TOWN OF ABINGTON, MASSACHUSETTS

CONTRACT DOCUMENTS FOR

ST 123 (Centre Avenue) Bridge Preservation

March 5, 2025

Town of Abington

Department of Public Works

350 Summer Street

Abington, MA 02351

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INVITATION FOR BIDS

Sealed bids for furnishing the following item will be received at the Abington Department of Public Works, 350 Summer Street, Abington, MA 02351 until the time specified below at which time the bids will be publicly opened and read.

Beginning March 19, 2025 bidding documents in electronic form may be obtained by sending an email to amaesner@theengineeringcorp.com. These bid documents will contain a watermark over the bid tab pages. The prospective bidder will need to register as a prospective bidder/plan holder and be verified against the MassDOT prequal list prior to receiving official bid documents. MassDOT prequalification of contractors with the class of work as, BRIDGE - CONSTRUCTION, for the project with an estimated value of \$304,145.00 will be required. Official bid documents will be sent via email to the email address registered once the verification has been made. Neither the owner nor the Engineer will be responsible for full or partial sets of bidding documents, including addenda if any, obtained from another source.

Bids will be opened at the Department of Public Works on April 16, 2025 at 10:00 a.m. Each Bid must be accompanied by a bid security consisting of a <u>BID BOND, CASH</u>, or, <u>CERTIFIED CHECK</u> issued by a responsible bank or trust company in the amount of 5% of the bid price.

Pre-Bid Conference and Site Visit will be held at the Abington Highway Department on April 2, 2025 at 11:00AM. This is an optional Pre-Bid conference.

Successful bidder must furnish 100 percent Construction Performance Bond and 100 percent Construction Payment Bond.

Every bid bond, every performance bond and every payment bond issued for any construction work in the Commonwealth shall be the bond of a surety company organized pursuant to Section 105 of Chapter 175 or of a surety company authorized to do business in Commonwealth under the provisions of Section 106 of said Chapter 175 and be approved by the U. S. Department of Treasury and acceptable as sureties and reinsurers on federal bonds under Title 31 of the United States Code, sections 9304 to 9308.

All bids for this project are subject to applicable public bidding laws of Massachusetts, including, but not limited to G.L. c.30, §39M.

Materials and supplies used or incorporated into the performance of this contract are exempt from sales and use tax.

Attention is directed to the minimum wage rates to be paid as determined by the Commissioner of Labor and Workforce Development and the weekly payroll record submittal requirements under the provisions of Massachusetts General Laws, Chapter 149, Section 26 through 27D inclusive.

All work shall be complete by November 14, 2025. It is anticipated that the Notice to Proceed will be issued by May 5, 2025. No Bidder may withdraw his/her Bid for a period of sixty (60) days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Bids.

Selection of the contractor will be based upon bidder qualifications, including evidence of past performance in similar projects, and bid price. The contract will be awarded to the bidder deemed by the awarding authority to be the lowest responsible and eligible bidder.

The bidder agrees that its bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids. The Town reserves the right to waive any informalities, and to reject any or all proposals. A proposal, which includes for any item a bid that is abnormally low or high, may be rejected as unbalanced. The right is also reserved to accept any proposal deemed to be best for the interest of the Town of Abington.

The bidding and award of the Contract shall be in full compliance with Sections 39M inclusive of Chapter 30 of the General Laws of the Commonwealth of Massachusetts as last revised.

The Town of Abington

By: Scott Lambiase, Town Manager

INSTRUCTIONS TO BIDDERS

1. Receipt and Opening of Bids

The Town of Abington, Massachusetts, herein called the Owner will receive sealed Bids for the project known as the ST 123 (Centre Avenue) Bridge Preservation.

General bids shall be addressed to the Department of Public Works, Town of Abington Town Hall, 350 Summer Street, Abington, MA 02351 and endorsed "Bid for ST 123 (Centre Avenue) over Shumatuscacant River Bridge Preservation Project" (Project) will be received at the Procurement Department until 10:00 a.m. prevailing time, on April16, 2025 at which time and place said bids will be publicly opened and read aloud.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered. The bidder agrees that its bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

2. <u>Location and Work to be Done</u>

The Work consists of repairs to both the superstructure and substructure of the bridge and all work incidental thereto, in accordance with the Specifications and conceptual plans attached hereto.

Additional drawings showing details in accordance with which the Work is to be done may be furnished by addendum from time to time during the bidding period by the Owner or its Architect/Engineer, and shall then become a part of the Contract Documents.

The Contractor shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, and all other things necessary to do all work required for the completion of each item of the Work and as herein specified.

The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that item.

3. <u>Preparation of Bid</u>

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must filled in, in ink or typewritten, in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and endorsed with the name of the project as specified in <u>Receipt and</u> Opening of Bids, above. If forwarded by mail, the sealed envelope containing the bid

must be enclosed in another envelope addressed as specified in <u>Receipt and Opening of Bids</u>, above.

4. <u>Bid Opening Procedure</u>

The following list of requirements shall apply to each filed bid. Bids not meeting all the requirements for timeliness and security will be rejected; bids not meeting signature and addenda requirements will be rejected prior to checking of bid amounts.

Bids shall be filed at the place and before the time specified in <u>Receipt and Opening of</u> Bids, above.

Properly executed bid security shall be placed in a sealed envelope and <u>shall</u> <u>be</u> <u>attached</u> to the outside of the envelope containing the bid.

Bid signatures will be checked.

All addenda will be sent via e-mail to all registered bidders. All bidders shall include with their bids the written acknowledgment form provided in Section 00300, FORM OF GENERAL BID.

The total dollar amount of each bid will be read, and the three apparent lowest bids will be selected for further consideration. These three apparent low bids will be read aloud for the benefit of the other bidders and the bid opening procedure will be closed. All those present at the bid opening may examine all bids after the bid opening and after the reading of the three apparent low bids.

5. Modification

Any bidder may modify his bid by written communication at any time prior to the scheduled closing time for receipt of bids. Any telegraphic communication must be received by the Owner prior to the closing time, and, provided further, the Owner must be satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. If written confirmation is not received within two days from the closing time, no consideration will be given to a telegraphic communication.

The communication shall not reveal the bid price but shall provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened.

6. Ability and Experience of Bidder

No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the work successfully within the time named. The Owner's decision or judgment on these matters will be final, conclusive, and binding.

The Owner may make such investigations as it deems necessary, and the bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.

7. Conditions of Work

Each bidder must familiarize himself fully with the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

8. Addenda and Interpretations

No interpretation of the meaning of the plans, specifications or other prebid documents will be made to any bidder orally. All information given to bidders other than by means of the plans, specifications, or by addenda, as described below, is given informally, and shall not be used as the basis of a claim against the Owner.

Every request for such interpretation should be via email to amaesner@theengineeringcorp.com and to be given consideration must be received by 4:00PM on April 10, 2025. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, when issued, will be emailed to all prospective bidders (at the respective email address furnished by them for such purposes). Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

9. Security for Faithful Performance

Simultaneously with his delivery of the executed Contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor and materials under this contract. The surety on such bond or bonds shall be a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Owner. The bonds shall remain in force for one year after final acceptance of the work by the Owner, unless the Owner, in writing, releases the Contractor from the obligation sooner.

10. Power of Attorney

Attorneys-in-fact who sign Contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

11. <u>Laws and Regulations</u>

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances or bylaws, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.

12. Liquidated Damages for Failure to Enter into Contract

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within 10 days after presentation thereof by the Owner, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bid, but the amount forfeited shall not exceed the difference between his/her bid price and the bid price of the next lowest responsible and eligible bidder. In case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the bidder, his/her bid deposit will be returned.

13. Obligation of Bidder

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of his bid.

14. Information Not Guaranteed

All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents. It is further agreed and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Architect/Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

15. Bid Security

Each bid and sub-bid must be accompanied by bid security in the form of a certified check, a bid bond, cash, or a treasurer's or cashier's check, payable to the Owner, in the amount of five (5) percent of the value of the bid. Such security of general bidders will

be returned to all except the three lowest responsible and eligible bidders within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids, and the remaining securities will be returned promptly after the Owner and the accepted bidder have executed the Contract, or if no notice of intent to award has been presented to the selected contractor within 30 days, Saturdays, Sundays and holidays excluded, after the date of the opening of bids, upon demand of the bidder at any time thereafter.

16. Right to Reject Bid

The Owner reserves the right to waive any informalities in bids and to reject any and all bids, should the Owner deem it to be in the public interest to do so.

The Owner may also reject bids which in its sole judgment are either incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities.

17. <u>Time for Completion</u>

The successful general bidder must agree to commence work within ten (10) days of the date of the Notice to Proceed and to fully complete the project within the time limit stated in Section 00300, FORM OF GENERAL BID.

18. <u>Comparison of Bids</u>

Bids will be compared on the basis of prices set forth in the bid forms. In the event that there is a discrepancy between the lump sum or unit prices written in words and figures, the prices written in words will govern.

19. Award of Contract

The Contract will be awarded to "the lowest responsible and eligible bidder" pursuant to General Laws Chapter 30, Section 39M, as amended. Such a bidder shall possess the skill, ability and integrity necessary for the faithful performance of the work, shall be able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, in the work, and shall otherwise comply with all applicable provisions of law. Contract award shall be subject to availability of an appropriation for funding.

20. Statutes Regulating Competitive Bidding

Any bid which does not comply with the provisions of Massachusetts General Laws Chapter 30, Section 39M, as amended, need not be accepted and the Owner may reject every such bid.

21. Wage Rates

Prevailing Wage Rates as determined by the Commissioner of Department of Labor and Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Section 26 to 27G, as amended, apply to this project. It is the responsibility

of the bidder, before bid opening, to request any additional information on Prevailing Wage Rates for those tradespeople who may be employed for the proposed work under this contract.

22. Contractor Records

The Contractor shall comply with the provisions of Massachusetts General Laws, Chapter 30, Section 39R concerning Contractor records.

23. INSURANCE

The Contractor shall carry and continuously maintain until completion of the Contract, insurance as specified in Agreement and in such form as shall protect him performing work covered by this Contract, and the Town of Abington and its employees, agents and officials, from all claims an liability for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this Contract. The Town shall be named as an additional insured. The Contractor covenants and agrees to hold the Town and its employees, agents and officials harmless from loss or damage due to claims for bodily injury or death and/or property damage arising from, or in connection with, operations under this Contract.

25. PROJECT MANAGER

The Owner may utilize the services of a project manager, whose duties shall be as set forth in an Agreement for Project Manager Services.

FORM OF GENERAL BID

Bid of	(hereinafter called "Bidder")*
	a corporation, organized and existing under the laws of the state of
	a partnership
()	a joint venture
	an individual doing business as
To the Town of	of Abington, Massachusetts (hereinafter called "Owner").
Gentlemen:	
documents and construction of all labor, mater plans and specific	dersigned Bidder, in compliance with your invitation for bids for the project known as having examined the plans and specifications and related the site of the proposed work, and being familiar with all of the conditions surrounding the f the proposed project including the availability of materials and labor, hereby proposes to furnish trials, and supplies, and to construct the project in accordance with the contract documents and the diffications within the time set forth below, and at the prices stated below. These prices are to mose incurred in performing the work required under the contract documents, of which this bid is a
	idder hereby agrees to commence work on or before the date to be specified in written "Notice to be Owner, and to fully complete the project by
*Specify corp	oration, partnership or individual as applicable.

B)	Bidder acknowledges receipt of and this bid includes the following addenda:
No.	Dated:
C) folloy	The Bidder agrees to perform the bid work described in the specifications and shown on the plans for the g contract price: \$

ITEM		T		UNIT PRICE		TOTAL	
NO.	QTY		ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	DOLLARS	CENTS	DOLLARS	CENTS
114.11	1.0	AT	PARTIAL DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. A-01-010 (AJQ)				
			PER LUMP SUM				
120.1	40	AT	UNCLASSIFIED EXCAVATION				
			PER CUBIC YARD				
127.	3	AT	CONCRETE EXCAVATION				
			PER CUBIC YARD				
146.	1	AT	DRAINAGE STRUCTURE REMOVED				
			PER EACH				
148.	15	AT	DREDGING AND DISPOSING OF MATERIAL				
			PER CUBIC YARD				
151.	10	AT	GRAVEL BORROW				
			PER CUBIC YARD				
156.	5	AT	CRUSHED STONE				
			PER TON				
451.	15	15 AT	HMA FOR PATCHING				
			PER TON				
482.3	125	AT	SAWCUTTING ASPHALT PAVEMENT				
			PER FOOT				
628.305	2	AT	TEMPORARY IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-3				
			PER EACH				
697.1	2	AT	SILT SACK				
			PER EACH				
697.2	25	AT	FLOATING SILT FENCE				
			PER FOOT				
698.4	175	AT	GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL				
			PER SQUARE YARD				

CARR	IED FORWARD		

BT-1

BROUGHT FORWARD

ITEM				UNIT P	RICE	ТОТ	AL
NO.	QTY		ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	DOLLARS	CENTS	DOLLARS	CENTS
748.	1	AT	MOBILIZATION PER LUMP SUM				
755.01	1	AT	WETLAND REPLICATION PER LUMP SUM				
755.75	40	AT	WETLAND SPECIALIST PER HOURS				
767.121	70	AT	SEDIMENT CONTROL BARRIER PER FOOT				
816.811	1	AT	TEMPORARY TRAFFIC CONTROL SIGNAL - BRIDGE NO. A-01-010 (AJQ)				
852.	225	AT	PER LUMP SUM SAFETY SIGNING FOR TRAFFIC MANAGEMENT				
853.21	200	AT	PER SQUARE FOOT TEMPORARY BARRIER REMOVED AND RESET PER FOOT				
853.23	160	AT	TEMPORARY BARRIER (TL-3) PER FOOT				
853.33	200	AT	TEMPORARY BARRIER - LIMITED DEFLECTION (TL-3) PER FOOT				
854.1	400	AT	PAVEMENT MARKING REMOVAL				
859.	1200	AT	PER SQUARE FOOT REFLECTORIZED DRUM PER DAY				
859.1	60	AT	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS PER DAY				

CARR	IED FORWARD		
			BT-2

BROUGHT FORWARD _____

ITEM				UNIT P	RICE	TOT	AL
NO.	QTY		ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	DOLLARS	CENTS	DOLLARS	CENTS
866.106	66.106 400		6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)				
			PER FOOT	1			
867.106	400	AT	6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)				
			PER FOOT	1			
903.	3	AT	3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE				
			PER CUBIC YARD	1			
904.41	2	AT	PRECAST CONCRETE DECK PANELS				
			PER EACH	1			
905.01	1	AT	4000 PSI 3/8" 660 CEMENT CONCRETE WITH ANTI-WASHOUT ADMIXTURE				
			PER CUBIC YARD	1			
912.	20	AT	DRILLING AND GROUTING DOWELS				
			PER EACH	1			
950.1	1	AT	TEMPORARY SHORING				
			PER LUMP SUM	1			
966.	60	AT	MEMBRANE WATERPROOFING FOR BRIDGE DECK REPAIRS				
			PER SQUARE FOOT				
983.1	20	AT	RIPRAP				
			PER TON				
984.62	15	AT	STONE FOR EROSION CONTROL				
			PER CUBIC YARD				
988.3	7	AT	CHANNEL PAVING - GROUT FILLED BAGS				
			PER CUBIC YARD				
991.1	1	AT	CONTROL OF WATER - STRUCTURE NO. A-01-010 (AJQ)				
			PER LUMP SUM				

CARR	IED FORWARD		
			BT-3
	TOTAL		

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

The Bidder understands that all bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including General Laws Chapter 149 and Chapter 30, Section 39M, as amended.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the opening of bids.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal Agreement set forth in Section 00500 CONTRACT.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of Section 00100 INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Owner in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract price in accordance with Section 00610 PERFORMANCE BOND, Section 00620 PAYMENT BOND, and as stipulated in the contract.

The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all the requirements of the plans and specifications.

Have been in business under present name for years.

1.

2.	The names and addresses of all persons interested in the bid (if made by a partre corporation) as principals, are as follows:	ership or
	(attach supplementary list if necessary)	

3. The bidder is requested to state below what work of a similar character to that included in the proposed contract he has done and give references that will enable the Owner to judge his experience, skill and business standing (add supplementary page if necessary).

Completion <u>Date</u>	Project Name	Contract <u>Amount</u>	Design <u>Engineer</u>	Reference <u>Name</u>	Telephone No
c					
d					
۵					
f					

Bank refe	rence
	(Name)
_	(Bank)
_	(Address)
	()
_	(Telephone No.)

Pursuant to G.L. c.62C, §49A, I certify hereby in writing, under penalties of perjury, that the within named Bidder/Contractor has complied with all laws of the commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting of child support.

The undersigned Bidder hereby certifies under penalties of perjury, as follows: (1) that he/she is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned bidder hereby certifies, under pains and penalties of perjury, that the foregoing bid is based upon the payment to laborers to be employed on the project of wages in an amount no less that the applicable prevailing wage rates established for the project by the Massachusetts Department of Labor and Workforce Development. The undersigned bidder agrees to indemnify the awarding authority for, from and against any loss, expense, damages, actions or claims, including any expense incurred in connection with any delay or stoppage of the project work arising out of or as a result of (1) the failure of the said bid to be based upon the payment of the said applicable prevailing wage rates or (2) the failure of the bidder, if selected as the contractor, to pay laborers employed on the project the said applicable prevailing wage rates.

Date:	Respectfully submitted: By:
	(Signature)
	(Type Name of Bidder)
	00200 0

(Title)
(Business Address)
(City and State)
(Telephone Number

AGREEMENT

	THIS AGREEMENT, made this	_ day of	,
20	, by and between the party of the first part, th	ne Town of	, hereinafter called
"OWN	NER," acting herein through its	, and the	party of the second part,
_	rship) (a joint venture) (a corporation) loca	·	
	, County of, and State of TRACTOR."		, hereinafter called
"CON	TRACTOR."		
	WITNESSETH: That for and in considerat after mentioned, to be made and performed be with the OWNER to commence and comple	by the OWNER, tl	he CONTRACTOR hereby
herein	after called the project, for the sum of		
materiaccess and pr CONI 00800	and all extra work in connumerate Documents; and at his (its or their) own als, supplies, machinery equipment, tools, surprises and services necessary to complete the ices stated in Section 00300 FORM OF GENDITIONS, Section 00750 SUPPLEMENTAR SUPPLEMENTAL GENERAL CONDITIONS, and the specifications and Contract Documents.	on proper cost and aperintendence, lad said project in accuracy GENERAL COONS, the plans, where the control of the coordinate is a second of the coordinate	l expense to furnish all the bor, insurance, and other cordance with the conditions tion 00700 GENERAL DNDITIONS and Section nich include all maps, plates,
*Strik	e out inapplicable term.		

The CONTRACTOR hereby agrees to commence work under this Contract on or before a date to be specified in written "Notice to Proceed" of the OWNER.

The CONTRACTOR further agrees to fully complete the project within <u>180</u> consecutive calendar days of the date of the notice to proceed.

The CONTRACTOR further agrees to pay as liquidated damages the sum of <u>\$500</u>. for each consecutive calendar day thereafter as provided in the <u>Liquidated Damages</u> Paragraph of Section 00700 GENERAL CONDITIONS.

The goal for minority business enterprise (MBE) participation for this contract is a minimum of <u>0</u> percent MBE participation, on the basis of the total dollars paid. The CONTRACTOR agrees to take all affirmative steps necessary to achieve this goal, and shall provide reports documenting the portion of contract and subcontract dollars paid to minority and women-owned businesses, and its efforts to achieve the goals, with each invoice submitted or at such greater intervals as specified by the Owner. The CONTRACTOR shall require similar reports from its subcontractors.

The CONTRACTOR agrees not to discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

The CONTRACTOR agrees not to participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the contract, subject to additions and deductions, as provided in Section 00700 GENERAL CONDITIONS as amended by the supplementary general conditions, and to make payments on account thereof as provided in Section 00700 GENERAL CONDITIONS.

IN WITNESS WHEREOF, the parties to these presents have executed this contract in counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

AGREED:	T. C	M 1	
	Town of	, <u>Massachusetts</u> (Owner)	
	By		_
		(Name)	
		(Title)	
		(Contractor)	
	Ву		-
		(Name)	
		(Title)	
		(Address)	
Ammovedes	to Forms	(City and State)	
Approved as	to Form:		
By(Own	ner's Counsel)		
	(Name)		
In accordance amount of the execute the c	e with M.G.L. C.44 is contract is availa contract and approv	4, Section 31C, this is to certify the ble therefor and that the e all requisitions and change order	nt an appropriation in the has been authorized to s.
By	ner's Accountant)		
(Own	er's Accountant)		
	(Name)		

<u>CERTIFICATE OF VOTE</u> (to be filed if Contractor is a Corporation)

I,	, hereby certify that I am the duly qualified
(Secretary of the Corporation)	, hereby certify that I am the duly qualified
and acting Secretary of	and I further certify that a meeting of the
(Name of Corporation) Directors of said Company, duly called and hele	d on, at which (Date of Meeting)
all Directors were present and voting, the follow	ving vote was unanimously passed:
VOTED: To authorize and empower	er
Anyone acting singly, to execute Forms the Corporation.	of General Bid, Contracts or Bonds on behalf of
I further certify that the above vote is still in any respect.	ll in effect and has not been changed or modified
Ву	:
A True Copy:	(Secretary of Corporation)
Attest:	
(Notary Public)	
My Commission Expires:(Date)	-
(Date)	

PERFORMANCE BOND

KNOW A	ALL MEN BY THESE PRESE	NTS: That we	
		<u>(N</u>	Name of Contractor)
a			alled "Principal" and
(Corporation, 1	Partnership, Joint Venture or Inc	dividual)	
	of	, State of	
(Surety)			(City & State)
		ed the "Surety" and lie	
Division of Insu	rance to do business under the l	aws of the Commonw	vealth of Massachusetts, are
	bound to the City/Town of		
"Owner", in the	penal sum of		
		Γ	Oollars
(\$) in lawful money	of the United States,	for the payment of which
sum well and tru	ly to be made, we bind ourselve	es, our heirs, executor	rs, administrators and
	ly and severally, firmly by these		,
THE CO	NDITION OF THIS OBLIGAT	TION is such that Whe	ereas, the Principal entered
	ntract with the Owner, dated th		-
	struction Contract"), for the con		
(1112 COII	in the contract of the contract of	and the state of t	

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of the Construction Contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under the Construction Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after (1) the Owner has declared the Principal in default of the Construction Contract or any provision thereof or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to execute the work consistent with, and in conformance to, the Construction Contract (collectively referred to as a "Contractor Default"). The determination of a Contractor Default shall be made solely by the Owner. The Owner need not terminate the Construction Contract to declare a Contractor Default or to invoke its rights under this Bond.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the Owner, shall promptly take one of the following steps: (1) arrange for the Principal to perform and complete the work of the Construction Contract: (2) arrange for a contractor other than the Principal to perform and complete the work of the Construction Contract; (3) reimburse the Owner, in a manner and at such time as the Owner shall decide, for all costs and expenses incurred by the Owner in performing and completing the work of the Construction Contract. Surety will keep Owner reasonably informed of the progress, status and results of any investigation of any claim of the Owner.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Construction Contract; (2) additional design, professional services, and legal costs, including attorneys' fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Construction Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligation of the Principal, if any, as provided in the Construction Contract; and (5) liquidated damages as provided in the Construction Contract, or if none are so specified, actual and foreseeable consequential damages resulting from the Contractor Default or default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the Commonwealth of Massachusetts.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the work or to the specifications.

0 TTEGT		
TTEST:		
	_	Principal
	By	
Principal Secretary)		
	_	
	_	(1.11
		(Address-Zip Code)
Vitness as to Principal	(SEAL)	
Tuness as to I fineipai		
(Address-Zip Code)		
TTEST:		
	_	Surety
	By	
		(Attorney-in-Fact)
	_	
	(CEAL)	(Address-Zip Code)
Vitness as to Surety	(SEAL)	
(Address-Zip Code)		

Partnership, all partners should execute Bond.

PAYMENT BOND

KNOW ALL MEN BY THESE PR	RESENTS: That we
a_	
(Name of Contractor) Individual)	(Corporation, Partnership, Joint Venture or
hereinafter called "Principal" and	of,
	of, (Surety)
State of here	einafter called the "Surety" and licensed by the State
(City and State)	einafter called the "Surety" and licensed by the State
held and firmly bound to the City/Town of	the laws of the Commonwealth of Massachusetts, are Massachusetts, hereinafter
Dollars	
	y of the United States, for the payment of which sum ves, our heirs, executors, administrators and successors ents.
	IGATION is such that Whereas, the Principal entered ed the day of

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ () counterparts, each one of which shall be deemed an original, this the ______ day of _____, 20__.

ATTEST:

By

(Attorney-in-Fact)

(Address-Zip Code)

Witness as to Surety

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

GENERAL CONDITIONS

See Attached EJCDC C-700 General Conditions Version 2007

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by









AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

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A Practice Division of the

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
 - 1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 - 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 - 3. Application for Payment—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 - 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 - 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 - 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 - 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 - 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 - 9. Change Order—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 - 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 - 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

- 12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
- 13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
- 14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
- 15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
- 16. Cost of the Work—See Paragraph 11.01 for definition.
- 17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
- 18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
- 19. Engineer—The individual or entity named as such in the Agreement.
- 20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
- 21. General Requirements—Sections of Division 1 of the Specifications.
- 22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
- 23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
- 24. Laws and Regulations; Laws or Regulations—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

- 25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
- 26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
- 27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
- 28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
- 29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
- 30. *PCBs*—Polychlorinated biphenyls.
- 31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
- 32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
- 33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
- 34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
- 35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
- 36. Resident Project Representative—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
- 37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
- 38. Schedule of Submittals—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

- 39. Schedule of Values—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
- 40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
- 41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
- 42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
- 43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
- 44. Substantial Completion—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
- 45. Successful Bidder—The Bidder submitting a responsive Bid to whom Owner makes an award.
- 46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
- 47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
- 48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
- 49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
- 50. Work—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such

construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. Work Change Directive—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. Intent of Certain Terms or Adjectives:

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day:

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective:

- 1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. Furnish, Install, Perform, Provide:

- 1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
- 2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
- 3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
- 4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

- 2.01 Delivery of Bonds and Evidence of Insurance
 - A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
 - B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.
- 2.03 Commencement of Contract Times; Notice to Proceed
 - A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the

Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 Starting the Work

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 Before Starting Construction

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 Preconstruction Conference; Designation of Authorized Representatives

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 Initial Acceptance of Schedules

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to

complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

- 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
- 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
- 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 Reference Standards

- A. Standards, Specifications, Codes, Laws, and Regulations
 - Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners,

employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies:

- 1. Contractor's Review of Contract Documents Before Starting Work: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
- 2. Contractor's Review of Contract Documents During Performance of Work: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
- 3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. Resolving Discrepancies:

- 1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 - 1. A Field Order;
 - 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 - 3. Engineer's written interpretation or clarification.

3.05 Reuse of Documents

- A. Contractor and any Subcontractor or Supplier shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 - 2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 Electronic Data

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 Subsurface and Physical Conditions

- A. Reports and Drawings: The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 Differing Subsurface or Physical Conditions

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
 - 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 - 2. is of such a nature as to require a change in the Contract Documents; or
 - 3. differs materially from that shown or indicated in the Contract Documents; or
 - 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.
- C. Possible Price and Times Adjustments:
 - 1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
 - 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

- contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
- 3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

- A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 - 1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
 - 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated:

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

- consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- 2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 Reference Points

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 Hazardous Environmental Condition at Site

- A. Reports and Drawings: The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is

- responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

- 5.01 Performance, Payment, and Other Bonds
 - A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
 - B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
 - C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly

licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 Certificates of Insurance

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
- b. by any other person for any other reason;
- 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
- 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
 - 1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 - include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 - 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 - 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 - remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 - 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 Owner's Liability Insurance

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 - 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 - 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 - 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 - 5. allow for partial utilization of the Work by Owner;
 - 6. include testing and startup; and
 - 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

- members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 Waiver of Rights

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 Receipt and Application of Insurance Proceeds

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 Acceptance of Bonds and Insurance; Option to Replace

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds

and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 Partial Utilization, Acknowledgment of Property Insurer

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 Progress Schedule

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 Substitutes and "Or-Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. "Or-Equal" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements

for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

- a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items:

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;

2) will state:

- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
- b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

- a) all variations of the proposed substitute item from that specified, and
- b) available engineering, sales, maintenance, repair, and replacement services; and
- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of

Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 Patent Fees and Royalties

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the

Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 Permits

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 Laws and Regulations

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 Use of Site and Other Areas

- A. Limitation on Use of Site and Other Areas:
 - 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full

- responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
- 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
- 3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.
- B. Removal of Debris During Performance of the Work: During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 Record Documents

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall

take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

- 1. all persons on the Site or who may be affected by the Work;
- 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
- 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 Safety Representative

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 Hazard Communication Programs

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 Shop Drawings and Samples

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings:

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. Samples:

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures:

- 1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
- 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review:

- Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
- 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
- 3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of

each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

- 6. any inspection, test, or approval by others; or
- 7. any correction of defective Work by Owner.

6.20 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 Delegation of Professional Design Services

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be

affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 Coordination

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 Legal Relationships

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 Replacement of Engineer

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 Furnish Data

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 Pay When Due

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 Lands and Easements; Reports and Tests

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 Insurance

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 Inspections, Tests, and Approvals

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 Limitations on Owner's Responsibilities

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 Undisclosed Hazardous Environmental Condition

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 Evidence of Financial Arrangements

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 Owner's Representative

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 Project Representative

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 Authorized Variations in Work

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 Rejecting Defective Work

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 Shop Drawings, Change Orders and Payments

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 Determinations for Unit Price Work

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 Decisions on Requirements of Contract Documents and Acceptability of Work

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 Limitations on Engineer's Authority and Responsibilities

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 Authorized Changes in the Work

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 Unauthorized Changes in the Work

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 Execution of Change Orders

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

- 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
- 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
- 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 Notification to Surety

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. Engineer's Decision Required: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. deny the Claim in whole or in part;
 - 2. approve the Claim; or
 - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. Costs Included: The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
 - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

- 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
- 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
- 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
- 5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of

property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.
- B. Costs Excluded: The term Cost of the Work shall not include any of the following items:
 - 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
 - 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances:

1. Contractor agrees that:

- a. the cash allowances include the cost to Contractor (less any applicable trade discounts)
 of materials and equipment required by the allowances to be delivered at the Site, and all
 applicable taxes; and
- b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance:

- 1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. Contractor's Fee: The Contractor's fee for overhead and profit shall be determined as follows:
 - 1. a mutually acceptable fixed fee; or
 - 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 Change of Contract Times

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 Delays

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

- 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
- 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 Uncovering Work

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the

parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 Owner May Stop the Work

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 Correction Period

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 Owner May Correct Defective Work

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other

arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

- 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
- 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

- 1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
- 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
- 3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

- 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
- 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
- 2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
- 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive

certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 Partial Utilization

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 Final Inspection

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 Final Payment

A. Application for Payment:

- 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
- 2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for

Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 Final Completion Delayed

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

- 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
- a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 Owner May Terminate for Cause

- A. The occurrence of any one or more of the following events will justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 - 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 - 3. Contractor's repeated disregard of the authority of Engineer; or
 - 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
 - 1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 - 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 - 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or

- remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 Owner May Terminate For Convenience

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 Contractor May Stop Work or Terminate

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may,

- upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

- 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
- 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 Controlling Law

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 Headings

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00800

SUPPLEMENTAL CONDITIONS

- 1. Supplementary General Conditions to EJCDC No. C-700, 2007 Edition
- 2. Insurance Requirements

AMENDING THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT PREPARED BY ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

(EJCDC NO. C-700, 2007 EDITION)

N	o	

2.01B Delete this paragraph and substitute the following:

Before any Work at the Site is started, CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which OWNER or any additional insured may reasonably request) which CONTRACTOR is required to purchase and maintain in accordance with Article 5.

- 2.03 Delete the last sentence.
- 3.02A.1 Delete the phrase starting "shall mean" through the end of this sentence and substitute the following:

shall mean the standard, specification, manual, code, or Laws or Regulations in effect and applicable at the time in question, except as may be otherwise specifically stated in the Contract Documents.

3.03A.3 Delete this paragraph and replace with the following:

CONTRACTOR shall be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity or discrepancy if CONTRACTOR knew or reasonably should have known thereof.

- 4.01A Delete the last sentence.
- 4.01B Delete this subparagraph in its entirety.
- 4.03C.3 Delete this subparagraph in its entirety.
- 4.04B.2 Delete the phrase "or not shown or indicated with reasonable accuracy" following the word "indicated." Delete the last sentence.
- 4.06C Add the following to the first sentence: "unless CONTRACTOR caused or contributed to such Hazardous Environmental Condition."

4.06D	Delete the last sentence.
4.06E	Delete the last sentence.
4.06F	Delete the second sentence.
4.06G	Delete this subparagraph in its entirety.
4.06H	Delete the last sentence.
5.03B	Delete this subparagraph in its entirety.
5.04B.7	Insert the following new subparagraph:
	7. "all coverage shall be written on an occurrence basis.
5.06A	Delete this subparagraph in its entirety and substitute the following:
	Owner may, in its discretion, purchase and maintain property insurance upon the Work at the Site.
5.06B	Delete this subparagraph in its entirety.
5.06D	Delete this subparagraph in its entirety and substitute the following:
	The risk of loss within any identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
5.07A	Delete all text after the first sentence.
5.07B	Delete this subparagraph in its entirety.
5.07C	Delete this subparagraph in its entirety.
5.08	Delete this paragraph in its entirety.
5.09	Delete this paragraph in its entirety.
5.10	Delete this paragraph in its entirety and substitute the following:
	OWNER may occupy or use a portion of the Work prior to Substantial Completion.

6.05A	Add the following to the second sentence ", and in accordance with G.L. c.30, $\S39M$."
6.06F	Insert the following at the beginning of this subparagraph:
	"Except as required by and indicated in the specifications and contract documents pursuant to G.L. c.149, §44F,"
6.07A	Delete the second sentence.
6.09C	Delete the last sentence.
6.13E	Delete the text in parentheses at the end of the first sentence.
6.20A	Delete the parenthetical phrase "(other than the Work itself)."
6.20.A	Change the phrase "negligent act or omission" to "negligent or wrongful act or omission."
7.01.A.2	Delete this subparagraph in its entirety.
7.01.B	Delete the last sentence.
7.02	Delete this paragraph in its entirety.
8.02	Delete the phrase "to whom CONTRACTOR makes no reasonable objection."
8.07	Delete this paragraph in its entirety.
8.09	Insert the following after the first sentence: "However, the OWNER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto."
9.02B	Insert the following at the end of this subparagraph: "However, the ENGINEER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto."
9.03	Delete the last sentence.
9.04	Delete the last sentence.
9.08C	Delete the final phrase "subject to the provisions of paragraph 10.05."
9.09B	Insert the following after the first sentence:

"However, the ENGINEER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto."

- 10.03A.3 Delete this subparagraph in its entirety.
- 11.01A.5 Delete subparagraphs a, b, d, e, f, g, and h.
- Delete this paragraph in its entirety.
- 12.01B.3 Delete the last phrase "(determined as provided in paragraph 12.01.C)."
- 12.01C.2 Delete this subparagraph in its entirety.
- 12.03B Delete this subparagraph in its entirety.
- 12.03F Insert the following new subparagraph:
 - 3. Delays caused by or within the control of the OWNER. In such event, the CONTRACTOR'S sole remedy shall be an extension of the Contract Time. Notwithstanding anything to the contrary in the Contract Documents, Contractor shall not be eligible for any increase in the Contract Price/Sum on account of any delay in the work, no matter by whom such delay is caused, and Contractor shall make no claim for such an increase, whether such claim is styled as a claim for delay damages, acceleration of work, loss of production, or otherwise.
- Delete the word "Prompt" at the beginning of the subparagraph.
- 13.03F Delete the balance of this subparagraph after the words "CONTRACTOR's expense."
- 13.04D Delete this subparagraph in its entirety.
- 13.08 Delete the fourth sentence.
- 13.09C Delete the second sentence.
- 14.02A.1 Delete the first phrase prior to the words, "Contractor shall" and substitute in place thereof the following: "On a monthly basis and in accordance with G.L. c.30, §39G,".
- Delete this subparagraph and substitute the following: "Retainage shall be in accordance with G.L. c.30, §39G.
- 14.02C Delete this subparagraph and substitute the following:

14.02D.2 Delete the words "immediate" and "promptly". 14.02D.3 Delete this subparagraph in its entirety. 14.04C Delete the third sentence and substitute the following: "OWNER shall review the tentative certificate and make written objection to ENGINEER as to any provisions of the certificate or attached list." Delete the phrase "within 14 days after submission of the tentative certificate to OWNER" in the fourth sentence. Delete the phrase "within said 14 days" in the fifth sentence. 14.05 Delete the phrase "subject to the following conditions" at the end of the first sentence and delete subparagraphs 1 and 2 in their entirety. 14.07B.1 Delete the phrase "within ten days after receipt of the final Application for Payment," in the first sentence. 14.07C Delete this subparagraph in its entirety and substitute the following: Final payment shall be made in accordance with G.L. c.30, §39G. 14.09A.1 Delete this subparagraph in its entirety. 15.01 Delete this subparagraph in its entirety and substitute the following: OWNER may suspend the work or any portion thereof in accordance with G.L. c.30, §390. 15.03A Delete from subparagraph 1 the phrase "including fair and reasonable sums for overhead and profit on such Work;" and from subparagraph 2 the phrase "plus fair and reasonable sums for overhead and profit on such expenses"; and delete subparagraphs 3 and 4 in their entirety. 15.04B Delete the last sentence.

Payment shall be made in accordance with G.L. c.30, §39G.

SUPPLEMENTAL CONDITIONS

§ SC 1.1 INTRODUCTION

The following provisions modify, change, delete from or add to Section 00500 Agreement. Where any Subsection of the Agreement is modified or any Article Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplemental Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

§ SC 2.1 PREVAILING WAGE

In accordance with General Laws Chapter 149, Section 26 through 27D, the Contractor is obligated to comply with the prevailing wage rates established by the Commissioner of the Department of Labor and Workforce Development for mechanics, apprentices, chauffeurs, teamsters and laborers employed on the Project. The schedule of applicable prevailing wage rates for the Project, together with a Certificate of Compliance therewith, are set forth in Attachment A herein.

§ SC 3.1 CONTRACTOR'S LIABILITY INSURANCE

TOWN OF ABINGTON

INSURANCE REQUIREMENTS

A. Worker's Compensation and Employers Liability Insurance

Coverage as required by the Worker's Compensation laws of the Commonwealth of Massachusetts, M.G.L. Chapter 149, §34A.

B. General Liability

Bodily Injury each occurrence limit	\$1,000,000
Bodily Injury aggregated limit	\$3,000,000
Property Damage each occurrence limit	\$1,000,000
Project Damage aggregated limit	\$3,000,000

Coverage must include Premises/Operations, Independent Contractors, Contractual Liability Assumed, Products/Completed Operations, Personal Injury, Pollution Liability, and shall not be subject to any of the special property damage liability exclusions commonly referred to as XCU exclusions.

C. Automobile Liability

Bodily Injury each person limit	\$1,000,000
Bodily Injury each occurrence limit	\$3,000,000
Property Damage each occurrence limit	\$1,000,000
Property Damage aggregated limit	\$3,000,000

Coverage must include Owned Vehicles, Leased Vehicles, Hired Vehicles, Non-Owned Vehicles.

D. Umbrella Liability

General aggregate limit	\$2,000,000
Products - completed operations aggregate	\$2,000,000
Each occurrence limit	\$2,000,000

E. Owner's Protective Liability Insurance

The Contractor shall furnish the Certificates of Insurance naming the Town of Abington as additionally insured as their interest may appear and maintain the require insurances through the life of this Contract.

F. General Requirements for All Lines of Insurance to be Furnishing

All policies shall be written so the Town shall be notified of cancellation or addition of "restrictive amendments" by registered mail or by facsimile not later than ten (10) days prior to the effective date of such cancellation or amendment.

If the initial policy/policies expire prior to the completion of the Work, renewal certificates shall be promptly filed with the Town for extension of said coverage. The full cost of insurance and renewing such coverage for additional amounts of time shall be the sole responsibility of the Contractor.

The Contractor shall require that each subcontractor procure, and maintain, until completion of that subcontractor's work, insurance of the types and to the limits set forth in the above sections. All such coverage by subcontractors shall be in favor of the Contractor, and the Town shall be held harmless from liability in all such policies. Use of subcontractor(s) are subject to the specifications herein.

The policies of insurance required by the General Conditions shall include by endorsement all policies listed above in SC 3.1, that the insurer shall waive all rights of Subrogation in favor of the Owner, Engineer, and any other party named in the written contract against whom the insurer must agree to waive rights of subrogation.

SECTION 00850

<u>Incorporation of Applicable Provisions of the</u> Massachusetts General Laws

Certain provisions of the Massachusetts General Laws are applicable to Construction contracts including, but not limited to, those contained in Chapter 30 and Chapter 149. All applicable provisions of the Massachusetts General Laws are incorporated into the Contract as if fully set forth herein and shall prevail over any conflicting provisions of the General or Supplemental Conditions.

SECTION 00900

SPECIFICATIONS

SCOPE OF WORK

The work under this contract consists of repairs to bridge number A-01-010 (AJQ). These repairs target selected deficiencies in both the superstructure and substructure to extend the lifespan of the bridge.

The work includes earth excavation, concrete excavation, removal of two existing granite slabs, installation of two precast concrete deck panels, substructure repair, scour repair, control of water, superpave asphalt pavement, riprap, and other incidental work.

Temporary traffic control will be established during the construction period utilizing portable traffic signal control. Temporary traffic control shall be limited to thirty (30) calendar days for each phase depicted in the Temporary Traffic Control Plans.

All cast in place concrete shall be tested according to MassDOT Standard Specifications. All testing shall be considered incidental to respective items. No separate payments shall be made for concrete testing.

All work under this Contract shall be done in conformance with the 2023 Standard Specifications for Highways and Bridges, the Supplemental Specifications contained in this book, the 2017 Construction Standard Details, the Traffic Management Plans and Detail Drawings, MassDOT Work Zone Safety Temporary Traffic Control, the 1990 Standard Drawings for Signs and Supports; the 2015 Overhead Signal Structure and Foundation Standard Drawings, the 2009 Manual on Uniform Traffic Control Devices (MUTCD) with Massachusetts Amendments; the 1968 Standard Drawings for Traffic Signals and Highway Lighting; The American Standard for Nursery Stock; the Plans and these Special Provisions.

MASSHIGHWAY TO MASSDOT NAME CHANGE

The following definitions in Section 1.00 of the Standard Specifications for Highways and Bridges are revised as follows:

(Amend definition of Department)

1.03 –DepartmentEffective November 1, 2009, St. 2009, c. 25 abolishes the Massachusetts Department of Highways and all assets, liabilities, and obligations become those of the Massachusetts Department of Transportation (MassDOT). Anywhere in this contract the terms Commission, Commonwealth, Department of Public Works, Department, Massachusetts Highway Department, MassHighway, Party of the First Part, or any other term intending to mean the former Massachusetts Department of Highways is used, it shall be interpreted to mean MassDOT or applicable employee of MassDOT unless the context clearly

requires otherwise. Furthermore, MassDOT by operation of law inherited all rights and obligations pursuant to any contract, and therefore parties to this contract hereby acknowledge and agree that its terms shall be liberally construed and interpreted to maintain the rights and obligations of MassDOT. Furthermore, the parties hereby acknowledge and agree that the transfer of all rights and obligations from the Massachusetts Department of Highways to MassDOT shall not have the effect of altering or eliminating any provision of this contract in a manner that inures to the detriment of MassDOT.

SUBSECTION 4.04 CHANGED CONDITIONS.

This Subsection is revised by deleting the two sequential paragraphs near the end that begin "The Contractor shall be stopped..." and "Any unit item price determined ..." (1/6/2006).

MATERIAL TESTING

The Contractor shall obtain the services of a qualified material testing company to provide in-situ compaction and other material testing (Cast-in-place concrete) as ordered by the Resident Engineer. No separate payment will be made, and all costs associated with material testing shall be considered incidental to various contract items.

MOBILIZATION

The unit bid price for Mobilization (Item 748.) shall not exceed 3% of the contract bid total, exclusive of this item. Failure to observe this requirement could result in rejection of the bid.

SUBSECTION 8.06 LIMITAIONS OF OPERATIONS

Add/amend the following at the end of the Section:

WORK SCHEDULE

This contract contains the following work restrictions:

No work shall be done on this Contract on Sundays, on holidays or on the day before or after the day after a long weekend that involves a holiday without prior approval of the Town.

Work on this project is restricted to the hours between 7:00 AM to 7:00 PM, with the Prime Contractor and all Subcontractors working on the same shift. The Contractor shall give notice to the Town at least 48 hours in advance of beginning any work affecting the public use of the roadway, other than the single lane closure.

When ready to remove and replace the existing deck slabs, the Contractor shall install the single lane closure as shown within these Contract Documents. The Contractor shall alert the Town of at least 21 calendar days prior to installing the temporary traffic signals.

PROPERTY BOUNDS

The Contractor shall exercise due care when working around all property bounds, which are to remain. Should any damage to a bound result from the actions of the Contractor, the bound shall be replaced and/or realigned by the Contractor as directed by the Engineer. No further compensation will be due to the Contractor for the materials and labor required to re-establish the bound in its proper position.

DESIGNER/PROJECT MANAGER

DESIGNER TEC, Inc. Robert G. Niccoli, P.E., S.E. 978-794-1792

PROTECTION OF UNDERGROUND FACILITIES

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etcetera, will occur.

The Contractor shall notify Massachusetts DIG SAFE and procure a Dig Safe Number for each location prior to disturbing existing ground in any way. The telephone number of the Dig Safe Call Center is 811 or 1-888-344-7233.

TRAFFIC CONTROL

Single lane traffic closures are shown on these plans. This closure shall be closely coordinated with the Town of Abington. The Contractor shall give the Town twenty-one (21) calendar days notice prior to implementing the detour. Traffic closures shall be limited to thirty (30) calendar days for each phase depicted in the Temporary Traffic Control Plans.

PUBLIC SAFETY AND CONVENIENCE

(Supplementing Subsection 7.09)

The Contractor shall without additional compensation be required to provide safe and convenient access to all abutters during the prosecution of the work, except for such periods at such locations as may be authorized in writing by the Engineer.

PROTECTION AND RESTORATION OF PROPERTY

(Supplementing Subsection 7.13)

Written notice shall be given by the Contractor to all public service corporations or municipal and State officials owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Town.

A list of public and private utilities can be found on the MassDOT Highway Division website at: https://hwy.massdot.state.ma.us/webapps/utilities/select.asp \rightarrow District 5 \rightarrow (ABINGTON), and then locate the utility.

STAGING AREAS

Space will be made available to the Contractor at the Abington Highway Department for material storage and laydown area. The Contractor shall coordinate directly with the Abington Highway Department.

<u>ITEM 114.11</u> <u>PARTIAL DEMOLITION OF SUPERSTRUCTURE</u> <u>OF BRIDGE NO. A-01-010 (AJQ)</u>

<u>LS</u>

The work to be done under this item shall conform to the relevant provisions of Section 112 of the MassDOT Standard Specifications and the following:

The work shall consist of the removal and satisfactory disposal of the two granite slabs designated by the plans. All other bridge elements are to be kept in place and shall be undamaged from the removal process. Remaining parts of the existing structure that are damaged or otherwise made unstable by the Contractor's operations shall be replaced or repaired by the Contractor at his/her own expense.

The work shall be performed after installation of temporary shoring to support the slabs during the removal process. The installation and removal of temporary shoring will be paid for under Item 950.1.

BASIS OF PAYMENT

Item 114.11 Partial Demolition of Superstructure of Bridge No. A-01-010 (AJQ) will be paid at the Contract Lump Sum price. The Contract price shall include all labor, tools, equipment, materials, and incidental costs required to complete the work as indicated by the Contract Documents.

The work to be done under this Item shall conform to the relevant provisions of Section 120 and 482 of the MassDOT Standard Specifications, the Plans, and the following:

The work shall consist of the excavation and disposal of existing concrete slab located on top of the granite slabs to the limits shown on the Plans.

The Contractor shall not remove any existing concrete beyond the specified limits unless directed by the Engineer. Sawcutting shall be performed to the specified limits prior to any concrete removal and shall be considered incidental to this item.

The Contractor shall use pneumatic or power hammers with a maximum mass of 35 lbs., subject to the approval of the Engineer. During the prosecution of this work, the Engineer may reject the use of any prior approved method or equipment that causes excessive vibration or possible damage of the existing or adjacent structures.

Concrete shall be removed by a method approved by the Engineer. The Contractor shall take care not to damage any other part of the structure that is to remain. The contractor's attention is directed towards the proximity of the concrete slab to the existing granite slabs, as shown in the Plans. Special care shall be taken not to damage the existing granite slabs in the process of excavation. Remaining parts of the existing structure that are damaged or otherwise made unusable by the Contractor's operations shall be replaced or repaired by the Contractor at his/her own expense.

The Contractor shall be responsible for all temporary earth support required to protect and to maintain adjacent roadways, waterways, sidewalks, and structures in a safe condition during construction.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 127. will be measured for payment by the Cubic Yard of concrete in its original encountered position by measuring the surface area of concrete to be removed and measuring the depth to be removed.

Item 127. will be paid for at the Contract unit price per Cubic Yard of material excavated, removed, and disposed, as measured above, which shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 271.121 12 INCH AND UNDER PIPE REMOVED AND DISCARDED FOOT

All work to be done under this Item shall conform to the relevant provisions of Section 270 of the MassDOT Standard Specifications, the Plans, and the following:

The work under this Item shall include the dismantling, removal, transporting, and discarding of the existing abandoned utility pipe as shown on the Plans and as required by the Engineer.

Work under this item shall also include patching the resulting voids in the pier and abutment walls with cement mortar. The cement mortar shall meet the requirements of Subsection M4.02.15 of the MassDOT Standard Specifications.

Access to the underside of the bridge to remove the pipe as directed herein shall be considered incidental to this item.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 271.121 will be measured for payment per Foot of pipe removed and discarded.

Item 271.121 will be paid for at the Contract unit price per Foot, which shall include all labor, materials, equipment, and incidental costs required to complete the work.

Work under this item shall conform to the relevant provisions of Sections 227 and 670 of the Standard Specifications and the following:

The work under this item includes the furnishing, installation, maintenance, and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

CONSTRUCTION

Silt sacks shall be installed in retained existing catch basins and drop inlets within the project limits and as required by the Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions, and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

All debris accumulated in silt sacks shall be handled and disposed of as specified in Section 227 of the Standard Specifications

ITEM 697.1 (Continued)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 697.1 shall be measured and paid at the Contract unit price per Each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment shall be made for removal and disposal of the sediment from the insert, regardless of the frequency of removal and disposal, but all costs in connection therewith shall be included in the Contract unit price bid.

GENERAL

This work under this item shall include installation, maintenance, and removal of a temporary floating silt fence to prevent any sediment disturbed during construction from reaching adjacent waterways and further dispersing.

The work under this item shall conform to the relevant provisions of Section 670 of the Standard Specifications and the following:

MATERIALS

Floating silt fence shall be made of a woven polypropylene with a minimum 200 lb. tensile strength. The Contractor shall submit to the Engineer, for review and approval, product specifications and technical data provided by the manufacturer, prior to installation. The fence shall be continuously weighted at the bottom to maintain a vertical submerged position. Anchors shall be placed at both ends of the curtain and at intermediate locations, as necessary, to hold the fence securely in place. The fence shall be installed to withstand the forces of the flow of the waterway.

METHODS

Floating silt fence shall be installed before construction begins and earth is disturbed. Silt fences shall be inspected and approved by the Town of Abington Conservation Commission Agents after installation and prior to commencement of further construction activities.

The Contractor shall inspect the silt fence at least weekly to ensure continuous effectiveness. Fence shall be maintained for effective performance at all times. If any fence becomes damaged or dislodged, construction activities shall be halted until all deficiencies are corrected by the Contractor with no additional compensation. The floating silt fence shall be removed after all construction activities are completed and in such a way that no collected sediment is dispersed into waterways.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 697.2 will be measured for payment by the Foot installed, complete in place.

Item 697.2 will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 698.4 GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL

The work under this item shall consist of furnishing and placement of geotextile fabric for permanent erosion control at the locations shown on the Plans or as directed by the Engineer.

This work shall include the installation of geotextile fabric between the interface of the natural soil layer and the proposed crushed stone beneath the riprap as indicated on the Plans.

The geotextile fabric shall be handled and installed per the manufacturer's recommendations.

MATERIALS

The geotextile fabric shall be selected from the MassDOT Qualified Construction Materials List. The geotextile fabric shall conform to the requirements of Subsection M9.50.0 of the Standard Specifications and AASHTO M 288, Class 3, for fabric used for permanent erosion control. Construction and installation shall be in accordance with AASHTO M 288 including Appendix A and the following.

METHODS

Atmospheric exposure of the geotextile fabric to the elements following lay down shall be limited to a maximum of 14 days.

Geotextile shall be placed in direct contact with soils without wrinkles or folds and shall be anchored on a smooth graded surface approved by the Engineer. The geotextile shall be placed in such a manner that placement of the overlaying materials will not excessively stretch or tear it.

Adjacent geotextile sheets shall be joined by either sewing or overlapping. At roll ends, overlapped seams shall overlap a minimum of 12 inches, except when placed under water, where they shall overlap a minimum of 3 feet. Adjacent rolls shall overlap a minimum of 12 inches.

Care shall be taken during installation to prevent damage to the geotextile as a result of the installation process. Should the geotextile be damaged, a geotextile patch shall be placed over the damaged area extending a minimum of 3 feet beyond the limits of the damage.

Care shall be taken during the placement of crushed stone and riprap to avoid stretching and subsequent tearing of the geotextile. Stones shall not be dropped from a height exceeding 3 feet.

Any section of fabric that is damaged shall be repaired in accordance with the manufacturer's requirements and AASHTO M 288 and to the satisfaction of the Engineer or it shall be replaced at the Contractor's expense.

ITEM 698.4 (Continued)

If during construction, including any time prior to final acceptance of the project by the Engineer, the slope shall exhibit signs of failure, the slope shall be repaired and the geotextile fabric reinstalled or replaced by the Contractor, as required by the Engineer, at Contractor's expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 698.4 will be measured for payment by the Square Yard, complete in place as shown on the Plans or as directed by the Engineer. Overlapping for seams and joints shall me measured as one layer of fabric. Any embedment or wrapping at the toe or top of slope, applied per manufacturer's installation recommendations or the Engineer direction shall be measured for payment.

Item 698.4 will be paid for at the Contract unit price per Square Yard, which price shall include all labor, materials, equipment, and incidental costs required to complete the work as indicated on the Contract Documents, as specified herein and as required by the Engineer.

The work under this item shall conform to the relevant provisions of Sections 120, 770, 771 of the Standard Specifications and the following:

Work under this item shall include furnishing material and the construction and maintenance of wetland replication areas as shown on the drawings and as required by the Engineer. Wetland Replication Area shall hereafter be referred to as Replication Area. All work shall be in coordination with an approved Wetland Specialist as specified under that item.

The Replication Area shall be constructed prior to wetland impacts unless otherwise approved by the Engineer, specified herein, or specified in permit conditions and approvals. Construction schedule shall be appropriate to planting and seeding season (see below). Changes to this schedule will require written approval from the Engineer.

DESCRIPTION OF WORK

Construction of the Replication Area shall be completed as shown on the drawings at the following location(s):

Area/s A at Station: 50+80 Area = 87 sf. Area B at Station: 50+70 Area = 430 SF

Replication Area shall be constructed to meet the requirements of all associated permits and certifications, including relevant performance standards of the Massachusetts Wetlands Protection Act (MGL C. 131, s40), Section 401 Water Quality Certification, and Section 404, U.S. Army Corps of Engineers Permit.

The Contractor is responsible for protection and preservation of natural areas adjacent to the Replication Area both within and outside the project limits and for the duration of the Contract; including but not limited to damage to soils or vegetation due to erosion, sedimentation, compaction, trampling, vehicles, storage of materials, or other negligence shall be repaired to the satisfaction of the Engineer and at the Contractor's expense. The contractor shall install a fence to restrict access to the west bank of the site, as seen in the Notice of Intent plan.

The contractor shall use equipment that is small and tracked to avoid impacts.

The Wetland Specialist overseeing the Wetland Replication construction work shall not be from the same company as that which is performing planting, seeding, or participating in any aspect of the Wetland Replication construction.

SUBMITTALS - DOCUMENTS

<u>Request for Conditional Acceptance:</u> As specified below, a letter requesting Conditional Acceptance of the work and the site conditions shall be submitted to the Engineer.

<u>Request for Certificate of Compliance (Partial or Full)</u>: As specified below, shall be submitted to the Engineer for distribution to appropriate regulatory agencies.

Request for Final Acceptance: As specified below, a letter requesting Final Acceptance of the work and the site conditions shall be submitted to the Engineer.

<u>Monitoring Reports</u>: Reports shall be submitted to the Engineer as specified below. Reports shall be compensated under Item 755.75.

SUBMITTALS - MATERIALS

Soil and Amendments

No soil, compost, or other soil amendment imported to the work site shall contain seeds, roots, stems, or other viable parts of invasive plants or other noxious plants.

At least sixty (60) days prior to installation and prior to ordering, the Contractor shall submit for approval sources of soil, compost, and amendments. Submittal shall include the supplier and location of the source. Off-site sources shall be identified and available for inspection by the Wetland Specialist prior to transport of material to the site to verify that they are likely to be free of invasive plant species, including all viable plant parts.

Samples of tested and approved wetland soil and soil amendments for soil texture, organic carbon content or other routine soil analysis parameters (e.g., pH, Cation Exchange Capacity, Percent Base Saturation) and Soil Organic Matter Analysis will be required if requested by the Engineer. The grab samples shall be collected by the Contractor or Wetland Specialist from multiple representative locations in the wetland topsoil mix following the "Umass Soil and Plant Tissue Testing Laboratory Sampling and Collection Protocols" (or equivalent certification paperwork provided by the soil supplier). The lab analysis shall be provided to the Engineer along with written certification from the Contractor or Wetland Specialist that the wetland topsoil was collected per the referenced protocol and meets the desired specification. The analysis and written certification of same shall be provided to the Engineer prior to placing the wetland topsoil in the Replication Area.

Seed Mix

Certificate of materials from the supplier shall be submitted 30 days prior to seeding and must be approved prior to ordering materials. Seed species listed on the certificate shall include ecotype region (i.e., *Asclepias incarnata*, PA Ecotype).

Seed tag from the bag of seed used shall be submitted to the Engineer at the time of seeding. Seed tag shall include ecotype region and species, guaranteed percentages of purity, weed content and germination of the seed, and the net weight. Seed tag shall match the Certificate of Materials, include the name of the supplier, and date material was sent.

Bill of lading or notarized Certificate of Compliance from the Supplier serving as proof of purchase shall be submitted if requested by the Engineer. Document shall include date of sale, quantity, lot number, and address of Supplier. This shall match the seed tag. Notary shall not work for either the contractor or seed supplier.

Plant Certification

Plant Certification shall be per the applicable requirements of Subsection 771, PLANTING TREES, SHRUBS AND GROUNDCOVER, of the Standard Specifications. The nursery source shall certify the provenance or origin of all plants.

Other Material: Submittals shall be per the respective item.

MATERIALS

Sediment Control Barrier and Erosion Prevention Measures:

Sediment control barriers shall be per Item 767.121.

Erosion prevention measures for disturbed areas adjacent to the Replication Area shall include but not necessarily be limited to compost blankets, jute mesh, seeding, and/or combinations thereof as approved by the Engineer.

Sediment controls and erosion prevention devices and measures shall be compensated under the respective items.

Wetland Soil

Soil appropriate for the Replication Area may be either hydric soil excavated from the impacted wetland, a manufactured mix of compost and on-site borrow, or a combination thereof, as approved by the Engineer.

Hydric soil from the impacted wetland area may be spread on the surface of the constructed Replication Area as an inoculant or can be placed in a bulk fashion in a roughly 1:1 ratio of area and depth. Soil shall be handled such that the original soil structure is preserved and shall not be compacted, screened, or otherwise processed.

Hydric soil from the impacted wetland that is infested with invasive plant species identified on the Massachusetts Invasive Plant Advisory Group (MIPAG) shall not be used in the Replication Area unless approved by the Wetland Specialist and Engineer. To the extent possible, infested soil shall be disposed of within the project limits in an upland area outside of regulated areas and as approved by the Invasive Plant Management Strategy item (if in the contract) or by the Engineer.

A manufactured mix suitable for wetlands shall consist of on-site borrow from the proposed Replication Area (if approved by the Wetland Specialist and Engineer) thoroughly mixed with compost to achieve a target organic carbon content of 10-12% (up to 21% percent organic matter) by dry weight. The organic material used for mixing shall be well or partially decomposed. Clean leaf compost is the preferred soil amendment to achieve these standards though other materials may be used if approved by the Wetland Specialist and Engineer. Note that "clean" refers both to a negligible amount (<1%) of physical contaminants such as plastic and to the lack of chemical contaminants that might pose a hazard to plants or animals. Off-site borrow may be used for mixing if approved in advance by the Engineer.

No soil or soil amendment shall be brought on site without approval of the material source by the Wetland Specialist and the Engineer. Soils used in the replacement area shall be free of rocks greater than 4 inches in diameter.

Seed Mix

Seeding shall conform to the Standard Specifications Section M6, Roadside Development Materials.

Mix 765.453 Wetland – Riparian M

	Botanical Name	Common Name	% PLS By Weight
Grass			
	Sorghastrum nutans NY Eco	Indiangrass NY Ecotype	14.00%
	Schizachyrium scoparium	Little Blue Stem	14.00%
	Elymus riparius	Riverbank Wild Rye	10.00%
	Elymus virginicus	Virginia Wild Rye	10.00%
	Panicum clandestinum 'Tioga'	Deer Tongue 'Tioga'	9.00%
	Andropogon gerardii NY Eco	Big Bluestem NY Eco	8.00%
	Carex vulpinoidea	Fox Sedge	7.00%
	Panicum virgatum	Switchgrass	3.00%
	Juncus effusus	Soft Rush	2.00%
	Agrostis perennans	Upland Bentgrass	2.00%
	Scirpus atrovirens	Green Bulrush	<u>1.00%</u>
			80.00%
Herb/Forb			
	Chamaecrista fasciculata	Partridge Pea	3.00%
	Verbena hastata	Blue Vervain	3.00%
	Asclepias incarnata	Swamp Milkweed	3.00%
	Heliopsis helianthoides	Ox-Eye Sunflower	2.00%
	Eupatorium perfoliatum	Boneset	2.00%
	Aster umbellatus	Flat Topped White Aster	1.00%
	Aster prenanthoides	Zig Zag Aster	1.00%
	Aster puniceus	Aster – Swamp	1.00%
	Aster novae-angliae	New England Aster	1.00%
	Eupatorium maculatum	Joe-pye Weed	1.00%
	Monarda fistulosa	Wild Bergamot	1.00%
	Vernonia noveboracensis	New York Ironweed	1.00%
			<u>20.00%</u>
			100.00%

Wetland Seed – Riparian Mix shall be used within the proposed wetland replication area. Species ecotype shall be as native to New England region as possible. Apply this mix at 20 lbs PLS/acre.

FOR USE WITH SLOPES: Add 30 lbs/acre of a cover crop if erosions is a concern. For a cover crop use either grain oats (1 Jan to 31 July) or grain rye (1 Aug to 31 Dec). Cover crop shall be incidental to Wetland Replication

Fertilizers shall not be used.

Water

The Contractor shall provide water and all equipment required at no extra cost. Water shall be suitable for irrigation and free from ingredients harmful to plants and wildlife. Water from the adjacent water bodies or waterways shall not be utilized. It is the Contractor's responsibility to correct injury or damage due to the lack of water, too much water, or use of contaminated water.

Mulch for Seeding

Hydromulch shall be per the manufacturer's recommendations and shall be wood fiber or straw mulch only. Mulch shall be incidental to seeding.

CONSTRUCTION METHOD & SEQUENCE

The following is a proposed sequence of construction for the completion of the wetland replication:

- 1. A pre-construction conference with the Contractor and a qualified Wetland Specialist shall be conducted to ensure all aspects of the project, as well as any Order of Conditions, are understood. Equipment needs and access routes to the proposed replication area and stockpile areas shall be firmly established.
- 2. The boundary of vegetated wetland shall be re-established in the field as needed.
- 3. Erosion control barriers shall be installed along the existing wetland edge of the replication areas. This erosion control barrier shall also serve as a limit of work. The Conservation Commission shall be notified upon completion of installation and afforded the opportunity to inspect all installed sediment controls prior to initiation of any work.
- 4. Vegetation shall be cleared from the replication areas, with the exception of any native trees listed as FAC or Wetter in the 2020 Northcentral and Northeast Regional Wetland Plant List from the US Army Corps of Engineers. These trees may be tagged and remain in place at the discretion of the Wetland Specialist. Topsoil within the replication area shall be excavated and stockpiled for re-use. Re-use of wetland soil at the impact area in not permitted due to the potential for contamination by non-native and invasive species present along the roadside. The replication area shall then be excavated to an elevation approximately 12 inches

below final grade, which is the grade at the wetland boundary between flags A100-A101. The excavated area shall be "feathered" into the surrounding landscape so as not to create abrupt changes in grade and in no case steeper than 3:1. All excavation equipment operating within the replication area shall be small and on tracks to reduce soil compaction. Machine movement shall be minimized to the extent practicable.

