BOX GIRDER MAINTENANCE LIGHTING NOTES:

1. Submit shop drawings to the Engineer detailing the layout of the maintenance lighting system for the entire structure.
2. The shop drawings must include, but not be limited to, the following items:
   a. Conduit layout and installation details through diaphragms, around post-tensioning (PT) ducts, inter-bracing and cross frames as necessary.
   b. Conduit access through box girder and diaphragms with minimum 1” clearance in all directions.
   c. Conduit expansion fitting details.
   d. Fastener details for the interior electrical system.
   e. Single line diagram showing mini-power centers, switches, contactors, timers, etc.
   f. Mini-power center details including circuit breaker details.
   g. Mini-power center mounting details if required.
3. Ensure installation meets all requirements of the latest edition of the National Electrical Code (NEC) and local ordinances.
4. Install grounding in accordance with NEC, Article 250. Maintain separation between 480V and 208V Conductors / Conducts throughout.
5. Furnish all labor, equipment, materials, and incidentals required for a complete and functional installation.
6. Furnish and install piping and valves for the maintenance lighting system.
7. Furnish and install polyvinyl chloride (PVC) conduit in conformance with UL Section 651 NEC Section 347 and NEC-15C-2.
8. Use only Type MIW stainless steel supporting hardware. Provide minimum 3/8” x 3” fasteners. For concrete or SPF form mounting, provide anchor bolts (expansion, drop-in or adhesive) suitable for dynamic loading (due to vibration caused by traffic). Install fasteners to avoid conflicts with reinforcing steel and PT ducts. For structural STEAM mounting, do not attach fasteners to main members, i.e. webs and flanges.
9. Furnish power distribution at 480V 3x1/0, with step down transformers at regular intervals. Furnish 7.5 kVA mini-power centers with eight 20A breakers as the step down transformer, feeding a maximum of 20 lamps and 20 receptacles. Each mini-power center will provide power to no more than 1000’ of bridge, preferably 500’ on each side of the mini-power center. 480V top feed, 208V bottom feed to maintain separation.
10. Furnish and install lighting contactors to switch the 480V 3x1/0 feeding the mini-power centers.
11. Furnish and install copper conductors, Type HWW. Do not use any conductor larger than #1/0 AWG.
12. Provide enough slack in all-pipe cable terminations to allow for minor shifting at the structure.
13. Furnish and install National Electric Code Man-made (NECM) Type 4X (non-metallic) surface mounted boxes sized in accordance with the NEC.
14. Furnish and install 200V duplex receptacles (GFI, NECM Type 5-20R) in non-metallic outlet boxes at 50’ maximum on centers. Provide each receptacle with a gasketed weather protective outdoor plate. Maximum wire size to connect to receptacles is #10 AWG.
15. Furnish and install surface mounted, fully enclosed, incandescent light fixtures with gasketed clear globes and wire guards at 50’ maximum on centers. Provide 100 watt, 120 volt, vibration resistant and brass base incandescent lamps.
16. Locate switches at each end of each span and at every access door.
17. Provide six hour reset timers for each circuit to turn off the lighting system automatically.
18. Include the cost of the box maintenance lighting system in the pay item for Lighting - Inside Box Girder.

Tabulate items in the plans.

INSTRUCTIONS TO DESIGNER:

1. This Standard does not show all structure elements and is not intended to show the exact location of conduit runs. Coordinate these with the other trades to avoid conflicts. Coordinate all lighting fixtures and equipment locations with the Structure Plans.
2. Tabulate all the items and include in the TIERRA FORTC, forbid purposes, the pay items for the maintenance lighting system, such as conductors, conduit, electrical work, etc.

CROSS REFERENCES:
1. For Maintenance Light Details, see Sheet 2.
2. For actual bridge section, see Structures Plans.
CONCRETE BOX GIRDER BRIDGE SECTION THRU END BENTS

LIGHTING DETAILS FOR CONCRETE BOX GIRDER BRIDGE

SECTION A-A

SECTION B-B

SECTION C-C

CROSS REFERENCE
1. For Box Girder Maintenance Lighting Notes see Sheet 1.

STEEL BOX GIRDER BRIDGE SECTION THRU END BENTS

LIGHTING DETAILS FOR STEEL BOX GIRDER BRIDGE
(Cross Frame section shown, other Transverse Stiffener sections similar)