Hydrostatic Settlement Profiler

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The Hydrostatic Settlement Profiler (HSP) is designed to monitor settlement or heave along a horizontal axis.

Applications

- Monitoring settlement in foundation soil.
- Monitoring settlement in embankments and bridge abutments.
- Monitoring consolidation of surcharged soils.
- Assisting control of compensation grouting.

Operation

The HSP consists of a string of pressure sensors encased in a sealed, fluid-filled tube. The profiler is available in lengths up to 410 feet with sensors spaced at 3, 8, or 16 foot intervals. Because the tube is sealed, there is no need for barometric compensation or a reservoir of fluid, unlike other hydrostatic settlement systems.

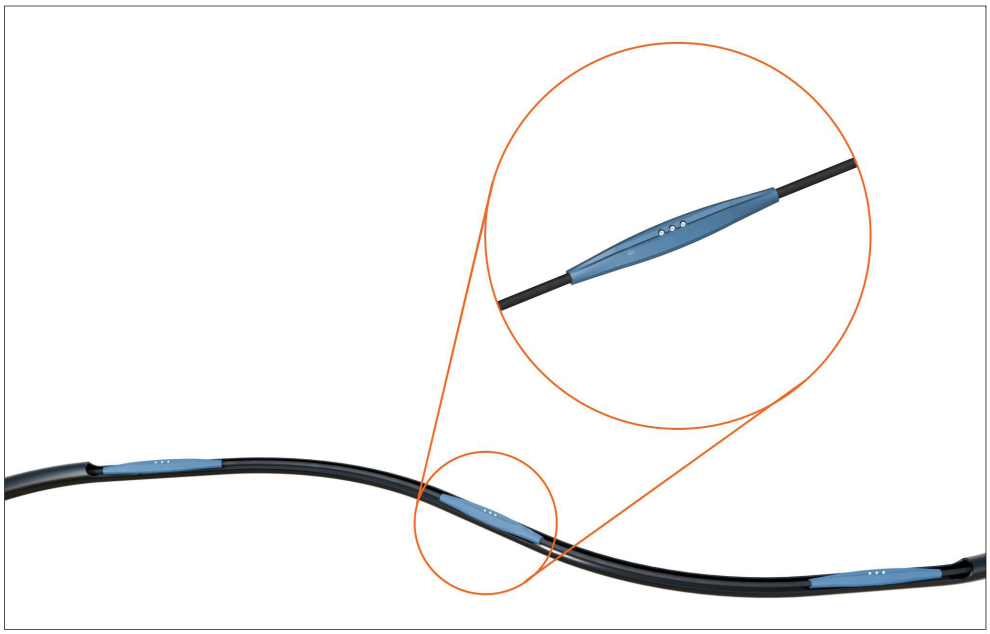
Each sensor measures its local hydrostatic pressure and reports the pressure value as an elevation. Measurements are discrete, so there is no accumulation of error. Changes in elevation indicate settlement or heave.

The HSP can be buried directly in a trench, installed within a conduit, bracketed to a wall, or cast in concrete. Leveling is not required because the profiler can accommodate elevation differentials up to 26 feet.

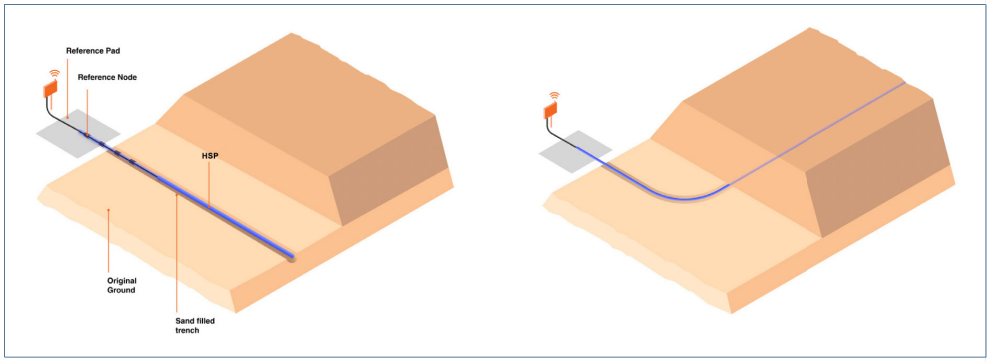
The HSP is typically connected to a wireless logger that forwards measurements to an internet gateway. Sensors are read sequentially, so loggers can read up to 50 nodes without supplemental power. A Geocloud web server receives the measurements and generates profile plots on a secure project website.

Specifications

Range: 26 feet (8m) max differential.
Resolution: 0.0004 inch (0.01mm).
Precision: ±0.004 inch (±1mm) (0.0125% FS).
12 Month Stability: < 0.004 inch (1mm).
Available Lengths: 80 to 400 ft. (25 to 125m).
Sensor Spacing: 3, 8, 16 ft. (1, 2.5, 5m).
Operating Temp: 0°C to 30°C.
Communications: RS485, Modbus RTU.

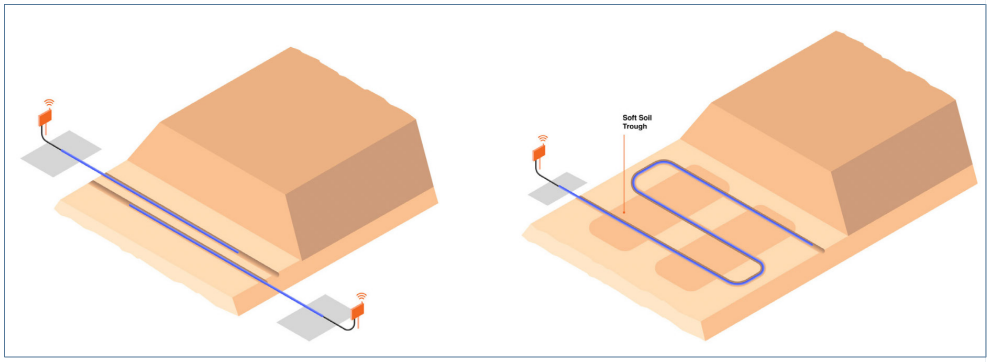


The hydrostatic settlement profiler can be supplied in lengths up to 410 feet with sensors spaced at 3, 8, or 16 foot intervals. It can accommodate elevation differentials up to 26 feet.



Standard Configuration: The HSP can be simply installed in a sand filled trench, directly buried, or installed within a conduit.

Long Section of Embankment: The HSP can be routed with reference sensors placed outside the zone of influence.



Overlap: Monitor wider sections by overlapping HSP systems. A secondary reference pad can be installed on the other side of the earthworks.

More Coverage: The HSP can be routed to target multiple areas of concern or cover multiple cross sections with a single system.