- 7. Following grading, Contractor shall apply a uniform layer of no greater than 6-inches of clean organic rich topsoil, screened loam, or compost to provide suitable growing substrate for native plantings and seed mixes.
- 8. The replication area shall be gently compacted, and hand raked to enhance surface water retention. Spot elevations shall be taken to confirm desired elevations.
- 9. Plantings shall be obtained as container grown nursery stock. Substitutions may be required depending on availability and cost. A native wetland seed mix shall be hand sown as an understory cover to provide short-term erosion control, wildlife food, and cover and to discourage the establishment of invasive, non-native species such as purple loosestrife (Lythrum Salicaria) and common reed (Phragmites Australis).
- 10. The replication area shall be monitored in coordination with the Abington Conservation Commission, U.S. Army Corps of Engineers (USACE) and Mass DEP.
- 11. Water by flooding twice in first two hours after planting. Water and maintain as per Standard Specifications. Shrubs shall be planted so the crown is 2 inches above finished grade after settlement.

Site Protection Measures

Minimizing Damage

The Contractor shall plan and execute operations in a manner minimizing the amount of excavated and exposed fill or other foreign materials that could be washed or otherwise carried into Replication Area and nearby resource areas.

Construction of and access to the Replication Area shall minimize damage to existing vegetation and soils as specified herein. Damage to soils or vegetation shall be repaired to the satisfaction of the Engineer and at the Contractor's expense. If required for soil remediation, tilling and the addition of compost shall be at the Contractor's expense.

Wetland topsoil shall be deposited and graded in the Replication Area in a manner that minimizes travel and subsequent compaction of the subgrade (including any specified pit and mound topography) to the extent practicable, including use of track mounted excavators as appropriate. Should soils be compacted, they shall be loosened by a method such as disking, spring-tooth harrowing and/or rototilling. The Contractor shall use boards, timber or composite mats, or other approved materials as necessary, to protect existing and/or new wetlands from compaction due to heavy foot traffic or if equipment is required to travel over wetland soil. All

labor and materials required for protection and preservation of site shall be incidental to this item.

Stockpiling of Soil

Stockpiling of soil, including hydric soil for replication, shall be at least 100 feet from the edge of the bordering and isolated vegetated wetlands and inland banks, unless approved otherwise by the Engineer. Stockpiled soils shall be securely stabilized and contained. Any areas of exposed soil or stockpiles within and adjacent to the Replication Area that will remain inactive for more than 7 calendar days shall be sown with a mix of rapid germinating annual grasses (e.g., annual rye) covered with a layer of straw mulch applied at a rate of 90 pounds per 1,000 square feet. As necessary, the mulch shall be anchored with a tacking coat (non-tar) applied by a hydro seeder or other method recommended by the Wetland Specialist in consultation with the Engineer. In the event that there is excess borrow, it shall be disposed of under Excavation, Item 120.1.

Sediment Barriers

Placement: Sediment barriers shall be installed along the downslope perimeter of the Replication Area beginning and ending in the surrounding upland so that no excavated material or disturbed soil can enter adjacent wetlands or waters. Where construction work is immediately upgradient of the wetland, barriers shall be located so as to protect the Replication Area until slopes are stabilized. Sediment barriers shall be in place and approved by the Engineer prior to excavation work. No work shall take place outside the barriers.

Maintenance: The Contractor shall ensure that all sediment barriers function as intended and at all times per the specifications of those respective items.

Existing Trees to Remain

Tree protection shall be per the relevant specifications and as shown on the plans or as required by the Engineer. To protect root systems of existing trees to remain, the limits of the Replication Area may be adjusted, but, the total area of replication required by the permits shall not be reduced. Access route may be adjusted as required.

Trees to be retained as snags (upright dead or dying trees left for wildlife habitat) within or adjacent to the Replication Area shall be as shown on the plans or as directed by the Wetland Specialist or Landscape Architect during the initial site walk. Trees to remain as snags shall be clearly marked prior to clearing. Trees that pose a potential fall hazard (i.e., are near a roadway) should have limbs and trunk cut such that the tree does not pose a fall hazard.

Coarse woody debris in the form of cut trees, stumps, logs, and brush shall be incorporated as shown on the plans or as directed by the Wetland Specialist or Landscape Architect. On site material shall be selected and marked by the Wetland Specialist, retained on the project site, and placed as specified below under Incorporation of Coarse Woody Debris.

All trees, stumps, or brush not specified to remain shall be removed and shall not be stockpiled in the wetland resource areas while awaiting disposal.

Work shall be coordinated with Clearing or Tree Removal Item and compensated under that Item.

PRE-WETLAND CONSTRUCTION SITE WALK

Delineating the Replication Area and Access Route. The Contractor shall stake out the Replication Area boundaries and the intended access route and set grade stakes for approval by the Wetland Specialist and Engineer. Following staking and demarcation of areas, the Engineer and Wetland Specialist shall approve or modify as necessary the limits of work, the access route, final location and configuration of replication, grade stake elevations, proposed location of sediment barriers, and review proposed construction methods.

As part of the delineation and approval process, the Wetland Specialist shall mark trees to be converted to snags, select course woody debris to be retained for re-use, and select rocks or other elements to be used for habitat features.

Invasive Plants: As part of the initial site walk, the wetland to be impacted and the proposed replication site shall be inspected for the presence of invasive plants. If invasive plants are found they shall be addressed as described herein under Invasive Plants.

Soil Work

Final grades in the Replication Area shall meet the target elevations as shown on the Plans or as adjusted by the Wetland Specialist to achieve the desired hydrology and micro-habitat. If adjustments are required, a Request for Information (RFI) shall be submitted to the Engineer for approval. Adjustments shall be documented and included in the As-Built plans (if required) and/or other applicable required documents.

Excavation & Grading

When required by permits, the Wetland Specialist shall notify MADEP and the ACOE (as applicable) at least 72 hours prior to excavation.

Soil in the proposed wetland areas that must be removed for grades to conform to the proposed elevations shall be stripped and disposed of, or, if suitable for reuse, be stockpiled in an approved location. Stockpiled soils shall be kept wet and not allowed to dry out. Procedures for maintaining appropriate moisture levels shall be documented by the Wetland Specialist and provided to the Engineer and the Contractor.

Replication area shall be excavated as shown on the drawings. Where replication area is adjacent to existing reference wetland, finish grade of replication shall generally match existing grades

and micro-topography, notwithstanding any deviations that are necessary to achieve the desired hydrology and habitat in the Replication Area.

Prior to placement of backfill, scarify subgrade to a depth of 4 to 6 inches.

Placement of Wetland Soil

Following excavation, scarification, and grading of sub-grade, and after the sub-grade elevations are approved by the Wetland Specialist, suitable soil previously removed or an evenly mixed organic/mineral soil created on-site shall be spread to the design depth and thickness over the proposed wetland areas as shown on the plans and as directed by the Wetland Specialist.

Vehicles used to transport soil from offsite shall be washed or cleaned with air pressure to prevent exotic or invasive seeds or root fragments from contaminating the Replication Area.

Final Grading

The finished grade of the Replication Area shall be at an elevation that will provide an unrestricted hydrologic connection between the Replication Area and adjacent resource areas. The hydrologic connection should be in keeping with restoring the intended function of the replacement wetland relative to the impacted reference wetland. The Contractor shall verify that this elevation is not at a level that could negatively alter the hydrology of an adjacent wetland. Microtopography in the form of hummocks, pits and mounds shall be as shown on the plans or as adjusted by the Wetland Specialist. Final elevations and grading of wetland soil shall be approved by the Wetland Specialist and the Engineer.

To avoid compaction once soil has been placed, no heavy equipment shall travel across placed soil and no work shall occur in wet or moist soil. Soil that is compacted due to construction activities shall be replaced with soil as specified herein and at the Contractor's expense.

Restoring Vegetation

Placement of Coarse Woody Material

If specified within this Contract or if directed by the Wetland Specialist or Landscape Architect during the initial site walk, woody debris shall be incorporated into the Replication Area and/or adjacent upland buffer. Material shall be placed as shown on the plans or as directed following placement of wetland soil and prior to application of compost and/or seed. Woody material shall cover a minimum of 5-20 percent of the Replication Area, depending on whether it is a meadow or woodland wetland and how much wood is available from construction clearing. Where trees are cut for construction purposes, logs of a minimum length of 8 feet must comprise a minimum of 50% of the woody material left on site. Brush shall be included along with logs and stumps as directed. Woody material shall be placed in a deliberate and naturalistic manner.

<u>Planting</u>

Following placement of wetland soil and approval of final grade and conditions, Replication Area shall be planted. Planting shall conform to SECTION 771 PLANTING TREES, SHRUBS AND GROUNDCOVER of the Division I Standard Specifications and as amended below.

Planting Season shall be May 15-June 15 and September 1-November 1 unless otherwise specified in applicable permit conditions. All plant material shall have tags indiacting common name, botanical name and size.

Prior to planting, the Wetland Specialist shall approve the condition of the plant material and the method of installation and shall oversee the planting work. Replication Area shall be planted in the dry. Plants shall be placed according to the planting details and within the range of target elevations and at the spacing shown on the Plans or, if spacing is not indicated on the Plans, at the direction of the Wetland Specialist. Unless otherwise noted on the Plans, final plant locations shall be determined on site and located with regard to expected hydrology, plant growth characteristics, habitat desired, and water protection.

Plant material shall be installed as soon as possible after delivery. Plants stored on-site prior to installation shall be stored in the shade and watered twice daily up until time of installation. Plants showing signs of stress or compromised health may be rejected by the Engineer or Wetland Specialist and shall be replaced at the Contractor's expense.

Plant material shall be furnished and installed as indicated including all labor, materials, plants, equipment, incidentals, re-setting of plants (frost heaves, etc), irrigation, re-planting and clean up. If previously approved species are not available at the time of planting, the Wetland Specialist may propose substitutions relative to species, size, and quantities for review and approval by the MassDOT Landscape Architect. Upon approval by MassDOT, substitutions shall be approved by the regulating authority, if and as necessary. Provisions shall be made for a growth warranty of at

least two (2) calendar years from the date of Conditional Acceptance as described below or as required by permits.

Soils shall be transported in vehicles that have been washed such that no exotic/invasive seeds from other sites get mixed in. Trucks that have previously been on other sites shall be washed prior to introduction to the restoration/replication site such that mud/dirt with exotic/invasive seeds is not inadvertently brought to the restoration site.

Seeding

Following placement of wetland soil and planting (if included), the Replication Area shall be seeded using one of the following methods:

- Broadcast by hand or with a hand-held spreader followed by application of straw mulch. If necessary, seed shall be lightly raked to insure good seed-to-soil contact.
- Hand broadcast seed with Compost Blanket pneumatically applied at the same time to ensure light cover of soil topdressing over seed.
- Compost Blanket can be either straw or compost.

If spring conditions are drier than usual, supplemental watering may be required. If sowing during the summer months, supplemental watering will likely be required until germination.

Wetland seeding shall be by broadcast method only.

If required, seeding limits for different seed mixes shall be determined by the Wetland Specialist.

PLANT ESTABLISHMENT AND INVASIVE MANAGEMENT

Plants shall be watered as necessary to maintain healthy establishment. Plants that fail by September 1 after spring planting or by May 15 after fall planting shall be replaced within the immediate or next planting period and at the Contractor's expense.

Seeding that fails to establish according to the conditions of acceptance below shall be over-seeded as required by the Engineer. Washouts and channels shall be repaired and stabilized prior to overseeding. Excessive weed growth shall be pulled out by the roots or, with approval from the Engineer, cut prior to over-seeding. Soil repair and weed control are incidental to this item.

Invasive Plants: Corrective measures shall be taken to remove or treat invasive plant species in the Replication Areas. Invasive plants shall include those listed as invasive by Massachusetts Invasive Plant Advisory Group (MIPAG) and the US Army Corp of Engineer's New England District's Compensatory Mitigation Guidance

The strategy for chemical and/or manual removal shall be as directed by the Wetland Specialist, shall continue for the duration of the monitoring period, and shall be incidental to this item.

CONDITIONAL ACCEPTANCE OF WORK

Conditional Acceptance shall indicate approval of the wetland construction work and agreement that work has been done according to plan or modified as approved.

Upon completion of construction, the Contractor shall submit a Request for Conditional Acceptance that includes a brief narrative from the Wetland Specialist demonstrating that the wetland replication construction work was done according to plans (or how modified) and meets

required permit conditions. The narrative shall include, photo-documentation of pre-construction conditions as well as soil work, planting, and seeding. Seed tags shall be submitted as part of the Request for Conditional Acceptance.

Upon receipt of a Request for Conditional Acceptance, the Engineer, the Wetland Specialist, and regulatory representative (if required) shall assess the Replication Area and surrounding areas. At a minimum, the following conditions shall be included in the narrative and reviewed as part of the on-site assessment of whether:

- The final finished target elevations have been met and maintained relative to the approved plans and reference wetland. Areas that are too high or too low should be identified along with suggested corrective measures.
- Hydrology meets performance standards.
- Specified seed mix has been seeded. If inspected 30 or more days after seeding, seeded species in the wetland and adjacent upland shall show signs of good germination and healthy growth.
- Planted woody and herbaceous species meet specifications and are establishing well.
- Soils are stabilized and there is no sediment in the wetland and no channeling of slopes.
- There are no invasive plants visible in the replication area.

Upon approval that the work meets the above conditions, the Town will issue a letter of Conditional Acceptance. If the Wetland Replication work is not approved, the Town will issue a rejection letter requiring corrective actions. The Wetland Specialist shall recommend corrective actions. Work not approved shall be addressed by the Contractor at no extra cost.

Wetland Specialist shall be compensated under Item 755.75.

Erosion of adjacent slopes or the flow of sediments into the wetland between Conditional and Final Acceptance shall be immediately addressed by the Contractor.

REQUEST FOR CERTIFICATE OF COMPLIANCE

If required, a request for a Certificate of Compliance (Partial or Full) pursuant to the Massachusetts Wetlands Protection Act regulations shall be prepared and submitted to the Town within 30 days following Conditional Acceptance.

The Request for Certificate of Compliance shall include the following:

• A brief narrative of the work on company letterhead signed by the Wetland Specialist. Narrative shall be prepared as a MS Word document and shall include substantive explanation that demonstrates compliance with EACH relevant permit condition. Narrative shall note variations from the originally permitted design.

- As-built Drawings signed by the Contractor's PE registered in the Commonwealth of Massachusetts. As-built drawings shall show hydrologic conditions, status of plantings and seeding, and shall include a narrative and minimum of 4 photographs documenting site conditions. Plans should note variations from the originally permitted design.
- When required, drawings shall meet the Army Corp of Engineer's New England District's Compensatory Replication Guidance, including: scale in the range of 1"=20' to 1" = 100', contours at 1' intervals, spot elevations for intermediate elevations, and polygons outlining each Replication Area, and, as applicable, plant community types. The As-built Drawings shall be provided to the Engineer electronically in Portable Document Format (PDF). If requested by the Engineer, the Drawings shall be provided in printed paper format (11" x 17" sheets, unless otherwise directed). Drawings must be scalable.
- Other documents as required.

FINAL ACCEPTANCE OF WORK

Following one full growing season, the Contractor shall submit a Request for Final Acceptance. Submittal shall include a brief narrative of conditions. Upon receiving the Request, the Engineer, Contractor, Wetland Specialist and regulatory representative (if required) shall assess the Replication Area. Final Acceptance will initiate the start of the Wetland Monitoring Period.

The following conditions shall be inspected and approved for acceptance and payment:

- Hydrology is functioning as intended.
- The desired seeded species are establishing well and cover at least 95 percent of the Replication Area, excluding areas of open water areas or planned bare soil.
- No sediments have entered the wetland.
- Adjacent slopes are stabilized with desirable vegetation.
- All planted species (if included) are living and establishing well.
- There are no visible invasive plants.
- Silt fence and non-biodegradable sediment barrier materials have been removed.

If the mitigation work does not meet the above condition and is not approved, the Town will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions. Work not approved will be addressed by the Contractor at no extra cost.

Wetland Specialist shall be compensated under Item 755.75.

BASIS OF PAYMENT

Wetland Replication will be paid for at the Contract unit price per Lump Sum, which price shall include all labor, materials, equipment, submittals, maintenance, all required soil, site preparation, grading, wetland seeding, planting, mulching, watering, monitoring wells, as-built plans, Request for Certificate of Compliance, and all incidental costs necessary to complete the work as required.

Payment shall be as follows:

- 60% upon Conditional Acceptance.
- 20% after receipt and acceptance of Certificate of Compliance by the Engineer and once all permit construction requirements have been met and approved.
- 20% upon Final Acceptance.

Excavation will be considered incidental to this Item Sediment Control Barrier will be paid under Item 767.121 Wetland Specialist will be paid under Item 755.75

No separate payment will be made for the placement of logs as shown on the plans or as required by the Engineer and all work associated therewith shall be considered incidental to this item.

Work under this Item shall be for services of a Wetland Scientist, Wetland Ecologist, Restoration Ecologist, or other professional with similar qualifications hereafter referred to as the "Wetland Specialist."

"Wetland Mitigation" shall be used herein for applicable wetland work. For this project, applicable wetland work is for: Item 755.01 Wetland Replication (creation of a new wetland).

The Wetland Specialist shall demonstrate knowledge and expertise to coordinate and oversee all work associated with the Wetland Mitigation as defined herein, as shown on the Plans, as required by permits, and as specified under the relevant Wetland Mitigation items.

For all onsite work, the Wetland Specialist shall sign in and sign out with the Engineer.

The Wetland Specialist shall not be from the same company as the company responsible for planting, seeding, and/or maintaining the wetland.

QUALIFICATIONS

The Wetland Specialist shall have a minimum of five (5) years of experience with construction and monitoring of wetland mitigation areas similar in size, type, and complexity to the Contract mitigation. When required by permits, at least ten (10) years of experience may be required. The Wetland Specialist shall be thoroughly versed in the Commonwealth of Massachusetts Wetlands Protection Act (MGL C.131, s.40), U.S. Army Corps of Engineers New England District Compensatory Mitigation Guidance, and all other relevant regulations of the Massachusetts Department of Environmental Protection and the U.S. Army Corps of Engineers New England District.

Within sixty (60) days following the Notice to Proceed, the Contractor shall provide proof of qualifications for the Wetland Specialist to the Engineer for approval. Submittals shall include, but not be limited to, the following:

- Resume of the individual on-site implementing the Wetland Specialist work. If the Wetland Specialist changes over the course of the project, the new individual shall submit resume and qualifications for approval 30 days prior to doing any work on-site.
- Resume of any personnel working on-site in place of the Wetland Specialist. Individual shall be approved prior to work on-site.
- Narrative describing the company, its expertise, technical qualifications and experience with wetland construction.
- At least three (3) references from prior work of a similar nature completed in the last five (5) years and by the individuals who will perform the work. Provide contact information for each reference including address, phone number and email.
- A summary of each reference project including nature of the work, project size, dates, and period of construction and monitoring, methodologies used, and summary of success (or not) in terms of meeting performance objectives. Summary shall include a minimum of one before and one after photo for each project.

<u>SUBMITTALS – DOCUMENTATION AND REPORTS</u>

Wetland Construction Oversight

Wetland Specialist shall provide documentation of pre-existing conditions and wetland construction as specified below and as part of fulfilling the Scope of Work described below. Documentation shall include photos that are clear and legible. Photos are incidental to this item.

- Site Walk Prior to Disturbance and Construction of Wetlands: Provide brief assessment with photos, including documentation of the existing wetlands to be impacted (both permanent and temporary), proposed wetland replication area, and reference/model wetland areas (typically an adjacent undisturbed wetland or the existing wetland to be impacted). Photos of existing wetlands that will be temporarily impacted shall include a view from at least 3 angles.
- Excavation and Grading: Documentation shall include minimum of two photos of the excavated wetland and two photos after final grading prior to planting and seeding. For restoration/replication areas, photos shall show soil preparation (i.e, tilling and grading), if applicable.
- Approval of Subgrades: The Wetland Specialist shall inspect the sub-grade of the Replication Area to ensure that proper hydrology is likely to be established and shall provide the Engineer with written confirmation and photographs upon completion of subgrade excavation work. Written confirmation shall include recommended field adjustments, based on field observations, to achieve the desired hydrology and designed wetland system.
- Seeding: Provide assessment and photos of vegetation upon completion of seeding work.

Wetland construction documentation and reports shall be submitted with Request for Conditional Acceptance and for the Order of Conditions, Water Quality Certifications, and other regulatory permits as required.

Requests for Acceptance of Work & Regulatory Compliance

The Wetland Specialist shall submit the following documents if and as specified herein and under Item the relevant Wetland Mitigation items:

- Request for Conditional Acceptance.
- Request for Certificate of Compliance (Partial or Full) when applicable.
- Request for Final Acceptance.

Scope of Work

In the event of discrepancies with the applicable permits, the Wetland Specialist shall submit a Request for Information (RFI) to the Engineer.

GENERAL

The Wetland Specialist shall be responsible for the following:

- Review and have a comprehensive knowledge of the environmental permits relevant to the specific mitigation work being done so as to ensure compliance throughout the duration of the contract.
- Identify and inform the Contractor and Engineer of unique site conditions which may require adjustments to the schedule, design, or construction methods. For example, wildlife nesting, illegal dumping, or rare species.
- Identify and inform the Contractor and Engineer of any sediment or erosion control problems observed within mitigation areas.
- Advise so as to avoid impacts to adjacent areas and regulated wetland resources.
- Participate in necessary meetings as required by permits and when requested by the Engineer.

INSPECTIONS & CONSTRUCTION OVERSIGHT

The Wetland Specialist shall be responsible for, but not limited to, the following:

- Pre-Construction Site Walk
 - o Following surveying, flagging, and staking of all relevant boundaries and elevations by the Contractor, the Wetland Specialist shall walk the site with the Engineer and the Contractor to review existing and proposed conditions, recommend changes if necessary, and approve the following: location and boundaries of the Mitigation Area, target elevations and grades, location of tree protection associated with the Mitigation Area, and final layout and limits of clearing for access route.
 - Select and mark snags, logs, and woody material to be retained for incorporation into the Wetland Mitigation, as appropriate.
 - o Note invasive plants in and adjacent to Wetland Mitigation.
 - o Provide summary report if and as specified under Wetland Mitigation items.
- Excavation, Soil Placement, Grading for Replication Areas
 - o Approve excavated depth and grading for appropriate wetland hydrology, subsoil preparation, and finished grade of placed wetland soil.
 - o Adjust grades as required and approve microtopography. If grades need to be adjusted, submit an RFI to the Engineer.
 - o If requested by the Engineer, the Wetland Specialist shall inspect stockpiled wetland soil for moisture content and signs of undesirable weeds.
- Soil Protection and Restoration Measures for Restoration Areas
 - o Review and approve methods of soil protection and restoration if required.
 - o Confirm decompaction will adequately restore appropriate wetland hydrology. If decompaction measures need to be adjusted, submit an RFI to the Engineer.

- Re-vegetation of Mitigation Area
 - o Locate woody material to be re-used.
 - Verify seed used complies with specifications and site conditions, determine limits for wetland seeding based on elevations, approve seeding and mulching methods, and collect seed tags to submit with Request for Conditional Acceptance.
 - Review planting methods (if applicable) prior to installation and oversee layout of wetland plants.

CONDITIONAL ACCEPTANCE

Upon completion of construction of the wetland, as part of the Request for Conditional Acceptance, the Wetland Specialist shall provide a brief narrative demonstrating that the wetland construction work was done according to plans (or how modified) and meets the conditions required for acceptance as specified under the Wetland Mitigation items. Submittal shall include a report and photo documentation of pre-construction conditions, construction work, seeding, planting, and other work as specified under the Wetland Mitigation items. Photos of completed Restoration areas shall include the same views as the pre-construction reference photos.

Upon receipt of a Request for Conditional Acceptance, the Engineer, the Wetland Specialist and regulatory representative (if required) shall assess the Wetland Mitigation and surrounding area to ensure that it meets the conditions specified under the Wetland Mitigation items.

Upon approval, the Town will issue a letter of Conditional Acceptance. If the Wetland Mitigation work is not approved, the Town will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions.

REQUEST FOR CERTIFICATE OF COMPLIANCE

If required, a Request for Certificate of Compliance shall be prepared and submitted to the Engineer immediately following Conditional Acceptance. Request shall be as specified under the relevant Wetland Mitigation items.

REQUEST FOR FINAL ACCEPTANCE

Following one full growing season, the Wetland Specialist shall provide a brief narrative of the status of the Wetland Mitigation to be submitted with the Request for Final Acceptance.

Upon receipt of the Request, the Engineer, the Wetland Specialist and regulatory representative (if required) shall assess the Wetland Mitigation and surrounding area to ensure that it meets the conditions specified under the relevant Wetland Mitigation items.

If the Wetland Mitigation is not approved, the Town will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Wetland Specialist will be measured and paid for at the Contract unit bid price per or fraction thereof, hour for on-site service provided by the Wetland Specialist.

Work shall include all inspections, photos, submittals, and associated tasks for construction and restoration oversight, narratives for Conditional and Final Acceptance, Request for Certificate of Compliance (Partial or Full) if required, documentation required for permits, and all other work specified above. Payment shall not include travel time or time spent off-site on reports. Decimal Pay Limits will be 0.25 hours.

The work under this item shall conform to the relevant provisions of Sections 670, 751 and 767 of the Standard Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment control barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier. Photo-biodegradable fabric shall not be used.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods:

- 9-inch compost filter tubes
- Straw bales which shall be trenched

No straw wattles may be used. Additional compost filter tubes (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

When required by permits, additional sediment barrier shall be stored on-site for emergency use and replacement for the duration of the contract.

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

MATERIALS & CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans and adjust placement to ensure that the placement will provide maximum effectiveness.

Barriers shall be stacked, trenched and/or wedged as specified herein and according to the Manufacturer's instructions. Barriers shall be securely in contact with existing soil such that there is no flow beneath the barrier.

ITEM 767.121 (Continued)

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no peat, manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.

Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

Straw Bales

Straw bales shall be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

Bales should be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. All bales should be either wire-bound or string-tied. Straw bales should be installed so that bindings are oriented around the sides (rather than along the tops and bottoms) of the bales in order to prevent deterioration of the bindings.

The barrier should be entrenched and backfilled. A trench should be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. The trench must be deep enough to remove all grass and other material which might allow underflow. After the bales are staked and chinked (filled by wedging), the excavated soil should be backfilled against the barrier. Backfill soil should conform to the ground level on the downhill side and should be built up to 4 inches against the uphill side of the barrier.

Each bale should be securely anchored by at least 2 stakes or re-bars driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together. Stakes or re-bars should be driven deep enough into the ground to securely anchor the bales. For safety reasons, stakes should not extend above the bales but should be driven in flush with the top of the bale.

The gaps between the bales should be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw scattered over the area immediately uphill from a straw bale barrier tends to increase barrier efficiency. Wedging must be done carefully in order not to separate the bales.

When used in a swale, the barrier should be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

ITEM 767.121 (Continued)

Silt Fence

Materials and Installation shall be per Subsection 670.40 and 670.60 of the Standard Specifications and the following:

Silt fence shall only be used if shown on the plans or when specified by Orders of Conditions or other permit requirements.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

Stakes

Stakes for anchoring compost filter tubes and straw bales shall be as shown on the plans and shall be a minimum of 1x1 inch diameter x 4 feet hardwood stakes.

When used with silt fence, stakes for compost filter tubes shall be driven 12 inches into the ground. Stakes for straw bales shall be driven 16 inches into the ground.

Stakes of other material of equivalent strength may be used if approved by the Engineer.

MAINTENANCE

Maintenance of Sediment Control Barriers shall be per Subsection 670.60 of the Standard Specifications or per the Stormwater Pollution Prevention Plan (SWPPP), whichever is more restrictive.

The contractor shall inspect the sediment barrier in accordance with relevant permits. At a minimum, barriers shall be inspected at least once every 7 calendar days and after a rain event resulting in 0.25 inches or more of rainfall. Contractor shall be responsible for ensuring that an effective barrier is in place and working effectively for all phases of the Contract.

Barriers that decompose such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact

ITEM 767.121 (Continued)

and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed, as required, when construction work is complete and upslope areas have been permanently stabilized and after receiving permission from the Engineer.

Regardless of site context, nonbiodegradable material and components of the sediment barriers, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor.

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. In urban, residential, or other locations where aesthetics is a concern, the following shall apply:

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent seeding or existing grasses (i.e., lawn or native grass mix).
- Sedimentation fence, stakes, and other debris shall be removed and disposed off-site. Ste shall be restored to a neat and clean condition.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit price per Foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will also be paid for per foot of tube to be installed and shall be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, will be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

Work under this item shall conform to the relevant provisions of Section 815 of the 2023 Standard Specifications for Highway and Bridges (Standard Specifications), the 2009 Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), and the following:

The work includes furnishing and installing portable traffic signal assemblies, signal heads, retroflective backplates, emergency pre-emption systems, video detection cameras, cables and traffic controllers; also making all electrical service connections and providing all incidental materials necessary for operation and control of the traffic control signals. Upon completion of the work, the traffic control signal shall be removed.

A list of major traffic signal items required at these locations is included on the Traffic Management Plans (TMP).

PORTABLE TRAFFIC SIGNAL ASSEMBLY

The traffic signal shall comply with the National Electrical Manufacturers Association (NEMA) Standard No. TS 2-1998. The portable traffic signal shall be solar powered, and have capability to provide radio interconnect between multiple portable traffic signal assemblies. The portable traffic signal shall have capability to provide sufficient "mast arm" length to position overhead signal heads within the cone of vision as prescribed by the MUTCD 4D.13.

The contractor shall be responsible for monitoring the portable temporary traffic signal light output on a regular basis to ensure MUTCD-compliant operations.

The Contractor will own, operate and maintain this temporary signal during the entire construction period. The Contractor will pay for the power cost. No extra compensation is allowed for the signal equipment relocation or removal.

SHOP DRAWINGS AND CERTIFICATE OF COMPLIANCE

Within 30 days following Notice to Proceed, the Contractor shall submit a list of equipment and manufacturer's equipment specifications he proposes to install to the Engineer in accordance with the relevant provisions of Section 815.20. No equipment or accessories will be accepted unless type tested and approved by the MassDOT – Highway Division prior to the date of proposal, unless otherwise noted in the plans or the Special Provisions.

The Contractor shall commence no work until approval of the shop drawings has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship required by the plans and these specifications.

Along with the shop drawings the Contractor shall deliver to the Engineer a certificate of compliance with the manufacturer for all materials purchased from the manufacturer.

ITEMS 816.811 (Continued)

MATERIALS

Temporary Controller

The temporary traffic signal controllers and cabinets supplied shall conform to Section 3 "Controller Units" of the NEMA TS 2 Standard. The traffic controller shall be supplied in a TS 2 Type 1 Configuration as required in the list of major traffic signal items included on the plans for this intersection. Specifically, the controller unit (CU) shall be supplied as actuated controller with NTCIP capabilities; defined as Type A1N in Subsection 3.2 of the NEMA TS 2 Standard.

The controller shall have capability to provide radio and/or GPS interconnect to run seamlessly between the two opposing traffic signal assemblies.

Traffic Signal Indications

All traffic signal indications (lenses) shall be 12-inch in diameter. Five-inch retroreflective backplates shall be provided on all signal heads with tunnel visors as noted on the plans. All signal heads shall be equipped with light emitting diode (LED) modules that are on the MassDOT Pre-Approved Equipment List.

All temporary signal heads shall meet the minimum vertical and horizontal visibility requirements of the MUTCD at all times during the construction phases.

Temporary Emergency Preemption System

The temporary emergency vehicle preemption system shall be compatible with the portable controller and the Town of Abington standard.

The emergency vehicle preemption control system shall consist of a data-encoded phase selector to be installed within the traffic controller. This unit will serve to validate, identify, classify, and record the signal from the optical detectors located on support structures at the intersection. Upon receiving a valid signal from the detector, the phase selector shall generate a preempt call to the controller initiating a preemption operation as shown on the plans.

The Contractor shall be responsible for installing all emergency pre-emption detectors as noted on the plans. All costs associated with installation and removal of the temporary pre-emption system shall be incorporated into the lump sum bid price of the project.

The optical detectors shall be single input, single output units used to control one approach. All traffic signal installations shall be supplied with a minimum of two optical detectors unless otherwise noted in the major items list.

The phase selector shall be a shelf- or rack-mounted plug-in four channel, dual priority device. The phase selector shall plug into a shelf-mounted single card slot chassis if within a TS-2

ITEMS 816.811 (Continued)

cabinet. Programming the phase selector shall be via a PC-based computer utilizing unit specific software.

Video Detection

Specific video detection to be installed at each location is specified on the plans. This section covers the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle traffic.

The Contractor has option to provide and install a Single-Point Video Detection (SPVD) System [omni-directional] or a multi-camera system as also defined in these special provisions. Plan set currently shows location a multi-camera system.

The video detection system (VDS) shall consist of one or more video cameras, a video detection processor (VDP); a detector rack mounted extension module (as needed), field video monitor and pointing device, software and all associated equipment required to set up and operate the system in the field as part of the temporary traffic signal. The equipment shall include camera mountings, extensions, connectors and standard detector rack with power supply. The system software shall be capable of detecting vehicles in multiple lanes using only the video image. Detection zones shall be defined using only onboard video menu and a pointing device to place the zones on a video image. Up to 24 detection zones per camera shall be available.

The video detection equipment shall be compatible with the temporary traffic signal and comply with the MassDOT Qualified Traffic Control Equipment List unless otherwise approved by the Engineer: (https://www.mass.gov/doc/section-815-traffic-control-signals/download)

METHOD OF MEASUREMENT & BASIS OF PAYMENT

Item 816.811 - Temporary Traffic Signal Control will be measured for payment by the Lump Sum, which price shall include all labor, material, equipment, and incidental costs required to complete the work.

No separate payment will be made for adjusting or readjusting of proposed vehicle detection zones, but all costs in connection therewith shall be included in the Lump Sum price bid for Items 816.811. A hard copy of programming data shall be left in the control cabinet.

The Contractor shall install a confirmation strobe at each traffic signal location dependent on final location of the portable traffic signal device unless directed otherwise by the Engineer and after the Contractor coordinates with the Town's emergency officials (or their representatives). The confirmation strobe shall serve to validate to the driver of the emergency vehicle that the traffic signal has recognized the preemption call and will initiate the proper preemption sequence. The confirmation strobe shall be a white lens. If a singular confirmation strobe is not visible from both roadway approaches, a second strobe shall be provided at no additional cost.

The work under this item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and shall consist of furnishing, installing, maintaining and final removal of TL-3 temporary barrier systems for channelization of traffic and/or work zone protection.

The Contractor shall use a temporary barrier system that is listed on the Qualified Traffic Control Equipment List.

The Contractor may submit alternate materials to the Engineer for approval if the temporary barrier system meets the following criteria:

- 1. The system has been tested by an independent laboratory that is accredited by FHWA to crash test roadside hardware:
- 2. The system meets the minimum requirements of the AASHTO *Manual on Assessing Safety Hardware* (MASH) at Test Level (TL) 3 or higher;
- 3. The system has a federal-aid eligibility letter from FHWA.

Copies of the testing results and the federal-aid eligibility letter shall be submitted and approved by the Engineer prior to procurement of an alternate temporary barrier system.

The Contractor shall supply shop drawings to confirm the available clear area behind the barrier equals or exceeds the maximum dynamic deflection of MASH Test 3-11 during testing procedures taken at an independent laboratory that is accredited by FHWA to crash test roadside hardware.

Delineators shall be installed on all temporary barrier systems in conformance with the relevant provisions of Subsection 850.69 and shall be incidental to the temporary barrier systems.

Temporary impact attenuators that are listed on the Qualified Traffic Control Equipment List shall be used whenever a blunt end of the temporary barrier system is facing traffic within the clear zone unless it is protected by a second barrier system or secured to a separate barrier system or bridge railing by a method approved by the manufacturer.

CONSTRUCTION METHODS

Temporary barrier systems shall be placed in line with the drawings. Installation shall be per the manufacturer's specifications, details, and the approved shop drawings.

The Contractor shall not place any breaks in the temporary barrier system that will result in sections that are shorter than the stated minimum length-of-need (LON) under MASH Test 3-11. Exceptions shall be allowed for gate systems or changeable length segments placed over expansion joints if those barrier segment types have been tested and meet the minimum requirements of MASH Test 3-11 with the adjoining barrier system.

ITEM 853.23 (Continued)

Within the LON section, temporary barrier systems shall only be placed on paved surfaces unless otherwise tested and certified under MASH TL-3 for those conditions.

Damage to the pavement surface caused by the temporary barrier during installation while in service and/or during removal shall be repaired as directed by the Engineer at the Contractor's expense.

Temporary barrier systems that require anchorage systems shall conform with the relevant provisions of Subsection 850.70.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Items 853.23 Temporary Barrier (TL-3) will be measured for payment by the Foot, in place.

Item 853.23 Temporary Barrier (TL-3) will be paid for at the Contract unit price per Foot for temporary barrier installed in place, including all incidental items. This price shall include the cost of furnishing, installing, maintaining and final removal of all temporary barrier systems.

For temporary barrier systems that require anchorage systems, the cost of furnishing and installing the anchorage and hardware and the restoration of pavement surfaces or adjacent permanent barrier systems to facilitate anchorage shall be considered incidental to the cost of the item.

Payment for temporary barrier removed and reset will be made under Item 853.21.

The work under this item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and shall consist of furnishing, installing, maintaining and final removal of limited deflection TL-3 temporary barrier systems for channelization of traffic and/or work zone protection. Limited deflection temporary barrier systems shall have a maximum dynamic deflection of 24 inches or less and shall be used in areas where the available clear area behind the barrier system is 24 inches or less.

The Contractor shall use a temporary barrier system that is listed on the Qualified Traffic Control Equipment List.

The Contractor may submit alternate materials to the Engineer for approval if the limited deflection temporary barrier system meets the following criteria:

- 1. The system has been tested by an independent laboratory that is accredited by FHWA to crash test roadside hardware;
- 2. The system meets the minimum requirements of the AASHTO *Manual on Assessing Safety Hardware* (MASH) at Test Level (TL) 3 or higher; and
- 3. The system has a federal-aid eligibility letter from FHWA.

Copies of the testing results and the federal-aid eligibility letter shall be submitted and approved by the Engineer prior to procurement of an alternate temporary barrier system.

The Contractor shall supply shop drawings to confirm the available clear area behind the barrier equals or exceeds the maximum dynamic deflection of MASH Test 3-11 during testing procedures taken at an independent laboratory that is accredited by FHWA to crash test roadside hardware.

Delineators shall be installed on all limited deflection temporary barrier systems in conformance with the relevant provisions of Subsection 850.69 and shall be incidental to the temporary barrier systems.

Temporary impact attenuators that are listed on the Qualified Traffic Control Equipment List shall be used whenever a blunt end of the limited deflection temporary barrier system is facing traffic within the clear zone unless it is protected by a second barrier system or secured to a separate barrier system or bridge railing by a method approved by the manufacturer.

CONSTRUCTION METHODS

Limited deflection temporary barrier systems shall be placed in line with the drawings. Installation shall be per the manufacturer's specifications, details, and the approved shop drawings.

ITEM 853.33 (Continued)

The Contractor shall not place any breaks in the limited deflection temporary barrier system that will result in sections that are shorter than the stated minimum length-of-need (LON) under MASH Test 3-11. Exceptions shall be allowed for gate systems or changeable length segments placed over expansion joints if those barrier segment types have been tested and meet the minimum requirements of MASH Test 3-11 with the adjoining limited deflection barrier system.

Within the LON section, limited deflection temporary barrier systems shall only be placed on paved surfaces unless otherwise tested and certified under MASH TL-3 for those conditions.

Damage to the pavement surface caused by the limited deflection temporary barrier during installation while in service and/or during removal shall be repaired as directed by the Engineer at the Contractor's expense.

Limited deflection temporary barrier systems that require anchorage systems shall conform with the relevant provisions of Subsection 850.70.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 853.33 Temporary Barrier Limited Deflection (TL-3) will be measured for payment by the Foot, in place.

Item 853.33 Temporary Barrier Limited Deflection (TL-3) will be paid for at the Contract unit price per Foot of limited deflection temporary barrier installed in place, including all incidental items. This price shall include the cost of furnishing, installing, maintaining and final removal of all limited deflection temporary barrier systems.

For limited deflection temporary barrier systems that require anchorage systems, the cost of furnishing and installing the anchorage and hardware and the restoration of pavement surfaces or adjacent permanent barrier systems to facilitate anchorage shall be considered incidental to the cost of the item. Payment for limited deflection temporary barrier removed and reset will be made under Item 853.21.

REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

DAY

The work under this Item shall conform the relevant provisions of Subsection 850 of the Standard Specifications and the following:

Work under this item consists of furnishing, installing, maintaining proper operating conditions, and removing reflectorized drums, and any necessary ballast, equipped with sequential flashing warning lights.

MATERIALS

Reflectorized drums shall be listed on the MassDOT Qualified Traffic Control Equipment List. Reflective sheeting on drums shall meet or exceed ASTM D4956 Type VIII. All drums shall be maintained in a satisfactory manner including the removal of oils, dirt, and debris that may cause reduced retro reflectivity.

The Contractor shall use one of the following sequential flashing warning light systems unless otherwise approved by the Engineer:

- 1. Empco-Lite LWCSD.
- 2. pi-Lit® Sequential Barricade-Style Lamp; or
- 3. Unipart Dorman SynchroGUIDE.

Sequential flashing warning lights shall be secured to reflectorized drums per the light manufacturer's specifications.

CONSTRUCTION METHODS

The first ten drums in any merging or shifting taper shall be equipped with sequential flashing warning lights. These lights shall be operating, at a minimum, between dusk and dawn when the taper is deployed.

The successive flashing of the sequential warning lights shall occur from the upstream end of the merging or shifting taper to the downstream end of the taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55, nor more than 75 times per minute.

Warning lights shall be powered off when drums are not deployed in a taper.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 859.1 Reflectorized Drums with Sequential Flashing Warning Lights, a group of ten (10) reflectorized drums with sequential flashing warning lights is considered one (1) unit, will be measured by the Day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times that the drums are positioned, repositioned, removed, or returned to service.

ITEM 859.1 (Continued)

Item 859.1 Reflectorized Drums with Sequential Flashing Warning Lights will be paid for at the Contract unit price per Day, which shall include full compensation for furnishing, positioning, repositioning, and removing the group of ten (10) drums as directed by the Engineer.

A. General.

The work under this Heading consists of fabricating, transporting and installing precast concrete bridge deck panels and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The work shall conform with the MassDOT Standard, Supplemental, and Interim Specifications and the requirements of the current AASHTO LRFD Bridge Construction Specifications, supplemented by the current relevant provisions of the latest edition of PCI MNL-116 (The Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products), except as noted herein.

QUALITY ASSURANCE

A. General.

Quality Assurance includes all the planned and systematic actions necessary to provide confidence that a product or facility will perform satisfactorily in service. It is an all-encompassing term that includes Quality Control (performed by the Fabricator) and Acceptance (performed by the Engineer). Quality Control is the system used by the Contractor and Fabricator to monitor and assess their production processes at the plant facility and installation activities at the project site to ensure that the final product will meet the specified level of quality. Acceptance includes all factors used by the Engineer to determine the corresponding value for the product. Inspection at the plant facility is intended as a means of evaluation of compliance with contract requirements. Contractor and Fabricator Quality Control activities and Engineer Acceptance activities shall remain independent from one another. Engineer Acceptance activities shall not replace Fabricator Quality Control activities.

B. Fabricator Quality Control.

Quality Control shall be performed by the Fabricator to ensure that the product is fabricated in conformance with the specifications herein. The Fabricator shall maintain a Quality Control system to monitor, assess, and adjust placement and fabrication processes to ensure the Precast Concrete Bridge Element(s) meet the specified level of quality, through sufficient Quality Control sampling, testing, inspection, and corrective action (where required). The Fabricator's Quality Control system shall address all key activities during the placement and fabrication and shall be performed in conformance with the Fabricator's NPCA or PCI Certification. Quality Control documentation shall meet the requirements of the *Fabricator Quality Control* – *Documentation* section below. Upon request, Fabricator Quality Control documentation shall be provided to the Engineer.

1. Plant.

Prior to the fabrication of Precast Concrete Bridge Elements, the Fabricator's precast concrete plant shall obtain the following:

(a) Certification by the National Precast Concrete Association (NPCA) Plant Certification Program or Precast/Prestressed Concrete Institute (PCI) Plant Certification Program, for the applicable types of Precast Concrete Bridge Element(s) being fabricated

- (b) MassDOT Prequalification
- (c) MassDOT Mix Design Approval

All concrete for a given Precast Concrete Bridge Element shall be produced by a single company and plant, unless otherwise approved by the Engineer.

2. Personnel.

The Fabricator shall provide adequate training for all QC personnel in accordance with NPCA or PCI certification. There shall be sufficient personnel trained and certified to perform the tests listed under Subsection M4.02.13, Part D. At a minimum, the Fabricator's Quality Control Personnel shall maintain the following qualifications and certifications:

- (a) QC Manager with an active NETTCP Field Technician or ACI Concrete Field Testing Technician Grade I certification or higher, and a minimum of 4 years continuous experience in the manufacture of Precast Concrete Bridge Elements for state transportation departments.
- (b) A Technician/Inspector having the Precast/Prestressed Concrete Institute (PCI) Technician/Inspector Level I or NorthEast Transportation Training and Certification Program (NETTCP) Precast Concrete Inspector, or higher.

The Contractor shall submit to the Engineer a copy of the Fabricator's Quality Control Personnel required qualifications, as specified above.

3. Laboratory.

The Fabricator shall provide a room of sufficient size to house all equipment and to adequately perform all testing. The room shall have either a separate moisture storage room or curing box for concrete cylinders, and it shall be thermostatically controlled to maintain temperatures consistent with AASHTO T 23. It shall include a desk and file cabinet for proper record keeping, and have good lighting and ventilation.

This room shall be kept for testing and quality control and not used for any other purpose. An additional desk and file cabinet shall be provided for exclusive use of the Engineer. No exception from these requirements will be allowed without the express written permission of the Engineer.

4. Testing Equipment.

At a minimum, the Fabricator's plant facility shall have the following testing equipment:

- (a) Air Content Meter Type A or B: AASHTO T 152
- (b) Air Content Meter Volumetric Method: AASHTO T 196 (Required for Lightweight Concrete)
- (c) Slump Cone: AASHTO T 119
- (d) Cylinder Molds AASHTO M 205

- (e) Concrete Testing Machine: AASHTO T 22
- (f) Screening Sieve: AASHTO T 27, AASHTO T 11
- (g) Curing Box: AASHTO T 23
- (h) Spread Test Base Plate for Self-Consolidating Concrete (SCC): ASTM C1611
- (i) All other equipment prescribed by AASHTO and ASTM standards for the tests to be performed by the Fabricator as specified

5. Inspection.

Quality Control personnel shall monitor and inspect the fabrication of each Precast Concrete Bridge Element. Quality Control personnel shall report all inspection activities on Quality Control Inspection Reports and non-conformances on Non-Conformance Reports (NCRs) throughout the entire fabrication process, as speciefied herein.

6. Temperature Monitoring.

At a minimum, the Fabricator shall monitor, record, and report the temperatures of the form, ambient temperatures surrounding the concrete, and temperatures of the concrete continuously, without interruption as specified below:

- (a) Prior to placement of concrete to verify that $Ti \ge 50^{\circ}F$.
- (b) Immediately after placement to verify that $T_i \ge 50^{\circ}F$ is maintained.
- (c) Throughout the entire duration of the curing cycle, at regular intervals not to exceed one hour until 100% Design Strength (f'c) is attained and concrete has cooled to within 40°F of the ambient temperature surrounding the Precast Concrete Bridge Element.

At a minimum, the temperature measuring devices shall record and report the temperature of the concrete to the nearest 2°F. At least two temperature sensors (thermocouples) shall be positioned to record the maximum and minimum anticipated concrete temperatures. The anticipated minimum temperature shall be measured with one or more thermocouples at a distance no greater than 2 inches from the surface of the thinnest section. The anticipated maximum temperature shall be measured with one or more thermocouples at the center of the thickest section. Proposed temperature measurement locations shall be submitted to the Engineer for approval. Temperature recording devices shall be located within the curing enclosure and calibrated as required by PCI MNL-116 Section 4.18.4. Maximum heat increase and cool down rates shall comply with PCI MNL-116, Section 4.19. The Contractor shall furnish temperature logs recorded at a minimum frequency of once per hour to the Inspector as required, with each post-pour QC inspection report.

7. Sampling and Testing.

At a minimum, the Fabricator shall perform random Quality Control sampling and testing as specified in *Table 1: Quality Control Sampling and Testing*. The Fabricator shall perform additional Quality Control sampling and testing on concrete that has been retempered with admixtures or hold-back water during fabrication. Test Specimens shall conform to the

requirements of Section M4.02.13 of the MassDOT Standard and Supplemental Specifications and AASHTO R 60, with the exception of the stripping (80% f'c) set of cylinders. Stripping (80% f'c) cylinders shall be cured in the same location and environment as the Precast Bridge Elements they represent. If approved by the Engineer, compressive strength cylinder match curing equipment, that maintains the same concrete conditions that the corresponding Precast Bridge Element is exposed to, may be utilized in lieu of Stripping (80 % f'c) field cured cylinders, with the use of thermocouples, controllers, and heaters.

Table 1: Quality Control Sampling and Testing

Quality Characteristic	Test Method	Sample Size	Specification Limit	Lot Size (c)	Sublot Size (d)	Frequency	Point of Sampling
Slump (in.) (a)	AASHTO T 119	Per AASHTO	≤8 in. or as approved by the Engineer				
Air Content (%)	AASHTO T 152	Per AASHTO	5% ≤ % ≤ 8%				
Temperature (°F)	AASHTO T 309	Per AASHTO	50°F ≤ °F ≤ 90°F				Point of Discharge
		Stripping Cylinders: One (1) set of Three (3) 4 x 8 in.	≥ 80% f' c at Stripping	Total Quantity of Concrete (cy)	ed 20 cy pe of nt	One (1) per Sublot or fraction thereof	
Compressive Strength (psi)	7-day Cylinders: One (1) set of Three (3) 4 x 8 in. 28-day Cylinders: One (1) set of Three (3) 4 x 8 in. 56-day Cylinders: One (1) set of Three (3) 4 x 8 in. 56-day Cylinders: One (1) set of Three (3) 4 x 8 in.	Cylinders: One (1) set of Three (3)	For Information at 7 days	produced on a Contract, per Type of Element fabricated,			
		≥ 100% f' c at 28 days	per Mix Design				
		≥ 100% f' c at 56 days (b)					

Notes:

- (a) Self-consolidating concrete (SCC) shall meet the requirements of M4.02.17.
- (b) 56-day Compressive Strength test specimens shall require testing only when 28-day Compressive Strength test specimens have failed to meet Design Strength (f'c).
- (c) Lot shall be defined as a specific quantity of material from a single source, produced or placed by the same controlled process.
- (d) Sublot shall be defined as an equal division or part of a Lot from which a sample of material is obtained in order to assess the Quality Characteristics of the Lot.

8. Certificate of Compliance.

The Fabricator shall provide a Certificate of Compliance in accordance with Standard Specifications, Division I, Section 6.01, stating that QC test cylinders have achieved the design strength, f'c. A Certificate of Compliance shall accompany each shipment and shall be presented to the Engineer or designee upon delivery to the site.

9. Documentation.

At a minimum, the Fabricator shall maintain a filing system for the following QC records and documentation. All QC records and documentation shall be made available to the Engineer upon the request.

- (a) Current MassDOT Approved Mix Design Sheet(s) and Approval Letter(s)
- (b) PCI or NPCA Certification
- (c) Current Qualifications and Certifications for QC Manager(s) and QC Technician(s)
- (d) Most current set of Approved Shop Drawings
- (e) Approved Placement, Finishing and Curing Plan
- (f) Approved Dunnage Plan
- (g) Fabricator Certificate of Compliance for each fabricated Precast Concrete Bridge Element
- (h) Admixture Manufacturer's Certification of Compliance for each approved Admixture
- (i) Completed QC Inspection Report for each fabricated Precast Concrete Bridge Element
- (i) Identification Number for each fabricated Precast Concrete Bridge Element
- (k) Time and date of casting of each fabricated Precast Concrete Bridge Element
- (1) Date of stripping of each fabricated Precast Concrete Bridge Element
- (m)Batch Ticket Printout reporting the quantity of concrete produced for each batch of concrete produced
- (n) Concrete temperature records for each Precast Concrete Bridge Element fabricated
- (o) QC Test Report Forms for each sublot of concrete produced
- (p) Non-Conformance Reports (NCRs)
- (q) Documentation of Repairs (if applicable)

MATERIALS

A. Materials.

Materials shall meet the following specifications (if applicable):

General	M4.00.00
Portland Cement	M4.01.0
Blended Hydraulic Cements	M4.01.1
Fly Ash	M4.01.2
Cement Concrete	M4.02.00
Cement	M4.02.01
Cement Mortar	M4.02.15
Aggregates	M4.02.02
Lightweight Aggregates	M4.02.03
Water	M4.02.04
Cement Concrete Additives	M4.02.05
Proportioning	M4.02.06
Mixing and Delivery	M4.02.10
Test Specimens	M4.02.13
Mortar for Filling Keyways	M4.04.0
Slag	AASHTO M 302
High Performance Cement Concrete	M4.06.1
Self-Consolidating Concrete (SCC)	M4.02.17
Controlled Density Fill – Non-Excavatable	M4.08.0
Reinforcing Bars	M8.01.0
Epoxy Coated Reinforcing Bars	M8.01.7
Galvanized Reinforcing Bars	M8.01.8
Welded Wire Reinforcement	M8.01.2
Mechanical Reinforcing Bar Splicer	M8.01.9
Lifting Devices	PCI MNL-116
Corrugated Metal Pipe	AASHTO M 36

1. Cement Concrete Mix Design.

The cement concrete shall be comprised of specified proportions of water and MassDOT approved aggregates, cement, supplementary cementitious materials (SCMs), and admixtures to form a homogenous composition. Cement concrete for Precast Concrete Bridge Elements shall meet the requirements of M4.06.1 High Performance Cement Concrete, with the exception that the "Total Cementitious Content" specified shall be considered the "Maximum Allowable Cementitious Content". When used, self-consolidating concrete (SCC) shall meet the requirements of M4.02.17.

Prior to production of cement concrete, the Fabricator shall report and submit all proposed mix design formulations and its constituent materials to the Engineer for review and approval. All mix design yields shall be designed for 1.0 cubic yards of concrete, with an allowable

tolerance of +/- 1.0 %. All liquids incorporated into the proposed mix design(s) shall include both water and admixtures in the liquid mass calculation.

During production of cement concrete, the Fabricator shall not alter the previously approved mix design formulation or its constituent materials. Proposed alterations in source, type, batch quantity, or gradation to any of the constituent materials of the previously approved mix design formulation shall require a new Mix Design submission to the Engineer for review and approval. Fabrication shall not occur without prior mix design approval.

2. Vertical Adjustment Assembly.

Vertical Adjustment Assembly details and material requirements shall be as shown on the plans. Alternate devices may be used provided that they are adjustable and can support the anticipated loads. The design of the leveling devices, with necessary calculations, shall be submitted to the Engineer for approval.

3. Grout.

Grout used for shear keys, vertical adjustment assembly voids, and hand holes shall be in accordance with M4.04.0.

4. Reinforcement.

All reinforcing steel shall be epoxy coated Grade 60 unless otherwise noted on the plans. Mechanical reinforcing bar splicers shall be epoxy coated.

5. Threaded Inserts.

Threaded inserts are permissible to facilitate forming the keyway pours. Threaded inserts shall be hot dip galvanized or made of stainless steel. The number of threaded inserts shall be minimized, and the inserts shall not come in contact with the reinforcing steel.

6. Corrugated Metal Pipe.

Corrugated Metal Pipe to be used for forming voids as specified on the plans shall be fabricated from steel and shall have a protective metallic coating of zinc (galvanizing).

CONSTRUCTION METHODS – PLANT FABRICATION

A. Shop Drawings.

Prior to performing any work under this Section, the Contractor shall receive approval for all shop drawings for the Precast Concrete Bridge Element being worked on and any special Contract requirements, provided that a complete shop drawing package is provided. The Contractor shall not order materials or begin work before receiving approved shop drawings. The Engineer will reject Precast Concrete Bridge Elements that deviate from the approved drawings or are fabricated prior to receiving written approval of the shop drawings. The

Contractor shall bear full responsibility and costs for all materials ordered or work performed prior to the approval of the shop drawings or written authorization from the Engineer.

Contractor shall submit scaled shop drawings to the Engineer for review and approval. Design calculations for the precast arch and footings shall not be included in the submittal. The Fabricator's name and address shall appear on each sheet.

Resubmittal of "Approved as Noted" shop drawings is not necessary for minor revisions, provided that the correction can be clearly understood and is unambiguous without possibility of misinterpretation. Shop drawings with questions or comments that require a response and/or additional information from the Fabricator must be resubmitted.

Detailed shop drawings shall be prepared in accordance with the relevant provisions of Subsection 5.02 and shall, at a minimum, contain the following:

- (a) Number and type and/or piece mark of the precast concrete bridge element including overall length, width and height.
- (b) Skew angle.
- (c) Location, size and geometry of all steel reinforcement, including mechanical reinforcing bar splicers to be used for connecting Precast Concrete Bridge Elements together in the field.
- (d) Location and details of all inserts, anchors, Vertical Adjustment Assemblies, and any other items required to be cast into the Precast Concrete Bridge Elements (whether detailed on the plans by the Engineer of Record or provided for the Contractor's convenience). Precast Concrete Bridge Elements shall not be fired or drilled into for attachment purposes. All hardware shall be galvanized except as noted.
- (e) Locations and details of the lifting devices, including supporting calculations, type and amount of any additional reinforcing required for lifting. The Fabricator shall design all lifting devices based on the no cracking criteria in Chapter 8 of the PCI Design Handbook (7th edition).
- (f) The minimum compressive strength required prior to handling the precast concrete bridge element.

The shop drawings shall not include procedures for placement, finishing, and curing of concrete. These details shall be included in the Placement, Finishing and Curing Plan that is to be submitted to the Engineer as described under *Placement, Finishing, and Curing Plan*.

B. Fabrication.

All Precast Concrete Bridge Elements shall be fabricated in accordance with the latest edition of PCI MNL-116 as modified herein.

C. Placement, Finishing and Curing Plan.

At least 30 days prior to start of fabrication, the Contractor shall submit the Fabricator's proposed Placement, Finishing and Curing Plan to the Engineer for approval. This shall be an independent submittal, separate from the fabrication shop drawings and design calculations. The Placement, Finishing and Curing Plan shall include the following:

- (a) Method of Mixing
- (b) Method of Placement
- (c) Method of Consolidation
- (d) Method of Finishing
- (e) Method of Initial Curing
- (f) Method of Intermediate Curing
- (g) Method of Final Curing
- (h) Moisture Retention Materials and Equipment (water spray equipment, saturated covers, sheet materials, liquid membrane-forming compounds, accelerated curing equipment, etc.)
- (i) Cylinder Curing Methods, Location, and Environmental Control (temperature, humidity, etc.)
- (j) Temperature Monitoring, Recording, and Reporting

D. Reinforcement.

The reinforcing bars shall be installed in accordance with Section 901.62 of the Supplemental Specifications, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

Where reinforcing bars are to protrude from one Precast Concrete Bridge Element in order to mate with reinforcing bar splicers in a second precast concrete element, the fabricator shall set the reinforcing bars and the reinforcing bar splicers with a template in order to ensure proper fit up within the tolerances specified on the plans.

E. Tolerances.

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with 901.62. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

F. Forms.

Concrete shall be cast in rigidly constructed forms, which will maintain the Precast Concrete Bridge Elements within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. Any defects or damage of more than "Category 2, Minor Defects" made to the concrete, due to form work, stripping or handling, shall be subject to repair or rejection, as defined in the *Repairs and Replacement* section. If threaded inserts are cast into the elements for

support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete.

G. Mixing of Concrete.

The concrete shall be proportioned and mixed in conformance with the Fabricator's approved mix design and M4.02.10 Mixing and Delivery Fabrication shall not occur without prior mix design approval. The Fabricator shall provide copies of batch tickets to the Engineer.

H. Placement of Concrete.

Prior to the placement of concrete, the temperature of the forms shall be greater than or equal to 50°F. Quality Control inspection shall be performed by the Fabricator as specified in the *Fabricator Quality Control* section. The Fabricator shall verify all materials and equipment required for protecting and curing the concrete are readily available and meet the requirements of the *Final Curing Methods* section below. All items encased in the concrete shall be accurately placed in the position shown on the Plans and firmly held during the placing and setting of the concrete. Clearance from the forms shall be maintained by supports, spacers, or hangers and shall be of approved shape and dimension.

During placement, the concrete shall maintain a concrete temperature range between 50°F and 90°F. The Fabricator shall minimize the time to concrete placement (measured from start of mixing to completion of placement). In no event shall time to placement exceed 90 minutes. The Fabricator shall perform additional Quality Control sampling and testing on concrete that has been retempered with admixtures or hold-back water during the placement of the concrete as specified in the *Fabricator Quality Control* section above. Delays or shutdowns of over 30 minutes shall not be allowed during the continuous filling of individual forms.

I. Consolidation of Concrete.

Suitable means shall be used for placing concrete to prevent segregation or displacement of reinforcing steel or forms. The concrete shall be thoroughly consolidated by external or internal vibrators or a combination of both. Vibrators shall not be used to move concrete within the forms. Vibrators shall be used as specified in 901.63C and as directed by the Engineer. Concrete shall be placed and consolidated in a way that minimizes the presence of surface voids or bug holes on the formed surfaces. When used, self-consolidating concrete (SCC) shall meet the requirements of M4.02.17.

J. Finishing of Concrete.

The finish of the Precast Concrete Bridge Elements shall be as indicated on the plans. Where Precast Concrete Bridge Elements have keyways for grout or closure pours, the surfaces of these shear keys shall be abrasive blasted prior to shipment. The Fabricator may utilize a surface retarder with water blast, sandblast, or a combination of both to achieve the desired keyway finish. At a minimum, the profile of the keyway surfaces shall be similar to that of 60 grit sand paper. The exposed reinforcing steel in the precast slab shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer.

The Fabricator shall permanently mark each precast concrete bridge element with its type and/or piece mark, date of casting, and supplier identification either by stamp markings in fresh concrete, waterproof paint, or other approved means on a surface that will not be exposed after assembly.

K. Exposed Surfaces of Precast Concrete Bridge Elements.

As soon as conditions permit, before the concrete has fully hardened, all dirt, laitance, and loose aggregate shall be removed from the exposed concrete surfaces. Contractor shall not allow foot traffic on the uncured concrete until it has reached sufficient strength to prevent damage.

L. Exposed Surfaces of Closure Pour Shear Keys.

The closure pour shear key cast in the sides of the beam flanges shall have an exposed aggregate finish. The closure pour reinforcing steel and its coating shall not be damaged by the process for creating the exposed aggregate surface. Fabricator may utilize a surface retarder with water blast, abrasive blast, or a combination of both to achieve the desired shear key finish. The abrasive blast shall use oil free compressed air. The profile of the shear key surfaces shall be similar to that of 60 grit sand paper.

M. Initial Curing Methods.

After the placement of concrete and prior to concrete finishing, the Fabricator shall initiate initial curing methods when the concrete surface begins to dry, to reduce moisture loss from the surface. Application of one or more of the following initial curing methods shall occur immediately after the bleed water sheen has disappeared.

1. Fogging.

Fogging nozzles shall atomize water into a fog-like mist. The fog spray shall be directed and remain visibly suspended above the concrete surface, to increase the humidity of the air and reduce the rate of evaporation. Water from fogging shall not be worked into the surface during finishing operations and shall be removed or allowed to evaporate prior to finishing.

2. Liquid-applied Evaporation Reducers

Evaporation reducers shall be sprayed onto the freshly placed concrete surface to produce an effective monomolecular film that reduces the risk of plastic-shrinkage cracking and rate of evaporation of the bleed water from the concrete surface. Evaporation reducers shall be applied in accordance with manufacturer's recommendations.

N. Intermediate Curing Methods.

The Fabricator shall initiate intermediate curing methods if concrete finishing has taken place prior to the concrete reaching final set. The freshly finished concrete surface shall be protected from moisture loss, by the continuation of initial curing methods (fogging and evaporation reducers) until final curing methods are applied or by the use of liquid membrane-forming curing compounds (see *Liquid Membrane-Forming Compounds for Curing* section).

O. Final Curing Methods.

The Fabricator shall initiate and apply final curing methods to the concrete immediately after the following conditions are met:

- (a) Completion of concrete finishing
- (b) Final set of concrete
- (c) Concrete has hardened sufficiently enough to prevent surface damage

During fabrication of Precast Concrete Bridge Elements, the Fabricator shall maintain the required concrete temperature ranges throughout the entire duration of the final curing method cycle as specified herein. Controlled and gradual termination of the final curing method shall occur after all specified conditions are met. The concrete temperature shall be reduced at a rate not to exceed 36°F per hour until the concrete temperature is within 20°F of the ambient temperature outside of the final curing method enclosure. The Fabricator shall maintain a minimum concrete temperature of 40°F until 100% f'c is attained (see *Handling and Storage* section below).

1. Water Spray Curing.

All exposed concrete surfaces shall remain moist with a continuous fine spray of water throughout the entire duration of the final curing method cycle (see *Table 4: Final Curing Method Cycle for Water Spray*).

