

117 Monitor Existing Structures

117.1 General

Monitor Existing Structures includes settlement, vibration, and groundwater monitoring of existing structures during construction as described in **Section 108** of the [Standard Specifications](#). Structures requiring consideration for monitoring typically include buildings, bridges, and retaining walls which are adjacent to construction activities. When there is a concern regarding vibration, structures to be monitored may also include historic features and buildings in which sensitive business operations are conducted; e.g., eye surgery, medical treatments, rehabilitation operations, recording and broadcasting operations, places of worship, antique shops, or museums.

When appropriate, include a note on the General Notes sheet that:

- (1) Restricts hours of construction operations.
- (2) Restricts the type of construction equipment to be used.

Pay item 108-1 is to be used to mitigate the risk for damage occurring to an existing structure due to settlement.

Pay item 108-2 is to be used to mitigate the risk for interfering with the intended use of an existing structure. This pay item is not typically used for residential properties.

Pay item 108-3 is to be used only when recommended by a geotechnical firm and concurred with by the District Geotechnical Engineer. The use of this pay item is not common.

117.2 Inspection and Settlement Monitoring

There are three general types of construction activities of concern:

- Foundations for miscellaneous structures
- Work associated with structures other than miscellaneous structures
- Compaction operations

117.2.1 Miscellaneous Structures

Activities that may cause harm to existing structures include the construction of foundations for mast arm signal poles, strain poles, cantilever signs, overhead truss signs, high mast light poles and ITS.

Based on visual field observations, the EOR will identify existing structures that are recommended to be monitored during these activities. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include pay item 108-1, and list the structure in the Monitor Existing Structures Excel summary table used to create the Estimated Quantities (EQ) Report.

117.2.2 Structures other than Miscellaneous Structures

Activities that may cause harm to existing structures include the construction of retaining walls, noise walls, sheet pile walls, deep excavations and foundations for bridges and other structures.

- (1) If any existing structure is within the distances specified in **Section 108-2** of the [Standard Specifications](#), include pay item 108-1 and list no structures in the Monitor Existing Structures Excel summary table used to create the EQ Report. Use 250 feet as the limit for pile driving.
- (2) Based on visual field observations, the EOR may recommend monitoring existing structures located beyond the distances specified in **Section 108-2** during these activities. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure outside of the specified distances, include pay item 108-1, and list the structure in the Monitor Existing Structures Excel summary table used to create the EQ Report.

117.2.3 Roadway Compaction Operations

Activities that may cause harm to existing structures include embankment and asphalt vibratory compaction.

- (1) If an existing structure is within the distances specified in **Section 108-2** of the [Standard Specifications](#), include pay item 108-1, and list no structures in the Monitor Existing Structures Excel summary table used to create the EQ Report.
- (2) Based on visual field observations, the EOR may recommend monitoring existing structures located beyond the distances specified in **Section 108-2** during these activities. The Department will make the final determination of the existing

structures to be monitored. If a determination is made to monitor a structure outside of the specified distances, include **pay item 108-1**, and list the structure in the Monitor Existing Structures Excel summary table used to create the EQ Report.

117.3 Vibration Monitoring

Activities that may cause harm to existing structures include pile driving, sheet pile and casing installation, and embankment and asphalt vibratory compaction.

Based on visual field observations, the EOR will identify existing structures that are recommended to be monitored during these activities. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include **pay item 108-2**, and list the structure in the Monitor Existing Structures Excel summary table used to create the EQ Report.

117.4 Groundwater Monitoring

Based on visual field observations, the EOR will identify existing structures that are recommended to be monitored during anticipated dewatering operations. The Department will make the final determination of the existing structures to be monitored. If a determination is made to monitor a structure, include **pay item 108-3**, and list the structure in the Monitor Existing Structures Excel summary table used to create the EQ Report.