# REMEDIAL ACTION WORK PLAN

## TIFFT AND HOPKINS SITE
## Buffalo, New York
## NYSDEC Site No. 9-15-131

**SUBMITTED TO:**

## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF HAZARDOUS WASTE REMEDIATION

**PREPARED FOR:**

Honeywell

**Morristown, New Jersey**

**PREPARED BY:**

**PARSONS**
180 Lawrence Bell Drive, Suite 104
Williamsville, New York 14221

January 2005

**REVIEWED AND APPROVED BY:**

Project Manager: Mark S. Raybuck 1/25/05
Date

Technical Manager: Robert Kybuck 1/25/05
Date

# Remedial Action Work Plan
# Tifft and Hopkins Site
# NYS Site No: 9-15-131

## ENGINEERING CERTIFICATION STATEMENT

I hereby certify [1], under penalty of law and as a Professional Engineer licensed in the State of New York that this document and all attachments were prepared by Parsons under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Thomas Andrews, P.E.
New York State Professional Engineer
No. 047438

**PARSONS**
180 Lawrence Bell Drive, Suite 104
Williamsville, New York 14221

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[1.] Certification/Certify means to state or declare a professional opinion of conditions whose true properties cannot be known at the time such certification is made, despite appropriate professional evaluation. The professional opinion made is based on limited observations and widely spaced tests. This certification of conditions in no way relieves any other party from meeting requirements imposed by the contract or other means, nor does it warranty/guarantee the conditions of the constructed product.

# REMEDIAL ACTION WORK PLAN
# TIFFT AND HOPKINS SITE
# BUFFALO, NEW YORK
# NYSDEC SITE NO. 9-15-131
# January 2005

**VOLUME I – Scope of Work**
**VOLUME II – Contract Documents**

# SCOPE OF WORK
# TIFFT AND HOPKINS SITE
# NYSDEC SITE NO. 9-15-131

This document presents the Interim Remedial Measure (IRM) Scope of Work (SOW) for the Tifft and Hopkins Site (NYSDEC Site No. 9-15-131) in Buffalo, New York. This SOW contains a description of the proposed work, including excavation, transportation, consolidation, restoration, surveying, and reporting. Detailed specifications for excavation, backfill, and restoration can be found in the contract documents.

## SITE LOCATION

The Tifft and Hopkins Site is comprised of sections of the properties known as 666 Tifft Street, 360 Hopkins Street, and 380 Hopkins Street, all located in the City of Buffalo (Figure 1). All the properties are currently zoned for, and are being used for, commercial and/or industrial purposes. Together, the three properties form an approximate 7-acre area that is relatively flat. They are mostly undeveloped and open, serving primarily as a parking facility for tractor-trailers. There is an office/garage/warehouse building in the southwest corner of the 666 Tifft St. parcel, which is being operated as a machinery repair business. A chain-link fence divides the northern border of the tractor-trailer parking lot and the 380 Hopkins parcel. The 380 Hopkins St. parcel is mostly open, with brush and trees growing along the fence lines that surround the parcel. Abandoned motor vehicles, piles of tires, and miscellaneous debris are randomly scattered across the 380 Hopkins parcel. Prior to any development, the Tifft and Hopkins Site was shown on maps as a low-lying wetland area.

The property owners have been identified as Mr. Raymond Radotavich, the reported owner of 666 Tifft Street and 360 Hopkins Street; and Mr. Bernard Jakubik, the reported owner of 380 Hopkins Street.

The "Site" being addressed by this SOW consists of three distinct areas (Figure 2.) The largest area (denoted by points A through H) is located in the center of the properties. It includes the area identified in the April 2004 Site Investigation Report (SIR) as being potentially impacted with Honeywell site-specific constituents of concerns (HON-COCs). In addition to the HON-COC impacted area, Honeywell will also complete remedial measures at each of two underground storage tank (UST) areas that have been identified outside the boundaries of this largest area. The first UST area is located on the 666 Tifft Street property (denoted by points I through L), and the second is located in the eastern end of the 380 Hopkins Street property (denoted by points M through P).

## BACKGROUND

In 1985, during the excavation of a water main located in the paper road known as Providence Street, the City of Buffalo exposed a layer of black, granular, odorous material, approximately four to seven feet below the parking lot. [1]

In 1998, the New York State Department of Environmental Conservation (NYSDEC) determined that "Through the combination of chemical analysis, site location and historical information, it is likely that the material found at the site has the same source as the waste materials previously identified at the Alltift Landfill."[1] This conclusion was based on the results of the NYSDEC 1998 Immediate Investigation Work Assignment.

In 2003, Honeywell completed two additional investigations to determine the location of the fill that had been potentially impacted with the HON-COCs.

Results from multiple investigations have shown that there is a concentration of HON-COCs in three areas near the central part of the Site. The depth of the material is limited to the upper 7.5 feet of material, which includes the fill and the upper, more permeable layers of native soils. In addition to HON-COCs, other chemical constituents not related to former Honeywell operations have been found at the site. These constituents include polycyclic aromatic hydrocarbons (PAHs), metals, and petroleum related compounds. Based on the results of previous investigation work, and subsequent discussions with the NYSDEC, an area that represents the apparent limit of material potentially impacted by HON-COCs was delineated (Figure 2).

In addition to impacts from HON-COCs, six underground fuel storage tanks, unrelated to Honeywell operations, have been identified as existing on the properties:

- Two tanks located on the eastern end of 380 Hopkins St. are reported to have contained gasoline. It is believed that these two tanks were abandoned in place.
- Two tanks located at 666 Tifft St. are inactive, but remain in place. October 2004 measurements indicated approximately 0.13 feet of water with approximately 0.1 feet of floating product in the northern tank, and approximately 0.7 feet of water and no product in the southern tank. These two tanks were reportedly used for the storage of diesel fuel.
- The contents of two USTs located on the western end of 380 Hopkins Street (within the proposed large excavation area) were also measured in October 2004. There was approximately 5.2 feet of water with 0.1 feet of floating product in the western tank, and 3.1 feet of water with 0.1 feet of floating product in the eastern tank. These two tanks were reportedly used for storage of diesel fuel.

In September 2004, Honeywell completed an investigation to determine if the subsurface materials within the delineated area, to a depth of eight feet, are suitable for excavation and consolidation within the Alltift Landfill (Alltift) Site (NYSDEC Site No. 9-15-054). The

[1] December 14, 1998 letter from NYSDEC to AlliedSignal

investigation showed that none of the 30 samples contained the targeted constituents (benzene, nitrobenzene, lead, mercury, chromium) with concentrations in excess of their respective hazardous waste regulatory levels for toxicity characteristic. Results of the September 2004 Investigation were presented to the New York State Department of Environmental Conservation (NYSDEC) in the October 15, 2004 Investigation Report.

## PROJECT OBJECTIVES

The primary objectives of the IRM are (1) removal of up to 32,000 cubic yards of material from the Site, which includes the materials that were identified in the April 2004 Site Investigation Report (SIR) as being potentially impacted with HON-COCs (this area also contains two identified petroleum USTs); and (2) incorporation of the excavated material at the Alltift Site. The HON-COCs are chlorobenzene, 4-chloroanaline, 1,2-dichlorobenzene, 1,3-dichlorobenzene, nitrobenzene, and 1,2,4-trichlorobenzene. Additionally, Honeywell will complete remedies for each of the two additional UST areas.

By removing the materials within the delineated area, all of the materials potentially associated with past Honeywell operations will be removed. While other chemical constituents were identified elsewhere on the Site during the SIR, these constituents are not associated with Honeywell operations.

## SCOPE OF WORK

### Health and Safety Requirements

The IRM will be conducted in accordance with the Health and Safety Plan that will be included as part of the contract documents. Air monitoring will be conducted during the excavation effort for the presence of organic compounds and particulates.

### Clearing and Grubbing

Prior to starting the excavation, trees and brush will be cleared from the work area. In addition, the frame building on the west end of the 380 Hopkins Street property will be demolished. The chain-link fence and gates along the north side of the former Providence Street paper street will be removed. The abandoned vehicles and other debris located within the proposed excavation area will be moved to the eastern end of the Site, to be managed by the property owner. Rubble from the demolition activities, as well as trees and brush, will be transported to the Alltift Site for disposal.

### Underground Storage Tank Removal

Three sets of USTs (including one set within the footprint of the large excavation) will be removed from the Site as part of this IRM. The USTs identified on Figure 2 will be removed in accordance with applicable rules and regulations governing USTs in the State of New York, including the NYSDEC Spill Technology and Remediation Series (STARS) Memo No. 1 (August 1992). The tanks will be cleaned and disposed of at an appropriate management facility. Any free product or sludge encountered in the tanks will be collected and properly managed.

Water encountered in the tanks and surrounding soils will be pumped and transferred to the Alltift Site for management, or disposed at an appropriate management facility (see Water Management below). Soils from around the tanks will be transported to the Alltift Site.

**Well Abandonment**

Four existing groundwater monitoring wells (MW-1, MW-2, MW-3, MW-5) are within the footprint of the proposed large excavation. They will be removed and properly disposed of during the completion of the excavation. These wells have been completed to approximate depths between 10 and 12 feet below ground surface. Because of their shallow nature, the wells can be successfully abandoned by excavation during the remedial effort. Well materials will be transported to the Alltift Site for disposal.

**Work Limits**

The work limits for this IRM are shown on Figure 2. The limits include the area identified as being potentially impacted with the HON-COCs, as well as areas for the USTs on 666 Tifft Street and the eastern end of 380 Hopkins Street.

The vertical limit is based on the maximum depth at which fill has been observed, and the depth at which lower permeability materials are present. The area will be excavated to a depth of eight feet below existing ground surface within the limits shown on Figure 2. These limits were based primarily on data from the SIR, and supplemented by data derived from the 1998 IIWA, completed by the NYSDEC.

**Material Disposition**

Based on the analytical results from the September 2004 Investigation, the material within the delineated area is suitable for consolidation within the Alltift Site. The Alltift Site is currently in the remedial construction phase, and has the capacity to manage the excavated materials under the planned landfill cover. There is capacity at the Alltift Site to manage up to a maximum of 32,000 cubic yards.

Solid materials removed from the Tifft and Hopkins Site (with the exception of the USTs) will be properly managed and transported to the Alltift Site by a licensed Part 364 (solid waste) transporter. At the Alltift Site, the material will be managed in accordance with the May 2003 Alltift Landfill/Ramco Steel Remedial Design documents, and in accordance with the June 2003 Alltift Landfill/Ramco Steel Contract Documents.

**Post-excavation Sampling**

A total of ten solid samples will be collected and analyzed during completion of the large excavation (Figure 2, A through H.) Seven composite samples will be collected from the excavation sidewalls. Each of the sidewall samples will be composited from four sub-samples to be collected during excavation. Three solid grab samples will be collected from the bottom of the new excavation. The locations of the samples will be recorded and marked on a site plan.

Samples will be analyzed for the presence of the HON-COCs by EPA Methods 8260 and 8270, and for lead by EPA Method 6010.

Results of the post-excavation sampling will be compared to the NYSDEC Recommended Soil Cleanup Objectives (TAGM 4046) to confirm the limits of work to be completed under this IRM. If the HON-COCs are below the TAGM levels, no further action will be required. If the HON-COCs are above TAGM levels, the need, if any, for further action separate and apart from this IRM will be evaluated taking into account the reduction in toxicity, mobility, or volume of the HON-COCs and lead resulting from the IRM, the implementability, cost and permanence of any additional remedial action, as well as the risk posed by such COCs and whether any such risk can be satisfactorily reduced with the use of institutional controls.

For the two UST excavations outside of the large excavation area, samples will be collected and analyzed for the chemical parameters listed in the STARS Memo No. 1. For the eastern tanks near Hopkins Street, reported to have contained gasoline, samples will be analyzed for VOCs on the STARS list by Method 8260. For the tanks at 666 Tifft Street, reported to have contained diesel fuel, samples will be analyzed for VOCs on the STARS list by Method 8260, and SVOCs on the STARS list by Method 8270. Four sidewall samples and one bottom sample will be collected and analyzed from each of the two excavations. HON-COCs will not be analyzed from these two excavations. Results from the UST excavation samples will be compared to criteria contained in the STARS Memo. No. 1.

Following excavation, a single round of groundwater samples will be collected from existing monitoring wells: MW-4, MW-6, MW-7, and MW-8. The samples will be analyzed for the HON-COCs by EPA Methods 8260 and 8270, and for lead by EPA Method 6010. Results of the sampling and analysis will be used to ensure that the IRM activities did not result in impacts to groundwater quality outside the large excavated area. Following evaluation of the results, these four monitoring wells will be properly abandoned.

**Site Restoration**

Restoration of the area will be limited to backfilling the excavation with clean fill, and restoring the surface in a manner compatible with its current use. Details of the restoration will be presented in specifications contained in the Contract Documents.

**Construction Survey**

The limits of excavation as shown on Figure 2 will be located and staked by a New York State licensed surveyor prior to excavation work. The final depths of excavation will be recorded in the field during the excavation effort. Following site restoration, an additional survey will be completed to confirm limits and grades.

**Water Management**

Water that requires removal from the excavation (construction water) will be temporarily contained on-site. The water will be treated, if necessary, and subsequently disposed of at an offsite location. Any required permits or approvals will be obtained prior to disposal.

**IRM Final Report**

Following completion of the final phase of the IRM, remedial construction, the NYSDEC will be provided with an IRM Final Report. The report will include a summary of the remedial effort, the results of soil and groundwater sampling, and a survey of the excavated area.

**SCHEDULE**

After receiving approval from the NYSDEC, Honeywell will contract to complete the proposed remedial activities outlined in this Work Plan. The duration and completion date of the field activities will be subject to weather conditions. Following completion of the IRM, the NYSDEC will be provided with the IRM Final Report.

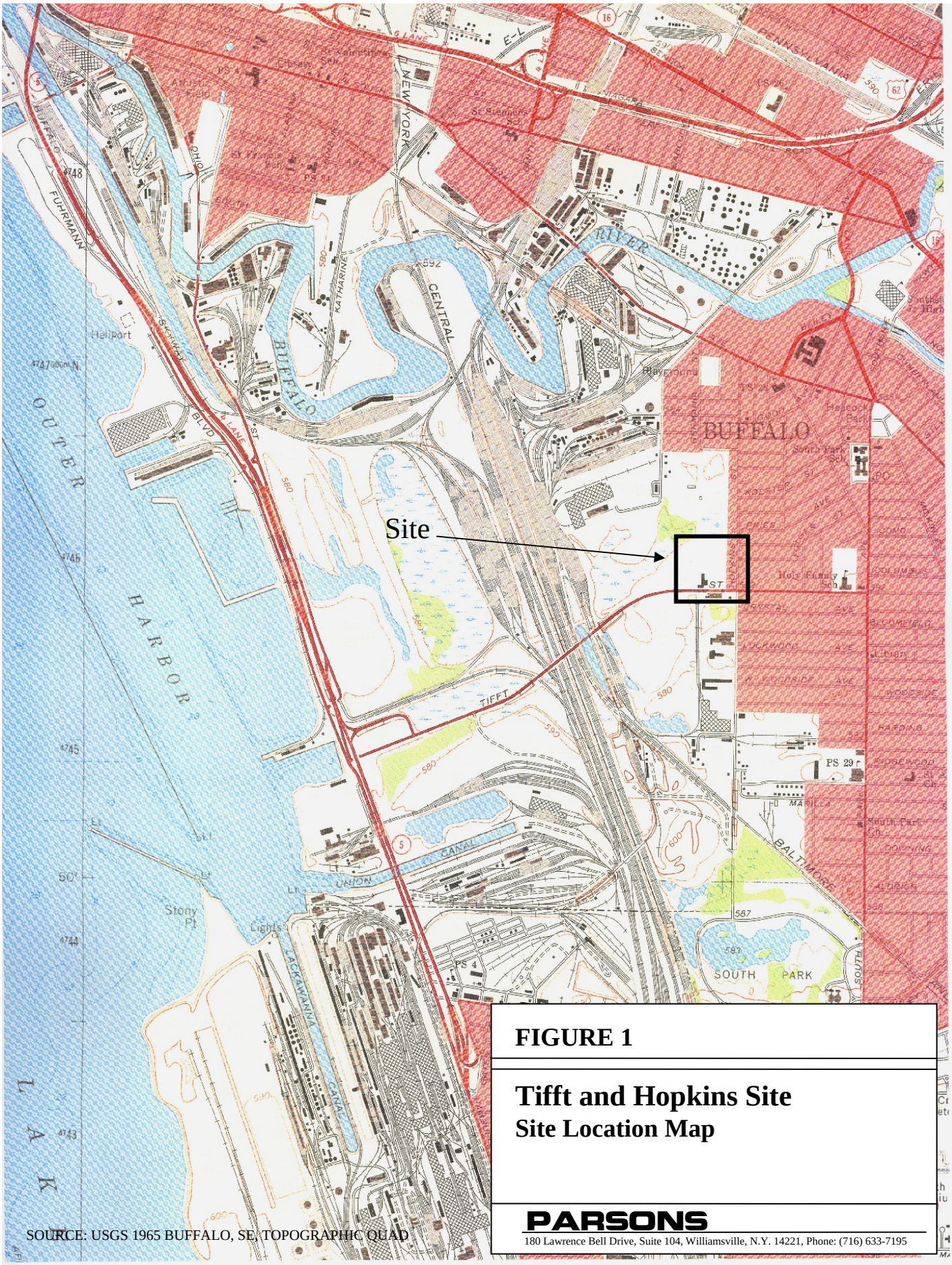


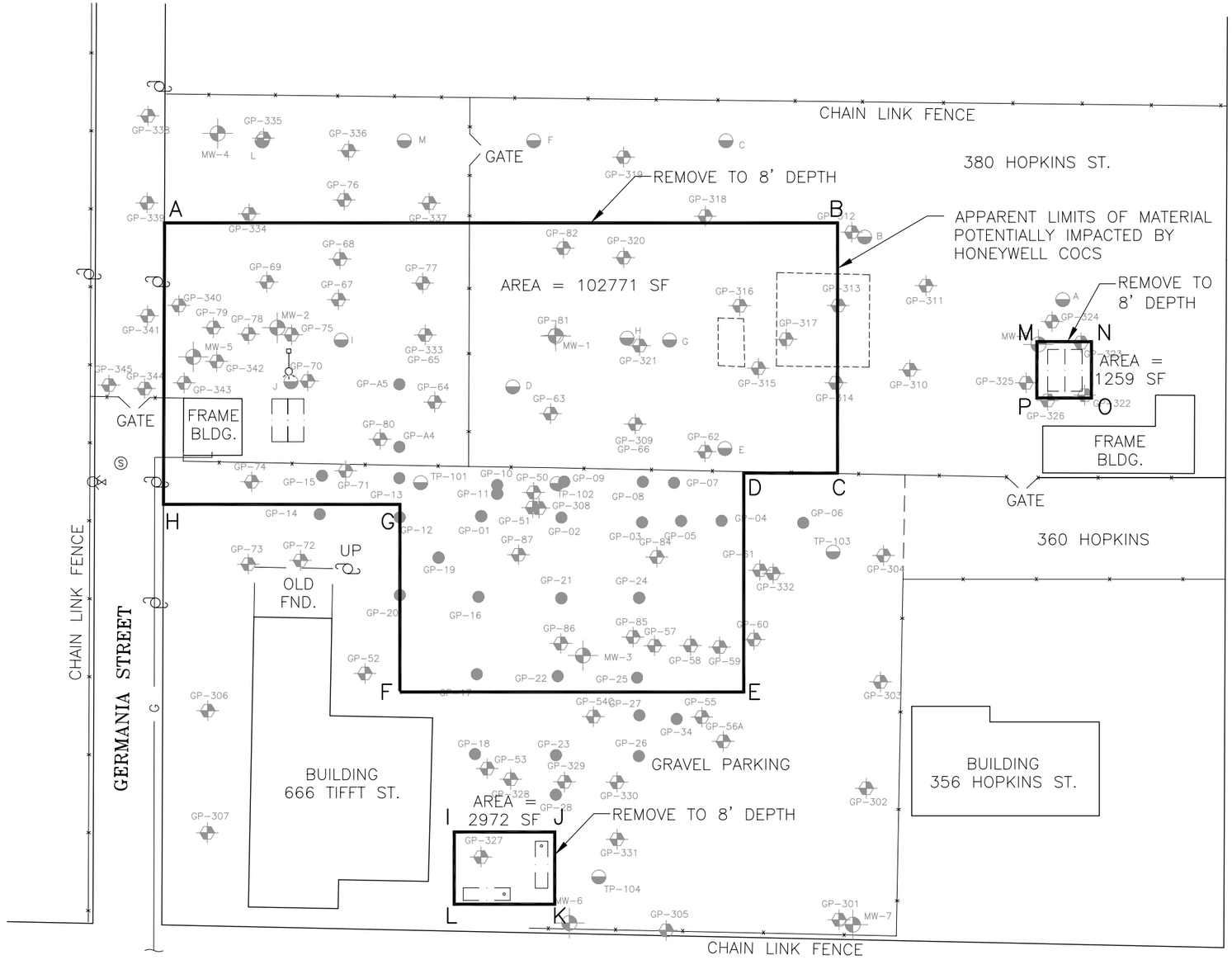

**FIGURE 1**

# Tifft and Hopkins Site
## Site Location Map

SOURCE: USGS 1965 BUFFALO, SE, TOPOGRAPHIC QUAD

PARSONS
180 Lawrence Bell Drive, Suite 104, Williamsville, N.Y. 14221, Phone: (716) 633-7195

**(40707\cad\site location map.ppt)**




| SITE BOUNDARY COORDINATES | | |
|---|---|---|
| CORNER | NORTHING | EASTING |
| A | 1037922.50 | 1080850.66 |
| B | 1037922.50 | 1081281.29 |
| C | 1037762.50 | 1081281.29 |
| D | 1037762.50 | 1081221.29 |
| E | 1037622.50 | 1081221.29 |
| F | 1037622.50 | 1081001.29 |
| G | 1037742.50 | 1081001.29 |
| H | 1037742.50 | 1080850.02 |

| SITE BOUNDARY COORDINATES | | |
|---|---|---|
| SOUTHERN TANKS | | |
| CORNER | NORTHING | EASTING |
| I | 1037532.97 | 1081036.02 |
| J | 1037532.97 | 1081100.32 |
| K | 1037486.76 | 1081100.32 |
| L | 1037486.76 | 1081036.02 |

| SITE BOUNDARY COORDINATES | | |
|---|---|---|
| EASTERN TANKS | | |
| CORNER | NORTHING | EASTING |
| M | 1037846.54 | 1081408.83 |
| N | 1037846.54 | 1081443.76 |
| O | 1037810.50 | 1081443.76 |
| P | 1037810.50 | 1081408.83 |

COMPILED FROM:


ABB ENVIRONMENTAL SERVICES, 1993. PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA, VOLUME I, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

E.C. JORDAN CO., 1991, PRELIMINARY SITE ASSESSMENT, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

EDR– HISTORICAL TOPOGRAPHIC MAP REPORT, 2003; INQUIRY NUMBER: 902404–2

EDR– SANBORN MAP REPORT, 2003; INQUIRY NUMBER: 902404.1S

EDR– SITE REPORT, 2003; INQUIRY NUMBER: 902404–2

ERIE COUNTY SOIL CONSERVATION SERVICE; EAST AURORA, NEW YORK; 1938, 1942, 1951 AERIAL PHOTOGRAPHS.

BUFFALO FIRE DEPARTMENT (BFD) UST INSTALLATION/REMOVAL PERMITS.

NYSDEC, 1998. TIFFT AND HOPKINS STREET (915131) IMMEDIATE INVESTIGATION WORK ASSIGNMENT REPORT (IIWA).


LEGEND

- GP–01 TO GP–28 GEOPROBE LOCATION NYSDEC 1998 IIWA
- GP–50 TO GP–87 GEOPROBE LOCATION PARSONS FEBRUARY 2003
- GP–301 TO GP–345 GEOPROBE LOCATION PARSONS NOVEMBER 2003
- MONITORING WELL LOCATION
- A–M TEST PIT LOCATIONS GZA MARCH 2003
- FENCE
- EXISTING GAS LINE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT W/VALVE
- EXISTING LIGHT POLE AND ABANDONED DIESEL PUMPS
- EXISTING UTILITY POLE
- CONCRETE PAD & STRUCTURE
- UST LOCATION
- WORK LIMITS

80 40 0 80 160

SCALE: 1"=80'

# FIGURE 2

TIFFT AND HOPKINS SITE

SITE PLAN


PARSONS

180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716–633–7074


P:\440707 (Tifft&Hopkins)\CAD\40707F21.dwg, 11/19/04 at 09:20, MAB', 1=1
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# REMEDIAL ACTION WORK PLAN
# TIFFT AND HOPKINS SITE
# BUFFALO, NEW YORK
# NYSDEC SITE NO. 9-15-131
# January 2005

## Contract Documents

# TABLE OF CONTENTS

REMEDIAL ACTION
AT THE
TIFFT AND HOPKINS SITE

# TABLE OF CONTENTS

## 1 GENERAL

1.1. The material herein supplements that contained in **Specification 01100**, Remediation Construction Requirements and applicable articles in Honeywell's **Standard Form of Contract** (Section II).

## 2 DRAWINGS

2.1 Drawings transmitted with and made part of this Request for Proposal are as listed on the Drawing Index made part of this Specification.

## 3 GENERAL SPECIFICATIONS

3.1 Honeywell Specifications transmitted with and made part of this Request for Proposal are as listed on the Specification Index of this Specification.

## 4 INTENT

4.1 The intent of this Specification is to provide the Contractor with sufficient and adequate definition of the Scope of Work to enable the Bidder to submit its proposal including cost(s) to furnish all labor and supervision and to provide all materials, except those specified as being furnished by Honeywell or Others, all construction tools, equipment, engineering, and services as required and reasonably incidental to the proper completion of all work as called for on the Drawings and/or Bills of Material, and Specifications transmitted with and made part of this Request for Proposal.

4.2 Work called for or implied on one document but omitted on others shall not be considered a valid basis for claim of omission by Contractor in bidding or in performing work. Any such conflict is the responsibility of Contractor alone to call to the attention of Honeywell for resolution.

## 5 WORK NOT INCLUDED

5.1 All work not included in this contract is generally stated under each item of work.

## 6 WORK SUMMARY

6.1 The selected remedy for the Site includes the removal of all subsurface materials within the Work Limits to a depth of eight feet below existing grade. Excavated material will be transported to the Alltift Landfill Site to be managed in accordance with the May 2003 Alltift Landfill/Ramco Steel Remedial Design documents, and in accordance with the June 2003 Alltift Landfill/Ramco Steel Contract Documents.

Materials will be transported by a licensed Part 364 (solid waste) transporter. The excavation will be backfilled with clean fill and finished with gravel as a parking area.

The Scope of Work includes mobilization, clearing and grubbing, surveying, underground storage tanks removals, excavation and transportation of wastes and backfilling with clean fill, water management, surface restoration, fencing, and demobilization.

The estimated quantity of material to be excavated is 32,000 cubic yards.

Prior to backfilling the excavation, a Honeywell representative will be required to collect samples from each of the excavation sidewalls and from the bottom of the excavation. The contractor will assist the representative in the collection of these samples.

## 7 WORK INCLUDED

The following listed items of work are general descriptions of work to be performed under this contract and are not to be misconstrued by Contractor as being a complete description of all work. The Contractor is responsible for reading all portions of this Bid Specification including the General Requirements, Technical Specifications, Attachments and Drawings. Contractor will be responsible to include all costs for incidental items required to complete construction tasks, although not specifically referenced in the general description of the work item. The Work Items described below and presented in the Bid Form Table I-1 shall constitute all items to be specifically paid under this Contract.

### 7.1 BID ITEM 1 – Health and Safety

7.1.1 Work for this Item includes the preparation, development and submission of the Construction Health and Safety Plan (CHASP) for all construction activities to be performed as part of this contract. The CHASP shall conform

to the existing Health and Safety Plan for Remedial Construction included as Attachment 2 in this Bid Specification, the requirements stipulated in Section 01620 General Requirements Safety, Health and Emergency Response, as well as all other applicable OSHA standards governing the work. The CHASP will be reviewed and approved by the Honeywell Site representative prior to mobilization on site. The CHASP will include a Community Air Monitoring Program (CAMP) in accordance with the NYSDEC Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10, December 2002).

7.1.2 Measurement. This work item will be measured on a Lump Sum Basis

7.1.3 Payment. Payment will be made on approval and acceptance by the Honeywell Site representative for the total value listed in the Bid Item on the Bid Form.

7.1.4 Submittals. Construction Health and Safety Plan (CHASP)

## 7.2 BID ITEM 2 – General Requirements, Mobilization, Closeout

7.2.1 Work Included: The work includes all materials, equipment and labor for providing, installing, and maintaining all items not covered elsewhere such as permits, work plans, schedules, UFPO notification and clearance, protection of utilities, preparation of as-built drawings, preliminary testing of backfill and aggregate materials, temporary utilities and facilities, temporary security, staging areas, and collection and disposal of miscellaneous impacted material. The work also includes furnishing all materials, equipment and labor for all other work specified in the Contract, but not limited to mobilizing/demobilizing construction crews and equipment including temporary decontamination stations, site security, and support facilities. Mobilization also includes the preparation of the Detailed Operations Work Plan. The Detailed Operation Work Plan will include a Traffic Control Plan and a Site Plan showing prposed support and staging areas.

7.2.2. Measurement: This work will be measured on a Lump Sum basis.

7.2.3. Payment: Payment shall be made on a progress basis, based upon the percentage of work completed and an approved schedule of values. No payment shall be made until:

1. The Contractor has physically occupied the site.

2. Staging areas are established.
3. The Detailed Operation Work Plan submittal has been approved

7.2.4 Submittals. Detailed Operation Work Plan

7.3 **BID ITEM 3 Clearing and Grubbing**

7.3.1 Work for this Item includes the removal of vegetation, relocation of surface debris, and the demolition of surface features including but not limited to structures, fencing, concrete pad, loading dock and fueling island. All removed material will be transported to the Alltift Landfill Site to be managed in accordance with the Alltift Contract Documents.

7.3.2 Measurement. This work item will be measured on a Lump Sum Basis

7.3.3 Payment. Payment will be made on approval and acceptance by the Honeywell Site representative for the total value listed in the Bid Item on the Bid Form.

7.3.4 Submittals. Not used

7.4 **BID ITEM 4 Water Management**

7.4.1 Providing all equipment to dewater the excavation as necessary to proceed with and complete the required work. The water will be handled in accordance with the Water Management Specification (Section 02142). Water will be contained on site in portable tank which will provide removal of sediments and non-aqueous phase liquids.

7.4.2 Measurement. This work item will be measured on a Lump Sum Basis

7.4.3 Payment. Payment will be made on approval and acceptance by the Honeywell Site representative for the total value listed in the Bid Item on the Bid Form

7.4.4 Submittals – Construction Water Management Plan, Shop Drawings and operations manual for CWTS

7.5 **BID ITEM 5 Underground Storage Tank Removal**

7.5.1 Work for this Item includes emptying, cleaning and removal of six underground storage tanks. The contents of the tanks will be removed and disposed of at an appropriate offsite facility. Any non-aqueous phase liquid (NAPL) encountered will need to be removed and disposed of in accordance with State Regulations. The tanks will be removed, cleaned and disposed of at an offsite facility. Tanks will be removed in accordance with the NYSDEC Memorandum – Permanent Closure of Petroleum Storage Tanks, January 20, 1987, modified December 3, 2003. The size and contents of the USTs are discussed in the attached memorandum.

7.5.2 Measurement. This work item will be measured on a Lump Sum Basis

7.5.3 Payment. Payment will be made on approval and acceptance by the Honeywell Site representative for the total value listed in the Bid Item on the Bid Form

7.5.4 Submittals – Operations Work Plan, Spill Plan

7.6 **BID ITEM 6 Excavation/Haul/Place**

7.6.1 Work for this Item includes the excavation of material within the Work Limit to a depth of eight feet, transportation of material to the Alltift Landfill Site and Incorporation within the Alltift Landfill in accordance with the Alltift Contact Documents.

7.6.2 Measurement. This work item will be measured on an as excavated cubic yard basis. Quantity will be determined by a New York State Licensed surveyor based on pre and post excavation survey.

7.6.3 Payment. Payment will be made on approval and acceptance by the Honeywell Site representative for the total value listed in the Bid Item on the Bid Form

7.6.4 Submittals – Operation Work Plan, CHASP, Spill Plan

## 7.7 BID ITEM 7 Backfilling

7.7.1 Work for this Item includes the backfilling of the excavation with clean fill. This work includes supply, placement and compaction of fill to a depth of 1 foot below finished grade.

7.7.2 Measurement. This work item will be measured on an as placed cubic yard basis. Quantity will be determined by a New York State Licensed surveyor based on pre and post excavation survey.

7.7.3 Payment. Payment will be made on approval and acceptance by the Honeywell Site representative for the total value listed in the Bid Item on the Bid Form

7.7.4 Submittals
Borrow source sample and geotechnical test results
Borrow source chemical analytical test results
Description of compaction methods and equipment

## 7.8 BID ITEM 8 Site Restoration

7.8.1 Work for this Item includes the restoration of the Site in a manner consistent with the current use. The site will be restored for use as a tractor trailer parking area with the surface to be composed of stone as detailed in the specifications. Chain link fencing will be installed between the 666 Tifft and 380 Hopkins properties. The gates will be restored at the north end of Germania St. the contractor is responsible for ensuring that the fencing is installed on the property line.

