

**THE COMMONWEALTH OF MASSACHUSETTS
 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
 10 PARK PLAZA, BOSTON MA**

–PRELIMINARY ESTIMATE OF QUANTITIES – DETAIL SHEET

CITY/TOWN: Bolton to Littleton

YEAR: FFY 2020

STA. MM 67.6 +/- (Bolton) to MM 77.0 +/- (Littleton)

ROAD: Route 495

Design Designation Data:

Design Speed	70 MPH
ADT (2018)	97,987
ADT (2038)	119,562
K	8%
D	55%
T (Peak Hour)	10%
T (Average Day)	9%
DHV	7,838
DDHV	4,311
Functional Classification	Urban Interstate

PAVEMENT NOTES:**MAINLINE PAVEMENT STRUCTURE****AREA = 563,100 SY**

SURFACE: ¾ INCH ULTRA THIN BONDED OVERLAY

MILLING: MICRO MILL 1 ¼ INCHES

BRIDGE/BRIDGE APPROACH PAVEMENT STRUCTURE**AREA = 11,790 SY**

SURFACE: 1 INCH SUPERPAVE BRIDGE SURFACE COURSE – 9.5 POLYMER (SSC-B-9.5-P) OVER

1 ½ INCHES SUPER PAVE WATERPROOFING SURFACE COURSE - 9.5 (SSC-W-9.5)

MILLING: COMPLETELY STRIP HMA ON BRIDGE DECK INCLUDING MEMBRANE 2 ½ INCHES±

APPROACH SURFACE: 1 INCH SUPERPAVE BRIDGE SURFACE COURSE – 9.5 POLYMER (SSC-B-9.5-P) OVER

MILLING: FINE MILLING BRIDGE APPROACHES 2 ½ INCHES

PAVEMENTS NOTES:

- The existing clearances of the bridges over I-495 shall be maintained.
- Maintain existing cross-slopes.
- Maintain existing super elevation cross-slopes.
- Bridge resurfacing shall be extended beyond the limits of bridge to effect a smooth transition. The Contractor shall develop and markout limits in the field, for approval by the Engineer, prior to milling.
- Asphalt emulsion for tack coat shall be applied at a rate in accordance with Subsection 460.43 of the Standard Specifications.

ITEM 120.1 UNCLASSIFIED EXCAVATION

Use for excavation of HMA berm that is inaccessible to milling machines.
Use in conjunction with bridge work.

ITEM 221. FRAME AND COVER – SECURED

Replace manhole cover at the following locations.

Town	Baseline	Station	LT/RT
Bolton	495 N	136+20	RT
Boxborough	495 S	48+20	LT

ITEM 222. FRAME AND GRATE – MASSDOT BAR TYPE

Replace only unsuitable frames and grates as required by the Engineer

ITEM 227.3 REMOVAL OF DRAINAGE STRUCTURE SEDIMENT

ITEM 227.31 REMOVAL OF DRAINAGE PIPE SEDIMENT

Clean all catch basins, drop inlets, and related piping.

Note: Removal and disposal of all sediments shall be done prior to any drainage structure work that structures may be inspected top to bottom.

ITEM 470. HOT MIX ASPHALT BERM

Use for berm repairs, locations as required by the Engineer.

ITEM 477. MILLED RUMBLE STRIP (TYPE A)

Install along both sides of the mainline, except on bridge decks.

ITEM 511.1 GRANITE EDGING TYPE SB - STRAIGHT

Replace unsuitable edging as required by the Engineer.

ITEM 580. CURB REMOVED AND RESET

Remove and reset displaced curb as required by the Engineer.

ITEM 583. EDGING REMOVED AND RESET

Remove and reset displaced edging along acceleration and deceleration lanes as required by the Engineer.

ITEM 597. EDGING REMOVED AND DISCARDED

Remove and discard edging that is being replaced.

ITEM 620.13 GUARDRAIL-TL-3 (SINGLE FACED)

Use to replace unsuitable guardrail runs as determined by the Engineer.

ITEM 627.1 TRAILING ANCHORAGE

Use to replace unsuitable guardrail ends as determined by the Engineer.

ITEM 627.83 GUARDRAIL TANGENT END TREATMENT, TL-3

Use to replace damaged tangent end treatments as determined by the Engineer.

ITEM 628.21 TRANSITION TO NCHRP 350 GUARDRAIL

Install at a locations where new guardrail will tie into existing guardrail.

ITEM 628.22 TRANSITION TO RIGID BARRIER (SINGLE FACED)

Replace as required by the Engineer.

ITEM 628.24 TRANSITION TO BRIDGE RAIL

Replace as required by the Engineer.

ITEM 630.2. HIGHWAY GUARD REMOVED AND DISCARDED

Remove and discard sections of guardrail that are being repaired.

ITEM 632. GUARDRAIL POST-STEEL

Use to replace damaged posts as determined by the Engineer.

ITEM 632.4 GUARDRAIL POST-REMOVED AND DISCARDED

Remove and discard any posts that are being replaced with Item 632.

