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May 10, 2024

Proposal No. 609054-125644

**ADDENDUM NO. 3**

To Prospective Bidders and Others on:

**LITTLETON**  
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**  
**Reconstruction of Foster Street**

**BIDS TO BE OPENED AND READ: TUESDAY, MAY 14, 2024 at 2:00 P.M.**

Transmitting changes to the Contract Documents as follows:

**RESPONSES TO BIDDER'S QUESTIONS**

1 page

**DOCUMENT 00010**

Revised page 1

**DOCUMENT 00710**

Revised page 1

**DOCUMENT 00715**

Inserted new document – 12 pages

**DOCUMENT A00801**

Revised pages 1, 4, 5 & 6

Please take note of the above, substitute the revised pages for the originals, insert the new document in the proper order and acknowledge Addendum No. 3 in your Expedite Proposal file before submitting your bid.

Very truly yours,

Eric M. Cardone, P.E.  
Construction Contracts Engineer

jb  
cc A. Campbell, Project Manager

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**RESPONSES TO BIDDERS' QUESTION**

**LITTLETON**

**Federal Aid Project No. STP/CMQ/TAP-0033(037)X  
Reconstruction of Foster Street  
(609054-125644)**

**Question from Dagle Electrical Construction Corp. Dated 5/7/2024 @ 6:49 AM**

**Question 40.)** Item 806.4 – 4 Inch Electrical Conduit Type RM Galvanized Steel -  
Please provide a detail for this item, specifically connection points at both ends. Are expansion joints required? Is there a connection to existing conduit, if so, who is responsible for the connection, Contractor or Keolis?

**Response 40.)** The Contractor shall make a connection at the existing underground conduit location. The connection type/method should be coordinated with Keolis during construction. The connection at the new signaling arm foundation should be stubbed at the location of the new foundation and Keolis will make final connections. It is recommended this be coordinated with Keolis as well but the Contractor will not need to make any connections at this location.

**Question from Baltazar Contractors, Inc. Dated 5/8/2024 @ 10:16 AM**

**Question 41.)** If the low bidder must retain MBTA flaggers for this project, how will this be paid?

Since the quantity of flaggers that may be required is unknown, can an “allowance” bid Item be added to the contract in order to put the bidders on equal footing?

**Response 41.)** A Bid Item will not be added. The cost for MBTA Flaggers will be covered as a reimbursable expense.

③ ADDENDUM NO. 3, MAY 10, 2024

DOCUMENT 00010

**TABLE OF CONTENTS**

DOCUMENT 00010  
TABLE OF CONTENTS ..... 00010-1 through 4

DOCUMENT 00104  
NOTICE TO CONTRACTORS ..... 00104- 1 through 4

DOCUMENT 00210  
REQUIREMENTS OF MASSACHUSETTS GENERAL  
LAWS CHAPTER 30 SECTION 39R; CHAPTER 30, SECTION 39O ..... 00210-1 through 4

DOCUMENT 00331  
LOCUS MAP ..... 00331-1 through 2

DOCUMENT 00439  
CONTRACTOR PROJECT EVALUATION FORM ..... 00439-1 through 2

DOCUMENT 00440  
SUBCONTRACTOR PROJECT EVALUATION FORM ..... 00440-1 through 2

DOCUMENT 00710  
GENERAL CONTRACT PROVISIONS..... 00710-1 through 2

DOCUMENT 00713  
SUBSECTION 701  
CEMENT CONCRETE SIDEWALKS, PEDESTRIAN CURB RAMPS, AND DRIVEWAYS  
AND GUIDE TO THE INTERIM SUBSECTION 701  
CEMENT CONCRETE SIDEWALK SPECIFICATION..... 00713-1 through 34

③ DOCUMENT 00715  
SUPPLEMENTAL SPECIFICATIONS ..... 00715-1 through 12

DOCUMENT 00719  
SPECIAL PROVISIONS FOR PARTICIPATION BY DISADVANTAGED  
BUSINESS ENTERPRISES ..... 00719-1 through 18

DOCUMENT 00760  
REQUIRED CONTRACT PROVISIONS FOR FEDERAL-AID  
CONSTRUCTION CONTRACTS..... 00760-1 through 14

DOCUMENT 00811  
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT  
(HMA) MIXTURES..... 00811-1 through 2

DOCUMENT 00812  
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE ..... 00812-1 through 2