7.8.2 Measurement. This work item will be measured on a Lump Sum Basis.

7.8.3 Payment. Payment will be made on approval and acceptance by the Honeywell Site representative for the total value listed in the Bid Item on the Bid Form

7.8.4 Submittals
Geotextile product data
Geotextile certification
Gravel pavement material geotechnical analysis
Manufacturer's technical product data for fencing

## 8 DRAWING INDEX

| Dwg No. | Description |
|---|---|
| **1** | Site Location Map |
| **2** | Site Plan – Work Limits |
| **3** | Map of Known Utilities |
| **4** | Clearing and Grubbing Plan |
| **5** | Typical Parking Lot Section Detail |
| **6** | Typical Fence Elevation Detail |

## 9 SPECIFICATION INDEX

# Specification Section 01010
# SUMMARY OF WORK

## ATTACHMENT 01010-1
## Bid Form

**Section Not Included**

# Specification Section 01010
# SUMMARY OF WORK

## ATTACHMENT 01010-2
## Submittal Schedule

## Schedule of Submittals

The following is the list of Submittals to be made by the contractor:

| Section | Submittal |
|---|---|
| 01403 (1.03-A) | Decontamination Plan |
| 01620 (1.6) | Health and Safety Plan and Requirements |
| 02142 (1.04-A) | Construction Water Management Plan |
| 02142 (1.04-B) | Shop Drawings |
| 02219 (1.02-A) | Operation Work Plan |
| 02223 (1.03-A1) | Geotechnical Testing Results – Backfill |
| 02223 (1.030-A2) | Chemical Analytical Results – Backfill |
| 02228 (1.02-A) | Description of compaction equipment and methods |
| 02421 (1.04-A) | Geotextile Product Data and sample |
| 02421 (1.04-B) | Geotextile Certification |
| 02501 (1.06-B) | Grain Size Analyses – gravel pavement material |
| 02830 (1.02) | Manufacturers Technical Data |

# Specification Section 01010
# SUMMARY OF WORK

## ATTACHMENT 01010-3
## Project Schedule

**Section Not Included**

# Specification Section 01010
# SUMMARY OF WORK

## ATTACHMENT 01010-4

## Detected Constituents List

**Tifft & Hopkins Site**
**Detected Constituents List**

This table comprises a list of all of the chemical constituents that have been detected on site, the environmental media in which it was detected and the concentration that was observed.

| Compound | CAS No. | Concentration Range (ppm) | Media |
|---|---|---|---|
| **Volatile Compounds** | | | |
| | | | |
| Acetone | 67-64-1 | ND – 0.23 | Soil |
| Chlorobenzene | 108-90-7 | ND - 570 | Soil |
| Benzene | 108-90-7 | ND - 260 | Soil |
| 2-Butanone | 78-93-3 | ND - 1 | Soil |
| Ethylbenzene | 100-41-4 | ND - 5.5 | Soil |
| Carbon Disulfide | 75-15-0 | ND - 2.7 | Soil |
| Methylene Chloride | 75-09-2 | ND - 0.1 | Soil |
| Toluene | 108-88-3 | ND - 570 | Soil |
| Ethylbenzene | 100-41-4 | ND - 8 | Soil |
| Xylene (Total Xylenes) | 1330-20-7 | 0.048 - 16 | Soil |
| | | | |
| **Semi-Volatile Compounds** | | | |
| | | | |
| Acenaphthene | 83-32-9 | ND - 50 | Soil |
| Acenaphthylene | 208-96-8 | ND - 41 | Soil |
| Aniline | 62-53-3 | ND - 270 | Soil |
| Anthracene | 120-12-7 | ND - 50 | Soil |
| Benzidine | 92-87-5 | ND - 260 | Soil |
| Benzo[a]anthracene | 56-55-3 | ND - 16 | Soil |
| Benzo(b)fluoranthene | 205-99-2 | ND - 10 | Soil |
| Benzo(k)fluoranthene | 207-08-9 | ND - 8.7 | Soil |
| Benzo(ghi)perylene | 191-24-2 | ND - 50 | Soil |
| Benzo[a]pyrene | 50-32-8 | ND - 12 | Soil |
| 4-Chloroanaline | 106-47-8 | ND - 360 | Soil |
| 2-Chloronaphthalene | 91-58-7 | ND - 50 | Soil |
| Chrysene | 218-01-9 | ND - 13 | Soil |
| Dibenzo (a,h) anthracene | 53-70-3 | ND - 2.7 | Soil |
| Dibenzofuran | 132-64-9 | ND - 6.2 | Soil |
| 1,2-Dichlorobenzene | 95-50-1 | ND - 680 | Soil |
| 1,3-Dichlorobenzene | 95-50-1 | ND - 56 | Soil |
| 1,4-Dichlorobenzene | 106-46-7 | ND - 140 | Soil |
| Dimethyl phthalate | 131-11-3 | ND - 13 | Soil |

| Compound | CAS No. | Concentration Range (ppm) | Media |
|---|---|---|---|
| 2,4 Dinitrotoluene | 121-14-2 | ND - 87 | Soil |
| 2,6 Dinitrotoluene | 606-20-2 | ND - 84 | Soil |
| 1,2-Diphenylhydrazine | 122-66-7 | ND - 50 | Soil |
| Fluoranthene | 206-44-0 | 0.130 - 50 | Soil |
| Fluorene | 86-73-7 | ND - 50 | Soil |
| Ideno(1,2,3-cd) pyrene | 193-39-5 | ND - 7.3 | Soil |
| 2-Methylnaphthalene | 91-57-6 | ND - 36.4 | Soil |
| 4-Methylphenol | 106-44-5 | ND - 3.6 | Soil |
| Naphthalene | 91-20-3 | ND - 7700 | Soil |
| Nitrobenzene | 98-95-3 | ND – 57 | Soil |
| n-Nitrosodiphenylamine | 86-30-6 | ND - 50 | Soil |
| Phenanthrene | 85-1-8 | 0.530 - 120 | Soil |
| Phenol | 108-95-2 | ND - 15 | Soil |
| Pyrene | 129-00-0 | ND - 50 | Soil |
| 1,2,4-Trichlorobenzene | 120-82-1 | ND - 480 | Soil |
| | | | |
| **Pesticides** | | | |
| | | | |
| alpha-BHC | 319-84-6 | ND - 0.088 | Soil |
| beta-BHC | 319-85-7 | ND - 0.12 | Soil |
| delta-BHC | 319-86-8 | ND - 0.28 | Soil |
| 4,4'-DDD | 72-54-8 | ND - 0.51 | Soil |
| 4,4'-DDE | 72-55-9 | ND - 0.073 | Soil |
| 4,4-DDT | 50-29-3 | ND - 0.0048 | Soil |
| Endosulfan I | 959-98-8 | ND - 0.38 | Soil |
| Endosulfan Sulfate | 1031-07-8 | ND - 0.12 | Soil |
| Endrin | 72-20-8 | ND - 0.46 | Soil |
| Endrin aldehyde | 7421-93-4 | ND - 0.016 | Soil |
| gamma-BHC (Lindane) | 58-89-9 | ND - 0.017 | Soil |
| Heptachlor epoxide | 76-44-8 | ND - 0.032 | Soil |
| Methoxychlor | 72-43-5 | ND - 0.1 | Soil |
| | | | |
| **PCBs Total** | | | |
| | | | |
| Aroclor 1254 | 11097-69-1 | ND - 0.16 | Soil |
| Aroclor 1260 | 11096-82-5 | ND - 1.6 | Soil |

| Compound | CAS No. | Concentration Range (ppm) | Media |
|---|---|---|---|
| **Metals - Total** | | | |
| | | | |
| Aluminum | 7429-90-5 | 2.82 - 11.2 | Soil |
| Antimony | 7440-36-0 | ND - 0.137 | Soil |
| Arsenic | 7440-38-2 | 0.0051 - 0.24 | Soil |
| Barium | 7440-39-3 | 0.512 - 0.737 | Soil |
| Beryllium | 7440-41-7 | ND - 0.0013 | Soil |
| Cadmium | 7440-43-9 | ND - 0.0117 | Soil |
| Calcium | 7440-70-2 | 3.53 - 82.6 | Soil |
| Chromium | 7440-47-3 | 0.0065 - 2.07 | Soil |
| Iron | 7439-89-6 | 12.8 - 112 | Soil |
| Cobalt | 7440-48-4 | 0.0047 - 0.0113 | Soil |
| Copper | 7440-50-8 | 0.0188 - 0.816 | Soil |
| Lead | 7439-92-1 | 0.0078 - 12.1 | Soil |
| Magnesium | 7439-95-4 | 1.7 - 18 | Soil |
| Manganese | 7439-96-5 | 0.271 - 16.2 | Soil |
| Mercury | 7439-97-6 | 0.000049 - 0.0383 | Soil |
| Nickel | 7440-02-0 | 0.0129 - 0.166 | Soil |
| Potassium | 7440-09-7 | 0.393 - 2.05 | Soil |
| Sodium | 7440-23-5 | ND - 0.753 | Soil |
| Vanadium | 7440-62-2 | 0.0114 - 0.161 | Soil |
| Zinc | 7440-66-6 | 0.0431 - 5.22 | Soil |
| Cyanide - Total | | | Soil |
| Cyanide | 57-12-5 | 0.0017 - 0.0259 | Soil |
| | | | |
| **Volatile Compounds** | | | |
| | | | |
| Benzene | 71-43-2 | ND - 0.36 | Water |
| Chlorobenzene | 108-90-7 | ND – 7.5 | Water |
| Ethylbenzene | 100-41-4 | ND - 0.0027 | Water |
| Toluene | 108-88-3 | ND - 0.17 | Water |
| Xylene (total) | 1330-20-7 | ND - 0.01 | Water |
| | | | |
| **Semi-Volatile Compounds** | | | |
| | | | |
| Acenaphthene | 83-32-9 | ND - 0.002 | Water |
| Bromodichloromethane | 75-27-4 | ND - 0.064 | Water |
| 4-Chloroaniline | 106-47-8 | ND - 22 | Water |
| 2-Chlorophenol | 95-57-8 | ND - 0.017 | Water |

| Compound | CAS No. | Concentration Range (ppm) | Media |
|---|---|---|---|
| 1,2-Dichlorobenzene | 95-50-1 | ND - 0.46 | Water |
| 1,3-Dichlorobenzene | 541-73-1 | ND - 0.045 | Water |
| 1,4-Dichlorobenzene | 106-46-7 | ND - 0.39 | Water |
| 2,4-Dimethylphenol | 105-67-9 | ND - 0.016 | Water |
| 2,4-Dinitrotoluene | 121-14-2 | ND - 0.032 | Water |
| 2,6-Dinitrotoluene | 606-20-2 | ND - 0.045 | Water |
| 2-Methylnaphthalene | 91-57-6 | ND - 0.007 | Water |
| Naphthalene | 91-20-3 | ND - 10 | Water |
| Nitrobenzene | 98-95-3 | ND | Water |
| N-nitrosodiphenylamine | 86-30-6 | ND - 0.024 | Water |
| 1,2,4-Trichlorobenzne | 120-83-1 | ND | Water |
| | | | |
| **Pesticides** | | | |
| | | | |
| 4,4'-DDE | 72-55-9 | ND - 0.00011 | Water |
| delta-BHC | 319-86-8 | ND - 0.000033 | Water |
| Endosulfan II | 33213-65-9 | ND - 0.00029 | Water |
| Heptachlor epoxide | 1024-57-3 | ND - 0.00042 | Water |
| | | | |
| **PCBs** | | | |
| | | | |
| Aroclors | | ND | Water |
| | | | |
| **Metals - Total** | | | |
| | | | |
| Aluminum | 7429-90-5 | 0.00028 - 30.9 | Water |
| Antimony | 7440-36-0 | ND - 0.46 | Water |
| Arsenic | 7440-38-2 | 0.000011 - 0.07 | Water |
| Barium | 7440-39-3 | 0.00011 - 0.98 | Water |
| Cadmium | 7440-43-9 | ND - 0.0077 | Water |
| Calcium | 7440-70-2 | 0.131 - 1520 | Water |
| Chromium | 7440-47-3 | ND - 0.27 | Water |
| Cobalt | 7440-48-4 | ND - 0.17 | Water |
| Copper | 7440-50-8 | ND - 0.18 | Water |
| Iron | 7439-89-6 | 0.0012 - 97.2 | Water |
| Lead | 7439-92-1 | 0.000011 - 2.4 | Water |
| Magnesium | 7439-95-4 | 0.0211 - 144 | Water |
| Manganese | 7439-96-5 | 0.00029 - 5.8 | Water |
| Mercury | 7439-97-6 | ND - 0.00044 | Water |

| Compound | CAS No. | Concentration Range (ppm) | Media |
|---|---|---|---|
| Nickel | 7440-02-0 | ND - 0.07 | Water |
| Potassium | 7440-09-7 | 0.0074 - 39.7 | Water |
| Selenium | 7782-49-2 | ND - 0.031 | Water |
| Sodium | 7440-23-5 | 0.0312 - 360 | Water |
| Vanadium | 7440-62-2 | 0.0000061 - 0.82 | Water |
| Zinc | 7440-66-6 | 0.000029 - 2.9 | Water |
| Cyanide - Total | | | |
| Cyanide | 57-12-5 | ND - 0.087 | Water |

# Specification Section 01010
# SUMMARY OF WORK

## ATTACHMENT 01010-5

## Order on Consent

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

| | |
|---|---|
| In the Matter of the<br>Development and Implementation<br>of a Remedial Program for an<br>Inactive Hazardous Waste Disposal<br>Site under Article 27, Title 13,<br>of the Environmental Conservation Law<br>by<br><br>Honeywell International, Inc.<br><br>Respondent. | **ORDER ON CONSENT**<br><br>Index #B9-0674-04-08<br><br>Site #915131 |

**WHEREAS,**

1. A. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of Article 27, Title 13 of the Environmental Conservation Law of the State of New York ("ECL") entitled "Inactive Hazardous Waste Disposal Sites." The Department asserts that any person under order pursuant to ECL 27-1313.3.a has a duty imposed by ECL Article 27, Title 13 to carry out the Inactive Hazardous Waste Disposal Site Remedial Program committed to under order. The Department asserts that ECL 71-2705 provides that any person who fails to perform any duty imposed by ECL Article 27, Title 13 shall be liable for civil, administrative, and/or criminal sanctions.

B. The Department also asserts that it has the authority, *inter alia*, to provide for the prevention and abatement of all water, land, and air pollution. *See, e.g.*, ECL 3-0301.1.i.

C. This Order is issued pursuant to the Department's authority under, *inter alia,* ECL Article 27, Title 13 and ECL 3-0301.

2. Honeywell International, Inc., ("Respondent") is a corporation organized and existing under the laws of the State of Delaware and is doing business in New York State. The Department alleges that a predecessor company generated wastes which were disposed at this Site. The Site, known as the Tifft and Hopkins Site, is generally located at 666 Tifft Street and 360 and 380 Hopkins Street in the City of Buffalo, County of Erie (hereinafter referred to as the "Site"). Exhibit "A" of this Order is a map of the Site showing its general location. The 666 Tifft Street and 360 Hopkins Street parcels are owned by Raymond Radatovich. The 380 Hopkins Street parcel is owned by Bernard Jakubik.

3. The Site is currently listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site Number 915131 with a Classification "2a" pursuant to ECL 27-1305.

4. Respondent consents to the Department's issuance of this Order without (i) an admission or finding of liability, fault, wrongdoing, or violation of any law, regulation, permit, order, requirement, or standard of care of any kind whatsoever, or (ii) an acknowledgment that there has been a release or threatened release of hazardous waste or that a release or threatened release of hazardous waste at or from the Site constitutes a significant threat to the public health or environment.

5. The parties recognize that implementation of this Order will expedite the cleanup of the Site and may avoid prolonged and complicated litigation between the parties, and that this Order is mutually acceptable, fair, reasonable, and in the public interest.

6. Solely with regard to the matters set forth below, Respondent hereby waives its right to a hearing herein as provided by law, consents to the issuance and entry of this Order, and agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Order, and agrees not to contest the validity of this Order or its terms.

**NOW**, having considered this matter and being duly advised, **IT IS ORDERED THAT**:

I. Initial Submittal

Within thirty (30) Days after the effective date of this Order, Respondent shall submit to the Department a Records Search Report in accordance with the requirements of Exhibit "F" attached hereto. The Records Search Report can be limited if the Department notifies Respondent that prior submissions satisfy specific items required for the Records Search Report. Such Records Search Report shall be submitted in a format acceptable to the Department.

II. Development, Performance, and Reporting of Work Plans

A. Work Plans

All activities at the Site that comprise any element of an Inactive Hazardous Waste Disposal Site Remedial Program shall be conducted pursuant to one or more Department-approved work plans ("Work Plan" or "Work Plans") and this Order. The Work Plan(s) under this Order shall address both on-Site and off-Site conditions and shall be developed and implemented in accordance with 6 NYCRR 375-1.10. All Department-approved Work Plans shall be incorporated into and become enforceable parts of this Order and shall be attached as Exhibit "B." Upon approval of a Work Plan by the Department, Respondent shall implement such Work Plan in accordance with the schedule contained in such Work Plan. Nothing in this Subparagraph shall mandate that any particular Work Plan be submitted. Further, each Work Plan submitted shall use one of the following captions on the cover page:

1. "Site Characterization Work Plan" ("SC Work Plan"): a Work Plan the objective of which is to identify the presence of any hazardous waste disposed of at the Site. Such Work Plan shall be developed in accordance with Exhibit "G";

2. "Remedial Investigation/Feasibility Study Work Plan" ("RI/FS Work Plan"): a Work Plan the objective of which is to perform a Remedial Investigation and a Feasibility Study. Such Work Plan shall be developed and implemented in accordance with Exhibit "H";

3. "IRM Work Plan": a Work Plan the objective of which is to provide for an Interim Remedial Measure. Such Work Plan shall be developed in accordance with Exhibit "I";

4. "Remedial Design/Remedial Action Work Plan" ("RD/RA Work Plan"): a Work Plan the objective of which is to provide for the development and implementation of final plans and specifications for implementing the remedial alternative set forth in the ROD. Such Work Plan shall be developed in accordance with Exhibit "J"; or

5. "OM&M Work Plan": a Work Plan the objective of which is to provide for all activities required to maintain and monitor the effectiveness of the Remedial Action or an IRM. Such Work Plan shall be developed in accordance with Exhibit "K."

B. Submission/Implementation of Work Plans

1. (a) Within sixty (60) days after the effective date of this Order Respondent shall submit to the Department an IRM Work Plan which has been developed in accordance with the Department-approved Scope of Work which is attached to this Order in Exhibit "B."

(b) The Department may request that Respondent submit such additional, or supplemental Work Plans as are appropriate to advance the Remedial Program at the Site. Within thirty (30) Days after the Department's written request, Respondent shall advise the Department in writing whether it will submit and implement the requested additional Work Plan (or Supplemental Work Plan) or whether it elects to terminate this Order pursuant to Paragraph XIII. If Respondent elects to submit and implement such Work Plan, Respondent shall submit the requested Work Plan within sixty (60) Days after such election. If Respondent elects to terminate this Order or fails to make a timely election, this Order shall terminate pursuant to Paragraph XIII.

(c) Respondent may, at Respondent's option, propose one or more additional or supplemental Work Plans (including one or more IRM Work Plans) at any time, which Work Plan(s) shall be reviewed for appropriateness and technical sufficiency.

(d) Any request made by the Department under Subparagraph II.B.1.(b) shall be subject to dispute resolution pursuant to Paragraph XII.

2. A Professional Engineer must stamp and sign all Work Plans other than a Work Plan for an RI/FS or an SC.

3. During all field activities, Respondent shall have on-Site a representative who is qualified to supervise the activities undertaken. Such representative may be an employee or a consultant retained by Respondent to perform such supervision.

C. Modifications to Work Plans

The Department shall notify Respondent in writing if the Department determines that any element of a Department-approved Work Plan needs to be modified in order to achieve the objectives of the Work Plan as set forth in Subparagraph II.A or to ensure that the Remedial Program otherwise protects human health and the environment. Upon receipt of such notification, Respondent shall, subject to Respondent's right to invoke dispute resolution pursuant to Paragraph XII or to terminate pursuant to Paragraph XIII, submit a Work Plan for such requested work to the Department within sixty (60) Days after the date of the Department's written notice pursuant to this Subparagraph.

D. Submission of Final Reports and Annual Reports

1. In accordance with the schedule contained in a Work Plan, Respondent shall submit a final report that includes the caption of that Work Plan on the cover page and a certification that all requirements of the Work Plan have been complied with and all activities have been performed in full accordance with such Work Plan. Such certification shall be by the person with primary responsibility for the day to day performance of the activities under this Order and, except for RI and SC final reports, shall be by a Professional Engineer.

2. Any final report that includes construction activities shall include "as built" drawings showing any changes made to the remedial design or the IRM.

3. In the event that any ROD or Work Plan for the Site requires operation, maintenance, and monitoring (OM&M), including reliance upon institutional or engineering controls, Respondent shall submit an annual report by the 1st Day of the month following the anniversary of the start of the OM&M. Such annual report shall be signed by a Professional Engineer or by such other expert as the Department may find acceptable and shall contain a certification under penalty of perjury that any institutional and/or engineering controls required by this Order are unchanged from the previous certification and that nothing has occurred that would impair the effectiveness of such control or constitute a violation of or failure to comply with the approved OM& M Plan. Respondent shall notify the Department within twenty-four (24) hours of discovery of any upset, interruption, or termination of such controls that occurs without the prior approval of the Department. During such upset, interruption, or termination of controls, Respondent shall take all actions required by the Department to maintain conditions at

the Site that achieve the objectives of the Remedial Program and are protective of public health and the environment. An explanation of such upset, interruption, or termination of one or more controls and the steps taken in response shall be included in the foregoing notice and in the annual report required by this Subparagraph, as well as in any progress reports required by Paragraph III. Respondent may petition the Department for a determination that the institutional and/or engineering controls may be terminated. Such petition must be supported by a statement by a Professional Engineer that such controls are no longer necessary for the protection of public health and the environment. The Department shall not unreasonably withhold its approval of such petition.

E. Review of Submittals other than Progress Reports and Health and Safety Plans

1. The Department shall make a good faith effort to review and respond in writing to each of the submittals Respondent makes pursuant to this Order within sixty (60) Days. The Department's response shall include an approval or disapproval of the submittal, in whole or in part. All Department-approved submittals shall be incorporated into and become an enforceable part of this Order.

2. If the Department disapproves a submittal, it shall specify the reasons for its disapproval. Within thirty (30) Days after the date of the Department's written notice that Respondent's submittal has been disapproved, Respondent shall elect, in writing, to either (i) modify the submittal to address the Department's comments, (ii) invoke dispute resolution pursuant to Paragraph XII, or (iii) in the event the rejected submittal is a Work Plan submitted prior to the Department's approval of the RD/RA Work Plan, terminate this Order pursuant to Paragraph XIII. If Respondent elects to modify the submittal, Respondent shall, within sixty (60) Days after such election, make a revised submittal that addresses all of the Department's stated reasons for disapproving the first submittal. In the event that Respondent's revised submittal is disapproved, the Department shall set forth its reasons for such disapproval in writing and Respondent shall be in violation of this Order unless it invokes dispute resolution pursuant to Paragraph XII and its position prevails. Failure to make an election or failure to comply with the election is a violation of this Order.

3. Within thirty (30) Days after the Department's approval of a final report, Respondent shall submit such final report, as well as all data gathered and drawings and submittals made pursuant to such Work Plan, in an electronic format acceptable to the Department. If any document cannot be converted into electronic format, Respondent shall submit such document in an alternative format acceptable to the Department.

F. Department's Issuance of a ROD

Respondent shall cooperate with the Department and provide reasonable assistance, consistent with the Citizen Participation Plan, in soliciting public comment on the proposed remedial action plan ("PRAP"), if any. After the close of the public comment period, the

Department shall select a final remedial alternative for the Site in a ROD. Nothing in this Order shall be construed to abridge the rights of Respondent, as provided by law, to judicially challenge the Department's ROD.

G. Release and Covenant Not to Sue

Upon (i) the Department's approval of either the RD/RA Work Plan final report or an IRM Work Plan final report evidencing that no further remedial action (other than OM&M activities) is required to meet the goals of the Remedial Program, and (ii) the Department's acceptance of any environmental easement required pursuant to Paragraph X, then, except for the provisions of Paragraphs VI and VIII, and except for the future OM&M of the Site and any Natural Resource Damage claims, such acceptance shall constitute a release and covenant not to sue for each and every claim, demand, remedy, or action whatsoever against Respondent, its directors, officers, employees, agents, servants, successors, and assigns (except successors and assigns who were responsible under law for the development and implementation of a Remedial Program at the Site prior to the effective date of this Order), and their respective secured creditors, which the Department has or may have pursuant to Article 27, Title 13 of the ECL or pursuant to any other provision of State or Federal statutory or common law involving or relating to investigative or remedial activities relative to or arising from the disposal of hazardous wastes (or other contaminants remediated by Respondent to the Department's satisfaction pursuant to the ROD or Work Plans) at the Site; provided, however, that the Department specifically reserves all of its rights concerning, and any such release and covenant not to sue shall not extend to any further investigation or remediation the Department deems necessary due to newly discovered environmental conditions on-Site or off-Site which are related to the disposal of hazardous wastes at the Site and which indicate that the Remedial Program is not protective of public health and/or the environment. The Department shall notify Respondent in writing of such environmental conditions or information and its basis for determining that the Remedial Program is not protective of public health and/or the environment.

This release and covenant not to sue shall be null and void, *ab initio*, in the event of fraud relating to the execution or implementation of this Order or in the event of Respondent's failure to materially comply with any provision of this Order subsequent to issuance of a release and covenant not to sue. The Department's determination that Respondent has committed fraud or has materially failed to comply with this Order shall be subject to dispute resolution pursuant to Paragraph XII.

Nothing herein shall be construed as barring, diminishing, adjudicating, or in any way affecting any legal or equitable rights or claims, actions, suits, causes of action, or demands whatsoever that (i) Respondent may have against anyone other than the Department, and (ii) the Department may have against anyone other than Respondent, its directors, officers, employees, agents, and servants, and those successors and assigns of Respondent that were not responsible under law for the development and implementation of a Remedial Program at the Site prior to the effective date of this Order, and their respective secured creditors.

III. Progress Reports

Respondent shall submit written progress reports to the parties identified in Subparagraph XI.A.1 by the 10th Day of each month commencing with the month subsequent to the approval of the first Work Plan and ending with the Termination Date, unless a different frequency is set forth in a Work Plan. Such reports shall, at a minimum, include: all actions taken pursuant to this Order during the reporting period and those anticipated for the upcoming reporting period; all approved modifications to work plans and/or schedules; all results of sampling and tests and all other data received or generated by or on behalf of Respondent in connection with the Site, during the reporting period, including quality assurance/quality control information; and information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule, efforts made to mitigate such delays, and information regarding activities undertaken in support of the Citizen Participation Plan during the reporting period and those anticipated for the upcoming reporting period.

IV. Penalties

A. 1. Respondent's failure to comply with any term of this Order constitutes a violation of this Order, the ECL, and 6 NYCRR Section 375-1.2(d). Nothing herein abridges Respondent's right to contest, defend against, dispute, or disprove any such claim, assertion, or allegation that it has violated this Order.

2. Payment of any penalties shall not in any way alter Respondent's obligations under this Order.

B. 1. Respondent shall not suffer any penalty or be subject to any proceeding or action in the event it cannot comply with any requirement of this Order as a result of any event arising from causes beyond the reasonable control of Respondent, of any entity controlled by Respondent, and of Respondent's contractors, that delays or prevents the performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation ("Force Majeure Event"). The requirement that Respondent exercise best efforts to fulfill the obligation includes using best efforts to anticipate the potential Force Majeure Event, best efforts to address any such event as it is occurring, and best efforts following the Force Majeure Event to minimize delay to the greatest extent possible. "Force Majeure" does not include Respondent's economic inability to comply with any obligation, the failure of Respondent to make complete and timely application for any required approval or permit, and non-attainment of the goals, standards, and requirements of this Order.

2. Respondent shall notify the Department in writing within seven (7) Days after it obtains knowledge of any Force Majeure Event. Respondent shall include in such notice the measures taken and to be taken to prevent or minimize any delays and shall request an appropriate extension or modification of this Order. Failure to give such notice within such seven (7) Day period constitutes a waiver of any claim that a delay is not subject to penalties.

Respondent shall be deemed to know of any circumstance which it, any entity controlled by it, or its contractors knew or should have known.

3. Respondent shall have the burden of proving by a preponderance of the evidence that (i) the delay or anticipated delay has been or will be caused by a Force Majeure Event; (ii) the duration of the delay or the extension sought warranted under the circumstances; (iii) best efforts were exercised to avoid and mitigate the effects of the delay; and (iv) Respondent complied with the requirements of Subparagraph IV.B.2 regarding timely notification.

4. If the Department agrees that the delay or anticipated delay is attributable to a Force Majeure Event, the time for performance of the obligations that are affected by the Force Majeure Event shall be extended for such time as is reasonably necessary to complete those obligations.

5. If the Department rejects Respondent 's assertion that an event provides a defense to non-compliance with this Order pursuant to Subparagraph IV.B, Respondent shall be in violation of this Order unless it invokes dispute resolution pursuant to Paragraph XII and Respondent's position prevails.

V. Entry upon Site

A. Respondent hereby consents, upon reasonable notice under the circumstances presented, to entry upon the Site (or areas in the vicinity of the Site which may be under the control of Respondent) by any duly designated officer or employee of the Department or any State agency having jurisdiction with respect to matters addressed pursuant to this Order, and by any agent, consultant, contractor, or other person so authorized by the Commissioner, all of whom shall abide by the health and safety rules in effect for the Site, for inspecting, sampling, copying records related to the contamination at the Site, testing, and any other activities necessary to ensure Respondent's compliance with this Order. Upon request, Respondent shall (i) provide the Department with suitable office space at the Site, including access to a telephone, to the extent available; and (ii) permit the Department full access to all non-privileged records relating to matters addressed by this Order. Raw data is not considered privileged and that portion of any privileged document containing raw data must be provided to the Department. In the event Respondent is unable to obtain any authorization from third-party property owners necessary to perform its obligations under this Order, the Department may, consistent with its legal authority, assist in obtaining such authorizations.

B. The Department shall have the right to take its own samples and scientific measurements and the Department and Respondent shall each have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled. The Department shall make the results of any such sampling and scientific measurements available to Respondent.

VI. Payment of State Costs

A. Within forty-five (45) Days after the effective date of this Order, Respondent shall pay to the Department the sum of $154,549.46, which shall represent reimbursement for State Costs as set forth on the cost summary attached as Exhibit "C." Respondent acknowledges that all past State Costs are not itemized on the cost summary and that additional charges may be billed at a later date for State Costs incurred prior to the effective date of this Order.

B. Within forty-five (45) Days after receipt of an itemized invoice from the Department, Respondent shall pay to the Department a sum of money which shall represent reimbursement for State Costs, other than those identified in Subparagraph VI.A, for work performed at or in connection with the Site through and including the Termination Date.

C. Personal service costs shall be documented by reports of Direct Personal Service, which shall identify the employee name, title, biweekly salary, and time spent (in hours) on the project during the billing period, as identified by an assigned time and activity code. Approved agency fringe benefit and indirect cost rates shall be applied. Non-personal service costs shall be summarized by category of expense (*e.g.*, supplies, materials, travel, contractual) and shall be documented by expenditure reports. The Department shall not be required to provide any other documentation of costs, provided however, that the Department's records shall be available consistent with, and in accordance with, Article 6 of the Public Officers Law.

D. Such invoice shall be sent to Respondent at the following address:

John J. Morris
Remediation Portfolio Director
Honeywell International, Inc.
101 Columbia Road
Morristown, New Jersey 07962

E. Each such payment shall be made payable to the Department of Environmental Conservation and shall be sent to:

Bureau of Program Management
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7010.

F. Each party shall provide written notification to the other within ninety (90) Days of any change in the foregoing addresses.

G. Respondent may contest, in writing, invoiced costs under Subparagraph VI.B if it believes that (i) the cost documentation contains clerical, mathematical, or accounting errors; (ii) the costs are not related to the State's activities with respect to the Remedial Program for the Site; or (iii) the Department is not otherwise legally entitled to such costs. If Respondent objects to an invoiced cost, Respondent shall pay all costs not objected to within the time frame set forth in Subparagraph VI.B and shall, within thirty (30) Days after its receipt of an invoice, identify, in writing, all costs objected to and the basis of the objection. This objection shall be filed with the BPM Director. The BPM Director or the BPM Director's designee shall have the authority to relieve Respondent of the obligation to pay invalid costs. Within forty-five (45) Days after the date of the Department's determination of the objection, Respondent shall either pay to the Department the amount which the BPM Director or the BPM Director's designee determines Respondent is obligated to pay or commence an action or proceeding seeking appropriate judicial relief.

H. If any negotiable instrument submitted to the Department pursuant to this Order is not honored when presented for payment, Respondent shall be in violation of this Order, provided that (i) the Department gives Respondent written notice of same, and (ii) the Department does not receive a certified check or bank check in the amount of the uncollected funds within fourteen (14) Days after the date of the Department's written notification.

VII. Reservation of Rights

A. Except as provided in Subparagraph II.G, nothing contained in this Order shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights or authorities, including, but not limited to, the right to require performance of further investigations and/or response action(s), to recover natural resource damages, and/or to exercise any summary abatement powers with respect to any person, including Respondent.

B. Except as otherwise provided in this Order, Respondent specifically reserves all rights and defenses under applicable law respecting any Departmental assertion of remedial liability and/or natural resource damages against Respondent, and further reserves all rights respecting the enforcement of this Order, including the rights to notice, to be heard, to appeal, and to any other due process. The existence of this Order or Respondent's compliance with it shall not be construed as an admission of liability, fault, wrongdoing, or breach of standard of care by Respondent, and shall not give rise to any presumption of law or finding of fact, or create any rights, or grant any cause of action, which shall inure to the benefit of any third party. Further, Respondent reserves such rights as it may have to seek and obtain contribution, indemnification, and/or any other form of recovery from its insurers and from other potentially responsible parties or their insurers for past or future response and/or cleanup costs or such other costs or damages arising from the contamination at the Site as may be provided by law.

VIII. Indemnification

Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all third-party claims, suits, actions, damages, and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns except for liability arising from (i) vehicular accidents occurring during travel to or from the Site; or (ii) willful, wanton, or malicious acts or omissions, and acts or omissions constituting gross negligence or criminal behavior by the Department, the State of New York, and/or their representatives and employees during the course of any activities conducted pursuant to this Order. The Department shall provide Respondent with written notice no less than thirty (30) Days prior to commencing a lawsuit seeking indemnification pursuant to this Paragraph.

IX. Public Notice

A. Within thirty (30) Days after the effective date of this Order, Respondent shall cause to be filed a Department-approved Notice of Order, which Notice shall be substantially similar to the Notice of Order attached to this Order as Exhibit "D," with the recording officer of the county wherein the Site is to give all parties who may acquire any interest in the Site notice of this Order. Within sixty (60) Days of such filing, Respondent shall also provide the Department with a copy of such instrument certified by the recording officer to be a true and faithful copy.

B. If Respondent proposes to convey the whole or any part of Respondent's ownership interest in the Site, or becomes aware of such conveyance, Respondent shall, not fewer than forty-five (45) Days before the date of conveyance, or within forty-five (45) Days after becoming aware of such conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed or actual date of the conveyance, and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order. However, such obligation shall not extend to a conveyance by means of a corporate reorganization or merger or the granting of any rights under any mortgage, deed, trust, assignment, judgment, lien, pledge, security agreement, lease, or any other right accruing to a person not affiliated with Respondent to secure the repayment of money or the performance of a duty or obligation.

X. Environmental Easement

A. 1. If a Department-approved Work Plan or the ROD for the Site, if any, relies upon one or more institutional and/or engineering controls, Respondent (or the owner of the Site) shall execute an environmental easement pursuant to ECL Article 71, Title 13 which shall be substantially similar to Exhibit "E." Respondent shall cause such instrument to be recorded with the recording officer of the county wherein the Site is located within thirty (30) Days of the Department's approval of such instrument. Respondent shall provide the Department with a copy of such instrument certified by the recording officer to be a true and faithful copy within sixty (60) Days after such recording.

