

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G52.140.1
Issue 1, February, 1957
AT&TCo Standard

AERIAL CABLE

MECHANICAL PROTECTION

Contents	Page
1. General	1
2. Protecting Cable from Trees	1
3. Protecting Cable from Trolley Contact Wires.....	8
4. Protecting Cable from Electric Light Service Drops and Trolley Poles	10
5. Protecting Vertical Runs of Cable	12
6. Protecting Cable from Guys	13
7. Protecting Cable from Blasting Operations	14
8. Protecting Cable at Strand Attachments	14

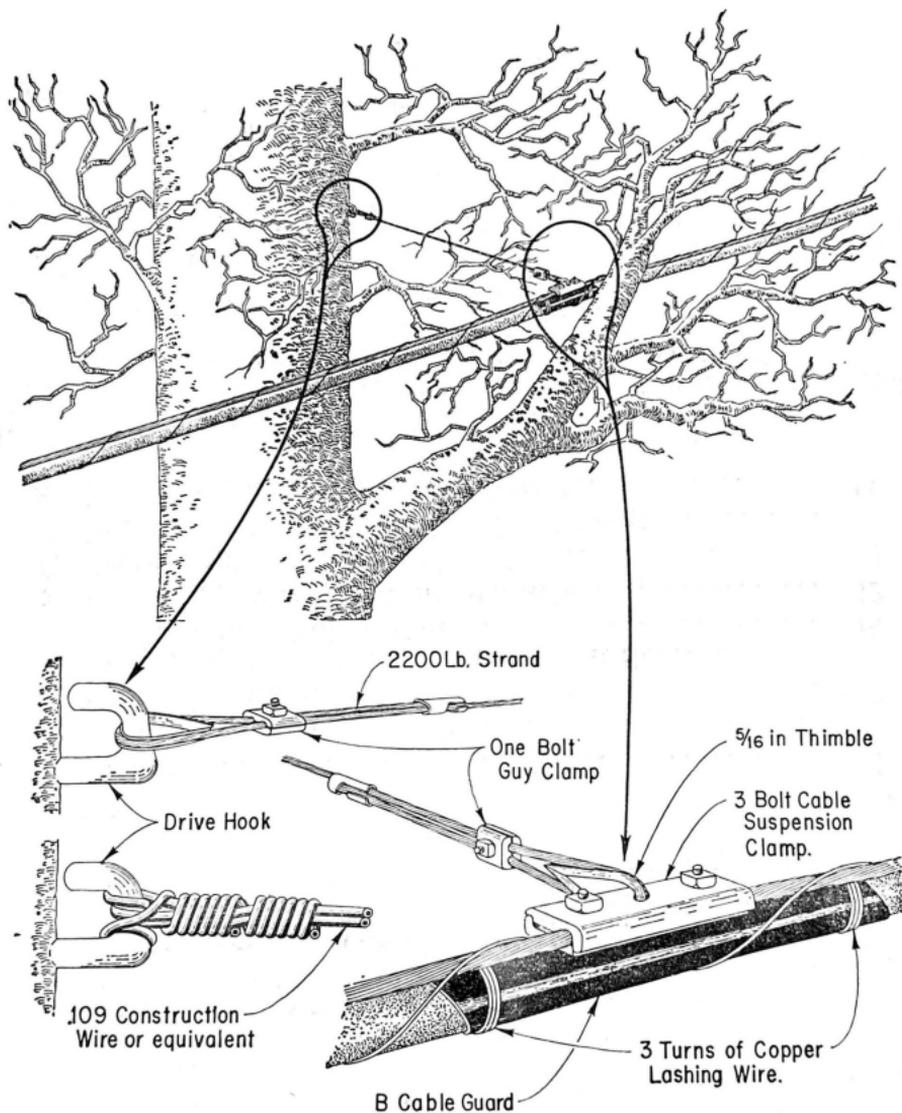
1. GENERAL

1.01 This section covers the mechanical protection of aerial cable and replaces Issue 1 of Section G52.140.

2. PROTECTING CABLE FROM TREES

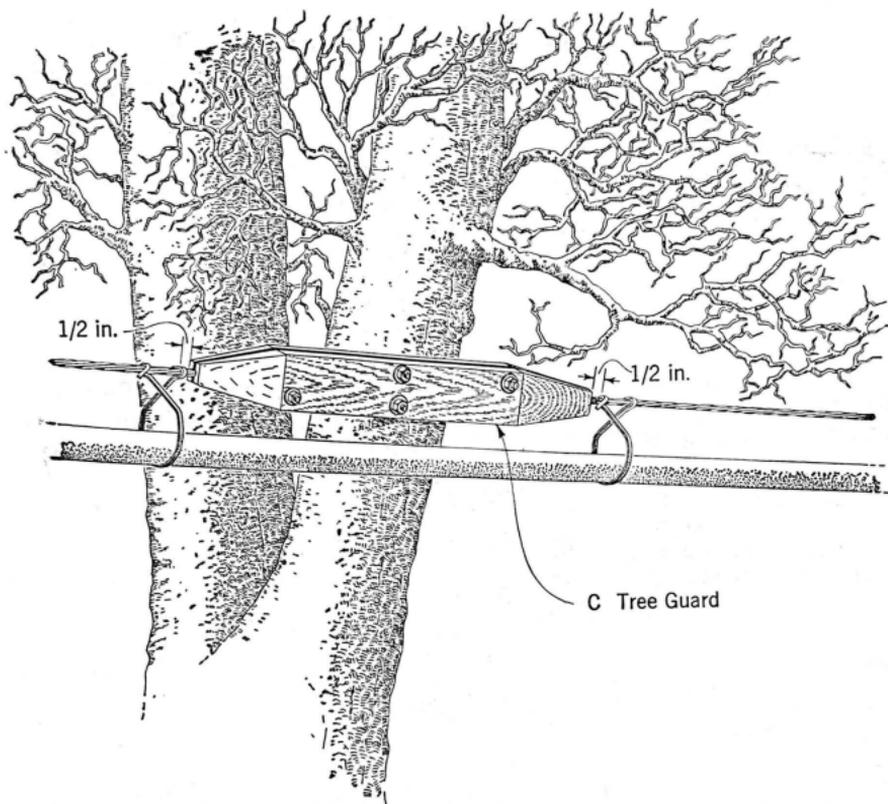
2.01 Where it is impracticable to trim trees or to use extension arms to clear the trees, protect the cable in one of the following ways:

