GeoTrans, Inc.
A TETRA TECH COMPANY

363 Centennial Parkway
Suite 210
Louisville, Colorado 80027

www.geotransinc.com
(303) 665-4390; FAX (303) 665-4391

January 14, 2009

Mr. Scott Miller
Remedial Project Manager
U.S. Environmental Protection Agency
Region IV, Superfund North Florida Section
61 Forsyth Street, SW
Atlanta, GA 30303-3104

Subject: Transmittal of the "Supplemental Hawthorn Group Investigation and Monitoring Well Installation Workplan, Revision #3, Koppers Inc. Site, Gainesville, Florida"

Dear Mr. Miller:

On behalf of Beazer East, Inc., attached is a copy of the revised November 11, 2008 workplan titled "*Supplemental Hawthorn Group Investigation and Monitoring Well Installation Workplan, Koppers Inc. Site, Gainesville, Florida, Revision #3, January 14, 2009*". The workplan has been revised to address comments provided by the U. S. Environmental Protection Agency (EPA) in a letter dated December 23, 2008. Please feel free to contact me at (303) 665-4390, if you have any comments or questions.

Sincerely,

James R. Erickson

James R. Erickson, P.G.
Principal Hydrogeologist

Enclosure

cc: W. O'Steen, EPA
K. Helton, FDEP
J. Mousa, ACEPD
R. Hutton, GRU
M. Slenska, BEI
M. Brourman, BEI
G. Council, GT

SUPPLEMENTAL HAWTHORN GROUP INVESTIGATION AND MONITORING WELL INSTALLATION WORKPLAN

KOPPERS INC. SITE
GAINESVILLE, FLORIDA

Prepared For:

Beazer East, Inc.

Prepared by:

GeoTrans, Inc.
363 Centennial Parkway, Suite 210
Louisville, Colorado 80027

January 14, 2009

Revision #3

TABLE OF CONTENTS

LIST OF FIGURES

1.0 INTRODUCTION

This workplan presents the supplemental Hawthorn Group (HG) monitoring well installation and Dense Nonaqueous Phase Liquid (DNAPL) investigative boring programs for the Koppers Inc. portion of the Cabot Carbon/Koppers Superfund Site in Gainesville, Florida (the Site). The locations of the proposed monitoring wells and DNAPL investigative borings were based on the review of existing Site data and previous well locations.

The objective of the proposed program is to further investigate the lateral and vertical extent of Site-related impacts within the HG deposits to the east of the Site.

1.1 SITE DESCRIPTION

The Site is located in the City of Gainesville, in Alachua County, Florida (Figure 1). The Site encompasses approximately 90 acres and has been used continuously as an active wood-treating facility for approximately 90 years. Adjacent properties include the former Cabot Carbon portion of the Superfund site to the east, private residences to the west and northwest, and commercial facilities and private residences to the north and south.

Detailed descriptions of the Site historical source areas are provided in the GeoTrans (2004a) report. The Site hydrogeologic conceptual model is provided in groundwater flow and transport modeling report (GeoTrans, 2004b).

1.2 HYDROGEOLOGY OF HAWTHORN GROUP DEPOSITS

The HG deposits underlie the Surficial Aquifer and consist of a thick sequence of relatively low-permeability unconsolidated sedimentary deposits. The HG deposits are approximately 120 to 125 feet thick beneath the Site and separate the overlying Surficial Aquifer from the underlying Floridan Aquifer with low-permeability clay, clayey sand, and silt deposits interbedded with higher-permeability sand, silty sand, and carbonate deposits. The Hawthorn Group deposits are not a major source of groundwater for this area. Vertical hydraulic-head distributions in the Hawthorn Group deposits are largely controlled by interbedded low-permeability clay units. The horizontal groundwater flow component for this formation is only about a factor of two greater than the vertical flow component, when typically in similar interbedded sedimentary deposits the horizontal component is orders of magnitude greater. Hence, vertical groundwater flow, although low, is a significant flow component for this formation.

Moderately permeable sedimentary deposits that lie between the HG upper and lower clay units has been termed the Upper Hawthorn and moderately permeable sedimentary and carbonate deposits that lie between the HG middle and lower clay units have been termed the Lower Hawthorn. Lateral groundwater flow within the Upper Hawthorn is generally to the northeast at the Site, similar to the Surficial Aquifer flow direction. A groundwater divide is present in the Lower Hawthorn resulting in groundwater flow to the north-northeast along the eastern half of the Sit and groundwater flow to the north-northwest along the western half of the Site.

Monitoring wells at the Site indicate a downward hydraulic gradient across the HG deposits. The vertical hydraulic-head difference across the HG deposits is approximately 120 feet.

1.3 EXISTING HAWTHORN GROUP WELLS

Currently, there are 39 HG wells completed at or near the Site (Figure 1). A total of 19 HG wells are completed in the Upper Hawthorn and a total of 20 HG wells are completed in the Lower Hawthorn.

