EXPLANATION OF SIGNIFICANT DIFFERENCE
SPAULDING COMPOSITES SITE

Tonawanda (C) / Erie County / Registry No. 9-15-050 /

March 2009

Prepared by the New York State Department of Environmental Conservation
Division of Environmental Remediation

1.0 INTRODUCTION

The purpose of this notice is to inform you about a change in the site remedy at the Spaulding Composites Site. The Spaulding Composites Site is an inactive manufacturing facility that formerly produced paper, fibre and laminate products using various organic compounds and zinc. The Spaulding Composites Site is located at 310 Wheeler Street in the City of Tonawanda, Erie County, New York. The property is bordered by Dodge and Enterprise Avenues and residential property to the north, Wheeler Street and a mix of commercial and residential properties to the east, Hackett Drive and commercial properties to the south, and Hinds Street and a mix of commercial and residential properties to the west (Figures 1 and 2). In March 2003 the New York State Department of Environmental Conservation (NYSDEC) issued a Record of Decision (ROD) which selected a remedy to clean up the site. It is proposed that certain aspects of the remedy included in the ROD be modified (see Table 1). The main changes to that remedy include a modification of the soil cleanup objectives (SCOs) included in the March 2003 ROD, as well as changing the remedy for OU#3 from in-situ biological treatment to a combination of excavation and off-site disposal along with in-situ treatment of residual contamination (the only areas where there will be residual contamination above Part 375 restricted residential SCOs will be at SWMU 35 and SWMU 36 at depths greater than 10 feet). The SCOs included in the ROD were consistent with the cleanup objectives included in the Division of Environmental Remediation (DER) Technical and Administrative Guidance Memorandum (TAGM) #4046. The SCOs included in TAGM #4046 are somewhat conservative, in that they are applicable for a wide range of situations, including unrestricted use. The revised SCOs are those included in the newly adopted Part 375 Regulations, which consider the expected end-use of the property (restricted residential and/or commercial).

The modified remedy consists of: 1) adjusting the soil cleanup objectives (SCOs) to reflect the expected future use of the site to be consistent with the soil cleanup objectives proposed for the Environmental Restoration Program (ERP) project which covers the remainder of the property (restricted residential), and 2) modifying the remedy for operable unit (OU) #3 from in-situ treatment and deed restrictions to a combination of removal, in-situ treatment of residual

contamination[1], and institutional/engineering controls (in the form of an Environmental Easement to address residual contamination; it is planned to have the Environmental Easement call for future engineering controls in-place, as needed, for any buildings constructed over OU #3 to mitigate any potential for vapor intrusion).

The remedy in the March 2003 ROD included excavation of soil, with concentrations that exceeded SCOs included in DER's TAGM #4046, associated with OUs #1, #2, and #4; for OU#3 the ROD called for in-situ bioremediation after a field test, to be completed during the design, to evaluate the effectiveness of in-situ bioremediation of volatile organic and petroleum contamination (associated with a former tank farm and a former grinding oil tank) in low permeability soils. The significant difference of the modified remedy, compared to the remedy selected in the March 2003 ROD, is that: 1) the SCOs will be changed to reflect the expected future use of the site to be consistent with what is planned for the remainder of the property, and 2) OU #3 will be remediated by a combination of excavation of contaminated soils, in-situ treatment of residual contamination, and the placement of institutional controls to address residual contamination, rather than by in-situ bioremediation (with deed restrictions).

This Explanation of Significant Differences (ESD) will become part of the Administrative Record for this site. The information here is a summary of what can be found in greater detail in documents that have been placed in the following repositories:

City of Tonawanda Public Library
333 Main Street
Tonawanda, NY, 14150
Hours: Mon, Tu, Th: 10am- 8pm;
Wed: closed; Fri:10am - 4pm;
Sat: 10am - 2pm; Sun: closed
Summer Hours (Memorial Day- Labor Day):
same as above except:
Wed: 10am - 2pm; Sat: closed
Telephone #: 716-693-5043

NYS Dept. of Environmental Conservation
Region 9 Headquarters
270 Michigan Avenue, Buffalo, NY 14203
Hours: Mon-Fri 8:30-4:45
Contact: Mr. Glenn May, 716-851-7220

Interested persons are invited to contact the NYSDEC's Project Manager for this site to obtain more information or have questions answered. The Project Manager for this site is Mr. James Moras. To obtain additional information, he can be contacted at 625 Broadway, Albany, New York 12233-7013, telephone number: 518-402-9812, email @ jamoras@gw.dec.state.ny.us.

[1]OU #3 includes SWMU 13 and SWMU 36; this ESD calls for in-situ treatment of residual contamination at SWMU 36 and SWMU 35 (adjacent to SWMU 36 [see Figure 1-3]); there will be no residual contamination to treat at SWMU 13.