DOCUMENT 00813  
PRICE ADJUSTMENT FOR STRUCTURAL STEEL  
AND REINFORCING STEEL ..... 00813-1 through 4

DOCUMENT 00814  
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES ..... 00814-1 through 2

DOCUMENT 00820  
THE COMMONWEALTH OF MASSACHUSETTS  
SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY,  
NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM ..... 00820-1 through 6

DOCUMENT 00821  
ELECTRONIC REPORTING REQUIREMENTS  
CIVIL RIGHTS PROGRAM AND CERTIFIED PAYROLL ..... 00821-1 through 2

DOCUMENT 00859  
CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM ..... 00859-1 through 2

DOCUMENT 00710

**GENERAL CONTRACT PROVISIONS**

Revised: 05/06/24

NOTICE OF AVAILABILITY

The STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES dated 2024, the SUPPLEMENTAL SPECIFICATIONS, the 1996 METRIC CONSTRUCTION AND TRAFFIC STANDARD DETAILS, the 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS; the 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING and the 2017 CONSTRUCTION STANDARD DETAILS are available online at <https://www.mass.gov/massdot-highway-division-manuals-and-publications>

SPECIAL PROVISIONS FOR RIGHT-TO-KNOW ACT REQUIREMENTS

The Contractor's attention is directed to Massachusetts General Laws, Chapter 111F, commonly known as the Right-To-Know Act, and to the regulations promulgated pursuant thereto. Among the provisions of the Right-To-Know Act is a requirement that employers make available to employees Materials Safety Data Sheets (MSDS) for any substance on the Massachusetts Substance List (MSL) to which employees are, have been, or may be exposed.

To ensure prompt compliance with these regulations and legislation, the Contractor shall:

1. Deliver to the Department, prior to the start of any work under this contract, copies of MSDS for all MSL substances to be used, stored, processed or manufactured at the worksite by the Contractor.
2. Train employees of the Department, who may be exposed to MSL substances as a result of the Contractor's work under this contract, with regard to those specific substances in accordance with requirements of the Right-To-Know Act.
3. Observe all safety precautions recommended on the MSDS for any MSL substance to be used, stored, processed, or manufactured at the worksite by the Contractor.
4. Inform the Department in writing regarding specific protective equipment recommended in the MSDS for MSL substances to which employees of the Department may be exposed as a result of the Contractor's work under this contract.

The Department shall not be liable for any delay or suspension of work caused by the refusal of its employees to perform any work due to the Contractor's failure to comply with the Right-To-Know Act. The Contractor agrees to hold the Department or the Commissioner of the Department harmless and fully indemnified for any and all claims, demands, fines, actions, complaints, and causes of action resulting from or arising out of the Contractor's failure to comply with the requirements of the Right-To-Know Act.

ALTERNATIVE DISPUTE RESOLUTION

Forum, Choice of Law and Mediations:

Any actions arising out of a contract shall be governed by the laws of Massachusetts and shall be brought and maintained in a State or federal court in Massachusetts which shall have exclusive jurisdiction thereof. MassDOT and the Contractor may both agree to mediation of any claim and will share the costs of such mediation pro rata based on the number of parties involved.

\*\*\* END OF DOCUMENT \*\*\*

DOCUMENT 00715



## SUPPLEMENTAL SPECIFICATIONS

MARCH 31, 2024

The 2024 *Standard Specifications for Highways and Bridges* are amended by the following modifications, additions and deletions. These Supplemental Specifications prevail over those published in the Standard Specifications.

The Specifications Committee has issued these Supplemental Specifications for inclusion into each proposal until such time as they are updated or incorporated into the next Standard Specifications.

Contractors are cautioned that these Supplemental Specifications are dated and will change as they are updated.

### DIVISION I

### GENERAL REQUIREMENTS AND COVENANTS

### SECTION 4: SCOPE OF WORK

Subsection 4.06: Increased or Decreased Contract Quantities

*Replace the second paragraph with the following:*

Where the actual quantity of a pay item varies by more than 25% above or below the estimated quantity stated in the Contract, an equitable adjustment in the Contract Price for that pay item shall be negotiated upon demand of either party regardless of the cause of the variation in quantity. A demand for an equitable adjustment must be submitted to the other party within 30 days after beginning the work of the affected item that is greater than 25% above the bid quantity or within 30 days after completing the work when the actual quantity is 25% less than the bid quantity.

