PHASE II REMEDIAL INVESTIGATION WORK PLAN

MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA
NCD NUMBER 003149556

Prepared for:

CTS CORPORATION
905 WEST BOULEVARD NORTH
ELKHART, INDIANA 46514

Prepared by:

MACTEC ENGINEERING AND CONSULTING, INC
1308 PATTON AVENUE
ASHEVILLE, NORTH CAROLINA 28806

FEBRUARY 4, 2010

MACTEC PROJECT 6686-08-1744

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engineering and constructing a better tomorrow

February 4, 2010

Ms. Bonnie Ware
North Carolina Department of Environment and Natural Resources
DWM, Superfund Section, Inactive Hazardous Sites Branch
585 Waughtown Street
Winston-Salem, North Carolina 27107

Subject: **Phase II Remedial Investigation Work Plan**
Mills Gap Road Site
Skyland, North Carolina
NCD Number 003149556
MACTEC Project 6686-08-1744

Dear Ms. Ware:

On behalf of CTS Corporation (CTS), MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to provide this Phase II Remedial Investigation Work Plan (Plan) for the above-referenced Site. This Plan has been prepared in general accordance with the requirements outlined in a January 6, 2010, letter from the North Carolina Department of Environment and Natural Resources (NCDENR) Inactive Hazardous Sites Branch (IHSB) to CTS, and the IHSB *Guidelines for Assessment and Cleanup*, dated October 2009.

If you have questions regarding this Plan, please contact us at (828) 252-8130.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.

Susan E. Kelly, P.E., L.G.
Senior Engineer

Matthew E. Wallace, P.E.
Principal Engineer

SEK/MEW:sek

cc: Marvin Gobles, CTS Corporation
Elizabeth Bottorff Ahlemann, CTS Corporation
Michael Dolan, Jones Day
William Clarke, Robert & Stevens, P.A.

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1.0 INTRODUCTION

MACTEC Engineering and Consulting, Inc. (MACTEC) has prepared this Phase II Remedial Investigation Work Plan (Plan) on behalf of CTS Corporation (CTS) pursuant to the requirements outlined in a January 6, 2010, letter from the North Carolina Department of Environment and Natural Resources (NCDENR) Inactive Hazardous Sites Branch (IHSB) and the IHSB *Guidelines for Assessment and Cleanup*, dated October 2009 (*Guidelines*). The Phase II Remedial Investigation (RI) will occur in phases, with the first phase being soil assessment at three potential source areas associated with former Site operations. The data collected during the soil assessment will be used along with data collected during the Phase I RI to develop subsequent sampling locations and methods necessary to characterize the horizontal and vertical extent of contamination associated with former Site operations. The collected data will also be used in conjunction with the results of the Phase I RI to develop a list of Site-specific constituents of concern.

2.0 PROPOSED SCOPE OF WORK

The proposed scope of work includes methods and procedures to assess three potential source areas associated with former operations at the Site. These areas include: 1) the former waste water pretreatment system (WWPS), including a potential gravel filter reportedly located at the same location as the WWPS, and the Site's sanitary sewer lines, 2) the former contingency basin, and 3) the area located south of the Site building and north of the gravel road. MACTEC will update the Site Health and Safety Plan to address assessment activities proposed in this Plan.

2.1 PROPOSED SAMPLING LOCATIONS AND METHODS

Sampling locations and methods for the three potential source areas are described below. Soil samples will be collected from the potential source areas in accordance with Appendix A of the IHSP *Guidelines*.

2.1.1 WWPS and Sanitary Sewer

The former WWPS building, including a reported gravel filter in the same location, is located adjacent to the southwestern portion of the Site building. The building contains a below-grade concrete equalization basin that is sloped from six to eight feet deep, and extends nearly to the interior walls of the building. Waste water was historically pumped from the basin to elevated treatment tanks, where the water would gravity-flow from one treatment tank to the next, until the clarified water was discharged under permit to the Metropolitan Sewerage District of Buncombe County Wastewater Treatment Plant. Based on the configuration of the WWPS inside the building, four soil sampling locations are proposed along the exterior of the building, as shown in Figure 1. Two of the proposed sampling locations are inaccessible by mechanical drilling equipment, so the soil borings will be advanced with a decontaminated stainless steel hand auger. The remaining two soil borings will be advanced with direct-push technology (DPT) drilling equipment, such as a GeoProbe®.

