

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G51.160
Issue 1, April, 1942
AT&T Co Standard

AERIAL CABLE
BRIDGE ATTACHMENTS

Contents	Page
1. General	1
2. Insulating from Bridge Structures	2
3. Crossing Under Bridges	2
4. Methods of Attachments to Bridges	3
5. Extending Strand from Pole to Bridge	9
6. Special Construction	9

1. GENERAL

1.01 This section covers the methods to be used in attaching suspension strand and aerial cable to bridge structures.

1.02 Do not remove any bolts or nuts from a bridge or overhead structure and do not use any attaching devices that require the drilling or cutting of the structure without first obtaining the approval of the proper authorities.

1.03 In making attachments to bridges, the attachments should be made, in so far as practicable, so that they will not interfere with painting of the bridge structure.

1.04 In making attachments to bridges over waterways which are subject to flood conditions, make certain that the lowest point of the cable will be above the flood high water mark.

1.05 In the placing of aerial cable on bridges, consideration should be given to lashing the cable to the strand as a means of reducing abrasion to the cable sheath which tends to develop where cable is supported in rings. However, working conditions at each individual bridge will, in general, determine the advisability of placing lashed or ring supported cable.

1.06 Where conduit is to be placed on or attached to the bridge structure, the work shall be done in accordance with the instructions covering Underground Conduit Construction.

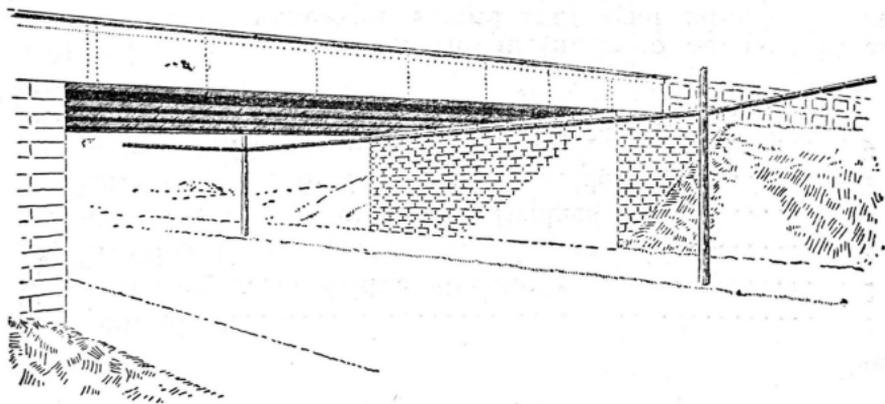
2. INSULATING FROM BRIDGE STRUCTURES

2.01 In general, where it is necessary to attach a cable to a steel or reinforced concrete bridge, the cable shall be insulated from the bridge structure by attaching the strand to wooden supports, as shown in the following illustrations.

2.02 Insulating joints should be placed only where specified in the detail plans.

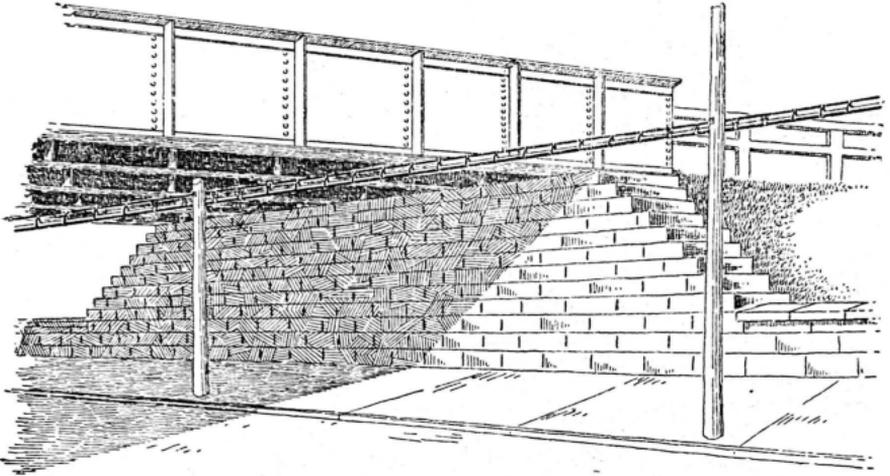
3. CROSSING UNDER BRIDGES

3.01 Wherever practicable, grade the cable as shown in the following illustration, so that it will be unnecessary to attach the suspension strand to the bridge.