## DIVISION II

### CONSTRUCTION DETAILS

#### DIVISION II: Construction Details

*Replace M4.02.15 Cement Mortar with M4.04.0 Grout, Mortar, and Concrete Products where encountered, including in sections 230.40, 485.40, 501.40, 685.40, 940.40A and 983.40.*

## SECTION 100: EARTHWORK, GRADING, DEMOLITION, RODENT CONTROL AND BORINGS

### SECTION 160: CONTROLLED LOW-STRENGTH MATERIAL

#### Section 160: Controlled Low-Strength Material

*Add this new Section:*

#### DESCRIPTION

##### **160.20: General**

Controlled Low-Strength Material shall be installed in accordance with the relevant provisions of Subsection 150: Embankment, Section 901: Cement Concrete and in accordance with the procedures described herein.

Controlled Low Strength Materials (CLSM) shall be a self-compacting, self-leveling, flowable, excavatable or non-excavatable, low strength, rigid setting, and unshrinkable material, used as an alternative to compacted granular fills, including backfill, structural fill, utility fill, pavement base, subgrade, subbase, base course, conduit bedding, erosion control, and void filling.

#### MATERIALS

##### **160.40: General**

Material for controlled low-strength material shall meet the requirement specified of M4.08.0 Controlled Low-Strength Material. The material shall be specified by the Engineer as one of the following types;

- CLSM – Manual Excavatable ( $\leq 100$  psi)
- CLSM – Mechanical Excavatable (101-300 psi)
- CLSM – Structural Non Excavatable ( $> 300$  psi)

Permeability testing as specified in Table M4.08.0-2 shall be required when the material is placed outside of roadway areas or footings for concrete structures, or as directed by the Engineer.

#### CONSTRUCTION METHODS

##### **160.60: General**

The Contractor shall submit a placement plan for Controlled Low-Strength Material (CLSM). The plan shall include the type of CLSM, detailed descriptions of methods used for placing and containing the controlled density fill and the set time to strength.

The Contractor shall remove all debris prior to placing the fill. Fill shall not be placed against any structural elements or utilities unless approved by the Engineer.

CLSM shall be poured in lifts not exceeding 4 feet to insure stability under the fluid effects of the pour. Care shall be taken to ensure the integrity of the forms or other means of supporting the material until the material sets up.

## COMPENSATION

### 160.80: Method of Measurement

Controlled Low-Strength Material shall be measured by the cubic yard in place to the neat lines established on the plans or specified by the Engineer. When backfilling pipes the horizontal neat lines shall be not greater than 3.0 ft. greater than the rated inside diameter of the pipe and vertically from the top of the crushed stone foundation material, if any, or 6 in. below the pipe invert whichever is less to the specified top elevation. A deduction shall be made for the volume of the pipe or conduit encased.

### 160.81: Basis of Payment

Payment under this item shall constitute full compensation for the placement, testing, and all material, equipment and labor to complete the work.

### 160.82: Payment Items

160.1	Controlled Low-Strength Material - ..... Cubic Yard Manual Excavatable ( $\leq$ 100 PSI)
160.2	Controlled Low-Strength Material - ..... Cubic Yard Mechanical Excavatable (101-300 PSI)
160.3	Controlled Low-Strength Material ( $>$ 300 PSI) ..... Cubic Yard

## SECTION 200: DRAINAGE

### SECTION 201: BASINS, MANHOLES AND INLETS

#### Section 201.40: General

Replace "Cement Mortar ..... M4.02.15" with "Mortar ..... M4.04.0".

### SECTION 690: HIGHWAY GUARD, FENCES AND WALLS

#### SECTION 690: WALLS REMOVED AND RESET

#### Section 690.40: General

Replace the last sentence with the following:

Mortar shall meet the requirement of M4.04.0: Grout, Mortar, and Concrete Products.

### SECTION 800: TRAFFIC CONTROL DEVICES

#### SECTION 825: RECTANGULAR RAPID FLASHING BEACONS

#### Section 825: Rectangular Rapid Flashing Beacons

Add this new Section:

#### DESCRIPTION

#### 825.20: General

This work shall consist of furnishing and installing a solar-powered, actuated, Rectangular Rapid Flashing Beacon (RRFB) system at the location(s) shown in the Plans.