2.0 SITE DESCRIPTION AND ORIGINAL REMEDY

The 46-acre Spaulding Composites Site is located at 310 Wheeler Street in the City of Tonawanda, Erie County, New York. The site is bordered by Dodge and Enterprise Avenues and residential property to the north, Wheeler Street and a mix of commercial and residential properties to the east, Hackett Drive and commercial properties to the south, and Hinds Street and a mix of commercial and residential properties to the west (Figures 1 and 2). The topography of the site and the surrounding area is relatively flat, with most surface water runoff toward on-site drainage ditches and storm sewers. The Niagara River is located approximately one mile to the north; Two Mile Creek is located approximately one mile to the west (Figure 1).

Spaulding began operations at the Tonawanda Plant in 1911 as a manufacturer of vulcanized fiber, an early "plastic" made by treating paper with a zinc chloride solution. The paper used to produce vulcanized fiber was also manufactured at the site. During the late 1940s to early 1950s, the plant began production of composite laminates (Spauldite®) that were made by impregnating natural fibers with phenolic resins (and later, melamine and epoxy resins and synthetic fibers). Many of the phenolic resins used in the production of Spauldite® were manufactured on-site. In the fall of 1992 Spaulding ceased manufacturing operations at the site; decommissioning activities were initiated at the site in August 1992. The majority of these activities were completed from September 1992 to February 1993 with the remaining decommissioning activities completed by mid 1995. These activities are documented in the Plant Decommissioning Final Report dated August 1995.

Contamination of site soils and groundwater (in limited areas) has resulted largely from bulk chemical and waste handling practices at the facility. These practices include: (1) historical leaks and spills (at least 17 incidents were reported between 1958 and 1994), (2) on-site waste disposal in pits excavated into native soils (the Resin Drum and Laminant Dust Landfills), and (3) the use of settling lagoons (four such lagoons were located throughout the site). In addition, a number of disposal pits were located inside plant buildings; these pits were cleaned during decommissioning activities following facility closure in 1992.

The Spaulding Composites Site has been subdivided into four Operable Units (OUs), each consisting of multiple Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs). An Operable Unit is a term that defines a portion of the site that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from site contamination. A SWMU is a Resource Conservation and Recovery Act (RCRA) term that defines a discernible unit where solid or hazardous wastes have been placed at any time, or any area where solid wastes have been routinely and systematically released. An AOC is also a RCRA term, and defines an area not known to be a SWMU, where hazardous waste and/or hazardous constituents are present, or are suspected to be present, as a result of a release from the facility.
To evaluate the contamination at the Spaulding Composites Site and to evaluate remedial

alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste, Spaulding completed both a Remedial Investigation/RCRA Facility Investigation (RI/RFI) and a Feasibility Study/Corrective Measures Study (FS/CMS) at the site. This was a joint project between the State CERCLA and RCRA programs, with overall NYSDEC management, coordination and oversight provided by CERCLA staff. To satisfy both programs, Spaulding decided to conduct a single investigation of the site. The results of the RI/RFI are documented in the following Reports: RCRA Facility Investigation and Remedial Investigation Report (September 1998), Supplemental Remedial Investigation/RCRA Facility Investigation (May 24, 1999), and Limited Groundwater Sampling Program (August 30, 1999); the Feasibility Study Report is dated December 2000.

As described in the RI/RFI Reports, many soil, groundwater, surface water and sediment samples were collected at the site to characterize the nature and extent of contamination. The main categories of contaminants that exceed their SCGs are inorganics (metals), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs). The primary inorganic contaminant of concern is zinc, which was found at all four operable units. VOCs were detected at several SWMUs and AOCs and are the principal contaminants of concern at OU#3. The VOCs identified at this operable unit include benzene and toluene. Methanol, ethanol and petroleum were also detected at OU #3. Toluene, ethanol and methanol were also detected at the Resin Drum Landfill (SWMU 7 of OU #1, [see Figure 1-3]) along with trichloroethene. Toluene was detected at the Laminant Dust Landfill (SWMU 8 of OU #1), while toluene and ethylbenzene were detected at SWMU 11 (one of the Settling Lagoons of OU #2). SWMU 11 was part of the 2004-2006 IRM. The SVOC contaminants of concern include phenol, cresols, di-n-butylphthalate and aniline, with combinations of these compounds associated with all four operable units. Dichlorobenzene and trichlorobenzene were also detected at OU #2 in AOC 48. This AOC was part of the 2004-2006 IRM. PCBs are found at OU #1, #2 and #4, but are the principal contaminants of concern at the six SWMUs and AOCs of OU #2.

In February 2001, the NYSDEC learned that Spaulding, for the second time in ten years, had filed for Chapter 11 bankruptcy. As a result, subsequent work was funded through the New York State Superfund. In 2004-2006 NYSDEC performed an Interim Remedial Measure (IRM) to address PCB-contaminated soil associated with OU #2.