The soil borings will be advanced to the depth of the apparent water table, which is assumed to be approximately 10 to 15 feet below ground surface (bgs) in the area of the WWPS. During advancement of the soil borings, soil samples will be continuously collected and described by a field geologist. The soil core, or soil cuttings from the hand auger borings, will be scanned at an approximate one-foot interval with a photoionization detector (PID) for the presence of organic

vapors. One soil sample with the highest PID reading will be collected from each five-foot interval of unsaturated soil. If elevated PID readings are not indicated (i.e., not above background levels), a soil sample will be collected from the bottom one-foot of the five-foot interval. Soil samples will be collected at least two vertical feet apart within the soil boring. The soil borings will be backfilled with hydrated bentonite after completion. The soil samples will be submitted for the full suite of analyses described in Section 2.3.

A sanitary sewer line extends from the WWPS to Mills Gap Road, as shown in Figure 1. The southern portion of the sewer line is located in the vicinity, or within the influence of, the Site's soil vapor extraction remediation system currently in operation. Additionally, numerous soil samples have been collected in the vicinity of the southern portion of the sewer line. Therefore, ten soil samples will be collected at an approximate 50-foot interval along the eastern and northern portions of the sewer line, as indicated in Figure 1. A utility locator will attempt to determine the location and depth of the sewer line prior to soil sampling activities. Soil borings will be advanced using DPT equipment or a hand auger within one to five horizontal feet of the reported location of the sewer line. The borings will be advanced to a depth of within two feet of the approximate bottom of the sewer line and a soil sample will be collected. The soil borings will be backfilled with hydrated bentonite after completion. The soil samples will be submitted for the full suite of analyses described in Section 2.3.

2.1.2 Former Contingency Basin

The former contingency basin is located adjacent to the west property boundary, as depicted in Figure 1. As discussed in the Report of Phase I Remedial Investigation (MACTEC, July, 27, 2009), the former Contingency Basin was previously investigated by both U. S. Environmental Protection Agency (U.S. EPA) and NCDENR. To augment and complete the investigation of the former contingency basin, two soil borings will be advanced within the former contingency basin using a decontaminated stainless steel hand auger. The borings will be advanced to a depth of at least one foot into residual soil, and a soil sample will be collected from within the top one foot of residual soil. The soil borings will be backfilled with hydrated bentonite after completion. The soil samples will be submitted for analysis of Hazardous Substance List (HSL) metals, as described in Section 2.2.

Two background soil samples will also be collected from borings advanced to a similar geologic strata as the bottom of the contingency basin (Figure 1). The background soil samples will be submitted for analysis of HSL metals.

2.1.3 Area South of On-Site Building

Twelve soil borings will be advanced using DPT equipment in the area north of the Site's gravel road, and south of the building, as depicted in Figure 1. The soil borings will be advanced to the depth of the apparent surficial water table which is assumed to be a depth of approximately 20 to 30 feet bgs. During advancement of the soil borings, soil samples will be continuously collected and described by a field geologist. One soil sample with the highest PID reading will be collected from each five-foot interval of unsaturated soil. If elevated PID readings are not indicated (i.e., not above background levels), a soil sample will be collected from the bottom one-foot of the five-foot interval. Soil samples will be collected at least two vertical feet apart within the soil boring. The soil borings will be backfilled with hydrated bentonite after completion. The soil samples will be submitted for the full suite of analyses described in Section 2.3.

2.1.4 Investigation-Derived Waste

Investigation-derived waste (IDW), such as soil cuttings and decontamination water, will be stored in DOT-approved 55-gallon drums. Liquid IDW will be accumulated separately from soil IDW and each drum will be labeled as to the drum's contents. The drums will be transported off the Site for disposal at an approved disposal facility based on the laboratory analytical results of the submitted soil samples.