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 MATERIALS
**825.40: General**

Rectangular Rapid-Flashing Beacons shall meet the requirements specified in the following Subsections of Division III, Materials:

Cement Concrete.....	M4.02.00
Signal Posts and Bases .....	M10.05.1
APS Pushbuttons.....	M10.09.1
RRFB Assemblies.....	M10.11.0

An RRFB system shall include the following items (quantities shown in the Major Items List found in the Plans):

- Cement Concrete Foundation
- Signal Post and Pedestal Base
- APS Pushbutton
- Light Bar
- Signage
- Enclosure for Controller, Activation Unit, and Battery System
- Solar Panel
- All mounting and supporting hardware and wiring necessary to complete a working system

The Contractor shall supply cement concrete foundations per the Plans.

The Contractor shall supply Schedule 80 aluminum signal posts with a brushed or spun finish and square, pedestal aluminum bases with a natural finish unless otherwise shown in the Plans or Special Provisions.

Each Light Bar shall have a pair of yellow beacons facing one or both directions of traffic, as shown in the Plans.

All sign designs shall conform to the MUTCD. Sign panel information, including dimensions, shall be per the Plans.

The warning signs (MUTCD code W11-2, W11-15, or S1-1 signs – see Plans for sign type), and the diagonal downward arrow sign (W16-7P) signs shall be on Type A substrate, conforming to 828.42: Panels. The sign sheeting shall be fluorescent yellow-green, conforming to ASTM D4956 Type IX.

An R10-25 sign, conforming to the MUTCD, shall be mounted above the APS Pushbutton on a Type A substrate or may be integral to the button assembly.

The solar panel and battery system may be integrated into a single unit or housed separately, per the manufacturer's design. These may also be co-housed with the Light Bar and/or the Controller and Activation Unit.

The solar panel and battery system shall be sized appropriately to accommodate 300 actuations per day, 365 days a year, for the duration of the repeating flashing sequence shown in the Plans. The sizing calculations shall be based upon solar and temperature conditions for a typical December-January in Massachusetts. The system shall have a minimum autonomy of 5 days.

Each assembly shall be rated for wind speeds of up to 90 mph.

Any proprietary software required for the programming and/or operation of the system during its lifetime shall be included at no additional cost.

**825.41: Shop Drawings**

Within 30 days from the Notice to Proceed the Contractor shall submit shop drawings for the RRFB system, including cutsheets for all components to show conformance with M10.05, M10.09.1, and M10.11.0 and these specifications.

Shop drawings shall include all solar and battery sizing calculations. These calculations shall have Contractor- or manufacturer-supplied, site-specific shading factors applied.

#### **825.42: Material Warranties**

All RRFB components shall include a minimum 1-year manufacturer's replacement warranty for manufacturing or installation defects starting at the date of acceptance by the Engineer. A battery shall be considered defective should it not retain 80% of its original capacity within the warranty period.

### CONSTRUCTION METHODS

#### **825.60: General**

RRFBs shall be installed on new foundations at the locations as shown in the Plans. Bases shall be secured to the foundation in accordance with the manufacturer's specifications.

All systems shall be installed per the manufacturer's instructions.

The location and orientation of the system shall be per the Plans.

The arrow on each APS pushbutton shall be aligned parallel to the direction of travel of the crosswalk.

The Light Bar(s) shall be oriented towards the incoming lane(s).

Solar panels shall be oriented to maximize sunlight gain.

### SYSTEM OPERATION

#### **825.70: APS Pushbuttons**

APS Pushbuttons shall actuate the RRFB system. Upon actuation, an audible speech message shall be broadcast from each pushbutton in the system that says, "Warning lights are flashing," shall be stated twice. This message shall be repeated upon each actuation. No other messages shall be allowed.

While the system is in dark mode, the APS Pushbuttons shall broadcast a locator tone. The locator tone shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals at all times that the system is in dark mode. The locator tone shall be set 2 to 5 dBA above ambient sound, shall automatically adjust intensity, but cap at a maximum volume of 100 dBA.

APS Pushbuttons shall have all other vibrotactile and percussive indications disabled.

#### **825.71: Light Bar**

The Light Bar shall remain dark until actuated.

Upon actuation, all Light Bars in the system shall be activated simultaneously for a predetermined repeating flash sequence. The flashing rate shall be 75 flashing sequences per minute.

The left and right yellow beacons shall operate using the following sequence:

- A. The yellow beacon on the left-hand side shall be illuminated for approximately 50 milliseconds.
- B. Both yellow beacons shall be dark for approximately 50 milliseconds.
- C. The yellow beacon on the right-hand side shall be illuminated for approximately 50 milliseconds.
- D. Both yellow beacons shall be dark for approximately 50 milliseconds.
- E. The yellow beacon on the left-hand side shall be illuminated for approximately 50 milliseconds.
- F. Both yellow beacons shall be dark for approximately 50 milliseconds.
- G. The yellow beacon on the right-hand side shall be illuminated for approximately 50 milliseconds.
- H. Both yellow beacons shall be dark for approximately 50 milliseconds.
- I. Both yellow beacons shall be illuminated for approximately 50 milliseconds.
- J. Both yellow beacons shall be dark for approximately 50 milliseconds.