2.0 PROJECT OBJECTIVES AND APPROACH

2.1 OBJECTIVE

The primary objectives of this program are to: 1) Define the lateral and vertical extent of dissolved-phase impacts in the HG deposits to the east of the Site; and 2) Investigate the potential for lateral migration of DNAPLs from the former source areas to the eastern Site property boundary. This current workplan addresses the installation of three nested HG well pairs into the Upper and Lower Hawthorn. In addition, 11 borings will be advanced into the Upper Hawthorn and two borings will be advanced into the Lower Hawthorn along the eastern Site property boundary to investigate potential DNAPL migration.

The technical challenge to the implementation of this program is to prevent new wells and boreholes from inadvertently providing future vertical conduits for the downward migration of Site constituents. One of the lessons learned from UF Aquifer well installations is that even with extraordinary precautions to prevent “drag down” of constituents from overlying deposits, it is difficult to completely eliminate the potential for “drag down.” The hydraulic-head differential across the HG deposits is difficult to overcome during well installation at the Site. Similarly, it will be difficult to ensure long-term integrity of the grout seal outside of the casing, where the possibility exists for the wells to become direct conduits for Site constituents.

2.2 WELL LOCATIONS

Monitoring wells at the Site indicate a downward flow component from the Surficial Aquifer to the Upper and Lower Hawthorn. The vertical hydraulic-head difference from the Surficial Aquifer to the Upper Hawthorn is approximately 2 feet and the vertical hydraulic-head difference from the Upper Hawthorn to the Lower Hawthorn is approximately 30 feet.

Three Upper and Lower Hawthorn monitoring well pairs (total of six HG wells) are proposed for this investigation program. The approximate well locations are shown in Figure 1; however, the final locations for all new wells will depend on accessibility and permission from off-property landowners.

Similar to previously installed HG monitoring wells, monitoring wells with the letter attachment “S” will be completed in the Upper Hawthorn and wells with the letter attachment “D” will be completed in the Lower Hawthorn.

Constituent impacts are present off-Site to the east of the Site property boundary within the Upper and Lower Hawthorn. This is based on impacts in water quality results for off-Site monitoring wells HG-20S/20D, HG-21S/21D, and HG-26S/26D. Off-Site monitoring wells ITF-2 and ITF-3 are relatively clean.

Monitoring wells proposed to investigate impacts to the east of the Site will be installed in the Upper and Lower Hawthorn. The following three nested monitoring well pairs are proposed to be installed off-Site to the east of the property boundary:

Monitoring Wells HG-27S/27D

Monitoring wells HG-27S/27D will be installed in the Upper and Lower Hawthorn in the region north-northeast of monitoring wells HG-21S/21D (Figure 1). Site impacts have been observed in HG-20S/20D and HG-21D; thus, the proposed locations for monitoring wells HG-27S/27D are approximately downgradient of this area.

Monitoring Well HG-28S/28D

Monitoring wells HG-28S/28D will be installed in the Upper and Lower Hawthorn in the region east-northeast of HG-20S/20D (Figure 1). The proposed locations for monitoring wells H-28S/28D will be utilized to investigate the extent of impacts observed in wells HG-20S/20D.

Monitoring Well HG-29/29D

Monitoring wells HG-29S/29D will be installed in the Upper and Lower Hawthorn in the region northeast of HG-26S/26D. The proposed locations for monitoring wells HG-29S/29D are approximately on the northern boundary of the former Cabot Carbon Site. HG-29S/29D will be utilized to investigate the extent of downgradient impacts from monitoring well HG-26S/26D.

2.3 DNAPL INVESTIGATIVE BOHEHOLE LOCATIONS

A total of 13 boreholes will be advanced into the Upper and Lower Hawthorn to investigate the potential for lateral migration of DNAPLs along the eastern Site property boundary. The proposed boring locations are downgradient of the former source areas where lateral migration of DNAPLs would most likely be encountered. The proposed locations for borings UHB-1 through UHB-11, and LHB-1 and LHB-2 are shown in relation to the former source areas and existing shallow HG monitoring wells on Figure 2.

3.0 WELL CONSTRUCTION

The six proposed monitoring wells will be installed off-Site to the east of property. The HG wells will be completed as 2-inch diameter schedule 40 polyvinyl chloride (PVC) monitoring wells. PVC well casing and screens will be utilized for the construction of the monitoring wells, since the wells are located outside of residual creosote DNAPL impacts; as such, degradation of PVC materials would not be anticipated. The screen intervals for the wells will be approximately 10-feet in length and will have a 10-slot screen opening.

