

TEO LIGHTING COMMITTEE MEETING MINUTES

February 16, 2016

Overhead Sign Lights

Peter Skweres asked the committee if we wanted to remove the current HPS and Metal Halide sign lights from the MnDOT Approved Products List (APL). The committee agreed to remove them. OTST will search for an LED fixture to be used in this application. This will not be top priority so if a project comes up that needs a sign light please let OTST know as soon as possible.

Transient Suppression in Lighting Service Cabinets

Peter Skweres suggested it might be a good idea to add transient suppression to MnDOT's lighting cabinets. This would help protect against lightning and power surges. Members of the committee agreed this would be a good requirement for MnDOT L1, L2, RLF and A & B cabinets. The specifications for the cabinets will be revised to include transient suppression.

Available Fault Current Calculations

Peter expressed concerns about MnDOT cabinets not having the required available fault current label provided by the contractor on them. It seems this requirement is not getting enforced. The requirements for this label are in the Spec book 2545.3X and in the Special Provisions. It was suggested that we should provide a label to be filled out by the contractor. Peter will work on creating a label format to be used.

LED High Mast Luminaire Update

Sue Zarling reported there is still not an LED high mast fixture that can match the light level provided by the current HPS fixtures on MnDOT's APL for existing replacements. OTST Lighting continues to evaluate any LED fixtures submitted by various manufacturers. Sue also discussed tunnel lighting and said that MnDOT currently does not have an APL for tunnel fixtures will not go on an APL. Tunnel lights must be specified for each project specifically. At this time changing tunnel lighting out to LED just to make the change does not make sense, The change should be made if the lighting in the tunnel needs updating.

PVC Coated RSC

Specifications for PVC coated RSC are now in the 2016 Spec. Book 2545.2C, 2565.3D.6 + 3D.7, 3805. PVC coated RSC is required on bridges for MnDOT signal and lighting systems. This would include hanging under the bridge and cast in the concrete.

RLF Cabinet Pad Detail

Peter suggested the RLF Cabinet Pad Detail should become a Standard late. Committee members agreed.

Kile told the group that he has been using the L1 cabinet instead of the RLF cabinet. They have been coming in less expensive.

Pre-Cast Concrete Foundation Requirements

Alex Govrik reported the requirements for installing pre-cast foundations are now in the Special Provisions. Foundations must be installed in 30 in to 36 in dia. drilled shafts. Backfilling with the in -place soils is no longer acceptable instead a fine filter aggregate in 6 in lifts or lean mix backfill must be used.

Removal of Abandoned Lighting Cable

Abandoned lighting cable is not being removed on some construction projects. The cause of this may be that it isn't being enforced or language in plans or Special Provisions is not clear. OTST Lighting and Signals will review and update the current language in Special Provisions.

Sue met with the Resident Engineers to let them know about the language and ask for their help in enforcing this. There was some resistance on the part of the Resident Engineers. We may need to meet with the Construction Office and provide a cost analysis of removing the cable versus the ongoing costs associated with not removing it. We need to get construction buy in or support of this.

It was also suggested that we might want to add language of what has to be done with the cable if it must be left in for some reason. If cable is abandoned it needs to be addressed in some manner so that we are able to locate it in the future.

Proposed language will be run by the districts for comments.

Cell Library

Phil Stohr reported some of the changes/additions to the Lighting Cell Library. The complete list is listed below:

Base J - DELETED
DIPB - DELETED
Base D - DELETED
Base E - DELETED
Base F - DELETED
Base G- DELETED

Cell name: Base I CHANGED name to STEEL E H
Description: 40 FT STEEL BASE CHANGED description to SCREW IN FOUNDATION
Change: redrew detail

Cell name: Base H CHANGED name to STEEL P
Description: 10 FT STEEL BASE CHANGED description to SCREW IN FOUNDATION
Change: redrew detail

Cell name: Light B

Description: New Lighting Unit
Change: scaled up drawing

Cell name: Light K
Description: Single Vertical Mount
Change: Scaled up drawing

Cell name: Light L
Description: Vertical back to back
Change: Scaled up drawing

Cell name: Light M
Description: Vertical Side by side
Change: Scaled up drawing

Cell name: Light N
Description: Twin Post Top
Change: scaled up drawing

Cell name: UP2 CHANGED name to UPLED2
Description: UNDERPASS ON PIER CHANGED to LED UNDERPASS ON PIER
Change: redrew detail

The line style for and armored cable is now available – LBUR and LBUR Proposed

If anyone has something specific to be worked on get it to Phil.