B. If the ROD provides for "no action" other than implementation of one or more institutional controls, Respondent shall cause an environmental easement to be recorded under the provisions of Subparagraph X.A.1. If Respondent does not cause such environmental easement to be recorded, Respondent cannot obtain a release and covenant not to sue pursuant to Subparagraph. II.G.

XI. Communications

A. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered as follows:

1. Communication from Respondent shall be sent to:

Martin Doster
Division of Environmental Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

Note: four copies (one unbound) of work plans are required to be sent.

with copies to:

Gary Litwin
Bureau of Environmental Exposure Investigation
New York State Department of Health
Flanigan Square
547 River Street
Troy, New York 12180-2216

Maura C. Desmond
Division of Environmental Enforcement
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

2. Communication to be made from the Department to Respondent shall be sent to:

John J. Morris
Remediation Portfolio Director
Honeywell International, Inc.
101 Columbia Road
Morristown, New Jersey 07962

Daniel Cantor
Arnold & Porter LLP
555 12th Street N.W.
Washington, DC 20004-1206

Christopher Burns, Ph.D.
Clough, Harbour & Associates LLP
441 South Salina Street
Syracuse, New York 13202

David P. Flynn, Esq.
Phillips Lytle LLP
3400 HSBC Center
Buffalo, New York 14203

B. The Department and Respondent reserve the right to designate additional or different addressees for communication upon written notice to the other.

C. Each party shall notify the other within ninety (90) Days after any change in the addresses in this Paragraph XI or in Paragraph VI.

XII. Dispute Resolution

A. If Respondent disagrees with the Department's notice under (i) Subparagraph II.B requesting additional or supplemental Work Plans; (ii) Subparagraph II.C requesting modification of a Department-approved Work Plan; (iii) Subparagraph II.E disapproving a submittal, a proposed Work Plan, or a final report; (iv) Subparagraph II. G. finding that Respondent materially failed to comply with the Order; (v) Subparagraph IV.B rejecting Respondent's assertion of a Force Majeure Event; or (vi) Subparagraph XIV.H.2.iii requesting modification of a time frame, Respondent may, within thirty (30) Days of its receipt of such notice, make a written request for informal negotiations with the Department in an effort to resolve the dispute. A copy of such request shall be sent by Respondent to the appropriate Remedial Bureau Chief in the Department's Central Office. The Department and Respondent shall consult together in good faith and exercise best efforts to resolve any differences or disputes without resort to the procedures described in Subparagraph XII.B. The period for informal negotiations shall not exceed thirty (30) Days from the date of the Department's initial response to the Respondent's request for informal negotiations. If the parties cannot resolve a dispute by informal negotiations during this period, the Department's position shall be considered binding unless Respondent notifies the Department in writing within thirty (30) Days after the conclusion of the thirty (30) Day period for informal negotiations that it invokes the dispute resolution provisions provided under Subparagraph XII.B.

B. 1. Respondent shall file with the OH&M a request for formal dispute resolution and a written statement of the issues in dispute, the relevant facts upon which the dispute is based, factual data, analysis, or opinion supporting its position, and all supporting documentation upon which Respondent relies (hereinafter called the "Statement of Position"). A copy of such request and written statement shall be provided contemporaneously to the Director and to the parties listed under Subparagraph XI.A.1.

2. The Department shall serve its Statement of Position no later than twenty (20) Days after receipt of Respondent's Statement of Position.

3. Respondent shall have the burden of proving by substantial evidence that the Department's position does not have a rational basis and should not prevail. The OH&M can conduct meetings, in person or via telephone conferences, and request additional information from either party if such activities will facilitate a resolution of the issues.

4. The OH&M shall prepare and submit a report and recommendation to the Director. The Director shall issue a final decision in a timely manner. The final decision shall constitute a final agency action and Respondent shall have the right to seek judicial review of the decision pursuant to Article 78 of the CPLR provided that Respondent notifies the Department within thirty (30) Days after receipt of a copy of the final decision of its intent to commence an Article 78 proceeding and commences such proceeding within sixty (60) Days after receipt of a copy of the Director's final decision. Respondent shall be in violation of this Order if it fails to comply with the final decision resolving this dispute within forty-five (45) Days after the date of such final decision, or such other time period as may be provided in the final decision, unless it seeks judicial review of such decision within the sixty (60) Day period provided. In the event that Respondent seeks judicial review, Respondent shall be in violation of this Order if it fails to comply with the final Court Order or any settlement within thirty (30) Days after the effective date of such Order or settlement, unless otherwise directed by the Court. For purposes of this Subparagraph, a Court Order or settlement shall not be final until the time to perfect an appeal of same has expired.

5. The invocation of dispute resolution shall not extend, postpone, or modify Respondent's obligations under this Order with respect to any item not in dispute unless or until the Department agrees or a Court orders otherwise. Except as otherwise provided in this Order, the invocation of the procedures set forth in this Paragraph XII shall constitute an election of remedies and such election shall constitute a waiver of any and all other administrative remedies which may otherwise be available to Respondent regarding the issue in dispute.

6. The Department shall keep an administrative record of any proceedings under this Paragraph XII that shall be available consistent with Article 6 of the Public Officers Law.

7. Nothing in this Paragraph XII shall be construed as an agreement by the parties to resolve disputes through administrative proceedings pursuant to the State Administrative Procedure Act, the ECL, or 6 NYCRR Part 622 or Section 375-2.1.

8. Nothing contained in this Order shall be construed to authorize Respondent to invoke dispute resolution with respect to the remedy selected by the Department in the ROD or any element of such remedy, nor to impair any right of Respondent to seek judicial review of the Department's selection of any remedy.

XIII. Termination of Order

A. This Order will terminate upon the earlier of the following events:

1. Respondent's election to terminate pursuant to Subparagraphs II.B.1.b, II.C or II.E.3 so long as such election is made prior to the Department's approval of the RD/RA Work Plan. In the event of termination in accordance with this Subparagraph XIII.A.1, this Order shall terminate effective the 5th Day after the Department's receipt of the written notification terminating this Order or the 5 th Day after the time for Respondent to make its election has expired, whichever is earlier, provided, however, that if there are one or more Work Plan(s) for which a final report has not been approved at the time of Respondent's notification of its election to terminate this Order pursuant to Subparagraphs II.B.1.b or II.E.3 or its failure to timely make such an election pursuant to Subparagraphs II.B.1.b or II.E.3, Respondent shall promptly complete the activities required by such previously approved Work Plan(s)consistent with the schedules contained therein. Thereafter, this Order shall terminate effective the 5 th Day after the Department's approval of the final report for all previously approved Work Plans; or

2. the Department's written determination that Respondent has completed all phases of the Remedial Program (including OM&M), in which event the termination shall be effective on the 5 th Day after the date of the Department's approval of the final report relating to the final phase of the Remedial Program.

B. Notwithstanding the foregoing, the provisions contained in Paragraphs VI and VIII shall survive the termination of this Order and any violation of such surviving Paragraphs shall be a violation of this Order, the ECL, and 6 NYCRR Section 375-1.2(d), subjecting Respondent to penalties as provided under Paragraph IV so long as such obligations accrued on or prior to the Termination Date.

C. If the Order is terminated pursuant to Subparagraph XIII.A.1, neither this Order nor its termination shall affect any liability of Respondent for remediation of the Site and/or for payment of State Costs, including implementation of removal and remedial actions, interest, enforcement, and any and all other response costs as defined under CERCLA, nor shall it affect any defenses to such liability that may be asserted by Respondent. Respondent shall also ensure that it does not leave the Site in a condition, from the perspective of human health and

environmental protection, worse than that which existed before any activities under this Order were commenced. Further, the Department's efforts in obtaining and overseeing compliance with this Order shall constitute "reasonable efforts" under law to obtain a voluntary commitment from Respondent for any further activities to be undertaken as part of a Remedial Program for the Site.

XIV. Miscellaneous

A. Respondent shall retain professional consultants, contractors, laboratories, quality assurance/quality control personnel, and third party data validators ("Respondent's Contractors") acceptable to the Department to perform its obligations under this Order If the Department has not previously approved Respondent's Contractors for the work required by this Order, Respondent shall submit the Contractors' qualifications to the Department a minimum of thirty (30) Days before the start of any activities for which each such Contractor will be responsible. The Department's approval of each such Contractor shall be obtained prior to the start of work by that Contractor. The responsibility for the performance of all Contractors retained by Respondent shall rest solely with Respondent. Subject to the requirements of this Subparagraph, Respondent retains the right to select or change firms or individuals in its sole discretion.

B. Respondent shall allow the Department to attend and shall notify the Department at least seven (7) Days in advance of any field activities as well as any pre-bid meetings, job progress meetings, the substantial completion meeting and inspection, and the final inspection and meeting; nothing in this Order shall be construed to require Respondent to allow the Department to attend portions of meetings where privileged matters are discussed.

C. Respondent shall use "best efforts" to obtain all Site access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations necessary to perform Respondent's obligations under this Order, except that the Department may exempt Respondent from the requirement to obtain any state or local permit or other authorization for any activity on the Site needed to implement this Order that the Department determines is conducted in a manner which satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit. If, despite Respondent's best efforts, any necessary Site access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations required to perform this Order are not obtained within forty-five (45) Days after the effective date of this Order, or within forty-five (45) Days after the date the Department notifies Respondent in writing that additional access beyond that previously secured is necessary, Respondent shall promptly notify the Department, and shall include in that notification a summary of the steps Respondent has taken to obtain access. The Department may, as it deems appropriate and within its authority, assist Respondent in obtaining access. If any interest in property is needed to implement an institutional control required by a Work Plan and such interest cannot be obtained, the Department may require Respondent to modify the Work Plan pursuant to Subparagraph II.C of this Order to reflect changes necessitated by the lack of access and/or approvals.

D. Respondent and Respondent's successors and assigns shall be bound by this Order. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets, shall in no way alter Respondent's responsibilities under this Order.

E. Respondent shall provide a copy of this Order to each contractor hired to perform work required by this Order and shall condition all contracts entered into pursuant to this Order upon performance in conformity with the terms of this Order. Respondent or its contractor(s) shall provide written notice of this Order to all subcontractors hired to perform any portion of the work required by this Order. Respondent shall nonetheless be responsible for ensuring that Respondent's contractors and subcontractors perform the work in satisfaction of the requirements of this Order.

F. The paragraph headings set forth in this Order are included for convenience of reference only and shall be disregarded in the construction and interpretation of any provisions of this Order.

G. 1. The terms of this Order shall constitute the complete and entire agreement between the Department and Respondent concerning implementation of the activities required by this Order. No term, condition, understanding, or agreement purporting to modify or vary any term of this Order shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department shall be construed as relieving Respondent of Respondent's obligation to obtain such formal approvals as may be required by this Order. In the event of a conflict between the terms of this Order and any Work Plan submitted pursuant to this Order, the terms of this Order shall control over the terms of the Work Plan(s) attached as Exhibit "B."

2. I. Except as set forth herein, if Respondent desires that any provision of this Order be changed, other than a provision of a Work Plan or a time frame, Respondent shall make timely written application to the Commissioner with copies to the parties listed in Subparagraph XI.A.1. The Commissioner or the Commissioner's designee shall timely respond.

ii. Changes to a Work Plan shall be accomplished as set forth in Subparagraph II.C of this Order.

iii. Changes to a time frame set forth in this Order shall be accomplished by a written request to the Department's project attorney and project manager, which request shall be timely responded to in writing. The Department's decision relative to the request for a time frame change shall be subject to dispute resolution pursuant to Paragraph XII.

H. 1. If there are multiple parties signing this Order, the term "Respondent" shall be read in the plural where required to give meaning to this Order. Further, the obligations of Respondents under this Order are joint and several and the insolvency of or failure by any

Respondent to implement any obligations under this Order shall not affect the obligations of the remaining Respondent(s) to carry out the obligations under this Order.

2. If Respondent is a partnership, the obligations of all general partners, including limited partners who act as general partners, to finance and perform obligations under this Order and to pay amounts owed to the Department under this Order are joint and several. In the event of the insolvency of or the failure of any of the general partners to implement the requirements of this Order, the remaining general partners shall complete all such requirements.

3. Notwithstanding the foregoing Subparagraphs XIV.H. 1 and 2, if multiple parties sign this Order as Respondents but not all of the signing parties elect, pursuant to Subparagraph II.B, to implement a Work Plan, then all Respondents are jointly and severally liable for each and every obligation under this Order through the completion of the activities in such Work Plan that all such parties consented to; thereafter, only those Respondents electing to perform additional work shall be jointly and severally liable under this Order for the obligations and activities under such additional Work Plan(s). The parties electing not to implement the additional Work Plan(s) shall have no obligations under this Order relative to the activities set forth in such Work Plan(s). Further, only those Respondents electing to implement such additional Work Plan(s) shall be eligible to receive the release and covenant not to sue provided under Subparagraph II.G.

I. To the extent authorized under 42 U.S.C. Section 9613, New York General Obligations Law § 15-108, and any other applicable law, Respondent shall be deemed to have resolved its liability to the State for purposes of contribution protection provided by CERCLA Section 113(f)(2) for "matters addressed" pursuant to and in accordance with this Order. "Matters addressed" in this Order shall mean all response actions taken by Respondent to implement this Order for the Site and all response costs incurred and to be incurred by any person or party in connection with the work performed under this Order, which costs have been paid by Respondent, including reimbursement of State Costs pursuant to this Order. Furthermore, to the extent authorized under 42 U.S.C. Section 9613(f)(3)(B), by entering into this administrative settlement of liability, if any, for some or all of the response action and/or for some or all of the costs of such action, Respondent is entitled to seek contribution from any person except those who are entitled to contribution protection under 42 U.S.C. Section 9613(f)(2).

J. Unless otherwise expressly provided herein, terms used in this Order which are defined in ECL Article 27, Title 13, ECL Article 71, Title 36, or in regulations promulgated under such statute shall have the meaning assigned to them under said statute or regulations. Whenever terms listed in the Glossary attached hereto are used in this Order or in the attached Exhibits, the definitions set forth in the Glossary shall apply. In the event of a conflict, the definition set forth in the Glossary shall control.

K. Respondent's obligations under this Order represent payment for or reimbursement of response costs, and shall not be deemed to constitute any type of fine or penalty.

L. Respondent shall not be considered an operator of the Site solely by virtue of having executed and/or implemented this order.

M. This Order may be executed for the convenience of the parties hereto, individually or in combination, in one or more counterparts, each of which for all purposes shall be deemed to have the status of an executed original and all of which shall together constitute one and the same.

N. The effective date of this Order is the 10th Day after the date the Commissioner or the Commissioner's designee signs this Order.

DATED:

ERIN M. CROTTY
Commissioner
New York State Department
of Environmental Conservation

By:

_____

Dale A. Desnoyers
Director
Division of Environmental Remediation

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of this Order, waives Respondent's right to a hearing herein as provided by law, and agrees to be bound by this Order.

By: David L. Wickenhauser
Honeywell International, Inc.

Title: Director RES.

Date: January 17, 2005

STATE OF ~~NEW YORK~~ NEW JERSEY )
) s.s.:
COUNTY OF MORRIS )

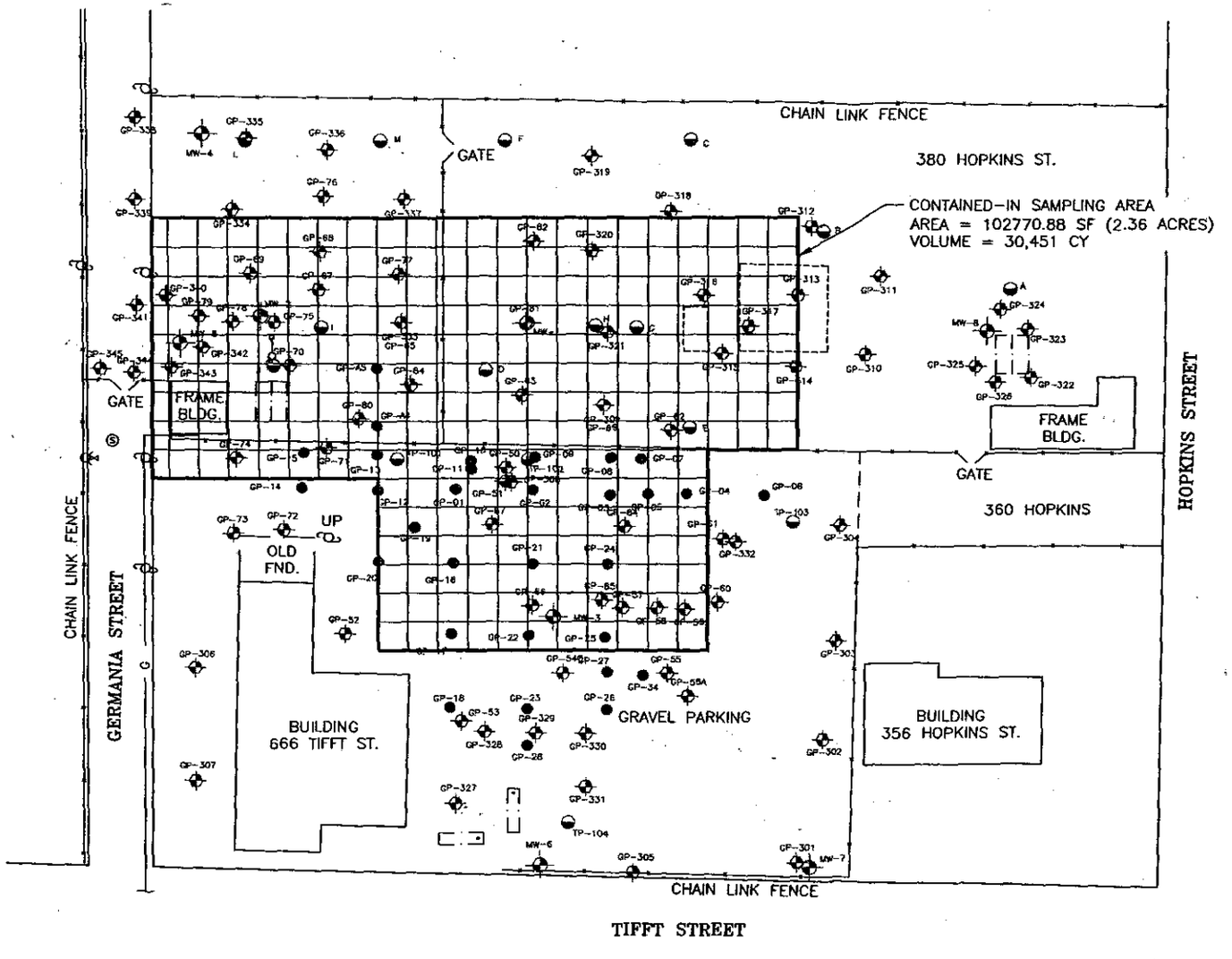
On the 17th day of January, in the year 2005, before me, the undersigned, personally appeared David Wickenhauser, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Jennifer M. Mapes
Signature and Office of individual taking acknowledgment

JENNIFER M. MAPES
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES MAR. 25, 2009

**EXHIBIT "A"**

**Map of Site**




COMPILED FROM:

ABB ENVIRONMENTAL SERVICES, 1993. PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA, VOLUME I, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

E.C. JORDAN CO., 1991, PRELIMINARY SITE ASSESSMENT, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

EDR- HISTORICAL TOPOGRAPHIC MAP REPORT, 2003; INQUIRY NUMBER: 902404-2

EDR- SANBORN MAP REPORT, 2003; INQUIRY NUMBER: 902404.1S

EDR- SITE REPORT, 2003; INQUIRY NUMBER: 902404-2

ERIE COUNTY SOIL CONSERVATION SERVICE; EAST AURORA, NEW YORK; 1938, 1942, 1951 AERIAL PHOTOGRAPHS.

BUFFALO FIRE DEPARTMENT (BFD) UST INSTALLATION/REMOVAL PERMITS.

NYSDEC, 1998. TIFFT AND HOPKINS STREET (915131) IMMEDIATE INVESTIGATION WORK ASSIGNMENT REPORT (IIWA).

LEGEND

- GP-01 TO GP-28 GEOPROBE LOCATION NYSDEC 1998 IIWA
- GP-50 TO GP-87 GEOPROBE LOCATION PARSONS FEBRUARY 2003
- GP-301 TO GP-345 GEOPROBE LOCATION PARSONS NOVEMBER 2003
- MONITORING WELL LOCATION
- A-M TEST PIT LOCATIONS GZA MARCH 2003
- FENCE
- EXISTING GAS LINE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT W/VALVE
- EXISTING LIGHT POLE AND ABANDONED DIESEL PUMPS
- EXISTING UTILITY POLE
- CONCRETE PAD & STRUCTURE
- UST LOCATION

80 40 0 80 160

SCALE: 1"=80'

# FIGURE 1

TIFFT AND HOPKINS SITE

CONTAINED-IN SAMPLING AREA

PARSONS
100 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074

P:\440707 (Tifft&Hopkins)\CAD\40707F14.dwg, 08/27/04 at 11:33, MAB, 1=1
No XREFs

**EXHIBIT "B"**

**Department-Approved Work Plan(s)**
**and IRM Scope of Work**

# SCOPE OF WORK
# TIFFT AND HOPKINS SITE
# NYSDEC SITE NO. 9-15-131

This document presents the Interim Remedial Measure (IRM) Scope of Work (SOW) for the Tifft and Hopkins Site (NYSDEC Site No. 9-15-131) in Buffalo, New York. This SOW contains a description of the proposed work, including excavation, transportation, consolidation, restoration, surveying, and reporting. Detailed specifications for excavation, backfill, and restoration can be found in the contract documents.

## SITE LOCATION

The Tifft and Hopkins Site is comprised of sections of the properties known as 666 Tifft Street, 360 Hopkins Street, and 380 Hopkins Street, all located in the City of Buffalo (Figure 1). All the properties are currently zoned for, and are being used for, commercial and/or industrial purposes. Together, the three properties form an approximate 7-acre area that is relatively flat. They are mostly undeveloped and open, serving primarily as a parking facility for tractor-trailers. There is an office/garage/warehouse building in the southwest corner of the 666 Tifft St. parcel, which is being operated as a machinery repair business. A chain-link fence divides the northern border of the tractor-trailer parking lot and the 380 Hopkins parcel. The 380 Hopkins St. parcel is mostly open, with brush and trees growing along the fence lines that surround the parcel. Abandoned motor vehicles, piles of tires, and miscellaneous debris are randomly scattered across the 380 Hopkins parcel. Prior to any development, the Tifft and Hopkins Site was shown on maps as a low-lying wetland area.

The property owners have been identified as Mr. Raymond Radotavich, the reported owner of 666 Tifft Street and 360 Hopkins Street; and Mr. Bernard Jakubik, the reported owner of 380 Hopkins Street.

The "Site" being addressed by this SOW consists of three distinct areas (Figure 2.) The largest area (denoted by points A through H) is located in the center of the properties. It includes the area identified in the April 2004 Site Investigation Report (SIR) as being potentially impacted with Honeywell site-specific constituents of concerns (HON-COCs). In addition to the HON-COC impacted area, Honeywell will also complete remedial measures at each of two underground storage tank (UST) areas that have been identified outside the boundaries of this largest area. The first UST area is located on the 666 Tifft Street property (denoted by points I through L), and the second is located in the eastern end of the 380 Hopkins Street property (denoted by points M through P).

## BACKGROUND

In 1985, during the excavation of a water main located in the paper road known as Providence Street, the City of Buffalo exposed a layer of black, granular, odorous material, approximately four to seven feet below the parking lot. [1]

In 1998, the New York State Department of Environmental Conservation (NYSDEC) determined that "Through the combination of chemical analysis, site location and historical information, it is likely that the material found at the site has the same source as the waste materials previously identified at the Alltift Landfill."[1] This conclusion was based on the results of the NYSDEC 1998 Immediate Investigation Work Assignment.

In 2003, Honeywell completed two additional investigations to determine the location of the fill that had been potentially impacted with the HON-COCs.

Results from multiple investigations have shown that there is a concentration of HON-COCs in three areas near the central part of the Site. The depth of the material is limited to the upper 7.5 feet of material, which includes the fill and the upper, more permeable layers of native soils. In addition to HON-COCs, other chemical constituents not related to former Honeywell operations have been found at the site. These constituents include polycyclic aromatic hydrocarbons (PAHs), metals, and petroleum related compounds. Based on the results of previous investigation work, and subsequent discussions with the NYSDEC, an area that represents the apparent limit of material potentially impacted by HON-COCs was delineated (Figure 2).

In addition to impacts from HON-COCs, six underground fuel storage tanks, unrelated to Honeywell operations, have been identified as existing on the properties:

- Two tanks located on the eastern end of 380 Hopkins St. are reported to have contained gasoline. It is believed that these two tanks were abandoned in place.
- Two tanks located at 666 Tifft St. are inactive, but remain in place. October 2004 measurements indicated approximately 0.13 feet of water with approximately 0.1 feet of floating product in the northern tank, and approximately 0.7 feet of water and no product in the southern tank. These two tanks were reportedly used for the storage of diesel fuel.
- The contents of two USTs located on the western end of 380 Hopkins Street (within the proposed large excavation area) were also measured in October 2004. There was approximately 5.2 feet of water with 0.1 feet of floating product in the western tank, and 3.1 feet of water with 0.1 feet of floating product in the eastern tank. These two tanks were reportedly used for storage of diesel fuel.

In September 2004, Honeywell completed an investigation to determine if the subsurface materials within the delineated area, to a depth of eight feet, are suitable for excavation and consolidation within the Alltift Landfill (Alltift) Site (NYSDEC Site No. 9-15-054). The

[1] December 14, 1998 letter from NYSDEC to AlliedSignal

investigation showed that none of the 30 samples contained the targeted constituents (benzene, nitrobenzene, lead, mercury, chromium) with concentrations in excess of their respective hazardous waste regulatory levels for toxicity characteristic. Results of the September 2004 Investigation were presented to the New York State Department of Environmental Conservation (NYSDEC) in the October 15, 2004 Investigation Report.

## PROJECT OBJECTIVES

The primary objectives of the IRM are (1) removal of up to 32,000 cubic yards of material from the Site, which includes the materials that were identified in the April 2004 Site Investigation Report (SIR) as being potentially impacted with HON-COCs (this area also contains two identified petroleum USTs); and (2) incorporation of the excavated material at the Alltift Site. The HON-COCs are chlorobenzene, 4-chloroanaline, 1,2-dichlorobenzene, 1,3-dichlorobenzene, nitrobenzene, and 1,2,4-trichlorobenzene. Additionally, Honeywell will complete remedies for each of the two additional UST areas.

By removing the materials within the delineated area, all of the materials potentially associated with past Honeywell operations will be removed. While other chemical constituents were identified elsewhere on the Site during the SIR, these constituents are not associated with Honeywell operations.

## SCOPE OF WORK

### Health and Safety Requirements

The IRM will be conducted in accordance with the Health and Safety Plan that will be included as part of the contract documents. Air monitoring will be conducted during the excavation effort for the presence of organic compounds and particulates.

### Clearing and Grubbing

Prior to starting the excavation, trees and brush will be cleared from the work area. In addition, the frame building on the west end of the 380 Hopkins Street property will be demolished. The chain-link fence and gates along the north side of the former Providence Street paper street will be removed. The abandoned vehicles and other debris located within the proposed excavation area will be moved to the eastern end of the Site, to be managed by the property owner. Rubble from the demolition activities, as well as trees and brush, will be transported to the Alltift Site for disposal.

### Underground Storage Tank Removal

Three sets of USTs (including one set within the footprint of the large excavation) will be removed from the Site as part of this IRM. The USTs identified on Figure 2 will be removed in accordance with applicable rules and regulations governing USTs in the State of New York, including the NYSDEC Spill Technology and Remediation Series (STARS) Memo No. 1 (August 1992). The tanks will be cleaned and disposed of at an appropriate management facility. Any free product or sludge encountered in the tanks will be collected and properly managed.

Water encountered in the tanks and surrounding soils will be pumped and transferred to the Alltift Site for management, or disposed at an appropriate management facility (see Water Management below). Soils from around the tanks will be transported to the Alltift Site.

**Well Abandonment**

Four existing groundwater monitoring wells (MW-1, MW-2, MW-3, MW-5) are within the footprint of the proposed large excavation. They will be removed and properly disposed of during the completion of the excavation. These wells have been completed to approximate depths between 10 and 12 feet below ground surface. Because of their shallow nature, the wells can be successfully abandoned by excavation during the remedial effort. Well materials will be transported to the Alltift Site for disposal.

**Work Limits**

The work limits for this IRM are shown on Figure 2. The limits include the area identified as being potentially impacted with the HON-COCs, as well as areas for the USTs on 666 Tifft Street and the eastern end of 380 Hopkins Street.

The vertical limit is based on the maximum depth at which fill has been observed, and the depth at which lower permeability materials are present. The area will be excavated to a depth of eight feet below existing ground surface within the limits shown on Figure 2. These limits were based primarily on data from the SIR, and supplemented by data derived from the 1998 IIWA, completed by the NYSDEC.

**Material Disposition**

Based on the analytical results from the September 2004 Investigation, the material within the delineated area is suitable for consolidation within the Alltift Site. The Alltift Site is currently in the remedial construction phase, and has the capacity to manage the excavated materials under the planned landfill cover. There is capacity at the Alltift Site to manage up to a maximum of 32,000 cubic yards.

Solid materials removed from the Tifft and Hopkins Site (with the exception of the USTs) will be properly managed and transported to the Alltift Site by a licensed Part 364 (solid waste) transporter. At the Alltift Site, the material will be managed in accordance with the May 2003 Alltift Landfill/Ramco Steel Remedial Design documents, and in accordance with the June 2003 Alltift Landfill/Ramco Steel Contract Documents.

**Post-excavation Sampling**

A total of ten solid samples will be collected and analyzed during completion of the large excavation (Figure 2, A through H.) Seven composite samples will be collected from the excavation sidewalls. Each of the sidewall samples will be composited from four sub-samples to be collected during excavation. Three solid grab samples will be collected from the bottom of the new excavation. The locations of the samples will be recorded and marked on a site plan.

Samples will be analyzed for the presence of the HON-COCs by EPA Methods 8260 and 8270, and for lead by EPA Method 6010.

Results of the post-excavation sampling will be compared to the NYSDEC Recommended Soil Cleanup Objectives (TAGM 4046) to confirm the limits of work to be completed under this IRM. If the HON-COCs are below the TAGM levels, no further action will be required. If the HON-COCs are above TAGM levels, the need, if any, for further action separate and apart from this IRM will be evaluated taking into account the reduction in toxicity, mobility, or volume of the HON-COCs and lead resulting from the IRM, the implementability, cost and permanence of any additional remedial action, as well as the risk posed by such COCs and whether any such risk can be satisfactorily reduced with the use of institutional controls.

For the two UST excavations outside of the large excavation area, samples will be collected and analyzed for the chemical parameters listed in the STARS Memo No. 1. For the eastern tanks near Hopkins Street, reported to have contained gasoline, samples will be analyzed for VOCs on the STARS list by Method 8260. For the tanks at 666 Tifft Street, reported to have contained diesel fuel, samples will be analyzed for VOCs on the STARS list by Method 8260, and SVOCs on the STARS list by Method 8270. Four sidewall samples and one bottom sample will be collected and analyzed from each of the two excavations. HON-COCs will not be analyzed from these two excavations. Results from the UST excavation samples will be compared to criteria contained in the STARS Memo. No. 1.

Following excavation, a single round of groundwater samples will be collected from existing monitoring wells: MW-4, MW-6, MW-7, and MW-8. The samples will be analyzed for the HON-COCs by EPA Methods 8260 and 8270, and for lead by EPA Method 6010. Results of the sampling and analysis will be used to ensure that the IRM activities did not result in impacts to groundwater quality outside the large excavated area. Following evaluation of the results, these four monitoring wells will be properly abandoned.

**Site Restoration**

Restoration of the area will be limited to backfilling the excavation with clean fill, and restoring the surface in a manner compatible with its current use. Details of the restoration will be presented in specifications contained in the Contract Documents.

**Construction Survey**

The limits of excavation as shown on Figure 2 will be located and staked by a New York State licensed surveyor prior to excavation work. The final depths of excavation will be recorded in the field during the excavation effort. Following site restoration, an additional survey will be completed to confirm limits and grades.

**Water Management**

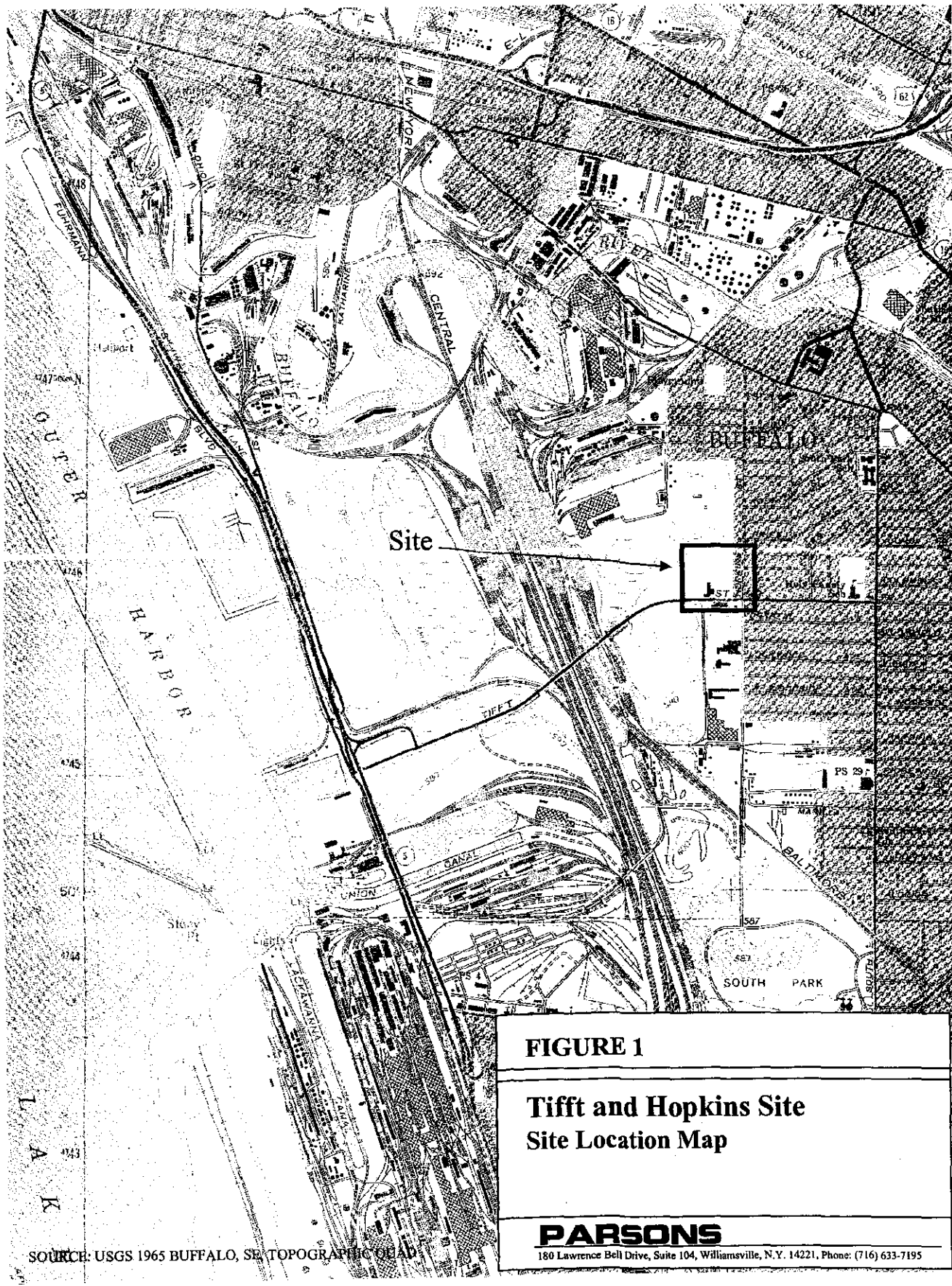
Water that requires removal from the excavation (construction water) will be temporarily contained on-site. The water will be treated, if necessary, and subsequently disposed of at an offsite location. Any required permits or approvals will be obtained prior to disposal.