The following is a summary of the remedy included in the March 2003 ROD:

1. Operable Unit #1: Landfill Wastes (resin drum landfill & laminant dust landfill)

- Excavation of wastes and contaminated soils associated with the Resin Drum and Laminant Dust Landfills with disposal in an appropriate off-site facility.
- Excavation of contaminated sediments in the ditch adjacent to the Resin Drum Landfill. These sediments will be disposed of with the wastes and contaminated soils.
- Excavation will be to contaminant levels consistent with the goal of meeting Technical

and Administrative Guidance Memorandum (TAGM) 4046 cleanup objectives.
- All excavated areas will be backfilled with clean soils and restored to grade.

2. Operable Unit #2: PCB-Contaminated Wastes
- Excavation of PCB contaminated soils associated with three Sludge Settling Ponds, a Former Tank Farm, the Therminol Building and a Former Transformer Explosion Area with disposal in an appropriate facility.
- Excavation will be to contaminant levels consistent with the goal of meeting Technical and Administrative Guidance Memorandum (TAGM) 4046 cleanup objectives.
- All excavated areas will be backfilled with clean soils and restored to grade.
- Sampling and analysis of sediment in the K-Line storm sewer to evaluate how much contamination, if any, is present in the sewer. If contaminated, these sediments will be removed and disposed of with the contaminated soil from this operable unit.
- Continued operation of the on-site water treatment system following the remediation of OU #2 until PCBs are no longer detected in K-Line storm sewer waters. Treated water will continue to be sampled and analyzed during this time for compliance with the 65 parts per trillion (ppt) discharge limit for PCBs.

3. Operable Unit #3: Petroleum Contaminated Wastes
- In-Situ Bioremediation of volatile organic and petroleum contaminated soils associated witha Former Tank Farm and a Former Grinding Oil Tank.
- During design, a field test will be completed to evaluate the effectiveness of this alternative in remediating contaminated low permeability soils.
- During remediation, sampling and analysis of soil and groundwater will be conducted to evaluate the progress of the in-situ bioremediation program.

4. Operable Unit #4: Multiple Contaminant Wastes
- Excavation of contaminated soils associated with the Lab Waste Storage Area, a Rail Spur, two Drum Storage Areas, a Bulk Chemical Unloading Area, a Zinc Chloride Sludge Container Storage Area, one Sludge Settling Pond and the Paper Sludge Application Area with disposal in an appropriate offsite facility.
- Excavation will be to contaminant levels consistent with the goal of meeting Technical and Administrative Guidance Memorandum (TAGM) 4046 cleanup objectives.
- All excavated areas will be backfilled with clean soils and restored to grade.
- Sampling and analysis of groundwater at AOC 45 (Rail Spur) following remediation to evaluate the effectiveness of soil removal activities on groundwater contamination at this area of the site.

5. Institutional Controls:
- Imposition of a deed restriction will be required if warranted by residual soil or groundwater contamination remaining after remedial actions are completed. If determined necessary by NYSDEC, the deed restriction will require compliance with an

approved soils management plan and prohibit site groundwater use. Periodic certification to the NYSDEC will be required.

6. Long-Term Groundwater Monitoring:

- Long-term groundwater sampling and analysis of the former production well to further evaluate contamination in upper bedrock groundwater. If contaminant concentrations increase and exceed SCGs, the need to remediate this water will be evaluated.

3.0 CURRENT STATUS

The remediation of OU #2 was completed separately from the remedial program for the remainder of the State Superfund site, as a part of a State-funded interim remedial measure (IRM).

In the fall of 2005 NYSDEC initiated a State-funded remedial design for OU #1, OU #3, and OU #4 to develop the details needed to remediate the site; this included additional investigation work to determine the extent of the areas that will need to be excavated as a part of the remedy. Based on the results of this investigation it became apparent that there was widespread contamination that exceeded TAGM #4046 SCOs, some of it present at significant depths (greater than 30 feet). The areas to be remediated using the State Superfund are shown on Figure 1-4. The remainder of the property is the ERP site and will be remediated through the Environmental Restoration Program using restricted residential SCOs. As shown on Figure 1-4, the ERP site (over 40 acres) is much larger in area than the State-funded site (approximately 3 acres). Since most of the property (ERP site) will be remediated using restricted residential SCOs, and since the future use of the site is expected to be for restricted residential and/or commercial purposes, it would make sense to use cleanup goals that are consistent with the remainder of the property and take this future use into consideration.

The intent is to modify the ROD through this Explanation of Significant Differences (ESD), complete the remedial design and initiate construction of the remedy some time during the 2009 construction season.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES

4.1 New Information

The remedy for OU #3 has been modified from in-situ bioremediation to excavation and institutional controls. This modification has been made because of the low permeability of the soil present at the site. In-situ bioremediation involves the treatment of contaminated soils by injecting nutrients, oxygen, and cultured bacteria into the subsurface. This technology is effective, under the right conditions, when the material being delivered into the ground can flow and come in contact with the contaminated material. The ROD acknowledged the possibility that the low permeability soils could prohibit the use of in-situ treatment of soils at OU#3 (“a field test

will be completed to evaluate the effectiveness of this alternative in remediating contaminated low permeability soils"). At this site, based on information collected during the Pre-Design Investigation, the movement of the treatment agents through, and direct contact with a significant volume of the contaminated soils is not possible.

