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General Motors LLC

Site Management Plan

Former General Motors Assembly Plant
West Parcel Site
Sleepy Hollow, New York

NYSDEC Site No. C360070

December 2013

Certification Statement

I,_____., certify that I am currently a New York State registered professional engineer, and that this *Site Management Plan* was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications .

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Date:
December 2013

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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

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Acronyms and Abbreviations

ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BUD	Beneficial Use Determination
CAMP	Community Air Monitoring Plan
COC	Certificate of Completion
COPCs	Contaminants of Potential Concern
CP-51	Commissioner Policy-51
DEIS	Draft Environmental Impact Statement
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Accreditation Program
FER	Final Engineering Report
GPS	Global Positioning System
GMC	General Motors Corporation
GM LLC	General Motors LLC
HASP	Health and Safety Plan
HDPE	High-Density Polyethylene
HVAC	Heating, Ventilation and Air Conditioning
IC/EC(s)	Institutional and Engineering Control(s)
IRM	Interim Remedial Measures
ISCO	In-situ Chemical Oxidation
LEL	Lower Explosive Limit
MSs	Matrix Spikes
MSDs	Matrix Spike Duplicates
NTU	Nephelometric Turbidity Unit
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operations & Maintenance
OMM Plan	Operations and Maintenance Plan
OU	Operable Unit
PAHs	Polycyclic Aromatic Hydrocarbon

PAOC	Potential Area of Concern
PCBs	Polychlorinated Biphenyls
ppb	parts per billion
ppm	parts per million
ppmv	parts per million by volume
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
RAOs	Remedial Action Objectives
RI	Remedial Investigation
RIR	Remedial Investigation Report
Roseland	Roseland/Sleepy Hollow, LLC
RWP	Remedial Work Plan
SCOs	Soil Clean-up Objectives
Sediment RWP	Sediment Remedial Work Plan
Site	Former General Motors Assembly Plant
SMP	Site Management Plan
SPLP	Synthetic Precipitation Leaching Procedure
SSDS	Sub-Slab Depressurization System
SVI	Soil Vapor Intrusion
SVOCs	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
UST	Underground Storage Tank
Village	Village of Sleepy Hollow
VOCs	Volatile Organic Compounds

1. Introduction and Description of Remedial Program

1.1 Introduction

This Site Management Plan (SMP) has been prepared as required as an element of the remedial program at the Former General Motors Assembly Plant, West Parcel Site (hereinafter referred to as the "Site") under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index# C360070-12-10 which was executed on December 31, 2010 and amended August 20, 2013. The Site is part of the parcel that was covered by the original BCA West Parcel (Index # A3-0514-0305) which was executed with an effective date of May 12, 2005. The effective date of the BCA for the West Parcel, Index No.: C36070-12-10, as amended is also May 12, 2005.

1.1.1 General

General Motors LLC (GM LLC) entered into two BCAs with the NYSDEC to remediate a 96.2 acre property located in the Village of Sleepy Hollow (Village), Westchester County, New York. One BCA was issued for the West Parcel (including South Parcel) and the second BCA was issued for the East Parcel. Both shared a single site identification number (C360070) for the entire property. These BCAs required the Remedial Party, GM LLC, to investigate and remediate contaminated media at the entire property. On August 20, 2013, NYSDEC amended the BCAs and issued two separate BCA site identification numbers, creating the "West Parcel Site" (C360070) and the "East Parcel Site" (C360070b) to allow for independent environmental management of the West Parcel (including South Parcel) and the East Parcel respectively, for redevelopment and future use. As part of the separation of parcels, the BCA site limits for the West Parcel were redefined to exclude Hudson River sediments. This SMP is specific to the West Parcel Site, as redefined in August 2013.

The Site location and boundaries of the 66.67-acre West Parcel Site are provided in Figures 1 and 2 respectively. The boundaries of the Site are more fully described in the metes and bounds site description that is part of the Environmental Easement (See Appendices C and D).

After completion of the remedial work described in the Remedial Work Plan (ARCADIS 2012c), some contamination was left in the subsurface at this Site, which is hereafter referred to as 'remaining contamination." This SMP was prepared to manage remaining contamination at the Site until the Environmental Easement is extinguished in accordance with Environmental Conservation Law (ECL) Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by ARCADIS, on behalf of GM LLC in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 3, 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional and Engineering Controls (IC/ECs) that are required by the Environmental Easement for the Site.

