Iowa Department of Transportation

SPECIAL PROVISIONS
FOR
VIBRATION MONITORING

Lee County
Project Number NHSX-061-1(117)--3H-56

Effective Date
January 19, 2011

THE STANDARD SPECIFICATIONS, SERIES 2009, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

090105.01 DESCRIPTION.
This specification identifies the Contractor's responsibilities for vibration and crack monitoring of the properties located at 2319 255th Avenue (Leverton property) and 6224 "O" Avenue (Huffman property) during construction activities. The Contractor may perform a pre-construction and post-construction condition survey which may include a photographic component. The Contractor shall determine the method of the survey to satisfy their need and is responsible for arranging with the property owners and tenants the rights-of-entry to their property in order to engage in condition surveys, vibration monitoring, and crack monitoring.

090105.02 PRECONSTRUCTION SURVEY.
The Department will provide the Pre-Condition survey concerning the Leverton and Huffman historic houses prior to the Contractor starting work.

If the Pre-Condition Survey indicates there are existing cracks, the Contractor shall mark existing cracks in such a way that future observations may indicate whether cracks continue to open or spread. This shall be accomplished by the installation of crack monitoring gauges at locations identified in the Pre-Condition Survey report. Following is a list of companies supplying crack monitoring equipment:

- Tell-Tale Crack Monitors from RST Instruments Ltd.
  Telephone: 800.665.5599
  Website: www.rstinstruments.com
- Crack Monitoring Equipment from Geotest Instrument Corp.
  Telephone: 866.430.7645
  Website: www.crackgauge.com
- Avongard Crack Monitor from Avongard Products U.S.A
  Telephone: 800.244.7241
  Website: www.avongard.com
- Or approved equal

090105.03 CONSTRUCTION.
Construction activities near the properties shall not create vibrations in excess of the Peak Particle Velocity (PPV) of 0.13 inch per second at frequencies below 10 hertz. The Contractor shall demonstrate that they have installed equipment that will measure, log (date/time stamp), and communicate throughout construction activities that the PPV has not been exceeded.

The Contractor shall immediately cease work if the PPV threshold is reached or exceeded (vibration event) and notify the Engineer immediately. The work stoppage shall remain in effect until the cause of the vibration event is identified and alternate equipment or methods approved by the Engineer are in place.

There will be no compensation for delays as the result of reaching or exceeding the maximum PPV. There will be no compensation for adjustment of construction activities or equipment to reduce vibration levels to less than the maximum PPV.

The Contractor shall monitor all crack monitoring devices daily and immediately notify the Engineer of any changes.

The Contractor shall provide to the Engineer a Monitoring Plan at least 30 calendar days prior to commencing work. The plan shall describe the following:

- Construction methods and equipment that will be used to minimize vibration.
- Alternative construction methods and equipment in case of a vibration event.
- Site communication methods and equipment to ensure immediate shut down of construction activities if the maximum PPV is reached.
- Daily activity logging to ensure timely shut down and identification of cause.

090105.04 METHOD OF MEASUREMENT.
The item Vibration Monitoring will be measured as a lump sum item of work.

090105.05 BASIS OF PAYMENT.
Vibration Monitoring will be paid for at the contract lump sum price. This price shall be full payment for pre-construction surveys; installation, monitoring, and removal of crack monitoring gauges; furnishing, installation, monitoring, and removal of vibration monitoring equipment; notification of vibration events; post-construction surveys; and reports; and all labor, equipment, and materials necessary to complete the work as described.

APPENDIX A

Pre-Condition Survey Reports of the Westendorf and Huffman Properties

To be provided prior to start of work.