**FEDERAL HIGHWAY ADMINISTRATION**

**EASTERN FEDERAL LANDS HIGHWAY DIVISION**

**LIBRARY OF SPECIFICATIONS (LOS)**

**FOR**

**FP-14**

LOS Version

12 September 2024

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*INCLUDE THE FOLLOWING ON ALL PROJECTS*

*REMOVE ITALICS FROM INSERT FIELDS*

$$000.00A

FEDERAL HIGHWAY ADMINISTRATION

EASTERN FEDERAL LANDS HIGHWAY DIVISION

SPECIAL CONTRACT REQUIREMENTS

Project *INSERT PROJECT NAME / NUMBER - REMOVE ITALICS*

*INSERT PARK, FOREST, REFUGE, OR PARTNER AGENCY NAME - REMOVE ITALICS*

The following Special Contract Requirements amend and supplement the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-14)*, U. S. Department of Transportation, Federal Highway Administration.

*INCLUDE SECTION 104 ON ALL PROJECTS WITH CLAUSE $$104.03A AS A MINIMUM*

$$104.00A

Section 104. — CONTROL OF WORK

Revised 22 June 2016

*INCLUDE THE FOLLOWING ON ALL PROJECTS*

$$104.03A

104.03(c). Delete the first sentence of the first paragraph and substitute the following:

Furnish one full-size (24-inch by 36-inch) paper copy of the plans from the Government-provided electronic plans, and use this set of plans exclusively for as-built drawings.

*INCLUDE THE FOLLOWING ON NPS PROJECTS (IF INCLUDING FOR OTHER PARTNERS, MAKE APPROPRIATE EDITS)*

$$104.05A

104.05. Add the following:

When hauling on National Park Service roads, do not exceed the load restrictions shown in Table 104-1.

|  |  |
| --- | --- |
| **Table 104-1**  **Load Restrictions** | |
| **Single Units** | **Gross Vehicle Weight, pounds** |
| 2 axles | 40,000 |
| 3 axles | 48,000 |
| 4 or more axles | 52,000 |
| **Combination Units** | **Gross Vehicle Weight, pounds** |
| 3 axles | 57,000 |
| 4 axles | 62,000 |
| 5 or more axles | 66,000 |

Where the ground is saturated with water or during periods of freezing and thawing, the CO may impose further load restrictions or suspend hauling.

*INCLUDE THE FOLLOWING, IF APPROPRIATE (IF $$104.05A IS INCLUDED, DO NOT INCLUDE $$104.05B INSTRUCTION LINE)*

$$104.05B

104.05. Add the following:

Operate loaded vehicles hauling material at speeds not exceeding 40 miles per hour or the posted speed limit, whichever is lower, and spaced at 500-foot minimum intervals. When hauling on bridges, do not exceed 25 miles per hour or the posted speed limit, whichever is lower, or operate more than 1 loaded hauling vehicle at a time.

*INCLUDE THE FOLLOWING IF HAULING MATERIALS INTO THE PROJECT (IF $$104.05A AND/OR $$104.05B ARE INCLUDED, DO NOT INCLUDE $$104.05C INSTRUCTION LINE)*

$$104.05C

104.05. Add the following:

Hauling will only be permitted from the nearest point of public access to the work site. Minimize hauling over completed pavement.

*INCLUDE THE FOLLOWING IF RESTRICTING ACCESS TO THE PROJECT THROUGH A SPECIFIC ROADWAY (IF $$104.05A, $$104.05B, AND/OR $$104.05C ARE INCLUDED, DO NOT INCLUDE $$104.05D INSTRUCTION LINE)*

$$104.05D

104.05. Add the following:

Do not use *(insert roadway name)* to access the project site during construction.

*INCLUDE SECTION 106 AS APPLICABLE*

$$106.00A

Section 106. — ACCEPTANCE OF WORK

Revised 25 March 2015

*INCLUDE THE FOLLOWING IF MATERIAL IS BEING ACCEPTED UNDER SUBSECTION 106.05 STATISTICAL EVALUATION (USUALLY FOR THE FOLLOWING ITEMS: 258, 301, 309, 311, 314, 401, 402, 405, 407, 552, 565, 566, 568, AND 569 - SEE THE APPROPRIATE FP “ACCEPTANCE” SUBSECTION FOR THESE SECTIONS) (INCLUDE NO MATTER IF THE PAY ITEM QUANTITY QUALIFIES FOR A MATERIAL INCENTIVE OR NOT) (IF CLAUSE $$106.05A IS INCLUDED, ALSO INCLUDE CLAUSE $$154.05A)*

$$106.05A

106.05. Add the following:

At the preconstruction conference, the Government will provide a copy of the computer program “QL-PAY”, along with instructions. QL-PAY is a Windows based program that computes the quality levels and pay factors as described in this Subsection.

*INCLUDE SECTION 108 ON ALL PROJECTS WITH CLAUSES $$108.01A, $$108.01D, AND $$108.03A AS A MINIMUM*

*SECTION 108 IS FOR WORK RESTRICTIONS THAT APPLY TO THE ENTIRE PROJECT; IF A SPECIFIC RESTRICTION RELATED TO A SPECIFIC WORK ITEM IS REQUIRED (I.E., NO TREE CUTTING), THEN INCLUDE THE RESTRICTION IN THAT SPECIFIC SECTION OF THE SCRS (I.E., SECTION 201 OR 202)*

*REMOVE ITALICS AND PARENTHESES FROM INSERT FIELDS*

$$108.00A

Section 108. — PROSECUTION AND PROGRESS

Revised 12 May 2016

*INCLUDE THE FOLLOWING WHEN OTHER AGENCIES AND MUNICIPALITIES ARE TO BE INVITED TO THE PRECONSTRUCTION CONFERENCE*

$$108.01L

108.01. Delete the first sentence of the second paragraph and substitute the following:

A preconstruction conference will be held after the contract is awarded and at least 7 days before beginning work. Coordinate with the CO to insure that the following agencies and municipalities are invited to the preconstruction conference:

* *(insert specific agencies or municipalities)*
* *(insert specific agencies or municipalities)*
* *(insert specific agencies or municipalities)*

*INCLUDE THE FOLLOWING WHEN ANY OF THE $$108.01 CLAUSES ARE USED*

$$108.01A

108.01. Add the following:

*INCLUDE THE FOLLOWING FOR PROJECTS WITH A SPECIFIC CONSTRUCTION START DATE (INCLUDING A START DATE IS FOR THOSE PROJECTS THAT REQUIRE A "DELAYED NTP" AND WILL BE AWARDED AT LEAST 2 MONTHS BEFORE CONSTRUCTION CAN START - DO NOT USE IF THE PROJECT IS GOING TO BE ADVERTISED WITHIN 4 MONTHS OF THE START DATE)*

$$108.01B

Construction activities at the project site cannot begin any earlier than *(insert specific date MM DD, YYYY)*. However, the Contractor may perform any preconstruction activities (i.e., submitting shop drawings, material mix designs, etc.) to prepare for the start of construction once the contract is awarded and the Notice to Proceed has been issued. Contract time will start as determined by the CO either at time of contract award or as specified in the Notice to Proceed.

*INCLUDE THE FOLLOWING FOR PROJECTS WITH A SPECIFIC CONSTRUCTION END DATE*

$$108.01C

Complete all construction activities no later than *(insert specific date MM DD, YYYY)*.

*INCLUDE THE FOLLOWING ON ALL PROJECTS UNLESS ONE OR MORE OF CLAUSES $$108.01G THRU $$108.01I ARE NEEDED (IF ONE OR MORE OF CLAUSES $$108.01G THRU $$108.01I ARE NEEDED, USE CLAUSE $$108.01E AND $$108.01F AND THE APPROPRIATE CLAUSES $$108.01G THRU $$108.01I)*

$$108.01D

No work will be permitted on Sundays or National legal holidays.

*INCLUDE THE FOLLOWING ON ALL PROJECTS UNLESS NONE OF CLAUSES $$108.01G THRU $$108.01I ARE NEEDED (CORRECT SUBSECTION LETTERS (a) THRU (d) AS NEEDED) (IF NONE OF CLAUSES $$108.01G THRU $$108.01I ARE NEEDED, USE CLAUSE $$108.01D ONLY)*

$$108.01E

Construction operations are limited as follows:

$$108.01F

**(a)** No work will be permitted on Sundays or National legal holidays.

$$108.01G

**(b)** No work will be permitted on the following days:

*DO NOT INCLUDE YEAR IF DATE REMAINS THE SAME EVERY YEAR. IF ONLY ONE DAY IS LISTED, DO NOT USE BULLETS AND CREATE ONE SENTENCE.*

* *(insert specific date MM DD, YYYY)*
* *(insert specific date MM DD, YYYY)*
* *(insert specific date MM DD, YYYY)*

$$108.01H

**(c)** No work will be permitted during the following periods:

*DO NOT INCLUDE YEAR IF PERIOD REMAINS THE SAME EVERY YEAR. IF ONLY ONE PERIOD IS LISTED, DO NOT USE BULLETS AND CREATE ONE SENTENCE.*

* *(insert specific date range MM DD, YYYY to MM DD, YYYY)*
* *(insert specific date range MM DD, YYYY to MM DD, YYYY)*
* *(insert specific date range MM DD, YYYY to MM DD, YYYY)*

$$108.01I

**(d)** No work will be permitted on days with special events occurring in the vicinity, as determined by the CO.

*USE ONLY IF SPECIFIC DAYS AND PERIODS OF SPECIAL EVENTS ARE NOT KNOWN (TYPICALLY USED FOR NPS NATIONAL CAPITOL REGION DC AREA PROJECTS)*

*INCLUDE THE FOLLOWING IF ANY OF THE CLAUSES $$108.01D THRU $$108.01I ARE USED, AND IF APPLICABLE - VERIFY THE MINIMUM AMOUNT OF TIME NEEDED FOR APPROVAL WITH CONSTRUCTION*

$$108.01J

If the Contractor finds it necessary to work on one of these restricted days, request approval from the CO at least 7 days before the planned work.

*INCLUDE THE FOLLOWING IF THERE IS THE POSSIBILITY OF OTHER CONSTRUCTION PROJECTS OCCURRING IN THE VICINITY*

$$108.01K

Coincident with this contract, other contracts for construction projects may be underway or may commence during the construction of this project. Coordinate with the CO and other contractors to minimize disruption to this project and to other construction projects in the area.

*INCLUDE THE FOLLOWING ON ALL PROJECTS*

$$108.03A

108.03(c). Add the following:

Under FAR Clause 52.249-10, Default (Fixed‑Price Construction), the Contractor can request a time extension for a delay due to unusually severe weather as defined under Section 155. If a time extension is requested for unusually severe weather, submit a time impact analysis according to Subsection 108.03(b) and include supporting historical weather data according to Subsections 155.04A and 155.04B. The following criteria will be used for determining a time extension for unusually severe weather:

**(1) Time adjustment for rain delays.** If the net number of actual workdays lost to rain is less than the total lost days for the month in question, then no time adjustment will be made. If the net number of actual workdays lost to rain is more than the total lost days for the month in question, then a time extension may be granted.

**(2) Time adjustment for other weather delays.** If a time extension is requested for other unusually severe weather conditions such as snow, extreme cold or heat, high winds, etc., follow the same calculation, submittal, and criteria procedures as outlined for rain delays.

*INCLUDE SECTION 109 ON ALL PROJECTS WITH CLAUSES $$109.08A AND $$109.08B AS A MINIMUM*

$$109.00A

**Section 109. — MEASUREMENT AND PAYMENT**

Revised 16 June 2022

*INCLUDE THE FOLLOWING FOR PROJECTS WITH 414 ASPHALT PAVEMENT CRACK SEALING PAY ITEMS PAID BY THE MILE*

$$109.02A

109.02(k). Add the following:

Calculate miles in parking areas based on an 11-foot lane width. Convert the square footage of a parking area into miles using the following equation:

Parking Area Miles = parking area square feet / (11 feet x 5,280 feet/mile)

*INCLUDE THE FOLLOWING FOR PROJECTS WITH CTSM PAY ITEMS. ADDITIONAL SCRS ARE NEEDED IN THE SECTION WHERE THE CTSM PAY ITEM IS USED (CTSM PAY ITEMS ARE TYPICALLY USED FOR 611/612/636 AND OTHER UTILITIES COORDINATION, DESIGN-BUILD, ETC)*

$$109.02B

109.02. Add the following:

**(s) Contingent sum, CTSM.** Perform the work as authorized by the CO. The estimated total cost for CTSM work is approximate and is considered a maximum cost for the required work. The contract total will be adjusted for authorized changes.

Submit paid invoice receipts as documentation for payment of CTSM pay items.

*INSERT THE DRAFT 109.06A/B FOR ASPHALT BINDER AND FUEL PRICE ADJUSTMENT PROVISIONS – THE LINK PROVIDED BELOW WILL TAKE YOU TO THE LOCATION WHERE THESE SPECIFICATIONS ARE LOCATED*

$$109.06A/B

<https://flh.fhwa.dot.gov/resources/specs/fp-14/efl/#100>

*INCLUDE* *THE FOLLOWING WHEN A SWPPP IS REQUIRED (TYPICALLY WHEN THE TOTAL DISTURBED AREA IS GREATER THAN 1 ACRE) - VERIFY WITH ENVIRONMENT (IF USING THIS CLAUSE, INCLUDE ALL APPLICABLE 157 CLAUSES AND PAY ITEM 15720-0000 STORM WATER POLLUTION PREVENTION PLAN)*

$$109.08C

109.08(a). Add the following:

Full or partial progress payment will be withheld until the SWPPP is brought into compliance and approved by the CO.