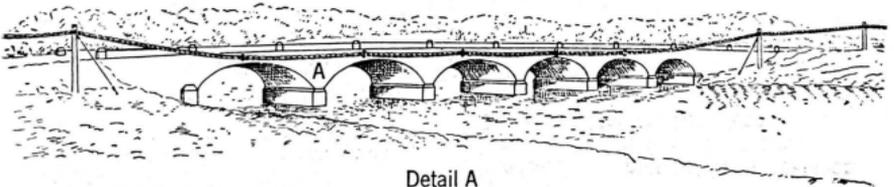
Note: Where there is a possibility of injury to the cable by objects dropped from the bridge, cover the cable with Trolley Guards, as shown in Section G52.140

3.02 Where the span would otherwise be too long, and conditions permit, place a short pole under the bridge.



4. METHODS OF ATTACHMENT TO BRIDGES

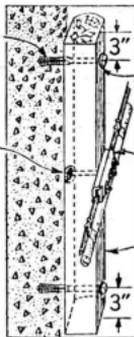
4.01 Masonry Structures.



$\frac{1}{2}$ in. \times $5\frac{1}{2}$ in Machine Bolt in
 $\frac{1}{2}$ in. Machine Bolt Anchor

Countersink for $\frac{5}{8}$ in. \times $5\frac{1}{2}$ in.
 Machine Bolt with $\frac{3}{4}$ in. \times
 $1\frac{3}{4}$ in. Round Washer under
 head so that bolt will not be in
 contact with bridge.

Detail A



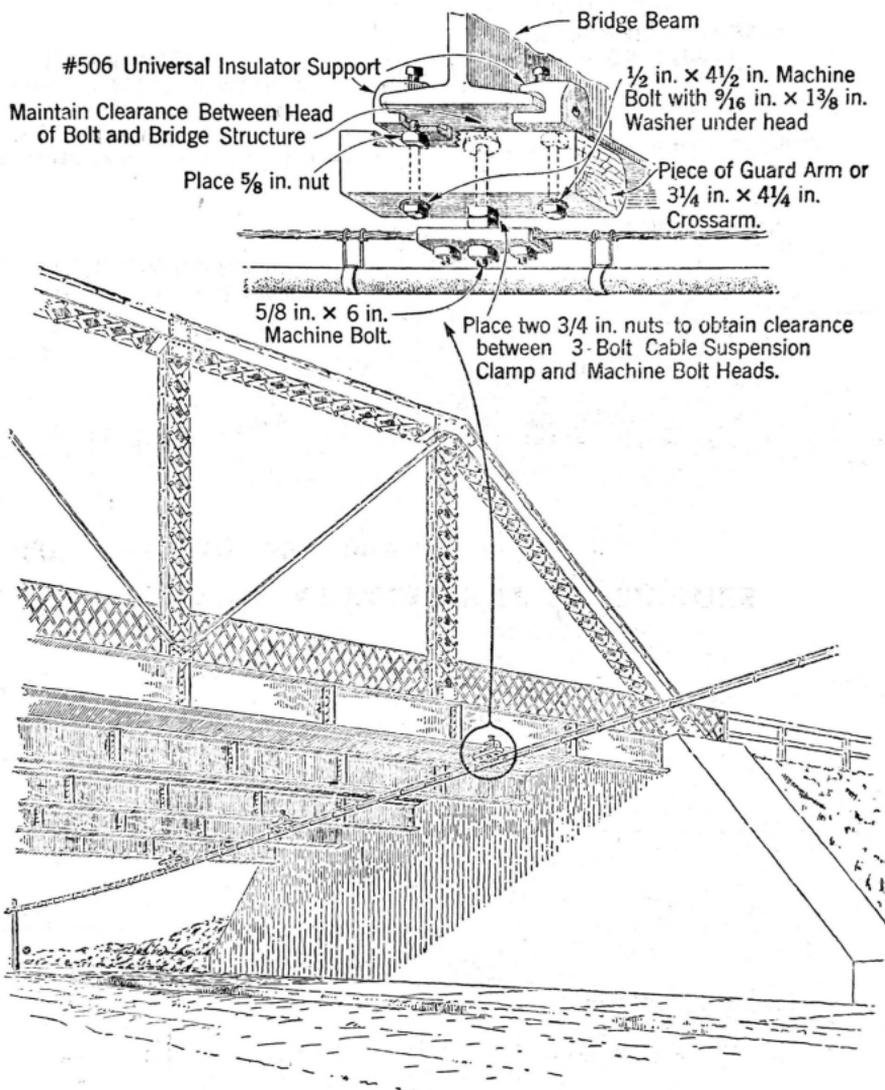
$\frac{9}{16}$ in. \times $1\frac{3}{8}$ in. Washer.