**IRM Final Report**

Following completion of the final phase of the IRM, remedial construction, the NYSDEC will be provided with an IRM Final Report. The report will include a summary of the remedial effort, the results of soil and groundwater sampling, and a survey of the excavated area.

## SCHEDULE

After receiving approval from the NYSDEC, Honeywell will contract to complete the proposed remedial activities outlined in this Work Plan. The duration and completion date of the field activities will be subject to weather conditions. Following completion of the IRM, the NYSDEC will be provided with the IRM Final Report.



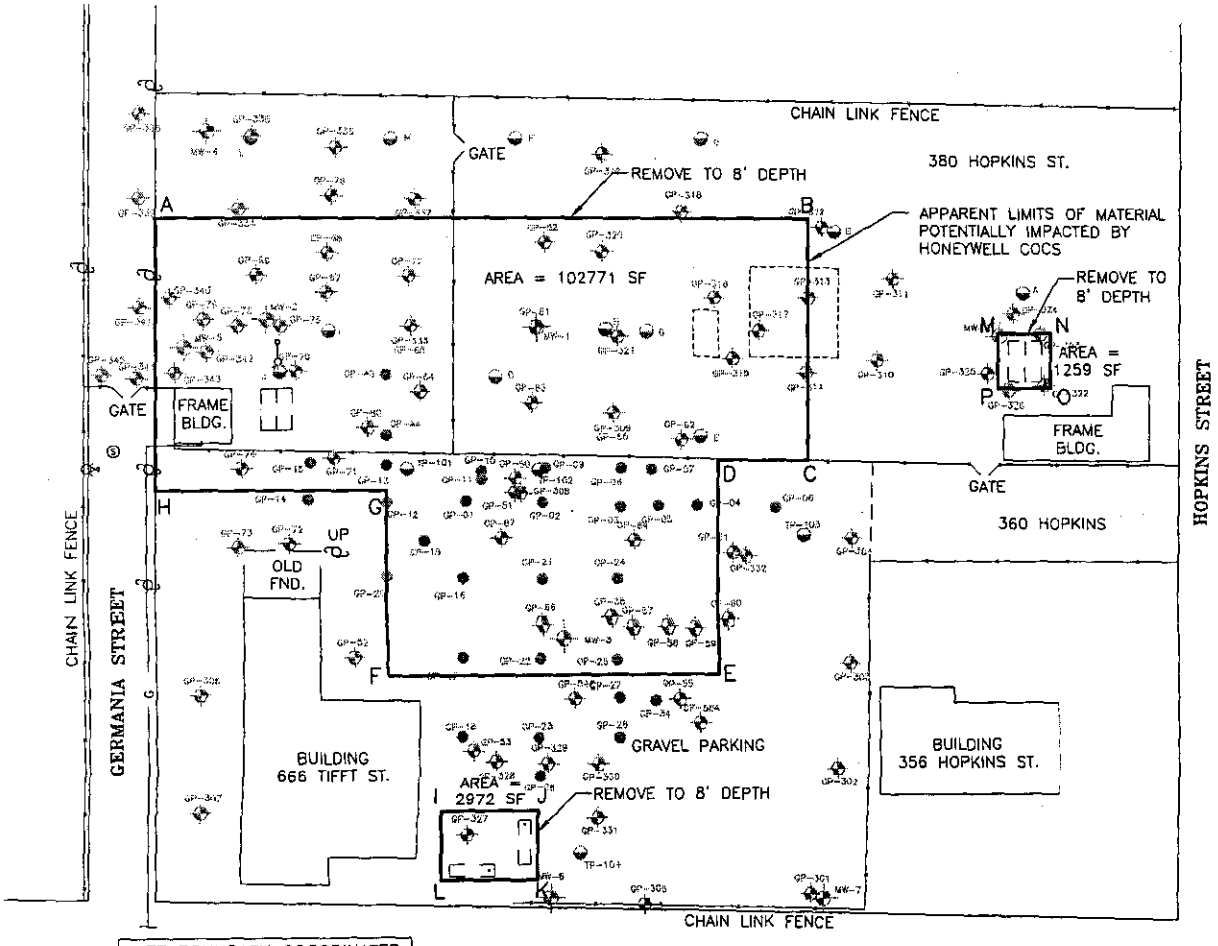

SOURCE: USGS 1965 BUFFALO, SE TOPOGRAPHIC QUAD

**FIGURE 1**

**Tifft and Hopkins Site**
**Site Location Map**

PARSONS
180 Lawrence Bell Drive, Suite 104, Williamsville, N.Y. 14221, Phone: (716) 633-7195

(40707\cad\site location map.ppt)




| SITE BOUNDARY COORDINATES | | |
|---|---|---|
| CORNER | NORTHING | EASTING |
| A | 1037922.50 | 1080850.66 |
| B | 1037922.50 | 1081281.29 |
| C | 1037762.50 | 1081281.29 |
| D | 1037762.50 | 1081221.29 |
| E | 1037622.50 | 1081221.29 |
| F | 1037622.50 | 1081001.29 |
| G | 1037742.50 | 1081001.29 |
| H | 1037742.50 | 1080850.02 |

| SITE BOUNDARY COORDINATES SOUTHERN TANKS | | |
|---|---|---|
| CORNER | NORTHING | EASTING |
| I | 1037532.97 | 1081036.02 |
| J | 1037532.97 | 1081100.32 |
| K | 1037486.76 | 1081100.32 |
| L | 1037486.76 | 1081036.02 |

| SITE BOUNDARY COORDINATES EASTERN TANKS | | |
|---|---|---|
| CORNER | NORTHING | EASTING |
| M | 1037846.54 | 1081408.83 |
| N | 1037846.54 | 1081443.76 |
| O | 1037810.50 | 1081443.76 |
| P | 1037810.50 | 1081408.83 |

COMPILED FROM:


ABB ENVIRONMENTAL SERVICES, 1993. PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA, VOLUME I, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

E.C. JORDAN CO., 1991, PRELIMINARY SITE ASSESSMENT, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

EDR- HISTORICAL TOPOGRAPHIC MAP REPORT, 2003; INQUIRY NUMBER: 902404-2

EDR- SANBORN MAP REPORT, 2003; INQUIRY NUMBER: 902404.1S

EDR- SITE REPORT, 2003; INQUIRY NUMBER: 902404-2

ERIE COUNTY SOIL CONSERVATION SERVICE; EAST AURORA, NEW YORK; 1938, 1942, 1951 AERIAL PHOTOGRAPHS.

BUFFALO FIRE DEPARTMENT (BFD) UST INSTALLATION/REMOVAL PERMITS.

NYSDEC, 1998. TIFFT AND HOPKINS STREET (915131) IMMEDIATE INVESTIGATION WORK ASSIGNMENT REPORT (IIWA).


LEGEND

- GP-01 TO GP-28 GEOPROBE LOCATION NYSDEC 1998 IIWA
- GP-50 TO GP-87 GEOPROBE LOCATION PARSONS FEBRUARY 2003
- GP-301 TO GP-345 GEOPROBE LOCATION PARSONS NOVEMBER 2003
- MONITORING WELL LOCATION
- A-M TEST PIT LOCATIONS GZA MARCH 2003
- FENCE
- EXISTING GAS LINE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT W/VALVE
- EXISTING LIGHT POLE AND ABANDONED DIESEL PUMPS
- EXISTING UTILITY POLE
- CONCRETE PAD & STRUCTURE
- UST LOCATION
- WORK LIMITS

80 40 0 80 160

SCALE: 1"=80'

# FIGURE 2

TIFFT AND HOPKINS SITE

SITE PLAN


PARSONS

150 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074


P:\440707 (Tifft&Hopkins)\CAD\40707F21.dwg, 11/19/04 at 09:20, MAB', 1=1
No XREFs

**EXHIBIT "C"**

**Cost Summary**

EXHIBIT I

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
BUREAU OF PROGRAM MANAGEMENT

COST SUMMARY

SITE NAME: TIFFT AND HOPKINS SITE
SITE NO.: 9-15-131

| COST CATEGORY | AMOUNTS |
|---|---|
| * DIRECT PERSONAL SERVICES | $28,741.97 |
| * FRINGE | $8,874.54 |
| * INDIRECT | $12,321.75 |
| * PERSONAL SVCS SUBTOTAL | $49,938.26 |
| ** CONTRACTUAL | $95,873.70 |
| *** LABORATORY | $8,737.50 |
| TRAVEL | $0.00 |
| OTHER | $0.00 |
| DEC SUBTOTAL | $154,549.46 |
| DOH (unavailable for summaries) | $0.00 |
| TOTAL | $154,549.46 |

* SEE EXHIBIT II FOR PERSONAL SERVICES COST BREAKDOWN

** SEE EXHIBIT III FOR CONTRACTUAL COST BREAKDOWN.

*** SEE EXHIBIT IV FOR LABORATORY COST BREAKDOWN

**EXHIBIT "D"**

**NOTICE OF ORDER**

_____ ("Respondent") is subject to an Order On Consent (Index # _____) (the "Order") issued by the Commissioner of the New York State Department of Environmental Conservation (the "Department"under Article 27, Title 13, and Article 71, Title 27 of the Environmental Conservation Law of the State of New York ("ECL") for a site located at _____, New York (the "Site").

The Site has been designated by the Department as an inactive hazardous waste disposal site, as that term is defined at ECL Section 27-1301.2, and has been listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site # _____. The Department has classified the Site as a Class "____" site pursuant to ECL Section 27-1305.4.b. This classification means that the Department has determined that the Site **[presents a significant threat to the public health or environment]**. The Site is more particularly described in the legal description that is attached hereto as Schedule "A." **[This paragraph can be changed to set forth the status of the site]**

The purpose of the Order is to provide for the development and implementation of an inactive hazardous waste disposal site remedial program for the Site. The effective date of the Order was _____. A copy of the Order, as well as any and all Department-approved Work Plans under this Order can be reviewed at the Department's_____ office located at _____ by contacting _____.

This Notice of Order is being filed with the_____recording officer in accordance with Paragraph IX of the Order to give all parties who may acquire any interest in the Site notice of this Order.

**WHEREFORE**, the undersigned has signed this Notice of Order in compliance with the terms of the Order.

_____
Respondent

By:_____

Title:_____

Date:_____

STATE OF NEW YORK

) ss.:

COUNTY OF_____

On the _____ day of _____ in the year _____ before me, the undersigned, a notary public in and for said State, personally appeared _____ _____ personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individuals) or the person upon behalf of which the individual(s) acted, executed this instrument.

_____

Notary Public

**Appendix "A"**

**(to Exhibit "D")**

**Map of the Property**

**EXHIBIT "E"**

**ENVIRONMENTAL EASEMENT**
**(To be added)**

# EXHIBIT "F"

## RECORDS SEARCH REPORT

1. Detail all environmental data and information within Respondent's or Respondent's agents' or consultants' possession or control regarding environmental conditions at or emanating from the Site.

2. A comprehensive list of all existing relevant reports with titles, authors, and subject matter, as well as a description of the results of all previous investigations of the Site and of areas immediately surrounding the Site which are or might be affected by contamination at the Site, including all available topographic and property surveys, engineering studies, and aerial photographs.

3. A concise summary of information held by Respondent and Respondent's attorneys and consultants with respect to:

(i) a history and description of the Site, including the nature of operations;

(ii) the types, quantities, physical state, locations, methods, and dates of disposal or release of hazardous waste at or emanating from the Site;

(iii) a description of current Site security (i.e. fencing, posting, etc.); and

(iv) the names and addresses of all persons responsible for disposal of hazardous waste, including the dates of such disposal and any proof linking each such person responsible with the hazardous wastes identified.

# EXHIBIT "G"

## SC WORK PLAN REQUIREMENTS

The SC Work Plan shall include but not be limited to:

1. A chronological description of the anticipated SC activities together with a schedule for the performance of these activities.

2. A Sampling and Analysis Plan that shall include:

(i) A quality assurance project plan that describes the quality assurance and quality control protocols necessary to achieve the initial data quality objectives. This plan shall designate a data validation expert and must describe such individual's qualifications and experience;

(ii) A field sampling plan that defines sampling and data gathering methods in a manner consistent with the "Field Methods Compendium," OSWER Directive 9285.2-11 (draft June 1993), as supplemented by the Department; and

(iii) A health and safety plan to protect persons at and in the vicinity of the Site during the performance of the SC which shall be prepared in accordance with 29 CFR 1910 and all other applicable standards by a certified health and safety professional. Respondent shall add supplemental items to this plan necessary to ensure the health and safety of all persons at or in the vicinity of the Site during the performance of any work pursuant to this Order.

3. The Work Plan shall incorporate all elements of an SC as set forth in Department technical and administrative guidance documents including, but not limited to, investigations of surface and subsurface soils, surface waters, ground water, and air.

4. The SC must be sufficiently comprehensive to allow the Department to determine whether a consequential amount of hazardous waste has been disposed at the Site and, if so, whether the contamination presents a significant threat to public health and/or the environment.

# EXHIBIT "H"

## RI/FS WORK PLAN REQUIREMENTS

The Investigation Work Plan shall include but not be limited to:

1. A chronological description of the anticipated RI/FS activities together with a schedule for the performance of these activities.

2. A Sampling and Analysis Plan that shall include:

(i) A quality assurance project plan that describes the quality assurance and quality control protocols necessary to achieve the initial data quality objectives. This plan shall designate a data validation expert and must describe such individual's qualifications and experience;

(ii) A field sampling plan that defines sampling and data gathering methods in a manner consistent with the "Field Methods Compendium," OSWER Directive 9285.2-11 (draft June 1993), as supplemented by the Department;

(iii) A health and safety plan to protect persons at and in the vicinity of the Site during the performance of the RI/FS which shall be prepared in accordance with 29 CFR 1910 and all other applicable standards by a certified health and safety professional. Respondent shall add supplemental items to this plan necessary to ensure the health and safety of all persons at or in the vicinity of the Site during the performance of any work pursuant to this Order; and

(iv) A citizen participation plan that is, at a minimum, consistent with the Department's publication "Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook," dated June 1998, any subsequent revisions thereto, and 6 NYCRR Part 375.

3. The Work Plan shall incorporate all elements of an RI/FS as set forth in CERCLA, as amended, the NCP, the USEPA guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," dated October 1988, and any subsequent revisions thereto in effect at the time the RI/FS Work Plan is submitted, and appropriate USEPA and Department technical and administrative guidance documents.

4. The Work Plan shall provide for an FS evaluating on-Site and off-Site remedial actions to restore the Site to pre-disposal conditions, to the extent feasible and authorized by law. At a minimum, alternatives shall evaluate the elimination or mitigation of all significant threats to the public health and to the environment presented by hazardous waste disposed at the Site through the proper application of scientific and engineering principals.

# EXHIBIT "I"

## IRM WORK PLAN REQUIREMENTS

The IRM Work Plan shall include, at a minimum, the following:

1. a summary of the data supporting the extent of the proposed IRM;

2. a chronological description of the anticipated IRM activities;

3. a schedule for performance of the IRM activities;

4. detailed documents and/or specifications prepared, signed, and sealed by a Professional Engineer providing sufficient detail to implement the Department-approved IRM, including, as appropriate, a description of soil and sediment erosion control, storm water management and monitoring, and dust, odor, and organic vapor control and monitoring procedures to be implemented during remedial activities, and a detailed description of confirmation sampling and site restoration plans;

5. a health and safety plan, including a community air monitoring plan;

6. a contingency plan, including a description of procedures for dismantling and removing remedial structures and equipment from the Site, if applicable;

7. a citizen participation plan, if required, that incorporates appropriate activities outlined in the Department's publication "Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook," dated June 1998, any subsequent revisions thereto, and 6 NYCRR Part 375;

8. an OM&M Plan, if the performance of the Department-approved IRM results in a treatment system which is expected to operate for greater than 18 months. If the system will not operate for greater than 18 months, or if only monitoring is required, only a monitoring plan will be needed; and

9. a description of institutional controls to be implemented as well as written approval from the owner of the affected property if the remedy selected requires implementation of an institutional control at an off-Site location or if the person responsible for the remedy is not the Site owner.

# EXHIBIT "J"

## REMEDIATION WORK PLAN REQUIREMENTS

The Remediation ("RD/RA") Work Plan shall include the following:

1. A detailed description of the remedial objectives and the means by which each element of the selected remedial alternative will be implemented to achieve those objectives, including, but not limited to:

(i) the construction and operation of any structures;

(ii) the collection, destruction, treatment, and/or disposal of hazardous wastes and substances and their constituents and degradation products, and of any soil or other materials contaminated thereby;

(iii) the collection, destruction, treatment, and/or disposal of contaminated groundwater, leachate, and air;

(iv) physical security and posting of the Site;

(v) quality control and quality assurance procedures and protocols to be applied during implementation of the Remedial Construction; and

(vi) monitoring which integrates needs which are present on-Site and off-Site during implementation of the Department-selected remedial alternative.

2. A schedule for submission of "Biddable Quality" documents for the Remedial Design including, but not limited to, documents and specifications prepared, signed, and sealed by a Professional Engineer. These plans shall satisfy all applicable local, state, and federal laws, rules, and regulations;

3. A time schedule to implement the Remedial Design;

4. The parameters, conditions, procedures, and protocols to determine the effectiveness of the Remedial Design, including a schedule for periodic sampling of all media of concern, including groundwater monitoring wells on-Site and off-Site;

5. A description of operation, maintenance, and monitoring activities to be undertaken after the Department has approved construction of the Remedial Design, including the number of years during which such activities will be performed (where appropriate) and a specific description of the criteria to be used to decide when operation of such activities may be discontinued.

6. A contingency plan to be implemented if any element of the Remedial Design fails to achieve any of its objectives or otherwise fails to protect human health or the environment;

7. A health and safety plan for the protection of persons at and in the vicinity of the Site during and after construction. This plan shall be prepared in accordance with 29 CFR 1910 by a certified health and safety professional; and

8. A citizen participation plan which incorporates appropriate activities outlined in the Department's publication "Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook," dated June 1998, any subsequent revisions thereto, and 6 NYCRR Part 375.

# EXHIBIT "K"

## OM&M WORK PLAN REQUIREMENTS

The OM&M Work Plan shall provide for:

1. Operation and maintenance of engineering controls and/or treatment systems;

2. Maintenance of institutional controls, where applicable;

3. Yearly certification by a Professional Engineer of the continued effectiveness of any institutional and/or engineering controls, where applicable. The certification must identify the required controls and evaluate whether the controls should remain in place and effective for the protection of public health and/or the environment;

4. A monitoring plan which describes the measures for monitoring the performance and effectiveness of the remedy at the Site;

5. A contingency plan which describes procedures which may be required to protect and/or maintain the operation of the remedy in the event of an emergency, such as a fire, spill, tank or drum overflow or rupture, severe weather, or vandalism;

6. A health and safety plan and a list of records and references;

7. Monitoring and reporting of the performance and effectiveness of the remedy, both short and long-term, by:

(i) Assessing compliance with actual or equivalent discharge permit limits;

(ii) Assessing achievement of the remedial performance criteria; and,

(iii) Sampling and analysis of appropriate media.

8. A determination that the remedy is complete by demonstrating that the remedial action objectives have been achieved.

# EXHIBIT "L"

## RECORD OF DECISION

# Glossary of Terms

The following terms shall have the following meanings:

"BPM Director": the Director of the Bureau of Program Management within the Division of Environmental Remediation.

"CERCLA": the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq.

"Day": a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday or State holiday, the period shall run until the close of business of the next working day.

"Department": the New York State Department of Environmental Conservation.

"Director": the Division Director, Division of Environmental Remediation.

"ECL": the Environmental Conservation Law, Chapter 43-B of the Consolidated Laws of New York, as amended.

"Feasibility study": a study undertaken to develop and evaluate options for remedial action. The feasibility study emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation, using data gathered during the remedial investigation. The term also refers to a report that describes the results of the study. (See 6 NYCRR 375-1.3(j))

"Force Majeure Event": an event which is brought on as a result of fire, lightning, earthquake, flood, adverse weather conditions, strike, shortages of labor and materials, war, riot, obstruction or interference by adjoining landowners, or any other fact or circumstance beyond Respondent's reasonable control.

"Inactive Hazardous Waste Disposal Site Remedial Program" or "Remedial Program": activities undertaken to eliminate, remove, abate, control, or monitor existing health hazards, existing environmental hazards, potential health hazards, and/or potential environmental hazards in connection with the Site and all activities to manage wastes and contaminated materials at or removed from the Site. (See ECL 27-1301(3) and 6 NYCRR 375-1.3(m))

"Interim Remedial Measure" or "IRM": a discrete set of activities, including removal activities, to address both emergency and non-emergency Site conditions, which can be undertaken without extensive investigation or evaluation, to prevent, mitigate, or remedy environmental damage or the consequences of environmental damage attributable to the Site. (See 6 NYCRR Part 375-1.3(n))

"National Contingency Plan" or "NCP": the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. 9605, and codified at 40 C.F.R. Part 300, and any amendments thereto.

"NL": the Navigation Law, Chapter 37 of the Consolidated Laws of New York, as amended.

"OH&M": the Office of Hearings and Mediation Services.

"OM&M": post-construction operation, maintenance, and monitoring; the last phase of a remedial program, which continues until the remedial action objectives for the Site are met.

"Order": this Order and all exhibits attached hereto.

"Professional Engineer": an individual registered as a professional engineer in accordance with Article 145 of the New York State Education Law. If such individual is a member of a firm, that firm must be authorized to offer professional engineering services in the State of New York in accordance with Article 145 of the New York State Education Law.

"Record of Decision" or "ROD": the document reflecting the Department's selection of a remedy relative to the Site or any Operable Unit thereof. The ROD shall be attached to and made enforceable under this Order as Exhibit "L."

"Remedial Action": those activities, except for OM&M, to be undertaken under this Order to implement the ROD.

"Remedial Investigation" or "RI": a process undertaken to determine the nature and extent of contamination. The remedial investigation emphasizes data collection and site characterization and generally is performed concurrently with the feasibility study. It includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for and the proposed extent of the program and to support the evaluation of proposed alternatives. (See 6 NYCRR 375-1.3(t))

"Site Characterization"or "SC": a process undertaken to allow the Department to determine whether a consequential amount of hazardous waste has been disposed at a Site and, if so, whether the contamination presents a significant threat to public health and/or the environment.

"Spill Fund": the New York State Environmental Protection and Spill Compensation Fund as established by Article 12, Part Three of the NL.

"State Costs": all the State's response expenses related to this Site, including, but not limited to, direct labor, fringe benefits, indirect costs, travel, analytical costs, and contractor costs incurred by the State of New York for negotiating, implementing, overseeing, administering, or enforcing this Order, and any other response costs as defined under CERCLA. Approved agency fringe benefit and indirect cost rates will be applied.

"Termination Date": the date that this Order is terminated pursuant to Paragraph XIII.

"USEPA": the United States Environmental Protection Agency.

**Specification Section 01010**
**SUMMARY OF WORK**

**ATTACHMENT 01010-6**

**Memorandum**
**Evaluation of Underground Storage Tanks**
**November 17, 2004**

PARSONS

**Interoffice Correspondence**

To: File 440707 (No. 12) Date: November 17, 2004

From: Jeffrey Poulsen Phone: 716-633-7074

Subject: Tifft and Hopkins Site
Evaluation of Underground Storage Tanks

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On October 21, 2004 Parsons completed a preliminary evaluation of the underground storage tanks (USTs) located on the Tifft and Hopkins Site.

The following table includes information determined or reported.

| Location | Size | Contents | Depth to Bottom | Product Thickness | Water Thickness |
|---|---|---|---|---|---|
| 666 Tifft St. | 10,000 gal | Diesel | 11.4 ft | - | 0.7 ft |
| 666 Tifft St. | 4,000 gal | Diesel | 9.4 ft | 0.1 ft | 0.13 ft |
| 380 Hopkins St. west end | 5,000 gal | Diesel | 9.3 ft | 0.1 ft | 5.3 ft |
| 380 Hopkins St. west end | 5,000 gal | Diesel | 9.3 ft | 0.1 ft | 3.2 ft |
| 380 Hopkins St. east end | 2,000 gal | Gasoline | reported filled in place with sand | - | - |
| 380 Hopkins St. east end | 2,000 gal | Gasoline | reported filled in place with sand | - | - |

Note: Measurements were made through the fill port.

**Specification Section 01010**
**SUMMARY OF WORK**

**ATTACHMENT 01010-7**

**Memorandum**
**Permanent Closure of Petroleum Storage Tanks**
**January, 1987**
**(modified December 2003)**

**New York State Department of Environmental Conservation**
**Division of Spills & Response**
625 Broadway, 11th Floor
Albany, NY 12233-7020
**Phone:** (518) 402-9549 • **FAX:** (518) 402-9577
**Website:** www.dec.state.ny.us

Erin M. Crotty
Commissioner

**MEMORANDUM**

TO: Regional Water Engineers
Regional Solid and Hazardous Waste Engineers

SUBJECT: Permanent Closure of Petroleum Storage Tanks

DATE: January 20, 1987

MODIFIED: July 19, 1988, December 3, 2003

Since the Petroleum Bulk Storage Regulation became effective on December 27, 1985, our Department has received numerous calls from the owners requesting information on closure and tank removal. Most of the questions concern whether or not tanks should be cleaned prior to removal, and how to comply with State and Federal regulations regarding the ultimate disposal of the tank and any waste products removed from the tank.

Statewide, there are thousands of tanks being removed, largely due to the Bulk Storage Regulations. Very few of these tanks are being disposed of properly. Neither the scrap yards nor the landfills are willing to accept these tanks because of fire and explosion hazards and lack of clear-cut guidance from DEC.

It is important that the Department establish a timely policy which addresses both regulatory requirements and industry standards for tank cleaning and removal. The following step-by-step procedures provide practical and cost effective guidance on this subject.

# Permanent Closures of Petroleum Storage Tanks

1.01 Purpose

This guidance document provides information on procedures to be followed when permanently closing a tank or facility.

2.0 General Guidance

Where the owner of a petroleum tank or facility intends to permanently close it he must notify the Department within thirty (30) days prior to closure. In addition the owner must comply with the requirements outlined in 6 NYCRR 613.9(b). CLOSURE OF TANKS PERMANENTLY OUT-OF-SERVICE.

Tank entry, if required to remove residual sludges from the storage of heavy fuel oils, and closure of tanks are very dangerous procedures. Tanks that contain gasoline residues are explosive. All sources of ignition must be controlled and the tank's interior volume must be made inert. Tanks should only be entered by trained and properly equipped personnel and tanks should not be entered without positive ventilation and standby personnel. Petroleum vapors are heavier than air and will "hang" in the tank. The American Petroleum Institute (API) and National Fire Protection Association (NFPA) references listed at the end of this memorandum provide further information on safety precautions.

The following is a step-by-step procedure for the permanent closure of a petroleum storage tank. The procedures outlined in specific to underground gasoline storage tanks. Oil storage tanks should be treated in a similar way except for differences noted in the following:

3.0 Procedures for Removal of Underground Tanks

1. Remove all product to its lowest draw-off point (Figure 1).

2. Drain and flush piping into the tank (one or two gallons of water should be sufficient).

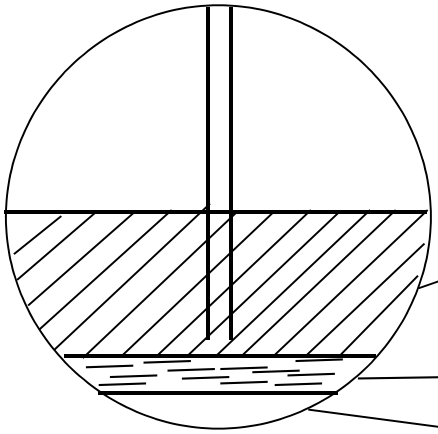
3. The liquid below the draw-off point is a "tank bottom" and must also be pumped out. The use of a handpump or a vacumn pump is needed. About 6" of liquid remains in the tank below the lowest draw-off point; this is equivalent to 150 gallons for a typical 4,000 gallon tank. This liquid consists of a floating layer of product, water and sediments (Figure 2). Pump out the entire tank bottom including the remaining product layer. The petroleum product can later be reclaimed through physical separation.

4. Dig down to the top of the tank and expose the upper half of the tank.

5. Remove the fill tube and disconnect the fill, gauge, product and vent lines. Cap or plug open ends of lines which are not to be used further.

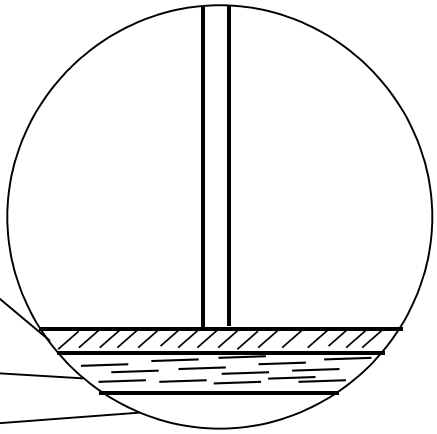
6. Temporarily plug all tank openings, complete the excavation, and remove the tank, placing it in a secure location. Tank must be blocked to prevent movement.

**Fig. 1**



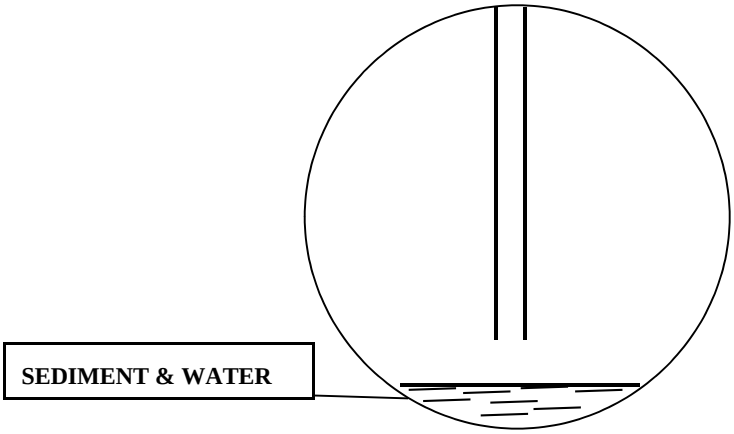
Remove product to it's lowest draw-off level

**Fig. 2**




Drain and flush piping into tank.
Pump out entire tank bottom into a drum

**Fig. 3**




Rinse with water and remove residuals with hand or high volume vacuum pump. The tank is now empty.

7. The tank should be made safe by using one of the following methods. In all methods, the tank atmosphere should be checked to ensure that petroleum vapors have been satisfactorily purged from the tank. (See 3.0 8).

   a. Addition of dry ice; 1.5 pounds per 100 gallons of tank capacity. The dry ice should be crushed and distributed evenly over the greatest possible area of the tank's interior. As the dry ice vaporizes flammable vapors will flow out of the tank. Therefore, observe all safety precautions regarding flammable vapors.

   b. An alternative to dry ice is to introduce CO2 gas directly into the tank (via the fill line) to purge flammable vapors. A minimum of one 75 lb. cylinder of CO2 gas per 2000 gallons of tank volume should be used. Care must be exercised to prevent buildup of any static charge. The nozzle must be bonded or grounded and the gas introduced slowly to reduce static.

   c. The use of a nitrogen gas is another acceptable method for inerting a tank. Vapors within the storage tank must be displaced with an amount of nitrogen gas equal to or greater than the volume of the tank atmosphere. Bonding or grounding of the nozzle or hose to prevent static buildup is recommended.

   d. Positive ventilation using an air eductor is another method of purging flammable vapors from a tank. This is a very dangerous procedure and is <u>not</u> recommended for on-site purging of flammable vapors especially in high density urban areas.

      During any tank purging operation ignition sources must be controlled. A safer alternative may be to cap the tank and plug all corrosion holes leaving a 1/8" hole for pressure relief and haul the tank to a secure area where it can be safely degassed. This alternative should only be allowed where an explosion meter check shows that the interior is vapor rich and therefore above the upper explosive limit or where the explosion meter shows that flammable vapors are below the LEL (Lower Explosive Limit) (See 3.0, 8). Tank should also be clearly marked "not gas freed".

      NOTE: If desired, the tank may be degassed prior to removal from the excavation (Step 6). If this option is selected, one must carefully check the tank interior and the excavation for flammable vapors to insure that such flammable vapors have been satisfactorily removed. In this case, the vent line must remain connected and open until the purging procedure is complete.

      NOTE: <u>Federal regulations under the authority of the U.S. Department of Transportation (49CFR Section 172.500 et seq.) also require that tanks which have been purged but are being transported must be properly placarded on the ends and sides with a "Flammable" placard with the appropriate UN Number (1203 or 1993) attached.</u>

8. The tank atmosphere must be tested to ensure that the tank is safe.

If one of the first three methods (7a, b or c) was chose to inert the tank, the tank interior should be tested with an oxygen meter. The oxygen meter will give a reading of % oxygen per volume. For a safe condition, the reading should be 6 - 7% oxygen.

If the last method (7d) was chosen to purge the tank, the tank interior should be tested with a CGI or an explosion meter. The explosion meter will give a reading of % LEL (Lower Explosive Limit). For a safe condition the reading should be 10-20% LEL.