*INCLUDE CLAUSES $$109.08A AND $$109.08B ON ALL PROJECTS*

$$109.08A

109.08(b). Add the following:

Submit invoices by the 7th day after the closing date. Invoices received after the 16th day following the closing date will not be accepted for payment processing that month. Include late, unprocessed invoice submittals in the following month’s invoice.

$$109.08B

109.08(c). Add the following:

The Government’s designated billing office is:

Federal Highway Administration

Eastern Federal Lands Highway Division

Quantum Park

22001 Loudoun County Parkway

Building E-2, Suite 200

Ashburn, Virginia 20147

ATTN: CONSTRUCTION OFFICE

*INCLUDE SECTION 152 ON ALL PROJECTS WITH THE FOLLOWING MINIMUMS:*

* *CLAUSE $$152.04C; AND*
* *EITHER CLAUSE $$**152.04A OR $$152.04B.*

$$152.00A

Section 152. — CONSTRUCTION SURVEY AND STAKING

Revised 16 June 2022

*INCLUDE THE FOLLOWING ON ALL PROJECTS*

$$152.04C

152.04(b). Add the following:

When GPS and RTS are used, submit a quality control plan which includes how control will be established and maintained.

*INCLUDE THE FOLLOWING IF THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING INITIAL REFERENCE POINTS AND HORZ/VERT CONTROL (VERIFY WITH SURVEY) (IF $$152.04A IS INCLUDED, DO NOT INCLUDE $$152.04B)*

$$152.04A

152.04. Delete the third, fourth, and eighth paragraphs and substitute the following:

No horizontal or vertical control information will be provided.

Establish initial reference lines and control points, and horizontal and vertical control points as necessary to perform the construction survey and staking.

*INCLUDE THE FOLLOWING IF THE CONTRACTOR IS RESPONSIBLE FOR REESTABLISHING THE INITIAL REFERENCE POINTS AND HORZ/VERT CONTROL SET BY THE GOV’T (VERIFY WITH SURVEY) (IF $$152.04B IS INCLUDED, DO NOT INCLUDE $$152.04A)*

$$152.04B

152.04. Delete the last sentence of the eighth paragraph and substitute the following:

Reestablish any missing initial reference lines, control points, and stakes set by the Government.

*INCLUDE THE FOLLOWING IF REQUESTED BY CONSTRUCTION (INSERT THE APPROPRIATE SUBSECTION LETTERS THAT ARE NOT REQUIRED - ENSURE THE NEW LETTERS AND PARENTHESIS ARE BOLDED AND NEW COMMAS ARE NOT BOLDED)*

$$152.05A

152.05. Delete the text of Subsections **( )**, **( )**, and **( )**; they are not required.

*INCLUDE THE FOLLOWING FOR ROADWAY PROJECTS GREATER THAN ½-MILE LONG*

$$152.05B

152.05(a). Add the following:

Set benchmarks a maximum spacing of 1,000 feet along the length of the roadway.

*INCLUDE THE FOLLOWING IF THE PROJECT INCLUDES PERMANENT ROW AND BOUNDARY MONUMENTATION ALONG PRIVATE PROPERTY (VERIFY WITH SURVEY IF REQUIRED) (IF CLAUSE $$152.05C IS USED, AN ASSOCIATED 15215-4000 PAY ITEM IS USUALLY REQUIRED)*

$$152.05C

152.05(k). Add the following:

Perform the portion of the survey work required to establish permanent monuments and markers by a professional land surveyor registered in the *(insert one of the following wordings “State of …” or “Commonwealth of …” or “Territory of …” and insert appropriate name - REMOVE ITALICS, PARENTHESES, AND QUOTATION MARKS)*.

*INCLUDE THE FOLLOWING ON PAVEMENT PRESERVATION PROJECTS AND OTHER PROJECTS WHERE THE LIMITS OF THE MAINLINE PASSING/NO PASSING ZONES HAVE NOT BEEN INCLUDED IN THE PS&E (IF USED, ALSO INCLUDE CLAUSE $$634.03A)*

$$152.05D

152.05(l). Add the following:

Survey the existing centerline pavement markings to record the existing passing and no-passing zones. Submit the survey to the CO before performing pavement removal or resurfacing work. Use this survey to reestablish the existing passing and no-passing zones according to Section 634.

*INCLUDE SECTION 154 ON ALL PROJECTS WITH CLAUSES $$154.02A, $$154.03A, AND $$154.03B AS A MINIMUM*

$$154.00A

Section 154. — CONTRACTOR SAMPLING AND TESTING

Revised 17 November 2020

*INCLUDE CLAUSES $$154.02A, $$154.03A, AND $$154.03B ON ALL PROJECTS*

$$154.02A

154.02. Add the following:

Submit proposals for using alternate AASHTO or state department of transportation approved test methods in writing for approval. Alternate methods may be allowed based on documented equivalence to the method specified and if approved by the CO.

$$154.03A

154.03. Add the following:

Provide the Government’s portion of the sample or split sample in an acceptable container suitable for shipment to the CO. The CO will sign and seal the sample with specialty chain-of-custody security tape. Ship the security-sealed sample to the EFLHD Central Laboratory at the following address within 24 hours of receiving the sample from the CO:

Federal Highway Administration

Eastern Federal Lands Highway Division

1827 Jack Delozier Drive

Sevierville, Tennessee 37876

ATTN: MATERIALS LABORATORY

$$154.03B

For the split sample of asphalt concrete pavement material, provide 5-gallon metal buckets with lids. As an alternative, provide boxes that are coated with silicone-coated paper throughout the interior.

*INCLUDE THE FOLLOWING IF MATERIAL IS BEING ACCEPTED UNDER SUBSECTION 106.05 STATISTICAL EVALUATION (USUALLY FOR THE FOLLOWING ITEMS: 258, 301, 309, 311, 314, 401, 402, 405, 407, 552, 565, 566, 568, AND 569 - SEE THE APPROPRIATE FP “ACCEPTANCE” SUBSECTION FOR THESE SECTIONS) (INCLUDE NO MATTER IF THE PAY ITEM QUANTITY QUALIFIES FOR A MATERIAL INCENTIVE OR NOT) (IF CLAUSE $$154.05A IS INCLUDED, ALSO INCLUDE CLAUSE $$106.05A)*

$$154.05A

154.05. Add the following:

For items accepted under Subsection 106.05, use the QL-PAY software program to determine pay factors and report pay factors determined by QL-PAY. Submit a copy of all current test results and pay factor calculations based on those tests on a weekly basis. When large quantities are produced, calculate pay factors as soon as possible. Use this information to make any necessary adjustments to operations to achieve acceptable pay factors. See Subsection 106.01 for conditions upon which the Government may use the Contractor’s test results.

*INCLUDE SECTION 155 ON ALL PROJECTS*

*DETERMINE WHICH TYPE OF CONSTRUCTION SCHEDULE WILL BE REQUIRED FROM THE CONTRACTOR (SEE FP SUBSECTION 155.05) AND SEE INSTRUCTIONS FOR WHICH $$155.05 CLAUSES TO INCLUDE. TYPICALLY THE SIMPLER BCM IS USED FOR SMALLER, UNCOMPLICATED PROJECTS AND THE CPM IS USED FOR LARGER, MORE COMPLEX PROJECTS (VERIFY WITH CONSTRUCTION WHICH CONSTRUCTION SCHEDULE SHOULD BE REQUIRED)*

*IF THE CPM CONSTRUCTION SCHEDULE IS REQUIRED, VERIFY WITH CONSTRUCTION IF PAY ITEM 15501-0000 SHOULD BE INCLUDED*

$$155.00A

Section 155. — SCHEDULES FOR CONSTRUCTION CONTRACTS

Revised 13 April 2023

*INCLUDE CLAUSES $$155.02A, $$155.04A, AND 155.04B ON ALL PROJECTS*

$$155.02A

155.02. Add the following:

**(g) Reasonably predictable weather.** The number of workdays that can expect to be lost in any month due to rainfall based on 10-year historical weather data.

**(h) Rain day.** A potentially lost workday on which rainfall is equal to or greater than 0.10 inches.

**(i) Drying day.** A workday immediately following a rainfall equal to or greater than 1.00 inch which is potentially lost because of wet ground conditions.

**(j) Workday.** A day not excluded from work by Section 108.

**(k) Unusually severe weather.** When the number of actual workdays lost is greater than the reasonably predictable weather for a specific month.

$$155.04A

155.04(f). Add the following:

If a subcontract has not yet been awarded for a certain portion of the work, include the schedule for that work.

$$155.04B

155.04. Add the following:

**(j)** A completed Table 155-1 prepared according to Subsection 155.04A.

*INCLUDE CLAUSES $$155.04C, $$155.04E, $$155.04F, $$155.04G AND 155.04D ON ALL PROJECTS - VERIFY WITH CONSTRUCTION IF CLAUSE $$155.04F IS APPLICABLE TO THE PROJECT AND DELETE IF NOT*

$$155.04C

Add the following after Subsection 155.04:

$$155.04E

**155.04A Reasonably Predictable Weather.** Determine reasonably predictable weather for this contract by completing Table 155-1. Calculate data for Table 155-1 by computing the average number of workdays lost (rain days plus drying days) for each month and the standard deviation from the average, using the last 10 years of historical weather data from the nearest National Oceanic and Atmospheric Administration (NOAA) weather data collection station. Add the average number of workdays lost to the standard deviation. The total number of lost days (average workdays lost plus 1 standard deviation, rounded to whole days) will be considered normal for each month.

$$155.04F

At the option of the Contractor, provide the necessary instrumentation to support weather-related impacts to the project if using the nearest weather station is impractical. If onsite weather instrumentation is not provided, use the nearest weather station.

Provide a weekly summary of the weather data gathered to the CO.

$$155.04G

**155.04B Unusually Severe Weather.** If requesting a time extension due to unusually severe weather, calculate the number of actual workdays lost by totaling the actual rain days plus the actual drying days occurring in the month in question. From this total, deduct any workdays meeting any one of the following conditions:

**(a)** The rain day or drying day occurred on a non-work weekday such as a holiday.

**(b)** The rainfall occurred at a time when no weather dependent work was in progress or occurred during planned or unplanned shutdowns due to other circumstances such as equipment failure, strikes, material supplies, delays, etc.

**(c)** The Contractor was still working or able to work on weather dependent activities to the extent that less than 50 percent of the workday was lost due to weather.

If the net number of actual workdays lost is greater than the total lost days, then unusually severe weather occurred during the month in question.

$$155.04D

| **Table 155-1**  **Reasonably Predictable Weather** | | | |
| --- | --- | --- | --- |
| Project Number: | | | |
| Project Location: | | | |
| NOAA Station Location: | | | |
| Data Years (10-year history): | | | |
| **Month** | **Average Workdays Lost** | **Standard Deviation** | **Total Lost Days** |
| January |  |  |  |
| February |  |  |  |
| March |  |  |  |
| April |  |  |  |
| May |  |  |  |
| June |  |  |  |
| July |  |  |  |
| August |  |  |  |
| September |  |  |  |
| October |  |  |  |
| November |  |  |  |
| December |  |  |  |

*INCLUDE CLAUSES $$155.05A AND $$155.05B FOR SMALLER, UNCOMPLICATED PROJECTS WHEN THE EE IS LESS THAN $3 MILLION OR WHEN THE LONG CRITICAL PATH METHOD (CPM) IS NOT NEEDED (CONSULT WITH CONSTRUCTION) (IF THESE CLAUSES ARE INCLUDED, DO NOT INCLUDE CLAUSES $$155.05C, $$155.05D, AND $$155.05E)*

$$155.05A

155.05. Delete the first sentence and substitute the following:

Prepare and submit a Bar Chart Method (BCM) initial construction schedule.

$$155.05B

155.05(a)(1)*(c)*. Add the following:

Include unreflected items, or components of work within a pay item, as separate activities as directed by the CO.

*INCLUDE CLAUSES $$155.05C, $$155.05D, AND $$155.05E FOR LARGER, MORE COMPLEX PROJECTS WHEN THE EE IS GREATER THAN $3 MILLION OR WHEN THE SIMPLER BAR CHART METHOD (BCM) IS NOT ADEQUATE (CONSULT WITH CONSTRUCTION) (IF THESE CLAUSES ARE INCLUDED, DO NOT INCLUDE CLAUSES $$155.05A AND $$155.05B)*

$$155.05C

155.05(b)(2)*(a)*. Add the following:

Include unreflected items, or components of work within a pay item, as separate activities as directed by the CO.

$$155.05D

155.05(b)(2)*(b)*. Add the following:

If the project is of sufficient complexity that the activity description cannot be legibly placed on the diagram, include a tabulation of all activities by their activity IDs.

$$155.05E

155.05(b)(5)*(a)*. Add the following:

As a minimum, include the following:

*(1)* Contractor quality control plan;

*(2)* Asphalt mix designs;

*(3)* Concrete mix designs;

*(4)* Bridge falsework and formwork designs;

*(5)* Manufactured items;

*(6)* Test panels; and

*(7)* Contract specialty items.

*INCLUDE CLAUSES $$155.06A AND $$155.07A ON ALL PROJECTS*

$$155.06A

155.06. Delete the first sentence of the second paragraph and substitute the following:

Unless previously approved by the CO, changes to the construction schedule for work that is still to be completed can only be changed with a time impact analysis according to Subsection 108.03, and a Baseline Construction Schedule revision according to Subsection 155.07.

$$155.07A

155.07. Delete the third sentence and substitute the following:

Continue to submit monthly schedule updates according to Subsection 155.06 until a baseline construction schedule revision is approved.