K. Both yellow beacons shall be illuminated for approximately 50 milliseconds.

L. Both yellow beacons shall be dark for approximately 250 milliseconds.

The flash rate of each individual RRFB indication, as applied over the full flashing sequence, shall not be more than 5 flashes per second, to avoid frequencies that might cause seizures.

The sequence shall then be repeated until the duration time has been met and then all yellow beacons shall return to dark mode simultaneously. The duration time shall be per the Plans.

The predetermined repeating flash sequence shall be immediately initiated every time a pushbutton detector is actuated. If the RRFBs are already flashing and an actuation is received, it shall restart the duration time. There shall be no delay time programmed between actuations.

COMPENSATION

**825.80: Method of Measurement**

RRFBs will be measured as a single system, 2-Post Assembly or 3-Post Assembly, furnished and installed.

**825.81: Basis of Payment**

The work will be paid for at the contract price each under the respective item for a 2-Post Assembly System or 3-Post Assembly System. Any additional wiring, mounting equipment, or other materials or labor required to for an operating system per the Plans and Specifications shall be considered as incidental to the construction and be included in the contract price.

**825.82: Payment Item**

825.2	RRFB (2-Post Assembly System) .....	Each
825.3	RRFB (3-Post Assembly System) .....	Each

**SECTION 900: STRUCTURES**

**SECTION 970: DAMP-PROOFING**

Subsection 970.30: General

Add the following material to this subsection:

Mortar.....	M4.04.0
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Subsection 970.40: General

Replace the second sentence in the second paragraph with the following;

All holes in concrete surfaces shall be satisfactorily filled with mortar before damp-proofing is applied.

**SECTION 983: REVETMENT**

Subsection 983.64 Special Slope Paving Under Bridges

Replace the last sentence under B. Quarry Stone or Precast Concrete Blocks. with the following:

Mortar shall then be placed in the joints to the top of the paved surface.

Subsection 983.65 Channel Paving and Grouted Channel Paving

Replace the last sentence with the following:

The grout shall conform to M4.04.0: Grout, Mortar, and Concrete Products.

## DIVISION III

### MATERIALS SPECIFICATIONS

#### SECTION M4: CEMENT AND CEMENT CONCRETE MATERIALS

##### Section M4.02.00 Cement Concrete

Add the following to the end of this section.

##### **Alkali Silica Reactivity - Resistant Portland Cement Concrete**

All cement concrete and precast/prestressed concrete products shall be alkali silica reactivity-resistant. Proportion Portland cement concrete mixes to include materials that meet either the aggregate requirement or Alkali-Silica Reactivity (ASR) mitigation criteria listed below. Provide cement mill test reports from certified laboratories that show the materials' source, composition and the cement alkali content expressed as sodium oxide equivalent(s) not to exceed 1.4%. Certified test reports according to test procedures as specified in Table A will be required to be submitted with the trial batch submission to RMS for approval every year or whenever the source of material is changed.

Select non-reactive aggregates that meet all the criteria of Table M4.02.00-2. Mitigate the mix as described below when nonreactive aggregates are unavailable. If non-reactive aggregates are used for portland cement concrete mix, 15% by weight of the cementitious content shall be fly ash meeting AASHTO M 295, Type F.

Select a material or a combination of materials that meet the criteria shown in Table M4.02.00-3 to mitigate ASR when concrete mixes must be proportioned with reactive aggregates. Perform verification test according to AASHTO T 303 and ASTM C295 to determine the effectiveness of the resulting mix design against ASR. Use the same proportion of cement and pozzolan for each test mixture as that proposed for the actual mix design. Provide the Department with certified documentation of the mixtures' effectiveness to control ASR.