The responsibilities of the Owner and the Remedial Party for implementing the SMP are specified in Appendix B. The names and addresses of these parties are also provided in Appendix B.

1.1.2 Purpose

The Site contains contamination left after completion of the remedial action. Engineering Controls have been incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site to protect public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Westchester County Clerk, will require compliance with this SMP and all IC/ECs placed on the Site. The Institutional Controls place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all IC/ECs. This SMP specifies the methods necessary to document compliance with all IC/ECs required by the Environmental Easement for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) implementation and management of all IC/ECs; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of IC/ECs; and (2) a Monitoring Plan for implementation of Site Monitoring. (Should active measures be required by NYSDEC and NYSDOH for soil vapor or methane mitigation based on soil vapor intrusion sampling, an Operation and Maintenance Plan will be required (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of ECL, 6NYCRR Part 375 and the BCA (Index # C360070-12-10) for the Site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the Site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 Site Background

1.2.1 Site Location and Description

The Site is located in the Village of Sleepy Hollow, County of Westchester New York, and is identified in the BCA, Amendment 1 as Tax Section 115.10, Block 1, Lot 1 and Section 115.15, Block 1, Lot 1 on the Town of Mt. Pleasant Tax Map. The West Parcel Site (Site No. C360070) contains approximately 66.67 acres of land above the mean high water line, of the Hudson River generally bounded by Kingsland Point Park to the north; River Street, Horan's Landing Park, Ichabod's Landing and various private and municipal properties to the south; the Metro North Hudson Line rail corridor and Hudson Street to the east; and the Hudson River and Kingsland Point Park to the west. The two lots included in West Parcel Site are bisected by Beekman Avenue (Figure 2). The boundaries of the Site are more fully described in Appendix D – Metes and Bounds.

1.2.2 Site History

1.2.2.1 Historic Development and Use

Prior to commercial or industrial development, the Site was part of the Beekman Farm. In 1801, the Beekman family constructed a dock on what is now known as Kingsland Point (north of the Site). In 1830, a brickyard was established on the southern portion of the Site at the foot of Beekman Avenue, on the south side of the Pocantico Bay (which has since been filled). The brickyard closed in 1861.

Between 1885 and 1913, industrial operations on the West Parcel included:

- Rand Drill Company, manufacturing percussion rock drills (south side of parcel).

- Mobile Company of America, manufacturing steam-powered vehicles (north side of parcel).
- Maxwell Briscoe Company, manufacturing gasoline powered automobiles, with operations including assembly buildings, machine shops, woodworking facilities and painting/varnishing operations, and a small foundry (north and south sides of parcel).

The Chevrolet Motor Company, which later became a division of General Motors Corporation (GMC), originally acquired the former Maxwell Briscoe Property and automobile manufacturing facility in 1914. Since that time until the assembly plant was closed in 1996, GMC had only assembled automobiles at the Site with the exception of a period during World War II when airplane wings and light military vehicles were assembled at the Site.

Much of the West Parcel land mass (north of Beekman Avenue) was formerly an embayment of the Hudson River. Historical fill material was initially placed in a north-south strip across the bay during the 1840s to support the construction of a railway between New York City and Albany. Historical fill material was subsequently placed on the West Parcel during the early 1900s for industrial developments that preceded the arrival of GMC. As GMC operations grew, additional historical fill material was placed on the West Parcel during several expansion projects between 1924 and 1960. The final extension of the waterfront to its current configuration was filled with sediments dredged locally from the Hudson River. Historic fill material documented at the Site includes cribbing, former piers, sunken barges, ash and other debris. Figure 3 illustrates the sequence of historic filling within the West Parcel.

The south parcel area of the Site, bounded by Beekman Avenue, Hudson Street and River Street, was developed as a parking lot on former residential land and is currently paved. A water storage tank and pump house, which supported the operating assembly plant facility north of Beekman Avenue, was also located on the south parcel area, but was removed after the assembly plant was demolished.

After the facility closure in 1996, all buildings and most above-grade structures were demolished and removed. Most of the concrete floor slabs and foundations from the former Body and Chassis Plants on the West Parcel were not demolished. Large portions of the ground-level building slabs from the former Body and Chassis Plants have remained on the West Parcel as part of the existing cover system until redevelopment occurs.