If the tank is not in a safe condition, then the purging or inerting process must be continued until the tank tests safe.

9. Tanks can be cleaned at this point (see 3.0, 12) or moved to a tank storage yard for cleaning. If the tank is to be moved to another site prior to cleaning, it must be transported by a licensed waste transporter (See 6.0, 1).

10. Before the tank is moved from the site plug or cap all holes. Use screwed (boiler) plugs to plug any corrosion leak holes. One plug should have a 1/8 - inch vent hole to prevent the tank from being subjected to an excessive pressure differential caused by extreme temperature changes.

11. The tank should be secured to a truck for transportation to a disposal or temporary storage site. The tank should be secured so that the vent hole is at the uppermost point of the tank. Tanks should be stored only long enough to clean and cut them up or otherwise process them for final disposal as described in Step 12. It is recommended that tanks should not be stored for a period greater than ninety days prior to final disposition.

12. The final step is to dispose of the junked tank. Once properly emptied***** and cleaned, petroleum storage tanks are not a hazardous waste and hence, may be disposed of at a landfill permitted under part 360 or at a scrap yard.

In order to make a tank acceptable for disposal at a scrap yard or sanitary landfill, or if the tank will be put to use for another purpose (such as a holding tank), the following steps should be taken.

1. The tank interior should be cleaned by a high-pressure spray rinse. The water collected from this operation should be disposed of in the same manner as the tank bottoms. Please refer to section 6.0.

2. A tank which is being discarded should then be cut into several pieces to make it acceptable for disposal at sanitary landfill or scrap yard.

   Any residues or solid wastes should be collected and disposed of in accordance with solid and/or hazardous waste regulations.

NOTE: The cleaning process described in step a. is acceptable for all storage tanks except for large #5 or #6 fuel oil storage tanks. The tar and sludge remaining in these tanks must be removed by manual cleaning methods. Tank entry for cleaning requires protective clothing, auxiliary air and masks for personnel

involved. If leaded fuel was stored, particular attention should be given to API publication 2015A.

4.0 Tank Abandonment In Place

The following is a safe method for abandonment of underground tanks in place. Abandonment in place is usually less costly than removal; however, this is not necessarily so when proper procedures for abandoning tanks are carefully followed. We strongly encourage tank removal over abandonment in place.

The following conditions may prohibit abandonment of underground tanks in place.

1. Local regulations specify tank removal.

2. The tank is suspected of having leaked as a result of documented evidence. Evidence such as inventory records and/or tank test results may be used.

*For purposes of this policy "Empty" shall be defined as in 6NYCRR Part 371. Section 371.1(f)(2)(i). investigate the site and perform cleanup of

3. During the tank closure process product or product contaminated soil or ground water is discovered. The tank may have to be removed to contaminated soil.

If abandonment in place is selected then the following steps must be taken.

1. Remove all flammable liquid which can be pumped out.

2. Drain and flush piping into the tank.

3. Remove tank bottoms and any remaining product as described under step 3 for tank removal.

4. Remove the fill (drop) tube. Disconnect the fill gauge and product lines. Cap or plug open ends of lines which are not to be used further. The vent line should remain connected until the tank is filled.

5. The tank should now be purged of flammable vapors as described in tank removal, step 7, section 3 above.

6. As soon as the petroleum vapors are satisfactorily purged from the tank, cut one or more large holes in the tank top. This can be accomplished by drilling a hole into the tank and using a backhoe to tear a "three-point" hole into the tank.

7. At this point, the tank interior should be cleaned with a high pressure rinse using as little water as possible to remove loose scale, corrosion and residual product. In the case of a fuel oil storage tank where large amounts of sludge and/or tar may be present, it may be necessary to enter

the tank and manually remove such wastes. As noted earlier, all safety precautions should be taken and the wastes recovered and drummed for proper disposal.

8. A visual observation of the tank interior should be made; if any holes are discovered, then a soil sample from under the tank near the hole should be taken for examination for the presence/absence of petroleum. If petroleum is present in the soil then it must be reported as a spill to the DEC within two hours. The presence of product may require the installation of one or more ground water monitoring/recovery wells or removal of the tank to take remedial action to clean up the site.

9. Proceed to introduce a suitable, solid, inert material through the hole in the top of the tank until full. Sand or a concrete slurry is recommended.

10. Disconnect and remove the vent line.

11. The owner of the tank should keep a permanent record of the tank location the date of abandonment and the method of conditioning the tank for abandonment.

**Specification Section 01010**
**SUMMARY OF WORK**

**ATTACHMENT 01010-8**

**Site Investigation Report**
**April 2004**

# Specification Section 01010
# SUMMARY OF WORK

## ATTACHMENT 01010-9

## Contract Drawings

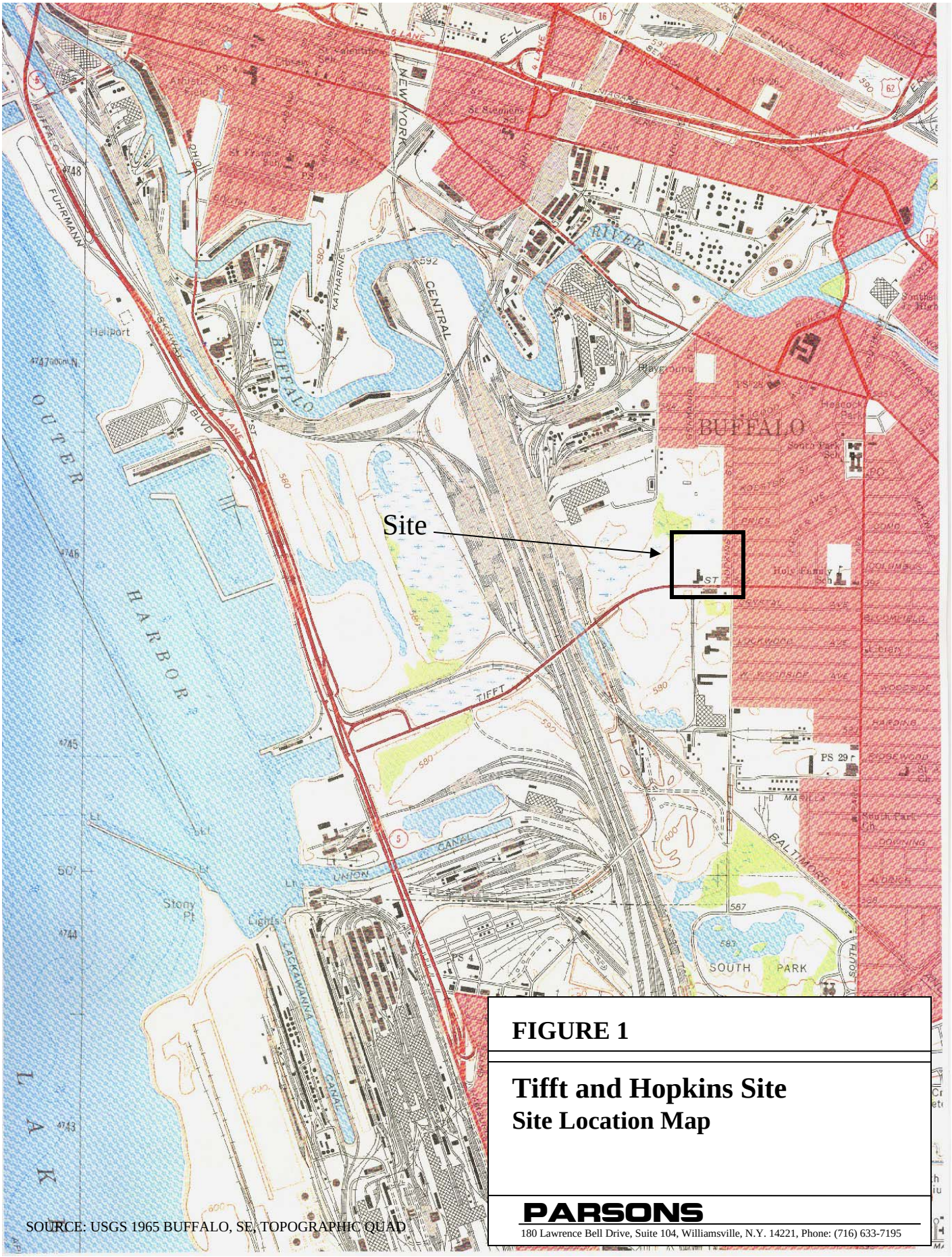


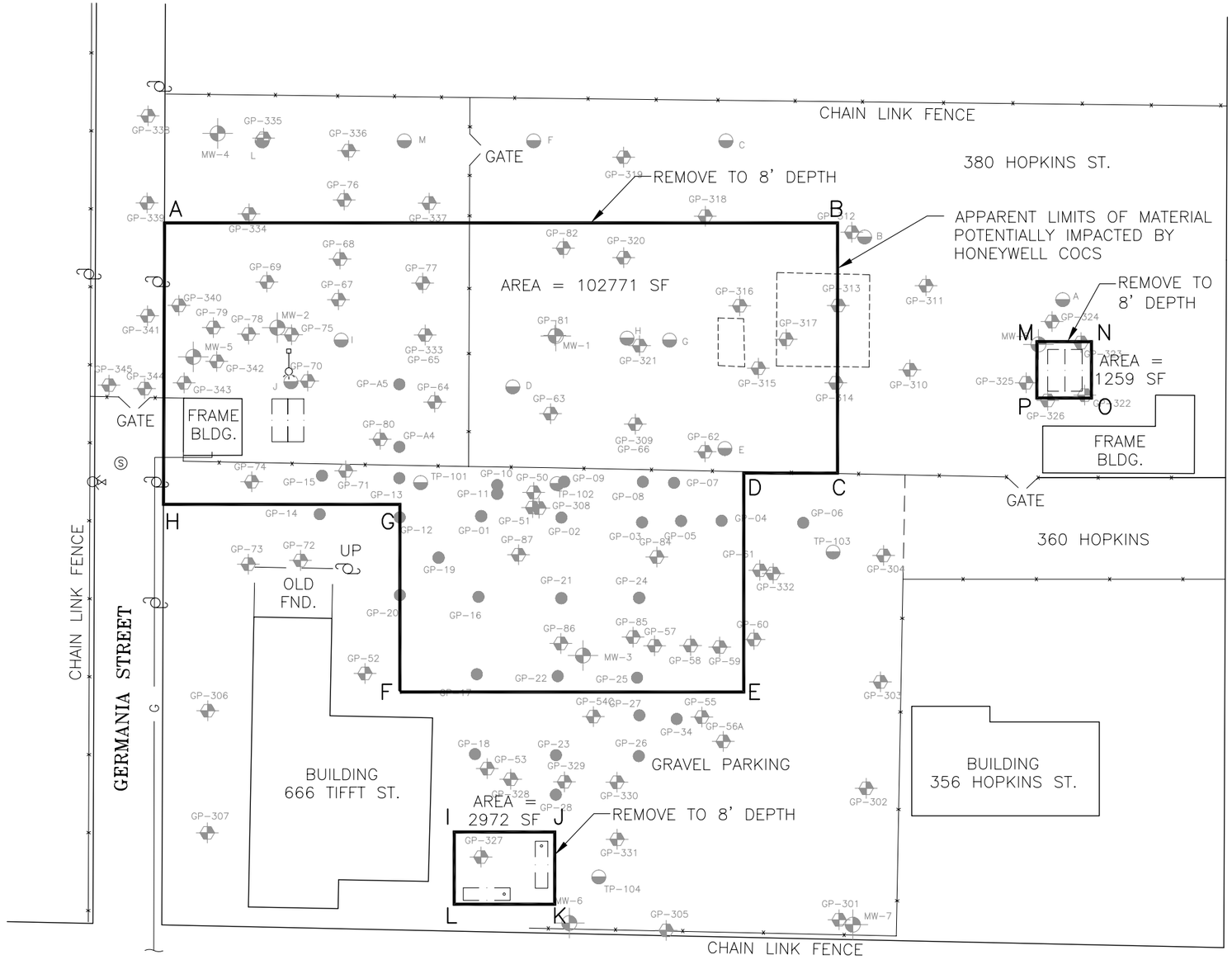

**FIGURE 1**

# Tifft and Hopkins Site

## Site Location Map

PARSONS
180 Lawrence Bell Drive, Suite 104, Williamsville, N.Y. 14221, Phone: (716) 633-7195

**(40707\cad\site location map.ppt)**




| SITE BOUNDARY COORDINATES | | |
|---|---|---|
| CORNER | NORTHING | EASTING |
| A | 1037922.50 | 1080850.66 |
| B | 1037922.50 | 1081281.29 |
| C | 1037762.50 | 1081281.29 |
| D | 1037762.50 | 1081221.29 |
| E | 1037622.50 | 1081221.29 |
| F | 1037622.50 | 1081001.29 |
| G | 1037742.50 | 1081001.29 |
| H | 1037742.50 | 1080850.02 |

| SITE BOUNDARY COORDINATES | | |
|---|---|---|
| SOUTHERN TANKS | | |
| CORNER | NORTHING | EASTING |
| I | 1037532.97 | 1081036.02 |
| J | 1037532.97 | 1081100.32 |
| K | 1037486.76 | 1081100.32 |
| L | 1037486.76 | 1081036.02 |

| SITE BOUNDARY COORDINATES | | |
|---|---|---|
| EASTERN TANKS | | |
| CORNER | NORTHING | EASTING |
| M | 1037846.54 | 1081408.83 |
| N | 1037846.54 | 1081443.76 |
| O | 1037810.50 | 1081443.76 |
| P | 1037810.50 | 1081408.83 |

COMPILED FROM:


ABB ENVIRONMENTAL SERVICES, 1993. PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA, VOLUME I, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

E.C. JORDAN CO., 1991, PRELIMINARY SITE ASSESSMENT, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

EDR– HISTORICAL TOPOGRAPHIC MAP REPORT, 2003; INQUIRY NUMBER: 902404–2

EDR– SANBORN MAP REPORT, 2003; INQUIRY NUMBER: 902404.1S

EDR– SITE REPORT, 2003; INQUIRY NUMBER: 902404–2

ERIE COUNTY SOIL CONSERVATION SERVICE; EAST AURORA, NEW YORK; 1938, 1942, 1951 AERIAL PHOTOGRAPHS.

BUFFALO FIRE DEPARTMENT (BFD) UST INSTALLATION/REMOVAL PERMITS.

NYSDEC, 1998. TIFFT AND HOPKINS STREET (915131) IMMEDIATE INVESTIGATION WORK ASSIGNMENT REPORT (IIWA).


LEGEND

- GP–01 TO GP–28 GEOPROBE LOCATION NYSDEC 1998 IIWA
- GP–50 TO GP–87 GEOPROBE LOCATION PARSONS FEBRUARY 2003
- GP–301 TO GP–345 GEOPROBE LOCATION PARSONS NOVEMBER 2003
- MONITORING WELL LOCATION
- A–M TEST PIT LOCATIONS GZA MARCH 2003
- FENCE
- EXISTING GAS LINE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT W/VALVE
- EXISTING LIGHT POLE AND ABANDONED DIESEL PUMPS
- EXISTING UTILITY POLE
- CONCRETE PAD & STRUCTURE
- UST LOCATION
- WORK LIMITS

80 40 0 80 160

SCALE: 1"=80'

# FIGURE 2

TIFFT AND HOPKINS SITE

SITE PLAN


PARSONS

180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716–633–7074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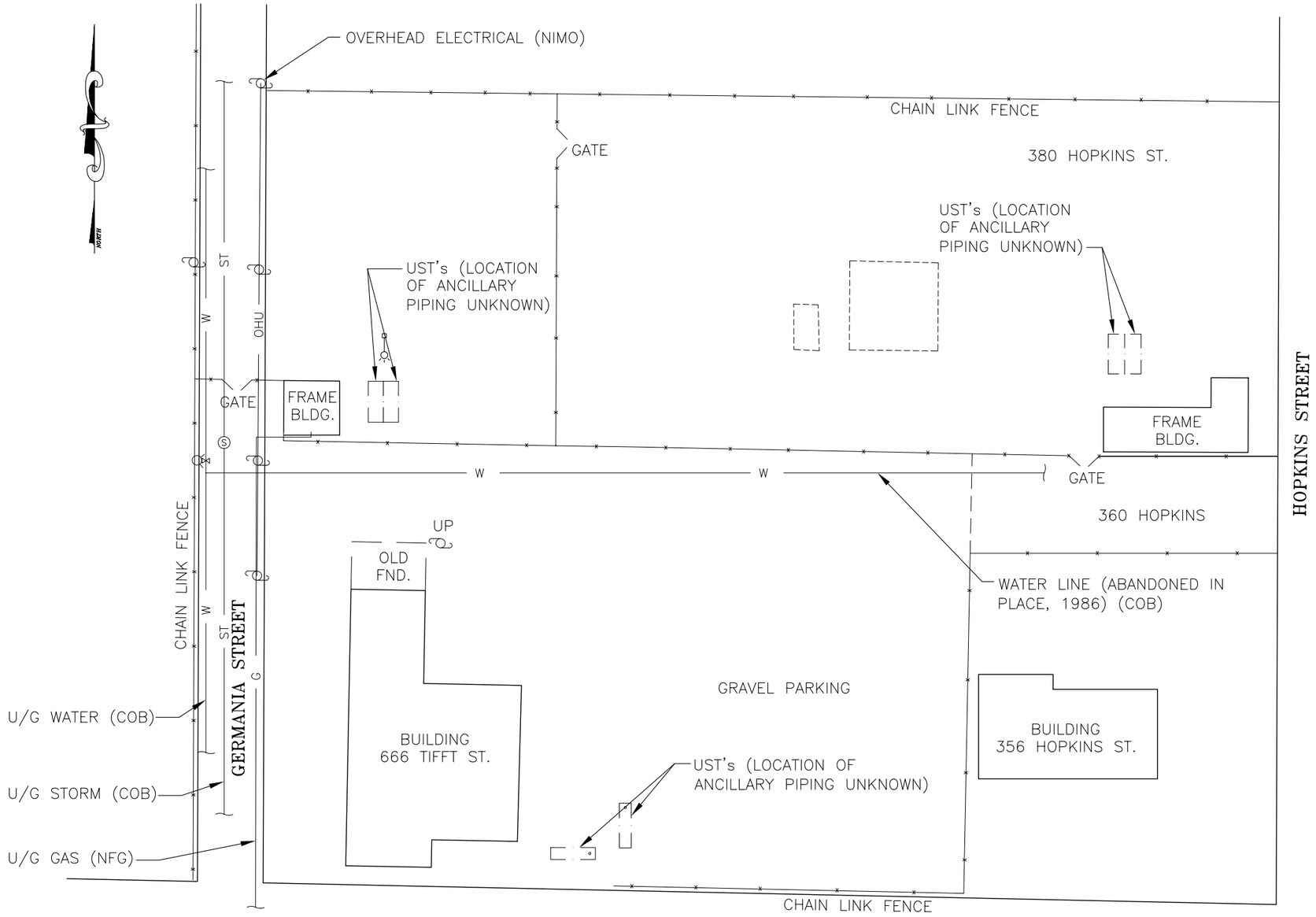


COMPILED FROM:

ABB ENVIRONMENTAL SERVICES, 1993. PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA, VOLUME I, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

E.C. JORDAN CO., 1991, PRELIMINARY SITE ASSESSMENT, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

EDR– HISTORICAL TOPOGRAPHIC MAP REPORT, 2003; INQUIRY NUMBER: 902404–2

EDR– SANBORN MAP REPORT, 2003; INQUIRY NUMBER: 902404.1S

EDR– SITE REPORT, 2003; INQUIRY NUMBER: 902404–2

ERIE COUNTY SOIL CONSERVATION SERVICE; EAST AURORA, NEW YORK; 1938, 1942, 1951 AERIAL PHOTOGRAPHS.

BUFFALO FIRE DEPARTMENT (BFD) UST INSTALLATION/REMOVAL PERMITS.

NYSDEC, 1998. TIFFT AND HOPKINS STREET (915131) IMMEDIATE INVESTIGATION WORK ASSIGNMENT REPORT (IIWA).

LEGEND

| | |
|---|---|
| x—x | FENCE |
| Ⓢ | EXISTING SEWER MANHOLE |
| | EXISTING HYDRANT W/VALVE |
| | EXISTING LIGHT POLE AND ABANDONED DIESEL PUMPS |
| | EXISTING UTILITY POLE |
| | CONCRETE PAD & STRUCTURE |
| | UST LOCATION |
| (COB) | CITY OF BUFFALO |
| (NFG) | NATIONAL FUEL GAS |
| (NIMO) | NIAGARA MOHAWK |

80 40 0 80 160

SCALE: 1"=80'

# FIGURE 3

## TIFFT AND HOPKINS SITE

## MAP OF KNOWN UTILITIES

PARSONS
180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716–633–7074

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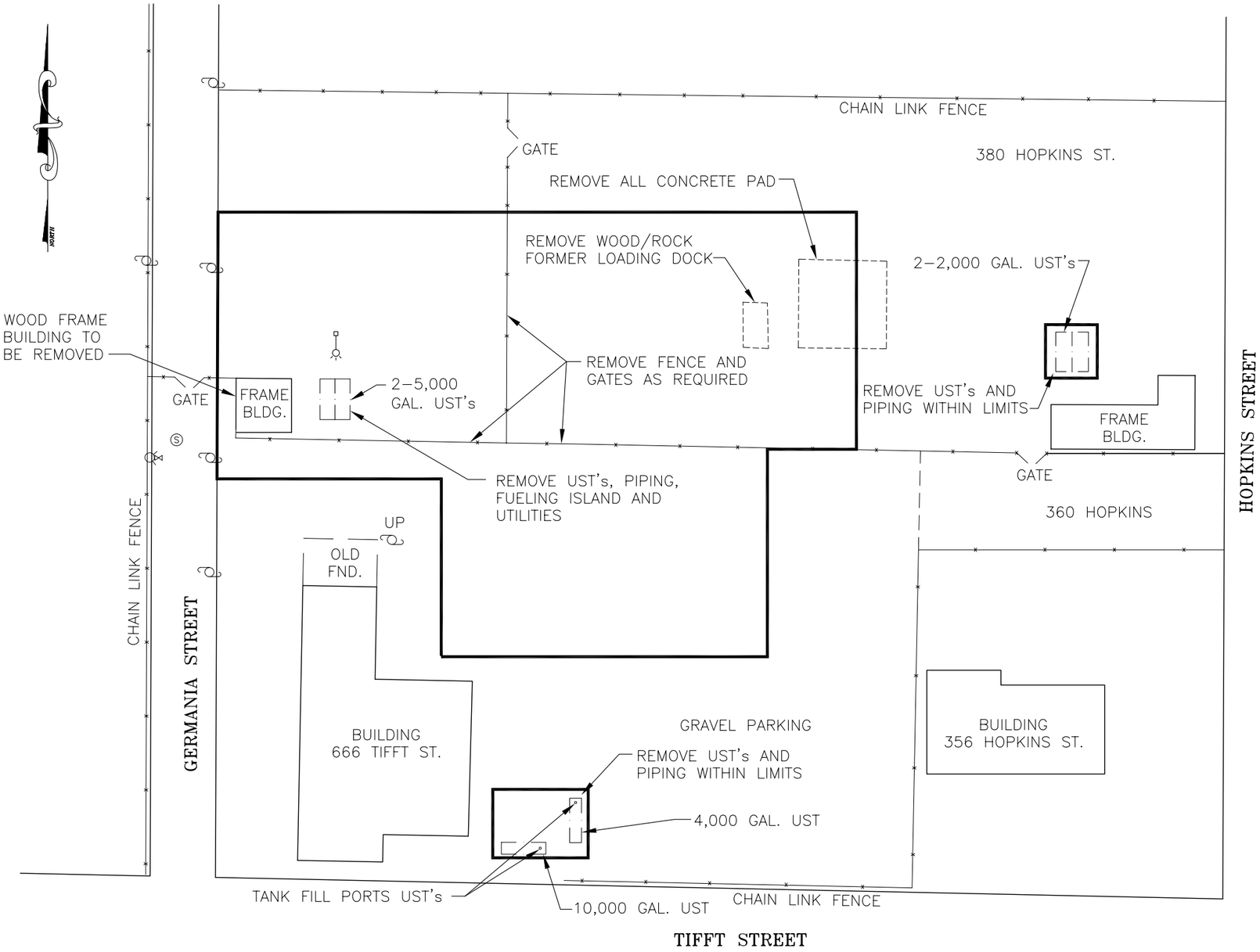


COMPILED FROM:


ABB ENVIRONMENTAL SERVICES, 1993. PRELIMINARY SITE ASSESSMENT EVALUATION REPORT OF INITIAL DATA, VOLUME I, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

E.C. JORDAN CO., 1991, PRELIMINARY SITE ASSESSMENT, TIFFT AND HOPKINS STREET SITE, CITY OF BUFFALO, NEW YORK.

EDR– HISTORICAL TOPOGRAPHIC MAP REPORT, 2003; INQUIRY NUMBER: 902404–2

EDR– SANBORN MAP REPORT, 2003; INQUIRY NUMBER: 902404.1S

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ERIE COUNTY SOIL CONSERVATION SERVICE; EAST AURORA, NEW YORK; 1938, 1942, 1951 AERIAL PHOTOGRAPHS.

BUFFALO FIRE DEPARTMENT (BFD) UST INSTALLATION/REMOVAL PERMITS.

NYSDEC, 1998. TIFFT AND HOPKINS STREET (915131) IMMEDIATE INVESTIGATION WORK ASSIGNMENT REPORT (IIWA).


LEGEND

- FENCE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT W/VALVE
- EXISTING LIGHT POLE AND ABANDONED DIESEL PUMPS
- EXISTING UTILITY POLE
- CONCRETE PAD & STRUCTURE
- UST LOCATION
- WORK LIMITS

80 40 0 80 160

SCALE: 1"=80'

# FIGURE 4

TIFFT AND HOPKINS SITE

CLEARING/GRUBBING PLAN


PARSONS

180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716–633–7074


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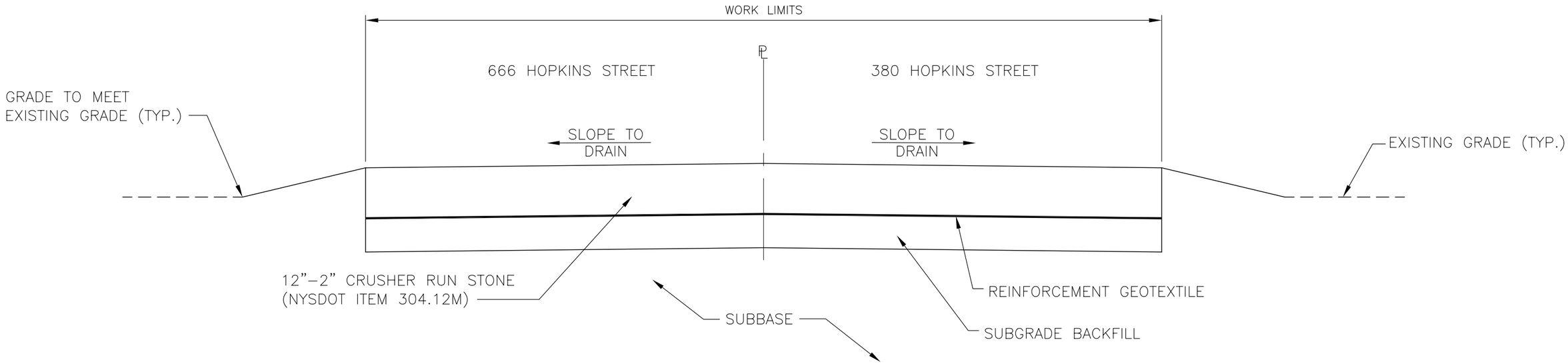


# TYPICAL PARKING LOT SECTION DETAIL

NOT TO SCALE

NOTE:

ALL WORK PERFORMED UNDER THIS CONTRACT IS TO BE IN CONFORMANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS OF NEW YORK STATE DEPARTMENT OF TRANSPORTATION, DATED JANUARY 2, 2002 INCLUDING CURRENT ADDITIONS AND MODIFICATIONS.

FIGURE 5

TIFFT AND HOPKINS SITE

TYPICAL PARKING LOT SECTION DETAIL

PARSONS
180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716–633–7074

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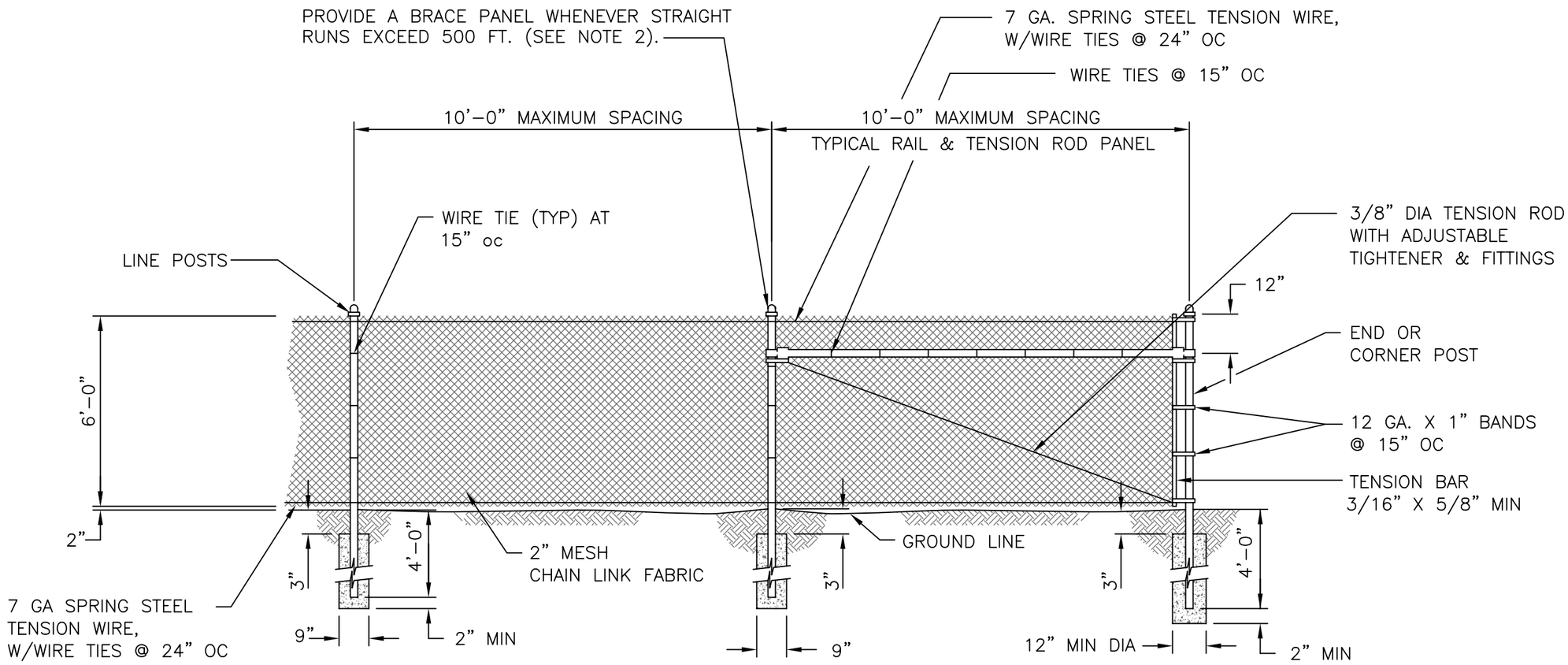


# TYPICAL FENCE ELEVATION DETAIL

NOT TO SCALE

FIGURE 6

TIFFT AND HOPKINS SITE

TYPICAL FENCE ELEVATION DETAIL

PARSONS
180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074

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# Contract Specifications

SECTION 01040

PROJECT COORDINATION

## PART 1 GENERAL

### 1.01 ADMINISTRATION AND SUPERVISION

The Contractor shall coordinate various elements of the work and entities engaged to perform work; and coordinate the work with existing facilities/conditions, with work by separate contractors (if any), and with work by the Owner or the Engineer.

### 1.02 SURVEY/RECORDING

The Contractor shall retain the services of an independent, New York State licensed surveyor not under the employ of the Contractor, for all survey work. Working from established lines and levels at or near project site, establish and maintain dependable markers for lines and levels of the work. Calculate dimensions and measure for layout of work; do not scale the drawings. Maintain surveyor's log of layout work. Record deviations (if any) from drawing information on existing conditions, and review with Engineer at time of discovery. A before and after survey will be required to determine the actual volume of waste excavated and relocated for payment purposes. The Contractor shall perform the final as-built survey of the completed landfill closure.

## PART 2 - PRODUCTS (NOT APPLICABLE)

## PART 3 - EXECUTION

### 3.01 INSTALLER INSPECTIONS

Require Installer of each major unit of work to inspect substrate and conditions for installation, and to report (in writing) unsatisfactory conditions. Correct unsatisfactory conditions before proceeding. Inspect each product immediately before installation. Do not install damaged or defective products, materials or equipment. Engineer to verify installers inspection through field tests and inspection.

### 3.02 INSTALLATION, GENERAL

A. Comply with manufacturer's instructions and recommendations to extent printed information is more detailed or stringent than requirements contained directly in Contract Documents.

B. Timing: Install work during time and under conditions which will ensure best possible results, coordinated with required inspection and testing.

C. Anchor work securely in place, properly located by measured line and level, organized for best possible uniformity, visual effect, operational efficiency, durability, and similar benefit to the Owner's use. Isolate noncompatible materials from contact, sufficiently to prevent deterioration.

D. Mount individual units of work at industry-recognized mounting heights, if not otherwise indicated; refer uncertainties to the Engineer before proceeding.

End of Section 01040

SECTION 01051

GRADES, LINES, AND LEVELS

## PART 1 GENERAL

### 1.01 DESCRIPTION

A. This section includes specifications for surveying required for execution of this work. The Contractor shall retain the services of a licensed Professional Land Surveyor (Surveyor). The Surveyor shall establish survey control, establish and stake property lines between 666 Tifft/380 Hopkins, 666 Tifft/Germania, and 380 Hopkins/Germania. The Surveyor will check and verify as-built thickness and elevations with those shown on the plans and as specified; and prepare record drawings of the construction. The Contractor is responsible for controlling lift thickness and component thickness such that it conforms to the specified dimensions.

B. Data generated by optical survey measurements shall be used for quality control.

C. The Surveyor is required, as a minimum to provide the following survey data:
   1. Existing Topography prior to excavation;
   2. Topography following excavation
   3. Topography following placement of subgrade
   4. Topography with finished grades and elevations and surface features.

   This data will be based on (at a minimum) a 20 ft by 20 ft grid to be established by the surveyor across the work area.

D. Data must be reduced and plotted in a form acceptable to the Engineer and provided to the Engineer, prior to proceeding to the next construction phase. Data will be provided as a points file. Elevations will be reported as NAVD88, Horizontal points will be reported in NAD83.