2.2 PROPOSED FIELD AND LABORATORY QA/QC PROCEDURES

Field and laboratory procedures will be performed in accordance with the quality assurance/quality control (QA/QC) procedures described in the most current version of the IHSB *Guidelines* and the U.S. EPA Region IV Science and Ecosystem Support Division (SESD) *Field Branches Quality System and Technical Procedures*. Documentation of field activities will be completed using a combination of logbooks, field data records (FDRs) and sample custody records. Field logbooks will be completed to provide a general record of activities and events that occur during each field task. FDRs are designed for exploration and sample collection tasks to provide a complete record of data obtained during the activity. Deviations from the approved Plan will be documented in the

field logbooks and applicable FDRs. Equipment and personnel decontamination procedures are described in Section 2.5.

2.2.1 Field Logbooks

Field logbooks will be used to provide a daily hand-written account of field activities. Logbooks will be permanently-bound with a hardcover. Entries will be made in indelible ink and corrections made with a single line with the author's initials and date. The pages of the logbook will be dated and signed by the person completing the log. Partially completed pages will have a line drawn through the unused portion at the end of each field day. The following information will generally be entered into the project field logbook:

- Project name and number;
- Date and time of each entry;
- Weather conditions anticipated for the day, or as weather conditions change;
- Site personnel and their responsibilities;
- Descriptions of important tasks or subtasks;
- A description of samples collected (if not documented on a FDR);
- Documentation of equipment maintenance and calibration activities (if not documented on a FDR);
- Documentation of equipment decontamination procedures; and
- A summary of problems encountered during the day, including cause of problem and corrective actions implemented, if appropriate.

2.2.2 Field Data Records

Field data records will be used to document sample collection and/or exploration details (e.g., soil borings, ground-water sampling, etc.). We anticipate using the following FDRs for this scope of work:

- Soil boring record – contains a description of the drilling method(s), the features encountered in the boring, including a description of lithologic/geologic features/observations, depth to water, environmental conditions (e.g., odor) and drilling conditions (one per boring);
- Sample record – contains sample name, date, time, depth, sample collector, and laboratory analyses (one per sample, more than one can be combined on a page); and
- Calibration record – contains results of equipment calibration (daily).

2.2.3 Sample Containers and Preservation

Sample containers will be supplied by the analytical laboratory. Certification documentation shall be obtained for each lot of sample containers and filed by the laboratory.

2.2.4 Sample Identification and Labeling

Each sample will be identified with a unique identification number (sample ID). The sample ID will consist of a two-digit prefix to designate the type of sample (e.g., "SS" for soil samples), the location number, and depth bgs (if more than one soil sample is collected from the same boring).

QA/QC samples will be collected at a frequency in accordance with Section A.6 of the *Guidelines*. Where duplicate samples are to be collected, the sampler will fill the containers for a given analytical parameter before starting on filling the containers for the next parameter. The QC samples will be cross-referenced on the sample FDRs. The QC samples will have a prefix identifying their purpose, followed by a sequential number, as follows:

- DUP-01 (field duplicate)
- RB-01 (equipment rinse blank)
- FB-01 (field blank)
- TB-01 (trip blank)

Sample labels will be completed for each sample with an indelible pen and will be consistent with the chain of custody. The sample labels will contain the following information:

- Site name
- Date and time
- Sample ID
- Initials of sample collector
- Preservative (if required)
- Analysis requested

2.2.5 Sample Custody

A program of sample custody will be followed during sample handling activities in both field and laboratory operations. This program is designed to account for each sample at all times. The sampling personnel will complete sample FDRs and chain-of-custody records, and the laboratory

personnel will complete laboratory receipt sheets. The primary objective of sample custody procedures is to obtain a written record that can trace the handling of samples during the sample collection process, through analysis, until final disposition.

2.2.6 Sample Shipment

Sample containers will be packed in plastic coolers chilled with ice for shipment to the laboratory. The contents of the cooler will be placed in a plastic bag to minimize leakage of water from ice melt inside the cooler. Containers for a particular sample will also be packed in sealable bags to prevent cross-contamination with other samples in the cooler. Containers will be packed tightly so that movement of the containers in the cooler is minimized. Appropriate packaging materials (e.g., Styrofoam, "bubble wrap") will be used as needed. Ice will be placed in the cooler, generally around the sample containers, so that the samples are maintained at a temperature of four degrees Centigrade (°C) [+/- 2°C]. The cooler will be securely closed with packaging tape to prevent the cooler from opening during transport. Custody seals will be placed on the cooler prior to shipment. Each custody seal will be signed and dated before leaving MACTEC's possession.

