



Signed by:
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SOLAR POWERED LED SIGN SYSTEM:

(10-20-26)

Description

Furnish and install all signs, solar power equipment and components, batteries, charge controllers, mounting hardware, sign supports, and all other hardware; and test to provide complete solar powered light emitting diode (LED) sign system.

All signs and sign systems shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), the plans, applicable requirements of the *Standard Specifications*, and this special provision.

Perform all work in accordance with the manufacturer's recommendations and applicable provisions of the National Electrical Code (NEC).

Construct in accordance with the applicable requirements of Section 900 and 903 of the *Standard Specifications*, the plans, this special provision, and as directed by the Engineer.

Materials

(A) General

Use material meeting the applicable requirements of Section 900 and Article 903-2 of the *Standard Specifications*.

(B) Submittals

Submit to the Engineer sufficient information to verify compliance with these specifications, to include manufacturer's specifications, clearly labeled for each of the following sign system components:

- (1) Solar panels
- (2) Battery assemblies
- (3) Charge controllers
- (4) LED assemblies

- (5) Sign mounted control equipment
- (6) Mounting hardware and brackets

(C) Solar Power Equipment

Provide a complete solar power assembly consisting of photovoltaic solar panel(s), rechargeable battery system, solar charge controller, mounting hardware, battery enclosure, and associated wiring.

Protect equipment from moisture, abrasion, ultraviolet exposure, and physical damage. Provide weatherproof battery enclosures constructed of corrosion resistant materials and equipped with lockable vandal-proof access doors. Provide all mounting hardware as galvanized steel, stainless steel, or aluminum suitable for outdoor installation. Provide solar panels and batteries rated and sized by the manufacturer to maintain operation of the LED sign system under normal environmental conditions for a minimum of five (5) years and battery sizing calculations demonstrating a minimum of fourteen (14) days autonomous operation without solar charging.

Provide batteries that are sealed, maintenance-free, lithium ion, or equivalent approved by the Engineer.

(D) LED Assemblies

Provide LED assemblies capable of flashing simultaneously specifically designed for traffic control applications.

Provide LED modules visible for 1 mile during both daytime and nighttime conditions and rated for a minimum service life of 50,000 hours.

Operation shall be in accordance with the MUTCD.

Construction Methods

(A) Layout

The Engineer will establish the actual location of the sign systems. The plans show the approximate locations based on available project data.

Mark the proposed locations for Engineer review and approval prior to installation.

Orient solar panels to maximize exposure to sunlight while maintaining required roadway clearances.

(B) Equipment Installation

Install solar panels, battery enclosures, controllers, LED assemblies, and all associated equipment in accordance with the manufacturer's recommendations.

Mount all equipment securely with anti-vandal hardware and ensure it is plumb and level at locations shown in the plans or as directed by the Engineer.

Use all mounting holes and attachment points provided by the manufacturer.

Repair damaged galvanized surfaces with two coats of organic zinc repair paint meeting the requirements of 1080-7 of the *Standard Specifications* at no additional cost to the Department.

(C) Wiring Methods

Install all wiring internal to the solar powered sign system in accordance with the manufacturer's recommendations.

Protect wiring from moisture, abrasion, ultraviolet exposure, and physical damage. Terminate all wiring in weatherproof enclosures. Provide overcurrent protection devices as recommended by the manufacturer.

(D) Grounding and Bonding

Bond all metallic sign supports, equipment enclosures, and mounting assemblies together.

Ground all equipment in accordance with the NEC and manufacturer's recommendations.

(E) Inspection

Inspect in accordance with all local ordinances and regulations.

Prior to the start of any work, obtain all permits and licenses required by local regulation.

Inspection by local authorities shall neither eliminate nor take the place of inspection by the Department.

Provide written certification to the Engineer that all equipment has been installed and tested in accordance with the manufacturer's recommendations.

(F) Performance Tests

The Engineer will not accept solar powered LED sign systems until the systems are operational without interruption or failure attributable to poor workmanship or defective materials for a period of two consecutive weeks.

The Engineer will inspect all systems and equipment for normal operation.

Perform these tests and make all repairs and replacements needed at no additional cost to the Department.

Alternate Systems

If solar powered LED sign systems other than those shown on the plans are proposed for use, prepare and submit to the Engineer for approval a complete design for the proposed system.

Submit designs for alternate systems for approval prior to submitting shop drawings to the Engineer for review and approval.

Coordinate the design of the solar powered system with the design of the sign support assembly and show any changes necessitated by the alternate system on the appropriate shop drawings. Provide solar sizing calculations, battery sizing calculations, and manufacturer's performance data for review of the alternate design.

Measurement and Payment

Solar Powered LED Sign System will be measured and paid at the contract unit price per each.

Payment will be full compensation for furnishing all labor, materials, equipment, signs, solar panels, batteries, charge controllers, LED assemblies, sign supports, mounting hardware, testing, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Solar Powered LED Sign System	Each