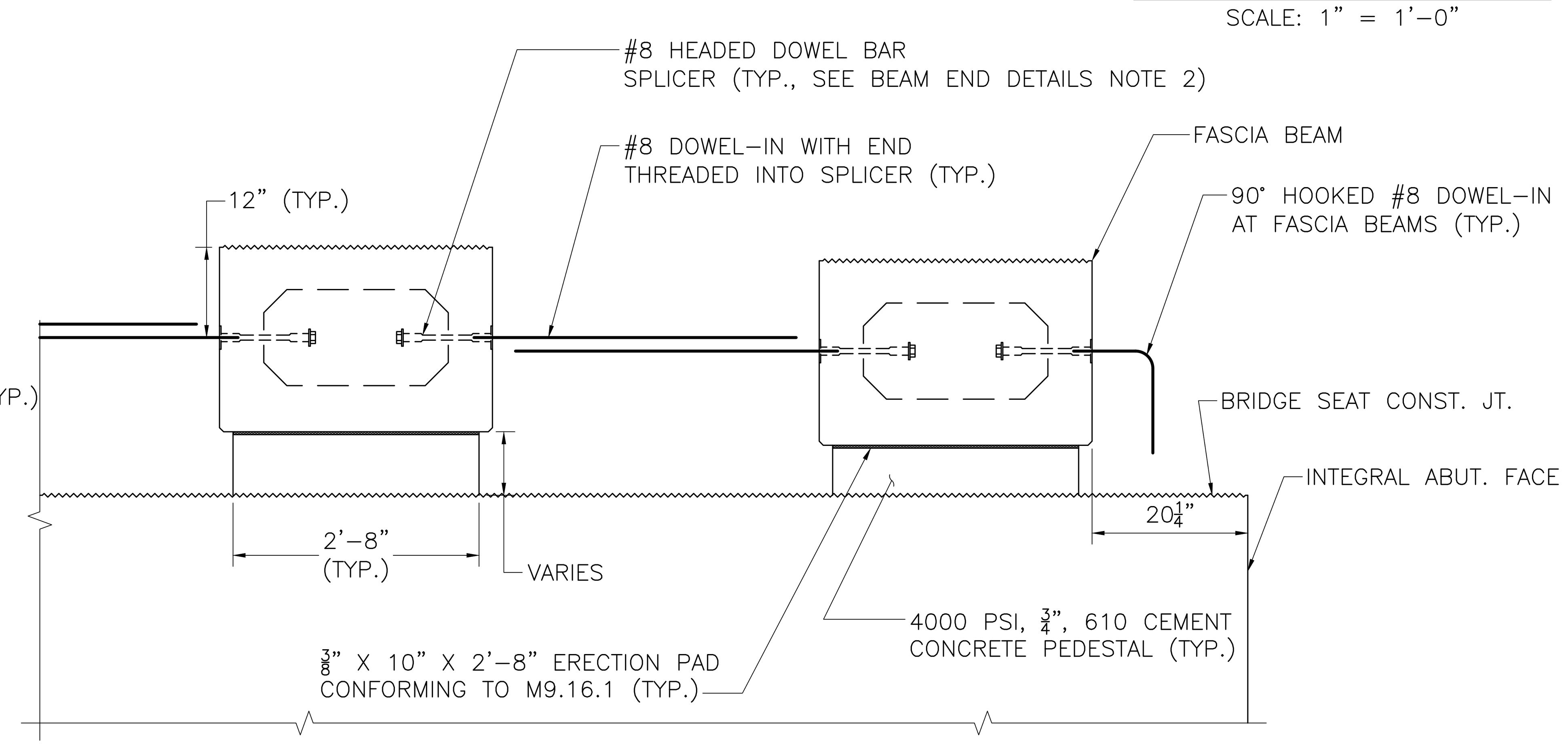
END OF BEAM SECTION
SCALE: 1" = 1'-0"



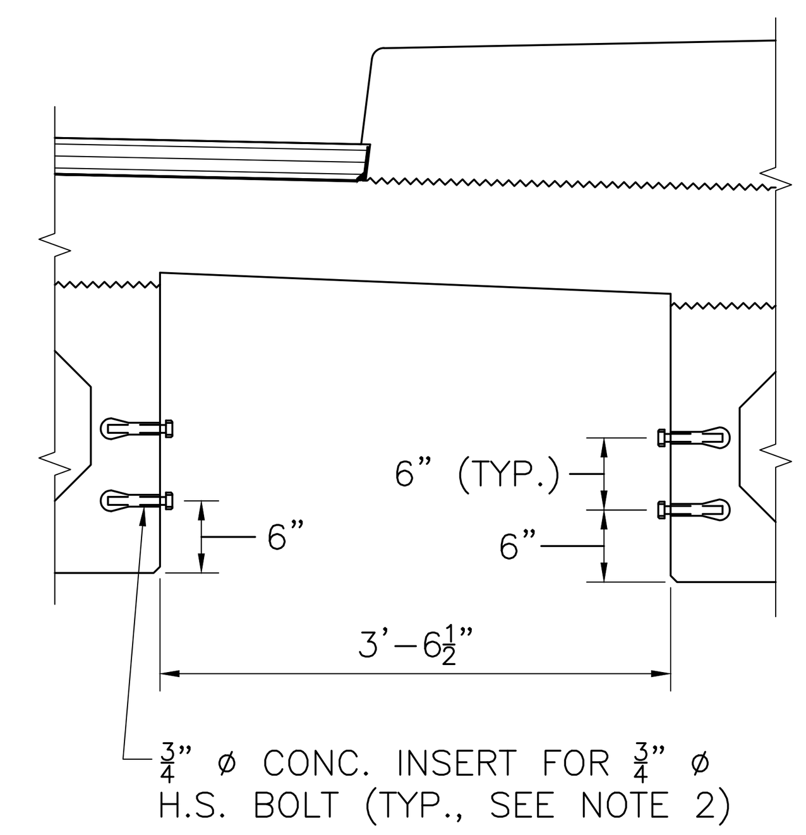
END OF BEAM PLAN
SCALE: 1" = 1'-0"



LONGITUDINAL SECTION
SCALE: 1" = 1'-0"



BEAM END DETAILS
SCALE: 3/4" = 1'-0"



UTILITY INSERT DETAIL
SCALE: 3/4" = 1'-0"

FRAMING PLAN NOTES:

1. SEE STANDARD SPECIFICATIONS FOR BEAMS ERECTION AND LAYOUT.
2. THE MAIN LOAD CARRYING MEMBERS ARE B36-24 CONCRETE BOX BEAMS.

PRESTRESS NOTES:

1. ALL PRETENSIONING ELEMENTS SHALL BE 0.6" ø, UNCOATED, SEVEN-WIRE, LOW RELAXATION STEEL STRANDS AND SHALL CONFORM TO AASHTO M203.
2. THE NOMINAL TENSILE STRENGTH OF THE PRETENSIONING STRANDS SHALL BE 270 KSI.
3. THE INITIAL TENSION PER 0.6" ø STRAND SHALL BE 44 KIPS.
4. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 6500 PSI.
5. NO PRESTRESS SHALL BE TRANSFERRED TO THE CONCRETE UNTIL IT HAS ATTAINED A COMPRESSIVE STRENGTH, AS SHOWN BY CYLINDER TEST, OF AT LEAST 4500 PSI.
6. THE TOP OF ALL BEAMS SHALL BE GIVEN A RAKE FINISH (¼" AMPLITUDE) ACROSS THE WIDTH (PERPENDICULAR TO THE BEAM'S AXIS).
7. THE FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.
8. + DENOTES STRAIGHT STRANDS. (16 PRESTRESSED STRANDS)
9. 1" ø DRAIN, PLACED AT BOTH ENDS OF EACH VOID.

BEAM END DETAILS NOTES:

1. THE LATERAL STABILITY OF THE BEAMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR DURING ERECTION AND CONSTRUCTION. A LATERAL SUPPORT SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN AND BRIDGE CONSTRUCTION SPECIFICATIONS.
2. #8 HEADED DOWEL BAR SPLICERS SHALL BE CAST-IN-PLACE IN THE PRECAST BEAMS BY THE FABRICATOR AND SHALL BE EMBEDDED AS REQUIRED TO PROVIDE A MINIMUM NOMINAL TENSILE RESISTANCE OF 71.0 KIPS AS SPECIFIED BY THE MANUFACTURER.

UTILITY INSERT DETAIL NOTES:

1. ¾" DIAMETER THREADED INSERTS FOR ¾" H.S. BOLTS SHALL BE CAST INTO THE PRECAST BEAMS BY THE FABRICATOR AND SHALL PROVIDE A MINIMUM NOMINAL TENSILE RESISTANCE OF 6.0 KIPS AND A MINIMUM NOMINAL SHEAR RESISTANCE OF 6.0 KIPS IN 3000 PSI CONCRETE.
2. INSERTS SHALL BE POSITIONED TO AVOID INTERFERENCE WITH PRESTRESSING STRANDS.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
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STATE BRIDGE ENGINEER — DATE: 3/17/2023

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

2839500_BR6 8-16(N11007_W20001).DWG Plotted on 15-Mar-2023 10:26 AM
CHAPTER 85 REVIEW 06-24-2021

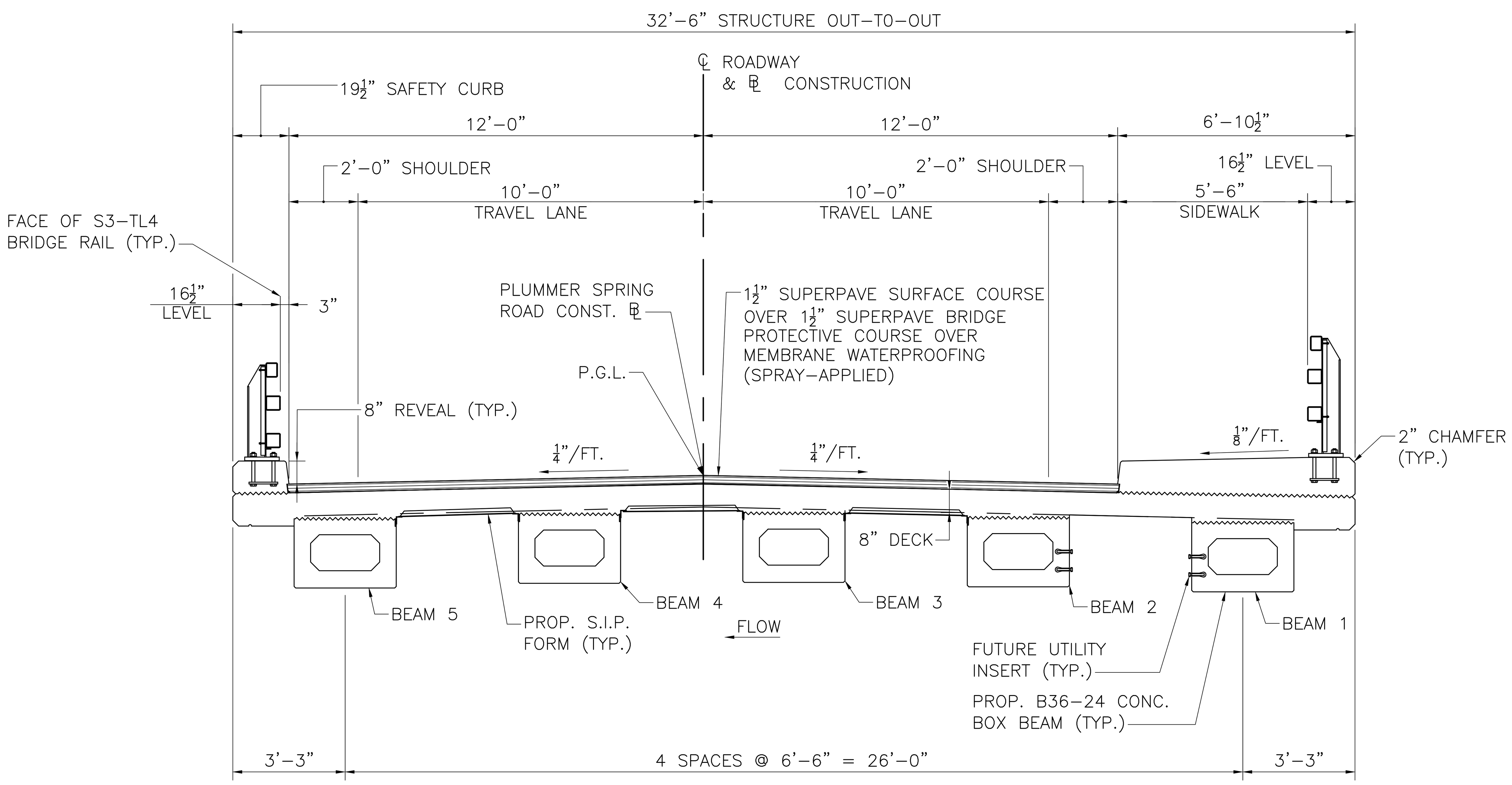
NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	42
PROJECT FILE NO.	N/A		

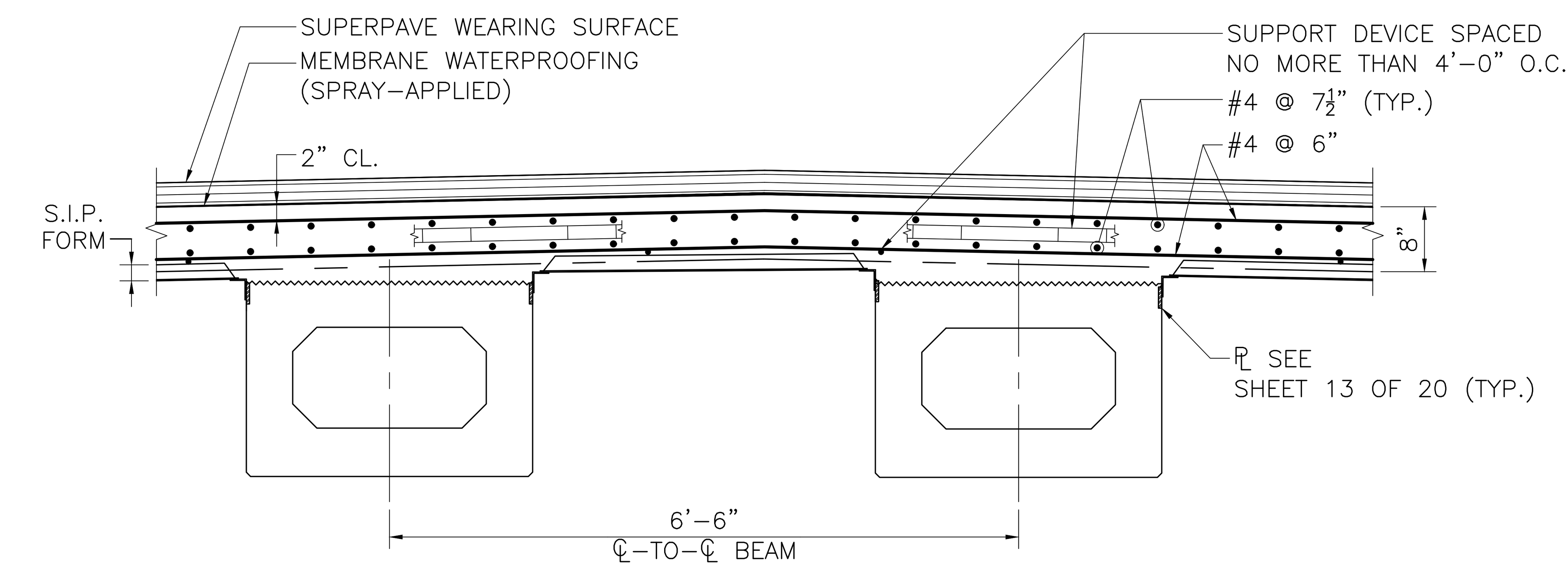
TRANSVERSE SECTION & DECK DETAILS

DECK NOTES:

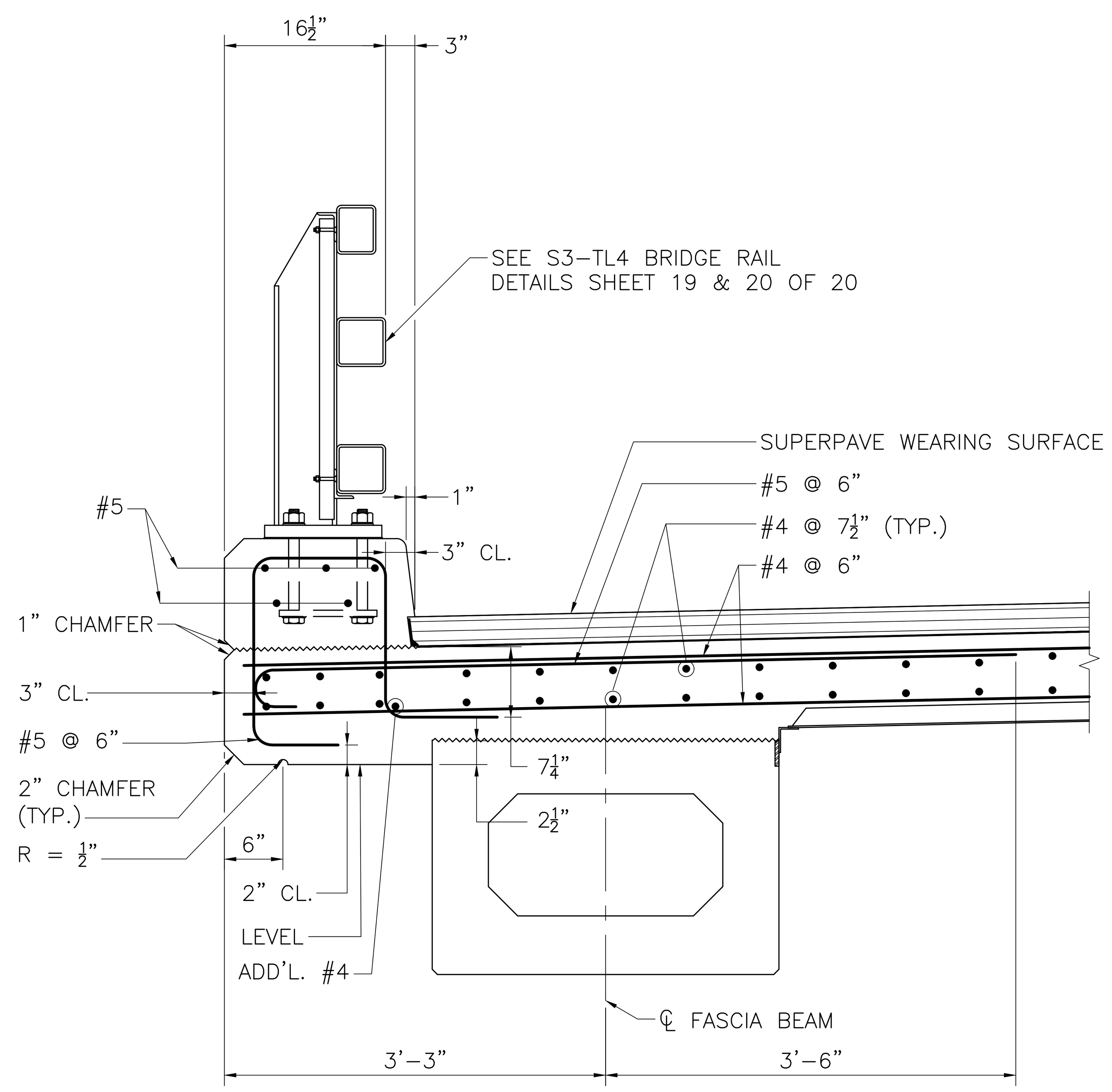
1. ROADWAY DECK SLAB SHALL BE 4000 PSI, ¾ INCH, 585 HP CEMENT CONCRETE.
2. LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE ℄ OF CONSTRUCTION. TRANSVERSE (PRIMARY) REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE ℄ OF CONSTRUCTION.
3. ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
4. THE FINISHED SURFACE OF THE BRIDGE DECK SHALL BE SMOOTH AND WITHOUT ANY PROJECTIONS THAT COULD PUNCTURE THE MEMBRANE WATERPROOFING OR DEPRESSIONS THAT COULD RETAIN WATER.



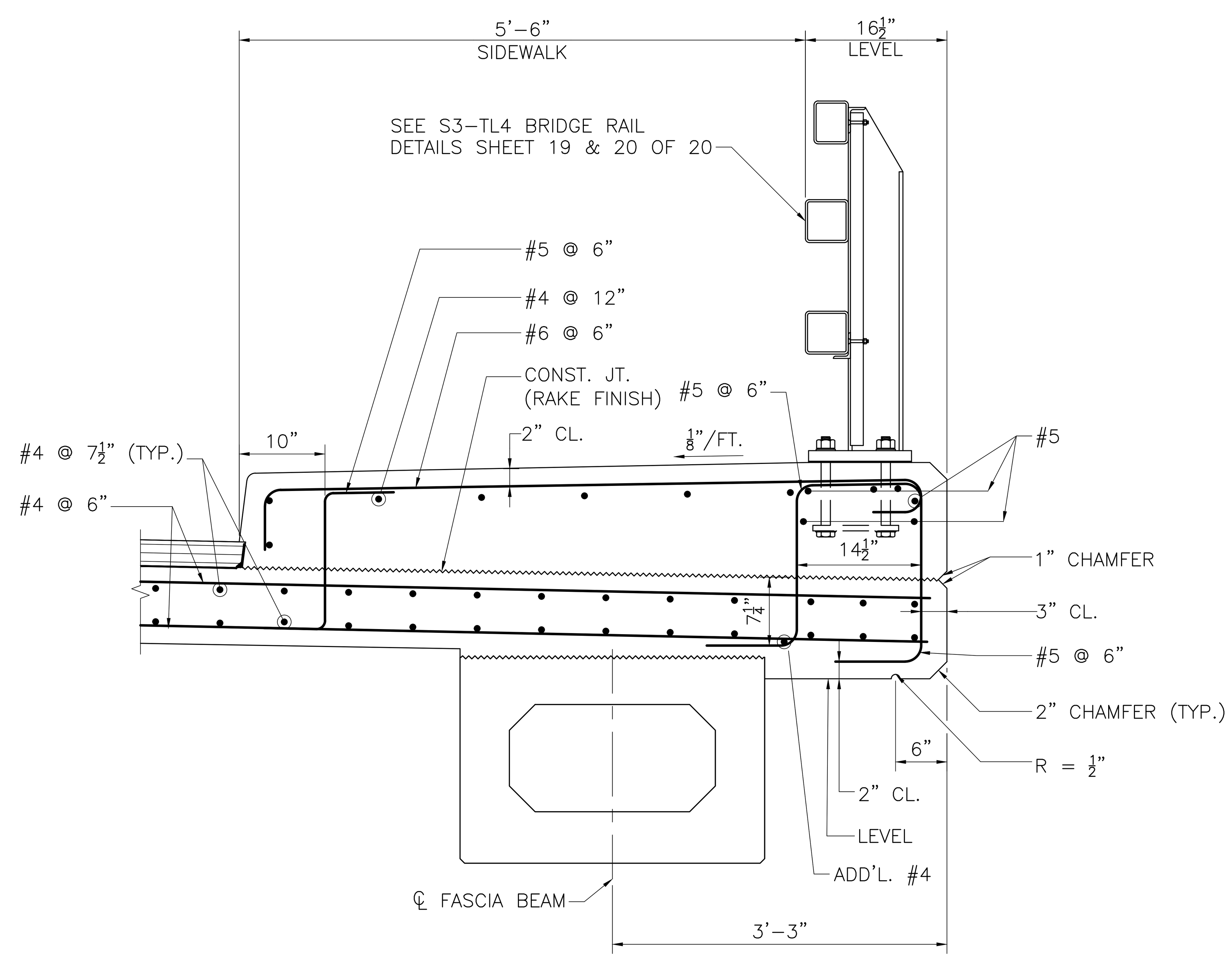
PROPOSED TRANSVERSE SECTION
SCALE: 3/8" = 1'-0"



TYPICAL DECK REINFORCEMENT
SCALE: 3/4" = 1'-0"



SECTION THRU SAFETY CURB
SCALE: 1" = 1'-0"



SECTION THRU SIDEWALK
SCALE: 1" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

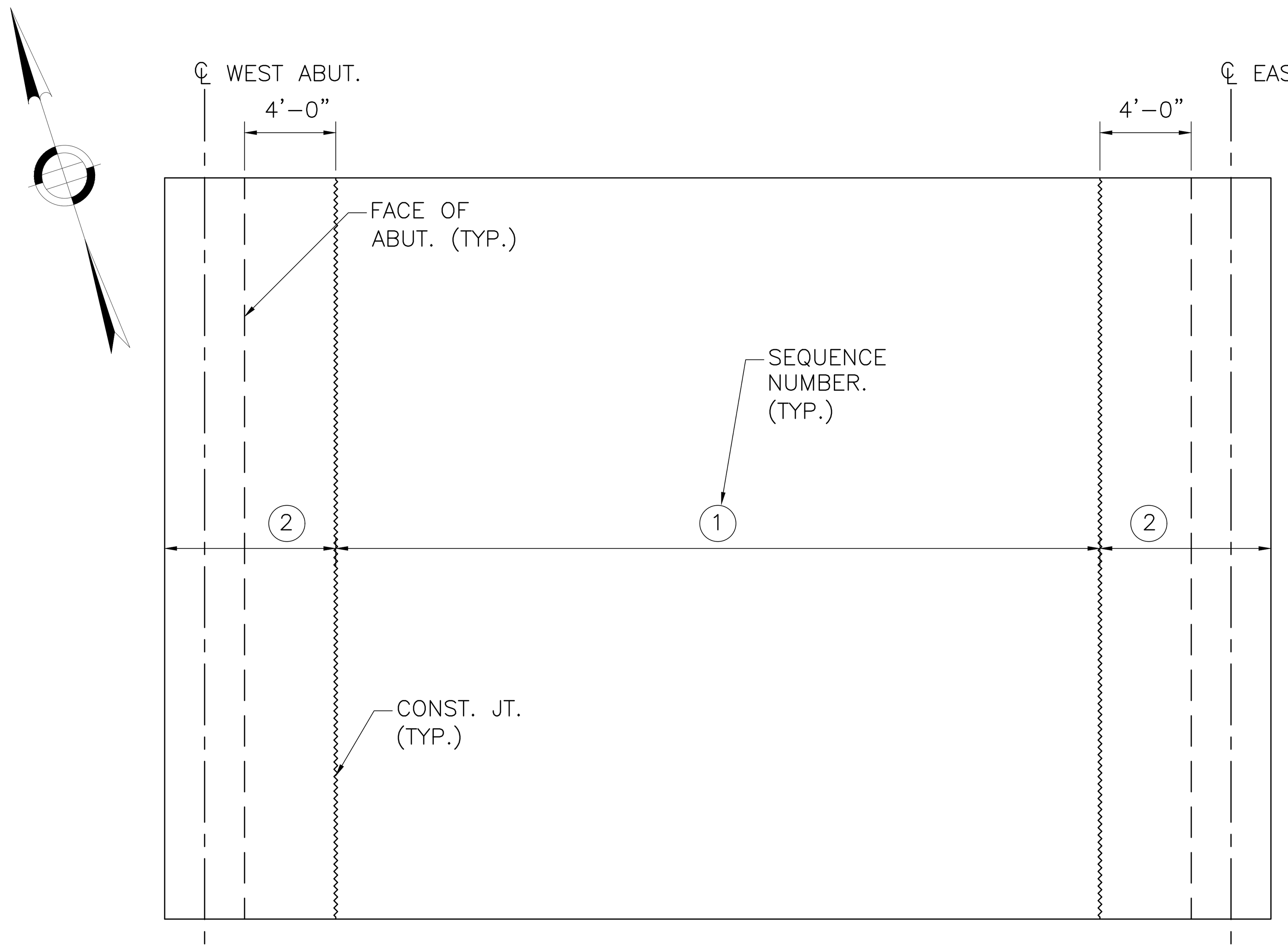
STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

USE ONLY PRINTS OF LATEST DATE

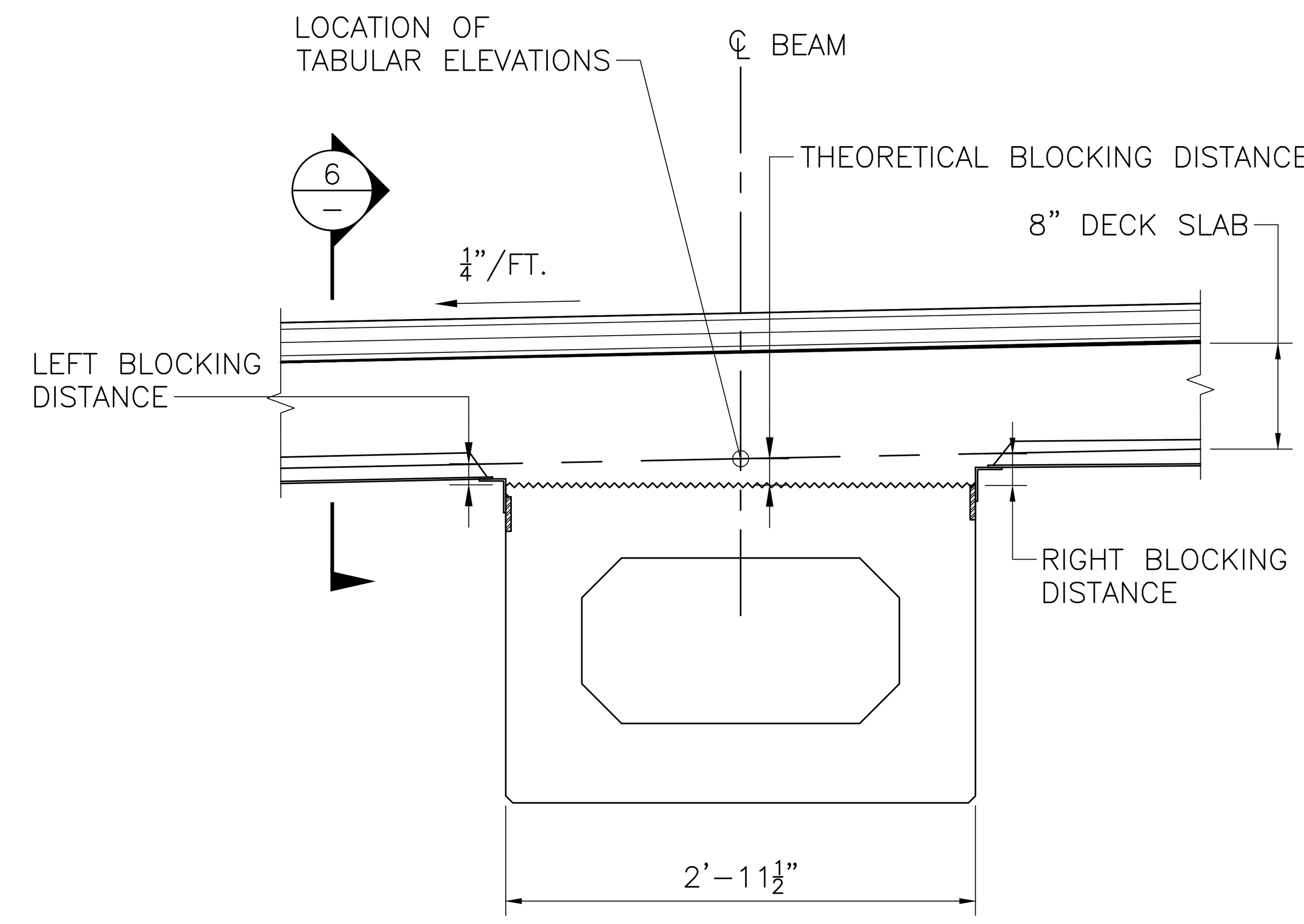
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	42
PROJECT FILE NO.	N/A		

DECK DETAILS



DECK PLACEMENT SEQUENCE

SCALE: 3/16" = 1'-0"

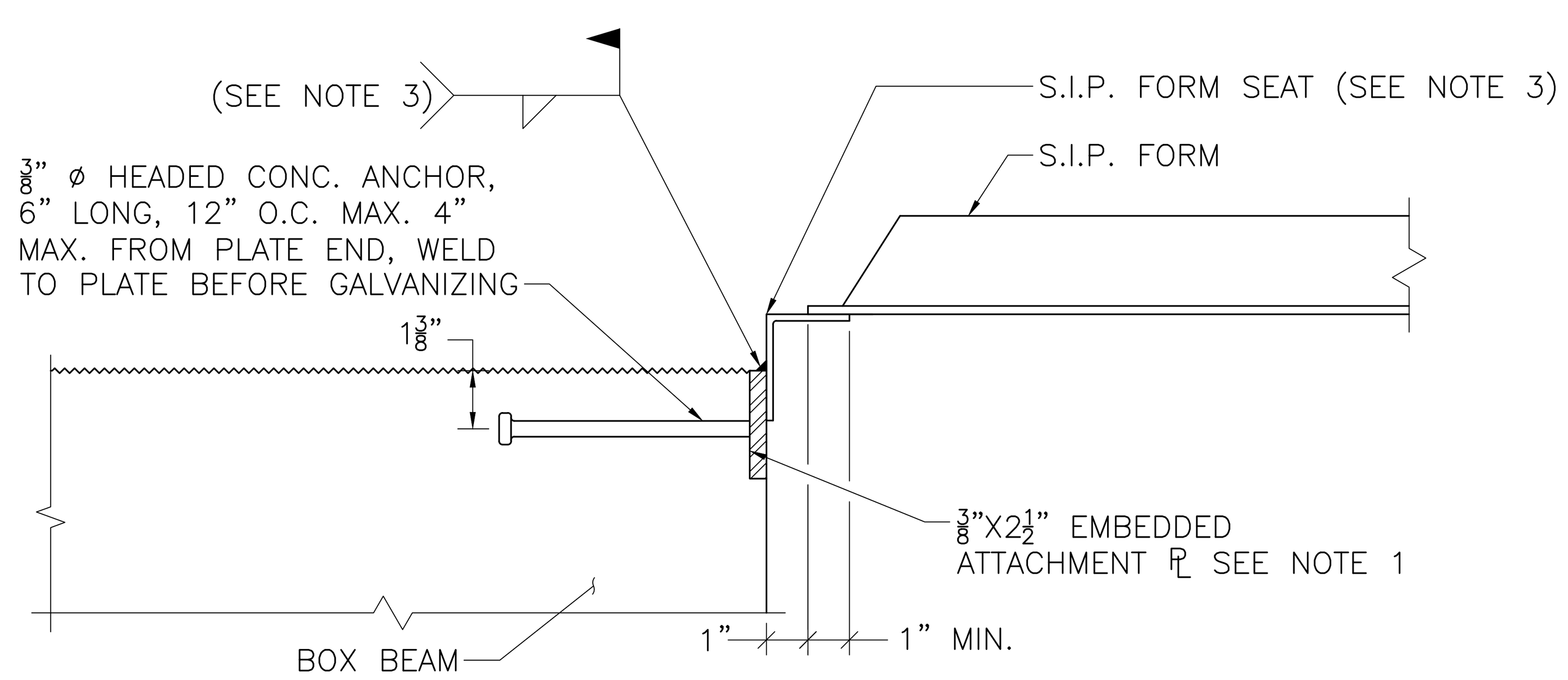


NOTES:

1. THE RIGHT AND LEFT ORIENTATION IS TAKEN LOOKING UPSTATION ALONG THE BEAM.
2. RIGHT BLOCKING DISTANCE = THEORETICAL BLOCKING DISTANCE + 0.375".
   LEFT BLOCKING DISTANCE = THEORETICAL BLOCKING DISTANCE − 0.375".

HAUNCH DETAIL

SCALE: 1" = 1'-0"



STAY-IN-PLACE FORM ATTACHMENT DETAIL

SCALE: 3" = 1'-0"

BEAM NO.	TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE				
	INCREASING STATIONS ⟶				
	℄ BRG.	1/4 PT.	1/2 PT.	3/4 PT.	℄ BRG.
1	18.32	18.41	18.48	18.53	18.56
2	18.46	18.54	18.61	18.66	18.69
3	18.59	18.67	18.74	18.79	18.83
4	18.56	18.65	18.72	18.77	18.80
5	18.43	18.51	18.58	18.63	18.67

NOTE:
AFTER THE BEAMS ARE ERECTED BUT BEFORE THE FORMS ARE BUILT, ELEVATIONS ON TOP OF THE FLANGE OF THE BEAMS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE SHOWN IN THE TABLE GIVES THE THEORETICAL BLOCKING DISTANCE FROM THE TOP OF BEAM TO THE BOTTOM OF THE SLAB AT CENTER LINE OF BEAM.

STAY-IN-PLACE FORM NOTES:

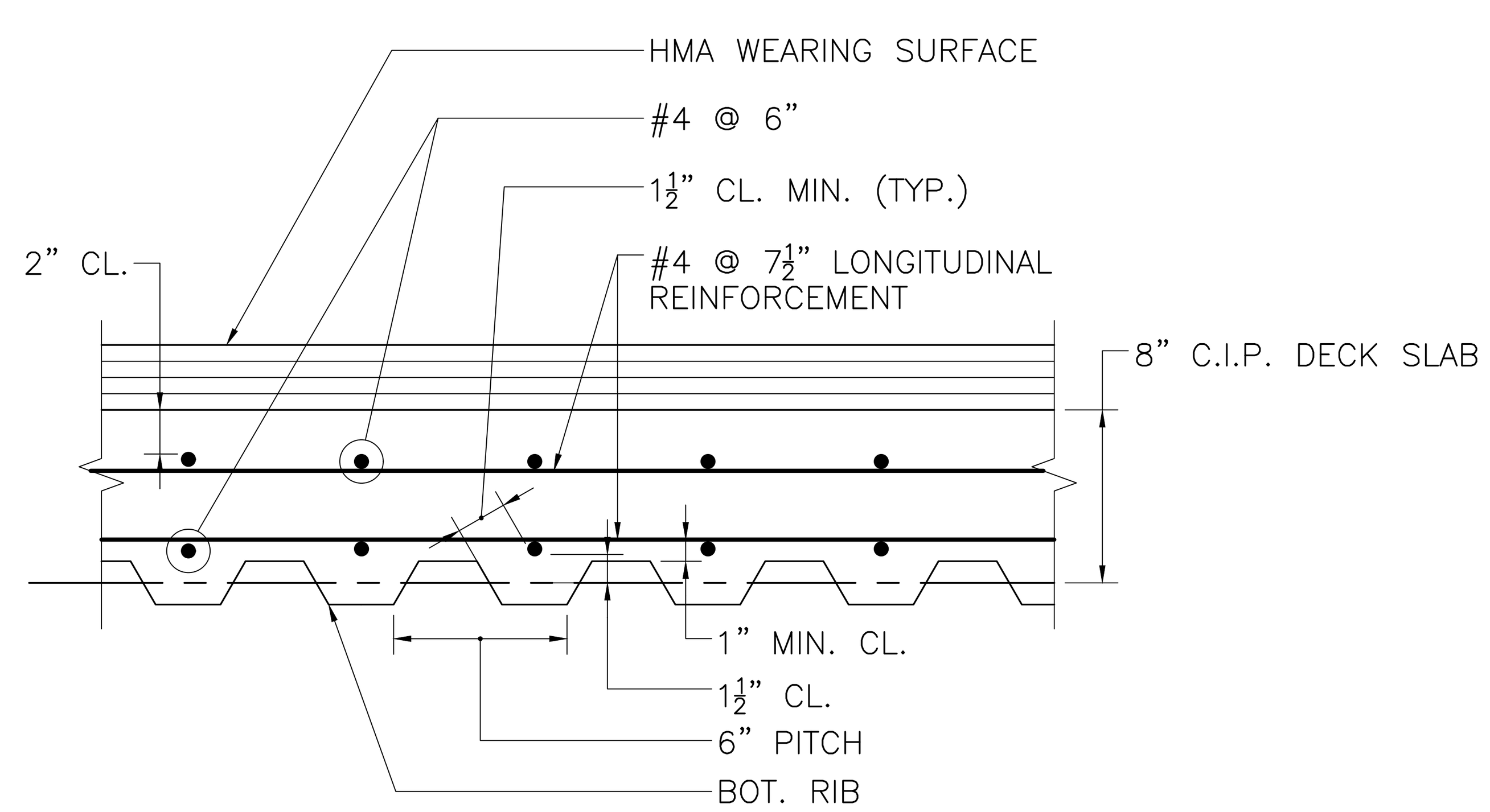
1. FOR 2" S.I.P. FORM, SET BOTTOM OF FORM 1" BELOW ELEVATION GIVEN IN TABLE. FOR 3" S.I.P. FORM, SET BOTTOM OF FORM 1½" BELOW TABLE ELEVATIONS.
2. FORM ENDS SHALL BE CRIMPED CLOSED IN A TAPERED MANNER. SEPARATE END CLOSURE PIECES WILL NOT BE ALLOWED.
3. SUPPORT ANGLES SHALL BE PLACED IN THE "LEG DOWN" POSITION WHERE POSSIBLE. WHERE "LEG UP" POSITION IS NECESSARY, THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN 1" ABOVE THE TOP FLANGE. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF ANGLES OF VARIOUS SIZES AVAILABLE ON THE SITE TO CONFORM TO THIS REQUIREMENT.
4. ALL MAIN STEEL REINFORCEMENT IN THE LOWER MAT SHALL BE CENTERED OVER THE VALLEY OF THE S.I.P. FORM.
5. THE CONTRACTOR SHALL DESIGN AND DETAIL ALL ELEMENTS OF THE FORMING SYSTEM AND SHALL SUBMIT TO THE ENGINEER FOR APPROVAL.
6. IN CASES WHERE STANDARD 2" OR 3" DEEP S.I.P. FORMS DO NOT SATISFY DESIGN REQUIREMENTS AN ALTERNATIVE FORMING SYSTEM CONSISTING OF DEEPER S.I.P. FORMS OR REMOVABLE FORMS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. THE DESIGN THICKNESS OF THE SLAB SHALL NOT BE REDUCED.

STAY-IN-PLACE FORM ATTACHMENT NOTES:

1. EMBEDDED ATTACHMENT PLATES SHALL BE HOT-DIPPED GALVANIZED AASHTO M270 GRADE 36 STEEL. THE PLATES SHALL BE IN LENGTHS FROM 3' TO 12' WITH PIECES BUTTED TOGETHER WITHOUT END CONNECTIONS FOR FULL LENGTH OF BEAM. THE HEADED ANCHORS SHALL BE ATTACHED TO THE PLATES PRIOR TO GALVANIZING.
2. HEADED ANCHORS SHALL CONFORM TO M8.04.1 FOR MATERIAL REQUIREMENTS ONLY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE S.I.P. FORM SEAT AND WELD.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING THE CONCRETE LAITANCE FROM THE ATTACHMENT PLATE BEFORE INSTALLING THE S.I.P. FORMS.

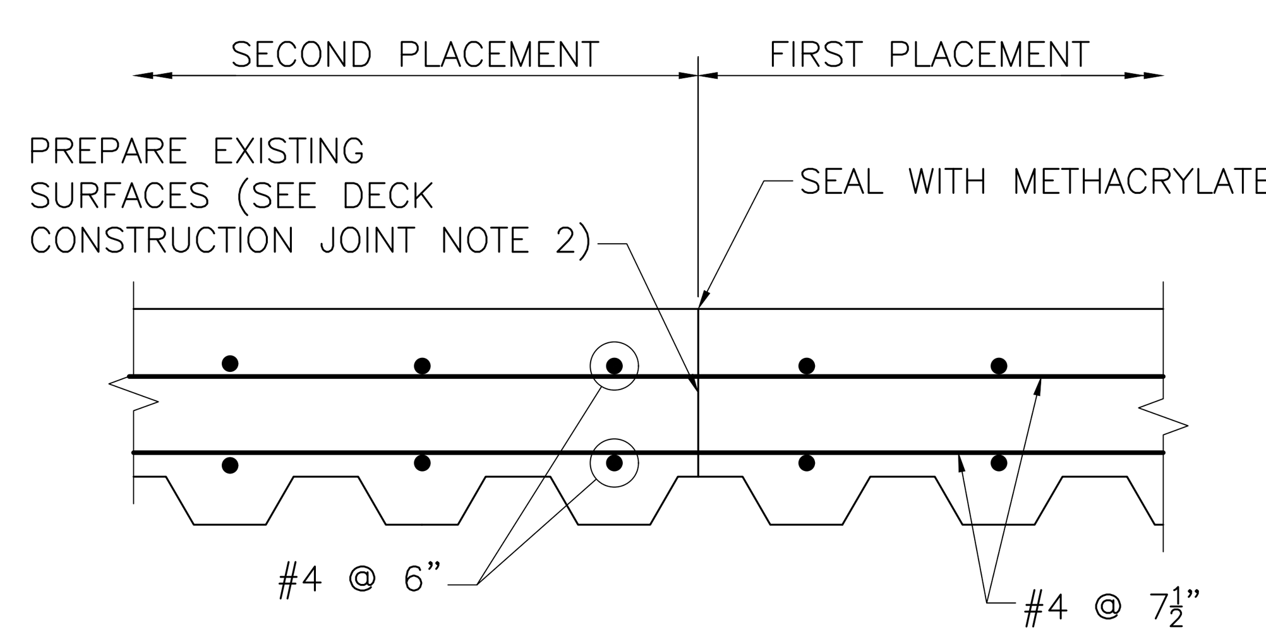
DECK CONSTRUCTION JOINT NOTES:

1. BRIDGE DECK SLAB SHALL BE PLACED IN ACCORDANCE WITH THE PLACEMENT SEQUENCE SHOWN ON THE PLANS.
2. THE SURFACE OF THE PREVIOUSLY CAST CONCRETE SHALL BE BLAST CLEANED, ROUGHENED, WETTED WITH CLEAN WATER, AND THEN FLUSHED WITH A MORTAR COMPOSED OF EQUAL PARTS OF THE CEMENT AND SAND SPECIFIED FOR THE NEW CONCRETE, BEFORE NEW CONCRETE IS PLACED ADJACENT THERETO. NEW CONCRETE SHALL BE PLACED BEFORE MORTAR HAS TAKEN INITIAL SET.
3. IN LIEU OF THE MORTAR, AN EPOXY ADHESIVE SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS MAY BE USED. THE EPOXY ADHESIVE SHALL CONFORM TO AASHTO M 235 TYPE V AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
4. DOWEL BAR SPLICERS SHALL BE USED WHERE USE OF LAP SPLICES IS NOT FEASIBLE.