E. The Contractor shall not proceed with placement of an overlying layer or with subsequent work phases until the Surveyor has completed its survey measurements and the data have been reviewed by the Engineer.

F. Upon completion of all services, the Surveyor shall provide to the Engineer a Letter of Certification for the surveys for use in the Certification Report.

G. Upon completion of all work, the Contractor/surveyor shall provide stamped certified drawings of as-built conditions and electronic file copies of drawings compatible with AutoCAD 2000.

1.02 ACCURACY

A. Optical Survey, Tape Measurements, and Electronic Measurements: Minimum accuracy of ±0.01 feet in horizontal locations and ±0.01 feet in elevations.

1.03 TOLERANCES

A. The Contractor shall place all materials to the lines, grades, slopes, and thickness shown on drawings within the tolerances specified below.

| Description | Tolerances |
|---|---|
| Subbase (Thickness) | - 0.00 feet to + 0.50 feet |
| Gravel Pavement (Thickness) | - 0.00 feet to + 0.20 feet |

1.04 JOB CONDITIONS

A. The Contractor shall be responsible for protecting and maintaining all horizontal and vertical control points during construction.

B. Areas which fail to meet the thickness requirements of Paragraph 1.03(1) shall be reworked or replaced as directed by Engineer at no cost to the Owner. The Contractor shall pay for the costs of all additional survey on reworked or replaced areas.

PART 2: PRODUCTS

None

PART 3: EXECUTION

3.01 SURVEY MEASUREMENTS

A. Prior to commencement of construction work, the Surveyor shall establish all necessary baselines, horizontal control points, and vertical control benchmarks in order to properly complete construction work and make quantity measurements. Survey control points shall be established such that any point within the job site can accurately be re-established and elevations obtained to the required tolerances at any time during the course of construction. The Surveyor shall tie all his baselines, horizontal and vertical control benchmarks into survey information provided by the Owner.

END OF SECTION 1051

SECTION 01090

DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.01 - DESCRIPTION

Except as specifically defined otherwise, the following definitions supplement definitions of the Contract, General Conditions, Supplementary Conditions and other general contract documents, and apply generally to the work.

1.02 DEFINITIONS

A. General Requirements: The provisions of DIVISION 1, General Requirements Sections, apply to the entire work of the Contract.

B. Project Site: Space available to Contractor at location of project, either exclusively or to be shared with separate contractors, for performance of the work. Identified as the properties 666 Tifft Street, 380 Hopkins Street and 360 Hopkins Street.

C. Work Limit: Three areas identified by label on Figure 2 of the Contract Drawings.

D. Property Owner: The property owners of the Project Site as Raymond Radotavich (666 Tifft and 360 Hopkins) and Bernard Jakubik (380 Hopkins).

E. Engineer: Authorized representatives of Parsons.

F. Owner: Honeywell International, Inc.

G. Contractor: Tug Hill Construction

H. Surveyor: Professional Land Surveyor licensed in the State of New York

1.03 STANDARDS AND REGULATIONS

A. Industry Standards: Applicable standards of the construction industry that have same force and effect on performance of the work as if copied directly into contract documents or bound and published therewith. Standards referenced in contract documents or in governing regulations have precedence over non-referenced standards, insofar as different standards may contain overlapping or conflicting requirements. Comply with the standards in effect as of the date of the contract documents, unless otherwise indicated.

B. Trade Union Jurisdictions: Maintain current information on jurisdictional matters, regulations, actions and pending actions; and administer/supervise performance of work in a manner which shall minimize possibility of disputes, conflicts, delays, claims or losses.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01090

SECTION 01300

SUBMITTALS

## PART 1 GENERAL

### 1.01 SUMMARY

A. The requirements of this Section apply to, and are a component of, each section of the specifications.

### 1.02 RELATED SECTIONS – NOT USED

### 1.03 DEFINITIONS

A. Product Data—Drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of Work.

B. Samples—Physical examples of materials, equipment, or workmanship that are representative of some portion of Work and which establish the standards by which such portion of Work will be judged.

C. Shop Drawings—Drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

D. Work—The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

### 1.04 SUBMITTAL PROCEDURES

A. Submit Shop Drawings to Engineer for review and approval in accordance with the accepted schedule of Shop Drawings and Sample submittals.

B. Determine and verify before submitting each Shop Drawing or Sample:
   1. Field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto.
   2. Materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work.
   3. Information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

C. Contractor shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples, and with the requirements of Work and Contract Documents.

1. Each submittal will bear a stamp, or specific written indication, that Contractor has satisfied Contractor's obligations under the Contact Documents with respect to Contractor's review and approval of that submittal.
2. At the time of each submission, Contractor shall give Engineer specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to Engineer for review and approval of each such variation.

D. Engineer will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by Engineer. Engineer's review and approval will be only to determine if items covered by submittals will, after installation or incorporation in Work, conform to information given in the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents), or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make corrections required by Engineer, and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than corrections called for by Engineer on previous submittals.

E. Engineer's review and approval of Shop Drawings or Samples shall not relieve Contractor from responsibility for variation from requirements of the Contract Documents, unless Contractor has in writing called Engineer's attention to each such variation at the time of submission, and Engineer has given written approval of each such variation by specific written notation thereof incorporated in, or accompanying, the Shop Drawing or Sample approval; nor will approval by Engineer relieve Contractor from any responsibility.

F. Where a Shop Drawing or Sample is required by Contract Documents or schedule of Shop Drawings and Sample submissions accepted by Engineer, related Work performed prior to Engineer's review and approval of pertinent submittal will be at the sole expense and responsibility of Contractor.

G. Hazardous Communication Program: Coordinate the exchange of material safety data sheets or other hazardous communication information required to be made available to, or exchanged between, other employees at the site in accordance with Laws or Regulations.

1.05 SUBSTITUTIONS

A. Any submittal that substantially deviates from the specified product shall require Agency (NYSDEC) review and approval.

1.06 FORMAT AND QUANTITY OF SUBMITTALS

A. Transmittal Form:

1. Transmit each submittal, except sample installations and sample panels, to the Engineer. The transmittal form shall identify Contractor, indicate date of submittal, and include information prescribed by the transmitted form and required in the paragraph entitled "Identification of Submittals." Process transmittal forms to record actions regarding sample panels and sample installations.

B. Identification of Submittals:
   1. Assign each submittal a sequential number and retain this assigned number with appropriate subscript, on required resubmissions. The assigned number shall consist of the specification Section number where the item is specified, followed by a sequential number indicating the number of submittals in that Section (e.g., 03300-11 is the 11th separate submittal for items specified in Section 03300). Resubmittals shall be identified with the same number as the original submittal, followed by A, B, C, etc. Clearly identify products and materials submitted with appropriate equipment name and equipment tag number (if any) and installation location as it appears in the Contract Documents.
   2. Accompany each submittal with a letter of transmittal showing information required for identification and checking.
   3. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.
   4. Submittal log:
      a. Maintain an accurate submittal log, showing current status of submittals.
      b. Make the submittal log available for review upon request.

C. Format and Quantity for Shop Drawings:
   1. For shop drawings presented on sheets larger than 8 1/2-inches by 17 inches, submit one reproducible and four prints of each required shop drawing.
      a. Transmit reproducibles rolled in mailing tubes.
      b. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to the information required in the paragraph entitled "Identifying Submittals."
      c. The reproducible and two prints with notation resulting from the review will be returned.
   2. For shop drawings presented on sheets 8 1/2-inches by 17 inches or less, conform to the format and quantity requirements for product data, and present as a part of the bound volume for the submittals required by the Section.
   3. Dimension drawings, except diagrams and schematic drawings; prepare dimensioned drawings to scale. Identify materials and products for work shown.
   4. Shop drawings shall be not less than 8 1/2 by 11 inches nor more than 30 by 42 inches.

D. Format and Quantity for Product Data:
   1. Submit four copies of submittals of product data.
      a. Two copies will be returned after review with notations resulting from review.
   2. Present product data submittals for each Section as a complete, bound volume. Include a table of contents listing page and catalog item numbers for product data.
   3. Indicate, by prominent notation, each product which is being submitted; indicate the Section and paragraph numbers to which it pertains.

4. Supplement product data with material prepared for the project to satisfy submittal requirements for which product data does not exist. Note that the material is developed specifically for the project.

E. Quantity for Samples:
   1. Wherever specified, submit three sets of samples. One sample will be returned after review with notations resulting from review.
   2. Label or tag each sample identifying the specification Section number, manufacturer's name and address, brand name, product identification number, and intended use in the Work.

F. Format and Quantity of Administrative and Closeout Submittals
   1. Submit administrative and closeout submittals in the format and quantities required for shop drawings.
   2. If the submittal includes a document which is to be used in the project or become a part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document, but to a separate sheet accompanying the document.
      a. Submit operation and maintenance manual data and include components required in the various technical sections.
   3. Record Documents: Maintain one record copy of Drawings, Specifications, Addenda, Modifications, and approved submittals at the site in good order, and readily available to Owner and Engineer. Clearly and correctly mark the record documents, annotated to show changes made during the construction process at the time the changed Work is installed. Deliver these Record Documents to Engineer for Owner upon completion of Work.

1.07 MANUFACTURER'S INSTRUCTIONS

A. Submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for shop drawings when specified in individual Sections.

B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.08 MANUFACTURER'S CERTIFICATES

A. When specified in individual Sections, submit manufacturers' certificate(s) to Engineer for review, in quantities specified for shop drawings.

B. Indicate material and equipment conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (NOT APPLICABLE)

***END OF SECTION 01300***

SECTION 01403

DECONTAMINATION PLAN REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section includes the design, construction, operation, maintenance, and removal of decontamination facilities for personnel, transportation, and construction equipment.

B. The decontamination facilities will also be utilized by the Engineer for personnel and testing equipment decontamination. Contractor shall make provisions for such use as necessary and at no additional cost.

1.02 RELATED SECTIONS

A. Section 01300 – Submittals
B. Section 01620 – Safety, Health and Emergency Response
C. Section 02142 - Water Management
D. Section 02219 –Excavation, Consolidation and Disposal

1.03 SUBMITTALS

A. Contractor shall submit a Decontamination Plan in accordance with Section 01300. The Decontamination Plan shall include detailed drawings or figures and a discussion regarding the design, materials of construction, operation, and removal of the following items as a minimum.
   1. Personnel decontamination station(s);
   2. Equipment decontamination station(s);
   3. Truck decontamination station(s);
   4. Wastewater (water used during the decontamination activities). Temporary storage and disposal;
   5. Areas and location of sections; and
   6. Disposal of all contaminated debris, pipe and other non-liquid exposed materials.

1.04 DECONTAMINATION PLAN

A. Performance Criteria - General
   1. Decontamination facilities shall be designed to meet all requirements of the Contractor Health and Safety Plan (CHASP) and all local, state, and federal requirements.
   2. Decontamination stations shall be designed to:
      a. Isolate contamination;
      b. Prevent cross contamination;
      c. Be substantially watertight;
      d. Prevent contamination from leaving the site;
      e. Be large enough to contain run-off and spray water; and
      f. Have provisions for the collection and removal of accumulated waters and sediments.

C. Decontamination liquids, solids, PPE, and debris shall be placed in suitable containers and disposed of at the Alltift Landfill Site in accordance with the May 2003 Alltift Landfill/Ramco Steel Remedial Design documents, and in accordance with the June 2003 Alltift Landfill/Ramco Steel Contract Documents.

D. Decontamination stations shall be constructed of substantially watertight materials and shall contain liquids used.

E. The decontamination stations facility shall be resistant to chemical attack by the materials that will be contained in the stations.

F. The decontamination stations may be temporary and transportable; side panels should be used to control fugitive emissions from the decontamination stations.

1.05 PERFORMANCE CRITERIA - EQUIPMENT DECONTAMINATION STATION

A. All equipment shall be free of visual contamination prior to leaving the site.

B. All tires and tracks shall be free of soil, grease, oil and other contaminants.

C. Decontamination stations shall be capable of providing decontamination of the undercarriage and exterior of a vehicle to remove particular matter, using high pressure spray from the sides and bottom. Decontamination stations shall be capable of collecting and containing the decontamination water.

D. Construction Manager shall have the right to inspect any piece of equipment or vehicle. At Construction Managers sole discretion, additional cleaning may be required.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01403

**MISSION** **Honeywell will be one of the world's premier companies in safety performance.**

**SAFETY PRINCIPLES**

- **Working safely is good business.**
- **Safety is an integral part of Honeywell's culture and total quality processes.**
- **Work and act to prevent all incidents that may lead to injuries or illnesses.**
- **Design safety into every project activity.**
- **Safety performance is the responsibility of everyone.**
- **Worker behavior is the most important factor in preventing incidents.**
- **All on-site workers must be trained to work safely.**
- **Expect and require every worker to work safely.**
- **Safety processes must react to all incidents, not just accidents.**
- **Continually improve the safety process by auditing the process and correcting the root cause of deficiencies.**
- **Promote safety, both on and off the job.**
- **Prepare for emergencies.**

## PART I GENERAL

### 1.1 Section Includes

A. Scope

B. Analytical Characterization Summary

C. Submittals

D. Safety & Health Program

E. Health and Safety Plan

F. Local Authorities

G. Training

H. Medical Surveillance

I. Substance Abuse Program

J. Medical Record Keeping

K. Logs, Reports and Record Keeping

### 1.2 Related Sections

A. Section 01010 – Summary of Work
B. Section 01300 – Submittals

### 1.3 References

A. Site Investigation Report – Tifft and Hopkins Site, Parsons, April 2004.
B. Remedial Action Health and Safety Plan For: Tifft and Hopkins, Parsons, July 2003.

### 1.3.1 APPLICABLE PUBLICATIONS, REGULATIONS, GUIDELINES, AND STANDARDS

Work performed shall be consistent with the following guidelines and references and in compliance with all applicable regulations and standards including, but not limited to, those listed below. In the case that these requirements are conflicting, the one which offers the greatest protection shall be followed, unless there is specific agreement between Honeywell and Contractor to the contrary.

A. Occupational Safety and Health Administration (OSHA) Regulations
- 29 CFR 1926 (All) Construction Industry Standards
- 29 CFR 1910 (All) General Industry Standards
- 29 CFR 1910.120 Hazardous Waste Operations & Emergency Response

B. National Institute for Occupational Safety and Health (NIOSH) Publications
- 90-117 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities

C. U.S. Environmental Protection Agency (USEPA) Publications
- Standard Operating Safety Guidelines (OSWER, 1988)

D. American Conference of Governmental Industrial Hygienists (ACGIH) Publications
- Threshold Limit Values and Biological Exposure Indices for 1996

## 1.4 SCOPE

Soils and groundwater are contaminated with organic and inorganic constituents which are the result of historic activities performed at the Tifft and Hopkins Site.

The provisions of 29 CFR 1910.120, Subpart H "Hazardous Waste Site Operations and Emergency Responses" will be required to be followed for construction activities performed as part of this contract.

The Contractor shall be responsible for preparation of a **site specific Construction Health and Safety Plan**, its implementation, and related

requirements as specified herein. Honeywell employees and representatives will abide by the Contractor's safety and health requirements.

## 1.5 ANALYTICAL CHARACTERIZATION SUMMARY

The Work Area has been impacted with organic compounds and metals (Table 01620-1). There are impacts to both the groundwater and the subsurface soil. In addition, there are six underground storage tanks (diesel fuel and gasoline) to be removed. Contractor will be responsible, through review of existing data as well as through pre-design activities, to prepare a site specific listing and concentration range of detected organic and inorganic pollutants in soil and groundwater.
Contractor shall be responsible for developing minimum levels of protection for pre-design and construction activities based on the Work Area specific contaminants.

## 1.6 SUBMITTALS

The Contractor shall submit the following items. Details for their contents are described in following paragraphs.

- Safety and Health Program covering workers engaged in hazardous waste work
- Site Safety and Health Plan
- Certification of Employee Fitness
- CD-13-1 - Safety & Occupational Health Compliance
- CD-13-2 - Contractor's Safety Declaration
- CD-13-3 - Contractor's Employee Safety Declaration
- Daily Safety Reports
- Safety Incident Reports (Environmental Excursion, Vehicle and Worker Forms)
- Employee/Visitor Register
- Monitoring/Sampling Results
- Training Logs
- Monthly Man-Hours
- Phase-Out Report

## 1.7 SAFETY AND HEALTH PROGRAM

All contractors performing on-site activities at hazardous waste sites are required by regulation to develop and maintain a written Safety and Health Program in compliance with OSHA standard 29 CFR 1910.120 (b) (1) through (b) (4). Written certification that such a program has been prepared and implemented shall be submitted to Honeywell as a preface to the required Site Health and Safety Plan (HASP). The program including updates shall be submitted to Honeywell.

## 1.8 HEALTH AND SAFETY PLAN (HASP)

A. General

The Contractor shall prepare a Site Health and Safety Plan (HASP) covering all work to be performed under this Contract. The HASP shall establish, in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed by the Contractor and all Subcontractors. The HASP shall address site-specific safety and health requirements and procedures based upon site-specific conditions. Duplication of the general information contained in the Safety and Health Program is unnecessary. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be accomplished, and hazards anticipated.

B. Topics

All topics required by OSHA standard 29 CFR 1910.120(b) (4) 29 CFR 1910.1200 and those discussed below shall be addressed in the HASP. Where the use of a specific topic is not applicable to the project, the HASP shall include a statement to justify its omission and establish that adequate consideration was given the topic.

C. Review and Modifications

A Draft HASP shall be submitted to Honeywell for review at a minimum twenty (20) business days prior to Contractor's mobilization. Honeywell will either approve or return the HASP to the Contractor for revision within ten (10) business days of Honeywell's receipt. Contractor is responsible for revising the HASP for finalization and approval by Honeywell. The

Contractor will not be allowed to perform any on-site work until this plan has been approved in writing by Honeywell.

Should any unforeseen hazard become evident during the performance of the work, the Site Safety and Health Officer (SSHO) shall bring such hazard to the attention of Honeywell, both verbally and in writing, for resolution within one (1) business day of unforeseen hazard detection. In the interim, the Contractor shall take necessary action to re-establish and maintain safe working conditions in order to safeguard on-site personnel, visitors, the public, and the environment. Should the Contractor seek major modification of any portion or provision of the HASP, such major modification shall be performed by the contractor's SSHO and approved in writing by Honeywell. Any disregard for the provisions of these Safety, Health, and Emergency Response specifications and the contractor's approved HASP shall be deemed just and sufficient cause for Honeywell ordering the stopping of all work beyond the Support Zone until the matter has been rectified to Honeywell's satisfaction.

D. Site Description and Characterization

The HASP shall include a site description and contamination characterization that addresses the following elements, as a minimum:

- Location and approximate size of the site.
- Site topography and accessibility by road.
- Present status and capabilities of emergency response teams that would provide assistance to hazardous waste site employees at the time of an emergency.
- A list of the contaminants and their concentrations found or known to be present in site areas to be impacted by the work to be performed.
- A select list of contaminants which are of greatest occupational health and safety concern. Concern shall be established by evaluating a contaminant's potential for causing exposure above OSHA PELs or ACGIH TLVs. The select list shall be created by evaluating the detected pollutants identified through Contractor’s review of existing documents and/or pre-design activities in the Work Area.

E. Hazard/Risk Analysis

The Hazard/Risk Analysis shall be presented by both text and in tabular format. The HASP shall include a hazard/risk analysis that addresses the following elements, as a minimum:

- Description of on-site jobs/tasks to be performed.
- Duration of planned site activities.
- Chemical, physical, biological, and safety hazards of concern for each site task and/or operation to be performed (Activity Hazard Analysis). The Contractor shall research and use additional sources of information when preparing the "Hazard/Risk Analysis" section of the HASP.
  - Normal construction hazards.
  - Hazards from construction and heavy equipment.
  - Exposure to the site chemicals of concern, including those chemicals used as part of the construction operations, via handling contaminated soil or groundwater during site work involving intrusive operations i.e., trenching, excavation, drilling, and grading operations.
  - Exposure to the site chemicals of concern by inhalation or dermal contact during normal construction operations, i.e., dust, surface seeps or stormwater handling.
  - Exposure to physical hazards of heat, cold and noise.
- Pathways for hazardous substance dispersion.
- Chemical, physical, and toxicological properties of the contaminants on the select list, sources, and pathways of employee exposures, anticipated on and off-site exposure level potentials, and regulatory (including Federal, State, and local) or recommended protective exposure standards.
- Exposure to hazardous substances brought on-site for the purpose of executing this Contract. If hazardous substances are used in executing the Contract, the Contractor shall comply with the requirements of 29 CFR 1910.1200, Hazard Communication.
- Recommended Personal Protective Equipment for each Work Task and associated hazards.

F. Staff Organization, Qualification, and Responsibilities

1. General

The Contractor shall develop an organizational structure that sets forth lines of authority, responsibility, and communication. The HASP shall include a description of this organization, qualifications, and responsibilities of each of the following individuals.

2. Certified Industrial Hygienist (CIH)

a. Qualifications

The Contractor shall utilize the services of an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene. A resume of the proposed CIH shall be submitted with this bid. The CIH shall:

- Possess a minimum of three years experience in developing and implementing health and safety programs at hazardous waste sites or in the chemical or petroleum industry,
- Have demonstrable experience in supervising professional and technical level personnel,
- Have demonstrable experience in developing worker exposure assessment programs and ambient air monitoring programs, and
- Have working knowledge of State and Federal occupational safety and health regulations.

b. Responsibilities.

The CIH shall:

- Be responsible for the development, implementation, oversight, and enforcement of the HASP.
- Sign and date the HASP prior to submittal,
- Conduct initial site-specific training,
- Be present on-site during the first week (one to three days) of construction activities,
- Visit the site at least once every other month for the duration of activities,
- Be available for emergencies,

- Provide on-site consultation as needed to ensure the HASP is fully implemented,
- Coordinate any necessary modifications to the HASP with Honeywell,
- Sign and date a Hazard/Risk Analysis for the selection of Personnel Protective Equipment.
- Serve as a member of the quality control staff, and
- Provide the safety phase-out report as required by Part 1.14-I.

c. Obligations to Owner

The Contractor shall comply with Honeywell safety and occupational health requirements. It is the CIH's responsibility to be briefed by Honeywell's Site Superintendent prior to initiating work and made aware of the rules and emergency procedures of Honeywell. The Contractor will be obligated to bring to the attention of Honeywell any deviations or obstacles to comply with Honeywell's intention of safe, productive work with minimal occupational risk. The Contractor will be required to sign a safety declaration and will be responsible for furnishing to Honeywell the names of all employees working on site. A copy of Honeywell's Safety Declaration Forms (CD-13-1, 2 & 3) are included as **ATTACHMENT 1**.

3. Site Safety and Health Officer (SSHO)

a. Qualifications

The Contractor shall designate an individual to be the Site Safety and Health Officer (SSHO). The SSHO shall:

- Possess a minimum of one year experience in developing and implementing health and safety programs at hazardous waste sites or in the chemical or petroleum industry,
- Possess demonstrable experience in construction safety techniques and procedures,
- Have working knowledge of State and Federal occupational safety and health regulations,

- Have specific training in personal and respiratory protective equipment program implementation and in the proper use of air monitoring instruments, air sampling methods, and procedures, and
- Be certified in first aid/CPR by the Red Cross, or equivalent agency.

b. Responsibilities

The SSHO shall:

- Convey Honeywell safety rules and emergency procedures to the Contractor's workers and complete Attachment 1 (CD-13 Forms).
- Assist and represent the CIH in the continued on-site implementation and enforcement of the HASP,
- Be assigned to the site on a full-time basis for the entire duration of field activities, and shall have no duties other than Health and Safety related duties.
- Perform and document daily "tailgate" safety meetings.
- Ensure that all aspects of the HASP are complied with including preparation of records, air monitoring, daily visitor and worker logs, use of PPE, decontamination, and site control,
- Consult with and coordinate any necessary modifications to the HASP in accordance with Part 1.8-C, with the CIH and the Owner.
- Serve as a member of the quality control staff on matters relating to safety and health,
- Provide the information and perform the activities as required by part 1.8-M,
- Have authority to stop work if unacceptable health or safety conditions exist, and
- Provide the documentation as required by Parts 1.10-A, 1.14-B, C, D, E, F, G and H.

4. Health and Safety Support Personnel

Where appropriate for each work crew, the Contractor shall designate one person as a Health and Safety support person. These individuals shall perform activities at their location consistent with the HASP such as air monitoring, decontamination, and safety oversight on behalf of the SSHO. They shall have appropriate training equivalent to the SSHO in the specific area(s) for which they have responsibility. They shall report to and be under the supervision of the SSHO.

5. Occupational Physician

The Contractor shall utilize the services of a licensed physician who is certified in occupational medicine by the American Board of Preventive Medicine, or who, by necessary training and experience is Board eligible. The occupational physician shall be responsible for developing a medical monitoring program in compliance with 29 CFR 1910.120(f). The Contractor's occupational physician shall be responsible for providing the documentation as required by Part 1.11-C and 1.12-B and 1.13.

G. Personal Protective Equipment

1. General

In accordance with 29 CFR 1910.120(g)(5), a written personal Protective Equipment (PPE) program which addresses all the elements listed in that regulation, and which complies with respiratory protection program requirements of 29 CFR 1910.134 is to be included in the Safety and Health Program. Therefore, the Site Health and Safety Plan (HASP) shall detail the minimum PPE ensembles (including respirators), appropriate contaminant specific action levels, and specific materials from which the PPE components are constructed for each anticipated site-specific hazard as well as task/operation to be performed. The above information shall be presented in both a text and a tabular format and signed and dated by the contractor's CIH.

Components of levels of protection (B, C, D and modifications) must be relevant to site-specific conditions, including heat stress potential and safety hazards. The PPE section of the HASP shall include site-specific procedures for on-site fit-checking, cleaning, maintenance, inspection, and storage.

2. Components of Levels of Protection

a. Level D

Level D Protection shall consist of:
- Hard hat
- Safety glasses with side shields or safety goggles
- Work clothing as prescribed by weather (long sleeved)
- Steel toe work boots
- Hearing protection (if needed)

b. Modified Level D

Modified Level D Protection shall consist of all elements of Level D above plus:
- Disposable outer coveralls (chemical resistant, Tyvek or equivalent)
- Disposable chemical resistant boot covers or chemical steel toe, steel shank boots
- Disposable inner gloves
- Chemically protective outer gloves (as per PPE program)
- Air purifying respirator (APR) shall be readily available at all times and be available for immediate donning when required.

c. Level C

Level C Protection shall consist of:
- Hard hat
- Eye protection (if needed)
- Work clothing as prescribed by weather
- Disposable outer coveralls (chemical resistant, Tyvek, poly-coated Tyvek, Saranex or equivalent) of adequate design to prevent skin contact with site contaminants
- Disposable chemical resistant boot covers or chemical steel toe, steel shank boots
- Steel toe work boots
- Hearing protection (if needed)
- Disposable inner gloves
- Chemically protective outer gloves (as per PPE program)

- APR with appropriately selected cartridges.
- Cooling vests (if necessary)

d. Level B

Level B Protection shall consist of all elements of Level C except substitution of Supplied Air Respirators (SAR) with 5 minute escape SCBA or Self Contained Breathing Apparatus (SCBA) for APR. All SAR or SCBA must be positive pressure/pressure demand.

3. Initial Minimum Levels of PPE by Task

The Contractor's CIH shall establish appropriate levels of protection for each work task based on historical site information, air monitoring results, and an evaluation of the potential for exposure during each task. Protocols formally changing the level of protection and the communication network for doing so shall be described in the HASP and presented in a text and tabular format. Any change or adjustment to the levels of PPE shall be immediately brought to the attention of Honeywell. Changes shall be performed by the Contractor based on air sampling, weather and or type of activity.

The following work tasks and minimum level of protection are provided to assist in the development of bids and in HASP preparation.

**PROVIDED FOR BID DEVELOPMENT**

| **Work Task** | **Minimum Level of Protection*** |
|---|---|
| Site Preparation | |
| Mobilization | D |
| Clearing and Grubbing | D |
| Demobilization | D |
| Water Manangment | Mod. D |

| Work Task | Minimum Level of Protection* |
|---|---|
| Tank Removals | Mod. D |
| Excavation | Mod. D |
| Backfilling | D |
| Restoration | D |

*Upgrades/downgrades determined by air sampling results and potential for dermal contact.

Other tasks which are non-intrusive or performed in the Support Zone may be performed by non-hazardous waste trained workers (at the discretion of the Contractor's CIH).

H. Exposure Monitoring/Air Sampling

1. General

The Contractor shall write and include in the HASP (text and table) an exposure monitoring/air sampling program for all operations performed on the site. The program shall establish reporting requirements and notification procedures. Modifications of the programs shall have the concurrence of Honeywell. The Contractor shall monitor/sample air quality to establish:

- Concentrations of air contaminants in the workers' breathing zones (BZ),
- Levels of oxygen, flammable or explosive materials, and toxic substances in confined spaces and in the atmosphere; and
- Concentrations of air contaminants along the site perimeter.

2. Baseline Air Monitoring

Baseline air monitoring data shall be collected for three days during site mobilization. Baseline air monitoring data shall be used to determine increases in air emissions during the construction activities at the site, and will be used to ascertain the necessity for upgrading the respiratory protection levels. At a minimum baseline air monitoring shall be performed for dust and total volatile organic compounds (VOC). The contractor's CIH shall establish appropriate baseline air

monitoring based on its review of the site specific contaminants of concern, prevalence and contractor's operations.

The VOC data shall be collected using an Organic Vapor Detector (OVD) such as an HNu photoionization detection meter (PID), or equivalent. The site boundary shall be surveyed with the OVD three times, morning, afternoon and evening, during each testing day. Monitoring shall be conducted at 250-foot maximum intervals along the entire site boundary. Closure intervals of 100 feet shall be used for monitoring downwind levels during collection of baseline data.

Measurements shall be collected for a maximum period of five minutes at each station. The highest OV reading shall be recorded for each station.

Air monitoring data shall be documented and submitted to Honeywell within three days at the end of monitoring period.

3. Monitoring and Sampling for Breathing Zone (BZ) Concentrations

Breathing zone concentrations shall be determined to establish proper levels of PPE and to document employee exposure levels. The HASP shall include a table showing task BZ monitoring instrument, BZ monitoring frequency, and the BZ action level with units.

a. Real time (direct reading) monitoring

The Contractor shall utilize direct reading instruments to monitor for contaminants in workers' breathing zones. The following direct reading instruments shall be utilized, as appropriate:

- Organic vapor monitor utilizing either a photoionization detector or a flame ionization detector.
- Total dust monitor.
- Colorimetric detector tubes.
- Oxygen and combustible gas meter.
- Decibel meter.

b. Personnel exposure monitoring

The CIH or SSHO shall perform monitoring and will be responsible for ensuring compliance with all requirements of 29 CFR 1910.120(h). Personal air sampling shall be performed at a minimum during the installation of extraction wells and excavation of contaminated. In order for the sampling to be meaningful for establishing the level of PPE needed for this contract the air sampling must be conducted in contaminant source areas. Therefore, the initial operations shall be performed in the most highly contaminated areas.

Personal air monitoring frequencies after the first week of operations shall be designated in the approved HASP. The individual(s) selected for personal air monitoring shall be the individual(s) expected to have the greatest exposure during the initial activities. Full-shift or near-full-shift breathing zone samples shall be collected. Sampling shall utilize personal sampling pumps with sorbet tubes and filter cassettes, using NIOSH methods.

Samples shall be collected by the contractor's SSHO and analyzed by an American Industrial Hygiene Association accredited laboratory. NIOSH sampling and analytical methods for monitoring employee exposure shall be chosen by the CIH after initial air sampling results have been reviewed. The site specific personal exposure monitoring sampling and analysis shall be selected and determined by the contractor's CIH.

4. Monitoring at the Site Perimeter

At a minimum perimeter monitoring shall be performed three times daily during the morning, midday and afternoon. Perimeter monitoring shall be performed at three downwind and one upwind location. In cases where contamination is detected during remedial activities, continuous perimeter air monitoring will be required to assure that off-site migration of VOC's and dust is not occurring. At a minimum perimeter monitoring shall include measurements for noise, dust and total VOC levels. Contractor's CIH shall determine what additional perimeter analysis/monitoring shall be performed. Contractor as part of the HASP shall indicate (text and table) what perimeter action levels will be obtained. The contractor's HASP shall specify all sampling and

analytical methods. Contractor shall describe appropriate corrective action to be taken in the event a perimeter action level is exceeded.

5. Heat/Cold Stress Monitoring

a. General

The Contractor's CIH shall develop a heat stress/cold stress monitoring program for on-site activities. Details of the monitoring program, including work/rest schedules and physiological monitoring requirements, shall be described in the HASP. Monitoring shall be performed by a person with a current first aid/CPR certification who is trained to recognize the symptoms of heat and cold stress.

b. Heat Stress

The climate at the site combined with the requirements for personal protective equipment may create heat stress. For workers who wear permeable clothing, the Contractor shall follow recommendations for monitoring requirements and suggested work/rest schedules in the current ACGIH Threshold Limit Values for Heat Stress. For workers who wear semi-permeable or impermeable clothing, the Contractor shall follow the technical guidelines in "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" (NIOSH Publication 90-117).

c. Cold Stress

To guard against cold injury the Contractor shall provide appropriate clothing and warm shelter for the rest periods. Procedures to monitor and avoid cold stress shall be followed in accordance with the current TLVs for Cold Stress as recommended by the ACGIH.

I. Standard Operation Safety Procedures, Engineering Controls, Work Practices. The HASP shall address the engineering controls and safe work practices to be implemented for the work covered by these specifications. These shall include, but not be limited to the following:

- Part 3 "Execution" of this Specification.
- Site rules/prohibitions (buddy system, eating/drinking/smoking restrictions, etc.)
- Protocols for operation of heavy construction equipment in accordance with 29 CFR 1926.
- Descriptions of safety inspection and preventative maintenance requirements for the operation of machinery or mechanized equipment, including written inspection reports.
- Tanks will be removed in accordance with the NYSDEC Memorandum – Permanent Closure of Petroleum Storage Tanks, January 20, 1987, modified December 3, 2003.

J. Site Control and Work Zones.

1. General

In order to control the spread of contamination and the flow of personnel and materials into and out of the work area, the Contractor shall establish a site control section in the HASP. This section shall describe the methodology to be used by the SSHO in determining the modification of work zone designations, procedures to limit the spread of contamination, and general limitations to be observed by site personnel. The Contractor shall clearly lay out and identify the work zones in the field and shall limit equipment, operations, and personnel in the zones as required by these specifications and described in the HASP.

2. Support Zone

The Support Zone (SZ) shall be established on the site and is defined as the area outside the zone of significant contamination. The Support Zone shall be clearly delineated and shall be secured against active or passive contamination from the work site. The function of the Support Zone is to provide:

- An entry area for personnel, material, and equipment into the Exclusion Zone of site operations.
- Location for support facilities.