One component of this ESD is in-situ treatment of residual contamination at the bottom of the soil excavations at SWMU 35 and SWMU 36 (in-situ treatment of contaminated soil is a component of the original remedy that is being changed due to the low permeability of the soil). The original remedy included in-situ treatment through injection points with the goal to achieve the SCOs for the entire volume of contaminated soil; this ESD includes adding treatment agents to the the bottom of the excavations (much larger area of delivery than injection points) to achieve some treatment of residual contamination (rather than expecting full treatment to achieve SCOs). Although what is included in this ESD is in-situ treatment in low permeability soils, it includes a method of delivery of the treatment agents that allows for better contact with the contaminated soil, with the understanding that some, but not all of the residual contamination will be treated.

In addition, as discussed in the previous section, during the early stages of the design additional investigation work was performed at the site. Based on a review of the results of the pre-design investigation there is a significant volume of soil that exceeds TAGM #4046 SCO's (SCOs established in the ROD). Since the intended future use of the site is restricted residential and/or commercial, and the intent of the much larger area of the ERP project is to remediate to restricted residential SCOs, it became apparent that modifying the SCOs for this project would be make sense and be protective.

Table 2 presents a list of contaminants of concern, the SCOs included in the March 2003 ROD (TAGM #4046), and the SCOs included in this ESD (Part 375 restricted residential SCOs) which are protective for the intended future use of the property (restricted residential). The goal of the remedial program is to remove all contaminated soils, within the limits of the Class 2 site (see Figure 1-4 - SSF survey), that exceed the Part 375 restricted residential SCO. However, it is not feasible to remove some of the contaminated soil due to it's depth (there is contamination present at depths greater than 10 feet, some of which is present at depths of over 30 feet below the ground surface). This decision has been made based on the following factors: 1) there are limited impacts to groundwater and contaminated groundwater is not migrating from the site (the most significant impacts have been found in MW-8 which is located in AOC 45, to be addressed as a part of this remediation); 2) most of the contamination that exceeds the Part 375 restricted residential SCOs will be removed from the area, thus greatly reducing the current source to the limited contamination present in the groundwater; and 3) the presence of this contamination at depth makes it difficult and costly to remove. Areas where concentrations above the Part 375 restricted residential SCOs will not be removed as a part of the remedial program are SWMU 35 and SWMU 36 at depths of greater than 10 feet. The residual contamination will be addressed through a combination of institutional/engineering controls (in the form of an Environmental Easement), in-situ treatment of some residual contamination at the bottom of the excavations, a demarcation barrier at the bottom of the excavation, a cover (in the form of clean backfill) and a Site

Management Plan.

4.2 Comparison of Changes with Original Remedy

The significant differences to the remedy, compared to the remedy selected in the March 2003 ROD, are that the scope will change in the following ways [also, see Table 1]: 1) the soil cleanup objectives will change to be consistent with the intended future use of the site, and to be consistent with the soil cleanup objectives proposed for the ERP project (restricted residential), and 2) the remedy for OU #3 will change from in-situ bioremediation and deed restrictions to a combination of excavation and backfill with clean soil, in-situ treatment of residual contamination, placement of a demarcation barrier at the bottom of the excavations, and institutional controls; the change from in-situ bioremediation to excavation and in-situ treatment of residuals is due to the low permeability of the soil. The approach to the remedy remains excavation and off-site disposal for OU#1 and OU#4 (and OU#2 which was addressed separately through an IRM); for OU #3 the ROD noted that the permeability of the soil may be an issue for the effective implementation of in-situ bioremediation. As a result, these types of changes in the scope are significant but not fundamental changes.

The intended performance of the original remedy included performing remediation of the soils of the site to be protective. The remedy is being modified to implement a soils cleanup to concentrations that will be protective for the intended future use of the site. The modified remedy has different soil cleanup objectives, but the concentrations that remain in the soil after remediation will not pose a significant threat once implemented. This change in the performance (soil cleanup objectives) is a significant change, but not a fundamental change to the remedy.

It is difficult to evaluate the difference in costs associated with this change to the remedy for the following reasons: 1) It is apparent that the soil volume estimates used to develop the cost estimate for the ROD were low, and 2) volumes of affected soil and costs for the modified remedy are still being developed. It is assumed that if an accurate comparison of costs could be made between the remedy in the ROD and the modified remedy include in this ESD the change in costs would fall in the significant range (+/- 15% - 50%).

The remedial goals included in the March 2003 ROD for this site include:

- Eliminate, to the extent practicable, the potential for ingestion of contaminated soils and sediments.

- Eliminate, to the extent practicable, the generation of particulates from contaminated soils and vapor emissions from contaminated soils and groundwater that could result in inhalation exposures.

- Eliminate, to the extent practicable, dermal contact with contaminated soils, sediment, groundwater, and surface water.

