

SECTION 13592

ROADWAY WEATHER INFORMATION SYSTEM - ENVIRONMENTAL SENSOR STATION (RWIS-ESS)

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials and procedures for installing Roadway Weather Information System - Environmental Sensor Station (RWIS-ESS).

1.2 RELATED SECTIONS

- A. Section 02776: Concrete Sidewalk, Median Filler, and Flatwork
- B. Section 02821: Chain Link Fence and Gate
- C. Section 03055: Portland Cement Concrete
- D. Section 03211: Reinforcing Steel and Welded Wire
- E. Section 03310: Structural Concrete

1.3 REFERENCES

- A. NEC 250-1: National Electric Code

PART 2 PRODUCTS

2.1 POWER

- A. Use electrical components as listed and defined by the National Electric Code (NEC).
- B. Supply and install a 30A breakered weatherproof disconnect per manufacturer's instructions in a manner not to encumber operation of the tower or sensors.
- C. Install solar power array and connect with RPU per manufacturer's specifications.

2.2 TOWER FOUNDATION AND TOWER PAD

- A. Use Class AA (AE) concrete per Section 03055.

2.3 GROUNDING SYSTEM

- A. Wire: 32 strand, #210 weight, 7/16 inch tinned copper ground cable off each corner of the tower on top of concrete pad to a distance 10 ft away from the tower.
 - 1. Ground Wire - use #10 solid, bare, soft-drawn, copper wire as specified.
- B. Ground Rod: ½ inch diameter 10 foot copper clad. Two per corner; one, 3 ft away and one, 10 ft away.
- C. Ground AC disconnect to the nearest ground rod.

2.4 ENVIRONMENTAL SENSORS, REMOTE PROCESSING UNIT, COMMUNICATION EQUIPMENT, AND TOWER

- A. Environmental sensors, cabinet, remote processing unit (RPU), and tower are furnished by the Department. The environmental sensors may include, but are not limited to, the following:
 - 1. Wind speed indicator
 - 2. Wind direction indicator
 - 3. Relative humidity sensor
 - 4. Air temperature sensor
 - 5. Precipitation detector
 - 6. Visibility sensor
 - 7. Multiple pavement sensors
 - 8. Sub-grade temperature probe
 - 9. Required communication modem for design specified communication method.
- B. Department furnished manufacturer's detailed installation instructions in addition to instructions shown in RWIS plan sheets.

2.6 FENCE AND GATE

- A. Follow Department provided design specification.

PART 3 EXECUTION

3.1 GENERAL

- A. Conform to the requirements of the National Electric Code (NEC).
- B. The Engineer approves tower site location staking and pavement sensor placement prior to construction.
- C. Provide Engineer a preliminary installation schedule and schedule a pre-installation meeting 30 days prior to start of work.
- D. Pick up State-furnished materials at the following:
 - Utah Department of Transportation
 - Traffic Operations Center (TOC)
 - 2060 South 2760 West
 - Salt Lake City, Utah 84104-4592
- E. Contact Engineer seven calendar days before pick-up date.
- F. Install all State-furnished materials per manufacturer's instructions.

3.2 FOUNDATION AND TOWER

- A. Follow Sections 03055 and 03211.
- B. Provide all necessary grading for a flat and level site.
- C. Finish all surface concrete with Ordinary Surface Finish per Section 03310.
- D. Do not weld conduit to tower. Follow manufacturer's installation instructions.
- E. Place the concrete directly into the excavation. Use minimum forming above ground.
- F. Install tower securely on foundation as indicated. Follow all manufacturer's installation instructions.

3.3 PAVEMENT SENSORS

- A. Install all pavement and sub-grade sensors as indicated. Follow all manufacturer's installation instructions.

- B. Manufacturer trained or certified personnel, manufacturer representative or designee oversees installation of pavement sensors.
- C. Install all cabling between sensors and processing unit. Follow all manufacturer's installation instructions.

3.4 CABINET, PROCESSING UNIT

- A. Install cabinet as indicated per manufacturer's installation instructions.

3.5 COMMUNICATION EQUIPMENT

- A. Install all cabling between communication network equipment and modem at RPU. Follow all manufacturer's installation instructions.

3.6 FOUNDATION PAD

- A. Install concrete maintenance pad per Section 02776.

3.7 FENCE AND GATE

- A. Furnish and install Chain Link Fence and Gate per Section 02821.
- B. Furnish and install 7 ft high Type IV fence, with barbed wire and arm, with 5 ft wide gate.
- C. Orient fence gate, and size the fence dimensions per manufacturer or Department specifications.
- D. Install anti-climb plating to tower as provided by manufacturer.

END OF SECTION