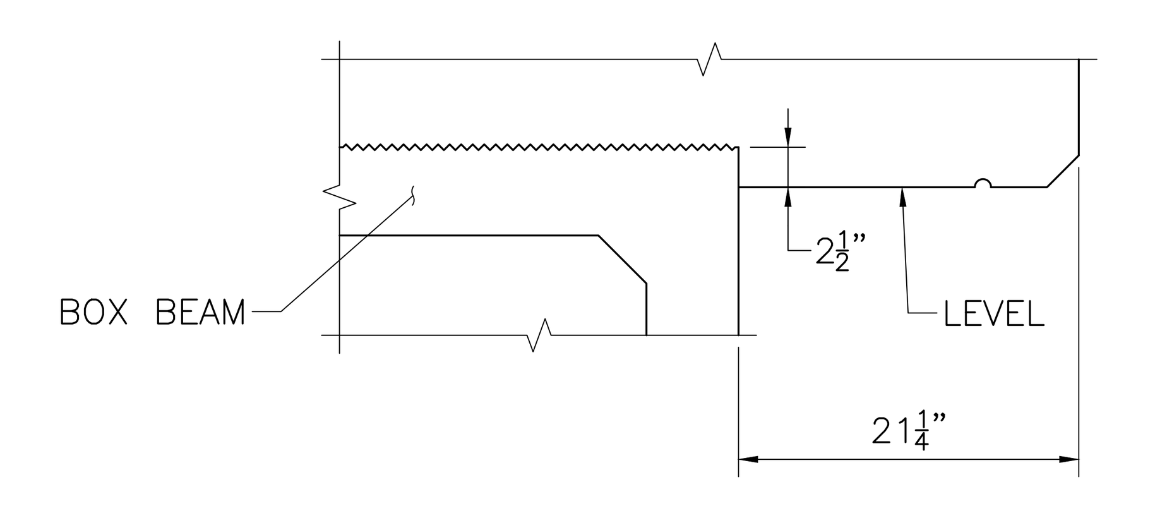
SECTION 6

NOT TO SCALE



TRANSVERSE CONSTRUCTION JOINT DETAIL IN DECK SLAB

NOT TO SCALE



SLAB OVERHANG AT FASCIA BEAM

SCALE: 1" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

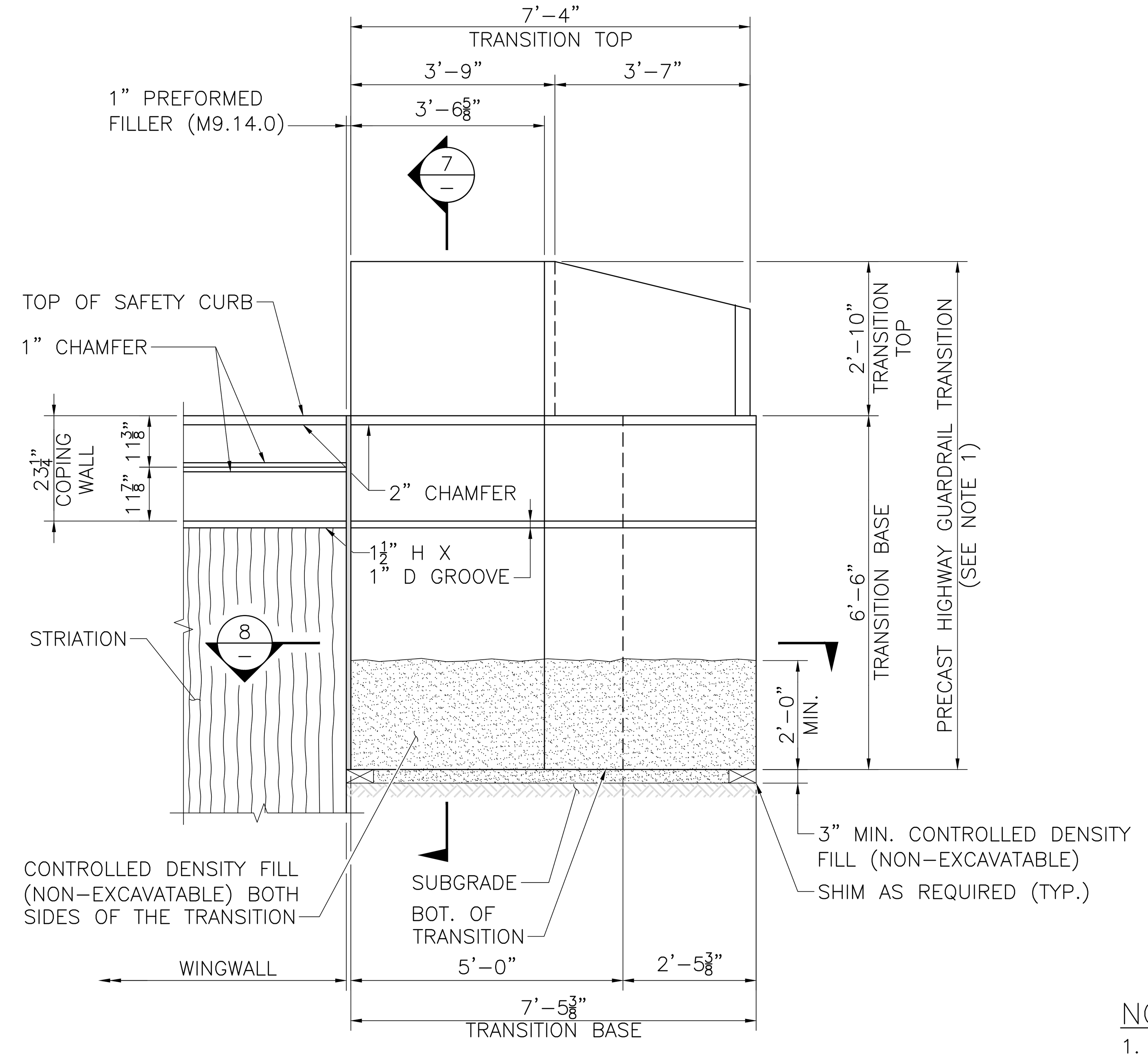
STATE BRIDGE ENGINEER — 3/17/2023 DATE

DATE	DESCRIPTION
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

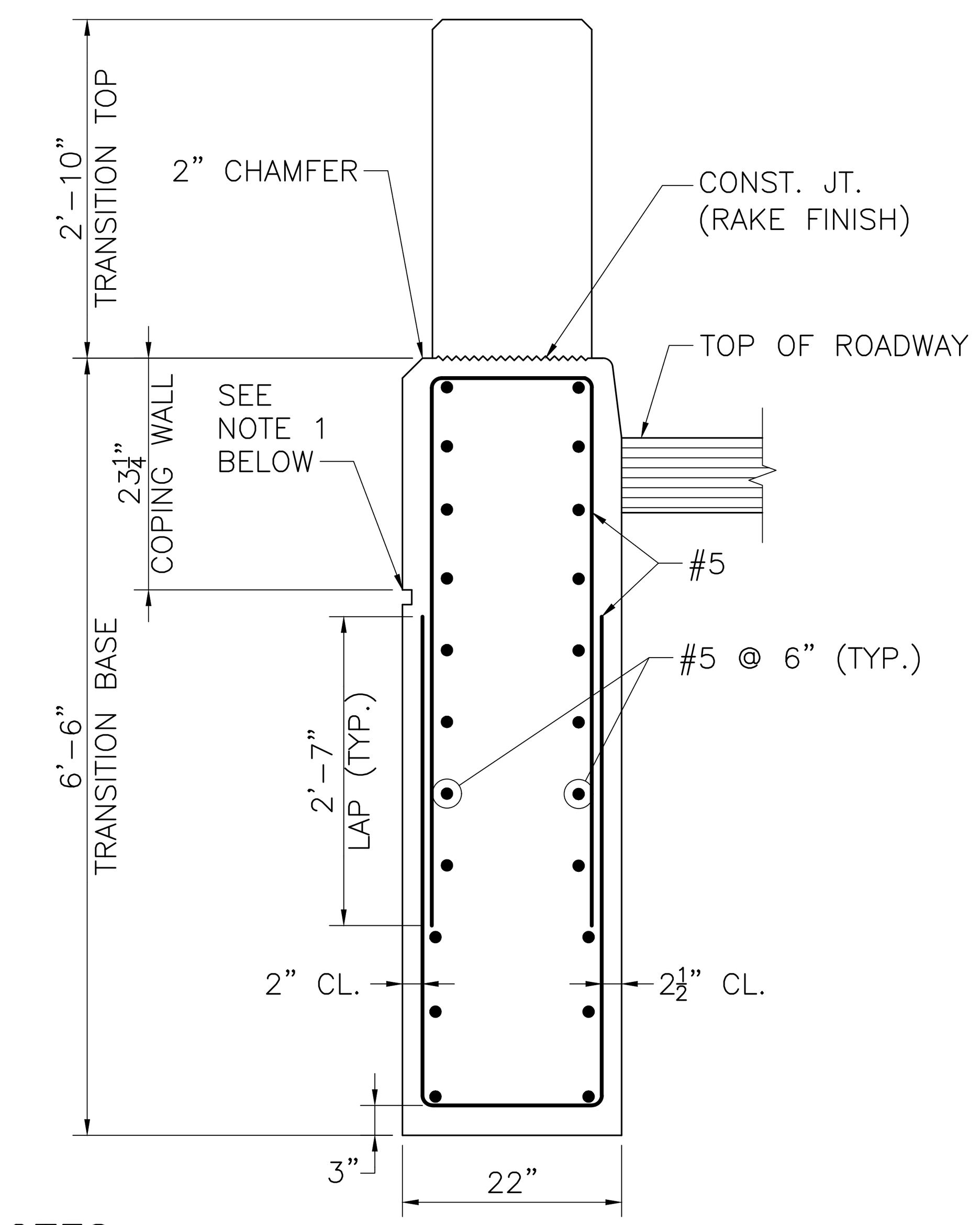
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	42
PROJECT FILE NO.	N/A		

PRECAST HIGHWAY GUARDRAIL TRANSITION BASE DETAIL AT SAFETY CURB



PRECAST GUARDRAIL TRANSITION ELEVATION AT U-WINGWALL

SCALE: 1/2" = 1'-0"

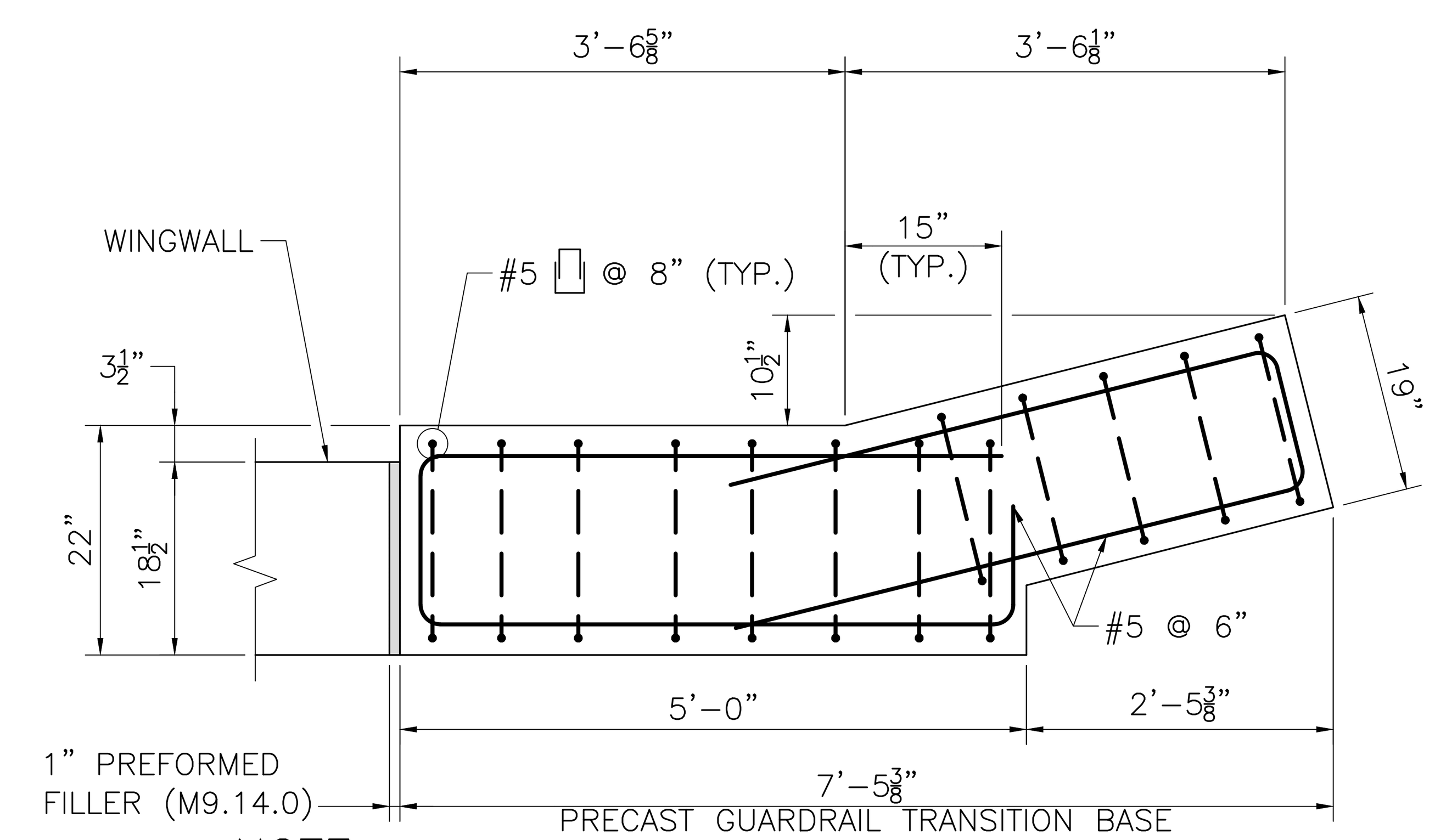


NOTES:

1. 1½" H X 1" D GROOVE. ALIGN WITH GROOVE AT TOP OF STRIATIONS.
2. REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

SECTION 7

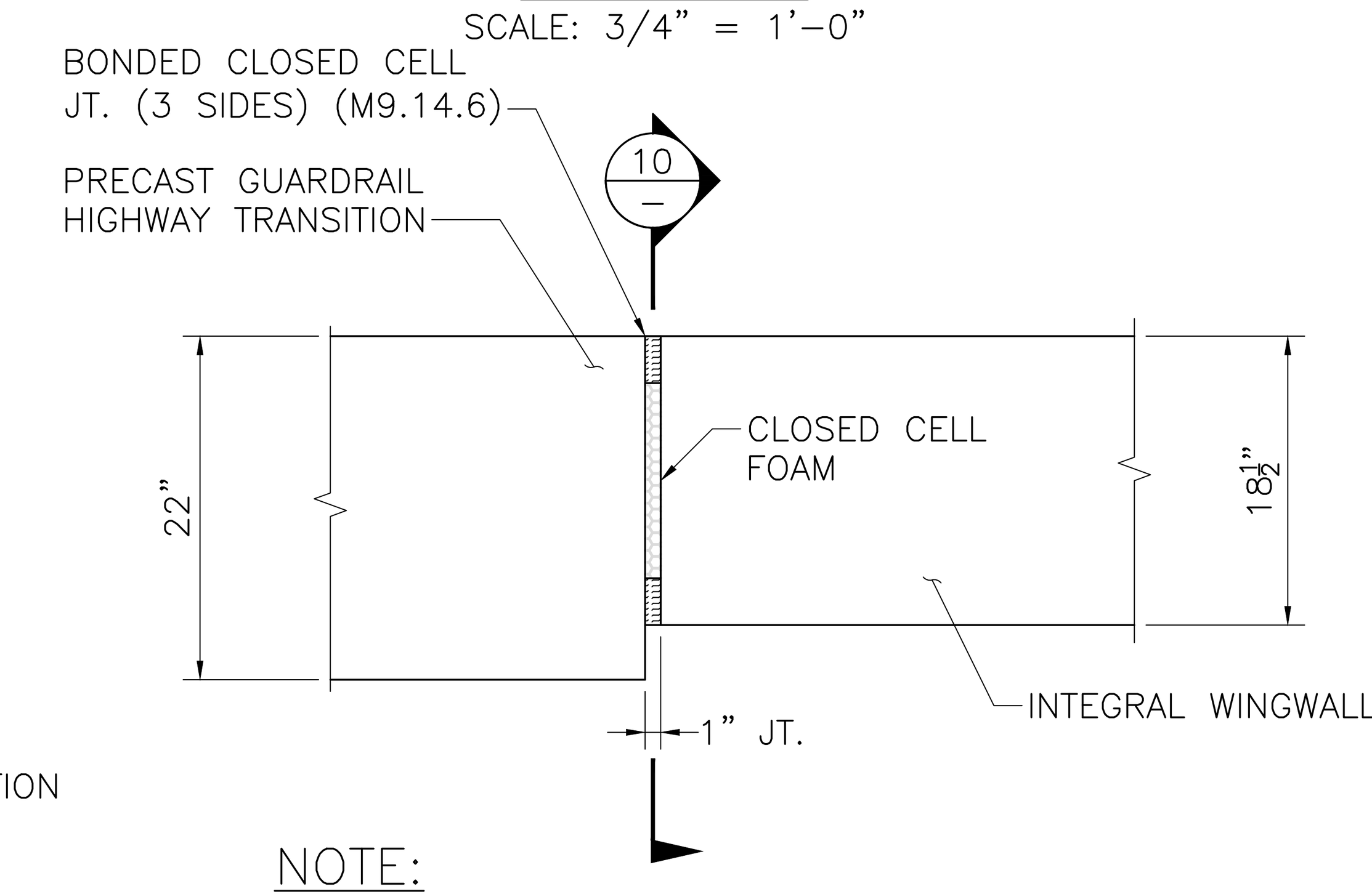
SCALE: 3/4" = 1'-0"



NOTE:
WINGWALL REINFORCEMENT AND STRIATIONS NOT SHOWN FOR CLARITY.

SECTION 8

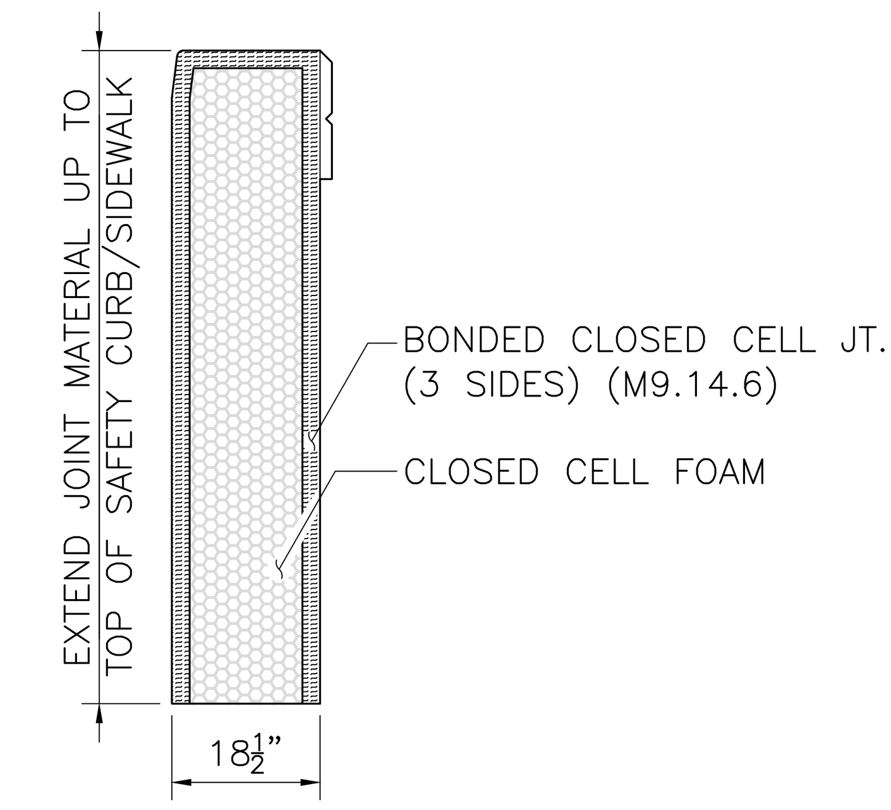
SCALE: 3/4" = 1'-0"



NOTE:
REINFORCEMENT NOT SHOWN FOR CLARITY.

SECTION 9

SCALE: 1" = 1'-0"

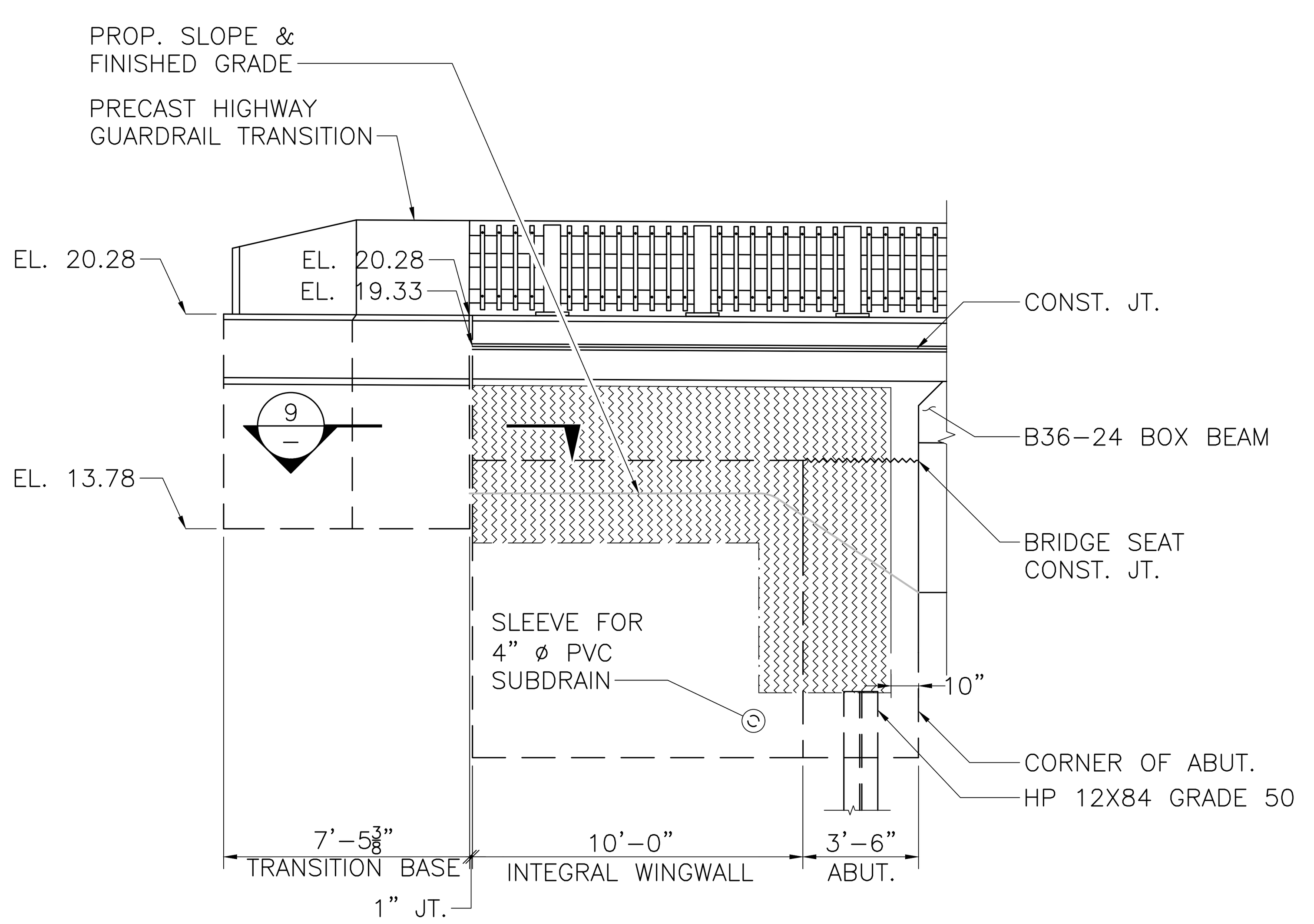


SECTION 10

SCALE: 1/2" = 1'-0"

NOTES:

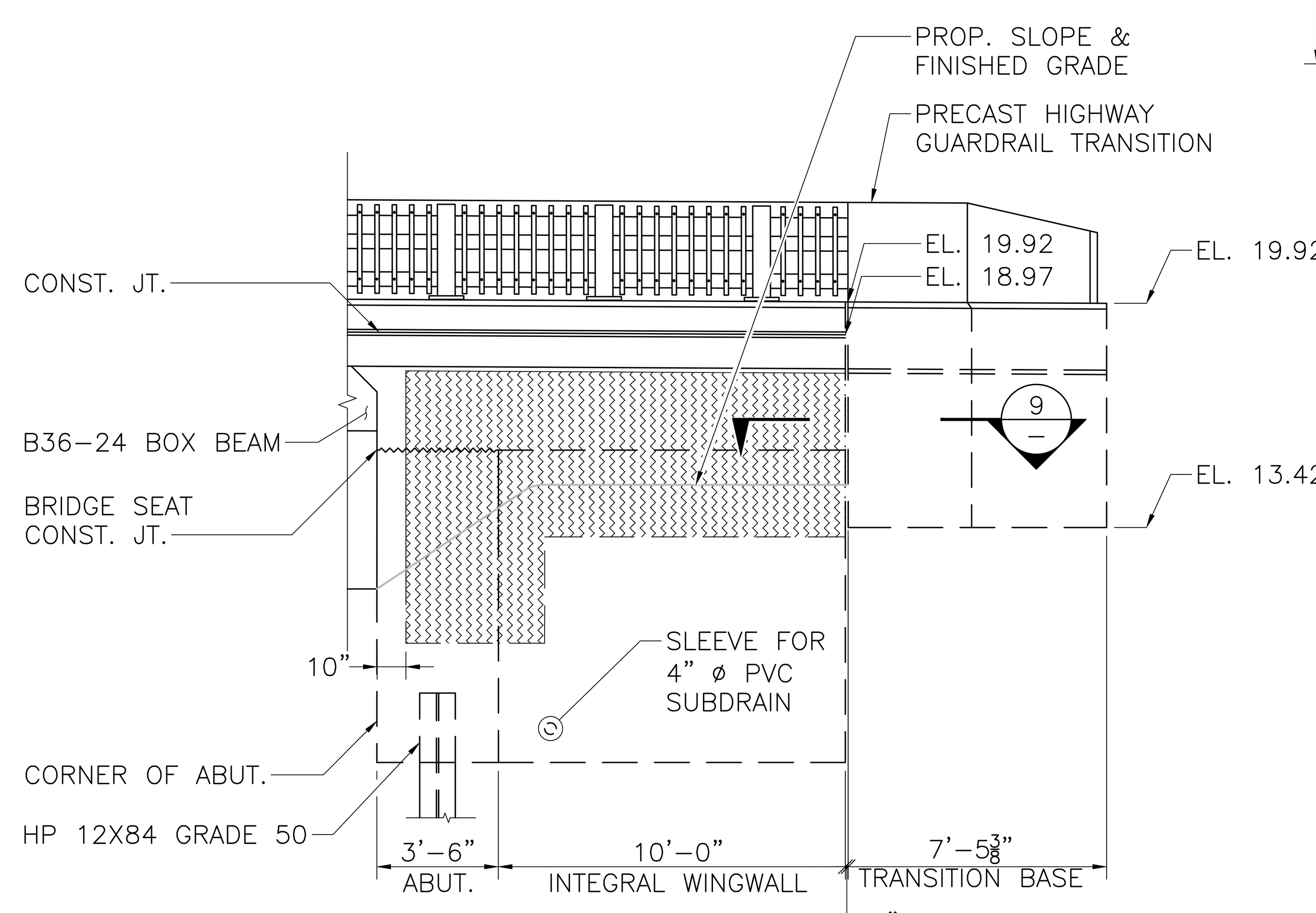
1. PRECAST GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾ INCH, 685 HP CEMENT CONCRETE.
2. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" MINIMUM BELOW THE INTENDED BOTTOM OF THE PRECAST GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" MINIMUM ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE BASE, IT SHALL BE PLACED ON UNDISTURBED SOIL.
3. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL PRECAST GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.
4. THE REST OF THE REINFORCEMENT IS NOT SHOWN FOR CLARITY.
5. PMB WALLS NOT SHOWN FOR CLARITY.



NOTE:
PMB WALL NOT SHOWN FOR CLARITY.

NORTHEAST GUARDRAIL ELEVATION

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



NOTE:
PMB WALL NOT SHOWN FOR CLARITY.

NORTHWEST GUARDRAIL ELEVATION

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

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

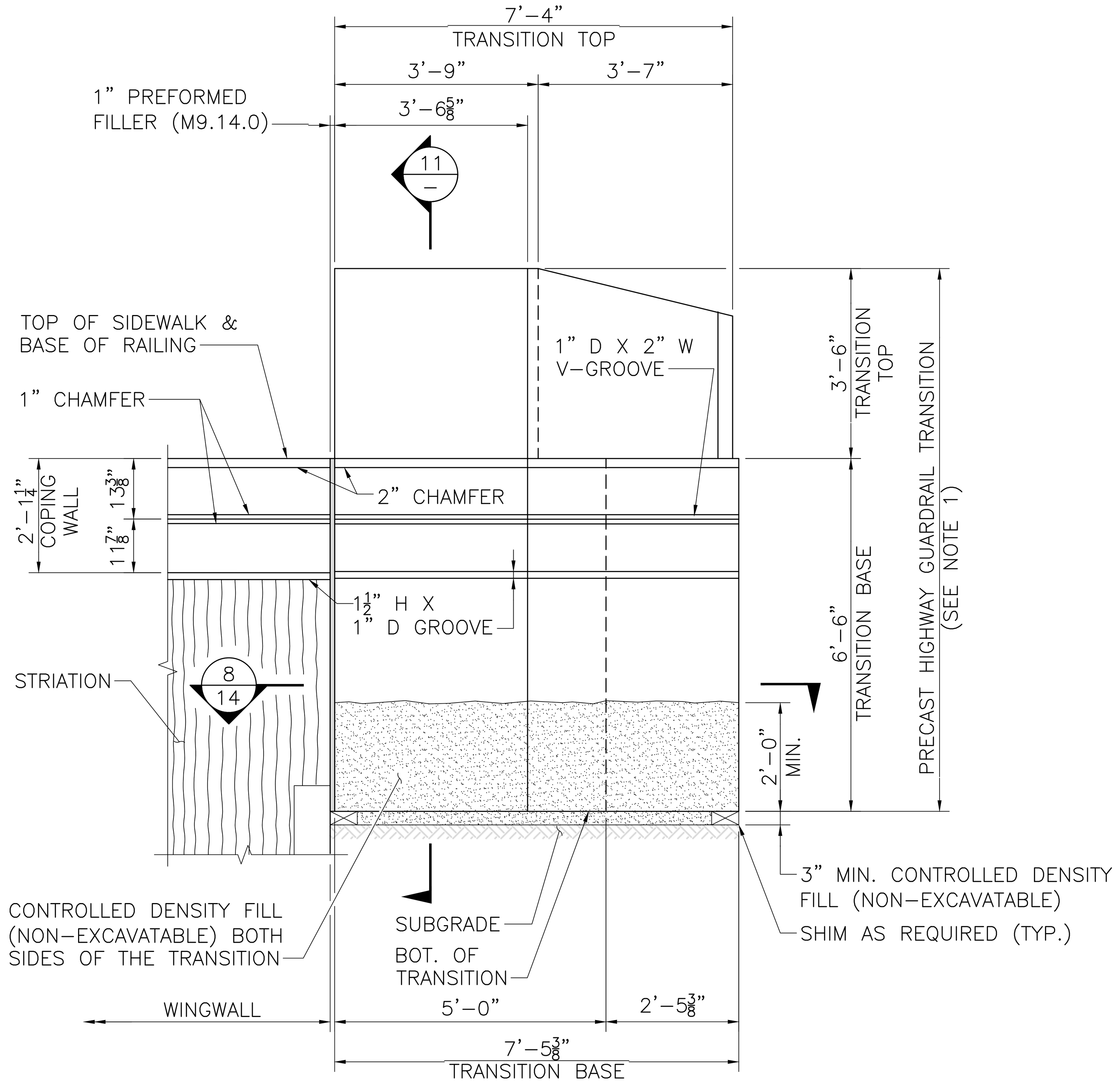
STATE BRIDGE ENGINEER — 3/17/2023
DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

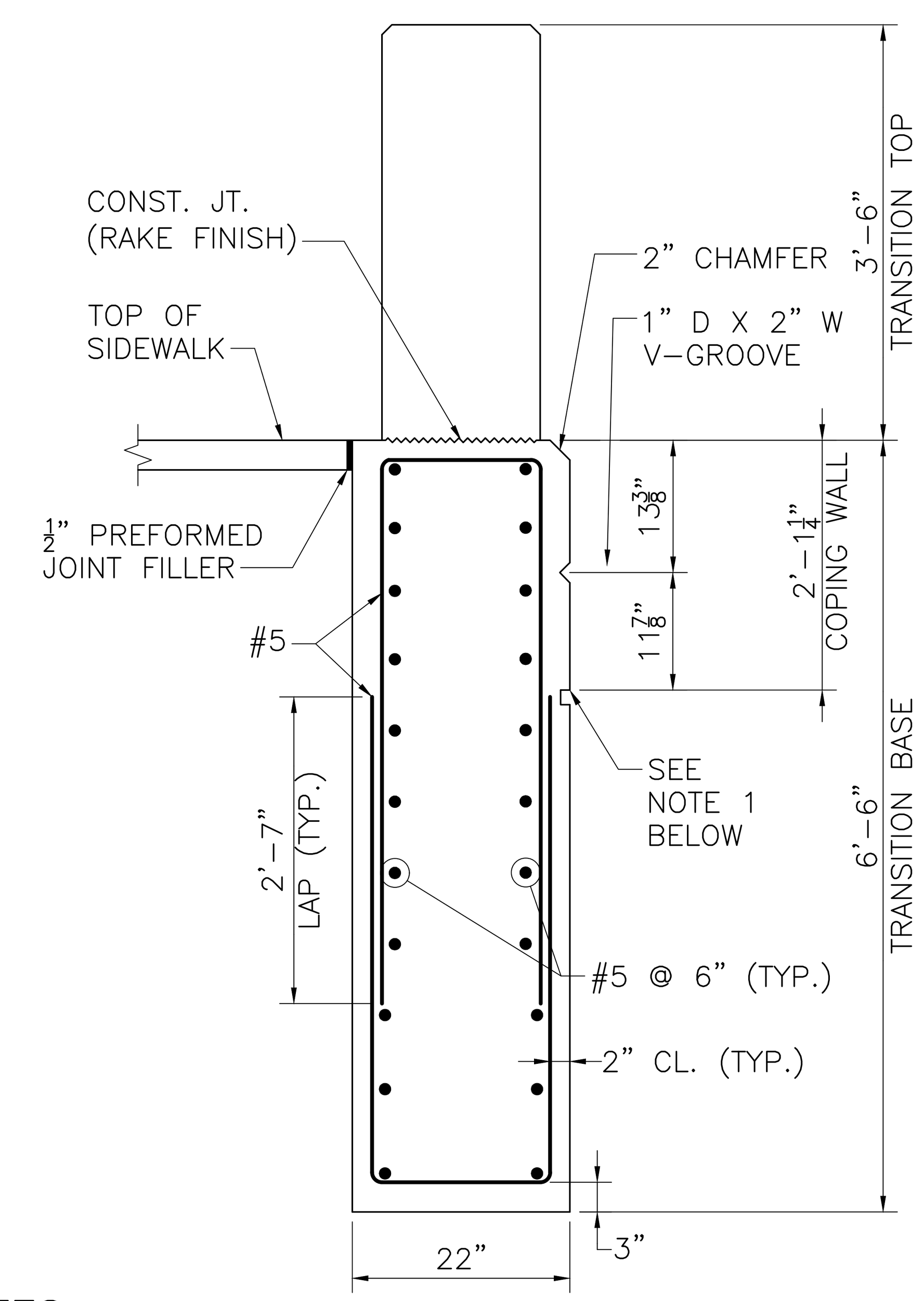
NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	42
PROJECT FILE NO.	N/A		

PRECAST HIGHWAY GUARDRAIL TRANSITION BASE DETAIL AT SIDEWALK



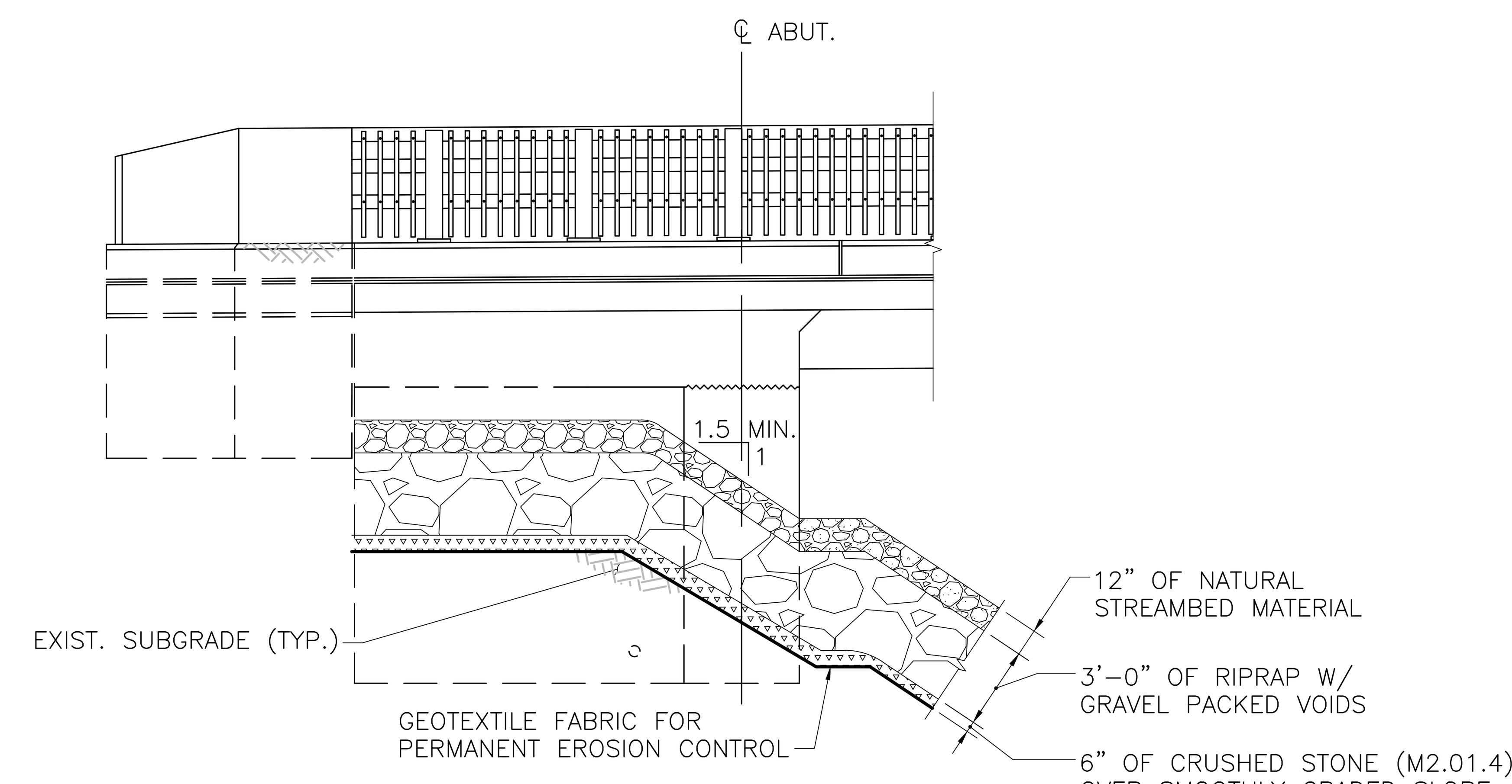
PRECAST GUARDRAIL TRANSITION ELEVATION AT U-WINGWALL
SCALE: 1/2" = 1'-0"



NOTES:
1. 1½" H X 1" D GROOVE. ALIGN WITH GROOVE AT TOP OF STRIATIONS.
2. REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

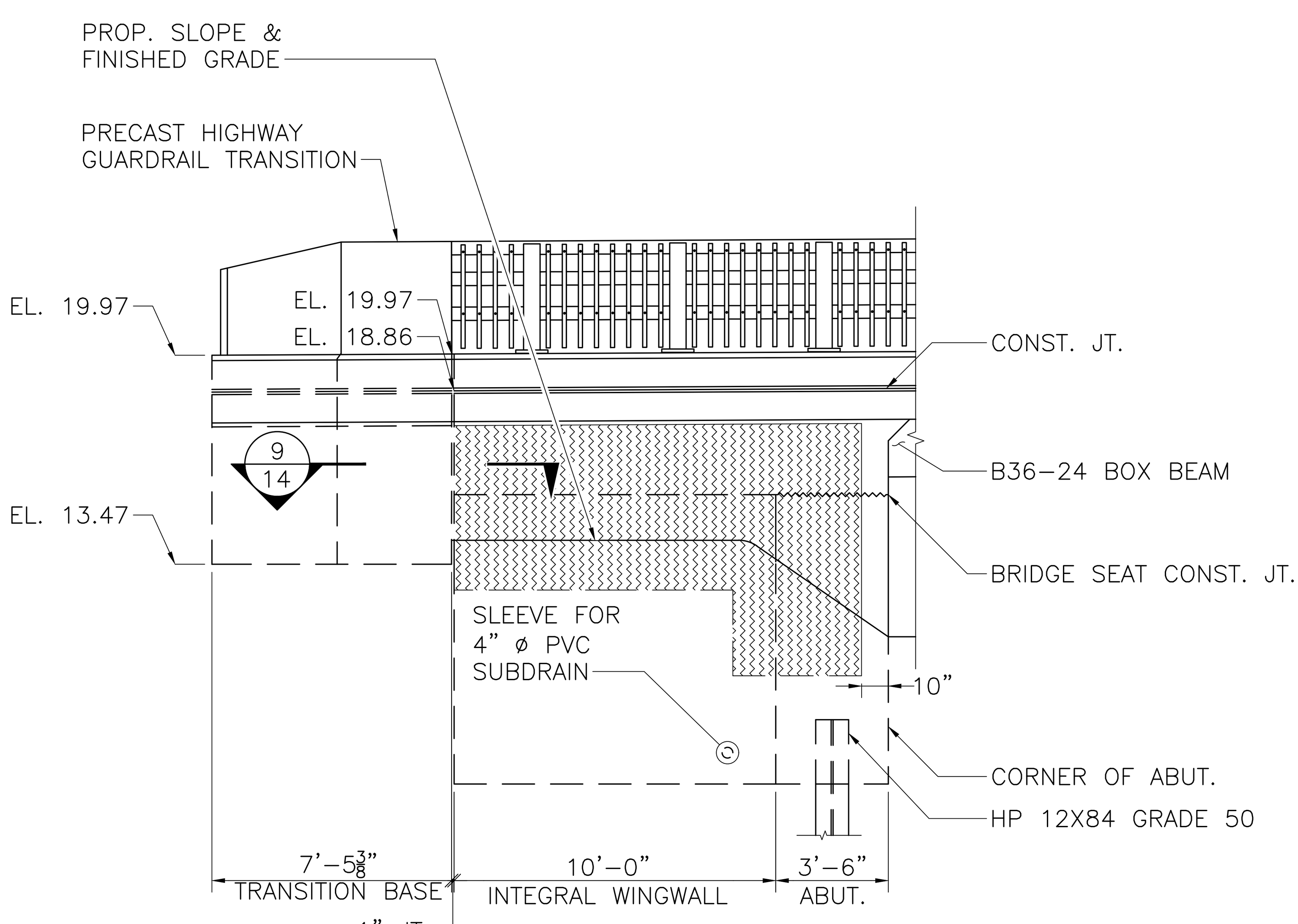
SECTION 11
SCALE: 3/4" = 1'-0"

NOTES:
1. PRECAST GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾ INCH, 685 HP CEMENT CONCRETE.
2. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" MINIMUM BELOW THE INTENDED BOTTOM OF THE PRECAST GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" MINIMUM ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE BASE, IT SHALL BE PLACED ON UNDISTURBED SOIL.
3. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL PRECAST GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.
4. THE REST OF THE REINFORCEMENT IS NOT SHOWN FOR CLARITY.
5. PMB WALLS NOT SHOWN FOR CLARITY.



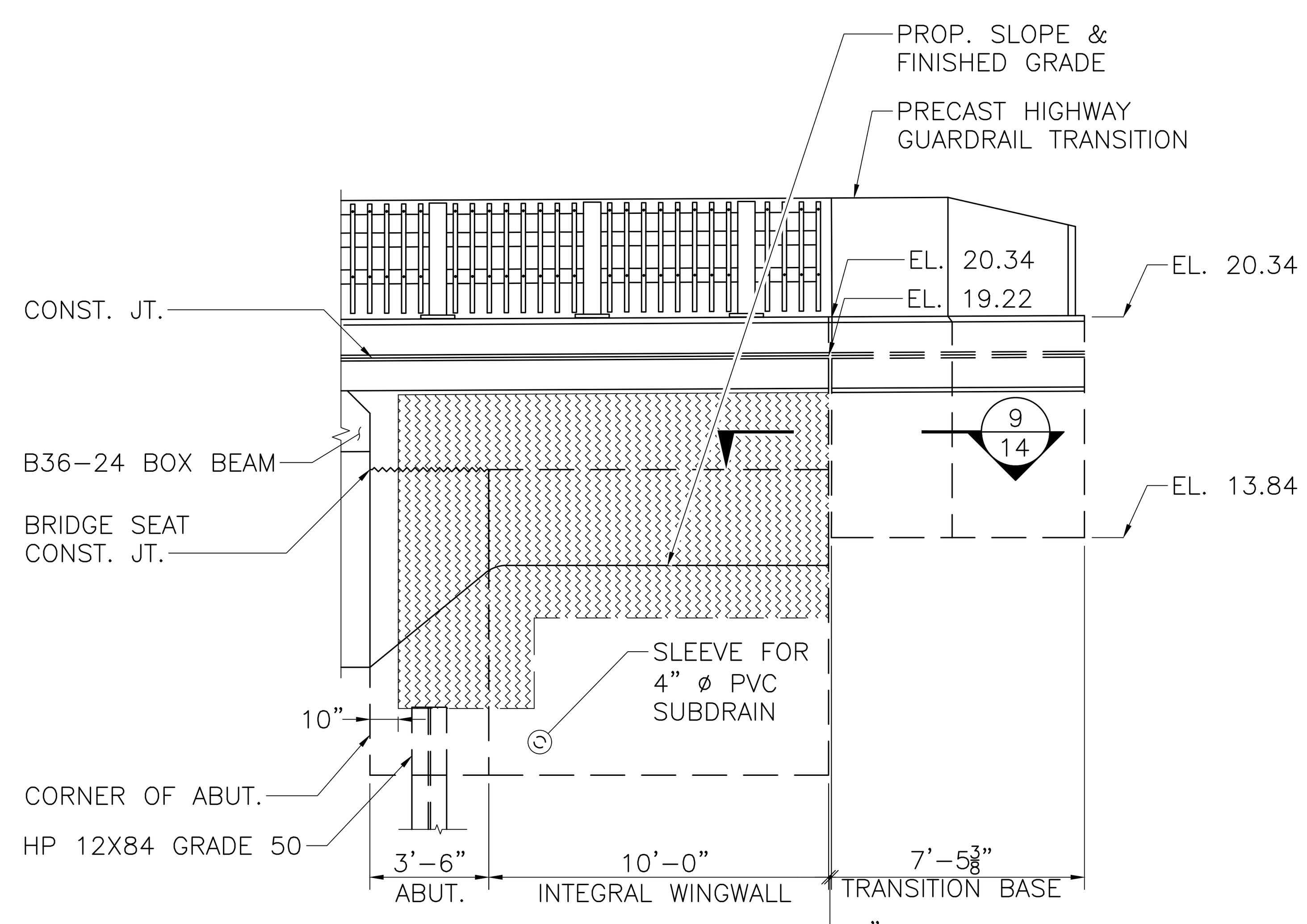
NOTE:
STRIATIONS & PMB WALL NOT SHOWN FOR CLARITY.