Table 4: Final Curing Method Cycle for Water Spray

Sustained Concrete Temperature	Final Curing Method Cycle Duration	Compressive Strength
50°F ≤ °F ≤ 90°F	\geq Five (5) days	≥ 80% f'c

2. Saturated Covers for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of saturated covers throughout the entire duration of the final curing method cycle (see *Table 5: Final Curing Method Cycle for Saturated Covers*). Saturated covers shall be allowed to dry thoroughly before removal to provide uniform, slow drying of the concrete surface.

Table 5: Final Curing Method Cycle for Saturated Covers

Sustained Concrete Temperature	Final Curing Method Cycle Duration	Compressive Strength
50°F ≤ °F ≤ 90°F	≥ Three (3) days	≥ 80% f'c

Saturated covers, such as burlap, cotton mats, and other coverings of absorbent materials shall meet the requirements of AASHTO M 182, Class 3. Saturated covers shall be in good condition, free from holes, tears, or other defects that would render it unsuitable for curing concrete. Saturated covers shall be dried to prevent mildew when storing. Prior to application, saturated covers shall be thoroughly rinsed in water and free of harmful substances that are deleterious or cause discoloration to the concrete. Saturated covers shall have sufficient thickness and proper positioning onto the concrete surface to maximize moisture retention.

Saturated covers shall contain a sufficient amount of moisture to prevent moisture loss from the surface of the concrete. Saturated covers shall be kept continuously moist so that a film of water remains on the concrete surface throughout the entire duration of the final curing method cycle. The Fabricator shall not permit the saturated covers to dry and absorb water from the concrete. Use of polyethylene film (see *Polyethylene Film* section) may be applied over the saturated cover to potentially decrease the need for continuous watering.

3. Sheet Materials for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of curing sheet materials throughout the entire duration of the final curing method cycle (see *Table 6: Final Curing Method Cycle for Curing Sheet Materials*).

Sustained Concrete Temperature	Final Curing Method Cycle Duration	Compressive Strength
50°F ≤ °F ≤ 90°F	≥ Three (3) days	≥80% f'c

Table 6: Final Curing Method Cycle for Sheet Materials

Sheet Materials used for curing, such as polyethylene film, white burlap-polyethylene sheeting, and reinforced paper shall meet the requirements of ASTM C171 and the specifications herein. Sheet materials shall inhibit moisture loss and reduce temperature rise in concrete exposed to radiation from the sun during the final curing method cycle. Adjoining covers shall overlap not less than 12 inches. All edges of the covers shall be secured to maintain a moist environment.

(a) Polyethylene Film.

Polyethylene film shall meet the requirements of ASTM C171, consist of a single sheet manufactured from polyethylene resins, be free of visible defects, and have a uniform appearance. Careful considerations shall be taken by the Fabricator to prevent the film from tearing during storage and application, so as to not disrupt the continuity of the film (polyethylene film reinforced with glass or other fibers is more durable and less likely to be torn). The Fabricator shall monitor the application of the film to prevent uneven spots from appearing (mottling) on the concrete surface, due to variations in temperature, moisture content, or both. The Fabricator shall prevent mottling from occurring on the concrete surface by applying additional water under the film or applying a combination of polyethylene film bonded to absorbent fabric to the concrete surface to retain and evenly distribute the moisture.

Immediately following final finishing, polyethylene film shall be placed over the surface of the fresh concrete surface, so as to not damage the surface of the concrete and shall be placed and weighted so that it remains in contact with the concrete throughout the entire duration of the final curing method cycle. The film shall extend beyond the edges of the concrete surface. The film shall be placed flat on the concrete surface, avoiding wrinkles, to minimize mottling. Edges of adjacent polyethylene film shall overlap a minimum of 6 inches and be tightly sealed with the use of sand, wood planks, pressure-sensitive tape, mastic, or glue to maintain close contact with the concrete surface, retain moisture, and prevent the formation of air pockets throughout the entire duration of the final curing method cycle.

(b) White Burlap-Polyethylene Sheeting

White burlap-polyethylene sheeting shall meet the requirements of ASTM C171, be securely bonded to the burlap so to avoid separation of the materials during handling and curing of the concrete, and be applied in the same manner as the polyethylene film.

(c) Reinforced Impervious Paper.

Reinforced impervious paper shall meet the requirements of ASTM C171, consist of two sheets of kraft paper cemented together with a bituminous adhesive and reinforced with embedded cords or strands of fiber running in both directions, and be white in color. Reinforced impervious paper shall be treated to prevent tearing when wetted and dried.

Reinforced impervious paper can be reused so long as it is effective in retaining moisture on the concrete surface. The Fabricator shall visually inspect the reinforced impervious paper for all holes, tears, and pin holes from deterioration of the paper through repeated use by holding the paper up to the light. The paper shall be discarded and prohibited from use when the moisture is no longer retained.

After the concrete has hardened sufficiently to prevent surface damage, the concrete surface shall be thoroughly wetted prior to the application of the reinforced impervious paper, and be applied in the same manner as the polyethylene film.

4. Liquid Membrane-Forming Compounds for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of liquid membrane-forming compounds throughout the entire duration of the final curing method cycle (see *Table 7: Final Curing Method Cycle for Liquid Membrane-Forming Compounds*).

Table 7: Final Curing Method Cycle for Liquid Membrane-Forming Compounds

Sustained Concrete Temperature	Final Curing Method Cycle Duration	Compressive Strength
50°F ≤ °F ≤ 90°F	≥ Seven (7) days	≥ 80% f°c

Liquid membrane-forming compounds shall meet the requirements of ASTM C 1315, Type I, Class A and shall exhibit specific properties, such as alkali resistance, acid resistance, adhesion-

promoting quality, and resistance to degradation by ultraviolet light, in addition to moistureretention capabilities. Liquid membrane-forming compounds shall consist of waxes, resins, chlorinated rubber, or other materials to reduce evaporation of moisture from concrete. Liquid membrane-forming compounds shall be applied in accordance with the manufacturer's recommendations.

Liquid membrane-forming compounds shall be applied immediately after the disappearance of the surface water sheen following final finishing. All exposed surfaces shall be wetted immediately after form removal and kept moist to prevent absorption of the compound, allowing the curing membrane to remain on the concrete surface for proper membrane moisture retention. The concrete shall reach a uniformly damp appearance with no free water on the surface prior to the application of the compound.

If patching or finishing repairs are to be performed prior to the application of the compound, the Precast Concrete Bridge Element shall be covered temporarily with saturated covers until the repairs are completed and the compound is applied. Only areas being repaired shall be uncovered during this period. While the saturated covers are removed to facilitate the patching process, the work shall continue uninterrupted. If for any reason the work is interrupted, saturated covers shall be placed onto the uncovered concrete surface, until the work continues and is completed, at which time the curing compound shall be applied to the repaired area.

Careful considerations shall be made by the Fabricator to determine if the evaporation rate is exceeding the rate of bleeding, thus causing the surface to appear dry even though bleeding is still occurring. Under such conditions, the application of liquid membrane-forming compounds to the concrete surface shall be delayed, in order to prevent bleed water from being sealed below the concrete surface and avert map cracking of the membrane films, reduction in moisture-retention capability, and reapplication of the compound. To diagnose and prevent this condition, the Fabricator shall place a transparent plastic sheet over a test area of the uncured and unfinished concrete surface and shall determine if any bleed water accumulates under the plastic.

The compound shall be applied in two applications at right angles to each other to ensure uniform and more complete coverage. On very deeply textured surfaces, the surface area to be treated shall be at least twice the surface area of a troweled or floated surface. In such cases, two separate applications may be needed, each at 200 ft²/gal., with the first being allowed to become tacky before the second is applied.

The curing compound shall be applied by power sprayer, using appropriate wands and nozzles with pressures between 25 and 100 psi. For very small areas such as repairs, the compound shall be applied with a wide, soft-bristled brush or paint roller. The compound shall be stirred or agitated before use and applied uniformly in accordance with the manufacturer's recommended rate. The Fabricator shall verify the application rates are in accordance with the manufacturer's recommended rate.

When the concrete surface is to receive paint, finishes, or toppings that require positive bond to the concrete, it is critical that the curing procedures and subsequent coatings, finishes, or toppings be compatible to achieve the necessary bond

After the termination of the final curing method cycle has occured, liquid membraneforming compounds shall be removed by blast-cleaning from any concrete surface that is to receive paint, finishes, plastic concrete from secondary pour, grout, or any other toppings that require bonding to the concrete surface. These surfaces shall be further blast-cleaned to remove

the cement matrix down to exposed aggregate to ensure proper bonding to the material. The method used to remove the curing compound shall not damage the reinforcement and coating. Compounds are prohibited on any concrete surface that will have a penetrating or coating type treatment such as a sealer, stain, or waterproofing membrane applied to it.

5. Accelerated Curing.

Accelerated curing shall use live steam or radiant heat with moisture in accordance with PCI MNL-116 as modified herein. The concrete temperature shall meet the maximum heat increase and cool down rates as specified herein. Concrete temperature monitoring shall meet the requirements of the *Temperature Monitoring* section. Excessive and fluctuating rates of heating and cooling shall be prohibited. The concrete temperature shall not exceed 158°F at any time. The Fabricator shall meet the following accelerated curing sequencing and requirements.

(a) Initial Delay Period.

The initial delay period shall be defined as the duration immediately following the placement of the concrete and the attainment of initial set of the concrete. The Fabricator shall determine the time of initial set in accordance with AASHTO T 197 specifications. Throughout the entire duration of the preset period, initial curing shall be implemented. The temperature increase period (see *Temperature Increase Period* section) shall not occur until initial set of the concrete is attained. During the initial delay period, the concrete temperature shall meet the following requirements:

- i. Concrete temperature rate of increase shall not exceed 10°F per hour.
- ii. Total concrete temperature increase shall not exceed 40°F higher than the placement concrete temperature or 100°F, whichever is less

(b) Temperature Increase Period.

The temperature increase period shall be defined as the duration immediately following the completion of the initial delay period (after initial set) and immediately prior to the start of the constant maximum temperature period. Application of steam to the enclosure shall not occur until the initial delay period is complete. After the initial delay period is complete, all exposed concrete surfaces shall be cured in a moist environment where the concrete temperature increases at a rate not to exceed 36°F per hour.

(c) Constant Maximum Temperature Period.

The constant maximum temperature period shall be defined as the duration immediately following the completion of the temperature increase period and immediately prior to the start of the temperature decrease period. After the temperature increase period is complete, all exposed concrete surfaces shall be cured in a moist environment at a controlled and constant elevated temperature throughout the entire duration of the constant maximum temperature period. Termination of the constant maximum temperature period and the start of the termination

decrease period shall occur after all specified conditions are met (see *Table 8: Constant Maximum Temperature Period*).

Table 8: Constant Maximum Temperature Period

Sustained Concrete Temperature	Constant Maximum Temperature Period	Compressive Strength
120°F ≤ °F ≤ 158°F	6 hrs ≤ Time ≤ 48 hrs	≥80% f'c

(d) Temperature Decrease Period.

After the constant maximum temperature period is complete, the concrete temperature shall be cured in a moist environment at a controlled and reduced rate not to exceed 36°F per hour until the concrete temperature is within 20°F of the ambient temperature outside of the curing enclosure.

P. Stripping.

The Fabricator shall not strip forms or handle the Precast Concrete Bridge Element until Quality Control compressive strength cylinders attain a minimum compressive strength of 80% Design Strength (f'c) or the value indicated on the approved drawings has been achieved. After removal from the form, all exposed concrete surfaces shall continue to be cured in conformance with the *Final Curing Methods* sections until completion.

Q. Handling and Storage of Precast Concrete Bridge Elements.

Precast Concrete Bridge Elements may be exposed to temperatures below freezing (32°F) when the chosen curing cycle has been completed, provided that the following conditions are met:

- (a) Precast Concrete Bridge Elements are protected from precipitation with polyethylene curing covers until 100% f'c is attained
- (b) Precast Concrete Bridge Elements maintain a minimum concrete temperature of 40°F until 100% f'c is attained

Precast Concrete Bridge Elements damaged during handling and storage will be repaired or replaced at the Engineer's direction at no cost to the Town. Precast Concrete Bridge Elements shall be lifted at the designated points by approved lifting devices embedded in the concrete and in accordance with proper lifting and handling procedures. Storage areas shall be smooth and well compacted to prevent damage due to differential settlement. Precast Concrete Bridge Elements shall be supported on the ground by means of continuous blocking, in accordance with the approved dunnage plan.

Precast Concrete Bridge Elements shall be loaded on a trailer with blocking as described above, in accordance with the approved dunnage plan. Shock-absorbing cushioning material

shall be used at all bearing points during transportation of the Precast Concrete Bridge Elements. Blocking shall be provided at all locations of tie-down straps. Precast Concrete Bridge Elements stored prior to shipment shall be inspected by the Contractor prior to being delivered to the site to identify damage that would be cause for repair or rejection.

R. Repairs and Replacement.

In the event defects are identified, they shall be classified in the following categories and a non-conformance report (NCR) shall be filed if required. The NCR shall be submitted to the Engineer for review. Defects in all categories shall be documented by plant Quality Control personnel and made available to the Engineer upon request. Any required repairs shall utilize materials listed on the MassDOT QCML.

Where noted, defects shall be repaired according to the PCI Northeast Region Guidelines for Resolution of Non-Conformances in Precast Concrete Bridge Elements, Report Number PCINE-18-RNPCBE. Please note that reference to PCINE-18-RNPCBE is made for repair details only. In the case of conflicts with this Special Provision, this Special Provision shall govern.

1. Category 1, Surface Defects.

Category 1 defects do not need to be repaired, and an NCR does not need to be filed. Surface defects are defined as the following:

- (a) Surface voids or bug holes that are less than 5/8-inch in diameter and less than ¼-inch deep, except when classified as Category 4
- (b) Cracks less than or equal to 0.006 inches wide
- (c) Cracks less than or equal to 0.125 inches wide on surfaces that will receive a field-cast concrete overlay

2. Category 2, Minor Defects.

Category 2 defects shall be repaired, but an NCR does not need to be filed. Minor defects are defined as the following:

- (a) Spalls, honeycombing, surface voids that are less than 2 inches deep and have no dimension greater than 12 inches
- (b) Cracks less than or equal to 0.016 inches that will not receive a concrete overlay
- (c) Broken or spalled corners that will be covered by field-cast concrete

Minor defects shall be repaired according to PCINE-18-RNPCBE. Cracks shall be sealed according to the PCI Repair Procedure #14 in PCINE-18-RNPCBE.

3. Category 3, Major Defects.

For Category 3 defects, the Fabricator shall prepare an NCR that documents the defect and describes the proposed repair procedure. The NCR shall be submitted to the Engineer for approval prior to performing the repair. Major defects are defined as the following:

- (a) Spalls, honeycombing and surface voids that are deeper than 2 inches or have any dimension greater than 12 inches, when measured along a straight line
- (b) Concentrated area of defects consisting of four or more Category 2 Defects within a 4-square foot area.
- (c) Exposed reinforcing steel
- (d) Cracks greater than 0.016 inches and less than or equal to 0.060 inches in width that will not receive a concrete overlay
- (e) Bearing area spalls with dimensions not exceeding 3 inches
- (f) Cracks, spalls and honeycombing that will be encased in cast in place concrete need not be repaired, but the limits and location of the defects shall be documented with an NCR

Upon approval, defects and cracks shall be repaired according to PCINE-18-RNPCBE and this specification. All repairs shall be completed at the expense of the Contractor.

4. Category 4, Rejectable Defects.

Rejectable defects as determined by the Engineer may be cause for rejection. Fabricator may submit an NCR with a proposed repair procedure, requesting approval. Some rejectable defects are defined as the following:

- (a) Surface defects on more than 5% of the surface area which will be exposed to view after installation
- (b) Minor defects that in total make up more than 5% of the surface area of the unit
- (c) Cracks greater than 0.060 inches in width except as noted in Category 1
- (d) Elements fabricated outside of the specified tolerances
- (e) Compressive strength testing that does not meet the specified Design Strength, f'c.

S. Shipping.

Prior to shipment, the Fabricator shall perform the following actions and provide the required documentation to the Engineer:

- (a) Precast Concrete Bridge Elements shall remain at the Fabricator's plant for a minimum of 7 days after cast date.
- (b) QC Inspection Reports shall be signed by the Quality Control Manager and provided to the Engineer.
- (c) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative Sublot shall be generated by the Fabricator and provided to the Engineer.
- (d) Certificate of Compliance shall be generated by the Fabricator as described under the Fabricator Quality Control section and provided to the Engineer.
- (e) All Engineer approved Corrective Actions submitted on the Non-Conformance Reports (NCR), shall be verified to have been completed by the Engineer and Quality Control Manager.

(f) All NCRs shall be signed off by the Quality Control Manager and the Engineer

T. Delivery.

Upon Delivery, the following documentation shall be provided to the Resident Engineer or designee:

- (a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative sublot.
- (b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
- (c) QC Inspection Reports signed by the Quality Control Manager.

The Contractor shall inspect Precast Concrete Bridge Elements upon receipt at the site. Precast Concrete Bridge Elements damaged during delivery shall be repaired or replaced at the Engineer's direction at no additional cost.

CONSTRUCTION METHODS - FIELD CONSTRUCTION

A. General.

All of the Contractor's field personnel involved in the erection and assembly of the Precast Concrete Bridge Elements shall have knowledge of and follow the approved Erection Procedure.

Prior to installation, the following documentation shall be reviewed and confirmed by the Engineer or designee:

- (a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative sublot.
- (b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
- (c) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Engineer has accepted all Precast Concrete Bridge Elements prior to installation.

B. Erection Procedure

Prior to the erection, the Contractor shall submit an Erection Procedure for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Precast Concrete Bridge Elements. The Erection Procedure shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure shall, at a minimum, include the following:

1. Erection Procedure

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (seventh edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

- (a) Minimum concrete compressive strength for handling the Precast Concrete Bridge Elements.
- (b) Concrete stresses during handling, transport, and erection.
- (c) Crane capacities, pick radii, sling geometry, and lifting hardware.
- (d) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
- (e) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Precast Concrete Bridge Elements and setting them as shown on the plans.
- (f) Design of crane supports including verification of subgrade for support.
- (g) Location and design of all temporary bracing that will be required during erection.

Non-shrink grout and concrete materials, approved by the Engineer, shall be placed as shown on the plans. Fill joints, keyways, and voids, in strict accordance with the specifications and manufacturer's recommendations and instructions.

For footings once these Precast Concrete Bridge Elements have been set to the correct horizontal and vertical alignment, the void between them and the supporting soil shall be filled with Controlled Density Fill – Non-Excavatable to the limits as shown on the plans. Add additional grout ports in the footings to facilitate the bedding process if required.

Joints shall be filled flush to the top with non-shrink grout, and any vertical misalignment between adjacent elements shall be feathered out on a slope of 1 to 12.

Curing of grout or concrete shall be performed in strict accordance with the specifications and manufacturer's recommendations. Filling shall not be completed in cold weather when either the ambient temperature or the precast member's temperature is below the manufacturer's recommendation. No localized heating of either the precast members or of the air surrounding the element will be permitted in an attempt to reach application temperatures.

If the joints or voids are not filled within five days after the Precast Bridge Elements are erected, the Contractor shall cover and protect the openings from weather and debris until they are filled.

C. Survey and Layout.

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. The Engineer reserves the right to perform additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

D. Preparation of Closure Pour Keyways.

Immediately prior to erecting the Precast Concrete Bridge Elements, the closure pour shear keys shall be cleaned at the job site of all dust, dirt, carbonation, laitance, and other potentially detrimental materials which may interfere with the bonding of the closure pour concrete and precast concrete using a high-pressure water blast. The exposed reinforcing steel in the precast concrete shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer. The surfaces of the shear keys shall be wetted so that the surfaces shall have a Saturated Surface Dry (SSD) condition for at least 24 hours prior to the placement of the closure pour concrete.

E. Erection.

The elements shall be placed in the sequence and according to the methods outlined in the Erection Procedure. As the erection proceeds, the Contractor shall constantly monitor the assembly to ensure that the precast concrete bridge element is within proper horizontal and vertical location and tolerances prior to releasing it from the crane and setting the next unit. The Contractor may use shims to maintain proper setting tolerances.

The concrete elements shall be lifted only by the lifting devices, and the utmost care shall be taken to prevent distortion of the elements during handling, transportation or storage.

Suitable spreaders shall be used during lifting so that only a vertical pull will be made on the lifting device. A non-vertical lifting force may be permitted if prior written approval is given by the Engineer. This approval will be contingent on the Contractor demonstrating by calculations, prepared by a Professional Engineer registered in Massachusetts, that the elements will not be damaged by the non-vertical lifting force and by documentation that the capacity of the lifting devices is adequate for the non-vertical lifting force.

Precast components shall be pre-bed with non-shrink grout thicker than shim stacks prior to placing other precast elements on top of them.

After all Precast Concrete Bridge Elements have been placed, the actual overall dimensions of the structure both horizontal and vertical, as laid out shall not deviate from the nominal dimensions shown on the plans beyond a tolerance of +0 inches and -1 inches. Once the layout of Precast Concrete Bridge Elements has been accepted by the Engineer, the Contractor shall cut all lifting devices off below the surfaces of the elements.

F. Filling of Blockouts for Lifting Devices and Threaded inserts.

If the blockouts in the Precast Concrete Bridge Elements where the lifting devices were located will be exposed and visible after assembly is complete, the Contractor shall fill these blockouts with Cement Mortar (M4.02.15) or grout.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Measurement of Precast Concrete Deck Panels shall be made per unit Each of precast deck panel complete in place and accepted by the Engineer.

Payment under this Item shall be made at the contract unit bid price per Each concrete deck panel installed, which price shall include full compensation for all labor, materials, tools, equipment, and other incidentals necessary to perform the work described above.

4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE WITH ANTI WASHOUT ADMIXTURE

<u>CY</u>

The work to be done shall conform to the applicable provisions of Section 901 and the following:

The work performed under this Item shall consist of providing all labor, materials, and equipment necessary for the installation of concrete to fill the existing void in the pier to the limits shown on the plans.

Admixtures

All concrete placed shall contain an anti-washout admixture listed on the Qualified Construction Materials List (QCML). The admixture shall be used in accordance with the manufacturer's recommendations and shall be submitted for review and approval by the Engineer of Record.

Concrete Testing

Previous test results for the proposed concrete mix completed within one year of the start of work shall be submitted for initial verification of the required compressive strengths for installation. If the Contractor is unable to provide test results for the proposed mix design, the Contractor shall submit in writing to the Engineer a mix design showing the mix proportions, and test results performed by an independent testing lab.

The Contractor shall employ an independent testing company to perform field testing on the concrete placed under this item to confirm the concrete's properties are consistent with the mix design and/or trial batch results. The Contractor's testing company shall also prepare cylinders for compressive testing. All concrete testing and cylinder preparation shall be in accordance with Section M4 of the MassDOT Standard Specifications. All concrete testing shall be incidental to this item.

Trial Batch Testing

The Contractor's concrete mix design, including admixtures, shall require trial batch testing to verify that the concrete matrix remains cohesive and does not breakdown during the trial underwater placement. Placement of concrete in the existing void shall not occur until approved by the Engineer after the trial batch placement has been conducted and successful results are verified.

In order to simulate the void repair, the Contractor shall construct a timber framing box, open on one end, with inside dimensions 2'-0" wide x 2'-0" tall x 6" deep. The box shall be submerged and secured against an existing upstream wingwall so that the open end of the box is facing outward toward the channel. This box opening shall serve as the trial void and shall be repaired using the Contractor's approved placement procedure.

All materials and concrete associated with the trial batch repair shall be removed from the channel after the concrete has solidified.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 905.01 shall be measured for payment by the Cubic Yard of concrete placed to the limits shown on the plans or as directed by the Engineer of Record.

Item 905.01 shall be paid at the contract unit bid price per Cubic Yard of material placed, as measured above, which shall include all labor, materials, equipment, formwork, and incidental costs required to complete the work.

Measurement and payment for the first trial batch shall be to the nearest 0.1 Cubic Yards, but shall not exceed 1 cubic yard. Any additional trial batches required shall not be measured for payment and shall be conducted at the Contractor's expense. All costs associated with the removal of the trial batch material shall be incidental to the work performed under this Item.

GENERAL

The work under this Item shall consist of drilling and grouting dowels as depicted in the Plans, or as directed by the Engineer.

The supply and installation of reinforcing steel dowels shall be considered incidental to the work performed under this Item.

MATERIALS

The grout to be used for these dowels shall be HILTI HIT-RE 500 V3, or approved equal. If the specified material will not be used, the proposed material used to perform this work shall be listed on the MassDOT Qualified Construction Materials List.

CONSTRUCTION METHOD

The dowel hole diameter shall be per the grout manufacturer's recommendations for each size dowel. All dowel holes shall be air drilled provided that the minimum edge distance of 6 inches is observed. Should, in the Engineer's opinion, air drilling be inappropriate due to questionable strength of the existing material or insufficient edge distance, the dowel holes shall be diamond core drilled. The inner surfaces of diamond core drilled dowel holes shall be scored to develop sufficient keying action. The method of scoring of the dowel hole's inner surfaces shall be subject to the approval of the Engineer. The depth of the drilled dowel holes shall be as shown on the Plans, except that the depth of drilled hole shall be modified by the Contractor as required to comply with the minimum depth of hole specified in the product literature of the cementitious mortar to develop 125% of the yield strength of the bars. The diameter of the dowel holes shall be as specified in the product literature of the cementitious mortar to develop 125% of the yield strength of the bars. The holes shall be blown clear of any debris and shall have the approval of the Engineer prior to the placement of any grout material.

The drilling operation shall be performed without damage to any existing reinforcing or portion of the structure that is to remain in place. Any damage to any existing portion of the structure that is to remain in place shall be repaired to a condition equal to or better than existing condition prior to the beginning of the Contractor's operations and shall be repaired at the Contractor's expense.

The Contractor shall strictly follow the recommendations of the manufacturer for mixing and placing the grout material prior to the placement of the dowels. The Contractor shall, at a minimum, adhere to the ACI code requirements regarding minimum and maximum temperatures while placing the grout. Any excessive grout around the hole after placement of the dowel shall be struck off smooth while the grout is still fresh.

ITEM 912. (Continued)

SUBMITTALS

The Contractor shall submit the grout manufacturer's literature completely describing the products to be utilized. The materials shall be delivered clearly marked with legible and intact labels containing the manufacturer's name, brand name, and identification of the areas where temperatures conform to manufacturer's instructions and recommendations.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Measurement of Drilled and Grouted Dowels shall be made per unit Each of drilled and grouted hole, regardless of depth, complete in place with the dowel, and accepted by the Engineer regardless of length or size of the actual bar dowels.

Payment under this Item shall be made at the contract unit bid price per Each drilled/cored and grouted dowel installed, which price shall include full compensation for all labor, materials, tools, equipment, and other incidentals necessary to perform the work described above. The Contractor shall have no claim for any variations in the diameter of the hole, the method of drilling the hole, or the type of grout used in anchoring the proposed dowels. The supply and installation of reinforcing steel dowels shall be considered incidental to the work performed under this Item.

The work to be done under this Item shall conform to the applicable provisions of Section 140 and 950 of the Standard Specifications and the following:

The work shall include installation of temporary shoring prior to the excavation and removal of the granite slabs. The work shall also include removal of temporary shoring once the granite slabs have been safely removed and precast planks have been safely installed.

Temporary shoring systems, supplied by the Contractor, shall be installed to support the excavation and removal of two granite slabs as designated by the plans. The temporary shoring shall prevent the granite slabs from falling into the river during excavation and removal of the slabs and setting of the proposed planks.

The design of the temporary shoring systems shall adequately resist all loads applied to the systems for the duration of construction until the granite slabs are safely removed. Loads acting on the systems include, but are not limited to, dead load of the adjacent slabs, earth and/or water pressure, construction live loads, and live loads from staged traffic.

The design shall be in accordance with the latest load resistance factor design (LRFD) bridge design specifications, of the American Association of State Highway and Transportation Officials (AASHTO) and the latest AASHTO Guide Design Specification for Bridge Temporary Works, and all interims published as of bid opening.

The Contractor shall submit calculations and detailed drawings of the proposed temporary shoring systems to the Engineer for approval. These calculations and drawings shall be stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

BASIS OF PAYMENT

Item 950.1 will be paid for at the Contract Lump Sum. This price shall include all labor, materials, equipment, and any incidental costs required to complete the work.

The work to be done under this Item shall conform to the applicable provisions of Section 983 of the Standard Specifications and the following:

The work to be done under this Item consists of placing cobble stones over the proposed riprap and grout bags used for the scour repair. Cobble stones shall be from the project site or another site that replicates these stones. Stones shall be rounded without angular edges and meet the natural D50 stone size of the existing streambed.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 984.62 will be measured and paid for at the Contract unit price per Cubic Yard of cobble stones placed. The Contract price shall include all labor, materials, equipment, and any incidental costs required to complete the work.

ITEM 988.3 CHANNEL PAVING – GROUT FILLED BAGS

Work performed under this Item shall consist of providing all labor, materials, and equipment necessary for the installation of grout filled bags/mats for scour protection and filling undermined areas of the existing substructure with grout as specified on the plan, and as directed by the Engineer.

MATERIALS

Grout

Cement, sand, and water shall conform to M4.01.0, M4.02.02A and M4.02.04, respectively.

Grout mix shall consist of a minimum of 845 lbs/cy of Type I or II Portland cement, $6\% \pm 1\%$ air entrainment by volume, mortar sand aggregate, and water proportioned to provide a pumpable mixture.

The minimum 28-day compressive strength shall be 3,500 psi per AASHTO T 106/ASTM C 109. The Contractor shall submit in writing to the Engineer a mix design showing the mix proportions, and test results performed by an independent testing lab.

Admixtures

All concrete grout placed underwater shall contain an anti-washout admixture listed on the Qualified Construction Materials List (QCML). The admixture shall be used in accordance with the manufacturer's recommendations and shall be submitted for review and approval by the Engineer of Record.

Additional admixtures may be required to achieve the required air content and pumpability. Admixtures shall conform to M4.02.05 and be listed on the Qualified Construction Materials List (QCML) where possible. Non-QCML listed products shall conform to the requirements of ASTM C 494 (AASHTO M194) and be subject to the review and approval of the Engineer.

Grout Bags

Grout bags shall be made of a high strength water permeable fabric of nylon or cordura. Each bag/mat shall be provided with a self-closing inlet valve to accommodate insertion of the grout pumping hose. Grout filled bags shall have a minimum length of 3-foot, a maximum length of 6-foot, a maximum width of 18 inches, and a minimum thickness of 18 inches. Seams shall be folded and double stitched.

Fabric shall exhibit the following properties in both warp and fill directions:

ITEM 988.3 (Continued)

Test Property	Test Method	Specification
Tensile Strength, min.	ASTM D1628, Grab Method	4,800 lbs./ft.
Tear Strength, min.	ASTM D2262, Tounge Method	90 lbs.

The Contractor shall submit fabric grout bag material specifications and material certification to the Engineer for review and approval. The Contractor shall follow the manufacturer's recommendations for the specific fabric grout bag material approved. If material specifications and installation requirements differ between the manufacturer and Contract Documents, they shall be brought to the attention of the Engineer for review and concurrence prior to installation.

Grout Testing

Previous test results for the proposed grout mix completed within one year of the start of work shall be submitted for initial verification of the required compressive strengths for installation.

Grout consistency as measured by grout density shall be determined by the Contractor per API RP-13B-1, conducted just prior to start of grouting. The Baroid Mud Balance used in accordance with API RP-13B-1 is an approved device for determining the grout density of neat cement grout. The measured grout density shall be within $\pm 10\%$ of the density specified in the grout mix design submittal.

Grout samples shall be taken directly from the grout plant (on-site mixer and pump). The Contractor shall provide grout density test results to the Engineer within 24 hours of testing.

Construction

The Contractor shall develop and submit to the Engineer for approval a comprehensive grout bag and scour hole grout placement procedure, including any proposed flow barriers. This procedure shall be submitted to the Engineer for approval at least 30 days prior to the date of intended placement. The Engineer will approve or reject the Contractor's submission within 15 calendar days after receipt of a complete submission. Additional time required due to incomplete or unacceptable submittals will not be cause for time extension or impact or delay claims. All costs associated with incomplete or unacceptable submittals shall be borne by the Contractor.

The channel shall be excavated and re-graded to the limits shown on the plans prior to placing the geotextile fabric. Geotextile fabric shall be placed prior to placing the crushed stone and grout bags/mats. Loose sediment and debris shall be removed from the scour void. Grout shall be placed on top of geotextile fabric placed on top of firm sound bearing material as determined by the Engineer.

ITEM 988.3 (Continued)

The bags shall be positioned and filled so that they abut tightly to each other. No open gaps shall be permitted. Joints between bags in successive rows and tiers shall be staggered. The bags shall be pinned together using a minimum of two galvanized or epoxy coated #5 reinforcing dowel bars per bag. The dowels shall be inserted through the grout into fresh grout within the bag. Succeeding bags shall be stretched tightly and slipped over the protruding dowels. The dowels shall be inserted through fabric by parting the fibers. Cutting or tearing the fabric or fibers will not be permitted.

Sufficient grout bags must be placed in front of the existing substructure to act as a retaining wall capable of resisting the horizontal pressure exerted by the grout intended to fill the scour areas. This retaining wall of grout filled bags shall form a stable wall of the required thickness, weight, and configuration. The contractor shall design and determine the required grout filled bag retaining wall configuration and shall submit all necessary design computations to the Engineer for approval. The grout bags must be allowed to cure sufficiently prior to filing the scour areas with grout.

Placement of the grout into the scour areas under the existing substructure shall continue uninterrupted until the scour holes are completely filled. Interruption of placement of grout through a single pipe shall not exceed 30 minutes without removal of the pipe or installing a new pipe and carrying out the restarting procedure.

Ready mixed grout from an automatic proportioning plant may be permitted by written permission of the Engineer. The ready mixed grout shall be furnished by a manufacturer approved by the MassDOT Research and Materials Laboratory.

The concrete/grout pump shall be capable of delivering up to 25 cy/hr.

When grout bags are used to seal off a void and then the grout mix is pumped into the void, the Contractor shall install 4-inch minimum diameter vent pipes at 4-foot maximum spacing to allow all trapped water in the void to escape while the grout is being pumped. The concrete/grout tube delivering the mix to the void shall be inserted so that the mix does not free fall. The void shall be filled by the tremie method. The vent pipes shall be removed or cut off flush with the bags when completed.

Trial Batch Testing

The Contractor's grout mix design, including admixtures, shall require trial batch testing to verify that the grout matrix remains cohesive and does not breakdown during the trial underwater placement. Production grouting of the grout bags and scour void shall not occur until approved by the Engineer after the trial batch placement has been conducted and successful results are verified.

In order to simulate the void repair, the Contractor shall construct a timber framing box, open on one end, with inside dimensions 2'-0" wide x 2'-0" tall x 6" deep. The box shall be submerged

ITEM 988.3 (Continued)

and secured against an existing upstream wingwall so that the open end of the box is facing outward toward the channel. This box opening shall serve as the trial void and shall be repaired using the Contractor's approved placement procedure using the minimum size and number of grout bags required to do so.

All materials and grout associated with the trial batch repair shall be removed from the channel after the grout has solidified.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Measurement under Item 988.3 shall be made to the nearest 0.1 Cubic Yards of grout filled bags and grout filled scour areas complete and accepted by the Engineer and trial batch testing as specified below. The supply and installation of the #5 reinforcing steel dowels shall be considered incidental to the work performed under this Item. Geotextile Fabric for Permanent Erosion Control will be measured and paid for under Item 698.4.

Payment for Item 988.3 will be made at the contract unit price per Cubic Yards and shall be considered full compensation for all bags, grout, #5 dowels, and all other incidental materials, flow barriers, labor, equipment, tools, re-grading, hauling, disposal, vent tubes, and incidentals necessary to complete the work, including trial batch testing, except as otherwise specified below.

Measurement and payment for the first trial batch shall be to the nearest 0.1 Cubic Yards, but shall not exceed 1 cubic yard. Any additional trial batches required shall not be measured for payment and shall be conducted at the Contractor's expense. All costs associated with the removal of the trial batch material shall be incidental to the work performed under this Item

<u>CONTROL OF WATER –</u> <u>STRUCTURE NO. A-01-010 (AJQ)</u>

LUMP SUM

All work to be done under this Item shall conform to the relevant provisions of Sections 140.60 of the MassDOT Standard Specifications, the Plans, and the following:

The work under this item shall consist of all work and dewatering necessary to control water during the repairs to the existing structure. Water shall be diverted and controlled in such a way that all existing bridge elements are removed, and all proposed repairs are constructed completely in the dry.

The operations of Control of Water neither shall cause the accumulation of siltation nor any adverse effect to the water or the environment. As much work as possible shall be conducted from outside the stream banks.

All work-in-water operations shall be completed in accordance all applicable environmental permits.

The temporary control of water systems shall be non-permanent, shall not harm the ecology of the brook, land under water, and surrounding land and shall be comprised bulk sand bags or portable cofferdams or other approved impervious curtains, and dewatering to facilitate construction activities. Operations of Control of Water shall not adversely affect the quality of the required construction.

Work under this Item also includes pumping operations, sandbags, portable cofferdams, filter fabrics, stone, sedimentation/retention tanks and all other means to collect, settle, and discharge water into the Shumatuscacant River during construction.

As part of the work under this item, it is the responsibility of the Contractor to determine the need and extent of dewatering required.

Special care shall be given to minimize disturbance to the river and adjacent banks.

Submittals

Prior to the commencement of any work at the site, the Contractor shall submit to the Engineer for review and approval, a detailed plan for water control, including the construction of the water control system, and a repair sequence plan with a timetable and details specific to each of the phases of construction. The submittals shall include working drawings and calculations. Detailing the methods and materials proposed to account for all anticipated loads and construction conditions necessary to permit the work while maintaining a safe work area and protecting property from damage.

Any drawings and calculations prepared as part of the submittal must be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. The plans and calculations shall also be submitted to the Abington Conservation Commission for approval before construction begins.

The Water Control Plan shall include a Sedimentation and Erosion Control Plan and a Water Flow Diversion and Containment Plan. The plans shall be adequate in detail to define specifics regarding materials, sizes, connections, and incidental items associated with the work. The furnishing of such plans shall not serve to relieve the Contractor's responsibility for the safety of the work or his/her responsibility for the successful completion of the project. The proposed plans submitted shall be designed and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

The Contractor shall make his/her own evaluation of existing conditions, groundwater level, water flow, the effects of his/her proposed temporary works and construction methods, and shall provide in his/her design for all loads and construction conditions necessary to permit construction of the specified repairs while maintaining public safety, and protecting completed work and all third party property from damage due to his operations.

Sedimentation and Erosion Control Plan:

The Contractor shall submit to the Engineer, plans and details of the intended sedimentation/retention tank system that will be used along with dewatering techniques, and its location at the bridge site. All discharge resulting from dewatering activities shall be directed to temporary sedimentation/retention tank at locations approved by the Engineer. At no time shall said discharge be directly released into the river. The proposed plan shall include methods and equipment necessary to discharge water from the sedimentation treatment basins. Sedimentation/retention tank shall be sized appropriately to adequately dewater from the proposed work zone while allowing sufficient time for sediments to settle out of the water, and with a depth such that a minimum of 18 inches of freeboard is maintained throughout its use.

Water Flow Diversion and Containment Plan:

The Contractor shall submit plans and details along with a complete description showing any proposed systems for control of water and dewatering plan to the Engineer for his approval prior to the start of the work. The proposed plan shall include methods and equipment necessary to perform the work and shall include water discharge methods and equipment to bring water from the work zone to sedimentation/retention tank.

Methods

This work shall also include dewatering the existing culvert, as needed to conduct the work.

The system shall be designed so that there are no adverse effects on the adjacent properties. The control of water system shall be sized in such a way that the system is overtopped with elevated brook water before any adjacent properties are inundated.

Where sandbags are used, the bags shall not decay nor rip or tear during the installation, its service life within the waterway, or during the removal process. The Contractor shall not disturb the river bed in order to avoid migration of silts and sands further downstream. All in-river work required to install, adjust and remove the control of water system must be performed by hand or by hoisting equipment positioned upland. The Contractor is responsible for researching the seasonal groundwater levels and flow characteristics of the Shumatuscacant River to determine appropriate details.

The Contractor shall closely monitor weather reports throughout the duration of construction. If a significant storm event is within the forecast, the Contractor shall be responsible for securing the site and removing all equipment from the river that could be dislodged during a large storm event.

Measures to control the discharge of sediment or pollutants into the water resource areas shall include, but not be limited to the following:

- 1. Site construction areas outside the buffer zones and on relatively flat ground.
- 2. Management of construction operations involving hazardous materials, such as refueling and maintenance of equipment within the resource areas.
- 3. Formulation of contingency plans to control accidental spillage from potentially hazardous materials.
- 4. Installation and continuous maintenance of water control measures throughout the project.
- 5. Treatment of all discharge resulting from dewatering activities through a sedimentation/retention tank to control turbidity. At no time shall the discharge from dewatering activities be directly released into a resource area.
- 6. Perform as much work as possible outside the banks.
- 7. Scheduling of work within the resource areas to avoid periods of high flood (e.g., spring floods) and inclement weather.

These measures shall be maintained for the duration of the contract.

The locations of any sedimentation/retention tank will be determined by the Contractor based on the selected methods of construction. Placement of the tank shall be in an upland area that is within the existing right of way.

A sumping basin shall be constructed to collect any stream waters able to bypass the diversion system that may enter any work areas. The basin shall be equipped with a pump to convey waters to a sedimentation/retention tank. Water shall be discharged downstream after passing through the sumping basin and sedimentation/retention tank. No waters pumped from the work areas shall be discharged back to the river until sediment is filtered using the sedimentation/retention tank.

All dewatering and related water control work shall be conducted in such a manner as to prevent siltation or contamination of the waterway. At a minimum, the sedimentation/retention tank shall be constructed of an earthen berm lined with geotextile fabric and surrounded by staked hay bales. The tank shall meet or exceed the following criteria:

- 1. The size and location of the tank shall be determined based on the size of the Contractor's pump and the anticipated groundwater levels.
- 2. The outlet/weir of the sedimentation/retention tank shall not cause erosion of the surrounding area. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the tank.
- 3. The Contractor shall not allow any sediment within the sedimentation/retention tank to accumulate to a depth of greater than 12 inches at any point in the tank, nor shall the water level be allowed to rise to a height of more than 24 inches.
- 4. The sedimentation/retention tank shall be designed with a minimum of 18 inches of freeboard, which must be maintained at all times.
- 5. The Contractor shall inspect the sedimentation/retention tank at least daily when in operation.
- 6. Damages shall be repaired immediately.
- 7. The sedimentation/retention outlet shall be cleaned daily.
- 8. The sediments within the sedimentation/retention tank shall be disposed of as approved by the Engineer.

Upon completion of water control, the materials and equipment used to maintain the cofferdam(s) (if needed) and sumping basin(s) and sedimentation/retention tank (including the temporary riprap for dewatering discharge) shall become the property of the Contractor and shall be removed by the Contractor from the site. The area affected shall be restored to its natural condition in a manner subject to the Engineer's approval.

The Contractor is advised that the effectiveness of the water control method used will vary based on the field conditions and the time at which the actual work is being performed. The Engineer has the right to order the Contractor to stop all excavation operations when in his judgment the Contractor's water control operations are failing to produce adequate results or are posing a threat to the environment.

The Contractor shall coordinate with the Town to lower the water level of the dam to the greatest extent practical before installing the Control of Water measures.

BASIS OF PAYMENT

Control of Water Structure No. A-01-010 (AJQ) will be paid for at the Contract unit price per Lump Sum, which shall include all labor, materials, equipment, engineering and incidental costs required to complete the work as indicated on the Contract Documents. Any riprap used for dewatering discharge shall be considered incidental to the work and shall be paid for under this Item.

In general, the payment method for Item 991.1 is partial progressive payment of the Lump Sum Contract Bid Price of this Item. The partial payment schedule will be as follows:

- The first payment of Item 991.1 (50% of the Lump Sum bid price) will be made upon complete installation of the water control system to the satisfaction and approval of the Engineer.
- The final payment of Item 991.1 (50% of the Lump Sum bid price) will be made upon the satisfactory removal of the water control system after bridge construction is complete.

All adjustments and repositioning of water control shall be considered as included under this item.

No separate payment will be made for the removal and disposal of the sediment material collected from the dewatering systems, but all costs in connection therewith shall be included in the Contract unit price bid.

Bridge Preservation ST 123 (Centre Avenue) over Shumatuscacant River A-01-010 (AJQ) Abington, MA 02351

APPENDIX A

PREVAILING WAGE RATES



THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN IONES Secretary

MICHAEL FLANAGAN Director

Lt. Governor

Awarding Authority: Town of Abington

Contract Number: City/Town: ABINGTON

The proposed bridge preservation improvements include replacing two granite slabs, replacing a missing pier **Description of Work:**

block, and repairing an area of undermining under the wingwall and abutment.

Job Location: 123 ST 123 (Centre Avenue)

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multiyear CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The annual update requirement is not applicable to 27F "rental of equipment" contracts. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the iournevworker's rate.
- · Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to http://www.mass.gov/dols/pw.
- · Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- · Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- · Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Issue Date: 01/23/2024 Wage Request Number: 20240122-044

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	01/01/2024	\$38.95	\$15.07	\$18.67	\$0.00	\$72.69
TELINISTEMS VOLVI COCHCIE NO. IV ECHE B	06/01/2024	\$39.95	\$15.07	\$18.67	\$0.00	\$73.69
	12/01/2024	\$39.95	\$15.07	\$20.17	\$0.00	\$75.19
	01/01/2025	\$39.95	\$15.57	\$20.17	\$0.00	\$75.69
	06/01/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$76.69
	12/01/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$78.30
	01/01/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$78.90
	06/01/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$79.90
	12/01/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$81.64
	01/01/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT	01/01/2024	\$39.02	\$15.07	\$18.67	\$0.00	\$72.76
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	06/01/2024	\$40.02	\$15.07	\$18.67	\$0.00	\$73.76
	12/01/2024	\$40.02	\$15.07	\$20.17	\$0.00	\$75.26
	01/01/2025	\$40.02	\$15.57	\$20.17	\$0.00	\$75.76
	06/01/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$76.76
	12/01/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$78.37
	01/01/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$78.97
	06/01/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$79.97
	12/01/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$81.71
	01/01/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$82.31
4 & 5 AXLE) DRIVER - EQUIPMENT	01/01/2024	\$39.14	\$15.07	\$18.67	\$0.00	\$72.88
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	06/01/2024	\$40.14	\$15.07	\$18.67	\$0.00	\$73.88
	12/01/2024	\$40.14	\$15.07	\$20.17	\$0.00	\$75.38
	01/01/2025	\$40.14	\$15.57	\$20.17	\$0.00	\$75.88
	06/01/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$76.88
	12/01/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$78.49
	01/01/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$79.09
	06/01/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$80.09
	12/01/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$81.83
	01/01/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
LOTE LA (HEAT L' CHOHMA)	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
rr						

 Issue Date:
 01/23/2024
 Wage Request Number:
 20240122-044
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	12/01/2023	\$40.80	\$14.50	\$11.05	\$0.00	\$66.35
HEAT & FROST INSULATORS LOCAL 0 (BOSTON)	06/01/2024	\$41.80	\$14.50	\$11.05	\$0.00	\$67.35
	12/01/2024	\$42.80	\$14.50	\$11.05	\$0.00	\$68.35
	06/01/2025	\$43.80	\$14.50	\$11.05	\$0.00	\$69.35
	12/01/2025	\$44.80	\$14.50	\$11.05	\$0.00	\$70.35
ASPHALT RAKER LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
EADORERS - ZOIVE 2 (HEAV I & HIGHWAI)	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
of Editing Evolution Eochie (06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
OI EMILING ENGINEERIG EOCHE 4	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER LABORERS - ZONE 2	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER" DLOCK DAVIED DAMMED / CURD SETTED (HEAVY &		.	.	**	40.00	·
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
BOILER MAKER BOILERMAKERS LOCAL 29	01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Issue Date: 01/23/2024 **Wage Request Number:** 20240122-044 **Page 3 of 38**

	1/2024			Supplemental		
Step percent	Apprentice Base Wag	ge Health	Pension	Unemployment	Total Rate	
1 65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57	
2 65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57	
3 70	\$33.68	\$7.07	\$14.23	\$0.00	\$54.98	
4 75	\$36.09	\$7.07	\$15.24	\$0.00	\$58.40	
5 80	\$38.50	\$7.07	\$16.25	\$0.00	\$61.82	
6 85	\$40.90	\$7.07	\$17.28	\$0.00	\$65.25	
7 90	\$43.31	\$7.07	\$18.28	\$0.00	\$68.66	
8 95	\$45.71	\$7.07	\$19.32	\$0.00	\$72.10	
Notes:						
Apprentice to Journeyw	worker Ratio:1:4					
BRICK/STONE/ARTIFICIAL MASONR	Y (INCL. MASONRY 08/01/20)23 \$62.4	0 \$11.49	\$22.34	\$0.00	\$96.23
WATERPROOFING) BRICKLAYERS LOCAL 3 (QUINCY)	02/01/20)24 \$62.4	0 \$11.49	\$23.59	\$0.00	\$97.48
BRICKERIERO EO CHE 5 (QUINCI)	08/01/20)24 \$64.5	0 \$11.49	\$23.59	\$0.00	\$99.58
	02/01/20)25 \$65.8	0 \$11.49	\$23.59	\$0.00	\$100.88
	08/01/20)25 \$67.9	5 \$11.49	\$23.59	\$0.00	\$103.03
	02/01/20)26 \$69.3	0 \$11.49	\$23.59	\$0.00	\$104.38
	08/01/20)26 \$71.5	0 \$11.49	\$23.59	\$0.00	\$106.58
	02/01/20)27 \$72.9	0 \$11.49	\$23.59	\$0.00	\$107.98

Issue Date: 01/23/2024 **Wage Request Number:** 20240122-044 **Page 4 of 38**

Total Rate

	Step	ve Date - 08/01/2023 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Ra	te
	$\frac{3\mathbf{cp}}{1}$	50	\$31.20	\$11.49	\$23.59	\$0.00	\$66.2	
	2	60	\$37.44	\$11.49	\$23.59	\$0.00	\$72.5	
	3	70	\$43.68	\$11.49	\$23.59	\$0.00	\$78.7	
	4	80	\$49.92	\$11.49	\$23.59	\$0.00	\$76.7 \$85.0	
	5	90	\$49.92 \$56.16	\$11.49	\$23.59	\$0.00	\$83.0 \$91.2	
		70	\$30.10	φ11. 1 /	Ψ23.37	\$0.00	\$71.2	24
	Effecti	ve Date - 02/01/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Ra	te
	1	50	\$31.20	\$11.49	\$23.59	\$0.00	\$66.2	28
	2	60	\$37.44	\$11.49	\$23.59	\$0.00	\$72.5	52
	3	70	\$43.68	\$11.49	\$23.59	\$0.00	\$78.7	76
	4	80	\$49.92	\$11.49	\$23.59	\$0.00	\$85.0	00
	5	90	\$56.16	\$11.49	\$23.59	\$0.00	\$91.2	24
	Notes:							1
	Appre	ntice to Journeyworker Ratio:1:	.5					
JLLDOZER/C		<u> </u>	12/01/2023	3 \$54.43	\$15.00	\$16.40	\$0.00	\$85.83
PERATING ENGIN			06/01/2024		\$15.00 \$15.00	\$16.40	\$0.00	\$87.11
			12/01/2024		\$15.00 \$15.00	\$16.40	\$0.00	\$88.55
			06/01/2025		\$15.00 \$15.00	\$16.40	\$0.00	\$89.83
			12/01/2025		\$15.00 \$15.00	\$16.40	\$0.00	\$91.27
			06/01/2020		\$15.00 \$15.00	\$16.40	\$0.00	\$92.55
			12/01/2020			\$16.40	\$0.00	\$93.99
For apprentice 1	rates see "	Apprentice- OPERATING ENGINEERS"		902.39	\$15.00	ψ10. 1 0	\$0.00	φ23.23
		INNING BOTTOM MAN	12/01/2023	3 \$45.48	\$9.65	\$18.22	\$0.00	\$73.35
BORERS - FOUN	DATION	AND MARINE	06/01/2024	\$46.96	\$9.65	\$18.22	\$0.00	\$74.83
			12/01/2024	\$48.43	\$9.65	\$18.22	\$0.00	\$76.30
			06/01/2025	\$49.93	\$9.65	\$18.22	\$0.00	\$77.80
			12/01/2025	\$51.43	\$9.65	\$18.22	\$0.00	\$79.30
			06/01/2026	5 \$52.98	\$9.65	\$18.22	\$0.00	\$80.85
			12/01/2026	\$54.48	\$9.65	\$18.22	\$0.00	\$82.35
		Apprentice- LABORER" INNING LABORER	12/01/2020	Φ44.22	Φ0.65	¢10.22	\$0.00	Ф72.24
BORERS - FOUN			12/01/2023		\$9.65 \$9.65	\$18.22 \$18.22	\$0.00	\$72.20 \$72.69
			06/01/2024		\$9.65	\$18.22	\$0.00	\$73.68
			12/01/2024		\$9.65	\$18.22 \$18.22	\$0.00	\$75.15
			06/01/2025		\$9.65	\$18.22	\$0.00	\$76.65
			12/01/2025		\$9.65	\$18.22	\$0.00	\$78.15
			06/01/2026		\$9.65	\$18.22	\$0.00	\$79.70
			12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
LABORERS - FOUNDATION AND MARINE	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
CARPENTER CARPENTERS - ZONE 2 (Eastern Massachusetts)	03/01/2023	\$45.12	\$9.33	\$19.97	\$0.00	\$74.42

Apprentice - CARPENTER - Zone 2 Eastern MA

Effecti	ve Date -	03/01/2023				Supplemental	
Step	percent	A	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50		\$22.56	\$9.33	\$1.73	\$0.00	\$33.62
2	60		\$27.07	\$9.33	\$1.73	\$0.00	\$38.13
3	70		\$31.58	\$9.33	\$14.78	\$0.00	\$55.69
4	75		\$33.84	\$9.33	\$14.78	\$0.00	\$57.95
5	80		\$36.10	\$9.33	\$16.51	\$0.00	\$61.94
6	80		\$36.10	\$9.33	\$16.51	\$0.00	\$61.94
7	90		\$40.61	\$9.33	\$18.24	\$0.00	\$68.18
8	90		\$40.61	\$9.33	\$18.24	\$0.00	\$68.18
Notes:							
		red After 10/1/17; 45/45/55/5 \$30.71/ 3&4 \$36.93/ 5&6 \$56					
Appre	ntice to Jou	rneyworker Ratio:1:5					

04/01/2023

\$24.16

\$4.80

\$7.21

\$0.00

\$36.17

All Aspects of New Wood Frame Work

CARPENTER WOOD FRAME

CARPENTERS-ZONE 3 (Wood Frame)

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on Supplemental Unemployment

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71	
2	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71	
3	65	\$15.70	\$7.21	\$0.00	\$0.00	\$22.91	
4	70	\$16.91	\$7.21	\$0.00	\$0.00	\$24.12	
5	75	\$18.12	\$7.21	\$3.80	\$0.00	\$29.13	
6	80	\$19.33	\$7.21	\$3.80	\$0.00	\$30.34	
7	85	\$20.54	\$7.21	\$3.80	\$0.00	\$31.55	
8	90	\$21.74	\$7.21	\$3.80	\$0.00	\$32.75	
Note		1/17; 45/45/55/55/70/70/80/80					
	Step 1&2 \$17.86/ 3&4	\$20.22/ 5&6 \$27.57/ 7&8 \$29.94					
App	rentice to Journeyworker	Ratio:1:5					
MENT MASONR CKLAYERS LOCAL 3 (01/01/2024	\$49.33	\$13.00	\$23.57	\$1.30	\$87.20

Ste	p percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rat	.e
1	50	\$24.67	\$13.00	\$15.93	\$0.00	\$53.6	0
2	60	\$29.60	\$13.00	\$18.57	\$1.30	\$62.4	7
3	65	\$32.06	\$13.00	\$19.57	\$1.30	\$65.9	3
4	70	\$34.53	\$13.00	\$20.57	\$1.30	\$69.4	0
5	75	\$37.00	\$13.00	\$21.57	\$1.30	\$72.8	7
6	80	\$39.46	\$13.00	\$22.57	\$1.30	\$76.3	3
7	90	\$44.40	\$13.00	\$23.57	\$1.30	\$82.2	7
Not 		All other steps are 1,000 hrs.				 	
App	prentice to Journeyworker	Ratio:1:3					
IAIN SAW OPER BORERS - ZONE 2	ATOR	12/01/202	23 \$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates	see "Apprentice- LABORER"						
	URRY BUCKETS/HEADI	NG MACHINES 12/01/202	23 \$56.13	\$15.00	\$16.40	\$0.00	\$87.53
ERATING ENGINEER	S LOCAL 4	06/01/202	24 \$57.45	\$15.00	\$16.40	\$0.00	\$88.85
		12/01/202	24 \$58.93	\$15.00	\$16.40	\$0.00	\$90.33
		06/01/202	25 \$60.26	\$15.00	\$16.40	\$0.00	\$91.66

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

12/01/2025

06/01/2026

12/01/2026

\$61.73

\$63.06

\$64.54

\$15.00

\$15.00

\$15.00

\$16.40

\$16.40

\$16.40

\$0.00

\$0.00

\$0.00

\$93.13

\$94.46

\$95.94

							Onemployment	
COMPRESSOI			12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
PERATING ENGI	INEEKS LO	ICAL 4	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
			12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
			06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
			12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
			06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
			12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43
		Apprentice- OPERATING ENGINEERS"						
ELEADER (E Inters local			01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
IIVIERO EO CIL	JJ LONE	-	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
			01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36
		ntice - <i>PAINTER Local 35 - BRID</i> C ve Date - 01/01/2024	GES/TANKS					
	Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment		
	1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98	
	2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44	
	3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85	
	4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26	
	5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51	
	6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93	
	7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33	
	8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14	
	Effectiv	ve Date - 07/01/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50	\$28.63	\$9.95	\$0.00	\$0.00	\$38.58	
	2	55	\$31.49	\$9.95	\$6.66	\$0.00	\$48.10	
	3	60	\$34.36	\$9.95	\$7.26	\$0.00	\$51.57	
	4	65	\$37.22	\$9.95	\$7.87	\$0.00	\$55.04	
	5	70	\$40.08	\$9.95	\$20.32	\$0.00	\$70.35	
	6	75	\$42.95	\$9.95	\$20.93	\$0.00	\$73.83	
	7	80	\$45.81	\$9.95	\$21.53	\$0.00	\$77.29	
	8	90	\$51.53	\$9.95	\$22.74	\$0.00	\$84.22	
	Notes:	Carre ou 750 has						
		Steps are 750 hrs.						
		ntice to Journeyworker Ratio:1:1						
EMO: ADZE			12/01/2023	\$44.48	\$9.65	\$18.07	\$0.00	\$72.20
For apprentice	rates see ".	Apprentice- LABORER"						
EMO: BACK		OADER/HAMMER OPERATOR	12/01/2023	\$45.48	\$9.65	\$18.07	\$0.00	\$73.20
4BORERS - ZONI								
	rates see ".	Apprentice- LABORER"						

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Effective Date Base Wage Health

Classification

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Supplemental

Unemployment

Pension

Total Rate

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"					опетрюущен	
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 2	12/01/2023	\$45.48	\$9.65	\$18.07	\$0.00	\$73.20
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR LABORERS - ZONE 2	12/01/2023	\$45.23	\$9.65	\$18.07	\$0.00	\$72.95
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER LABORERS - ZONE 2	12/01/2023	\$44.48	\$9.65	\$18.07	\$0.00	\$72.20
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice-PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN ELECTRICIANS LOCAL 223	09/01/2023	\$47.87	\$11.75	\$16.86	\$0.00	\$76.48

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Step	ive Date - 09/01/2023 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	40	\$19.15	\$11.75	\$0.57	\$0.00	\$31.47	
2	45	\$21.54	\$11.75	\$0.65	\$0.00	\$33.94	
3	50	\$23.94	\$11.75	\$0.72	\$0.00	\$36.41	
4	55	\$26.33	\$11.75	\$7.79	\$0.00	\$45.87	
5	60	\$28.72	\$11.75	\$8.31	\$0.00	\$48.78	
6	65	\$31.12	\$11.75	\$8.65	\$0.00	\$51.52	
7	70	\$33.51	\$11.75	\$9.38	\$0.00	\$54.64	
8	75	\$35.90	\$11.75	\$9.90	\$0.00	\$57.55	
Notes:							
	entice to Journeyworker	· Ratio:2:3***					
TOR CONSTR	UCTOR	• Ratio:2:3*** 01/01/202	2 \$65.	62 \$16.03	\$20.21	\$0.00	\$101
TOR CONSTRI DR CONSTRUCTOR Appre	UCTOR S LOCAL 4	01/01/202. DNSTRUCTOR - Local 4	2 \$65.	62 \$16.03	\$20.21	\$0.00	\$101
TOR CONSTRI PR CONSTRUCTOR Appre	UCTOR S LOCAL 4 ntice - ELEVATOR CO	01/01/202. DNSTRUCTOR - Local 4		62 \$16.03 Pension		\$0.00 Total Rate	\$101
TOR CONSTRI OR CONSTRUCTOR Appre Effect	UCTOR SLOCAL 4 ntice - ELEVATOR CO ive Date - 01/01/2022	01/01/202. DNSTRUCTOR - Local 4			Supplemental		\$101
TOR CONSTRI OR CONSTRUCTOR Appre Effect Step	UCTOR SLOCAL 4 ntice - ELEVATOR CO ive Date - 01/01/2022 percent	01/01/202. ONSTRUCTOR - Local 4 Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	\$101
Appre Effect Step	ntice - ELEVATOR COive Date - 01/01/2022 percent	O1/01/2022 ONSTRUCTOR - Local 4 Apprentice Base Wage \$32.81	Health \$16.03	Pension \$0.00	Supplemental Unemployment \$0.00	Total Rate \$48.84	\$101
Appre Effect Step 1	ntice - ELEVATOR Co ive Date - 01/01/2022 percent 50 55	ONSTRUCTOR - Local 4 Apprentice Base Wage \$32.81 \$36.09	Health \$16.03 \$16.03	Pension \$0.00 \$20.21	Supplemental Unemployment \$0.00 \$0.00	Total Rate \$48.84 \$72.33	\$101

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90

LABORERG ZONE 2 (HEARY & HIGHWAY)	12/01/2025	ψ50.11	Ψ7.05	φ1/11	Ψ0.00	ψ01.50
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	11/01/2023	\$50.30	\$14.50	\$16.15	\$0.00	\$80.95
OPERATING ENGINEERS LOCAL 4	05/01/2024	\$51.54	\$14.50	\$16.15	\$0.00	\$82.19
	11/01/2024	\$52.83	\$14.50	\$16.15	\$0.00	\$83.48
	05/01/2025	\$54.27	\$14.50	\$16.15	\$0.00	\$84.92
	11/01/2025	\$55.56	\$14.50	\$16.15	\$0.00	\$86.21
	05/01/2026	\$57.00	\$14.50	\$16.15	\$0.00	\$87.65
	11/01/2026	\$58.29	\$14.50	\$16.15	\$0.00	\$88.94
	05/01/2027	\$59.72	\$14.50	\$16.15	\$0.00	\$90.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/2023	\$51.87	\$14.50	\$16.15	\$0.00	\$82.52
OF ENTITIVE ENGINEERS ESCALE	05/01/2024	\$53.12	\$14.50	\$16.15	\$0.00	\$83.77
	11/01/2024	\$54.42	\$14.50	\$16.15	\$0.00	\$85.07
	05/01/2025	\$55.87	\$14.50	\$16.15	\$0.00	\$86.52
	11/01/2025	\$57.17	\$14.50	\$16.15	\$0.00	\$87.82
	05/01/2026	\$58.62	\$14.50	\$16.15	\$0.00	\$89.27
	11/01/2026	\$59.92	\$14.50	\$16.15	\$0.00	\$90.57
	05/01/2027	\$61.37	\$14.50	\$16.15	\$0.00	\$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/2023	\$24.93	\$14.50	\$16.15	\$0.00	\$55.58
0. 2	05/01/2024	\$25.66	\$14.50	\$16.15	\$0.00	\$56.31
	11/01/2024	\$26.42	\$14.50	\$16.15	\$0.00	\$57.07
	05/01/2025	\$27.27	\$14.50	\$16.15	\$0.00	\$57.92
	11/01/2025	\$28.03	\$14.50	\$16.15	\$0.00	\$58.68
	05/01/2026	\$28.88	\$14.50	\$16.15	\$0.00	\$59.53
	11/01/2026	\$29.64	\$14.50	\$16.15	\$0.00	\$60.29
	05/01/2027	\$30.49	\$14.50	\$16.15	\$0.00	\$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER ELECTRICIANS LOCAL 223	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS</i>	09/01/2020	\$36.86	\$10.90	\$12.45	\$0.00	\$60.21
LOCAL 223 For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER)	12/01/2023	\$44.47	\$15.00	\$16.40	\$0.00	\$75.87
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$45.53	\$15.00	\$16.40	\$0.00	\$76.93
	12/01/2024	\$46.71	\$15.00	\$16.40	\$0.00	\$78.11
	06/01/2025	\$47.77	\$15.00	\$16.40	\$0.00	\$79.17
	12/01/2025	\$48.94	\$15.00	\$16.40	\$0.00	\$80.34
	06/01/2026	\$50.00	\$15.00	\$16.40	\$0.00	\$81.40
	12/01/2026	\$51.18	\$15.00	\$16.40	\$0.00	\$82.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLAGGER & SIGNALER (HEAVY & HIGHWAY)	12/01/2023	\$25.48	\$9.65	\$17.14	\$0.00	\$52.27
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2024	\$26.51	\$9.65	\$17.14	\$0.00	\$53.30
	12/01/2024	\$26.51	\$9.65	\$17.14	\$0.00	\$53.30
	06/01/2025	\$27.59	\$9.65	\$17.14	\$0.00	\$54.38
	12/01/2025	\$27.59	\$9.65	\$17.14	\$0.00	\$54.38
	06/01/2026	\$28.71	\$9.65	\$17.14	\$0.00	\$55.50
	12/01/2026	\$28.71	\$9.65	\$17.14	\$0.00	\$55.50
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
FLOORCOVERER	09/01/2023	\$53.48	\$8.83	\$20.27	\$0.00	\$82.58
FLOORCOVERERS LOCAL 2168 ZONE I	03/01/2024	\$54.73	\$8.83	\$20.27	\$0.00	\$83.83
	09/01/2024	\$56.23	\$8.83	\$20.27	\$0.00	\$85.33
	03/01/2025	\$57.73	\$8.83	\$20.27	\$0.00	\$86.83
	09/01/2025	\$59.23	\$8.83	\$20.27	\$0.00	\$88.33
	03/01/2026	\$60.73	\$8.83	\$20.27	\$0.00	\$89.83
	09/01/2026	\$62.23	\$8.83	\$20.27	\$0.00	\$91.33
	03/01/2027	\$63.73	\$8.83	\$20.27	\$0.00	\$92.83