(a) Use a "pull off" only with the approval of your Supervisor or as indicated on the work print. The following illustration indicates the construction where the cable is lashed to the strand. Where the cable is supported in rings, the construction is identical, except that a suspension clamp shield is not required on the cable.

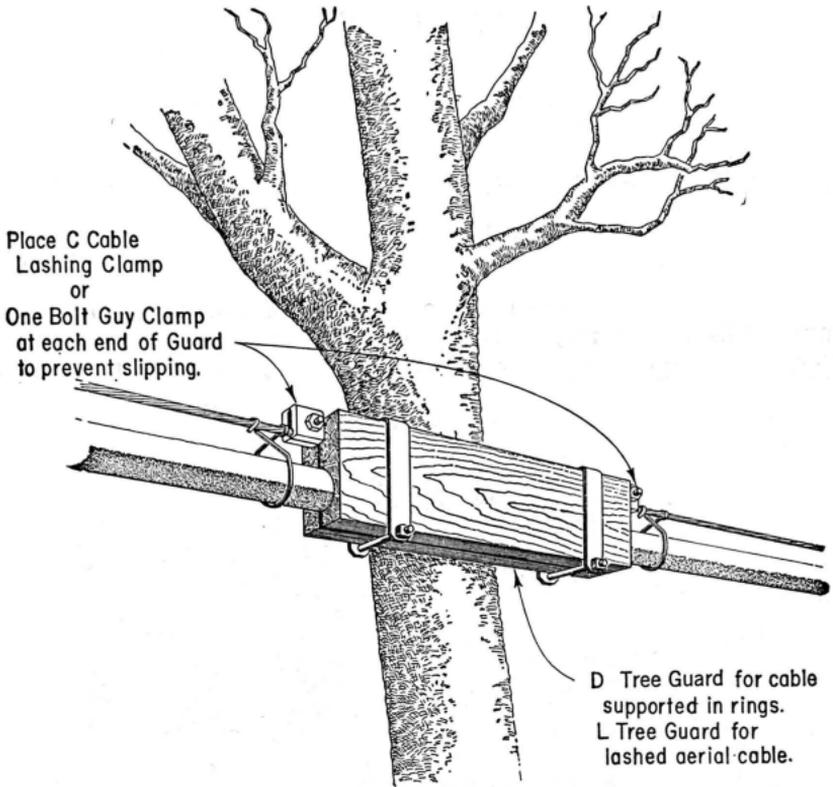


NOTE: B cable guards, lashed cable supports or recovered cable sheath may be used.

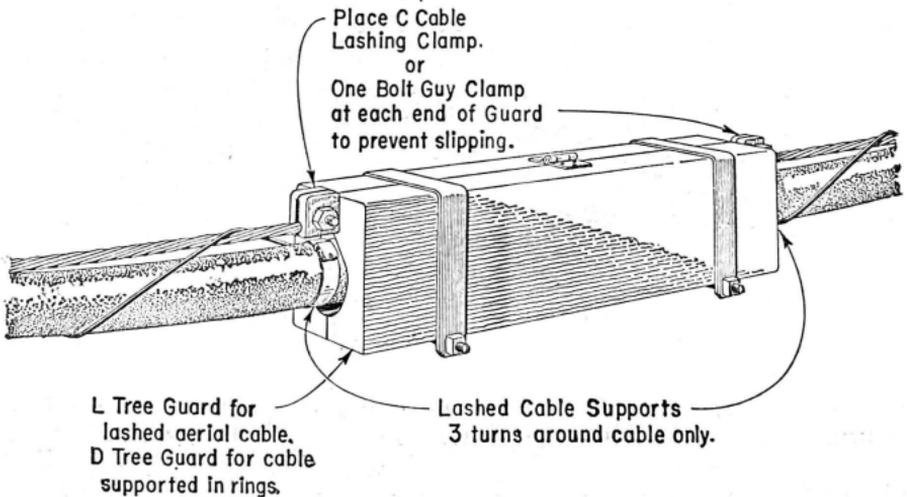
(b) Use a C Tree Guard where clearance for the cable can be provided by placing a guard on the strand. This method can be used only where the cable is supported in rings.