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



NOTE:
PMB WALL NOT SHOWN FOR CLARITY.

SOUTHWEST GUARDRAIL ELEVATION
SCALE: 1/4" = 1'-0"



NOTE:
PMB WALL NOT SHOWN FOR CLARITY.

SOUTHEAST GUARDRAIL ELEVATION
SCALE: 1/4" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER 3/17/2023
DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

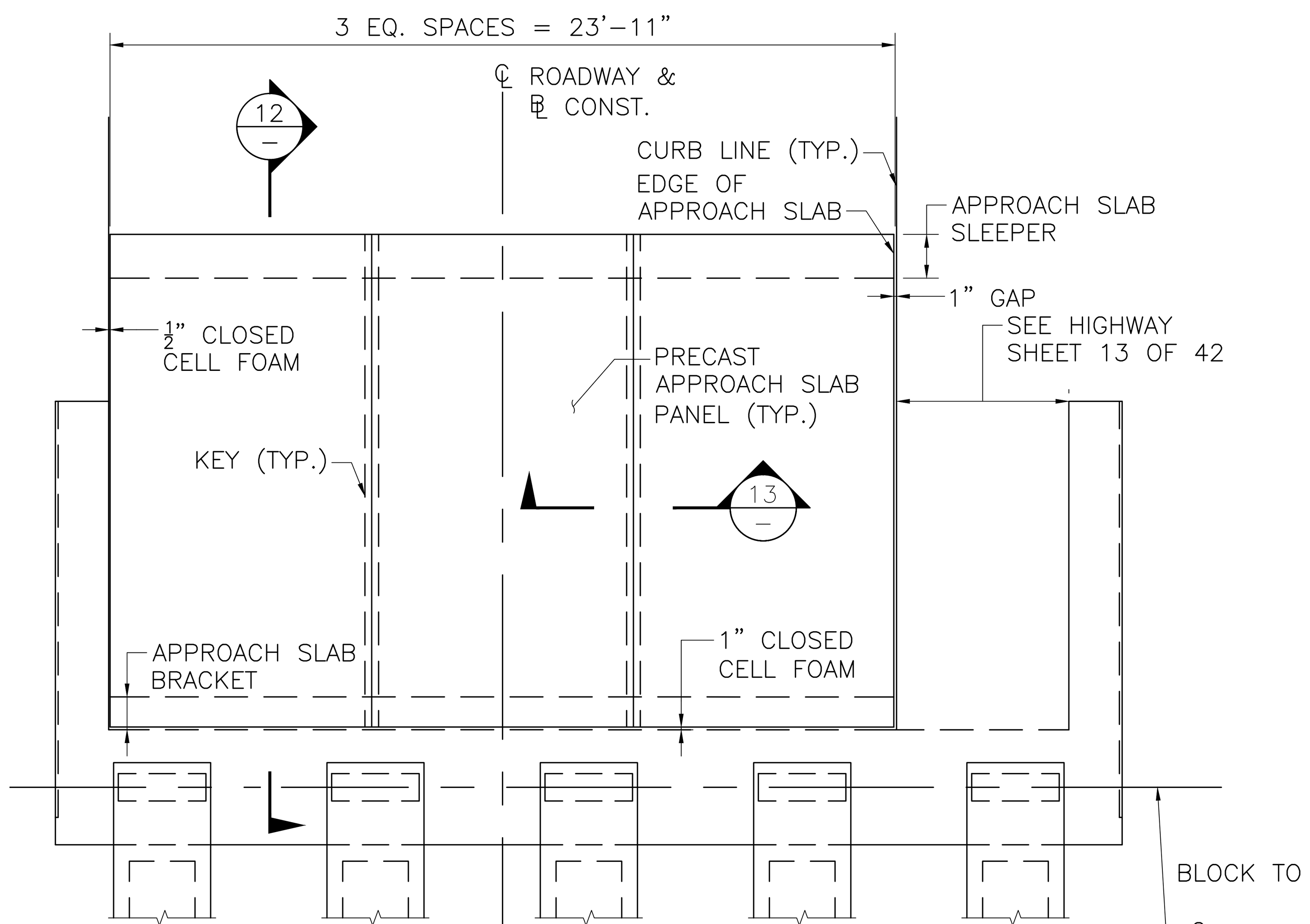
USE ONLY PRINTS OF LATEST DATE

SHEET 15 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

Plotted on 15-Mar-2023 10:26 AM
2839500_BR6 8-16(N11007_W20001).DWG
CHAPTER 85 REVIEW 06-24-2021

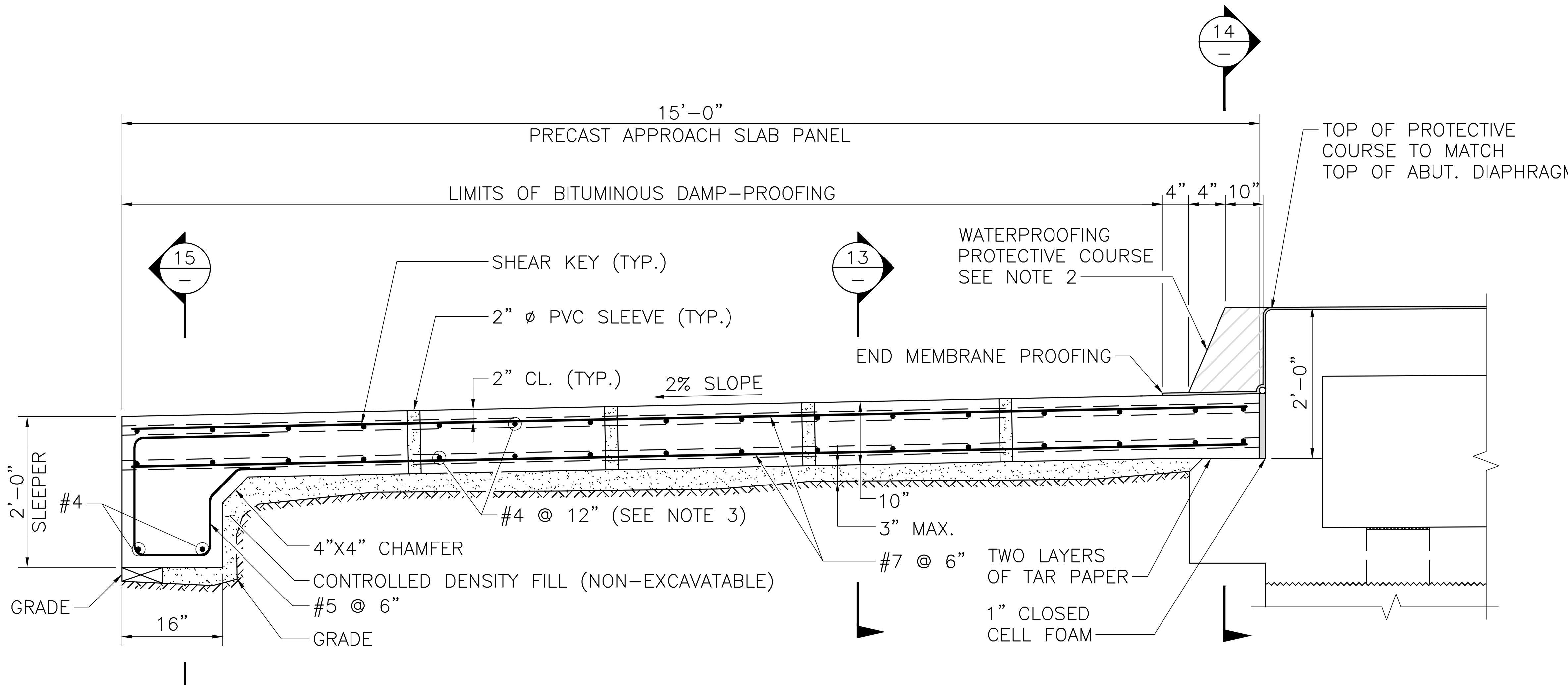
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	34	42
PROJECT FILE NO.	N/A		

APPROACH SLAB & MISC DETAILS



NOTE:
1. DRAWINGS DEPICT 3 PRECAST APPROACH SLAB PANELS. TO ACCOMMODATE CROSS SLOPE OF APPROACH SLAB BRACKET 4 PRECAST APPROACH SLAB UNITS MAY BE REQUIRED.

APPROACH SLAB PLAN
SCALE: 1/4" = 1'-0"

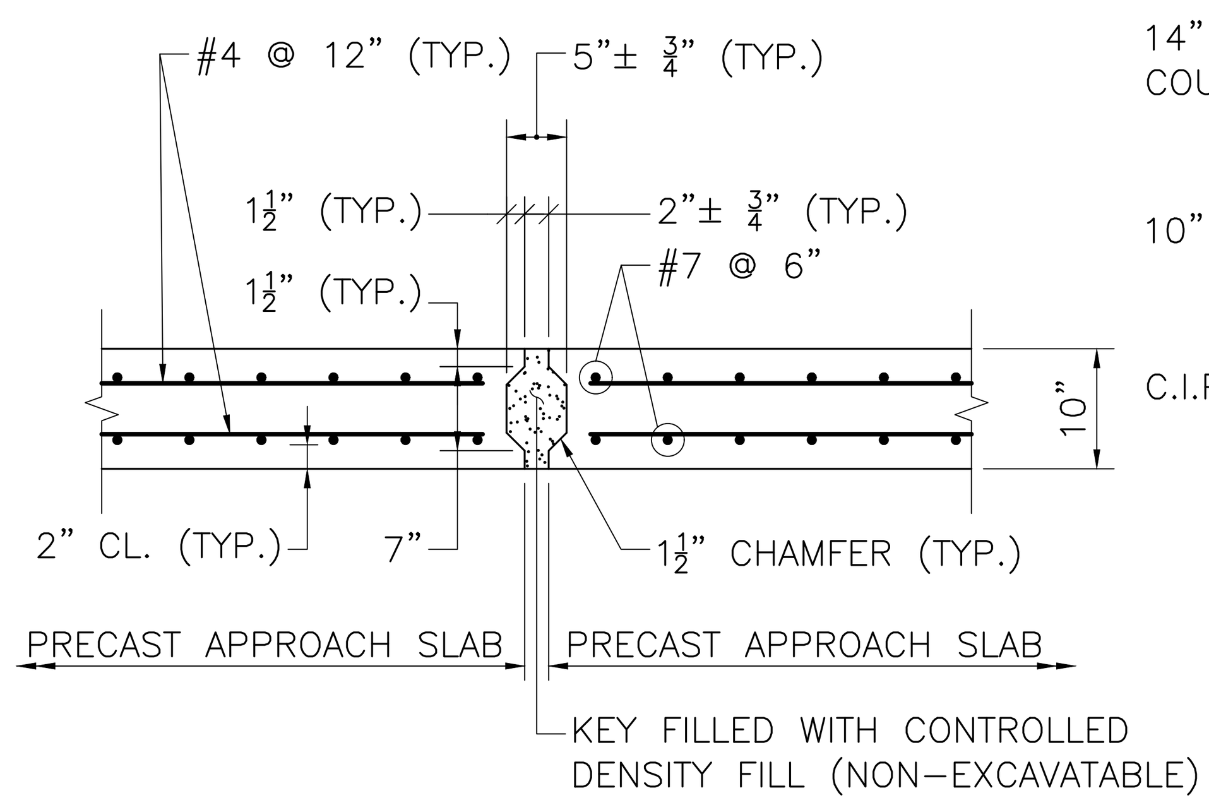


SECTION 12 TYPE II APPROACH SLAB
SCALE: 3/4" = 1'-0"

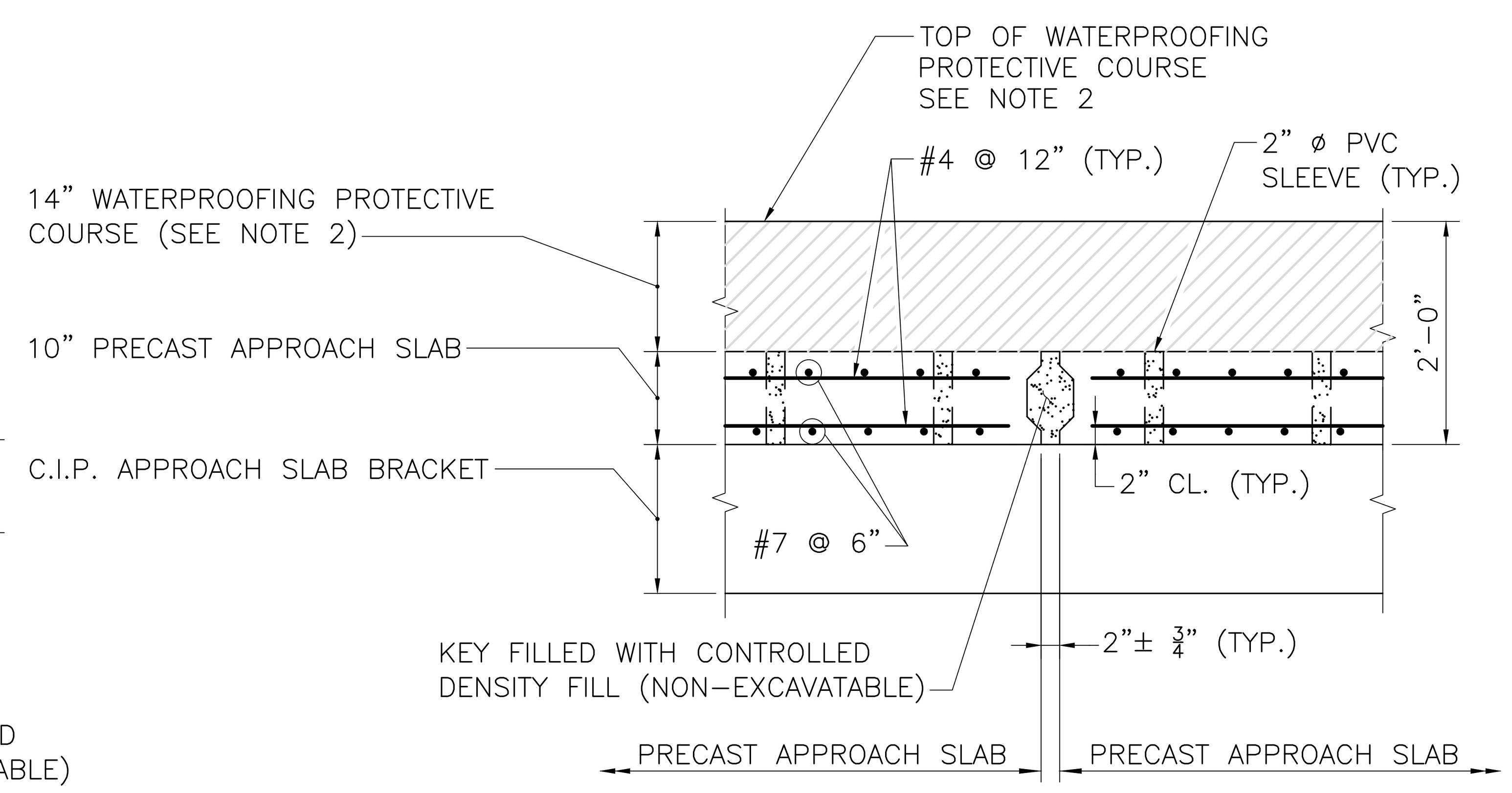
APPROACH SLAB NOTES:
1. PRECAST APPROACH SLAB PANEL TO BE 4000 PSI, 1.5 INCH, 565 CEMENT CONCRETE. SUBSTITUTIONS WILL NOT BE PERMITTED.
2. PROTECTIVE COURSE TO BE SUPERPAVE BRIDGE PROTECTIVE COURSE – 9.5(SPC-B-9.5), PLACED IN 2 INCH LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER WITHIN 12 HOURS AFTER PLACING MEMBRANE WATERPROOFING.
3. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO THE ℄ OF THE BRIDGE. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO THE ABUTMENT.
4. PVC SLEEVES TO BE INCLUDED IN PRECAST APPROACH SLAB TO FACILITATE PLACEMENT OF CONTROLLED DENSITY FILL (NON-EXCAVATABLE).

PARAFFIN JOINT NOTES:
1. ALL CONCRETE ABOVE SLAB SHALL BE POURED IN ALTERNATING SECTIONS WITH NOT LESS THAN 3 DAYS BETWEEN POURS.
2. DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS. END THE REINFORCEMENT 2" CLEAR OF JOINT.
3. JOINT SHALL BE SQUARE TO FACE OF CURB.
4. FOR JOINT LOCATIONS SEE SHEET 6 OF 20.

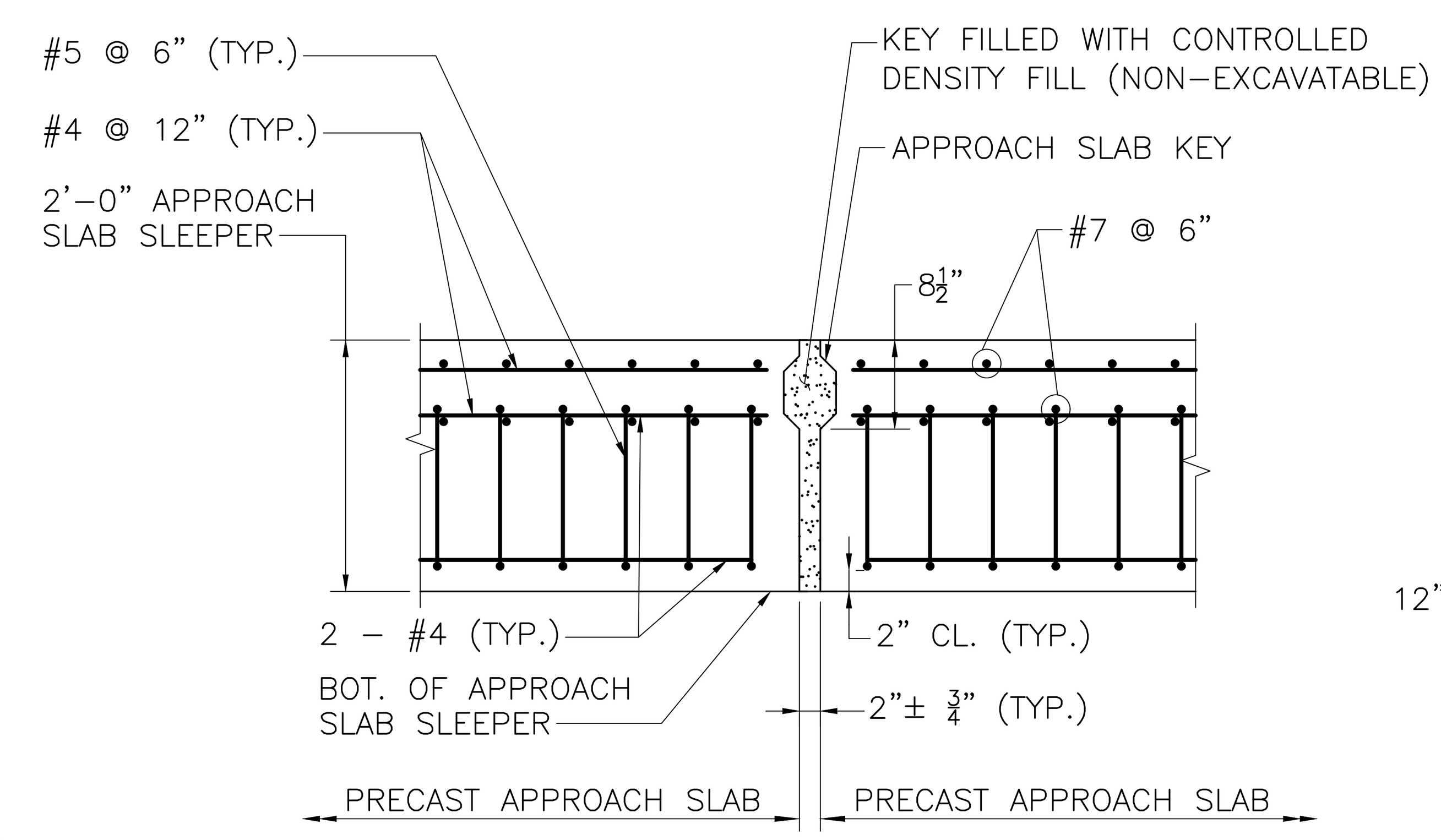
FACE OF CURB NOTES:
1. TURN MEMBRANE UP INTO 3" HIGH POCKET.
2. DIMENSIONS AT THE FACE OF SIDEWALK ARE THE SAME FOR SAFETY CURB.



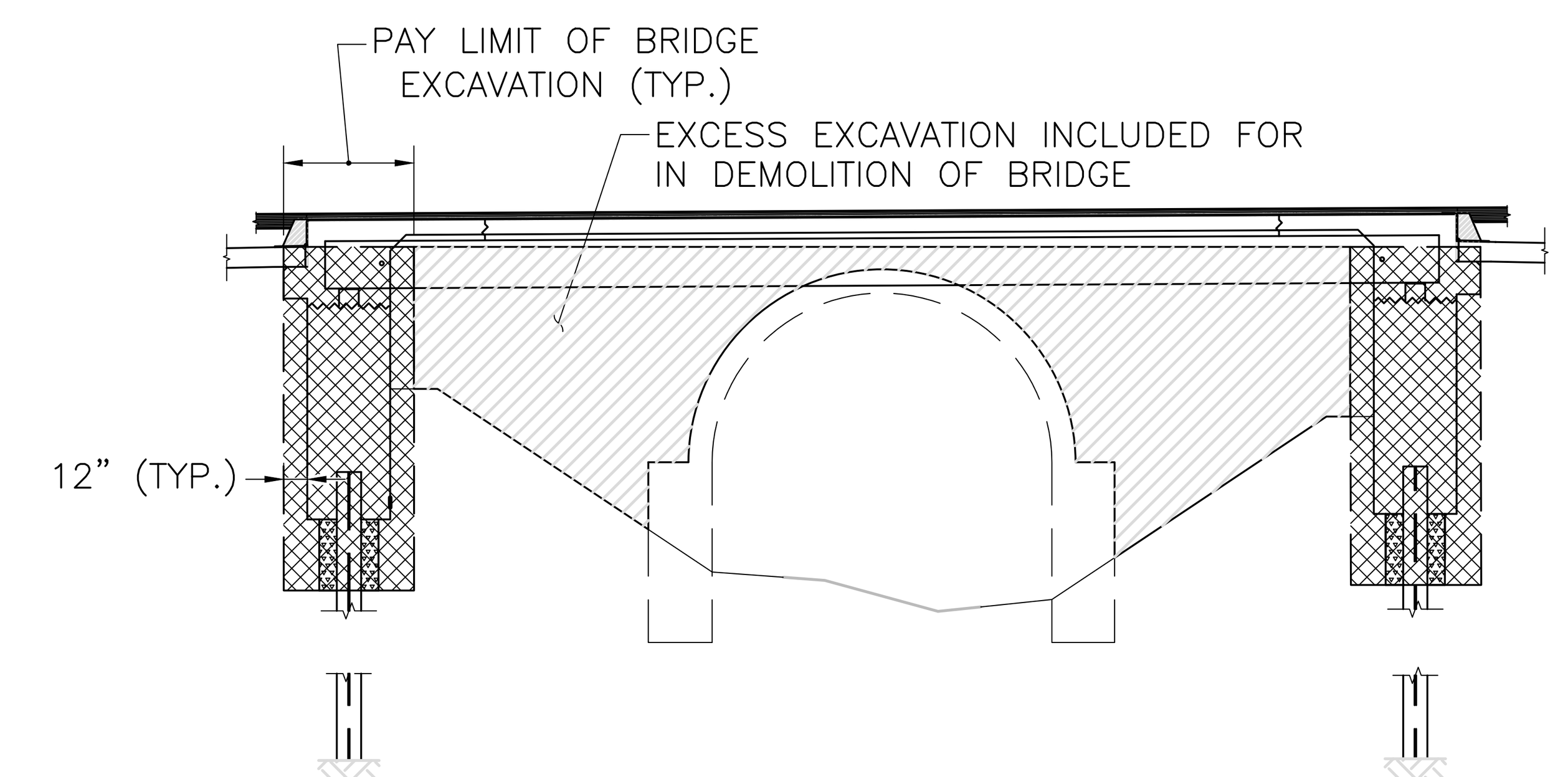
SECTION 13
SCALE: 3/4" = 1'-0"



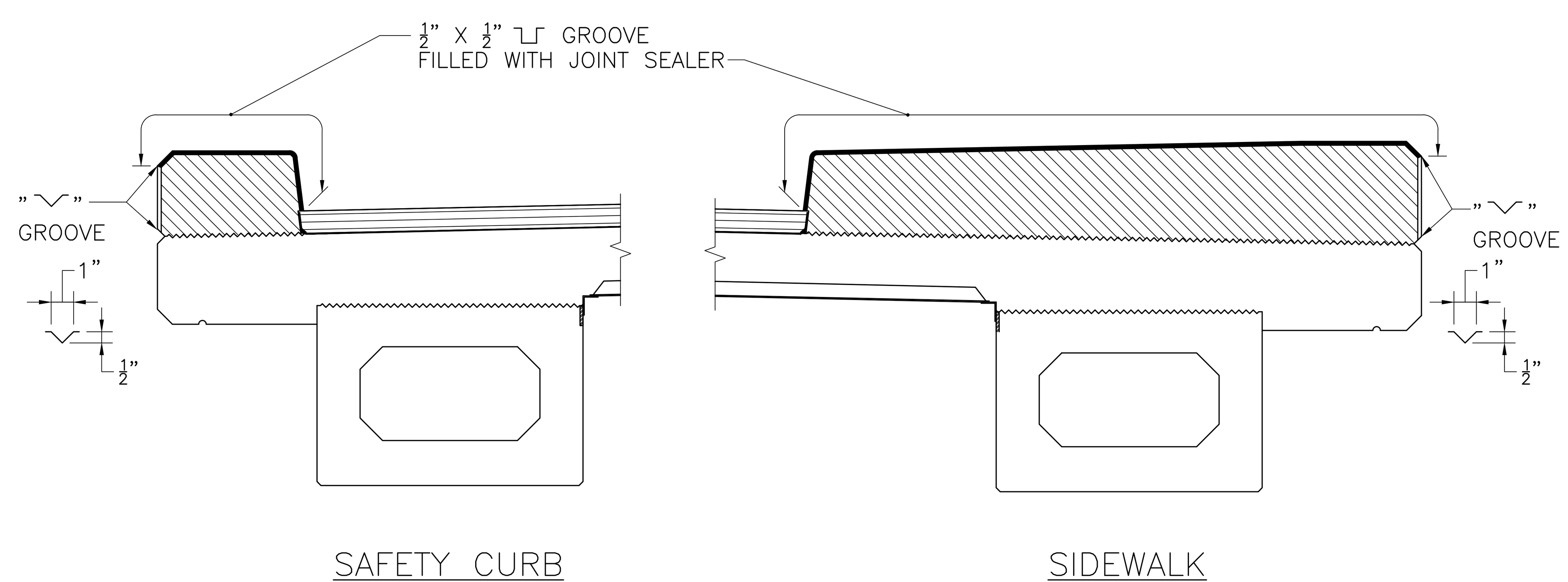
SECTION 14
SCALE: 3/4" = 1'-0"



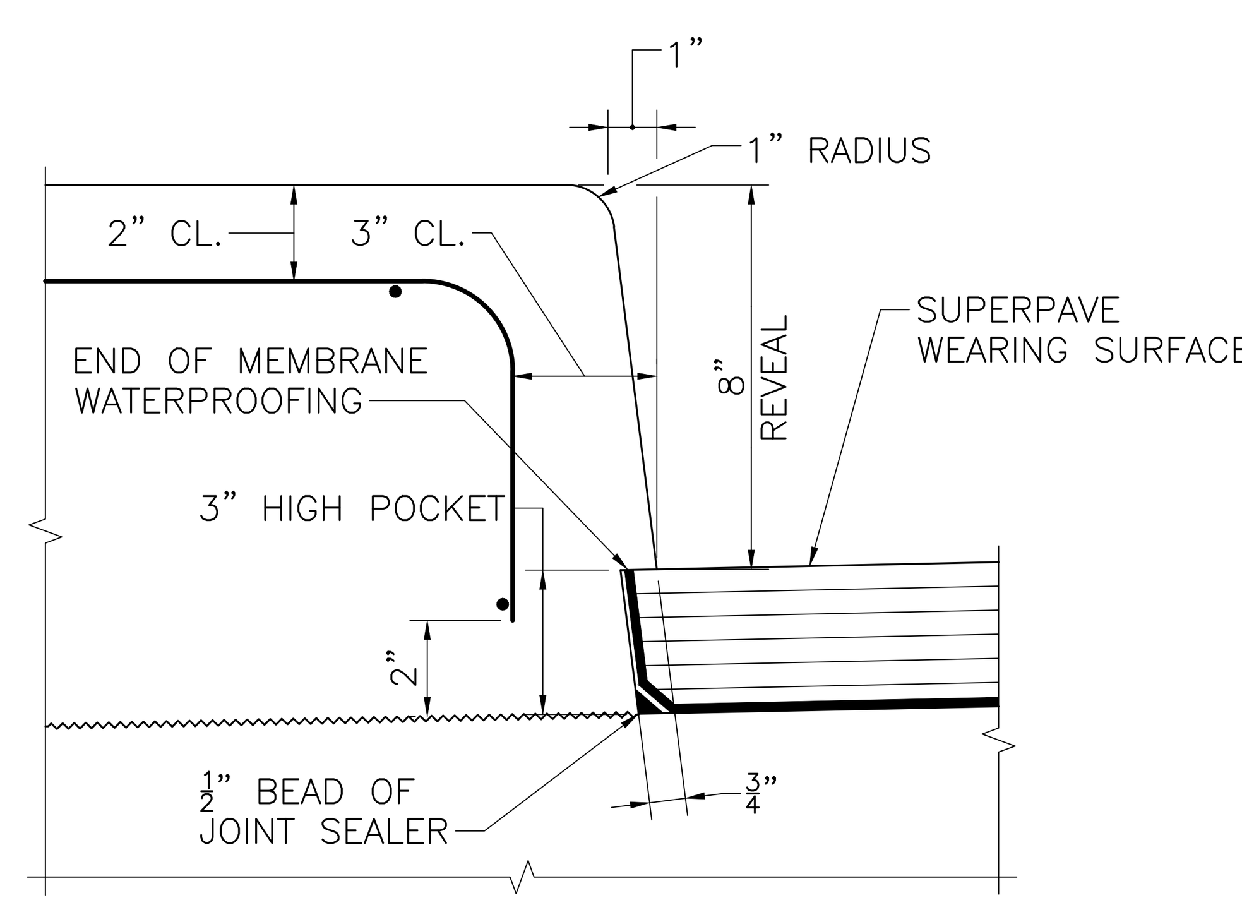
SECTION 15
SCALE: 3/4" = 1'-0"



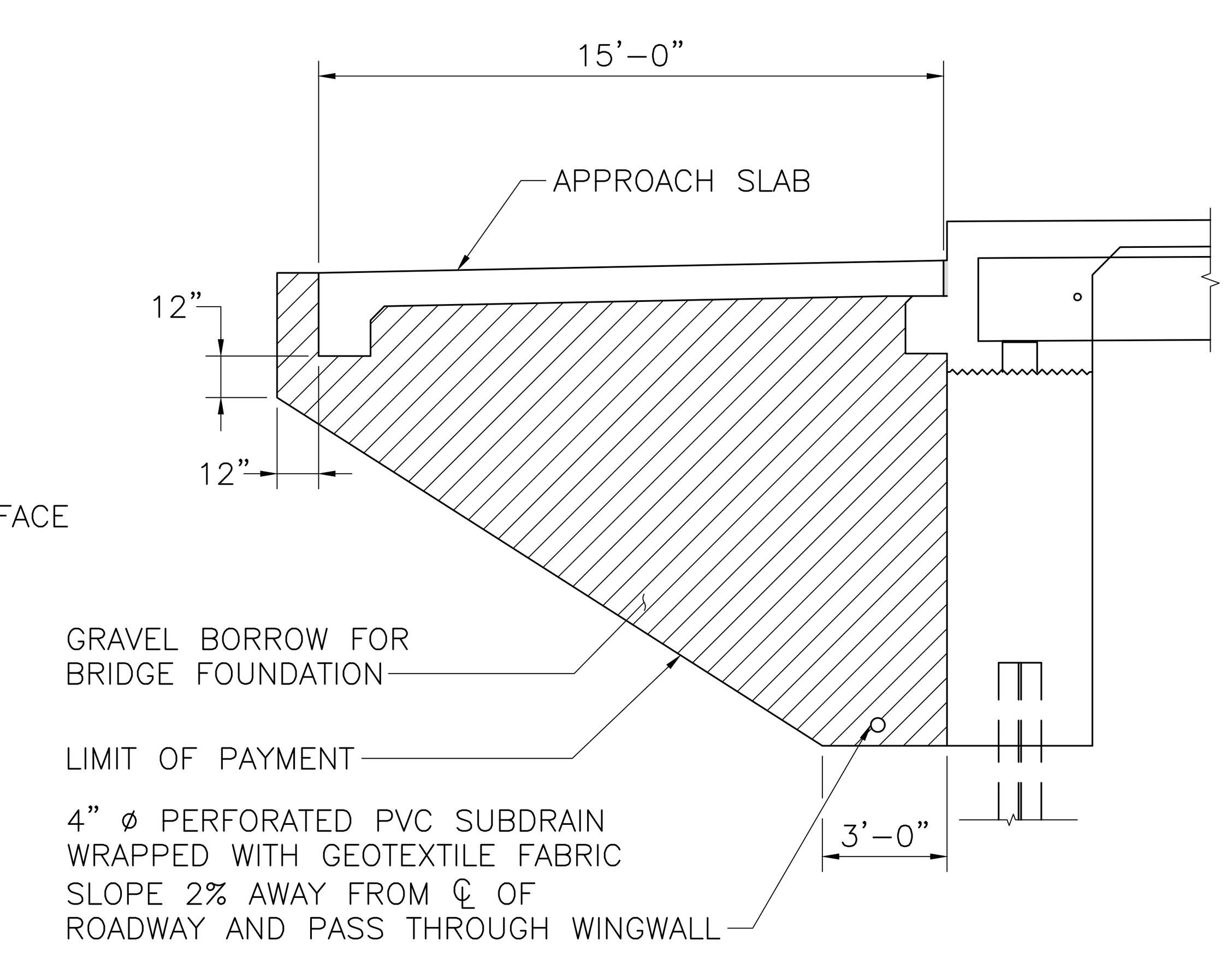
PAY LIMITS FOR BRIDGE EXCAVATION
SCALE: 1/8" = 1'-0"



PARAFFIN JOINT DETAIL
SCALE: 3/4" = 1'-0"



FACE OF CURB DETAILS
SCALE: 3" = 1'-0"



INTEGRAL ABUTMENT BACKFILL
SCALE: 1/4" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

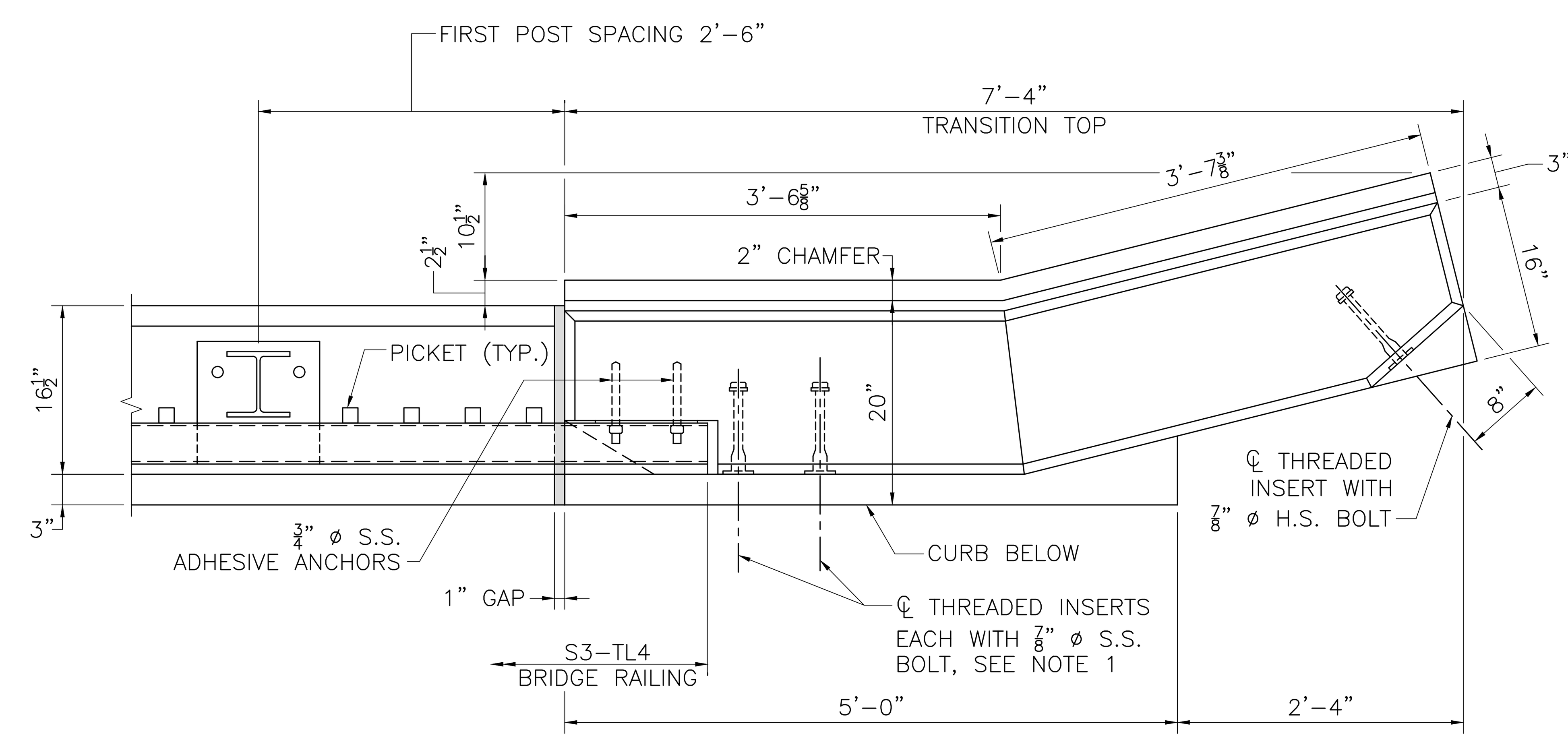
STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

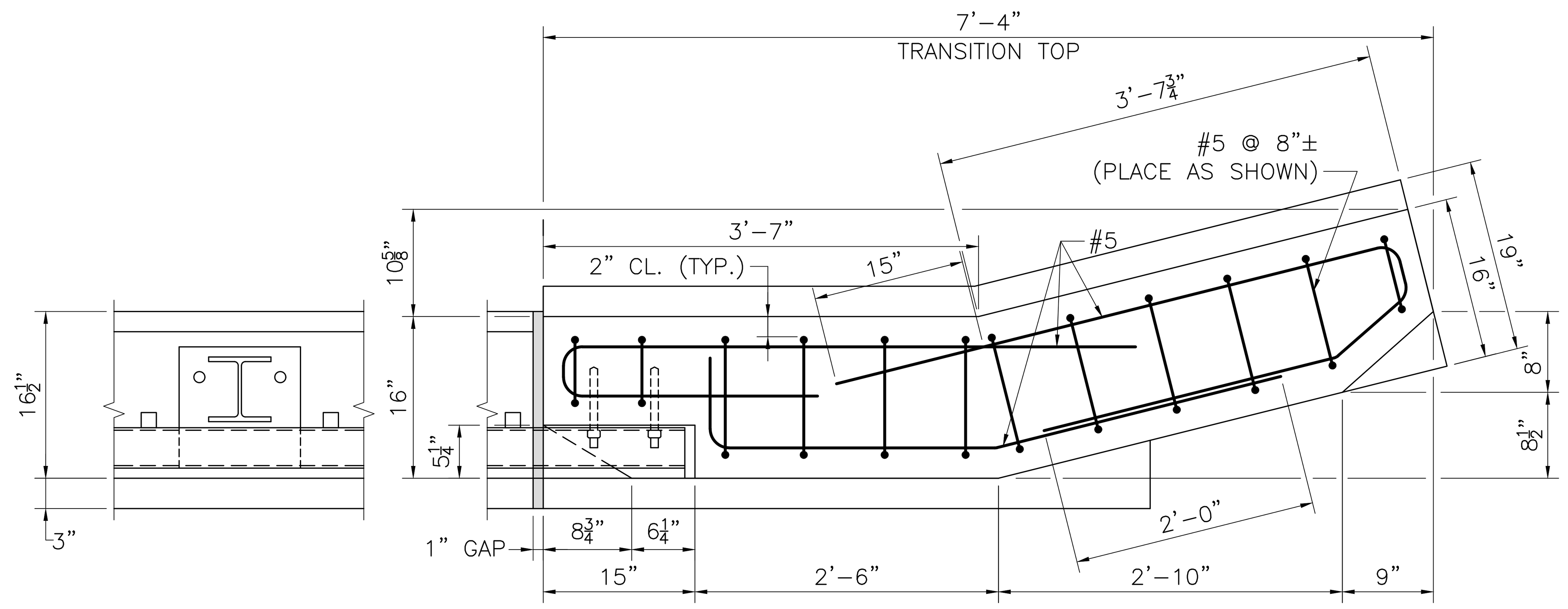
NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	42
PROJECT FILE NO.	N/A		

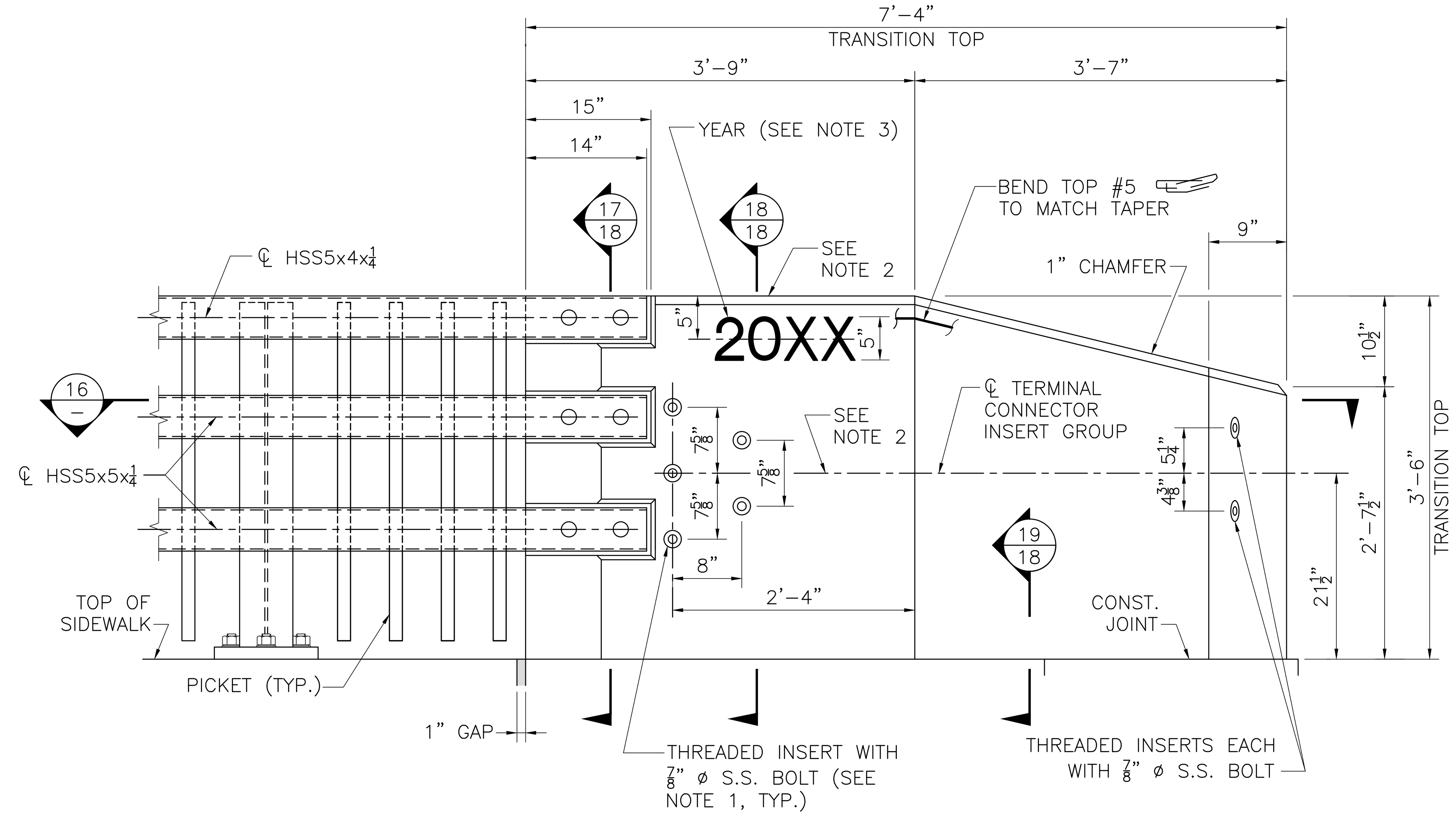
HIGHWAY GUARDRAIL TRANSITION S3-TL4 (1 OF 2)



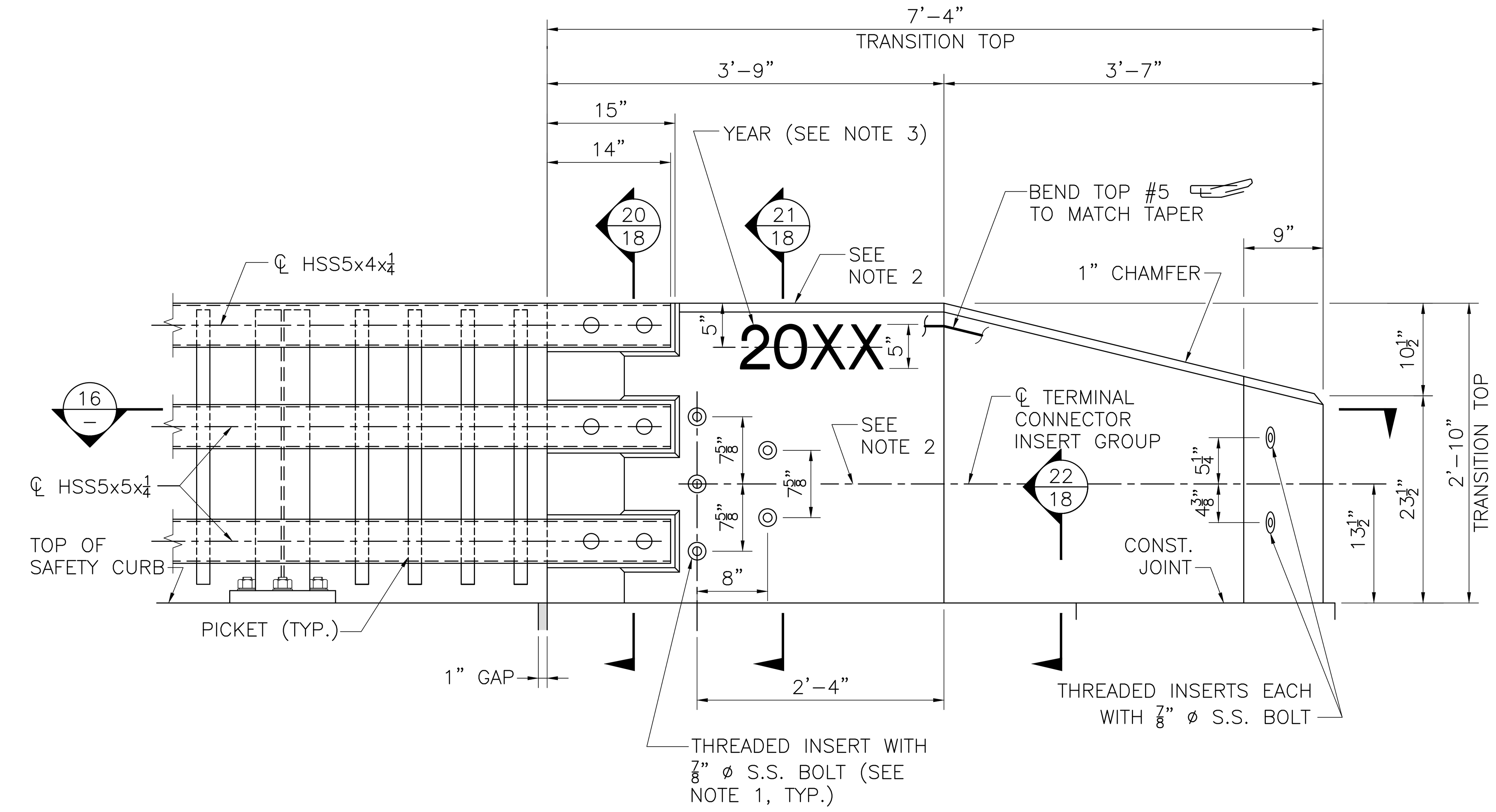
PLAN AT SAFETY CURB/SIDEWALK
SCALE: 1" = 1'-0"



SECTION 16
SCALE: 1" = 1'-0"



ELEVATION AT SIDEWALK
SCALE: 1" = 1'-0"



ELEVATION AT SAFETY CURB
SCALE: 1" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" ø S.S. BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR ⅞" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.

2. FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.

   FOR AN APPROACH GRADE IN EXCESS OF 3%, THE TRANSITION TOP AND THE TOP OF CURB SHALL FOLLOW THE APPROACH GRADE. THE HEIGHT OF THE TRANSITION TOP SHALL VARY PROVIDED THAT THE MINIMUM DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE MET. THE BOTTOM OF THE TRANSITION BASE SHALL BE SET LEVEL WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO FOLLOW THE APPROACH GRADE.

3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. SEE GENERAL NOTES FOR LOCATION WHERE DATE IS TO BE PLACED.

4. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾", 685 HP CEMENT CONCRETE.

5. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE 1½" CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 17 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

2839500_BR17-20(N11007_W20001).DWG Plotted on 15-Mar-2023 10:26 AM

CHAPTER 85 REVIEW 06-24-2021

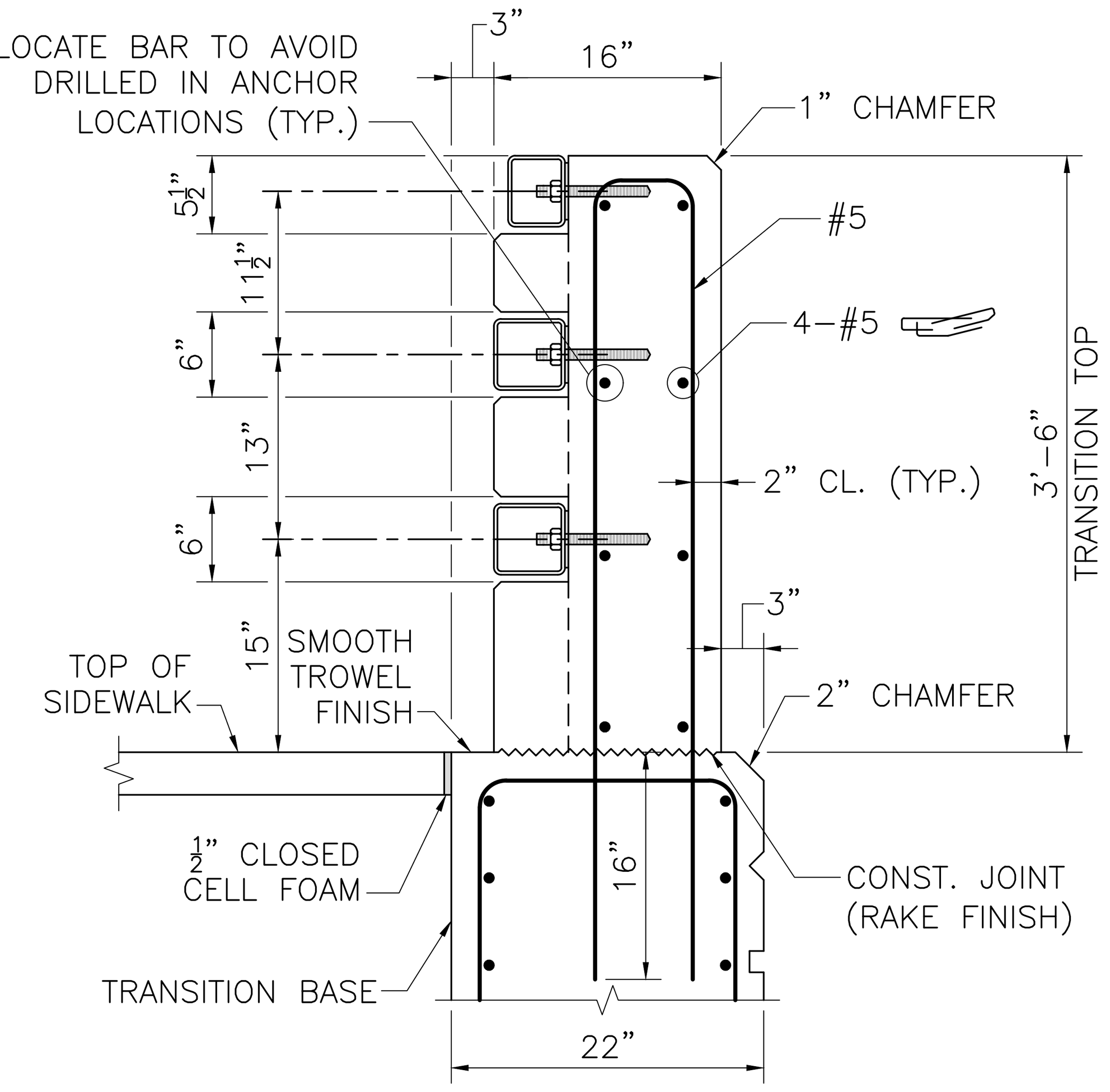
NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	42
PROJECT FILE NO.	N/A		

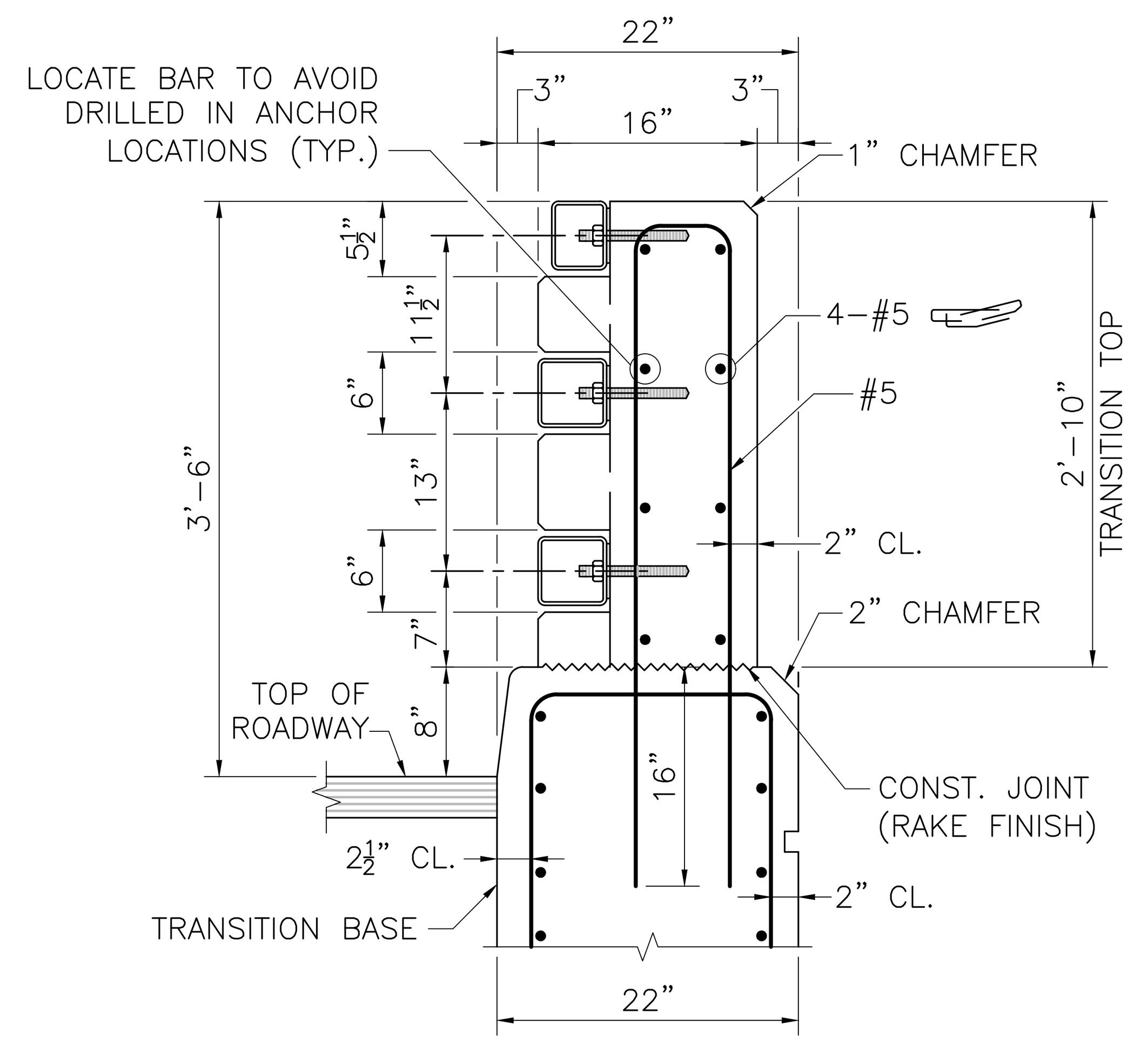
HIGHWAY GUARDRAIL TRANSITION S3-TL4 (2 OF 2)

NOTE:

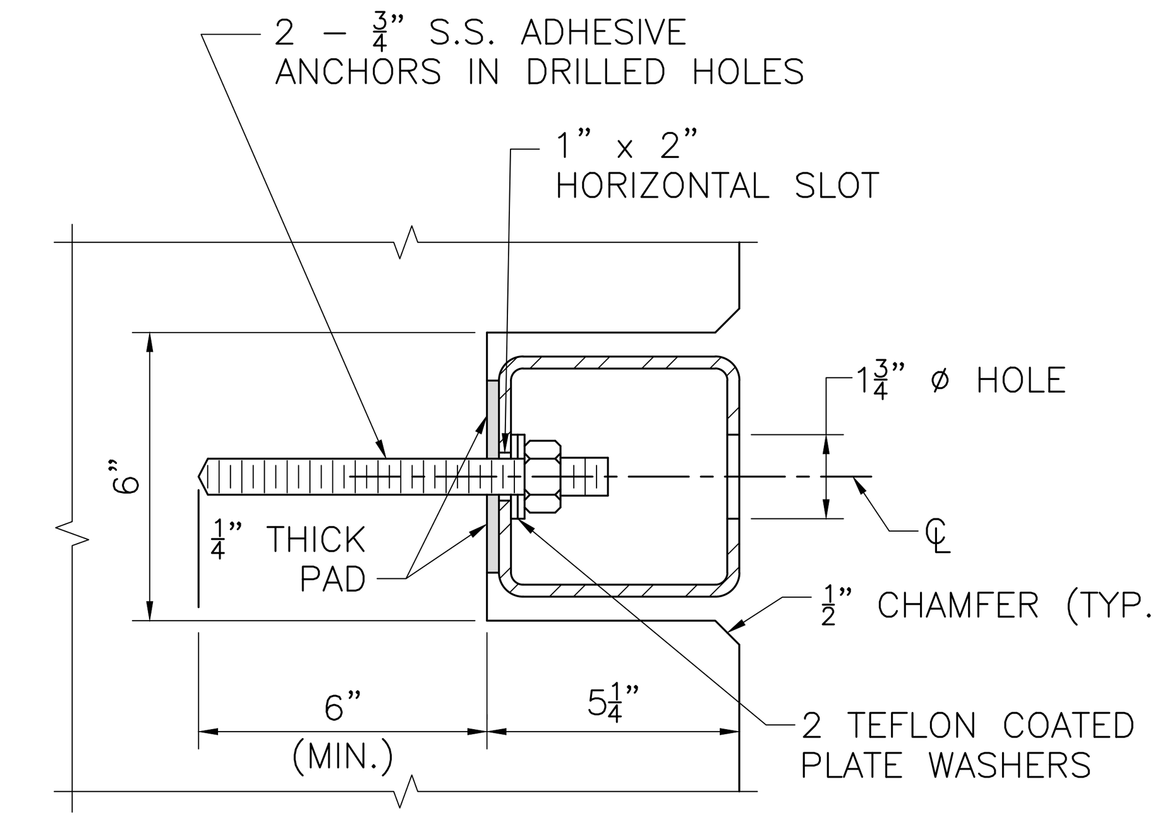
SEE SHEET 17 OF 20 FOR HIGHWAY GUARDRAIL TRANSITION NOTES.



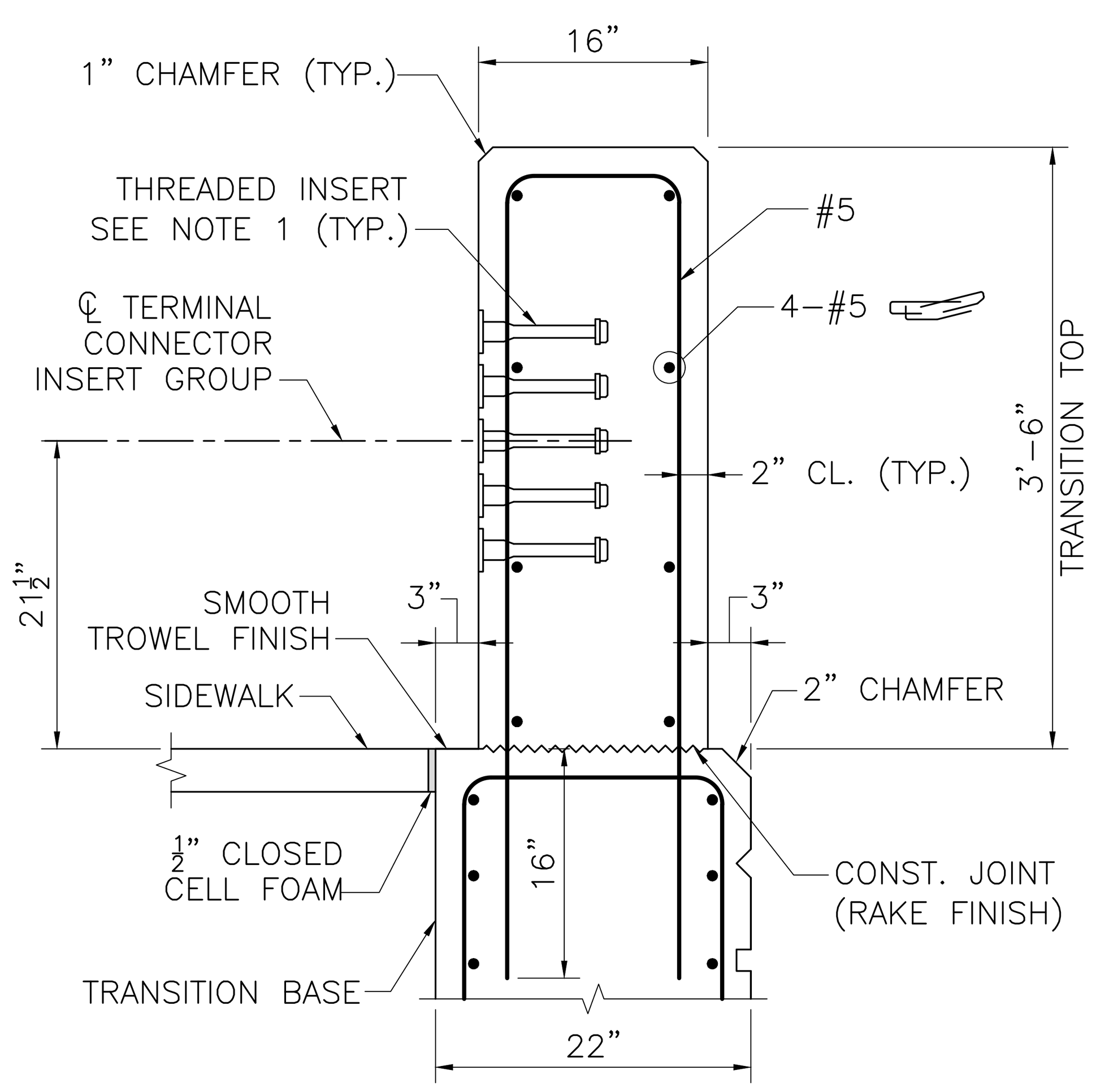
SECTION 17 AT SIDEWALK
SCALE: 1" = 1'-0"



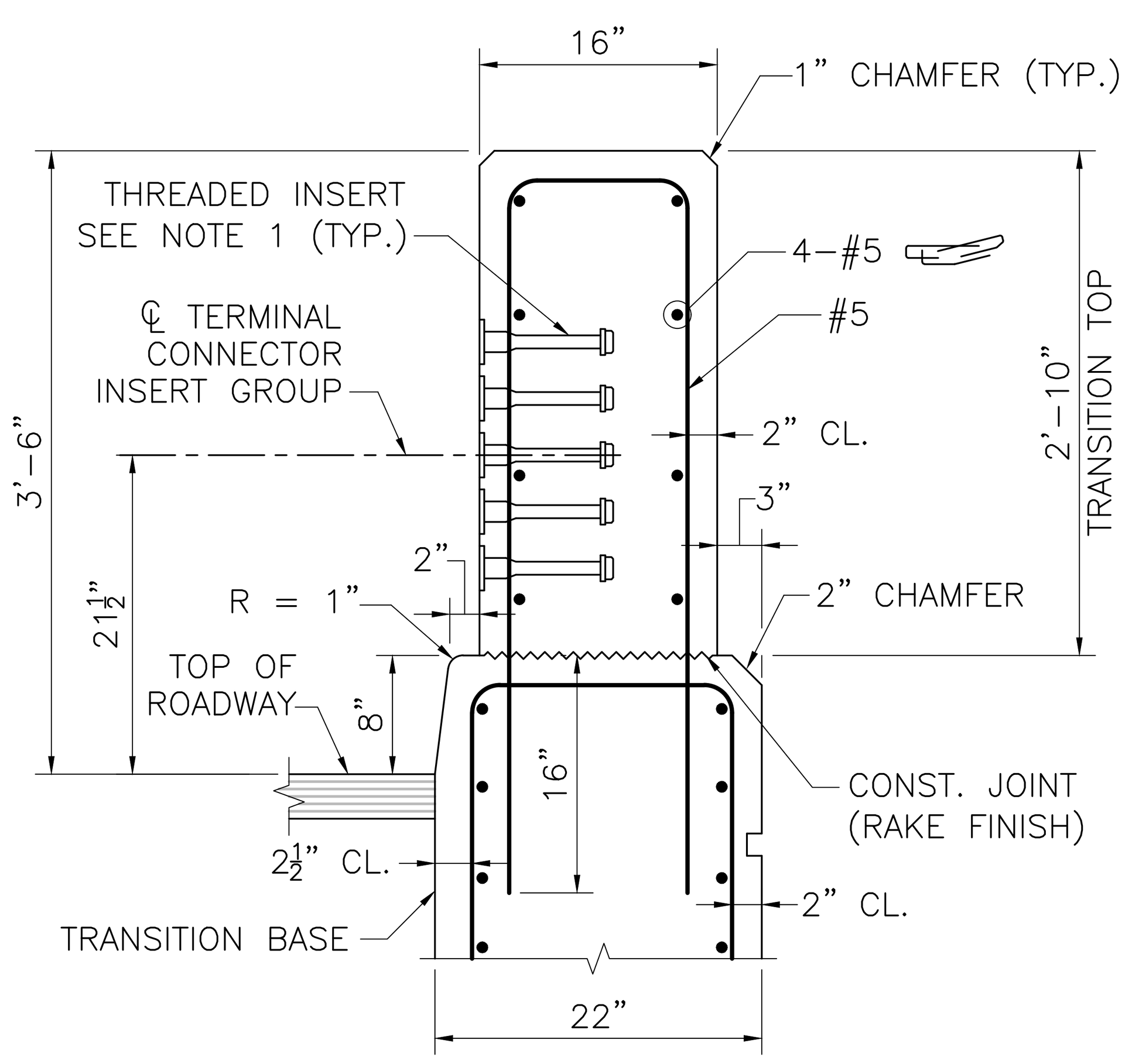
SECTION 20 AT SAFETY CURB
SCALE: 1" = 1'-0"



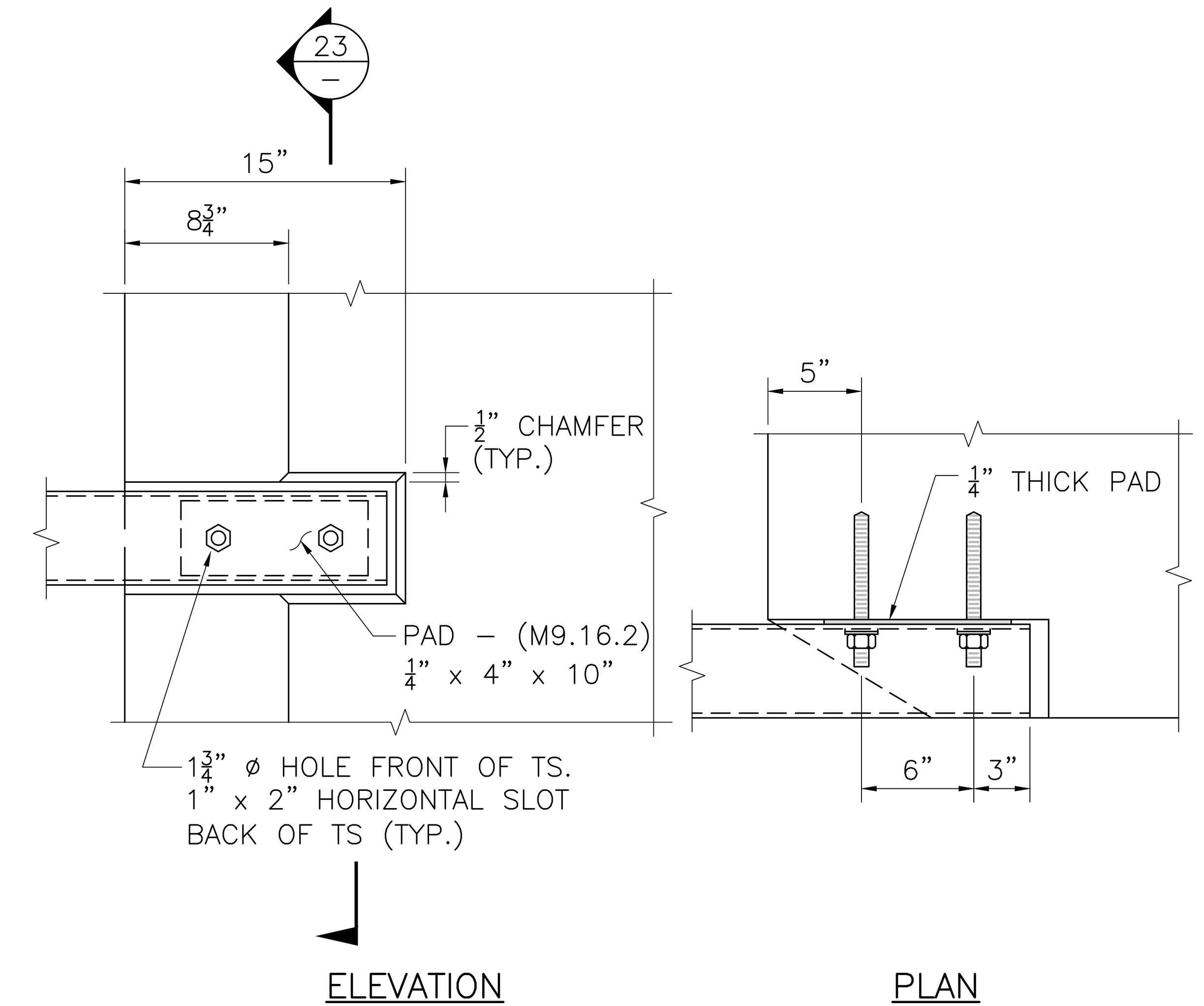
SECTION 23
SCALE: 3" = 1'-0"



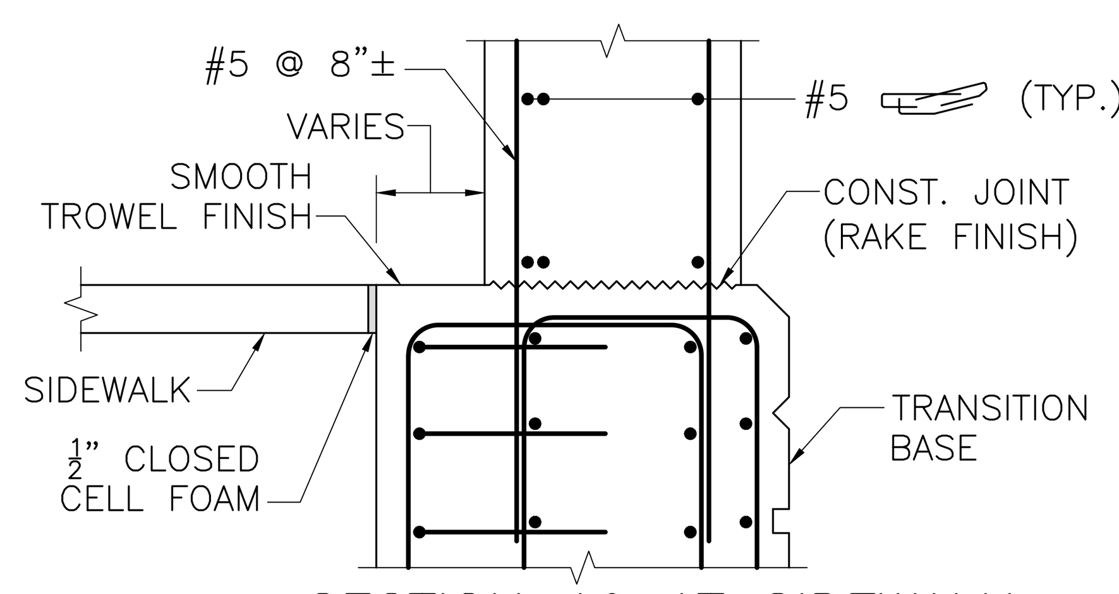
SECTION 18 AT SIDEWALK
SCALE: 1" = 1'-0"



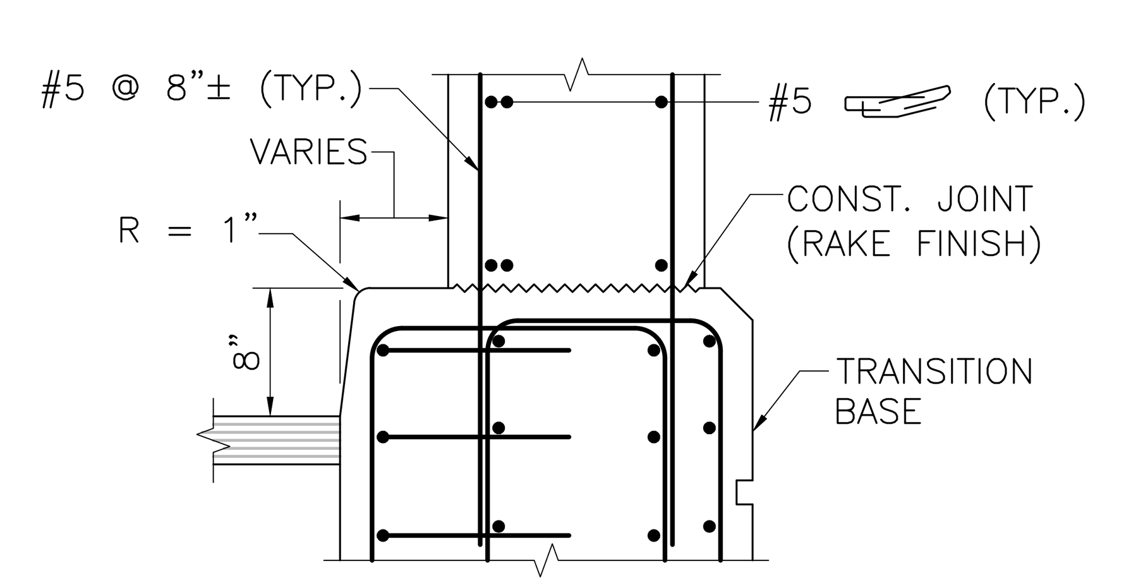
SECTION 21 AT SAFETY CURB
SCALE: 1" = 1'-0"



RAIL ATTACHMENT
SCALE: 1½" = 1'-0"



SECTION 19 AT SIDEWALK
SCALE: 1" = 1'-0"



SECTION 22 AT SAFETY CURB
SCALE: 1" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 18 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

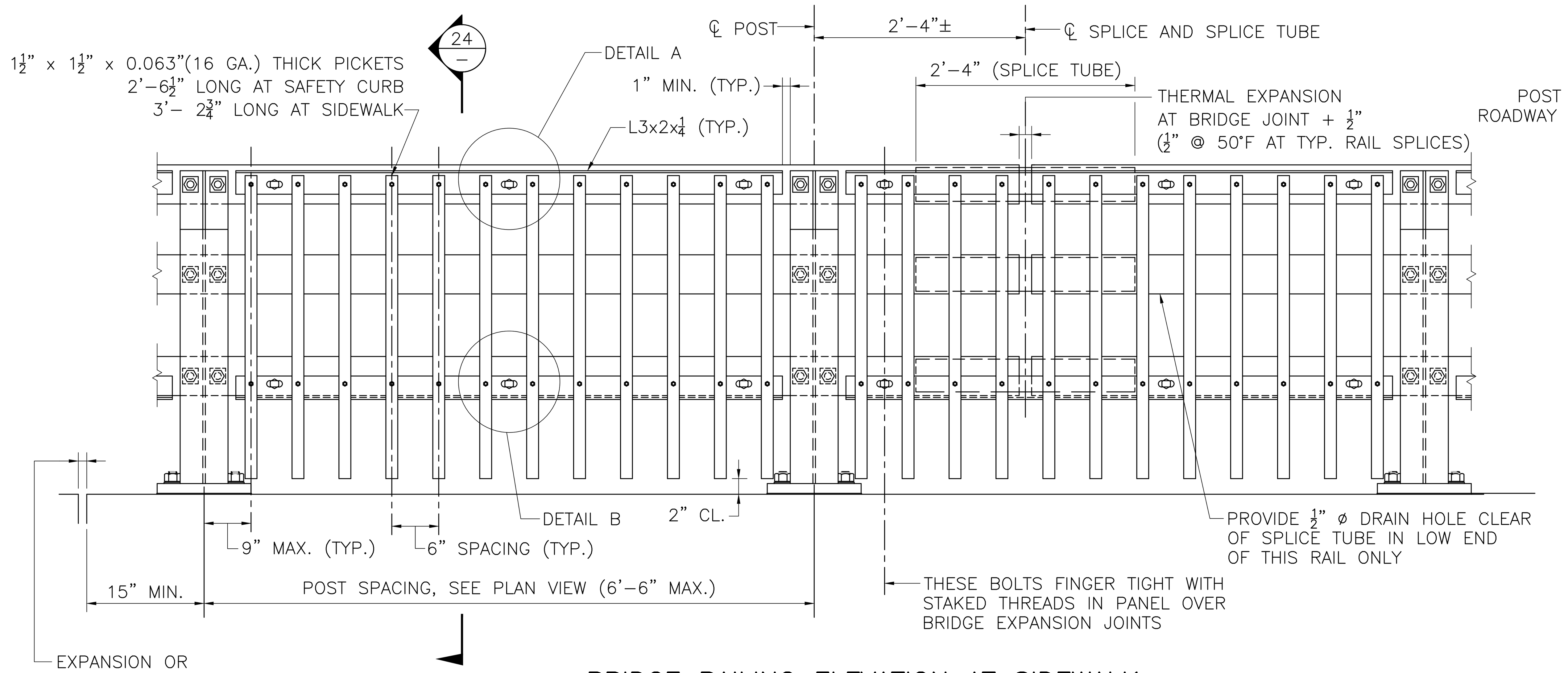
2839500_BR17-20(N11007_W20001).DWG Plotted on 15-Mar-2023 10:26 AM

CHAPTER 85 REVIEW 06-24-2021

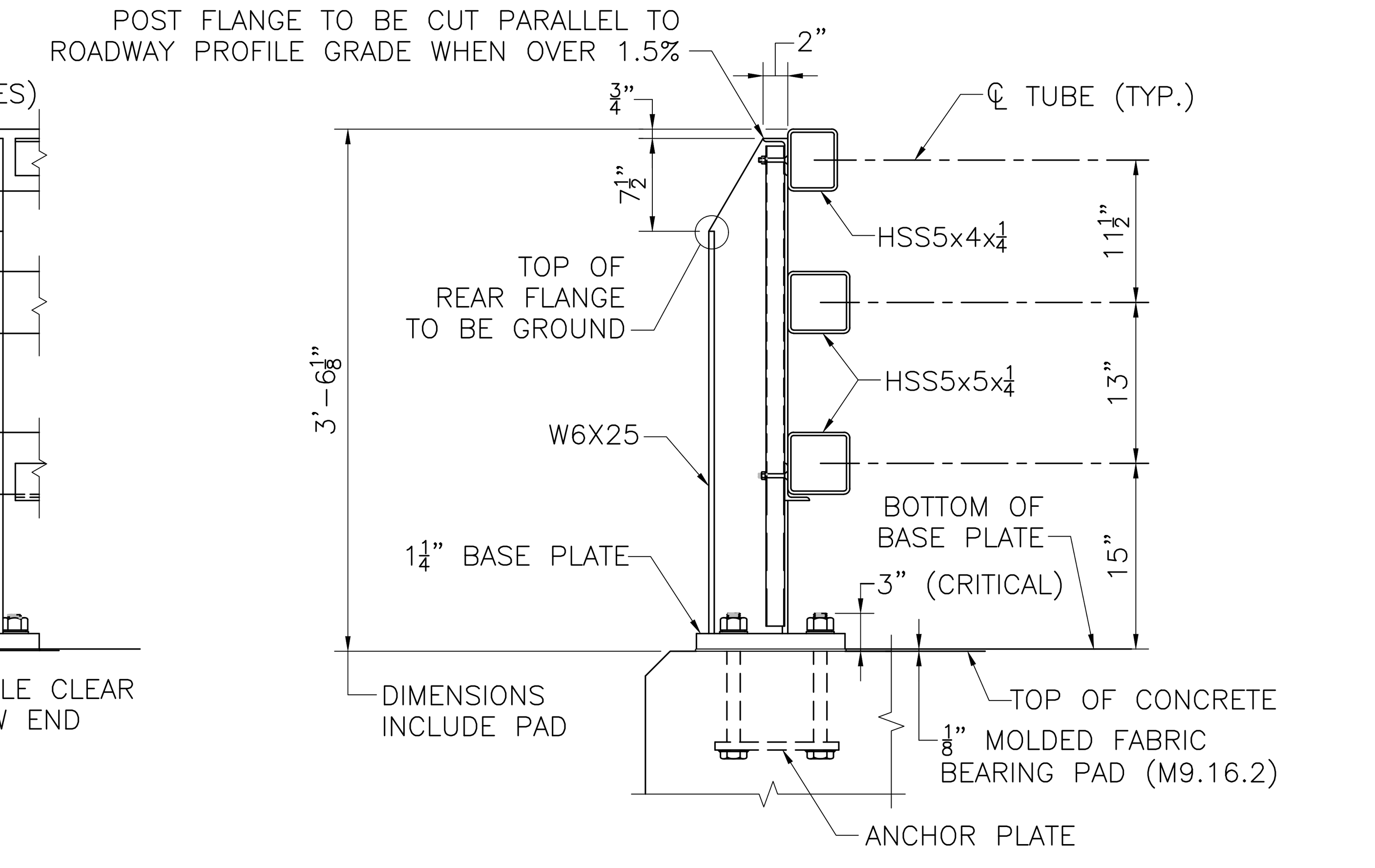
NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	37	42
PROJECT FILE NO.		N/A	

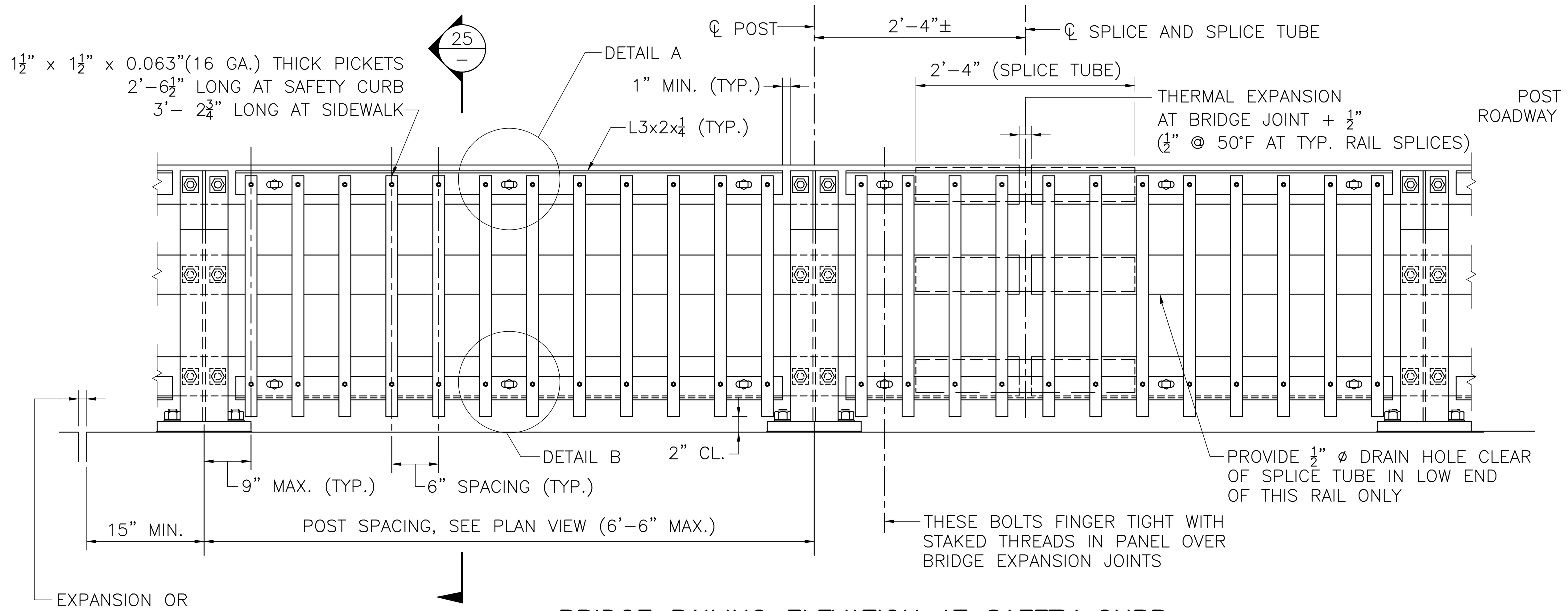
S3-TL4 RAILING DETAILS (1 OF 2)



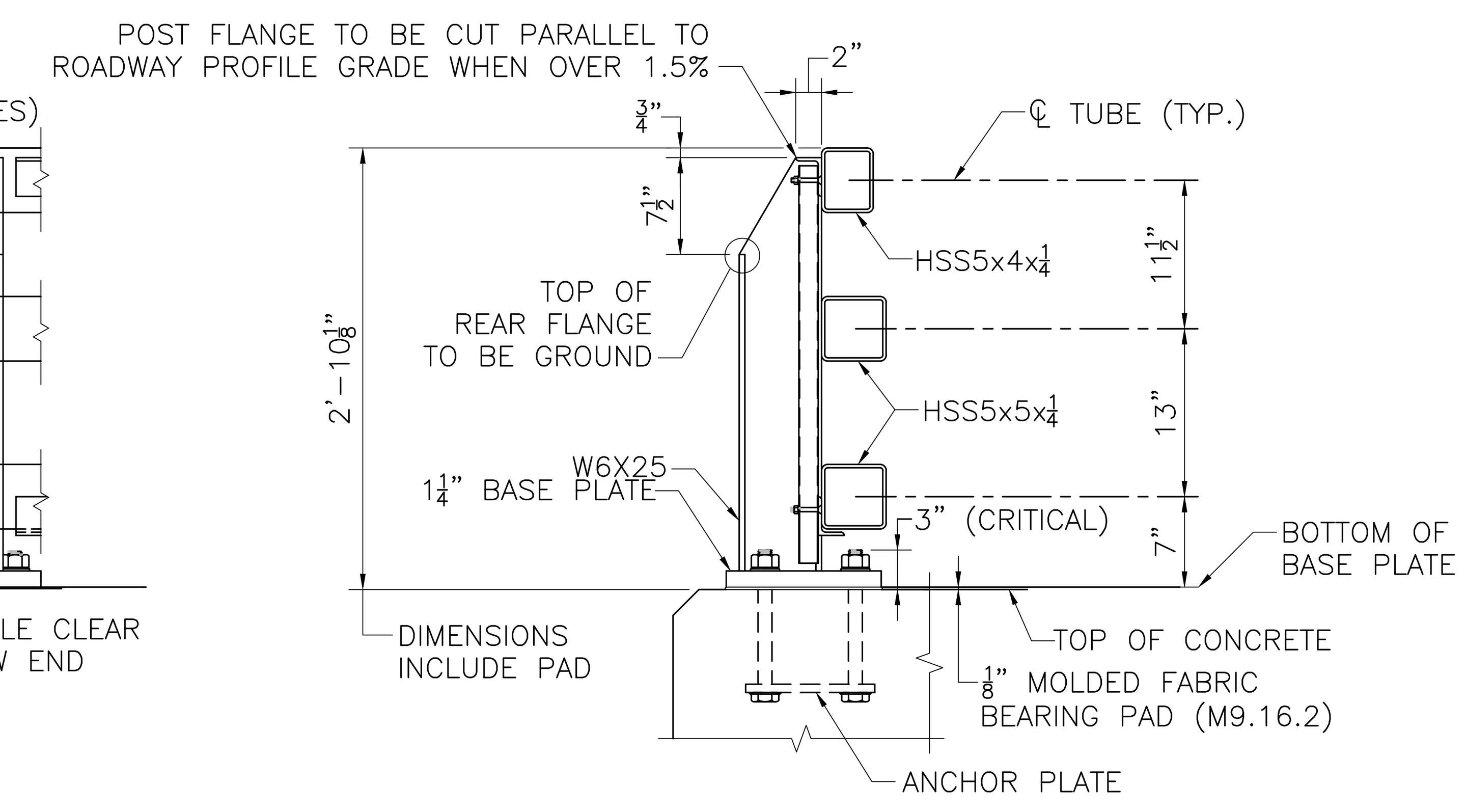
BRIDGE RAILING ELEVATION AT SIDEWALK
SCALE: 1" = 1'-0"



SECTION 24
SCALE: 1" = 1'-0"



BRIDGE RAILING ELEVATION AT SAFETY CURB
SCALE: 1" = 1'-0"



SECTION 25
SCALE: 1" = 1'-0"

RAILING NOTES:

1. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500 WITH A CERTIFIED Fy = 50 KSI MINIMUM. THE MINIMUM HORIZONTAL BENDING RADII OF THE HSS TUBING SHALL BE 8 FEET. PICKET CARRIER ANGLES, ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 36. PICKET TUBING SHALL CONFORM TO ASTM A 513 WITH Fy = 36 KSI MIN. OR A 500 GRADE B.
2. ALL STEEL (EXCEPT THE 5/8" ANCHOR PLATE AND FASTENERS) SHALL BE GALVANIZED AND PAINTED DARK BRONZE (FEDERAL STD. 595B COLOR NO. 10045). ANCHOR PLATE SHALL BE GALVANIZED ONLY. HEADS OF 7/8" ø ROUND HEAD BOLTS SHALL BE PAINTED TO MATCH RAIL.
3. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN AFTER STEEL IS IN PLACE.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR (4) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN THE PANELS OVER EXPANSION JOINT.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. ALL POSTS TO BE PLUMB WHEN PROFILE GRADE EXCEEDS 1.5%. FOR PROFILE GRADES LESS THAN 1.5%, POSTS SHALL BE SET PERPENDICULAR TO GRADE.
7. POST FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. WELD SHALL BE BACK-GOUGED ON BACK SIDE EXCEPT AT WEB. WELD IS THE SAME ON BOTH FLANGES.
8. 7/8" ø ROUND HEAD BOLTS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF AASHTO M 164.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER 3/17/2023 DATE

DATE	DESCRIPTION
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

SHEET 19 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

2839500_BR17-20(N11007_W20001).DWG Plotted on 15-Mar-2023 10:26 AM

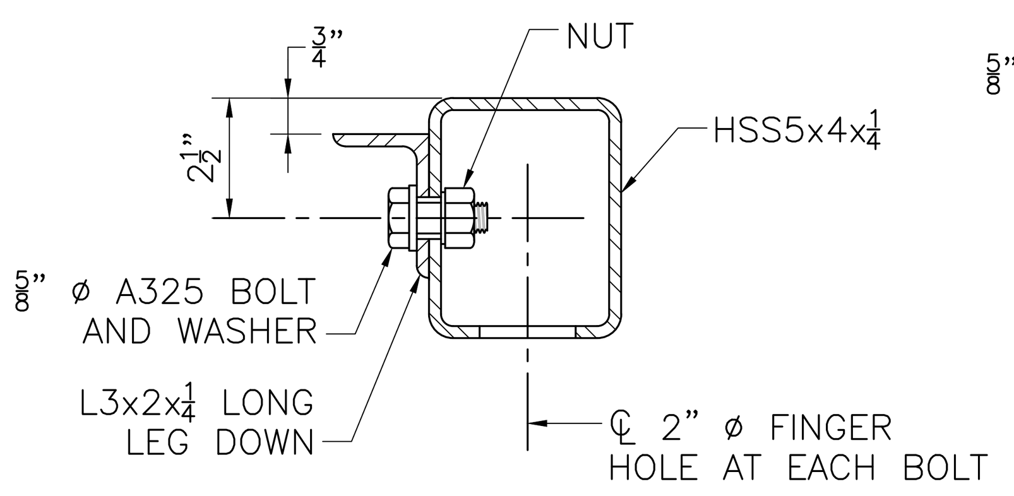
CHAPTER 85 REVIEW 06-24-2021

NEWBURYPORT = WEST NEWBURY
PLUMMER SPRING ROAD

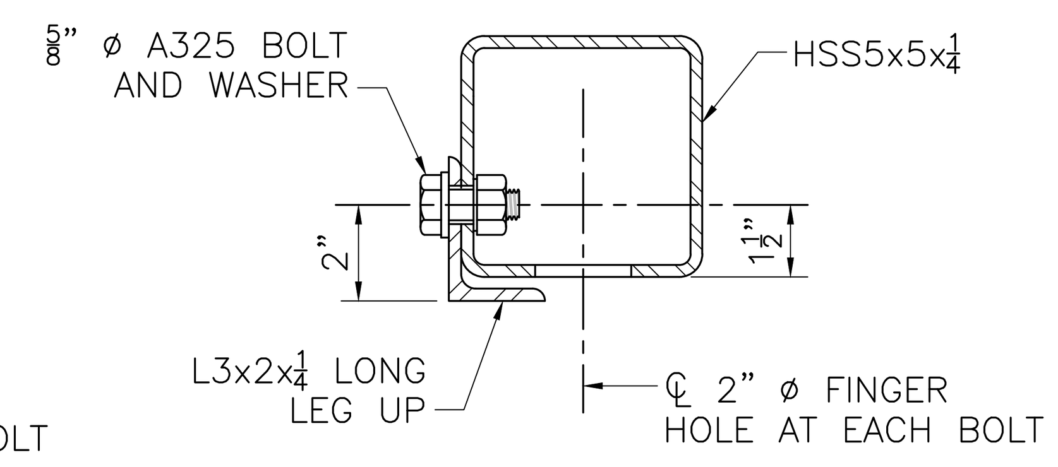
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	38	42
PROJECT FILE NO.	N/A		

S3-TL4 RAILING DETAILS (2 OF 2)

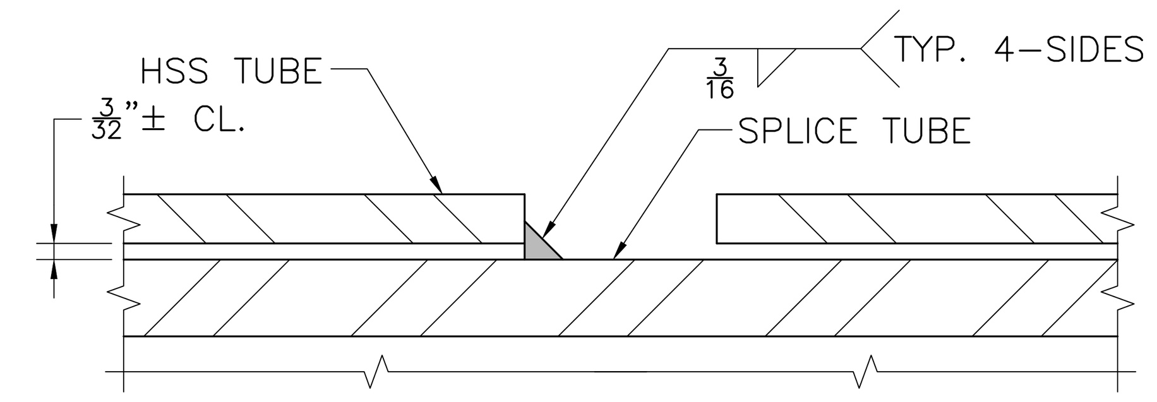
NOTE:
SEE SHEET 19 OF 20 FOR RAILING NOTES.



