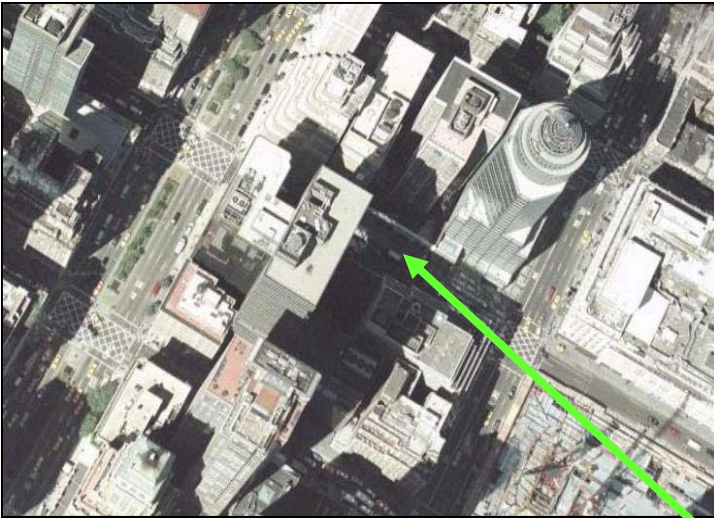


Geo-Instruments: NYC MTA East Side Access



Above: Intersections of 58th, 59th, Lexington Ave, and Park Avenues in Manhattan, NY above the proposed ESA tunnel alignment. WMPBX systems are installed on 58th and 59th Streets to measure tunnel induced movements.

New York's MTA's East Side Access project will connect the Long Island Rail Road's (LIRR) Main and Port Washington lines in Queens to a new LIRR terminal beneath Grand Central Terminal in Manhattan. The project requires tunneling across the upper east side of Manhattan Island in New York, down Park Avenue to the existing Grand Central Terminal. In order monitor the effect of the tunneling operations on existing high value real estate

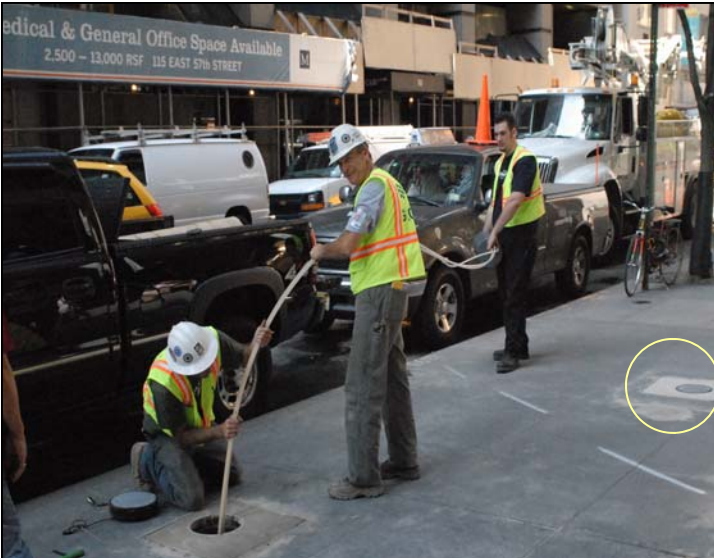
above the tunnel, the project designers specified traditional multiple position borehole extensometers (MPBX) for tunnel alignment cross sections. Many locations are in high vehicular and or pedestrian traffic areas, not easily served by traditional approaches to MPBX systems, due to power and access considerations.

Geo-Instruments offered an alternative to the traditional MPBX system with our Lid Link® WMPBX system. The Lid Link® is a traffic rated, flush mount antenna, and works with our waterproof housing and battery powered WMPBX system. This system concept was first used on the Dulles Airport Automated People Mover System, (2005) in Chantilly Virginia. Lid Link® and the WMPBX designs in use at

Below: MTA's East Side Access plan view of proposed tunnel.