3.1 DRILLING AND WELL COMPLETION

Continuous 3-inch to 4-inch diameter soil/rock core will be collected from all rotasonic borings and logged by the oversight geologist/engineer to characterize lithology and observable creosote impacts, if any. Core will be described and photographed before disposing of the core with the drill cuttings. Core samples will not be saved and stored, since sufficient on-Site core currently exists for the HG deposits. The core will be used to identify the tops and bottoms of the Upper and Lower Hawthorn. The well completion depth and screen intervals will be based on the depths to these geologic contacts.

A sodium-bromide tracer will be used to tag drilling fluid used in the drilling and construction of the final borehole used to construct the well. The tracer will not be used during isolation casing installation, similar to the recent UF Aquifer monitoring well installation programs. The tracer will added to the drilling makeup water reservoir at an approximate concentration of 500 parts per million (ppm).

Because all monitoring wells will be installed in potentially impacted areas, they will require a telescoping cased completion. The Upper Hawthorn monitoring wells (HG-27S, HG-28S, and HG-29S) will be constructed with a single telescopic isolation casing by drilling a nominal 10-inch diameter hole from land surface to approximately 1-2 feet into the HG upper clay unit with a rotasonic override casing. A 6-inch ID mild-steel isolation casing will be set in the upper clay unit and grouted to land surface. After an appropriate grout set-up period of at least 12 hours, a nominal 6-inch hole will be advanced through the center of the 6-inch ID casing into the Upper Hawthorn using a nominal 6-inch OD rotasonic override casing. A permanent 2-inch ID PVC well casing and screen will be constructed inside of the override casing (Figure 3).

The Lower Hawthorn monitoring wells (HG-27D, HG-28D, and HG-29D) will be constructed with two telescoping mild-steel isolation casings, prior to setting the final 2-inch ID well casing. The first isolation casing will be installed by drilling from land surface to approximately 1-2 feet into the HG upper clay unit. A 10-inch ID isolation casing will be set in the upper clay unit and grouted to land surface. After an appropriate grout set-up period of at least 12 hours, a nominal 10-inch hole will be advanced through the center of the 10-inch ID casing approximately 5 feet into the HG middle clay unit using a 10-inch ID rotasonic override casing. A permanent 6-inch ID mild-steel isolation casing will be set inside of the override casing and grouted to land surface. After an appropriate grout set-up period of at least 12 hours, a nominal 6-inch hole will be advanced through the center of the 6-inch ID casing into the Lower Hawthorn using an approximately 6-inch OD rotasonic override casing. A permanent 2-inch ID PVC well casing and screen will be constructed inside of the override casing (Figure 3).

Each monitoring well will be completed as per the State of Florida requirements for monitoring wells. The wells will be constructed with 2-inch ID schedule 40 PVC screen and casing. The well screens will be 10-feet in length with a 10-slot screen opening. A PVC casing with borehole centralizers will extend to land surface. The filter pack will consist of 10 x 20 silica sand and will be tremied into the borehole through the override casing. The filter pack will extend approximately 2 feet above the top of the well screen and a 1 to 2-foot thick bentonite plug will be placed above the filter pack. The bentonite will be allowed to hydrate for approximately 2 hours prior to grouting the remainder of the borehole to land surface. All grout will be tremied into the borehole.

3.2 DNAPL INVESTIGATIVE BORING PROCEDURES

Continuous 4-inch nominal diameter soil core will be collected from the investigative rotasonic borings. The cores will be logged by the oversight geologist/engineer to characterize lithology and observable creosote impacts, if any, in the Surficial Aquifer and in the HG Deposits. Core will be described, photographed and carefully evaluated for the presence of NAPLs before disposing of the core with the drill cuttings. The core samples will be disaggregated to facilitate the identification of residual DNAPLs, if present. In addition, potable water will be sprayed on the disaggregated core to facilitate the identification and logging of residual DNAPL that may be present. The DNAPL presents as small “blebs” or droplets on the surface of the wet core. These observations will be recorded in the lithologic log. Core samples will not be saved or stored, since sufficient on-Site core currently exists for the HG deposits. Select core samples may be preserved for analysis. The core also will be used to identify and describe major lithologic unit tops and bottoms. Upon completion of the boring, it will be abandoned.

Upper Hawthorn Investigation

Because all of the investigative borings will be located in potentially impacted areas, they will require a casing to be installed into the top of the HG Upper Clay unit. The casing will consist of a temporary 7-inch nominal rotasonic override casing that will be driven approximately 1-2 feet into the HG upper clay unit. Upon reaching the targeted depth for the temporary (rotasonic casing), and confirming that the casing is seated in the clay, the rotasonic core barrel will be withdrawn approximately 5 feet and the lower 5 feet of the borehole will be backfilled with medium bentonite chips. Potable water will be added and the chips will be allowed to hydrate for approximately 1 hour. The rotasonic casing will then be advanced to the base of the bentonite plug creating a temporary seal with the 7-inch nominal override casing prior to advancing a core barrel inside of the 7-inch casing to the HG middle clay unit. Core samples will be collected from within the override casing using a 4- inch nominal rotasonic core barrel.