- A storage area for clean safety and work equipment.

3. Contamination Reduction Zone (CRZ).

   The CRZ shall serve as the personnel and equipment decontamination area.

4. Exclusion Zone (EZ)

   The EZ boundary shall be set by the Contractor so that it encompasses areas around individual intrusive construction activities being performed. The Contractor shall control entry into this area and exit may only be made through the CRZ.

K. Decontamination

1. General

   The Contractor shall establish decontamination procedures for on-site personnel who perform activities in the Exclusion Zone and for equipment utilized in the Exclusion Zone. Decontamination shall be performed in the CRZ prior to entering the Support Zone from the Exclusion Zone. The Contractor shall refer to Chapter 10.0 of the technical guidance publication "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" (NIOSH 85-115) when preparing these procedures. Procedures shall be described in the HASP. The Contractor shall train employees in the procedures and enforce the procedures throughout site operations.

2. Decontamination Pads

   All contaminated soils and decontamination fluids shall be contained and collected to prevent contaminant migration. A decontamination pad shall be constructed for heavy equipment decontamination as needed by the Contractor. The Contractor's planned location for a decontamination pad and construction details of a new pad shall be provided to Honeywell prior to construction.

3. Waste Disposal

Liquid and solid waste generated during construction activities shall be managed in accordance with Section 01010 – Summary of Work.

4. Fuel & Lubricant Storage

Contractor shall designate an area for fuel and liquid storage. The HASP shall describe the procedure for safe handling during filling and refueling operations.

L. Emergency Equipment and First Aid

The HASP shall describe the emergency and first aid equipment to be utilized. The following items, as a minimum, shall be immediately available for on-site use:

- First aid equipment and supplies approved by the Consulting physician.
- Emergency eyewashes/showers (comply with ANSI Z-358.1).
- Two Self-Contained Breathing apparatuses shall be dedicated for emergency use only, maintained on-site, and located in an area that is immediately accessible to the CRZ and the SZ.
- Spill control materials and equipment.
- Fire extinguishers with a minimum rating of 2A-10B:C shall be provided at all site facilities and at any other site locations where flammable or combustible materials present a fire risk.

M. Emergency Response and Contingency Procedures

1. General

The Contractor shall include in the HASP an Emergency Response Plan in compliance with 29 CFR 1910.120(1), which addresses the following elements, as a minimum:

- Pre-emergency planning and procedures for reporting incidents to appropriate government agencies for potential chemical exposures, personal injuries, fire/explosions, environmental spills, and releases.
- Personnel roles, lines of authority, communications.

- Posted instructions and a list of emergency contacts (physician, nearby medical facility, fire and police departments, ambulance service, federal/state/local environmental agencies, CIH, Owner's representatives).
- Emergency recognition and prevention.
- Contingencies to combat spills and releases of hazardous chemicals.
- Site topography, layout, and prevailing weather conditions.
- Criteria and procedures for site evaluation (emergency alerting procedures)
- employee alarm system, emergency PPE and equipment, safe distances, places of refuge, evacuation routes, site security and control.
- Specific procedures for decontamination and medical treatment of injured personnel.
- Route maps to nearest pre-notified medical facility.
- Criteria for initiating community alert program, contacts, and responsibilities.
- Procedures for critique of emergency responses and follow-up.

## 1.9 NOTIFICATION OF AUTHORITIES

The Contractor shall contact and meet with both the Honeywell Site Superintendent and with the local emergency response agencies prior to start of construction. The purpose of the meeting is for the resolution of conflict (if conflict exists) and to insure that the emergency responders are equipped to respond to an emergency on the site.

## 1.10 TRAINING

A. General

All employees working on-site with the potential for exposure to hazardous substances, health hazards, or safety hazards shall meet the minimum training requirements as specified in 29 CR 1910.120. These employees shall have completed the required 40 hours of hazardous waste training and shall have three days of field experience in hazardous waste work.

All other employees working on site shall receive 24-hour training as required in 29 CFR 1910.120(e)(3)(ii) and (iii). All supervisory personnel shall have received an additional eight hours of training as required for management of personnel and activities associated with hazardous waste site activities. Employees shall also receive a minimum of eight hours refresher training annually as needed based on their anniversary of 40-hour or 24-hour training.

A copy of the certifications for all hazardous training undergone by employees must be kept on site, and should be made part of the CD-13-1 submittal.

B. Site-Specific

1. Initial Training

An initial site-specific training session shall be conducted by the CIH prior to commencement of work or entering the site. This training shall cover site hazards, procedures, and all contents of the approved HASP. All site employees, including those working in the support zone, shall attend this training. Elements to be covered as part of the site specific training are:

- Names of personnel and alternates responsible for site safety and health and emergency response for hazardous waste operations.
- Safety, health and other hazards present on the site.
- Location of subsurface utility lines
- Use of personal protective equipment.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment on the site.
- Medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards.
- Use of monitoring equipment.

2. Periodic Training

Periodic on-site training shall be provided by the Contractor at least weekly and prior to each change in operation.

3. New Employees

Training of new employees shall be conducted prior to allowing them to work in the Contamination Reduction Zone or the Exclusion Zone.

## 1.11 MEDICAL SURVEILLANCE

A. General

The CIH, in conjunction with the Occupational Physician, shall detail, in the HASP, the medical monitoring program that includes scheduling of examinations, certification of fitness, compliance with OSHA requirements, and information provided to the physician. The program shall, as a minimum, outline the requirements specified below:

B. Compliance with OSHA

The Contractor shall ensure the physician performs the medical examination prescribed in 29 CFR 1910.120 for workers performing work in areas other than the Support Zone. Accordingly, the Contractor shall furnish the physician with:

- Information on the employee's anticipated or measured exposure;
- PPE Use;
- A description of the employee's duties;
- A copy of 29 CFR 1910.120
- Information from previous examinations not readily available to the examining physician.
- A copy of NIOSH Publication 90-117 (Reference 1.3.1).

C. Physician's Opinion

The Contractor shall obtain a copy of the occupational physician's written opinion about employees' ability to perform hazardous waste site work (Certification of Employee Fitness) and furnish copies to the CIH, SSH0 and the employee before work beings. The opinion shall contain:

- The physician's recommended limitations upon the employee's assigned work;
- The physician's opinion about increased risk to the employee's health resulting from work; and
- A statement that the employee has been informed and advised about the results of the examination.

D. Frequency of Examinations

Contractor shall provide the Honeywell Site Superintendent with a written summary of the fitness for all Contractor's on-site employees. The Contractor shall make medical examinations available to employees:

- Before they start work;
- Annually thereafter;
- On termination of employment;
- On completion of work on this contract;
- If the employee develops signs or symptoms of illness relating to work place exposures;
- If the physician determines examinations need to be conducted more often than once a year, and
- When an employee develops a lost time injury or illness during the period of this contract. The Contractor must be provided with a written statement signed by the physician prior to allowing the employee to return to the work site after injury or illness resulting in a lost time workday. The written statement shall be submitted to the Site Superintendent as part of the weekly safety report (see also Part 1.14-B & C: LOGS, REPORTS, AND RECORDKEEPING).

E. Content of Examination

The following parameters shall be included in the medical surveillance program as a minimum. The actual parameters selected shall be the responsibility of the Occupational Physician and shall meet the requirements of 29 CFR 1910.120, 1910.134 and ANSI Z88.2.

- Complete medical and occupational history (initial exam only).

- General physical examination including an evaluation of all major organ systems.
- Pulmonary function testing including FVC and FEV1.0.
- CBC with differential.
- Biological blood profile (SMAC-21 or equivalent).
- Urinalysis with dipstick or microscopic examination.
- Audiometric testing (as required by Hearing Conservation Program).
- Visual acuity.
- Chest x-ray. (This test to be performed no more frequently than every four years, unless directed by Occupational Physician.)
- Electrocardiogram (as directed by Occupational Physician).
- Other testing/analysis, as needed, for site specific chemical and/or physical hazards (as directed by occupational physician and CIH).

## 1.12 Substance Abuse Prevention Program

To promote a safe environment for employees of Honeywell, its clients, suppliers, and contractors, certain behavior is prohibited in the work place. Suppliers and Contractors under contract with Honeywell in any capacity are required by contract to prohibit that behavior of their employees when their employees are present on Honeywell's work places. Prohibited behaviors are the use, manufacture, sale, possession or transfer of illegal drugs, alcohol and controlled substances in the work place on Honeywell's premises.

Violation of this contract requirement, may be considered by Honeywell to be a material breach of contract and subject the Contractor to all remedies available to Honeywell at equity, contract, and law. In addition, Contractor is advised that violation of this contract requirement shall be considered in the evaluation of the Contractor as being qualified to supply personnel under future contracts with Honeywell. Contractor's attention is invited specifically to those articles in the terms of the contract related to drug abuse prevention, indemnity and termination.

A. Substance Abuse Prevention

The possession, use, manufacture, distribution or dispensation of any illegal drug, alcohol or controlled substance is prohibited on the site. In addition, Contractor personnel working on the site are expected to report

to work in proper condition and not under the influence of any controlled substance.

The Contractor agrees to provide for work on the site, only those personnel who understand the requirements of Part 1.12 and who will comply. Contractor agrees that such personnel shall be chemically screened in accordance with all applicable Department of Transportation Regulations.

Violation of this article may, as Honeywell's option, be deemed by Honeywell to be a material breach of this contract and subject the contract to termination for default, as well as other remedies at contract, law, or equity.

B. Drug Screening

Prior to having employees perform work on the site, Contractor shall provide documentation that these employees have undergone and passed a screening test for illegal/unauthorized substances (alcohol, marijuana, cocaine, opiates, amphetamines and phencyclidine) not more than two (2) weeks prior to their initial assignment for work at Honeywell's property. Contractor's drug screening program and reporting shall comply and be in accordance with Parts 382 and 40 of the Federal Motor Carrier Safety Regulations, Department of Transportation.

The contractor must insure that breath or specimen and blood sample collection procedures are consistent with Part 40 of the Department of Transportation (DOT) requirements. A Department of Health and Human Services (DHHS) certified laboratory performs (Part 40.39) the screening and the laboratory results are reviewed by a qualified medical review officer (occupational physician). (Part 382.407 and Part 40.29 (g)). Illegal/unauthorized substances tested for and cut off levels shall be consistent with DOT requirements as provided in Part 40.29. Alcohol cut-off levels shall be consistent with parts 382.201 and 382.301.

In addition, to Pre-employment testing, Contractors HASP shall provide for Post-accident (Part 382.203) and Reasonable Suspicion Testing (Part 382.307) if any worker who reports to work appears to be "under the influence" contractor shall be required to screen subject worker "for reasonable suspicion" drug and alcohol testing consistent with DOT

requirements. Following an accident or incident, contractor shall be required to screen worker(s) involved in the accident or incident for drug and alcohol testing consistent with DOT requirements. Contractor as part of its HASP shall identify what physical symptoms and actions constitute "under the influence."

## 1.13 MEDICAL RECORDKEEPING

Medical records must be retained in accordance with CFR 1910.120.

Contractor must maintain records as follows:

- The name and Social Security Number of the Employee.
- Physician's written opinions, recommended limitations and results of examinations and tests.
- Any employee medical complaints related to exposure to hazardous substances.
- A copy of the information provided to the examining physician by the contractor (with the exception of the standard and its appendices).

The physician's written opinions and recommended limitations documents for all employees are to be on site and documented in accordance with 1.14-I and made part of the CD-13-1 submittal.

## 1.14 LOGS, REPORTS, AND RECORDKEEPING

A. General

The Contractor shall maintain logs and reports covering the implementation of the HASP and other requirements of this section. The formats shall be developed by the Contractor and submitted as part of the HASP.

B. Contractor's Safety Declaration Forms

The Honeywell Site Superintendent will arrange for indoctrination of special Site safety requirements for all Contractor personnel, including subcontractors. The Contractor's SSHO shall sign and will submit Form CD-13-2 5/88 to the Honeywell Site Superintendent signifying that the duly

authorized and designated representative and agent of the Contractor has been properly trained.

The Contractor will be responsible for the safety indoctrination of each of his employees and the employees of his subcontractors. The Safety and Occupational Health Compliance form CD-13-1 is to be submitted to the Honeywell Site Superintendent following the kick-off meeting, then weekly, for all new employees, by the Contractor's SSHO.

The Contractor shall require all Contractor personnel, including subcontractors to sign "Contractor's Employee Safety Declaration" Form CD-13-3, to be submitted to the Honeywell Site Superintendent weekly, for all new employees. All governmental inspectors and agents that required access into the CRZ and EZ shall be required to complete and sign a CD-13-3.

C. Daily Safety Log and Inspection Report

The daily safety log and inspection report shall include practices and events that affect safety and health, safety and health discrepancies encountered, and safety and health issues brought to the supervisor's attention. Each entry shall include:

- Date.
- Work area checked.
- Employees present in work area.
- PPE and work equipment being used in each area.
- Special health and safety issues and notes.
- Signature of preparer.

D. Safety Incident Reports

Accident, Excursion or Injury notification must be reported to Honeywell immediately (within 15 minutes) of the incident. Required information shall be recorded on the attached forms where appropriate. The completed Forms or Reports shall be submitted to Honeywell within one business day of the incident. Within three business days of an incident Contractor shall provide a written corrective action and findings summary to the Honeywell Site Superintendent.

- Vehicle Accident Report - ATTACHMENT 2
- TELCON, Injury, Illness, Incident Summary Sheet - ATTACHMENT 3
- Form EMS-INV1 Investigation and Findings of Injury/Illness - ATTACHMENT 4
- Form C49 Environmental Excursion/Incident Report Form - ATTACHMENT 5
- Near Miss Incident Investigation Report - ATTACHMENT 6

E. Worker/Visitor Register

Contractor shall require all on-site workers, visitors, suppliers and governmental agents and inspectors to sign a daily register. Contractor shall maintain a separate daily register for workers entering to and from the EZ.

- Date.
- Name.
- Agency or company.
- Purpose
- Time entering site.
- Time exiting site.

F. Monitoring/Sampling Results

- Date.
- Type of equipment utilized and calibration procedures.
- Equipment I.D. number.
- Monitoring results for each work location or monitoring station with time of readings.
- Analytical results for personal exposure sampling.
- Personnel or location monitored/sampled with description of activity being performed.
- Sample numbers.
- Miscellaneous information related to monitoring/sampling performed.
- Analytical and sampling methods.

G. Training Logs

Training logs shall be completed by the SSHO and submitted to the Owner upon request and at the completion of the work. These logs shall be used to document all on-site training. The format to be used for reporting shall be shown in the HASP. The following information shall, at a minimum, be included:

- Date.
- Employees in attendance and signature.
- Visitors in attendance.
- Description of training activity and/or topics covered.
- Equipment utilized.
- Signature of instructor.

H. Man Hours

At the completion of each month of work, the Contractor shall provide Honeywell with a summary of the total hours worked. Monthly summaries shall be completed on the Monthly Construction Man Hours Form - ATTACHMENT 7. Forms shall be submitted by Wednesday 1:00 PM of the first full week of the subsequent month.

I. Safety Phase-Out Report

At the completion of the on-site work, the Contractor shall submit a phase-out report. The report shall be submitted to Honeywell within 20 working days following completion of the on-site work, prior to final acceptance by Honeywell and final payment. The following minimum information shall be included:

- Summary of the daily safety reports which outlines the overall performance of Health and Safety by the Contractor.
- Documentation of medical certifications for site personnel. (Initial and Close-out)
- Final decontamination documentation including procedures and techniques used to decontaminate equipment, vehicles, and on-site facilities.
- Complete summary of personnel monitoring.
- Complete summary of air monitoring accomplished during the project.
- Signature of the Contractor and the CIH (and date signed).

## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

### 3.1 Section Includes

A. Forbidden Activity

B. Housekeeping and General Rules

C. Permits - Work, Burning & Welding, Confined Space Entry

D. Ladders and Scaffolding

E. Valves and Electrical Switches

F. Opening and Hoistways

G. Ropes and Cables

H. Protective Clothing and Equipment

I. First Aid

J. Fire Protection

K. Safety Locks, Tags and "Operation" Tags

L. Hand and Power Tools

### 3.2 Forbidden Activity

A. The use of intoxicating liquors or controlled substances in any form, horseplay of any description, running from work areas at quitting time are positively prohibited. Violation of any kind will be cause for disciplinary action including immediate dismissal. Any new hire or employee reporting

for work "under the influence" of liquor, or controlled substances will not be admitted to the site. Contractor shall obtain Honeywell Site Superintendent's approval whether this person may return at a later date.

B. Defective or improperly maintained tools or equipment are not to be used.

C. Workers deliberately dropping or throwing tools and material from ladders, scaffolds or work platforms to underlying work areas, will be liable to immediate dismissal.

D. Use of "cheater bars" and "homemade" equipment and tools.

E. Matches, cigarettes, lighters or hot work shall not be used to light a torch.

## 3.3 Housekeeping and General Rules

A. Good housekeeping is considered synonymous with safety and shall be policed on a daily basis. Debris and garbage on the site must be avoided where possible and when not possible should be removed weekly and not allowed to accumulate.

B. Tools, supplies and materials must be maintained in an orderly fashion. Walkways and work areas must be kept free of obstacles. Smooth ragged metal edges.

C. Boards containing nails must not be discarded unless the nails are bent over or removed. Good housekeeping must be maintained in the interest of safety and fire protection.

D. Notify Honeywell Site Superintendent immediately (15 minutes) of all injuries.

E. Know the weight of an object to be handled. Use proper lifting techniques.

F. Put trash, waste, scrap and recyclable material in proper containers and or storage areas.

G. All gears and moving parts of power equipment in shops or construction area are to be fitted with satisfactory guards.

H. When necessary to place motor trucks inside of building for loading and unloading of materials and equipment by overhead crane, the craftsmen performing the rigging and the truck driver should move a safe distance from the truck until load is safely lowered or raised to location.

I. Handle all welding, gauges, cutting and welding heads and hose with care. Do not throw or drop carelessly. Each welding machine and lead should be tagged with an identifying number and assigned to a welder. Retain all welding leads in orderly fashion. When possible, secure and place leads overhead or in other manner to prevent a tripping hazard.

## 3.4 Permits

A. Burning and Welding Permits (Hot Work)

1. Hot Work Permits (includes welding and burning permits) are required before the following equipment may be used at work in an project site (separate permits must be secured for each area and/or shift):

   a. Equipment utilizing an open flame such as acetylene burning or welding, lead burner's torch, propane torch, melting pot and similar devices.

   b. Arc-producing equipment such as arc welding or cutting electrodes and similar devices.

   c. Spark producing equipment such as portable grinders, abrasive saws, jack hammers and similar devices.

   d. Welding/Repair of pipe lines under pressure above 5 psi.

2. Welding leads must not be attached to railroad tracks anywhere on site at any time. Welding leads shall not be attached to steel work or any operating vessel or pipeline without the written permission of Honeywell's Construction Superintendent or persons authorized to issue Hot Work Permits.

3. All welding machines are to be grounded directly to object being welded within ten (10) feet of weld being made, unless prescribed

otherwise. All weld arcs shall be shielded and welding machine shall be operated in a well ventilated area.

4. When any welding or cutting operating is in progress, proper precautions must be taken to prevent the ignition of materials, equipment and building. Fire extinguishers (within 20 feet) are to be accessible at all times to prevent any possibility of fire during cutting or welding operations. Each truck or movable piece of power equipment shall be equipped with working fire extinguishers. Do not exceed 15 psi. on the tank side of the gauge when using acetylene.

5. Oxygen or other pressure cylinders must not be moved from one location to the other without the gauges being removed and the valve caps being in place. Such cylinders must not be raised by crane or winch except when a regular cradle is used. Do not use any type of choker to hoist bottles. Throughout the work area where bottles are temporarily stored prior to using same, set all bottles in upright position with caps in position and chained or tied at all times. Do not store or use in horizontal position. Do not permit empty bottles to accumulate on the job site. Remove to empty storage location, place in upright position and cap. Also maintain storage facilities for full bottles.

6. Welding hoods and welding goggles to be worn at all times during welding, cutting or heating operations. Craftsmen assisting welders are to wear flash goggles. Welding shields are to be used. Eye protection and hard hats shall be worn where required.

7. Upon completion of any type welds, mark HOT with soapstone or chalk to prevent burns to personnel.

B. Confined Space Entry

1. A Confined Space Entry (CSE) Permit is required for any operation that requires an authorized individual to enter or work inside any existing tank, sump, tank car, tower, fire box, sewer or gas manhole that has been in service or is connected to plant service or process lines. A CSE Permit is required for any operation that requires an

authorized individual to enter an excavation of 4 foot depth or deeper.

2. On construction or installation of new equipment, a CSE Permit is required by construction personnel only when the new installation is located within an operating area or is connected to active service or process lines.

3. Preparatory measures necessary to make the tank or confined space safe for entry before the CSE Permit is issued shall include the following and will be done by the Contractor:

   a. Vessels or tanks, that contain hazardous solvents, or residue shall be cleaned or washed in a manner acceptable for cleaning the particular vessel. All cleaning fluids and residues, sludges shall be properly containerized.

   b. All service and process lines that transport solvents, corrosive liquids, gas or other hazardous materials must either be disconnected, or blanked with metal blanks of sufficient thickness to withstand any pressure that may develop in the lines. Steam lines may be left intact provided the line can be double blocked and an open bleed line is located between the two valves. Water lines may be left in place, but must be valved off.

      When valves are used as blocks, they shall be tagged and chained in the closed position in accordance with the standing tagging procedures.

      Valves that are pneumatically or electrically operated are not to be considered block valves.

   c. All electrically powered stirrers, agitators or similar mechanisms designed to operate inside the vessel are to be locked out and tagged in accordance with standing procedures covering the subject. When such stirrers or agitators are pneumatically driven, the air supply must be disconnected at the motor.

d. Atmospheric tests shall be made to determine the presence of flammable and toxic vapors. An additional test shall be made to determine the presence of sufficient oxygen to sustain life. Atmospheric and vapor tests shall be made by assigned personnel and recorded.

e. Attention shall be given the surrounding area to correct any conditions and suspend adjacent operations that could create a hazard to personnel while inside the vessel or confined space.

f. Vessels equipped with radioactive controls or sensing devices will have the radioactive source rendered safe according to manufacturer's recommendations. After shielding the radio-active source, locks are to be applied to units.

When shielding has been completed, the standard danger tag shall be affixed to all radioactive source holders.

After radioactive sources have been rendered safe, entry into the vessel may be made only after the interior of the vessel has been checked with a source detection instrument and found to be within permissible ranges of radioactivity.

g. An outside source for fresh air shall be provided for the vessel or confined space. It is permissible to use a blower for this source; however, an air mover is acceptable if surrounding atmosphere is not contaminated and after atmospheric tests have been made to assure the air mover has been connected to a source of compressed air.

h. A life line and safety harness shall be used.

i. A ladder and a self-contained gas mask shall be available at the manhole or access for emergency use.

j. A standby observer shall be stationed at the manhole or access and instructed to remain at his station until the vessel or confined space is clear of personnel. The watcher shall

be instructed to keep a visual contact with those inside the vessel, or, if vision is obstructed, to make frequent verbal checks with those on the inside.

k. Special protective clothing or other personal protective equipment shall be provided for personnel assigned to enter or work in vessels that have contained materials of a corrosive nature, when entry is being made for the propose of washing the vessel, or when the unusual nature of the entry indicates a need for special clothing or equipment.

l. When entry is to be made in a vessel located in an area housing other activities or operations, employees in the immediate area are to be made aware of the intended entry.

m. When the Honeywell Superintendent responsible for issuing the Confined Space Entry Permit feels a particular job needs special precautions beyond the ones prescribed, he may require these additional precautions before issuing the permit.

4. After approvals have been given to enter a confined space - i.e., tank, deep trench, all persons authorized to enter the confined space must sign the permit in the space provided for their signature, and the standby observer must sign in the space provided for his signature.

5. When the Confined Space Entry Permit has been completed, it shall be affixed to the equipment or a suitable mounting location, normally in the vicinity of the manhole or access, and entry into the confined space may be made.

6 The Confined Space Entry Permit does not constitute approval for use of open flames or spark-producing tools inside a tank, vessel or confined space. For jobs requiring the use of open flames or spark-producing tools within a tank, vessel or confined area the regular Flame Permit shall be issued in addition to the Confined Space Entry Permit.

C. Work Permits

When it is necessary to work in an active Honeywell Plant operating area, a work permit shall be obtained. Contractor will arrange for all clearances and permits outlined below through the Honeywell's Site Superintendent.

1. Work permits shall be issued as clear indications that work has been authorized by Honeywell and that proper precautions have been taken to assure the safety of persons who may be in the area, and to protect Honeywell equipment and property from possible damage.

   Exception:
   In in-active areas under construction where no Honeywell operation exists or employees are working, or live utilities exist, and/or which are detached from existing installations in such a manner that a fire originating therein would not endanger existing installation, a Work Permit shall not be required. Areas falling in this category shall be so designated by the Honeywell Site Superintendent.

2. Work Permits are required before any person shall begin work in an active Plant Operations area to repair, replace or modify existing equipment, break pipelines, install or construct new machinery or fixtures, or to perform special services. Work permits must be secured before drilling through floors and walls or making any excavation in any way at an active Plant. Clam Shells or other digging equipment must not be used within ten (10) feet of any existing underground installations without specific authorization. Work Permits must be obtained before any work is done that will in any way obstruct traffic in an active Plant site.

3. Work Permits will:

   a. Indicate date work is to be started including time work is to start and estimated time it is to stop.

   b. Describe location of work, i.e., building, department, area, floor or field location.

c. If work is to be on equipment, give name of equipment, apparatus number and enough information to describe to operating supervision where work is to be done.

d. Describe work that is to be undertaken in enough detail that the AUTHORIZER knows what is to be done, where it is to be, and why it is to be done.

## 3.5 Ladders and Scaffolding

A. Ladders and scaffolding of all types must conform to OSHA standards and are to be checked regularly and maintained in good repair. All work scaffold planks are to be free of knots, defects and other tripping hazards. Scaffolds shall be tied off or stabilized with outriggers when its height exceeds three (3) times the smaller dimension of its base. Tie-offs must not exceed 26 feet vertically and 30 feet horizontally.

B. Planks used on top of scaffolds for a work platform are to have cross members at each end to prevent planks from creeping or sliding. Straight and extension ladders are to have safety shoes on lower section. Single straight or extension ladders must be tied securely to prevent the ladder from slipping.

C. Type 1 ladder with a minimum rating of 250 lb. are recommended. All ladders shall have tie-off rope non-skid safety feet. Tie-off ladders for eight (8) feet or taller.

## 3.6 Valves and Electrical Switches

A. Only Honeywell personnel are authorized to operate any valves, electrical switches or other equipment connected to the operating section of an Honeywell facility.

B. Protective measures and lock out tag out procedures must be observed when Contractor's employees are working near or over live electrical equipment.

C. All pipelines, electrical service and equipment vessels or other apparatus must be treated as if they were in service and, therefore, dangerous if opened or worked upon.

D. When breaking a pipeline joint, even with the understanding that the pressure has been vented and the line is clean, proper safety equipment must be worn and a Work Permit must be secured from the Honeywell Site Superintendent.

## 3.7 Openings and Hoistways

A. All floor openings, excavations or other openings, where persons might fall through or into, must be barricaded and posted in an acceptable manner when left open at night or unattended for an 8-hour duration or greater. Protective barricades shall be 42-inches in height and withstand 200 lbs. of force in any direction.

B. When working overhead, the area underneath must be protected at all times to prevent personnel from walking below. All swing radiuses of stationary cranes shall be posted and barricaded.

C. Hoist areas for materials and equipment throughout construction area are to be roped off and marked with a "Danger" sign. Overhead working areas are to be marked "Danger - Men Working Above". None of these designated areas are to be used as a thoroughfare or working area.

D. Hole covers must be installed immediately 3/4-inch plywood for opening 18-inches and less. Openings greater than 18-inches, 2-inch lumber or doubled 3/4-inch plywood is required.

## 3.8 Ropes and Cables

A. All rope blocks and hand lines are to be in good condition at all times and stored out of weather. Be cautious where chemicals of any type exist which might weaken the rope.

B. All cables and rigging equipment must be in good condition at all times and inspected, set up and maintained. Only one eye in a hook . Use a shackle to hold two (2) or more eyes.

C. Proper type and sized chokers and slings to be used on all types of hoisting equipment. Wood softeners to be placed between metal and

chokers to prevent slippage of load. Be positive load is secure and balanced before hoisting.

D. Chainfalls and come-a-longs must have OSHA approved safety spring return latches on all hooks. Chain hoist must be used within the rated capacity.

## 3.9 Protective Clothing and Equipment

A. Proper respiratory equipment is to be used for spray painting or other operations hazardous to health. Provide as much ventilation as possible in these areas. Safety belts are to be worn for painting of steel structures where height prevents using ladders or scaffolds.

A good facial seal is necessary when wearing respiratory equipment. This cannot be attained with a beard or excessively long sideburns which cover the sealing surfaces. Mustaches and goatees do not generally interfere with the facial seal. Hair on facial sealing surfaces (beards, long sideburns, etc.) will not be allowed on personnel subject to respirator use.

B. Eye protection, which complies with OSHA Standard 1910.133, must be worn by personnel engaged in the following jobs:

1. Welding or cutting.

2. Repairing, connecting or disconnecting chemical lines and pumps from service.

3. Use of pneumatic impact tools or use of chisels for cutting or chipping masonry or metal.

4. Grinding, buffing and polishing operations.

5. Handling corrosive chemicals - acids, caustics, solvents, Dowtherm, ethylene glycol.

6. Specific areas within the plant where required by Plant Safety Regulations.

7. Contractors shall wear approved ANSI 287.1 safety glasses with rigid side shields.

C. In addition to minimum protection, additional protection is pre-scribed when a person is engaged in work of a known hazardous nature. The following jobs are among those that require additional protection, together with the required protection:

1. When handling corrosive materials or irritants such as acids, caustics, Dowtherm or solvents. - PLASTIC OR RUBBER SPLASHPROOF MONOGOGGLE.

2. When working on pipelines, valves, pumps and similar equipment that may contain hazardous materials under pressure such as acids, caustics, steam, hot water, Dowtherm, molten polymer, or ethylene glycol. - PLASTIC FACE SHIELD.

3. Welding, cutting, burning. - CUP GOGGLE WITH A MINIMUM NO. 10 FILTER PLATE OR WELDING HOOD.

4. Cleaning with compressed air. - DUST TIGHT COVER GOGGLES.

5. Chipping metal, breaking masonry using pneumatic impact tools, stud guns, grinding with portable grinders, and miscellaneous heavy work. - IMPACT CUP GOGGLES OR IMPACT MONOGOGGLE.

6. Protective clothing, face shields or masks and gloves are to be worn at all times in any type of acid cleaning and wash for cleansing metal parts, valves, etc.

## 3.10 First Aid

A. Regardless of how slight an injury may be, relating to cuts, bruises or eye injuries, or symptoms due to acute exposures to chemicals or fumes, they must be reported immediately (15 minutes) to the Honeywell Site Superintendent.

B. In Contractor's Field Office and/or First Aid Facilities, names, addresses and phone numbers of the following are to be placed on wall where they

may be accessible without delay: Ambulance Service, Hospitals, Fire Department, all doctors designated by Insurance Company to perform medical services for Contractors.

## 3.11 Fire Protection

A. The use of gasoline for cleaning purposes is prohibited. Gasoline or other flammable liquids must be handled and stored in an approved manner. Approved safety cans must be used for small quantities of gasoline. All outside storage tanks and drums used for storage of gasoline, fuels, oils, cleaning solutions of any type are to be well marked identifying contents and stored in a containment area. Use lock type faucets or nozzles. Be sure to place and retain at all times proper type extinguisher at gasoline storage. Also be sure to post "No Smoking" signs.

B. For any "Hot Work" a functioning fire extinguisher (ABC Type) shall be within twenty (20) feet of the work area. Combustible material shall be segregated and stored in properly labeled containers away from all ignition sources.

C. Multi-purpose (ABC Type) fire extinguishers shall be provided and maintained at a minimum within all site trailers, fuel and lubricant storage areas, combustible gas storage areas and on all heavy equipment including drill rigs.

## 3.12 Safety Locks, Tags and "Do Not Adjust or Operate" Tags

A. Safety Locks will be used in an operating area to provide a safety lock-out system to insure the safety of any employee against the accidental start-up of machinery, or electrical equipment on which he may be working.

1. Safety locks shall be issued to individual employees and shall be used by them to lock electric power disconnect switch or breaker of the equipment in the open position so that the switch cannot be operated and the machine cannot be started.

2. In cases where the electrical breaker cannot be locked in an open position, or on interlocked equipment, fuses must be removed from the circuit by an electrician or a qualified member of supervision and tagged out.

3. After locking the breaker, the person applying the lock shall attempt to start the unit at the starter switch to insure that the circuit is clear. Work may then begin on the unit.

4. Lock will remain in place as long as the employee is working on the unit. It will be removed from the breaker by the lock owner, after completion of his part of the job.

5. When more than one person is working on a single machine, a multiple lock-out device will be applied so that each man can affix his personal lock to the beaker. When multiple locks are used, the lock owner must remove his lock as he leaves the job.

B. Safety Tags will be used:

1. On valves that have been closed because of leakage in process lines or in equipment.

2. On valves that are closed to separate operating equipment scheduled for repair, alterations, special tests or inspections.

3. On valves that have been closed to separate new installations from operating units.

4. On all new valves that are inserted or added to an existing operation by either Maintenance or Construction personnel.

While the tagging of valves, electrical breakers, and operating of Controllers that connect with existing operating equipment are the responsibility of operating personnel, the tagging of key valves and key points within the new construction is the responsibility of Construction Supervision responsible for the installation. The Contractor shall not close existing valves, breakers, and operating controllers without the approval of operating personnel.

C. Do Not Adjust or Operate Tags

When machinery and equipment are not to be operated or adjusted for operational reason, the "Do Not Operate or Adjust Tag" will be used.

### 3.13 Hand and Power Tools

A. All tools and equipment must be in good condition and maintained in such condition. Only use appropriate tools for the work at hand and tools intended use.

B. Keep all impact tools (chisels, stardrills and welding irons) dressed to avoid spalling.

C. Portable electrical equipment and tools shall be grounded unless "double insulated". A ground fault circuit interrupter (GFI) shall be used.

D. Any pneumatic hoses exceeding 1/2-inch diameter shall have a pressure reduction relief device in the event of hose failure.

SECTION 02100

CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 DESCRIPTION

Remove all debris, stumps, roots, and other objectionable surface materials within the Work Limits designated on the contract drawings (Figure 4).

A. Work Included in this Section:
   1. Remove all vegetation within the Work Limits
   2. Remove or relocate as necessary all surface impediments including vehicles, fencing, and structures.

