SP- 150178
(New)

SPECIAL PROVISIONS
FOR
STRUCTURAL HEALTH MONITORING AND INSTRUMENTATION COORDINATION

Scott County
IM-NHS-074-1(197)5--03-82

Effective Date
April 25, 2017

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150178.01 DESCRIPTION.

A. A structural health monitoring (SHM) contractor is under contract with Iowa DOT for design, acquisition, installation, and start-up of the SHM system as detailed in the "N" plans for Project IM-NHS-074-1(198)5--03-82. The purpose of this special provision is to provide guidance to the bridge contractor regarding coordination with the SHM Contractor. In order to collect the measurements, a dedicated on-site monitoring system will be installed during construction. These measurements will begin after construction and continue into the service life of the bridges. The SHM system will consist of various (electronic transducers), cabling, conduits, junction boxes, and cabinets and data acquisition equipment. Junction boxes, conduits, conduit supports, and cabinets are supplied and installed as part of Project (197). Before bidding, the contractor may request from Iowa DOT Project (198) documents, which contain plans and special provision for the SHM system.

B. Coordination with the SHM contractor and the Engineer will be needed during the installation and testing of the SHM System. Assistance in gaining access to bridge components during staging, prior to erection, and during construction for the installation of the SHM System shall be required. Cooperation of the Contractor during construction will be critical.

150178.02 ACCESS TO THE SITE AND STAGING YARD.

The SHM contractor will be afforded access to the construction site. SHM contractor's personnel shall notify Iowa DOT and the Contractor whenever they are on site or at the staging yard. The SHM contractor is to comply with the safety requirements established by the Contractor and Iowa DOT. The SHM contractor shall notify both the Engineer and the Contractor at least 5 working days prior to the installation of any sensors. The Contractor is to provide the SHM contractor with access to the site and to the staging yard in order to install sensors.

150178.03 REQUIREMENTS FOR NOTIFICATION DURING CONSTRUCTION.

A. During this project, the SHM contractor (Project 198) will be responsible for gage installation. This will require members of the SHM contractor to be on site at various times. It is the SHM contractor's responsibility to inform the Engineer and the Contractor when gages are installed.

B. The Contractor shall notify both the SHM contractor and the Engineer at least 21 working days prior to any construction activity on the bridge, which will affect the sensor installation.

150178.04 PROTECTION OF SENSORS, CABLING, AND DATA ACQUISITION EQUIPMENT.

A. The Contractor shall take all necessary steps to protect sensors, cabling and data acquisition equipment from disturbance or damage due to their operations during construction of the bridge. The Contractor shall avoid direct contact between concrete vibrators and sensors.

B. Any operational data acquisition equipment that needs to be moved or adjusted shall be coordinated with the SHM contractor. The Contractor shall notify the Engineer and the SHM contractor at least 24 hours before any item has to be relocated. The SHM contractor shall be responsible of moving or adjusting the data acquisition equipment as requested by the Contractor.

C. The SHM contractor shall be required to repair or replace any sensors determined to be defective after initial installation. If sensors or instrumentation are damaged after being cast in concrete, the following procedures shall be utilized:

1. Any sensor that does not function after initial installation and prior to being cast into concrete shall be replaced with a new sensor and cable at no cost to the Iowa DOT.

2. Any sensor that is damaged during or after concrete placement shall be brought to the attention of the Engineer and the Contractor. The SHM contractor is to review the cause of the damage and provide recommendation to the Engineer as to whether the sensor is to be repaired, replaced, or abandoned. The Contractor is responsible for the repair or replacement of the sensor at no additional cost to the project. The Engineer may require that any abandoned sensors be supplemented by additional sensors in adjacent locations at no additional cost to the Iowa DOT.

3. The SHM contractor shall notify the Engineer and Contractor of any damage that is caused to sensors or cabling after the sensors have been installed and are functioning. Any damaged sensors shall be replaced by the Contractor at no additional cost to the Iowa DOT. Any damaged cabling shall be repaired per manufacturer recommendations.

150178.05 COORDINATION MEETINGS.

The Contractor shall advice the SHM contractor of construction coordination meetings so that SHM contractor can make determination to attend such meetings.

150178.06 METHOD OF MEASUREMENT.

Structural Health Monitoring and Instrumentation Coordination will be measured as a lump sum item.

150178.07 BASIS OF PAYMENT.

The Contractor will be paid the lump sum contract price for Structural Health Monitoring and Instrumentation Coordination. This payment shall be full compensation for coordination with SHM contractor and Engineer, provide site access to construction site, protection of sensors, cabling, and data acquisition equipment during construction activities.