ITEM 633. GUARDRAIL OFFSET BLOCK-W BEAM

Use to replace unsuitable W-Beam offset blocks as determined by the Engineer. The cost of removing and discarding existing W-Beam offset blocks shall be incidental to this item.

ITEM 633.1 GUARDRAIL OFFSET BLOCK-THRIE BEAM

Use to replace unsuitable thrie-beam offset blocks as determined by the Engineer. The cost of removing and discarding existing thrie beam offset blocks shall be incidental to this item.

ITEM 634. W BEAM GUARD PANEL

Use to replace damaged w beam panels as determined by the Engineer.

ITEM 634.1. THRIE BEAM GUARD PANEL

Use to replace damaged thrie beam panels as determined by the Engineer.

ITEM 751. LOAM BORROW

ITEM 765. SEEDING

Use to restore areas behind edging and curbing being installed or removed and reset.

ITEM 767.121 SEDIMENT CONTROL BARRIER

Install sediment control barriers at the following locations.

Town	Baseline	Start Station	LT/RT	Stop Station
Bolton	495 N	0+00	LT	18+50
Bolton	495 N	43+50	RT	48+00
Bolton	495 N	53+00	LT	56+50
Bolton	495 N	53+50	RT	57+25
Bolton	495 N	95+00	LT	100+00
Bolton	495 N	99+00	RT	100+00
Bolton	495 N	105+20	RT	107+50
Bolton	495 N	115+00	RT	119+00
Bolton	495 N	127+50	RT	130+00
Bolton	495 N	143+50	RT	150+00
Bolton	495 N	156+00	LT	169+00
Bolton	495 N	157+00	RT	167+00
Bolton	495 N	176+50	LT	190+20
Bolton	495 N	188+00	RT	191+00
Bolton	495 N	214+50	RT	216+50
Harvard	495 N	71+50	LT	73+50
Harvard	495 N	72+00	RT	77+72
Harvard	495 N	76+00	LT	77+72
Boxborough	495 N	0+68	RT	12+00
Boxborough	495 N	0+68	LT	12+00
Boxborough	495 N	29+20	LT	43+20
Boxborough	495 N	33+00	RT	50+50
Boxborough	495 N	82+00	RT	93+00
Boxborough	495 N	88+00	LT	92+50
Boxborough	495 N	182+00	RT	186+00
Boxborough	495 N	183+00	LT	184+50
Boxborough	495 S	187+00	LT	165+00

ITEM 767.121 (Continued)

Boxborough	495 S	185+00	RT	183+80
Boxborough	495 S	140+20	LT	100+00
Boxborough	495 S	93+00	LT	86+50
Boxborough	495 S	92+50	RT	89+00
Boxborough	495 S	43+00	RT	28+20
Boxborough	495 S	39+50	LT	21+50
Boxborough	495 S	12+20	RT	0+80
Boxborough	495 S	2+00	LT	0+80
Harvard	495 S	77+83	LT	70+50
Harvard	495 S	42+00	LT	13+00
Harvard	495 S	42+00	RT	28+00
Bolton	495 S	223+00	LT	210+00
Bolton	495 S	189+70	RT	176+50
Bolton	495 S	188+50	LT	186+00
Bolton	495 S	180+00	LT	174+00
Bolton	495 S	172+00	LT	164+20
Bolton	495 S	168+50	RT	155+80
Bolton	495 S	161+50	LT	158+00
Bolton	495 S	148+50	LT	140+00
Bolton	495 S	133+00	LT	126+80
Bolton	495 S	98+75	LT	72+00
Bolton	495 S	62+00	LT	50+00
Bolton	495 S	39+50	LT	0+00

Install at additional locations if it is determined to be necessary by the Engineer.

ITEM 769. PAVEMENT MILLING MULCH UNDER GUARDRAIL

Install only under guardrail being replaced.

ITEM 834. DEMOUNTABLE REFLECTORIZED REFERENCE LOCATION SIGN

Replace missing or damaged location signs.

ITEM 834.17 REFLECTORIZED FLEXIBLE DELINEATOR POST (AMBER)

Install along the high-speed side of each barrel.

Note: Removing and discarding old delineators is incidental to this item.

ITEM 834.18 REFLECTORIZED FLEXIBLE DELINEATOR POST (WHITE)

Install along the low speed side of each barrel.

Note: Removing and discarding old delineators is incidental to this item.

ITEM 836.5 DEMOUNTABLE REFLECTORIZED STATION MARKER

Install throughout the project limits along both barrels 30 feet from the edge of pavement.

ITEM 854.016 TEMPORARY PAVING MARKINGS – 6 INCH (PAINTED)

Install temporary white edge lines, yellow edge lines and broken white lane lines on the milled surface.

ITEM 854.036 TEMPORARY PAVEMENT MARKINGS – 6 INCH (REMOVABLE TAPE)

Install temporary broken white lane lines on the top course until permanent pavement markings can be installed.

Note: Includes removing and discarding the temporary pavement markings when the permanent pavement markings have been installed.

ITEM 856.12 PORTABLE CHANGEABLE MESSAGE SIGN

Position, reposition, maintain, and remove message signs as required by the Engineer. The messages to be displayed are as required by the Engineer.

Note: A minimum of two message signs shall be provided.