

SECTION 16530
SITE LIGHTING

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Exterior luminaries and accessories.
- B. Poles.

1.2 REFERENCES

- A. ANSI C78.379 - Electric Lamps - Incandescent and High-Intensity Discharge Reflector Lamps - Classification of Beam Patterns.
- B. ANSI C82.1 - Ballasts for Fluorescent Lamps-Specifications.
- C. ANSI C82.4 - Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type).
- D. ANSI/NFPA 70 - National Electrical Code.
- E. ANSI/IES RP-8 - Recommended Practice for Roadway Lighting.
- F. ANSI/IES RP-20 - Lighting for Parking Facilities.
- G. Section 02310 – Earthwork, for all underground installations.

1.3 DESIGN REQUIREMENTS

- A. Roadway: ANSI/IES RP-8, classification as indicated on Drawings.
- B. Parking Lot: ANSI/IES RP-20, [low] [medium] [high] activity level.
- C. Comply with City of Melbourne, Florida Lighting Ordinance.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate dimensions and components for each luminary, which is not a standard product of the manufacturer.
- C. Product Data: Provide dimensions, ratings, and performance data.
- D. Test Reports: Indicate measured illumination levels.
- E. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under "Regulatory Requirements".

1.5 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.
- B. Accurately record actual locations of each luminary.

1.6 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 01700.
- B. Maintenance Data: Include instructions for maintaining luminaries.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Accept products on site. Inspect for damage.
- C. Protect poles from finish damage by handling carefully.

1.9 COORDINATION

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

PART 2 PRODUCTS

2.1 LUMINAIRES

- A. Furnish Gardco Gullwing G18 Area Luminaires – with Pulse Start Metal Halide (MH) Magnetic Ballast.
- B. Substitutions: Under provisions of Section 01600.
- C. LED Fixtures may be considered on a case by case basis.

2.2 LAMPS

- A. Lamp Manufacturers:
 - 1. General Electric
 - 2. Sylvania
 - 3. Philips Lighting Company
 - 4. Substitutions: Under provisions of Section 01600.
- B. Provide lamp type specified for luminary.
- C. Reflector Lamp Beam Patterns: ANSI C78.379.

2.3 POLES

- A. Height: As indicated on Drawings.
- B. Material: Poles to be Whatley composite poles or equal.
- C. Hand hole:
 - 1. Removable weatherproof cover installed 18" ± above finish grade.
- D. Other Requirements
 - 1. Provide poles designed for wind loading based on ASCE 7-98 for velocity of 140 mph (embedment of pole shall be in accordance with actual soil condition) while supporting luminaires having effective project areas indicated. Poles shall be direct burial type (unless otherwise approved) designed for use with underground supply conductors.
 - 2. All poles shall have two conduits concealed within the pole extended down from handhole for incoming and outgoing branch circuit wiring.
 - 3. Poles mounted to structure shall be coordinated with structural designer to accommodate loading criteria.
 - 4. Contractor shall submit certified wind load calculation signed and sealed by a Florida Registered Engineer with pole submittal.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine excavation and concrete foundation for lighting poles.
- B. Examine each luminary to determine suitability for lamps specified.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install lighting poles at locations indicated.
- C. Embedded Luminary Poles: Depth as indicated. Install plumb.
- D. Install lamps in each luminary.
- E. Bond luminaires, metal accessories and metal poles to branch circuit equipment grounding conductor. Provide supplementary ground rod at each pole.
- F. Luminary Pole Bases: Size and constructed as indicated on Drawings. Project anchor bolts 3"

minimum above base. Install poles on bases plumb; provide double nuts for adjustment. Grout around pole base. Provide manufacturer's covers for bolts at base.

- G. Use belt slings or non-chafing ropes to raise and set pre-finished luminary poles.
- H. Provide one weatherproof fuse per ballast, dual fuse holders for two fixture poles. Install fuse(s) in the cast-in hand hole. No fuses shall be permitted in the fixture head.
- I. All conductor splices shall be installed in the cast-in hand hole. If required the hand hole will be permitted to be extended outward using a weatherproof junction box.
- J. Coat the attachment bolts or set screws with an anti-seizing / lubricating compound.

3.3 FIELD QUALITY CONTROL

- A. Operate each luminary after installation and connection. Inspect for improper connections and operation.
- B. Measure illumination levels to verify conformance with performance requirements.
- C. Take measurements during night sky, without moon or with heavy overcast clouds effectively obscuring moon.
- D. The contractor shall provide a one-year written warranty at the end of the project based on the date of acceptance by the Jurisdictional Authority. The warranty shall provide that any defects that appear within one year of the date of acceptance shall be promptly corrected by the contractor after being notified, at no cost to the owner. The typical exclusion of "Lamps" shall not apply because the rated life of new lamps is much more than a year. Any lamps that fail within the one year period are presumed to be defective and shall be replaced.

3.4 ADJUSTING

- A. Adjust work under provisions of Section 01700.
- B. Aim and adjust luminaries to provide illumination levels and distribution as directed.
- C. Relamp luminaries that have failed lamps at Date of Substantial Completion.

3.5 CLEANING

- A. Clean work under provisions of Section 01700.
- B. Clean electrical parts to remove conductive and deleterious materials.
- C. Remove dirt and debris from enclosure.
- D. Clean photometric control surfaces as recommended by manufacturer.
- E. Clean finishes and touch up damage.

END OF SECTION