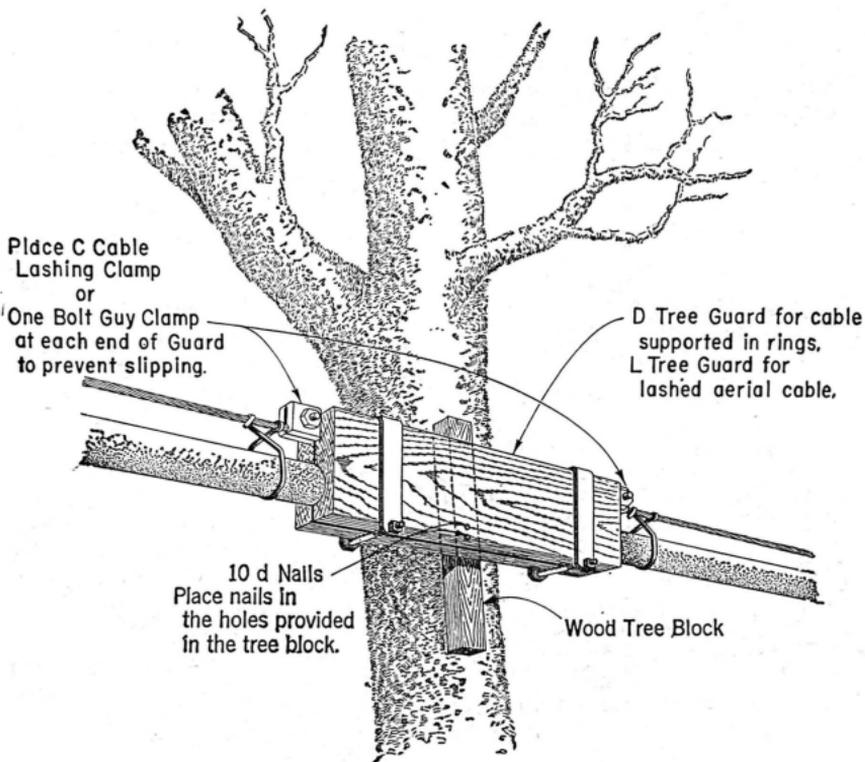
(c) Use a D Tree Guard where the C Tree Guard would not be satisfactory for protecting the ring supported cable from contact with the tree or limb.



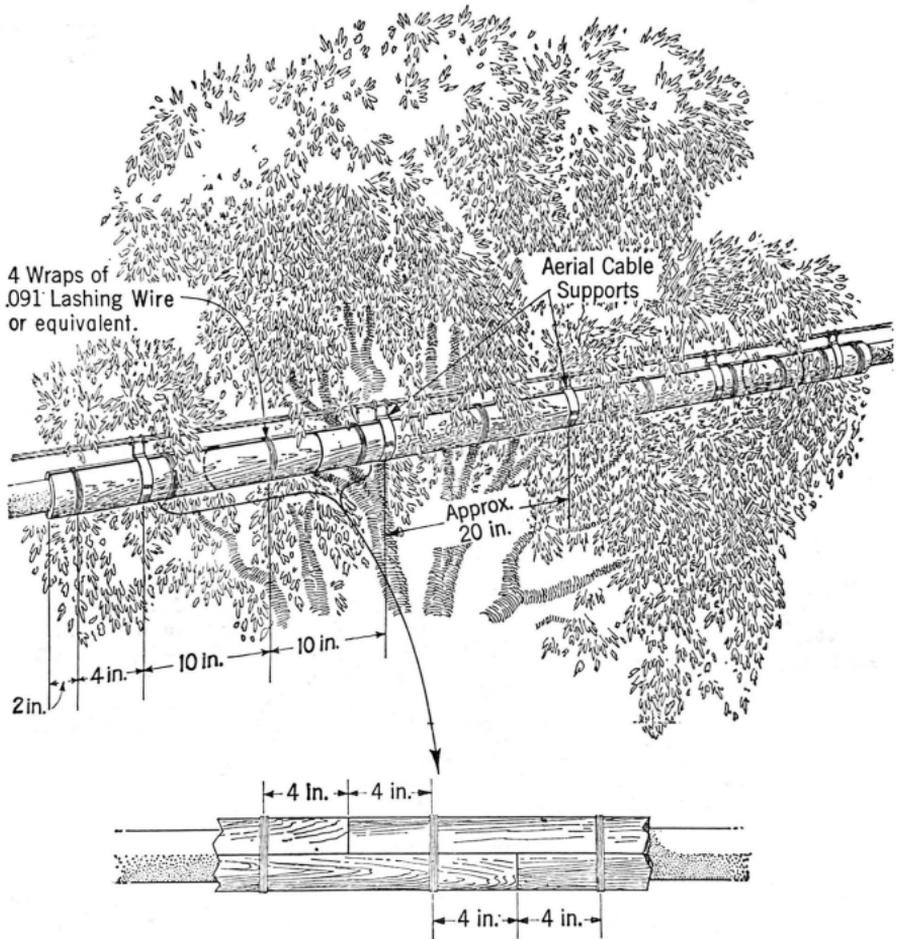
(d) Use an L Tree Guard for protecting a lashed cable from contact with the tree or limb. Where an L Tree Guard is required it shall be installed as indicated in the following:



(e) Where the guard rubs heavily against the tree or limb, in order to avoid injury to the tree, nail a wood tree block to the trunk or limb of the tree at the point of contact with the tree guard. Place the upper end of the block flush with the top surface of the tree guard. This method is applicable to use with the C, D, or L Tree Guards.

