



# Herff Jones Printing Facility

Edwardsville, Kansas

**The Geopier GP3® System provided significant cost savings versus supporting the structure on deep foundations or ground improvement consisting of conventional overexcavation and replacement**

**Description:** Construction of a single story, 126,000 square foot, high-roof office/warehouse. Column loads for the facility range up to approximately 270 kips. The printing and binding areas contain heavy press equipment with loads of up to 150 kips each unit. Slab loading within the rolled paper storage area is on the order of 750 psf.

**Subsurface Conditions:** Up to 12 feet of medium to stiff clayey silt overlying fat clay, extending to depths of approximately 30 feet below grade. Medium dense sand was encountered beneath the clay soils and extended to the depths explored.

**Geopier Solution:** The Geopier GP3® system was selected to support the heavier building foundations and areas of heavily loaded floor slabs where excessive settlements were estimated. The Geopier® system provided cost savings over supporting the structure on deep foundations or ground improvement consisting of conventional overexcavation and replacement beneath the building foundations. Shallow footings designed for an efficient allowable bearing pressure of 5,000 psf were supported by Geopier Rammed Aggregate Pier® (RAP) elements with shaft lengths ranging from 9 to 11 feet.



### PROJECT TEAM

**Geotechnical Engineer:**  
Kleinfelder

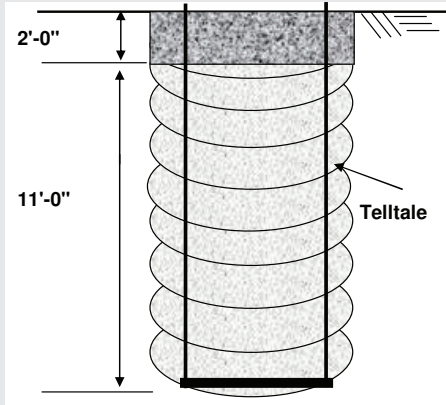
**Structural Engineer:**  
George Butler Associates, Inc.

**General Contractor:**  
Miller-Stauch Construction Co.

**Geopier Installer:**  
Foundation Service Corporation

**Geopier Designer:**  
GFC-Midwest

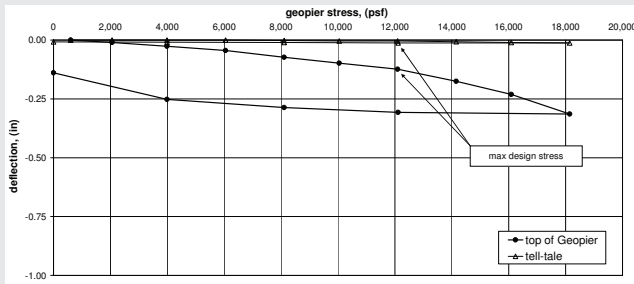
## MODULUS TEST PIER SETUP



The non-production RAP used for modulus testing was installed through the silt and clay to a depth of 13 feet. A steel telltale plate with sleeved rods extending to the ground surface was installed to the bottom of the RAP. Deflection measurements were taken during the modulus test. The results of the telltale deflection provided an indication of the amount of stress dissipation within the RAP. A two foot thick concrete cap was poured over the top of the RAP for testing purposes.

Modulus test results showed 0.12 inches of movement at top-of-pier stress level of 12,098 psf.

## MODULUS TEST RESULTS



The results of the modulus test indicate that a deflection of 0.12 inches was observed at the maximum top-of-RAP design stress of 12,098 psf. The corresponding RAP stiffness modulus of 678 pci exceeded the assumed design stiffness of 150 pci by more than four times. Only negligible telltale deflections were observed during the performance of the test, indicating negligible transfer of stresses to the bottom portion of the RAP.