Lower Hawthorn Investigation

Similar to the Upper Hawthorn investigative borings, isolation casings will be installed prior to advancing through the HG upper and middle clay units in an attempt to mitigate constituent “drag down” to the Lower Hawthorn. A temporary isolation casing will be installed into the HG upper clay unit, similar to the investigative borings for the Upper Hawthorn. The isolation casing will consist of a 10-inch nominal rotasonic override casing that will be driven approximately 1-2 feet into the HG upper clay unit. Upon reaching the targeted depth for the temporary (rotasonic) casing and confirming that the casing is seated in the clay, the rotasonic core barrel will be withdrawn approximately 5 feet and the lower 5 feet of the borehole will be backfilled with medium bentonite chips. Potable water will be added and the chips will be allowed to hydrate for approximately 1 hour.

The rotasonic casing will then be advanced to the base of the bentonite plug to create a temporary seal with the 10-inch nominal override casing. An approximately 9-inch diameter override casing will then be advanced through the inside of the 10-inch casing to the HG middle clay unit. The 9-inch override casing will be advanced approximately 3-5 feet into the HG middle clay unit. A permanent 6-inch ID mild-steel isolation casing will be set inside of the 9-inch override casing and grouted to land surface. After an appropriate grout set-up period of at least 12 hours, a nominal 4-inch core barrel will be advanced through the center of the 6-inch ID permanent casing to the top of the HG lower clay unit. Core samples will be collected from below the 6-inch casing using a 4- inch nominal rotasonic core barrel.

The core samples will be logged and documented as described above. After the targeted depth has been reached, the core barrel will be used as a tremie pipe to backfill the boring with bentonite chips to ground surface. The barrel will be slowly withdrawn as the chips are added. It should not be necessary to hydrate the chips since they will be placed below the water table. In the event that DNAPLs are encountered, a bentonite-cement grout seal will be used to backfill the open borehole. Each of the investigative boring locations will be staked and clearly marked for subsequent surveying.

In the event that DNAPLs are encountered, a contingency plan will be developed and implemented to investigate the lateral extent of DNAPLs downgradient of these boring locations. Depending on the lateral extent of DNAPL impacts, the contingency plan may consist of an additional boring installed downgradient of the DNAPL impacted areas or a more extensive program to investigate the lateral downgradient extent of impacts on adjacent properties. It is anticipated that supplemental DNAPL investigative borings will be installed on the adjacent property to the east of the railroad right-of-way to avoid access issues with the railroad. A final contingency plan to investigate impacts to the east of the property will not be developed until after the results of the first phase of investigative boring are completed.

3.3 BOREHOLE AND CASING GROUTING

The grout slurry to be used in monitoring well and telescoping casing installation will consist of ASTM Type I Portland cement, powdered bentonite, and potable city water. The cement will first be mixed into a smooth slurry using 6 to 7 (per ASTM) gallons of water for each 94-pound bag of cement; 5 pounds of powdered bentonite will be added to the cement mixture to minimize cement shrinkage during the curing process. The annular spacing outside of all telescoping casings will be filled from the bottom up via a tremmie pipe. Where required, casing centralizers will be installed at appropriate distances on the outside of all casings to help minimize grout channeling and to help ensure a complete grout seal. The grout will be allowed to cure a minimum of 12 hours prior to additional work being performed inside of the casing.

3.4 EQUIPMENT DECONTAMINATION

All drilling equipment, rods, bits, tools, and rotasonic casing that enter the borehole during the drilling and installation of each of the telescoping casings will be decontaminated by steam/pressure washing prior to advancing the borehole to the next surface/well casing completion depth. Similarly, all drilling equipment and tools will be decontaminated prior to drilling the open hole beneath the lowermost casing and prior to starting a new borehole. The same procedure will be used for the investigative borings.

3.5 WELL SURFACE COMPLETION AND DEVELOPMENT

Each 2-inch diameter PVC well casing will be completed as a flush mount, where appropriate. The flush mounts will consist of a manhole encased in a 3-foot by 3-foot by 6-inch thick concrete pad. Each pad will be completed 3 inches above existing grade with the apron tapered 2 inches lower such that precipitation runoff will flow away from the well. In areas where a flush mount is not possible, an above grade completion will be installed. A protective steel locking casing will be placed over each well casing. Each stickup will be spray painted safety yellow with the well ID stenciled with black paint. A 3-foot by 3-foot by 6-inch thick concrete pad will be constructed around each stickup, where appropriate. Each pad will be completed 3 inches above existing grade with the apron tapered 2 inches lower such that precipitation runoff will flow away from the well. Bollard poles will be located around all casings with stickup for surface protection, as needed. All locks for the wells will be keyed alike and match existing Site locks. After installation, the ground surface and the top of each inner well casing will be surveyed to within 0.01-foot vertical accuracy. As-built well diagrams will be constructed for each of the wells.

