SP- 121025
(New)

Iowa Department of Transportation

SPECIAL PROVISIONS

FOR

ROADWAY LIGHTING

Polk County
Project No. NHS-U-1945(409)--8G-77

Effective Date
May 21, 2013

THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

EXTERIOR LIGHTING

PART 1 GENERAL

1.01 SPECIAL PROVISION INCLUDES

A. Exterior Lighting Assemblies.

1. Roadway Pole and Luminaire Assembly (L1); complete assembly to include but not be limited to anchor bolts, base plate, base cover, pole, mast arms, luminaires and lamps, connectors, fasteners, etc.
2. Roadway Pole and Luminaire Assembly (L1A); complete assembly to include but not be limited to anchor bolts, base plate, base cover, pole, mast arms, luminaires and lamps, connectors, fasteners, etc.
3. Roadway Luminaire Mounted on Traffic Signal Pole (L2); complete assembly to included but not be limited to, luminaire, lamp, connectors, fasteners, etc.
4. Roadway Luminaire (L3); Not used.
5. Masonry Pier Accent Luminaire (L4); complete assembly to include but not be limited to luminaire, lamp, junction boxes, connectors, fasteners, etc.
6. Roadway Pole and Luminaire Assembly (L5); complete assembly to include but not be limited to anchor bolts, base plate, base cover, pole, mast arm, luminaire and lamp, connectors, fasteners, etc.

1.02 RELATED WORK

A. Roadway Electrical bid item

D. Special Provision for Roadway Electrical

1.03 MEASUREMENT AND PAYMENT

A. All work of this section is incidental to the lump sum Roadway Lighting bid item.

1.04 REFERENCES

A. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; 2006.

B. ANSI C82.1 - American National Standard for Lamp Ballast - Line Frequency Fluorescent Lamp Ballast; 2004.

C. ANSI C82.4 - American National Standard for Ballasts for High-Intensity-Discharge and Low Pressure Sodium Lamps (Multiple-Supply Type); 2002.

D. IESNA RP-8 - American National Standard Practice for Roadway Lighting; Illuminating Engineering Society of North America; 2000(R2005) (ANSI/IES RP8).

E. NECA/IESNA 501 - Recommended Practice for Installing Exterior Lighting Systems; 2006.

F. NFPA 70 - National Electrical Code; National Fire Protection Association; 2005.

G. Iowa Department of Transportation Standard Specifications with GS-01012 Revisions.

1.05 DEFINITIONS

A. Light Assembly: A complete lighting unit that includes all materials shown on Drawings, listed in EXTERIOR LIGHTING ASSEMBLY SCHEDULE and described in this Special Provision.

B. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.06 SUBMITTALS

A. Product Data describing all EXTERIOR LIGHTING ASSEMBLY components.

B. Shop Drawings: Submit legible, dimensioned drawings of EXTERIOR LIGHTING ASSEMBLIES. Submit shop drawings for each EXTERIOR LIGHTING ASSEMBLY component in a booklet form organized with a separate sheet for each component and assembled in order of EXTERIOR LIGHTING ASSEMBLY “Type” (L1 – L5) as designated on the Drawings. Shop drawings shall clearly indicate all proposed accessories on each sheet. A “Lamp Schedule” spreadsheet shall be submitted noting EXTERIOR LIGHTING ASSEMBLY “Type” (L1 – L5) and the lamp designation/lamp manufacturer which will be provided in each EXTERIOR LIGHTING ASSEMBLY.

C. Electrical Ratings and Photometric Data with certified results of independent laboratory tests for EXTERIOR LIGHTING ASSEMBLIES and specified lamps.

D. Field test reports indicating and interpreting test results specified in Part 3 of this Special Provision.

E. Maintenance data for EXTERIOR LIGHTING ASSEMBLIES to include in the operation and maintenance manual specified in Standard Specifications.