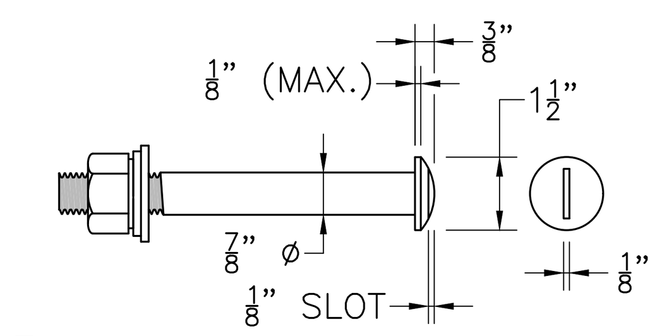
SECTION 26



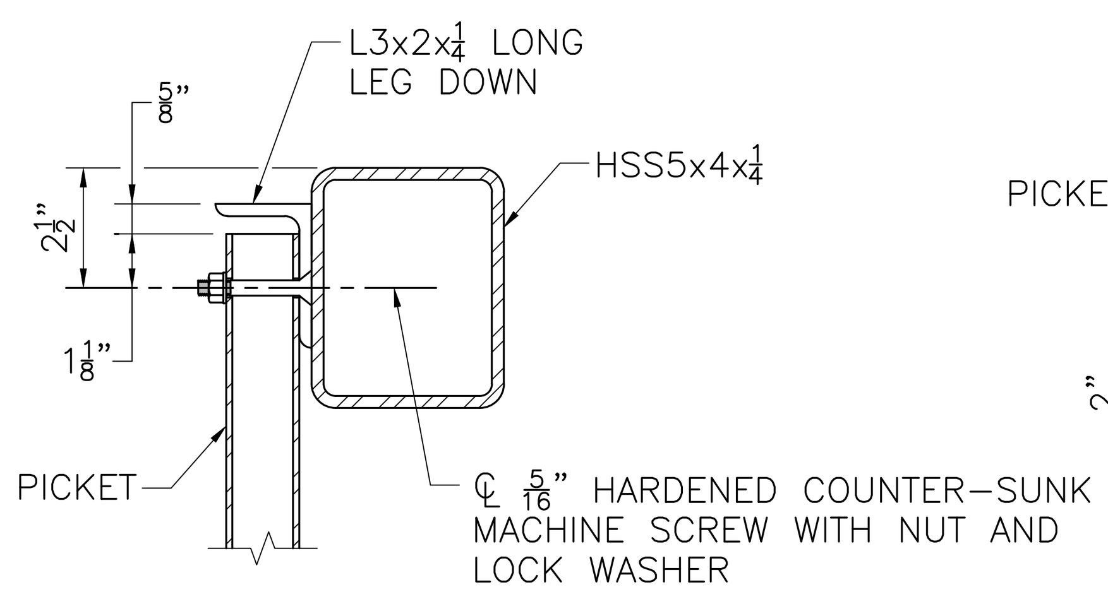
SECTION 28



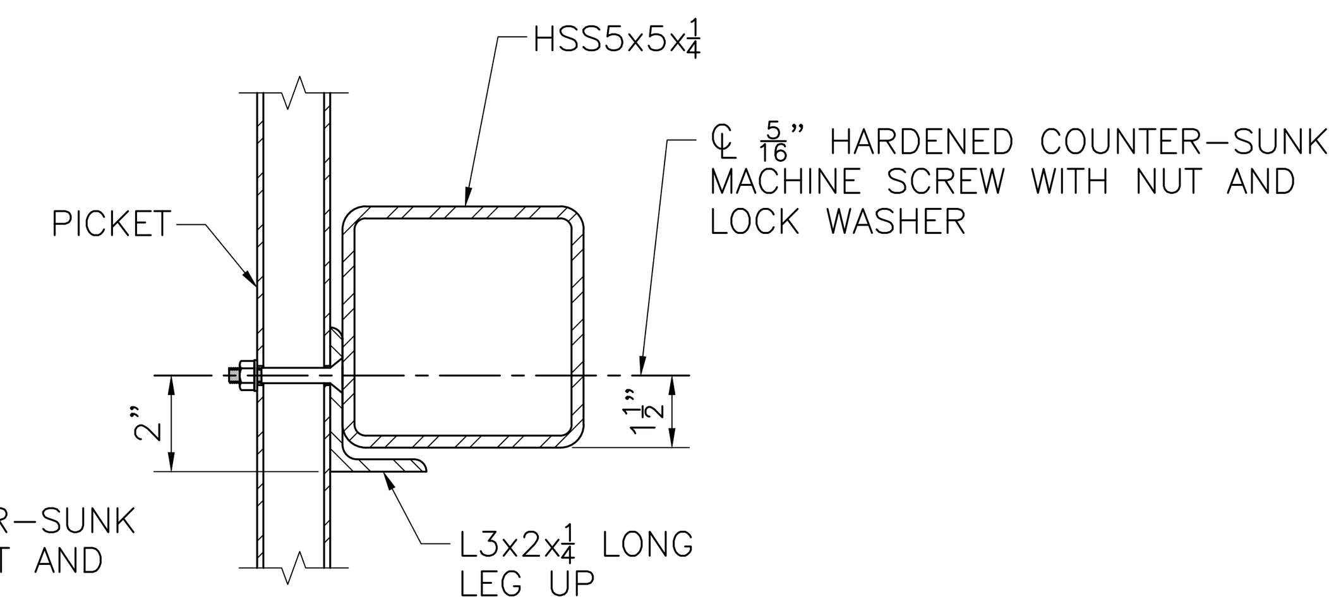
SPLICE DETAIL
FULL SIZE



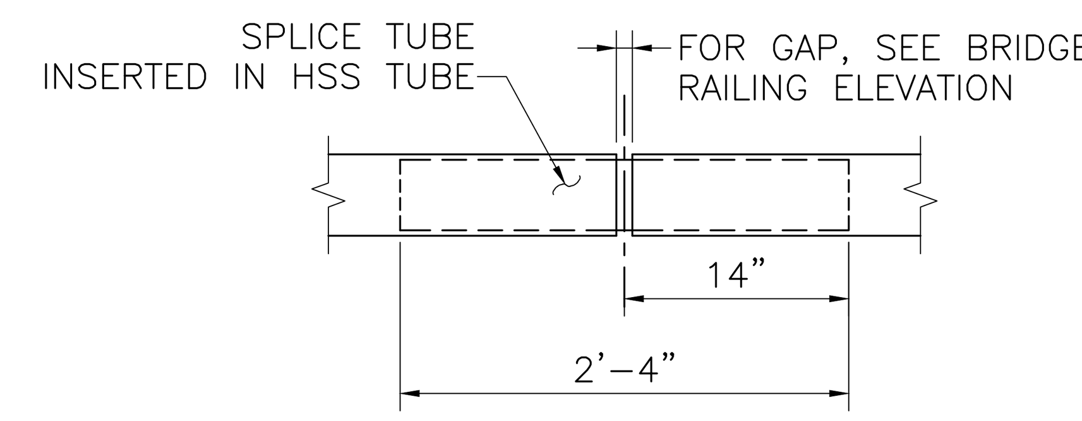
⅞" ø ROUND HEAD BOLT
SCALE: 3" = 1'-0"



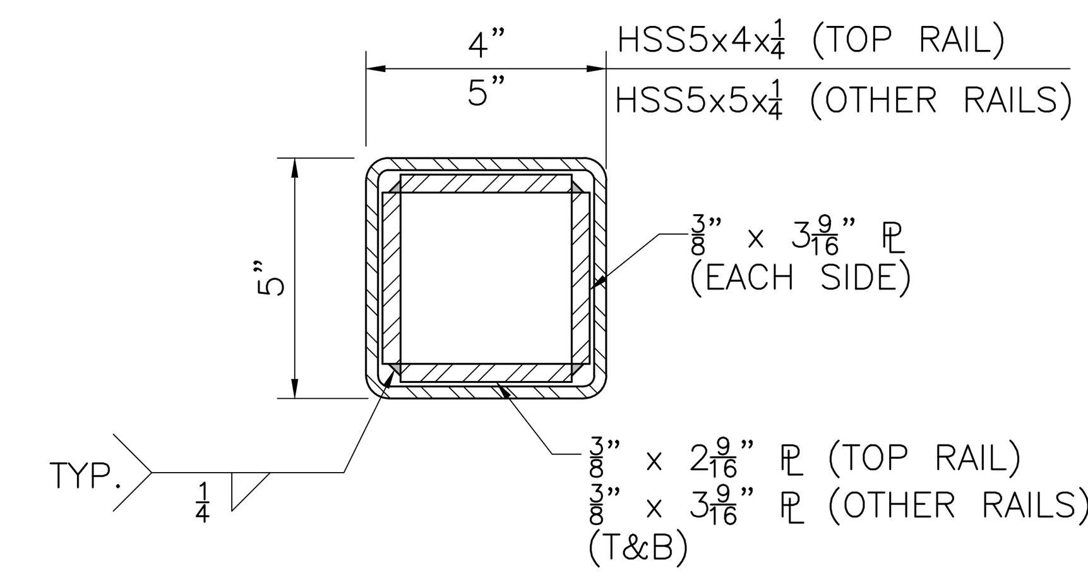
SECTION 27



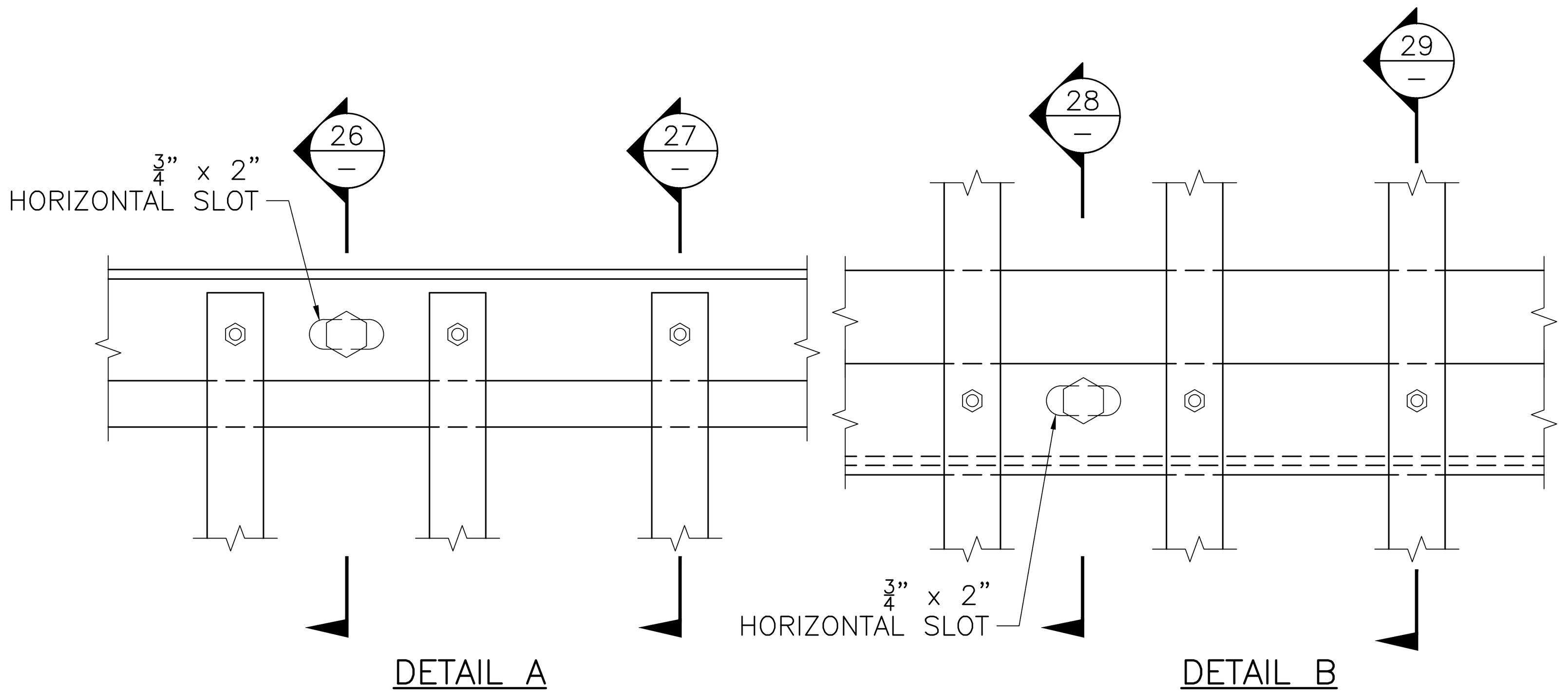
SECTION 29



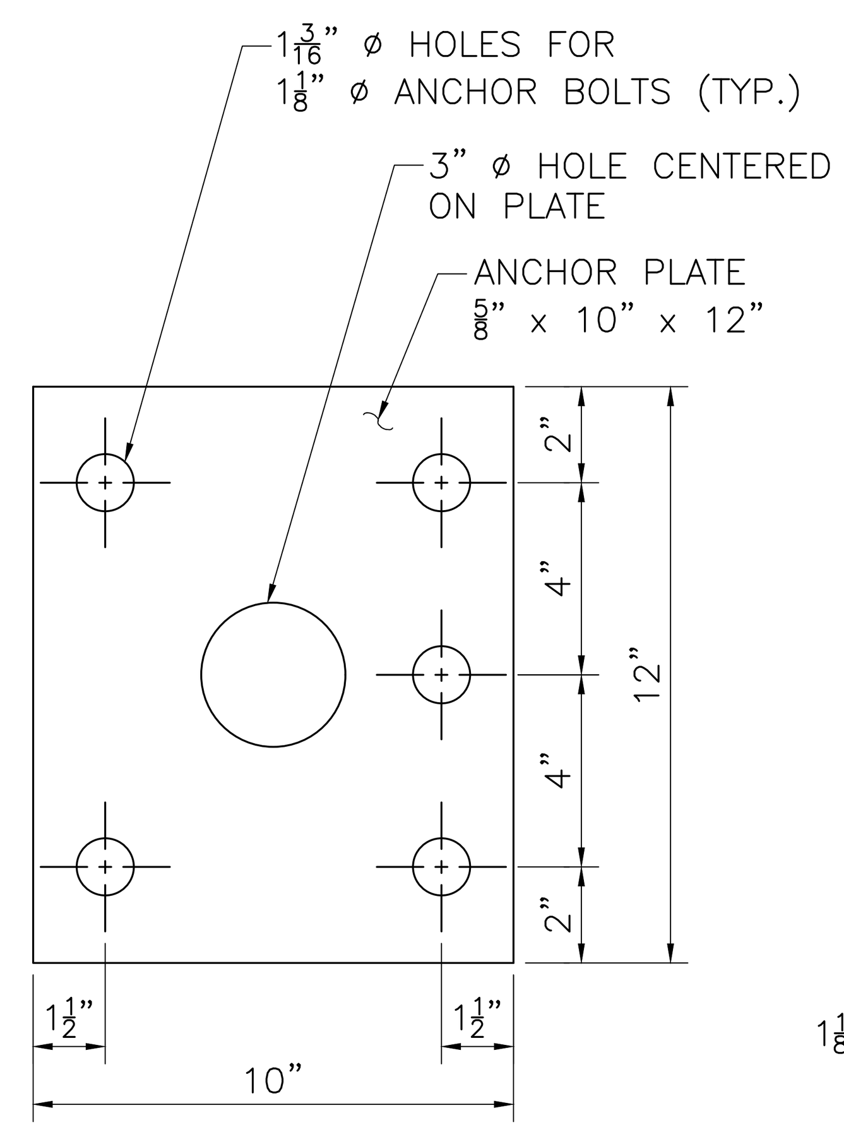
TYPICAL SPLICE
SCALE: 1" = 1'-0"



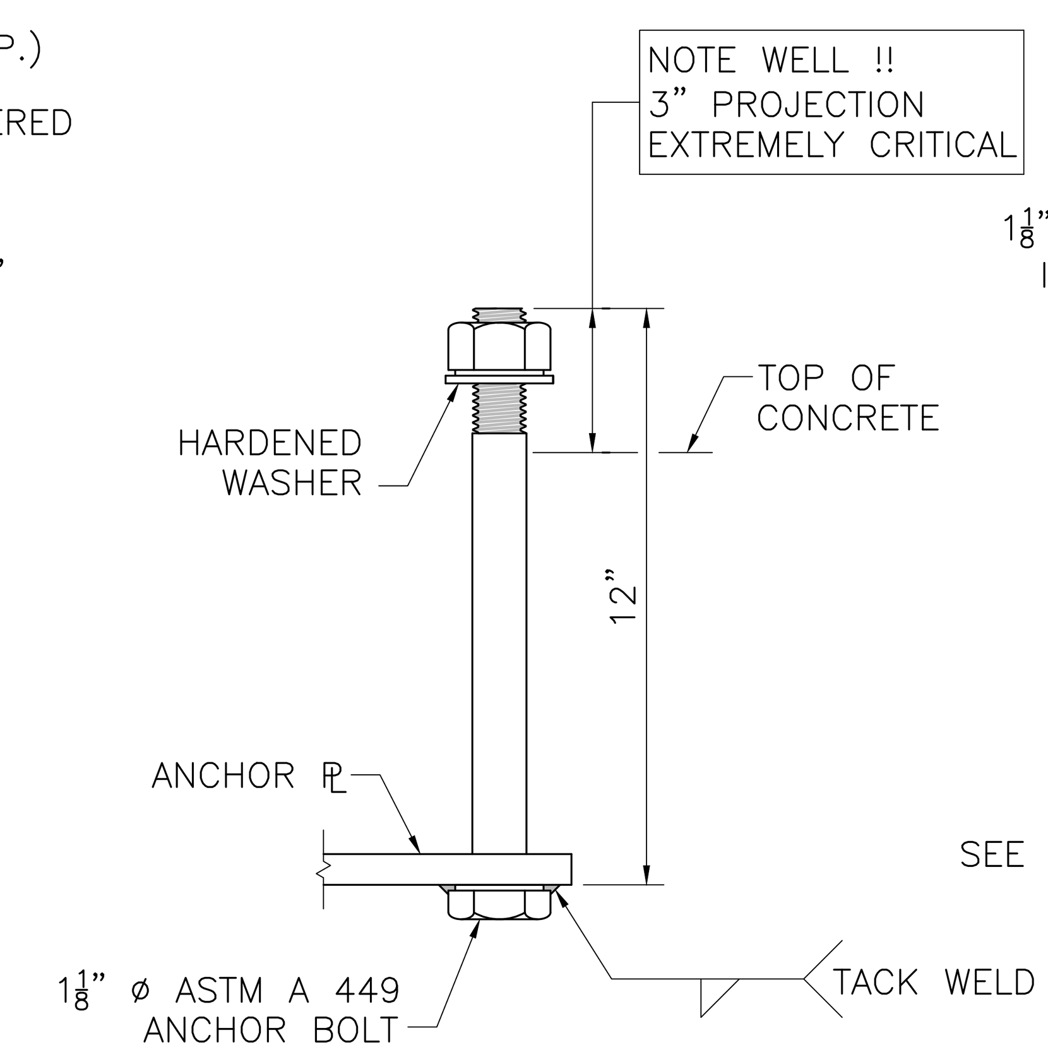
SPLICE TUBE DETAILS
SCALE: 3" = 1'-0"



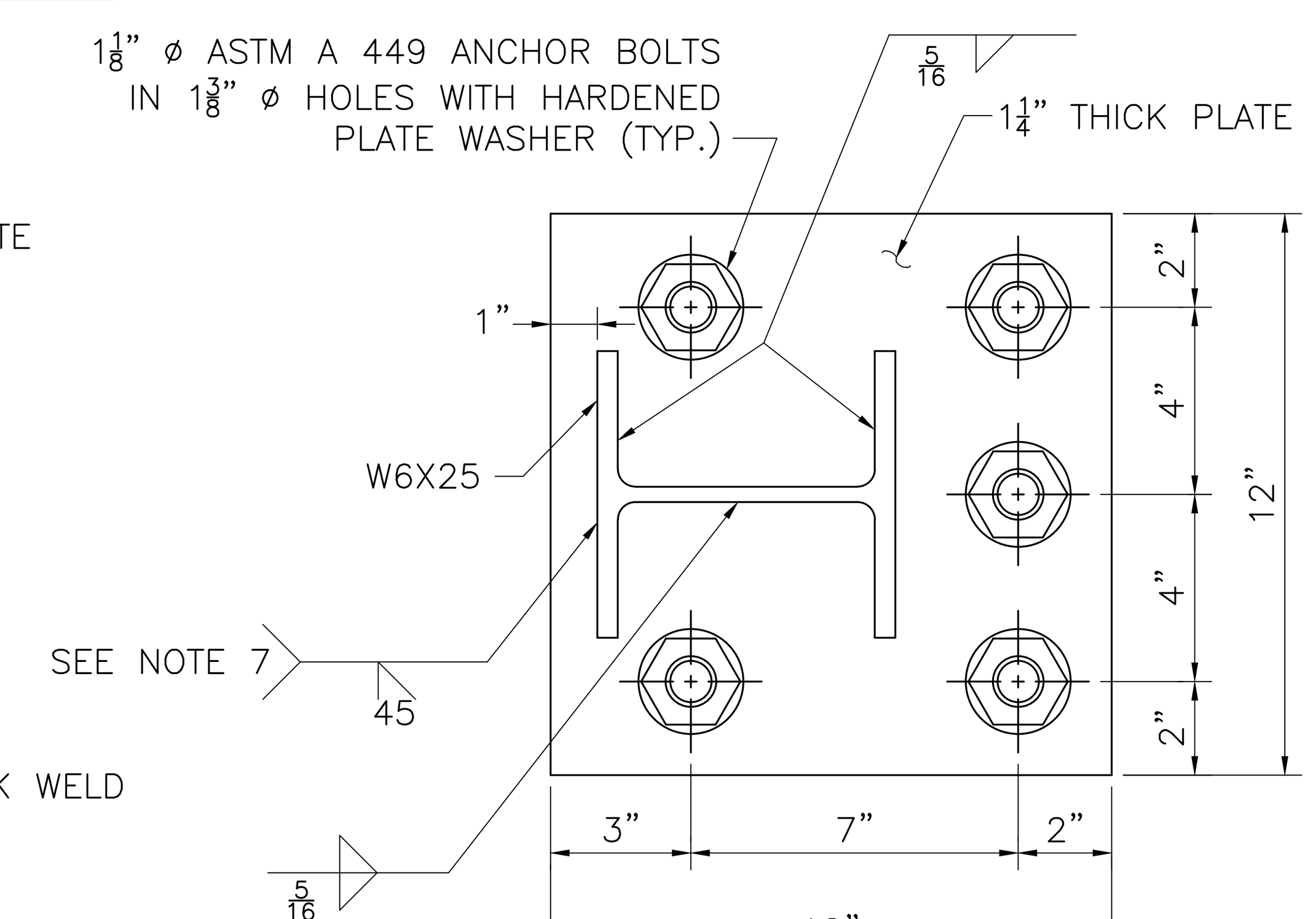
TYPICAL PICKET TO RAIL DETAILS
SCALE: 3" = 1'-0"



ANCHOR PLATE
SCALE: 3" = 1'-0"



ANCHOR BOLT
SCALE: 3" = 1'-0"



BASE PLATE
SCALE: 3" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

STATE BRIDGE ENGINEER — 3/17/2023 DATE

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 20 OF 20 SHEETS BRIDGE NO. N-11-007 = W-20-001 (CBR)

Climate Resilience Design Standards Tool Project Report

Middle Street Bridge
Date Created: 6/2/2023 1:37:01 AM
Date Report Generated: 6/2/2023 2:00:17 AM
Project Contact Information: Angus Jennings (townmanager@wnewbury.org)
Created By: 3232.AJennings
Tool Version: Version 1.2

Project Summary

Link to Project

Estimated Capital Cost: $4406500.00
End of Useful Life Year: 2099
Project within mapped Environmental Justice neighborhood: No

Ecosystem Service Benefits	Scores
Project Score	Low
Exposure	**Scores**
Sea Level Rise/Storm Surge	Moderate Exposure
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	High Exposure
Extreme Heat	High Exposure

Asset Preliminary Climate Risk Rating Summary

Number of Assets: 1

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Middle Street Bridge	High Risk	High Risk	High Risk	High Risk

Climate Resilience Design Standards Summary

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Middle Street Bridge	2070	2050		1000-yr (0.1%)	
Extreme Precipitation					
Middle Street Bridge	2070			100-yr (1%)	Tier 3
Extreme Heat					
Middle Street Bridge	2070		90th		Tier 3

Scoring Rationale - Project Exposure Score

The purpose of the Exposure Score output is to provide a preliminary assessment of whether the overall project site and subsequent assets are exposed to impacts of natural hazard events and/or future impacts of climate change. For each climate parameter, the Tool will calculate one of the following exposure ratings: Not Exposed, Low Exposure, Moderate Exposure, or High Exposure. The rationale behind the exposure rating is provided below.

Sea Level Rise/Storm Surge

This project received a "Moderate Exposure" because of the following:

- Exposed to the 1% annual coastal flood event as early as 2030
- Located within the 0.1% annual coastal flood event within the project's useful life
- Not located within the predicted mean high water shoreline by 2030

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Historic flooding at the project site
- Maximum annual daily rainfall exceeds 10 inches within the overall project's useful life
- Existing impervious area of the project site is greater than 50%
- No increase to impervious area

Extreme Precipitation - Riverine Flooding

This project received a "High Exposure" because of the following:

- Project site has a history of riverine flooding
- Part of the project is within 500ft of a waterbody and less than 20ft above the waterbody
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is not likely susceptible to riverine erosion

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Existing trees are being removed as part of the proposed project
- Existing impervious area of the project site is greater than 50%
- Located within 100 ft of existing water body
- No increase to the impervious area of the project site

Scoring Rationale - Asset Preliminary Climate Risk Rating

A Preliminary Climate Risk Rating is determined for each infrastructure and building asset by considering the overall project Exposure Score and responses to Step 4 questions provided by the user in the Tool. Natural Resource assets do not receive a risk rating. The following factors are what influenced the risk ratings for each asset.

Asset - Middle Street Bridge
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Loss/inoperability of the asset would have regional impacts
- Infrastructure functions as an evacuation route during emergencies
- Inoperability may moderately impact other facilities, assets, or buildings, but is not expected to affect their ability to operate
- There are no hazardous materials in the asset

Project Climate Resilience Design Standards Output

Climate Resilience Design Standards and Guidance are recommended for each asset and climate parameter. The Design Standards for each climate parameter include the following: recommended planning horizon (target and/or intermediate), recommended return period (Sea Level Rise/Storm Surge and Precipitation) or percentile (Heat), and a list of applicable design criteria that are likely to be affected by climate change. Some design criteria have numerical values associated with the recommended return period and planning horizon, while others have tiered methodologies with step-by-step instructions on how to estimate design values given the other recommended design standards.

Asset: Middle Street Bridge — Infrastructure

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 1000-yr (0.1%)

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

The projected values, Standards, and Guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence.

Applicable Design Criteria

Projected Tidal Datums: APPLICABLE
Note: The site is exposed to Sea Level Rise/Storm Surge, but projected Tidal Datums are not available within the site. Additional site-specific analyses are recommended to identify projected Tidal Datums for the recommended planning horizon. Consult a professional coastal engineer or modeler to estimate projected Tidal Datums based on the recommended Standards and additional outputs provided through this Tool.

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Middle Street Bridge	2050	0.1% (1000-Year)	13.0	13.0	13.0
	2070		14.9	14.9	14.9

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Middle Street Bridge	2050	0.1% (1000-Year)	16.8	13.0	15.4
	2070		18.7	14.9	17.3

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Middle Street Bridge	2050	0.1% (1000-Year)	5.0	0.0	3.2
	2070		5.0	0.0	3.2

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

Projected Scour & Erosion: APPLICABLE
Methodology to Estimate Projected Values

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 100-yr (1%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

The projected values, standards, and guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Middle Street Bridge	2070	100-Year (1%)	11.4	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

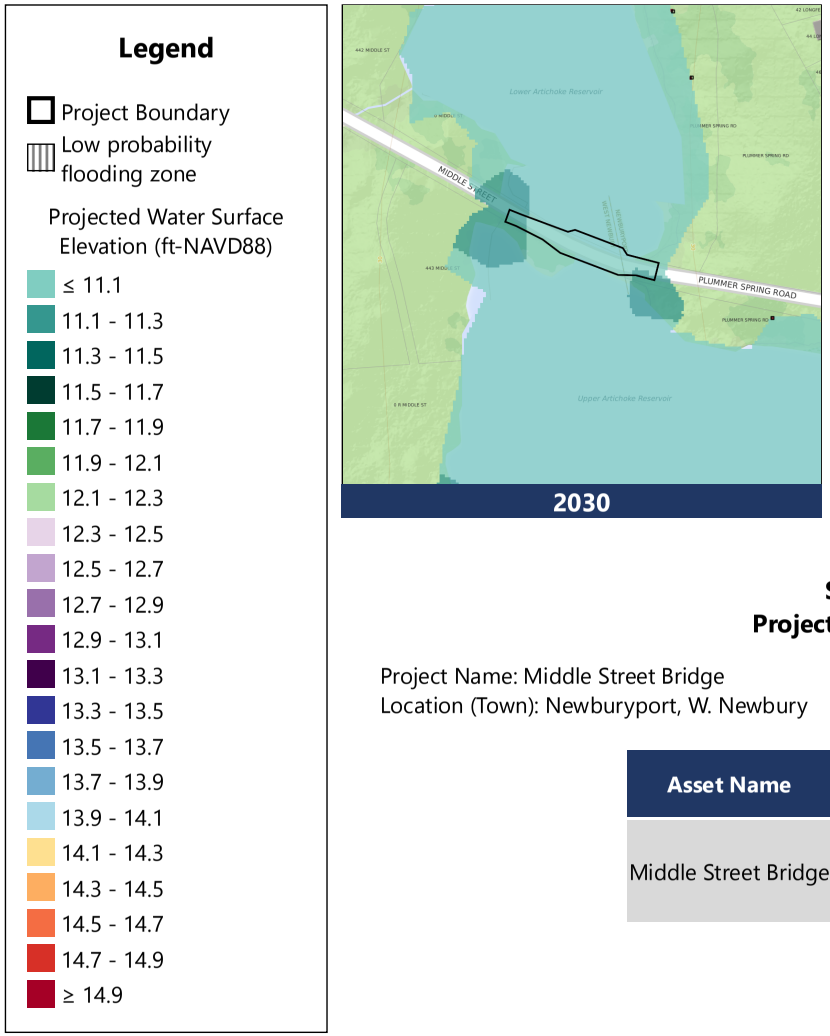
Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

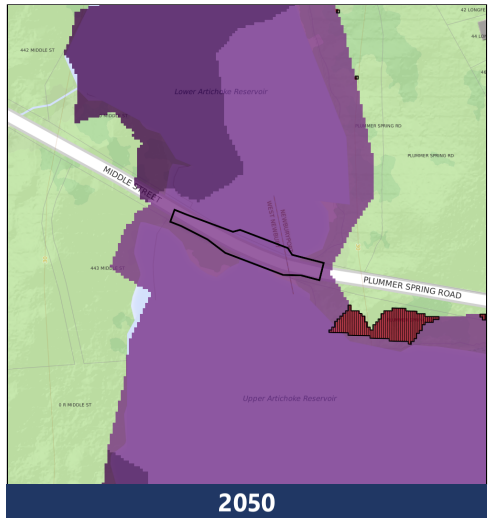
Sea Level Rise/Storm Surge Project Maps

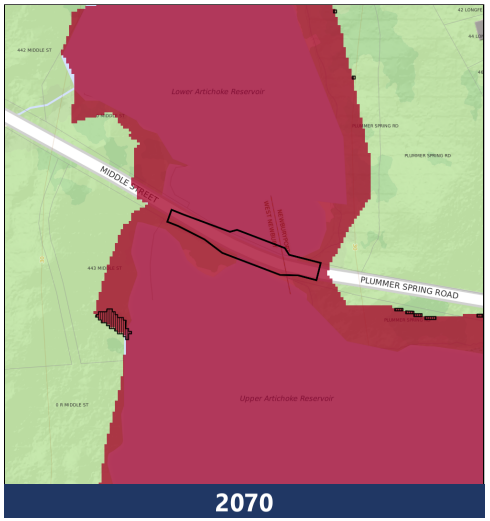
The following three maps illustrate the Projected Water Surface Elevation for the 2030, 2050, and 2070 planning horizons corresponding to the lowest return period (largest design storm) recommended across the assets identified for this project in the Tool. For projects that only have Natural Resource assets, the maps will show the Projected Water Surface Elevations corresponding to the 5% (20-year) return period. Refer to the Climate Resilience Design Standards Output - Sea Level Rise/Storm Surge Section for additional values associated with other assets. The maps include the project area as drawn by the user with a 0.1 mile minimum buffer, but do not reflect the location of specific assets on the site.

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values and maps provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

The projected values, maps, Standards, and Guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence.







Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 0.1% (1000-yr)

Project Name: Middle Street Bridge
Location (Town): Newburyport, W. Newbury

0.25 0.5 1.0 Miles

Created by: 3232.AJennings
Date Created: 6/2/2023
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Middle Street Bridge	2030	0.1% (1000-yr)	11.2	11.1	11.1
	2050	0.1% (1000-yr)	13.0	13.0	13.0
	2070	0.1% (1000-yr)	14.9	14.9	14.9

Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2030, 0.1% (1000-yr)

Project Name: Middle Street Bridge
Location (Town): Newburyport, W. Newbury

0.05 0.1 0.25 Miles

Created by: 3232.AJennings
Date Created: 6/2/2023
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Middle Street Bridge	2030	0.1% (1000-yr)	11.2	11.1	11.1

Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2050, 0.1% (1000-yr)

Project Name: Middle Street Bridge
Location (Town): Newburyport, W. Newbury

0.05 0.1 0.25 Miles

Created by: 3232.AJennings
Date Created: 6/2/2023
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Middle Street Bridge	2050	0.1% (1000-yr)	13.0	13.0	13.0

Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2070, 0.1% (1000-yr)

Project Name: Middle Street Bridge
Location (Town): Newburyport, W. Newbury

0.05 0.1 0.25 Miles

Created by: 3232.AJennings
Date Created: 6/2/2023
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Middle Street Bridge	2070	0.1% (1000-yr)	14.9	14.9	14.9

Project Inputs

Core Project Information

Name:	Middle Street Bridge
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2099
Location of Project:	Newburyport, W. Newbury
Estimated Capital Cost:	$4,406,500
Who is the Submitting Entity?	City/Town W. Newbury Angus Jennings (townmanager@wnewbury.org)
Is this project identified as a priority project in the Municipal Vulnerability Preparedness (MVP) plan or the local or regional Hazard Mitigation Plan (HMP)?	Yes
Is this project being submitted as part of a state grant application?	Yes
What stage are you in your project lifecycle?	Construction
Is climate resiliency a core objective of this project?	No
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process or permitting?	No
Brief Project Description:	The proposed project will replace the desperately needed Middle Street Bridge, connecting West Newbury to Newburyport, across the Artichoke Reservoir. The bridge was closed in July 2018 due to substantial deterioration. Since then, Newburyport and West Newbury secured MassDOT and MassWorks grant funding, and successfully brought the project through permitting; but for a gap in construction funding - which this proposed MassWorks grant would help fill - this important project is "shovel ready."
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project provides recreation
- ✓ Project provides cultural resources/education

Factors to Improve Output

- ✓ Protect public water supply by reducing the risk of contamination, pollution, and/or runoff of surface and groundwater sources used for human consumption
- ✓ Incorporate nature-based solutions that improve water quality
- ✓ Increase biodiversity, protect critical habitat for species, manage invasive populations, and/or provide connectivity to other habitats
- ✓ Identify opportunities to remediate existing sources of pollution
- ✓ Identify opportunities to prevent pollutants from impacting ecosystems

Is the primary purpose of this project ecological restoration?

No

Project Benefits

Provides flood protection through nature-based solutions	No
Reduces storm damage	No
Recharges groundwater	No
Protects public water supply	Maybe
Filters stormwater using green infrastructure	No
Improves water quality	Maybe
Promotes decarbonization	No
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	Maybe
Remediates existing sources of pollution	Maybe
Protects fisheries, wildlife, and plant habitat	Maybe
Protects land containing shellfish	No
Provides pollinator habitat	No
Provides recreation	Yes
Provides cultural resources/education	Yes

Project Climate Exposure

Is the primary purpose of this project ecological restoration?	No
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events	Yes

(unrelated to water/sewer damages)?	
Does the project site have a history of riverine flooding?	Yes
Does the project result in a net increase in impervious area of the site?	No
Are existing trees being removed as part of the proposed project?	Yes

Project Assets

Asset: Middle Street Bridge
Asset Type: Transportation
Asset Sub-Type: Bridge
Construction Type: Major Repair/Retrofit
Construction Year: 2024
Useful Life: 75

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure must be accessible/operable at all times, even during natural hazard event.

Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be regional (more than one municipality and/or surrounding region)

Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 100,000 people

Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

Will the infrastructure reduce the risk of flooding?
No

If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the infrastructure would result in moderate or severe injuries or moderate or severe impacts to chronic illnesses

If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
There are no hazardous materials in the infrastructure

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but cascading impacts do not affect the ability of other facilities, assets, or buildings to operate

If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million

Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
Yes

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
No impact on surrounding natural resources is expected

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist

What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
Reduced morale and public support

Report Comments

N/A

FORM 4.

SECTION 9. CERTIFICATION OF APPLICATION SUBMISSION AUTHORITY

9.1 If the applicant is a public entity, does the submission of this application require a formal vote of any board, commission, or other local entity? If Yes, attachment required.

*[X]*Yes No Not Applicable

If yes, attach a certified copy of the vote taken by the relevant entity.

Vote of Select Board.pdf

9.2 If the applicant is a non-public entity, does the submission of this application require the authorization of the entity's board of directors, or other governing body or bylaw? If Yes, attachment required.

Yes No *[X]*Not Applicable

I, *Angus Jennings* (Submitter Name), hereby certify that I am duly authorized to submit this application on behalf of *Town of West Newbury* (Applicant Organization Name). By entering my name in the space below, I further certify, under the pains and penalties of perjury, that the responses to the questions provided in this application, and the attached documentation, are true, accurate, and complete. I understand that the Executive Office of Housing and Economic Development (EOHED) and its partner organizations, specifically the Department of Housing and Community Development (DHCD) and the Massachusetts Development Finance Agency (MDFA), will rely on the information provided in this application to make decisions about whether to award a grant from their respective funding sources. Also, that the Commonwealth reserves the right to take action against me, the applicant organization, and/or any other beneficiary of a grant, if any of the information provided is determined to be false, inaccurate, or misleading. I also affirm that, if awarded, the applicant organization has the capacity to carry out the project in accordance with all applicable laws and regulations.

6/2/2023 2:02:09 PM

Angus Jennings
Name

*Town Manager***Title**

Date

TOWN OF WEST NEWBURY

James RW Blatchford
Town Clerk

381 Main Street
West Newbury, MA 01985
978-363-1100 ext. 110
Townclerk@wnewbury.org

June 1, 2023

I, James RW Blatchford, Town Clerk of the Town of West Newbury certify that on the 22nd day of May, 2023 at a duly posted and convened meeting of the West Newbury Select Board, on a motion that was duly made and seconded, it was voted, by a vote of three in favor and none opposed, to:

> Authorize the West Newbury Town Manager to pursue and submit the MassWorks grant to receive funding for the Middle Street Bridge project on behalf of the Select Board.

Attest:

James RW Blatchford
Town Clerk

FORM 5.

SECTION 10. OTHER/OPTIONAL ATTACHMENTS

In this section, upload all attachments that support this application.
Applicants may submit other attachments to support the application, which may be reviewed and/or filed. However, please note that these items will generally not be scored or assessed as part of the formal evaluation of the proposal.

Multiple documents may be uploaded to each attachment field, however only one document may be uploaded at a time.

Attachment Type	Description
Other Site Images	**Other site photographs, illustrations, and/or maps.** *_Chapter91_FinalStampedPlans_April19_2023.pdf*
Other Partner Letters	**Letters from any partner organizations that are collaborating on this project.** *Other Partners Letters of Support_Redacted.pdf*
Other Support Letters	**General support letters.** *Other Support Letters_Redacted.pdf*
Other	**Other attachments.** *Middle Street Bridge project slides - 9-23-19.pdf* *MWIP 2019 West Newbury - Plummer - Amd Req (05-2023).pdf*

CITY OF NEWBURYPORT
OFFICE OF THE MAYOR
SEAN R. REARDON, MAYOR

60 PLEASANT STREET - P.O. BOX 550
NEWBURYPORT, MA 01950
978-465-4413 PHONE
MAYOR@CITYOFNEWBURYPORT.COM

June 1, 2023

Executive Office of Housing and Economic Development
1 Ashburton Place, Room 2101
Boston, MA 02108

Dear MassWorks Selection Committee:

This letter is written in support of the Town of West Newbury's MassWorks application for the reconstruction of the Plummer Springs Bridge/Middle Street Bridge that spans and connects both our communities.

The existing bridge was closed over four years ago due to significant structural failure, and since then the City of Newburyport has been working collaboratively with the Town of West Newbury to find a way to reconstruct this bridge. We have heard from vocal residents in both communities who have asked for the reopening of this bridge, which serves as an important neighborhood connection between the two municipalities.

In the years since design and permitting for this project began, reconstruction cost estimates have only grown larger, which further necessitates the need for state aid. The City of Newburyport has many infrastructure needs at this time, and further assistance will help make this project more within our reach. The City has acted as a collaborative partner, dedicating staff time and pursuing grant funds, and we will continue to assist to bring this project to completion.

We will also work with the Town of West Newbury to update our previous Memorandum of Understanding (MOU) to formalize our collaborative efforts and commit to continue working together to construct the new bridge.

The award of this grant is critical for both communities. The estimated cost of $4.4M will be an overwhelming cost burden on the taxpayers in both communities. Any assistance the state can offer will hasten the construction of this community asset.

Thank you for considering this application for a MassWorks Grant and if I can offer any additional support, please feel free to contact me.

Respectfully,

Sean R. Reardon
Mayor

The Commonwealth of Massachusetts
MASSACHUSETTS SENATE
OFFICE OF THE MINORITY LEADER

SENATOR BRUCE E. TARR
MINORITY LEADER
First Essex and Middlesex

STATE HOUSE, ROOM 308
BOSTON, MA 02133-1053
TEL. (617) 722-1600
FAX: (617) 722-1310
BRUCE.TARR@MASENATE.GOV
WWW.MASENATE.GOV

June 1, 2023

Yvonne Hao, Secretary
Executive Office of Economic Development
1 Ashburton Place, Room 2101
Boston, MA 02108

Dear Secretary Hao,

I would like to take this opportunity to express my strong support for the Town of West Newbury. In particular, the town's application for a MassWorks Grant, which would provide the necessary and much needed funds to support completion of the design, permitting, and reconstruction of the Plummer Spring Road Bridge.

With that, I note the objective of this project is to replace the existing failed bridge, which was closed after a collapse was experienced in June 2018. Since then, various, numerous town officials and staff from the Town of West Newbury and the City of Newburyport have been working very closely to advance the project design. By replacing the existing failed bridge, Plummer Spring Road will be reopened with a structure that meets modern safety and design features.

In relation to such, I wish to emphasize the importance of this connection point to the City of Newburyport, which can/should be considered crucial to both communities. With both communities offering mutual aid to one another, this bridge closure will likely and negatively impact the emergency response time to residents in the area. I further note the statistical increase in motor vehicle crashes associated when detouring similar traffic onto higher speed roadways (in this case Route 113).