Apprentice - FLOORCOVERER - Local 2168 Zone I

percent		Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
50		\$26.74	\$8.83	\$1.76	\$0.00	\$37.33
55		\$29.41	\$8.83	\$1.76	\$0.00	\$40.00
60		\$32.09	\$8.83	\$3.52	\$0.00	\$44.44
65		\$34.76	\$8.83	\$3.52	\$0.00	\$47.11
70		\$37.44	\$8.83	\$16.75	\$0.00	\$63.02
75		\$40.11	\$8.83	\$16.75	\$0.00	\$65.69
80		\$42.78	\$8.83	\$18.51	\$0.00	\$70.12
85		\$45.46	\$8.83	\$18.51	\$0.00	\$72.80
ve Date -	03/01/2024				Supplemental	
percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
50		\$27.37	\$8.83	\$1.76	\$0.00	\$37.96
55		\$30.10	\$8.83	\$1.76	\$0.00	\$40.69
60		\$32.84	\$8.83	\$3.52	\$0.00	\$45.19
65		\$35.57	\$8.83	\$3.52	\$0.00	\$47.92
70		\$38.31	\$8.83	\$16.75	\$0.00	\$63.89
75		\$41.05	\$8.83	\$16.75	\$0.00	\$66.63
80		\$43.78	\$8.83	\$18.51	\$0.00	\$71.12
85		\$46.52	\$8.83	\$18.51	\$0.00	\$73.86
•	55 60 65 70 75 80 85 ve Date - percent 50 55 60 65 70 75 80	55 60 65 70 75 80 85 ve Date - 03/01/2024 percent 50 55 60 65 70 75 80	55 \$29.41 60 \$32.09 65 \$34.76 70 \$37.44 75 \$40.11 80 \$42.78 85 \$45.46 Ve Date - 03/01/2024 percent Apprentice Base Wage 50 \$27.37 55 \$30.10 60 \$32.84 65 \$35.57 70 \$38.31 75 \$41.05 80 \$43.78	\$55 \$29.41 \$8.83 60 \$32.09 \$8.83 65 \$34.76 \$8.83 70 \$37.44 \$8.83 75 \$40.11 \$8.83 80 \$42.78 \$8.83 85 \$45.46 \$8.83 **Ve Date - 03/01/2024 ** **percent** Apprentice Base Wage Health** \$50 \$27.37 \$8.83 55 \$30.10 \$8.83 60 \$32.84 \$8.83 60 \$32.84 \$8.83 60 \$33.557 \$8.83 60 \$33.557 \$8.83 60 \$33.831 \$8.83 60 \$38.83 \$883 60 \$88.83 \$883 60 \$	\$55 \$29.41 \$8.83 \$1.76 \$60 \$32.09 \$8.83 \$3.52 \$65 \$34.76 \$8.83 \$16.75 \$75 \$40.11 \$8.83 \$16.75 \$80 \$42.78 \$8.83 \$18.51 \$85 \$45.46 \$8.83 \$18.51 \$	\$29.41 \$8.83 \$1.76 \$0.00 \$0.00 \$32.09 \$8.83 \$3.52 \$0.00 \$0.0

Apprentice to Journeyworker Ratio:1:1

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
GENERATOR/LIGHTING PLANT/HEATERS	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
	12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR	01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.46
SYSTEMS) GLAZIERS LOCAL 35 (ZONE 2)	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
Children Local SS (LOND 2)	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

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Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Pension

	Effecti	ive Date -	01/01/2024				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	e
	1	50		\$22.78	\$9.95	\$0.00	\$0.00	\$32.73	3
	2	55		\$25.06	\$9.95	\$6.66	\$0.00	\$41.67	7
	3	60		\$27.34	\$9.95	\$7.26	\$0.00	\$44.55	5
	4	65		\$29.61	\$9.95	\$7.87	\$0.00	\$47.43	3
	5	70		\$31.89	\$9.95	\$20.32	\$0.00	\$62.16	5
	6	75		\$34.17	\$9.95	\$20.93	\$0.00	\$65.05	5
	7	80		\$36.45	\$9.95	\$21.53	\$0.00	\$67.93	3
	8	90		\$41.00	\$9.95	\$22.74	\$0.00	\$73.69)
	Effecti	ive Date -	07/01/2024				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	е
	1	50		\$23.38	\$9.95	\$0.00	\$0.00	\$33.33	3
	2	55		\$25.72	\$9.95	\$6.66	\$0.00	\$42.33	3
	3	60		\$28.06	\$9.95	\$7.26	\$0.00	\$45.27	7
	4	65		\$30.39	\$9.95	\$7.87	\$0.00	\$48.21	1
	5	70		\$32.73	\$9.95	\$20.32	\$0.00	\$63.00)
	6	75		\$35.07	\$9.95	\$20.93	\$0.00	\$65.95	5
	7	80		\$37.41	\$9.95	\$21.53	\$0.00	\$68.89)
	8	90		\$42.08	\$9.95	\$22.74	\$0.00	\$74.77	7
	Notes:								
	İ	Steps are 7	750 hrs.						
	Appre	ntice to Jou	rneyworker Ratio:1:1						
			/GRADALLS	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
ERATING EN	GINEERS L	OCAL 4		06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
				12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
				06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
				12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
				06/01/2026				\$0.00	\$93.23
				12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68

Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Pension

	tive Date - 12/01/2					Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	55		\$30.27	\$15.00	\$0.00	\$0.00	\$45.27	
2	60		\$33.02	\$15.00	\$16.40	\$0.00	\$64.42	
3	65		\$35.77	\$15.00	\$16.40	\$0.00	\$67.17	
4	70		\$38.52	\$15.00	\$16.40	\$0.00	\$69.92	
5	75		\$41.27	\$15.00	\$16.40	\$0.00	\$72.67	
6	80		\$44.02	\$15.00	\$16.40	\$0.00	\$75.42	
7	85		\$46.78	\$15.00	\$16.40	\$0.00	\$78.18	
8	90		\$49.53	\$15.00	\$16.40	\$0.00	\$80.93	
Effec	tive Date - 06/01/2	2024				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	:
1	55		\$30.98	\$15.00	\$0.00	\$0.00	\$45.98	
2	60		\$33.80	\$15.00	\$16.40	\$0.00	\$65.20	
3	65		\$36.61	\$15.00	\$16.40	\$0.00	\$68.01	
4	70		\$39.43	\$15.00	\$16.40	\$0.00	\$70.83	
5	75		\$42.25	\$15.00	\$16.40	\$0.00	\$73.65	
6	80		\$45.06	\$15.00	\$16.40	\$0.00	\$76.46	
7	85		\$47.88	\$15.00	\$16.40	\$0.00	\$79.28	
8	90		\$50.70	\$15.00	\$16.40	\$0.00	\$82.10	
Notes	:							
<u> </u>								
Appr VAC (DUCTWORK	entice to Journeywo	rker Ratio:1:6	09/01/2023	0 05616	Φ14.42	\$27.07	\$2.02	Φ100.50
EETMETAL WORKERS I			08/01/2023			\$27.07 \$27.07	\$2.93	\$100.59
			02/01/2024 08/01/2024			\$27.07	\$2.93 \$2.93	\$102.29
			02/01/2025		\$14.43 \$14.43	\$27.07	\$2.93	\$104.04 \$105.79
			08/01/2025		\$14.43	\$27.07	\$2.93	\$103.79
			02/01/2020			\$27.07	\$2.93	\$107.04
For apprentice rates see	"Apprentice- SHEET ME	TAL WORKER"	02/01/2020	φοσ.10	ψ14.43	Ψ27.07	ψ2.75	ψ107.57
VAC (ELECTRICAI LECTRICIANS LOCAL 22:			09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
For apprentice rates see	"Apprentice- ELECTRIC	IAN"						
*	D BALANCING - A	IR)	08/01/2023	\$56.16	\$14.43	\$27.07	\$2.93	\$100.59
EETMETAL WORKERS I	OCAL 17 - A		02/01/2024	\$57.86	\$14.43	\$27.07	\$2.93	\$102.29
			08/01/2024	\$59.61	\$14.43	\$27.07	\$2.93	\$104.04
			02/01/2025	\$61.36	\$14.43	\$27.07	\$2.93	\$105.79
			09/01/2024	\$ \$62.21	\$14.43	\$27.07	\$2.93	\$107.64
			08/01/2025	\$63.21	\$14.43	Ψ21.01	Ψ2.75	φισιισι

Classification				Effective Da	te Base Wag	e Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTIN			ING -WATER)	08/28/2023	\$51.99	\$10.15	\$19.95	\$0.00	\$82.09
PLUMBERS & PIPE	EFITTERS	LOCAL 31		08/26/2024	\$54.74	\$10.15	\$19.95	\$0.00	\$84.84
For apprentice:	rates see "A	Apprentice- P	IPEFITTER" or "PLUMBER/PIPE	08/25/202: FITTER"	\$57.49	\$10.15	\$19.95	\$0.00	\$87.59
IVAC MECHA		11		08/28/202	3 \$51.99	\$10.15	\$19.95	\$0.00	\$82.09
PLUMBERS & PIPE	EFITTERS	LOCAL 51		08/26/2024		\$10.15	\$19.95	\$0.00	\$84.84
				08/25/202		\$10.15	\$19.95	\$0.00	\$87.59
For apprentice	rates see "A	Apprentice- P	IPEFITTER" or "PLUMBER/PIPE) \$37. 4 9	\$10.13	\$17.73	\$0.00	\$67.39
HYDRAULIC I ABORERS - ZONE				12/01/202	3 \$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice	rates see "A	Apprentice- L	ABORER"						
HYDRAULIC I		*	,	12/01/2023	3 \$38.61	\$9.65	\$17.14	\$0.00	\$65.40
LABORERS - ZONE	E 2 (HEAVY	& HIGHWA	Y)	06/01/2024		\$9.65	\$17.14	\$0.00	\$66.73
				12/01/202		\$9.65	\$17.14	\$0.00	\$68.06
				06/01/202		\$9.65	\$17.14	\$0.00	\$69.45
				12/01/202	5 \$44.04	\$9.65	\$17.14	\$0.00	\$70.83
				06/01/2020	5 \$45.48	\$9.65	\$17.14	\$0.00	\$72.27
				12/01/2020		\$9.65	\$17.14	\$0.00	\$73.71
For apprentice	rates see "	Apprentice- L	ABORER (Heavy and Highway)						
NSULATOR (F			ACCTON IN	09/01/2023	\$53.50	\$14.75	\$19.61	\$0.00	\$87.86
HEAT & FROST INS	SULATORS	S LOCAL 6 (B	OSTON)	09/01/2024	4 \$56.92	\$14.75	\$19.61	\$0.00	\$91.28
				09/01/202	\$60.34	\$14.75	\$19.61	\$0.00	\$94.70
				09/01/2020	\$63.76	\$14.75	\$19.61	\$0.00	\$98.12
		ntice - AS we Date - percent	BESTOS INSULATOR (Pipe 09/01/2023	es & Tanks) - Local 6 Bo Apprentice Base Wage		Pension	Supplementa Unemploymen		
	1	50		\$26.75	\$14.75	\$14.32	\$0.00	\$55.82	
	2	60		\$32.10	\$14.75	\$15.37	\$0.00	\$62.22	
	3	70		\$37.45	\$14.75	\$16.43	\$0.00	\$68.63	
	4	80		\$42.80	\$14.75	\$17.49	\$0.00	\$75.04	
		ve Date -	09/01/2024				Supplementa		
	Step	percent		Apprentice Base Wage		Pension	Unemploymen		
	1	50		\$28.46	\$14.75	\$14.32	\$0.00		
	2	60		\$34.15	\$14.75	\$15.37	\$0.00	\$64.27	
	3	70		\$39.84	\$14.75	\$16.43	\$0.00	\$71.02	
	4	80		\$45.54	\$14.75	\$17.49	\$0.00	\$77.78	

03/16/2024 \$53.97 \$8.35 \$26.70 \$0.00 \$89.02

03/16/2023

\$52.72

\$26.70

\$8.35

\$0.00

\$87.77

Notes:

IRONWORKER/WELDER

IRONWORKERS LOCAL 7 (BOSTON AREA)

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

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	Step	ive Date - percent	03/16/2023	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total 1	Rate
	1	60		\$31.63	\$8.35	\$26.70	\$0.00	\$6	6.68
	2	70		\$36.90	\$8.35	\$26.70	\$0.00	\$7	1.95
	3	75		\$39.54	\$8.35	\$26.70	\$0.00	\$7	4.59
	4	80		\$42.18	\$8.35	\$26.70	\$0.00	\$7	7.23
	5	85		\$44.81	\$8.35	\$26.70	\$0.00	\$7	9.86
	6	90		\$47.45	\$8.35	\$26.70	\$0.00	\$8	2.50
		ive Date -	03/16/2024				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total	Rate
	1	60		\$32.38	\$8.35	\$26.70	\$0.00	\$6	7.43
	2	70		\$37.78	\$8.35	\$26.70	\$0.00	\$7	2.83
	3	75		\$40.48	\$8.35	\$26.70	\$0.00	\$7	5.53
	4	80		\$43.18	\$8.35	\$26.70	\$0.00	\$7	8.23
	5	85		\$45.87	\$8.35	\$26.70	\$0.00	\$8	0.92
	6	90		\$48.57	\$8.35	\$26.70	\$0.00	\$8.	3.62
	Notes:	:							_
	Appre	entice to Joi	urneyworker Ratio:1:4						
CKHAMMI ORERS - ZON		VING BRE	AKER OPERATOR	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.9
For apprentic	e rates see '	"Apprentice- L	ABORER"						
BORER BORERS - ZON	E 2			12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.6

	ntice - LA ive Date -	1BORER - Zone 2 12/01/2023				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	60		\$22.72	\$9.65	\$16.89	\$0.00	\$49.26	_
2	70		\$26.50	\$9.65	\$16.89	\$0.00	\$53.04	
3	80		\$30.29	\$9.65	\$16.89	\$0.00	\$56.83	
4	90		\$34.07	\$9.65	\$16.89	\$0.00	\$60.61	
Notes:								
Appre	ntice to Jo	urneyworker Ratio:1:5						

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Wage Request Number:

Issue Date: 01/23/2024

Classification			Effective Dat	te Base Wage	e Health		Supplemental Unemployment	Total Ra
LABORER (HEAVY			12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
LABORERS - ZONE 2 (HE	AVY & HIGHWA	1)	06/01/2024	\$39.19	\$9.65	\$17.14	\$0.00	\$65.98
			12/01/2024	\$40.52	\$9.65	\$17.14	\$0.00	\$67.31
			06/01/2025	\$41.91	\$9.65	\$17.14	\$0.00	\$68.70
			12/01/2025	\$43.29	\$9.65	\$17.14	\$0.00	\$70.08
			06/01/2026	\$44.73	\$9.65	\$17.14	\$0.00	\$71.52
			12/01/2026	\$46.17	\$9.65	\$17.14	\$0.00	\$72.96
Apn	orentice - LA	1BORER (Heavy & Highway)) - Zone 2					
	ective Date -	12/01/2023				Supplementa	I	
Step	percent		Apprentice Base Wage	Health	Pension	Unemploymen		
1	60		\$22.72	\$9.65	\$17.14	\$0.00	\$49.51	
2	70		\$26.50	\$9.65	\$17.14	\$0.00		
3	80		\$30.29	\$9.65	\$17.14	\$0.00		
4	90		\$34.07	\$9.65	\$17.14	\$0.00		
						42.00	4.5.00	
	ective Date -	06/01/2024				Supplementa		
Step	percent		Apprentice Base Wage	Health	Pension	Unemploymen	t Total Rate	
1	60		\$23.51	\$9.00	\$16.89	\$0.00	\$49.40	
2	70		\$27.43	\$9.00	\$16.89	\$0.00	\$53.32	
3	80		\$31.35	\$9.00	\$16.89	\$0.00	\$57.24	
4	90		\$35.27	\$9.00	\$16.89	\$0.00	\$61.16	
Not	es:							
		D-4:-1.5						
API ABORER: CARPE		urneyworker Ratio:1:5	12/01/2022	#27.0 6	00.65	¢17.14	Φ0.00	
ABORERS - ZONE 2	NIERIEND	EK	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
For apprentice rates s	ee "Apprentice- I	ABORER"						
ABORER: CEMEN 4BORERS - ZONE 2	IT FINISHER	TENDER	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
For apprentice rates s	ee "Apprentice- I	ABORER"						
		ΓΕ/ASBESTOS REMOVER	12/01/2023	\$37.95	\$9.65	\$17.20	\$0.00	\$64.80
ABORERS - ZONE 2	30 11110.	Land Control of the C	12/01/2023	φ31. 9 3	\$7.03	φ17.20	ψυ.υυ	φυ 4 .δυ
For apprentice rates s	ee "Apprentice- I	ABORER"						
ABORER: MASON BORERS - ZONE 2	N TENDER		12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates s	ee "Apprentice- I	ABORER"						
		HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
BORERS - ZONE 2 (HE	λΑΝΙ ΟΧ ΠΙΌΗWA	1)	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
			12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
			06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
			12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
			06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
			12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates s	ee "Apprentice- L	ABORER (Heavy and Highway)						

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 Wage Request Number:
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER LABORERS - ZONE 2	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER LABORERS - ZONE 2	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
This classification applies to the removal of standing trees, and the trimming a clearance incidental to construction . For apprentice rates see "Apprentice- L4"		bs when related t	to public work	s construction	or site	
LASER BEAM OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
MARBLE & TILE FINISHERS	08/01/2023	\$47.89	\$11.49	\$20.37	\$0.00	\$79.75
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2024	\$47.89	\$11.49	\$21.37	\$0.00	\$80.75
	08/01/2024	\$49.57	\$11.49	\$21.37	\$0.00	\$82.43
	02/01/2025	\$50.61	\$11.49	\$21.37	\$0.00	\$83.47
	08/01/2025	\$52.33	\$11.49	\$21.37	\$0.00	\$85.19
	02/01/2026	\$53.41	\$11.49	\$21.37	\$0.00	\$86.27
	08/01/2026	\$55.17	\$11.49	\$21.37	\$0.00	\$88.03
	02/01/2027	\$56.29	\$11.49	\$21.37	\$0.00	\$89.15

Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile

Effective Date -		08/01/2023				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$23.95	\$11.49	\$21.37	\$0.00	\$56.81	
2	60		\$28.73	\$11.49	\$21.37	\$0.00	\$61.59	
3	70		\$33.52	\$11.49	\$21.37	\$0.00	\$66.38	
4	80		\$38.31	\$11.49	\$21.37	\$0.00	\$71.17	
5	90		\$43.10	\$11.49	\$21.37	\$0.00	\$75.96	
Effecti	ve Date -	02/01/2024				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$23.95	\$11.49	\$21.37	\$0.00	\$56.81	
2	60		\$28.73	\$11.49	\$21.37	\$0.00	\$61.59	
3	70		\$33.52	\$11.49	\$21.37	\$0.00	\$66.38	
4	80		\$38.31	\$11.49	\$21.37	\$0.00	\$71.17	
5	90		\$43.10	\$11.49	\$21.37	\$0.00	\$75.96	
Notes:				— — -	Ψ21.37			

Apprentice to Journeyworker Ratio:1:3

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lassification				Effective Da	te Base Wag	e Health	Pension	Supplemental Unemployment	Total Rat
ARBLE MASO			RS & TERRAZZO MECH	08/01/2023	\$62.42	\$11.49	\$22.31	\$0.00	\$96.22
AICKLATERS LOC.	AL 3 - MA	IKBLE & 11	LE	02/01/2024	\$62.42	\$11.49	\$23.56	\$0.00	\$97.47
				08/01/2024	\$64.52	\$11.49	\$23.56	\$0.00	\$99.57
				02/01/2025	\$65.82	\$11.49	\$23.56	\$0.00	\$100.87
				08/01/2025	\$67.97	\$11.49	\$23.56	\$0.00	\$103.02
				02/01/2020	\$69.32	\$11.49	\$23.56	\$0.00	\$104.37
				08/01/2020	5 \$71.52	\$11.49	\$23.56	\$0.00	\$106.57
				02/01/202	7 \$72.92	\$11.49	\$23.56	\$0.00	\$107.97
	Apprer Effectiv	itice - M	MARBLE-TILE-TERRAZZO 08/01/2023	MECHANIC - Local 3 Ma	rble & Tile				
	Step	percent		Apprentice Base Wage	Health	Pension	Supplementa Unemploymen		
	1	50		\$31.21	\$11.49	\$23.56	\$0.00	\$66.26	
	2	60		\$37.45	\$11.49	\$23.56	\$0.00	\$72.50	
	3	70		\$43.69	\$11.49	\$23.56	\$0.00	\$78.74	
	4	80		\$49.94	\$11.49	\$23.56	\$0.00	\$84.99	
	5	90		\$56.18	\$11.49	\$23.56	\$0.00	\$91.23	
	Effectiv	ve Date -	02/01/2024				Supplementa	1	
	Step	percent		Apprentice Base Wage	Health	Pension	Unemploymen	t Total Rate	
	1	50		\$31.21	\$11.49	\$23.56	\$0.00	\$66.26	
	2	60		\$37.45	\$11.49	\$23.56	\$0.00	\$72.50	
	3	70		\$43.69	\$11.49	\$23.56	\$0.00	\$78.74	
	4	80		\$49.94	\$11.49	\$23.56	\$0.00	\$84.99	
	5	90		\$56.18	\$11.49	\$23.56	\$0.00	\$91.23	
İ	Notes:								
1	Apprei	ntice to J	ourneyworker Ratio:1:5						
CH. SWEEP:			(ON CONST. SITES)	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
LLITING ENGIN	LLING LO	JILI T		06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
				12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
				06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
				12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
				06/01/2020	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
For apprentice r	ates see "	Apprentice-	OPERATING ENGINEERS"	12/01/2020	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
CHANICS M	1AINTI	ENANCE		12/01/2023	3 \$54.43	\$15.00	\$16.40	\$0.00	\$85.83
ERATING ENGIN	EEKS LC	CAL 4		06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
				12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
				06/01/2025	5 \$58.43	\$15.00	\$16.40	\$0.00	\$89.83
				12/01/2025		\$15.00	\$16.40	\$0.00	\$91.27
				06/01/2020		\$15.00	\$16.40	\$0.00	\$92.55
									\$93.99
For apprentice r	ates see ".	Apprentice-	OPERATING ENGINEERS"	12/01/2020	5 \$62.59	9	9 \$15.00	9 \$15.00 \$16.40	9 \$15.00 \$16.40 \$0.00

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MILLWRIGHT (Zone 2) MILLWRIGHTS LOCAL 1121 - Zone 2	01/02/2023	\$41.92	\$8.58	\$21.57	\$0.00	\$72.07

	Step	ve Date - 01/02/2023 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total F	Rate
	1	55	\$23.06	\$8.58	\$5.72	\$0.00	\$37	7.36
	2	65	\$27.25	\$8.58	\$17.93	\$0.00	\$53	3.76
	3	75	\$31.44	\$8.58	\$18.98	\$0.00		9.00
	4	85	\$35.63	\$8.58	\$20.01	\$0.00		4.22
		Step 1&2 Appr. indentured after but do receive annuity. (Step 1 Steps are 2,000 hours	\$5.72, Step 2 \$6.66)					_
	Appre	ntice to Journeyworker Ratio:	1:4					
IORTAR MIX ABORERS - ZONE			12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice	rates see "	Apprentice- LABORER"						
	ER (OTHER THAN TRUCK CRANES,GRADALLS) RATING ENGINEERS LOCAL 4		LS) 12/01/2023	\$24.41	\$15.00	\$16.40	\$0.00	\$55.81
EKATING ENGL	WEEKS LC	ICAL 4	06/01/2024	\$25.01	\$15.00	\$16.40	\$0.00	\$56.41
			12/01/2024	\$25.67	\$15.00	\$16.40	\$0.00	\$57.07
			06/01/2025	\$26.27	\$15.00	\$16.40	\$0.00	\$57.67
			12/01/2025	\$26.93	\$15.00	\$16.40	\$0.00	\$58.33
			06/01/2026	\$27.52	\$15.00	\$16.40	\$0.00	\$58.92
			12/01/2026	\$28.19	\$15.00	\$16.40	\$0.00	\$59.59
		Apprentice- OPERATING ENGINEERS	S"					
ILER (TRUCI PERATING ENGL		NES, GRADALLS)	12/01/2023	\$29.86	\$15.00	\$16.40	\$0.00	\$61.26
Diamin's Bivon	VEETIO EC	,	06/01/2024	\$30.58	\$15.00	\$16.40	\$0.00	\$61.98
			12/01/2024	\$31.38	\$15.00	\$16.40	\$0.00	\$62.78
			06/01/2025	\$32.10	\$15.00	\$16.40	\$0.00	\$63.50
			12/01/2025	\$32.90	\$15.00	\$16.40	\$0.00	\$64.30
			06/01/2026	\$33.62	\$15.00	\$16.40	\$0.00	\$65.02
_			12/01/2026	\$34.42	\$15.00	\$16.40	\$0.00	\$65.82
		Apprentice- OPERATING ENGINEERS						
THER POWE PERATING ENGL		'EN EQUIPMENT - CLASS II OCAL 4	12/01/2023			\$16.40	\$0.00	\$85.83
			06/01/2024			\$16.40	\$0.00	\$87.11
			12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
			06/01/2025		\$15.00	\$16.40	\$0.00	\$89.83
			12/01/2025			\$16.40	\$0.00	\$91.27
			06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
Ean ar	mataa "	Ammentica ODED ATING ENGINEERS	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
		Apprentice- OPERATING ENGINEERS			*	Ф02.05	Ф0.00	
AINTER (BRID		,	01/01/2024 07/01/2024			\$23.95 \$23.95	\$0.00 \$0.00	\$89.96 \$91.16
AINTERS LOCAL :	20112							

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Total Rate

Step	ive Date - 01/01/2024 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98	
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44	
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85	
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26	
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51	
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93	
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33	
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14	
Effect	ive Date - 07/01/2024				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$28.63	\$9.95	\$0.00	\$0.00	\$38.58	
2	55	\$31.49	\$9.95	\$6.66	\$0.00	\$48.10	
3	60	\$34.36	\$9.95	\$7.26	\$0.00	\$51.57	
4	65	\$37.22	\$9.95	\$7.87	\$0.00	\$55.04	
5	70	\$40.08	\$9.95	\$20.32	\$0.00	\$70.35	
6	75	\$42.95	\$9.95	\$20.93	\$0.00	\$73.83	
7	80	\$45.81	\$9.95	\$21.53	\$0.00	\$77.29	
8	90	\$51.53	\$9.95	\$22.74	\$0.00	\$84.22	
Notes							
ĺ	Steps are 750 hrs.					ļ	
Appre	ntice to Journeyworker Ratio:1:1						
	SANDBLAST, NEW) *	01/01/2024	\$46.96	\$9.95	\$23.95	\$0.00	\$8
	rfaces to be painted are new construct e used.PAINTERS LOCAL 35 - ZONE 2	tion, 07/01/2024	\$48.16	\$9.95	\$23.95	\$0.00	\$8
snan be	useu. FAINTEKS LOCAL 33 - ZONE 2	01/01/2025	\$49.36	\$9.95	\$23.95	\$0.00	\$8

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Apprentice -	PAINTER Local 35 Zone 2 - Spray/Sandblast - Ne	ew
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Effecti	ive Date -	01/01/2024				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$23.48	\$9.95	\$0.00	\$0.00	\$33.43	
2	55		\$25.83	\$9.95	\$6.66	\$0.00	\$42.44	
3	60		\$28.18	\$9.95	\$7.26	\$0.00	\$45.39	
4	65		\$30.52	\$9.95	\$7.87	\$0.00	\$48.34	
5	70		\$32.87	\$9.95	\$20.32	\$0.00	\$63.14	
6	75		\$35.22	\$9.95	\$20.93	\$0.00	\$66.10	
7	80		\$37.57	\$9.95	\$21.53	\$0.00	\$69.05	
8	90		\$42.26	\$9.95	\$22.74	\$0.00	\$74.95	
Effecti Step	ive Date -	07/01/2024	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50		\$24.08	\$9.95	\$0.00	\$0.00	\$34.03	
2	55		\$26.49	\$9.95	\$6.66	\$0.00	\$43.10	
3	60		\$28.90	\$9.95	\$7.26	\$0.00	\$46.11	
4	65		\$31.30	\$9.95	\$7.87	\$0.00	\$49.12	
5	70		\$33.71	\$9.95	\$20.32	\$0.00	\$63.98	
6	75		\$36.12	\$9.95	\$20.93	\$0.00	\$67.00	
7	80		\$38.53	\$9.95	\$21.53	\$0.00	\$70.01	
8	90		\$43.34	\$9.95	\$22.74	\$0.00	\$76.03	
Notes:								
	Steps are	750 hrs.					i	
Appre	ntice to Jo	urneyworker Ratio:1:1						
INTER (SPRAY OR		AST, REPAINT)	01/01/2024	4 \$45.02	\$9.95	\$23.95	\$0.00	\$78.92
NTERS LOCAL 35 - ZONI	5 <i>2</i>		07/01/2024	\$46.22	\$9.95	\$23.95	\$0.00	\$80.12
			01/01/2025	5 \$47.42	\$9.95	\$23.95	\$0.00	\$81.32

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Total Rate

Step	percent 01/01/20.		e Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
$\frac{\operatorname{step}}{1}$		**						
2	50		\$22.51	\$9.95	\$0.00	\$0.00	\$32.46	
	55		\$24.76	\$9.95	\$6.66	\$0.00	\$41.37	
3	60		\$27.01	\$9.95	\$7.26	\$0.00	\$44.22	
4	65		\$29.26	\$9.95	\$7.87	\$0.00	\$47.08	
5	70		\$31.51	\$9.95	\$20.32	\$0.00	\$61.78	3
6	75		\$33.77	\$9.95	\$20.93	\$0.00	\$64.65	;
7	80		\$36.02	\$9.95	\$21.53	\$0.00	\$67.50)
8	90		\$40.52	\$9.95	\$22.74	\$0.00	\$73.21	
Effec	tive Date - 07/01/20	24				Supplemental		
Step	percent	Apprentic	e Base Wage	Health	Pension	Unemployment	Total Rate	;
1	50		\$23.11	\$9.95	\$0.00	\$0.00	\$33.06	ó
2	55		\$25.42	\$9.95	\$6.66	\$0.00	\$42.03	;
3	60		\$27.73	\$9.95	\$7.26	\$0.00	\$44.94	ļ
4	65		\$30.04	\$9.95	\$7.87	\$0.00	\$47.86	ó
5	70		\$32.35	\$9.95	\$20.32	\$0.00	\$62.62	!
6	75		\$34.67	\$9.95	\$20.93	\$0.00	\$65.55	;
7	80		\$36.98	\$9.95	\$21.53	\$0.00	\$68.46)
8	90		\$41.60	\$9.95	\$22.74	\$0.00	\$74.29)
Note	s:							
i	Steps are 750 hrs.							
Appi	entice to Journeywork	er Ratio:1:1						
,	BRUSH, NEW) *		01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.40
	urfaces to be painted are		07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.60
ınt rate shall b	e used.PAINTERS LOCAL	35 - ZONE 2	01/01/2025			\$23.95	\$0.00	\$81.80

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Total Rate

Effect Step	tive Date - 01/01/2024 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$22.78	\$9.95	\$0.00	\$0.00	\$32.73	
2	55	\$25.06	\$9.95	\$6.66	\$0.00	\$41.67	
3	60	\$27.34	\$9.95	\$7.26	\$0.00	\$44.55	
4	65	\$29.61	\$9.95	\$7.87	\$0.00	\$47.43	
5	70	\$31.89	\$9.95	\$20.32	\$0.00	\$62.16	
6	75	\$34.17	\$9.95	\$20.93	\$0.00	\$65.05	
7	80	\$36.45	\$9.95	\$21.53	\$0.00	\$67.93	
8	90	\$41.00	\$9.95	\$22.74	\$0.00	\$73.69	
Effect Step	tive Date - 07/01/2024 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
$\frac{3\mathbf{G}_{\mathbf{F}}}{1}$	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33	
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33	
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27	
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21	
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00	
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95	
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89	
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77	
Notes							
	Steps are 750 hrs.					į	
Appr	entice to Journeyworker Rati	io:1:1					
/ TAPER (B	RUSH, REPAINT)	01/01/2024	\$43.62	\$9.95	\$23.95	\$0.00	\$77.5
OCAL 33 - ZON	1E 2	07/01/2024	\$44.82	\$9.95	\$23.95	\$0.00	\$78.7
		01/01/2025	\$46.02	\$9.95	\$23.95	\$0.00	\$79.9

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Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

-	-	re Date - 01/01/2024	33 20NC 2 BROSH III				Supplemental		
Ste	еp	percent	Appren	tice Base Wage	Health	Pension	Unemployment	Total Rate	
1		50		\$21.81	\$9.95	\$0.00	\$0.00	\$31.76	
2		55		\$23.99	\$9.95	\$6.66	\$0.00	\$40.60	
3		60		\$26.17	\$9.95	\$7.26	\$0.00	\$43.38	
4		65		\$28.35	\$9.95	\$7.87	\$0.00	\$46.17	
5		70		\$30.53	\$9.95	\$20.32	\$0.00	\$60.80	
6		75		\$32.72	\$9.95	\$20.93	\$0.00	\$63.60	
7		80		\$34.90	\$9.95	\$21.53	\$0.00	\$66.38	
8		90		\$39.26	\$9.95	\$22.74	\$0.00	\$71.95	
Ef	fectiv	re Date - 07/01/2024					Supplemental		
Ste	ep	percent	Appren	tice Base Wage	Health	Pension	Unemployment	Total Rate	
1		50		\$22.41	\$9.95	\$0.00	\$0.00	\$32.36	
2		55		\$24.65	\$9.95	\$6.66	\$0.00	\$41.26	
3		60		\$26.89	\$9.95	\$7.26	\$0.00	\$44.10	
4		65		\$29.13	\$9.95	\$7.87	\$0.00	\$46.95	
5		70		\$31.37	\$9.95	\$20.32	\$0.00	\$61.64	
6		75		\$33.62	\$9.95	\$20.93	\$0.00	\$64.50	
7		80		\$35.86	\$9.95	\$21.53	\$0.00	\$67.34	
8		90		\$40.34	\$9.95	\$22.74	\$0.00	\$73.03	
N o	otes:	Steps are 750 hrs.							
Ap	pren	tice to Journeyworker	Ratio:1:1						
		ARKINGS (HEAVY/HIC	GHWAY)	12/01/2023	3 \$37.8	6 \$9.65	\$17.14	\$0.00	\$64.65
LABORERS - ZONE 2 (H	1EAV Y	& HIGHWAY)		06/01/2024	\$39.1	9 \$9.65	\$17.14	\$0.00	\$65.98
				12/01/2024	\$40.5	2 \$9.65	\$17.14	\$0.00	\$67.31
				06/01/2025	\$41.9	1 \$9.65	\$17.14	\$0.00	\$68.70
				12/01/2025	\$43.2	9 \$9.65	\$17.14	\$0.00	\$70.08
				06/01/2026	5 \$44.7	3 \$9.65	\$17.14	\$0.00	\$71.52
For apprentice rates	see "A	apprentice- LABORER (Heavy	v and Highway)	12/01/2026	\$46.1	7 \$9.65	\$17.14	\$0.00	\$72.96
PANEL & PICKUP				01/01/2024	1 \$38.7	8 \$15.07	\$18.67	\$0.00	\$72.52
TEAMSTERS JOINT CO				06/01/2024			\$18.67	\$0.00	\$73.52
				12/01/2024			\$20.17	\$0.00	\$75.02
				01/01/2025			\$20.17	\$0.00	\$75.52
				06/01/2025			\$20.17	\$0.00	\$76.52
				12/01/2025			\$21.78	\$0.00	\$78.13
				01/01/2026			\$21.78	\$0.00	\$78.73
				06/01/2026			\$21.78	\$0.00	\$79.73
				12/01/2026			\$23.52	\$0.00	\$81.47
				01/01/2027			\$23.52	\$0.00	\$82.07
Issue Date: 01/23	3/202	4	Wage Request Numb	per: 2024012	22-044			P	Page 26 of 38

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
PILE DRIVER LOCAL 56 (ZONE 1) For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

	Effecti	ve Date - 08/01/2	020				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	;
	1	50		\$24.54	\$9.40	\$23.12	\$0.00	\$57.06	
	2	60		\$29.44	\$9.40	\$23.12	\$0.00	\$61.96	
	3	70		\$34.35	\$9.40	\$23.12	\$0.00	\$66.87	
	4	75		\$36.80	\$9.40	\$23.12	\$0.00	\$69.32	
	5	80		\$39.26	\$9.40	\$23.12	\$0.00	\$71.78	
	6	80		\$39.26	\$9.40	\$23.12	\$0.00	\$71.78	
	7	90		\$44.16	\$9.40	\$23.12	\$0.00	\$76.68	
	8	90		\$44.16	\$9.40	\$23.12	\$0.00	\$76.68	
	Notes:								
			10/1/17; 45/45/55/ 3&4 \$41.46/ 5&6 \$6						
	Appre	ntice to Journeywoo	rker Ratio:1:5						
IPELAYER ABORERS - ZONE	Ε 2			12/01/2023	3 \$38.1	1 \$9.65	\$17.14	\$0.00	\$64.90
For apprentice	rates see "	'Apprentice- LABORER"							
IPELAYER (F IBORERS - ZONE		& HIGHWAY)		12/01/2023	3 \$38.11	\$9.65	\$17.14	\$0.00	\$64.90
DOKEKS - ZOME	z 2 (HEAV	i & nighwai)		06/01/2024	\$39.4	4 \$9.65	\$17.14	\$0.00	\$66.23
				12/01/2024	\$40.7	7 \$9.65	\$17.14	\$0.00	\$67.56
				06/01/2025	5 \$42.10	5 \$9.65	\$17.14	\$0.00	\$68.95
				12/01/2025	5 \$43.54	4 \$9.65	\$17.14	\$0.00	\$70.33
				06/01/2026	5 \$44.98	8 \$9.65	\$17.14	\$0.00	\$71.77
				12/01/2026	5 \$46.42	2 \$9.65	\$17.14	\$0.00	\$73.21
For apprentice	rates see "	'Apprentice- LABORER (Heavy and Highway)						
LUMBER & I				08/28/2023	\$51.99	9 \$10.15	\$19.95	\$0.00	\$82.09
IIMDEDC & DID		LUCALUI					010.05	Φ0.00	00101
LUMBERS & PIP.	LITTILK			08/26/2024	\$54.74	4 \$10.15	\$19.95	\$0.00	\$84.84

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Pension

Total Rate

	Step	ve Date - 08/28/2023 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
	1	40						
	2	50	\$20.80	\$10.15	\$2.50	\$0.00	\$33.45	
	3		\$26.00	\$10.15	\$2.50	\$0.00	\$38.65	
	<i>3</i>	60	\$31.19	\$10.15	\$8.80	\$0.00	\$50.14	
		70	\$36.39	\$10.15	\$14.08	\$0.00	\$60.62	
	5	80	\$41.59	\$10.15	\$17.60	\$0.00	\$69.34	
	Effecti	ve Date - 08/26/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	40	\$21.90	\$10.15	\$2.50	\$0.00	\$34.55	
	2	50	\$27.37	\$10.15	\$2.50	\$0.00	\$40.02	
	3	60	\$32.84	\$10.15	\$8.80	\$0.00	\$51.79	
	4	70	\$38.32	\$10.15	\$14.08	\$0.00	\$62.55	
	5	80	\$43.79	\$10.15	\$17.60	\$0.00	\$71.54	
	Notes:	Steps 2000hrs. Prior 9/1/05; 40	0/40/45/50/55/60/65/75/80/85					
	Appre	ntice to Journeyworker Ratio:	1:3				'	
NEUMATIC (CONTR	OLS (TEMP.)	08/28/202	3 \$51.99	\$10.15	\$19.95	\$0.00	\$82.09
LUMBERS & PIP	EFITTER!	S LOCAL 51	08/26/202	4 \$54.74	\$10.15	\$19.95	\$0.00	\$84.84
			08/25/202	5 \$57.49	\$10.15	\$19.95	\$0.00	\$87.59
For apprentice	rates see	'Apprentice- PIPEFITTER" or "PLUMB	ER/PIPEFITTER"					
NEUMATIC I Aborers - zoni		TOOL OPERATOR	12/01/202	3 \$38.11	\$9.65	\$17.14	\$0.00	\$64.90
		'Apprentice- LABORER"						
NEUMATIC I IGHWAY)	ORILL/	TOOL OPERATOR (HEAVY &	12/01/202	3 \$38.11	\$9.65	\$17.14	\$0.00	\$64.90
IBORERS - ZONI	E 2 (HEAV	Y & HIGHWAY)	06/01/202	4 \$39.44	\$9.65	\$17.14	\$0.00	\$66.23
			12/01/202	4 \$40.77	\$9.65	\$17.14	\$0.00	\$67.56
			06/01/202	5 \$42.16	\$9.65	\$17.14	\$0.00	\$68.95
			12/01/202	5 \$43.54	\$9.65	\$17.14	\$0.00	\$70.33
			06/01/202	6 \$44.98	\$9.65	\$17.14	\$0.00	\$71.77
For apprentice	rates see '	'Apprentice- LABORER (Heavy and Hig	12/01/202 (thway)	6 \$46.42	\$9.65	\$17.14	\$0.00	\$73.21
OWDERMAN ABORERS - ZONI	V & BLA		12/01/202	3 \$38.86	\$9.65	\$17.14	\$0.00	\$65.65
For apprentice	rates see	'Apprentice- LABORER"						
		ASTER (HEAVY & HIGHWAY)	12/01/202	3 \$39.36	\$9.40	\$16.89	\$0.00	\$65.65
ABORERS - ZONI	E 2 (HEAV	Y & HIGHWAY)	06/01/202	4 \$40.69	\$9.40	\$16.89	\$0.00	\$66.98
			12/01/202	4 \$42.02	\$9.40	\$16.89	\$0.00	\$68.31
			06/01/202	5 \$43.41	\$9.40	\$16.89	\$0.00	\$69.70
			12/01/202	5 \$44.79	\$9.40	\$16.89	\$0.00	\$71.08
			06/01/202	6 \$46.23	\$9.40	\$16.89	\$0.00	\$72.52
						\$16.89	\$0.00	\$73.96

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)					опетрюущен	
POWER SHOVEL/DERRICK/TRENCHING MACHINE	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) OPERATING ENGINEERS LOCAL 4	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
PUMP OPERATOR (DEWATERING, OTHER)	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$35.02	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$30.47	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$37.42	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$70.02
	12/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2020	\$41.03	\$15.00	\$10.40	\$0.00	\$12.43
READY-MIX CONCRETE DRIVER TEAMSTERS 653 - Southeastern Concrete (Weymouth)	08/01/2023	\$25.00	\$13.91	\$6.90	\$0.00	\$45.81
RECLAIMERS	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

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							Inemployment	
ROOFER (Inc.		Vaterproofing &Roofer Damproofg)	08/01/2023	\$50.03	\$12.78	\$20.20	\$0.00	\$83.01
. OI LING LOCAL	. 55		02/01/2024	\$51.28	\$12.78	\$20.20	\$0.00	\$84.26
			08/01/2024	\$52.78	\$12.78	\$20.20	\$0.00	\$85.76
			02/01/2025	\$54.03	\$12.78	\$20.20	\$0.00	\$87.01
			08/01/2025	\$55.53	\$12.78	\$20.20	\$0.00	\$88.51
			02/01/2026	\$56.78	\$12.78	\$20.20	\$0.00	\$89.76
		ntice - ROOFER - Local 33						
		ve Date - 08/01/2023				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50	\$25.02	\$12.78	\$5.59	\$0.00	\$43.39	
	2	60	\$30.02	\$12.78	\$20.20	\$0.00	\$63.00	
	3	65	\$32.52	\$12.78	\$20.20	\$0.00	\$65.50	
	4	75	\$37.52	\$12.78	\$20.20	\$0.00	\$70.50	
	5	85	\$42.53	\$12.78	\$20.20	\$0.00	\$75.51	
		ve Date - 02/01/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50	\$25.64	\$12.78	\$5.59	\$0.00	\$44.01	
	2	60	\$30.77	\$12.78	\$20.20	\$0.00	\$63.75	
	3	65	\$33.33	\$12.78	\$20.20	\$0.00	\$66.31	
	4	75	\$38.46	\$12.78	\$20.20	\$0.00	\$71.44	
	5	85	\$43.59	\$12.78	\$20.20	\$0.00	\$76.57	
	Notes:	** 1:5, 2:6-10, the 1:10; Reroofing: 1						
		Step 1 is 2000 hrs.; Steps 2-5 are 10 (Hot Pitch Mechanics' receive \$1.00						
	Appre	ntice to Journeyworker Ratio:**						
OOFER SLA		E / PRECAST CONCRETE	08/01/2023	3 \$50.28	\$12.78	\$20.20	\$0.00	\$83.26
OOFERS LOCAL	. 33		02/01/2024		\$12.78	\$20.20	\$0.00	\$84.51
			08/01/2024		\$12.78	\$20.20	\$0.00	\$86.01
			02/01/2025		\$12.78	\$20.20	\$0.00	\$87.26
			08/01/2025		\$12.78	\$20.20	\$0.00	\$88.76
			02/01/2026		\$12.78	\$20.20	\$0.00	\$90.01
For apprentice	e rates see '	'Apprentice- ROOFER"	02/01/2020	,	φ12./0	ΨΔ0.Δ0	ψο.οο	φ/0.01
HEETMETA	L WORK	ER	08/01/2023	3 \$56.16	\$14.43	\$27.07	\$2.93	\$100.59
IEETMETAL WC	ORKERS LO	OCAL 17 - A	02/01/2024		\$14.43	\$27.07	\$2.93	\$102.29
			08/01/2024		\$14.43	\$27.07	\$2.93	\$104.04
			02/01/2025		\$14.43	\$27.07	\$2.93	\$105.79
			08/01/2025		\$14.43	\$27.07	\$2.93	\$107.64

Effective Date

Base Wage

Health

Classification

Supplemental

Unemployment

Pension

Total Rate

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Pension

Apprentice -	SHEET METAL	WORKER -	Local 17-A
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		ve Date - 08/01/2023	A	TT141-	D	Supplemental Unemployment	T-4-1 D -4-	
	tep	percent	Apprentice Base Wage		Pension		Total Rate	
1		42	\$23.59	\$14.43	\$6.13	\$0.00	\$44.15	
2		42	\$23.59	\$14.43	\$6.13	\$0.00	\$44.15	
3		47	\$26.40	\$14.43	\$12.11	\$1.59	\$54.53	
4		47	\$26.40	\$14.43	\$12.11	\$1.59	\$54.53	
5		52	\$29.20	\$14.43	\$13.09	\$1.70	\$58.42	
6		52	\$29.20	\$14.43	\$13.34	\$1.70	\$58.67	
7		60	\$33.70	\$14.43	\$14.75	\$1.89	\$64.77	
8	3	65	\$36.50	\$14.43	\$15.73	\$2.00	\$68.66	
9)	75	\$42.12	\$14.43	\$17.69	\$2.23	\$76.47	
1	0	85	\$47.74	\$14.43	\$19.15	\$2.44	\$83.76	
E	ffecti	ve Date - 02/01/2024				Supplemental		
_	tep	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1		42	\$24.30	\$14.43	\$6.13	\$0.00	\$44.86	
2	2	42	\$24.30	\$14.43	\$6.13	\$0.00	\$44.86	
3	3	47	\$27.19	\$14.43	\$12.11	\$1.61	\$55.34	
4	ļ	47	\$27.19	\$14.43	\$12.11	\$1.61	\$55.34	
5	5	52	\$30.09	\$14.43	\$13.09	\$1.73	\$59.34	
6	5	52	\$30.09	\$14.43	\$13.34	\$1.73	\$59.59	
7	7	60	\$34.72	\$14.43	\$14.75	\$1.92	\$65.82	
8	3	65	\$37.61	\$14.43	\$15.73	\$2.03	\$69.80	
9)	75	\$43.40	\$14.43	\$17.69	\$2.27	\$77.79	
1	0	85	\$49.18	\$14.43	\$19.15	\$2.48	\$85.24	
N	otes:							
i		Steps are 6 mos.					i	
A	pprei	ntice to Journeyworker Ratio:1:4						
ECIALIZED EA MSTERS JOINT CO		MOVING EQUIP < 35 TONS	01/01/2024	4 \$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	001101	2.10.17 20.12 2	06/01/2024	4 \$40.24	\$15.07	\$18.67	\$0.00	\$73.98
			12/01/2024	4 \$40.24	\$15.07	\$20.17	\$0.00	\$75.48
			01/01/2023	5 \$40.24	\$15.57	\$20.17	\$0.00	\$75.98
			06/01/2023	5 \$41.24	\$15.57	\$20.17	\$0.00	\$76.98
			12/01/202	5 \$41.24	\$15.57	\$21.78	\$0.00	\$78.59
			01/01/2020	5 \$41.24	\$16.17	\$21.78	\$0.00	\$79.19
			06/01/2020	5 \$42.24	\$16.17	\$21.78	\$0.00	\$80.19
			12/01/2020	5 \$42.24	\$16.17	\$23.52	\$0.00	\$81.93
			01/01/2027	7 \$42.24	\$16.77	\$23.52	\$0.00	\$82.53

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS	01/01/2024	\$39.53	\$15.07	\$18.67	\$0.00	\$73.27
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	06/01/2024	\$40.53	\$15.07	\$18.67	\$0.00	\$74.27
	12/01/2024	\$40.53	\$15.07	\$20.17	\$0.00	\$75.77
	01/01/2025	\$40.53	\$15.57	\$20.17	\$0.00	\$76.27
	06/01/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$77.27
	12/01/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$78.88
	01/01/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$79.48
	06/01/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$80.48
	12/01/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$82.22
	01/01/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$82.82
SPRINKLER FITTER	10/01/2023	\$67.95	\$10.90	\$23.20	\$0.00	\$102.05
SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	03/01/2024	\$69.75	\$10.90	\$23.20	\$0.00	\$103.85
	10/01/2024	\$71.55	\$10.90	\$23.20	\$0.00	\$105.65
	03/01/2025	\$73.35	\$10.90	\$23.20	\$0.00	\$107.45

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Total Rate

Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1

Pension

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
TELECOMMUNICATION TECHNICIAN	09/01/2023	\$39.40	\$11.50	\$13.91	\$0.00	\$64.81
ELECTRICIANS LOCAL 223	09/01/2024	\$40.69	\$11.75	\$14.53	\$0.00	\$66.97
Apprentice - TELECOMMUNICATION TECHNI	CIAN - Local 223					
Effective Date - 09/01/2023				Supplemen	tal	

Effective Date - 09/01/2023 Step percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	To	tal Rate
1 0	\$0.00	\$0.00	\$0.00	\$0.00		\$0.00
Notes: See Electrician Apprenti	ice Wages					
Telecom Apprentice Wa	ages shall be the same as the Electrician	Apprentice V	Vages			[
Apprentice to Journeyworker	Ratio:2:3***					
ERRAZZO FINISHERS	08/01/2023	\$61.34	\$11.49	\$22.34	\$0.00	\$95.17
RICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2024	\$61.34	\$11.49	\$23.59	\$0.00	\$96.42
	08/01/2024	\$63.44	\$11.49	\$23.59	\$0.00	\$98.52
	02/01/2025	\$64.74	\$11.49	\$23.59	\$0.00	\$99.82
	08/01/2025	\$66.89	\$11.49	\$23.59	\$0.00	\$101.97
	02/01/2026	\$68.24	\$11.49	\$23.59	\$0.00	\$103.32
	08/01/2026	\$70.44	\$11.49	\$23.59	\$0.00	\$105.52
	02/01/2027	\$71.84	\$11.49	\$23.59	\$0.00	\$106.92

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	Step	ve Date - 08/01/2023 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
	1	50	\$30.67	\$11.49	\$23.59	\$0.00	\$65.75	
	2	60	\$36.80	\$11.49	\$23.59	\$0.00	\$71.88	
	3	70	\$42.94	\$11.49	\$23.59	\$0.00	\$78.02	
	4	80	\$49.07	\$11.49	\$23.59	\$0.00	\$84.15	
	5	90	\$55.21	\$11.49	\$23.59	\$0.00	\$90.29	
	Effecti	ve Date - 02/01/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50	\$30.67	\$11.49	\$23.59	\$0.00	\$65.75	
	2	60	\$36.80	\$11.49	\$23.59	\$0.00	\$71.88	
	3	70	\$42.94	\$11.49	\$23.59	\$0.00	\$78.02	
	4	80	\$49.07	\$11.49	\$23.59	\$0.00	\$84.15	
	5	90	\$55.21	\$11.49	\$23.59	\$0.00	\$90.29	
	Notes:							
							į	
		ntice to Journeyworker Ratio:1:3						
ST BORING BORERS - FOU			12/01/2023	3 \$48.33	\$9.65	\$18.22	\$0.00	\$76.20
			06/01/2024	\$49.81	\$9.65	\$18.22	\$0.00	\$77.68
			12/01/2024		\$9.65	\$18.22	\$0.00	\$79.15
			06/01/2025		\$9.65	\$18.22	\$0.00	\$80.65
			12/01/2025		\$9.65	\$18.22	\$0.00	\$82.15
			06/01/2026	5 \$55.83	\$9.65	\$18.22	\$0.00	\$83.70
For apprentice	e rates see '	Apprentice- LABORER"	12/01/2026	5 \$57.33	\$9.65	\$18.22	\$0.00	\$85.20
ST BORING	G DRILL	ER HELPER	12/01/2023	3 \$44.45	\$9.65	\$18.22	\$0.00	\$72.32
ORERS - FOU	NDATION	AND MARINE	06/01/2024	\$45.93	\$9.65	\$18.22	\$0.00	\$73.80
			12/01/2024			\$18.22	\$0.00	\$75.27
			06/01/2025	\$48.90	\$9.65	\$18.22	\$0.00	\$76.77
			12/01/2025	\$50.40	\$9.65	\$18.22	\$0.00	\$78.27
			06/01/2026	5 \$51.95	\$9.65	\$18.22	\$0.00	\$79.82
			12/01/2026			\$18.22	\$0.00	\$81.32
For apprentice	e rates see '	Apprentice- LABORER"						
ST BORING			12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
OKEKS - FUU	NDAIION	AND MAMIYE	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
			12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
			06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
			12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
			06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRACTORS/PORTABLE STEAM GENERATORS	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	01/01/2024	\$39.82	\$15.07	\$18.67	\$0.00	\$73.56
TEAMSTERS JOHN COUNCIL NO. 10 ZONE B	06/01/2024	\$40.82	\$15.07	\$18.67	\$0.00	\$74.56
	12/01/2024	\$40.82	\$15.07	\$20.17	\$0.00	\$76.06
	01/01/2025	\$40.82	\$15.57	\$20.17	\$0.00	\$76.56
	06/01/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$77.56
	12/01/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$79.17
	01/01/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$79.77
	06/01/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$80.77
	12/01/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$82.51
	01/01/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$83.11
TUNNEL WORK - COMPRESSED AIR	12/01/2023	\$56.56	\$9.65	\$18.67	\$0.00	\$84.88
LABORERS (COMPRESSED AIR)	06/01/2024	\$58.04	\$9.65	\$18.67	\$0.00	\$86.36
	12/01/2024	\$59.51	\$9.65	\$18.67	\$0.00	\$87.83
	06/01/2025	\$61.01	\$9.65	\$18.67	\$0.00	\$89.33
	12/01/2025	\$62.51	\$9.65	\$18.67	\$0.00	\$90.83
	06/01/2026	\$64.06	\$9.65	\$18.67	\$0.00	\$92.38
	12/01/2026	\$65.56	\$9.65	\$18.67	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	12/01/2023	\$58.56	\$9.65	\$18.67	\$0.00	\$86.88
LABORERS (COMPRESSED AIR)	06/01/2024	\$60.04	\$9.65	\$18.67	\$0.00	\$88.36
	12/01/2024	\$61.51	\$9.65	\$18.67	\$0.00	\$89.83
	06/01/2025	\$63.01	\$9.65	\$18.67	\$0.00	\$91.33
	12/01/2025	\$64.51	\$9.65	\$18.67	\$0.00	\$92.83
	06/01/2026	\$66.06	\$9.65	\$18.67	\$0.00	\$94.38
	12/01/2026	\$67.56	\$9.65	\$18.67	\$0.00	\$95.88
For apprentice rates see "Apprentice- LABORER"						
ΓUNNEL WORK - FREE AIR LABORERS (FREE AIR TUNNEL)	12/01/2023	\$48.63	\$9.65	\$18.67	\$0.00	\$76.95
ADORERO (PREE AIR TOWNEL)	06/01/2024	\$50.11	\$9.65	\$18.67	\$0.00	\$78.43
	12/01/2024	\$51.58	\$9.65	\$18.67	\$0.00	\$79.90
	06/01/2025	\$53.08	\$9.65	\$18.67	\$0.00	\$81.40
	12/01/2025	\$54.58	\$9.65	\$18.67	\$0.00	\$82.90
	06/01/2026	\$56.13	\$9.65	\$18.67	\$0.00	\$84.45
	12/01/2026	\$57.63	\$9.65	\$18.67	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"						

 Issue Date:
 01/23/2024
 Wage Request Number:
 20240122-044
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/01/2023	\$50.63	\$9.65	\$18.67	\$0.00	\$78.95
ABORERS (FREE AIR TUNNEL)	06/01/2024	\$52.11	\$9.65	\$18.67	\$0.00	\$80.43
	12/01/2024	\$53.58	\$9.65	\$18.67	\$0.00	\$81.90
	06/01/2025	\$55.08	\$9.65	\$18.67	\$0.00	\$83.40
	12/01/2025	\$56.58	\$9.65	\$18.67	\$0.00	\$84.90
	06/01/2026	\$58.13	\$9.65	\$18.67	\$0.00	\$86.45
	12/01/2026	\$59.63	\$9.65	\$18.67	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
I EAMSTERS JOHN COUNCIL NO. 10 ZOINE B	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
	01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53
WAGON DRILL OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
WASTE WATER PUMP OPERATOR	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER	08/28/2023	\$51.99	\$10.15	\$19.95	\$0.00	\$82.09
PLUMBERS & PIPEFITTERS LOCAL 51	08/26/2024	\$54.74	\$10.15	\$19.95	\$0.00	\$84.84
	08/25/2025	\$57.49	\$10.15	\$19.95	\$0.00	\$87.59

Issue Date: 01/23/2024 **Wage Request Number:** 20240122-044 **Page 37 of 38**

Supplemental **Total Rate** Classification Pension Effective Date Base Wage Health Unemployment

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

 $All \ apprentices \ must be \ registered \ with \ the \ Division \ of \ Apprentices hip \ Training \ in \ accordance \ with \ M.G.L. \ c. \ 23, \ ss. \ 11E-11L.$

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

- Multiple ratios are listed in the comment field.
- APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
- **** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

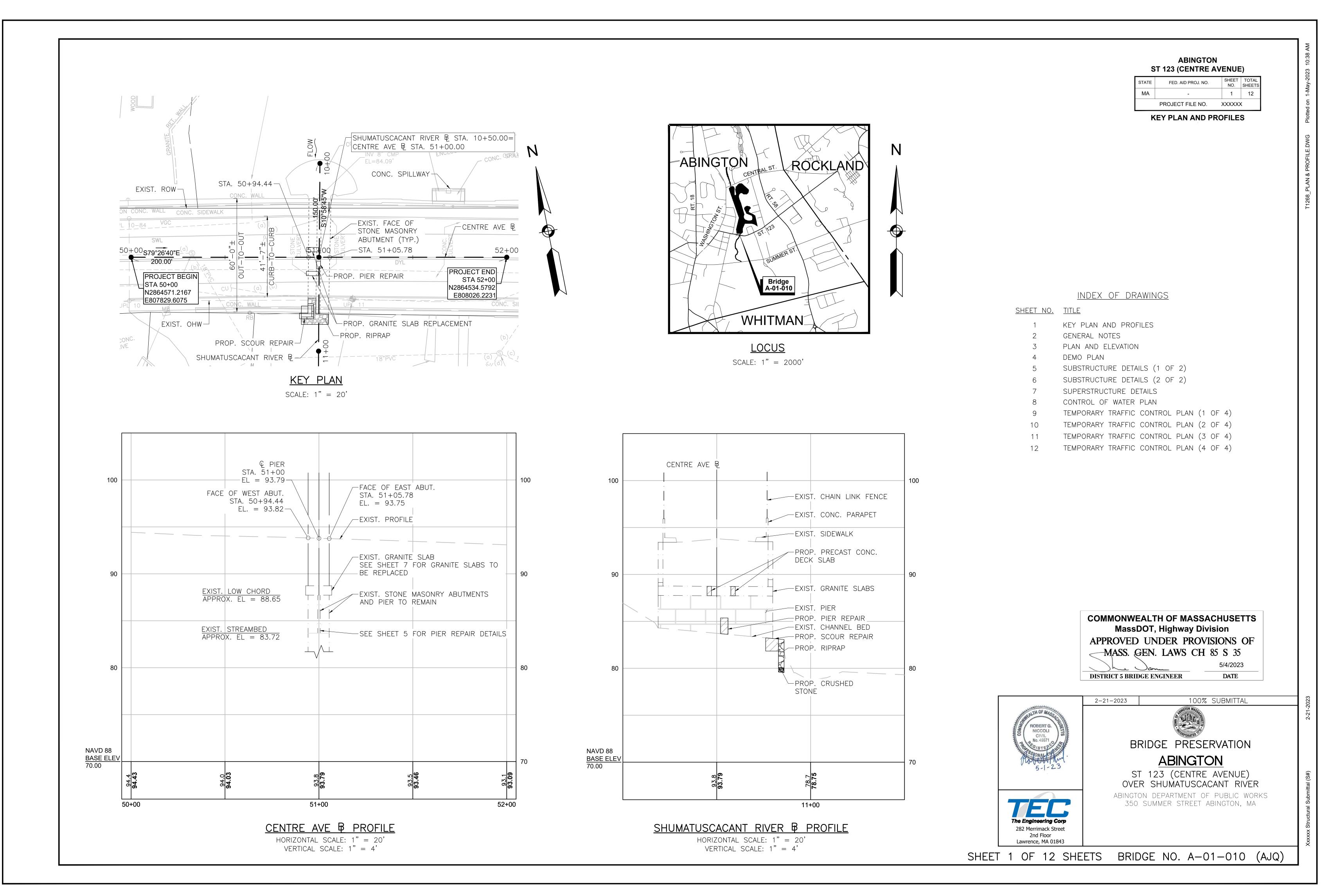
Issue Date: 01/23/2024 20240122-044 Page 38 of 38

Wage Request Number:

Bridge Preservation ST 123 (Centre Avenue) over Shumatuscacant River A-01-010 (AJQ) Abington, MA 02351

APPENDIX B

ST 123 (CENTRE AVENUE) OVER SHUMATUSCACANT RIVER BRIDGE PRESERVATION CONSTRUCTION PLANS



PROJECT FILE NO. XXXXXX

<u>DESIGN:</u>

IN ACCORDANCE WITH THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, FOR HL-93 LOADING.