*INCLUDE SECTION 156 ON ALL PROJECTS WITH THE FOLLOWING CLAUSES AS A MINIMUM:*

*- $$156.04A OR $$156.04B;*

*- $$156.08A OR $$156.08B; AND*

*- $$156.09A OR $$156.09B*

*REMOVE ITALICS, PARENTHESES, AND QUOTATION MARKS FROM INSERT FIELDS*

$$156.00A

**Section 156. — PUBLIC TRAFFIC**

Revised 22 June 2016

*INCLUDE THE FOLLOWING ON ALL PROJECTS EXCEPT WHEN REQUIRING THE CONTRACTOR TO SUBMIT A TRAFFIC CONTROL PLAN - IF THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN, USE CLAUSE $$156.04B INSTEAD (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$156.04B)*

$$156.04A

156.04. Delete the first paragraph and substitute the following:

Accommodate traffic according to the MUTCD, contract traffic control plan, Section 635, and this Section. An alternate traffic control plan may be submitted for approval in accordance with Subsection 104.03 and the following:

1. Ensure safe and efficient pedestrian, bicycle, and vehicular traffic (including emergency vehicles) at all times during construction;
2. Schedule and perform work to minimize disruption to public traffic; and
3. Accommodate the construction operations as approved under Section 155.

Submit alternate traffic control plans at least 30 days before its intended use. After the initial traffic control plan is approved, revise it as necessary to accommodate approved changes in the construction schedule. Submit the revised traffic control plan at least 14 days before implementation, unless otherwise approved by the CO.

*INCLUDE THE FOLLOWING IF THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN - EDIT CONTENT AS NEEDED - DO NOT INCLUDE THIS CLAUSE IF A TRAFFIC CONTROL PLAN IS PROVIDED (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$156.04A)*

$$156.04B

156.04. Delete the first paragraph and substitute the following:

Accommodate traffic according to the MUTCD, contract traffic control details, Section 635, and this Section. Submit a traffic control plan for approval at least 30 days before its intended use in accordance with Subsection 104.03 and the following:

1. Ensure safe and efficient pedestrian, bicycle, and vehicular traffic (including emergency vehicles) at all times during construction;
2. Schedule and perform work to minimize disruption to public traffic;
3. *(insert project specific traffic control requirements)*;
4. *(insert project specific traffic control requirements)*; and
5. Accommodate the construction operations as approved under Section 155.

Revise the traffic control plan as necessary to accommodate approved changes in the construction schedule. Submit the revised traffic control plan at least 14 days before implementation, unless otherwise approved by the CO.

*INCLUDE THE FOLLOWING IF ANY OF THE CLAUSES $$156.04D THRU $$156.04L ARE USED - VERIFY WITH PARTNER AGENCY IF CLAUSES ARE APPROPRIATE FOR THE PROJECT*

$$156.04C

156.04. Add the following:

*INCLUDE THE FOLLOWING IF APPLICABLE*

$$156.04D

Maintain one lane of traffic at all times.

*INCLUDE THE FOLLOWING IF USING SINGLE LANE CLOSURES*

$$156.04E

Use single lane closures on *(insert roadway name)* according to Section 635 and as shown in the plans.

*INCLUDE THE FOLLOWING FOR PROJECTS IF INSTALLATION OF TRAFFIC CONTROL DEVICES IS REQUIRED BEFORE BEGINNING WORK*

$$156.04F

Install *(insert devices)* according to Section 635 and as shown in the plans or as directed by the CO, at least *(insert minimum amount)* days before beginning work.

*INCLUDE THE FOLLOWING IF SPECIFYING A PERIOD WHEN ROADWAY CLOSURES ARE ALLOWED - DO NOT INCLUDE IF ROADWAY CLOSURES ARE ALLOWED THROUGHOUT THE DURATION OF THE PROJECT*

$$156.04G

*(Insert roadway name)* closures are permitted from *(insert specific date MM DD, YYYY)* to *(insert specific date MM DD, YYYY)*.

*INCLUDE THE FOLLOWING IF SPECIFYING A PERIOD WHEN ROADWAY CLOSURES ARE NOT ALLOWED*

$$156.04H

Do not close *(insert roadway name)* from *(insert specific date MM DD, YYYY)* to *(insert specific date MM DD, YYYY)*.

*INCLUDE THE FOLLOWING IF APPROVAL IS NEEDED FOR ROADWAY CLOSURES*

$$156.04I

Close *(insert roadway name)* to traffic during construction as approved by the CO. Open roadway within 24 hours after completion of work or as directed by CO.

*INCLUDE THE FOLLOWING IF A SPECIFIC ROADWAY CANNOT BE CLOSED THROUGHOUT THE DURATION OF THE PROJECT*

$$156.04J

Do not close *(insert roadway name)* to traffic during construction.

*INCLUDE THE FOLLOWING TO MAINTAIN ACCESS TO SPECIFIC ROADWAYS OR FACILITIES DURING CONSTRUCTION*

$$156.04K

Maintain access to *(insert roadways or facilities)* at all times.

*INCLUDE THE FOLLOWING FOR RUSH HOUR RESTRICTIONS ON PROJECTS WITH HIGH ADT OR IN URBAN AREAS - VERIFY WITH CONSTRUCTION IF PAYMENT REDUCTION AMOUNT IS ADEQUATE*

$$156.04L

Schedule and perform the work so it does not interfere with traffic during the rush hours shown in Table 156-1.

|  |  |
| --- | --- |
| **Table 156-1**  **Rush Hours (Monday to Friday)** | |
| **Morning** | #:## a.m. to #:## a.m. |
| **Evening** | #:## p.m. to #:## p.m. |

Do not install traffic control devices during the rush hours. Before rush hours begin, remove materials, equipment, and non-applicable traffic control devices from the roadway and install the necessary traffic control devices to safely maintain traffic. The CO reserves the right to review the Contractor’s progress before the rush hours begin. The CO may direct the Contractor to stop operations to ensure the Contractor completes all work, including the appropriate setup of traffic control devices, before the rush hours begin.

Failing to complete work and removing traffic control devices before a rush hour begins, or installing or removing them during rush hours will be considered Contractor noncompliance. Noncompliance will result in a reduction in payment to the Contractor equal to $(*insert amount*) per hour, for each hour or portion thereof. This reduction in payment will be subtracted from the Contractor’s progress payments and will be unrecoverable.

*INCLUDE THE FOLLOWING IF DRAINS OR INLETS ARE PRESENT WITHIN THE PROJECT LIMITS - VERIFY IF THE 157 INLET PROTECTION PAY ITEM IS NEEDED*

$$156.05A

156.05(f). Add the following:

Ensure that drains and inlets within the project limits are fully functional throughout the duration of the project.

*INCLUDE THE FOLLOWING IF PROVIDING A LANE WIDTH OF 10 FEET IS NOT POSSIBLE*

$$156.07A

156.07(c). Delete the first sentence.

Provide minimum lane widths of 9 feet.

*INCLUDE THE FOLLOWING TO SPECIFY THE LOCATION OF THE STAGING AREA - IF APPROVAL IS REQUIRED BEFORE THE CONTRACTOR CAN USE THE STAGING AREA, USE CLAUSE $$156.07C INSTEAD*

$$156.07B

156.07(d). Delete the first sentence and substitute the following:

Use *(insert location)* as a staging area.

*INCLUDE THE FOLLOWING TO SPECIFY THE LOCATION OF THE STAGING AREA AND APPROVAL IS REQUIRED BEFORE MOBILIZING INTO THE STAGING AREA*

$$156.07C

156.07(d). Delete the first sentence and substitute the following:

The Contractor may use *(insert location)* as a staging area. Obtain approval from the CO before using this location for staging.

*INCLUDE THE FOLLOWING IF STAGING IS PERMITTED OUTSIDE OF AREAS TO BE RECONSTRUCTED*

$$156.07D

156.07(d). Add the following:

Restore staging areas to their original condition as directed by CO.

*INCLUDE THE FOLLOWING FOR URBAN AREAS - REVISE ALLOWABLE DELAY AS NEEDED TO FIT PROJECT SPECIFIC NEEDS*

$$156.07E

156.07(i). Delete the Subsection and substitute the following:

1. Limit construction-caused delays to public traffic to a maximum of 15 minutes per passage through the project; and

*INCLUDE THE FOLLOWING FOR LIMITING THE LENGTH OF LANE CLOSURES*

$$156.07F

156.07. Add the following:

**(k)** Limit lane closures to *(insert maximum distance allowed)* feet unless otherwise approved by the CO.

*INCLUDE THE FOLLOWING IF NIGHTTIME OPERATIONS ARE NOT PERMITTED - VERIFY WITH PARTNER AGENCY AND CONSTRUCTION IF CLAUSE IS APPROPRIATE FOR THE PROJECT (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSES $$156.08B, $$156.08C, AND $$156.08D)*

$$156.08A

156.08. Delete the second paragraph and substitute the following:

Nighttime operations are not permitted.

*INCLUDE THE FOLLOWING IF NIGHTTIME OPERATIONS ARE PERMITTED - VERIFY WITH PARTNER AGENCY AND CONSTRUCTION IF CLAUSE IS APPROPRIATE FOR THE PROJECT - VERIFY WITH CONSTRUCTION THE MINIMUM AMOUNT OF TIME NEEDED FOR THE REQUEST (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$156.08A)*

$$156.08B

156.08. Add the following:

Nighttime operations are permitted upon approval by the CO. Submit request to the CO for approval at least 3 days before any planned nighttime operations.

*INCLUDE THE FOLLOWING TO INDICATE ACTIVITIES THAT ARE NOT TO BE PERFORMED AT NIGHT - VERIFY WITH PARTNER AGENCY AND CONSTRUCTION IF CLAUSE IS APPROPRIATE FOR THE PROJECT (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$156.08A)*

$$156.08C

Do not perform *(insert activities that the Contractor cannot perform at night)* work at night.

*INCLUDE THE FOLLOWING FOR REQUIRING SPECIFIC ACTIVITIES TO BE PERFORMED AT NIGHTTIME - VERIFY WITH PARTNER AGENCY AND CONSTRUCTION IF CLAUSE IS APPROPRIATE FOR THE PROJECT(IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$156.08A)*

$$156.08D

Perform *(insert activities that the Contractor is required to perform at night)* work at night.

*INCLUDE THE FOLLOWING FOR COMPLEX URBAN PROJECTS - VERIFY WITH CONSTRUCTION IF CLAUSE IS APPROPRIATE FOR THE PROJECT (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$156.09B)*

$$156.09A

156.09. Add the following:

Provide a full-time traffic control supervisor exclusively for the project. Ensure the traffic control supervisor is on the site at all times when work is being performed and available during non-work periods.

*INCLUDE THE FOLLOWING FOR RURAL OR UNCOMPLICATED PROJECTS - VERIFY WITH CONSTRUCTION IF CLAUSE IS APPROPRIATE FOR THE PROJECT (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$156.09A)*

$$156.09B

156.09. Delete the second sentence and substitute the following:

The superintendent may serve as the traffic control supervisor provided the requirements of Subsection 156.03 are met.

*INCLUDE SECTION 157 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

*REMOVE ITALICS, PARENTHESES, AND QUOTATION MARKS FROM INSERT AND SELECT FIELDS - DO NOT REMOVE THE YELLOW HIGHLIGHTING FROM SELECTED ITEMS - USE BLUE HIGHLIGHTING ON INSERTED ITEMS*

$$157.00A

**Section 157. — SOIL EROSION AND SEDIMENT CONTROL**

Revised 22 June 2016

*INCLUDE CLAUSES $$157.01A, $$157.04A, AND $$157.04B ON ALL PROJECTS THAT REQUIRE THE CONTRACTOR TO PREPARE/UPDATE/MAINTAIN A SWPPP, WHICH IS TYPICALLY REQUIRED ON PROJECTS WITH A MINIMUM OF 1 ACRE OF DISTURBANCE - VERIFY APPLICABILITY AND LANGUAGE SELECTION WITH ENVIRONMENT (IF USING THESE CLAUSES, INCLUDE CLAUSES $$109.08C, $$157.04D, $$157.16A, AND $$157.18A)*

$$157.01A

157.01. Add the following:

This work includes *(select “*preparing*” or “*updating*”)* and maintaining a SWPPP.

$$157.04A

157.04. Add the following:

This project is covered under the *(insert NPDES permit under which the SWPPP is prepared)*.

$$157.04B

*(select “*Prepare a*” or “*Update the Government-provided draft*”)* SWPPP in accordance with the EPA and State requirements using the information provided in the plans, specifications, and permits obtained for the project. Submit an electronic copyof the SWPPP to the CO at least 7 days before the preconstruction conference in accordance with Subsection 104.03 for approval.

*INCLUDE THE FOLLOWING ONLY IF REQUIRED BY THE STATE PERMITTING AGENCY - VERIFY WITH ENVIRONMENT - CONFIRM THE CO-APPLICANT WITH ENVIRONMENT*

$$157.04C

Once the SWPPP is approved, submit a Notice of Intent (NOI) to the *(insert State permitting agency)* as a co-applicant of the FHWA. Provide a copy of the NOI and evidence of its submission.

*INCLUDE THE FOLLOWING ON PROJECTS THAT REQUIRE SWPPP SPECIFICATIONS - SEE INSTRUCTIONS FOR $$157.01A*

$$157.04D

Update the SWPPP constantly throughout the project as work is performed and when changes are made to the project. Maintain a copy of the current SWPPP on-site at all times.

*INCLUDE THE FOLLOWING ONLY IF REQUIRED BY THE STATE PERMITTING AGENCY - VERIFY WITH ENVIRONMENT*

$$157.04E

Post a notice of the project and SWPPP near the main entrance of the construction site.