The wells will be developed no sooner than 24 hours after installation to remove fine material from around the monitored interval of each well. Wells will be developed by bailing or by pumping, as determined by the field geologist, in consultation with the drilling firm. Well development shall consist of over-pumping of the well until the discharge water appears to be visibly clear. The purge water will be monitored for pH, temperature, specific-conductance, turbidity, and bromide. Wells will be developed up to a maximum of 4 hours or until the water-quality field measurements become stable and the purge water is visibly free of sand, as documented by the field geologist.

Data collection and recording will follow procedures used in previous fieldwork at the Site. A real-time evaluation of the data and field notes from the drilling of the borehole will be conducted to determine if there is a potential for cross-contamination during construction. The review will include all well-construction field notes, core examination (including FID/PID headspace measurements), and any downhole logs.

3.6 GROUNDWATER SAMPLING

Following the development of the wells, a groundwater sample will be collected from each of the wells and analyzed for potential Site constituents. Sample collection procedure and collection criteria will be similar to the existing monitoring program at the Site described in the Soil and Ground Water Sampling Plan (TRC 2002a) and Floridan Aquifer Monitoring Plan (TRC 2004).

3.7 INVESTIGATIVE DERIVED WASTE

All wastewater and soil generated during the activities described in this workplan, including wastewater generated from drilling, development, and sampling will be containerized in drums or bulk tanks. The aqueous fractions from drums or bulk tank(s) will be mixed with influent water from the Surficial Aquifer groundwater extraction system and treated on-Site, prior to discharging to the permitted POTW. Soils and rock cuttings will be staged in sealed roll-off containers or drums for characterization and off-Site disposal.

3.8 PROJECT MANAGEMENT PLANS

The project management plans that will be utilized to guide the work outlined in this section will include the following documents:

1) Health and Safety Plan (HASP);
2) Sampling and Analysis Plan (SAP); and
3) Quality Assurance Project Plan (QAPP).

A HASP and QAPP were previously prepared (TRC, 2002b; TRC, 2002c) and incorporated the items listed below:

<u>Health and Safety Plan</u>

A project-specific HASP (TRC 2002b) has been prepared to define the health and safety requirements for this project. This HASP establishes the procedures and requirements used to minimize health and safety risks to persons working on the project. The HASP meets the requirements of the Occupational Safety and Health Administration (OSHA) Standard, 29 CFR 1910.120 and 29 CFR 1926.65, “Hazardous Waste Operations and Emergency Response”. The HASP includes a discussion of the following:

- Health and safety responsibilities;
- Hazard analysis;

- Personnel training requirements;
- Medical surveillance program;
- Site control procedures;
- Decontamination requirements; and
- Safety procedures and emergency procedures.

Quality Assurance Project Plan

Quality assurance/quality control activities and requirements, including project quality objectives, field data reduction, data validation, and quality assurance objectives for measurements for all groundwater samples collected under this workplan, will be performed as specified in Quality Assurance Project Plan (TRC 2002c). The QAPP plan includes the following:

- Quality assurance (QA) objectives;
- Sampling procedures;
- Sampling custody;
- Analytical procedures;
- Calibration, controls, and frequency;
- Data reduction validation and reporting;
- Quality Control (QC) procedures;
- Performance and system audits;
- Assessment procedures for data acceptability;
- Preventive maintenance;
- Corrective action;
- QA reports to management;
- SOPs for laboratory sampling control and custody;
- Data validation in analytical reports; and
- Analysis for pentachlorophenol.

Sampling and Analysis Plan

The SAP will be amended, if necessary, to accommodate any new procedures needed for this fieldwork. The relevant SAP sections deal with the following:

- Collection procedures;
- Sampling procedures;
- Field measurement procedures;
- Sampling handling;
- Chain-of-Custody procedures;
- Field analytical procedures;
- Sample control; and
- Sample analysis.

4.0 REPORTING AND SCHEDULE

4.1 REPORTING

A letter report documenting the results of activities described in this workplan will be submitted for Agency review after the completion of the well-drilling and investigative boring programs and the results of the groundwater samples are obtained. The letter report will include a description of well completion activities, problems encountered, borehole logs for the monitoring wells and investigative borings and as-built well completion diagrams.

Groundwater samples will be collected approximately 1 week after the development of the wells. The laboratory results of these analyses will be submitted to the stakeholders as part of the final completion report.

4.2 SCHEDULE

The schedule for implementation of this workplan will be dependent on the time required for stakeholders review, comment, and approval of the workplan. In addition, the schedule for the monitoring well installation will be dependent on obtaining access agreements from off-property landowners and on driller availability. Once stakeholder approval of the workplan is received, it will require approximately 4 months to complete the wells. The following is a list of major tasks and estimated time to complete following approval of the workplan:

1) Develop bid documents, solicit bids, and contract driller (2 weeks);
2) Schedule driller and mobilize to field (3 weeks);
3) Well installation and development (5 weeks);
4) Investigative boring sampling (1 week)
5) Groundwater sampling and laboratory reporting results (3 weeks); and
6) Report completion (1 week).