1.2.2.2 Historic Environmental Reports

When the former assembly plant decommissioning process was initiated, GMC initiated a Phase I Environmental Site Assessment that entailed a thorough assessment of current and historical GMC operations to determine if petroleum or potentially hazardous chemical constituents had been released to the Site environment. This led to a series of subsurface investigations and a focused investigation of sediment quality in the Hudson River. The findings of these investigations can be found in the following reports, which have been previously submitted to the NYSDEC:

- *Phase I Environmental Site Assessment, Tarrytown Assembly Plant* (EMCON, 1996)
- *Phase II Environmental Site Investigation, Tarrytown Assembly Plant* (EMCON, 1997)
- *Phase I Environmental Site Assessment, Salaried Parking Lot* (EMCON 1998)
- *Data Report for the Sediment Quality Investigation, Hudson River near the General Motors Corporation Former Tarrytown Assembly Plant* (Exponent and EMCON, 1999)
- *Phase III Extent of Contamination Study, Former Tarrytown Assembly Plant* (EMCON, 2001a)
- *Interim Corrective Measures Completion Report, Former Tarrytown Assembly Plant* (EMCON, 2001b).

Additionally, on behalf of Roseland/Sleepy Hollow, LLC (Roseland), a former prospective developer of the Site, EcolSciences, Inc. performed soil and groundwater sampling at the Site during August 2002. Their sampling was conducted as part of Roseland's due diligence investigation for the contemplated site use. The findings of that investigation can be found in *Due Diligence Sampling Results for the General Motors Corporation Tarrytown Assembly Plant Property*, (EcolSciences, 2002).

Supplemental Phase II Investigation findings from additional test pit and test borings conducted on behalf of GMC during 2000 were also provided to the NYSDEC in a letter dated March 17, 2003 (AMEC, 2003).

Data from these reports were used to plan and were made part of a remedial investigation (RI) conducted under the BCA. Collective findings of the remedial investigation are summarized in Section 1.3.

1.2.2.3 Anticipated Future Land Use

The anticipated future use of the Site is mixed commercial and restricted-residential development, with public open space, including public access to the waterfront.

The proposed Site Development Plan and other details contemplated for the proposed development are presented in the Findings Resolution adopted by the Village on July 24, 2007 (Village of Sleepy Hollow 2007) and amended on January 25, 2011 (Village of Sleepy Hollow 2011a) and the Special Permit and Concept Plan Approval adopted by the Village on June 7, 2011 (Village of Sleepy Hollow 2011b). The proposed site development plan is provided on Figure 4 (areas applicable to the West Parcel Site are labeled West Parcel and South Parcel).

Key proposed post-development features along the waterfront portion of the Site include a fishing pier near the southwest corner of the Site, a floating dock (dock and dine), an existing lighthouse, and a second floating dock for launching small craft. The existing lighthouse (Tarrytown Lighthouse) is listed on the National Register of Historic Places and is currently accessible to the public through Kingsland Point Park.

In accordance with the BCA for the Site, the intended future uses are restricted-residential/commercial development and open public space. Restricted uses, as defined in 6NYCRR Part 375-1.8, include:

a. "Restricted-residential use", which is the land use category which shall only be considered when there is common ownership or a single owner/managing entity of the site. Restricted-residential use shall, at a minimum, include restrictions which:

    a) Prohibit any vegetable gardens on a site, although community vegetable gardens may be considered with Department approval;

    b) Prohibit single family housing;

    c) Includes active recreational uses, which are public uses with a reasonable potential for soil contact; and

b. "Commercial use", which is the land use category which shall only be considered for the primary purpose of buying, selling or trading of merchandise or services. Commercial use includes passive recreational uses, which are public uses with limited potential for soil contact.

In addition, "restricted-residential use" is a land use category that does not allow the Site to be used for planting fruit-bearing trees, raising livestock or producing animal products for human consumption.

"Restricted use" is a use with imposed restrictions, such as environmental easements, which as part of the remedy selected for the site, requires a site management plan and relies on institutional controls or engineering controls to manage exposure to contamination remaining at a site.

1.2.3 Geologic Conditions

Over 90% of the Site acreage north of Beekman Avenue is developed on historic fill (Figure 3), which is of varying composition and thickness, ranging from approximately 1-25 feet of fill beneath the existing cover (prior to redevelopment). Within the West Parcel Site area north of Beekman Avenue, the historic fill material consists of a variety of dredged materials, soils, ash, rubble, and other debris, as well as filled barges, bulkheads and foundations.

