One of the largest highway projects in Utah history, the I-15 transportation corridor reconstruction involves restoring and rebuilding 26 miles of highway, more than 60 bridges, 10 interchanges, and 130 mechanically stabilized earth retention walls — all to be completed in an ambitious three-year construction schedule under Utah Department of Transportation (UDOT) guidelines.

**PROJECT RESULTS**

Kleinfelder’s alternative technical solutions substantially reduced bid estimates for prefabricated vertical (PV) drains, surcharge, stone columns, and pile length — saving millions of dollars in construction costs and significantly reducing the construction schedule. Kleinfelder continues to meet the client’s project budget and scheduling issues while providing engineering services, instrumentation installation, and monitoring services.

**CHALLENGING LOCATION WITH UNSTABLE TERRAIN**

The project’s accelerated construction schedule and location within the alluvial deposits of Utah’s Wasatch Valley posed several technical and management challenges. Kleinfelder quickly mobilized field crews to complete site characterization and laboratory testing so engineers could perform analyses and provide recommendations. Subsurface conditions, including an active fault and unstable lake bed deposits, created geotechnical concerns for addressing embankment settlement, slope stability, liquefaction potential, lateral spreading mitigation, and bridge, sign, and high-mast foundations.

**COST-SAVING RECOMMENDATIONS**

From engineering technical centers across the firm, Kleinfelder provided numerous time- and cost-saving recommendations for construction, including:

- Reducing the amount of PV drains and surcharge duration needed to meet settlement requirements;
- Using lightweight aggregates to reduce the amount of PV drains and surcharge;
- Reducing the replacement ratio and number of stone columns required to mitigate for liquefaction and lateral spread; and
- Minimizing pile length only to what was required for settlement and/or axial capacity.

**Location:**
Utah County, Utah

**Owner:**
Utah Department of Transportation (UDOT)