5.0 REFERENCES

GeoTrans, 2004a, Addendum to the Floridan Aquifer Monitoring Program, Supplemental Upper Floridan Aquifer Monitoring Well Installation, Koppers, Inc. Site, Gainesville, Florida, June 24, 2004.

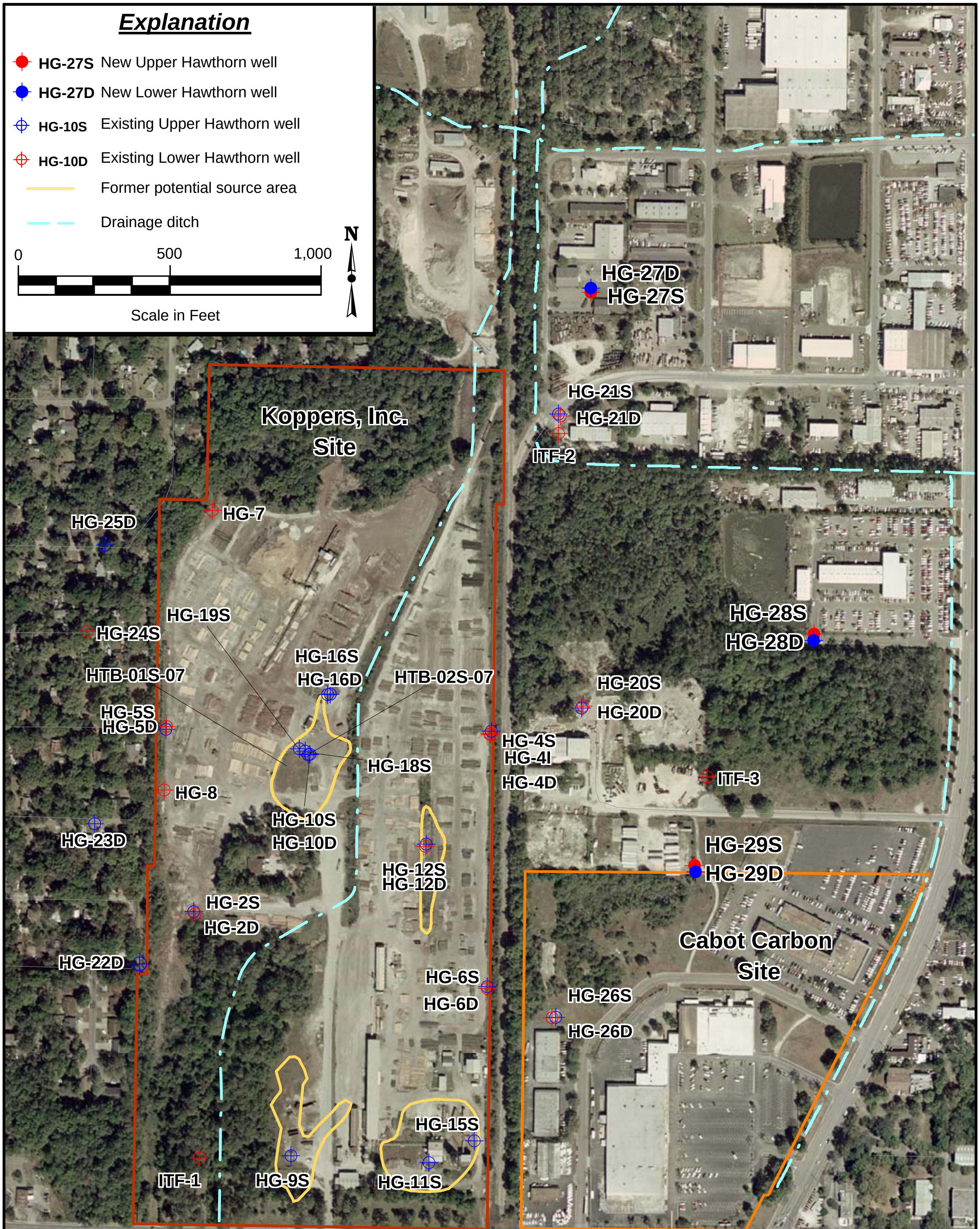
GeoTrans, 2004b, Data Report for Additional Investigation of Hawthorn Group DNAPL Source Evaluation for the Koppers Industries Property, Cabot Carbon/Koppers Superfund Site, Gainesville, Florida, September, 2004.

TRC, 2002a. Soil and Ground Water Sampling Plan. Cabot Carbon/Koppers Superfund Site, Gainesville, Florida. January 2002.

TRC, 2002b. Health and Safety Plan. Cabot Carbon/Koppers Superfund Site, Gainesville, Florida. January 2002.