The fill is underlain in areas by soft organic clay and peat deposits associated with the Hudson and Pocantico Rivers. In other areas, varved silt and clay underlies the fill. Beneath these deposits, a layer

of compact granular till (silty sand with gravel and occasional cobbles and boulders) overlies the bedrock with a thickness ranging from 1 ft. to more than 10 ft. The underlying bedrock is weathered to relatively unweathered gneiss. The depth to bedrock is variable across the Site, ranging from less than 20 feet below ground surface (bgs) to greater than 100 feet. .

The direction of groundwater flow is southwest toward the Hudson River with local variations. Groundwater exists within the historic fill and natural deposits. A representative groundwater flow map is shown in Figure 5.

1.3 Summary of Remedial Investigation Findings

RIs were performed to characterize the nature and extent of contamination at the Site. The results of the RIs are described in detail in the following reports:

- *Remedial Investigation Report (RIR) Former General Motors Assembly Plant Site, Sleepy Hollow, New York (ARCADIS 2012a)*
- *Sediment Remedial Investigation Report Former General Motors Assembly Plant Site, Sleepy Hollow, New York (ARCADIS 2012b)*

The RI (onsite) and the Sediment RI (offsite) were conducted under NYSDEC oversight, building upon data supplied by GMC and Roseland from prior due diligence investigations and an Interim Corrective Measures project completed by GMC during facility decommissioning. Generally, the RI determined that contamination at the Site is associated with historical fill and past operations at the former GMC facility (ARCADIS 2012a).

Below is a summary of Site conditions when the RI was performed during 2003-2006. Table 2 (as presented in the RI Report, summarizes the chemical constituents detected by study and by environmental media.

1.3.1 Soil

Historic fill material used to develop the Site from the mid-1800s through the last phase of filling and grading in 1960 (Figure 3) typically may not meet all 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) for restricted residential use, primarily due to the presence of metals and polycyclic aromatic hydrocarbon (PAHs). Metals and PAHs are the principal contaminants of concern. Lead is the most widespread metal detected in soil samples from historic fill on the West Parcel. Other metals found at levels above restricted residential SCOs include arsenic, barium, cadmium, chromium, copper, mercury and zinc. PAHs are generally associated with ash or cinder fill in various areas and residual petroleum from historic spills in localized areas.

Historic industrial operations on the West Parcel have also contributed to the presence of residual petroleum and petroleum derived volatile and semi-volatile organic compounds (VOCs and SVOCs),

as well as localized areas where chlorinated VOCs, primarily trichloroethene (TCE) were found. Groundwater is present within the historic fill material and also contains variable concentrations of metals, VOCs and PAHs (see Section 1.3.3). Soil sampling locations from the RIR (ARCADIS 2012a) are shown on Figure 6. See Section 1.4.4 for a summary of remaining contamination following completed remedial actions.

Concrete millings, stockpiled onsite, have been used as grade fill during the demolition of the former assembly plant complex to fill in depressions resulting from demolition of buildings and removal of supporting structures (during the 1998-1999 period). The millings were derived from the demolition of onsite concrete structures and contain metals and PAHs at levels greater than restricted residential SCOs, as wells as low levels of polychlorinated biphenyls (PCBs). Overall, the concrete millings onsite generally contain PCBs less than or equal to the SCO of 1 part per million (ppm) in surface soil for restricted residential use, and all samples are consistently below Commissioner Policy-51 (CP-51) Soil Cleanup Guidance of 10 ppm for subsurface soil on BCP sites designated for restricted residential use (i.e., beneath clean cover soil, permanent structures, pavement or other cover systems). Stockpiled millings were used as backfill above the groundwater table at select Interim Remedial Measures (IRM) excavation areas in 2007 (as described in Sections 1.4). This use was approved by NYSDEC in the form of a Beneficial Use Determination (BUD), No. 894-3-60.

1.3.2 Sediments

Several historical sediment investigations have been conducted for the lower Hudson River sediments in the vicinity of the Site. These investigations include a study conducted for GMC in 1997 specific to the Site, and regional studies conducted in 2000/2001 by others (Versar) for NYSDEC. Under the BCA for the West Parcel, two additional site-specific sediment investigations were conducted for GMC in 2004 (initial) and 2006 (supplemental) under NYSDEC-approved work plans. The methods and findings of the investigations performed for GMC under the BCA, as well as data from the previous site-specific and regional investigations, were included and evaluated in the Sediment RI Report (ARCADIS 2012b).