SURVEY BENCHMARKS:

BENCHMARK 1: HYDRANT - BOLT OVER MAIN OUTLET N: 2864573.1869 E: 807638.1556 ELEVATION = 102.60'

BENCHMARK 2: NAIL IN UP#11 N: 2864527.8429 E: 807941.5410 ELEVATION = 94.67

BENCHMARK 3: HYDRANT - BOLT OVER MAIN OUTLET N: 2864460.7193 E: 808257.2548 ELEVATION = 96.47

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

SCALES:

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

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MOD	DIFICATION CONDITION	<u>#4 BARS</u>	<u>#5 BARS</u>	#6 BARS
1.	NONE	16"		23"
2.	12" OF CONCRETE BELOW BAR	20"	25"	30"
3.	EPOXY COATED BARS, COVER < 3db, OR	23"	29"	34"
	CLEAR SPACING < 6db			
4.	COATED BARS, ALL OTHER CASES	18"	23"	27"
5.	CONDITION 2. AND 3.	26"	32"	39"
6.	CONDITION 2. AND 4.	24"	30"	36"

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

MEMBRANE WATERPROOFING:

ALL MEMBRANE WATERPROOFING USED ON BRIDGE DECKS SHALL BE SHEET MEMBRANE WATERPROOFING

EXISTING CONDITIONS:

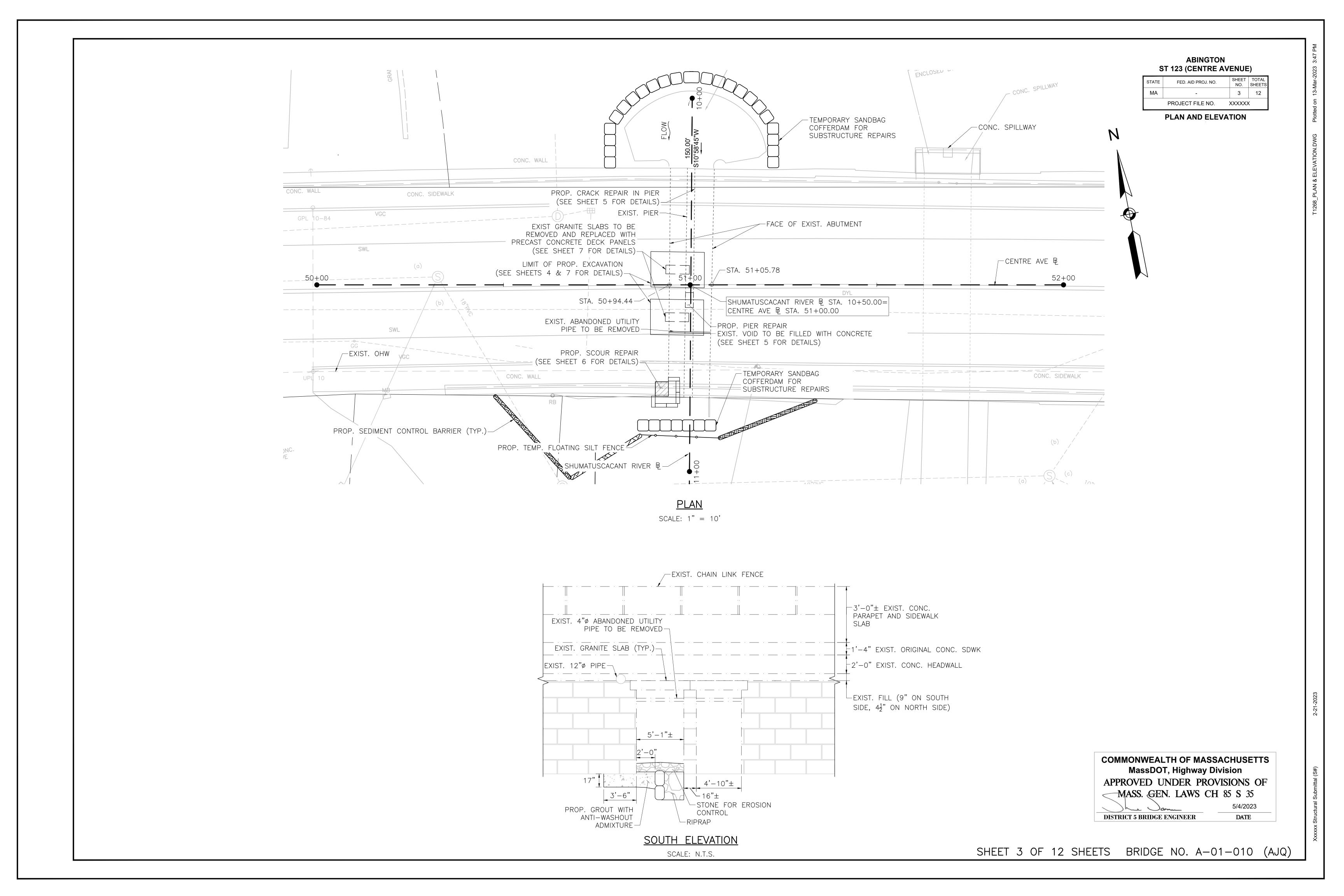
- 1. CONFIGURATION OF EXISTING BRIDGE STRUCTURE BASED ON FIELD MEASUREMENTS TAKEN FROM ROUTINE INSPECTION REPORT DATED MAY 2019.
- 2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR ORDERING OF MATERIALS.

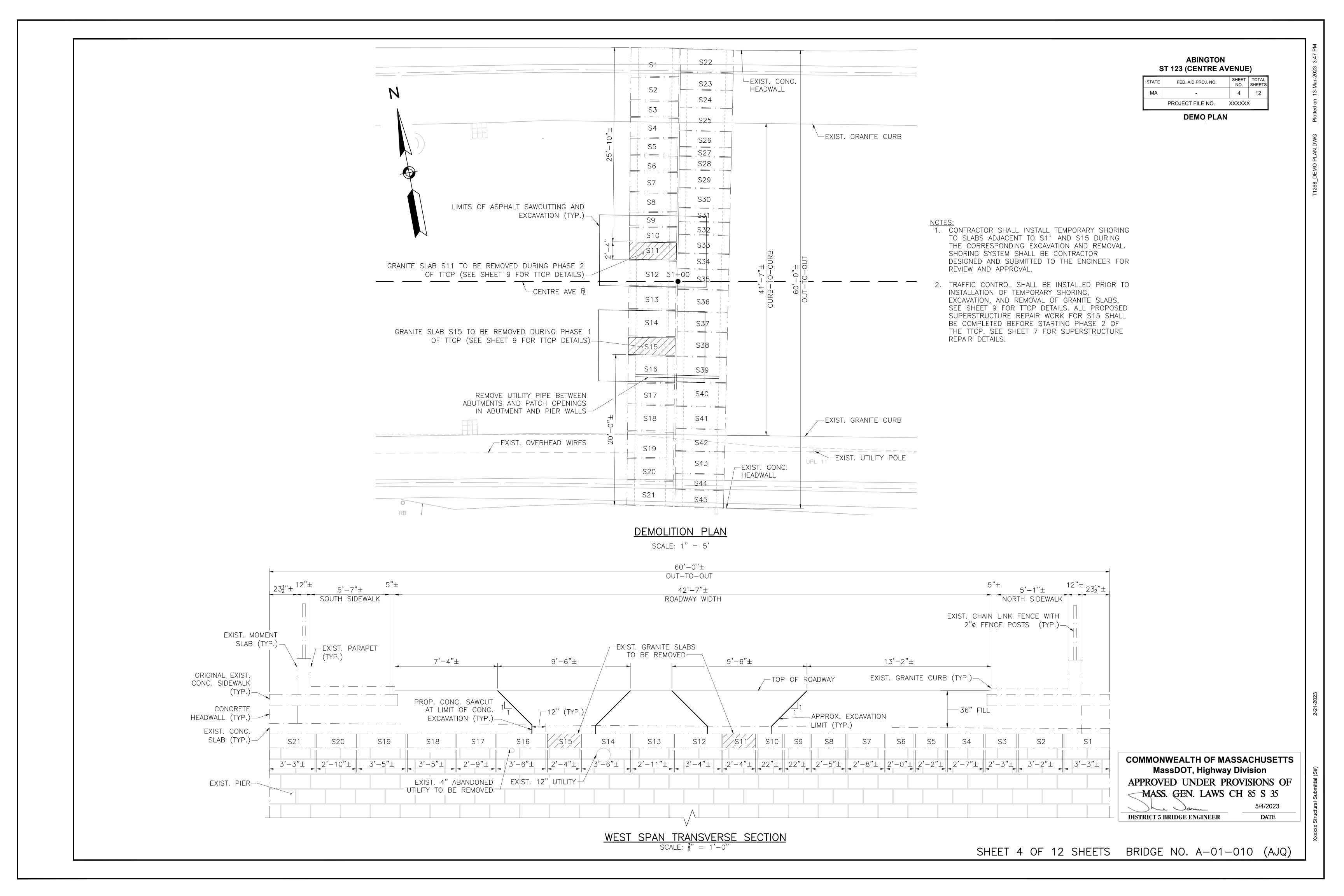
COMMONWEALTH OF MASSACHUSETTS MassDOT, Highway Division APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

DISTRICT 5 BRIDGE ENGINEER

DATE

SHEET 2 OF 12 SHEETS BRIDGE NO. A-01-010 (AJQ)





ABINGTON
ST 123 (CENTRE AVENUE)

EXIST, CONCRETE SLAB

EXIST, CONCRETE SLAB

EXIST, CRANITE BLOCKS

EXIST, CONCRETE SLAB

EXIST, CRANITE BLOCKS

MA

EXIST, CRANITE BLOCKS

SUBSTRUCTURE DETAILS (1 OF 2)

NORTH EDGE
OF PIER

SOUTH EDGE
OF PIER

NOTE: DIMENSIONS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

4'-0"±

─EXIST.

33'-2"±

STREAMBED

_2 SPACES @ 12" = 24"

EXIST. VOID TO BE FILLED W/ 4000

_6" (MIN.) (TYP.)

PSI 3º 660 CEMENT CONCRETE W/ <ANTI-WASHOUT ADMIXTURE

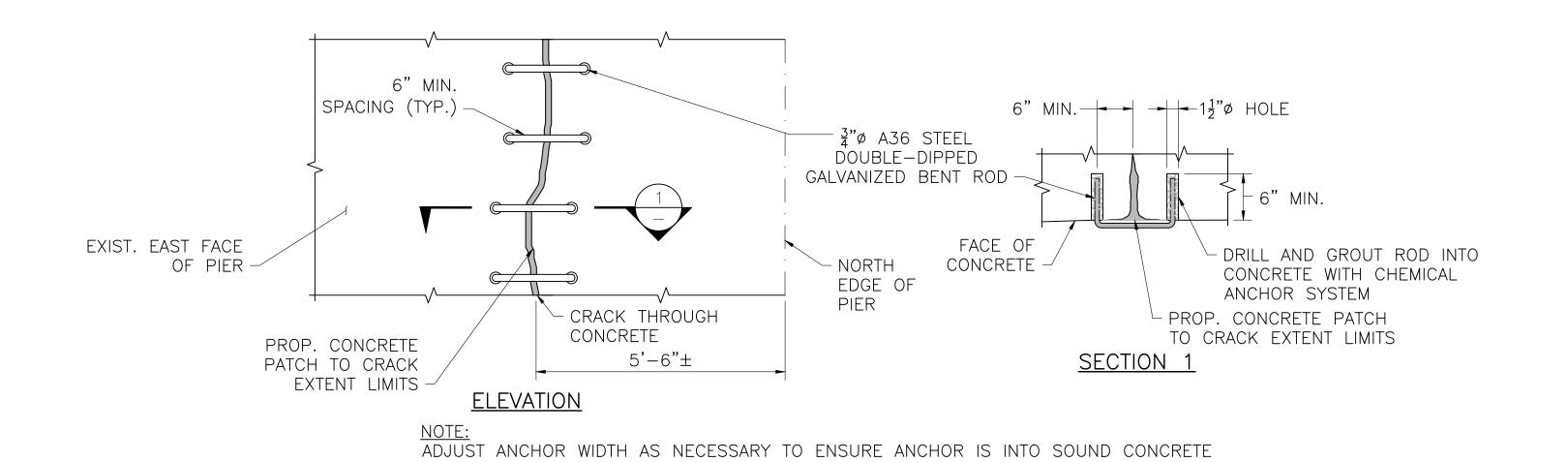
DRILL AND GROUT #5

DOWELS, 12" LONG,

CENTERED ON PIER (TYP.)

24'-2"±

PIER VOID REPAIR DETAIL
SCALE: N.T.S.



PIER DRILL AND GROUT CRACK REPAIR DETAIL SCALE: N.T.S.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35
5/4/2023
DISTRICT 5 BRIDGE ENGINEER DATE

SHEET 5 OF 12 SHEETS BRIDGE NO. A-01-010 (AJQ)

2-21-2023

Submittal (S#)

<u>MATERIALS</u>

EXIST. FACE PIER

-EXIST. FACE OF EAST ABUT.

EXIST. SOUTH FASCIA & FACE OF WINGWALL

PROP. RIPRAP

1. SEE SPECIAL PROVISIONS FOR GROUT AND GROUT BAGS. GROUT SHALL CONTAIN ANTI-WASHOUT ADMIXTURE.

2. RIPRAP SHALL MEET THE REQUIREMENTS OF DUMPED RIPRAP

3. STONE FOR EROSION CONTROL SHALL BE ROUNDED COBBLE STONE AND SHALL MEET THE NATURAL D50 STONE SIZE OF EXISTING STREAM BED.

SUGGESTED SEQUENCE OF SCOUR REPAIR

- 1. CONSTRUCT SANDBAG COFFERDAM UPSTREAM AND DOWNSTREAM OF CULVERT AS A CONTROL OF WATER SYSTEM TO TEMPORARILY DIVERT FLOW TO THE ADJACENT STRUCTURE DURING CONSTRUCTION.
- 2. THE STREAMBED SHALL BE EXCAVATED TO THE LIMITS SHOWN IN THE DETAILS.
- CONSTRUCT DEWATERING BASIN SUCH THAT SEDIMENTS DO NOT ENTER WATERWAY.
- 4. PLACE GEOTEXTILE FABRIC FOR SEPARATION AND CRUSHED STONE PER DETAILS SHOWN.
- INSTALL GROUT BAGS TO LIMITS SHOWN WHICH ENCOMPASS THE UNDERMINED AREA.
- 6. PLACE GROUT AT UNDERMINED AREAS. SEE PROPOSED SCOUR REPAIR AND COUNTERMEASURE DETAIL.
- 7. INSTALL RIPRAP.8. INSTALL COBBLESTONE OVER RIPRAP AND GROUT BAGS.

- CONSTRUCTION NOTES

 1. CONTRACTOR SHALL PERFORM ALL PROPOSED WORK IN COMPLIANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE ABINGTON CONSERVATION COMMISSION.
- 2. CONTRACTOR SHALL DISPOSE OF ANY UNSUITABLE OR EXCESS EARTH MATERIAL. EXCAVATE FROM THE SITE IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

PROPOSED SCOUR REPAIR AND COUNTERMEASURE PLAN

SCALE: N.T.S.

9'-3"

5'-1"

EXIST. FACE OF WEST ABUT.

PROP. GROUT

ANTI-WASHOUT

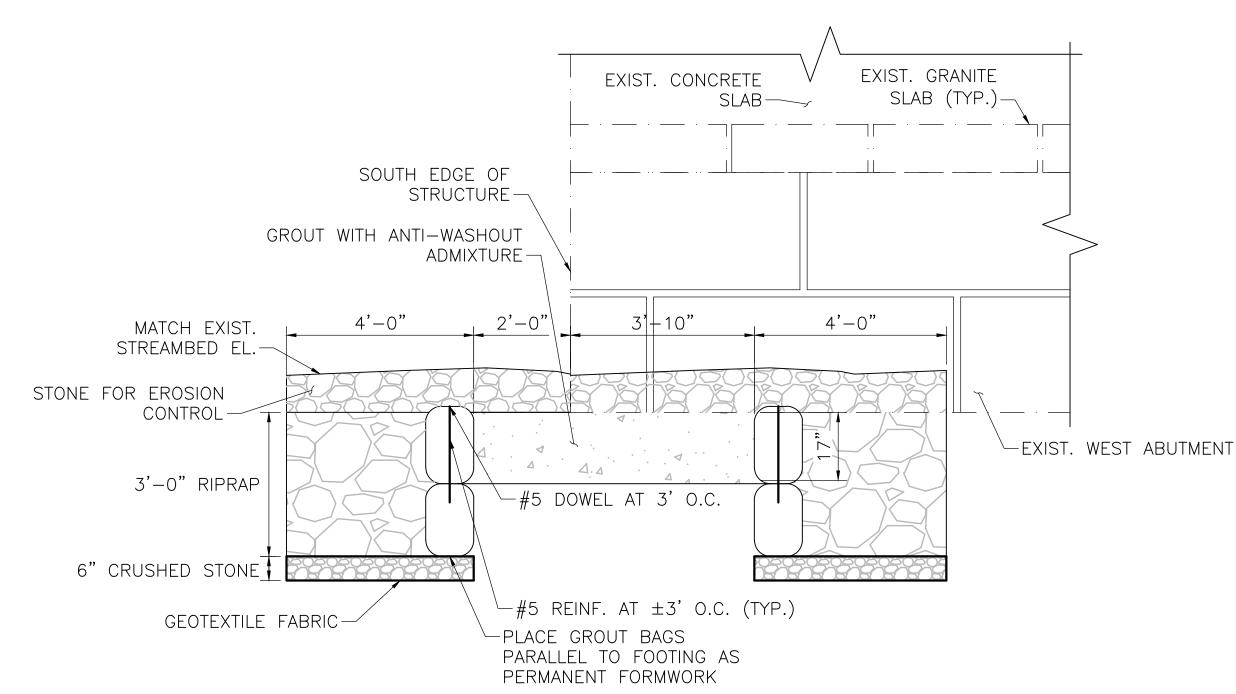
'PROP. GROUT WITH

BAGS (TYP.)-

ADMIXTURE -

3'-6"

2'-0"



PROPOSED SCOUR REPAIR AND COUNTERMEASURE DETAIL
SCALE: N.T.S.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35
5/4/2023

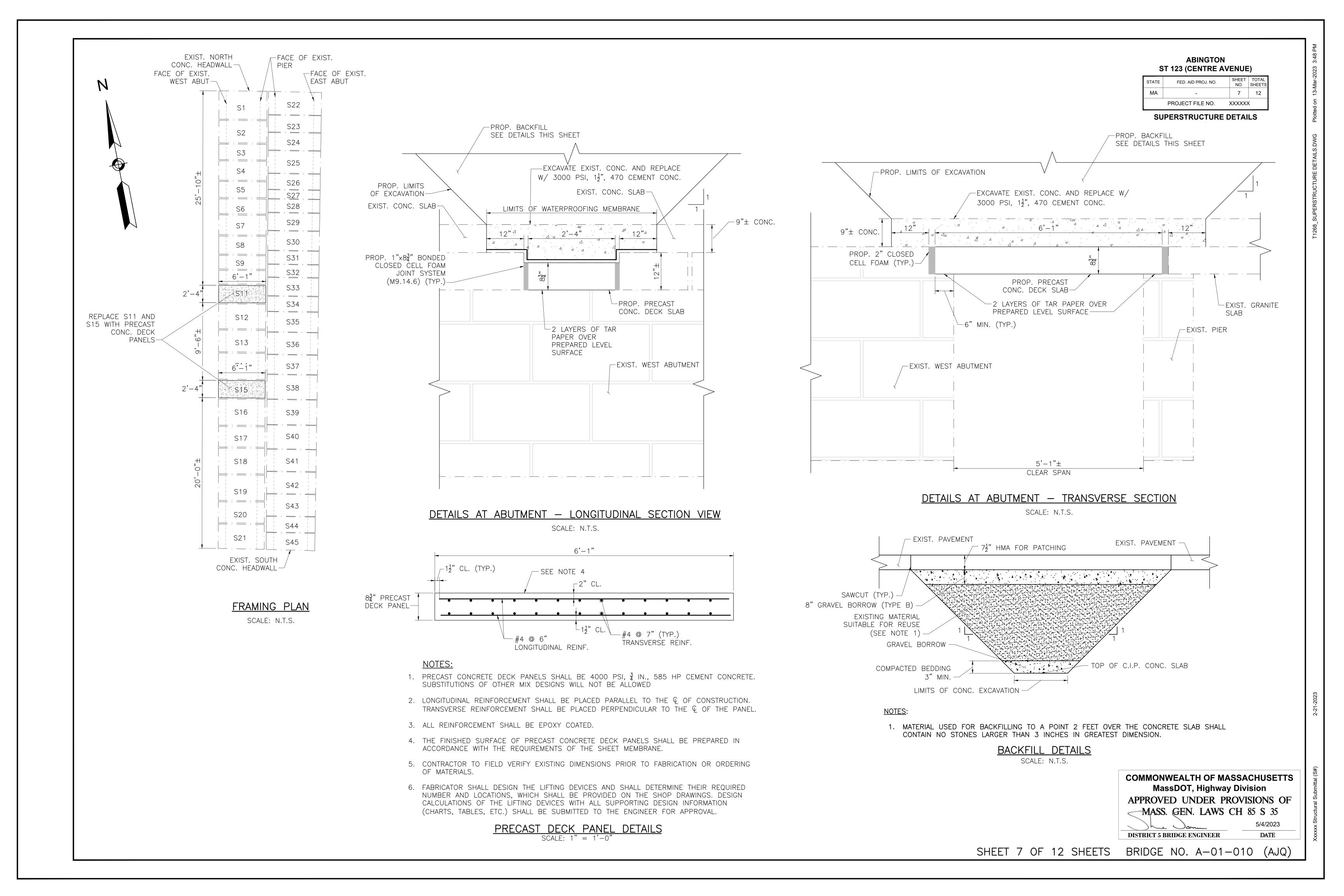
DISTRICT 5 BRIDGE ENGINEER

DATE

2-21-2023

9

nittal (S#)



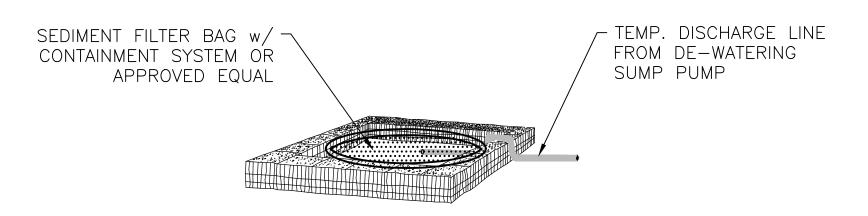
ABINGTON ST 123 (CENTRE AVENUE)

MA - 8 12 PROJECT FILE NO. XXXXXX	ГАТЕ	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
PROJECT FILE NO. XXXXXX	MA	-	8	12
		PROJECT FILE NO.	XXXXX	(

CONTROL OF WATER PLAN

CONTROL OF WATER NOTES

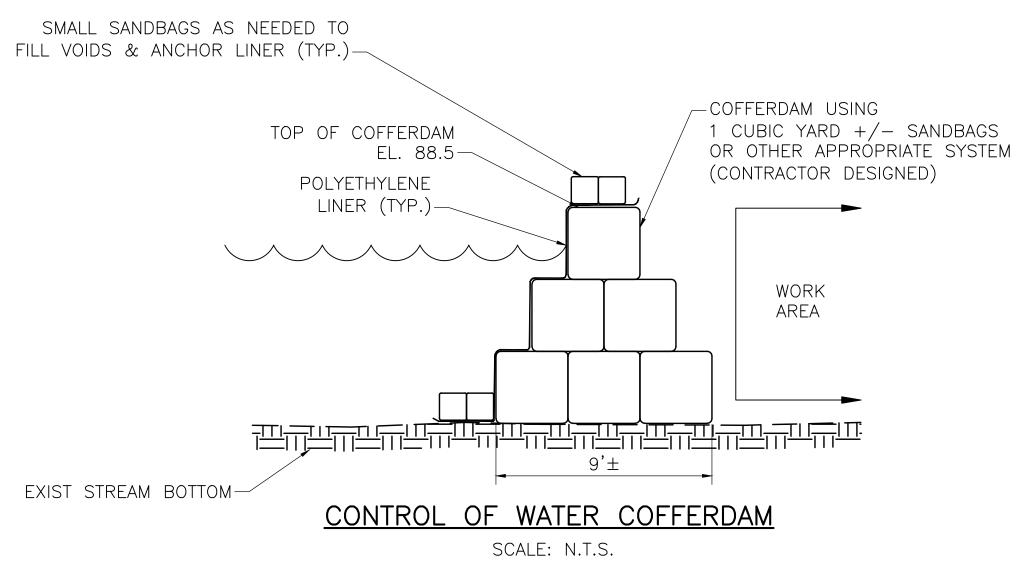
- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE CONTROL OF WATER (C.O.W.) SYSTEM AND SHALL SUBMIT A C.O.W. PLAN TO THE ENGINEER FOR APPROVAL. THE C.O.W. SYSTEM SHOWN IS CONCEPTUAL ONLY.
- 2. C.O.W. SYSTEM SHALL BE INSPECTED DAILY FOR WATER LEAKS OR EROSION AND REPAIR PROCEDURES SHALL BE IMPLEMENTED ACCORDINGLY.
- 3. THE CONSTRUCTION SEQUENCE WITH REGARDS TO THE C.O.W. SYSTEM SHALL BE AS FOLLOWS:
- 3.1. INSTALL EROSION CONTROLS: TEMPORARY EROSION CONTROL AROUND THE PROJECT LIMITS TO PROTECT THE SHUMATUSCACANT RIVER FROM WORK ZONE SEDIMENT; FLOATING SILT FENCE IN THE SHUMATUSCACANT RIVER DOWNSTREAM OF THE PROJECT LIMITS TO TRAP ANY FLOATING DEBRIS/SILT THAT MAY ENTER THE RIVER.
- 3.2. INSTALL C.O.W. SANDBAGS, DEWATERING PUMPS, AND TEMPORARY STILLING BASIN. DEWATER THE WORK AREA PRIOR TO (AND THROUGHOUT) EXCAVATION TO FACILITATE INSTALLING GROUT AND RIPRAP IN THE DRY CONDITION. ALL DEWATERING FLOW SHALL PASS THROUGH THE STILLING BASIN TO REMOVE SEDIMENT PRIOR TO DEPOSITING BACK INTO THE RIVER.
- 3.3. PERFORM SUBSTRUCTURE AND SUPERSTRUCTURE REPAIRS.
- 3.4. REDIRECT STREAM FLOW THROUGH THE CULVERT.
- 3.5. REMOVE THE C.O.W. SANDBAGS, DEWATERING PUMPS, AND TEMPORARY STILLING BASIN.



DISCHARGE TO SEDIMENTATION BASIN (AS SHOWN) OR TO SILTATION/ DEWATERING BAG SUCH AS FLOGARD DEWATERING BAG MODEL SC-DW1215Z, OR APPROVED EQUAL BY ABINGTON CONSERVATION COMMISSION. SYSTEM SHOWN IS CONCEPTUAL ONLY AND IS TO BE DESIGNED BY CONTRACTOR.

TEMPORARY STILLING AREA

SCALE: N.T.S.



-WATER TO BE REDIRECTED INTO - SPILLWAY DURING SUBSTRUCTURE AND SUPERSTRUCTURE REPAIRS

CENTRE AVE B

TEMP. WORKZONE FOR DEWATERING PUMP

WF#BA200

PROP. SEDIMENT

CONTROL BARRIER (TYP.

(PUMP INTO STILLING BASIN)

EXIST. PIER-

FACE OF EXIST. ABUTMENT

SHUMATUSCACANT RIVER 是-

SILT FENCE, L=12'

CONC. WALI PROP. TEMP. FLOATING

TEMP. RIPRAP FOR DISCHARGE

TEMPORARY SANDBAG

SUBSTRUCTURE REPAIRS

_COFFERDAM FOR

-SHUMATUSCACANT RIVER ₽ STA. 10+50.00=

(PUMP INTO STILLING BASIN)

TEMPORARY SANDBAG

SUBSTRUCTURE REPAIRS

COFFERDAM FOR

CONTROL OF WATER PLAN

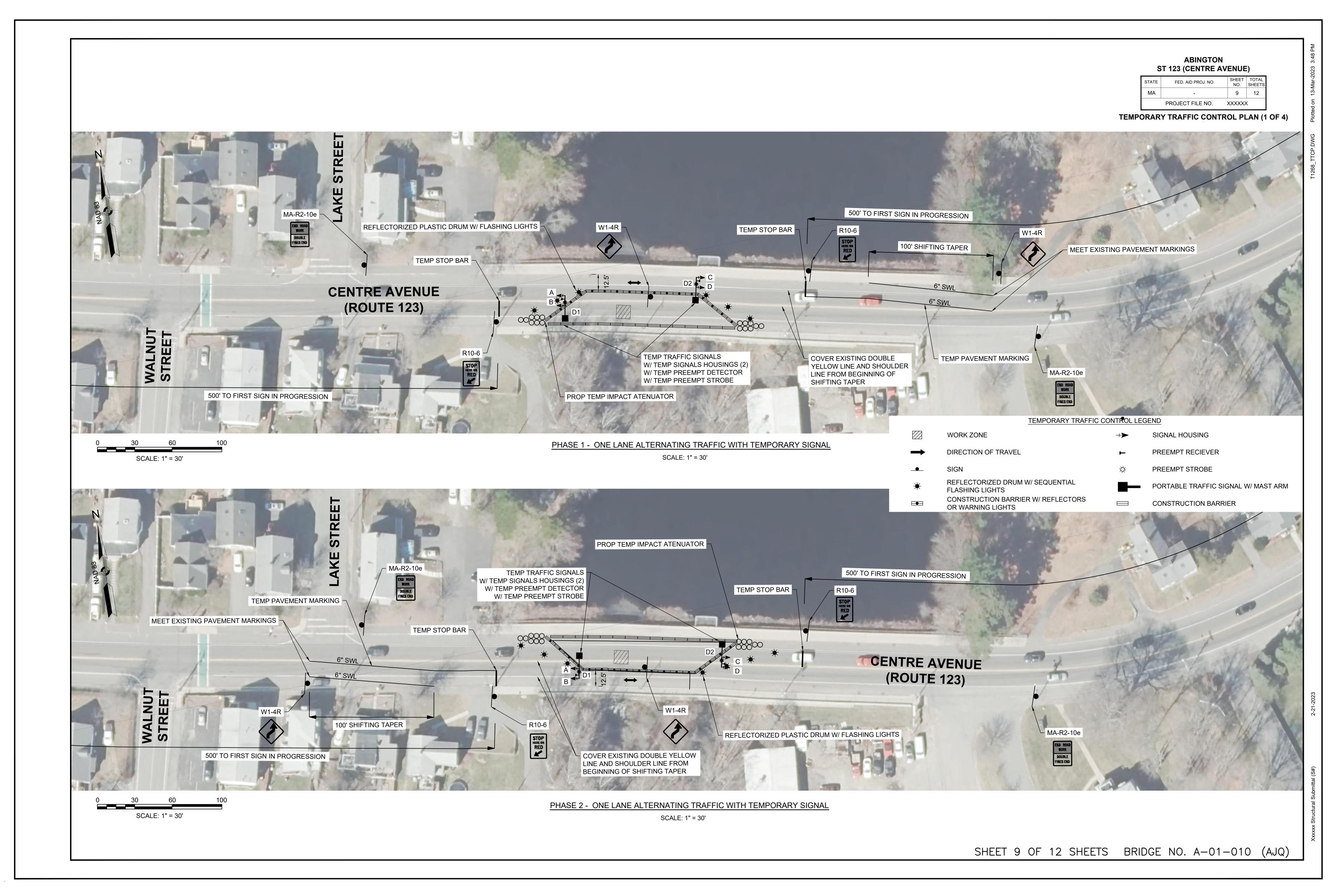
SCALE: 1" = 10'

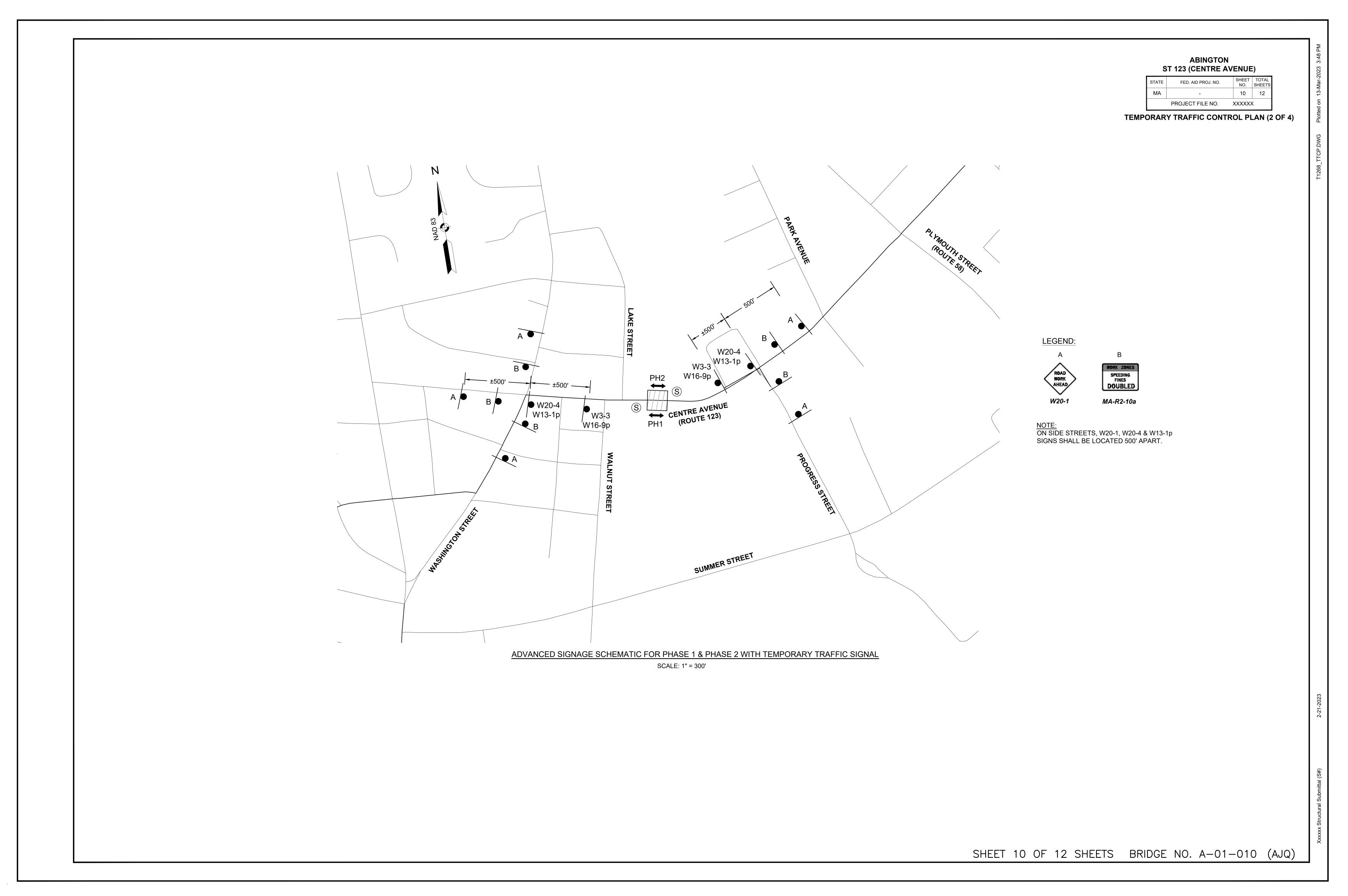
TEMP. WORKZONE FOR DEWATERING PUMP

WF#BA29/7

CENTRE AVE & STA. 51+00.00

SHEET 8 OF 12 SHEETS BRIDGE NO. A-01-010 (AJQ)

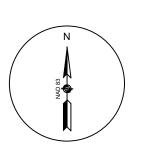




TEMPORARY TRAFFIC SIGNAL CONTROL

TEMPO	RARY TRAFFIC	SIGNAL T	IMING	AND	PHAS	SING	_		
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	
MINIMUM INTERVAL			20			20			
VEHICLE EXTENSION			0			0			
MAXIMUM 1			20			20			
MAXIMUM 2			-			-			
YELLOW CLEARANCE				4.0			4.0		
RED CLEARANCE					4.5			4.5	
CENTRE STREET	EB	A,B	G	Υ	R	R	R	R	
CENTRE STREET	WB	C,D	R	R	R	G	Υ	R	
DETECTOR				NONE			NONE		
RECALL			OFF			OFF			
NOTES:				Ø1			Ø2		

1. MAXIMUM 1 = NORMAL OPERATION



·		 -

PREEMPTION PHASING & PRIORITY								
DETECTOR	PREEMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT					
D1	1	<u> </u>	Ø1					
D2	2	-	Ø2					

	BRIDGE A-01-010					
LIST OF MAJOR TRAFFIC SIGNAL ITEMS REQUIRED						
QUANTITY	DESCRIPTION					
2	PORTABLE TRAFFIC SIGNAL ASSEMBLIES (INTERNAL RADIO INTERCONNECT)					
2	EMERGENCY VEHICLE PREEMPTION CONFIRMATION STROBE ADD-ON					
2	EMERGENCY VEHICLE PREEMPTION DETECTOR ADD-ON					

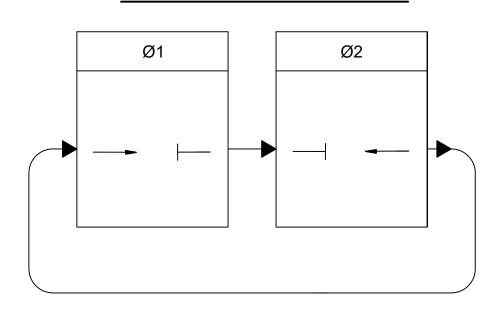
EMERGENCY VEHICLE PRE-EMPTION NOTES:

- 1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
- 2. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVE BASIS.
- 3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE ØA (OR ØB) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (AS NOTED IN CHART) AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
- 4. NORMAL CLEARANCE INTERVALS SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- 5. ONCE PRE-EMPTION PHASING HAS CLEARED, THE SYSTEM SHALL RESTART NORMAL OPERATIONS ACCORDING TO THE PREFERENTIAL PHASE SEQUENCE.
- 6. CONFIRMATION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.

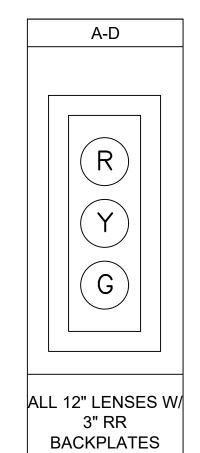
CONSTRUCTION NOTES:

- 1. RELOCATE PORTABLE SIGNAL FROM CURRENT WORK ZONE SET-UP TO REVISED LOCATIONS.
- 2. LOCATION OF PORTABLE TRAFFIC SIGNAL ASSEMBLY MUST BE AT LEAST 40 FEET BEYOND TEMPORARY STOP LINE TO ALLOW FOR VISIBILITY REQUIREMENTS OF THE MUTCD.
- 3. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING PORTABLE TRAFFIC SIGNAL LIGHT OUTPUT ON REGULAR BASIS.

PREFERENTIAL PHASE SEQUENCE



TEMPORARY TRAFFIC SIGNAL HEADS



ABINGTON ST 123 (CENTRE AVENUE)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	12
	PROJECT FILE NO.	XXXXX	<

TEMPORARY TRAFFIC CONTROL PLAN (4 OF 4)

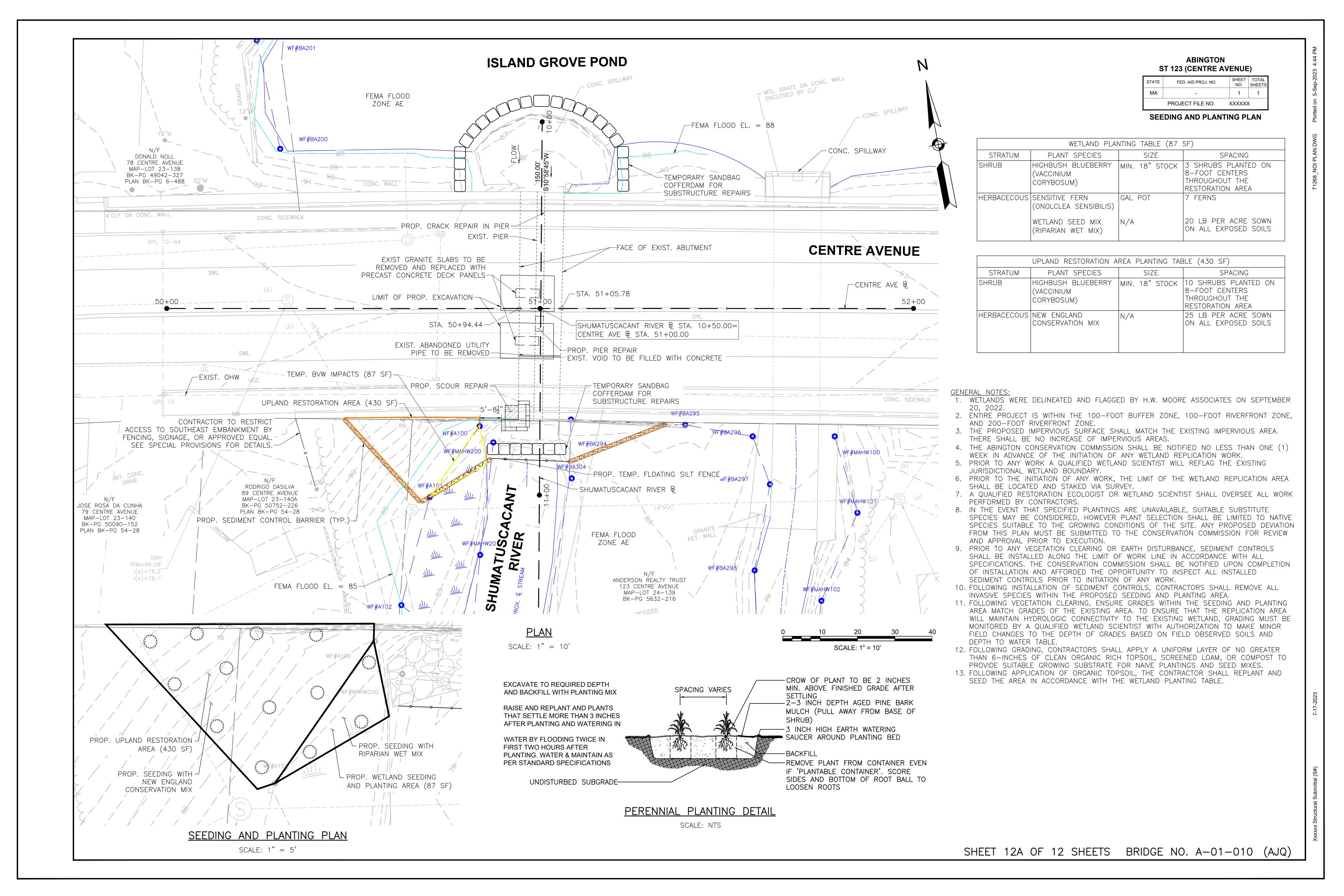
				TRA	AFFIC SIGN	I SUMMAF	RY - BRIDGE	B-19-010					
	SIZE OF SIGN (INCHES)		TEXT DIMENSIONS (INCHES)		NUMBER OF	COLOR			NUMBER OF	UNIT	AREA IN		
IDENTIFICATION NUMBER	WIDTH	HEIGHT	LEGEND	LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	SIGNS REQUIRED	BACKGROUND	LEGEND	BORDER	SUPPORTS REQUIRED	AREA (S.F.)	SQUARE FEET
MA-R2-10a	36	48	WORK ZONES SPEEDING FINES DOUBLED	MASSD	MASSDOT STANDARD SIGN		5	FL. ORANGE / WHITE	BLACK	BLACK	5	12.00	60.00
MA-R2-10e	48	36	END ROAD WORK DOUBLE FINES END	MASSDOT STANDARD SIGN			2	FL. ORANGE / WHITE	BLACK	BLACK	2	12.00	24.00
R10-6	24	36	STOP HERE ON RED	1		2	WHITE	BLACK	BLACK	2	6.00	12.00	
W1-4R	36	36					2	FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W3-3	36	36					2	FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W13-1p	24	24	XX MPH				2	FL. ORANGE	BLACK	BLACK	0 W/ W20-4	4.00	8.00
W16-9p	24	12	AHEAD				2	FL. ORANGE	BLACK	BLACK	0 W/ W3-3	2.00	4.00
W20-1 (AHEAD)	36	36	ROAD WORK AHEAD				5	FL. ORANGE	BLACK	BLACK	5	9.00	45.00
W20-4	36	36	ONE LANE ROAD AHEAD		¥		2	FL. ORANGE	BLACK	BLACK	2	9.00	18.00

NOTES:

1. CONTRACTOR TO FURNISH SIGNS CONSISTENT WITH 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OR LATEST EDITION). SEE MANUAL FOR TEXT AND LEGEND DIMENSIONS.

GENERAL NOTES:

- 1. ALL WORK ZONES ARE ESTABLISHED FOR 24-HOURS A DAY . TEMPORARY CONSTRUCTION SIGNAGE, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC OR DURING NON-WORKING HOURS.
- 2. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES, AND OTHER DEVICES SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
- 3. TEMPORARY CONSTRUCTION BARRIER ALONG THE TRAVEL LANE AND WITHIN TAPERS SHALL BE TL-3 WITH LIMITED DEFLECTION. BARRIER ALONG THE EDGE OF SIDEWALK SHALL BE TL-3.
- 4. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE M.U.T.C.D. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- 5. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS AT THE DISCRETION OF THE ENGINEER.
- 6. SIGN DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- 7. SIGNS AND SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)".
- 8. ALL DRUMS AND/OR CONES SHALL BE SET @ 20' O.C. MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
- 9. MINIMUM LANE WIDTH TO BE MAINTAINED AT 12.5'. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUM AND/OR BARRIER.
- 10. THE FIRST TEN (10) PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE-A SEQUENTIAL FLASHING LIGHTS.



Bridge Preservation ST 123 (Centre Avenue) over Shumatuscacant River A-01-010 (AJQ) Abington, MA 02351

APPENDIX C

RELEVANT TECHNICAL INFORMATION

- WETLAND CHARACTERIZATION REPORT (PREPARED BY H.W. MOORE)
- $\bullet \quad$ HYDRAULIC MEMORANDUM COFFERDAM (PREPARED BY BAY COLONY GROUP, INC.)



Client: TEC, Bob Niccoli, PE

Project #: 26509

Address: Centre Avenue, Abington MA

Date: October 10th, 2022

Bordering Vegetated Wetland (BVW), Inland Bank associated with a Pond and MAHW associated with a mapped USGS perennial stream were field delineated by a Wetland Professional in Training Scientist (WPIT®) on September 20th, 2022, in accordance with MassDEP wetland delineation standards.

Bordering Vegetated Wetlands (BVW)

In accordance with the MA WPA implementing regulations set forth under 310 CMR 10.55 and the utilization of the methodology described within (1) "BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology," issued March 1, 1995; and (2) "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A handbook," produced by the Massachusetts Department of Environmental Protection, date March 1995., Hancock Associates staff delineated the following Bordering Vegetated Wetlands (BVW), which are defined under 310 CMR 10.55(2)(a) as, "freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps, and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants". The limit of BVW is further defined as "the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. Wetland indicator plants shall include but not necessarily be limited to those plant species identified in the Act. Wetland indicator plants are also those classified in the indicator categories of Facultative, Facultative+, Facultative Wetland-, Facultative Wetland, Facultative Wetland+, or Obligate Wetland in the National List of Plant Species That Occur in Wetlands: Massachusetts (Fish & Wildlife Services, U.S. Department of the Interior, 1988) or Plants Exhibiting Physiological or Morphological Adaptations to Life in the Saturated or Inundated Conditions".

BVW was delineated to the extent that it would broadcast associated buffer zone toward the limits of proposed work on the property. The delineation was based on observations of where vegetative species composition transitions from dominance of wetland indicator species, to dominance of upland indicator species. Other notable characteristics were the presence of a perennial stream that had flow downslope to the BVW complex and mucky, saturated soils.

BVW was delineated with one (1) flag series, identified as Series A as follows:

A-series Wetland

The A series wetland is a BVW located adjacent to the residential home and the downslope Riverfront Area which broadcasts associated buffer zones and setback zones in accordance with the Abington Wetlands Bylaw/Ordinance. The limit of BVW associated with the A-series wetland was demarcated with a single series of four (4) wetland flags labeled A (100 through 103E).



Inland Bank

Inland Bank associated with Island Grove Pond, located in Abington, Massachusetts was also delineated during the inspection. Inland Bank was located in the field by the first observable break in topography between the water body and upland. No evidence of riverine characteristics was noted along the unnamed pond bank during the inspection (i.e., no discernible direction of flow, no evidence of scour, etc.).

BA Series

The BA series wetland is an inland bank series located within the existing BVW and connects across Centre Avenue by a culvert crossing, which broadcasts associated buffer zones and setback zones in accordance with the Abington Wetlands Bylaw/Ordinance. The limit of Inland Bank associated with the BA-series wetland was demarcated with a two sequences series flags labeled BA (BA100 through 103E) and (BA200 through 203E).

Because the Shumatuscacant river has two (2) culverts, there is a small island of Inland Bank (downslope to existing uplands), south of Centre Avenue and between the MAHW flag series. This Inland Bank was demarcated with eleven flags (11) labeled BA (294 through 304). Two data plots were taken and recorded at BA297 and BA301 associated with the Wetland Plot 1 and Upland Plot 1 provided to TEC herein.

Wetland indicator plant species along the bank included sensitive fern (*Onolclea sensibilis*, FACW), highbush blueberry (*Vaccinium corymbosum*, FACW), broad-leaved cat-tail (*Typha latifolia*, OBL), poison ivy (*Toxicodendron radicans*, FAC), silky dogwood (*Swida amomum*, FACW) and red maple (*Acer rubrum*, FAC) are all dominant.

On the up-gradient side of the bank flags, upland species such as black oak (*Quercus velutina*, UPL), eastern white pine (*Pinus strobus*, FACU), northern red oak (*Quercus rubra*, FACU) and norway maple (*Acer platanoides*, UPL) become dominant species. The pond embankment was met with a man-made concrete retaining wall, disturbed paved driveway and roadway with bituminous concrete. On both ends of the flag series were retaining walls and roadway with culverts in the middle section that connected to the Shumatuscacant River (perennial stream) and BVW across Centre Avenue.

Noted during the field delineation was the presence of hydrologic flow moving through the culverts into the stream channel and through the existing BVW complexes. Upland soils consisted of urban fill along the roadway and embankment.

Shumatuscacant River - Riverfront (310 CMR 10.58)

In accordance with the MA WPA implementing regulations set forth under 310 CMR 10.58 and the utilization of the methodology described within (1) "BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology," issued March 1, 1995; and (2) "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A handbook," produced by the Massachusetts Department of Environmental Protection, date March 1995., Hancock Associates staff delineated the following Riverfront which are defined under 310 CMR



10.58(2)(a) as "Riverfront Area is the area of land between a river's mean annual high water line and a parallel line measured horizontally. The riverfront area may include or overlap other resource areas or their buffer zones. The riverfront area does not have a buffer zone." Because this existing Riverfront flows through to a pond, "the Riverfront Area stops at the inlet and begins again at the outlet. A water body identified as a lake, pond, or reservoir on the current USGS. map or more recent map provided by the Department, is a lake or pond, unless the issuing authority determines that the water body has primarily riverine characteristics. When a water body is not identified as a lake, pond, or reservoir on the current USGS. map or more recent map provided by the Department, the water body is a river if it has primarily riverine characteristics. Riverine characteristics may include, but are not limited to, unidirectional flow that can be visually observed or measured in the field. In addition, rivers are characterized by horizontal zonation as opposed to the vertical stratification that is typically associated with lakes and ponds. Great Ponds (i.e., any pond which contained more than ten acres in its natural state, as calculated based on the surface area of lands lying below the natural high-water mark; a list is available from the Department) are never rivers.

The Riverfront Area is the area of land between a river's mean annual high-water (MAHW) line measured horizontally outward from the river and a parallel line located 200 feet away in Abington, Massachusetts.

MAHW was delineated to the extent that it would broadcast associated 200-foot riverfront area toward the limits of proposed work on the property. The delineation was based on observations of hydrology and where vegetative species composition transitions from dominance of wetland indicator species, to dominance of upland indicator species.

Riverfront was delineated with two (2) flag series, identified as, MAHW 100-Series and 200-Series as follows:

MAHW 100 Series

The 100-series, runs southeast and is bound by a storage building utilized for industrial purposes south of Centre Avenue. The notable direction of flow was running north to south. This delineation is associated with the existing USGS Mapped Perennial stream (Shumatuscacant River), which broadcasts associated buffer zones and setback zones in accordance with the MA WPA, Riverfront Area (10.58), and Abington Bylaw/Ordinance. The limit of MAHW associated with the existing perennial stream was demarcated with a single series of four (4) flags labeled MAHW (100 through 103E).

MAHW 200 Series

The 200-series runs parallel to the 100-series just west and is bound by a residential property. The limit of MAHW associated with the perennial stream was demarcated with a single series of five (5) wetland flags labeled MAHW (200 through 204E), where the terminal flags meet at a confluence.

Bank full Width



The edge of the bankfull channel typically corresponds to the start of the floodplain. A floodplain receives floodwaters in most years but is vegetated by perennial plants and trees. This vegetation often reflects repeated flow-related disturbance and may not support mature trees. Field determination of the bankfull channel edge of streams rely on where the substrate is dominated by boulders or bedrock or where the channel is tightly confined, a distinct floodplain may not exist. In these situations, you will have to rely on secondary indicators, such as vegetation or other evidence of flood flows to determine the bankfull width. These indicators may include:

- A change in vegetation from bare surfaces or annual water-tolerant species to perennial upland or water-tolerant shrubs and trees;
- Bare areas associated with scour around woody debris or other obstructions.
- The top of point bars; or
- The lowest elevation at which fine organic debris is caught on brush or trees

Between the Inland bank and MAHW flags have the following measurements from the field, but should be confirmed during field topographic land surveying services.

- 13.5' at BA297/ Depth 2"
- 15.10" at BA298 and next to MAHW102 / Depth 4"
- 11.3' at BA299 / Depth 3.7"
- 11.8' at MAHW103 and next to BA300/ Depth 2.2"
- 11' at BA301 / Depth 6.5"
- 10.8' at BA302 and MAHW203 / Depth 4.1"
- 22.1' at MAHW202 and BA303 / Depth 3.5"
- 20.4" at MAHW201 / Depth 3.1"
- 22.7' at BA304 / Depth 10"

After field evaluations and desktop analysis was conducted, it was determined that the existing Inland Bank associated with the Island Grove Pond (north of Centre Avenue) did not give a proper centerline to take bank full width stage evaluation from.

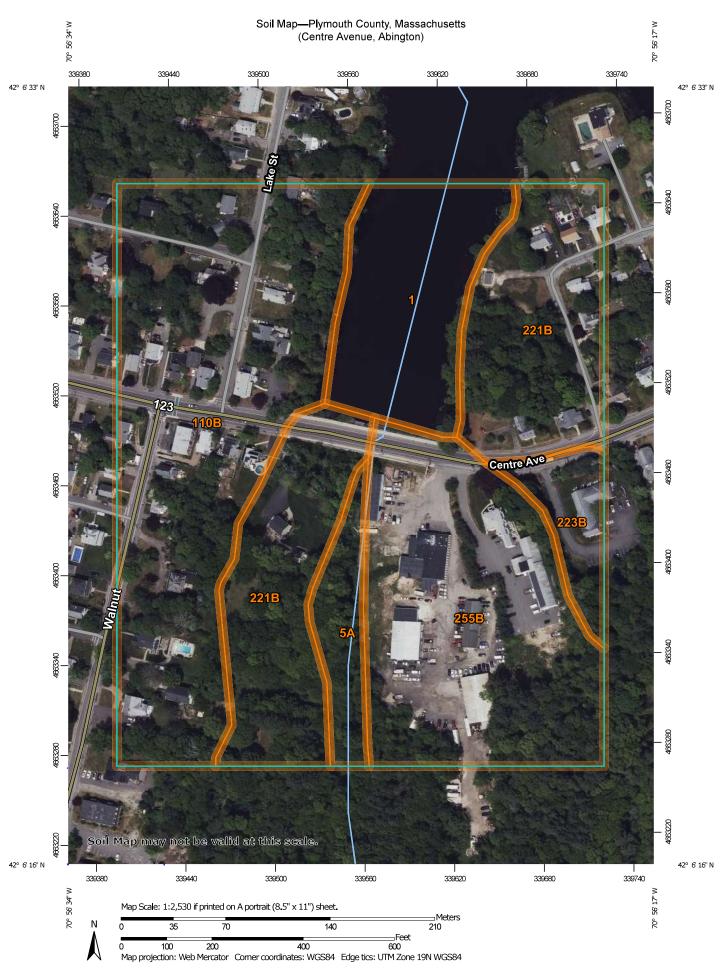
As requested, one (1) set of data forms have been filled out accordingly and attached to this report.

If you have any questions regarding the delineation, please contact me at dmorse@hancockassociates.com or 978-777-3050 ext. 413.

Devon Morse, WPIT
Project Manager/Wetland Scientist
Hancock Associates

Attachments:

A - Data Forms



MAP LEGEND

Very Stony Spot Stony Spot Spoil Area Wet Spot Other W 8 Soil Map Unit Polygons Area of Interest (AOI) Soil Map Unit Points Soil Map Unit Lines Special Point Features Area of Interest (AOI) Blowout Soils















Closed Depression

Borrow Pit

Clay Spot



Gravelly Spot

Gravel Pit







Marsh or swamp

Lava Flow

Landfill

Aerial Photography

Mine or Quarry

Miscellaneous Water

Perennial Water Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot Sinkhole

Sodic Spot

Slide or Slip

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000

Warning: Soil Map may not be valid at this scale.

contrasting soils that could have been shown at a more detailed Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of

Please rely on the bar scale on each map sheet for map measurements Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator distance and area. A projection that preserves area, such as the projection, which preserves direction and shape but distorts Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Plymouth County, Massachusetts Survey Area Data: Version 15, Sep 9, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. Date(s) aerial images were photographed: May 22, 2022—Jun

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	3.6	11.5%
5A	Saco mucky silt loam, frequently ponded, 0 to 3 percent slopes, frequently flooded	1.3	4.0%
110B	Canton-Chatfield-Rock outcrop complex, 0 to 8 percent slopes, very stony	10.5	33.3%
221B	Eldridge fine sandy loam, 3 to 8 percent slopes	7.6	24.2%
223B	Scio very fine sandy loam, 3 to 8 percent slopes	1.1	3.6%
255B	Windsor loamy sand, 3 to 8 percent slopes	7.4	23.4%
Totals for Area of Interest		31.5	100.0%

MassDEP Field Data Form and Instructions

vegetation alone or by vegetation and other indicators of wetland hydrology. Note: if detailed vegetative assessment is not necessary for the site, make a note on the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40) and regulations (310 CMR 10.55). It should be used whether the boundary is delineated by delineating a BVW boundary and the terminology used in this field data form are described in the handbook, Delineating Bordering Vegetated Wetlands Under the The Department of Environmental Protection's field data form should be used when delineating the boundary of a Bordering Vegetated Wetland (BVW) under the data form and submit it. The field data form should be submitted with a Request for Determination of Applicability or a Notice of Intent. Details on the criteria for Massachusetts Wetlands Protection Act (MA Department of Environmental Protection, Division of Wetlands and Waterways, 1995).

NSTRUCTIONS

and submit the document. If vegetation and other indicators of hydrology are used to delineate the BVW boundary, mark the second box, complete Sections I and II of The data form includes a section on project identification, including the applicant's name, the name of the person performing the delineation, project location, and the MassDEP file number, if available. If vegetation alone is presumed adequate to delineate the BVW boundary, mark the first box, complete Section I of the data form, information gathered for that method should be recorded on the form. If a method other than the dominance test is used, mark the third box and explain the method the form, and submit the document. MassDEP has selected the dominance test as the preferred method of vegetation analysis at sample plot locations. The and why it was used.

Section I: Vegetation

Section I should be used to record information about the vegetation within an observation plot and on a transect used to delineate the BVW boundary. Note the date of the delineation. Submit a separate data form for each observation plot. Attach supplemental sheets if more space is needed.

A. Sample Layer and Plant Species

Record each plant species using common and scientific names for the following layers:

Ground Cover: woody vegetation less than 3 feet in height (seedlings), non-climbing woody vines less than 3 feet in height, and non-woody vegetation (including Saplings: woody vegetation over 20 feet in height with a diameter at breast height (dbh) greater than or equal to 0.4 inches to less than 5 inches within a 15-foot mosses) of any height within a 5-foot radius plot; Shrubs: woody vegetation between 3 feet and 20 feet in height within a 15-foot radius plot;

radius plot; (note: dbh is measured 4.5 feet from the ground);

Climbing woody vines: woody vines that are attached, rooted, or climbing on trees, saplings, or shrubs within a 30-foot radius plot; and Trees: woody vegetation with a dbh of 5 inches or greater and over 20 feet in height within a 30-foot radius plot.

If you do not recognize a plant species or do not know a plant's name, call it a generic name. Unknown plants need to be identified only if they are determined to be dominant plants. In that case, a plant identification book or key may be used to determine the species.

B. Percent Cover

Determine percent cover (or basal area for trees) for each plant species in each layer by visual analysis or measurement. (See handbook for information about determining percent cover, page 12.)

C. Percent Dominance

Determine percent dominance for each plant species by dividing the percent cover or basal area for each plant species by the total percent cover or basal area for the layer. (See handbook for information about the dominance test, pages 15-19.)

D. Dominant Plants

- Identify the dominant plants. Dominant plants are:
- plants with a percent dominance of 50 percent or greater, or plants whose percent dominance add up to immediately exceed 50 percent; plants with a percent dominance of 20 percent or greater;
- plants with a percent dominance equal to a plant already listed as a dominant species.
- 2. Determine common and scientific names for any unknown plants identified as dominant plants.

E. Wetland Indicator Category

- 1. Identify the Wetland Indicator Category for all dominant plant species using the National List of Plant Species That Occur in Wetlands: Massachusetts.
 - 2. Use an asterisk to mark the wetland indicator plants. Wetland indicator plants are any of the following:
 - plant species listed in the Wetlands Protection Act;
- plants in the genus Sphagnum;
- plants listed as Facultative (FAC), Facultative+ (FAC+), Facultative Wetland(FACW-), Facultative Wetland (FACW), Facultative Wetland+ (FACW+) or Obligate (OBL);
- plants with morphological or physiological adaptations (such as buttressed or
- fluted trunks, shallow roots, or adventitious roots).

If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk (e.g. White pine, Pinus strobus, FacU*/shallow roots, buttressed trunks).

Vegetation Conclusion

List the number of dominant wetland indicator plants and the number of dominant non-wetland indicator plants is equal to or greater than the number of non-wetland indicator plants, and vegetation alone is presumed adequate for the delineation, the plot is located in a BVW. If vegetation alone has been chosen for the delineation at this site, complete only Section I and submit the form with a Request for Determination of Applicability or Notice of Intent. Otherwise, continue the delineation process and record information for Section II on the second page of the form.

Section II: Indicators of Hydrology

Section II should be used to record information on indicators of hydrology in those areas where vegetation alone is not presumed adequate to delineate the BVW boundary, or to overcome the presumption that vegetation alone is adequate.

Hydric Soil Interpretation

- 1. Soil Survey: Record information about the site from the Soil Survey Report prepared by the U.S. Natural Resources Conservation Service (NRCS) formerly called the Soil Conservation Service.
- 2. Soil Description: Record information based on observations at a soil test hole located within the vegetation observation plot. Describe the soil profile of each soil horizon, noting the depth. Identify the matrix and mottles colors by hue, value, and chroma (information from Munsell Soil Color Charts). For example, 10YR 5/2. Notes on soil texture and other soil characteristics may be recorded in the Remarks section.
 - 3. Other: note any additional information used to determine if hydric soil is present, such as regional field indicator guides.

Conclusion: Indicate whether the soil is hydric based on information observed in the field. (See list of Hydric Soil Indicators in the handbook, page 29.)

Other Indicators of Hydrology

Record observations of other indicators of hydrology. Check and describe all that apply. Due to their seasonal or temporal nature, these other indicators generally are used in conjunction with vegetation and soils to determine the location of the BVW boundary.

Vegetation and Hydrology Conclusion

Defermine if the observation plot is in a BVW. The observation plot is in a BVW if the number of dominant wetland indicator plants is equal to or greater than the number of dominant non-wetland indicator plants, and if hydric soil or other indicators of hydrology are present.

For an observation plot located in a disturbed area, any one of the three indicators is sufficient to determine that the sample location is in a BVW. In that case, make a note on the form about that conclusion.

Submit the completed form with a Request for Determination of Applicability or a Notice of Intent.

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: **TEC** Pr Check all that apply:

Prepared by: Devon Morse, WPIT

Project location: Centre Avenue, Abington

DEP File #: N/A

Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only

Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot N	Observation Plot Number: UPL Plot 1	Transect Number: BA297	Date of Delineation: September 20 th , 2022
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Vine poison ivy (<i>Toxicodendron radicans</i>) virginia creeper (<i>Parthenocissus quinquefolia</i>)	38.0	20% 20%	YES	FAC*
Shrub chinese privet (Ligustrum sinense) burning bush (Euonymus alatus) japanese barberry (Berberis thunbergii) asiatic bittersweet (Celastrus orbiculatus)	3.0 3.0 20.5 10.5	8.1% 8.1% 55.4% 28.3%	NO NO YES YES	FACU NI FACU UPL
Tree american elm (Ulmus americana) eastern white pine (Pinus strobus) little leaf basswood (Tilia cordata) red maple (Acer rubrum) black locust (Robinia pseudoacacia)	3.0 10.5 10.5 3.0	7% 26% 26% 13%	NO YES YES NO	FACW* NI FAC* FACU

^{*} Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2 total

Number of dominant non-wetland indicator plants: 4 total

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Section II. Indicators of Hydrology

Other Indicators of Hydrology: (check all that apply & describe)

Depth to soil saturation in observation hole:

Water marks:

Drift lines:

Depth to free water in observation hole:

Site Inundated: No

Hydric Soil Interpretation

1. Soil Survey

2 Is there a published soil survey for this site? yes title/date: Plymouth County, Massachusetts

map number: MA023

soil type mapped: 221B—Eldridge fine sandy loam, 3 to 8 percent

slopes

hydric soil inclusions: Squamscott

Are field observations consistent with soil survey? yes no

Drainage patterns in BVW:

Sediment Deposits:

Oxidized rhizospheres:

Water-stained leaves:

Remarks: Soils were characterized as urban fill (along roadside)

2. Soil Description

Depth Matrix Color 2-0" 0-4" 10YR 3/2 4-6" Horizon

Mottles Color

Recorded Data (streams, lake, or tidal gauge; aerial photo; other):

Other:

Remarks:

Refusal at 6". Change in sediment texture at 4" to course gravel

3. Other:

Conclusion: Is soil hydric? yes no

Vegetation and Hydrology Conclusion	Yes	°Z
Number of wetland indicator plants		×
Hydric soil present		×
Other indicators of hydrology present		×
Sample location is in a BVW		×
Submit this form with the Request for Determination of Applicability or Notice of Intent.	y or Notice of Intent.	

