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Civil Construction

Atlas Resistance® Pier FOUNDATION REPORT

A CASE HISTORY

Support Existing Structure During Adjacent Excavation

Job Description:
The existing structure houses the Mesa County Jail in Grand Junction, CO. Due to growth in the area, a new justice center was under construction. As part of the new building, an underground tunnel for prisoner transport was planned from the jail building to the justice center. The planned excavation was 14 feet below footing base of the existing jail building which included over excavation for structural fill material under the tunnel. In some areas the deep excavations were proposed within 7 feet of the outside edge of the footing.

This is a view of the jail where workers are excavating the area adjacent to the footing. Atlas Resistance® Modified Piers supported the perimeter of the structure in this area as a tunnel was constructed to a new justice center being built nearby.

Description of Design:
The engineers recommended support of the existing structure using Atlas Resistance® Modified Piers during the excavating and construction of the tunnel. The engineers estimated the load on each pier at 24,000 pounds with an estimated depth of approximately 12 feet below the footing. Suitable bearing for the piers was found at 13 to 15 feet below the footing. Because a portion of the excavation was planned adjacent to the existing jail building, installing a 4-inch diameter pier sleeve over the 3-1/2 inch diameter pier pipe enhanced the stiffness of the pier. After excavation, the engineers specified that the soil near the existing structure be stabilized using polymer stabilizing products and/or plastic sheeting.

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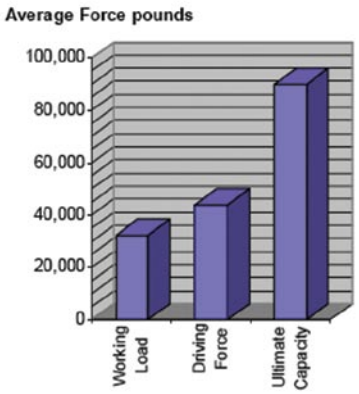
PROJECT SUMMARY

Number of Piers:	7
Part Numbers:	AP-2-UF-3500.165M (PA)
Avg. Drive Force:	43,800 pounds
Avg. Working Load:	32,400 pounds
Ultimate Capacity:	90,000 pounds (with soil support)
Factor of Safety:	1.4 : 1 (Working)
	1.8 : 1 (Design)
Depth:	13 feet to 15 feet

PIER INSTALLATION SUMMARY



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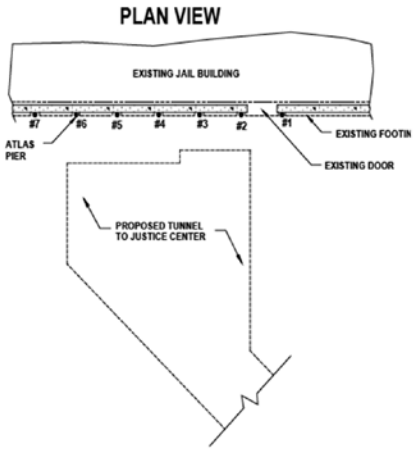
Technicians installing the AP-2-UF-3500.165M(PA) Atlas Resistance® Modified Piers to the existing structure.

Pier spacing was specified at 6 feet on center with an estimated design load of 24,000 pounds.

The plan view above shows the general layout of the seven Atlas Resistance® 2-Piece Modified Piers on the structure and the area of tunnel excavation. Above right is a cross sectional sketch of the Atlas Resistance® Pier installed to the existing jail structure and the relationship of the tunnel excavation to the original structure.



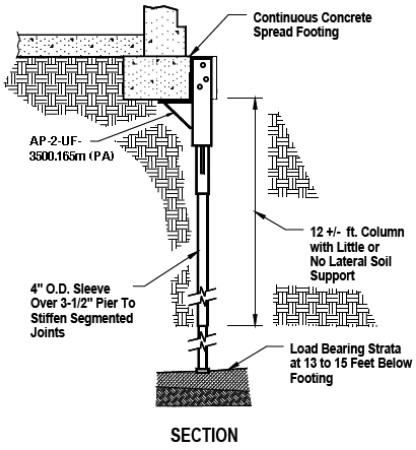


Photo at right shows the wall near the excavation after pier installation.

Success:
After the Atlas Resistance® Piers were installed to a depth of 13 to 15 feet, each pier was tested to an average load of 43,800 pounds. Each pier then had an average working load of 32,400 pounds applied to the pier then the installed.

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