

SECTION 16500 – LIGHTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The General Provisions of the contract, including the General Provisions for Construction (2016), Special Provisions, and General Requirements of the Specifications, apply to the work specified in this section.

1.02 DESCRIPTION OF WORK

- A. In general, the following work is included:
1. Remove 3rd Level Ewa and Diamond Head (DH) Concourse concrete column mounted light fixtures adjacent to roadway. Salvage, store and protect light fixtures to be reused. Intercept and protect existing conductors powering existing light fixtures mounted on top of the concrete columns.
 2. Install new light poles over existing conduit penetrations as much as possible. Where not possible, intercept existing conduit and conductors with new junction box and extend to new light pole location. Reinstall existing light fixtures salvaged from demolition work. Provide new light fixtures where existing fixtures cannot be reused. Utilize existing lighting circuits, intercept and extend to new pole/fixture location as necessary.
 3. Provide temporary lighting to allow for normal airport operations, which includes but is not limited to the safe operation of the Wikiwiki Shuttle. Additional temporary lighting to be added at discretion of the State.

1.03 RELATED WORK SPECIFIED IN OTHER SECTIONS

<u>Section</u>	<u>Title</u>
16050	BASIC MATERIALS AND METHODS

1.04 SUBMITTALS

- A. Submit shop drawings and of the following equipment for approval in accordance with Section 01300 – SUBMITTALS. Each submittal shall be prepared with a summary sheet attached to each copy identifying all items included in the submittal. Incomplete submittals and those without summary sheets will be returned without review.
- B. Shop Drawings: Submit complete shop drawings and manufacturer's literature for DOT-A's review before any work is fabricated. Submit manufacturer's literature for:

1. Light fixtures.
2. Light poles.
3. Drivers.

C. Intent of Shop Drawing and Catalog Cut Review:

1. Shop drawing and catalog cut submittals processed by DOT-A are not Change Orders. The purpose of the submittals by the Contractor is to demonstrate to DOT-A that he understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use.
2. If deviations, discrepancies or conflicts between shop drawings and specifications are discovered either prior to or after shop drawing submittals are processed by DOT-A, the design drawings and specifications shall control and shall be followed.
3. Prequalification: Where materials or products specified herein are designated by manufacturer's name, any request to substitute materials or products other than those specified shall be approved by DOT-A during the bidding period, as specified in the GENERAL PROVISIONS, Paragraphs 2.7 and 6.13, and as amended by the Special Provisions. Burden of proof of equality of proposed substitutions will be the responsibility of the Contractor.
4. Shop drawings and catalogue cuts for substitute materials shall clearly specify compliance with and/or deviation from specified material. Certification shall not contain statements to imply that the item does not meet requirements specified, such as "as good as"; and "achieve the same end use and results as materials formulated in accordance with the referenced publications". Certifications shall simply state that the item conforms to the requirements specified. Certificates shall be printed on the manufacturer's letterhead and shall be signed by the manufacturer's official authorized to sign certificates of compliance. Review of shop drawings and catalogue cuts shall not release Contractor from complying with intent of drawings and specifications.

1.05 GUARANTEE AND CERTIFICATE

Any item of material, apparatus, equipment furnished and installed, or constructed by the Contractor showing defects in design, construction, quality or workmanship within one year from the date of final acceptance by the State shall be replaced by such new material, apparatus or parts as may be found necessary to make such defective portion of the complete system conform to the true intent and meaning of the specification and/or the drawings. Exceptions shall be, LED light fixtures, fluorescent, high intensity discharge and incandescent lamps which shall be guaranteed for one half the manufacturer's listed lifetime. Such repairs or replacement shall be made by the Contractor or his surety, free of all expense to the State.

1.06 GENERAL REQUIREMENTS

- A. The Contractor shall furnish all labor, materials (except as hereinafter noted), tools, equipment and appliances required to provide and install all electrical work, complete, as indicated on the drawings and/or as herein specified. The drawings note various sizes of equipment as determined for basis of design; the electrical work, however, shall be installed to comply with the equipment furnished by the successful supplier.
 - 1. Remove 3rd Level Ewa and Diamond Head (DH) Concourse concrete column mounted light fixture adjacent to roadway. Intercept and protect existing conductors running internal to concrete columns.
 - 2. Install new light poles, and connect new conductors to existing conductors that were intercepted and protected. Install existing light fixtures that were stored at start of project.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: All materials shall be new, except as specifically noted, and shall bear the label of Underwriters Laboratories (UL) whenever standards have been established and label service is normally and regularly furnished by the agency.
- B. Light Fixtures: Provide light fixtures complete with necessary lamps, ballasts, starters, and accessories, according to the "Light Fixture Schedule". All light fixtures shall be supplied complete with lamps/LED modules. CREE ARE-EDR-5M-R3-04-D-UL-BK-525-40K-TL or approved equal.
- C. Aluminum Poles: Aluminum poles shall be spun tapered from seamless aluminum tubing, alloy 6063-T6, conforming to ASTM B 221, with minimum thickness of 0.250 inch. Circumferential or longitudinal welds will be allowed only at lower end of pole where pole is joined to anchor base. Poles shall have anchor base consisting of permanent mold cast aluminum, alloy 356.0, conforming to ASTM B 108. Anchor bolts shall be stainless steel 316, and shall be of quantity and grade indicated in the contract documents. Poles mounted on walls and structures shall have anchor bases and side entry handholes. Poles mounted shall be equipped with vibration damper recommended by pole manufacturer and accepted by DOT-A. Grounding nut or screw on inner portion of pole shall be placed opposite handhole. Each pole shall be furnished complete with base, base cover, and anchor bolts. Unless otherwise indicated in the contract documents, aluminum poles shall have dark bronze anodized aluminum finish and stainless steel 316 hardware. Aluminum poles shall be protected during shipment with protective paper. 10' Model: Valmont R 090830404T4P2313 or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

As specified on Section 16050 – BASIC MATERIALS AND METHODS.

3.02 INSTALLATION

A. Fixture Supports:

1. Every outlet box or other support for light fixtures shall be of sufficient strength to support at least 4 times the weight of the fixture.
2. Support all fixtures weighing more than 50 lbs. independently of the outlet box.
3. Fixtures shall be securely and safely supported by means of fixture studs in the outlet boxes or other approved means. Ceiling fixtures shall be arranged to hang vertically unless otherwise directed by DOT-A. Provide accessories such as straps, mounting plates, nipples, or brackets for proper installation. Provide additional suspension wires and channels for mounting on suspended ceilings as recommended by fixture manufacturer. Fixtures shall not be hung from outlet box "ears".
4. Where ceiling construction is such that mounting channels, strongbacks, braces, etc., are required to properly support fixtures, provide these supports at no additional cost to the State. Refer to architectural drawings for type of ceiling construction.

B. Provide structural bracing for equipment permanently attached to the building. Structural bracing shall resist the effects of earthquake motions in accordance with ASCE 7 per 2018 IBC.

C. Wiring System: As specified in Section 16050 – BASIC MATERIALS AND METHODS.

3.03 TESTING AND INSPECTION

As specified in Section 16050 – BASIC MATERIALS AND METHODS.

3.04 SPARES

Provide a minimum of 2 spare exterior column mounted light fixtures.

PART 4 - MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured for payment but will be paid for at the Contract Lump Sum Price.

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
16500.1	Ewa and DH Concourse Exterior Lighting	Lump Sum

END OF SECTION