MassDEP Field Data Form and Instructions

vegetation alone or by vegetation and other indicators of wetland hydrology. Note: if detailed vegetative assessment is not necessary for the site, make a note on the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40) and regulations (310 CMR 10.55). It should be used whether the boundary is delineated by delineating a BVW boundary and the terminology used in this field data form are described in the handbook, Delineating Bordering Vegetated Wetlands Under the The Department of Environmental Protection's field data form should be used when delineating the boundary of a Bordering Vegetated Wetland (BVW) under the data form and submit it. The field data form should be submitted with a Request for Determination of Applicability or a Notice of Intent. Details on the criteria for Massachusetts Wetlands Protection Act (MA Department of Environmental Protection, Division of Wetlands and Waterways, 1995).

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and submit the document. If vegetation and other indicators of hydrology are used to delineate the BVW boundary, mark the second box, complete Sections I and II of The data form includes a section on project identification, including the applicant's name, the name of the person performing the delineation, project location, and the MassDEP file number, if available. If vegetation alone is presumed adequate to delineate the BVW boundary, mark the first box, complete Section I of the data form, information gathered for that method should be recorded on the form. If a method other than the dominance test is used, mark the third box and explain the method the form, and submit the document. MassDEP has selected the dominance test as the preferred method of vegetation analysis at sample plot locations. The and why it was used.

Section I: Vegetation

Section I should be used to record information about the vegetation within an observation plot and on a transect used to delineate the BVW boundary. Note the date of the delineation. Submit a separate data form for each observation plot. Attach supplemental sheets if more space is needed.

A. Sample Layer and Plant Species

Record each plant species using common and scientific names for the following layers:

Ground Cover: woody vegetation less than 3 feet in height (seedlings), non-climbing woody vines less than 3 feet in height, and non-woody vegetation (including Saplings: woody vegetation over 20 feet in height with a diameter at breast height (dbh) greater than or equal to 0.4 inches to less than 5 inches within a 15-foot mosses) of any height within a 5-foot radius plot; Shrubs: woody vegetation between 3 feet and 20 feet in height within a 15-foot radius plot;

radius plot; (note: dbh is measured 4.5 feet from the ground);

Climbing woody vines: woody vines that are attached, rooted, or climbing on trees, saplings, or shrubs within a 30-foot radius plot; and Trees: woody vegetation with a dbh of 5 inches or greater and over 20 feet in height within a 30-foot radius plot.

If you do not recognize a plant species or do not know a plant's name, call it a generic name. Unknown plants need to be identified only if they are determined to be dominant plants. In that case, a plant identification book or key may be used to determine the species.

B. Percent Cover

Determine percent cover (or basal area for trees) for each plant species in each layer by visual analysis or measurement. (See handbook for information about determining percent cover, page 12.)

C. Percent Dominance

Determine percent dominance for each plant species by dividing the percent cover or basal area for each plant species by the total percent cover or basal area for the layer. (See handbook for information about the dominance test, pages 15-19.)

D. Dominant Plants

- Identify the dominant plants. Dominant plants are:
- plants with a percent dominance of 50 percent or greater, or plants whose percent dominance add up to immediately exceed 50 percent; plants with a percent dominance of 20 percent or greater;
- plants with a percent dominance equal to a plant already listed as a dominant species.
- 2. Determine common and scientific names for any unknown plants identified as dominant plants.

E. Wetland Indicator Category

- 1. Identify the Wetland Indicator Category for all dominant plant species using the National List of Plant Species That Occur in Wetlands: Massachusetts.
 - 2. Use an asterisk to mark the wetland indicator plants. Wetland indicator plants are any of the following:
 - plant species listed in the Wetlands Protection Act;
- plants in the genus Sphagnum;
- plants listed as Facultative (FAC), Facultative+ (FAC+), Facultative Wetland(FACW-), Facultative Wetland (FACW), Facultative Wetland+ (FACW+) or Obligate (OBL);
- plants with morphological or physiological adaptations (such as buttressed or
- fluted trunks, shallow roots, or adventitious roots).

If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk (e.g. White pine, Pinus strobus, FacU*/shallow roots, buttressed trunks).

Vegetation Conclusion

List the number of dominant wetland indicator plants and the number of dominant non-wetland indicator plants is equal to or greater than the number of non-wetland indicator plants, and vegetation alone is presumed adequate for the delineation, the plot is located in a BVW. If vegetation alone has been chosen for the delineation at this site, complete only Section I and submit the form with a Request for Determination of Applicability or Notice of Intent. Otherwise, continue the delineation process and record information for Section II on the second page of the form.

Section II: Indicators of Hydrology

Section II should be used to record information on indicators of hydrology in those areas where vegetation alone is not presumed adequate to delineate the BVW boundary, or to overcome the presumption that vegetation alone is adequate.

Hydric Soil Interpretation

- 1. Soil Survey: Record information about the site from the Soil Survey Report prepared by the U.S. Natural Resources Conservation Service (NRCS) formerly called the Soil Conservation Service.
- 2. Soil Description: Record information based on observations at a soil test hole located within the vegetation observation plot. Describe the soil profile of each soil horizon, noting the depth. Identify the matrix and mottles colors by hue, value, and chroma (information from Munsell Soil Color Charts). For example, 10YR 5/2. Notes on soil texture and other soil characteristics may be recorded in the Remarks section.
 - 3. Other: note any additional information used to determine if hydric soil is present, such as regional field indicator guides.

Conclusion: Indicate whether the soil is hydric based on information observed in the field. (See list of Hydric Soil Indicators in the handbook, page 29.)

Other Indicators of Hydrology

Record observations of other indicators of hydrology. Check and describe all that apply. Due to their seasonal or temporal nature, these other indicators generally are used in conjunction with vegetation and soils to determine the location of the BVW boundary.

Vegetation and Hydrology Conclusion

Defermine if the observation plot is in a BVW. The observation plot is in a BVW if the number of dominant wetland indicator plants is equal to or greater than the number of dominant non-wetland indicator plants, and if hydric soil or other indicators of hydrology are present.

For an observation plot located in a disturbed area, any one of the three indicators is sufficient to determine that the sample location is in a BVW. In that case, make a note on the form about that conclusion.

Submit the completed form with a Request for Determination of Applicability or a Notice of Intent.

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Prepared by: Devon Morse, WPIT Applicant: **TEC** Check all that apply:

Project location: Centre Avenue, Abington

DEP File #: N/A

Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only ____

Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:	umber: WET Plot 1	Transect Number: BA301	Date of Delineation: September 20 th , 2022
A. Sample Layer & Plant Species	B. Percent Cover	C. Percent	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
(by common/scientific name)	(or basal Area)	Dominance		
Herbaceous				
sensitive fern (Onoclea sensibilis)	10.5	78%	YES	FACW*
lady fern (<i>Athyrium angustum</i>)	3.0	10.7%	ON.	FAC*
wrinkle leaved goldenrod (Solidago rugosa)	10.5	28%	YES	FAC*
reed canary grass (Phalans arundinacea)	3.0	10.7%	ON	FACW*
cinnamon fern (Osmundastrum cinnamomeum)		78%	YES	FACW*
Vine				
Poison ivy (<i>Toxicodendron radicans</i>) Shrub	20.5	100%	YES	FAC*
glossy buckthorn (Frangula alnus)	20.5	39.8%	YES	FAC*
Common blackberry (Rubus allegheniensis)	10.5	20.7%	YES	FACU
Climbing nightshade (Solanum dulcamara)	20.5	39.8%	YES	FAC*
Tree				
red maple (<i>Acer rubrum</i>)	10.5	28.3%	YES	FAC*
American elm (<i>Ulmus americana</i>)	20.5	55.4%	YES	FACW*
eastern white pine (Pinus strobus)	3.0	8.1%	ON	FACU
American beech (Fagis grandifolia)	3.0	8.1%	ON	FACU

^{*} Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FACH, FACW, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant non-wetland indicator plants: 1 total Number of dominant wetland indicator plants: 8 total

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Section II. Indicators of Hydrology

Other Indicators of Hydrology: (check all that apply & describe)

Depth to soil saturation in observation hole:

Water marks: Yes

Drift lines:

Depth to free water in observation hole:_

Site Inundated: Yes

Hydric Soil Interpretation

1. Soil Survey

2 Is there a published soil survey for this site? yes title/date: Plymouth County, Massachusetts map number: MA023

soil type mapped: 221B—Eldridge fine sandy loam, 3 to 8 percent

hydric soil inclusions: Squamscott

Are field observations consistent with soil survey? yes no

No soils observed; bank of river

Depth 2. Soil Description Horizon

Mottles Color

Matrix Color

Recorded Data (streams, lake, or tidal gauge; aerial photo; other):

Water-stained leaves: Yes

Oxidized rhizospheres:

Drainage patterns in BVW: Yes

Sediment Deposits:

Perennial stream running between wetlands

Other: Buttressed root systems

Vegetation and Hydrology Conclusion

Number of wetland indicator plants \(\geq \mu\) on-wetland indicator plants

Wetland hydrology present:

Conclusion: Is soil hydric? yes no

Remarks:

3. Other:

Hydric soil present

Other indicators of hydrology present

Yes

ž

×

×

× Sample location is in a BVW Submit this form with the Request for Determination of Applicability or Notice of Intent.

Bay Colony Group, Inc.

MEMORANDUM

Professional Civil Engineers & Land Surveyors

Four School Street P.O. Box 9136 Foxborough, MA 02035 (508)543-3939 (508)543-8866 fax

E-Mail:mailbox@baycolonygroup.com *** http://www.baycolonygroup.com

March 23, 2023

To: Robert Niccoli, P.E., S.E., Director of Structures

From: William Buckley, Jr., P.E., Project Manager

Subject: Abington: Bridge No. A01010-AJQ-MUN-BRI, Centre Avenue (State Route 123) over Shumatuscacant River Cofferdam Elevation, Project 22-0218

Transmitted herewith is the memorandum for the cofferdam elevation for the subject bridge. If you have questions regarding this document please contact William Buckley, Jr., 508.543.3939 x214 or billbuckley@baycolonygroup.com.

A steady-state analysis was conducted using the USACE HEC-RAS program for the 2-year return event in accordance with the standards outlined in the MassDOT LRFD Bridge Manual Part 1.3.3.4.E (January, 2020). In accordance with the LRFD Manual, the design flood event for temporary construction of less than one year is the 2-year flood frequency event

The water surface profile for the existing condition was evaluated and an evaluation was prepared assuming that the two stone culverts would be closed and the auxiliary spillway would remain in operation with the stop logs in place to an elevation of 87'. As expected, an increase in the water surface was observed under these conditions. Table 1 shows the predicted water surface elevation during construction.

Flood Frequency	Peak Flow (cfs)	Water Surface Elevation (ft)	Velocity (ft/sec)	Recommended Elevation for Cofferdam (ft)
2-year	48	87.4	3.1	88.4

Recommendation – The recommended elevation for the cofferdam is 88.4' if the temporary construction is less than one year.

Bridge Preservation ST 123 (Centre Avenue) over Shumatuscacant River A-01-010 (AJQ) Abington, MA 02351

APPENDIX D

ENVIRONMENTAL PERMITS

- NOTICE OF INTENT PREPARED BY TEC
- ORDER OF CONDITIONS ABINGTON CONSERVATION COMISSION
- DCR CHAPTER 253 PERMIT

Centre Ave over Shumatuscacant River Bridge Preservation

Abington, MA 02351

Prepared for: Town of Abington Department of Public Works

350 Summer Street Abington, MA 02351



Prepared by: **TEC, Inc.**

282 Merrimack Street Lawrence, MA 01843



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	ND DELINEATION REPORT
3 SUPPOR	RTING MAPS AND DATA
4 PHOTO	GRAPHS REPRESENTATIVE OF SITE
5 STORM	WATER REPORT
6 PLANS	
	ER INFORMATION



WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Abington
City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

. Project Location (Note: ele	ectronic filers will click	on button to locate	project site):
Centre Avenue		Abington	02351
a. Street Address		b. City/Town	c. Zip Code
1 -414		42.107080	-70.940485
Latitude and Longitude:		d. Latitude	e. Longitude
		N/A - Bridge	
f. Assessors Map/Plat Number		g. Parcel /Lot Num	ber
Applicant:			
John		Stone	
a. First Name		b. Last Name	
Abington Department of Pu	ublic Works		
c. Organization			
350 Summer Street			
d. Street Address			
Abington		MA	02351
e. City/Town		f. State	g. Zip Code
781-982-2122			3 1
	ax Number	j. Email Address	
Property owner (required if	different from applica		if more than one owner
a. First Name		b. Last Name	
c. Organization			
d. Street Address			
e. City/Town		f. State	g. Zip Code
h. Phone Number i. F	ax Number j	j. Email address	
Representative (if any):			
Andrew		Maesner	
a. First Name		b. Last Name	
TEC, Inc.			
c. Company			
282 Merrimack Street			
d. Street Address			
Lawrence		MA	01843
e. City/Town		f. State	g. Zip Code
(978) 794-1792		amaesner@theeng	- · · · · · · · · · · · · · · · · · · ·
		i. Email address	Jilicolligeorp.com
	•		
Total WPA Fee Paid (from		nsmittai Form):	
Exempt	Exempt		Exempt
a. Total Fee Paid	b. State Fee	Paid	c. City/Town Fee Paid



WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

rov	rided by MassDEP:
	MassDEP File Number
	Document Transaction Number
	Abington
	City/Town

Α.	General Information (continued)	
6.	General Project Description:	
	Project involves the rehabilitation of structurally defice Work involves removing and replacing two deck part under the southwest wingwall/abutment.	
7a.	Project Type Checklist: (Limited Project Types see	Section A. 7b.)
	1. Single Family Home	2. Residential Subdivision
	3. Commercial/Industrial	4. Dock/Pier
	5. Utilities	6. Coastal engineering Structure
	7. Agriculture (e.g., cranberries, forestry)	8. X Transportation
	9. Other	
7b.		.24 (coastal) or 310 CMR 10.53 (inland)? ed project applies to this project. (See 310 CMR plete list and description of limited project types)
	2. Limited Project Type	
	If the proposed activity is eligible to be treated as ar CMR10.24(8), 310 CMR 10.53(4)), complete and at Project Checklist and Signed Certification.	
8.	Property recorded at the Registry of Deeds for:	
	Plymouth	N/A
	a. County	b. Certificate # (if registered land)
	N/A c. Book	N/A d. Page Number
	Buffer Zone & Resource Area Impa	
Ь.		
1.	Buffer Zone Only – Check if the project is locate Vegetated Wetland, Inland Bank, or Coastal Re	
2.	 ✓ Inland Resource Areas (see 310 CMR 10.54-10 Coastal Resource Areas). 	

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

rov	ided by MassDEP:
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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. 🛛 Bank	17 (Temporary) 1. linear feet	2. linear feet
b. 🛛 Bordering Vegetated Wetland	87 (Temporary) 1. square feet	2. square feet
c. 🛛 Land Under Waterbodies and Waterways	145 (Temporary) 1. square feet 13 (Temporary) 3. cubic yards dredged	2. square feet
Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. Mordering Land Subject to Flooding	87 (Temporary) 1. square feet 0	2. square feet
e.	cubic feet of flood storage lost square feet	4. cubic feet replaced
f. 🛛 Riverfront Area	2. cubic feet of flood storage lost Shumatuscacant River (inland) 1. Name of Waterway (if available) - spe	3. cubic feet replaced
2. Width of Riverfront Area (check one):	
☐ 25 ft Designated De	ensely Developed Areas only	
☐ 100 ft New agricultu	ıral projects only	
200 ft All other proje	ects	
3. Total area of Riverfront Area	a on the site of the proposed project	ct: $\frac{9500}{\text{square feet}}$
4. Proposed alteration of the R	Riverfront Area:	
9500	9500	0
a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.
5. Has an alternatives analysis	s been done and is it attached to the	is NOI? ☐ Yes ☒ No
6. Was the lot where the activi	ty is proposed created prior to Aug	ust 1, 1996? ⊠ Yes □ No
3. Coastal Resource Areas: (See	310 CMR 10.25-10.35)	

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Note: for coastal riverfront areas, please complete Section B.2.f. above.

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Massachusetts Department of Environmental ProtectionBureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

rov	rided by MassDEP:
	MassDEP File Number
	Document Transaction Number
	Abington
	City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your
document
transaction
number
(provided on your
receipt page)
with all
supplementary
information you
submit to the
Department.

4.

5.

Resource Area		Size of Propose	d Alteration	Proposed Replacement (if any)
а. 🗌	Designated Port Areas	Indicate size u	nder Land Unde	r the Ocean, below
b. 🗌	Land Under the Ocean	1. square feet		
		2. cubic yards dredg	ged	
c. 🗌	Barrier Beach	Indicate size und	der Coastal Bea	ches and/or Coastal Dunes below
d. 🗌	Coastal Beaches	1. square feet		2. cubic yards beach nourishment
е. 🗌	Coastal Dunes	1. square feet		2. cubic yards dune nourishment
		Size of Propose	d Alteration	Proposed Replacement (if any)
f. 🗌	Coastal Banks	1. linear feet		
g. 🗌	Rocky Intertidal Shores	1. square feet		
h. 🗌	Salt Marshes	1. square feet		2. sq ft restoration, rehab., creation
i. 🗌	Land Under Salt Ponds	1. square feet		
		2. cubic yards dredg	ged	
j. 🗌	Land Containing Shellfish	1. square feet		
k. 🗌	Fish Runs			ks, inland Bank, Land Under the er Waterbodies and Waterways,
		1. cubic yards dredg	ged	
I	Land Subject to Coastal Storm Flowage	1. square feet		
If the p	estoration/Enhancement project is for the purpose of			resource area in addition to the ve, please enter the additional
a. square feet of BVW			b. square feet of S	Salt Marsh
⊠ Pr	oject Involves Stream Cros	ssings		
0 a numb	er of new stream crossings		b number of repla	acement stream crossings
a. Hullib	o. o. now ou out it or ordings		S. Harrison or reple	20011011 Oll Odlil Ol Odolligo



WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

C. Other Applicable Standards and Requirements

Prov	ided by MassDEP:				
	MassDEP File Number				
	Document Transaction Number				
	Abington				
	City/Town				

•	Cuici Alphioabio		toquii oiiioiito	
	This is a proposal for a	n Ecological Restoratio	on Limited Project. Skip	Section C and
	complete Appendix A. F	Ecological Restoration	Limited Project Check	lists – Required Action

Ш	complete Appendix A: Ecological Restoration (310 CMR 10.11).	Limited Project Checklists – Required Actions
Str	eamlined Massachusetts Endangered Spec	cies Act/Wetlands Protection Act Review
1.	Is any portion of the proposed project located in Ethe most recent Estimated Habitat Map of State-L Natural Heritage and Endangered Species Program Massachusetts Natural Heritage Atlas or go to http://maps.massgis.state.ma.us/PRI EST HAB/N	m (NHESP)? To view habitat maps, see the
	a. Yes No If yes, include proof of r	nailing or hand delivery of NOI to:
	MassMapper - 1/23 b. Date of map Natural Heritage and E Division of Fisheries a 1 Rabbit Hill Road Westborough, MA 015	
		MESA/Wetlands Protection Act review, please aterials with this Notice of Intent (NOI); OR plemental information is not included with the NOI, will require a separate MESA filing which may take
	c. Submit Supplemental Information for Endanger	ed Species Review*
	1. Percentage/acreage of property to be	altered:
	(a) within wetland Resource Area	percentage/acreage
	(b) outside Resource Area	percentage/acreage
	2. Assessor's Map or right-of-way plan of	f site
2.	Project plans for entire project site, including wetlands jurisdiction, showing existing and propositree/vegetation clearing line, and clearly demarcal	sed conditions, existing and proposed
	(a) Project description (including descript buffer zone)	ion of impacts outside of wetland resource area &

(b) Photographs representative of the site

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^{*} Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma- endangered-species-act-mesa-regulatory-review).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

^{**} MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



3.

Massachusetts Department of Environmental ProtectionBureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:				
MassDEP File Number				
Document Transaction Number				
Abington				
City/Town				

C. Other Applicable Standards and Requirements (cont'd)

(c) MESA filing fee (fee information availal a-mesa-project-review). Make check payable to "Commonwealth of Masabove address	ble at https://www.mass.gov/how-to/how-to-file-for-ssachusetts - NHESP" and <i>mail to NHESP</i> at
Projects altering 10 or more acres of land, also sub	mit:
(d) Vegetation cover type map of site	
(e) Project plans showing Priority & Estima	ated Habitat boundaries
(f) OR Check One of the Following	
https://www.mass.gov/service-details/e	MESA exemption applies. (See 321 CMR 10.14, exemptions-from-review-for-projectsactivities-inent to NHESP if the project is within estimated d 10.59.)
2. Separate MESA review ongoing.	a. NHESP Tracking # b. Date submitted to NHESP
 Separate MESA review completed. Include copy of NHESP "no Take" dete Permit with approved plan. 	ermination or valid Conservation & Management
For coastal projects only, is any portion of the propoline or in a fish run?	osed project located below the mean high water
a. 🛛 Not applicable – project is in inland resource	area only b. 🗌 Yes 🔲 No
If yes, include proof of mailing, hand delivery, or ele	ectronic delivery of NOI to either:
South Shore - Cohasset to Rhode Island border, and the Cape & Islands:	North Shore - Hull to New Hampshire border:
Division of Marine Fisheries - Southeast Marine Fisheries Station Attn: Environmental Reviewer 836 South Rodney French Blvd. New Bedford, MA 02744 Email: dmf.envreview-south@mass.gov	Division of Marine Fisheries - North Shore Office Attn: Environmental Reviewer 30 Emerson Avenue Gloucester, MA 01930 Email: dmf.envreview-north@mass.gov
Also if yes, the project may require a Chapter 91 lic please contact MassDEP's Boston Office. For coas MassDEP's Southeast Regional Office.	
e. Is this an aquaculture project?	d. 🗌 Yes 🔲 No
If yes, include a copy of the Division of Marine Fish	eries Certification Letter (M.G.L. c. 130, § 57).

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Massachusetts Department of Environmental ProtectionBureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

and delegation Manager		
Provided by MassDEP:		
MassDEP File Number		
Document Transaction Number		
Abington		
City/Town		

C. Other Applicable Standards and Requirements (cont'd)

	4.	Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
Online Users: Include your document		a. \square Yes \boxtimes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). Note: electronic filers click on Website.
transaction number		b. ACEC
(provided on your receipt page) with all	5.	Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
supplementary		a. 🗌 Yes 🗵 No
information you submit to the Department.	6.	Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
		a. 🗌 Yes 🗵 No
	7.	Is this project subject to provisions of the MassDEP Stormwater Management Standards?
		 a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if: 1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
		2. A portion of the site constitutes redevelopment
		3. Proprietary BMPs are included in the Stormwater Management System.
		b. No. Check why the project is exempt:
		1. Single-family house
		2. Emergency road repair
		3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.
	D.	Additional Information
		This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).
		Applicants must include the following with this Notice of Intent (NOI). See instructions for details.
		Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.
		1. Substituting USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative

to the boundaries of each affected resource area.

2.



Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands WPA Form 3 - Notice of Intent Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:			
	MassDEP File Number		
	Document Transaction Number		
	Abington		
	City/Town		

D. Additional Information (cont'd)

υ.	Auu	itional information (contu)			
	3. 🗵		ource area boundary delineations (MassDEP BVW cability, Order of Resource Area Delineation, etc.), dology.		
	4. 🛛	List the titles and dates for all plans and oth	ner materials submitted with this NOI.		
	ST	123 (Centre Avenue) over Shumatuscacant	River		
	a. F	Plan Title			
		C, Inc.	Robert Niccoli, P.E., S.E.		
	b. F	Prepared By	c. Signed and Stamped by		
	Fel	bruary 21, 2023	As Noted		
	d. F	inal Revision Date	e. Scale		
	f. A	dditional Plan or Document Title	g. Date		
	5.	If there is more than one property owner, plisted on this form.	ease attach a list of these property owners not		
	6. 🗌	Attach proof of mailing for Natural Heritage	and Endangered Species Program, if needed.		
	 7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed. 8. Attach NOI Wetland Fee Transmittal Form 				
	9. Attach Stormwater Report, if needed.				
<u>E</u> .	Fees				
	1.		d for projects of any city, town, county, or district I Indian tribe housing authority, municipal housing portation Authority.		
	Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:				
	2. Munic	ipal Check Number	3. Check date		
	4. State	Check Number	5. Check date		
	6. Payor	name on check: First Name	7. Payor name on check: Last Name		

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WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Pro	vided by MassDEP:
	MassDEP File Number
	Document Transaction Number
	Abington

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

Jahr A	6/5/23
Signature of Applicant	2. Date
3. Signature of Property Owner (if different)	4. Date 6/5/23
5. Signature of Representative (if any)	6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Othor

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

A. Applicant Information

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return





. Location of Project	.			
Centre Ave	•	Abjector		
a. Street Address		b. City/Town	Abington	
Exempt c. Check number		d. Fee amount		
. Applicant Mailing A	Address:	d. Foo amount		
John		Stone		
a. First Name		b. Last Name		
Abington Departme	ent of Public Works			
c. Organization				
350 Summer Stree	et .			
d. Mailing Address				
Abington		MA	02351	
e. City/Town		f. State	g. Zip Code	
781-982-2122				
h. Phone Number	i. Fax Number	j. Email Address		
. Property Owner (if	different):			
a. First Name		b. Last Name		
c. Organization				
d. Mailing Address				
e. City/Town		f. State	g. Zip Code	
h. Phone Number	i Fax Number	i Fmail Address		

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

B. Fees

Fee should be calculated using the following process & worksheet. *Please see Instructions before filling out worksheet.*

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)			
Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 4(f)			Exempt
	<u> </u>	_	-
			-
	Step 5/Te	otal Project Fee	Exempt
	Step 6/	Step 6/Fee Payments:	
	Total	Project Fee:	Exempt a. Total Fee from Step 5
	State share	of filing Fee:	b. 1/2 Total Fee less \$ 12.50
	City/Town share	e of filling Fee:	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection Box 4062 Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

1 NARRATIVE

INTRODUCTION AND PURPOSE

The Town of Abington is proposing a bridge preservation project for Bridge No. A-01-010 (AJQ) – ST123 (Centre Avenue) over the Shumatuscacant River. The project will improve the superstructure by replacing two cracked granite slabs that are currently in poor condition. The project will improve the substructure by replacing a missing pier block, repairing a crack in the pier, and repairing an area of undermining at the downstream wingwall. These repairs will extend the life of the existing structure while mitigating impacts to the surrounding resource areas. The length of the project is approximately 100 linear feet.

EXISTING CONDITIONS

Centre Avenue is approximately 41'-7" in paved width with vertical granite curbing and cement concrete sidewalk along both sides. Centre Avenue is considered as an urban minor arterial. The runoff from Centre Avenue flows into the two catch basins to the west of the bridge and three catch basins to the east of the bridge. The granite curbing on both sides of the roadway conveys stormwater and prevents sheet flow directly to the resource areas.

The structure is a two-span bridge, containing 45 granite slabs with stone masonry abutments and pier, stretching approximately 60-FT in length. The construction year of the structure is 1880. The clear span for both spans is approximately 5'-0", with a 5'-0" rise. During the MassDOT Routine Inspection in May 2021, the substructure was rated fair, while the superstructure and deck were rated as poor. One of the granite slabs has cracked into two segments near midspan with separation up to 1" wide and the other slab has cracks near the support. There is an existing 4'-0" wide x 20" high opening in the pier due to a missing block. At the waterline at the southwest wingwall, there is a large void undermining the wingwall and west abutment. The bridge railing consists of a 2' high concrete parapet topped with a chain link fence.

PROPOSED IMPROVEMENTS

The proposed improvements include replacing two granite slabs, replacing a missing pier block, and repairing an area of undermining under the wingwall and abutment. To install the deck slab replacements, an isolated area will be excavated from the roadway. The undermined area at the wingwall and abutment will be dewatered and filled with grout prior to scour resistant material placed to protect abutment.

A temporary cofferdam has been proposed to prevent the stream flowing through the construction site. Water trapped within the limit of work will be pumped into a stilling basin to catch any sediments prior to being released back to the stream via a temporary discharge point reinforced by a riprap energy dissipation pad upgradient of the proposed floating silt fence. The final control of water plan will be designed by the contractor and reviewed and approved by TEC as part of a shop drawing review process.

Sediment control measures will be installed prior to the start of construction and monitored until the project is completed. These include sediment control barriers placed between the roadway and the Shumatuscacant River to prevent any sediment from entering the river, and a floating silt fence installed downstream of the bridge to prevent any sediment from floating downstream. The intention of this project is to improve the condition of the superstructure and substructure features of the bridge, while minimizing impact to the resource areas.

Additional permits required for this project include a Self-Verification Form with the US Army Corps of Engineers and a Chapter 325 Permit with the Office of Dam Safety.

RESOURCE AREAS

Resource areas on or adjacent to the project site were delineated and flagged by H. W. Moore Associates (Moore) on September 20, 2022 and are summarized in a Wetland Characterization Report dated October 12, 2022. The full report and field forms can be found attached in Section 2 of this report.

Resource areas subject to jurisdiction under the Wetlands Protection Act and Town of Abington Wetlands Protection Bylaw include Bordering Vegetated Wetlands, Inland Bank, Riverfront Area, Land Under Water, and Bordering Land Subject to Flooding.

The project site is not located within an Area of Critical Environmental Concern. The location also is not within an area of Estimated Habitat of Rare Wildlife or Priority Habitat of Rare Species as mapped by the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program. There are also no outstanding resource waters or certified vernal pools located in proximity to the project. Mapping is provided via MassMapper.

Resource areas are described in greater detail below:

BORDERING VEGETATED WETLANDS (BVW)

Along the downstream portion of the project boundary, bordering vegetated wetlands (BVW) are present. The BVW on the south side (downstream) was delineated by wetland flags A100-A103E.

Impacts to the BVW include 87 SF of temporary impacts due to access and erosion control barriers during construction. Any disturbance to the BVW will be fully restored once construction is completed.

INLAND BANK

The upstream banks were delineated by flags BA100-103E on the eastern side and BA200-203E on the western side. Downstream banks were delineated by flags BA294-304.

The project will result in 17 linear feet of temporary impacts to the downstream Inland Bank, adjacent to the impacted BVW. The temporary impacts to the bank are due to access and erosion control barriers during construction. A temporary cofferdam will be required in order to dewater the existing stream within the work zone.

RIVERFRONT AREA

The Shumatuscacant River is designated as a perennial stream by USGS, and has an associated 200 foot Riverfront Area. The Riverfront area extends from the limits of the Mean Annual High Water (MAHW) and was delineated by flags MAHW100-103E and MAHW200-204E. Since the Riverfront Area extends 200 feet from the MAHW flags, the entire project area is within the Riverfront Area.

Impacts to this area, and other resource areas, will be remediated and minimized wherever possible. Impacts to this area include 9500 square feet of proposed alterations due to the deck slab replacements, scour repair and countermeasure, and pier block repairs. All portions of the Riverfront Area that are not paved or comprised of the culvert structural elements, will be restored to previous conditions with a grass seed mix.

LAND UNDER WATERBODIES AND WATERWAYS (LUW)

Land located below the Mean Annual Low Water (MLW) level is considered LUW. Impacts to this area are temporary and limited to 145 square feet due to the placement of temporary control of water structures, and scour repairs and countermeasures. The scour repair and countermeasure will prevent further undermining of the structure. To install the scour countermeasure materials, 13 cubic yards of existing material will be excavated. The excavated material will be replaced with crushed stone, riprap, grout bags, and stone for erosion control, while matching the existing streambed elevation.

BORDERING LAND SUBJECT TO FLOODING (BLSF)

The bordering land subject to flooding (BLSF) as the site is defined by FEMA Flood Insurance Study for Plymouth County, the 100-year flood plain is at elevation 88' upstream of the bridge and 85' downstream of the bridge. Proposed counter scour measures occur below this elevation, however no impact to flood storage is anticipated as proposed grades are to match existing, within both LUW and BVW temporarily impacted areas.

Impacts to the BLSF include 87 SF of temporary impacts due to access and erosion control barriers. The area will be restored to previous conditions to match existing grades.

CONSTRUCTION SEQUENCE

The following sequence is the construction sequence to be followed; however, this may be modified based on input from the Abington Conservation Commission.

- 1. Obtain Order of Conditions from ConCom.
- 2. Conduct pre-construction meeting with ConCom agent.
- 3. Construction:
 - a. Install temporary traffic management measures required for construction.
 - b. Install Phase 1 traffic control to close the south side of the bridge.

- c. Install erosion controls: temporary erosion control around project limits to protect Shumatuscacant River from work zone sediment; floating silt fence, as required, parallel to Shumatuscacant River embankments to trap any floating debris/silt that may enter the River.
- d. Demo and replace existing bridge deck panel S15 from above.
- e. Pave the roadway within the excavation limits.
- f. Perform isolated repairs at pier and abutment.
- g. Install Phase 2 traffic control to close the north side of the bridge.
- h. Demo and replace existing bridge deck panel S11 from above.
- i. Pave the roadway within the excavation limits.
- j. Remove all temporary traffic management and erosion control measures.
- k. Fully open the roadway to traffic.
- 4. Perform final inspection and address punch list items.
- 5. Final acceptance by the Town.
- 6. Obtain Certificate of Compliance from ConCom.

STORMWATER MANAGEMENT

The intention of this project is to implement superstructure and substructure improvements to the Centre Ave Bridge over the Shumatuscacant River. The roadway surface over the bridge is an entirely impervious surface. There are two catch basins west of the bridge and three catch basins to the east of the bridge, each outlet to Island Grove Pond. During construction, all necessary erosion and sediment control measures will be installed to prevent any silt from construction activities from entering Shumatuscacant River.

Since this is considered a limited project as described in 310 CMR 10.53(3)(i) and there is no increase in impervious area, a full stormwater analysis is not required for this project. A Stormwater Report has been included to document the project's compliance with the MassDEP Checklist for Stormwater Report (see Section 5).

MITIGATION

Prior to construction, erosion control and sedimentation barriers will be installed between the project area and the adjacent stream and pond to establish a limit-of-work. The floating silt fence will be installed downstream of the bridge to prevent any sediment from entering the river. Additionally, silt sacks will be placed in the existing catch basins west of the limit of work at the bridge crossing the Shumatuscacant River. See attached construction plan for the location and detail of the erosion control barriers. Sediment control barriers will not be removed until the site is completely stabilized and approved for removal by the Abington Conservation Commission. Temporary impacts to the Riverfront Area, Inland Bank, BVW, and BLSF will be required in order to perform the proposed repairs.

A total of 10 LF of temporary bank impacts are proposed due to access and erosion control barriers. Complete restoration of inland banks is proposed upon completion of the project.

87 SF of temporary BVW impacts are proposed due to access and erosion control barriers. The impacted area will be restored to pre-construction conditions or better, and will be planted with native seed and plantings.

145 SF of temporary impacts to Land Underwater are required to construct the pier block repair, scour repairs and countermeasures. The impacts are considered temporary as the area disturbed is to be restored to match existing streambed elevations.

ALTERNATIVES ANALYSIS

The first alternative is to not make any changes to the existing structure, which could lead to more failures in the future. This option would result in no impact on the resource areas but would likely lead to further deterioration of the structure. With a deck and superstructure in poor condition, the bridge is in need of repairs.

The second alternative is to preserve the structure by repairing the existing deficiencies. Preserving the bridge will allow repairs to the existing superstructure and bridge deck, which will lengthen the life of the bridge. By performing spot repairs, impacts to the resource areas are minimized, costs are reduced, and traffic will be affected for a short period of time.

The third alternative is a full replacement of the structure. This would result in increased costs, increased impacts on the resource areas, and a longer impact on traffic in the area. As the structure is in fair condition with a few deficiencies in the deck and substructure, a full repair is not deemed necessary.

The second alternative was chosen as it repairs the existing deficiencies in the deck and superstructure, while reducing costs and minimizing impacts to the resource areas.

CONCLUSION

The proposed bridge preservation project along Centre Ave over Shumatuscacant River includes the replacement of two granite slabs, replacing a missing pier block, and repairing an area of undermining along the abutment and wingwall. The project will have no permanent impact to the surrounding resource areas. Any impact to the resource area is temporary in nature and associated with the construction and installation of infrastructure and will be fully restored post construction. The Applicant requests that the Conservation Commission finds that the project as described in this Notice of Intent successfully upholds the interest of the Wetlands Protection Act and subsequently issues an Order of Conditions for the proposed improvements.

2 WETLAND DELINEATION REPORT



Client: TEC, Bob Niccoli, PE

Project #: 26509

Address: Centre Avenue, Abington MA

Date: October 10th, 2022

Bordering Vegetated Wetland (BVW), Inland Bank associated with a Pond and MAHW associated with a mapped USGS perennial stream were field delineated by a Wetland Professional in Training Scientist (WPIT®) on September 20th, 2022, in accordance with MassDEP wetland delineation standards.

Bordering Vegetated Wetlands (BVW)

In accordance with the MA WPA implementing regulations set forth under 310 CMR 10.55 and the utilization of the methodology described within (1) "BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology," issued March 1, 1995; and (2) "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A handbook," produced by the Massachusetts Department of Environmental Protection, date March 1995., Hancock Associates staff delineated the following Bordering Vegetated Wetlands (BVW), which are defined under 310 CMR 10.55(2)(a) as, "freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps, and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants". The limit of BVW is further defined as "the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. Wetland indicator plants shall include but not necessarily be limited to those plant species identified in the Act. Wetland indicator plants are also those classified in the indicator categories of Facultative, Facultative+, Facultative Wetland-, Facultative Wetland, Facultative Wetland+, or Obligate Wetland in the National List of Plant Species That Occur in Wetlands: Massachusetts (Fish & Wildlife Services, U.S. Department of the Interior, 1988) or Plants Exhibiting Physiological or Morphological Adaptations to Life in the Saturated or Inundated Conditions".

BVW was delineated to the extent that it would broadcast associated buffer zone toward the limits of proposed work on the property. The delineation was based on observations of where vegetative species composition transitions from dominance of wetland indicator species, to dominance of upland indicator species. Other notable characteristics were the presence of a perennial stream that had flow downslope to the BVW complex and mucky, saturated soils.

BVW was delineated with one (1) flag series, identified as Series A as follows:

A-series Wetland

The A series wetland is a BVW located adjacent to the residential home and the downslope Riverfront Area which broadcasts associated buffer zones and setback zones in accordance with the Abington Wetlands Bylaw/Ordinance. The limit of BVW associated with the A-series wetland was demarcated with a single series of four (4) wetland flags labeled A (100 through 103E).



Inland Bank

Inland Bank associated with Island Grove Pond, located in Abington, Massachusetts was also delineated during the inspection. Inland Bank was located in the field by the first observable break in topography between the water body and upland. No evidence of riverine characteristics was noted along the unnamed pond bank during the inspection (i.e., no discernible direction of flow, no evidence of scour, etc.).

BA Series

The BA series wetland is an inland bank series located within the existing BVW and connects across Centre Avenue by a culvert crossing, which broadcasts associated buffer zones and setback zones in accordance with the Abington Wetlands Bylaw/Ordinance. The limit of Inland Bank associated with the BA-series wetland was demarcated with a two sequences series flags labeled BA (BA100 through 103E) and (BA200 through 203E).

Because the Shumatuscacant river has two (2) culverts, there is a small island of Inland Bank (downslope to existing uplands), south of Centre Avenue and between the MAHW flag series. This Inland Bank was demarcated with eleven flags (11) labeled BA (294 through 304). Two data plots were taken and recorded at BA297 and BA301 associated with the Wetland Plot 1 and Upland Plot 1 provided to TEC herein.

Wetland indicator plant species along the bank included sensitive fern (*Onolclea sensibilis*, FACW), highbush blueberry (*Vaccinium corymbosum*, FACW), broad-leaved cat-tail (*Typha latifolia*, OBL), poison ivy (*Toxicodendron radicans*, FAC), silky dogwood (*Swida amomum*, FACW) and red maple (*Acer rubrum*, FAC) are all dominant.

On the up-gradient side of the bank flags, upland species such as black oak (*Quercus velutina*, UPL), eastern white pine (*Pinus strobus*, FACU), northern red oak (*Quercus rubra*, FACU) and norway maple (*Acer platanoides*, UPL) become dominant species. The pond embankment was met with a man-made concrete retaining wall, disturbed paved driveway and roadway with bituminous concrete. On both ends of the flag series were retaining walls and roadway with culverts in the middle section that connected to the Shumatuscacant River (perennial stream) and BVW across Centre Avenue.

Noted during the field delineation was the presence of hydrologic flow moving through the culverts into the stream channel and through the existing BVW complexes. Upland soils consisted of urban fill along the roadway and embankment.

Shumatuscacant River - Riverfront (310 CMR 10.58)

In accordance with the MA WPA implementing regulations set forth under 310 CMR 10.58 and the utilization of the methodology described within (1) "BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology," issued March 1, 1995; and (2) "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A handbook," produced by the Massachusetts Department of Environmental Protection, date March 1995., Hancock Associates staff delineated the following Riverfront which are defined under 310 CMR



10.58(2)(a) as "Riverfront Area is the area of land between a river's mean annual high water line and a parallel line measured horizontally. The riverfront area may include or overlap other resource areas or their buffer zones. The riverfront area does not have a buffer zone." Because this existing Riverfront flows through to a pond, "the Riverfront Area stops at the inlet and begins again at the outlet. A water body identified as a lake, pond, or reservoir on the current USGS. map or more recent map provided by the Department, is a lake or pond, unless the issuing authority determines that the water body has primarily riverine characteristics. When a water body is not identified as a lake, pond, or reservoir on the current USGS. map or more recent map provided by the Department, the water body is a river if it has primarily riverine characteristics. Riverine characteristics may include, but are not limited to, unidirectional flow that can be visually observed or measured in the field. In addition, rivers are characterized by horizontal zonation as opposed to the vertical stratification that is typically associated with lakes and ponds. Great Ponds (i.e., any pond which contained more than ten acres in its natural state, as calculated based on the surface area of lands lying below the natural high-water mark; a list is available from the Department) are never rivers.

The Riverfront Area is the area of land between a river's mean annual high-water (MAHW) line measured horizontally outward from the river and a parallel line located 200 feet away in Abington, Massachusetts.

MAHW was delineated to the extent that it would broadcast associated 200-foot riverfront area toward the limits of proposed work on the property. The delineation was based on observations of hydrology and where vegetative species composition transitions from dominance of wetland indicator species, to dominance of upland indicator species.

Riverfront was delineated with two (2) flag series, identified as, MAHW 100-Series and 200-Series as follows:

MAHW 100 Series

The 100-series, runs southeast and is bound by a storage building utilized for industrial purposes south of Centre Avenue. The notable direction of flow was running north to south. This delineation is associated with the existing USGS Mapped Perennial stream (Shumatuscacant River), which broadcasts associated buffer zones and setback zones in accordance with the MA WPA, Riverfront Area (10.58), and Abington Bylaw/Ordinance. The limit of MAHW associated with the existing perennial stream was demarcated with a single series of four (4) flags labeled MAHW (100 through 103E).

MAHW 200 Series

The 200-series runs parallel to the 100-series just west and is bound by a residential property. The limit of MAHW associated with the perennial stream was demarcated with a single series of five (5) wetland flags labeled MAHW (200 through 204E), where the terminal flags meet at a confluence.

Bank full Width



The edge of the bankfull channel typically corresponds to the start of the floodplain. A floodplain receives floodwaters in most years but is vegetated by perennial plants and trees. This vegetation often reflects repeated flow-related disturbance and may not support mature trees. Field determination of the bankfull channel edge of streams rely on where the substrate is dominated by boulders or bedrock or where the channel is tightly confined, a distinct floodplain may not exist. In these situations, you will have to rely on secondary indicators, such as vegetation or other evidence of flood flows to determine the bankfull width. These indicators may include:

- A change in vegetation from bare surfaces or annual water-tolerant species to perennial upland or water-tolerant shrubs and trees;
- Bare areas associated with scour around woody debris or other obstructions.
- The top of point bars; or
- The lowest elevation at which fine organic debris is caught on brush or trees

Between the Inland bank and MAHW flags have the following measurements from the field, but should be confirmed during field topographic land surveying services.

- 13.5' at BA297/ Depth 2"
- 15.10" at BA298 and next to MAHW102 / Depth 4"
- 11.3' at BA299 / Depth 3.7"
- 11.8' at MAHW103 and next to BA300/ Depth 2.2"
- 11' at BA301 / Depth 6.5"
- 10.8' at BA302 and MAHW203 / Depth 4.1"
- 22.1' at MAHW202 and BA303 / Depth 3.5"
- 20.4" at MAHW201 / Depth 3.1"
- 22.7' at BA304 / Depth 10"

After field evaluations and desktop analysis was conducted, it was determined that the existing Inland Bank associated with the Island Grove Pond (north of Centre Avenue) did not give a proper centerline to take bank full width stage evaluation from.

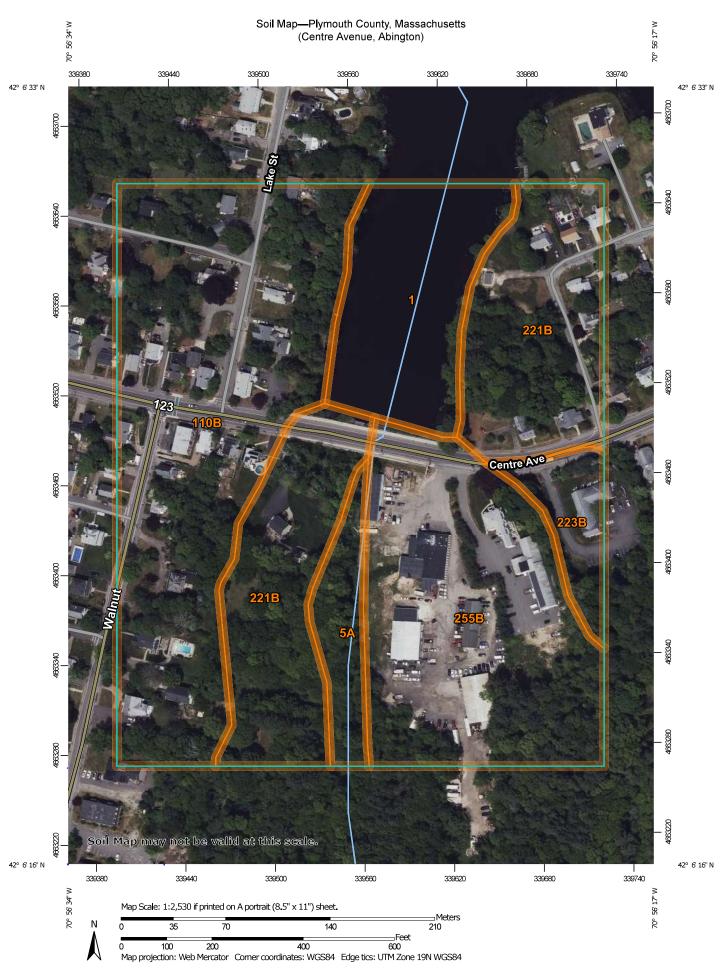
As requested, one (1) set of data forms have been filled out accordingly and attached to this report.

If you have any questions regarding the delineation, please contact me at dmorse@hancockassociates.com or 978-777-3050 ext. 413.

Devon Morse, WPIT
Project Manager/Wetland Scientist
Hancock Associates

Attachments:

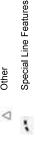
A - Data Forms



MAP LEGEND

Spoil Area Other W 8 Soil Map Unit Polygons Area of Interest (AOI) Soil Map Unit Points Soil Map Unit Lines Special Point Features Area of Interest (AOI) Soils

Very Stony Spot Stony Spot Wet Spot











































Streams and Canals



Borrow Pit

Blowout

Clay Spot



Closed Depression



Gravelly Spot

Gravel Pit





Marsh or swamp

Lava Flow

Landfill

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000

Warning: Soil Map may not be valid at this scale.

contrasting soils that could have been shown at a more detailed Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of

Please rely on the bar scale on each map sheet for map measurements

Web Soil Survey URL:

Source of Map: Natural Resources Conservation Service

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator distance and area. A projection that preserves area, such as the projection, which preserves direction and shape but distorts Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Plymouth County, Massachusetts Survey Area Data: Version 15, Sep 9, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. Date(s) aerial images were photographed: May 22, 2022—Jun

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Severely Eroded Spot

Slide or Slip

Sinkhole

Sodic Spot

Sandy Spot Saline Spot

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	3.6	11.5%
5A	Saco mucky silt loam, frequently ponded, 0 to 3 percent slopes, frequently flooded	1.3	4.0%
110B	Canton-Chatfield-Rock outcrop complex, 0 to 8 percent slopes, very stony	10.5	33.3%
221B	Eldridge fine sandy loam, 3 to 8 percent slopes	7.6	24.2%
223B	Scio very fine sandy loam, 3 to 8 percent slopes	1.1	3.6%
255B	Windsor loamy sand, 3 to 8 percent slopes	7.4	23.4%
Totals for Area of Interest		31.5	100.0%

MassDEP Field Data Form and Instructions

vegetation alone or by vegetation and other indicators of wetland hydrology. Note: if detailed vegetative assessment is not necessary for the site, make a note on the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40) and regulations (310 CMR 10.55). It should be used whether the boundary is delineated by delineating a BVW boundary and the terminology used in this field data form are described in the handbook, Delineating Bordering Vegetated Wetlands Under the The Department of Environmental Protection's field data form should be used when delineating the boundary of a Bordering Vegetated Wetland (BVW) under the data form and submit it. The field data form should be submitted with a Request for Determination of Applicability or a Notice of Intent. Details on the criteria for Massachusetts Wetlands Protection Act (MA Department of Environmental Protection, Division of Wetlands and Waterways, 1995).

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and submit the document. If vegetation and other indicators of hydrology are used to delineate the BVW boundary, mark the second box, complete Sections I and II of The data form includes a section on project identification, including the applicant's name, the name of the person performing the delineation, project location, and the MassDEP file number, if available. If vegetation alone is presumed adequate to delineate the BVW boundary, mark the first box, complete Section I of the data form, information gathered for that method should be recorded on the form. If a method other than the dominance test is used, mark the third box and explain the method the form, and submit the document. MassDEP has selected the dominance test as the preferred method of vegetation analysis at sample plot locations. The and why it was used.

Section I: Vegetation

Section I should be used to record information about the vegetation within an observation plot and on a transect used to delineate the BVW boundary. Note the date of the delineation. Submit a separate data form for each observation plot. Attach supplemental sheets if more space is needed.

A. Sample Layer and Plant Species

Record each plant species using common and scientific names for the following layers:

Ground Cover: woody vegetation less than 3 feet in height (seedlings), non-climbing woody vines less than 3 feet in height, and non-woody vegetation (including Saplings: woody vegetation over 20 feet in height with a diameter at breast height (dbh) greater than or equal to 0.4 inches to less than 5 inches within a 15-foot mosses) of any height within a 5-foot radius plot; Shrubs: woody vegetation between 3 feet and 20 feet in height within a 15-foot radius plot;

radius plot; (note: dbh is measured 4.5 feet from the ground);

Climbing woody vines: woody vines that are attached, rooted, or climbing on trees, saplings, or shrubs within a 30-foot radius plot; and Trees: woody vegetation with a dbh of 5 inches or greater and over 20 feet in height within a 30-foot radius plot.

If you do not recognize a plant species or do not know a plant's name, call it a generic name. Unknown plants need to be identified only if they are determined to be dominant plants. In that case, a plant identification book or key may be used to determine the species.

B. Percent Cover

Determine percent cover (or basal area for trees) for each plant species in each layer by visual analysis or measurement. (See handbook for information about determining percent cover, page 12.)

C. Percent Dominance

Determine percent dominance for each plant species by dividing the percent cover or basal area for each plant species by the total percent cover or basal area for the layer. (See handbook for information about the dominance test, pages 15-19.)

D. Dominant Plants

- Identify the dominant plants. Dominant plants are:
- plants with a percent dominance of 50 percent or greater, or plants whose percent dominance add up to immediately exceed 50 percent; plants with a percent dominance of 20 percent or greater;
- plants with a percent dominance equal to a plant already listed as a dominant species.
- 2. Determine common and scientific names for any unknown plants identified as dominant plants.

E. Wetland Indicator Category

- 1. Identify the Wetland Indicator Category for all dominant plant species using the National List of Plant Species That Occur in Wetlands: Massachusetts.
 - 2. Use an asterisk to mark the wetland indicator plants. Wetland indicator plants are any of the following:
 - plant species listed in the Wetlands Protection Act;
- plants in the genus Sphagnum;
- plants listed as Facultative (FAC), Facultative+ (FAC+), Facultative Wetland(FACW-), Facultative Wetland (FACW), Facultative Wetland+ (FACW+) or Obligate (OBL);
- plants with morphological or physiological adaptations (such as buttressed or
- fluted trunks, shallow roots, or adventitious roots).

If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk (e.g. White pine, Pinus strobus, FacU*/shallow roots, buttressed trunks).

Vegetation Conclusion

List the number of dominant wetland indicator plants and the number of dominant non-wetland indicator plants is equal to or greater than the number of non-wetland indicator plants, and vegetation alone is presumed adequate for the delineation, the plot is located in a BVW. If vegetation alone has been chosen for the delineation at this site, complete only Section I and submit the form with a Request for Determination of Applicability or Notice of Intent. Otherwise, continue the delineation process and record information for Section II on the second page of the form.

Section II: Indicators of Hydrology

Section II should be used to record information on indicators of hydrology in those areas where vegetation alone is not presumed adequate to delineate the BVW boundary, or to overcome the presumption that vegetation alone is adequate.

Hydric Soil Interpretation

- 1. Soil Survey: Record information about the site from the Soil Survey Report prepared by the U.S. Natural Resources Conservation Service (NRCS) formerly called the Soil Conservation Service.
- 2. Soil Description: Record information based on observations at a soil test hole located within the vegetation observation plot. Describe the soil profile of each soil horizon, noting the depth. Identify the matrix and mottles colors by hue, value, and chroma (information from Munsell Soil Color Charts). For example, 10YR 5/2. Notes on soil texture and other soil characteristics may be recorded in the Remarks section.
 - 3. Other: note any additional information used to determine if hydric soil is present, such as regional field indicator guides.

Conclusion: Indicate whether the soil is hydric based on information observed in the field. (See list of Hydric Soil Indicators in the handbook, page 29.)

Other Indicators of Hydrology

Record observations of other indicators of hydrology. Check and describe all that apply. Due to their seasonal or temporal nature, these other indicators generally are used in conjunction with vegetation and soils to determine the location of the BVW boundary.

Vegetation and Hydrology Conclusion

Defermine if the observation plot is in a BVW. The observation plot is in a BVW if the number of dominant wetland indicator plants is equal to or greater than the number of dominant non-wetland indicator plants, and if hydric soil or other indicators of hydrology are present.

For an observation plot located in a disturbed area, any one of the three indicators is sufficient to determine that the sample location is in a BVW. In that case, make a note on the form about that conclusion.

Submit the completed form with a Request for Determination of Applicability or a Notice of Intent.

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: **TEC** Pr Check all that apply:

Prepared by: Devon Morse, WPIT

Project location: Centre Avenue, Abington

DEP File #: N/A

Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only

Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot N	Observation Plot Number: UPL Plot 1	Transect Number: BA297	Date of Delineation: September 20 th , 2022
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Vine poison ivy (<i>Toxicodendron radicans</i>) virginia creeper (<i>Parthenocissus quinquefolia</i>)	38.0 38.0	20% 50%	YES YES	FAC* FACU
Shrub chinese privet (<i>Ligustrum sinense</i>) burning bush (<i>Euonymus alatus</i>) japanaberry (<i>Berberis thunbergii</i>)	3.0 3.0 2.05	8.1% 8.1% 55.4%	NO NO YES	FACU NI FACU
aslatic bittersweet (<i>Celastrus orbiculatus</i>) <u>Tree</u> american elm (<i>Ulmus americana</i>)	10.5 3.0	28.3%	S AE	UPL FACW*
eastern white pine (<i>Pinus strobus</i>) little leaf basswood (<i>Tilia cordata</i>)	10.5 10.5	26% 26%	YES	FACU
red maple (<i>Acer rubrum)</i> black locust (<i>Robinia pseudoacacia</i>)	10.5 3.0	26% 13%	YES NO	FAC* FACU

^{*} Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2 total

Number of dominant non-wetland indicator plants: 4 total

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Section II. Indicators of Hydrology

Other Indicators of Hydrology: (check all that apply & describe)

Depth to soil saturation in observation hole:

Water marks:

Drift lines:

Depth to free water in observation hole:

Site Inundated: No

Hydric Soil Interpretation

1. Soil Survey

2 Is there a published soil survey for this site? yes title/date: Plymouth County, Massachusetts

map number: MA023

soil type mapped: 221B—Eldridge fine sandy loam, 3 to 8 percent

slopes

hydric soil inclusions: Squamscott

Are field observations consistent with soil survey? yes no

Drainage patterns in BVW:

Sediment Deposits:

Oxidized rhizospheres:

Water-stained leaves:

Remarks: Soils were characterized as urban fill (along roadside)

2. Soil Description

Depth Matrix Color 2-0" 0-4" 10YR 3/2 4-6" Horizon

Mottles Color

Recorded Data (streams, lake, or tidal gauge; aerial photo; other):

Other:

Remarks:

Refusal at 6". Change in sediment texture at 4" to course gravel

3. Other:

Conclusion: Is soil hydric? yes no

Vegetation and Hydrology Conclusion	Yes	°Z
Number of wetland indicator plants		×
Hydric soil present		×
Other indicators of hydrology present		×
Sample location is in a BVW		×
Submit this form with the Request for Determination of Applicability or Notice of Intent.	y or Notice of Intent.	

MassDEP Field Data Form and Instructions

vegetation alone or by vegetation and other indicators of wetland hydrology. Note: if detailed vegetative assessment is not necessary for the site, make a note on the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40) and regulations (310 CMR 10.55). It should be used whether the boundary is delineated by delineating a BVW boundary and the terminology used in this field data form are described in the handbook, Delineating Bordering Vegetated Wetlands Under the The Department of Environmental Protection's field data form should be used when delineating the boundary of a Bordering Vegetated Wetland (BVW) under the data form and submit it. The field data form should be submitted with a Request for Determination of Applicability or a Notice of Intent. Details on the criteria for Massachusetts Wetlands Protection Act (MA Department of Environmental Protection, Division of Wetlands and Waterways, 1995).

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Section I: Vegetation

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A. Sample Layer and Plant Species

Record each plant species using common and scientific names for the following layers:

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radius plot; (note: dbh is measured 4.5 feet from the ground);

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Determine percent dominance for each plant species by dividing the percent cover or basal area for each plant species by the total percent cover or basal area for the layer. (See handbook for information about the dominance test, pages 15-19.)

D. Dominant Plants

- Identify the dominant plants. Dominant plants are:
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- 1. Identify the Wetland Indicator Category for all dominant plant species using the National List of Plant Species That Occur in Wetlands: Massachusetts.
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- plants in the genus Sphagnum;
- plants listed as Facultative (FAC), Facultative+ (FAC+), Facultative Wetland(FACW-), Facultative Wetland (FACW), Facultative Wetland+ (FACW+) or Obligate (OBL);
- plants with morphological or physiological adaptations (such as buttressed or
- fluted trunks, shallow roots, or adventitious roots).

If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk (e.g. White pine, Pinus strobus, FacU*/shallow roots, buttressed trunks).

Vegetation Conclusion

List the number of dominant wetland indicator plants and the number of dominant non-wetland indicator plants is equal to or greater than the number of non-wetland indicator plants, and vegetation alone is presumed adequate for the delineation, the plot is located in a BVW. If vegetation alone has been chosen for the delineation at this site, complete only Section I and submit the form with a Request for Determination of Applicability or Notice of Intent. Otherwise, continue the delineation process and record information for Section II on the second page of the form.

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- 2. Soil Description: Record information based on observations at a soil test hole located within the vegetation observation plot. Describe the soil profile of each soil horizon, noting the depth. Identify the matrix and mottles colors by hue, value, and chroma (information from Munsell Soil Color Charts). For example, 10YR 5/2. Notes on soil texture and other soil characteristics may be recorded in the Remarks section.
 - 3. Other: note any additional information used to determine if hydric soil is present, such as regional field indicator guides.

Conclusion: Indicate whether the soil is hydric based on information observed in the field. (See list of Hydric Soil Indicators in the handbook, page 29.)

Other Indicators of Hydrology

Record observations of other indicators of hydrology. Check and describe all that apply. Due to their seasonal or temporal nature, these other indicators generally are used in conjunction with vegetation and soils to determine the location of the BVW boundary.

Vegetation and Hydrology Conclusion

Defermine if the observation plot is in a BVW. The observation plot is in a BVW if the number of dominant wetland indicator plants is equal to or greater than the number of dominant non-wetland indicator plants, and if hydric soil or other indicators of hydrology are present.

For an observation plot located in a disturbed area, any one of the three indicators is sufficient to determine that the sample location is in a BVW. In that case, make a note on the form about that conclusion.

Submit the completed form with a Request for Determination of Applicability or a Notice of Intent.

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Prepared by: Devon Morse, WPIT Applicant: **TEC** Check all that apply:

Project location: Centre Avenue, Abington

DEP File #: N/A

Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only ____

Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:	umber: WET Plot 1	Transect Number: BA301	Date of Delineation: September 20 th , 2022
A. Sample Layer & Plant Species	B. Percent Cover	C. Percent	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
(by common/scientific name)	(or basal Area)	Dominance		
Herbaceous				
sensitive fern (Onoclea sensibilis)	10.5	78%	YES	FACW*
lady fern (<i>Athyrium angustum</i>)	3.0	10.7%	ON.	FAC*
wrinkle leaved goldenrod (Solidago rugosa)	10.5	28%	YES	FAC*
reed canary grass (Phalans arundinacea)	3.0	10.7%	ON.	FACW*
cinnamon fern (Osmundastrum cinnamomeum)		78%	YES	FACW*
Vine				
Poison ivy (<i>Toxicodendron radicans</i>) Shrub	20.5	100%	YES	FAC*
glossy buckthorn (Frangula alnus)	20.5	39.8%	YES	FAC*
Common blackberry (Rubus allegheniensis)	10.5	20.7%	YES	FACU
Climbing nightshade (Solanum dulcamara)	20.5	39.8%	YES	FAC*
Tree				
red maple (<i>Acer rubrum</i>)	10.5	28.3%	YES	FAC*
American elm (<i>Ulmus americana</i>)	20.5	55.4%	YES	FACW*
eastern white pine (Pinus strobus)	3.0	8.1%	ON	FACU
American beech (Fagis grandifolia)	3.0	8.1%	ON	FACU

^{*} Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FACH, FACW, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant non-wetland indicator plants: 1 total Number of dominant wetland indicator plants: 8 total

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Section II. Indicators of Hydrology

Other Indicators of Hydrology: (check all that apply & describe)

Depth to soil saturation in observation hole:

Water marks: Yes

Drift lines:

Depth to free water in observation hole:_

Site Inundated: Yes

Hydric Soil Interpretation

1. Soil Survey

2 Is there a published soil survey for this site? yes title/date: Plymouth County, Massachusetts map number: MA023

soil type mapped: 221B—Eldridge fine sandy loam, 3 to 8 percent

hydric soil inclusions: Squamscott

Are field observations consistent with soil survey? yes no

No soils observed; bank of river

Depth 2. Soil Description Horizon

Mottles Color

Matrix Color

Recorded Data (streams, lake, or tidal gauge; aerial photo; other):

Water-stained leaves: Yes

Oxidized rhizospheres:

Drainage patterns in BVW: Yes

Sediment Deposits:

Perennial stream running between wetlands

Other: Buttressed root systems

Vegetation and Hydrology Conclusion

Number of wetland indicator plants \(\geq \mu\) on-wetland indicator plants

Wetland hydrology present:

Conclusion: Is soil hydric? yes no

Remarks:

3. Other:

Hydric soil present

Other indicators of hydrology present

Yes

ž

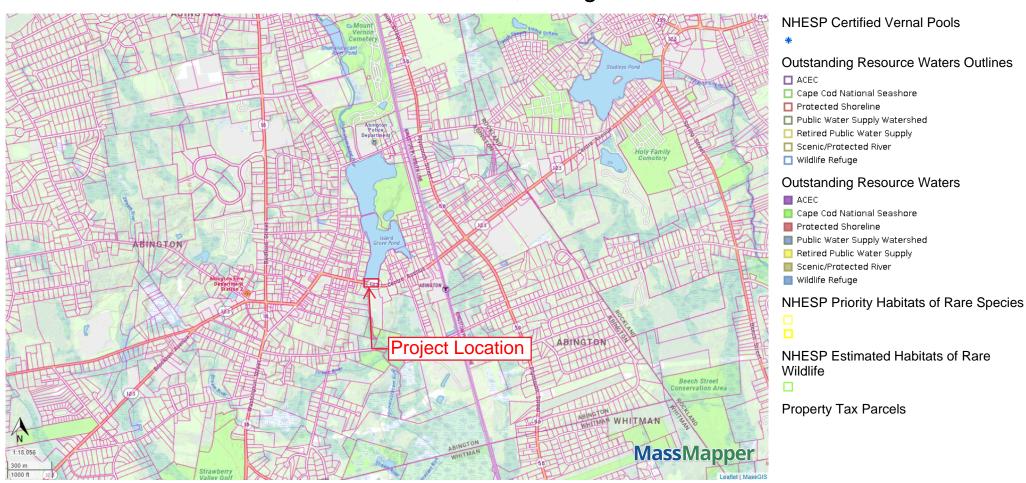
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×

× Sample location is in a BVW Submit this form with the Request for Determination of Applicability or Notice of Intent.