*INCLUDE THE FOLLOWING ONLY IF REQUIRED BY THE STATE PERMITTING AGENCY - VERIFY WITH ENVIRONMENT*

$$157.04F

Upon completion of construction, submit a Notice of Termination (NOT) to the *(insert State permitting agency)*. Provide a copy of the NOT and evidence of its submission.

*INCLUDE THE FOLLOWING ON PROJECTS THAT REQUIRE SWPPP SPECIFICATIONS - SEE INSTRUCTIONS FOR $$157.01A*

$$157.16A

157.16. Add the following:

The SWPPP will be evaluated under Subsection 106.02. The SWPPP will be jointly reviewed for accuracy and completeness by the CO and the Contractor before the submission of each monthly invoice. If the review finds that the SWPPP is not in compliance, payment of the Contractor’s invoice will be withheld until the SWPPP is brought up to date as outlined in Subsection 109.08(a).

*INCLUDE THE FOLLOWING ON PROJECTS THAT REQUIRE SWPPP SPECIFICATIONS - SEE INSTRUCTIONS FOR $$157.01A - MAKE SURE TO INCLUDE THE PAY ITEM FOR STORM WATER POLLUTION PREVENTION PLAN IN THE PROJECT - VERIFY SELECTION OF PROPER LANGUAGE WITH ENVIRONMENT - THEN, VERIFY WITH CONSTRUCTION IF PAYMENT PERCENTAGES ARE ADEQUATE AND ADJUST IF NECESSARY*

$$157.18A

157.18. Add the following:

Progress payments for *(select “*preparing*” or “*updating*”)* and maintaining a SWPPP will be paid as follows:

* 25 percent of the pay item amount will be paid upon acceptance of the SWPPP *(insert “*and upon submittal of the NOI copy and evidence of its submission to the CO*” if submission of a NOI is required by the permitting agency, delete this field if not required)*.
* An additional 50 percent of the pay item amount will be prorated based on total work complete.
* The remaining portion of the pay item amount will be paid *(select either “*upon submittal of the NOT copy and evidence of its submission to the CO*” if a NOT is required, otherwise, select “*at final acceptance*”)*.

*INCLUDE SECTION 203 ON ALL PROJECTS WITH EITHER CLAUSE $$203.05B OR $$203.05C AS A MINIMUM*

$$203.00A

**Section 203. — REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

Revised 12 May 2016

*INCLUDE CLAUSES $$203.04A AND $$203.04B TO SPECIFY STRUCTURAL CONCRETE REMOVAL USING MECHANICAL IMPACT METHODS - VERIFY WITH BRIDGE IF CLAUSE IS APPROPRIATE TO USE - EDIT HAMMER IMPACT STRENGTH IF NECESSARY TO MEET PROJECT SPECIFIC NEEDS*

$$203.04A

203.04(c). Add the following after the second sentence of the first paragraph:

On structures, use power-driven hand tools and other hand tools in accordance with Subsection 203.04(e).

$$203.04B

203.04. Add the following:

1. **Concrete removal by mechanical impact methods.** Furnish equipment that complies with the following:
2. Use power-driven hand tools for removal of existing concrete with the following restrictions:
3. Do not use jackhammers heavier than 30 pounds;
4. Do not operate jackhammers and mechanical chipping tools at an angle in excess of 45 degrees measured from the surface of the concrete; and
5. Do not use chipping hammers heavier than a nominal 15-pound class to remove concrete from beneath any reinforcing bar.
6. Use hand tools (hammers and chisels) for removal of final particles of concrete or to achieve the required depth.

*INCLUDE THE FOLLOWING IF BURNING DEBRIS IS PROHIBITED - VERIFY WITH PARTNER AGENCY*

$$203.05A

203.05(b). Delete the Subsection and substitute the following:

1. **Burn.** Burning is prohibited.

*INCLUDE THE FOLLOWING IF BURYING DEBRIS IS ALLOWED - VERIFY WITH PARTNER AGENCY (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$203.05C)*

$$203.05B

203.05(c). Add the following after the first sentence of the first paragraph:

Bury debris beyond the toes of fills in areas authorized by the CO.

*INCLUDE THE FOLLOWING IF BURYING DEBRIS IS PROHIBITED - VERIFY WITH PARTNER AGENCY (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSE $$203.05B)*

$$203.05C

203.05(c). Delete the Subsection and substitute the following:

1. **Bury.** Burying debris is prohibited.

*INCLUDE SECTION 301 ON ALL PROJECTS WITH 301 AGGREGATE PAY ITEMS*

$$301.00A

Section 301. — UNTREATED AGGREGATE COURSES

Revised 17 November 2020

*INCLUDE CLAUSES $$301.03A AND $$301.03B ON ALL PROJECTS WITH 301 AGGREGATE PAY ITEMS*

*WHEN USING CLAUSE $$301.03A, ALSO INCLUDE CLAUSE $$154.03A*

$$301.03A

301.03. Add the following to the second paragraph:

Submit the representative 300-pound sample to the EFLHD Central Laboratory in Sevierville, Tennessee at the address shown in Subsection 154.03.

*WHEN USING CLAUSE $$301.03B, ALSO INCLUDE CLAUSE $$703.05E, AND THE FOLLOWING:*

* *FOR PROJECTS WITH AGGREGATE BASE, INCLUDE CLAUSE $$703.05B.*
* *FOR PROJECTS WITH SURFACE COURSE AGGREGATE, INCLUDE CLAUSE $$703.05D.*

*SEE SUBSECTION 703.05 CLAUSES FOR ADDITIONAL INSTRUCTIONS FOR EACH TYPE OF 301 AGGREGATE PAY ITEM*

$$301.03B

301.03. Add the following:

An alternate state department of transportation aggregate gradation that is produced according to Subsection 703.05 may be submitted for approval. Provide target values within the allowable target value range of the state department of transportation aggregate gradation. When target values are not provided, the preproduction target values will be the midpoint of the allowable target value range of the state department of transportation aggregate gradation. The allowable deviation (±) from the target values will be according to Table 703-2A. The maximum allowable pay factor under Subsection 301.10 for a state department of transportation aggregate gradation will be 1.00.

*INCLUDE SECTION 401 ON ALL PROJECTS WITH 401 ASPHALT PAY ITEMS AND AS NEEDED BASED ON CLAUSE INSTRUCTIONS AND WHEN RECOMMENDED BY THE PAVEMENTS REPORT/MEMO AND/OR BY THE MATERIALS ENGINEER*

*ON PROJECTS WITH 401 ASPHALT PAY ITEMS, PAY ITEM NAMES NEED TO INCLUDE ASPHALT BINDER PERFORMANCE GRADE (CONSULT WITH MATERIALS ENGINEER) AND PAVEMENT ROUGHNESS (CONSULT WITH PAVEMENTS ENGINEER) - SEE OTHER GUIDANCE ON HOW TO ADD REQUIRED INFO TO PAY ITEM NAMES AND HOW TO SHOW ON TYPICAL SECTIONS*

$$401.00A

Section 401. — ASPHALT CONCRETE PAVEMENT

BY GYRATORY MIX DESIGN METHOD

Revised 18 February 2016

*INCLUDE THE FOLLOWING ON PROJECTS IN STATES THAT HAVE CHANGED THE GYRATORY LEVELS SPECIFIED IN TABLE 401-1 (VERIFY WITH MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE)*

$$401.03A

401.03. Add the following:

At the option of the Contractor, an alternate state department of transportation asphalt concrete pavement mixture that has the same nominal maximum size aggregate, traffic level (design ESAL), and asphalt binder grade as specified may be submitted for approval.

*INCLUDE CLAUSES $$401.03B, $$401.03C, $$401.03D, $$401.03E, AND $$401.03F ON ALL PROJECTS WITH 401 ASPHALT PAY ITEMS*

$$401.03B

401.03(a). Delete the Subsection and substitute the following:

**(a) RAP.** Limit the quantity of RAP by mass in the JMF for the top lift of surface course to 15 percent. Limit the quantity of RAP by mass in the JMF for intermediate and base courses to 30 percent. For intermediate and base courses containing 20 to 30 percent by mass RAP, reduce the asphalt binder performance grade by 6°C for both high temperature and low temperature performance grades.

$$401.03C

401.03(c). Add the following after the first sentence:

Submit all JMF materials and information to the EFLHD Central Laboratory in Sevierville, Tennessee, with a copy to the CO as directed.

$$401.03D

401.03(c). Add the following:

If a state department of transportation asphalt concrete pavement mixture is requested for approval, submit a state department of transportation JMF approved within the past 12 months. Include documentation from a state department of transportation official certifying that the JMF is an approved state department of transportation asphalt concrete pavement mixture.

$$401.03E

401.03(c)(4). Add the following:

For JMFs with percentages of RAP greater than 15 percent, submit a quality control plan that includes the methods used to control the RAP percentage.

$$401.03F

401.03(d). Add the following after the first sentence:

Allow a minimum of 21 days for verification of each JMF after receipt of all material and information at the EFLHD Central Laboratory.

*INCLUDE THE FOLLOWING WHEN AN MTV IS REQUIRED (TYPICALLY USED FOR PROJECTS WITH GREATER THAN 1.0 MILES OF MAINLINE PAVING AND PAVEMENT ROUGHNESS TYPE I, II, OR III) (VERIFY WITH CONSTRUCTION IF CLAUSE IS APPROPRIATE TO USE) (VERIFY WITH PAVEMENTS IF EXISTING PAVEMENT STRUCTURE CAN SUPPORT AN MTV) (DO NOT USE IF ONLY PAVING PARKING AREAS OR NARROW/CONFINED AREAS)*

$$401.05A

401.05(b). Add the following:

Use an MTV for paving operations.

*INCLUDE THE FOLLOWING ON ALL PROJECTS WITH 401 ASPHALT PAY ITEMS (TYPICALLY USED FOR PROJECTS WITH MAINLINE PAVING) (TYPICALLY NOT USED FOR PROJECTS WITH ONLY PARKING AREAS OR NARROW/CONFINED AREAS)*

$$401.13A

401.13. Add the following:

Begin paving operations at the furthest location from the asphalt plant and proceed towards the plant.

*DRAFT CLAUSE $$401.16A TO HAVE THE CO MEASURE THE PAVEMENT SURFACE ROUGHNESS INSTEAD OF THE CONTRACTOR IS UNDER DEVELOPMENT (VERIFY WITH MATERIALS ENGINEER IF DRAFT CLAUSE IS APPROPRIATE TO USE)*

*INCLUDE SECTION 402 ON ALL PROJECTS WITH 402 ASPHALT PAY ITEMS AND AS NEEDED BASED ON CLAUSE INSTRUCTIONS AND WHEN RECOMMENDED BY THE PAVEMENTS REPORT/MEMO AND/OR BY THE MATERIALS ENGINEER*

*ON PROJECTS WITH 402 ASPHALT PAY ITEMS, PAY ITEM NAMES NEED TO INCLUDE ASPHALT BINDER PERFORMANCE GRADE (CONSULT WITH MATERIALS ENGINEER) AND PAVEMENT ROUGHNESS (CONSULT WITH PAVEMENTS ENGINEER) - SEE OTHER GUIDANCE ON HOW TO ADD REQUIRED INFO TO PAY ITEM NAMES AND HOW TO SHOW ON TYPICAL SECTIONS*

$$402.00A

Section 402. — ASPHALT CONCRETE PAVEMENT BY

HVEEM OR MARSHALL MIX DESIGN METHOD

Revised 18 February 2016

*INCLUDE THE FOLLOWING FOR PROJECTS IN STATES THAT HAVE ASPHALT SPECIFICATIONS SIMILAR TO THE FP (VERIFY WITH MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE)*

$$402.03A

402.03. Add the following:

At the option of the Contractor, an alternate state department of transportation asphalt concrete pavement mixture may be substituted for approval, if the mixture conforms to the following:

* Contains the same maximum size aggregate as the specified aggregate gradation;
* Follows the design parameters (b), (c), and (d) shown in Table 402-1 for the specified class of mix; and
* Meets the requirements of Table 402-2.

The allowable deviations for an alternate state department of transportation asphalt concrete pavement mixture’s aggregate gradation will be the allowable deviations shown in Tables 703-4 and 703-5 for the specified grading.

*INCLUDE CLAUSES $$402.03B, $$402.03C, $$402.03D, $$402.03E, AND $$402.03F ON ALL PROJECTS WITH 402 ASPHALT PAY ITEMS*

$$402.03B

402.03(a). Delete the Subsection and substitute the following:

**(a) RAP.** Limit the quantity of RAP by mass in the JMF for the top lift of surface course to 15 percent. Limit the quantity of RAP by mass in the JMF for intermediate and base courses to 30 percent. For intermediate and base courses containing 20 to 30 percent by mass RAP, reduce the asphalt binder performance grade by 6°C for both high temperature and low temperature performance grades.

$$402.03C

402.03(c). Add the following after the first sentence:

Submit all JMF materials and information to the EFLHD Central Laboratory in Sevierville, Tennessee, with a copy to the CO as directed.

$$402.03D

402.03(c). Add the following:

If a state department of transportation asphalt concrete pavement mixture is requested for approval, submit a state department of transportation JMF approved within the past 12 months. Include documentation from a state department of transportation official certifying that the JMF is an approved state department of transportation asphalt concrete pavement mixture.

$$402.03E

402.03(c)(4). Add the following:

For JMFs with percentages of RAP greater than 15 percent, submit a quality control plan that includes the methods used to control the RAP percentage.

$$402.03F

402.03(d). Add the following after the first sentence:

Allow a minimum of 21 days for verification of each JMF after receipt of all material and information at the EFLHD Central Laboratory.

*INCLUDE THE FOLLOWING WHEN AN MTV IS REQUIRED (TYPICALLY USED FOR PROJECTS WITH GREATER THAN 1.0 MILES OF MAINLINE PAVING AND PAVEMENT ROUGHNESS TYPE I, II, OR III) (VERIFY WITH CONSTRUCTION IF CLAUSE IS APPROPRIATE TO USE) (VERIFY WITH PAVEMENTS IF EXISTING PAVEMENT STRUCTURE CAN SUPPORT AN MTV) (DO NOT USE IF ONLY PAVING PARKING AREAS OR NARROW/CONFINED AREAS)*

$$402.05A

402.05. Add the following:

Use an MTV conforming to Subsection 401.05(b) for paving operations.

*INCLUDE THE FOLLOWING ON ALL PROJECTS WITH 402 ASPHALT PAY ITEMS (TYPICALLY USED FOR PROJECTS WITH MAINLINE PAVING) (TYPICALLY NOT USED FOR PROJECTS WITH ONLY PARKING AREAS OR NARROW/CONFINED AREAS)*

$$402.13A

402.13. Add the following:

In addition to Subsection 401.13, begin paving operations at the furthest location from the asphalt plant and proceed towards the plant.

*DRAFT CLAUSE $$402.16A TO HAVE THE CO MEASURE THE PAVEMENT SURFACE ROUGHNESS INSTEAD OF THE CONTRACTOR IS UNDER DEVELOPMENT (VERIFY WITH MATERIALS ENGINEER IF DRAFT CLAUSE IS APPROPRIATE TO USE)*

*INCLUDE SECTION 412 ON ALL PROJECTS WITH 401, 402, 403, 405, AND/OR 418 WORK AND WHEN RECOMMENDED BY THE PAVEMENTS REPORT/MEMO AND/OR BY THE MATERIALS ENGINEER*

$$412.00A

Section 412. — ASPHALT TACK COAT

Revised 25 January 2018

*INCLUDE CLAUSE $$412.05A WHEN ASPHALT PAVEMENT THICKNESS IS 1-INCH OR LESS. IF THE ASPHALT PAVEMENT THICKNESS IS GREATER THAN 1-INCH, THEN DO NOT USE THIS CLAUSE - VERIFY WITH PAVEMENTS/MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE*

$$412.05A

412.05(b). Delete the Subsection and substitute the following:

**(b)** Ambient air and pavement temperatures are above 60 °F and rising; and

*INCLUDE CLAUSE $$412.06A ON ALL PROJECTS WITH 412 ASPHALT TACK COAT APPLICATION - VERIFY WITH MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE*

$$412.06A

412.06. Delete the second paragraph and substitute the following:

Apply the asphalt tack coat according to Subsection 407.09 and at a rate indicated in Table 412-1.

Provide the CO with the target residual and bar application rates within the range specified in Table 412-1. Control the rate of application within plus or minus 0.01 gallons per square yard of the target application rate and within the allowable range. Provide the CO with the specific gravity of the bituminous material corrected for spray temperature.

Set spray bar height to ensure uniform coverage and at least a double overlap, but not to exceed triple overlap coverage. Set nozzle angle settings between 15 to 30 degrees from the center of the spray bar axis. Use the same size nozzles, all set at the same angle, open, and functioning properly.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 412-1**  **Asphalt Tack Coat Application Rate(1)** | | | | |
| **Pavement Type** | **Residual Rate(2)** | **Bar Rate**  **PG Binder(3)** | **Bar Rate**  **Undiluted Emulsion(4)** | **Bar Rate**  **Diluted Emulsion(5)**  **(1:1 Ratio)** |
| New Asphalt  Concrete Pavement | 0.020 - 0.045 | 0.025 - 0.045 | 0.030 - 0.065 | 0.060 - 0.130 |
| Existing Asphalt  Concrete Pavement | 0.040 - 0.070 | 0.040 - 0.060 | 0.060 - 0.105 | 0.120 - 0.210 |
| Milled Asphalt Concrete Pavement | 0.040 - 0.080 | 0.040 - 0.080 | 0.060 - 0.120 | 0.120 - 0.240 |
| Portland Cement  Concrete Pavement | 0.030 - 0.050 | 0.030 - 0.050 | 0.045 - 0.075 | 0.090 - 0.150 |
| (1) Application rates are in gallons/yd2.  (2) Residual asphalt: the remaining asphalt after an emulsion has completely cured or set.  (3) Maintain a PG binder application rate of 1.0 times the target residual tack coat rate.  (4) Maintain an undiluted application rate of 1.5 times the target residual tack coat rate.  (5) Maintain a diluted application rate of 3.0 times the target residual tack coat rate. | | | | |

*INCLUDE CLAUSE $$412.07A WHEN ONE OR MORE OF THE FOLLOWING SITUATIONS APPLY:*

1. *A 412 ASPHALT TACK COAT PAY ITEM IS INCLUDED.*
2. *FOR LARGE PROJECTS, WHICH ARE TYPICALLY DEFINED AS ONE OR MORE OF THE FOLLOWING:*

* *THE LENGTH OF THE PAVED ROADWAY IS 2-LANE MILES OR MORE OF CONTINUOUS ASPHALT CONCRETE PAVEMENT PLACEMENT; AND/OR*
* *THE AVERAGE DAILY TRAFFIC OF ANY ROAD ON THE PROJECT IS GREATER THAN 3000 VEH/DAY).*

*(THE LARGE PROJECT DEFINITION DOES NOT ALLWAYS DETERMINE WHETHER OR NOT TO INCLUDE A 412 PAY ITEM)*

1. *WHEN RECOMMENDED BY MATERIALS ENGINEER (VERIFY WITH MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE).*

*(IF CLAUSE $$412.07A IS USED, ALSO INCLUDE CLAUSE $$412.09A)*

$$412.07A

412.07. Delete the Subsection and substitute the following:

**412.07 Acceptance.** See Table 412-2 for sampling, testing, and acceptance requirements.

Emulsified asphalt properties will be evaluated under Subsections 106.02 and 106.03.

Construction of the tack coat will be evaluated under Subsections 106.02 and 106.04.

Test distributor for residual application rate and frequency in accordance with Table 412-2, ASTM D2995, Option A, and the following:

1. Record the tare weight of the nonwoven geotextile materials;
2. Place the nonwoven geotextile on the road surface;
3. Apply the tack coat over the nonwoven geotextile;
4. Immediately record the weight of the nonwoven geotextile with tack coat;
5. Record the temperature of the tack coat;
6. Subtract the tare weight of the nonwoven geotextile to determine the weight of tack coat;
7. Convert the weight of tack coat to application rate according to ASTM D2995, Section 8, Calculation (Transverse Application Rate);
8. Correct the calculated application rate using temperature correction multiplier shown in the Asphalt Institute, *A Basic Asphalt Emulsion Manual*, Table B-1; and
9. Determine the tack coat residual application rate using the residual percentages shown in ASTM D2995, Table 1.

*INCLUDE EITHER CLAUSE $$412.08A OR $$412.08B BASED ON THE FOLLOWING INSTRUCTIONS:*

1. *INCLUDE CLAUSE $$412.08A WHEN 412 ASPHALT TACK COAT PAY ITEM IS* ***NOT*** *INCLUDED (IF CLAUSE $$412.08A IS USED, DO NOT INCLUDE CLAUSE $$412.08B)*
2. *INCLUDE CLAUSE $$412.08B WHEN 412 ASPHALT TACK COAT PAY ITEM IS INCLUDED (IF CLAUSE $$412.08B IS USED, DO NOT INCLUDE CLAUSE $$412.08A)*

$$412.08A

412.08. Delete the second paragraph and substitute the following:

Do not measure asphalt tack coat for payment.

$$412.08B

412.08. Add the following to the second paragraph:

Material quantities placed in excess of the application rates indicated in Table 412-1 will not be measured for payment.

*SEE INSTRUCTIONS FOR CLAUSE $$412.07A. INCLUDE CLAUSE $$412.09A WHEN CLAUSE $$412.07A IS INCLUDED*

$$412.09A

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 412-2**  **Sampling, Testing, and Acceptance Requirements** | | | | | | | | | |
| **Material or**  **Product**  **(Subsection)** | **Type of**  **Acceptance**  **(Subsection)** | **Characteristic** | **Category** | **Test Methods**  **Specifications** | **Sampling**  **Frequency** | **Point of**  **Sampling** | **Split**  **Sample** | **Reporting**  **Time** | **Remarks** |
| **Production** | | | | | | | | | |
| Emulsified  asphalt  or  asphalt  binder | Measured and  tested for  conformance  (106.04) | Quality | − | ASTM D2995, Option A | 1 at start of work  &  1 per  2500 linear feet | Behind distributor before material “breaks” and before paving | No | Upon  completion  of  measurement | Tested by  Government |

*INCLUDE SECTION 414 ON ALL PROJECTS WITH 414 PAY ITEMS AND AS NEEDED BASED ON CLAUSE INSTRUCTIONS AND WHEN RECOMMENDED BY THE PAVEMENT REPORT/MEMO AND/OR BY THE MATERIALS ENGINEER. (IF USING LOS 414, ALSO INCLUDE LOS 712).*

$$414.00A

Section 414. — ASPHALT PAVEMENT CRACK SEALING AND FILLING

Revised 28 September 2017

*INCLUDE CLAUSES $$414.04A, $$414.05A, $$414.06A, $$414.06B, AND $$414.06C FOR CRACK SEALING AND FILLING.*

$$414.04A

414.04. Add the following:

Do not rout cracks unless directed by the CO.

*INCLUDE CLAUSE $$414.05A IF SPECIFYING THE WIDTH OF CRACKS NOT REQUIRING CLEANING - VERIFY WITH PAVEMENTS AND/OR MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE. (IF USED, VERIFY/REVISE THE MAXIMUM WIDTH OF CRACKS THAT DO NOT REQUIRE CLEANING).*

$$414.05A

414.05. Add the following:

Do not clean cracks less than ½-inch wide.

*INCLUDE CLAUSE $$414.06A IF SPECIFYING THE WIDTH OF CRACKS NOT REQUIRING SEALING OR FILLING - VERIFY WITH PAVEMENTS AND/OR MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE. (IF USED, VERIFY/REVISE THE MAXIMUM WIDTH OF CRACKS THAT DO NOT REQUIRE SEALING OR FILLING).*

$$414.06A

414.06. Add the following:

Do not seal or fill cracks less than ½-inch wide.

$$414.06B

414.06(a). Add the following:

Do not begin sealing cracks until the material has been approved for use by the CO. Seal each crack with an approved crack sealant conforming to Subsection 712.01(a)(1).

$$414.06C

414.06(b). Delete the first sentence and substitute the following:

Do not begin filling cracks until the material has been approved for use by the CO. Fill each crack with an approved polymer modified mastic asphalt conforming to Subsection 712.01(a)(2).

*INCLUDE SECTION 552 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$552.00A

**Section 552. — STRUCTURAL CONCRETE**

Revised 12 May 2016

*INCLUDE THE FOLLOWING FOR STRUCTURAL CONCRETE REPAIRS*

$$552.19A

552.19. Delete the first sentence of the first paragraph and substitute the following:

For concrete repairs, remove existing or new defective concrete according to Subsection 203.04.

*INCLUDE SECTION 615 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$615.00A

Section 615. — SIDEWALKS, PADS, AND PAVED MEDIANS

Revised 18 February 2016

*INCLUDE CLAUSES $$615.02A, $$615.03A, AND $$615.07A TO ALLOW THE USE OF CRUSHED RECYCLED CONCRETE- VERIFY WITH MATERIALS ENGINEER IF CLAUSES ARE APPROPRIATE TO USE (IF USED, ALSO INCLUDE CLAUSE $$703.18A)*

$$615.02A

615.02. Add the following:

Crushed recycled concrete 703.18

$$615.03A

615.03. Add the following:

Crushed recycled concrete may be used for bedding courses under sidewalks, pads, and paved medians. Place crushed recycled concrete according to the requirements of Subsection 302.04. Compact and finish crushed recycled concrete according to the requirements of Subsection 302.05, Method 1. Remove any layer of crushed recycled concrete material that exhibits heaving, pumping, rutting, or shearing under construction equipment even if the layer meets the compaction requirements of Subsection 302.05.

$$615.07A

615.07. Add the following:

Crushed recycled concrete material for aggregate courses under sidewalks, pads, and paved medians will be evaluated under Subsections 106.02 and 106.04.

*INCLUDE SECTION 617 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$617.00A

Section 617. — GUARDRAIL

Revised 12 May 2021

*INCLUDE CLAUSE $$617.01A ON PROJECTS WITH MIDWEST GUARDRAIL SYSTEM (MGS)*

$$617.01A

617.01(a). Add the following:

MGS — Midwest guardrail system

*INCLUDE CLAUSE $$617.01B ON PROJECTS WITH MGS DELETE THE TERMINAL TYPES THAT ARE NOT APPLICABLE*

$$617.01B

617.01(d). Add the following:

MGS Flared — Flared MGS W-beam terminal

MGS Tangent — Tangent MGS W-beam terminal

MGS BAT — Back slope anchor MGS W-beam terminal

*INCLUDE SECTION 634 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$634.00A

Section 634. — PERMANENT PAVEMENT MARKINGS

Revised 16 April 2022

*INCLUDE THE FOLLOWING WHEN CLAUSE $$152.05D IS USED* *(SEE INSTRUCTIONS FOR CLAUSE $$152.05D)*

$$634.03A

634.03. Add the following to the first paragraph:

Use the survey information obtained under Subsection 152.05(l) and provide a report prepared by a Traffic Engineer that evaluates the existing passing and no-passing zone lengths. Include proposed passing and no-passing zone limits in the evaluation report. Reestablish the passing and no-passing zones based on the evaluation report and as directed by the CO.

*INCLUDE SECTION 635 ON ALL PROJECTS WITH CLAUSES $$635.04A, $$635.04B, AND $$635.07A AS A MINIMUM*

*REMOVE ITALICS, PARENTHESES, AND QUOTATION MARKS FROM INSERT FIELDS*

$$635.00A

Section 635. — TEMPORARY TRAFFIC CONTROL

Revised 11 January 2018

*INCLUDE CLAUSES $$635.04A AND $$635.04B ON ALL PROJECTS*

$$635.04A

635.04(d). Add the following:

Remove or completely cover unnecessary signs in accordance with Subsection 635.07.

$$635.04B

635.04(g). Add the following:

If “marginal” or “unacceptable” devices are not corrected in a timely manner, the CO will provide written notification of those traffic control items not in compliance with the contract. If the Contractor fails to bring the specified items into compliance within a 24-hour period, the CO may assess a daily reduction in payment to the Contractor of $*(insert amount, typically ½ of the liquidated damages amount shown in Subsection 108.04)* per day. The CO may continue to assess the daily reduction in payment for each additional 24-hour period until the items are corrected. This reduction in payment will be subtracted from the Contractor’s progress payments and will be unrecoverable. Use of this reduction in payment does not waive the CO’s right to suspend the work in whole or in part according to Subsection 108.05.

*INCLUDE THE FOLLOWING IF TEMPORARY TRAFFIC CONTROL DEVICES ARE TO BE INSTALLED ON THE PROJECT*

$$635.04C

635.04(i). Add the following:

Submit a certification indicating that the devices are crashworthy as defined in Subsection 101.04.

*INCLUDE THE FOLLOWING WHEN USING A LPSM TEMPORARY TRAFFIC CONTROL PAY ITEM - EDIT CONTENT AS NEEDED FOR PROJECT SPECIFIC REQUIREMENTS*

$$635.04D

635.04. Add the following:

**(j)** As a minimum, furnish and install the following temporary traffic control devices:

1. Construction signing;
2. Type 3 barricades;
3. Drums;
4. Cones;
5. Type (*insert required type(s) of warning lights “A, B, and/or C”*) warning lights;
6. Flaggers; and
7. Other miscellaneous temporary traffic control devices that may be required by the CO.

*INCLUDE THE FOLLOWING ON ALL PROJECTS*

$$635.07A

635.07. Delete the third paragraph and substitute the following:

Remove or completely cover unnecessary signs, or signs that conflict with the construction signing or the approved traffic control plan. Cover signs that are not removed so that no part of the covered sign is visible to traffic. Use sign covers meeting the following requirements:

1. Large enough to completely cover the sign;
2. Easy to attach to and remove from the sign without damaging the sign face. Do not use adhesives, glues, tapes, or mechanical fasteners that mar face of the sign;
3. Black, non-reflective, and opaque;
4. Made of plywood (minimum of 3/8-inches thick), aluminum (minimum of 0.040 inches thick), or other acceptable materials that will not be lifted, bent, or damaged by wind as approved by the CO; and
5. Durable enough to resist deterioration due to weathering and atmospheric conditions for the duration of the project.

*INCLUDE THE FOLLOWING IN HIGH-ADT SITUATIONS TO WARN USERS OF SHORT-TERM OPERATIONS*

$$635.07B

635.07. Add the following:

Furnish 16-inch (minimum) square flags that are fluorescent orange or fluorescent red-orange in color. Mount flags on top of signs in accordance with the MUTCD.

*INCLUDE THE FOLLOWING IF USING TEMPORARY BARRIERS*

$$635.11A

635.11. Add the following after the first sentence of the first paragraph:

Use FHWA-approved temporary barriers meeting test level *(select appropriate test level – use* “2 (TL-2)” *for speeds less than or equal to 45 mph, or use* “3 (TL-3)” *for speeds greater than 45 mph)* criteria, according to industry crashworthiness standards. For a list of acceptable manufacturers and products, refer to the FHWA longitudinal barriers listing found at <https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/listing.cfm?code=long>. Install temporary barriers according to manufacturer’s recommendations.

*INCLUDE THE FOLLOWING IF MILLING THE ROADWAY*

$$635.17A

635.17. Add the following:

Patch the travelway after milling to provide a smooth, uniform traveling surface before reopening travel lanes to traffic as directed by the CO.

*INCLUDE THE FOLLOWING IF USING TEMPORARY CRASH CUSHIONS*

$$635.18A

635.18. Add the following:

Use FHWA-approved temporary crash cushions meeting test level *(select appropriate test level – use* “2 (TL-2)” *for speeds less than or equal to 45 mph, or use* “3 (TL-3)” *for speeds greater than 45 mph)* criteria, according to industry crashworthiness standards. For a list of acceptable manufacturers and products, refer to the FHWA Barrier System Terminals and Crash Cushion listing found at <https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/listing.cfm?code=cushions>.

*INCLUDE CLAUSES $$635.19A AND $$635.19B AND EITHER CLAUSE $$635.19C OR $$635.19D FOR TEMPORARY TRAFFIC SIGNALS*

$$635.19A

635.19. Add the following to the first paragraph:

Provide a signal timing sequence and cycle for approval according to Subsection 104.03 at least 14 days before the planned use of the temporary traffic signal system. Provide an all red clearance time assuming a vehicle speed of 5 miles per hour through the work zone.

Design the system to be fail-safe. Ensure the system monitors the following conditions:

Lack of green, yellow, or red signal indication voltage;

Total loss of indication on any approach;

Presence of multiple signal indications on any approach;

Conflicting green/yellow signal indications; and

Low power condition.

In the event any of these conditions are detected, immediately begin flashing operation of red signal indications in all directions.

Test the approved timing cycle to determine acceptability with prevailing traffic conditions. Revise the timing cycle as needed or as directed by the CO to pass traffic through the signalized zone in order to be able to meet the requirements of Subsection 156.07(i).

$$635.19B

635.19. Add the following to the second paragraph:

Inspect temporary signal systems daily, even during periods when no construction activities are taking place, to ensure they are working properly.

*SELECT EITHER CLAUSE $$635.19C OR $$635.19D BASED ON AVAILABILITY OF COMMERCIAL ELECTRICITY - SEE INSTRUCTIONS FOR CLAUSE $$635.19A - VERIFY AVAILABILITY OF COMMERCIAL ELECTRICITY WITH PARTNER AGENCY*

$$635.19C

Commercial electricity is available to power the temporary signal system at the *(insert location)*. Coordinate with the local utility company according to Subsection 107.02. Furnish an automatic backup power source capable of running the signal for at least 36 hours.

*SEE INSTRUCTIONS FOR $$635.19C*

$$635.19D

Commercial electricity is not available at the project site. Furnish a power source to operate the temporary signal system. Furnish an automatic backup power source capable of running the signal for at least 36 hours.

*INCLUDE SECTION 636 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$636.00A

**Section 636. — TRAFFIC SIGNAL, TRAFFIC COUNTER, LIGHTING, AND ELECTRICAL SYSTEMS**

Revised 25 May 2022

*INCLUDE CLAUSE $$636.04A WHEN INSTALLING PULL BOXES FOR TRAFFIC COUNTERS. (IF USED, ALSO INCLUDE CLAUSES $$636.05B, $$636.08B, AND $$721.01A)*

$$636.04A

636.04. Add the following:

Fabricate pull boxes with fiberglass reinforced polymer concrete or precast concrete.

*INCLUDE CLAUSE $636.05A FOR REPLACEMENT/REPAIR OF TRAFFIC COUNTERS*

$$636.05A

636.05. Delete the first sentence of the third paragraph and substitute the following:

Remove and replace all existing conduit at the replacement sites. Ground conduits, junction boxes, and metal poles by using grounding brushes on the conduit ends.

*INCLUDE CLAUSE $636.05B IF CLAUSE $$636.04A IS USED*

$$636.05B

636.05. Delete the fourth paragraph and substitute the following:

Size pull boxes according to the National Electric Code (NEC) to accommodate the necessary wires and conduit for proper splicing of loop wires.

*INCLUDE CLAUSE $$636.05C WHEN REQUIRING BORING UNDER THE ROADWAY*

$$636.05C

636.05. Add the following:

When boring under the roadway to install conduits and lead-in cables, conform to the requirements of the *(insert State and State Specification Reference),* found at *(insert link to the* ***website*** *containing the State Specification Reference* ***not a direct link to the spec reference****)* subject to the approval of the CO.

*INCLUDE CLAUSE $$636.07A IF THE GOVERNMENT WILL PROVIDE THE TRAFFIC COUNTERS TO THE CONTRACTOR – VERIFY WITH PARTNER AGENCY*

$$636.07A

636.07. Add the following after the first paragraph:

The Government will furnish the traffic counter at no cost to the Contractor. Coordinate with the CO to request delivery of a traffic counter for each traffic count station shown in the plans. Begin coordination between 21 and 28 days before traffic count station work is to begin.

*INCLUDE CLAUSE $$636.07B IF THE GOVERNMENT WILL PROVIDE THE MODEMS FOR THE TRAFFIC COUNTERS TO THE CONTRACTOR – VERIFY WITH PARTNER AGENCY*

$$636.07B

The Government will furnish the modem at no cost to the Contractor. Coordinate with the CO to request delivery of a modem for each traffic count station shown in the plans. Begin coordination between 21 and 28 days before traffic count station work is to begin.

*INCLUDE CLAUSE $$636.07C WHEN A FAN AND THERMOSTAT ARE REQUIRED FOR THE NEW CABINET – VERIFY WITH PARTNER AGENCY IF A FAN IS NEEDED (IF USED, ALSO INCLUDE CLAUSE $$721.01F)*

$$636.07C

636.07. Add the following after the second paragraph:

Mount a fan inside the cabinet and position to direct the majority of airflow over the traffic counter and modem. Mount a fan thermostat at the top of the cabinet and minimize its interference with other cabinet components.

*INCLUDE CLAUSE $$636.07D FOR CABINET GROUNDING*

$$636.07D

For pole-mounted cabinets, install ⅝-inch diameter, 8-foot long, copper-clad steel ground rod or 14-inch squared, ground plate before pouring the concrete foundation. Connect the ground rod or plate to the cabinet ground busbar and cover with 6 inches of approved backfill. Drill hole in pole and back of cabinet to provide wire access. Run ground conductor out of cabinet and seal holes as approved by the CO.

*INCLUDE CLAUSE $$636.07E WHEN A SOLAR PANEL IS REQUIRED FOR THE TRAFFIC COUNTER – VERIFY WITH PARTNER AGENCY IF A SOLAR PANEL IS NEEDED*

$$636.07E

Furnish a 20-watt minimum solar panel capable of producing at least 36 watt-hours per day and a 12-volt, C100 36-ampere-hour, minimum gel type battery capable of powering the cabinet electrical components for a minimum of 25 days.

For new traffic counter installations that will utilize a fan in the cabinet, or located under tree coverage or in the low sun zones (northeast and pacific northwest), verify that the panel size will produce enough power for all cabinet components and increase the size of the solar panel as directed by the CO. Ensure the solar panel size does not exceed 750 square inches.

Frame the solar panel with bronze anodized extruded aluminum. Mount a weatherproof connection on the back of the solar panel to connect the output cable to the solar panel cable. Ensure all cell modules have been approved by Factory Mutual Research (FM Approvals LLC) for application in NEC Class 1, Division 2, Group D hazardous location.

*INCLUDE CLAUSE $$636.08A FOR PROJECTS WITH TRAFFIC COUNTERS, WHETHER ONLY TRAFFIC LOOPS ARE BEING REPLACED/REPAIRED, OR A FULL TRAFFIC COUNTER SYSTEM IS BEING INSTALLED (IF USED, ALSO INCLUDE CLAUSE $$636.08B AND APPLICABLE SECTION 721 CLAUSES)*

$$636.08A

636.08. Delete the second and third paragraphs, and substitute the following:

Wet cut clean, smooth, well-defined, ⅜-inch wide saw cuts at a depth to allow 2 to 2½ inches of cover without damaging the adjacent pavement. Drill 1½-inch diameter loop corners matching the saw cut depth. For the lead-in channel, saw clean, smooth, well-defined, ⅝-inch wide cuts providing a minimum cover of 2 inches. Ensure saw cuts are straight with less than ½-inch error in a 10-foot line. Saw cut the lead-in to the pull box as close as possible to the edge of pavement. Thoroughly clean the saw cut of foreign material with compressed air or water blasting. Dry the joint with compressed air.

Install the loop wire in one continuous length at the bottom of the cut using a 3/16- to ¼-inch thick rounded, smooth wood paddle. Install without kinks, curls, or other damage to the wire or its insulation. Replace damaged wires. Hold the loop wire in place with 1-inch lengths of ½-inch backer road spaced at 2-foot intervals.

For the number of loop wire turns, conform to Table 636-1.

|  |  |
| --- | --- |
| **Table 636-1** | |
| **Required Number of Loop Wire Turns** | |
| **Lead-in Length, feet** | **Number of Turns** |
| ≤ 200 | 3 |
| >200 to 500 | 4 |
| >500 | 5 |

*INCLUDE CLAUSE $$636.08B WHEN CLAUSES $$636.04A AND $$636.08A ARE USED*

$$636.08B

636.08. Delete the fifth and sixth paragraphs, and substitute the following:

Twist the loop lead-in wires 6 turns per foot from the loop to the pull box. Do not twist different loop pairs together. Color code the wires of each loop using colored vinyl electrical tape for identification of separate loops inside each pull box as shown in Table 636-2. Coil 18 inches of lead-in slack in the pull box for each loop.

|  |  |  |
| --- | --- | --- |
| **Table 636-2** | |  |
| **Loop Labeling Convention** | |  |
| **Loop** | **Number of Identifiers** | **Color** |
| 1 | 1 | Red |
| 2 | 1 | White |
| 3 | 1 | Green |
| 4 | 1 | Blue |
| 5 | 2 | Red |
| 6 | 2 | White |
| 7 | 2 | Green |
| 8 | 2 | Blue |

*INCLUDE CLAUSE $$636.08C FOR WIRING REQUIREMENTS WITHIN THE NEW CABINET; TYPICALLY, WHEN A FULL TRAFFIC COUNTER SYSTEM IS INSTALLED*

$$636.08C

Select wire insulation color within the RS-232 cables directing the traffic counter to read a specific loop, based on the color assignments shown in Table 636-3. This arrangement will allow up to eight loops to be connected to the traffic counter. At the terminal block, one RS-232 cable can connect up to four loops to the traffic counter. Provide two RS-232 cables if more than four lanes are counted. Connect cable 1 to loops 1 to 4 and cable 2 to loops 5 to 8.

|  |  |  |
| --- | --- | --- |
| **Table 636-3**  **Loop Assignments for RS-232 Cables** | | |
| **RS-232 Cable** | **Loop** | **Color** |
| 1 | 1 | Red |
| 1 | 2 | White |
| 1 | 3 | Green |
| 1 | 4 | Blue |
| 1 | Ground | Light green |
| 2 | 5 | Red |
| 2 | 6 | White |
| 2 | 7 | Green |
| 2 | 8 | Blue |
| 2 | Ground | Light green |

*INCLUDE CLAUSE $$636.08D FOR TRAFFIC LOOPS TESTING FOR CONTINUITY AND RESISTANCE (SEE INSTRUCTIONS FOR CLAUSE $$636.09B). IF CLAUSE $$636.08D IS USED, ALSO INCLUDE:*

* *CLAUSE $$636.09A FOR PROJECTS WITH WIRE LOOPS REPLACEMENTS/REPAIRS ONLY; OR*
* *CLAUSES $$636.09A AND $$ 636.09B FOR PROJECTS WITH FULL TRAFFIC COUNTER SYSTEM INSTALLATION*

$$636.08D

Before applying sealant, test the loop and lead-in for continuity and resistance by applying a 1000-volt megohmmeter between each end of the loop lead-in and the nearest reliable electrical ground. If no available ground exists, establish a ground for the measurement. Record the location and megohmmeter readings and submit readings and test equipment data to the CO. Replace the loop if:

* The insulation resistance measured to earth ground is less than 100 megohms at 500 volts DC;
* The inductance is less than 50 microhenries or more than 800 microhenries;
* Wire resistance is less than 1.75 ohms per 700 feet; or
* The loop quality (Q) factor is less than 5 at 50 kilohertz.

Ensure installed inductive loops have dedicated saw cuts and separate PVC conduits for each sensor lead-in cable from the edge of pavement to the first pull box.

*INCLUDE CLAUSE $$636.09A FOR TRAFFIC LOOPS VERIFICATION TESTING (SEE INSTRUCTIONS FOR CLAUSES $$636.08D AND $$636.09B)*

$$636.09A

636.09. Delete the third paragraph and substitute the following:

Conduct an on-site verification test according to ASTM E2300, Type I-2 with a 10 percent tolerance with the following exceptions:

* The test should allow for 15 minutes and a minimum of 50 vehicles of counting with two human observers for each loop tested; and
* Test vehicles may be used if the test would likely last longer than 30 minutes to reach the 50-vehicle threshold.

Conduct the test at a date and time agreed to by the CO.

*INCLUDE CLAUSE $$636.09B FOR TRAFFIC DETECTOR’S FULL SCALE OPERATION DEMONSTRATION TEST; TYPICALLY, WHEN A FULL TRAFFIC COUNTER SYSTEM IS INSTALLED (SEE INSTRUCTIONS FOR CLAUSE $$636.08D)*

*FOR PROJECTS WITH WIRE LOOPS REPLACEMENTS/REPAIRS ONLY, DO NOT INCLUDE CLAUSE $$636.09B (CLAUSES $$636.08D AND $$636.09A ARE SUFFICIENT FOR WIRE LOOPS TESTING)*

$$636.09B

After completing traffic counter system construction, conduct a full-scale operation demonstration test for a 30-day period to assess the adequacy of the installation and operation of the equipment. Correct any defects and make any adjustments deemed necessary by the CO during the 30-day demonstration period. If failures occur during the demonstration period, make necessary repairs within 48 hours of being notified. Stop the demonstration period if repairs are not completed within 72 hours of notification and resume only after such repairs and replacement of materials have been made, inspected, and approved. Repair or replace any material and equipment that becomes defective, lost, or damaged during the demonstration period. If the equipment does not operate according to the specifications or manufacturer’s recommendations during the demonstration period, the CO has the option of returning the equipment at the Contractor’s cost.

*INCLUDE CLAUSE $$636.10A IF EITHER CLAUSE $$636.10B OR $$636.10C IS USED*

$$636.10A

636.10. Add the following:

*INCLUDE CLAUSE $$636.10B WHEN THE CONTRACTOR WILL BE INSTALLING NEW CABINET FOR TRAFFIC COUNTERS - IF THE NEW CABINET WILL BE INSTALLED BY OTHERS AFTER THE PROJECT IS COMPLETED, USE CLAUSE $$636.10C INSTEAD (VERIFY WITH PARTNER AGENCY IF THE CABINET WILL BE CONSTRUCTED BY THE CONTRACTOR OR OTHERS)*

$$636.10B

Within each cabinet, store one laminated copy of the cabinet wiring diagram and the field wiring diagram showing loops, pull boxes, and conduit runs inside two one-gallon re-sealable storage bags, one inside the other. Provide an electronic copy of each document to the CO.

*INCLUDE CLAUSE $$636.10C IF THE NEW CABINET WILL BE INSTALLED BY OTHERS AFTER THE PROJECT IS COMPLETED (IF THIS CLAUSE IS USED, DO NOT INCLUDE CLAUSE $$636.10B)*

$$636.10C

In addition to the as-built drawings required by Subsection 104.03(c), provide the following to the CO:

* Field wiring diagram showing loops, pull boxes, and conduit runs inside two one-gallon re-sealable storage bags, one inside the other; and
* An electronic copy of each document.

*INSERT THE APPROPRIATE VARIATION OF SECTION 637 DEPENDING ON THE PROJECT REQUIREMENTS (FOR CONTRACTOR SUPPLIED FIELD OFFICE INSERT VARIATION $$637.00A\_1; FOR GOVERNMENT PROVIDED FIELD OFFICE INSERT VARIATION $$637.00A\_2; AND FOR MISCELLANEOUS EQUIPMENT AND SERVICES INSERT VARIATION $$637.00A\_3) - VERIFY WITH CONSTRUCTION WHICH IS ACCEPTABLE - THE LINK PROVIDED BELOW WILL TAKE YOU TO THE LOCATION WHERE THESE SPECIFICATIONS ARE LOCATED*

$$637.00A

Section 637. — FACILITIES AND SERVICES

Revised 07 May 2018

<https://flh.fhwa.dot.gov/resources/specs/fp-14/efl/#600>

*INCLUDE SECTION 645 ON PROJECTS WHERE THERE ARE UNDERGROUND UTILITIES PRESENT OR IF THERE IS THE POSSIBILITY OF ENCOUNTERING THEM*

*REMOVE ITALICS AND PARENTHESES FROM INSERT FIELDS*

$$645.00A

Add the following after Section 637:

**Section 645. — LOCATING UTILITIES**

Revised 26 May 2016

*INCLUDE CLAUSES $$645.01A, $$645.02A, $$645.03A, $$645.04A, $$645.05A, $$645.06A, $$645.07A, $$645.08A, AND $$645.09A*

$$645.01A

**Description**

**645.01** This work consists of locating and marking existing utilities.

$$645.02A

**Material**

**645.02** Replace excavated materials with equivalent materials that meet the applicable requirements of this specification.

$$645.03A

**Construction Requirements**

**645.03 General.** Contact *(insert name of local locator service)* at *(insert phone number),* or online at *(insert web address),* at least 48 hours before any excavation to have the utilities marked in the field. If *(insert name of local locator service)* does not perform this service at the project site, contact and ensure that a commercial utility location service marks underground utilities in the field before any excavation begins. Notify the CO 48 hours before any excavation.

Exercise special care and extreme caution in order to protect and avoid damage to any utility company facilities. Existing utilities have been generally located and shown on the plans as they are believed to exist. The Government assumes no responsibility for the accuracy of locations shown in the plans. Locate and ensure the safety of all existing utilities. Coordinate the repair of damage caused by construction with the utility owners. Pay costs associated with these repairs. See Subsection 107.02 for additional requirements.

Locate by test pit any utility that may be in conflict with the proposed work. If a conflict appears to exist, then notify the CO in writing immediately and provide information on the location and elevation of the utility so that the CO can adjust the proposed work.

Restore the test pit area to its original condition.

$$645.04A

**645.04 Locating Utility.** Use geophysical prospective techniques, including electromagnetic, sonic, or other energy field devices to establish alignment of utilities where applicable. When necessary, thread a metal rod through non-metallic utility pipes to locate them. Where neither method is feasible, locate the utility by perpendicular trench or test pits.

$$645.05A

**645.05 Excavation.** Excavate carefully to the assume depth using hand tools as needed to avoid disturbing utilities. When excavating within roadway pavements where traffic is being maintained, excavate by air-vacuum methods or equivalent, keeping the area of disturbance to a minimum. Uncover the utility sufficiently to make accurate measurements.

$$645.06A

**645.06 Record.** Describe the utility found (size, material, function), determine the elevation of the top of utility, and prepare a field sketch of the pit. Indicate the date and the station and offset of the utility, noting whether the baseline or the centerline of proposed facility is being referenced. Submit one copy to the CO within 24 hours.

$$645.07A

**645.07 Marking.** Mark the utility location by flags or paint. Maintain the markings, including repainting faded or damaged markings, for the duration of the project, or until the CO determines that the markings are no longer needed.

$$645.08A

**645.08 Restoration.** Backfill using the excavated material or an approved equal. Thoroughly compact backfill material using appropriate compaction methods, approved by the CO. Restore aggregate courses and asphalt concrete pavement using approved materials and thicknesses, and appropriate compaction methods. For Portland cement concrete pavements, use a fast setting concrete.

$$645.09A

**645.09 Acceptance.** Locating utilities will be evaluated under Subsection 106.02.

*INCLUDE THE FOLLOWING IF LOCATING UTILITIES IS SUBSIDIARY TO THE PROJECT WORK AND NO 645 PAY ITEM IS INCLUDED (IF USING THIS CLAUSE, DO NOT INCLUDE CLAUSES $$645.10B, $$645.11A, AND $$645.11B)*

$$645.10A

**Measurement and Payment**

**645.10** Do not measure locating utilities for payment. See Subsection 109.05.

*INCLUDE CLAUSES $$645.10B AND $$645.11A IF A LOCATING UTILITIES PAY ITEM IS INCLUDED IN THE PROJECT (IF USING THESE CLAUSES, DO NOT INCLUDE CLAUSE $$645.10A)*

$$645.10B

**Measurement**

**645.10** Measure the Section 645 items listed in the bid schedule according to Subsection 109.02.

$$645.11A

**Payment**

**645.11** The accepted quantities will be paid at the contract price per unit of measurement for the Section 645 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

*INCLUDE THE FOLLOWING IF THE LPSM PAY ITEM FOR LOCATING UTILITIES IS INCLUDED IN THE PROJECT - SEE INSTRUCTIONS FOR CLAUSE $$645.10B*

$$645.11B

Progress payments for locating utilities by the lump sum will be paid as follows:

**(a)** 50 percent of the pay item amount will be paid after initial marking.

**(b)** An additional 25 percent of the pay item amount will be paid following completion of 50 percent of the original contract amount.

**(c)** Payment of the remaining portion of the pay item amount will be paid when the maintenance of the utility markings is no longer required as determined by the CO.

*INCLUDE SECTION 702 ON ALL PROJECTS WITH ASPHALT CONCRETE PAVEMENT*

$$702.00A

Section 702. — ASPHALT MATERIAL

Revised 23 November 2020

*INCLUDE THE FOLLOWING FOR ASPHALT BINDERS*

$$702.01A

702.01. Add the following:

Do not use asphalt binders with recycled engine oil bottoms (REOB), oil recovered at the bottom of a vacuum tower, or vacuum tower asphalt extenders (VTAE).

*INCLUDE SECTION 703 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

*REMOVE ITALICS, BOLDING, AND PARENTHESES FROM INSERT FIELDS*

$$703.00A

Section 703. — AGGREGATE

Revised 30 November 2020

*INCLUDE THE FOLLOWING FOR ALL WORK THAT REQUIRES CONCRETE (INCLUDE FOR ALL PROJECTS WITH 203, 255, 260, 501, 502, 552, 568, 569, 601, 604, 608, 609, 615, 616, 617, 619, 620, 621, 633, AND 636 PAY ITEMS)*

$$703.02A

703.02. Add the following:

Do not use gravel.