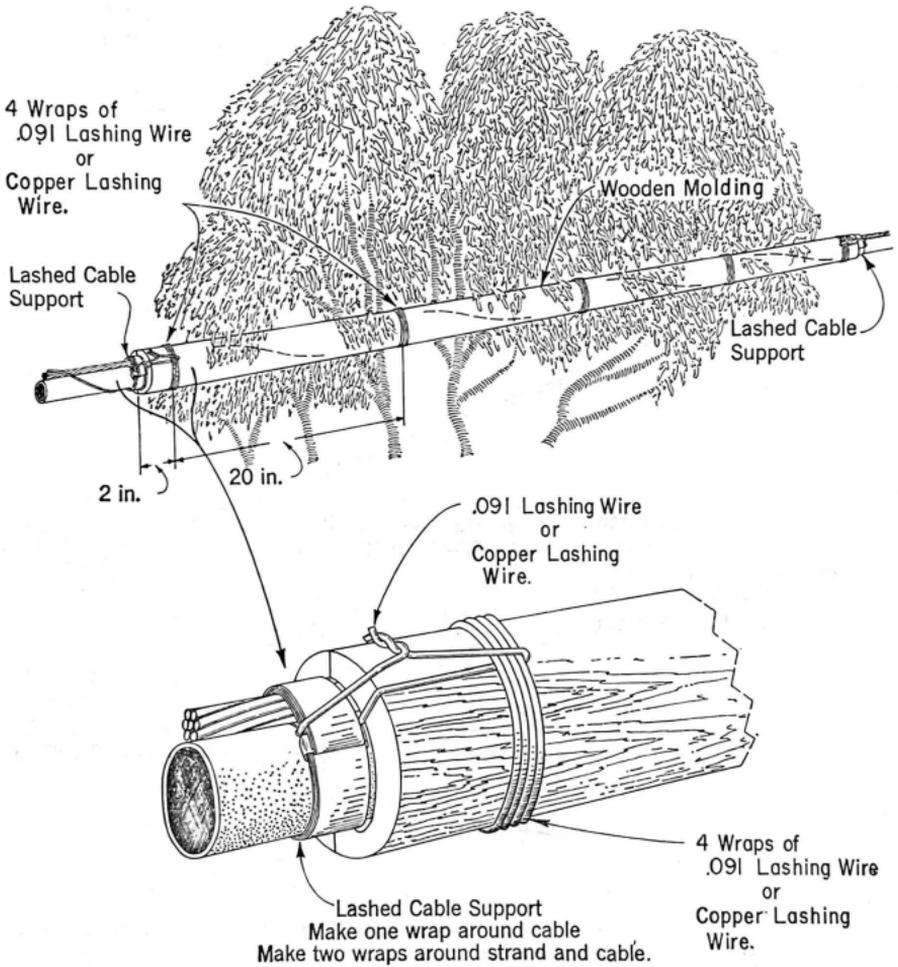


(f) Where adequate protection would not be provided by a C or D Tree Guard and it is necessary to protect ring supported cable through heavy tree growth for several feet, use wooden molding as shown in the following illustration. The sizes of wooden molding are shown in Paragraph 5.02.



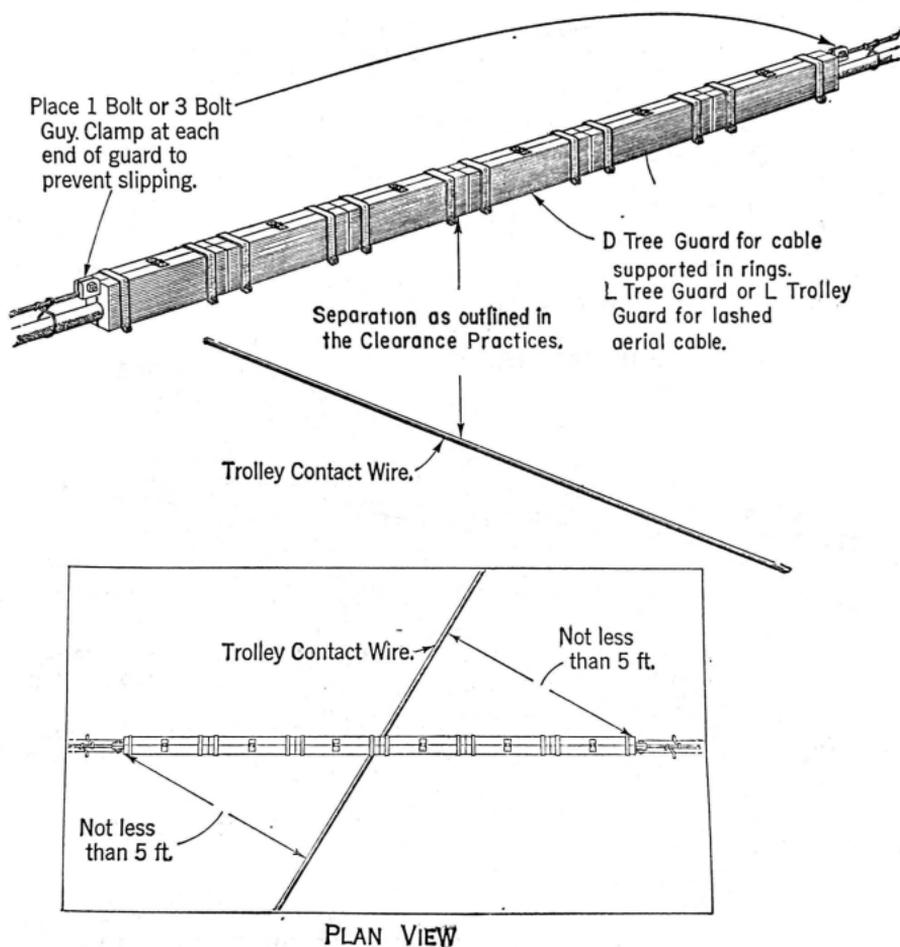
Note: Secure the molding on the cable by means of .091 lashing wire or its equivalent, and support the molding from the strand by means of aerial cable rings or aerial cable supports spaced on 20-inch centers.