- Eliminate, to the extent practicable, off-site migration of PCB contaminated water (addressed as a part of the IRM for OU #2), and

- Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of contaminants to groundwater.

The ROD, as modified by this ESD, is protective of human health and the environment and meets the goals originally included in the March 2003 ROD. The New York State Department of Health concurs that the modified remedy is protective of public health.

5.0 SCHEDULE AND MORE INFORMATION

It is the Department's intention to move forward with the schedule to complete the design and implement the remedy as soon as possible. The planned schedule calls for the initiation of the remedial construction during the 2009 construction season.

If you have questions or need additional information you may contact any of the following:

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518-402-9812

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Buffalo, NY 14202
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Mr. Glenn May
Regional Project Manager
NYSDEC
Region 9 Headquarters
270 Michigan Avenue
Buffalo, NY 14203
716-851-7220

Date	James A. Moras, Project Manager Remedial Bureau E
Date	A. Joseph White, Section Chief Remedial Bureau E
Date	Robert Knizek, Director Remedial Bureau E
Date	Salvatore Ervolina, Assistant Director Division of Environmental Remediation
Date	Dale A. Desnoyers, Director Division of Environmental Remediation

TABLE 1 - COMPARISON OF MARCH 2003 REMEDY with MODIFIED REMEDY

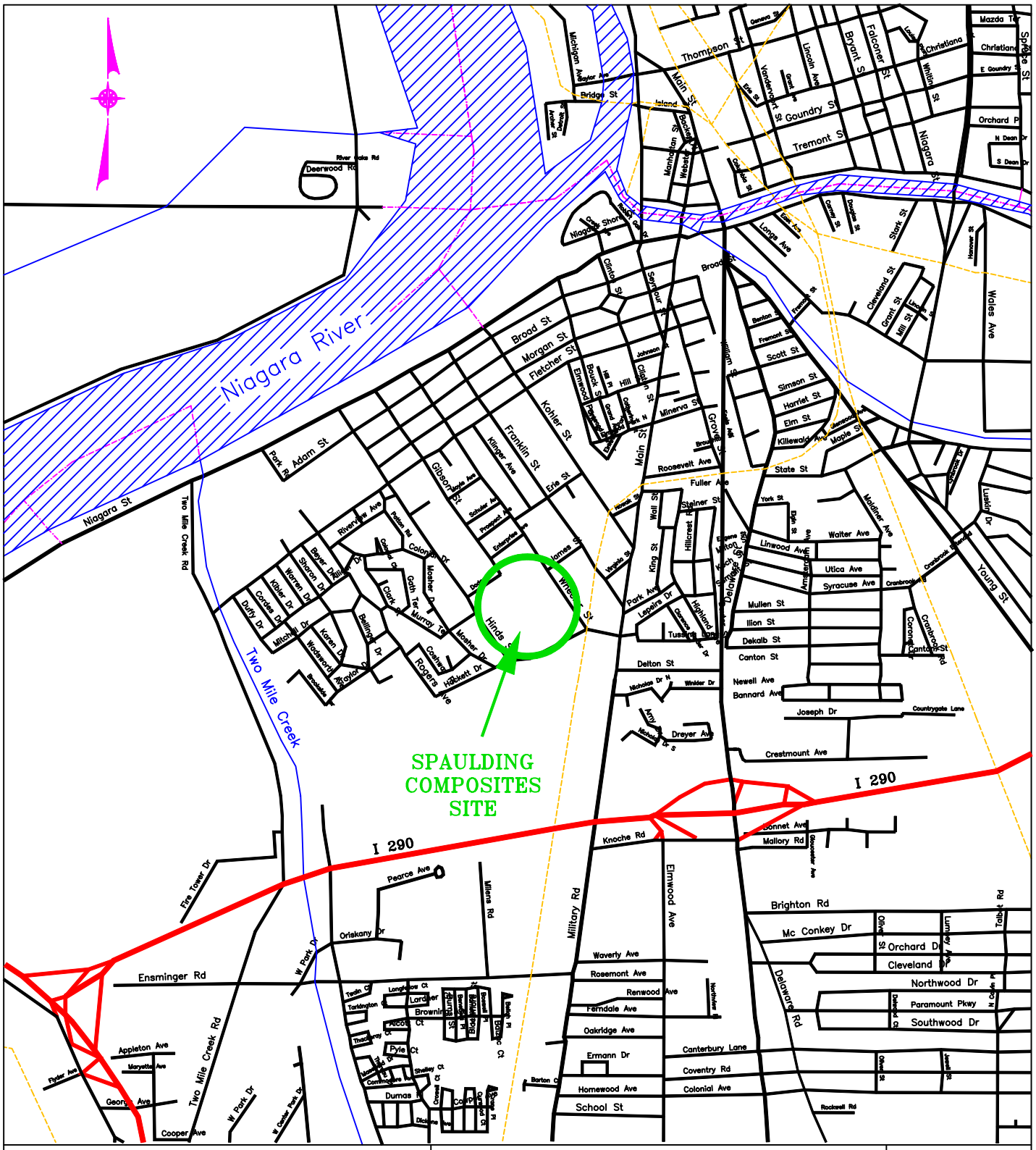
COMPONENT OF REMEDY INCLUDED IN 2003 ROD	MODIFIED COMPONENT OF REMEDY
Operable Units #1 & #4: • Excavation and off-site disposal of contaminated soils • TAGM #4046 soil cleanup objectives (SCOs)	**Operable Units #1 & #4:** • Excavation and off-site disposal of contaminated soils • Part 375 (SCOs) for restricted residential use (consistent with the SCOs for the ongoing ERP project at this property)
Operable Unit #3 (SWMU 13 & 36): • During design, a field test will be completed to evaluate the effectiveness of this alternative in remediating contaminated low permeability soils • Treatment of VOC and petroleum contaminated soils in-place by adding nutrients to stimulate biological activity that will degrade the contaminants	**Operable Unit #3 (SWMU 13 & 36):** • Pre-design Investigation information indicated the low-permeability soils would not allow the "delivery" needed for in-situ treatment to be successful • Excavation and off-site disposal of contaminated soils • Part 375 restricted residential soil cleanup objectives • For residual contamination at **SWMU 36 and SWMU 35** (adjacent to SWMU 36 [see Figure 1-3]) there will be treatment via ISCO and ORC, placement of demarcation barrier and clean cover/backfill; there will be no residual contamination to treat at SWMU 13
• Deed restrictions to address residual soil and groundwater contamination	• Institutional/engineering controls (environmental easement) to address residual soil and groundwater contamination (to be coordinated with environmental easement needed for ongoing ERP project at this property)