Samples will be shipped via overnight delivery to the laboratory. Upon receipt by the laboratory, the sample custodian will confirm that the seals on coolers are intact or notify MACTEC if any custody seals have been broken.

2.2.7 Laboratory Receipt and Custody

Once the samples are received at the analytical laboratory, the chain-of-custody record will be completed and signed by the sample custodian. The sample custodian will then initiate laboratory chain-of-custody protocols (comparing the sample container labels to the chain-of-custody record and noting any discrepancies, checking the cooler temperature upon receipt, and noting the laboratory project manager if any issues are identified). After sample receipt information is checked and recorded, the sample analysis information is entered into the laboratory's information system. The laboratory provides a unique sample identification number to each environmental sample for internal laboratory sample tracking. The signed chain-of-custody records will be provided with the laboratory deliverables for the project.

2.3 PROPOSED ANALYTICAL PARAMETERS AND METHODS

The full suite of analytical procedures includes:

- Volatile organic compounds, according to EPA Method 8260B (plus tentatively identified compounds);
- Semi-volatile compounds, according to EPA Method 8270C (plus tentatively identified compounds);
- Hazardous Substance List metals, according to EPA Methods 6010B and 7471A (mercury, soil) or 7470A (mercury, aqueous); and,
- Cyanide, according to EPA Method 9010.

2.4 PROPOSED PROJECT PERSONNEL

Experienced and qualified professionals with appropriate licensure or certification will be responsible for the coordination and implementation of the investigation. Subcontractors utilized during this investigation will be required to be in compliance with appropriate licenses or certifications required by their applicable regulatory agency.

Personnel conducting fieldwork at the Site will be required to have obtained at a minimum, the 40-hour hazardous waste site worker training program course, with an annual eight-hour refresher course conducted in the past year, in compliance with regulations set forth in 29 CFR Part 1910.120. MACTEC will verify and document that personnel have the necessary training and certifications prior to the implementation of the project.

2.4.1 Proposed Drilling Subcontractor

Drilling services are proposed to be provided by A.E. Drilling Services, LLC located in Greenville, South Carolina. The address and telephone number for A.E. Drilling Services are as follows:

A.E. Drilling Services, LLC
Two United Way
Greenville, South Carolina 29607
(864) 288-1986

2.4.2 Proposed Analytical Laboratory

Collected samples are proposed to be submitted for analysis to Prism Laboratories, Inc. (Prism) in Charlotte, North Carolina. The address and telephone number for Prism are as follows:

Prism Laboratories, Inc.
Post Office Box 240543
Charlotte, North Carolina 28224
(800) 529-6364

2.5 EQUIPMENT AND PERSONNEL DECONTAMINATION PROCEDURES

Sampling, drilling and other field equipment will be decontaminated in general accordance with SESD Operating Procedure *Field Equipment Cleaning and Decontamination*, effective November 1, 2007, to assure sample integrity. Personnel decontamination procedures are described in the HASP. We anticipate conducting field activities in Level D personal protective equipment (PPE). However, Site personnel will be prepared to don Level C PPE if warranted by Site conditions.

2.5.1 Specifications for Cleaning Materials

Specifications for standard cleaning materials referred to in this section are as follows:

- Soap will be a standard brand of phosphate-free laboratory detergent such as Liquinox®.
- Distilled water will be used as a water source for decontamination of hand-held equipment.
- Potable water will used as a water source for decontamination of the downhole mechanical drilling equipment.

2.5.2 Disposal of Equipment/Personnel Decontamination IDW

IDW generated during equipment and/or personnel decontamination activities, such as Tyvek® suits, gloves, and paper towels, will be bagged and placed in a commercial dumpster for disposal at a permitted landfill.

2.5.3 Safety Procedures for Field Cleaning Operations

Some of the materials used to implement the cleaning procedures outlined in this section can be harmful if used improperly. Field personnel will exercise caution and applicable safety procedures contained in the HASP will be followed when handling cleaning materials. At a minimum, the following precautions will be taken in the field during these cleaning operations:

- Safety glasses with splash shields or goggles, and nitrile gloves will be worn during cleaning operations.
- Eating, smoking, drinking, chewing, or hand to mouth contact will not be permitted during cleaning operations.