(g) Where adequate protection would not be provided by an L Tree Guard and it is necessary to protect lashed cable through heavy tree growth for several feet, use wooden molding as shown in the following illustration. The size of molding used for this should be 1/2 inch larger than the outside diameter of the cable.



3. PROTECTING CABLE FROM TROLLEY CONTACT WIRES

3.01 Where clearance above trolley contact wire specified in the Clearance Practices cannot be obtained or when specified on the work print place two or more D Tree Guards over cable and suspension strand. Place an L Trolley Guard over lashed cable and suspension strand, securing the guard to the strand as shown in Paragraph 2.01 (d).



Note: Extend the protection at least 5 feet each side of the trolley contact wire or wires as shown above.

3.02 The sizes of the D Tree Guards to be used with the various sizes of **ring supported** cable are as follows:

<u>For Use with Cable Not Over (Inches)</u>	<u>Nominal Size of Guards (Inches)</u>
1-1/4	1-1/2
2	2
2-3/8	2-1/2
2-5/8	2-7/8
3	3-1/4

Note: The D Tree Guard is 2 feet in length.

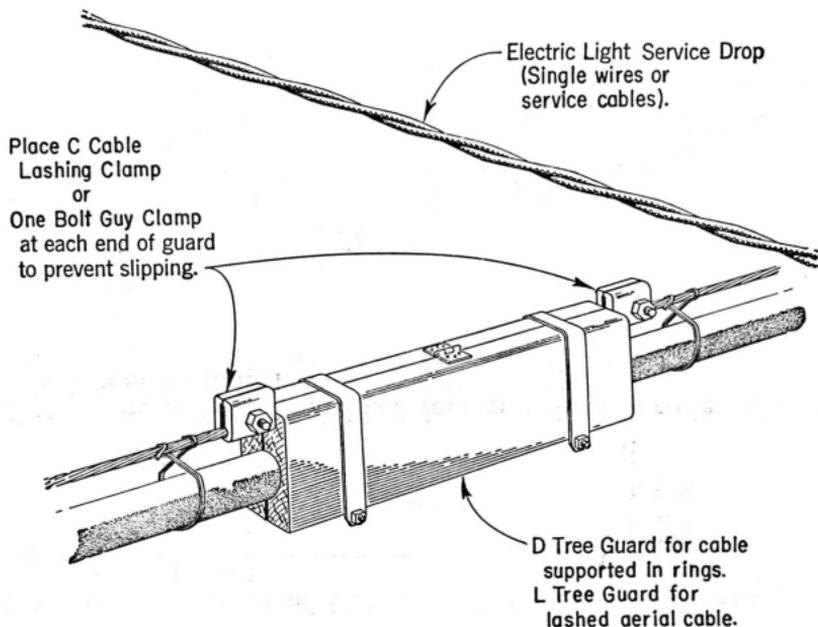
3.03 The sizes of the L Trolley Guards and L Tree Guards to be used with the various sizes of **lashed cable** are as follows:

<u>Maximum Diameter of Cable (Inches)</u>	<u>Size of Guard (Inches)</u>
1-3/8	1-3/4
2	2-3/8
2-5/8	3

Note: The L Tree Guard is 2 feet and the L Trolley Guard is 5 feet in length.

4. PROTECTING CABLE FROM ELECTRIC LIGHT SERVICE DROPS AND TROLLEY POLES

4.01 Where there is a possibility of contact due to sagging of an electric light service drop place a Tree Guard as shown in the following. Where the cable is lashed, place the L Tree Guard as shown in Paragraph 2.01 (d).

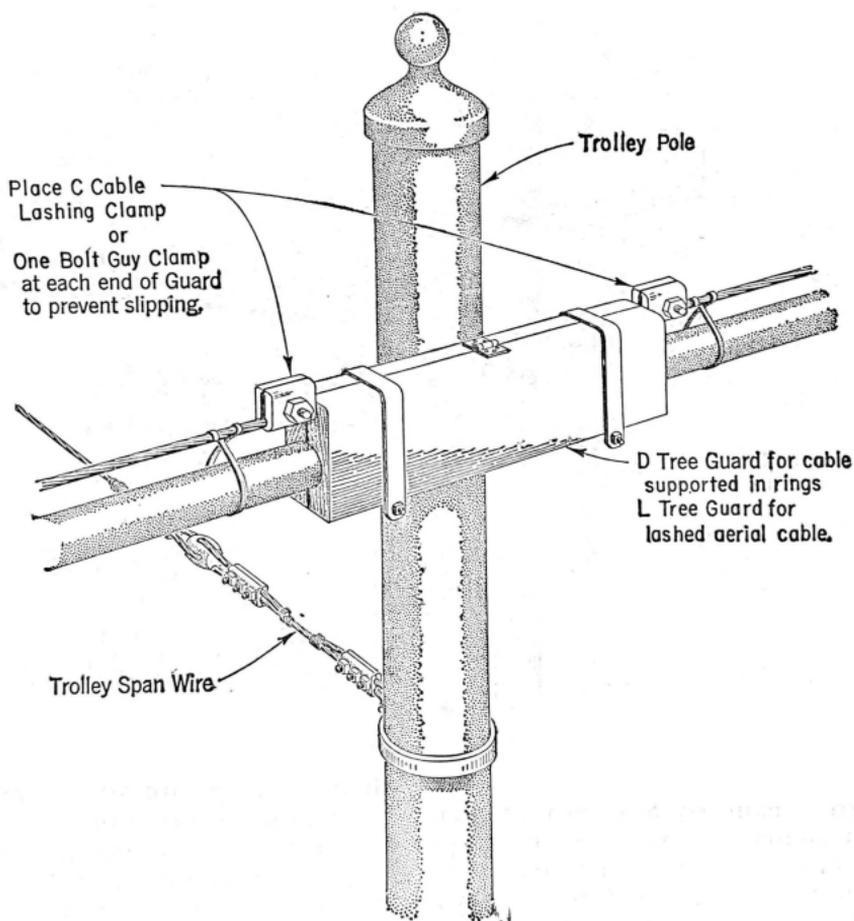


Note: Where a single Tree Guard does not afford adequate protection place two or more Tree Guards.

4.02 Where there is a possibility of the cable swinging into contact with an iron trolley pole supporting a span wire, consideration should be given to one of the following:

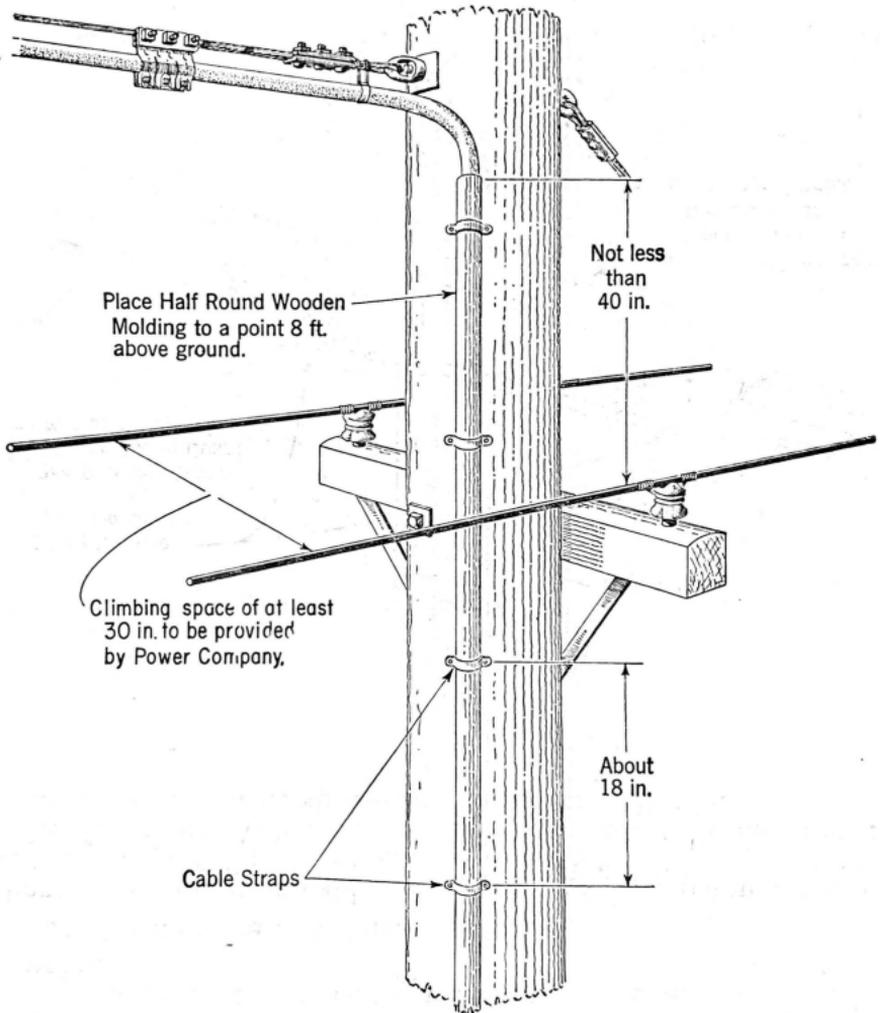
- (a) Place cable extension arms on the poles to provide adequate clearance between the cable and the trolley poles.
- (b) Reroute the pole line.

Where it is not practicable to either place extension arms or reroute the pole line, Tree Guards should be placed as shown in the following. Where the cable is lashed, L Tree Guards should be attached as shown in Paragraph 2.01 (d).



5. PROTECTING VERTICAL RUNS OF CABLE

5.01 Where the cable passes between trolley feeders or power wires on jointly used poles, protect the cable with Half Round Wooden Molding as shown in the following. Two sections of Half Round Molding are required to encircle the cable and these shall be secured to the pole by means of Cable Straps and 2-inch Strap Nails.

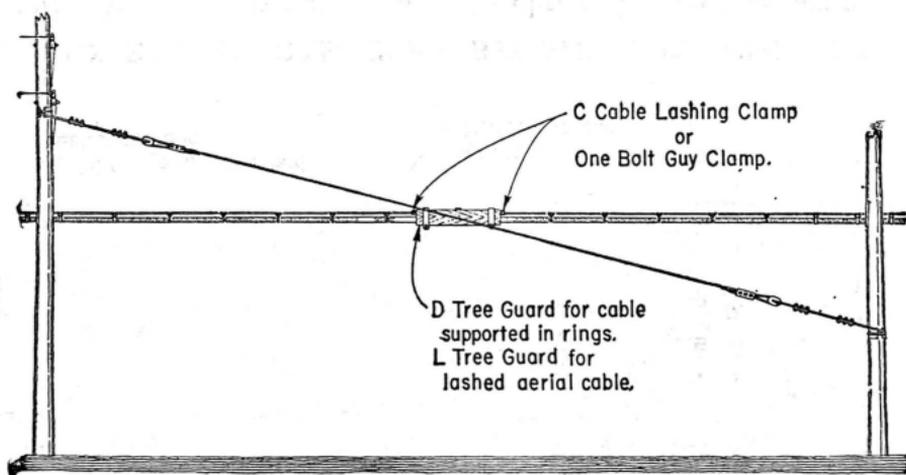


5.02 The following table shows the types of molding and the code numbers of the Cable Straps that are required with the various sizes of cable:

<u>Outside Diameter of Cable (Inches)</u>	<u>Half Round Molding Size (Inches)</u>	<u>Cable Strap (Code Number)</u>
1/2	1/2	20
9/16 to 1	1	30
1-1/16 to 1-1/4	1-1/4	36
1-5/16 to 1-1/2	1-1/2	36
1-9/16 to 2	2	56
2-1/16 to 2-1/2	2-1/2	56

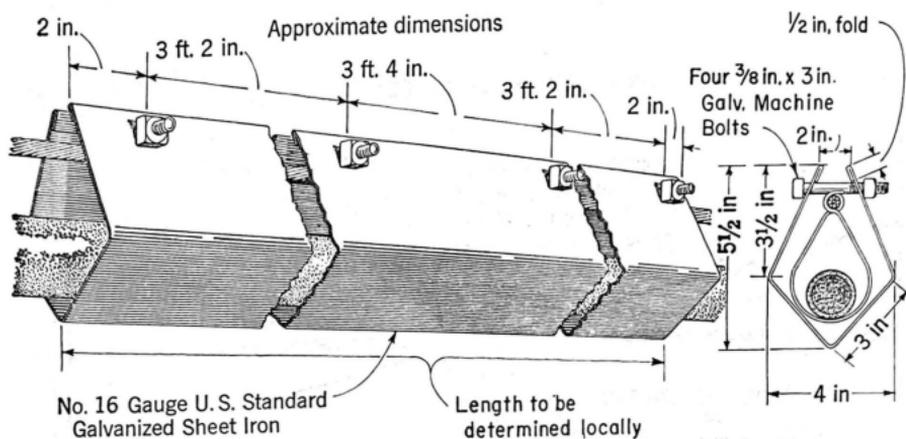
6. PROTECTING CABLE FROM GUYS

6.01 To avoid contact between the cable and a guy, place a Tree Guard on the cable as shown in the following illustration.



7. PROTECTING CABLE FROM BLASTING OPERATIONS

7.01 Where there would be a possibility of damage to aerial cable resulting from blasting operations, place a metal guard as shown. The guards should be made locally in accordance with the dimensions shown in the following illustration.



8. PROTECTING CABLE AT STRAND ATTACHMENTS

8.01 Where it is not possible to obtain $\frac{1}{2}$ inch separation between aerial cable and the pole or from any strand attachment, place a B Cable Guard over the cable to protect against abrasion.