*INCLUDE CLAUSES $$703.05A AND $$703.05F FOR SUBBASE, BASE, AND SURFACE COURSE AGGREGATES (INCLUDE FOR ALL PROJECTS WITH 301, 309, AND 311 PAY ITEMS)*

$$703.05A

703.05(a). Delete the text of Subsections **(3)** and **(4)**; they are not required.

$$703.05F

703.05(a). Add the following:

**(7)** California bearing ratio as determined by ## percent min.

AASHTO T 193 at 95 percent of maximum dry

density in accordance with AASHTO T 180 (Method D).

*(obtain CBR value from Materials Engineer or Pavements)*

*INCLUDE THE FOLLOWING IF ALLOWING THE CONTRACTOR THE OPTION OF USING A STATE GRADATION FOR SUBBASE AND AGGREGATE BASE ONLY (SEE CLAUSE $$301.03B) - DO NOT INCLUDE FOR SURFACE COURSE AGGREGATE (SEE INSTRUCTIONS FOR CLAUSE $$703.05D) (INCLUDE FOR ALL PROJECTS WITH 301 AGGREGATE BASE ONLY AND 309 PAY ITEMS - DO NOT INCLUDE FOR 311 PAY ITEMS) (IF USED, ALSO INCLUDE CLAUSE $$301.03B)*

$$703.05B

703.05(b)(1). Add the following:

The gradation only of the aggregate base may conform to the requirements of the current edition of the *(insert State Agency and Specification Book name)*, *(insert acceptable State aggregate gradation -* ***obtain from the Materials Engineer****)*, found at *(insert link to the* ***website*** *containing the State Specification Book* ***not a direct link to the spec book****)* subject to the approval of the CO. Conform to the requirements of Subsections 703.05(a) and 703.05(b) for all other properties. Submit the request according to Subsection 301.03.

*INCLUDE THE FOLLOWING FOR SUBBASE AND AGGREGATE BASE - DO NOT INCLUDE FOR SURFACE COURSE AGGREGATE (INCLUDE FOR ALL PROJECTS WITH 301 AGGREGATE BASE ONLY AND 309 PAY ITEMS - DO NOT INCLUDE FOR 311 PAY ITEMS)*

$$703.05C

703.05(b). Add the following:

**(3)** Plasticity index, AASHTO T 90 3 max.

*INCLUDE THE FOLLOWING IF ALLOWING THE CONTRACTOR THE OPTION OF USING A STATE GRADATION FOR AGGREGATE SURFACE COURSE ONLY (SEE CLAUSE $$301.03B) - DO NOT INCLUDE FOR SUBBASE AND AGGREGATE BASE (SEE INSTRUCTIONS FOR CLAUSE $$703.05B) (INCLUDE FOR ALL PROJECTS WITH 301 AGGREGATE SURFACE COURSE ONLY AND 311 PAY ITEMS) (IF USED, ALSO INCLUDE CLAUSE $$301.03B)*

$$703.05D

703.05(c). Add the following:

The gradation only of the aggregate surface course may conform to the requirements of the current edition of the *(insert State Agency and Specification Book name)*, *(insert acceptable State aggregate gradation -* ***obtain from the Materials Engineer****)*, found at *(insert link to the* ***website*** *containing the State Specification Book* ***not a direct link to the spec book****)* subject to the approval of the CO. Conform to the requirements of Subsections 703.05(a) and 703.05(c) for all other properties. Submit the request according to Subsection 301.03.

*INCLUDE THE FOLLOWING FOR SUBBASE, BASE, AND SURFACE COURSE AGGREGATES (INCLUDE FOR ALL PROJECTS WITH 301, 309, AND 311 PAY ITEMS) (IF USED, ALSO INCLUDE CLAUSE $$301.03B)*

$$703.05E

703.05. Add the following:

|  |  |  |
| --- | --- | --- |
| **Table 703-2A**  **State Department of Transportation Gradation**  **Allowable Deviation Based on Target Value** | | |
| **Percent by Mass Passing** | | **Allowable**  **Deviation** |
| **Minimum** | **Maximum** |
| 90.1 | 100.0 | 6 |
| 80.1 | 90.0 | 8 |
| 30.1 | 80.0 | 8 |
| 20.1 | 30.0 | 8 |
| 10.1 | 20.0 | 6 |
| 0 | 10.0 | 4 |

*INCLUDE THE FOLLOWING FOR AGGREGATE-TOPSOIL COURSES < 1 ½ INCHES IN DEPTH (INCLUDE FOR ALL PROJECTS WITH 313 PAY ITEMS WITH A TYPICAL SECTION OF LESS THAN 1-½ INCH-DEPTH)*

$$703.13A

703.13. Delete the Subsection and substitute the following:

**703.13 Aggregate for Aggregate-Topsoil Course.** Conform to AASHTO M 80, Class E and AASHTO M 43, Size Number 67.

*INCLUDE THE FOLLOWING IF CRUSHED RECYCLED CONCRETE IS ALLOWED IN SECTION 615 SIDEWALKS, PADS, AND PAVED MEDIANS - VERIFY WITH MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE (IF USED, ALSO INCLUDE CLAUSES $$615.02A, $$615.03A, AND $$615.07A)*

$$703.18A

Add the following after Subsection 703.17:

**703.18 Crushed Recycled Concrete.** Furnish a recycled material consisting of crushed concrete free of reinforcing steel and wire, organic matter, lumps or balls of clay, and other deleterious matter. Do not use composite recycled material with a recycled mortar and brick content of more than 10 percent. Do not use material that breaks up when subjected to freeze-thaw cycles. Conform to the following:

**(a)** Los Angeles abrasion, AASHTO T 96 50 percent max.

**(b)** Liquid limit, AASHTO T 89 25 max.

**(c)** Plasticity index, AASHTO T 90 6 max.

**(d)** California bearing ratio as determined by ## percent min.

AASHTO T 193 at 95 percent of maximum dry

density in accordance with AASHTO T 180 (Method D)

*(obtain CBR value from Materials Engineer or Pavements)*

**(e)** Gradation. Furnish a gradation conforming to crushed recycled concrete material normally used locally in the construction and maintenance of highways by Federal or state agencies. Furnish a well-graded crushed recycled material with a maximum size of 2 inches and not more than 12 percent passing the No. 200 sieve as determined by AASHTO T 27 and AASHTO T 11.

*INCLUDE SECTION 712 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$712.00A

Section 712. — JOINT MATERIAL

Revised 28 September 2017

*INCLUDE THE FOLLOWING FOR CRACK FILLER MATERIAL (INCLUDE FOR ALL PROJECTS WITH 414 CRACK FILLING PAY ITEMS) (IF USED, ALSO INCLUDE CLAUSES $$414.05A, $$414.06A AND $$414.06C)*

$$712.01A

712.01(a)(2). Delete the Subsection and substitute the following:

**(2)** Crack filler, hot-applied, pourable, aggregate filled, ASTM D5078

polymer modified mastic for concrete and asphalt

concrete pavements

*INCLUDE SECTION 718 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$718.00A

**Section 718. — TRAFFIC SIGNING AND MARKING MATERIAL**

Revised 18 February 2016

*INCLUDE THE FOLLOWING FOR SIGN PANELS*

$$718.01A

718.01. Add the following:

For a list of acceptable manufacturers and products, refer to the Sheeting Guide found at

<http://safety.fhwa.dot.gov/roadway_dept/night_visib/sign_visib/sheetguide/>.

*INCLUDE SECTION 721 AS NEEDED BASED ON CLAUSE INSTRUCTIONS*

$$721.00A

**Section 721. — ELECTRICAL AND ILLUMINATION MATERIAL**

Revised 25 May 2022

*INCLUDE CLAUSE $$721.01A WHEN INSTALLING PULL BOXES FOR TRAFFIC COUNTERS (IF USED, ALSO INCLUDE APPLICABLE SECTION 636 CLAUSES)*

$$721.01A

721.01(b). Add the following:

For boxes fabricated with fiberglass reinforced polymer concrete, conform to ANSI/SCTE 77 and tier 22 loading.

Furnish a waterproof, detachable, cast iron lid conforming to AASHTO M 105, Class 30 with lift opening. Ensure the pull slots are rated for a minimum pull out of 3,000 pounds and the pull boxes are rated for a minimum wheel load of 20,000 pounds. Furnish stainless steel lock down bolts for the lid.

Furnish granular backfill conforming to AASHTO M 80, Class E and AASHTO M 43, Size Number 57 or 67.

*INCLUDE CLAUSE $$721.01B FOR TRAFFIC COUNTERS WHETHER ONLY TRAFFIC LOOPS ARE BEING REPLACED/REPAIRED, OR A FULL TRAFFIC COUNTER SYSTEM IS BEING INSTALLED (IF USED, ALSO INCLUDE APPLICABLE SECTION 636 CLAUSES)*

$$721.01B

721.01(c)(2). Add the following:

For loop detector wire, furnish type THHN #14 AWG, stranded, single-conductor conforming to the International Municipal Signal Association (IMSA) Specification 51-7.

For lead-in cable, furnish type THHN, stranded, single-conductor conforming to the IMSA Specification 50-2.

*INCLUDE CLAUSE $$721.01C FOR NEW CONSTRUCTION OR FULL DEPTH PAVEMENT PROJECTS*

$$721.01C

As an acceptable alternative to sawcutting, furnish preformed inductive loops with 3 to 5 turns of #14 AWG cable with an insulation of XLPE (cross-linked polyethylene) encased in PVC pipe for use in new construction before the pavement is installed.

*INCLUDE CLAUSE $$721.01D FOR BONDING EQUIPMENT AND HARDWARE WHEN MOUNTING CABINET ON A POLE*

$$721.01D

721.01(f). Add the following:

Furnish high strength, corrosion resistant mounting bracket, pole clamps, and related hardware.

Furnish galvanized anchor bolts, nuts, lock washers, and flat washers conforming to ASTM A153.

*INCLUDE CLAUSE $$721.01E FOR NEW CABINET (IF USED, ALSO INCLUDE APPLICABLE SECTION 636 CLAUSES)*

*IF A FAN AND THERMOSTAT ARE REQUIRED FOR THE NEW CABINET, THEN ALSO INCLUDE CLAUSE $$721.01F – VERIFY WITH PARTNER AGENCY IF FAN AND THERMOSTAT ARE NEEDED*

$$721.01E

721.01(k). Delete the Subsection and substitute the following:

**(k) Control enclosure.** Furnish a NEMA 250, *Enclosures for Electrical Equipment (1,000 V Maximum)*, Type 3R outdoor cabinet, watertight, fabricated from ⅛-inch thick ASTM B209 aluminum alloy 5052-H-32, with continuous welded seams, rounded corners, hinge with stainless steel pin, stainless steel external hardware, and backboard for mounting apparatus. The Government will furnish a padlock.

Furnish cabinet with a surge protection device conforming to Table 721-1 at the terminal block on all lead-ins.

|  |  |
| --- | --- |
| **Table 721-1** | |
| **Surge Protection Device Minimum Requirements** | |
| **Criteria** | **Rating** |
| Operating voltage | 75 VDC |
| Clamping voltage | 130 VDC |
| Peak surge current | 250 A |
| Technology | Silicon breakover device |
| Operating temperature | -40 °F to 185 °F |
| Weight | 3 ounces |
| Dimensions | 1.2-inch cube |
| Note: VDC = Voltage direct current | |

Furnish a surge protections power strip, 120-volt with RJ-11 surge protection. Connect incoming phone line and modem phone line to power bar RJ-11 ports.

*INCLUDE CLAUSE $$721.01F WHEN A FAN AND THERMOSTAT ARE REQUIRED FOR THE NEW CABINET – VERIFY WITH PARTNER AGENCY IF A FAN IS NEEDED (IF USED, ALSO, INCLUDE CLAUSE $$636.07C)*

$$721.01F

As directed by the CO, furnish a tube axial compact type, 120-volt, corrosion resistant cabinet fan with a minimum 100-cubic foot per minute capacity, minimum 100,000-hour design life, maximum 40-decibel operating noise, and a five-year duty cycle. Fuse the fan at 125 percent of the motor’s ampere capacity. Ensure the fan’s magnetic field does not affect the performance of the surrounding traffic counting equipment.

As directed by the CO, furnish an inline type, single pole, 120-volt, 10-ampere cabinet fan thermostat that is adjustable in 10-degree increments from 70 to 200 °F, and with a turn-on setting that is adjustable from 90 to 120 °F. Run the fan until the cabinet temperature decreases 20 °F below the turn-on temperature.

*INCLUDE CLAUSE $$721.01G FOR SPLICES AND CRIMPS*

$$721.01G

721.01. Add the following:

**(l) Splices and crimps.** Furnish industrial grade copper-alloy wire crimps of appropriate size. Use UL listed crimp type connectors and terminals. Do not splice with wire nuts. Comply with MIL-T-7928. Do not use vinyl plastic electrical tape or liquid electrical coating as a splicing material. If needed for insulation protection, furnish cold and weather resistant, ¾-inch wide, ¼-inch thick tape and a compatible fast drying sealant applied by brush.

If soldering splice, furnish electronic-grade, rosin-core, 60 lead/40 tin solder. Do not use acid-core solder or acid-type soldering pastes.

*INCLUDE CLAUSE $$721.02A FOR POLE AND CABINET PAINT REQUIREMENTS. INCLUDE CLAUSE $$721.02A WHEN A NEW CABINET IS INSTALLED, REGARDLESS OF IT BEING MOUNTED ON A POLE OR NOT (IF USED, VERIFY WITH PARTNER AGENCY IF THE COLOR CODE IS CORRECT AND REVISE AS NECESSARY)*

$$721.02A

721.02(a). Delete the second sentence of the last paragraph and substitute the following:

For the finished coat for the pole and inside and outside of the cabinet, use epoxy modified enamel matching Federal Standard 595B Color No. 20059 (brown), unless otherwise approved by the CO.