TABLE 2 - COMPARISON OF SOIL CLEANUP OBJECTIVES (SCOs)

CONTAMINANT OF CONCERN (COC)	SOIL CLEANUP OBJECTIVE INCLUDED in March 2003 ROD (parts/million, ppm) [from 3/03 ROD, Table 1, OU#1,3,4]	SOIL CLEANUP OBJECTIVE INCLUDED IN this ESD (ppm) [PART 375 RESTRICTED RESIDENTIAL SCO]
aniline	0.1	N/A
benzene	0.06	4.8
*cresols (methylphenol)	0.1 (2-methylphenol) 0.9 (4-methylphenol)	100 100
di-n-butylphthalate	8.1	N/A
PCBs	1	1 / 10 (surface - 2') / (>2')
phenol	0.03	100
toluene	1.5	100
trichloroethene	0.7	21
total xylenes	1.2	100
zinc	95	10,000

N/A= Not Available

* cresols includes 2-methylphenol, 3-methylphenol, and 4-methylphenol



Tonawanda East & West Quadrangles; Buffalo East & West Quadrangles

Scale Depends on Final Plotted Size

SITE LOCATION MAP

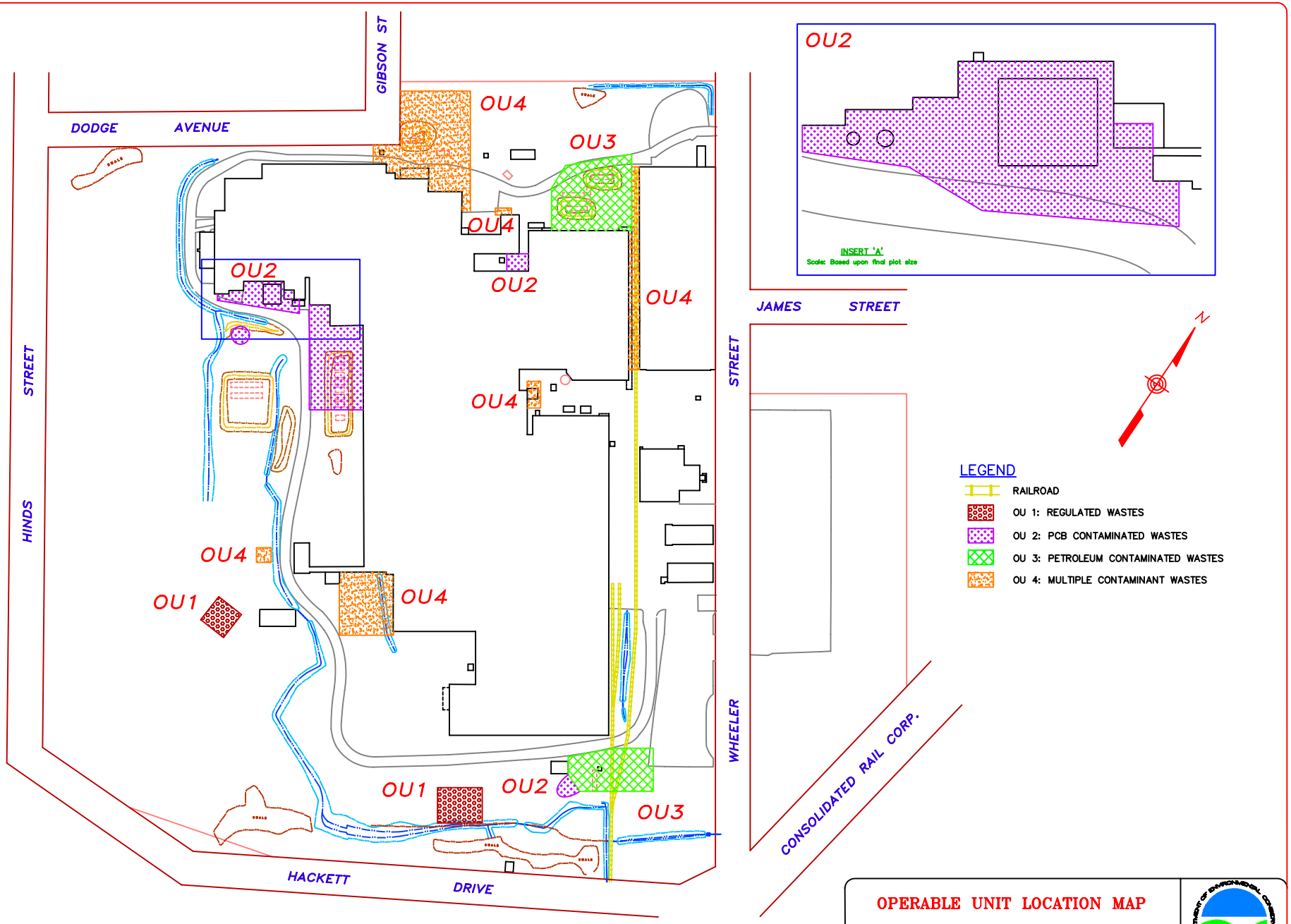
DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/25/01