Steel Screw-In Foundations

Alex Govrik reported that Millerbernd steel screw-in foundations have been taken off MnDOT's Approved/Qualified Products List (APL). The Chance-Hubbell steel foundation now on the APL features a helix with a pilot point which helps in the installation process. The foundation base plate for the steel Design E and H has drilled and tapped threaded holes to accommodate fully threaded hex head bolts instead of slotted holes with carriage bolts. The Design P uses slotted holes in the base plate to use with carriage bolts.

Requirements for installation and the approval for the contractor to use steel screw-in foundations are in the Special Provisions. Designers should include the Steel Screw In Light Foundation Detail Sheet found in the Lighting Cell Library if they are calling for this foundation in their plan. ~~Alex added that~~ The steel screw in Design H foundation now meets AASHTO requirements for breakaway and breakaway aluminum light poles with the frangible transformer base can be used with these new steel screw-in foundations because the foundation base plate uses drilled and tapped treaded holes with the fully threaded hex bolts.

Round Robin

Sue Zarling mentioned that the Lighting Design Manual will be revised so it will be ready for a future Lighting Design Course.

John Pederson wondered if the fixture listed on the APL for use in a 5 lane situation can still be used. Sue said these fixtures will be evaluated as needed depending on if a project arises that might need this type of fixture. They are still available for use on the 35W project that was already let and that they were placed on the APL for.

The question was asked if surge suppression can be retrofit into existing cabinets. It is stated that if surge suppression was desired it would be better to change out the cabinet since there could be other things that are an issue with retrofitting.

Alex brought up the problem of stress cracking and corrosion on stainless steel poles. Both Millerbernd and MnDOT ran independent investigations tests using engineering firms to perform an analysis on samples out in the field to find the cause of the corrosion. . The Millerbernd analysis report discovered cracking and corrosion was appearing between the slip fitter and pole shaft area. The stress was created by bending the 16 sided pole and stress cracking can occur when the pole shaft and base collar are assembled together. Overtime salt and moisture are present between the shaft and base collar causing crevice corrosion where there is exposed stress cracking. The graphite lubricant used on 3-4% of poles to assist in the assembly may have contributed to the corrosion. Millerbernd has changed from using graphite to a dish detergent soap as a lubricant when they slip the shaft onto the pole base collar. . This corrosion will continue to be monitored by MnDOT and Millerbernd. . Cindy mentioned that they had a pole with vertical cracking that Mike P replaced.

Cindy Dittberner asked who Districts should contact if they want help with a project. Sue explained that there is a shared services form that needs to be filled out and submitted to Mike Gerbensky if the district is requesting help with a new design. A separate form is required for each project that a district submits. Districts should still contact Sue or Phil regarding lighting questions related to designs they are doing at the district or any other lighting questions or review that they have.

Mark Korwin-Kuczynski asked if steel screw in foundations would become a Standard Plate. Steel screw-in foundations are on the APL and will not become Standard Plates. The details for these foundations (Design E & H, Design P) can be found in the Lighting Cell Library (newlight.cel). If steel screw-in foundations are an option for a designer's project, the detail should be included in the plan as well as updated verbiage in the Special Provisions. Details could possibly become standard plate in the future after all the tweaks have been worked out.

Adam Wellner proposed a change in the special provisions language for locating responsibilities that he has been using in his district. He said he would send this language out for members to review. Since the TEO meeting, Adam sent an e-mail (below) with his proposed language:

“The form below shall be filled out by the contractor’s representative and provided to the engineer at the pre-construction meeting, a copy of and the completed form should be sent to the following:”

Adam asked Sue about a request for available funds for replacing HPS fixtures with LED fixtures. Sue has submitted a list of districts that are requesting funding and is still waiting for an answer. She will send out an update once she knows more information on this funding.

Adam was looking for updated information on amperages for LED fixtures to use when calculating voltage drops. Since all LED’s use a different amount of energy it was decided that a maximum should be determined to be used for voltage drop purposes. There is a maximum wattage allowed in the luminaire specifications that should be used for the worst case.

Adam also wanted to know if MnDOT was still using 3% as the limit on voltage drop in a circuit. The National Electrical Code suggests with an (Informational Note) a value of 3% of the system voltage as a limit to the amount of voltage in a lighting branch circuit. The TEO Committee briefly discussed this issue, but agreed to table it until next meeting.