

# Digging Deep On State Street



**PROJECT:** State Street in Charlevoix, Michigan

**CHALLENGE:** Three City Blocks; 20 ft. depths; Utility conflicts; and Granular sands

**SOLUTION:** Block by Block Staging; Trench Box Technology; Experienced Crew; City of Charlevoix Assistance;

**OWNER:** Michigan Department of Transportation

**CONTRACT AMOUNT:** \$1,033,907.00

**DESIGN ENGINEER:** Jim Malewitz

**LOCATION:** State Street, Charlevoix, Michigan

**DATE STARTED:** April 2015

**DATE COMPLETED:** July 2015

**SELF-PERFORMED:** 73%

**PARTNERS:** Payne & Dolan, J. Ranck Electric, Ryan Brother

Spring and early summer 2015 saw Team Elmer's working in downtown Charlevoix, where an MDOT project called for a major project on a key city street. The project demanded the replacement of water and sewer lines for a three-block stretch of the city's State Street. And while the work didn't put Team Elmer's on Bridge Street — Charlevoix's busy main drag — it did place us just one block over, on another busy road.

The location of the project brought the first challenge: with Team Elmer's setting up shop on State Street for the start of Charlevoix's busy summer season. We had to figure out a way to do the work with minimal interruption to the surrounding town. State Street may not house as many restaurants or tourist shops as Bridge Street, but it does house City Hall, the county building, and the fire department. It was essential for Team Elmer's to keep these high-profile buildings accessible during the project's three-month schedule.

The solution to that particular hurdle was to perform the project in stages. Rather than excavating the

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entire road from one end to the other, Team Elmer's went block by block, removing asphalt, curb, gutter, and existing pipe and sewer structures; one block-length stretch of street at a time. This division of the project allowed other segments and buildings along the road to remain open and accessible while crews continued to work.

The main hurdle of the project wasn't the summer crowds, though. Rather, the biggest challenge Team Elmer's faced on this particular job was the depth of the excavation. Charlevoix's existing sanitary sewer, and water main systems were extremely deep in the ground — even reaching depths of 20 feet in some spots. The city of Charlevoix wanted construction compatibility with the existing system, requiring Team Elmer's to keep the new installations 20 feet down as well.

## State Street By The Numbers

- Gravel: **8,009 square yards**
- Sidewalk: **9,612 square feet**
- Curb & Gutter: **3,098 feet**
- Brick Pavers: **830 square feet**
- Segmented Retaining Wall: **1,696 square feet**
- Drainage Structures: **25**
- Piping: **3,326 feet**



The depth of the removals and installations created extra risks that wouldn't be present in a standard four or five-foot deep water and sewer project. In particular, Team Elmer's kept running into utility conflicts, and even had to redesign certain parts of the project in the field in order to circumvent those conflicts. Luckily, the City of Charlevoix and a few local subcontractors were able to lend a hand, warn our team about certain obstacles, and provide helpful advice to keep the project rolling past challenges.

The main priority was safety; it was a challenge with the granular sands in which our team had to work for much of the project. Not only was Team Elmer's installing a 48-inch storm sewer, 20 feet in the ground, with 96-inch manholes in each intersection, but we were also doing all of that while dealing with sliding sands. The granular nature of the sand called for trench boxes and steel plates to prevent dangerous cave-ins during the job, creating a safe site for our crews.

With the new sewer and water systems installed, Team Elmer's topped the project off with new gravel, curb and gutter structures, and pavement. We even installed a brand new retaining wall, to give the road a fresh aesthetic and provide space for a sidewalk that wasn't there before. Plus, the project was completed on time, in three months, so things were back to normal in Charlevoix for the remainder of the busy summer tourist season.

