labeled at the junction box in accordance with the loop schematics included in these Plans. A 3/8-inch saw cut will be required for the twisted pair. No saw cut will be within 3 feet of any manhole or utility risers located in the street. Loops and lead-ins will not be installed in broken or fractured pavement. Where such pavement exists it will be replaced in kind with minimum 12-foot sections. Loops will also not be sawed across transverse joints in the road. Loops to be placed in concrete will be located in full panels, a minimum 18 inches from any expansion joint.

Existing Traffic Loops

The Contractor shall notify the City of Federal Way Traffic Engineer a minimum of five working days in advance of pavement removal in the loop areas.

If the Engineer suspects that damage to any loop, not identified in the Plans as being replaced, may have resulted from Contractor's operations, the Engineer may order the Contractor to perform the field tests specified in Section 8 20.3(14)D. The test results shall be recorded and submitted to the Engineer. Loops that fail any of these tests shall be replaced.

Loops that fail the tests, as described above, and are replaced shall be installed in accordance with current City of Federal Way design standards and Standard Plans, as determined by the Engineer.

If traffic signal loops that fail the tests, as described above, are not replaced and operational within 48 hours, the Contractor shall install and maintain interim video detection until the replacement loops are operational. The type of interim video detection furnished shall be approved by the Engineer prior to installation.

8-20.3(14)D Test for Induction Loops and Lead-in Cable

Section 8-20.3(14)D is supplemented with the following:

(March 13, 2012 ******)
Test A - The resistance shall not exceed values calculated using the given formula.

Resistance per 1000 ft of 14 AWG, R = 3.26 ohms / 1000 ft

$$R = \frac{3.26 \times \text{distance of lead-in cable (ft)}}{1000 \text{ ft}}$$

Test B and Test C in this section are deleted and replaced with the following:

Meggar readings of the detection wire to ground shall read 200 megohms at the amplifier connection. The 200 megohms or more shall be maintained after the splices are tested by submerging them in detergent water for at least 24 hours. The tests will be conducted with County personnel at the request of the Contractor. All costs incurred to meet this minimum standard will be the responsibility of the Contractor.

Section 8-20.3(14)D is supplemented with the following:

(October 5, 2009 WSDOT NWR)

Existing Lead-in Cable Test

When new Induction loops are scheduled to be installed and spliced to an existing two-conductor shielded detector lead-in cable, the Contractor shall perform the following:

1. Disconnect the existing detector lead-in cable in the controller cabinet and at the loop splice.
2. Megger test both detector lead-in cable conductors. A resistance reading of less than 100-megohms is considered a failure.
3. Detector lead-in cables that fail the test shall be replaced and then retested.
4. After final testing of the detector lead-in cable, the loop installation shall be completed and the loop system tested according to Tests A, C and D.
5. Connect the detector lead-in cables in the controller cabinet.

(October 5, 2009 WSDOT NWR**)**

Existing Loop Test

When two-conductor shielded detector lead-in cable is scheduled to be installed and spliced to an existing loop, the Contractor shall perform the following:

1. Disconnect the existing loop from the detector lead-in splice.
2. Megger test the existing loop wire. A resistance reading of less than 100-megohms is considered a failure.
3. Loops that fail the test shall be replaced and then retested.
4. After the final testing of the loops, the detector lead-in cable installation shall be completed and the loop system tested according to Tests A, C and D.

8-20.4 Measurement

Section 8-20.4 is supplemented with the following:

Detector loops of the type and size shown in the plans will be measured per each.

8-20.5 Payment

Section 8-20.5 is supplemented with the following:

"Detector Loop", per each.

The unit contract price for "Detector Loop" shall be full compensation for full and complete installation including wire, sealant and all other labor, materials, tools and equipment required to complete the installation in accordance with the Plans, specifications, and Standard Plans. The unit price shall also include providing and installing loop home runs, conduit stub-outs, and soldered splices. Sawcutting shall be considered incidental to the loop installation. Payment shall not be made for this item until the loop is fully functional as determined by the Engineer.

8-21 PERMANENT SIGNING

8-21.1 Description

Section 8-21.1 is deleted and replaced with the following:

*(April 27, 2015 ******)*

This work shall consist of furnishing and installing permanent R9-3A "No Crossing" signing in accordance with the Plans, Specifications, MUTCD, and the City of Federal Way Standard Details at the locations shown in the Plans or where designated by the Engineer.

8-21.2 Materials

Section 8-21.2 is revised as follows:

Sentence three is deleted and replaced with the following:

*(April 28, 2015 ******)*
Materials for sign mounting shall conform to Section 9-28-11.

8-21.3 Construction Requirements

8-21.3(1) Location of Signs

Section 8-21.3(1) is replaced with the following:

Signs are located in the plans by reference to a general stationary monument and shown an estimated distance for installation and placement. No survey stations are provided, but dimensions are shown. These are tentative locations, subject to change by the Engineer, and shall be field verified by the inspector prior to installations. Timber posts and break away pole lengths shall be per the plan details. Sign heights shall be per the plan details.

8-21.3(12) Steel Sign Posts

Section 8-21.3(12) is supplemented with the following:

Poles for "R9-3A Signs, Poles and Bases" shall be per Division 9.

8-21.4 Measurement

Section 8-21.4 is supplemented by the following:

Measurement for R9-3A Signs, Poles and Bases shall be as follows:

All signage to include R9-3A, Poles and Bases shall be measured per each meeting all the requirements of these special provisions. Measurement will be for the sum total of all items including labor, materials, tools, and equipment necessary to furnish and install the complete assembly per the plans and details.

Sign Removal and or Relocations shall be measured per each. Measurement will be for the sum total of all items including labor, materials, tools and equipment necessary to remove existing signs, posts and any bases and re-use, return to the owner signage, and dispose of posts and any bases as noted on the Plans.

8-21. 5 Payment

Section 8-21.5 is supplemented with the following:

Payment will also be made under the following:

"R9-3A Sign and Post", per each.

The bid prices in the Proposal will be full compensation for the costs of all labor, tools, equipment, and materials necessary or incidental to furnishing, installing and/or removing all types of signs as shown on the Plans and returning to the Owner.

SECTION 8-22, PAVEMENT MARKING

8-22.1 Description

Section 8-22.1 is supplemented with the following:

(December 18, 2009 ******)
This work shall consist of furnishing and placing pavement markings upon the roadway surface for delineation at the locations shown on the Plans in accordance with WSDOT Standard Plan M-20.20-01, or as directed by the Engineer. All permanent pavement markings must be placed no later than seven (7) calendar days after the final lift of paving is completed, except 90-mil methyl methacrylate materials, which must be placed not later than twenty-one (21) calendar days after the final lift of paving is completed.

8-22.2 Materials

Section 8-22.2 Sentence #3 is deleted and replaced with the following:

(October 23, 2014 ******)
Glass beads for Type A plastic shall be as recommended by the manufacturer.

Section 8-22.2 is supplemented with the following:

(October 23, 2014 ******)
Glass beads for Type D plastic and Bonded Core Elements shall be as shown in Section 9-34.4.

8-22.3 Construction Requirements

8-22.3(3)E Installation

Section 8-22.3(3)G is supplemented with the following:

Profiled Methyl Methacrylate lines shall be installed per WSDOT Standard Plans M20.20-01.

8-22.3(3)G Glass Beads

Section 8-22.3(3)G is supplemented with the following:

(March 13, 2012 ******)
Methyl Methacrylate Pavement Markings
Glass beads shall be applied at a rate of eight (8) to ten (10) pounds per one hundred square feet.