

7830202 ITS CONDUIT AND LOCATE SYSTEM - MATERIALS
COMMENTS FROM INDUSTRY REVIEW

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Comments:

Given that there is a large amount of technical data in this specification, has there been any consideration to have this product listed on the APL or QPL. Additionally, are some of the components, such as pull boxes, the same components as those listed on the APL. If so, it should be referenced in the specification to use the APL for those components.

Response:

Section 780 – Intelligent Transportation Systems General Requirements contains the requirement that these components be reviewed by the Department and placed on the APL in a similar fashion to the pull boxes mentioned in the comment.

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Comments:

We have reviewed the subject specification and have the following comments:

A suggestion for consistence is shown below in blue:

1. **783-2.2.4 Locate System Electronic Equipment:** Provide locate system electronic equipment that is designed specifically for locating buried pipes and cables. Ensure that the locate system *electronic equipment* is able to detect the location and depth of the locate wire buried alongside conduit and cable runs. Ensure that the locate **system electronic** equipment is capable of locating faults in the sheath of a buried locate wire. Ensure that locate system electronic equipment is provided with protective cases suitable for daily transport and storage of transmitters and receivers. Ensure that the locate system electronic equipment includes a transmitter, receiver, and electronic *box* markers as shown in the plans and approved by the Engineer.

The specification calls for the SRM to be 10 feet tall with a minimum of 2 feet underground (section 783-2.2.1.1). This causes some confusion because later in the specification (section 783-2.3.1), the marker is to be no higher than 6 feet above grade.

The specification requires the round markers to return to the upright position after a vehicle impact (section 783-2.2.1.1). We have been told by Contractors that the markers are not capable of this. It is thought that this requirement was for the flat markers used previously.

The specification requires the SRMs to withstand a 12-gauge shotgun blast (section 783-2.2.1.1). We are not sure how this can be reviewed or enforced.

Please let me know if you have any questions.

Response:

Concur with suggested text change for consistency. Document will be modified accordingly.

While not in direct conflict with other requirements, we intend to remove the reference to overall length in order to avoid confusion.

Multiple manufacturers of round markers indicate that their products are capable of returning to returning to an upright position after impact. This functionality will be verified as a condition of APL approval and revisited if found to be a misrepresentation. We will also remove any other references that may create confusion regarding the requirement that marker posts return to upright.

Blast resistance is also a commonly advertised characteristic of these products. It is not intended to be reviewed or evaluated regularly during project inspection. Rather, it will be verified during the APL review process and potentially verified by random sampling of representative material at a later date.

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Comments:

1. The first reference sentence should read: "SUBARTICLES 783-2.2 and 783-2.3 (of the Supplemental Specifications) are deleted and the following substituted:"
2. There is no change to SUBARTICLE 783-2.4, so it should not be included in the revision.
3. The second reference sentence should read: "ARTICLES 783-5 and 783-6 (of the Supplemental Specifications) are deleted and the following substituted:"
4. Add the requirement to have the designer provide a detail for the terminal block of the Electronic Route Marker in the ITS Plans, or add one to the Design Standards.
5. Because the "Locate System Electronic Equipment" must be compatible, it is normally sold as a kit -- of a Transmitter and a Receiver. Clarify 783-5 Method of Measurement that the Basis of Payment for 783-9 – Each, refers to a set of a Transmitter and a Receiver.
6. How are these components of the Locate System paid for (Locate Wire, Warning Tape, Standard Route Marker, Electronic Route Marker and Electronic Box Marker)?

A. Granted, the Locate Wire and Warning Tape are needed wherever there is a conduit, so including it in the cost of conduit seems logical, and perhaps already understood. The following Pay Item Note is suggested:

783-4 Includes the cost to furnish & install Locate Wire and Warning Tape.

B. The placement (number & location) for the other three items are not as clearly indicated. They are now shown to be installed "... as shown on the plans or as directed by the Engineer". I have never seen them indicated on plan views, and CEI are not always Electronic Route Markers and Electronic Box Markers seem to me to be more expensive items. Therefore, the Contractor and CEI need some indication of how many of each type of unit to furnish & install as well as where these markers will be placed. The locations of these markers could be shown in the plans or details, or in general location note. As a minimum, the following Pay Item Note is suggested:

783-9 Includes the cost to furnish & install ___ Standard Route Markers, ___ Electronic Route Markers, and ___ Electronic Box Markers as shown on the plans or as directed by the Engineer.

Response:

Comments 1-3: Mr. Schrupf is correct in noting that not all articles and subarticles in this section are being modified. We believe that the additional text was included for review in order to provide the reader with the context of these proposed changes. The format of the final official document and its associated reference sentences will be formatted appropriately by the Specifications Office.

Comment 4: We feel that the statements in Sections 783-2 and 783-2.2.1 adequately expresses the need that sufficient detail is to be provided in the plans.

Comment 5: The Pay Item structure for "Locate System Electronic Equipment" allows differentiation between transmitter, receiver, and electronic markers. A pair would be one transmitter and one receiver, so it is our opinion that the current pay item structure provides a greater degree of flexibility.

Comment 6: Locate wire, warning tape, and SRM/ERM posts should be included for payment with 783-4. We feel that 783-5 includes language that is adequate to convey that intent at this time. SRM and ERM posts are further defined in section 783-2.3.1 as being a maximum distance of 500 feet from one another. If the CEI needs a rough estimate of quantity for these items, they can divide the total length of conduit by 500 feet in order to approximate how many markers would be required (at minimum) for a particular conduit run. Final inspection and approval would be based inspection to ensure that line of sight is maintained, posts are placed appropriately, and other criteria within the specifications.

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Comments:

Here are some comments I have received on this specification:

1) I do not see a basis for acceptance for the following requirements:

Ensure that all SRMs have a minimum OD of 3.5 inches with a 0.125-inch wall thickness and a minimum 10-foot length. Ensure that the top fitting cover is a minimum of 1.5 feet long and has an OD of 3.75 inches with a 0.125-inch wall thickness. Ensure that each SRM provides a tensile strength of 4,200 pounds per square inch as required in the ASTM D638 standard. Ensure that each SRM is manufactured for use in temperatures range of -30° to 165° F as per the NEMA TS 2 standard. Ensure that each SRM can withstand 70 foot-pounds of impact force at 32° F as required in the ASTM D2444 standard before and after UV conditioning for 2,000 hours as required in the ASTM G53-88 standard. Ensure that the control sample of any material employed maintains a minimum of 70 percent of its original tensile strength as required by the ASTM D638 standard. Ensure that an SRM installed at the minimum 2-foot depth withstands at least one vehicle impact at 45 miles per hour by a car or truck weighing no less than 3,500 pounds. After impact, ensure that the post returns to an upright position within 10 degrees of vertical alignment within 30 seconds from the time of impact. Ensure that all SRMs withstand a 12-gauge shotgun blast without penetration by any pellets when fired from a 50-foot distance.

Are we supposed to get a certification for these properties? I hope the author doesn't expect us to sample and test (shotgun blast) these items in the field.

Response:

Section 780 – Intelligent Transportation Systems General Requirements contains the requirement that marker posts be reviewed by the Department and placed on the APL. These product characteristics will be verified during that process and are not intended to be tested as a condition of acceptance in the field.