3 Bolt Cable Suspension Clamp

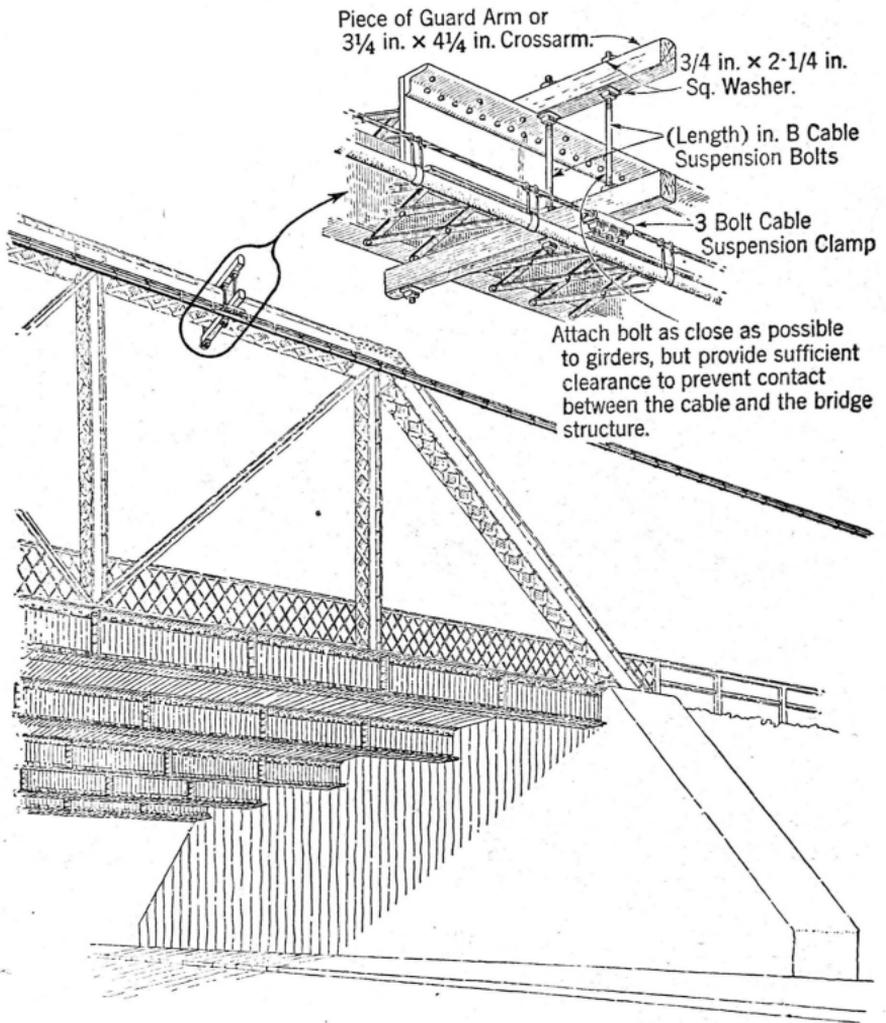
Piece of Guard Arm or
 $3\frac{1}{4}$ in. \times $4\frac{1}{4}$ in. Crossarm.
 2 ft. in length.