DRAWING: Location.dwg

SITE: SPAULDING COMPOSITES SITE

FIGURE 1



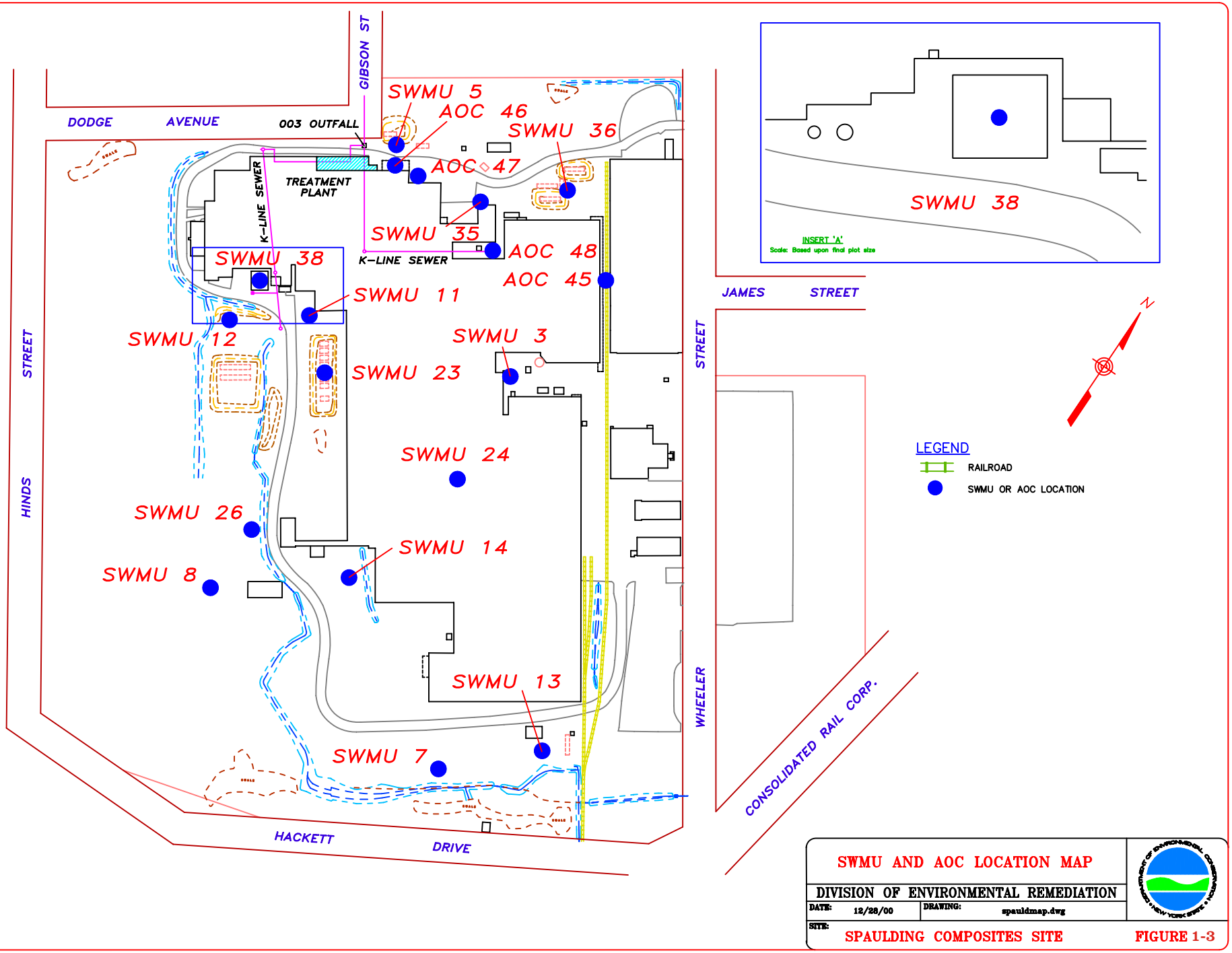
OPERABLE UNIT LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