3 SUPPORTING MAPS AND DATA

Centre Ave, Abington

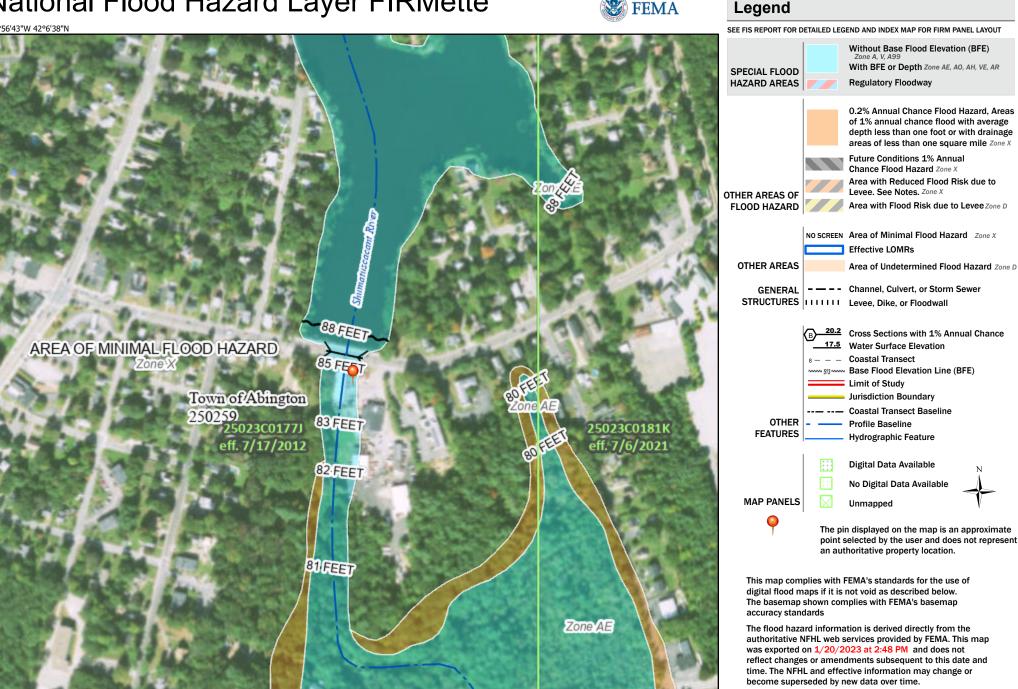


T1268 - USGS Topo



National Flood Hazard Layer FIRMette





Zone AE

1:6.000

Feet

2.000

250

500

1,000

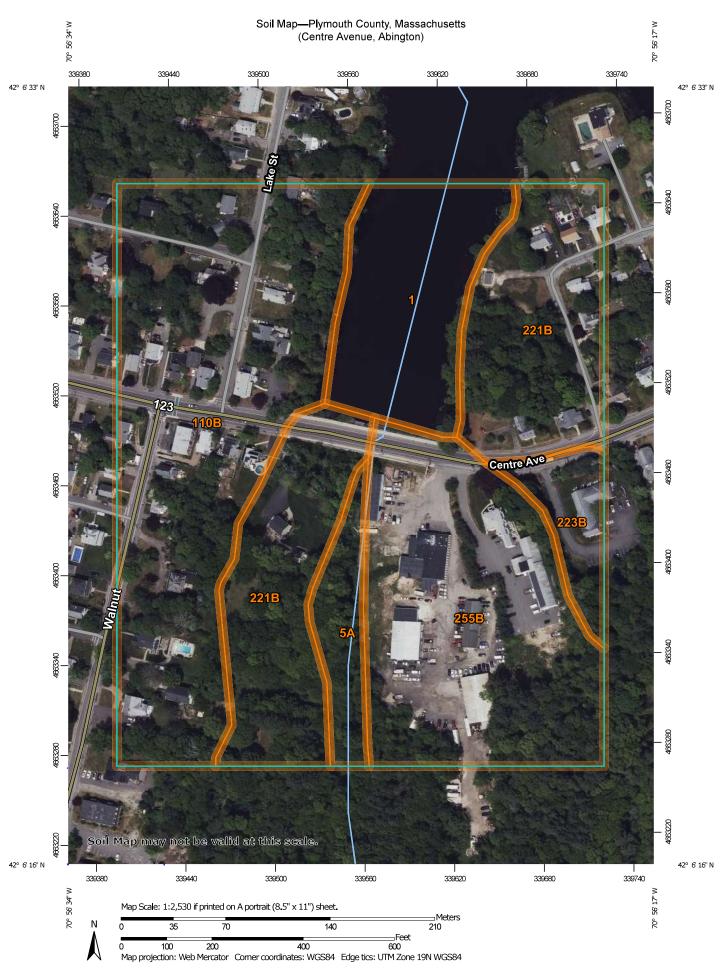
1,500

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for

unmapped and unmodernized areas cannot be used for

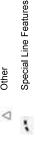
regulatory purposes.



MAP LEGEND

Spoil Area Other W 8 Soil Map Unit Polygons Area of Interest (AOI) Soil Map Unit Points Soil Map Unit Lines Special Point Features Area of Interest (AOI) Soils

Very Stony Spot Stony Spot Wet Spot











































Streams and Canals



Borrow Pit

Blowout

Clay Spot



Closed Depression



Gravelly Spot

Gravel Pit





Background

Aerial Photography

Marsh or swamp

Lava Flow

Landfill

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot Sinkhole

Slide or Slip

Sodic Spot

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000

Warning: Soil Map may not be valid at this scale.

contrasting soils that could have been shown at a more detailed Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of

Please rely on the bar scale on each map sheet for map measurements

Web Soil Survey URL:

Source of Map: Natural Resources Conservation Service

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator distance and area. A projection that preserves area, such as the projection, which preserves direction and shape but distorts Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Plymouth County, Massachusetts Survey Area Data: Version 15, Sep 9, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. Date(s) aerial images were photographed: May 22, 2022—Jun

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	3.6	11.5%
5A	Saco mucky silt loam, frequently ponded, 0 to 3 percent slopes, frequently flooded	1.3	4.0%
110B	Canton-Chatfield-Rock outcrop complex, 0 to 8 percent slopes, very stony	10.5	33.3%
221B Eldridge fine sandy loam, 3 to 8 percent slopes		7.6	24.2%
223B	Scio very fine sandy loam, 3 to 8 percent slopes	1.1	3.6%
255B	Windsor loamy sand, 3 to 8 percent slopes	7.4	23.4%
Totals for Area of Interest		31.5	100.0%

4 PHOTOGRAPHS REPRESENTATIVE OF SITE





Figure 1: Wearing Surface on Bridge Looking West. 42.107058, -70.940347

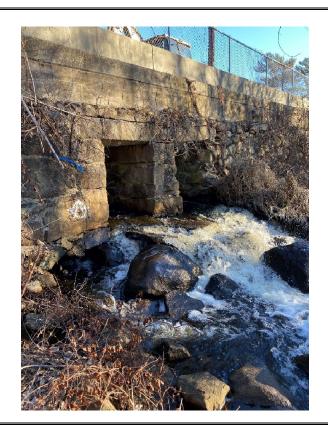


Figure 2: South Elevation. Void under Southwest Wingwall/Abutment. 42.106967, -70.940408



Figure 3: Crack in Granite Deck Slab (photo from MassDOT Routine & Member Inspection on May 13, 2021). 42.107038, -70.940290%

Figure 4: Void in Pier (photo from MassDOT Routine & Member Inspection on May 13,

Routine & Member Inspection on May 13, 2021).

42.107040, -70.940287%







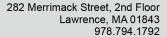
Figure 5: North Elevation (photo from MassDOT Inventory Photos dated June 15, 2017). 42.107257, -70.940678

Figure 6: Downstream (photo from MassDOT Inventory Photos dated June 15, 2017). 42.107304, -70.940746



Figure 7: Upstream (photo from MassDOT Inventory Photos dated June 15, 2017). 42.107196, -70.940711%

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TO: Toni Moquin DATE: May 31, 2023

Abington Conservation Commission

500 Gliniewicz Way Abington, MA 02351

FROM: Andrew Maesner, P.E. PROJECT NO.: T1268

RE: Notice of Intent – Stormwater Report

Centre Ave Bridge Preservation - Abington, MA

This report serves to accompany the Stormwater Checklist and describes the scope of the project, including existing conditions and proposed work as it pertains to stormwater management.

Project Description

The Town of Abington Department of Public Works proposes a bridge preservation of the existing bridge carrying the Shumatuscacant River under ST 123 (Centre Ave) in Abington, MA. The project is located adjacent to Island Grove Pond. Refer to the attached project location map included in the Notice of Intent. The bridge is owned and maintained by the municipality. The Shumatuscacant River and Island Grove Pond are subject to the Massachusetts Department of Environmental Protection Wetlands Protection Act and Town of Abington Wetlands Protection Bylaw. This analysis has been performed to conclude that the proposed conditions for the bridge preservation will not have any adverse effects on the current stormwater conditions.

Scope of Work

The project's intent is to address structurally deficient conditions to preserve the existing bridge carrying Centre Ave over the Shumatuscacant River.

The work includes the following:

- Removal and replacement of two granite slabs with precast concrete deck panels
- Filling a void in the pier wall with concrete
- Filling a void in the southwest wingwall and abutment with concrete

All work done under this contract shall be in conformance with the *Massachusetts Stormwater Standards*, and the Construction Plans.

Existing Conditions

The project site is a public roadway (Centre Ave) carried by an existing masonry slab bridge which has significant deficiencies that require repair. The existing bridge consists of granite deck panels supported by stone masonry abutments and pier. Two existing deck panels have cracked. There

Centre Ave Bridge Preservation Stormwater Report May 31, 2023 Page 2 of 4



is an existing 4'-0" wide x 20" high opening in the pier due to a missing block. At the waterline at the southwest wingwall, there is a large void undermining the wingwall and west abutment.

There are several resource areas at the site subject to protection under the Wetlands Protection Act including inland bank, riverfront area, bordering land subject to flooding (BLSF) and bordering vegetative wetlands (BVW). Resource areas on or adjacent to the project site were delineated and flagged by H. W. Moore Associates (Moore) on September 20, 2022.

The existing roadway surface is entirely impervious, with stormwater runoff directed into two catch basins to the west of the bridge and three catch basins to the east of the bridge. The bridge has granite curbing on both sides of the roadway to convey stormwater and prevent sheet flow directly to the resource areas.

According to FEMA, the flood elevations at the bridge are 88 feet on the upstream side and 85 feet on the downstream side. The site is not within a Priority Habitat of Rare Species as mapped by the Massachusetts Fish & Wildlife and is not considered a Coldwater Fishery.

Proposed Conditions

The proposed work includes rehabilitating the superstructure and substructure of the bridge by fixing existing deficiencies. The two cracked granite slabs on the bridge are to be removed and replaced with precast concrete deck panels. A void in the pier and a void at the southwest wingwall will be filled with concrete to prevent further undermining. The bottom chord elevation of the bridge will match the existing conditions. The excavated roadway within the project area will be repaved. Refer to the attached plans for the proposed work to be completed as part of the project. Overall, the limits of work have been designed to limit impacts to wetland resource areas.

Given the limited scope of this project and site topographic and spatial restrictions, installing new stormwater best management practices is not feasible. Impervious area will not increase as proposed surface conditions will match existing. Erosion and sediment control devices will be in place throughout construction, and temporary protective shielding will be in place to prevent debris from falling into the river. Work areas will be cleaned and swept daily.

Stormwater Standards

Standard 1: No New Untreated Discharges

The proposed conditions of the project match existing stormwater flow conditions and conveyances, and will not introduce new untreated discharges.

Standard 2: Peak Rate Attenuation

The proposed bridge rehabilitation will not increase the impervious area, as proposed will match existing. The excavated roadway is to be repaved, and stormwater is to be

Centre Ave Bridge Preservation Stormwater Report May 31, 2023 Page 3 of 4



conveyed in the same manner into the catch basins on Centre Ave. Considering the existing and proposed conditions, the proposed peak runoff rate will match the existing peak runoff rate.

Standard 3: Recharge

There are no areas within the project limits that would provide feasibility to propose infiltrating BMP's due to existing topography and limited right-of-way area. The proposed conditions will match the existing, as no new impervious area is proposed. As this is a redevelopment project with a limited scope and size, no groundwater recharge has been proposed.

Standard 4: Water Quality

Existing drainage patterns will be retained and match existing conditions. There is no increase in impervious area. Existing and proposed stormwater flows into existing catch basins. As this is a redevelopment project, it is required to meet the MassDEP Stormwater Standards to the maximum extent practicable.

Standard 5: Land Uses with Higher Potential Pollutant Loads

The site does not qualify as a LUHPPL. Standard 5 is not applicable.

Standard 6: Critical Areas

The project is not located within a Critical Area. Standard 6 is not applicable.

Standard 7: Redevelopment Projects

This project is considered a redevelopment project, and as such meets Standards 2, 3, and 4, only to the maximum extent practicable. The project is also considered a limited project as it consists of bridge improvements and maintenance.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

This project will disturb less than one acre of land, and therefore the project is not covered by a NPDES Construction General Permit.

Sedimentation controls will be in place during construction. Silt fence and sediment control barriers will be in place to trap sediment and debris that may escape the construction area. The sediment controls will be installed prior to the start of construction.

Centre Ave Bridge Preservation Stormwater Report May 31, 2023 Page 4 of 4



Erosion and sediment controls are required as shown on the bridge preservation plans, attached to the Notice of Intent project.

Standard 9: Operation and Maintenance Plan

The bridge will be maintained by the Town of Abington DPW similar to current Town standards for all bridges. The existing catch basins and closed drainage system will also be maintained by the Town of Abington DPW. There are no new BMPs proposed.

Standard 10: Illicit Discharges

No illicit discharges are expected or will be permitted.

Conclusion

It is TEC's opinion the bridge preservation project will not have any negative impacts to the waters of Shumatuscacant River or the adjacent Island Grove Pond. As a redevelopment and limited project, the stormwater standards have been addressed to the maximum extent practicable. On behalf of the Town of Abington, TEC respectfully requests that the Commission issue an approval and Order of Conditions for the project.

Stormwater Management Operations and Maintenance Plan

TEC Project File No. 1268

Proposed Bridge Preservation

Centre Ave, Abington, MA

Prepared for: Town of Abington DPW

350 Summer Street Abington, MA 02351

Prepared by: **TEC, Inc.**

282 Merrimack Street

2nd Floor

Lawrence MA, 01843



Stormwater Management Operation and Maintenance Plan August 7, 2023

Name of Owner: Town of Abington, MA

Name of Facility: Centre Ave over Shumatuscacant River

Location: Centre Ave, Abington, MA 02351

A detailed, written log of all scheduled preventative and corrective maintenance performed for the stormwater management measures must be kept on site, including a record of all inspections and copies of maintenance-related work orders.

An "Inspection and Maintenance Check List" shall be maintained as a record of regularly scheduled inspection and maintenance items as outlined below for every year. The property owners, Town of Abington, or their representative is responsible for the upkeep and maintenance of the structure and proposed erosion control measures. The funding, operation, and maintenance of the maintenance of the stormwater management infrastructure shall be provided by the Applicant, or their successors.

Maintenance routine and schedule: Routine inspections will be conducted monthly and thorough investigations will be conducted twice a year. Task systems include regular removal of accumulated sediments, floatables and debris, and scour inspection. Inspections will occur after every major storm event throughout construction and for the first six (6) months after construction is completed. Inspections will be conducted by a qualified person experienced in drainage design and stormwater management systems. Annual reports will be prepared detailing the status of the stormwater system and the maintenance performed.

The owner agrees with a minimum maintenance schedule as follows:

1. Sweeping and cleaning deck surface.

All surfaces of the deck shall be swept with a vacuum assisted cleaner at least two times per year. The deck shall be swept by hand as needed to remove the noticeable accumulation of sediments.

2. Inspection and cleaning of drainage pipes, catch basins, and manholes.

Drainage pipes and manhole structures shall be inspected and cleaned of sediment at least every five (5) years or as required to maintain adequate functionality of the stormwater conveyance system. All sediments shall be properly handled and disposed of in accordance with local, state and federal guidelines and regulations.

3. Grass Landscaping

The grass landscaping and plantings will be inspected after every major

storm event for the two (2) months after seeding to ensure functionality. Thereafter, inspections should take place every six (6) months in the spring and fall and after severe storm events. Grass landscaping showing signs of wear and erosion will be reloamed/re- seeded as necessary to prevent further erosion from taking place.

4. Snow removal. Snow will be removed from the bridge as part of a town-wide snow removal procedure as conducted throughout the rest of the town-owned right of ways.

The Long-Term Pollution Prevention Plan

The Owner agrees to comply with the following Long-Term Pollution Prevention Plan to ensure long-term stormwater quality discharge from the site:

- Good housekeeping practices: The project is public roadway and bridge maintained by the Town, including snow removal, de-icing, street sweeping and BMP inspection/maintenance.
- Provisions for storing materials and waste products inside or under cover: Waste products are not anticipated to be produced or stored on this site.
- Vehicle washing controls: Not Applicable
- *Spill prevention and response plans*: Vehicular travel over the bridge may result in a spill of oil or hazardous materials. The police and fire department will respond and address any release.
- *Provisions for maintenance of landscaped areas:* The Owner will provide long-term maintenance for the landscaped areas. Mowing should be provided twice per year, or as needed to maintain the desired height.
- Requirements for storage and use of fertilizers, herbicides, and pesticides: At this time there would be no foreseeable need for fertilizers, herbicides, and pesticides.
- Provisions for operation and management of septic systems: Not Applicable
- Provisions for solid waste management: Not Applicable.
- Snow disposal and plowing plans relative to Resource Areas: No snow will be stored or disposed of in surrounding resource areas.

- Street sweeping: All surfaces of the deck shall be swept with a vacuum assisted cleaner at least two times per year. The deck shall be swept by hand as needed to remove the noticeable accumulation of sediments.
- Provisions for prevention of illicit discharges to the stormwater management system: Only stormwater is proposed to be conveyed through the stormwater management system. No illicit materials will be permitted. The owners will be responsible to maintain this system.
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL. The project location is not considered a LUHPPL, however in the event of a maintenance vehicular spill, the fire department and police department of Lawrence will be responsible for cleanup and contamination removal.
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan: Prior to implementation of the LTPPP, the owners shall provide an on-site meeting with the maintenance personnel to present the contents and requirements of the Stormwater Operation and Maintenance Plan and the LTPPP.
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan:

Town of Abington 350 Summer Street Abington, MA 02351



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals. This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



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Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

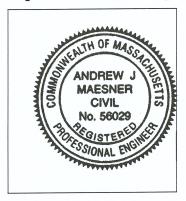
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



1/11/ Mu/	6/5/23
Signature and Date	

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	ject Type: Is the application for new development, redevelopment, or a mix of new and evelopment?
	New development
\boxtimes	Redevelopment
	Mix of New Development and Redevelopment



Massachusetts Department of Environmental ProtectionBureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

env	vironmentally sensitive design and LID Techniques were considered during the planning and design of project:
	No disturbance to any Wetland Resource Areas
	Site Design Practices (e.g. clustered development, reduced frontage setbacks)
	Reduced Impervious Area (Redevelopment Only)
\boxtimes	Minimizing disturbance to existing trees and shrubs
	LID Site Design Credit Requested:
	☐ Credit 1
	☐ Credit 2
	☐ Credit 3
	Use of "country drainage" versus curb and gutter conveyance and pipe
	Bioretention Cells (includes Rain Gardens)
	Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
	Treebox Filter
	Water Quality Swale
	Grass Channel
	Green Roof
	Other (describe):
Sta	ndard 1: No New Untreated Discharges
\boxtimes	No new untreated discharges
	Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
	Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



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Checklist for Stormwater Report

Checklist (continued) Standard 2: Peak Rate Attenuation Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding. Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm. Calculations provided to show that post-development peak discharge rates do not exceed predevelopment rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24hour storm. Standard 3: Recharge Soil Analysis provided. Required Recharge Volume calculation provided. Required Recharge volume reduced through use of the LID site Design Credits. Sizing the infiltration, BMPs is based on the following method: Check the method used. ☐ Simple Dynamic Static Dynamic Field¹ Runoff from all impervious areas at the site discharging to the infiltration BMP. Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume. Recharge BMPs have been sized to infiltrate the Required Recharge Volume. Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason: Site is comprised solely of C and D soils and/or bedrock at the land surface Solid Waste Landfill pursuant to 310 CMR 19.000 Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable. Calculations showing that the infiltration BMPs will drain in 72 hours are provided. Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

 $^{^{\}rm 1}$ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



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Checklist for Stormwater Report

Chec	klist (continued)
Standar	rd 3: Recharge (continued)
year	infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-r 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding lysis is provided.
	sumentation is provided showing that infiltration BMPs do not adversely impact nearby wetland ource areas.
Standar	rd 4: Water Quality
 Goo Prov Veh Req Spill Prov Req Pet Prov Sno Wint Stre Prov Doc ever Traii 	ng-Term Pollution Prevention Plan typically includes the following: ad housekeeping practices; visions for storing materials and waste products inside or under cover; icle washing controls; quirements for routine inspections and maintenance of stormwater BMPs; I prevention and response plans; visions for maintenance of lawns, gardens, and other landscaped areas; quirements for storage and use of fertilizers, herbicides, and pesticides; waste management provisions; visions for operation and management of septic systems; visions for solid waste management; in disposal and plowing plans relative to Wetland Resource Areas; ter Road Salt and/or Sand Use and Storage restrictions; ter sweeping schedules; visions for prevention of illicit discharges to the stormwater management system; termentation that Stormwater BMPs are designed to provide for shutdown and containment in the ent of a spill or discharges to or near critical areas or from LUHPPL; ning for staff or personnel involved with implementing Long-Term Pollution Prevention Plan; of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
attad	ong-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an chment to the Wetlands Notice of Intent. atment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule foculating the water quality volume are included, and discharge:
	is within the Zone II or Interim Wellhead Protection Area
	is near or to other critical areas
	is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
	involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

applicable, the 44% TSS removal pretreatment requirement, are provided.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if



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Checklist for Stormwater Report

Cł	necklist (continued)
Sta	ndard 4: Water Quality (continued)
	The BMP is sized (and calculations provided) based on:
	☐ The ½" or 1" Water Quality Volume or
	☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
	The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
	A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.
Sta	ndard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)
	The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report. The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted <i>prior</i>
	to the discharge of stormwater to the post-construction stormwater BMPs.
\boxtimes	The NPDES Multi-Sector General Permit does <i>not</i> cover the land use.
	LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
	All exposure has been eliminated.
	All exposure has <i>not</i> been eliminated and all BMPs selected are on MassDEP LUHPPL list.
	The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.
Sta	ndard 6: Critical Areas
	The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
\boxtimes	Critical areas and BMPs are identified in the Stormwater Report.



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

\boxtimes	The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
	 Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area. Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
	☐ Bike Path and/or Foot Path
	Redevelopment portion of mix of new and redevelopment.
	Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report. The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

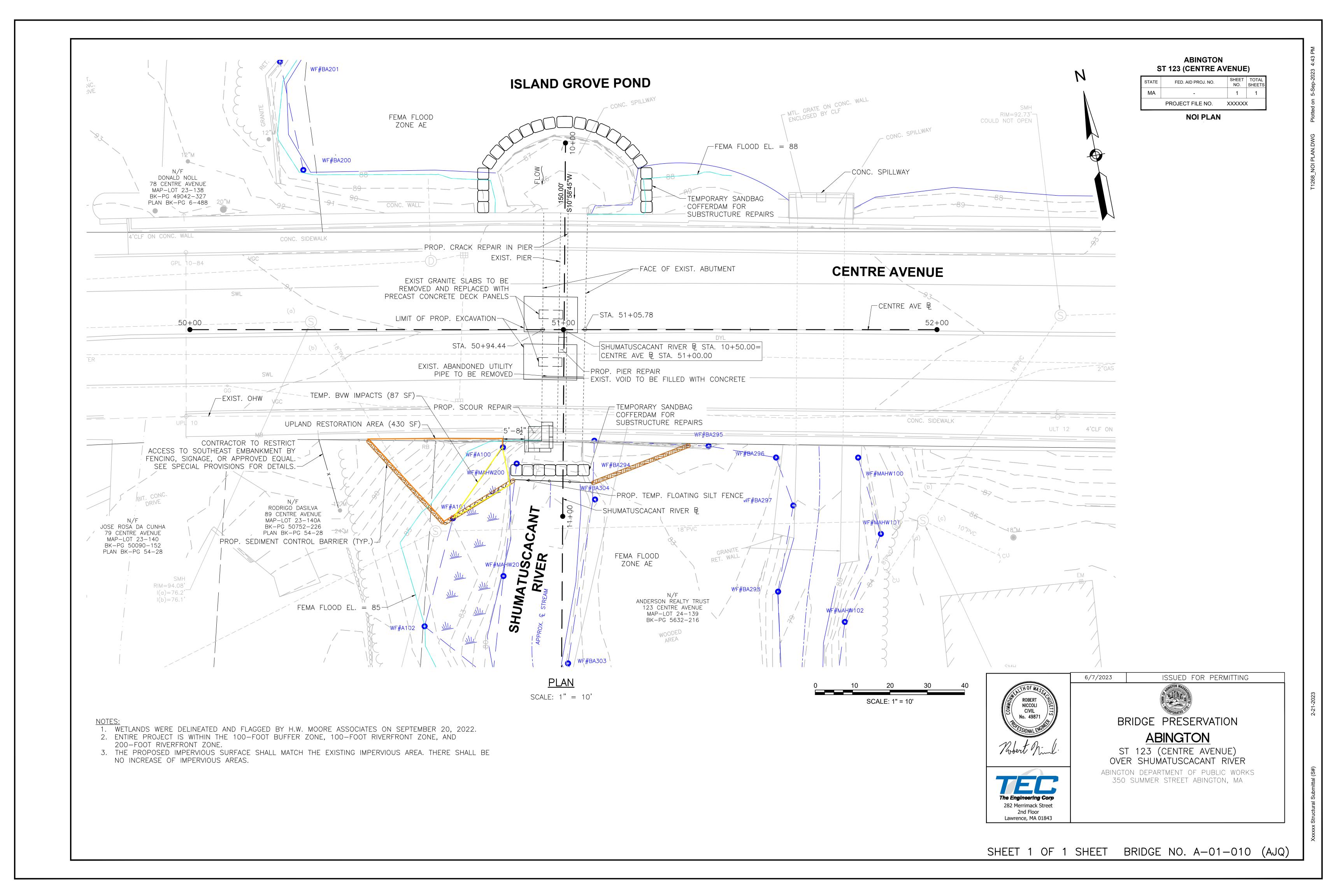
- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

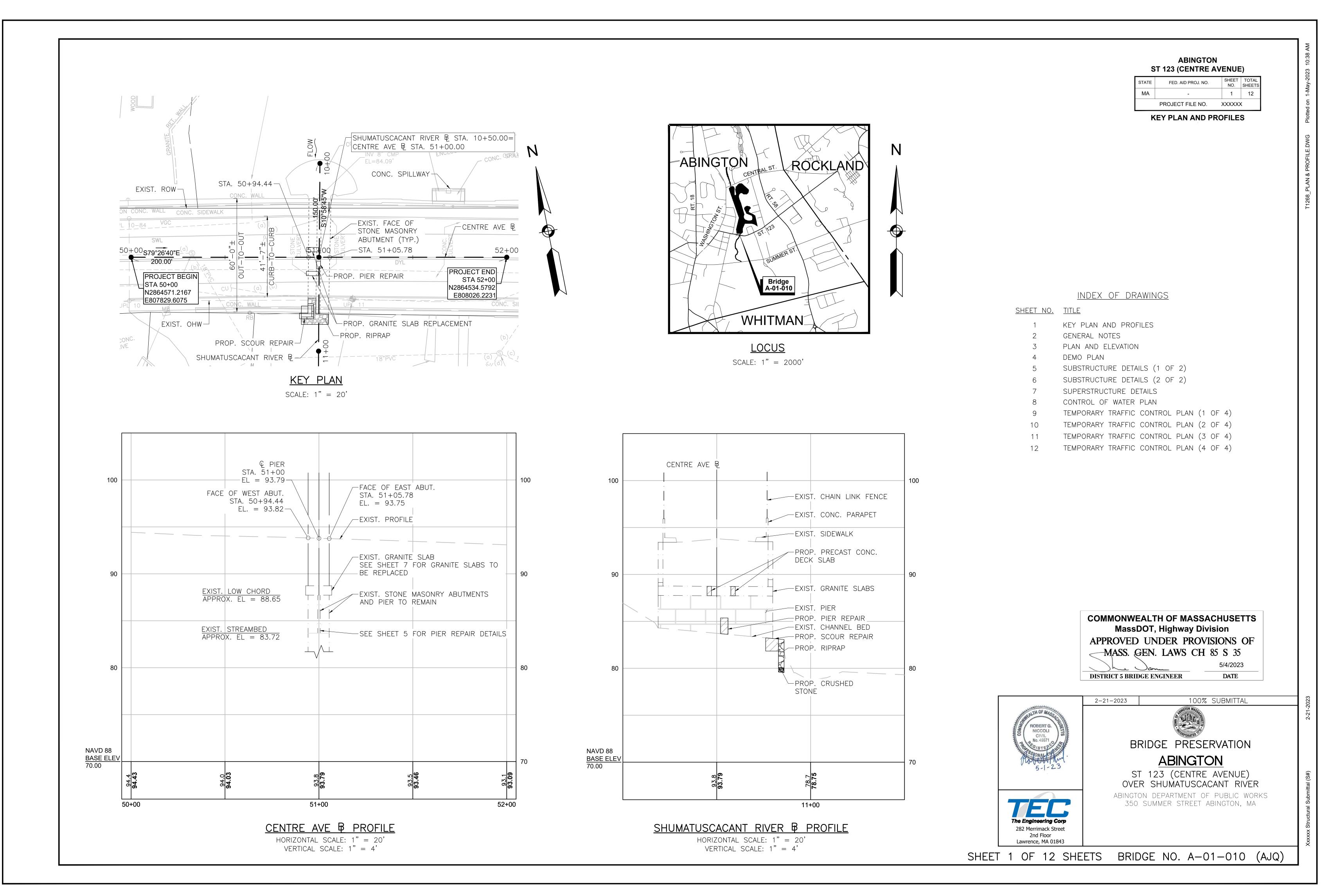


Checklist for Stormwater Report

Checklist (continued)

	andard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control ntinued)
	The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has <i>not</i> been included in the Stormwater Report but will be submitted <i>before</i> land disturbance begins.
	The project is <i>not</i> covered by a NPDES Construction General Permit.
	The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
	The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.
Sta	indard 9: Operation and Maintenance Plan
\boxtimes	The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
	Name of the stormwater management system owners;
	□ Party responsible for operation and maintenance;
	☐ Schedule for implementation of routine and non-routine maintenance tasks;
	☐ Plan showing the location of all stormwater BMPs maintenance access areas;
	☐ Description and delineation of public safety features;
	Estimated operation and maintenance budget; and
	Operation and Maintenance Log Form.
	The responsible party is <i>not</i> the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
	A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
	A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.
Sta	ndard 10: Prohibition of Illicit Discharges
\boxtimes	The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
	An Illicit Discharge Compliance Statement is attached;
\boxtimes	NO Illicit Discharge Compliance Statement is attached but will be submitted <i>prior to</i> the discharge of any stormwater to post-construction BMPs.





PROJECT FILE NO. XXXXXX

<u>DESIGN:</u>

IN ACCORDANCE WITH THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, FOR HL-93 LOADING.

SURVEY BENCHMARKS:

BENCHMARK 1: HYDRANT - BOLT OVER MAIN OUTLET N: 2864573.1869 E: 807638.1556 ELEVATION = 102.60'

BENCHMARK 2: NAIL IN UP#11 N: 2864527.8429 E: 807941.5410 ELEVATION = 94.67

BENCHMARK 3: HYDRANT - BOLT OVER MAIN OUTLET N: 2864460.7193 E: 808257.2548 ELEVATION = 96.47

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

SCALES:

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

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MOD	DIFICATION CONDITION	<u>#4 BARS</u>	<u>#5 BARS</u>	#6 BARS
1.	NONE	16"		23"
2.	12" OF CONCRETE BELOW BAR	20"	25"	30"
3.	EPOXY COATED BARS, COVER < 3db, OR	23"	29"	34"
	CLEAR SPACING < 6db			
4.	COATED BARS, ALL OTHER CASES	18"	23"	27"
5.	CONDITION 2. AND 3.	26"	32"	39"
6.	CONDITION 2. AND 4.	24"	30"	36"

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

MEMBRANE WATERPROOFING:

ALL MEMBRANE WATERPROOFING USED ON BRIDGE DECKS SHALL BE SHEET MEMBRANE WATERPROOFING

EXISTING CONDITIONS:

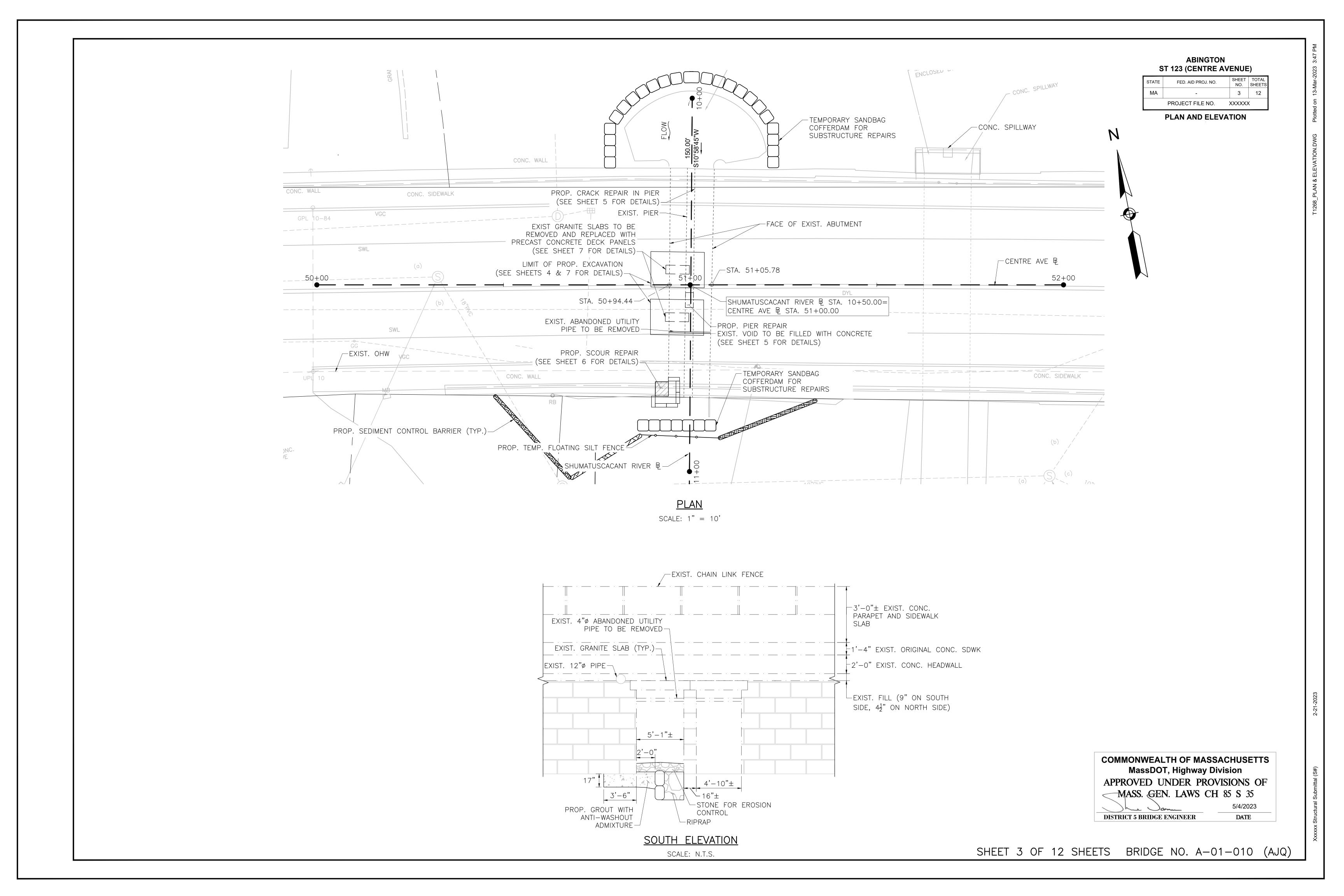
- 1. CONFIGURATION OF EXISTING BRIDGE STRUCTURE BASED ON FIELD MEASUREMENTS TAKEN FROM ROUTINE INSPECTION REPORT DATED MAY 2019.
- 2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR ORDERING OF MATERIALS.

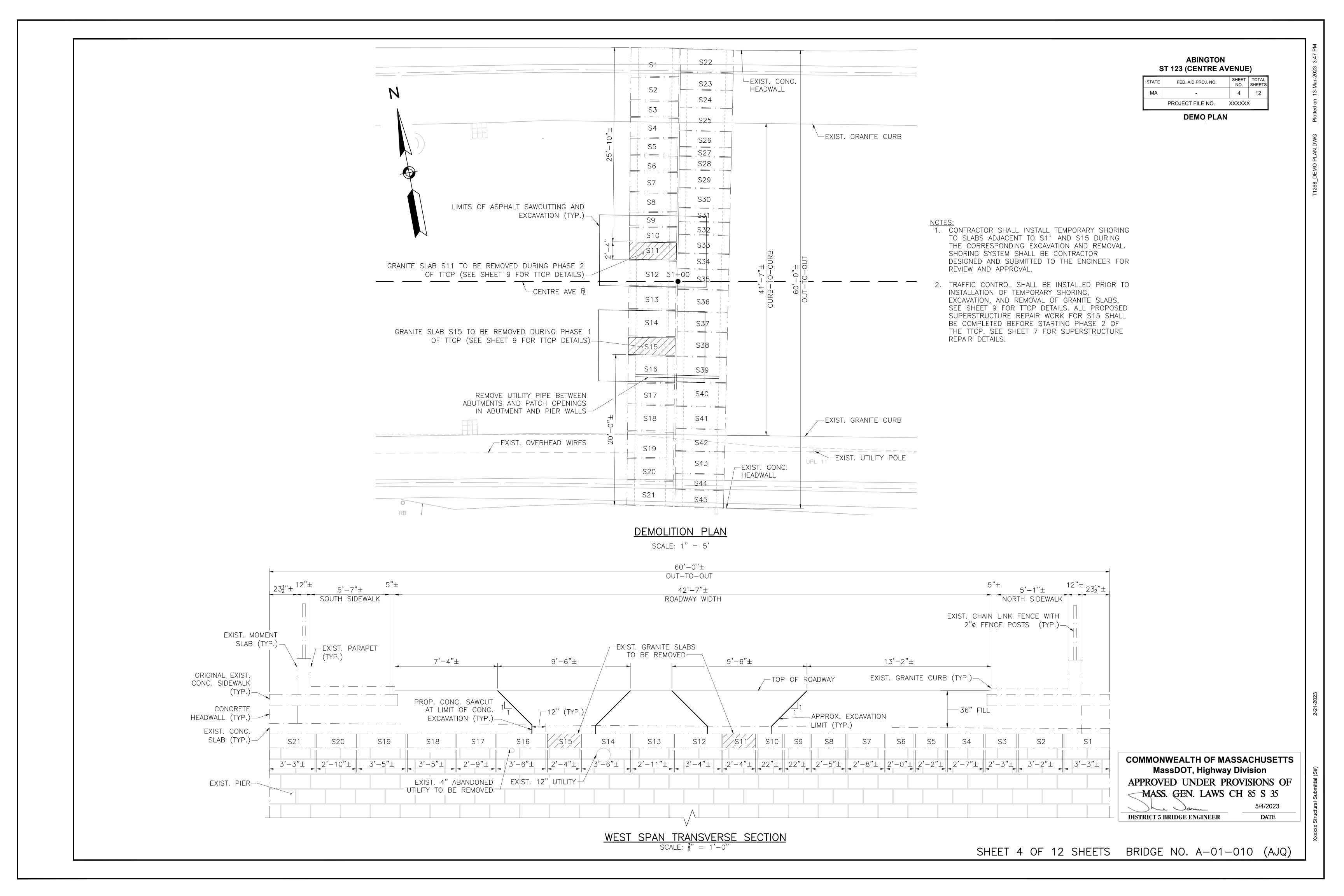
COMMONWEALTH OF MASSACHUSETTS MassDOT, Highway Division APPROVED UNDER PROVISIONS OF MASS. GEN. LAWS CH 85 S 35

DISTRICT 5 BRIDGE ENGINEER

DATE

SHEET 2 OF 12 SHEETS BRIDGE NO. A-01-010 (AJQ)





ABINGTON
ST 123 (CENTRE AVENUE)

EXIST, CONCRETE SLAB

EXIST, CONCRETE SLAB

EXIST, CRANITE BLOCKS

EXIST, CONCRETE SLAB

EXIST, CRANITE BLOCKS

MA

EXIST, CRANITE BLOCKS

SUBSTRUCTURE DETAILS (1 OF 2)

NORTH EDGE
OF PIER

SOUTH EDGE
OF PIER

NOTE: DIMENSIONS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

4'-0"±

─EXIST.

33'-2"±

STREAMBED

_2 SPACES @ 12" = 24"

EXIST. VOID TO BE FILLED W/ 4000

_6" (MIN.) (TYP.)

PSI 3º 660 CEMENT CONCRETE W/ <ANTI-WASHOUT ADMIXTURE

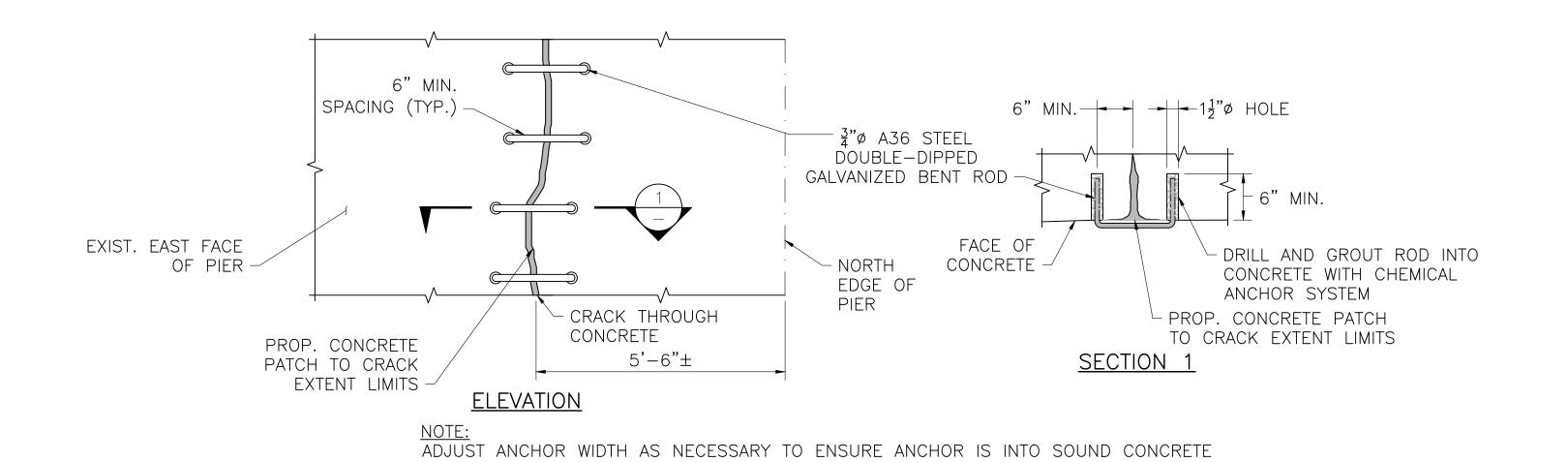
DRILL AND GROUT #5

DOWELS, 12" LONG,

CENTERED ON PIER (TYP.)

24'-2"±

PIER VOID REPAIR DETAIL
SCALE: N.T.S.



PIER DRILL AND GROUT CRACK REPAIR DETAIL SCALE: N.T.S.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35
5/4/2023
DISTRICT 5 BRIDGE ENGINEER DATE

SHEET 5 OF 12 SHEETS BRIDGE NO. A-01-010 (AJQ)

2-21-2023

Submittal (S#)

<u>MATERIALS</u>

EXIST. FACE PIER

-EXIST. FACE OF EAST ABUT.

EXIST. SOUTH FASCIA & FACE OF WINGWALL

PROP. RIPRAP

1. SEE SPECIAL PROVISIONS FOR GROUT AND GROUT BAGS. GROUT SHALL CONTAIN ANTI-WASHOUT ADMIXTURE.

2. RIPRAP SHALL MEET THE REQUIREMENTS OF DUMPED RIPRAP

3. STONE FOR EROSION CONTROL SHALL BE ROUNDED COBBLE STONE AND SHALL MEET THE NATURAL D50 STONE SIZE OF EXISTING STREAM BED.

SUGGESTED SEQUENCE OF SCOUR REPAIR

- 1. CONSTRUCT SANDBAG COFFERDAM UPSTREAM AND DOWNSTREAM OF CULVERT AS A CONTROL OF WATER SYSTEM TO TEMPORARILY DIVERT FLOW TO THE ADJACENT STRUCTURE DURING CONSTRUCTION.
- 2. THE STREAMBED SHALL BE EXCAVATED TO THE LIMITS SHOWN IN THE DETAILS.
- CONSTRUCT DEWATERING BASIN SUCH THAT SEDIMENTS DO NOT ENTER WATERWAY.
- 4. PLACE GEOTEXTILE FABRIC FOR SEPARATION AND CRUSHED STONE PER DETAILS SHOWN.
- INSTALL GROUT BAGS TO LIMITS SHOWN WHICH ENCOMPASS THE UNDERMINED AREA.
- 6. PLACE GROUT AT UNDERMINED AREAS. SEE PROPOSED SCOUR REPAIR AND COUNTERMEASURE DETAIL.
- 7. INSTALL RIPRAP.8. INSTALL COBBLESTONE OVER RIPRAP AND GROUT BAGS.

- CONSTRUCTION NOTES

 1. CONTRACTOR SHALL PERFORM ALL PROPOSED WORK IN COMPLIANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE ABINGTON CONSERVATION COMMISSION.
- 2. CONTRACTOR SHALL DISPOSE OF ANY UNSUITABLE OR EXCESS EARTH MATERIAL. EXCAVATE FROM THE SITE IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

PROPOSED SCOUR REPAIR AND COUNTERMEASURE PLAN

SCALE: N.T.S.

9'-3"

5'-1"

EXIST. FACE OF WEST ABUT.

PROP. GROUT

ANTI-WASHOUT

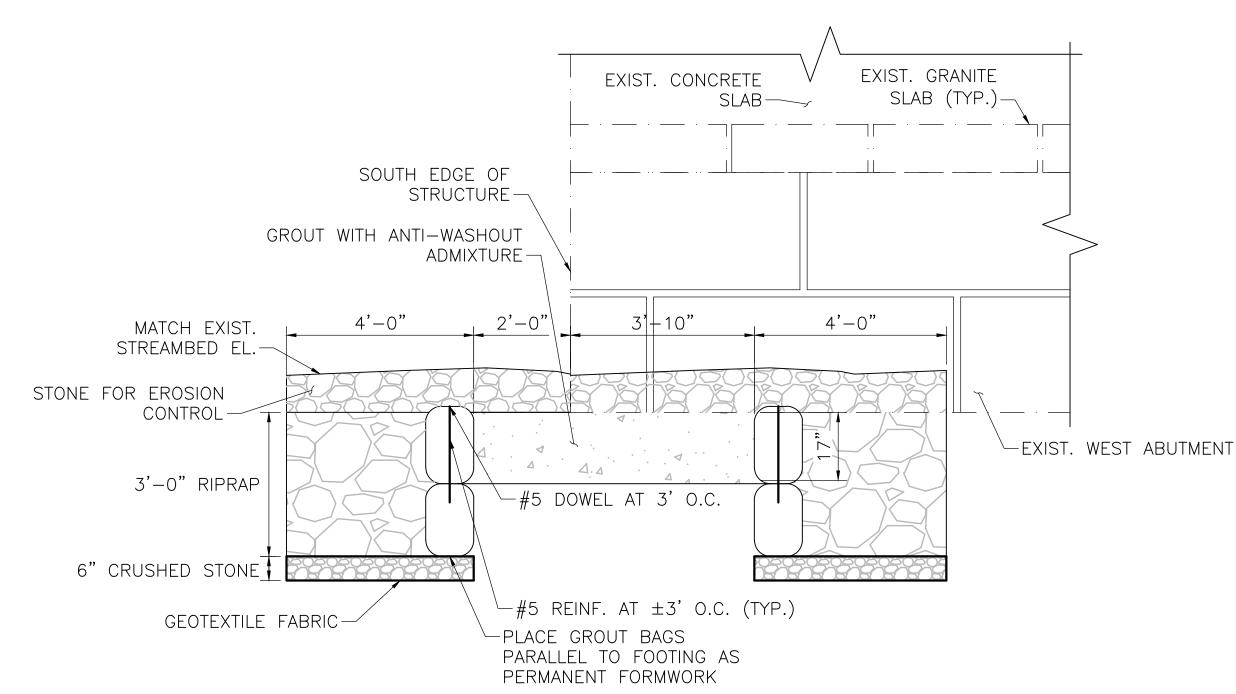
'PROP. GROUT WITH

BAGS (TYP.)-

ADMIXTURE -

3'-6"

2'-0"



PROPOSED SCOUR REPAIR AND COUNTERMEASURE DETAIL
SCALE: N.T.S.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35
5/4/2023

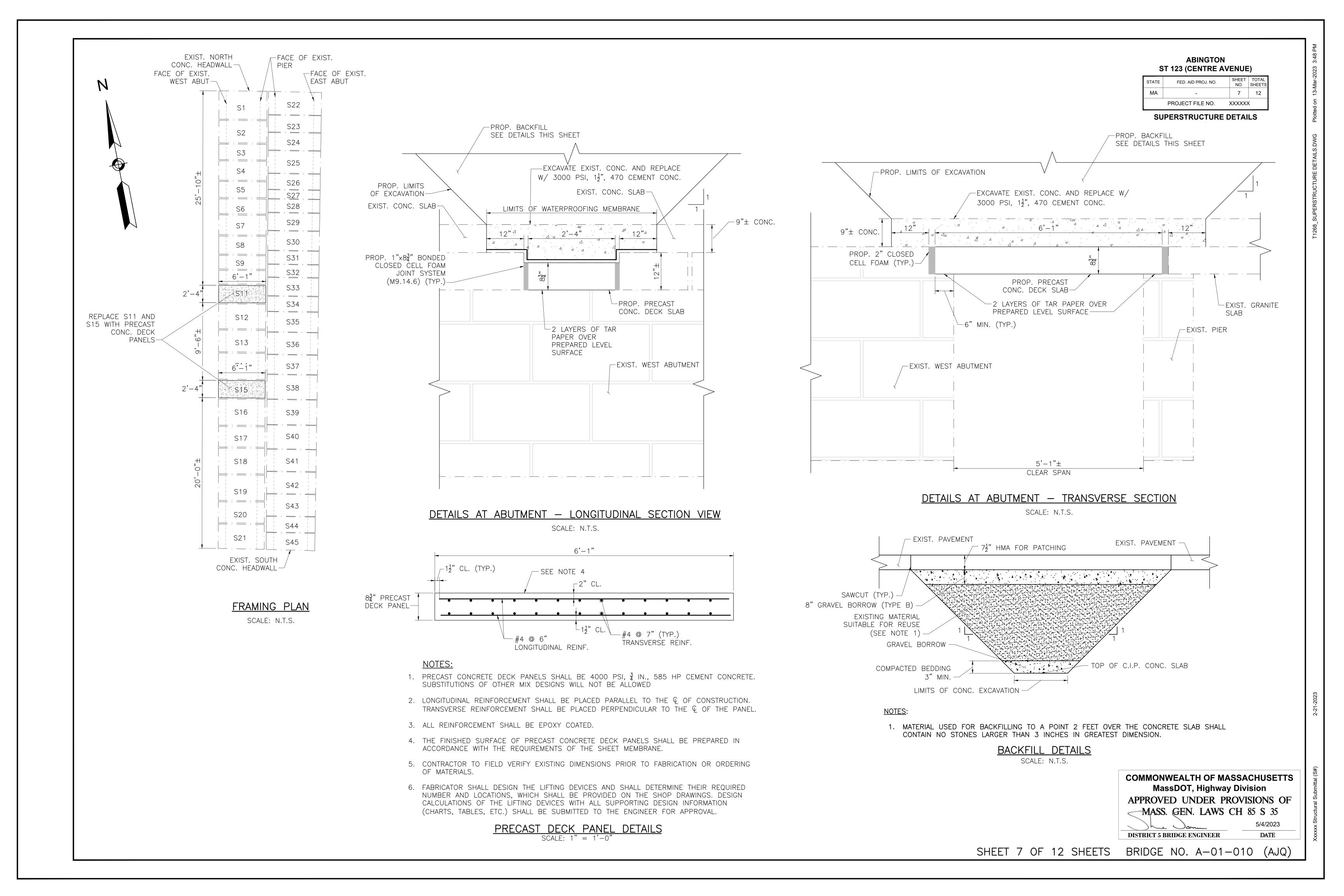
DISTRICT 5 BRIDGE ENGINEER

DATE

2-21-2023

9

nittal (S#)



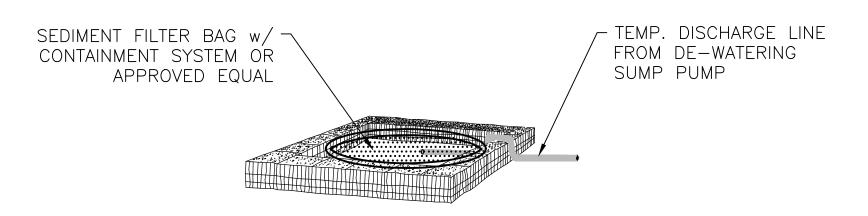
ABINGTON ST 123 (CENTRE AVENUE)

MA - 8 12 PROJECT FILE NO. XXXXXX	ГАТЕ	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
PROJECT FILE NO. XXXXXX	MA	-	8	12
		PROJECT FILE NO.	XXXXX	(

CONTROL OF WATER PLAN

CONTROL OF WATER NOTES

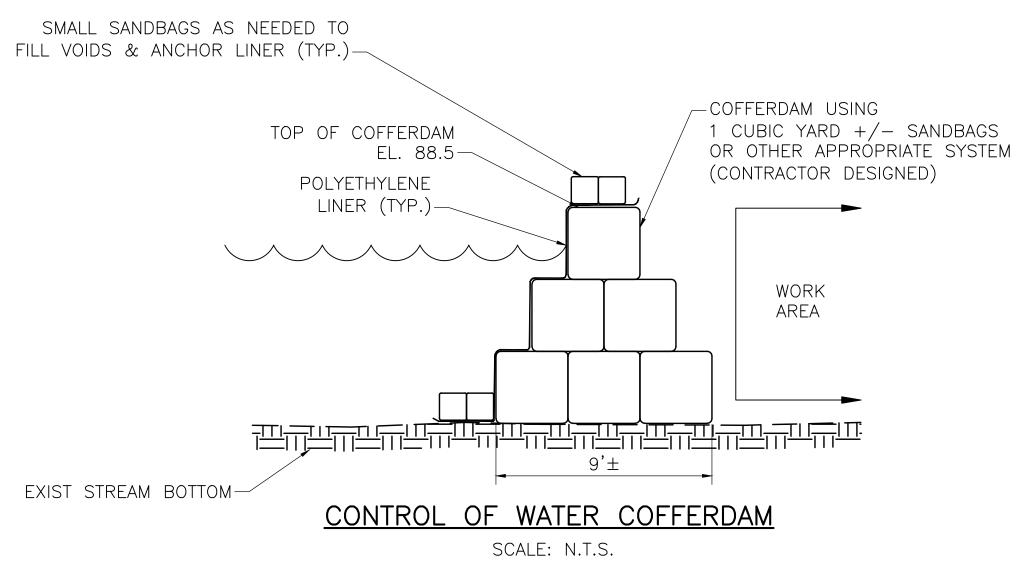
- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE CONTROL OF WATER (C.O.W.) SYSTEM AND SHALL SUBMIT A C.O.W. PLAN TO THE ENGINEER FOR APPROVAL. THE C.O.W. SYSTEM SHOWN IS CONCEPTUAL ONLY.
- 2. C.O.W. SYSTEM SHALL BE INSPECTED DAILY FOR WATER LEAKS OR EROSION AND REPAIR PROCEDURES SHALL BE IMPLEMENTED ACCORDINGLY.
- 3. THE CONSTRUCTION SEQUENCE WITH REGARDS TO THE C.O.W. SYSTEM SHALL BE AS FOLLOWS:
- 3.1. INSTALL EROSION CONTROLS: TEMPORARY EROSION CONTROL AROUND THE PROJECT LIMITS TO PROTECT THE SHUMATUSCACANT RIVER FROM WORK ZONE SEDIMENT; FLOATING SILT FENCE IN THE SHUMATUSCACANT RIVER DOWNSTREAM OF THE PROJECT LIMITS TO TRAP ANY FLOATING DEBRIS/SILT THAT MAY ENTER THE RIVER.
- 3.2. INSTALL C.O.W. SANDBAGS, DEWATERING PUMPS, AND TEMPORARY STILLING BASIN. DEWATER THE WORK AREA PRIOR TO (AND THROUGHOUT) EXCAVATION TO FACILITATE INSTALLING GROUT AND RIPRAP IN THE DRY CONDITION. ALL DEWATERING FLOW SHALL PASS THROUGH THE STILLING BASIN TO REMOVE SEDIMENT PRIOR TO DEPOSITING BACK INTO THE RIVER.
- 3.3. PERFORM SUBSTRUCTURE AND SUPERSTRUCTURE REPAIRS.
- 3.4. REDIRECT STREAM FLOW THROUGH THE CULVERT.
- 3.5. REMOVE THE C.O.W. SANDBAGS, DEWATERING PUMPS, AND TEMPORARY STILLING BASIN.



DISCHARGE TO SEDIMENTATION BASIN (AS SHOWN) OR TO SILTATION/ DEWATERING BAG SUCH AS FLOGARD DEWATERING BAG MODEL SC-DW1215Z, OR APPROVED EQUAL BY ABINGTON CONSERVATION COMMISSION. SYSTEM SHOWN IS CONCEPTUAL ONLY AND IS TO BE DESIGNED BY CONTRACTOR.

TEMPORARY STILLING AREA

SCALE: N.T.S.



-WATER TO BE REDIRECTED INTO - SPILLWAY DURING SUBSTRUCTURE AND SUPERSTRUCTURE REPAIRS

CENTRE AVE B

TEMP. WORKZONE FOR DEWATERING PUMP

WF#BA200

PROP. SEDIMENT

CONTROL BARRIER (TYP.

(PUMP INTO STILLING BASIN)

EXIST. PIER-

FACE OF EXIST. ABUTMENT

SHUMATUSCACANT RIVER 是-

SILT FENCE, L=12'

CONC. WALI PROP. TEMP. FLOATING

TEMP. RIPRAP FOR DISCHARGE

TEMPORARY SANDBAG

SUBSTRUCTURE REPAIRS

_COFFERDAM FOR

-SHUMATUSCACANT RIVER ₽ STA. 10+50.00=

(PUMP INTO STILLING BASIN)

TEMPORARY SANDBAG

SUBSTRUCTURE REPAIRS

COFFERDAM FOR

CONTROL OF WATER PLAN

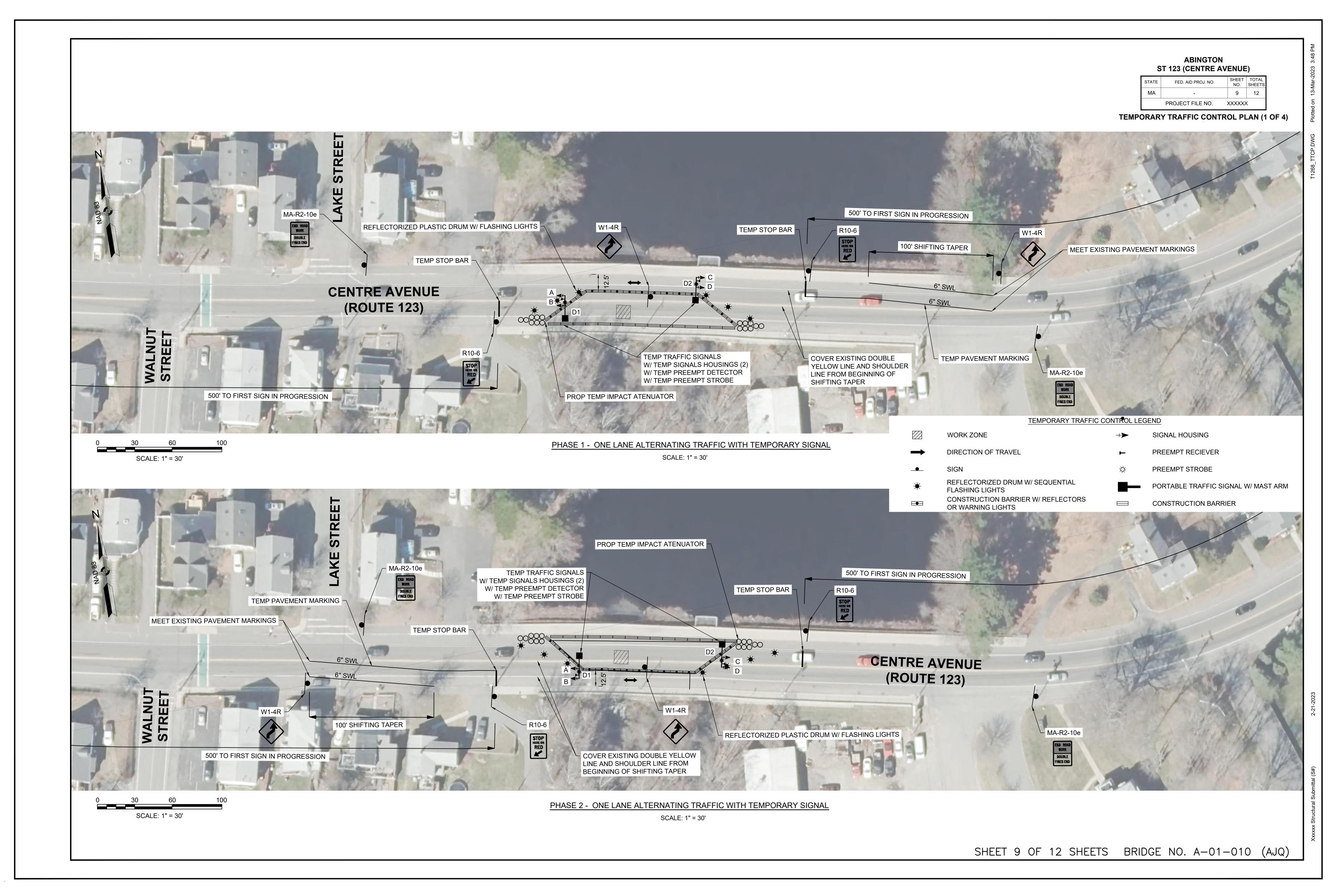
SCALE: 1" = 10'

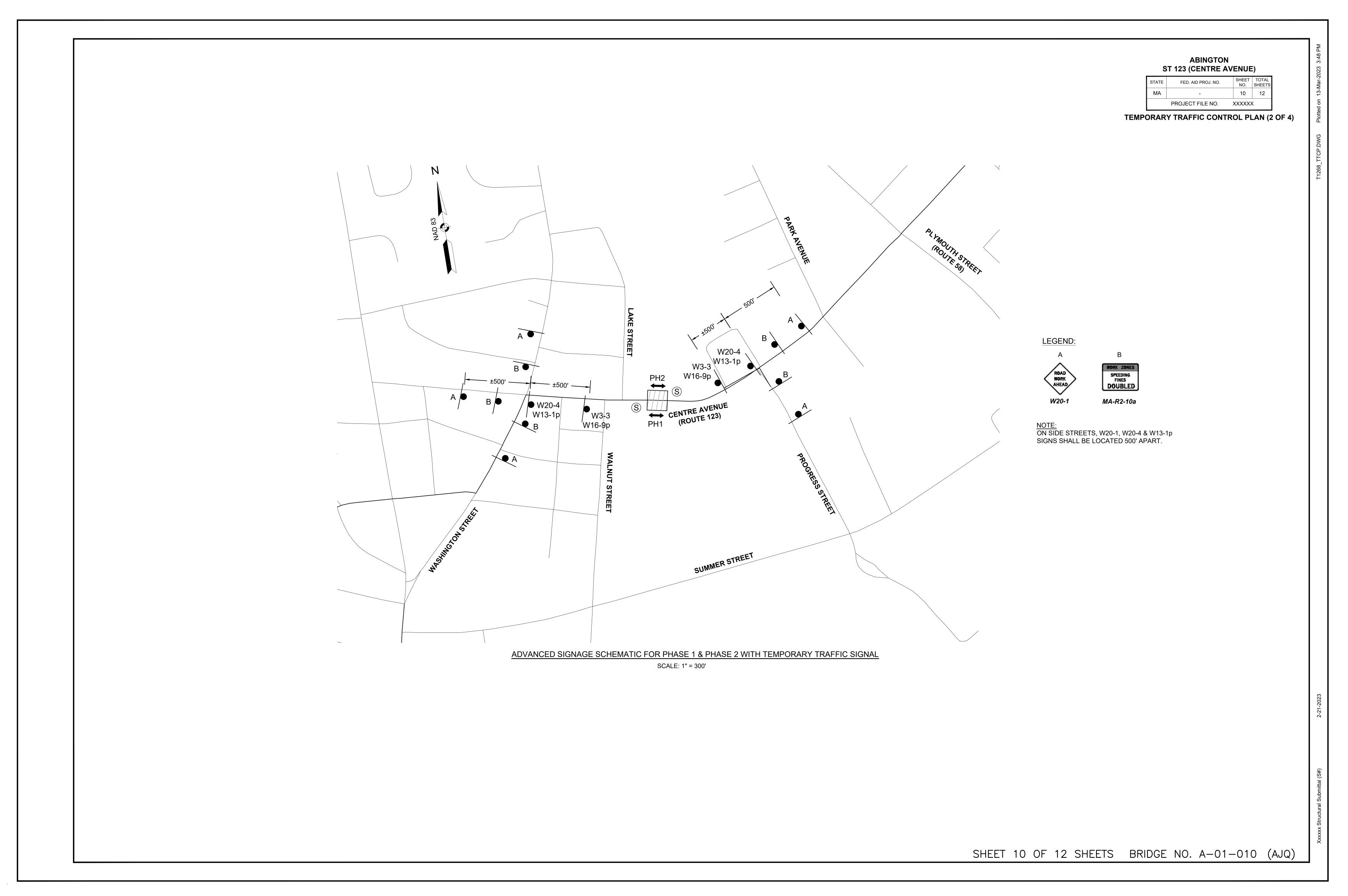
TEMP. WORKZONE FOR DEWATERING PUMP

WF#BA29/7

CENTRE AVE & STA. 51+00.00

SHEET 8 OF 12 SHEETS BRIDGE NO. A-01-010 (AJQ)

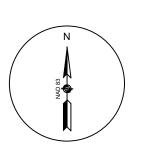




TEMPORARY TRAFFIC SIGNAL CONTROL

TEMPO	RARY TRAFFIC	SIGNAL T	IMING	AND	PHAS	SING	_	
APPROACH	HOUSING	1	2	3	4	5	6	
MINIMUM INTERVAL		20			20			
VEHICLE EXTENSION		0			0			
MAXIMUM 1		20			20			
MAXIMUM 2			-			-		
YELLOW CLEARANCE				4.0			4.0	
RED CLEARANCE					4.5			4.5
CENTRE STREET	EB	A,B	G	Y	R	R	R	R
CENTRE STREET	WB	C,D	R	R	R	G	Υ	R
DETECTOR		NONE NONE						
RECALL			OFF			OFF		
NOTES:			Ø1			Ø2		

1. MAXIMUM 1 = NORMAL OPERATION



·		 -

PREEMPTION PHASING & PRIORITY							
DETECTOR	PREEMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT				
D1	1	<u> </u>	Ø1				
D2	2	-	Ø2				

	BRIDGE A-01-010
	LIST OF MAJOR TRAFFIC SIGNAL ITEMS REQUIRED
QUANTITY	DESCRIPTION
2	PORTABLE TRAFFIC SIGNAL ASSEMBLIES (INTERNAL RADIO INTERCONNECT)
2	EMERGENCY VEHICLE PREEMPTION CONFIRMATION STROBE ADD-ON
2	EMERGENCY VEHICLE PREEMPTION DETECTOR ADD-ON

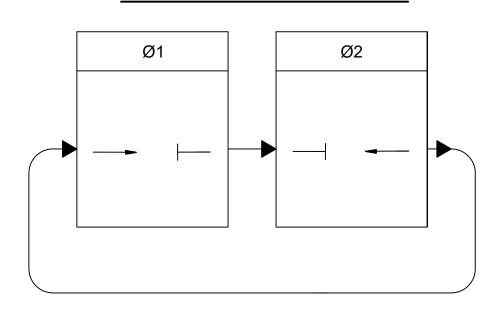
EMERGENCY VEHICLE PRE-EMPTION NOTES:

- 1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
- 2. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVE BASIS.
- 3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE ØA (OR ØB) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (AS NOTED IN CHART) AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
- 4. NORMAL CLEARANCE INTERVALS SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- 5. ONCE PRE-EMPTION PHASING HAS CLEARED, THE SYSTEM SHALL RESTART NORMAL OPERATIONS ACCORDING TO THE PREFERENTIAL PHASE SEQUENCE.
- 6. CONFIRMATION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.