4.02 Steel Structures.

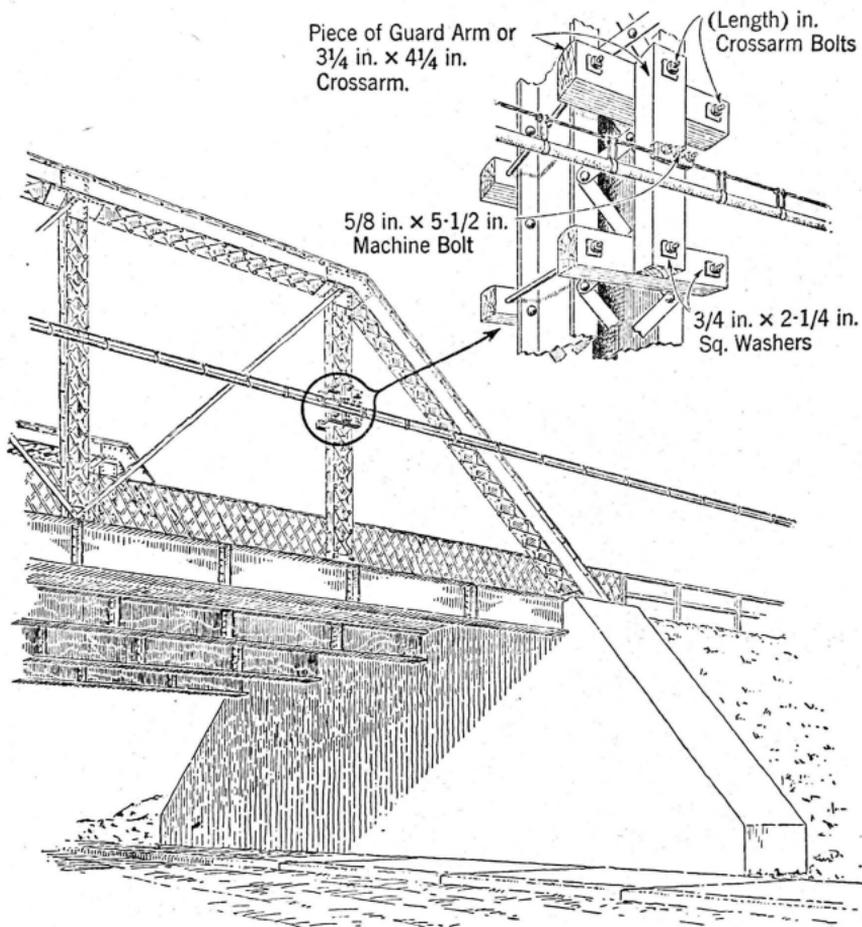
(a) Universal Insulator Supports.



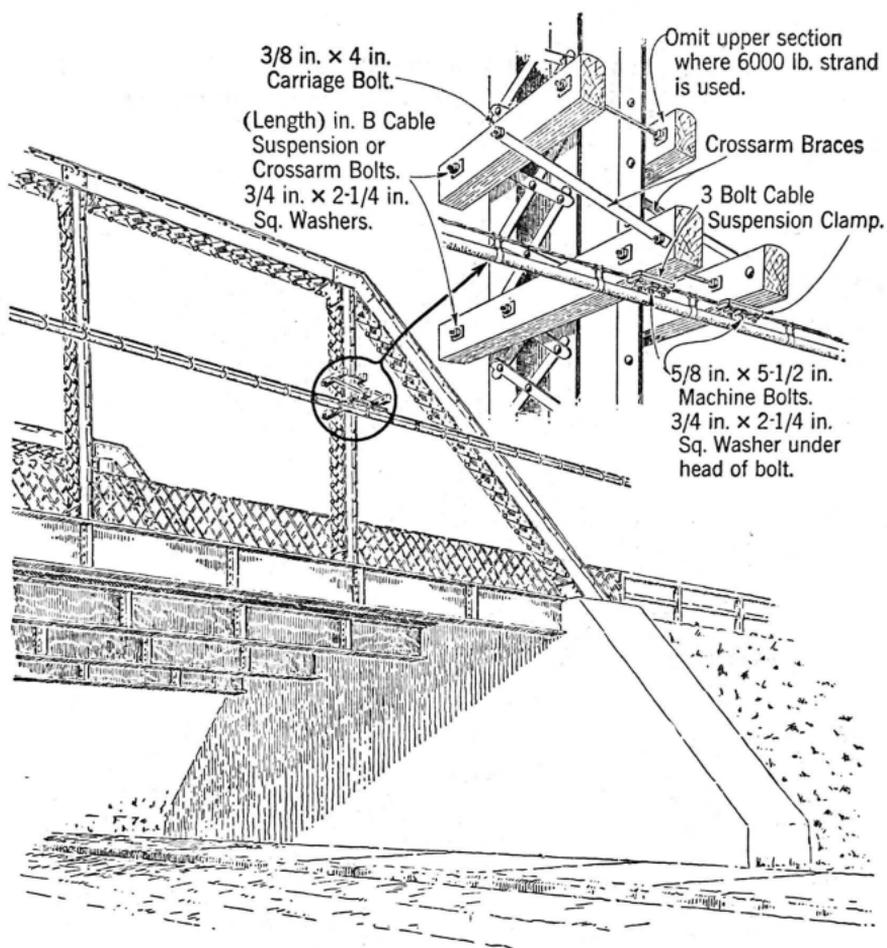
(b) Wooden fixture attached to a longitudinal member of bridge structure.