B. Related Sections.

1. Section 01051 – Grades, Lines and Levels

1.02 CODE REQUIREMENTS AND ENVIRONMENTAL SAFEGUARDS

Accomplish disposal of material removed from site in accordance with applicable Federal, State, and local regulations. At all times, comply with regulations in force to prevent pollution of air and water.

1.03 SITE INVESTIGATIONS

The Contractor shall carefully examine the site to determine the full extent of the Work required to conform to the Drawings and Specifications. The Contractor shall satisfy himself as to the nature and location of the Work, conditions, the formation and condition of the existing ground surface and the character, equipment and facilities needed prior to and during prosecution of the Work. Contractor shall satisfy himself as to the obstacles to be encountered. Any inaccuracies or discrepancies between the Drawings and Specifications shall be brought to the Owner's attention in order to clarify the exact nature of the Work to be performed.

PART 2 - PRODUCTS. (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 CLEARING AND GRUBBING.

A. Clearing and grubbing shall include the removal from the site of all vegetation, including, but not limited to, brush, shrubs, stumps, logs, roots and boulders within the Work Limits. Holes

resulting from the removal of underground structures and roots that extend outside of the Work Limits shall be backfilled with unclassified fill or backfill.

B. Contractor shall be responsible for all permits, lighting, temporary barricades, fencing, etc., required for Work on the Landowners property. The Contractor shall relieve the Landowner and Owner of any and all legal responsibility for this phase of the Work.

C. Removal of trees, shrubs, and vegetation shall occur only with prior Owner approval. Violation of this provision shall require the Contractor to bear all damages and consequences. The roots of trees to remain shall not be damaged by operations under this Section or any other Section. Herbicides for the control of woody plants shall not be used.

D. Trees and shrubs to remain shall be trimmed so as to avoid removal or damage. Trimmed or damaged trees shall be treated and repaired by persons experienced in this specialty who are approved by the Engineer. Trees and shrubs intended to remain that are damaged beyond repair or removed shall be replaced by the Contractor at his own expense.

E. Any such item damaged by the Contractor shall be restored or replaced immediately at the Contractor's expense.

G. All material from clearing and grubbing including roots, stumps and other material shall be removed and consolidated at the Alltift Landfill site in accordance with the Alltift Landfill Contract Documents.

H. The Contractor shall provide a chipper and/or grinder of sufficient size to handle all material expected from the cleared and grubbed areas.

I. Burning onsite shall not be permitted.

3.02 TOPSOIL REMOVAL

None required. Topsoils within the Work Limit must be removed during the excavation. Reuse of site topsoil is not permitted.

3.03 GUARANTEE

A. Contractor shall guarantee that Work performed under this Section will not permanently damage trees, shrubs, turf, or plants designated to remain, or other adjacent work or facilities. If damage resulting from Contractor’s operations appears during the period up to 12 months after completion of the project, he shall replace damaged items at his own expense.

END OF SECTION 02100

SECTION 02142

WATER MANAGEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Development of an acceptable Construction Water Management Plan detailing the handling, storage, treatment (if necessary), and disposal of all construction water and associated sludge generated during construction in accordance with all applicable local, state, and federal regulations.

B. The Contractor is to operate within all required local, state, and federal permits and requirements of the approved Construction Water Management Plan.

C. Provide all labor, materials, and equipment required for handling, testing, storage, treatment, and disposal of construction water in accordance with the approved Construction Water Management Plan.

D. Perform all specified and necessary sampling and analyses to ensure compliance with required permits and applicable laws and regulations or as directed by the Owner's Representative.

1.02 Related Work Specified Elsewhere:

1. Section 02219 – Excavation, Consolidation, and Disposal

1.03 APPLICABLE CODES, STANDARDS, AND SPECIFICATIONS

A. The Contractor shall comply with applicable federal, state, and local applicable codes, ordinances, regulations, statutes, and standards which may include, but not be limited to, the following:

1. 6 NYCRR Part 364 - Waste Transporter Permits
2. 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
3. 6 NYCRR Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities
4. 6 NYCRR Part 373 - Hazardous Waste Treatment, Storage, and Disposal Facility Requirements.
5. Buffalo Sewer Authority (BSA) Sewer Use Regulations, Chapter LXXXII, Part 10075 (1/1/95) as revised.

1.04 SUBMITTALS

A. Construction Water Management Plan.

The Contractor shall submit a plan for handling construction water. The plan shall include, but not be limited to, the Contractor's proposed method of handling, sampling and analyses (if required), methods for minimizing the volume of construction water and associated sludges, storage (if necessary), treatment (if necessary), and disposal of construction water.

B. Shop drawings for any equipment and materials associated with handling construction water.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

A. Acceptable methods of handling construction water include, but are not limited to, the following:

1. Divert stormwater from upgradient locations away from excavation areas through the use of berms and diversion channels.

2. Perform sediment removal from upstream to downstream to ensure remediated areas remain clean.

3. Collect and contain water generated at the Tifft and Hopkins Site. Water will be staged in a portable tank in an on-site area prior to offsite disposal. The portable tank will include the capacity to remove settleable solids from the stream and contain any non-aqueous phase liquids (oil, fuel etc.).

B. The Contractor shall obtain all required permits and manifests for the handling, storage, transport, treatment, and disposal of construction water.

C. Any sampling and analyses necessary to protect the health and welfare of the Contractor's employees and/or agents and/or characterize collected water or treated water shall remain the sole responsibility of the Contractor.

D. The Contractor shall mark, label, placard, package, and manifest wastes in accordance with applicable codes, regulations, and statutes.

E. The Contractor shall make every effort to minimize the generation of construction water and associated residues. Appropriate methods to minimize generation of construction and contaminated water may include, but not be limited to, erection of temporary berms, use of a low permeability tarpaulin or other suitable means to cover exposed contaminated areas, limiting the amount of exposed earthwork in contaminated areas, grading to control run-on and run-off, engineering controls on construction activities to minimize contact of personnel and equipment

with contaminated areas, thus minimizing the amount of decontamination required, and other appropriate methods.

F. Construction water shall be handled using equipment compatible with anticipated contaminants which may be present.

G. The Contractor shall be solely responsible for providing an onsite construction water treatment system (if used). Contractor shall also be responsible for the treatment system setup, debugging, operation, testing, shut-down, decontamination, dismantling and removal subsequent to completion of work, including removal of all materials incidental to treatment system operations.

END OF SECTION 02142

SECTION 02219

EXCAVATION, CONSOLIDATION, AND DISPOSAL

## PART 1 - GENERAL

### 1.01 DESCRIPTION

A. The work specified in this section consists of the labor, equipment, tools, materials, and services needed to perform the excavation, relocation, and consolidation of tanks, soils and debris described herein, shown on the Contract Drawings, or directed by the Engineer.

B. Related Sections:
   1. Section 01051 - Grades, Lines and Levels
   2. Section 01403- Decontamination Plan Requirements
   2. Section 01620 - General Requirements- Health, Safety and Emergency Response
   3. Section 02100 - Clearing and Grubbing
   4. Section 02142 - Water Management
   5. Section 02223 - Backfilling

### 1.02 SUBMITTALS

A. Submit a detailed Operation Work Plan detailing the procedures, materials, and equipment to be used for the excavation, relocation, transportation, consolidation, and disposal of waste materials. Include a Spill Contingency Plan and Decontamination Plan in accordance with Section 01403 as part of the work plan. Do not begin waste excavation work until the work and spill contingency plans have been approved by the Engineer.

B. Submit as part of the Health and Safety Plan, a contingency plan in the event hazardous materials (i.e. drums, etc.) are encountered during excavation.

### 1.03 REFERENCES

A. New York State Department of Environmental Conservation, MEMORANDUM – Permanent Closure of Petroleum Storage Tanks, January 20, 1987, Modified December 3, 2003.

B. Alltift Landfill/Ramco Steel Remedial Design, Parsons, May 2003.

C. Alltift Landfill/Ramco Steel Contract Documents, Parsons, June 2003.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL

A. Equipment used for the excavation of waste materials shall be decontaminated prior to its reuse on clean material. Equipment shall be decontaminated between distinct areas of contamination regardless of the type of contamination.

B. Identify required lines, levels, contours, and datum. Review subsurface investigation reports and other available site information.

C. Prior to start of construction, notify the appropriate organizations, and have staked or marked all underground utilities. Utilities include water, gas, electrical, telephone, cable, storm sewer, sanitary sewers, laterals, and services. In the event such locations indicate a possible interference, or when needed to locate points of connection to existing facilities, perform exploratory excavations to determine the utilities' location and elevation. Provide the utility owner with the results of the exploratory excavations for his review. Allow the Engineer sufficient time to determine any changes required as a result of such exploratory excavations prior to start of construction.

D. Maintain existing structures and utilities above and below grade which are to remain in their pre-work condition.

E. The Contractor shall establish exclusion zones for each work area in accordance with the CHASP.

F. The Contractor shall excavate to the lines and grades shown on the Contract Drawings. The Contractor shall not over-excavate any area without the prior approval of the Engineer. Excavation, disposal, and backfilling costs due to unapproved over-excavation shall be at the Contractor's expense.

E. Excavation shall be performed in a manner that prevents migration of contaminants from one area to another. Contamination that spreads beyond the existing contamination limits shall be removed and disposed of in accordance with this section at the Contractor's expense.

F. Conduct excavation operations to provide continuous drainage and minimal ponding. Surface water and groundwater seepage which collect in the excavation areas shall be removed and handled in accordance with the requirements of specification 021412 – Water Management. Provide oil absorbent pads and/or booms to contain and collect oil sheens emanating from the excavation areas.

G. The Contractor shall immediately stop work and notify the Engineer should hazardous materials (i.e. drums, etc.) be encountered during excavation. There is the possibility that these wastes may be encountered. The Contractor shall not proceed with removal of hazardous materials without prior approval from the Engineer unless an emergency situation requiring immediate action exists.

H. It is the Contractors responsibility to provide, install and maintain temporary erosion and sediment control measures to prevent erosion of soil from the construction site and to provide silt fences, hay bales or other control measures as the need arises during construction at no additional cost to the owner.

3.02 EXCAVATION AND DISPOSAL OF MATERIALS

A. The Engineer will perform confirmatory sampling to confirm the limits of the excavation. The contractor will provide assistance in the collection of sample material as directed by the Engineer. The Contractor will allow a minimum of 48 hours for the Engineer to obtain and evaluate results.

B. Materials that do not pass the RCRA characteristic testing will be sent offsite for treatment/disposal at a RCRA-compliant facility or a TSCA-compliant facility, if applicable.

3.03 EXCAVATION, RELOCATION AND CONSOLIDATION OF WASTE

A. Material shall be excavated to the limits and depths shown on the Contract Drawings.

B. The Contractor will remove by excavation the existing monitoring wells identified on the Contract Drawings as being within the work limits.

C. The Contractor shall remove the six underground storage tanks (USTs), ancillary piping and soils within the areas identified on the Contract Drawings. USTs will be removed in accordance the New York State Department of Environmental Conservation, MEMORANDUM – Permanent Closure of Petroleum Storage Tanks, January 20, 1987, Modified December 3, 2003. The final extent of excavation shall be determined by confirmatory sampling performed by the Engineer. The tanks will be cleaned and disposed of at a permitted Part 360 Landfill. Any product or grossly contaminated water associated with the tanks will be removed and disposed of at an outside facility.

D. Excavated material shall be transported to the Alltift Landfill site and consolidated in accordance with the May 2003 Alltift Landfill/Ramco Steel Remedial Design documents, and in accordance with the June 2003 Alltift Landfill/Ramco Steel Contract Documents.

E. Transportation of excavated materials shall be performed in a manner that will prevent spills and the spread of contamination and in accordance with all Federal, State and Local requirements. Construct decontamination pads as needed to clean trucks moving between contaminated and non-contaminated areas.

3.05 BACKFILLING

A. The excavation shall be backfilled as shown on the Contract Drawings, specified, or directed by the Engineer. No backfilling operations shall be performed without acceptance by the Engineer.

B. Backfilling shall be in accordance with Section 02223-Backfilling.

## 3.07 PROTECTION OF EXCAVATIONS

A. Protect excavations by methods required to prevent cave-ins or loose soil from falling into excavation.

B. All excavations shall be properly and legally maintained while they are open and exposed. Sufficient and suitable barricades, warning lights, flood lights, signs, etc., to protect life and property shall be installed and maintained at all times until the excavation has been backfilled and graded to a safe and satisfactory condition.

C. Protect the bottom of excavations and soil adjacent to, and beneath, foundations from freezing.

D. Exposed subgrade surfaces shall remain undisturbed, drained, and maintained as uniform areas shaped to receive the foundation components of the structure.

END OF SECTION 02219

SECTION 02223

BACKFILLING

## PART 1 - GENERAL

### 1.01 DESCRIPTION

The work specified in this section consists of the labor, equipment, tools, materials, and services needed to perform all backfilling as described herein or shown on the Contract Drawings.

A. Work included in this section:
   1. Site filling and backfilling.
   2. Classification of materials.

B. Related work specified in other sections:

   1. Section 01051 - Grades, Lines and Levels
   2. Section 02219 - Excavation, Consolidation and Disposal
   3. Section 02228 - Compaction
   4. Section 02421 - Geotextiles
   5. Section 02501 - Gravel Pavement

### 1.02 QUALITY ASSURANCE

A. Referenced standards: Comply with the applicable provisions and recommendations of the following, except as otherwise shown or specified.
   1. ASTM D422 – Test Method for Particle Size Analysis of Soils
   2. ASTM D698 - Test Method For Laboratory Compaction of Soil Using Standard Effort (Standard Proctor Compaction).
   3. ASTM D1557 - Test Method For Laboratory Compaction of Soil Using Modified Effort (Modified Proctor Compaction).
   4. ASTM D2487 - Test Method for Classification of Soil for Engineering Purposes.

B. The Owner and the Engineer reserve the right to inspect proposed sources of offsite granular material and to order such tests of the materials deemed necessary to ascertain its quality and graduation of particle size. The Contractor shall, at his own expense, engage an approved testing laboratory to perform such tests, and submit certified test results to the Engineer. If similar tests of the material from a particular source were performed previously, submit results of these tests to the Engineer for consideration.

C. No materials shall be used on this project for fill, backfill, subbase, or other purpose until approval is obtained from the Engineer. Only material from approved sources shall be used.

1.03 SUBMITTALS

A. For each material proposed, notify the Engineer of the source of material and furnish for approval a certified gradation analysis at least 10 days prior to date of anticipated use of such material. Except as specified herein, only offsite approved materials shall be utilized.

1. All soil and aggregate materials shall receive grain size analysis testing in accordance with ASTM 422 and characterized in accordance with ASTM D2487. One test per borrow source for each material is required. Where compaction requirements are specified, soil and aggregate samples shall receive testing for laboratory compaction of soil (ASTM D698 – Standard Proctor Test and/or ASTM D1557 – Modified Proctor Test).

2. All soil sources used shall be analyzed for TCL/TAL chemical compounds in accordance with the following frequency:
   a. One initial composite sample from each borrow source is required prior to use. One additional TCL/TAL analysis will be required for every 10,000 cubic yards of soil imported.
   b. For approval by the engineer, chemical concentrations of the backfill materials must, at a minimum, be below the Recommended Soil Cleanup Guidance values provided in the New York State Department of Environmental Conservation Technical and Administrative Guidance Memorandum #4046.

PART 2 - PRODUCTS

2.01 ONSITE MATERIALS

A. not used

2.02 OFFSITE MATERIALS

A Offsite material required for fill or backfill shall be natural material from offsite sources, free from trash, debris, deleterious materials, snow, or ice.

B. UNCLASSIFIED FILL OR BACKFILL shall be materials classified in ASTM D 2487 as GW, BP, GC, SW, SP, SM, SC, and CL and shall be free from roots and other organic matter, trash, debris, frozen materials, and stone larger than 6-inches in any dimension. Additionally, any material classified as SM shall have not more than 25 percent by weight passing in the No. 200 sieve. CL soils shall have a liquid limit no greater than 30 and a plasticity index no greater than 15. The material shall be obtained from approved offsite sources.

PART 3 - EXECUTION

3.01 GENERAL BACKFILLING REQUIREMENTS

A. Verify that fill materials to be used are acceptable to that specified. Any crushed stone stockpiles which have undergone excessive particle segregation shall be removed prior to backfilling.

B. Verify that all subsurface installations for the project have been inspected and are ready for backfilling.

D. Backfill spaces shall be inspected prior to backfilling operations and all unsuitable materials, including sheeting, bracing forms and debris, shall be removed. Remove all water, snow, and ice and debris from surfaces to accept backfill material. No backfill shall be placed against foundation walls of structural members unless they are properly shored and braced or of sufficient strength to withstand lateral soil pressures.

E. No backfill material shall be placed on frozen ground nor shall the material itself be frozen or contain frozen soil fragments when placed. No calcium chloride or other chemicals shall be added to prevent freezing. Material incorporated in the backfilling operation which is not in satisfactory condition shall be subject to rejection and removal at the Contractor's expense.

F. Backfill material shall not be placed when moisture content is more than two percent above optimum or is otherwise too high to allow proper compaction. When material is too dry for adequate compaction, water shall be added to the extent necessary. Maintain optimum moisture content of backfill materials to attain required compaction density. Rough grade all backfilled and filled areas to meet subsequent topsoiling or paving requirements. Make grade changes gradual. Blend slopes into level areas.

G. Backfill areas to required contours, grades, and elevations.

H. Hydraulic compaction by ponding or jetting will not be permitted except in very unusual conditions and then only upon written request and demonstration of its effectiveness by the Contractor and the written acceptance by the Engineer.

I.. Employ a placement and compaction method consistent with Section 02228 that does not disturb or damage adjacent walls, drainage systems, damp-proofing, waterproofing, protective coverings, utilities in trenches, underground conduits or tanks.

J. Remove surplus backfill materials from site and/or place in an area acceptable to the Engineer.

## 3.02 TOLERANCES

A. Top Surface of General Backfilling - plus or minus one inch from required elevations.

## 3.03 FIELD QUALITY CONTROL

A. Tests and analysis of fill material will be performed in accordance with Section 02228.

B. Compaction testing will be performed in accordance with Section 02228-Compaction.

C. If tests indicate the Work does not meet the specified requirements, the Contractor shall remove, replace and retest the work at his own expense.

D. Proof roll compacted fill surfaces under access roadways.

END OF SECTION 02223

SECTION 02228

COMPACTION

PART 1 - GENERAL

1.01 DESCRIPTION

The work specified in this section consists of the labor, equipment, tools, materials, and services needed to perform all compaction as described herein or shown on the Contract Drawings.

A. Work included in this section:
   1. Compaction requirements.
   2. Compact all sub-base, subgrade, and gravel pavement as specified.

B. Related work specified in other sections:
   1. Section 02219 - Excavation, Consolidation, and Disposal
   2. Section 02223 - Backfilling
   4. Section 02421 - Geotextiles
   5. Section 02501 - Gravel Paving

1.02 SUBMITTALS

A. Submit in writing a description of the equipment and methods proposed to be used for compaction.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL

A. Each layer of fill or backfill shall be compacted the same day it is placed.

B. If Sub-base soils consist of saturated fine or silty sand, silts, or clays, no compaction shall be applied.

C. Proof roll all surfaces to accept backfill material.

D. The Contractor shall adopt compaction methods which will produce the degree of compaction specified herein, prevent subsequent settlement, and provide adequate support for the structures and piping to be placed thereon, or therein, without damage to the new or existing facilities.

E. Alternate Methods of Compaction - The Contractor may employ alternate methods of compaction if the desired degree of compaction can be successfully demonstrated to the Engineer's satisfaction.

## 3.02 COMPACTION REQUIREMENTS

A. Subbase Compaction

After excavation to subgrade is completed, the subbase shall be compacted if it consists of loose granular soil or if its surface is disturbed by the teeth of excavating equipment. Subbase compaction shall be limited to that required to compact loose surface material and shall be terminated in the event that it causes disturbance to underlying fine-grained soils, as revealed by weaving or deflection of the subgrade under the compaction equipment. If the subbase soils consist of saturated fine or silty sands, silts, or clay or varved clays, no compaction shall be applied. Proof-roll all subbase surfaces to accept fill or backfill material.

B. Subgrade Compaction

The subgrade shall be placed in maximum 1 foot lifts and compacted by 3 passes using a narrow track bulldozer. Prior to placement of gravel pavement the subbase will be proof rolled with a vibratory roller compactor.

C. Gravel Pavement Compaction

The Gravel Pavement will be place in maximum 6-inch lifts and compacted with a minimum of 3 passes with a vibratory roller compactor

## 3.03 PROTECTION

A. Prior to terminating work for the day, the final layer of compacted fill shall be rolled with a smooth-drum roller if necessary to eliminate ridges of soil and depressions left by tractors or equipment used for compaction or installing the material.

B. As backfill progresses, the surface shall be graded so as to drain during incidence of rain such that no ponding of water shall occur on the surface of the fill.

C. The Contractor shall not place a layer of fill on snow, ice or frozen soil. Unsatisfactory materials shall be removed prior to fill placement.

END OF SECTION 02228

SECTION 02421

GEOTEXTILES

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Reinforcement (Woven) Geotextile.

### 1.02 RELATED SECTIONS

A. Section 02222 - Backfilling

B. Section 02501 - Gravel Paving

### 1.03 REFERENCES

A. Documents
   1. Task Force #25, AASHTO-ABC-ARTBA Joint Committee, "Specifications for Geotextiles." July 1986.
   2. New York State Department of Transportation (NYSDOT) Standard Specifications, January 2, 2002.

B. Quality Control Testing Standards
   1. ASTM D3776 - Mass Per Unit Area of Woven Fabric.
   2. ASTM D3786 - Hydraulic Bursting Strength of Knitted Goods and Non-Woven Fabrics.
   3. ASTM D4354 - Sampling of Geosynthetics for Testing.
   4. ASTM D4491 - Water Permeability of Geotextiles by Permittivity.
   5. ASTM D4594 - Effects of Temperature on Stability of Geotextiles.
   6. ASTM D4595 - Tensile Properties of Geotextiles by the Wide Width Strip Method.
   7. ASTM D4632 - Breaking Load and Elongation of Geotextiles (Grab Method).
   8. ASTM D4751 - Determining Apparent Opening Size of a Geotextile.
   9. ASTM D4833 - Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
   10. ASTM D4873 - Identification, Storage and Handling of Geotextiles.
   11. ASTM D5188 - Nominal Thickness of Geotextiles and Geomembranes

### 1.04 SUBMITTALS

A. Materials: Submit product data and a 1-foot square sample of each geotextile proposed for use on this project.

B. Certification that each geotextile meets the criteria listed in Table 02421-1 at the end of this section.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store geotextiles out of the elements and protect from abrasion or tearing.

B. Clearly mark rolls showing the type of fabric and manufacturer.

C. Handling of the geotextile rolls shall be based on the manufacturer's recommendations.

D. The requirements for identification, storage and handling of geotextiles in ASTM D4873 shall be followed as a minimum.

PART 2 - MATERIALS AND PRODUCTS

2.01 MATERIALS

A. Reinforcement Geotextile (Road Reinforcement)
   1. Shall be a woven geotextile specifically designed for reinforcement applications.
   2. Shall be composed of polyester and/or polypropylene polymers.
   3. Shall meet the criteria listed in Table 02421-1.

PART 3 - EXECUTION

3.01 INSPECTION

A. The Contractor shall inspect all geotextiles upon delivery and verify that the proper materials and quantities have been supplied.

B. The Contractor shall inspect the subgrade for protrusions or other unacceptable conditions prior to installation of geotextiles.

C. The Contractor shall continuously inspect needle-punched geotextiles during deployment for broken needles remaining from needle-punching operations.

3.02 PREPARATION

A. The subgrade shall be prepared as indicated in the specifications.

3.03 PROTECTION

A. Protect all geotextile materials from damage due to exposure to sunlight, dirt, dust and other hazards.

B. Maintain the protective wrapping on geotextile rolls at all times.

C. The geotextiles shall be covered within 10 days after installation.

D. During spreading operations of backfill, a minimum depth of 6 inches of aggregate shall be maintained over the geotextiles when possible. Construction equipment shall not operate directly on the geotextile.

3.04 PERFORMANCE

A. Geotextile rolls shall be positioned as required and unrolled.

B. When placed on stable subgrades flatter than IV:5H, geotextiles shall be overlapped a minimum of 1.0 feet on all edges.

C. When geotextile is placed on unstable subgrades flatter than 1V:5H or slopes steeper than 1V:5H, horizontal overlaps shall be sewn.

D. When geotextile is placed on slopes steeper than 1V:5H, longitudinal seams shall be sewn or overlapped a minimum of 2 feet.

E. Sewing requirement:
   1. The thread color shall contrast with that of the geotextile.
   2. Sewing operations shall employ a thread tension which secures the geotextile rolls without cutting the material.
   3. Sewing operation shall use a "J" seam secured with a minimum of one row of four-stitch per inch two thread main stitch.

F. When geotextile is placed in trenches, the material shall be overlapped a minimum of 1 foot over the top of the trench. Longitudinal seams between adjacent rolls of material shall be overlapped a minimum of 2 feet.

G. Geotextile rolls shall be cut and laid flat such that buckling of the roll does not occur.

H. If geotextiles are damaged during any phase of construction or installation, a new piece of the same type shall be cut and placed over the damaged area with a 2-foot minimum overlap and sewn.

I. Aggregate shall be spread in the direction of overlap wherever possible

**TABLE 02421-1**

**MINIMUM ACCEPTANCE CRITERIA GEOTEXTILE**

| Test Description | Test Method | Criteria |
|---|---|---|
| Reinforcement | | |
| Mass per unit area | ASTM D-3776 | >8 oz/SY |
| Puncture resistance | ASTM D-4833 | >150 lb. |
| Grab strength | ASTM D-4632 | >400 lb. |
| Tensile strength | ASTM D-4595 | >200 lb./in. |
| Burst strength | ASTM D-3786 | >800 psi |

Minimum strength criteria shall apply to both the machine direction (MD) and the cross machine direction (XMD).
* Minimum Average Roll Values (MARV)

End Of Section 02421

SECTION 02501

GRAVEL PAVEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work herein consists of the furnishment and placement of the reinforcement geotextile and gravel pavement material for restoration of the surface as a parking lot.

1.02 RELATED SECTIONS

1. Section 01051 – Grades, Lines and Levels
2. Section 02223 – Backfilling
3. Section 02228 – Compaction
4. Section 02421 – Geotextiles

1.03 REFERENCES

A. ASTM D422 – Test Methods for Particle Size Analysis of Soils

B. New York State Department of Transportation (NYSDOT) Standard Specifications January 2, 2002.

1.04 DEFINITIONS

A. "Subgrade" shall be defined as the layer of borrow material that supports the gravel pavement layer.

1.05 PERFORMANCE REQUIREMENTS

A. Compaction of subgrade shall meet the requirements for compaction as stated in Section 02228.
B. The cost of failed compaction tests will be reimbursed by the Contractor.

1.06 SUBMITTALS

A. Geotextile Fabric - Refer to Section 02421.

B. Grain size analysis of proposed gravel pavement material (ASTM D422).

1.07 ENVIRONMENTAL REQUIREMENTS

A. not applicable.

1.08 FIELD MEASUREMENTS

A. Prior to start of construction; verify by field measurements that existing conditions are as shown on Drawings. Notify the Engineer of specific differences.

1.09 COORDINATION

A. Coordinate field work to maintain traffic and emergency vehicle access.

B. Coordinate work with local utility companies (private and municipal) for location of existing utilities and protection thereof.

1.10 TEST REQUIREMENTS

A. Refer to Article 1.05 above.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Granular material shall be 2-inch crusher run stone or equivalent and meet the requirements of NYSDOT Item No. 304.12.

B. Subgrade shaping materials shall be as described in Section 02223.

C. Geotextile fabric shall be as specified for a Reinforcement Geotextile in Section 02421.

PART 3 - EXECUTION

3.01 EXAMINATION

A. See Section 02223.

B. Verify that traffic controls and erosion and sediment controls are in place.

3.02 PREPARATION

A. See Section 02223 and Section 02228.

B. Temporary drains and ditches shall be constructed as necessary to remove water from the subgrade area.

## 3.03 INSTALLATION

A. Material shall be placed in maximum 6-inch layers before compaction, and compacted before the next layer is spread.

B. The completed subgrade surface shall drain to the edges, be free from holes, bumps, wheel ruts and of standing water, snow, frozen material and organic materials prior to the placement of the next course.

C. Soft or otherwise unacceptable subgrade materials shall be removed and replaced with select onsite material acceptable to the Engineer.

## 3.04 FIELD QUALITY CONTROL

A. For compaction requirements, refer to Section 02228.

B. Tolerances - Refer to Section 01051.

C. Proof Rolled - Prior to the placement of the next granular layer or geotextile fabric, the subgrade surface shall be proof rolled to locate areas of inadequate compaction, deflection, or soft or rutting areas requiring undercutting. Areas of inadequate compaction will be recompacted.

## 3.05 PROTECTION

A. No vehicular traffic will be allowed on the newly-placed fabric until covered with the granular layer.

## 3.06 DUST CONTROL

A. Dust Control shall be accomplished by using water, brooming and cleaning methods.

END OF SECTION 02501

SECTION 02830

CHAIN LINK FENCE AND GATES

## PART 1 - GENERAL

### 1.01 DESCRIPTION

A. Provide new six-foot high chain link fencing and gates as complete units including necessary erection accessories, fittings, and fastenings as indicated on drawings.

B. Related work specified in other sections:
   1. Section 01051 - Grades, Lines and Levels
   2. Section 02219 - Excavation, Consolidation and Disposal
   3. Section 02501 - Gravel Pavement

### 1.02 SUBMITTALS

Submit manufacturer's technical product data, shop drawings, and installation instructions for metal fencing, fabric, gates and accessories.

A. Dimensions indicated for pipe are outside dimensions, exclusive of coatings.

B. Manufacture: Subject to compliance with requirements, provide products of equal value to the following:

Galvanized Steel Fencing and Fabric
Allied Tube and Conduit Corp.
American Fence Corp.
Anchor Fence, Inc.

## PART 2 - PRODUCTS

### 2.01 FABRIC

Zinc-coated fabric shall be galvanized after weaving with a minimum 2.0 ounces of zinc per square foot of surface area and conform to ASTM A-392, Class II. Fabric to be 9 gauge wire woven in a 2-inch diamond mesh. Top selvage to be twisted and barbed. Bottom selvage to be knuckled.

### 2.02 FRAMING

Pipe manufactured from steel conforming to ASTM A 569, cold-formed, high frequency or induction welded and having a minimum yield strength of 50,000 PSI. External surface triple coating per ASTM F-1234, Type B & Type D with 1.0 ounce +/- 0.1 ounce of zinc per square foot, 30 +/- 15 micrograms of chromate

per square inch and high performance polymer and shall demonstrate the ability to resist 1,000 hours of exposure to salt spray with a maximum of 5 percent red rust in a test conducted in accordance with ASTM B-117. Internal surface coated, after welding, with a zinc-rich based organic coating having a 91 percent zinc powder loading capable of providing the ability to withstand 650 hours of exposure to salt fog with a maximum of 5 percent red rust, when conducted in accordance with ASTM B-117. All coatings are to be applied inside and out after weldings.

Pipe shall be straight, true to section and conform to the following weights:

| Pipe Size Outside Diameter | Weight Lbs./Ft. |
|---|---|
| 1-5/8 inches | 1.84 |
| 2 inches | 2.28 |
| 2-1/2 inches | 3.12 |
| 3 inches | 4.64 |
| 3-1/2 inches | 5.71 |
| 4 inches | 6.56 |
| 6-5/8 inches | |

1. End, Corner and Pull Posts: Minimum sizes and weights as follows: 2.5-inches OD, 3.12 lbs. per linear foot.
   Pull post to be installed at a maximum of 100 feet on straight runs. Corner posts to be installed at all horizontal changes in direction and all vertical changes in direction 5 percent or greater.
2. Line Posts: Space 10 feet o.c. maximum, unless otherwise indicated, of following minimum sizes and weights. 2-inch OD, 2.28 pounds per linear foot.
3. Gate Posts: Furnish posts for supporting for single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows: 4-inches OD, 6.56 pounds per linear foot.
4. Post Brace Assembly: Manufacturer's standard adjustable brace at end and gate posts and at both sides of corner and pull posts with horizontal brace located at mid-height of fabric. Use same material as line posts for brace, and truss to line posts with 3/8-inch diameter rod and adjustable tightener.

## 2.03 GATES

Gates: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding or with special fittings and rivets for rigid connections, providing security against removal of breakage connections. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware and accessories. Space frame members maximum of 8 feet apart unless otherwise indicated.

1. Provide same fabric as for fence, unless otherwise indicated. Install fabric with stretcher bars at a vertical edges and at top and bottom edges. Attach stretcher bars to gate frame at not more than 15 inches o.c.
2. Install diagonal cross-bracing consisting of 3/8-inch diameter adjustable length truss rods on gates to ensure frame rigidity without sag or twist.

## 2.04 GATE HARDWARE

Provide hardware and accessories for each gate, galvanized per ASTM A 153, and in accordance with the following:

1. Hinges: Size and material to suit gate size, non-life type, offset to permit 180° gate opening, (90° both in and out). Provide 1 pair of hinges for each leaf.
2. Latch: Forked type or plunger-bar type to permit operation from either side of gate, with padlock eye as integral part of latch.
3. Double Gates: Provide gate stops for double gates, consisting of mushroom type flush plate with anchors, set in concrete, and designed to engage center drop rod or plunger bar. Include locking device and padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock.

## 2.05 FITTINGS AND ACCESSORIES

Galvanized, ASTM A 153, with a minimum of 0.80 ounces of zinc per square foot of wire surface.

1. Wire Ties: For tying fabric to line posts, use wire ties spaced 12 inches o.c. For tying fabric to rails and braces, use wire ties spaced 24 inches o.c. For tying fabric to tension wire, use hog rings spaced 24 inches o.c.

Manufacturer's standard procedure will be accepted if of equal strength and durability.

2. Tension Wire: 7-gage, coated coil spring wire, metal and finish to match fabric. Locate at bottom of fabric.

## 2.06 CONCRETE

Provide concrete consisting of Portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 2500 psi using at least 4 sacks of cement per cubic yard, 1 inch maximum size aggregate, maximum 3 inch slump, and 2 percent to 4 percent entrained air.

# PART 3 EXECUTION

## 3.01 EXCAVATION

Auger post holes to the minimum depth and diameter as shown on the drawings. Provide forms as needed to prevent mushrooming of the top of the post holes.

## 3.02 INSTALLATION

Install in accordance with ASTM F 567 and written installation instructions of fencing manufacturer to provide secure, aligned installation. Posts will be cemented in place.

End of Section 02830