**Table M4.02.00-2: Tests and Criteria for Proposed Aggregates**

Procedure	Description	Limits
AASHTO T 303: Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction	Mean mortar bar expansion at 14 days. Perform a polynomial fit <sup>(1)</sup> of 4, 7, 11, and 14 days to determine reliability of results	0.08% maximum metamorphic aggregate; 0.10% maximum all other aggregates. Repeat AASHTO T 303 if r <sup>2</sup> is less than 0.95.
ASTM C295: Petrographic Examination of Aggregates for Concrete	Optically strained, microfractured, or microcrystalline quartz	5.0% maximum <sup>(2)</sup>
	Chert or chalcedony	3.0% maximum <sup>(2)</sup>
	Tridymite or cristobolite	1.0% maximum <sup>(2)</sup>
	Opal	0.5% maximum <sup>(2)</sup>
	Natural volcanic glass	3.0% maximum <sup>(2)</sup>
<sup>(1)</sup> Use a second order polynomial of %Exp = A <sup>0</sup> + A <sup>1</sup> SQRT(t) + A <sup>2</sup> t. See publication SD92-04-F.		
<sup>(2)</sup> Based on the total aggregate sample.		

**Table M4.02.00-3: Mitigation Methods for ASR in Portland Cement Concrete**

Material	Specification	Cementitious Material Percentage <sup>(1)</sup>
Low alkali cement <sup>(2)</sup>	AASHTO M 85	100%
Fly ash - Class F	AASHTO M 295	15% minimum to 30% <sup>(4)</sup> maximum
Silica Fume <sup>(5)</sup>	AASHTO M 307	6% ± 1% <sup>(6)</sup>
Slag Grade 100 and 120	AASHTO M 302	25% minimum to 50% maximum

<sup>(1)</sup> Measure this minimum content of cementitious material as percent by weight of cement plus pozzolan.  
<sup>(2)</sup> This single criterion is not effective in all cases in remediating ASR. Low alkali cement (0.60% maximum <sup>(3)</sup>) must be used in combination with other pozzolanic materials in Table B.  
<sup>(3)</sup> Na<sub>2</sub>O equivalent = %Na<sub>2</sub>O + 0.658 (%K<sub>2</sub>O)  
<sup>(4)</sup> Fly ash, Type F, shall replace 15% by weight of the design cement content, and any additional fly ash will be considered as fine aggregate.  
<sup>(5)</sup> Silica fume shall only be used in silica fume cement concrete.  
<sup>(6)</sup> The total amount of Type F fly ash and silica fume shall constitute 20% by weight of the design cement content, and any additional fly ash shall be considered as fine aggregate.

**Section M4.02.15 Cement Mortar**

Delete this section.

**Section M4.04.0: Grout, Mortar and Concrete Products**

Replace this section with the following.

**M4.04.0: Grout, Mortar, and Concrete Products**

Grout, cementitious mortar, and concrete products shall be packaged, dry, and preblended with preformulated constituent materials (excluding mixing water) to produce a material with acceptable quality characteristics and material properties, including time of set, compressive strength, flexural strength, slant shear bond strength, resistance to alkali silica reaction, freezing/thawing, and de-icing cycles, shrinkage, expansion, and sulfate reaction.

Mortar products shall be defined as products containing aggregate of which less than 5% by mass of the total mixture is retained on the 3/8 in. sieve. Mortar products for concrete repairs shall be used only on repair depths of 2 in. or less. Concrete products shall be defined as products containing aggregate of which 5% or more by mass of the total mixture is retained on the 3/8 in. sieve. Concrete products for concrete repairs shall be used only on repair depths greater than 2 in.

The aggregate sources included in the prepackaged product or extended into the product shall meet Section M4.02.02: Aggregates. Grout, cementitious mortar, and concrete products shall only be applied per the requirements provided on the product's technical data sheet. Grout, cementitious mortar, and concrete products shall maintain valid listing on the MassDOT Qualified Construction Materials List (QCML). Grout, cementitious mortar, and concrete products shall meet requirements specified herein.

**A. Technical Data Sheet.**

The Manufacturer shall submit the product's technical data sheet to the Department for review. At a minimum, the product's technical data sheets shall include:

- (a) Product Name
- (b) Manufacturer, including address and contact information
- (c) Packaging
- (d) Yield
- (e) Product Description, including an overview of the product and its intended application(s) and use(s).
- (f) Technical Data, including quality characteristics and corresponding performance criteria with the AASHTO and/or ASTM standard test methods identified.

- (g) Recommended Equipment
- (h) Instructions, including surface preparation, mixing, forming, placing, finishing, curing, and protection from adverse conditions, such as precipitation, cold conditions, and hot conditions.
- (i) Limitations
- (j) Storage and Shelf Life
- (k) Safety

**B. Mix Design Formulation.**

Products that are extended with aggregate not included in the original product packaging shall be formulated per the product's technical data sheet and evaluated through Department mix design evaluation and verification testing. Producers shall report and submit proposed mix design formulations onto the Department issued mix design sheet. The Producer shall select an AASHTO accredited independent laboratory to conduct verification testing. The sampling and testing conducted by the independent laboratory shall be witnessed by the Department.

**C. Product Verification Testing.**

Verification test results shall be within the limits specified herein.

**M4.04.1: Conventional Grout, Cementitious Mortar, and Concrete Products**

Conventional grout, cementitious mortar, and concrete products shall meet the requirements of Section M4: Cement and Cement Concrete Materials, performance criteria of the product's technical data sheet, and the requirements specified herein.

**M4.04.2: Rapid Hardening Cementitious Mortar and Concrete Products**

Rapid hardening cementitious mortar and concrete products shall meet the requirements and performance criteria of the product's technical data sheet, ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs, and Table M4.04.2-2.

**Table M4.04.2-1: Types of Rapid Hardening Cementitious Products for Concrete Repairs**

Type	Description	Application
R1	General Rapid Hardening	Vertical and Overhead Repairs
R2	Medium Rapid Hardening	Vertical and Overhead Repairs
R3	Very Rapid Hardening	Horizontal, Vertical, and Overhead Repairs

**Table M4.04.2-2: Verification Testing Requirements**

Property	Method	Quality Characteristic		Limits					
				R1		R2		R3	
				Min.	Max.	Min.	Max.	Min.	Max.
Setting	T 197	Initial Set (min.)		Technical Data Sheet					
		Final Set (min.)		Technical Data Sheet					
Strength	T 97 <sup>[1]</sup>	Flexural Strength (psi)	24 Hours	-	-	-	-	650	-
			7 Days	-	-	-	-	-	-
Durability	T 358	Surface Chloride Ion Penetration Resistance (kΩ-cm)	28 Days	21	-	21	-	21	-
			T 161 (A)	Relative Durability Factor		90	-	90	-
		Mass Loss (%)		-	6.0	-	6.0	-	6.0

[1] Not applicable to vertical and overhead repair applications.

**M4.04.3: Mortar Products for Unit Masonry**

Mortar products for unit masonry shall meet the requirements and performance criteria of the product's technical data sheet and Type M specified in ASTM C270 Standard Specification for Mortar for Unit Masonry. Field proportioned cement mortar for laying brick and block shall be composed of 1 part Portland cement and 2 parts of fine aggregate by volume with a sufficient amount of water to form a workable mixture, while still achieving the properties specified herein.

**M4.04.4: Grout Products for Unit Masonry**

Grout products for unit masonry shall meet the requirements and performance criteria of the product's technical data sheet and ASTM C476 Standard Specification for Grout for Masonry.

**M4.04.5: Non-Shrink Grout Products**

Non-shrink grout products are intended for use under applied load, including supporting a structure, transfer medium between load-bearing members, shear keys, and other non-shrink applications, where a change in height below initial placement height is to be avoided. Non-shrink grout products shall meet the requirements and performance criteria of the product's technical data sheet and ASTM C1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).

**SECTION M5: PIPE, CULVERT SECTIONS AND CONDUIT**Section M5.01.0: Joint Material for Pipe

Replace M4.02.15 Cement Mortar with M4.04.0 Grout, Mortar, and Concrete Products in paragraph B.

**SECTION M8: METALS AND RELATED MATERIALS**Section M8.18.1: Traffic Signal Supports

Delete the heading Posts and the two paragraphs under it. Delete the heading Bases and the three paragraphs under it.

## SECTION M10: TRAFFIC CONTROL DEVICES

### Section M10.05.0: Traffic Signal Structures (General)

*Add this new Section:*

#### **M10.05.0: Traffic Signal Structures (General)**

The bases of all Traffic Signal Structures shall be supplied with a bonding lug.

### Section M10.05.1: Signal Posts and Bases

*Add this new Section:*

#### **M10.05.1: Signal Posts and Bases**

All Signal Posts shall be one-piece 4-in. diameter, Schedule 40 or Schedule 80, and machine-threaded.

Signal Posts may be fabricated from aluminum with a brushed or spun finish or from steel with a galvanized finish.

The interior of Signal Posts shall be coated as specified in Underwriters Laboratories UL-6 for enameled conduit, or aluminum conduit conforming to M5.07.1: Electrical Conduit-Rigid Metallic (Type RM), Paragraph C.