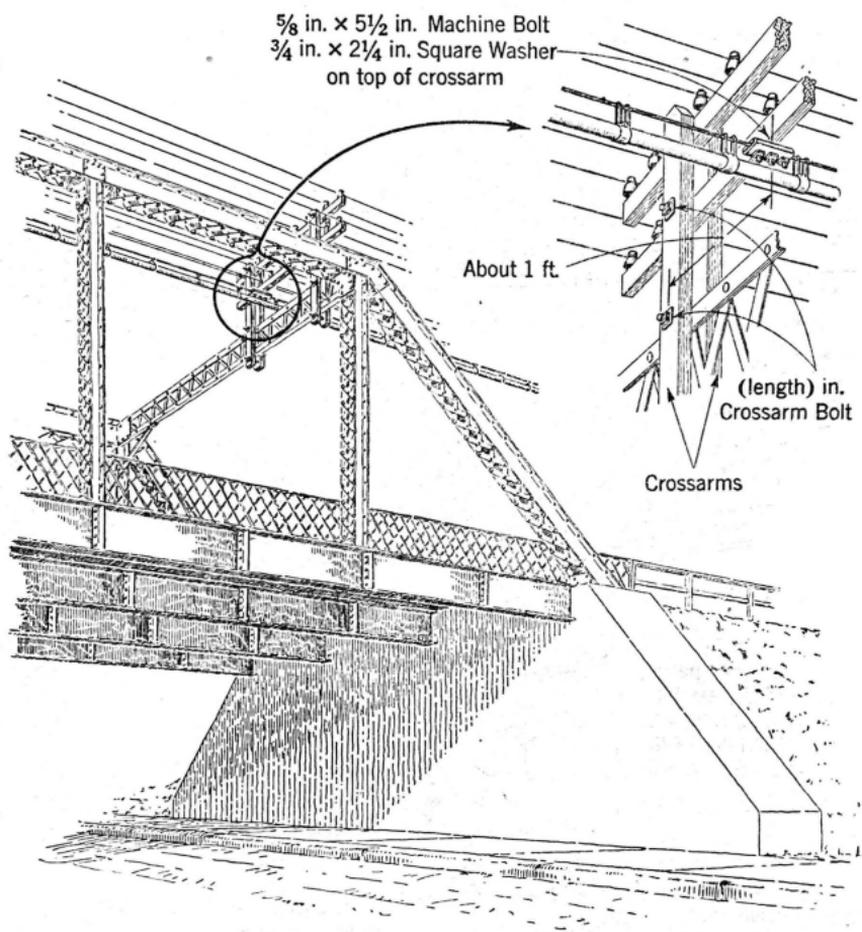
(c) Wooden fixture attached to a vertical member of bridge structure.



(d) Where greater clearance is required than is provided in (c), use the following method.



(e) Where there is an existing fixture for supporting aerial wires, attach the cable to a crossarm of the fixture as shown below.

