GROUNDWATER EXTRACTION SYSTEM ADDITIONS

GREER, SOUTH CAROLINA

PROJECT MANAGER
DALE CARPENTER, CHMM

PERFORMANCE PERIOD
November 2006 - December 2006

CONTRACT VALUE
$55,000

PURPOSE
Addition of underground piping from two new extraction wells to the onsite treatment system.

HISTORY
The project site is a former disposal facility for spent textile cleaning products. Numerous spills and illegal dumping activities have led to contamination of the surrounding soils and groundwater. Over the years there have been many remediation activities at the site including the removal of source material, installation of groundwater extraction wells and the construction of an on site treatment system. Current remedial activities include the extraction and treatment of a groundwater plume that extends under an adjacent subdivision. The engineering company, (acting under a USEPA contract has oversite and long term maintenance of the site. As part of an ongoing evaluation of the remedial cleanup performance of the groundwater plume the client added two additional extraction wells to the system. The client contracted with Greenleaf to install HDPE piping from the two new wells and connect to the on site treatment system. Additional work included the installation of a effluent discharge line from the treatment building to a discharge point at an adjacent stream.

PROJECT APPROACH
The scope of the work performed included:

- Obtained City of Greer Street Encroachment Permits, Street Closure Permits and Utility Location Searches.
- Installation of 120 feet of 4x2 dual contained HDPE conveyance piping. Most of this work was performed in the city street or in the lawns of private residences. Traffic control measures were implemented as needed. All piping was air tested upon completion of installation and prior to backfilling.
- Installed two lockable spring lift assisted traffic rate steel vaults around the wellheads. These vaults were backfilled with concrete.
- Connected installed piping to the existing wellheads.
- Connected the installed piping to the existing treatment system piping. This activity involved

the rerouting and installation of numerous PVC pipes, fittings and valves.

- Installation of 450 feet of 4" HDPE piping from the treatment system to an outfall at an adjacent stream. This line was installed in the Right-of-Way of a SCDOT highway. Additionally several concrete and asphalt driveways were crossed as part of the pipe routing.
- An asphalt subcontractor was hired to repair driveways, streets and curbs that were removed or damaged during pipe installation activities.
- Site restoration included site grading and installation of sod in lawns that were disturbed during installation activities.

TRENCHING & UNDERGROUND PIPING KENNESAW, GEORGIA

PROJECT MANAGER
Jeff Brown, CHMM

PERFORMANCE PERIOD
April 2001 – May 2001

CONTRACT VALUE
$78,000

PURPOSE
The client contracted for the trenching and installation of all underground piping and connection to an existing air sparge and vapor extraction system.

HISTORY
The project site was an active facility, and the property of which was contaminated with a chlorinated solvent plume. In 2000, the engineering company completed the design of an air sparge and vapor extraction system to remediate the soil and groundwater. The contractor was awarded a contract to complete the underground installation activities related to the installation of the remedial system. The work was self-performed by another environmental company, whom Mr. Brown worked for at the time.

PROJECT APPROACH
The scope of the included:

- Concrete and asphalt saw-cutting in required areas in preparation for piping installation.
- Establishment of erosion controls prior to commencement of trenching activities.
- Trenching and installation of 1-inch galvanized steel vapor extraction piping and 2-inch PVC air sparge piping.
- Construction of air sparge and vapor extraction wellheads and connection to vapor and sparge piping.
- Installation of 2’ x 3’ x 2’ traffic-rated vaults at each wellhead location.
- Extension of grout seal at the top of air sparge and vapor extraction wells so that seal was in contact with the cast-in-place floor of well head vault.
- Connection of vapor and sparge piping to skid-mounted treatment unit.
- Backfilling of trenches with imported, compactable fill in areas that were to be repaved and with native, excavated material in areas that were not to be re-paved. Installation of a 20-mil polyethylene liner, then covered with #57 stone, over the backfilled piping trench from well vault V-8 to where the piping crossed under the fence.
- Pumping the contents of an existing 1,500-gallon UST through a carbon cell and discharging the effluent into an adjacent concrete sump.
- Restoration of site, including replacement of asphalt damaged during well installation activities and worn asphalt requested by client to be replaced to match pre-existing surfaces.

RESULTS

The job was completed on schedule and under budget. In addition, there was no impact to ongoing operations for the client, as Mr. Brown coordinated all trenching that crossed the driveway to the active loading docks when the site was closed.

GROUNDWATER INTERCEPTOR WALL
SPARTANBURG, SOUTH CAROLINA

PROJECT MANAGER
JEFF BROWN, CHMM

PERFORMANCE PERIOD
December 2005 – February 2006

CONTRACT VALUE
$287,000

PURPOSE
Project scope involved the installation of a 25-foot deep by 160 foot long steel sheet pile cut-off wall and a 60-inch diameter by 25-foot deep groundwater collection sump to contain the migration of NAPL-contaminated groundwater from the site.

HISTORY
The project site is a former wood treating facility in Spartanburg, South Carolina. The plant discontinued operation and all structures have been removed. An existing groundwater pump and treat (GW P&T) system currently handles groundwater extracted from several onsite wells.

PROJECT APPROACH
The scope of the work performed included:

- Clearing of brush and trees from areas along a creek to gain access to cut-off wall installation area.
- Installation of silt fence along creek bank.
- Installation of 160 feet of steel sheet pile as a cut-off wall to a depth of 25-feet.
- Drilling and installation of a 60-inch diameter collection sump to a depth of 25 feet.
- Trenching and installation of 1,000 feet of HDPE conveyance piping from the sump to a tie-in on the existing GW P&T system.
- Installation of a well vault over the collection sump and a pre-cast concrete flow control structure to direct
  extracted water to the treatment system or to the sanitary sewer.
- Installation of approximately 60 linear feet of 54-inch reinforced concrete pipe to extend an existing storm drain to beyond the cut-off wall.
- Construction of a storm water outfall from the 54-inch RCP to the adjacent stream using filter fabric and rip-rap.
- Upon completion of all site work, the area was graded and seeded. Areas along the stream bank

that had been disturbed during construction were restored to pre-project condition.

The project was completed on time and on budget, with no safety incidents.