TRC, 2002c. Quality Assurance Project Plan for the Additional Characterization of the Hawthorn Group Formation Workplan. Cabot Carbon/Koppers Superfund Site, Gainesville, Florida. January 2002.

TRC, 2004, Floridan Aquifer Monitoring Plan, Cabot Carbon/Koppers Superfund Site, Gainesville, Florida, June 2004.



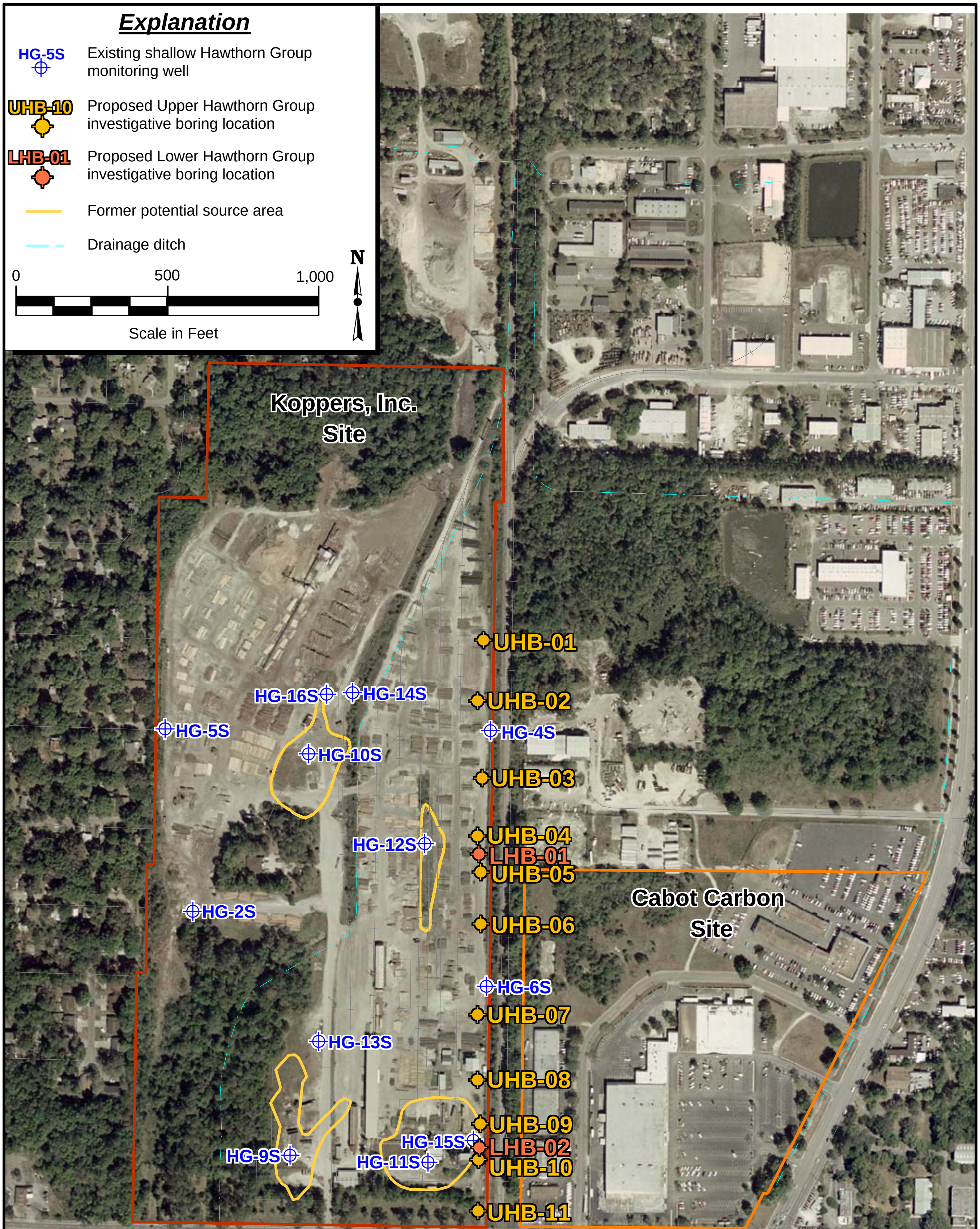
TITLE: Locations of existing and new Hawthorn Group wells

LOCATION: Cabot Carbon/Koppers Superfund Site, Gainesville, Florida

GeoTrans, Inc. A TETRA TECH COMPANY

CHECKED	JRE	FIGURE:
DRAFTED	LAD	1
FILE	UF_HG_WELLS.WOR	
DATE	12-29-08	

T:\Gainesville\Mapinfo\wells\HG Wells_aerial_060308.WOR



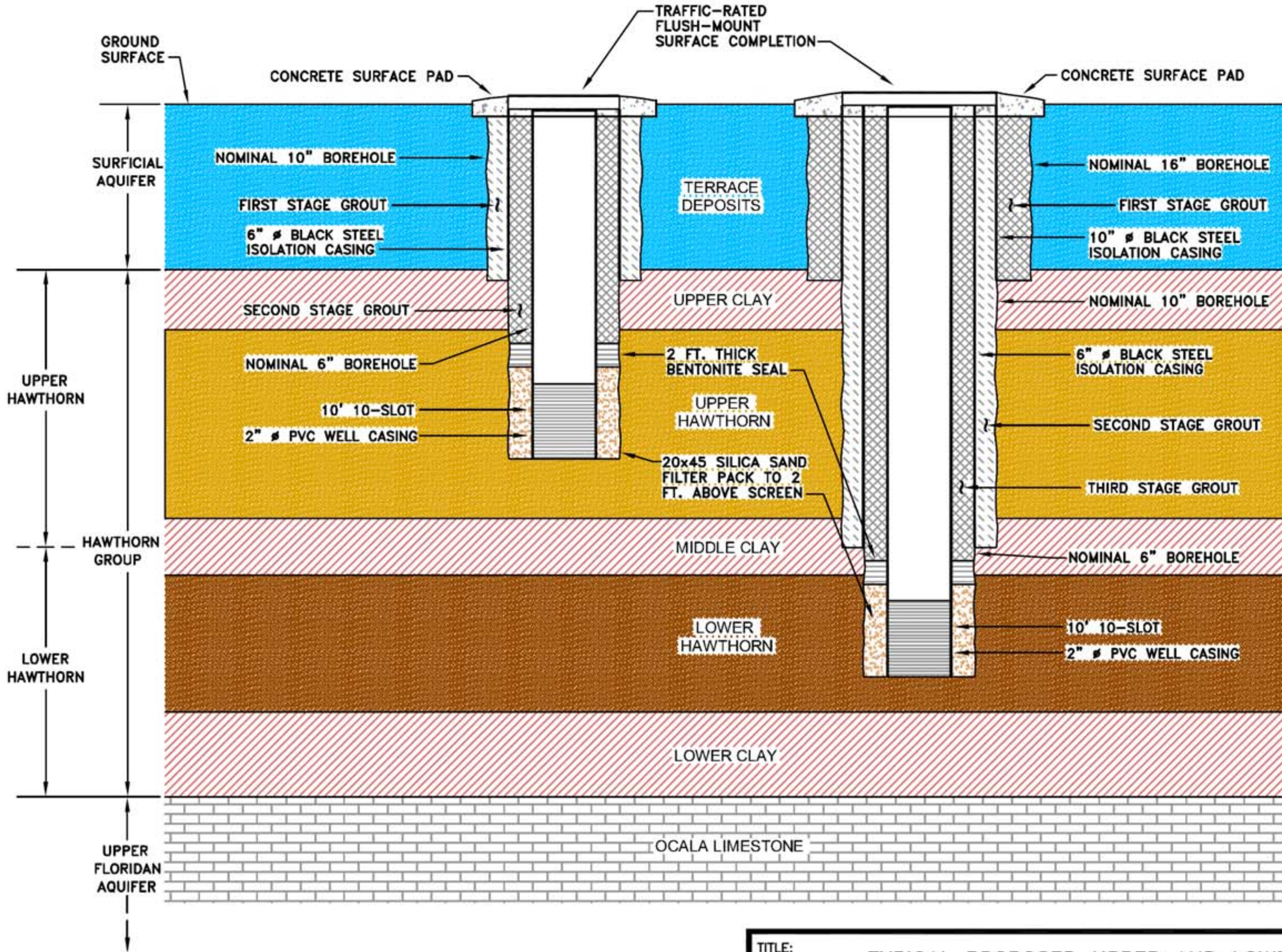
TITLE: LOCATIONS OF PROPOSED HAWTHORN GROUP INVESTIGATIVE BORINGS

LOCATION: Cabot Carbon/Koppers Superfund Site, Gainesville, Florida

GeoTrans, Inc. A TETRA TECH COMPANY

CHECKED	JRE	FIGURE:
DRAFTED	BFS	2
FILE	New HG 090808.wor	
DATE	09/08/08	

T:\Gainesville\Mapinfo\wells\New HG 010909.wor



NOT TO SCALE

TITLE: TYPICAL PROPOSED UPPER AND LOWER HAWTHORN MONITORING WELL CONSTRUCTIONS

LOCATION: Cabot Carbon/Koppers Superfund Site, Gainesville, Florida

GeoTrans, Inc. A TETRA TECH COMPANY

CHECKED	JT	FIGURE:
DRAFTED	DB	3
PROJECT	NA	
DATE	6-12-08	

T:\Gainesville\Hawthorn Wells\Work Plan\Revision 3 2008\Fig 2 - typ proposed HG wells.dwg