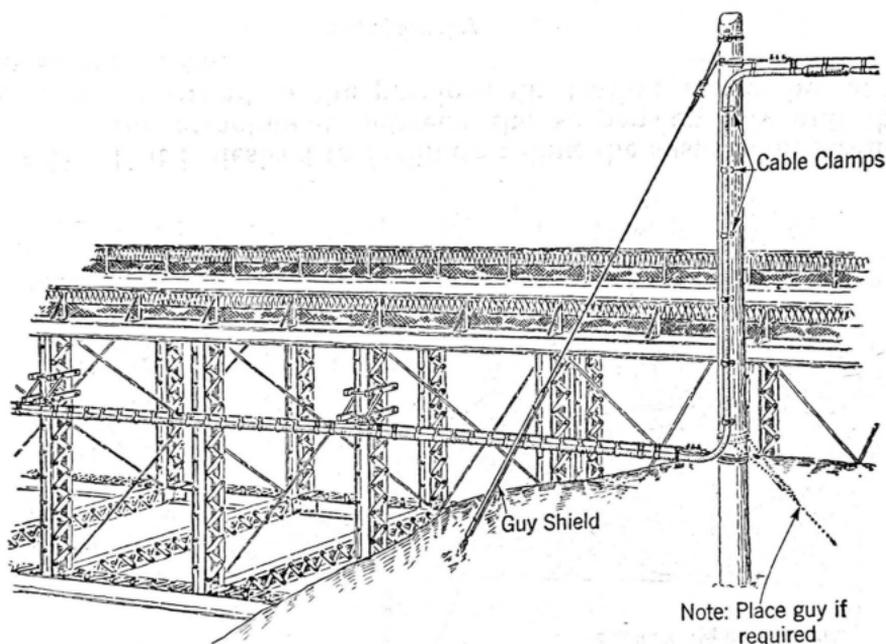


4.03 Wooden Structures.

(a) Attach strand directly to the structure.

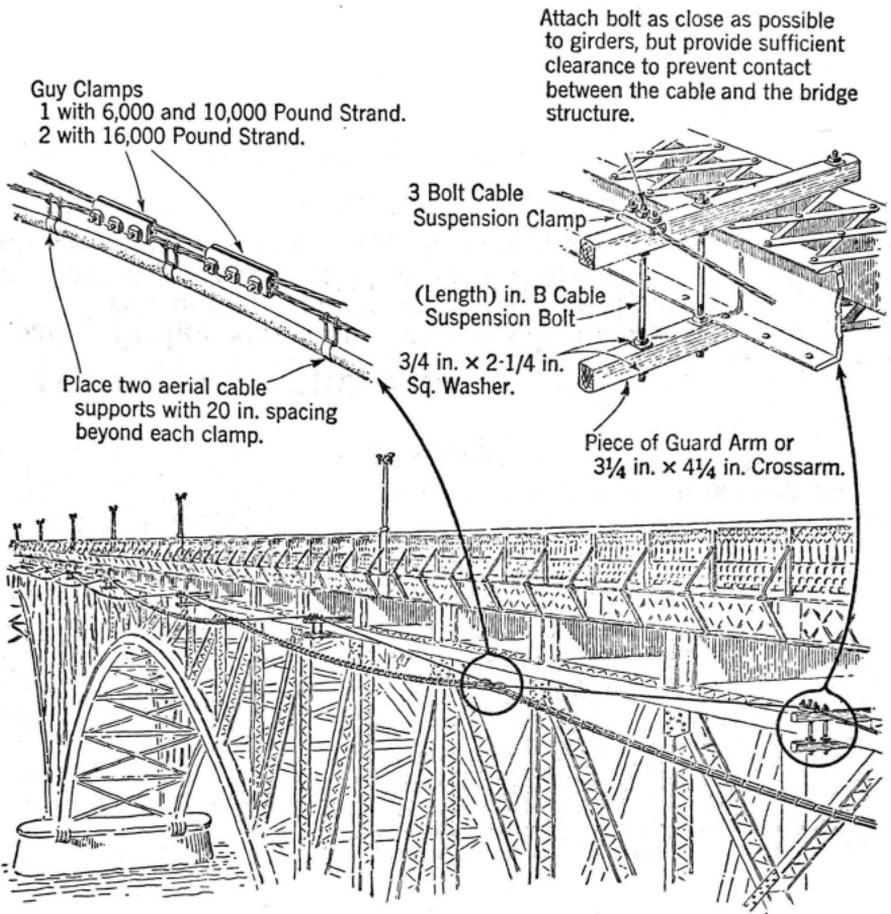
5. EXTENDING STRAND FROM POLE TO BRIDGE

5.01 Where the strand and cable can not be graded down to the level of the bridge attachments, the strand shall be dead-ended at the pole and a vertical run of cable shall be placed on the pole as shown in the following. The head guy for the bridge to pole span may be eliminated where the bridge to pole strand is terminated on the pole at a height less than 10 feet above the ground.



6. SPECIAL CONSTRUCTION

6.01 Bridge vibrations may result in crystallization and subsequent failure of the cable sheath. Where it is anticipated that the bridge vibrations will be severe, the catenary type of construction should be used, as shown in the following.



6.02 If it is desired to facilitate riding the suspension strand, the attachment between the suspension guy and the suspension strand in the previous illustration should be made as shown below.