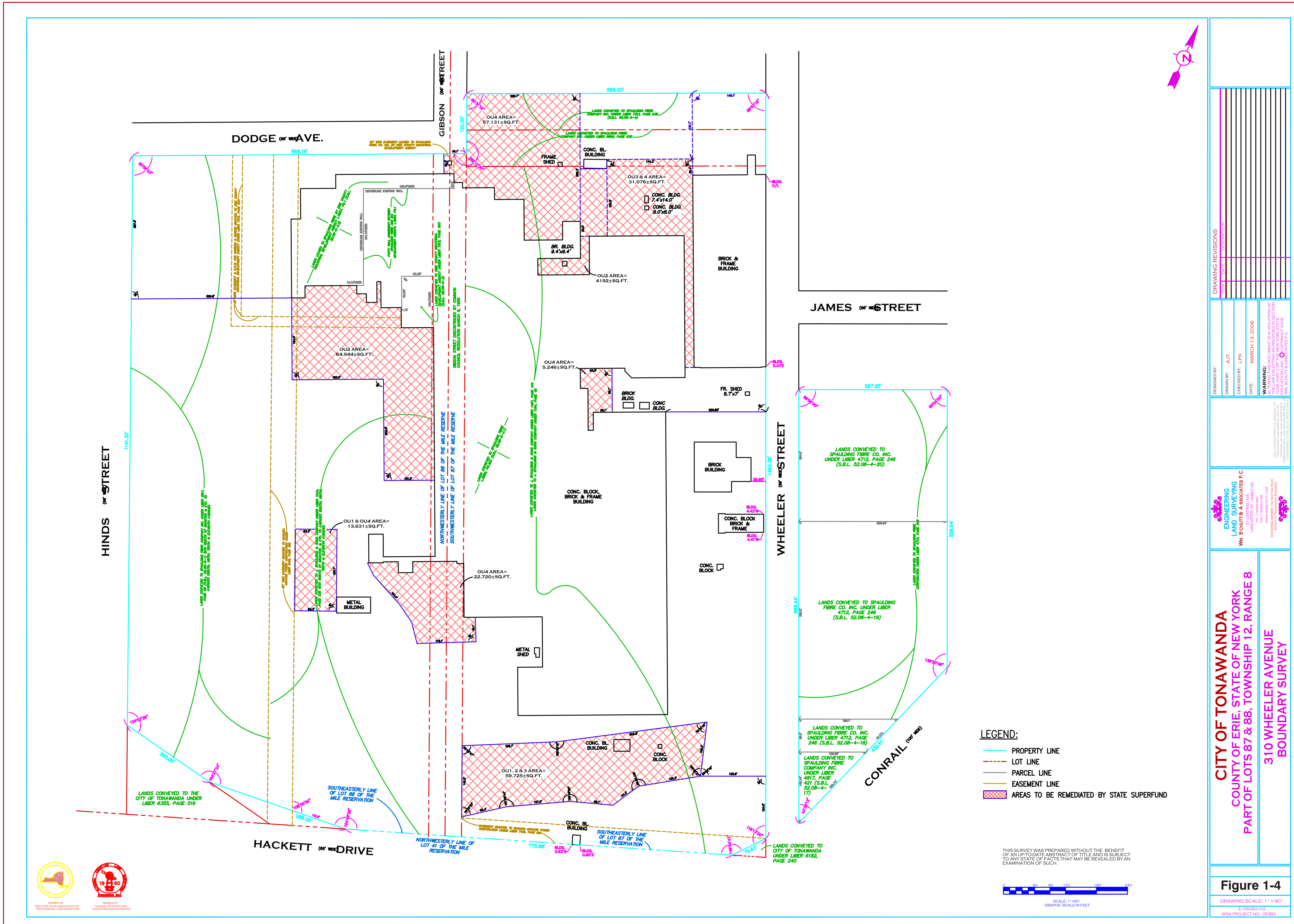
DATE: 12/28/00 | DRAWING: spauldmap.dwg

SITE: SPAULDING COMPOSITES SITE

FIGURE 2



SOURCE: New York State Department of Environmental Conservation, Division of Environmental Remediation



SOURCE: Wm. Schutt & Associates, P.C.