2.5.4 Drilling Equipment

The drilling contractor will construct a bermed, plastic-lined decontamination pit. Drilling equipment will be decontaminated prior to use with a steam cleaner. Brushes will be used to remove soil from the equipment, as necessary. Fluids and solids from decontamination procedures will be containerized as IDW, according to the procedures described in Section 2.1.4.

3.0 REPORTING

Upon completion of the field investigation activities and review of laboratory analytical reports, a "Letter Report of Phase II Remedial Investigation Soil Assessment" will be submitted. The letter report will include the laboratory analytical results, a table summarizing the laboratory analytical results, and a figure depicting the sampling locations. The letter report will also include a proposed list of Site-specific constituents of concern based on the Phase I and II Remedial Investigation results to date, and methods and recommendations for additional Phase II Remedial Investigation activities.

4.0 SCHEDULE

Field work should begin within three weeks of receiving authorization to proceed from IHSB, pending availability of the drilling subcontractor, locating underground utilities, and weather. The field investigation is expected to take approximately one week to complete. The collected samples will be submitted for analysis on a standard laboratory turnaround time, which is generally two weeks from the laboratory's receipt of the samples. The letter report will be submitted to IHSB within five weeks of receipt of laboratory analytical reports.

5.0 CERTIFICATIONS

I certify that, to the best of my knowledge, after thorough investigation, the information contained in or accompanying this certification is true, accurate and complete.

Matthew E. Wallace

NORTH CAROLINA PROFESSIONAL SEAL 24933 ENGINEER MATTHEW E. WALLACE 2/2/10

Matthew E. Wallace, P.E.
North Carolina P.E. #24933
Principal Engineer
MACTEC Engineering and Consulting, Inc.

MICHELLE S. THOMAS NOTARY My Comm. Exp. June 7, 2014 PUBLIC BUNCOMBE COUNTY, N. C.

Before me personally appeared Matthew E. Wallace to me known and known to me the person described in and who executed the foregoing instrument, and acknowledge to and before me that he executed said instrument for the purposes therein expressed.

WITNESS my hand and official seal this 2 day of February A.D., 2010.
Notary Public Michelle S Thomas
My commission expires 6/7/2014.
STATE OF NC, COUNTY OF Buncombe

I certify that, to the best of my knowledge, after thorough investigation, the information contained in or accompanying this certification is true, accurate and complete.