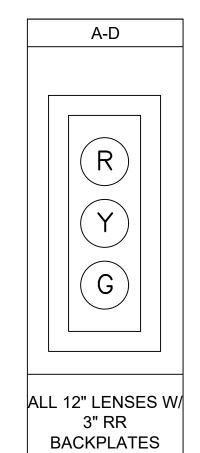
CONSTRUCTION NOTES:

- 1. RELOCATE PORTABLE SIGNAL FROM CURRENT WORK ZONE SET-UP TO REVISED LOCATIONS.
- 2. LOCATION OF PORTABLE TRAFFIC SIGNAL ASSEMBLY MUST BE AT LEAST 40 FEET BEYOND TEMPORARY STOP LINE TO ALLOW FOR VISIBILITY REQUIREMENTS OF THE MUTCD.
- 3. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING PORTABLE TRAFFIC SIGNAL LIGHT OUTPUT ON REGULAR BASIS.

PREFERENTIAL PHASE SEQUENCE



TEMPORARY TRAFFIC SIGNAL HEADS



ABINGTON ST 123 (CENTRE AVENUE)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	12
	PROJECT FILE NO.	XXXXX	<

TEMPORARY TRAFFIC CONTROL PLAN (4 OF 4)

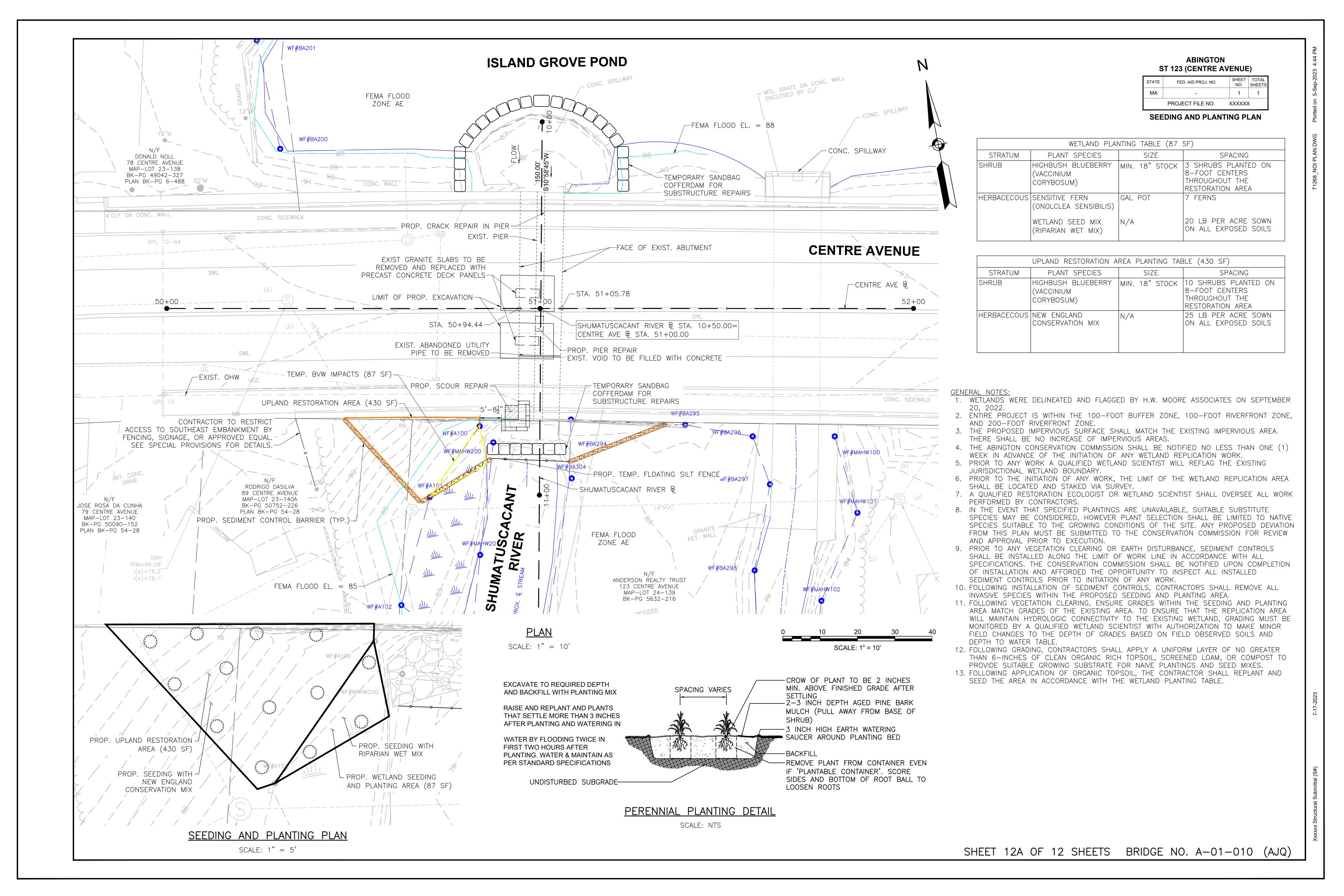
				TRA	AFFIC SIGN	I SUMMAF	RY - BRIDGE	B-19-010					
IDENTIFICATION	SIZE OF SIGN (INCHES)			TEXT DIMENSIONS (INCHES)			NUMBER OF	COLOR			NUMBER OF	UNIT	AREA IN
IDENTIFICATION NUMBER	WIDTH	HEIGHT	LEGEND	LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	SIGNS REQUIRED	BACKGROUND	LEGEND	BORDER	SUPPORTS REQUIRED	AREA (S.F.)	SQUARE FEET
MA-R2-10a	36	48	WORK ZONES SPEEDING FINES DOUBLED	MASSD	MASSDOT STANDARD SIGN			FL. ORANGE / WHITE	BLACK	BLACK	5	12.00	60.00
MA-R2-10e	48	36	END ROAD WORK DOUBLE FINES END	MASSD	MASSDOT STANDARD SIGN			FL. ORANGE / WHITE	BLACK	BLACK	2	12.00	24.00
R10-6	24	36	STOP HERE ON RED	1			2	WHITE	BLACK	BLACK	2	6.00	12.00
W1-4R	36	36				2	FL. ORANGE	BLACK	BLACK	2	9.00	18.00	
W3-3	36	36					2	FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W13-1p	24	24	XX MPH			2	FL. ORANGE	BLACK	BLACK	0 W/ W20-4	4.00	8.00	
W16-9p	24	12	AHEAD			2	FL. ORANGE	BLACK	BLACK	0 W/ W3-3	2.00	4.00	
W20-1 (AHEAD)	36	36	ROAD WORK AHEAD			5	FL. ORANGE	BLACK	BLACK	5	9.00	45.00	
W20-4	36	36	ONE LANE ROAD AHEAD		\		2	FL. ORANGE	BLACK	BLACK	2	9.00	18.00

NOTES:

1. CONTRACTOR TO FURNISH SIGNS CONSISTENT WITH 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OR LATEST EDITION). SEE MANUAL FOR TEXT AND LEGEND DIMENSIONS.

GENERAL NOTES:

- 1. ALL WORK ZONES ARE ESTABLISHED FOR 24-HOURS A DAY . TEMPORARY CONSTRUCTION SIGNAGE, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC OR DURING NON-WORKING HOURS.
- 2. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES, AND OTHER DEVICES SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
- 3. TEMPORARY CONSTRUCTION BARRIER ALONG THE TRAVEL LANE AND WITHIN TAPERS SHALL BE TL-3 WITH LIMITED DEFLECTION. BARRIER ALONG THE EDGE OF SIDEWALK SHALL BE TL-3.
- 4. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE M.U.T.C.D. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- 5. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS AT THE DISCRETION OF THE ENGINEER.
- 6. SIGN DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- 7. SIGNS AND SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)".
- 8. ALL DRUMS AND/OR CONES SHALL BE SET @ 20' O.C. MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
- 9. MINIMUM LANE WIDTH TO BE MAINTAINED AT 12.5'. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUM AND/OR BARRIER.
- 10. THE FIRST TEN (10) PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE-A SEQUENTIAL FLASHING LIGHTS.



7 ABUTTERS INFORMATION

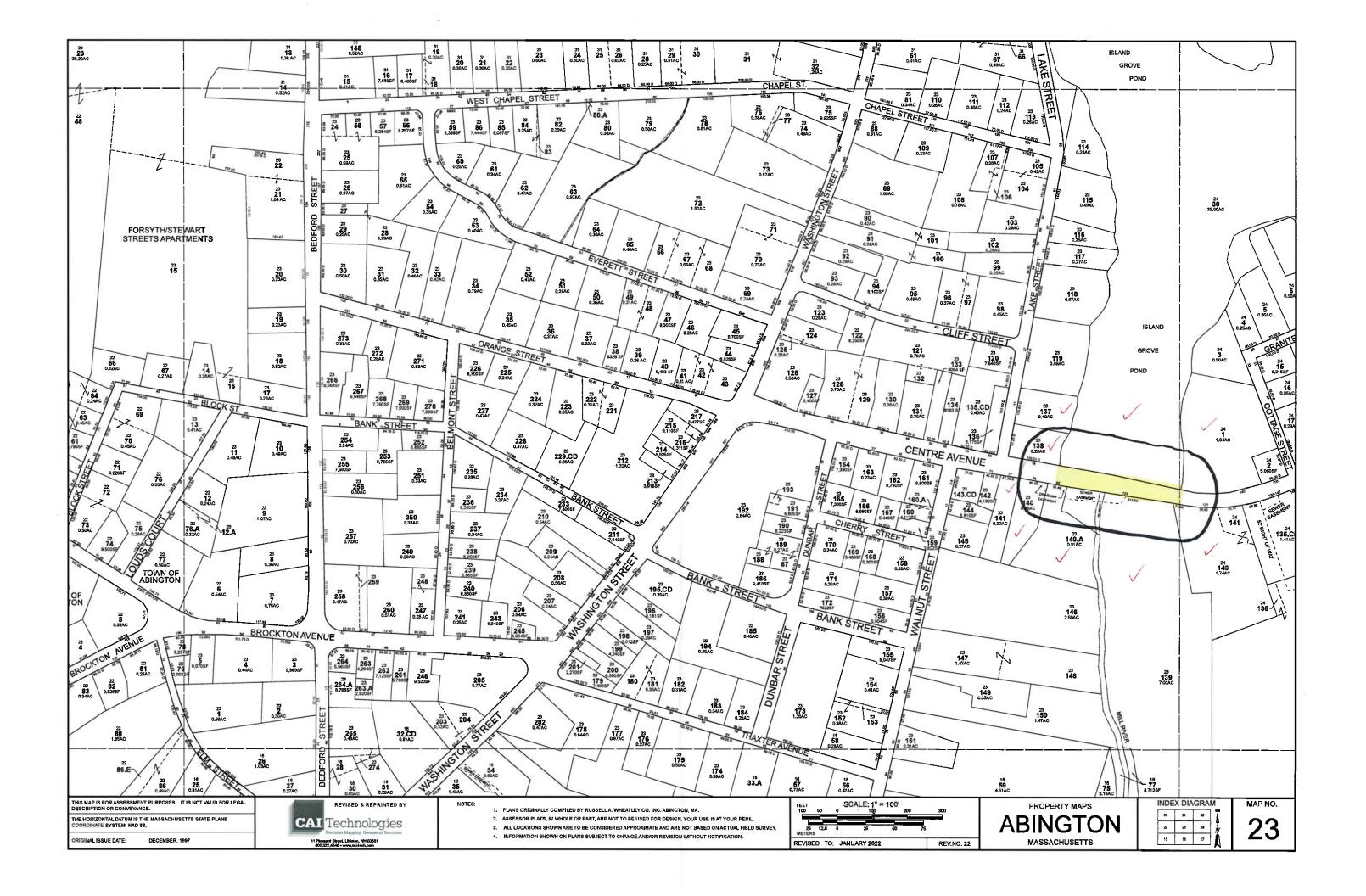
Con Comm abutter list for Centre Ave bridge location

Мар	Lot	Lot Cut	Unit	Unit Cut	Owner	Owner line 2	Mailing	City	State	Zip	Location
23	137				HARKINS GEORGE J & CATHLEEN H		17 LAKE STREET	ABINGTON	MA	02351	17 LAKE ST
23	138				NOLL DONALD		30 ORCHARD LN	ABINGTON	MA	02351	78 CENTRE AV
23	139				ANDERSON REALTY TRUST	ANDERSON ERIC R II & ROBERT S	706 BROCKTON AVENUE	ABINGTON	MA	02351	123 CENTRE AV
23	140				DA CUNHA JOSE ROSA		79 CENTRE AV	ABINGTON	MA	02351	79 CENTRE AV
23	140	Α			DA SILVA RODRIGO		89 CENTRE AV	ABINGTON	MA	02351	89 CENTRE AV
23	141				FENNELL CHRISTINA M		77 CENTRE AV	ABINGTON	MA	02351	77 CENTRE AV
24	1				DENNIS FAMILY REALTY TRUST II	ROSCOE ALAN D TR	19 STONEY BROOK RD	ROWLEY	MA	01969	144 CENTRE AV
24	30				ABINGTON TOWN OF	ISLAND GROVE POND	500 GLINIEWICZ WAY	ABINGTON	MA	02351	ISLAND GROVE PONE
24	140				FRANEY JOSEPH & ROBERTA		150 RICHARD RD	ABINGTON	MA	02351	131 CENTRE AV

ann Kent

ant. Welch

Lawrence Keryh



Notification to Abutters

By Hand Delivery, Certified Mail (return receipt requested), or Certificates of Mailing

This is a notification required by law. You are receiving this notification because you have been identified as the owner of land abutting another parcel of land for which certain activities are proposed. Those activities require a permit under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40).

In accordance with the second paragraph of the Massachusetts Wetlands Protection Act, and 310 CMR 10.05(4)(a) of the Wetlands Regulations, you are hereby notified that:

A. A Notice of Intent was filed with the Abington Conservation Commission on May 31st seeking permission to remove, fill, dredge, or alter an area subject to protection under M.G.L. c. 131 §40. The following is a description of the proposed activity/activities:

The Centre Avenue Bridge over the Shumatuscacant River is being preserved. The project will improve the structure by removing and replacing two deck panels, replacing a pier block, and filling a void at the southwest wingwall/abutment.

- B. The name of the applicant is: Andrew Maesner (TEC, Inc.)
- C. The address of the land where the activity is proposed is: Centre Avenue over Shumatuscacant River.
- D. Copies of the Notice of Intent may be examined or obtained at the office of the Abington Conservation Commission, located at 500 Gliniewicz Way, Abington, MA. The regular business hours of the Commission are 8:30-4:30 Monday-Thursday, 8:30-12:30 Friday, and the Commission may be reached at (781) 982-2100.
- E. Copies of the Notice of Intent may be obtained from the applicant or their representative by calling Andrew Maesner at (978) 794-1792. An administrative fee may be applied for providing copies of the NOI and plans.
- F. Information regarding the date, time, and location of the public hearing regarding the Notice of Intent may be obtained from the Abington Conservation Commission. Notice of the public hearing will be published at least five business days in advance, in The Enterprise.



WPA Form 5 - Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
SE0 84-566
MassDEP File #
eDEP Transaction #

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

Abington

1. From: **Conservation Commission**

2. This issuance is for

a.

Order of Conditions

b. Amended Order of Conditions

e. Longitude

Abington City/Town

Important:
When filling
out forms on
the
computer,
use only the
tab key to
move your
cursor - do
not use the
return key.





(check one):		-				
3. To: Applicant:						
John	Ston	е				
a. First Name	b. Las	st Nam	Э			
Abington Department of Public Works						
c. Organization						
350 Summer Street						
d. Mailing Address						
Abington	MA				02351	
e. City/Town	f. Sta	ate			g. Zip Code	
Property Owner (if different from applican a. First Name		st Nam	Э			
c. Organization						
d. Mailing Address						
e. City/Town	f. Sta	ate			g. Zip Code	
5. Project Location:						
Center Avenue	Abin	gton				
a. Street Address		y/Town				
N/A- Bridge						
c. Assessors Map/Plat Number	d. Par	rcel/Lot	Number			
Latitude and Longitude, if known:	d	m	s	d	m	s

wpaform5.doc • rev 8/3/2023 Page 1 of 13

d. Latitude



WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
SE084-566
MassDEP File #
eDEP Transaction #
Abington
City/Town

A. General Information (cont.)

6.	Property roone parce		istry of	Deeds for	(attach addition	al inf	ormation if more than
	a. County				b. Certificate Num	ber (if	registered land)
	c. Book				d. Page		
		6/7/2023		9/12	/2023		10/4/2023
7.	Dates:	a. Date Notice of Inten	t Filed		te Public Hearing Cl	osed	c. Date of Issuance
8.	as needed Bridge Pre	l):	her Doo	cuments (a	attach additional	plan	or document reference
	a. Plan Title						
	TEC, Inc				Robert Niccoli		
	b. Prepared	Ву			c. Signed and Sta	mped	by
	9/5/2023						
	d. Final Revi				e. Scale		
		nd Planting Plan					7/17/2023
	f. Additional	Plan or Document Title					g. Date
1.	Following provided in the areas Protection	n this application ar in which work is pro Act (the Act). Chec	oove-re nd presoposed ck all th	ferenced ented at the is significated at apply:	Notice of Intent a ne public hearing ant to the following	and b , this	ased on the information Commission finds that terests of the Wetlands Prevention of
a.	∐ Public	Water Supply b.	∐ La	and Conta	ining Shellfish		Pollution
d.	☐ Private	e Water Supply e.	⊠ Fi	isheries		f.	□ Protection of Wildlife Habitat
g.	⊠ Groun	dwater Supply h.	⊠ S	torm Dam	age Prevention	i.	
2.	This Comn	nission hereby finds	the pro	ject, as pr	oposed, is: (checl	k one	of the following boxes)
Аp	proved sub	oject to:					
a.	standards be perform General C that the fo	ned in accordance	lands re with the other s nodify o	egulations Notice of pecial cor or differ fro	. This Commissi Intent reference ditions attached om the plans, spo	on or d abo to the	ders that all work shall ove, the following is Order. To the extent ations, or other

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WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
SE084-566
MassDEP File #
eDEP Transaction #
Abington
City/Town

B. Findings (cont.)

Denied because:

C.	Order.	ned to this
	the information submitted by the applicant is not sufficient to describe the site or the effect of the work on the interests identified in the Wetlands Protection Act Therefore, work on this project may not go forward unless and until a revised No Intent is submitted which provides sufficient information and includes measures adequate to protect the Act's interests, and a final Order of Conditions is issued. description of the specific information which is lacking and why it is necessattached to this Order as per 310 CMR 10.05(6)(c).	t. otice of which are A
3.	☐ Buffer Zone Impacts: Shortest distance between limit of project	a. linear fee

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. 🛭 Bank	17 (Temporary)	b. linear feet	c. linear feet	d. linear feet
 Bordering Vegetated Wetland 	87 (Temporary)	b. square feet	c. square feet	d. square feet
 Land Under Waterbodies and Waterways 	145 <u>(Temporary)</u> 13	b. square feet	c. square feet	d. square feet
7. Bordering Land	(Temporary) 87	f. c/y dredged		
Subject to Flooding	(Temporary)	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100- 200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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B. Findings (cont.)

Coa	astal Resource Area Impac	cts: Check all tha	at apply below.	(For Approvals C	nly)
		Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10.	☐ Designated Port Areas	Indicate size un	der Land Unde	r the Ocean, belo	W
11.	Land Under the				
	Ocean	a. square feet	b. square feet		
		c. c/y dredged	d. c/y dredged		
12.	☐ Barrier Beaches	Indicate size un below	der Coastal Be	aches and/or Coa	astal Dunes
13.	☐ Coastal Beaches	a aguara faat	b aguara fact	cu yd	cu yd
	_	a. square feet	b. square feet	c. nourishment	d. nourishment
14.	☐ Coastal Dunes	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
15.	Coastal Banks				
		a. linear feet	b. linear feet		
16.	☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17.	☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18.	☐ Land Under Salt Ponds	a. square feet	b. square feet		
19.	☐ Land Containing	c. c/y dredged	d. c/y dredged		
13.	Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20.	Fish Runs		or inland Land	nks, Inland Bank, Under Waterbod	
	□ Land Oakia state	a. c/y dredged	b. c/y dredged		
21.	Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		
22.	☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
	Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
	Sq ft between 100-	,	•		•
	200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
SE0 84-566
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B. Findings (cont.)

* #23 . If the
project is for
the purpose of
restoring or
enhancing a
wetland
resource area
in addition to
the square
footage that
has been
entered in
Section B.5.c
(BVW) or
B.17.c (Salt
Marsh) above,
please enter
the additional

23. Restoration/Enhancement *	:
a. square feet of BVW	b. square feet of salt marsh
24. Stream Crossing(s):	
a. number of new stream crossings	b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

- 1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
- amount here. 2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
 - 3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
 - 4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - a. The work is a maintenance dredging project as provided for in the Act; or
 - b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
 - c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
 - 5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
 - 6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on 10/5/2026 unless extended in writing by the Department.
 - 7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: SE084-566

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C. General Conditions Under Massachusetts Wetlands Protection Act

- 8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
- 9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.
- 10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

"Massachusetts Department of Environmental Protection" [or, "MassDEP"]

"File Number SE084-566

- 11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.
- 12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
- 13. The work shall conform to the plans and special conditions referenced in this order.
- 14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
- 15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
- 16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- 17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
- 18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

19.	The work associated with this Order (the "Project")		
	(1)	is subject to the Massachusetts Stormwater Standards	
	(2) 🛛	is NOT subject to the Massachusetts Stormwater Standards	

If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

- a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
- b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;

iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

- c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:
 - i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and
 - ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
- d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.
- e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.
- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

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WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: SE084-566 MassDEP File #

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Abington
City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- g) The responsible party shall:
 - 1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
 - 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
 - Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- I) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

A1,B1,B2,B6,C2,G1,G3,G4-G7, H2,H4-H7,I1,I2, SPECIAL CONDITIONS 1-51, Ongoing Conditon 1-6.

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:		
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eDEP Transaction #		
Abington		
Cit. /Taxxa		

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1.	ls a	a municipal wetlands bylaw or ordinance applicable? Yes No	
2.	The	ne Abington hereby finds (check one that Conservation Commission	t applies):
	a.	that the proposed work cannot be conditioned to meet the standards set municipal ordinance or bylaw, specifically:	forth in a
		1. Municipal Ordinance or Bylaw 2.	. Citation
		Therefore, work on this project may not go forward unless and until a revised Intent is submitted which provides measures which are adequate to meet the standards, and a final Order of Conditions is issued.	
	b.	that the following additional conditions are necessary to comply with a moordinance or bylaw:	unicipal
		1. Municipal Ordinance or Bylaw 2	. Citation
3.	The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control. The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):		

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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E. Signatures

This Order is valid for three years, unless otherwise specified as a special 1. Date of Issuance condition pursuant to General Conditions #4, from the date of issuance.

Please indicate the number of members who will sign this form.

This Order must be signed by a majority of the Conservation Commission.

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature	Printed Name
Signature	Printed Name
by hand delivery on	by certified mail, return receipt requested, on
Date	Date

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: SE084-566

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F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: SE084-566 MassDEP File #

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G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Abington	Abington			
Conservation Commission				
Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.				
То:				
Abington Conservation Commission				
Please be advised that the Order of Conditions for	the Project at:			
Centre Avenue	SE084-566 MassDEP File Number			
Project Location	MassDEP File Nulliber			
Has been recorded at the Registry of Deeds of:				
Plymouth				
County	Book Page			
for: Abington Department of Public Work Property Owner				
and has been noted in the chain of title of the affected property in:				
Book	Page			
In accordance with the Order of Conditions issued on:				
10/5/2023				
Date				
If recorded land, the instrument number identifying this transaction is:				
Instrument Number				
If registered land, the document number identifying	this transaction is:			
Document Number				
Signature of Applicant				

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DEP File Number:

Provided by DEP



Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. Request Information

Location of Project			
a. Street Address	b. City/Town, Zip		
c. Check number	d. Fee amount		
2. Person or party making request (if appropria	te, name the citizen group's represe	ntative):	
Name			
Mailing Address			
City/Town	State	Zip Code	
Phone Number	Fax Number (if app	olicable)	
Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):			
Name			
Mailing Address			
City/Town	State	Zip Code	
Phone Number	Fax Number (if app	olicable)	
l. DEP File Number:			

B. Instructions

1.

When the Departmental action request is for (check one):		
☐ Superseding Order of Conditions – Fee: \$120.00 (single family house projects) or \$245 (all other projects)		
☐ Superseding Determination of Applicability – Fee: \$120		
☐ Superseding Order of Resource Area Delineation – Fee: \$120		

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DEP File Number:

Provided by DEP



Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

_		
В.	Instructions	(cont
		(00::::)

Send this form and check or money order, payable to the Commonwealth of Massachusetts, to:

Department of Environmental Protection Box 4062 Boston, MA 02211

- 2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.
- Send a copy of this form and a copy of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see https://www.mass.gov/service-details/massdep-regional-offices-by-community).
- 4. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

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Town of Abington Standard Order of Conditions SEO84-566

A. EROSION AND SEDIMENTATION CONTROLS

A1. Prior to commencement of any activity on the site, a siltation fence barrier shall be placed on a limit of work line <u>0</u> feet from the wetland edge depth. The siltation barrier shall be inspected daily and any section showing signs of deterioration shall be replaced immediately. The siltation fence shall remain in proper functioning condition until all disturbed areas have been stabilized. Once the area is stabilized, the siltation fence may be removed. The installation of the siltation barrier shall be inspected and approved by the Commission prior to commencement of work.

B. DRAINAGE AND RUNOFF CONTROLS

- B1. The Commission requires that the proposed development not alter the peak rate of runoff from the site during the 2-, 10, and 100-year storms.
- B2. Drainage and flow patterns shall not be altered. Water flow shall be maintained at all times.
- B6. Should any erosion or sedimentation control measure fail, immediate attention will be given by the applicant or his representative to correcting the failure and to rectifying any adverse impact from the failure, for example, by the removal of any silt or debris that may have bypassed the control measure. The Commission must be notified within 24 hours of the failure.

C. FLOOD CONTROL

C2. The project must be designed so that the amount of flood storage provided after development is at least equal to that which presently exists under the 2, 10, 25, and 100 year storm. Compensatory storage must be equivalent to that lost at each elevation in one-foot increments, and there must be new flood storage in the same reach of the river.

G. ON-SITE CONDITIONS

G1. During construction for this project, an on-site foreman, directing engineer, or designated construction manager shall have a copy of this Order at the site, shall familiarize him or herself with the conditions of this permit, and shall adhere to said conditions. The excavation subcontractor shall also have a copy of this Order on site, shall familiarize himself or herself with conditions of the permit, and shall adhere to said conditions.

- G2. All waste products, grubbed stumps, slash, construction materials, etc. shall be deposited at an approved landfill and shall not be in any manner incorporated into the project site with the exception of the reduction of stumps and slash to mulch.
- G3. During and after work on this project, there shall be no discharge or spillage of fuel, oil, or other pollutants into any resource area.
- G4. Used petroleum products resulting from maintenance of construction equipment and construction debris shall be collected and disposed of off-site. No on-site disposal of these items is allowed.
- G5. All debris, fill, excavated material, construction material and building material shall be stockpiled more than ____25____ feet from any wetlands or resource area at a location to prevent sediment from surface runoff from entering the wetlands. At no time shall any debris or other material be buried or disposed of in or within 100 feet of a wetland resource other than fill permitted explicitly in the Order.
- G6. Servicing equipment (fueling, changing, adding or applying lubricants or hydraulic fluids) must be done outside the Buffer Zone. Equipment must be a minimum of fifty feet from the wetland boundary.
- G7. Should contaminated fill be discovered the applicant shall immediately notify the Department of Environmental Protection (DEP) and the Conservation Commission.

H. ADMINISTRATIVE CONDITIONS

- H2. This Order shall apply to every successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans, or part thereof. In the event of this land or any part thereof changing ownership before or during construction, the current owner shall notify the new owner prior to the transfer of ownership by registered mail of this order and shall forward proof of this notification to the Commission.
- H4. This Order of Conditions shall be included in all construction contracts and subcontracts dealing with the work proposed and shall supersede other contract requirements.
- H5. Upon completion of the project the applicant shall submit, by certified mail, a written request for a Certificate of Compliance. All physical work—i.e., filling, excavation, grading, seeding, etc. will be completed prior to the application for a Certificate of Compliance. A written statement by registered professional engineer certifying compliance with the approved plans and Order of Conditions may be required.
- H6. Two as-built plans, signed and stamped by a registered professional engineer or land surveyor in the Commonwealth of Massachusetts, shall be submitted to the Conservation at the same time as a written request for a Certificate of Compliance and

shall specify how the completed set of plans differs from that shown on the plans referred to in the Order of Conditions. The as-built plan shall include, but not be limited to the following:

- a. all pipe/culvert inverts for inflow and outfalls, pipe slope, size and composition;
- b. location of other drainage structures and their composition;
- c. limits of clearing, fill or alteration;
- d. location of structures and pavement within 100 feet of the wetland;
- e. riprap locations and composition; the edge of the wetland;
- f. site grade contours within 100 feet of the wetland.
- g. PROOF THAT THIS ORDER OF CONDITIONS HAS BEEN RECORDED WITH THE REGISTRY OF DEEDS MUST BE SUBMITTED TO THE CONSERVATION COMMISSION PRIOR TO SIGNING A BUILDING PERMIT/COMMENCEMENT OF WORK.
- H7. Certain conditions are on-going and do not expire upon the completion of the project or issuance of a Certificate of Compliance. These conditions are:
 - a. the maintenance of culverts to insure serviceability as designed;
 - b. the maintenance and repair of detention basins and support drainage systems; design capacity and structural integrity of these facilities must be maintained;
 - c. the use of minimal concentrations of fertilizers, herbicides and/or pesticides utilized by the property owner.

I. THE WORK SCHEDULE AND SEQUENCE OF EVENTS

- I.1. The developer or contractor responsible for the project's completion shall be notified of, and shall be held accountable to the requirements of the Order. A copy of this Order shall be on-site while activities regulated by this Order are being performed.
- I.2. The chronological sequence of events under this Order shall be as follows:
 - a. Pursuant to DEP General Condition No. 9, this Order of Conditions must be registered with the Registry of Deeds prior to commencement of work. The Conservation Commission hereby orders that it be recorded in the Registry and notice filed with the Conservation no later than three (3) weeks following receipt of these orders. Failure to comply with this order shall be deemed cause to revoke this Order of Conditions and halt all work.
 - b. Placement of erosion and sedimentation controls, as set forth in the above-referenced plans, will precede construction. The Commission should be given at least 48 hours notice prior to construction so that the control measures can be checked.
 - c. During clearing operations, trees adjacent to wetlands should be felled away from the wetland and should be removed from the buffer. No stockpiling of erosive materials may occur within fifty (50) feet of any resource area. Work

- should proceed carefully, but as fast as possible, in order that the altered site adjacent to the wetland is stabilized as promptly as possible.
- d. The replication plan and timetable is to be designed by the professional wetlands consultant and submitted to the Conservation Commission for approval prior to the onset of the next growing season in order to take maximum advantage of soil conditions, hydrologic conditions, and availability of hydric plants.
- e. The road with its drainage structures and detention basin must be installed in such a way as to control erosion and sedimentation during the building process. The detention basin should be completed as early in the sequence as practicable from an engineering standpoint and stabilized until vegetative cover is established.

J. SPECIAL CONDITIONS

- 1. Provide the contact person's information who will be the primary point of communication with the applicant throughout the project. This includes, but is not limited to, their name, phone number, and email address.
- 2. Provide notification to the Commission on notice of award.
- 3. Provide notification to the Commission for notice to proceed.
- 4. Schedule a pre-construction meeting with the applicant and contractors and the Chairman and or member of the Commission at least two weeks before commencing any construction activities.
- 5. At the pre-construction meeting, ensure that a work schedule hardcopy is provided to the Chairman and/or Conservation member.
- 6. Submit a weekly construction report to the Abington Conservation Commission every Thursday. You can send it via email to Tmoquin@abingtonma.gov or deliver it in person or mail to Town Hall. Address the report to the Abington Conservation Commission at 500 Gliniewicz Way, Abington, MA 02351.
- 7. Prior to any work, a wetland scientist will reflag the existing jurisdictional wetland boundary via survey.
- 8. Under this Order of Conditions, approximately 87 sq. ft. will be restored with wetlands vegetation as shown on the plan. The wetland restoration shall be performed in accordance with the Wetland Restoration Plans dated July 7, 2023 unless specified otherwise in this order.

- 9. The restoration area shall be constructed to meet the requirements of all associated permits and certifications, including relevant performance standards of the Massachusetts Wetlands Protection Act (MGL C. 131, s40), the Town of Abington Wetlands Protection Act Bylaw, and the Abington Conservation Commission Regulations.
- 10. All planting must be performed before construction occurs. Species that are optimally planted in the Fall may be planted no later than ___October 15___. All other plantings shall commence in ____Spring_____, preferably between April 15 to June 15 of that year.
- 11. Planting procedures and replication construction activities must be overseen by a wetland specialist, who shall be a qualified professional with a degree in wetland sciences and a minimum of five years of experience in wetland sciences Replication, wetland hydrology, and a working knowledge of botany.

A professional with less than five years of experience in wetland replication construction may conduct the monitoring if supervised by a professional with at least five years of experience as mentioned above. Such a person shall be retained to supervise and monitor construction of the wetland replication areas until the replication area meets the requirements of these Orders of Conditions. The wetland specialist overseeing the wetland replication construction work shall not be from the same company as that which is performing planting, seeding, or participating in any aspect of the wetland replication construction.

- 12. Construction operations must be planned in a manner minimizing the amount of excavated and exposed fill or other foreign materials that could be washed or otherwise carried into the riverfront area.
- 13. To the extent possible, any soil (both stockpiled, surface, and subsurface layer) that contains non-organic debris, and/or invasive species, seeds or plant material, shall be disposed of in an upland area outside of regulated areas and as approved by the wetland specialist.
- 14. Organic soils shall be used for the restoration process and will be delivered from off site. No soil or soil amendment shall be brought on site without approval of the material source by the wetland specialist. The off-site sources of soil and soil amendments shall be identified and available for inspection by the wetland specialist prior to transport of material to the site to verify that they are likely to be free of invasive plant species, including all viable plant parts. Soils, compost, and other soil amendments brought on site must be from companies that do not mix contaminated soils. Documentation of the sources of the soil shall be provided to the Conservation Commission prior to work.
- 15. If man-made topsoil is used in the restoration area, the topsoil shall consist of a mixture of equal volumes of organic materials and topsoil. Clean leaf compost

- is the preferred soil amendment to achieve these standards though other materials may be used if approved by the wetland specialist. "Clean" refers both to a negligible amount (<1%) of physical contaminants such as plastic and to the lack of chemical contaminants that might pose a hazard to plants or animals.
- 16. Soil amendments should contain equal amounts of uncontaminated well-orpartially-decomposed organic and mineral materials. No wood chips shall be used.
- 17. Soils used in the replacement area shall be free of rocks greater than four (4) inches in diameter.
- 18. No soil, compost, or other soil amendment imported to the work site shall contain seeds, roots, stems, or other viable parts of invasive plants or other noxious plants.
- 19. Construction vehicles and soil transport vehicles entering the site shall be cleaned before entering the site to prevent the introduction of an invasive species.
- 20. Soils should be placed immediately or stockpiled for as little time as possible. Any soils for wetlands restoration to be stockpiled shall be isolated from wetland resource areas and protected with plastic or canvas from erosion or drying. Stockpiles for wetlands restoration should not be more than four feet in height.
- 21. Stockpiling of soil, including hydric soil for restoration, shall be at least 100 feet from the edge of the river, unless approved otherwise by the Conservation Commission. Stockpiled soils shall be securely stabilized and contained. Any areas of exposed soil or stockpiles within and adjacent to the replication area/restoration that will remain inactive for more than seven (7) calendar days shall be sown with New England Conservation/Wildlife seed mix (or comparable native New England seed mixture) using seed-free mulch or other appropriate erosion control measures in the event that seasonal conditions result in a delay in planting.
- 22. Soils shall be placed in the restoration area in such a way as to reproduce the original soil horizons.
- 23. Soil consistency must be checked after rototilling to achieve the proper consistency.
- 24. Wetland topsoil shall be deposited and graded in the restoration area in a manner that minimizes travel and subsequent compaction of the subgrade (including any specified pit and mound topography) to the extent practicable, including use of track mounted excavators as appropriate. Should soils be

compacted, they shall be loosened by a method such as disking, spring-tooth harrowing and/or rototilling. Boards, timber or composite mats, or other approved materials can be used as necessary to protect existing and/or new wetlands from compaction due to heavy foot traffic or if equipment is required to travel over wetland soil during the Restoration.

- 25. The wetland specialist supervisor or monitor shall be present during the following tasks:
 - a. Before excavation or erosion control installation work begins to inspect site flagging.
 - b. Before soil addition in the area to inspect excavations and likely post-construction ground water elevations.
 - c. After each stage of grading work is completed to inspect finished elevations.
 - d. During planting and seeding and after the first month of the growing season to inspect propagation techniques.
 - e. At the beginning and end of two (2) growing seasons to observe vegetation development and regulatory compliance
- 26. Debris shall be removed off the site.
- 27. Surveying of sub grades and finished elevations shall be conducted frequently during Restoration of the wetland area.
- 28. The siltation barriers shall serve as a limit of work delineation for project activities. No disturbance to adjacent wetland resource areas resulting from work on the project shall occur during or after construction of the restoration area.
- 29. Sediment controls shall be placed at the perimeter of the restoration area and at the top of any unstabilized adjacent slope. These will remain in place and be maintained until all areas are completely stabilized so that no excavated material or disturbed soil can enter adjacent wetlands or waters. Barriers shall be in place and approved by Conservation Commission prior to excavation work.
- 30. Erosion prevention measures for disturbed areas adjacent to the replication/restoration area shall include but not necessarily be limited to: compost blankets, jute mesh, seeding, and/or combinations thereof as approved by the Conservation Commission.
- 31. Plants shall be planted within two days of being obtained and properly protected with burlap, watered, and handled. Plants stored on-site prior to installation shall be stored in the shade and watered twice daily up until time of installation. Plants showing signs of stress or compromised health may be rejected by the Wetland Specialist and shall be replaced.

- 32. Plants shall be native species, not cultivars.
- 33. If other species or numbers of trees and shrubs not listed in the Restoration Plan are thought to be needed, the wetland specialist shall consult with the Conservation Commission as to their specific species and numbers for their review and approval.
- 34. Shrubs should be root pruned prior to transplanting.
- 35. Shrubs should be planted 8-10 feet on center. If the wetland specialist recommends different placement, they will contact the Abington Conservation Commission before planting occurs to discuss placement.
- 36. Water used for replication/restoration shall be suitable for irrigation and free from ingredients harmful to plants and wildlife. Water from the adjacent water bodies or waterways shall not be utilized. Injury or damage due to the lack of water, too much water, or use of contaminated water must be corrected.
- 37. All plants shall be watered during planting and all plants shall be watered at least twice each week during weeks where the average daily temperature exceeds 55 degrees Fahrenheit and when precipitation is less than one inch, as determined by local

 National Weather Service data. Watering shall be sufficient to provide moist soil to a depth of six inches, as determined by the wetland specialist or their designated monitor. If soil is sufficiently moist, as determined by the wetland specialist or monitor, the required watering may be reduced. Shrubs will require a minimum of five gallons per plant per watering. Watering may be achieved using individual drip irrigation bags. Shrubs planted after October 15th shall be thoroughly watered at the time of planting, after which subsequent watering will not be required until following season, starting on or around April 15. The Applicant shall maintain a watering log for all plants installed on the project, indicating dates of watering and weather events. This log must be submitted as
- 38. If the following invasive species are found on site, measures should be taken to immediately remove them by hand-picking or hand-cutting that does not result in serious disturbance to other vegetation. No soils shall be taken from areas where there are invasive species. No chemicals shall be used to get rid of any plants unless approved by the Conservation Commission. This list of invasive species includes:

part of the documentation for the Certificate of Compliance.

- a. Purple Loosestrife (Lythrum salicaria)
- b. Phragmites (Phragmites australis)
- c. Buckthorn (*Rhamnus Frangula alnus*)
- d. Honeysuckles (Lonicera spp.)
- e. Garlic Mustard (*Alliaria petiolata*)
- f. Japanese Knotweed (Polygonum cuspidatum or Fallopia japonica)

- g. Japanese Stilt Grass (Microstegium vimineum)
- h. Reed Canary Grass (*Phalaris arundinacea*)
- i. Bittersweet nightshade (Celastrus orbiculatus)
- j. Black Swallow-wort (Cynanchum nigrum)
- k. Pale Swallow-wort (*Cynanchum rossicum*)
- 39. Following placement of wetland soil and planting, the Restoration Area shall be seeded per the Restoration Plan using one of the following methods:
 - Broadcast by hand or with a hand-held spreader followed by application of straw mulch. If necessary, seed shall be lightly raked to insure good seed-tosoil contact.
 - Hydro-seeded with hydro mulch per the manufacturer's directions.
 - Hand broadcast seed with Compost Blanket pneumatically applied at the same time to ensure light cover of soil topdressing over seed.
- 40. Seeding that fails to establish within 30-60 days shall be over-seeded as required by the wetland scientist. Washouts and channels shall be repaired and stabilized prior to overseeding. Excessive weed growth shall be pulled out by the roots or, with approval from the wetland scientist, cut prior to over-seeding. If required, seeding limits for different seed mixes shall be determined by the wetland specialist.
- 41. At least 75% of the surface of the area must be re-established with indigenous wetland plant species by the end of two growing seasons.
- 42. An inspection shall occur, and monitoring report shall be submitted to the Conservation Commission, at the beginning and end of the growing season for each of two years. Monitoring shall be required until regulatory compliance goals are met.
- 43. The following conditions shall be met upon each inspection:
 - Hydrology is functioning as intended.
 - The desired seeded species are establishing well and cover 95 percent of the area, excluding areas of open water areas or planned bare soil.
 - No sediments have entered into the wetland.
 - Adjacent slopes are stabilized with desirable vegetation.
 - All planted species are living and establishing well.
 - There are no visible invasive plants.
- 44. Reports shall describe, using narratives, plans, and color photographs, the physical characteristics of the wetland Restoration areas with respect to:
 - a. Soil stability and soil characteristics
 - b. Survival of vegetation and plant mortality
 - c. Aerial extent and distribution of plants
 - d. Species diversity and vertical stratification (i.e., herb, shrub, and tree layers).

- e. Recommendations for additional plantings, should the area appear to be unlikely to meet the 75% re-establishment standard.
- f. Monitoring for invasive species, which species were present, and the methods by which they were removed.
- g. Information about whether sedimentation had entered the wetland and if so, what remedial measures were taken.
- h. Whether adjacent slopes are stabilized.
- i. Projection for potential successional patterns based on observed establishment of vegetation.
- j. A description of who will be responsible for post-construction remedial actions
- 45. Corrective measures shall be immediately applied if, at the end of the each required monitoring period, the requirements have not been met and success of the wetland Restoration area has not been achieved as determined by the Conservation Commission's interpretation of the monitoring reports.
- 46. Following construction of the Restoration area and prior to other work on the site, the Wetland Specialist shall certify to the Commission that the area has been constructed in compliance with the Order of Conditions. Such certification shall be accompanied by a plan showing the limits of the Restoration area and final grades as surveyed by a licensed land surveyor, which meet grades shown on the plans approved in this Order of Conditions.
- 47. Upon completion of construction, the Applicant shall submit a request for a Certificate of Compliance that includes a brief narrative on company letterhead signed by the Wetland Specialist describing how the Wetland Restoration construction work was done according to plans (or how modified per the Conservation Commission's approval) and meets required conditions. The narrative shall be prepared as an MS Word document and shall include substantive explanation that demonstrates compliance with EACH relevant Order of Condition. This documentation shall include photo-documentation of pre-construction conditions as well as soil work, planting, and seeding. Seed and plant tags and watering logs shall be submitted as part of the request for a Certificate of Compliance. At a minimum, the following conditions shall be included in the narrative and reviewed as part of the on-site assessment of whether:
 - a. The final finished target elevations have been met and maintained relative to the approved plans and reference wetland. Areas that are too high or too low should be identified along with suggested corrective measures.
 - b. Hydrology meets performance standards.
 - c. Seeded species in the wetland and adjacent upland shall show signs of good germination and healthy growth.
 - d. Planted woody and herbaceous species meet specifications and are establishing well.
 - e. Soils are stabilized and there is no sediment in the wetland and no channeling of slopes.

- f. There are no invasive plants visible in the Restoration Area.
- 48. The Certificate of Compliance shall also include the following:
 - a. As-built Drawings signed by the Contractor's PE registered in the Commonwealth of Massachusetts. As-built drawings shall show hydrologic conditions, status of plantings and seeding, and shall include a narrative and minimum of four photographs documenting site conditions. Plans should note variations from the originally permitted design.
 - b. When required, drawings shall meet the Army Corps of Engineer's New England District's Compensatory Replication Guidance, including: scale in the range of 1" = 20' to 1" = 100', contours at 1' intervals, spot elevations for intermediate elevations, and polygons outlining each Replication Area, and, as applicable, plant community types. The As-built Drawings shall be provided to electronically in Portable Document Format (PDF). Drawings shall also be provided in printed paper format. Drawings must be scalable.
 - c. Other documents as required.
- 49. A site visit by the Conservation Commission shall be performed before any issuing of a Certificate of Compliance.
- 50. If it is in Conservation Commission's opinion that plant materials, workmanship, or maintenance is deficient, and/or the Replication Area failed to achieve the 75% wetlands vegetation goal, a Certificate of Compliance will not be granted, and the Maintenance Period for all the plants shall be extended until plant replacements are made any other deficiencies are corrected, and after an additional two years of monitoring. All dead, declining, or unsatisfactorily maintained plants shall be removed promptly from the project. Replacement plants shall conform in all respects to the Orders of Conditions for the original plants and shall be planted in the same manner. Replacement plantings shall be in place by October 15th. Replacement plantings shall conform to the provisions of this Order, except the requirements for establishment. A final inspection of all plant material for acceptance will be held after the replacement planting has been completed and the plantings are successful.
- 51. The Commission reserves the right to impose additional conditions on portions of this project to mitigate any impacts which could result from wetland alteration or Restoration activities.
 - Bi-Monthly meeting with the Commission on the site.

Conditions during the project that shall remain in perpetuity:

1. Pesticides, herbicides, fungicides, and fertilizers shall not be used within 100 feet of the wetlands unless approved by the Conservation Commission. This shall be

noted in the Certificate of Compliance and shall be an ongoing condition in perpetuity.

- 2. Only slow-release organic granular type fertilizers shall be used within the Restoration Area, if fertilizers are approved by the Conservation Commission. This condition shall survive the expiration of this Order and shall be included as a continuing condition in perpetuity on the Certificate of Compliance.
- 3. There shall be no dumping of leaves, grass clippings, brush, or other debris into the wetland or body of water. This condition shall survive the expiration of this Order and shall be included as a continuing condition in perpetuity on the Certificate of Compliance.
- 4. There shall be no additional alterations of areas under Conservation Commission jurisdiction without the required review and permit(s). This condition shall survive the expiration of this Order and shall be included as a continuing condition in perpetuity on the Certificate of Compliance.
- 5. Prior to the issuance of a Certificate of Compliance, permanent boundary markers shall be installed to mark the Restoration Area. The type of permanent markers shall be approved by the Conservation Commission. These shall be shown on the as-built plan and clearly marked on the plan with a note indicating no work shall be performed beyond this point without permission from the Conservation Commission. These markers shall remain in place in perpetuity and this requirement shall be noted as a continuing condition on the Certificate of Compliance. Over the years the wetland boundary line may move, however, these permanent markers shall provide a guideline as to the limit of work.
- 6. No further activities will be permitted on the balance of the subject parcel except for maintenance of this area unless they are filed as a Limited Project under 310 CMR 10.53(3) or are exempt under 310 CMR 10.58. This Condition will be noted on the Certificate of Compliance. This condition remains in perpetuity.



Certified Mail No. 7018 0680 0001 3243 0803 Return Receipt Requested

M.G.L. Chapter 253

Dam Safety Permit Permit No. 131-2024-427

Applicant

Andrew Maesner, PE The Engineering Corp, Inc. 282 Merrimack Street Lawrence, MA 01843

On behalf of: Town of Abington Highway Department c/o John Stone 350 Summer Street Abington, MA 02351

Re: Bridge Preservation Project at Island Grove Pond Dam

National Dam ID: MA00346

Registry Location: Plymouth, Deed Book 3636, Page 10

Owner: Town of Abington Dam Location: Abington

Date: May 14, 2024

Dear Mr. Maesner:

Reference is made to the application dated March 29, 2024 and supplemental information provided by The Engineering Corp, Inc. (TEC). These were submitted for Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) regulatory review of the above-referenced dam repair project.

Permission is hereby granted under M.G.L. Chapter 253, as amended, to perform work indicated on the drawings titled "Bridge Preservation, Abington, ST 123 (Centre Avenue) Over Shumatuscacant River" dated May 4, 2023 and as described in supporting documentation provided by TEC.

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation 180 Beaman Street West Boylston, MA 01583 508-792-7423 508-792-7805 Fax www.mass.gov/dcr



Governor

Maura T. Healey Rebecca L. Tepper, Secretary Executive Office of Energy & Environmental Affairs

Kimberley Driscoll Brian Arrigo, Commissioner Lt. Governor Department of Conservation & Recreation

Permission is granted subject to the following conditions:

- (a) At least 21 days before the start of construction, the dam owner shall provide the DCR/ODS Permits Section a completed **DAM SAFETY IMPROVEMENTS NOTICE OF CONSTRUCTION** (form attached) with a construction schedule and proof of recording of the Ch. 253 Permit at the Registry of Deeds in the county where the dam lies. If the Notice of Construction provided to ODS lacks a construction schedule, proof of recording of the permit, or an explanation of why permit recording is not possible, ODS will return the Notice of Construction to the dam owner indicating the Notice of Construction is incomplete and informing the owner that construction shall not commence until ODS has received a complete Notice of Construction with the required attachments.
- (b) For all features of the project, the Dam Engineer (TEC) shall notify ODS of any design change from the original design submitted with the permit application due to regulatory requirements, changes in field conditions or any other unanticipated occurrence. This notification shall be a formal submittal to ODS which includes all relevant revised plans, computations and data (survey, geotechnical, etc.) supporting the design change(s). This submittal shall be forwarded to ODS by registered mail, return receipt requested, and will require an amendment to the permit. Review time may vary based upon the complexity of the design change(s), however, ODS will generally issue the permit amendment within five (5) business days of receipt of a complete design revision submittal.
- (c) The Dam Engineer must report to ODS any unforeseen incidents that occur at the work site during project work. Unforeseen incidents include, but are not limited to, significant uncontrolled seepage into the work area, significant earth support failures or slope failures. The report must explain in detail what occurred, corrective measures taken to mitigate the occurrence and any impacts the occurrence may have had on the project. If the incident results in a design change, ODS must be provided revised design documents (refer to Condition (b), above).
- (d) During construction, a copy of the dam's Emergency Action Plan (EAP) shall be maintained on-site by the resident engineer.
- (e) The following shall be prepared by the contractor, approved by the Dam Engineer, and submitted to ODS prior to construction:
 - Cofferdam designs. The cofferdams shall be carefully designed to resist anticipated forces without failing and to ensure that seepage around, under, or through the cofferdams is manageable;
 - A water control and diversion plan describing methods to be employed to allow work to be performed "in the dry" and to manage both the water level in Island Grove Pond and outflow from Island Grove Pond while construction is in progress; and

- A flood response plan. While construction is underway, weather forecasts, stream flows and water levels shall be monitored to allow adequate time to respond to rising water levels at the construction site. If high water levels are expected, equipment and materials shall be removed from the work area and personnel evacuated. Sufficient materials and equipment required for flood response shall be maintained in a safe location at, or near, the construction site.
- (f) A sufficient level of construction oversight shall be provided by the Dam Engineer to ensure the work conforms to: the project plans and specifications; the Ch. 253 Permit conditions; and generally-accepted dam construction practices as determined by the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation and/or the U.S. Natural Resources Conservation Service.

Guidance, procedures, checklists, worksheets, and references to aid in construction quality assurance are available in the United States Department of Agriculture Natural Resources Conservation Service National Engineering Handbook Part 645-Construction Inspection and can be accessed at this

link: https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=31701.

- (g) The Dam Engineer shall invite ODS to the preconstruction meeting, another project meeting at 50% completion and the final inspection meeting. ODS reserves the right to make site visits and inspections at any time during the permit period. ODS requests the following items be addressed at the pre-construction meeting:
 - Identification of the
 resident engineer (Owner's representative overseeing the project);
 contractor's qualified site superintendent; and
 - o Dam Engineer's representative overseeing the project.
 - Provide emergency contact information for the contractor and resident engineer;
 - Presentation of the resident engineer's weekly work schedule and discussion of the level of construction oversight to be provided by the resident engineer;
 - Water control features anticipated and the process for the Dam Engineer to either develop or approve the overall control and diversion of water plan. Flood emergency warning and response procedures must be identified;
 - Level of Dam Engineer construction oversight including: identification of any
 critical construction items to be overseen by the Dam Engineer; procedures for the
 Dam Engineer's review and approval of shop drawings and other submittals;
 documentation of Dam Engineer's approval of any design modifications; procedures
 for coordinating and scheduling the Dam Engineer's inspection of critical
 construction elements;
 - Anticipated schedule of construction meetings and required attendees. It is expected that while construction is ongoing, weekly construction meetings will be held and attended by the Dam Engineer, the resident engineer, the contractor's superintendent and other appropriate participants; and

• Presentation of the initial construction schedule with identification and discussion of major items.

ODS shall be provided a copy of the preconstruction meeting minutes.

- (h) The Dam Engineer shall oversee construction activities on the dam, including but not limited to demolition work; installation of precast concrete panels at the auxiliary spillway conduits; placement and compaction of backfill above the panels; auxiliary spillway pier void and crack repairs; and scour repairs at the auxiliary spillway outfall.
- (i) No trees or woody vegetation shall be planted on the dam, within 20 feet of the toe of earthen dam embankments or within 20 feet of the dam's appurtenant features.
- (j) The Dam Engineer shall provide ODS written documentation that he/she has reviewed and approved all pertinent submittals or samples concerning critical project dam features. This documentation may be in the form of a submittal log which may be submitted as part of the "as-built" report, described below.
- (k) Upon completion of work the Applicant shall submit to ODS a **DAM SAFETY CERTIFICATE OF COMPLETION** (form attached). With this certificate of completion submit one bound (utilizing plastic comb bindings) as-built report with 11"x17" record drawings signed and stamped by a registered professional civil engineer with contractor's signature attesting that all work was performed according to the plans and specifications. The as-built report shall include documentation of submittals reviewed and approved by the Dam Engineer, copies of any materials or construction testing reports and color photos of construction phases and appurtenant installations. Photograph numbers, location and direction in which each photo was taken must be identified. An electronic copy (as a .pdf) of the as-built report and record drawings shall be provided to ODS via email, .ftp site or on a USB flash drive.
- (l) Once the project has been completed and the reservoir has returned to its normal elevation, the Dam Engineer shall perform a Phase I Inspection to document the condition of the dam.
- (m) Prior to issuance of a Certificate of Compliance the Dam Engineer shall prepare and provide ODS an Operation and Maintenance Manual (O&MM) for the dam. The O&MM shall describe routine maintenance tasks and operational procedures for both routine and storm conditions.
- (n) The Certificate of Completion, as-built report, Operation and Maintenance Manual and Phase I Inspection report shall be provided to ODS within 90 days of substantial completion of work unless ODS agrees to later submission of these documents.

Submission of these documents is required prior to ODS issuing a Certificate of Compliance.

Any permit issued by DCR shall be subject to revocation by order of the Commissioner if the permittee fails to conform to 302 CMR 10.00, Dam Safety Rules and Regulations, provisions of this permit, or any other applicable laws and regulations.

This permit does not release the applicant from the requirements of any other regulatory authority. Such authorizations and/or notifications include, but are not limited to:

Local Conservation Commission;

Massachusetts Department of Environmental Protection (DEP);

Massachusetts Department of Fish and Game (DFG);

Massachusetts Executive Office of Environmental Affairs (EOEA), MEPA Unit; and

U.S. Army Corps of Engineers.

This permit must be recorded by the applicant at the Registry of Deeds in the county where the dam lies. Recording must be done prior to the commencement of construction and a copy of the recorded permit filed with the Office of Dam Safety.

This permit remains valid for two (2) years from the date of issue: May 14, 2024.

Permit expiration date: May 14, 2026.

William Salomaa, Director

DCR, Office of Dam Safety

David Ouellette, Permit Engineer DCR. Office of Dam Safety

Attachments: Dam Safety Improvements - Notice of Construction form

Dam Safety Certificate of Completion form

Informational (NOT TO BE RECORDED AT REGISTRY OF DEEDS)

Excerpts from Dam Safety Rules Regulations:

302 CMR 10.09(5): Recording a Chapter 253 Permit.

A permit to construct, drawdown, repair, alter, breach or remove a dam shall be recorded at the Registry of Deeds in the county where the dam lies. Recording must be done prior to the commencement of construction and a copy of the recorded permit filed with the Commissioner.

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To: DCR, Office of Dam Safety – Permits Section

180 Beaman Street

West Boylston, MA 01583

DAM SAFETY IMPROVEMENTS - NOTICE OF CONSTRUCTION

Dam Owner/Applicant
Name:
Representative:
Address:
Phone:
Fax:
Email Address:
Project
Project location Town/City:
Dam name:
National Dam ID Number:
State Dam ID Number:
Nature of Dam Safety Improvements:
Chapter 253 Permit date of issue:
Chapter 253 Permit expiration date:
Permit Recorded at Registry of Deeds
Dam Parcel Registry of Deeds Book Number:
Dam Parcel Registry of Deeds Page Number:
Recorded Permit Registry of Deeds Book Number:
Recorded Permit Registry of Deeds Page Number:
Copy of the recorded permit attached Yes ()
Construction start date:
Construction schedule attached Yes ()
Engineer
Company Name:
Representative:
Address:
Phone:
Fax:
Email Address:
Contractor
Company Name:
Representative:
Address:
Phone:
Fax:
Email Address:

Brief description of project, note location and dates of construction:
By Contractor
Print name and title:
Signature and date:
By Engineer
Print name, title:
Signature and date:
By Dam Owner/Applicant
Print name and title:
Signature and date:

To: DCR, Office of Dam Safety – Permits Section

180 Beaman Street

West Boylston, MA 01583

DAM SAFETY CERTIFICATE OF COMPLETION

Dam Owner/Applicant
Name:
Representative:
Address:
Phone:
Fax:
Email Address:
Project
Project Project Leasting Town/City:
Project location Town/City:
Dam name:
National Dam ID Number:
State Dam ID Number:
Nature of Dam Safety Improvements:
Chapter 253 Permit date of issue:
Chapter 253 Permit expiration date:
Permit Recorded at Registry of Deeds
Dam Parcel Registry of Deeds Book Number:
Dam Parcel Registry of Deeds Page Number:
Recorded Permit Registry of Deeds Book Number:
Recorded Permit Registry of Deeds Page Number:
Project completion date:
Engineer
Company Name:
Representative:
Address:
Phone:
Fax:
Email Address:
Eman Address:
Contractor
Company Name:
Representative:
Address:
Phone:
Fax:
Email Address:

Brief description of project and dates of construction:
Statement of project completion in accordance with plans, specifications, dam safety permit conditions and standard construction practices:
By Contractor
Print name and title:
Signature and date:
By Engineer
Print name, title and PE stamp here:
Signature and date:
By Dam Owner/Applicant
Print name and title:
Signature and date:

Bridge Preservation ST 123 (Centre Avenue) over Shumatuscacant River A-01-010 (AJQ) Abington, MA 02351

APPENDIX E

CERTIFICATIONS BY LAW

CERTIFICATIONS REQUIRED BY LAW FOR PUBLIC CONSTRUCTION CONTRACTS

You must COMPLETE and SIGN the following certifications. You must also print, at the bottom of this page, the name of the contractor for whom these certifications are submitted.

TAX COMPLIANCE

Pursuant to Chapter 62C of the Massachusetts General Laws, Section 49A(b), I, the undersigned, authorized signatory for the below named contractor, do hereby certify under the pains and penalties of perjury that said contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

NON-COLLUSION

The undersigned certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

PUBLIC CONTRACTOR DEBARMENT

The undersigned certifies under penalty of perjury that the below named contractor is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

OSHA TRAINING

Pursuant to G.L. c. 30, §39S, the Contractor hereby certifies under penalties of perjury as follows:

- (1) Contractor is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work;
- (2) All employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and they shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and
- (3) All employees to be employed in the work subject to this contract have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

COMPLETE AND SIGN BELOW:

Authorized Person's Signature	Date	
Print Name & Title of Signatory		
•		