Left: WMPBX installation on 58th Street. Insertion in borehole. Note: circled area, completed installation right mid-ground of image.



ESA are the evolution of the original design with improvements to allow the antenna to be easily blended into existing site conditions, maximizing battery life, and improving data throughput.

The WMPBX system uses custom configured long life battery packs, flush mounted antennas, purpose specific data loggers and rugged displacement transducers to ensure low maintenance long life operation.

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*Helping you get the
 data you need.*



Below: WMPBX grouting with retrievable tremmie, 58th Street.



Installation of the systems was streamlined to minimize disruption on the busy streets of Manhattan. Shipped pre-assembled with fiberglass rods, and groutable anchors at required depths the WMPBX is ready to install in pre-drilled boreholes.

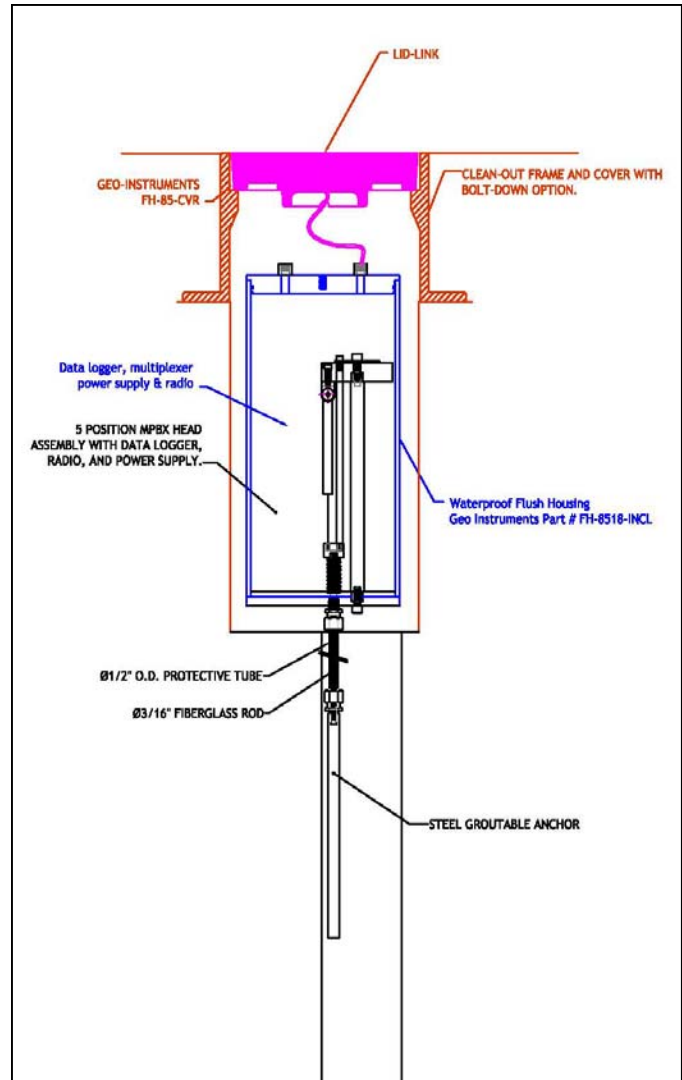
After insertion in the borehole, the systems are grouted with a removable tremmie pipe, and allowed to cure overnight. Following grout cure, the rod tensioning system is unlocked and the WMPBX is ready to collect subsurface settlement or heave data.

The WMPBX system works with secure wireless technologies commonly available today, such as CDMA wireless modems, spread spectrum modems (900Mhz), Zigbee (2.4 GHz) modems and local walk by radio connections. Data flow on this project is provided by via a secure Geo-instruments server, and electronically delivered to the to the owner's project data management consultant for near real time review.

Please contact us for more information, or to see how we can help you solve your tough monitoring problems.



WMPBX Flush mount antenna in its setting frame.



Above: WMPBX typical cross section.

Below: WMPBX complete installation, after sidewalk pad



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