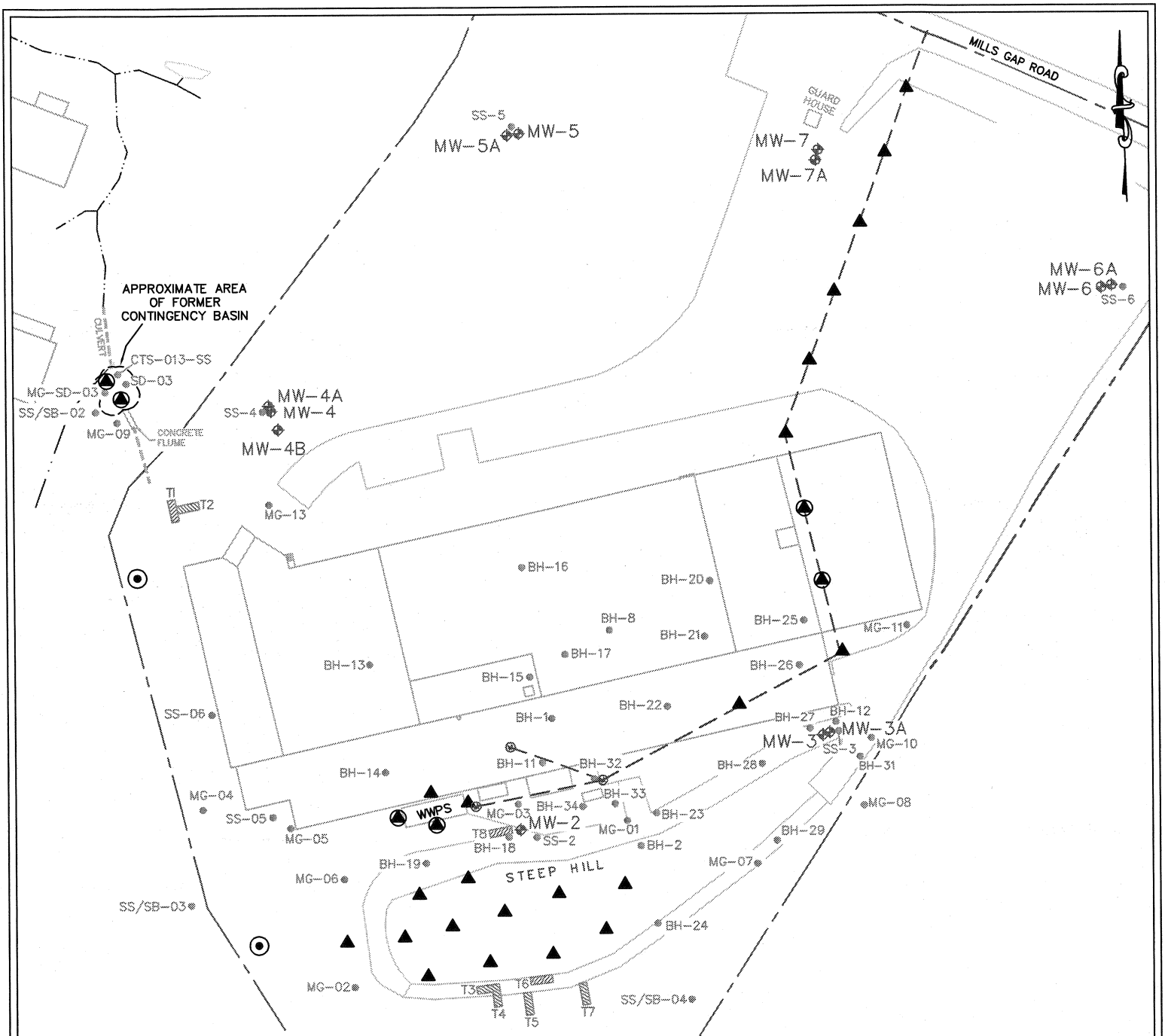
CTS Corporation
Richard G. Cutter
VicePresident, Secretary and General Counsel

Before me personally appeared Richard G. Cutter to me known and known to me the person described in and who executed the foregoing instrument, and acknowledge to and before me that he executed said instrument for the purposes therein expressed.

WITNESS my hand and official seal this 3rd day of February A.D., 2010.
Notary Public Lucinda A Bullock
My commission expires Aug. 25, 2012.
STATE OF Indiana, COUNTY OF Elkhart.

NOTARY PUBLIC SEAL STATE OF INDIANA
LUCINDA A. BULLOCK
Elkhart County
My Commission Expires
August 25, 2012

FIGURE



LEGEND/NOTES

- ▲ PROPOSED SOIL SAMPLING LOCATION (DPT)
- ▲ PROPOSED SOIL SAMPLING LOCATION (HA)
- ⊙ PROPOSED BACKGROUND SOIL SAMPLING LOCATION
- ● LOCATION OF PREVIOUS SOIL SAMPLE(S)
- ◈ MONITORING WELL
- ▨ T8 EXPLORATORY TRENCH
- PROPERTY LINE
- APPROXIMATE LOCATION OF SANITARY SEWER

- "MG", "SS/SB", "SD", and CTS-013-SS sample locations are approximate.
- "BH" sample locations have been surveyed, with the exception of BH-2 and BH-12.
- DPT – direct-push technology (Geoprobe); HA – hand auger
- WWPS – waste water pre-treatment system

GRAPHIC SCALE

100 0 100

1 INCH = 100 FT.

MACTEC
ENGINEERING AND CONSULTING, INC.

PROPOSED SOIL SAMPLE LOCATIONS
MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA

DRAWN: SEK	DATE: FEB. 2010
DFT CHECK: MEW	SCALE: 1" = 100'
ENG CHECK: –	PROJ: 6686081744
APPROVAL: MEW	FIG: 1

REFERENCE: