

CHAPTER 26 – WOOD POLE SPAN WIRE TRAFFIC CONTROL SIGNAL SYSTEM

WOOD POLE SPAN WIRE TRAFFIC CONTROL SIGNAL SYSTEMS

A wood pole span wire traffic control signal system differs from a mast arm steel pole traffic control signal system in that it uses wood poles and span wires to place the signal indications in the driver's line of sight.

26.1 Wood Pole Span Wire System Considerations

In most cases, this type of traffic control signal system is meant to be in place temporarily during construction. They provide great flexibility in signal head placement to accommodate traffic switches associated with construction. They are also significantly less expensive to install because they have very little underground conduit as most of the electrical cables and conductors are attached to the span wire and conduit attached to the wood poles. They present few conflicts for road construction when properly placed.



Figure 26-1: Wood Pole Span Wire Signal

Specific details for constructing wood pole traffic control signal systems, such as department furnished materials, contractor furnished materials, and installation requirements, can be found in the contract documents for each project and must be carefully read and understood.

The MnDOT district traffic office will stake pole locations and other traffic control signal system components.

26.2 Materials

When a 5-section vehicle signal head is required on a MnDOT span wire traffic control signal system, a 5-section cluster head (dog house style) must be used.

When installing span wire traffic control signal systems, it is very important to install the S-hook breakaway device at the signal head as shown in Figure 26-3. If the 1/4-inch bottom span wire stabilizer is snagged, the bottom cable assemblies will fall clear of the intersection.

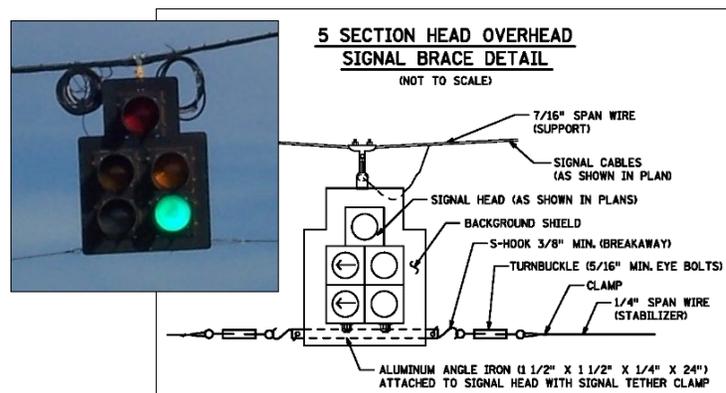


Figure 26-2: 5-Section Signal Head

Materials used for span wire traffic control signal systems are subject to MnDOT specifications and inspection.

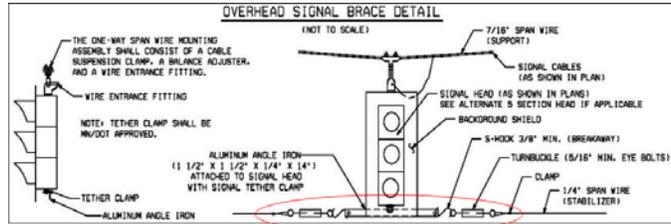


Figure 26-3: S-Hook Breakaway Device

26.3 Installation Procedures

All electrical cables and conductors installed above ground, except where attached to overhead span wire, must be installed in conduit attached to wood poles, metal poles, cabinets or other structures or must be run inside these devices.

Conduit must be securely fastened to wood poles with appropriate type conduit 2-hole straps that meet the current edition of the National Electrical Code (NEC).

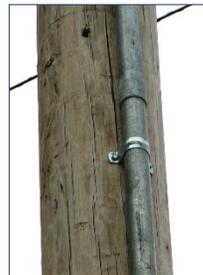


Figure 26-4: Conduit



Figure 26-5: Above Ground Electrical

Wood poles must be placed in the ground to a depth of approximately 20 percent of the pole's total length (Standard Specification 2565.3N).

The drilled shaft excavation must be approximately eight inches larger than the diameter of the base of the pole and free of loose material to allow room for compaction.



Figure 26-6: Wood Pole Length

The pole must be hoisted into place, without damage, and plumbed or raked as directed by the engineer. Backfill material must be selected using earth or sand that is free from rocks and organic material. The pole is placed, moistened, and thoroughly compacted in eight-inch lifts.

The wood pole must not display a void area between the pole and the backfill when placed under load.

Electrical cable and conductors installed overhead in conjunction with span wire must be attached to the span wire using either metal or UV resistant black nylon straps. The nylon straps must have a minimum loop tensile strength of 250 pounds. Straps must be spaced a maximum of 18 inches apart or by lacing. The ends of the straps must be bent around the cable and cut off to present a neat appearing installation (Standard Specification 2565.3J.5).



Figure 26-7: Pole Installation

Where electrical cables and conductors are to be installed overhead, unsupported and spanned between wood poles or supports, sufficient slack must be provided (generally 5% of the span length).

When it is necessary to completely remove an existing traffic control signal system, it is desirable to construct a span wire traffic control signal system so that the intersection can remain signalized while the new traffic control signal system is being constructed. The components of the new traffic control signal system must be staked before the wood pole system can be staked to prevent any conflict with the construction of the permanent traffic control signal system.

Wood pole traffic control signal systems can be easily removed at a low cost when the new traffic control signal system is completed.



Figure 26-8: Cable and Conductor Installation



Figure 26-9: During New Traffic Signal Construction

26.4 Chapter 26 Resources

- MnDOT Standard Specifications for Construction 2565.3J.5, 2565.3N

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