F. Contractor shall submit a complete “lead time” list demonstrating the anticipated lead time for every EXTERIOR LIGHTING ASSEMBLY type on the project based upon the available data supplied by the manufacturer at the time of submittal. All lead times shall be based on “release for order” and be provided in weeks- assuming normal ground transportation methods or other standard delivery process.

1.07 SUBSTITUTIONS

A. No substitutions will be accepted after bids are received. The lighting equipment specified herein has been carefully chosen for its ability to meet the luminous performance requirements and predefined aesthetics and maintenance characteristics of this project.

B. Pre-bid substitution submittals for comparable products described herein shall consist of a physical description, dimensioned drawing and complete photometric and electric data of the proposed EXTERIOR LIGHTING ASSEMBLY. As requested by the Engineer, working samples of EXTERIOR LIGHTING ASSEMBLY substitutions must also be supplied for visual check of finish and operating characteristics. Photometric reports must list the actual candela values for the luminaire's distribution in at least three planes. Candela curves, foot-candle and lumen tables and iso-footcandle contours are not acceptable. CONTRACTOR will be responsible for all costs (architecture time, lighting designer time, engineering time, manufacturer's costs, distributor costs, etc.) incurred to replace equipment not approved if substitutions are made by the distributor, manufacturers representative, or subcontractor. No substitutions will be considered without compliance with this paragraph.

C. No substitutions will be allowed due to delays in receiving EXTERIOR LIGHT FIXTURE ASSEMBLIES for the project due to negligence by the Contractor in delaying the release of a full or partial order including all EXTERIOR LIGHT FIXTURE ASSEMBLY components. Contractor shall assume all responsibility for "express" shipping or other non-standard shipping means if product is required in order to avoid delays in the project.

1.08 QUALITY ASSURANCE

A. Perform work in accordance with National Electrical Code and/ or other applicable local codes enforced upon time of bid.

B. Electrical Component Standard: Provide components that comply with NFPA 70 and that are listed and labeled by UL where available.

C. Listing and Labeling: Provide fixtures, emergency lighting units, and accessory components specified in this Special Provision that are listed and labeled for their indicated use and installation conditions on Project.

D. Special Listing and Labeling: Provide fixtures for use in damp and wet locations that are specifically listed and labeled for such use.

E. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Protect electrical devices and materials for moisture damage.

1.10 COORDINATION

A. Furnish bolt templates and pole mounting accessories to installer of pole foundations.

B. Verify all measurements in field prior to ordering and installing fixtures.

C. Coordinate fixtures, junction boxes, mounting hardware, and any other items, including work of other trades, required to be mounted on or in concrete. Confirm compatibility of light fixture with the proposed installation prior to ordering all light fixtures.

PART 2 PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

A. Comply with requirements described in the EXTERIOR LIGHTING ASSEMBLY SCHEDULE shown on the Drawings.

B. Selection Criteria:

1. Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.

2. Basis-of-Design Product: Where Specifications name a product, provide the specified product or a comparable product by a comparable manufacturer. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.

3. When more than one manufacturer is listed for a specific fixture type on the Lighting Fixture Schedule, the design engineering or architectural aesthetics will allow the CONTRACTOR to choose one of the manufacturers listed but no other substitution will be acceptable.

2.02 COMPARABLE PRODUCTS

A. Conditions: Lighting Designer/Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Lighting Designer/Engineer will return requests without action, except to record noncompliance with these requirements:
   1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
   2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
   3. Evidence that proposed product provides specified warranty.
   4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
   5. Samples, if requested.

2.03 LIGHT EMITTING DIODE (LED) FIXTURES

A. Furnish products as indicated in Lighting Fixture Schedule.

B. All LED lighting fixtures are to be tested, and documentation provided, in accordance to IESNA-LM79 and IESNA-LM-80. No Exceptions.

C. LED fixtures and drivers shall carry a minimum 7 year warranty from the manufacturer. Warranty shall cover replacement of any materials or devices failing within warranty period.