8.02 The B Cable Guard is an eight-inch length of split polyethylene tubing furnished in four sizes as follows:

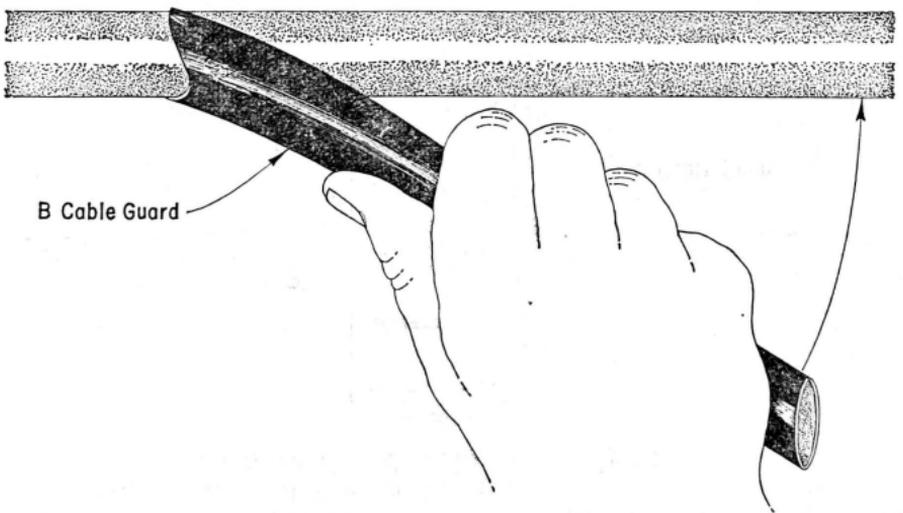
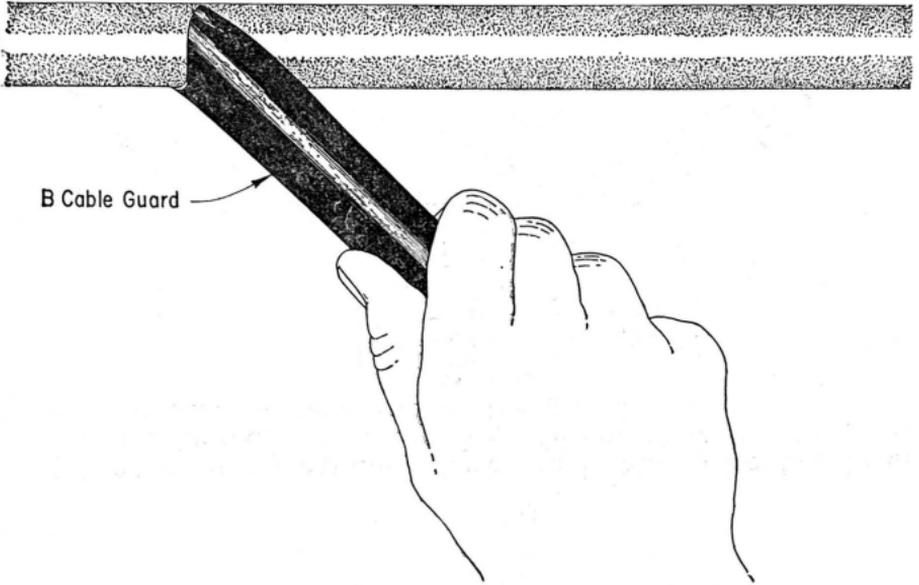
<u>Size</u>	<u>Cable Diameter (Inches)</u>
$\frac{1}{2}$ in.	$\frac{5}{8}$ in. or smaller
1 in.	$\frac{5}{8}$ in. to 1 in.
1- $\frac{1}{2}$ in.	1 in. to 1- $\frac{3}{4}$ in.
2 in.	1- $\frac{3}{4}$ in. or larger

The $\frac{1}{2}$ in. and 1 in. have ends cut at an angle of 60° to facilitate installation in cold weather. The ends of the 1- $\frac{1}{2}$ in. and 2 in. sizes are cut square.

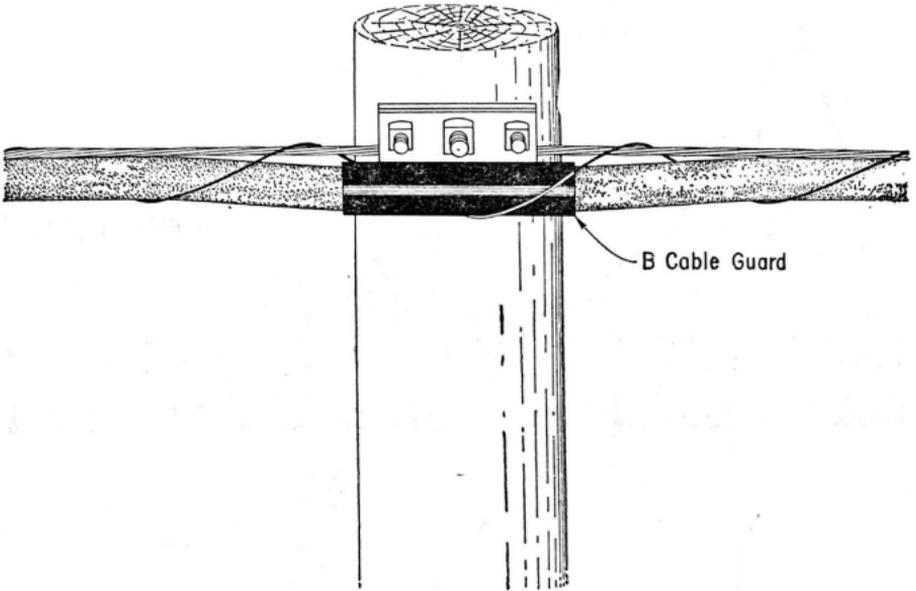
8.03 B Cable Guards which cover approximately three quarters of the circumference of the largest cables and overlap approximately one-quarter of the circumference of the smallest cable with which they are to be used, furnish satisfactory sheath protection.

8.04 Install the B Cable Guard as follows:

- (a) 1/2 in. and 1 in. B Cable Guards with the ends cut at 60° are held at right angles to the cable with the slit pointed end forward. Push the guard so as to cause the pointed ends to ride over the cable. Move the lower end of the guard up to the cable forcing the guard over the cable.



(b) Where the lashing wire is continuous, place the Cable Guard around the cable and under the lashing wire at the location where the abrasion is likely to occur.



(c) At corner locations where the lashing wire has been terminated, secure the B Cable Guard with 3 turns of lashing wire at each end of the guard.

