

## 105-C-235 GPS ROVER FOR USE BY PROJECT PERSONNEL

*(Adopted 09-19-13)***Description**

This work shall consist of providing a GPS rover and cellular modem for use by the Engineer for the duration of the contract.

**Materials**

Materials shall be in accordance with the following:

The Global Positioning System, GPS, rover shall consist of a GPS receiver antenna, data collector and a survey-grade rod with a rod mounted adaptor for the data collector. The GPS rover shall be a survey-grade unit with vertical and horizontal precision of 0.1 ft. mounted on a bipod.

Software to analyze the data shall be provided to the Engineer. The software shall be capable of calculating earthwork volumes, determining stations and offsets and calculating the area and volumes of an irregular shape. The data collector shall be capable of exporting collected data in its native format and also in an ASCII format for processing in other software packages. The Contractor shall provide a project surface model, if available, consisting of the design surface, roadway alignment and associated horizontal line work.

The rover, data collector and accompanying software provided to the Department shall be compatible with equipment used by the Contractor.

The GPS rover shall be capable of communicating with the INDOT Continuously Operating Reference Stations, InCORS, network. The GPS rover shall be capable of using GPS and Glonass satellites.

If the cellular modem service does not provide a sufficient signal at the project site to communicate effectively, as determined by the Engineer, the Contractor shall provide a base station in lieu of the cellular modem. The base station shall be survey grade and compatible with the rover. The Contractor shall provide sufficient control throughout the project limits for the base station setup.

The materials provided shall be for the exclusive use by the Engineer for the duration of the contract, and shall remain the property of the Contractor.

**Construction Requirements**

The Contractor shall provide a contact to the Engineer in the event technical difficulties are encountered. The Contractor shall provide operators manuals for the equipment furnished. The Contractor shall provide up to 16 hours of training in the use of the equipment to the Engineer. Training will be scheduled at mutually agreeable times.

The Contractor shall not be responsible for providing training on any software or equipment used by the Department that is not provided by the Contractor or any of its subcontractors.

Up to an additional eight hours of training shall be provided if a base station is provided. The Contractor shall be responsible for daily set up of the base station, at a location approved by the Engineer, until all training has been provided.

If the equipment becomes unusable for any reason, the Contractor shall repair or replace it within four business days of being notified.

**Method of Measurement**

Construction Engineering, GPS Rover will not be measured for payment.

**Basis of Payment**

Construction Engineering, GPS Rover will be paid at the contract unit price per lump sum. If a base station is provided, payment will be in accordance with 109.05.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit Symbol</b>
Construction Engineering, GPS Rover .....	LS

The cost of the equipment, use of the equipment for up to 60 days beyond final acceptance, training, technical assistance, manuals, software and all other necessary incidentals shall be included in the cost of the pay item. Payment for additional equipment to replace any damaged due to the Department's negligence, will be paid in accordance with 104.03.

If contract time is extended by more than 30 days, a prorated additional payment will be made.

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