



PROJECT PROFILE

Square Lake Road Bridge

Water Main Vibration and Settlement Monitoring | Bloomfield Hills, MI



CLIENT

Posen Construction, Inc.

BACKGROUND

Square Lake Road is one of the main east-west roadways in the northern Detroit suburbs. Adjacent to the I-75 ramp connection, Square Lake Road bridges the Grand Trunk Western Railroad tracks. At this point, the roadway consists of three lanes in each direction.

The Michigan Department of Transportation (MDOT) funded the demolition and replacement of the East Bound Square Lake Road Bridge over the Grand Trunk Western Railroad. The Detroit Water and Sewer Department (DWSD) operates a 42-inch water main within the right-of-way. DWSD requested that the water main be monitored for potential damage from vibration and settlement related to the bridge demolition and construction.

SOLUTION

WJE developed a monitoring program to ensure that the water main's vibration and settlement during construction did not exceed the limits specified by the DWSD. The vibration monitoring utilized a remotely operated seismograph to minimize the field labor costs, the data from which was downloaded twice a day. Settlement monitoring was also performed by installing telltales and measuring their elevations three times per week with surveying equipment. WJE's monitoring program confirmed that excessive settlement or vibration did not occur during bridge demolition and pile driving operations of the new construction.