Moreover, I note that Plummer Spring Road provides access for approximately 80 manufacturing businesses in the Lord Timothy Dexter Industrial Green and also serves as an essential evacuation route for the Seabrook Nuclear Power Station. In this case, the proposed bridge replacement would provide full/requires compliance with federal law(s) requiring an evacuation route be provided for communities within a 10-mile radius of the emergency planning zone. Furthermore, aside from the burdensome 3.4 mile detour currently in place and how such impacts essential delivery of services, I remain very concerned about the environmental impact

associated with the ongoing closure of the Middle Street Bridge, especially given that it traverse's reservoirs that supply drinking water to both Newburyport and West Newbury.

In conclusion, I respectfully request your strongest consideration in support of the Town of West Newbury's MassWorks Grant application. I greatly appreciate your support and encourage you to contact me directly should you have any questions.

Sincerely,

Bruce Tarr
State Senator

Commonwealth of Massachusetts

House of Representatives

State House, Boston 02133-1054

Dear MassWorks Selection Committee,

As the State Representatives representing West Newbury and Newburyport, we write to offer our support of West Newbury's application for an extension and reallocation of a MassWorks Grant supporting the Plummer Spring Road Bridge Replacement Project.

The aim is to replace the existing failed bridge (see attached map and photos), which closed after experiencing a collapse in June 2018. Since then, town officials and staff in both West Newbury and Newburyport have been working closely to advance the project design. The extension of the grant is of the utmost importance as a MassDEP Chapter 91 License was granted on May 5, 2023, providing the final authorization required for the project, making the bridge fully permitted and ready for construction.

This connection point from West Newbury to the City of Newburyport is crucial to both communities. The communities offer mutual aid to each other, and the bridge closures has impacted emergency response times. Further, the bridge's closure has caused an inconvenience and is a potential safety hazard. For example, those who need to access Anna Jacques Hospital in Newburyport cannot get to the hospital promptly due to the extensive delays created by detours. Residents who live and work in these abutting communities are unable to traverse between the two easily, which has had a negative economic impact on residents and businesses alike. The current state of the bridge is not an eye-sore but a missed opportunity to help both communities be safe and flourish.

Please support West Newbury's request for the extension and reallocation of the MassWorks Grant.

Sincerely,

State Representative Adrianne Ramos
14th Essex District

State Representative Dawne Shand
1st Essex District

TOWN OF WEST NEWBURY

Public Safety

401 Main Street
West Newbury, MA 01985
978-363-1213
dwyer@westnewburysafety.org

May 31, 2023

Dear MassWorks Selection Committee,

The Town of West Newbury is applying for a MassWorks Grant in an effort to rebuild the Middle Street bridge in our community. As the West Newbury Police and Fire Chief, I would like to express my support for the grant. We are an on-call fire department who has members that live in West Newbury and surrounding communities including Newburyport. Our response time to our stations have been affected by the current state of the bridge and imposed detours. Also, having all the bridge traffic follow a detour onto a higher speed roadway of Route 113 increases the odds of potential vehicle crashes.

In addition to the access to our stations, we rely heavily on mutual aid response from Newburyport, Newbury, Amesbury and Salisbury. Middle Street is a central access point to our community. We are experiencing delays in response from mutual aid fire departments. Additionally, the Middle Street bridge provides our department and mutual aid departments with access to a major water supply used to transport water to various potential fire incidents in the immediate area. A majority of access to this water supply is on the Newburyport side of this bridge, causing a delay in access or re-routing of emergency crews. This can be catastrophic in our town as we have limited access to municipal fire hydrants, particularly in this area of town, where there is no municipal water and no fire hydrants.

Another impact the closure of the Middle Street Bridge has on our community is the ambulance service. Our ambulance service is provided through a contractor (Cataldo) based in Newburyport. The closure of the Middle Street Bridge, which again, is a central access point from Newburyport to West Newbury, impacts the timeliness in which the ambulance is able to respond to fire and medical calls in our community. They now have to take a longer, and more congested route to get to West Newbury. Increase response time has a detrimental effect on patient care.

Please support our request for the MassWorks Grant.

Sincerely,

Michael Dwyer
Police Chief
Fire Chief

Executive Assistant

From: Lee Delp [redacted]
Sent: Wednesday, May 31, 2023 3:04 PM
To: Town Manager
Subject: Middle Street Bridge

Hi Angus,

Below is my letter as a resident and as EMA Director.

Lee Ann

As a resident of West Newbury since 1986, I cannot stress the importance of keeping Middle Street drivable throughout the Town. I have seen J.B. Little Road close, limiting access out of town through Georgetown. Before I moved to Town, Crane Neck Hill Road closed, which was at one time drivable to Byfield. The Curzon Mill Bridge at the end of Emery Street Lane into Newburyport also closed before I moved to West Newbury. Having egresses in and out of the Town is essential for any type of evacuation.

As the Town's emergency management director for the last ten-plus years, I am concerned that the Middle Street - Artichoke Bridge has not been repaired and remains out of service to vehicles. The bridge provides access in and out of Newburyport and West Newbury. The road runs parallel from Groveland to Newburyport should Route 113 become impassable. This roadway is critical if an emergency requires an evacuation from Newburyport or West Newbury residents.

It is crucial for all to remember that both communities are within the 10-mile Zone Emergency Planning Zone of Seabrook Station Nuclear Power Plant. Drivable egresses are necessary to evacuate the area. Depending on the emergency, residents may be heading south on Route 95 or over to Route 495 through Groveland and Georgetown; no matter which direction, having Middle Street drivable from out of Town, in my opinion, is essential.

Sincerely,

Lee Ann Delp
Resident & EMA Director
Town of West Newbury, MA 01985
[redacted]

Executive Assistant

From: Ray Tiezzi [redacted]
Sent: Wednesday, May 31, 2023 2:53 PM
To: Town Manager
Subject: Support for Artichoke Bridge

TO WHOMEVER THIS MAY CONCERN:
I am writing this letter in support for the renovation of the Artichoke/Middle Street Bridge. Since our residency in West Newbury 43 years our family has enjoyed the recreation provided by this Artichoke wonder including picnics, fishing and simply gazing from the bridge, that artistic , historical wonder. We also miss that bridge as an important connecting road to my daughters home at the corner of Hale and Turkey Hill in Nbpt.
Please see to it that we can secure funding to repair this important bridge so that future generations can enjoy this great benefit of living in the greater Nbpt/West Newbury area!

Ray , Diane and Family
[redacted]Archelaus Hill Road
West Newbury, MA

Sent from my iPhone

Executive Assistant

From: Marge McLaughlin [redacted]
Sent: Wednesday, May 31, 2023 2:49 PM
To: Town Manager
Subject: I support the Middle Street Bridge reconstruction project.

Dear Mr. Jennings,

I read in an email from the Town that residents can help increase the likelihood of being awarded a Mass Works Grant in the FY24 round by communicating to you support for the Middle Street Bridge reconstruction project.

Please accept this letter as evidence of my support for the Middle Street / Artichoke Reservoir Project.

Regards,
Marjorie McLaughlin
[redacted] Georgetown Rd

Executive Assistant

From: John Gregorio [redacted]
Sent: Wednesday, May 31, 2023 2:37 PM
To: Town Manager
Cc: Tara Gregorio
Subject: Middle Street / Artichoke Reservoir Bridge

Hello,
We are writing for the support of funding for this project. The grant is vital for the construction of this project.
Thank you,
John and Tara Gregorio
[redacted]Chase Street
West Newbury, MA 01985

Executive Assistant

From: Cheryl Richardson [redacted]
Sent: Wednesday, May 31, 2023 3:21 PM
To: Town Manager
Subject: Re: Request for support letter, MassWorks grant for Middle Street Bridge

Importance: High

Dear Friends,

I am writing to ask you to PLEASE support the Middle Street bridge project in West Newbury, MA. The bridge is a vital part of our community and we're so close to having it replaced (we've been patiently waiting for years) and we just need the final push of your support.

Thank you in advance for your kind consideration! We are ready for a new bridge!!!

Warmly,
Cheryl Richardson & Michael Gerrish

Executive Assistant

From: beeje bnbwhite.com [redacted]
Sent: Wednesday, May 31, 2023 3:22 PM
To: Town Manager
Subject: Middle Street/Artichoke Reservoir Bridge Project

As West Newbury residents we are strongly in support of this project. The bridge has been closed nearly five years now with no reopening in sight. This is an inconvenience to residents and visitors but also the perpetual state of not-even construction is an eyesore and a detriment to the community. While we understand that the permitting process involved many parties and was time consuming, and then the pandemic set back the project, we are now 30 days away from the original completion date, and no work has begun.

The Greenbelt and wetlands are some of the features that drew us to West Newbury, and we fully support any initiatives that will help to protect the environment as well as drinking water sources. We believe that resources such as these that are readily available to all citizens, not just those in any single town, should be at least partially funded by agencies outside of the town, such as the EPA and the Commonwealth. As residents who hope to retire within a few years and have already seen raised taxes to fund the new Pentucket School, we would appreciate getting some financial support for this important bridge project.

Thank you for considering the grant application to help keep West Newbury safe and environmentally aware for future generations.

Sincerely,

Bridget & Bill White
[redacted] Indian Hill Street
West Newbury

Executive Assistant

From: Richard A. Baker, Jr. [redacted]
Sent: Wednesday, May 31, 2023 4:00 PM
To: Town Manager
Subject: Letter in Support of Funding for the Middle Street Bridge

Hi Angus,

I understand that the Town is seeking resident letters in support of a MassWorks grant to fund the reconstruction of the Middle Street Bridge. I would like to express my support.

The Middle Street Bridge is a key link between the middle and southern areas of West Newbury and the City of Newburyport. For public safety, this bridge is a key access route for ambulance service to West Newbury from the ambulance garage in Newburyport. Once the ambulance has a patient, the closest hospital is Anna Jacques, a straight drive from the Middle Street Bridge to the hospital. And Newburyport Fire Department is a key mutual aid partner for West Newbury; with the Storey Ave Fire Station in Newburyport closed now, Newburyport Fire Departments' best access to West Newbury is over the Middle Street Bridge.

The Town of West Newbury has been steadily losing access to the Town. At one point in time, Georgetown Road went out of Town to Georgetown, Crane Neck Road went through to Byfield, Emery Street went through to Newburyport, and Pikes Bridge Road improved access to Newburyport. Ash Street is often closed due to water, slowing down access to Byfield. The Rocks Village Bridge has been closed for more often than open in the past 7 years, limiting access to Haverhill. There are only a few roads that are reliably open in and out of West Newbury. We cannot afford to lose access out of Town via Middle Street.

The Middle Street Bridge is an important backup to Main Street/Route 113. Should there be an accident or fire on Main Street, traffic must be diverted now for several miles down to Turkey Hill or South Streets because the Middle Street Bridge is not available for traffic.

I request that the Commonwealth of Massachusetts and the Town of West Newbury take all possible actions to reopen the Middle Street Bridge as soon as possible.

Rich Baker
[redacted] Middle Street
West Newbury, MA 01985
[redacted]

Executive Assistant

From: Linda Lucken [redacted]
Sent: Wednesday, May 31, 2023 6:35 PM
To: Town Manager
Subject: Middle Street / Artichoke Reservoir Bridge Letter of Support

Linda Lucken
[redacted] Ash Street
West Newbury, MA 01985

Town of West Newbury
Town Manager
381 Main Street
West Newbury, Ma 01985

As a West Newbury resident, I am expressing my support in the communities' continuing efforts to secure the Artichoke Reservoir Bridge project financing.

The bridge is an important connection between West Newbury and Newburyport, which has been unavailable for 18 months due to a structural failure and poses a substantial cost to both communities.

I understand MassWorks Infrastructure Grant extension or FY24 grant award is extremely critical to the communities' ability to bring this important project to completion.

Sincerely,

Linda Lucken

Executive Assistant

From: Jim and Deb [redacted]
Sent: Wednesday, May 31, 2023 10:25 PM
To: Town Manager
Subject: Middle Street/Artichoke Reservoir Bridge

To Whom It May Concern;

We am writing to express our support to request the extension the Middle Street/Artichoke Reservoir Bridge MassWorks Grant. This project has gone uncompleted for far too long due to Covid, permitting needed and funding that is required from both West Newbury and Newburyport. While the project was slated to be completed June of 2023 it has not been and the MassWorks Grant is set to expire.
This project is vital to the area as it is a main route between two towns and an important route to the local hospital. The road that runs parallel to this road (Rogers Street) also has a bridge in the Artichoke Reservoir that is roughly the same age as the one that failed.
We implore the Commonwealth to extend the MassWorks Grant to allow this much needed project to be completed!

Thank you,
James Thornton
Deborah Rogers-Thornton

Sent from my iPhone

Executive Assistant

From: Jeanne Kelleher [redacted]
Sent: Wednesday, May 31, 2023 8:44 PM
To: Town Manager
Subject: Middle street bridge

Hi there - I am a West Newbury resident and want to express my interest and support in finding the middle street bridge repair. I run and bike over that bridge weekly and it feels unsafe. I look forward to the repairs. We pay a lot of taxes and some of this money should go towards repairing this bridge.
Thank you!
Jeanne Kelleher
[redacted] Main St
W Newbury MA

Sent from my iPhone

Executive Assistant

From: RICH SCHNEIDER [redacted]
Sent: Thursday, June 01, 2023 7:36 AM
To: Town Manager
Subject: Middle Street/Artichoke Reservoir Bridge

To Whom It May Concern:

We are 10 year residents of West Newbury.
As a family of six, we spend a great amount of our time commuting to Newburyport as our children attend the Immaculate Conception School and play several organized sports in town.

We ask that you please reconstruct the Reservoir bridge. We miss the scenic ride and ease of getting into Newburyport, especially during prime-time school morning hours. The congestion of 113 is more than it ever has been.

In addition, our kids would love to begin biking down to the reservoir again. With the bridge down, we haven't allowed them in that area. Further, they can also ride to friend's houses, soccer fields at Cherry Hill in the west end of Newburyport. Riding via 113 is simply not an option due to safety.

We fully support this project and hope to see it kick off really soon!

Rich, Alison, Olivia, Anna, Owen, and Ethan Schneider
[redacted]Chase St. West Newbury

Angus Jennings, Town Manager
381 Main Street
West Newbury, MA 01985

June 1, 2023

To Whom it May Concern:

I am a lifelong resident of West Newbury and am writing in support the town's application for a MassWorks grant to reconstruct the Middle Street Bridge. The bridge has always provided access to Newburyport for the residents of a sizeable section of West Newbury. That access is not simply for convenience but rather is an important piece of the public safety infrastructure. It has provided timely ambulance access to Anna Jaques Hospital and is a route for fire and other public safety vehicles for in-town and regional response, including evacuation related to the nuclear power plant in Seabrook, NH.

Please include this letter of support with the grant application.

Sincerely,

Jennifer Costain
[redacted] Main Street
West Newbury, MA 01985

Executive Assistant

From: ppreeser [redacted]
Sent: Thursday, June 01, 2023 10:55 AM
To: Town Manager
Subject: Middle Street Bridge

Dear Mr. Jennings:

I am writing in support of the Town's effort to obtain funding for the reconstruction of the Middle Street Bridge. The bridge is an important route to I-95 and Newburyport, especially for residents on the western part of West Newbury, in the event of a closure of Route 113.

Thank you for your efforts to have this important connector street re-opened to vehicular traffic.

Regards,

Patricia Reeser
[redacted] Crane Neck Street
West Newbury, Ma.

Letter of Support for the Middle Street Bridge, connecting West Newbury with Newburyport

I am writing in support for rebuilding this bridge. It is one of the most direct and least congested routes from West Newbury to the **hospital** and other medical facilities in Newburyport. At this time, only Highway #113 and South Street into Scotland Road enables one to travel from West Newbury to Newburyport for all services that are not available in West Newbury.

I used this route, almost daily, into Newburyport. Although slower posted speeds than #113, it was faster and safer than traveling the alternatives.

Lastly, maintaining this route will draw people into considering a move to West Newbury, thus expanding the tax base and draw potential employees/volunteers for the town. West Newbury and Newburyport are strongly linked. Although most of the commerce and services are in Newburyport, the quality of life and nature is found in West Newbury.

Thank you.

Catherine Aitken-Smith
June 1, 2023

Executive Assistant

From: Jason Och [redacted]
Sent: Thursday, June 01, 2023 12:00 PM
To: Town Manager
Subject: Letter of support re Middle Street/Artichoke Reservoir Bridge

As a resident of West Newbury who lives on Middle Street, and depends upon the thoroughfare, I am writing this letter of support regarding the town's request for a new MassWorks grant to help fund the Middle Street/Artichoke Reservoir bridge project. The road closure due to the downed bridge has had a substantial negative impact upon local families like mine, and it is unconscionable that such an essential route has remained closed for so long.

This is not merely a matter of convenience. The bridge is the most direct route, for my family and many other residents, to Anna Jaques Hospital, among many other essential medical and non-medical services. Moreover, it is one of only a handful of "escape" routes out of the town in the event of an emergency. (Note that one other key route, the Rocks Village bridge, was inaccessible for extended periods of time in recent years, and if the past is any predictor, it likely will be again.) The road closure has also caused significant delays and confusion for drivers and delivery people, as their maps often direct them to this closed-off route. Lastly, the closure has reduced the ability of West Newbury residents to connect and meet up easily with nearby friends, family, and colleagues in Newburyport, which, because of the COVID pandemic, is more important than ever.

I wholeheartedly endorse the town's request for additional grant funding to repair the bridge and restore this essential thoroughfare.

Sincerely,

Jason Och
[redacted] Middle St, West Newbury

Executive Assistant

From: Peggy Kalashian [redacted]
Sent: Thursday, June 01, 2023 12:32 PM
To: Town Manager
Subject: Plummer Spring Bridge

As a resident of West Newbury and on Garden St I am in full support of having the bridge replaced.
It is a necessary access to Newburyport with quick access to Anna Jacques Hospital.
During the past there were problems when Rocks Village bridge was closed and the Road race in NBPT was happening and Story Ave was closed.
Another problem was also during that time and the bridge to Amesbury/ Salisbury was closed.

Peggy Kalashian
[redacted] Garden St
Sent from my iPhone

Executive Assistant

From: [redacted]
Sent: Thursday, June 01, 2023 1:05 PM
To: Town Manager
Subject: Middle Street Bridge/Plummer Street Bridge

Importance: Low

We are writing in support of building a new Middle Street/Plummer Street bridge connecting West Newbury and Newburyport. Being longtime residents of West Newbury, we would use Middle Street as an alternative to Route 113 to get to or come from Newburyport or Newbury. But a more pressing reason is the fact that Middle Street should be an option to Route 113 in the case of an emergency and Route 113 had to close, which is impossible if the bridge is out. With the bridge reopened it is an easy and direct way to use Middle Street , which turns into Center Street in Groveland, to reach the city of Haverhill without ever using route 113.

Regards,

Linda and Kevin Massey
[redacted] Bachelor street, West Newbury, Ma.

Executive Assistant

From: Maryalice Groves [redacted]
Sent: Thursday, June 01, 2023 12:49 PM
To: Town Manager
Subject: Middle Street/Artichoke Reservoir Bridge

To Whom It May Concern,
I'd like to express my support for the requested grant application to provide the much needed monies to complete the repairs that are so long over due. West Newbury has completed the arduous process by obtaining all the necessary permits for this historical and sensitive location and habitat.

As a birder, and nature lover with limited mobility, it is important to me that this town have recreational areas that all can access. It has been years since anyone outside that neighborhood hood, or can hike in to access this spot. It is not just a shortcut!

Please support the Board of Selectmen and other committees efforts by providing the funds that will enable West Newbury to complete this project.

Kind regards,

Maryalice Groves
[redacted] Farm Lane
West Newbury, MA 01985

Executive Assistant

From: PETER A RINGENBACH [redacted]
Sent: Thursday, June 01, 2023 2:27 PM
To: Town Manager
Subject: bridge repair

Hi Angus,
Please add my and Jeanne's name to the list of residents that support funding the rebuild of the bridge over the artichoke. It is not only a great connector to the people that live on the south side of town but I believe is an escape route if something happens to the Seabrook plant.
Thanks.
Hope this finds you well!
Peter and Jeanne Ringenbach
[redacted] River Road

Executive Assistant

From: Elizabeth DiGiuseppe [redacted]
Sent: Thursday, June 01, 2023 2:29 PM
To: Town Manager
Subject: Middle Street Bridge

We are in strong support of the repairs that need to be made to allow the Middle Street Bridge to reopen to vehicular traffic. We have been residents on Middle Street for 50 years and until it was closed used it almost daily to get to and from Newburyport. It is also a vital way to get to Newburyport for residents, first responders and emergency vehicles if something happens on Route 113. In the past there have been times when accidents on 113 have forced traffic to be detoured onto Middle Street using the Middle Street Bridget to get to and from Newburyport and access to Anna Jaques Hospital.
Since the bridge has been closed it it has continued to deteriorate. Walkers, joggers, horseback riders and motorcyclists continue to be allowed to use the bridge but I am concerned that nothing continues to be done it may become unsafe for even them to use it. Please repair and restore this bridge as soon as possible!

Elizabeth and Thomas DiGiuseppe
[redacted] Middle Street
West Newbury, MA
Sent from my iPad

Executive Assistant

From: John Dodge [redacted]
Sent: Thursday, June 01, 2023 3:40 PM
To: Town Manager
Subject: Middle St. bridge letter

To Whom it may concern:

I am voicing my strong support for the rebuilding of the Middle St. Bridge connecting Newburyport and West Newbury. This vital roadway is the shortest route between our town and the local hospital (Anna Jaques). As a retired firefighter, I know every second counts when lives are at stake. It's unfortunate this critical link spanning the Artichoke Reservoir has been closed to vehicles for so long.

I urge you to strongly consider funding this critical and overdue project.

Very truly yours,

John Dodge and Ann Dooley
[redacted]Olde Parish Way
West Newbury, MA 01985

Executive Assistant

From: Jessica Azenaro [redacted]
Sent: Thursday, June 01, 2023 4:54 PM
To: Town Manager
Subject: Re: Middle Street/Artichoke Reservoir Bridge Support

Dear Angus:

I am writing as a resident of West Newbury to support the Artichoke Reservoir Bridge project and in favor of the FY2024 MassWorks Grant application necessary to fund the restoration.

West Newbury residents should have alternate routes other than 113. The Rocks Village Bridge closure highlighted how cut off our town could be when faced with an emergency. For the safety of our town, I strongly support construction and completion of the bridge.

Best regards,
Jessica Azenaro
[redacted] Prospect Street, West Newbury, MA 01985

Executive Assistant

From: David Archibald
Sent: Thursday, June 01, 2023 7:39 PM
To: Town Manager
Subject: Middle Street Bridge

Dear Honorable Select Board:

Reconstruction of the Middle Street Bridge is a necessity to the town of West Newbury. It is of one of the limited number of egress points for residents, commercial vehicles and and public safety personnel. In past years other bridges and roads out of town have been lost . This puts more pressure on existing roads in a town that is in the Seabrook Nuclear Plant evacuation zone.
As an exit and entrance point to the Town ultimately connecting to Route 95 reopening this bridge will diminish traffic on other over used municipal roads.
As the project has now been fully permitted, it would be a massive waste if it was not brought to fruition.
For all these reasons, please do all in your power to complete it.

Sincerely,

Marilyn and David Archibald
[redacted] Cherry Hill St
West Newbury

Sent from my iPhone

SUPPORT FOR MIDDLE STREET BRIDGE RECONSTRUCTION PROJECT

June 2, 2023
Town Management
Town of West Newbury
381 Main Street
West Newbury, MA 01985

To Whom It May Concern,

First and foremost, I would like to thank the Town of West Newbury Management for not allowing the Middle Street bridge reconstruction project to be forgotten. It is very important and relevant due to the proximity to my family and friends' properties. I grew up in West Newbury on the very street I reside today. I remember riding bikes with friends to go fishing at both the Middle Street and Rogers Street bridges. I remember driving my first car across both bridges. And, I remember the disappointment of the decommissioning of the Middle Street bridge. In my mind, it is a tale of two streets/bridges and you can not have one with out the other.

The Middle Street bridge shutdown had and still has a significant impact on the surrounding streets. Rogers Street sees more traffic due to being an obvious detour of Middle Street/Plummer Springs bridge. The increase in traffic, especially large trucks, will decrease the longevity of the Rogers Street bridge. This same statement was made regarding the idea of not allowing large trucks across the Rocks Village bridge and the effect it would have on the Chain and Groveland bridges. The detour has forced more traffic down Turkey Hill Road which has its tight sections along the reservoir between large road adjacent boulders and unguarded embankments. This has created an increased risk for pedestrians, bicycle riders, nature hobbyists, etc. A good amount of the traffic traveling down Turkey Hill Road/Rogers Street seems to be speeding which would suggest that it is re-routed thru-traffic. It is becoming a more personal issue with every passing day as a new generation is being raised on Rogers Street and in the surrounding the neighborhood.

Also, I understand that rebuilding and reopening the Middle Street bridge may have the opposite effect on residents on Middle Street. Some may not support the completion of this project due to their appreciation of the peace that the decommissioned bridge brings. They may also be concerned with the return of thru-traffic that will likely use excessive speeds. Therefore, I will suggest increasing hazard signage (narrow bridge, sharp turn, wildlife crossing, winding road, etc.), decreasing the general speed limits on all three streets (Middle, Rogers, Turkey Hill) to 25 mph, and 15mph across the bridges and through hazard areas.

I remember reading a statement in the Daily News by a Newburyport City Management official regarding the lack of prioritization of the bridge reconstruction project. It was something along the lines of, "I like the idea of having a pedestrian bridge in the area." I walk across that bridge weekly, and the condition of the bridge shows how out of touch some people may be regarding the issue. What safety inspections are being made to qualify the bridge suitable for pedestrians every year? Without any rehabilitation, the disrepair to the bridge will continue, and in time, it will be impassable by bicycle and then foot. The thought of losing the Middle Street bridge entirely due to inaction would be such a shame. Eventually, the Rogers Street bridge will succumb to the influx of traffic and hopefully not experience the same road blocks to reconstruct. Everything degrades with time and requires financial planning to prevent sticker shock. Please consider this a teaching moment for future town infrastructure depreciation.

Citizen of West Newbury,

Jeffrey Caron

[redacted] Rogers Street

West Newbury, MA 01985

Executive Assistant

From: Elisa Grammer [redacted]
Sent: Friday, June 02, 2023 5:25 AM
To: Town Manager
Subject: Support for restoration of Middle Street Bridge & request for action re: heavy truck damage

Dear Mr. Jennings:

This will express my support for reconstruction of the Middle Street Bridge. As Chair of the Town's Climate Change Resiliency Committee, I am concerned that West Newbury is vulnerable to flooding and other events that may require evacuation. In this context, the loss of routes in and out of Town is concerning--particularly in view of the unavailability of Georgetown Road, the persistent habit of trucks to make the Rocks Bridge unavailable for months on end, the loss of Crane Neck Street as a thoroughfare, etc.

A related issue of perhaps equal importance is preservation of the roadways we do have--and recognition of the damage caused by heavy trucks. As seen in the saga of the Rocks Bridge, the fact is that heavy trucks can and do seriously damage the roads, bridges, and related infrastructure. A particular concern is the impact of heavy truck traffic on River Road, which is highly vulnerable to erosion and flooding, and whose shoulder at the riverside frequently crumbles into the water, as occurred this spring.

It appears irresponsible in terms of tax dollar expenditures as well as public health and safety to rebuild transportation infrastructure damaged by heavy truck traffic without consideration of the strong likelihood that heavy truck traffic will cause the same kind of damage all over again.

Thank you for your consideration.

Very truly yours,

--
Elisa J. Grammer

[redacted]

6/1/2023

Mr. Angus Jennings
West Newbury Town Manager
381 Main Street
West Newbury, MA 01985

Dear Mr. Jennings:

We are writing in support of the Middle Street/Artichoke Reservoir Bridge restoration project as this is a vital, direct, and safer alternate passage to and from Newburyport, Massachusetts, which includes the Anna Jaques hospital.

With the closure of the Middle Street bridge, vehicular traffic on Rogers Street has increased tremendously. There is a concern that the Rogers Street bridge could be compromised in the future due to this additional vehicular traffic.

Sincerely,

Heather Caron

Robert Caron

Heather Caron
Robert Caron
[redacted] Rogers Street
West Newbury, MA. 01985

Executive Assistant

From: [redacted]
Sent: Friday, June 02, 2023 8:25 AM
To: Town Manager
Subject: Middle Street Bridge

Follow Up Flag: Follow up
Flag Status: Flagged

Town Manager And Select Board
We feel that the Middle Street Bridge is very important to the tax payers of West Newbury it provides safety for us Police, Fire and Medical Services
also it provides evacuation routes for SEABROOK STATION

Thank You Buddy and Louise Beard

June 2, 2023

Town Manager
Town of West Newbury
Town Offices
381 Main Street
West Newbury, MA 01985

Greetings:

I am writing this letter in support of funding for the reconstruction and re-opening of the Middle Street/Artichoke River bridge that connects (or, used to connect) West Newbury to Newburyport.

This bridge enabled safe egress/access between the two municipalities for about a hundred years until it was closed about six years ago due to the bridge's structural failing.

Unfortunately, this bridge failure and consequent closing of this route in only one part of a dangerous pattern of egress/access closures that have occurred in West Newbury over the past decade or so. Crane Neck Street, a dirt road with an uneven surface, used to be a means of egress/access from West Newbury to Byfield. Now it is no longer passable at all. The same is true for Georgetown Road which used to connect Westbury and Georgetown. It runs through an MA Wildlife Management Area and, while a few years back it was passable (but challenging), it is now blocked off completely. Ash Street, a gravel road running from West Newbury into Byfield is often closed sporadically due to flooding and due to snows in winter, and therefore cannot be counted on for egress/access.

In the interest of safety in the event of the need for emergency access/exit, the Middle Street/Artichoke River bridge should be re-built and re-opened as soon as possible.

Respectfully,

Patricia L. Skibbee

Patricia L. Skibbee
[redacted] *Main Street*
West Newbury, MA 01985

Executive Assistant

From: Jean Lambert [redacted]
Sent: Friday, June 02, 2023 11:00 AM
To: Town Manager
Subject: In Support of Fixing the Middle Street Bridge

To the West Newbury Select Board and Town Manager

_____

Hello Wendy, Rick, Chris, and Angus,

My husband John and I strongly support the repair of the Middle Street bridge and the grant application to help fund that repair.

The Middle Street bridge is vital to West Newbury for several reasons:
1) **Traffic** - It makes sense to have more than one way to get to Newburyport in terms of traffic load on our streets.
2) **Safety** - It makes it much safer for all West Newbury residents to have access to Middle Street with a working bridge
a) in case the only other route (Main Street/Route 113) is closed off by some disaster - by fire, downed trees, etc. - or
b) in the case of a necessary and sudden evacuation of our town.

For several years now, town residents have put up with the bridge being closed because we had to, but we miss it and want it back for safety and better traffic flow. Also, it is a pretty road to take as a drive and we all should be able to access it.

Thank you for considering our perspective on the bridge restoration.

Warm regards,
Jean T. Lambert

_____
Dr. Jean Trescott Lambert
[redacted] River Road

To the Town of West Newbury

RE:Middle Street Bridge.

Please repair the bridge.
I attended the original meeting with regard to replacement and the Newburyport Representative said they were at fault and would share in the cost. Looks like they are really not interested in being a good neighbor.

We live on Browns Lane (Dead end) and the only choices we have to go shopping is via Garden to Main with 5 plus lights or Rogers to Turkey Hill that is Curvy, and scary narrow around the water.

This is a direct shot to the hospital – recently had to go to emergency room – at night so light glare on the main road was quite daunting and the curvy road scary.

Hate to be a Grinch but to get this done need to close to all foot, bike, motorcycle, road races and horse traffic so those who use it currently as a private path vote for replacement.

Please Repair The Bridge.

The Fini Family
[redacted]Browns Lane

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS

PE

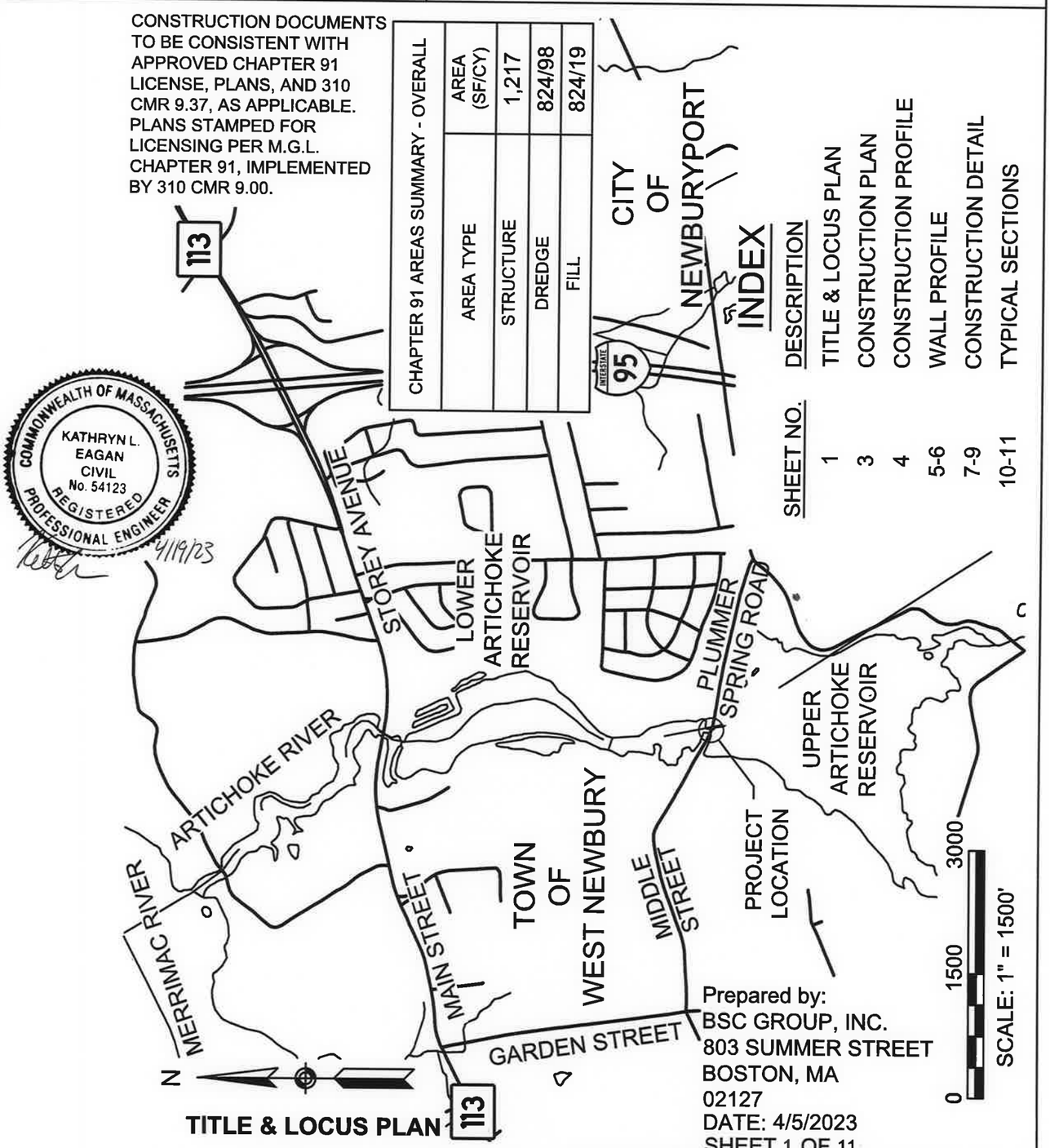
4/19/23
DATE

FOR REGISTRY USE ONLY

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE. PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

CHAPTER 91 AREAS SUMMARY - OVERALL	
AREA TYPE	AREA (SF/CY)
STRUCTURE	1,217
DREDGE	824/98
FILL	824/19

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER
4/19/23



INDEX

SHEET NO.	DESCRIPTION
1	TITLE & LOCUS PLAN
3	CONSTRUCTION PLAN
4	CONSTRUCTION PROFILE
5-6	WALL PROFILE
7-9	CONSTRUCTION DETAIL
10-11	TYPICAL SECTIONS

Prepared by:
BSC GROUP, INC.
803 SUMMER STREET
BOSTON, MA
02127
DATE: 4/5/2023
SHEET 1 OF 11

TITLE & LOCUS PLAN

PLAN ACCOMPANYING PETITION OF
CITY OF NEWBURYPORT
TOWN OF WEST NEWBURY
TO CONSTRUCT AND MAINTAIN A
CONCRETE SPAN BRIDGE,
UPPER ARTICHOKE RESERVOIR,
NEWBURYPORT AND WEST NEWBURY,
MIDDLESEX COUNTY

LICENSE PLAN NO. WW01-0000187
Approved by Department of Environmental Protection of Massachusetts
MAY 5, 2023

KEY

ORDINARY HIGH WATER (OHW) ELEV 12.6'

100-YR FLOOD ZONE AE, ELEV 13

FLAGGED WETLAND

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE. PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

CITY OF NEWBURYPORT
WATER DEPARTMENT
NO BK PG AVAILABLE

NEWBURYPORT
WEST NEWBURY

MIDDLE STREET

COUNTY LAYOUT 1851

EXIST BRIDGE (TO BE REMOVED)

N

EP 3

EP

EP 4

EP

UPPER ARTICHOKE RESERVOIR

CITY OF NEWBURYPORT
WATER DEPARTMENT
NO BK PG AVAILABLE

FLAGGED BANK (TYP)

PLUMMER SPRING ROAD
PARCEL ID 92-1
CITY OF NEWBURYPORT
WATER DEPARTMENT
NO BK PG AVAILABLE

100-YR FLOOD
ZONE AE ELEV 13',
FIS-25009C0116F

COUNTY LAYOUT 1851

EP 5

EP

EP 6

EP

PLUMMER SPRING ROAD

OHW
ELEV 12.6' (TYP)

PLUMMER SPRING ROAD
PARCEL ID 91-7
CITY OF NEWBURYPORT
WATER DEPARTMENT
NO BK PG AVAILABLE

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED
PROFESSIONAL ENGINEER

4/19/23

Approved by Department of Environmental Protection
LICENSE PLAN NO. WW01-0000187
Date: MAY 5, 2023

UPPER ARTICHOKE RESERVOIR

0 40 100

SCALE: 1" = 40'

EXISTING PLAN
DATE: 4/5/2023
SHEET 2 OF 11

FOR REGISTRY USE ONLY

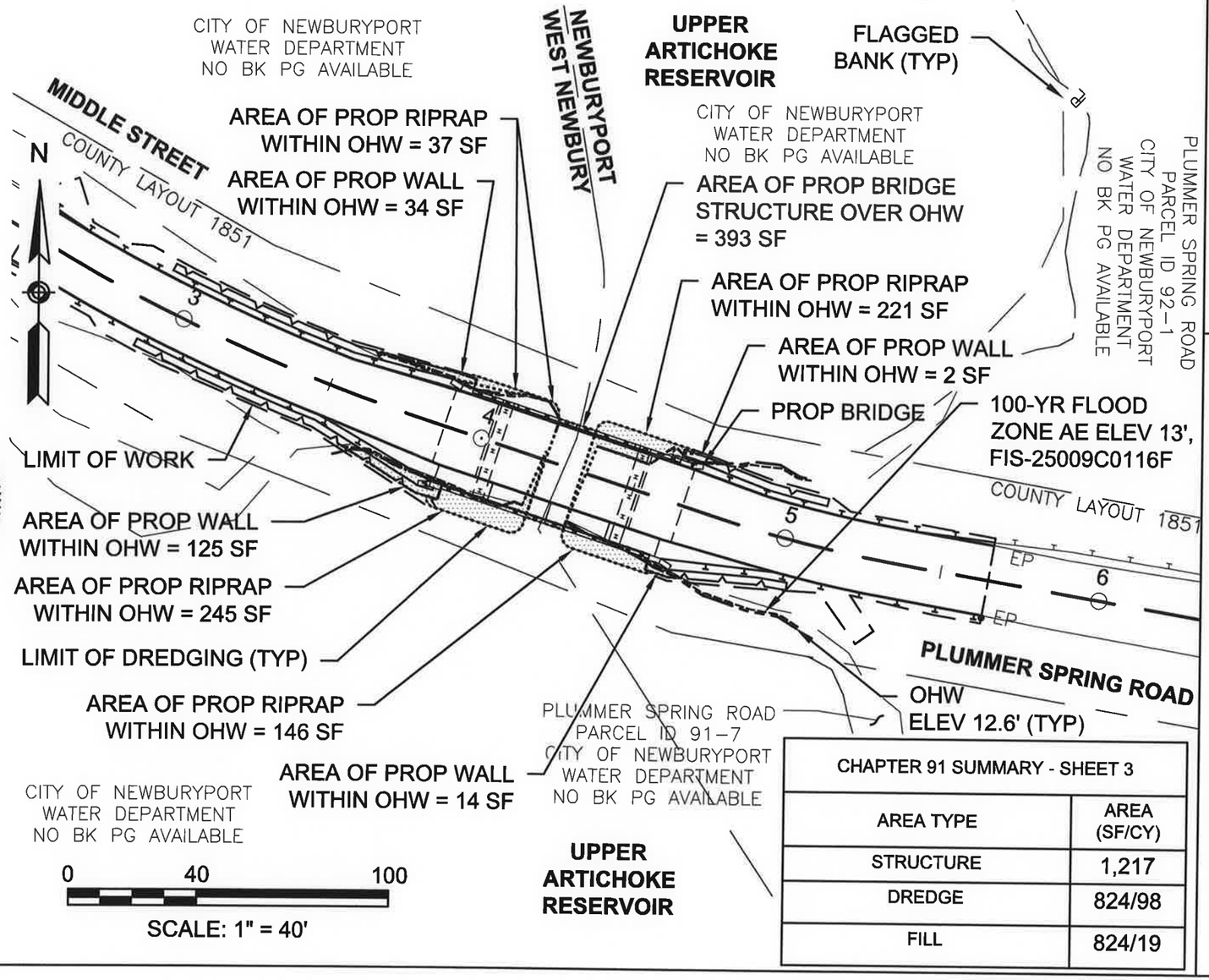
I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS

PE

4/19/23
DATE

LICENSE PLAN NO. WW01-0000187
Approved by Department of Environmental Protection
Date: MAY 5, 2023

KEY
ORDINARY HIGH WATER (OHW) ELEV 12.6'
100-YR FLOOD ZONE AE, ELEV 13
FLAGGED WETLAND



CHAPTER 91 SUMMARY - SHEET 3	
AREA TYPE	AREA (SF/CY)
STRUCTURE	1,217
DREDGE	824/98
FILL	824/19

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE.
PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER

4/10/23

CONSTRUCTION PLAN
DATE: 4/5/2023
SHEET 3 OF 11

FOR REGISTRY USE ONLY

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PE

4/4/23
DATE

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS

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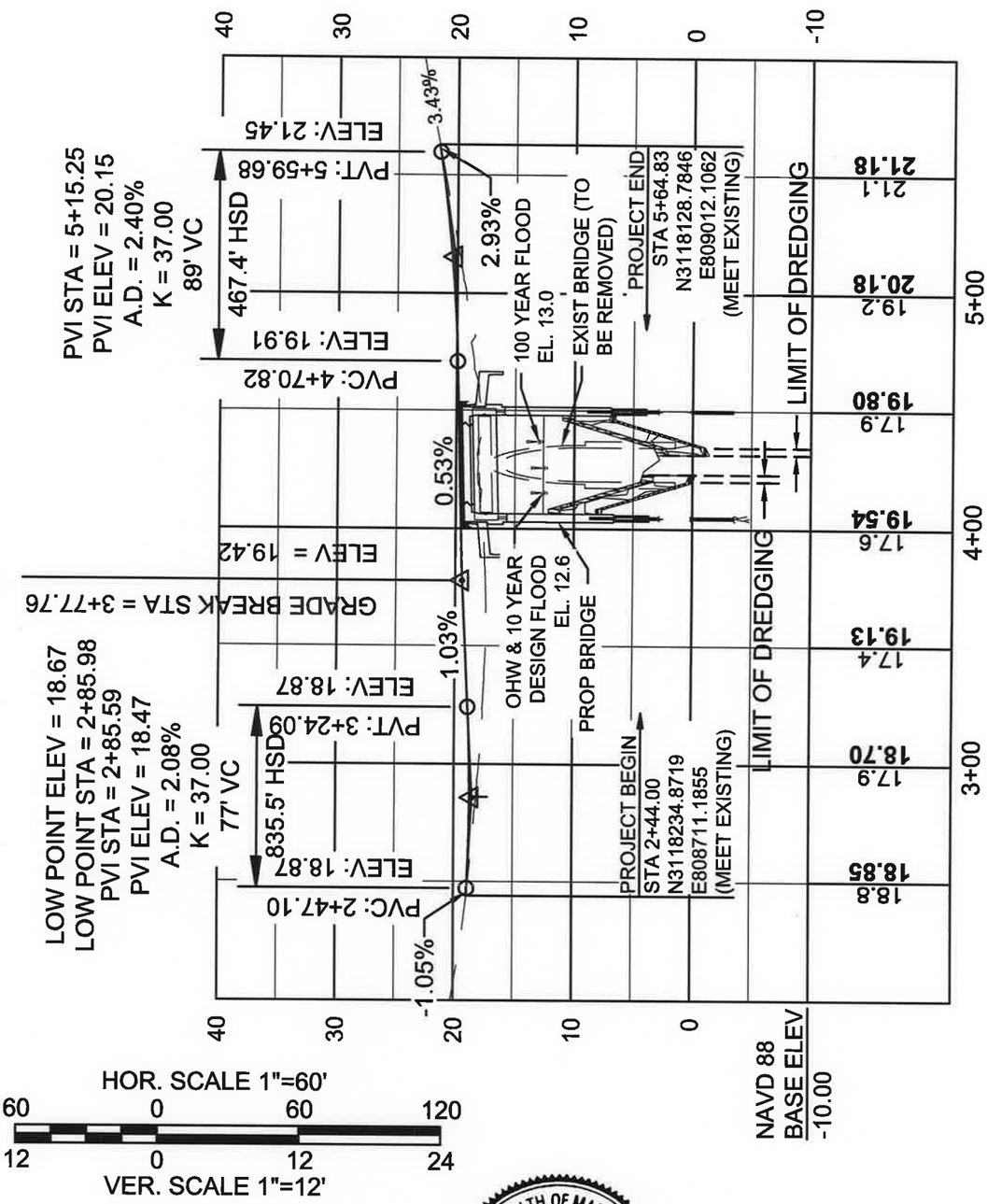
4/19/23
DATE

FOR REGISTRY USE ONLY



HOR. SCALE 1"=60'

60 0 60 120

12 0 12 24

VER. SCALE 1"=12'

LICENSE PLAN NO. WW01-0000 187
Approved by Department of Environmental Protection
Date: May 5, 2023

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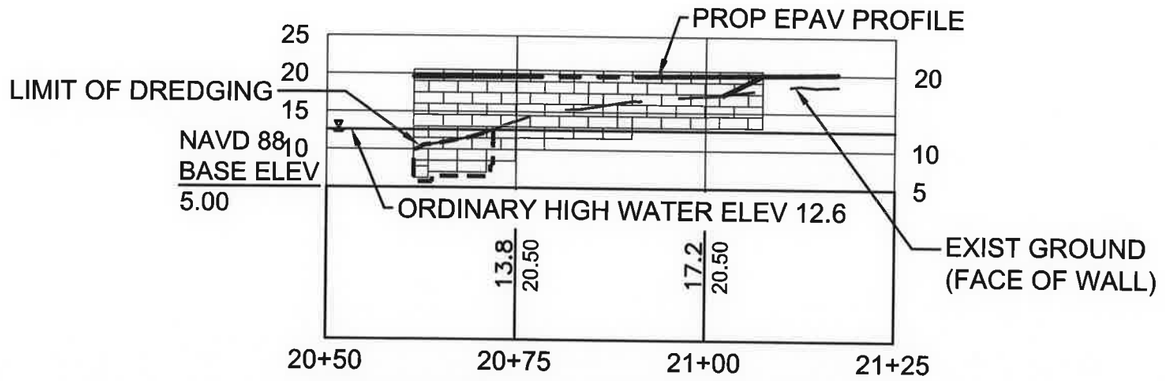
COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER
4/19/23

CONSTRUCTION PROFILE

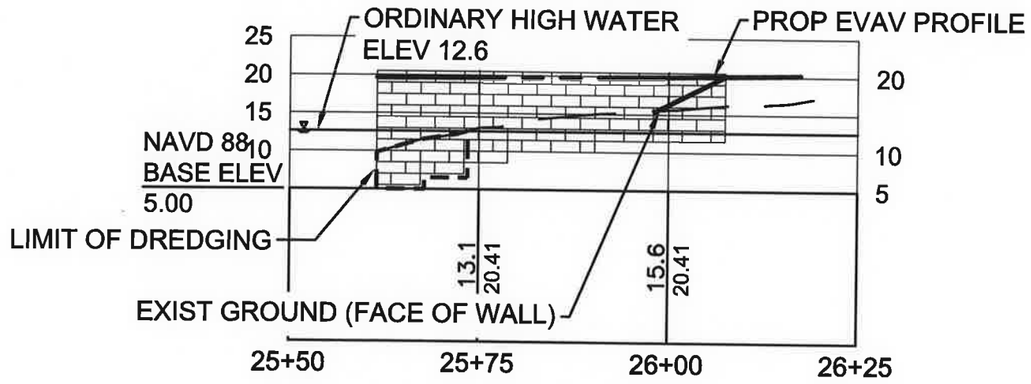
DATE: 4/5/2023

SHEET 4 OF 11

LICENSE PLAN NO. WW01-0000187
Approved by Department of Environmental Protection
Date; May 5, 2023



SOUTHEAST MODULAR BLOCK WALL - ELEVATION VIEW
SCALE: 1" = 20' HORIZ.
SCALE: 1" = 20' VERT.