The Sediment RI evaluated the distribution of metals, PAHs and PCBs in sediments upstream, downstream and in the immediate vicinity of the Site shoreline (including three outfall locations). Based on the bulk sediment chemistry data obtained throughout the study area in the 2004 investigation, GMC worked with NYSDEC to apply sediment screening techniques to determine the list of contaminants of potential concern (COPCs) as five metals (chromium, copper, lead, mercury, and zinc) associated with the Site.

The final supplemental investigations in 2006 delineated the extent of COPC contamination relative to NYSDEC sediment screening criteria but the evaluation did not clearly demonstrate biological impact attributable to COPCs near the Site based on the multiple lines of evidence gathered. However, sediments containing the highest levels of COPCs were concentrated in one area at the mouth of stormwater outfall OF-1, which historically functioned as a combined industrial effluent/stormwater

outfall. Sediments in this area were remediated by GM LLC in 2012, as summarized in the Final Engineering Report (FER; ARCADIS 2013).

This SMP does not apply to sediments in the Hudson River. The metes and bounds encompassed in this SMP and the Environmental Easement for the Site is landward of the mean high water line on the existing Hudson River shoreline.

1.3.3 Site-Related Groundwater

Metals were detected in the groundwater samples at concentrations above the NYS Class GA groundwater standards specified in 6NYCRR Part 703. Class GA groundwater is protected for drinking water use.

Groundwater samples collected from monitoring wells (observation wells) during the Site investigations on the West Parcel (Figure 7) contained detectable concentrations of one or more Target Analyte List (TAL) metals. Between 14 and 20 different metals have typically been detected in the unfiltered groundwater samples collected from the West Parcel. In the filtered samples, however, the metals detected at concentrations above the NYS Class GA groundwater standards have typically been limited to sodium, iron, magnesium, and manganese. These analytical results suggest that the metals detected in the unfiltered samples are derived principally from suspended particulate material contained in underlying historic fill material (ARCADIS 2012a).

Within the West Parcel, groundwater exhibited evidence of residual petroleum contamination (VOCs and/or occasional sheen and odor) in the vicinity of an abandoned 10,000-gallon No. 6 fuel oil underground storage tank (UST) that was partially removed during GMC's Interim Corrective Measures project in 1998. The remainder of the UST and two others were removed as part of the 2007 IRM project (see Section 1.4). The results of groundwater sampling downgradient of former sources showed that petroleum constituents have naturally attenuated within the Site.

Significant VOC and metal contamination in groundwater, relative to Class GA standards, was limited to a small area beneath the oldest part of the former Body Plant near Kingsland Point Park, referred to as Potential Area of Concern (PAOC) 47 (see Figure 6). . Chromium and TCE were the constituents that exceeded Class GA standards in groundwater samples, which was a condition not seen elsewhere on the Site. TCE was detected at a maximum concentration of 75 parts per billion (ppb) and chromium was detected at a maximum concentration of 42,100 ppb. An IRM was completed in 2007-2008 to remove the source of chromium and to chemically destroy TCE in the saturated zone through in-situ chemical oxidation (ISCO). As described further in Section 1.4, periodic post-IRM monitoring confirmed that the IRM objectives for groundwater were met.

The use of groundwater underlying the property is prohibited without necessary water quality treatment, as described in the Environmental Easement (Appendix C)

1.3.4 Site-Related Soil Vapor Intrusion

A soil gas survey was performed during the RI to evaluate the general presence or absence of methane gas and volatile organic vapors beneath the existing cover within and around the former assembly plant operations area (West Parcel north of Beekman Avenue). Because no buildings existed on the property at the time of the survey, most samples were obtained beneath hard surfaces (asphalt and concrete slabs). The findings are summarized as follows:

Methane

Methane was not prevalent on the West Parcel (Figure 8). Methane was limited to the northern corner of the West Parcel in an area where evidence of marsh vegetation (roots, organic mud) was noted in test borings. Methane gas levels ranged from 0.1% to 18% under asphalt surfaces in this area. Beyond this northern corner, only trace levels of methane (below 1%) were measured under asphalt or concrete surfaces within the West Parcel.