D. All LED fixtures, modules, or arrays, per type, shall be provided with the same date code of manufacture to minimize color temperature variation due to different binning cycles. Provide written documentation from Manufacturer on Manufacturer's letterhead stating such with submittals.

E. All LED fixtures shall have an absolute maximum Correlated Color Temperature variance of +/- 200° Kelvin maximum over life of fixture. Products installed in field with greater variance shall be replaced at no cost to Contracting Authority.

F. All LED luminaires (LED modules/arrays, drivers, thermal overloads) must be serviceable without disruption of surrounding mounting materials.

2.04 LAMPS

A. Lamp Types: Provided with fixture.

2.05 ROADWAY POLE AND LUMINAIRE ASSEMBLY (L1)

A. Light Pole and Mast Arms:
1. Manufacturer: Valmont.
2. Size, type, and color: see EXTERIOR LIGHTING ASSEMBLY SCHEDULE on the Drawings.

B. Luminaire:
1. Manufacturer: BetaLED.
2. Size, type, and color: see EXTERIOR LIGHTING ASSEMBLY SCHEDULE on the Drawings.

2.06 ROADWAY POLE AND LUMINAIRE ASSEMBLY (L1A)

A. Light Pole and Mast Arms:
1. Manufacturer: Valmont.
2. Size, type, and color: see EXTERIOR LIGHTING ASSEMBLY SCHEDULE on the Drawings.

B. Luminaire:
1. Manufacturer: BetaLED.
2. Size, type, and color: see EXTERIOR LIGHTING ASSEMBLY SCHEDULE on the Drawings.

2.07 ROADWAY LUMINAIRE MOUNTED ON TRAFFIC SIGNAL POLE (L2)

A. Light Pole and Mast Arms:
1. See Traffic Signal specifications and drawings.

B. Luminaire:
1. Manufacturer: BetaLED.
2. Size, type, and color: see EXTERIOR LIGHTING ASSEMBLY SCHEDULE on the Drawings.

2.08 ROADWAY LUMINAIRE (L3)

A. Not Used.

2.09 MASONRY PIER ACCENT LUMINAIRE (L4)

A. Luminaire:
   1. Basis of Design Manufacturer: B-K Lighting
   2. Size, type, and color: see EXTERIOR LIGHT FIXTURE ASSEMBLY SCHEDULE on the Drawings
   3. Manufacturer equivalent, subject to compliance with the requirements, based on one of the following to be approved prior to bidding:
      a. Winona Lighting
      b. Acuity Brands Lighting (Hydrel)

2.10 ROADWAY POLE AND LUMINAIRE ASSEMBLY (L5)

A. Light Pole and Mast Arm:
   1. Manufacturer: Valmont.
   2. Size, type, and color: see EXTERIOR LIGHTING ASSEMBLY SCHEDULE on the Drawings.

B. Luminaire:
   1. Manufacturer: BetaLED.
   2. Size, type, and color: see EXTERIOR LIGHTING ASSEMBLY SCHEDULE on the Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install EXTERIOR LIGHTING ASSEMBLY securely, in a neat and workmanlike manner, as specified in NECA 501.

B. Set EXTERIOR LIGHTING ASSEMBLY plumb, square, and level with ceiling and walls, and secure according to manufacturer's written instructions and approved Shop Drawings. Support fixtures independent of conduit serving fixtures.

C. Install lamps in each EXTERIOR LIGHTING ASSEMBLY.

D. Bond luminaires, metal accessories, and metal poles to branch circuit equipment grounding conductor or structural steel.

3.02 FIELD QUALITY CONTROL

A. Perform field inspection, testing, and adjusting in accordance with Iowa DOT Standard Specifications..

B. Operate each EXTERIOR LIGHTING ASSEMBLY after installation and connection. Inspect for improper connections and operation.

3.03 CLEANING

A. Clean EXTERIOR LIGHTING ASSEMBLY of dirt and debris upon completion of installation.

END OF SPECIAL PROVISION