Index 630-010 Conduit Details - Embedded

Design Criteria

NFPA National Electric Code; ***Structures Detailing Manual (SDM)***; ***AASHTO LRFD Bridge Design Specifications*** and ***NCHRP Report 350*** or ***AASHTO Manual for Assessing Safety Hardware (MASH)***

Design Assumptions and Limitations

This standard can be used for electrical service for highway or navigation lighting and ITS applications.

The details for installing three 2" diameter conduits and associated Embedded Junction Boxes (EJBs) in traffic railings (as shown) have been determined to be crashworthy in accordance with the requirements of ***MASH*** and the ***AASHTO LRFD Bridge Design Specifications,*** for ***Standard Plans*** Index 521-422, 521-423, 521-427, 521-428, 521-509, 521-510 and 521-511.

Plan Content Requirements

Coordinate with the District Utilities Engineer, ITS designer, highway lighting designer and/or navigation lighting designer as appropriate to determine the present and future uses for the conduit embedded in concrete at the project location.

Provide supplemental designs, notes, details, wiring diagrams and wiring specifications in the plans as required to complement this Standard.

In the Structures and/or Retaining Wall Plans:

Designate each conduit and include supplemental plan details as shown in the following table:

Conduit Usage and Limits	Plan Requirements
Present use	Show supplemental project specific details and requirements to coordinate with conduit beyond bridge or retaining wall. Coordinate with the ITS, Lighting, etc. plans as required.
Future use with conduit limits consistent with limits shown on the Standard	Designate conduit as "Future Use", no additional plan details required to show conduit limits.
Future use with conduit limits not consistent with limits shown on the Standard	Show supplemental project specific details and requirements to coordinate with conduit beyond bridge or retaining wall. Coordinate with the ITS, Lighting, etc. plans as required.

For EJBs located within Traffic Railings, specify in the plans the type of EJBs required: EJB "A" - multiple raceways; EJB "B" - single raceways. Generally, multiple raceway EJBs can be used where services contained within individual raceways (conduits) can share a common Junction Box. Single raceway EJBs should be used where it is desirable or required that services contained within individual raceways (conduits) be isolated from each other.

Specify the type of fittings required at Expansion Joint locations on bridges: Expansion Fittings or Expansion / Deflection Fittings. Generally, Expansion Fittings can be used for bridges on tangent or large radius curved alignments where little or no transverse movement is expected at the Expansion Joints. Expansion / Deflection Fittings are typically required for bridges on curved alignments or combined curved and tangent alignments where transverse movement is expected at Expansion Joints.

For electrical service, specify the use of THWN or XHHW conductors.

Payment

Commentary: For consistency, the cost of furnishing and installing Embedded Conduit, Embedded Junction Boxes, Expansion and Expansion / Deflection Fittings and all associated hardware required to complete the installation is no longer included in the cost for the Traffic Railing or Pedestrian Railing (Parapet) that the conduit is installed in.

However, there may be special cases where other arrangements have been made

Include pay items and quantities for Embedded Conduit and Embedded Junction Boxes. Conduit pay item includes Expansion and Expansion/Deflection Fittings and all associated hardware required to complete the installation.

Item Number	Item Description	Unit of Measure
630- 2-16	Conduit, Furnish & Install, Embedded	LF
635- 3- 13	Junction Box, Furnish & Install, Embedded	EA