Signal Posts Bases shall be fabricated to accept the threads from the Signal Post and locked into place with set screws.

Signal Post Bases shall be fabricated from aluminum with a natural or anodized finish or galvanized cast iron.

Signal Post Bases shall be square or octagonal.

Signal Posts and Bases conform to Table M10.05.1-1.

***Table M10.05.1-1: Signal Post and Base Material Requirements***

<b>Component</b>	<b>Material</b>	<b>Specification</b>
Signal Post	Aluminum	6063-T6 (ASTM B221, B429 or B241)
Signal Post	Steel	ASTM A53, Grade A or B
Signal Post Base	Aluminum	356.0-T6 (ASTM B26, B108)
Signal Post Base	Cast Iron	AASHTO M 105

### Section M10.11.0: RRFB Assemblies

*Add this new Section:*

#### **M10.11.0: RRFB Assemblies**

Rectangular Rapid Flashing Beacon (RRFB) Assemblies shall consist of a Light Bar and an enclosure for the Controller and Activation Unit.

##### **Light Bar**

The Light Bar shall consist of two rapidly-flashed rectangular-shaped yellow indications, each with an LED-array based pulsing light source. The size of each RRFB indication shall conform to the Construction Standard Details.

The light intensity of the yellow indications during daytime conditions shall meet the minimum specifications for Class 1 yellow peak luminous intensity in the publication "Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles J595," 2005, Society of Automotive Engineers (SAE). A photocell or equivalent device shall be included to reduce the brilliance of the LED beacons during nighttime conditions.





③ ADDENDUM NO. 3, MAY 10, 2024

DOCUMENT A00801

**SPECIAL PROVISIONS****LITTLETON****Federal Aid Project No. STP/CMQ/TAP-0033(037)X  
Reconstruction of Foster Street**

Labor participation goals for this Project shall be 15.3% for minorities and 6.9% for women for each job category. The goals are applicable to both Contractor's and SubContractor's on-site construction workforce. Refer to Document 00820 for details.

③ **SCOPE OF WORK**

All work under this Contract shall be done in conformance with the *2024 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 Revisions 1, 2, and 3 and the November 2022 Massachusetts Amendments to the MUTCD*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; *The American Standard for Nursery Stock*; the Plans and these Special Provisions.

The Work to be done under this contract shall consist of the removal of the existing roadway pavement on Foster Street down to the existing sub-base, a distance of approximately 3,936 feet. Associated work shall include excavation of the existing subbase, full depth box widening in some sections, sidewalk replacement, ADA improvements, construction of a shared-use path along Foster Street for connectivity between the Taylor Street Trail and northerly travel along Foster Street.

The associated work along Taylor Street, Bulkeley Road, Grimes Lane, and Balsam Lane includes pavement repair, pavement milling and overlay, full depth box widening, sidewalk replacement, ADA improvements, pavement markings, landscape/planting improvements and providing all incidental materials and labor necessary for operation of the traffic control signage in accordance with the project plans and specifications.

**CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGEMENTS**

Prospective bidders are required to submit all questions to the Construction Contracts Engineer by 3:00 P.M. on the Tuesday of the previous week before the scheduled bid opening date. Any questions received after this time will not be considered for review by the Department.

Contractors should email questions and addendum acknowledgements to the following email address [massdotSpecifications@dot.state.ma.us](mailto:massdotSpecifications@dot.state.ma.us) The MassDOT project file number and municipality is to be placed in the subject line.

③ ADDENDUM NO. 3, MAY 10, 2024

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③ ADDENDUM NO. 3, MAY 10, 2024

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③ADDENDUM NO. 3, MAY 10, 2024

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### **SHEETING AND BRACING**

The Contractor shall furnish, place, and remove (unless otherwise noted) all sheeting and bracing required to support the sides of all trenches or other excavations for this Project. The design of all sheeting and bracing shall be stamped and signed by a licensed MA Professional Engineer.

The Contractor shall be solely responsible for the safety of the workmen and the adjacent facilities from danger of caving and sliding. All work to be done shall be in strict accordance with the Department of Labor, Occupational Safety and Health Administration regulations and suggested practices for construction excavations and/or other applicable codes and regulations. Special precautions shall be taken to guard against any damage to or settlement of pavements, buildings, walls, pipes, ducts or other structures and facilities which are adjacent to the work.

The cost of providing and removing sheeting, shoring and bracing shall be included in the cost of the various Items of work under this Contract and no additional compensation will be allowed therefore.