Supply Lines, Communication Conduit and Sprinkler Control Conduit on Bridges

Supply Line and Sprinkler Control Conduit

1. The Headquarters Landscape Architect or the District will return a print of the General Plan to the Office of Structure Design and the District Traffic Engineer with comments on supply lines and conduits required for irrigation. General Plans for bridges on which no pipes are anticipated will also be returned so noted.

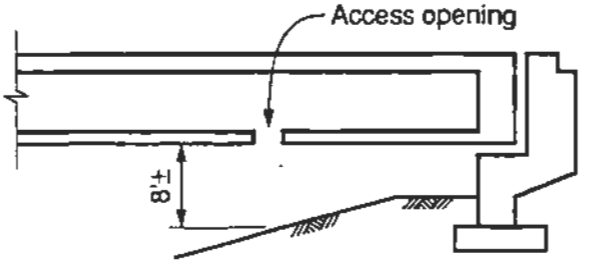
2. Unless otherwise noted by the comments, the Office of Structure Design will furnish a 3" standard galvanized steel pipe for supply lines. Pipe diameters less than 4" can be furnished with the use of Standard Plan B14-3. For pipes 4" or larger, use Standard Plan B14-4. All details of the supply lines shall be reviewed by our Mechanical Engineers.

3. Expansion assemblies for supply lines and electrical conduit shall be provided according to bridge length as follows:

   a) Up to 600 feet – one assembly placed at each abutment and another only near an expansion joint if a bridge expansion joint is required.

   b) Over 600 feet – one assembly placed at each abutment and equally spaced at approximately 300 foot intervals preferably near bridge expansion joints.

   Access openings to these expansion joints shall be located in the bottom slab, at the abutment end of each box girder cell which contains supply lines. The opening shall be offset from the utilities and placed a sufficient distance from the abutment to prevent unauthorized access. Access to other expansion assemblies may be gained through openings in caps and diaphragms. Access openings near bents adjacent to expansion joints are permitted if openings in bent caps are impossible. Detail openings on the plans.



4. A supply line pipe is not permitted in any bridge barrier.

Supersedes Memo to Designers 18-3 dated October 1988

5. The supply line will be carried as a bridge item in the Engineer's Estimate. For estimating, give the total length of pipe (linear feet). Items such as pipe cradles, inserts, bolts, access doors, hangers and expansion assemblies will be included in the price paid per linear foot.

6. Occasionally we have requests from the Landscape Architect to carry a sprinkler control conduit in addition to the water supply line across the structure. This conduit should be handled similar to that for Communication Conduits except the Districts' pay item will be "Sprinkler Control Conduit". The supply line and conduit should cross the bridge in the same general area. The minimum size conduit will be 2".

Communication Conduit

The need for communication lines and their size will be determined by the Districts. The Office of Structure Design will work with the Districts in determining the exact location within the structure to carry the conduits. The conduits should be placed in the bridge railing or sidewalk if at all possible. If this is done, no detailing is required on the bridge plans and all plans will be prepared by the District. If placed elsewhere, the following items shall be considered:

1. The communications conduit will normally be a District item. Keep separate from other items so that Estimating can distinguish District pay items.

2. All openings shall be fully detailed on the Bridge Plans. We should review the Road Plans to be sure they show the communications conduit and make reference to the details shown on the Bridge Plans.

3. The quantity estimator should take off the linear feet of conduit from pull box to pull box at the ends of the bridge.

4. A pull box is required in the structure every 200'. Where a conduit is used in the railing, the standard electrical pull box can be used. Where larger conduits are required, a special pull box in the soffit can be used where it can be reached without interfering with traffic. For special box details the designer should consult with our Electrical Engineer.

5. Conduits can be cast within various concrete sections where room permits. Expansion fittings for various sizes of conduits have the following outside dimensions:

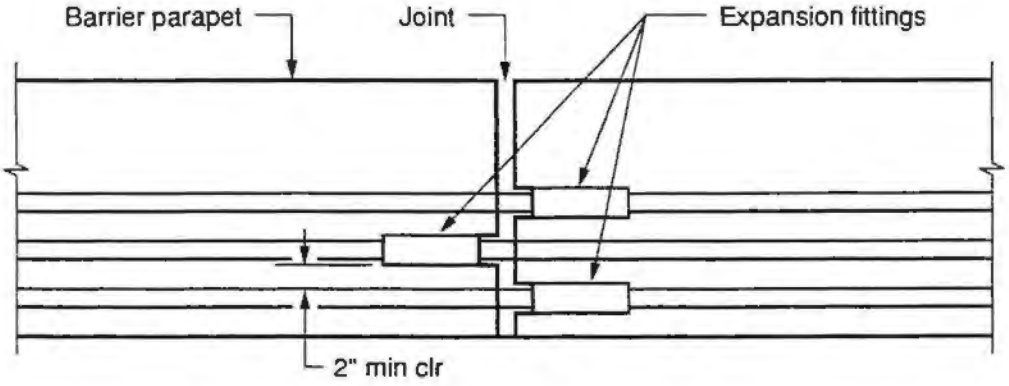
Conduit Size	Expansion Fitting Outside Dimension
1"	2⅝"
1½"	3½"
2"	4"
3"	5⅝"

A barrier parapet can readily accommodate a 3" conduit as shown on Standard Plan B14-3. However, if more conduits are required in a standard Type 25 barrier, the following combinations may be used:

1. One 3" and one 1½" or 2" conduit.

2. Three 1½" conduits.

3. Adjacent conduits shall have 2" minimum clear distance between them. When multiple conduits are used, expansion fittings at barrier joints shall be shown on the plans and staggered as shown below.



ELEVATION

If a lighting conduit is to be placed within the parapet it may be necessary to place the communications conduit elsewhere. Keep in mind that the additional short lighting conduit lengths from pull boxes to soffit lights, signs, or electroliers can cause congestion in the parapet.

Expansion fittings are not suitable if barrier has both deflection and expansion.

Joint seals may conflict with placement of conduits in the barriers. Refer to Standard Plan B6-21 for probable joint seal position in barrier.

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Attachments