NORTHEAST MODULAR BLOCK WALL - ELEVATION VIEW
SCALE: 1" = 20' HORIZ.
SCALE: 1" = 20' VERT.

SCALE: 1" = 20'

4/19/23

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE. PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

FOR REGISTRY USE ONLY

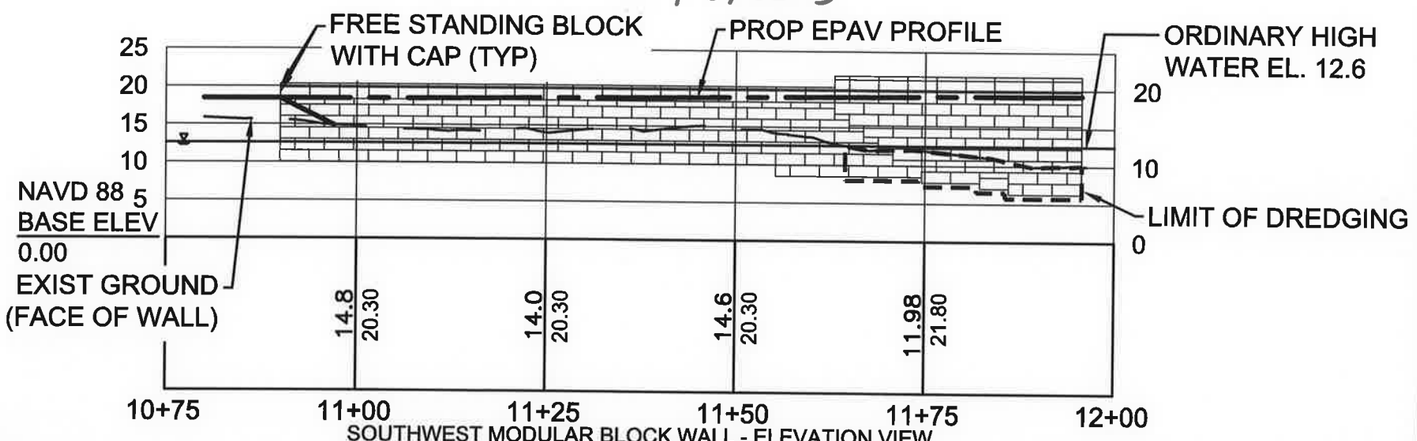
I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS

PE

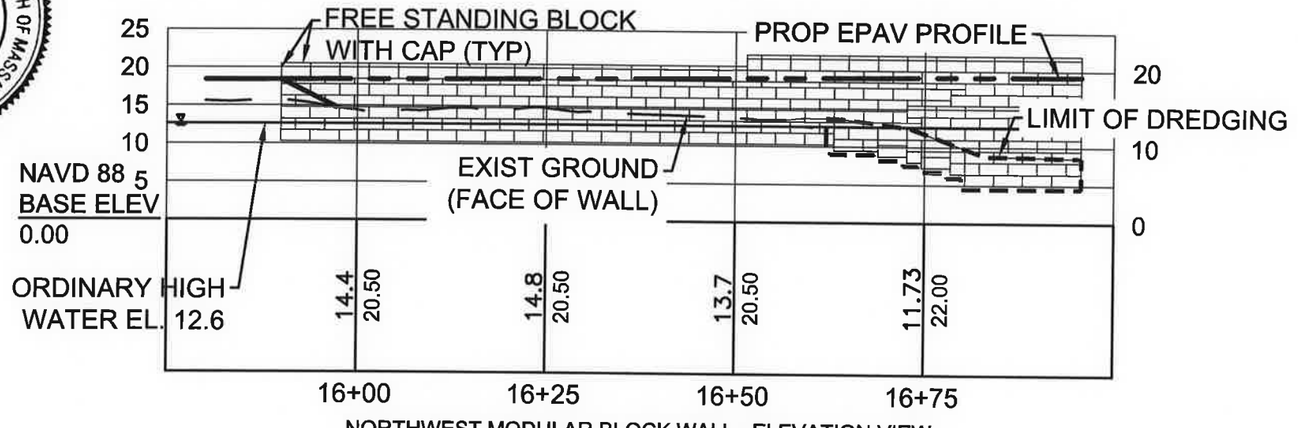
DATE 4/19/23

WALL PROFILE
DATE: 4/5/2023
SHEET 5 OF 11

LICENSE PLAN NO. WW01-0000187
Approved by Department of Environmental Protection
Date: May 5, 2023



SOUTHWEST MODULAR BLOCK WALL - ELEVATION VIEW
SCALE: 1" = 4' HORIZ.
SCALE: 1" = 4' VERT.



NORTHWEST MODULAR BLOCK WALL - ELEVATION VIEW
SCALE: 1" = 20' HORIZ.
SCALE: 1" = 20' VERT.

0 20 50 100

SCALE: 1" = 20'

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER
4/14/23

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE. PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

FOR REGISTRY USE ONLY

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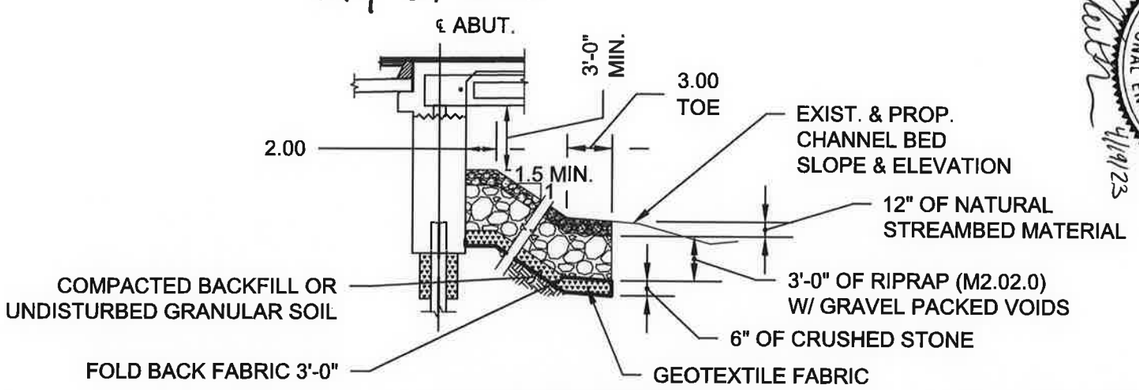
PE

4/14/23
DATE

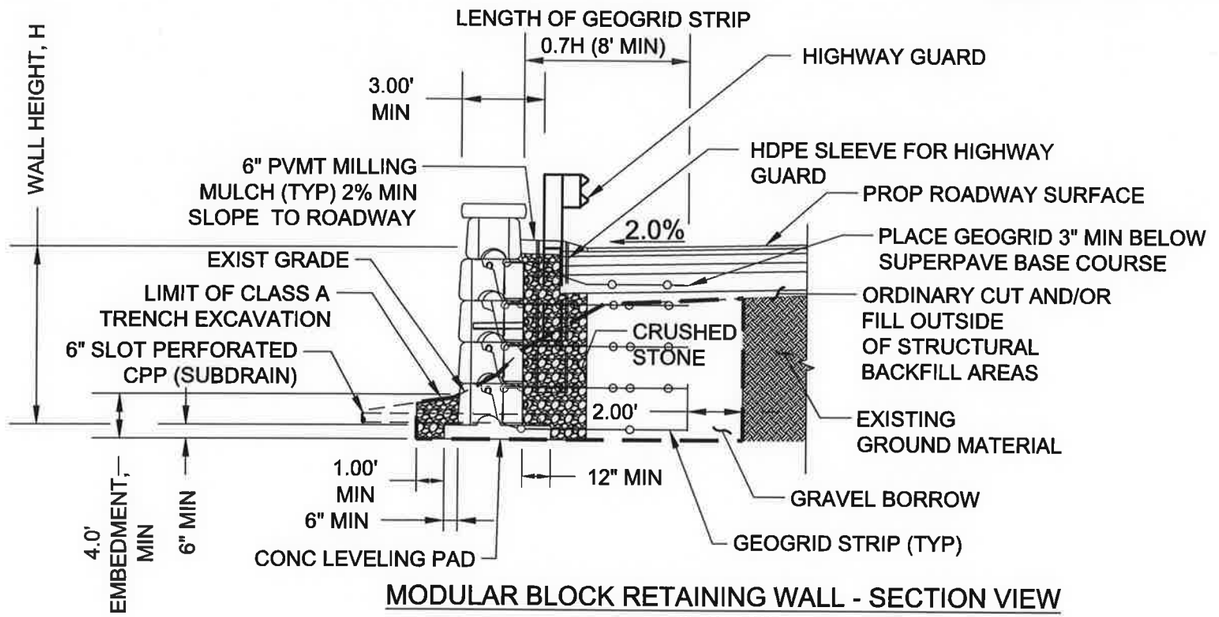
WALL PROFILE
DATE: 4/5/2023
SHEET 6 OF 11

LICENSE PLAN NO. WW01-0000187
Approved by Department of Environmental Protection
Date; MAY 5, 2023



SCOUR PROTECTION DETAIL
1" = 10'

0 5 10 15 20
SCALE: 1" = 10'



MODULAR BLOCK RETAINING WALL - SECTION VIEW
NOT TO SCALE

CONSTRUCTION DETAIL
DATE: 4/5/2023
SHEET 7 OF 11

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE. PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER
4/14/23

FOR REGISTRY USE ONLY

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PE

4/19/23
DATE

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Approved by Department of Environmental Protection
Date; May 5, 2023

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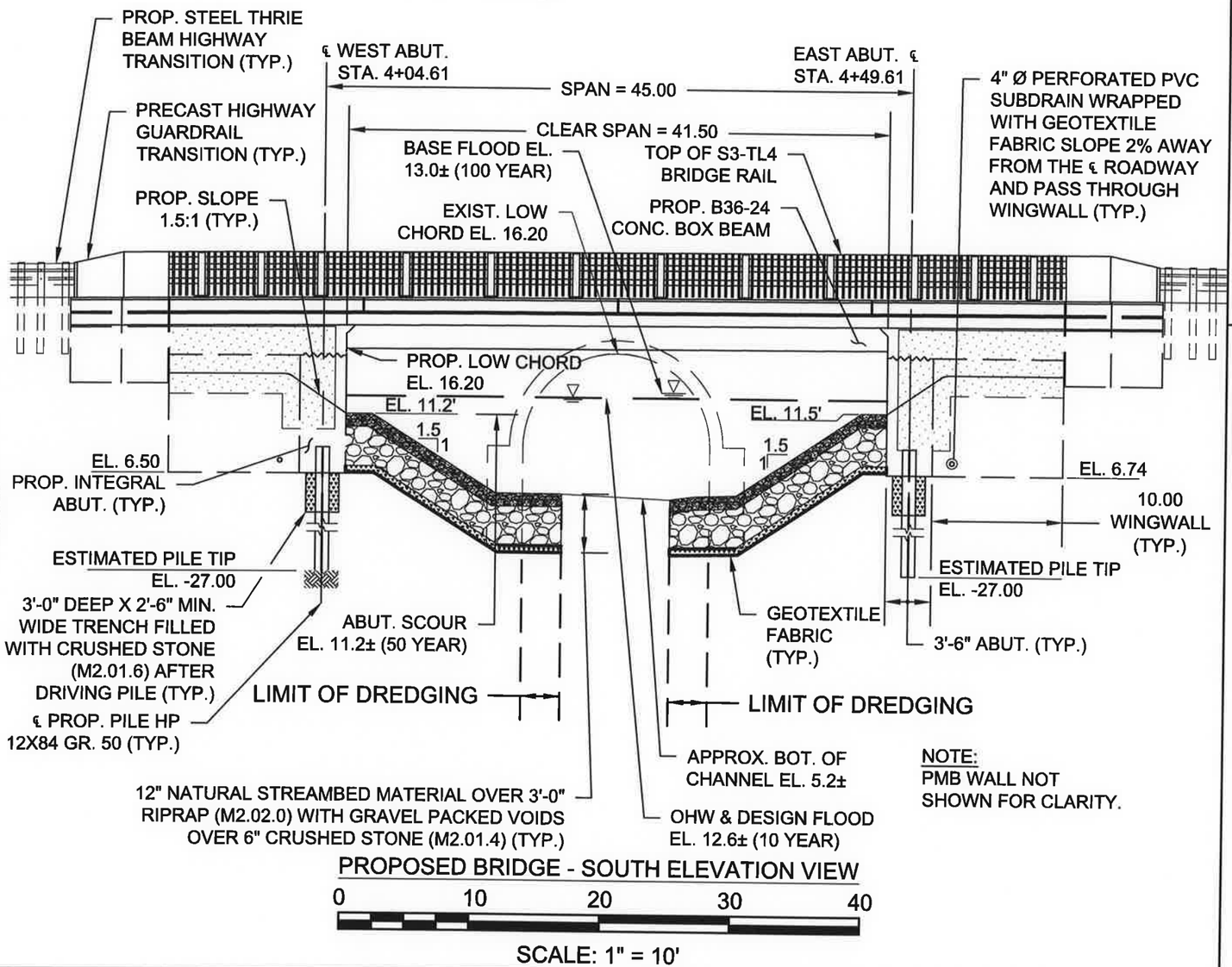


PROPOSED BRIDGE - SOUTH ELEVATION VIEW

0 10 20 30 40

SCALE: 1" = 10'

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
REGISTERED PROFESSIONAL ENGINEER
No. 54123
CIVIL
4/19/23

CONSTRUCTION DETAIL
DATE: 4/5/2023
SHEET 8 OF 11

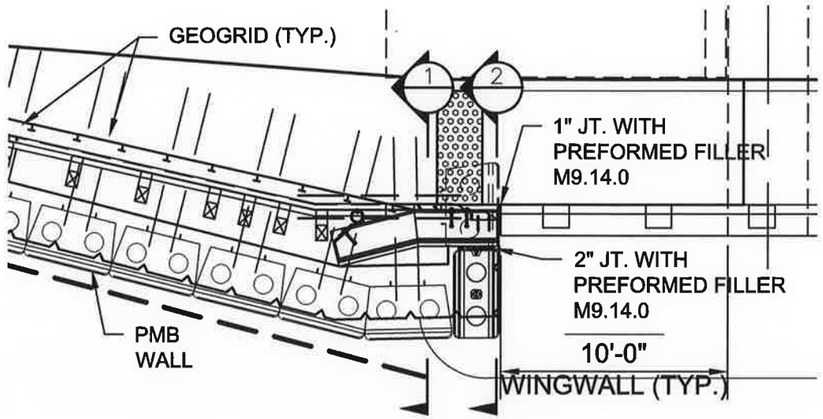
FOR REGISTRY USE ONLY

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS

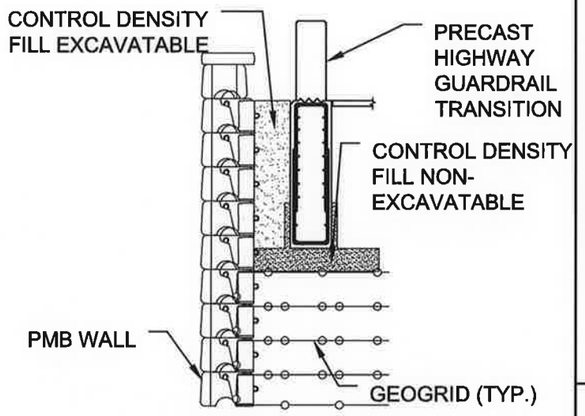
PE

4/19/23
DATE

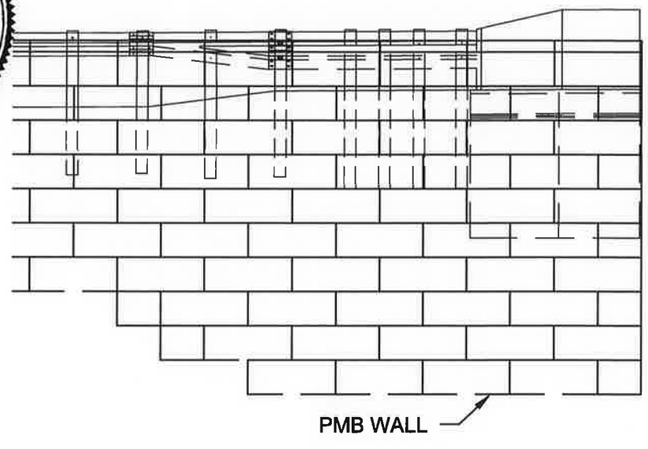
LICENSE PLAN NO. WW01-0000187
Approved by Department of Environmental Protection
Date; MAY 5, 2023



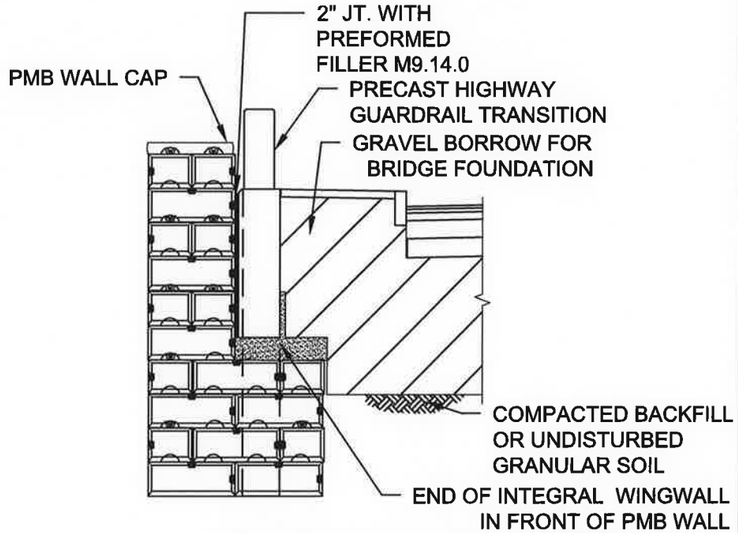
PLAN - PMB WALL
NOT TO SCALE



SECTION 1 - PMB WALL
NOT TO SCALE



ELEVATION - PMB WALL
NOT TO SCALE



SECTION 2 - PMB WALL CORNER
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER

4/19/23

CONSTRUCTION DETAIL

DATE: 4/5/2023
SHEET 9 OF 11

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE.
PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

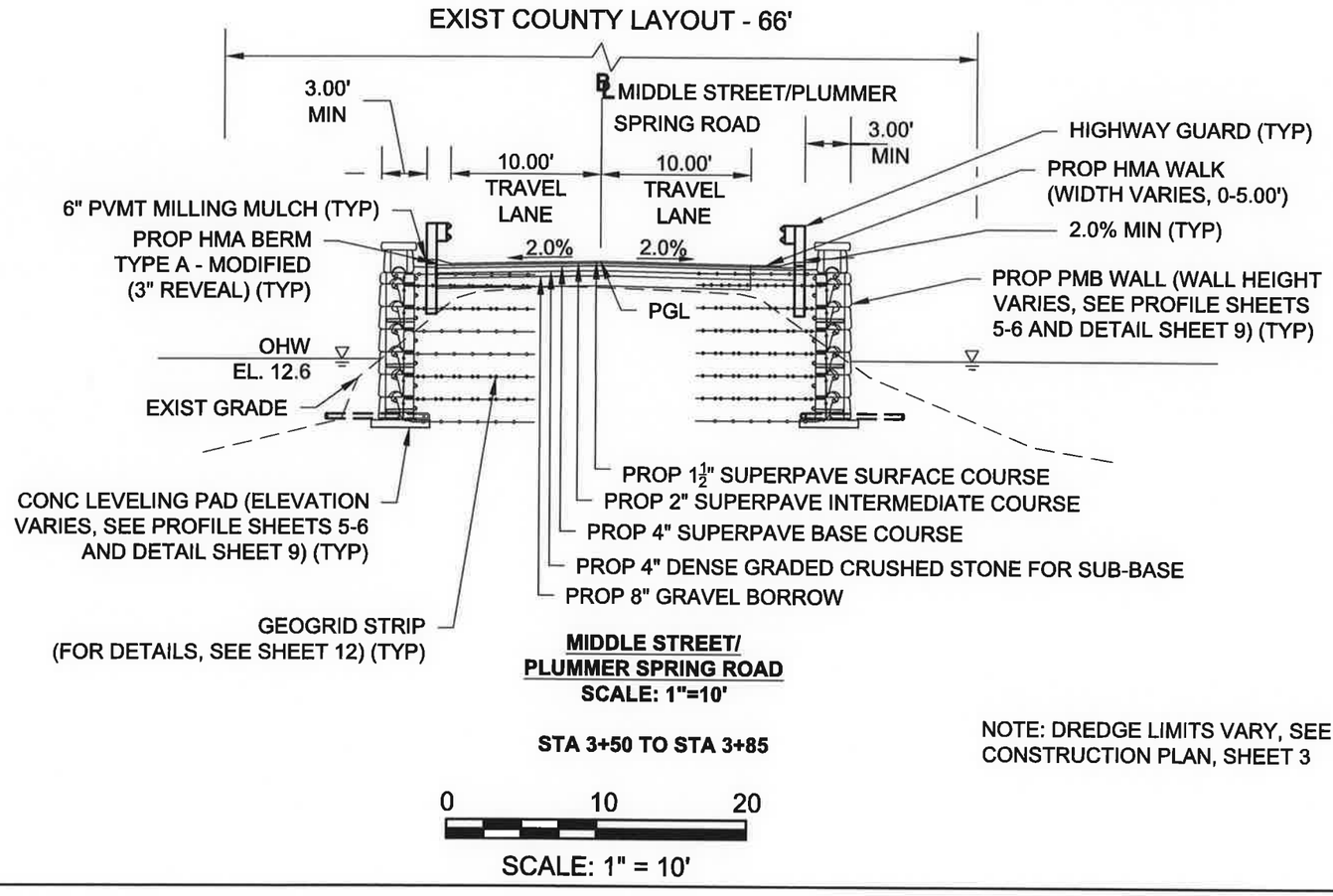
FOR REGISTRY USE ONLY

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS

PE

DATE 4/19/23

CONSTRUCTION DOCUMENTS TO
BE CONSISTENT WITH APPROVED
CHAPTER 91 LICENSE, PLANS, AND
310 CMR 9.37, AS APPLICABLE.
PLANS STAMPED FOR LICENSING
PER M.G.L. CHAPTER 91,
IMPLEMENTED BY 310 CMR 9.00.



MIDDLE STREET/
PLUMMER SPRING ROAD
SCALE: 1"=10'

STA 3+50 TO STA 3+85

NOTE: DREDGE LIMITS VARY, SEE CONSTRUCTION PLAN, SHEET 3

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER
4/19/23

FOR REGISTRY USE ONLY

I CERTIFY THAT THIS PLAN CONFORMS TO
THE RULES AND REGULATIONS OF THE
REGISTERS OF DEEDS

PE

4/19/23
DATE

LICENSE PLAN NO. WW01-0000184
Approved by Department of Environmental Protection
Date: MAY 5, 2023

TYPICAL SECTIONS

DATE: 4/5/2023
SHEET 10 OF 11

FOR REGISTRY USE ONLY

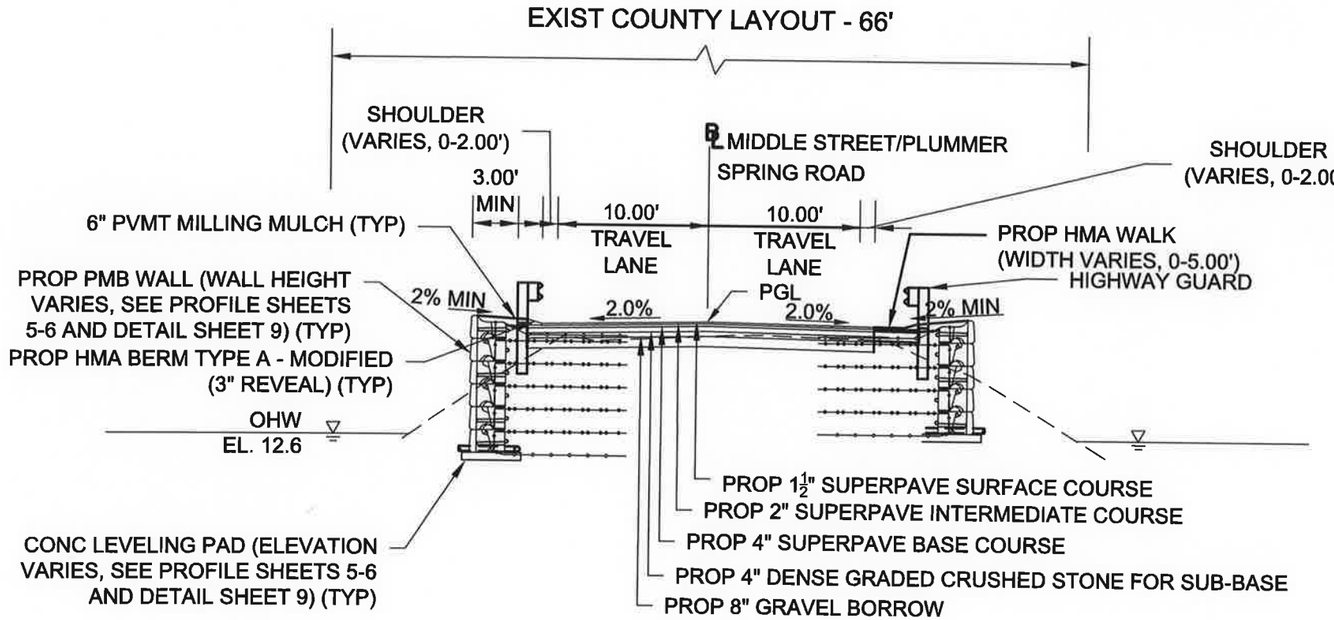
I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS

PE

DATE 4/19/23

COMMONWEALTH OF MASSACHUSETTS
KATHRYN L. EAGAN
CIVIL
No. 54123
REGISTERED PROFESSIONAL ENGINEER

EXIST COUNTY LAYOUT - 66'



MIDDLE STREET/
PLUMMER SPRING ROAD
SCALE: 1"=10'

STA 4+69 TO STA 5+10

NOTE: DREDGE LIMITS VARY, SEE CONSTRUCTION PLAN, SHEET 3

0 10 20

SCALE: 1" = 10'

CONSTRUCTION DOCUMENTS TO BE CONSISTENT WITH APPROVED CHAPTER 91 LICENSE, PLANS, AND 310 CMR 9.37, AS APPLICABLE.
PLANS STAMPED FOR LICENSING PER M.G.L. CHAPTER 91, IMPLEMENTED BY 310 CMR 9.00.

Approved by Department of Environmental Protection
Date: MAY 5, 2023
LICENSE PLAN NO. WW01-0000184

TYPICAL SECTIONS
DATE: 4/5/2023
SHEET 11 OF 11

Newburyport

- **Donna D. Holaday – Mayor**
- Jon-Eric White P.E. **– City Engineer**
- **Matthew Coogan – Chief of Staff**

West Newbury

- **Selectmen – David Archibald, Chairman; Glenn Kemper; Richard Parker**
- **Angus Jennings – Town Manager**
- **Wayne Amaral – DPW Director**

BSC Group

- **Peter Reed P.E.** – Director of Transportation
- **Micah Morrison P.E., S.E.** – Manager of Structural Engineering

Plummer Spring Road / Middle Street Bridge Replacement

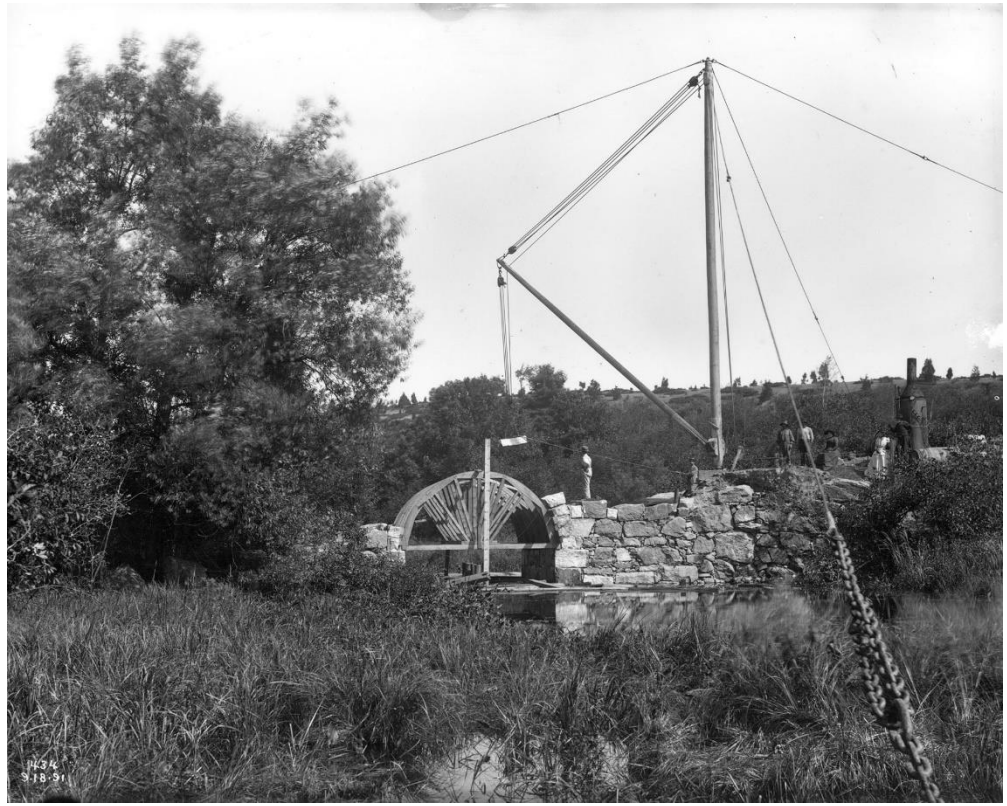
September 23, 2019

Plummer Spring Road Bridge Replacement Project

Owner – Newburyport / West Newbury

Design Consultant – BSC Group

Anticipated Schedule – Subject to funding appropriation, goal is to start construction spring 2021. Estimated one year construction duration.



Artichoke Bridge on Middle Street – John White Winder, 1891 (Source: Images of America: West Newbury. Susan Poore Follansbee and Jane Wallace Wild).

BSC GROUP

Collaboration & Project Complexity

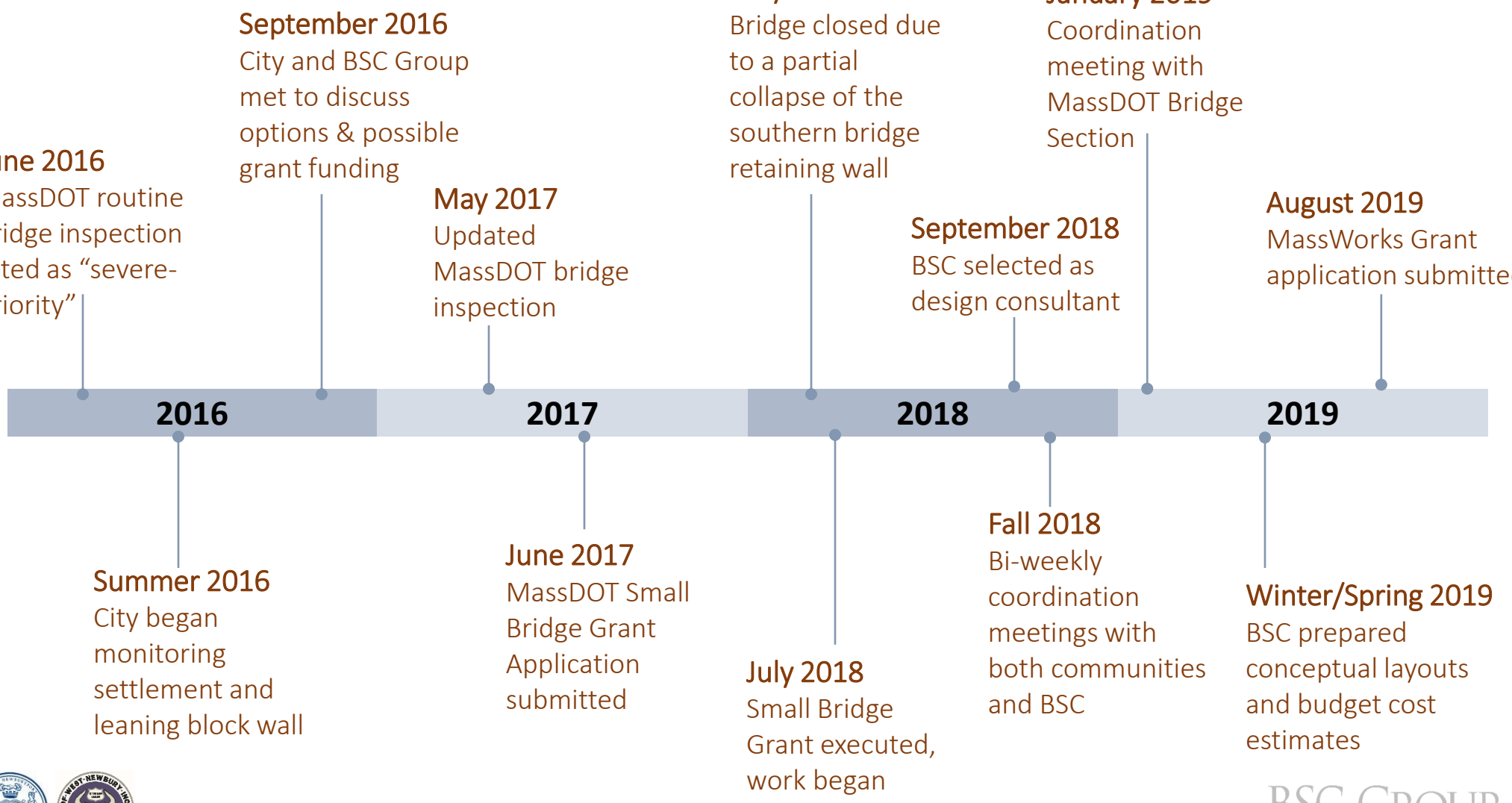
Collaborative Effort -

- Bridge straddles Town/City line
- Provided mutual assistance on grant applications
- Joint meetings between communities

Project Complexity -

- Project located within drinking water reservoir – permitting and construction implications
- Depth of water – requires extensive cofferdams
- Poor soil condition – requires pile support
- Minimal existing roadway width

Project History



BSC GROUP

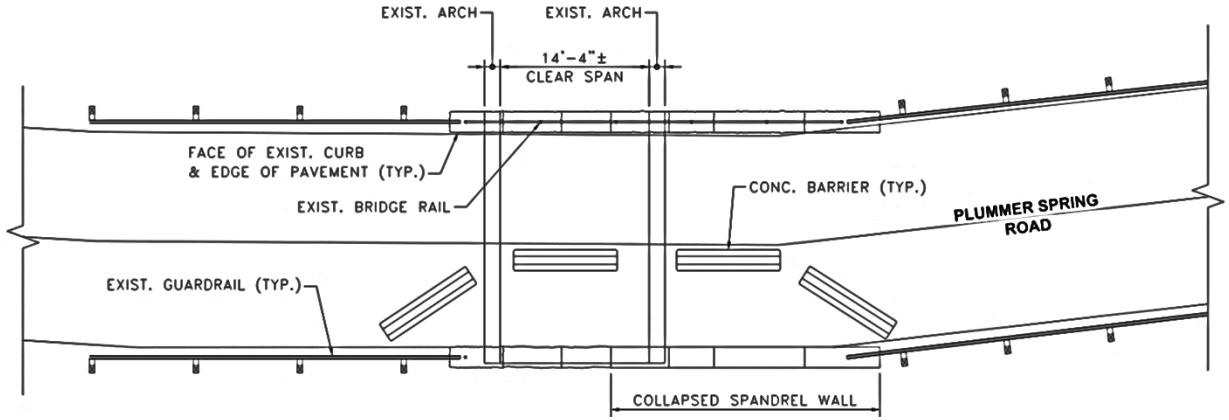
Existing Bridge

- Existing structure built in 1890
- Due to partial collapse bridge is closed to vehicular traffic and needs to be replaced
- Overall width is 24 feet
- Bridge roadway width is 20 feet
- Existing span length is 14 feet

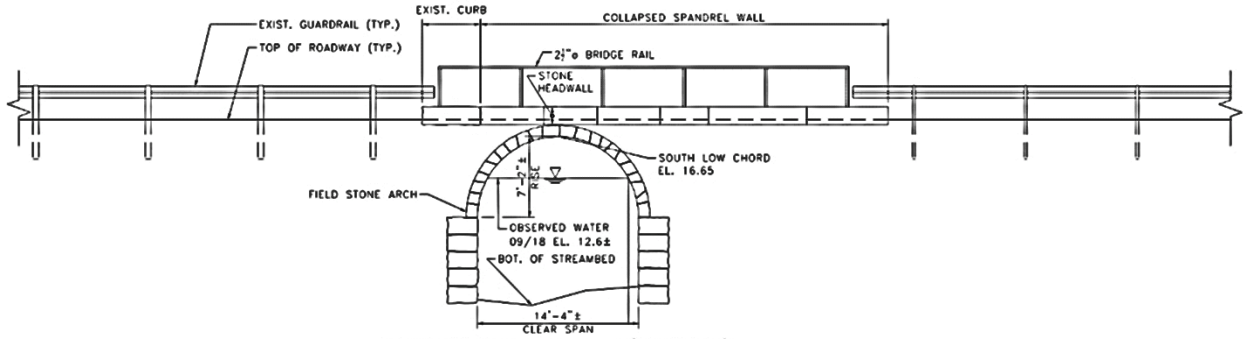
BSC GROUP

Existing Bridge

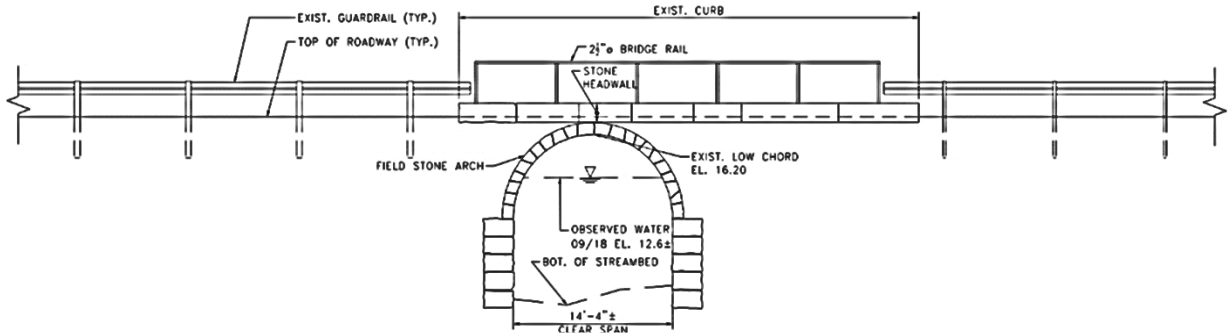
Existing Plan



Existing South Elevation (Upstream)



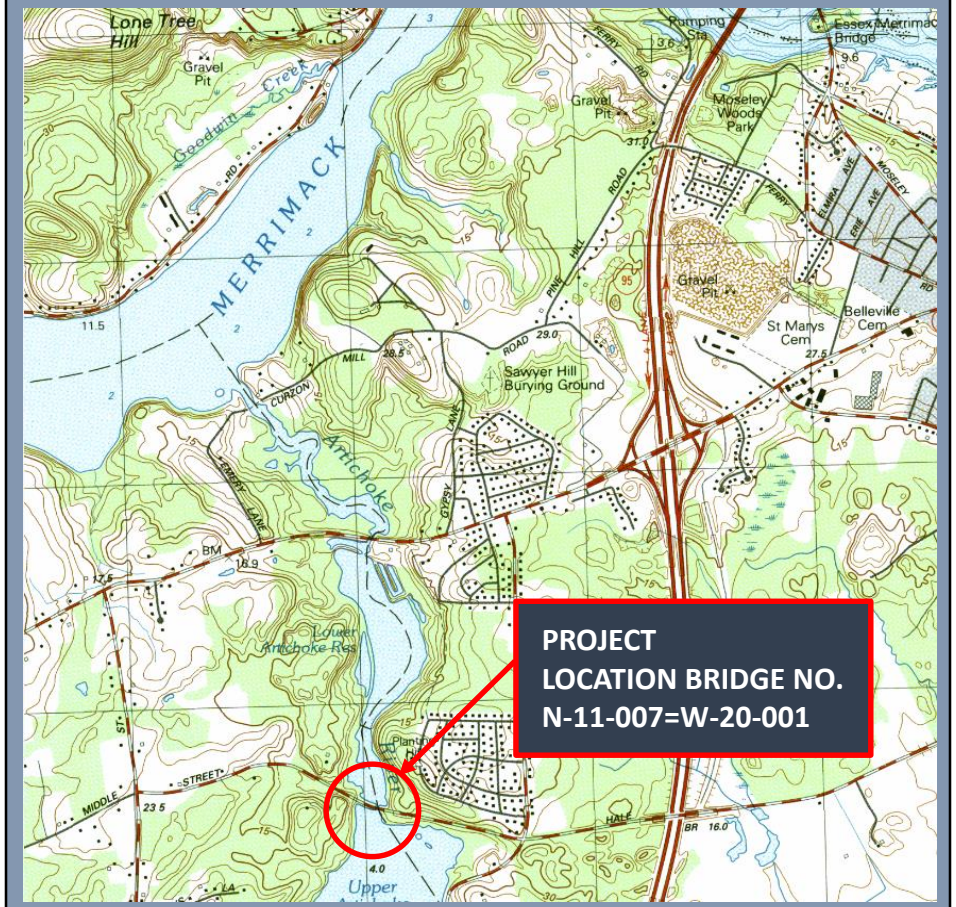
Existing North Elevation (Downstream)



BSC GROUP

Project Location

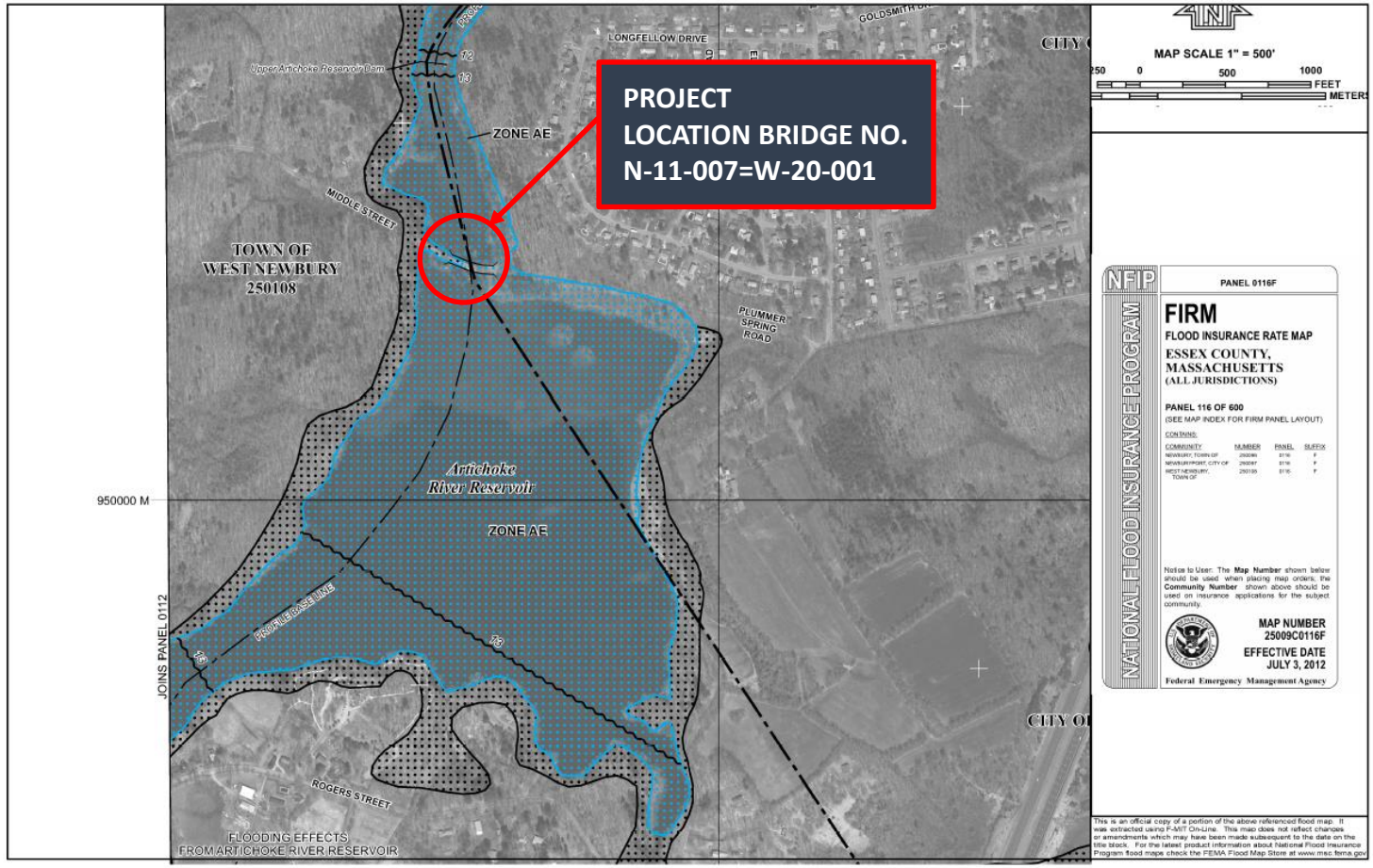
NEWBURYPORT/ WEST NEWBURY –
Plummer Spring Rd. Over Artichoke Reservoir



PROJECT LOCATION MAP

BSC GROUP

Floodplain Area



BSC GROUP

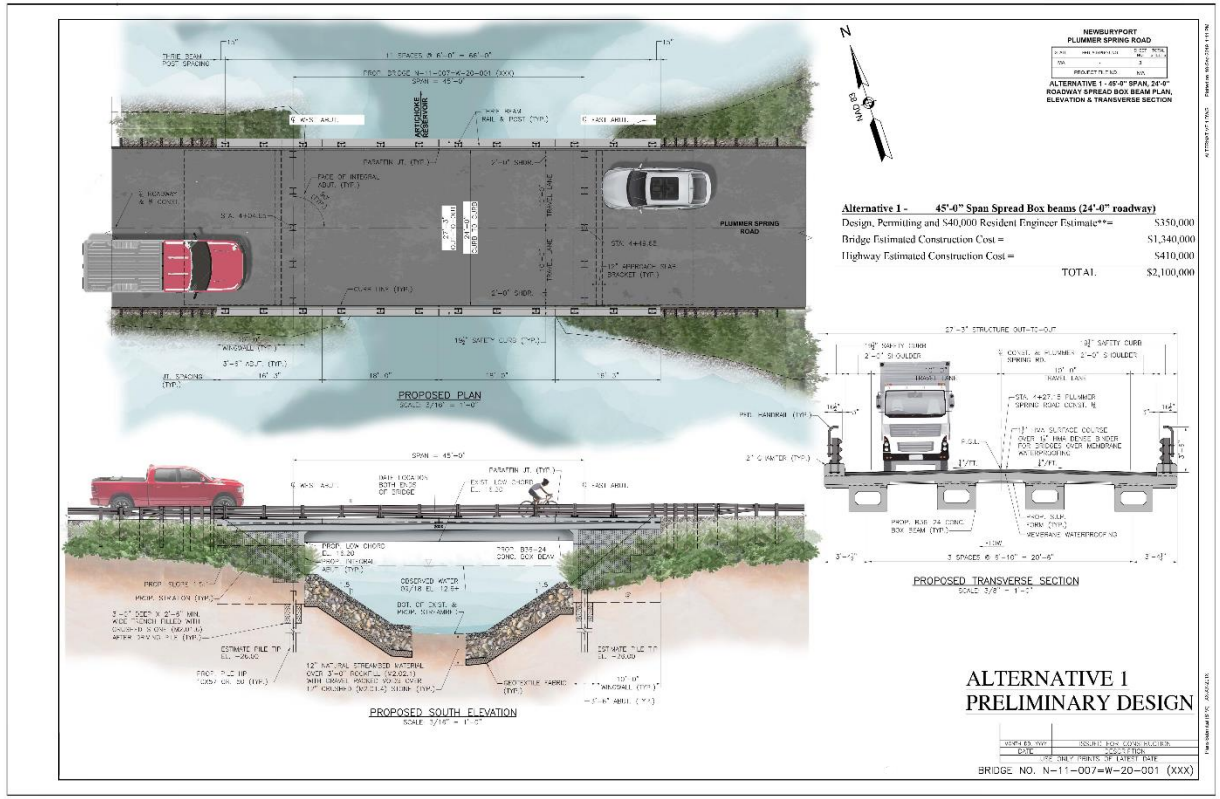
Bridge Alternatives
Preliminary Bridge Construction Cost Estimate

Alternative	Design Features	Cost
Alternative 1	45’-0” Span Spread Box Beams 24’-0” Roadway	$2,100,000
Alternative 2	45’-0” Span Spread Box Beams 24’-0” Roadway with one 5’-6” sidewalks	$2,600,000
Alternative 3	45’-0’ Span Spread Box Beams 24’-0” Roadway with two 5’6” sidewalk	$3,000,000
Alternative 4	45’-0” Span Spread Box Beams 22’-0” Roadway	$2,100,000
Alternative 5	30’-8” Span Arch 24’-0” Roadway	$2,300,000
Alternative 6	24’-8” Span Arch 24’-0” Roadway	$2,300,000
Alternative 7	22’-0” Clear Span Rigid Frame 24’-0” Roadway	$2,400,000

BSC GROUP

Alternative 1

- 45’-0” span spread box beam
- 24’-0” roadway width with no sidewalk and continuous guardrail
- Overall width 27’-3”
- Integral abutment on piles
- Preliminary Cost Estimate = $2.1 M



PROs

- Low cost
- Reduced wetland impacts
- Low maint. Cost

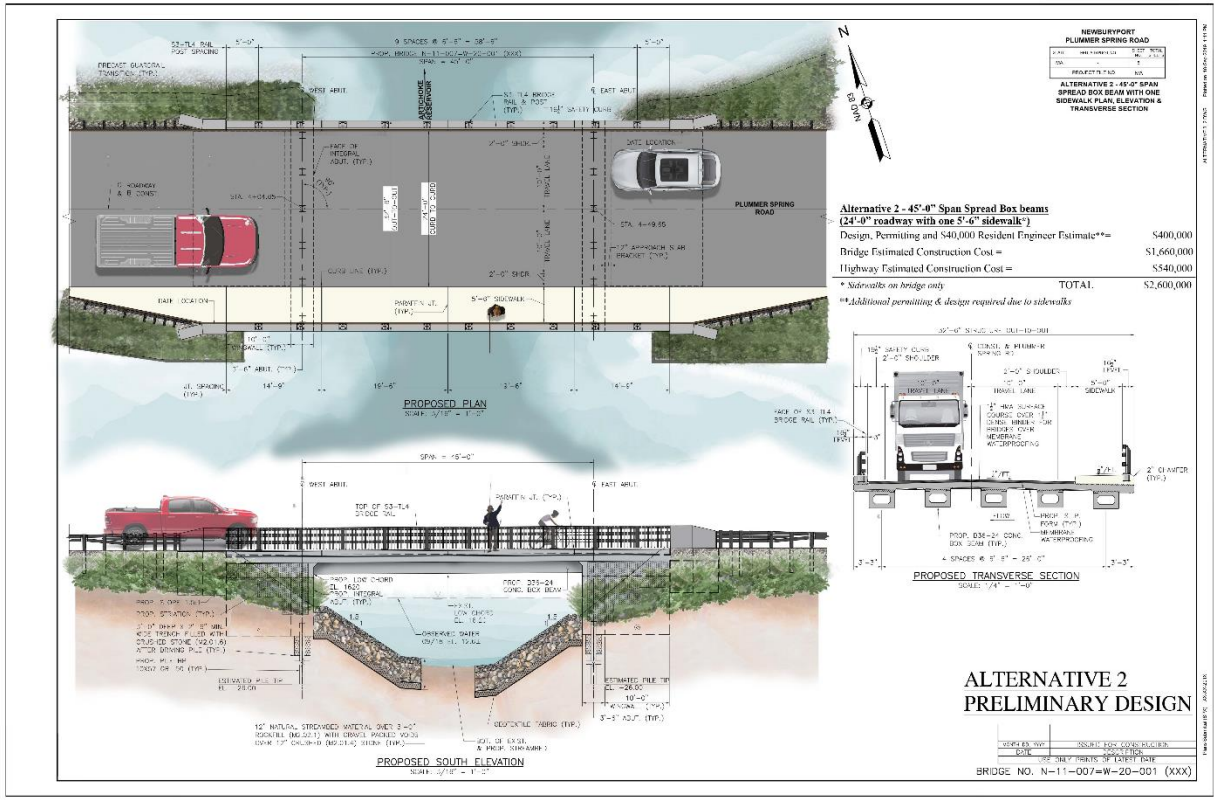
CONs

- No ped. Access

BSC GROUP

Alternative 2

- 45’-0” span spread box beam
- 24’-0” roadway width with 1 sidewalks and S3-TL4 bridge rail
- Overall width 32’-6”
- Integral abutment on piles
- Preliminary Cost Estimate = $2.6 M



PROs

- Ped. Access/ safety
- Low maint. Cost

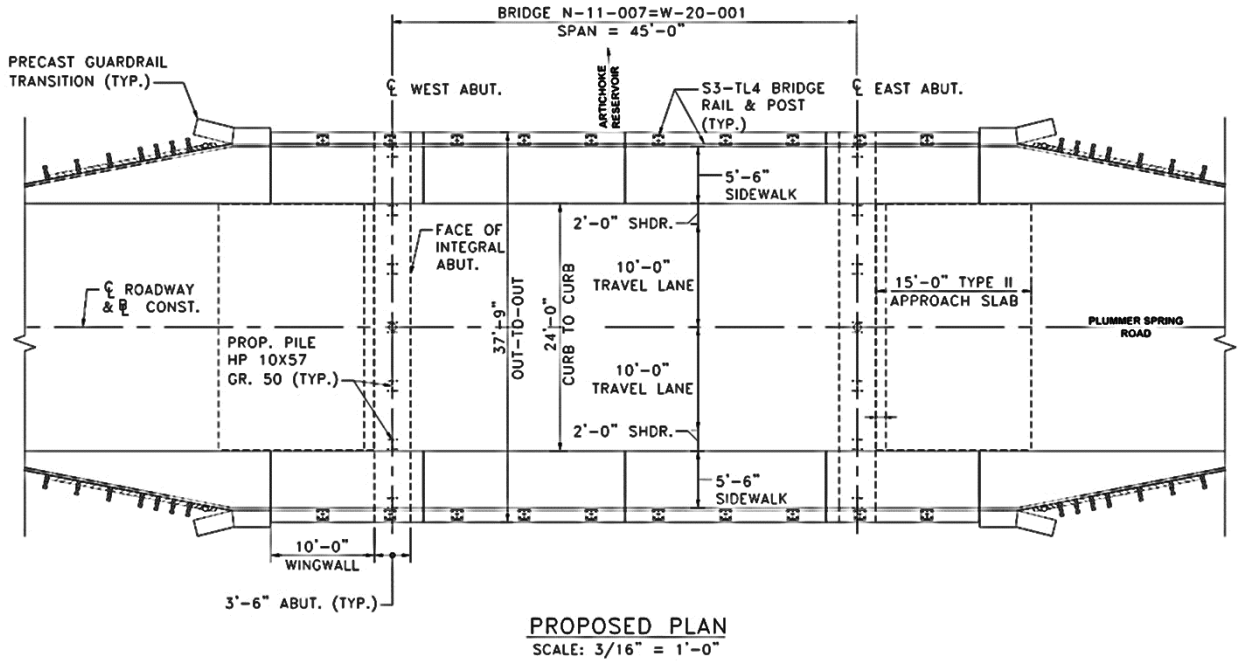
CONs

- Greater wetland impact
- Higher cost
- Const. Duration
- Increased permitting

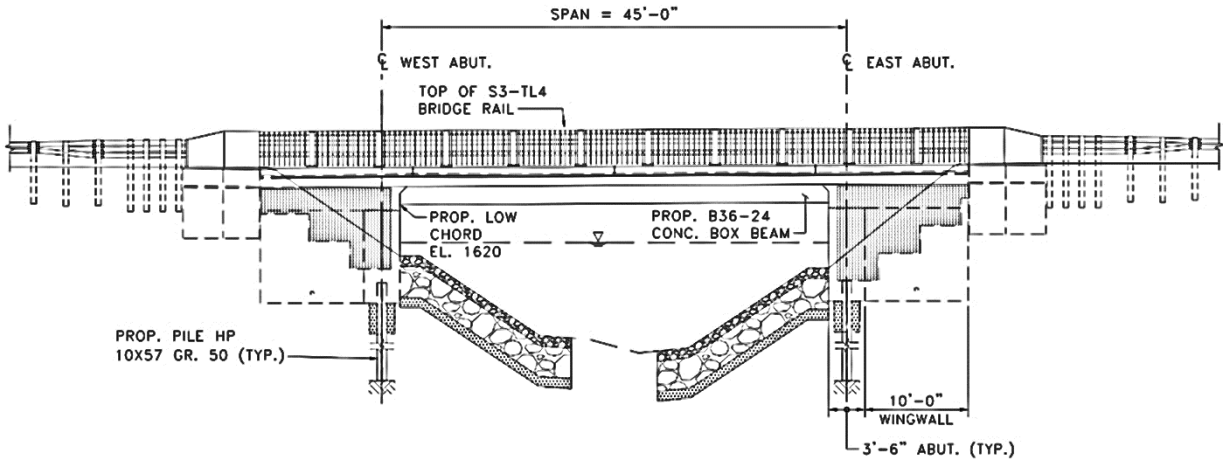
BSC GROUP

Alternative 3

- 45’-0” span spread box beam
- 24’-0” roadway width with 2 sidewalks and S3-TL4 bridge rail
- Overall width 37’-9”
- Integral abutment on piles
- Preliminary Cost Estimate = $3.0 M



PROPOSED PLAN
SCALE: 3/16" = 1'-0"



PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

PROs

- Ped. access
- Low maintenance Cost

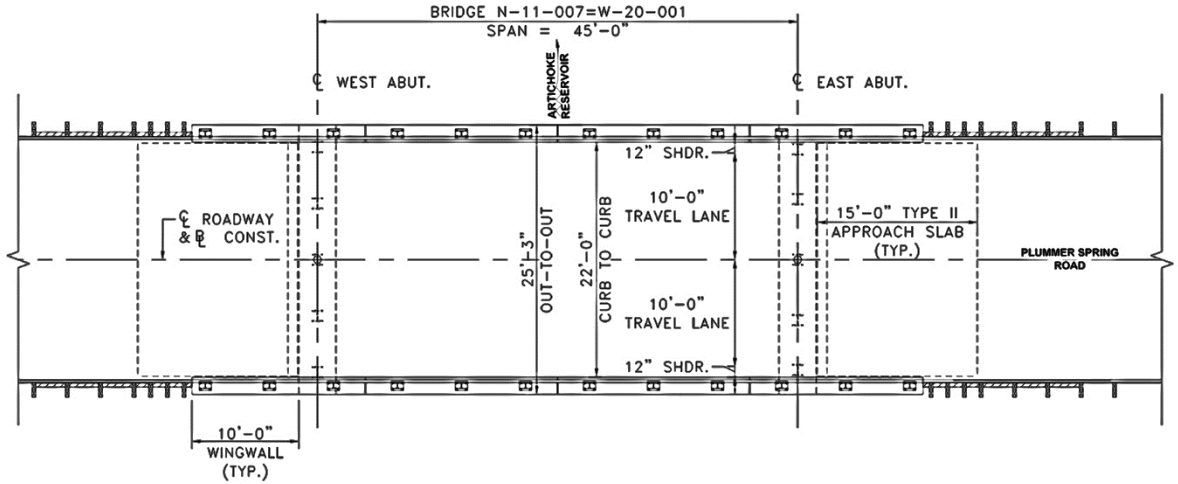
CONs

- Greatest wetland impact
- High cost
- Const. duration
- Increased permitting

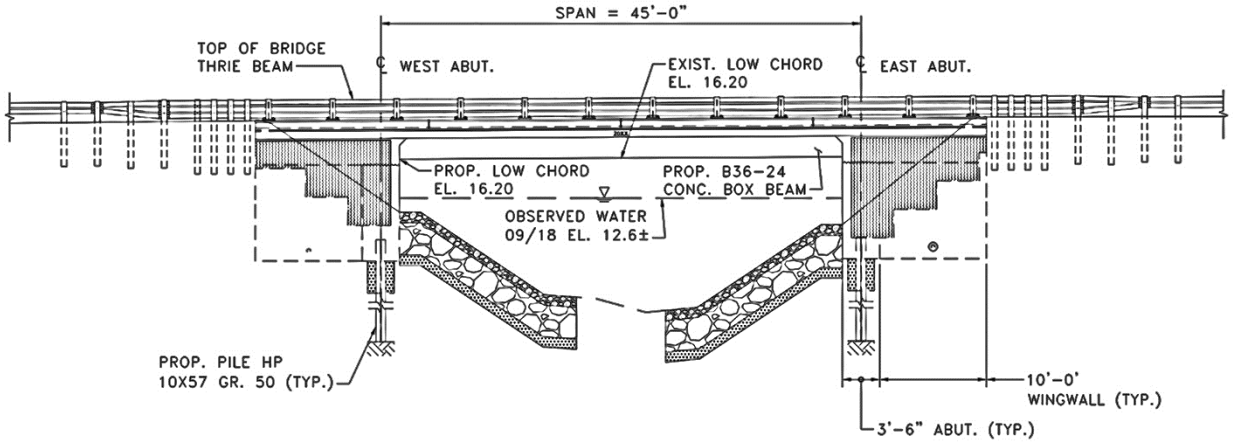
BSC GROUP

Alternative 4

- 45’-0” span spread box beam
- 22’-0” roadway width with no sidewalks and continuous guardrail
- Overall width 25’-3”
- Integral abutment on piles
- Preliminary Cost Estimate = $2.1 M



PROPOSED PLAN
SCALE: 3/16" = 1'-0"



PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

PROs

- Lowest cost
- Low maint. cost
- Lowest wetland impact

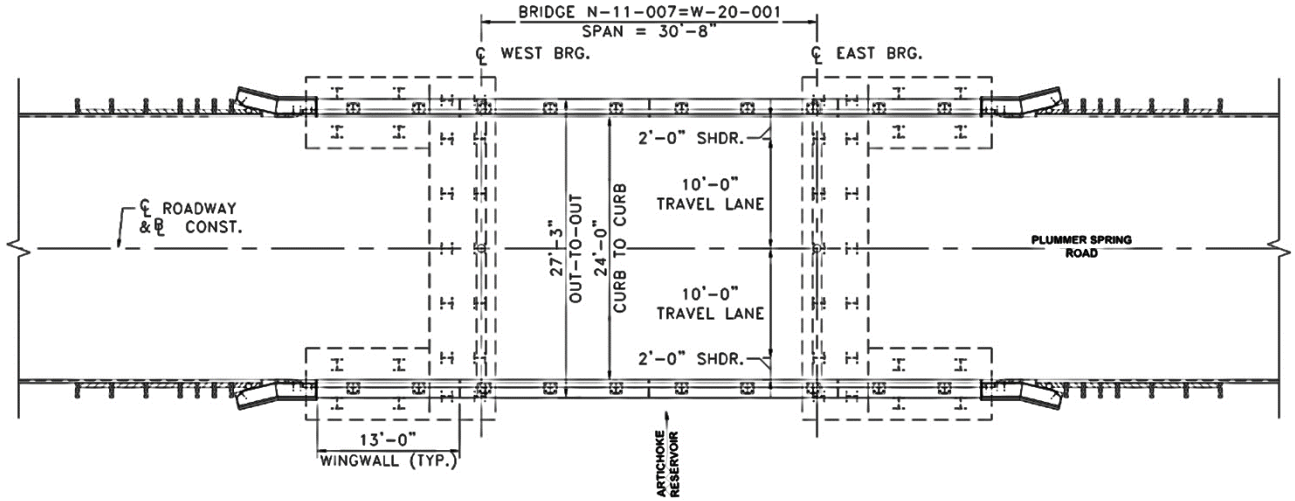
CONs

- No ped. Access
- Reduced roadway width/ safety
- Non-standard

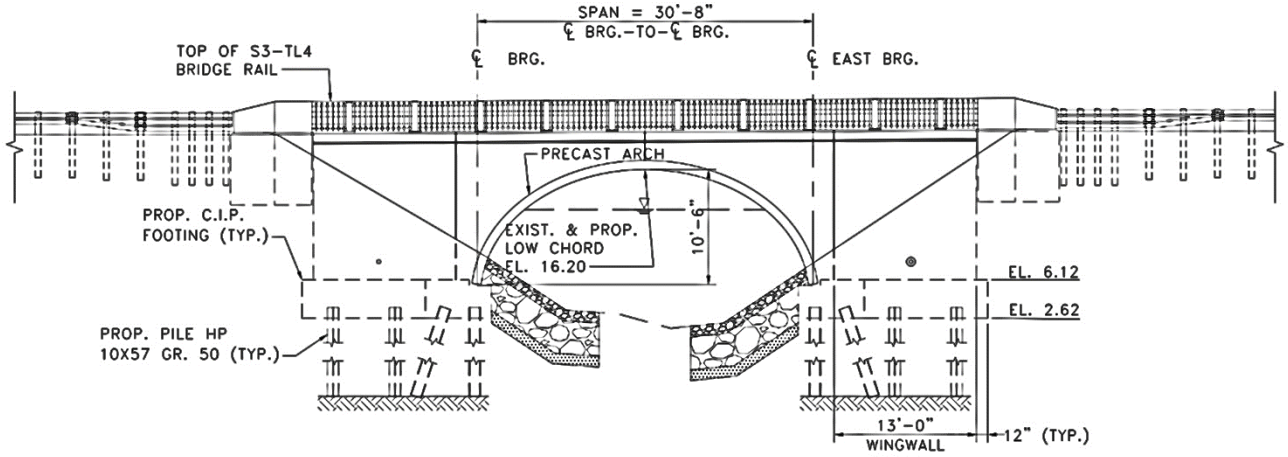
BSC GROUP

Alternative 5

- 45’-0” span spread box beam
- 30’-8” span arch bridge
- 24’-0” roadway width with no sidewalks and S3-TL4 bridge rail
- Overall width 27’-3”
- Footing on piles
- Preliminary Cost Estimate = $2.3 M



PROPOSED PLAN
SCALE: 3/16" = 1'-0"



PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

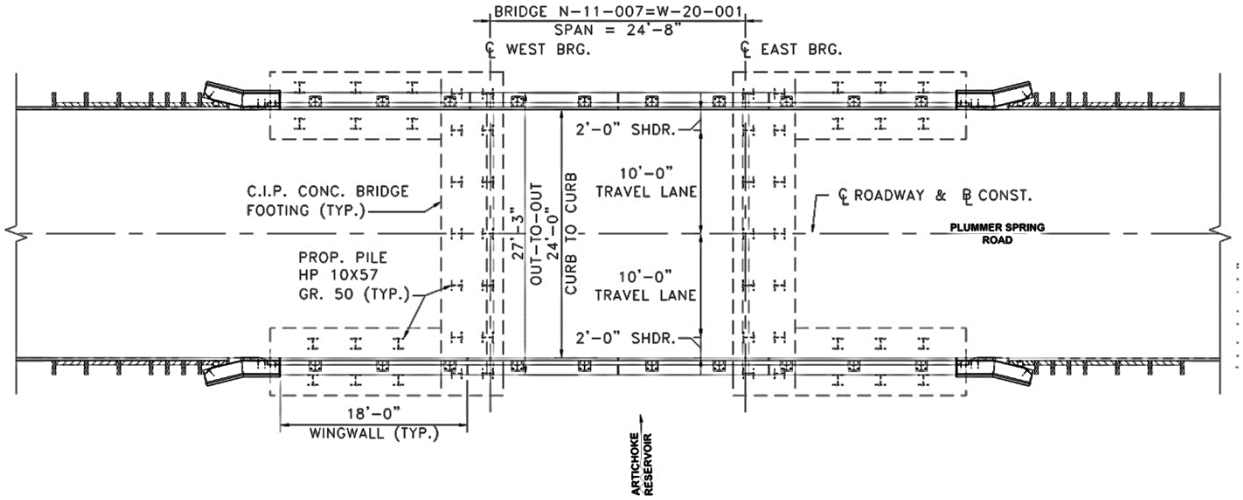
PROs
- Prefab.
- Arch style

CONs
- Higher cost
- High const. Duration
- High wetland impacts

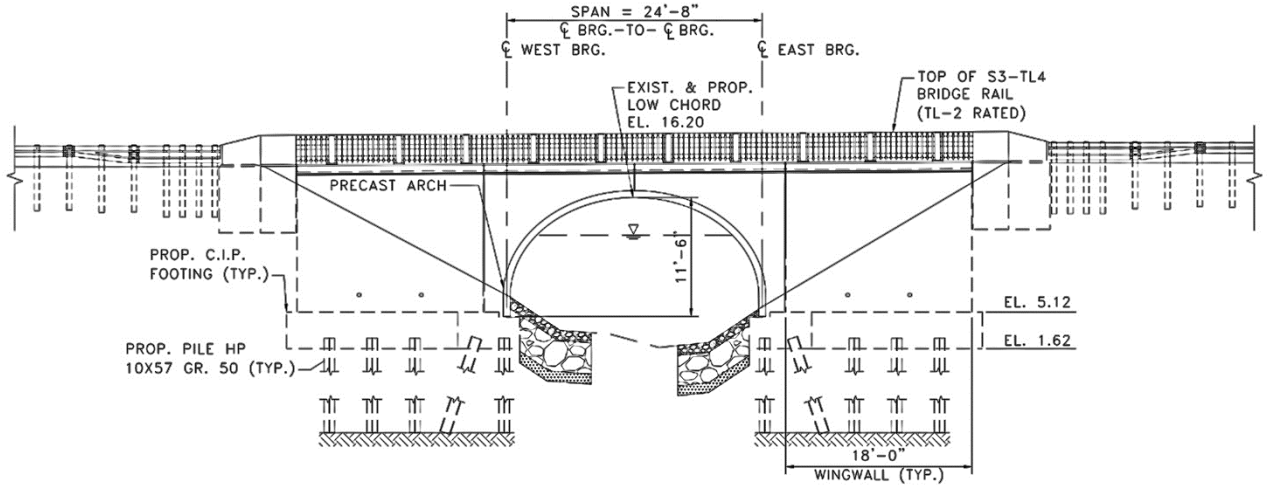
BSC GROUP

Alternative 6

- 24’-8” span arch bridge
- 24’-0” roadway width with no sidewalks and S3-TL4 bridge rail
- Overall width 27’-3”
- Footing on piles
- Preliminary Cost Estimate = $2.3 M



PROPOSED PLAN
SCALE: 3/16" = 1'-0"



PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

PROs

- Prefab.
- Arch style

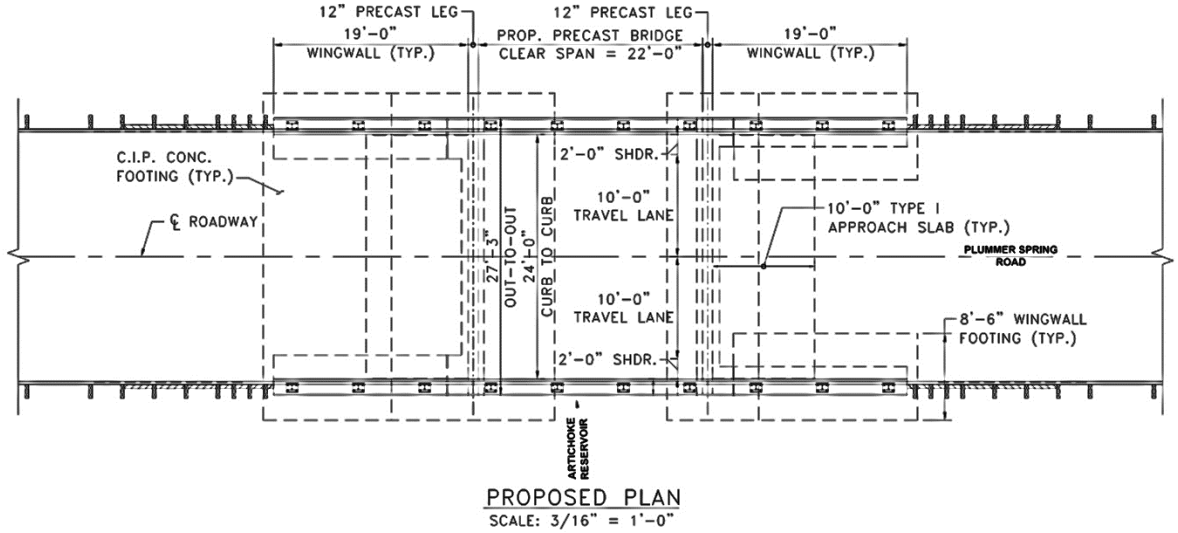
CONs

- Higher cost
- No ped. access
- Reduced hydraulic opening

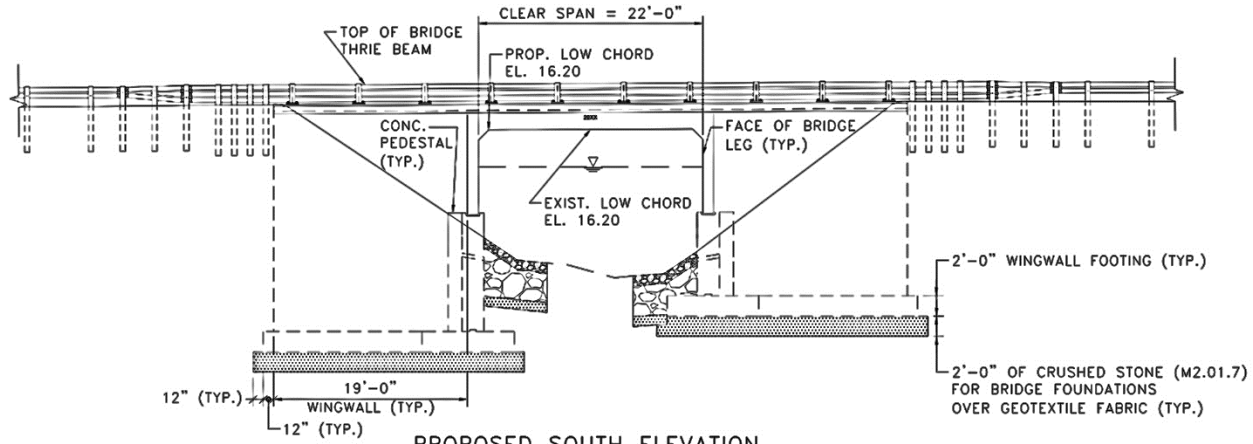
BSC GROUP

Alternative 7

- 22’-0” clear span rigid frame
- 24’-0” roadway width with no sidewalks and continuous guardrail
- Overall width 27’-3”
- Spread footing
- Preliminary Cost Estimate = $2.4 M



PROPOSED PLAN
SCALE: 3/16" = 1'-0"



PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

PROs

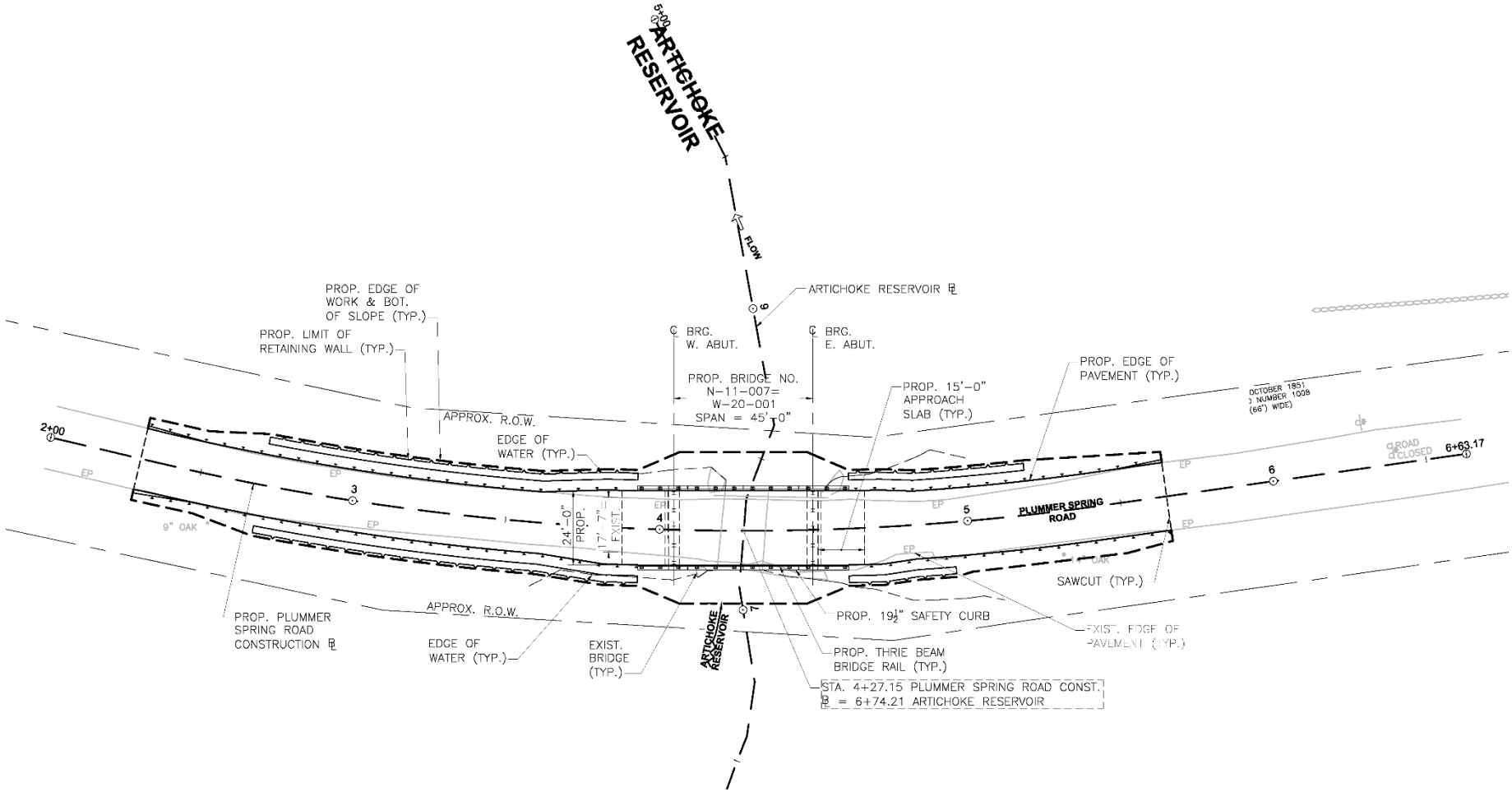
- Prefab.
- Low maintenance cost

CONs

- Higher cost
- No pedestrian access
- Deep excavation
- Wetland impact

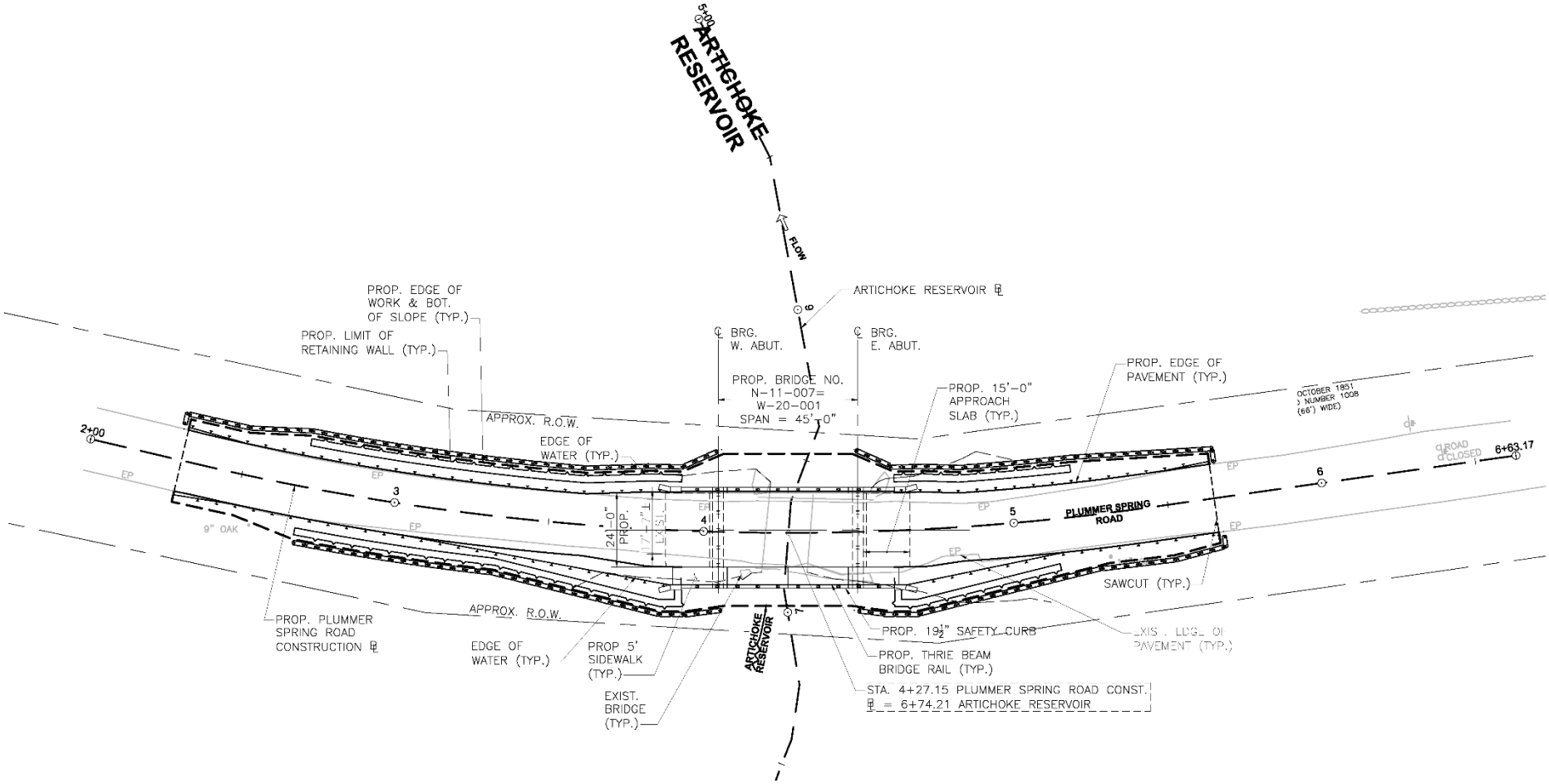
BSC GROUP

Roadway Plan



BSC GROUP

Roadway Plan



BSC GROUP

NEXT STEPS

- **Select Preferred Bridge Type** – Newburyport / West Newbury
- **Fall 2019** – MassWorks Grant award notification
- **Design/Permitting** – BSC Group
- **Anticipated Schedule** – Start construction spring 2021, one year construction duration, subject to funding appropriation

Questions & Discussion

MassWorks Infrastructure Program

Contract Amendment Request

Submission of this form is required for consideration of a contract amendment to your MassWorks Infrastructure Grant. Grantees may be asked to meet with and/or present information to EOHED for further review and may be required to provide a letter from their CEO or other authorized signatory confirming the reasons and authorization for this request.

Submission of this form does not constitute approval of any request for amendment, nor is EOHED under any obligation to approve any such a request.

General Information

Date Prepared	05/15/2023
Public Entity	Town of West Newbury
Project Name	Plummer Spring Road Bridge Replacement Project
Contract ID	19MWIPWestWewburyWes
Current Contract Expiry Date	06/30/2023
Current Contract Max Obligation	$1,000,000.
Preparer's Name	Angus Jennings, Town Manager
Preparer's Email	townmanager@wnewbury.org
Preparer's Phone	978-363-1100 x115

Amendment Type

Please select the type of amendment requested. (Click all that apply)

☐ **Spending Acceleration**: Reallocate funds *from future* fiscal year(s) *to the current* fiscal year to accommodate an acceleration in the project's schedule

☒ **Drawdown Delay**: Reallocate funds *from the current* fiscal year *to the next* fiscal year to accommodate delays in completing the project's milestones

☒ **Contract Extension**: Extend the contract expiration date and reallocate funds *from the current* fiscal year *to future* fiscal years to accommodate delays in completing the project's milestones

☐ **Scope Revision:** Revise the project's scope and/or limits of work

Completion Status

Please provide the current completion level (%) of the project's design and construction. **For pre-development projects, enter N/A for Construction Completion.**

Current Completion Status (0-100%)	%
% Design Completion	100
% Construction Completion	1

Project Update

Please briefly describe any design, permitting, planning, scheduling, bidding, and/or construction activities **completed in the last quarter.** "None" or similar answers will not be accepted. **If no activities were performed, you must explain why.**

Since our most recent reimbursement request, covering work through the month of March, the following work was complete:

- The 21-day appeals period for the MassDEP Chapter 91 License passed without appeal.
- Chapter 91 License was granted on May 5, 2023.

The Chapter 91 license was the final authorization needed for this project, so the bridge is now fully permitted and "shovel ready." This is a major milestone for this project, as it had been in various permitting processes dating back to January 2020.

Site work began in March 2023, with the removal of some high hazard trees that had been identified for removal within the approved plans. This work was completed in-house by the City of Newburyport.

On May 5th, the Town received an updated opinion-of-probable-cost from the project engineer, BSC Group. More detail regarding the updated cost estimate is included in the next section.

Reason(s) for Request

Please indicate **all** factors contributing to this request. Check all that apply.

☐ Project milestones are ahead of schedule
☒ Permit requirements substantially differ from original plans
☒ Design and/or permitting are (or were) behind schedule
☒ Bidding is (or was) behind schedule
☐ Bids were unsuccessful
☐ Additional bidding due change(s) in design, construction, and/or material procurement is (or was) required
☒ Construction is (or was) behind schedule
☐ Construction change order is (or was) required
☐ Site conditions substantially differ from original plans
☒ Additional match funds were (or will be) required
☐ Additional public infrastructure improvements are desired and feasible
☐ Additional reason(s) as explained below

Please elaborate on and explain all selections above.

As discussed in prior MassWorks quarterly reports, project permitting was more extensive than initially expected. Specifically, MassDEP asserted Ch. 91 jurisdiction, despite the Town's petition that a minor review was all that was required. MassDEP's requirement that the project proceed through the full Ch. 91 licensing process ended up extending the overall permitting schedule by approximately 6 months. With the expiration of the Ch. 91 license appeal period (with no appeal filed) on April 28th, and the final granting of the License on May 5, 2023, the Middle Street Bridge was (and is) fully permitted.

On May 5th, the Town received an updated opinion-of-probable-cost from the project engineer, BSC Group. BSC reviewed the construction estimate of quantities and item costs. The estimate was updated to include MassDOT and municipal comments and revisions to date. The unit prices were updated in accordance with MassDOT standards and based on MassDOT current weighted bid averages. The summary sheet for the construction bid items, calculated quantities and unit prices is attached.

Unfortunately – but not unexpectedly – the updated project cost estimate showed a significant increase from the prior cost estimate. This exacerbated what was already known to be a funding shortfall. This project will require additional local and/or non-local (i.e. grant) funding in order for the Town and City to award a construction contract.

Newburyport Mayor Sean Reardon included a proposed $700,000 in additional local funding as part of his FY24 Capital Budget proposal to the City Council. The availability of this funding will depend on whether it is approved by the Council as part of its overall budget review process (which is ongoing). Even if this funding is approved, and including all remaining MassWorks funds available under this current grant, there would still be an overall funding shortfall of approximately $1.6M.

The Town of West Newbury and the City of Newburyport have been working together for many months to identify additional State and Federal grant programs that could help fill this funding gap. At present, this research is ongoing, but we have not identified any grant programs for which we see this project as being eligible and competitive. If this current MassWorks grant is extended past the current deadline of June 30, 2023, we would continue our efforts to secure additional non-local funding in order to secure the full amount of appropriations that will be needed in order to put the project out to bid and to award a construction contract.

Due to the uncertainty regarding project funding, it cannot be assured that the bridge would be constructed within FY24. Upon City Council approval of the proposed FY24 City of Newburyport Capital Budget, we will have more certainty regarding the amount of local funding that will be available for this project. Some additional local appropriations may be able to be secured (in addition to the proposed Newburyport $700,000, and the $600,000 that West Newbury voters approved for this project in 2020). However, it is highly likely that, in any case, additional non-local (grant) funding will also be necessary to close this gap.

A summary of project costs, available funds, and estimated funding shortfall, is attached.

Middle Street Bridge, Funding Summary, 5/15/23			
Project Costs			Notes
Construction costs	$	3,315,000	
Design/Permitting	$	550,000	
Construction contingency (10%)	$	331,500	
Resident Engineer	$	110,000	
Construction Engineering Services	$	60,000	
TOTAL project costs (est.)	$	4,366,500	
Available Funds			
MassDOT Small Bridge grant (expended)	$	250,000	
MassDOT Small Bridge grant (remaining)	$	250,000	
MassWorks (expended)	$	255,000	
MassWorks (remaining)	$	745,000	
Town Meeting appropriation	$	600,000	
Newburyport (pending City Council approval of proposed FY24 Budget)	$	700,000	*Amount proposed in Mayor Reardon's FY24 Capital Budget*
TOTAL funding sources (est.)	$	2,800,000	
Est. Shortfall	$	(1,566,500)	

Source: Angus Jennings, Town Manager

Milestones

Please provide the proposed **Amended Actual and/or Anticipated completion dates** for each milestone listed.

Milestone	Existing Contract MM-YYYY	Amended Actual or Anticipated MM-YYYY
Design, Survey, and Engineering Complete	02-2023	04-2023
Bids Opened	04-2023	N/A
Construction Started	08-2023	N/A
Construction 50% Complete	12-2023	N/A
Construction 100% Complete	05-2024	N/A

Drawdown Schedule

For each quarter, please provide the proposed **Amended Actual and/or Anticipated drawdown amount** of grant funds.

Quarter	Existing Contract Amount	Amended Actual or Anticipated
FY20 Total	**$0.00**	**$0.00**
FY21 Total	**$150,000.00**	**$172,965.21**
FY22 Total	**$72,000.00**	**$18,798.71**

FY23 Total	**$778,000.00**	**$62,695.87 (actual through March) $33,944.21 (est. for April through June)**
Q1 (Jul-Sep)	-	$
Q2 (Oct-Dec)	-	$
Q3 (Jan-Mar)	-	$
Q4 (Apr-Jun)	-	$
FY24 Total	**-**	**$711,596.00**
Grand Total	**$1,000,000.00**	**$1,000,000.00**

Project Budget

Please complete the budget table below.

Spending Category Line Item	**A Existing Contract Budget**	**B Proposed Amended Budget**	**C Change = A - B**
Design / Engineering / Bidding	$244,100.00	$270,000.00	-$44,304.00
Construction			
Land Takings	$0.00		
Demolition/Remediation	$0.00		
Mobilization/Demobilization	$0.00		
Water/Sewer/Drainage	$0.00		
Utility Relocation	$0.00		
Roadways	$0.00		
Sidewalks/Curbing/Streetscapes	$0.00		
Electrical/Lighting	$0.00		
Bridges/Culverts	$720,900.00	$676,596.00	$44,304.00
Security/Traffic Details	$0.00		
Other:	$0.00		
Construction Administration	$35,000.00	$35,000.00	$0
Total	$1,000,000.00	$1,000,000.00	$0

Certification:

By signing below, I, **Angus Jennings**, hereby certify that I am authorized to represent and request the contract changes outlined above on behalf of the Grantee, and that all of the information provided on this form and any attached documentation is true and accurate. I further certify that I understand that submission of this form does not constitute an approval or agreement by EOHED as to the proposed changes, and that the Grantee is expected to continue with the project, as outlined in the current contract, until such time as EOHED confirms approval of any changes.

Signature: _____ Date: May 15, 2023

Angus Jennings, Town Manager

Submit this form along with any requested attachments via email to your EOHED contract manager.

After reviews, EOHED may require a written signature from the Public Entity's CEO or other authorized signatory.