Volatile Organic Compounds (VOCs) in Soil Vapor

VOCs were detected in soil vapor samples throughout the areas sampled on the West Parcel (Figure 8). Petroleum-derived vapors were detected within and near petroleum attenuation areas. Chlorinated VOCs were detected primarily within and near PAOC 47, where TCE was found in groundwater. The extent of chlorinated VOCs in vapor was broader than the former footprint of groundwater contamination. The soil and groundwater sources of TCE were subsequently remediated as part of the IRMs performed in 2007-2008 (see Section 1.4).

1.3.5 Underground Storage Tanks

An abandoned 10,000-gallon No. 6 fuel oil UST was partially removed during GMC's Interim Corrective Measures project in 1998. The remainder of the UST and two additional USTs found during excavation were removed as part of the 2007-2008 IRMs (see Section 1.4). The two additional USTs encountered were not intact (heavily corroded, rusted and damaged from prior historical construction and demolition above the tanks). Based on the metal excavated during these activities, the size and original contents of the USTs are unknown. However, the recovered ends of both USTs measured 9 feet in diameter and were constructed of riveted steel. The apparent length of the USTs would have been no more than 20 feet based on the approximate size of the debris field. Based on appearance and prior soil sampling in their immediate vicinity, these USTs likely also stored petroleum product.

1.4 Summary of Remedial Actions

The Site was remediated in accordance with the NYSDEC-approved Interim Remedial Measure Work Plan (ARCADIS 2007) and the Remedial Work Plan dated (ARCADIS 2012c), consistent with the June 2012 Decision Document (NYSDEC 2012).

The following is a summary of the Remedial Actions performed at the Site:

1. Excavation and offsite disposal of grossly contaminated soil and fill as part of the IRM in the areas of PAOC 7, PAOC 29, PAOC 47, and a former 10,000 gallon underground storage tank area (see drawings provided in Appendix E).;

2. Injection of chemical oxidants into the ground to treat the residual contamination in the groundwater as part of the IRM at PAOC 47 and former 10,000-gallon UST area;

3. Sediment remediation, including removal of sediments from onsite storm sewers and dredging of metals-contaminated sediment from the Hudson River near Outfall OF-1;

4. Maintenance of the existing cover system consisting of asphalt, concrete slabs, recycled concrete millings and vegetated soil with limited controlled access to minimize human exposure to remaining contaminated soil/fill remaining at the Site;

5. After redevelopment, the cover system will consist of:

    a. A demarcation barrier over soil or historic fill material that does not meet 6 NYCRR Part 375 SCOs for unrestricted use.

    b. A barrier cap system throughout the entire Site consisting of either or a combination of surface soil cover for landscaped/naturally vegetated areas, pavement over non-vegetated areas, or permanent buildings.

6. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to any contamination remaining at the Site (see Appendix C).

7. Development and implementation of this SMP for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) IC/ECs, (2) monitoring, (3) provisions for implementing actions recommended to address potential exposures related to soil vapor intrusion, and () reporting.

Remedial activities prior to redevelopment were completed at the Site in 2013, with the completion of sediment remediation on the Hudson River, recording of the Environmental Easement and completion

of this SMP. Sediment remediation represented the final remedial action to be taken prior to construction of engineering controls during redevelopment.

1.4.1 Removal of Contaminated Materials from the Site

The primary contaminants of concern for the Site, as listed in the June 2012 Decision Document are:

- Lead
- Chromium
- Copper
- Mercury
- Zinc
- Trichloroethene
- Petroleum products

A list of the soil cleanup objectives (SCOs) for the applicable land use for this Site (restricted residential use) is provided in Table 1. The SCOs for the constituents listed above are included in Table 1. For “petroleum products”, refer to the listed SCOs for individual volatile and semi-volatile organic compounds.

The remedial action objectives (RAOs) for the upland Site soils, in consideration of the constituents of interest, contemplated future use, and exposure pathways and receptors were presented in the NYSDEC’s IRM Decision Document (NYSDEC 2007), and are as follows:

- Remove, to the extent practicable, the grossly contaminated soil present at the Site
- Eliminate, to the extent practicable, the potential for offsite migration of residual contamination
- Eliminate, to the extent practical, the potential for exposure to soils and historic fill materials that exceed TAGM 4046 or applicable BCP Soil Cleanup Objectives Values [subsequently defined as 6NYCRR Part 375 SCOs for restricted residential use

IRM soil removal remedies, implemented in 2007, accomplished the first goal of removing grossly contaminated soil and contributed to the second goal of eliminating the potential for future exposure for the areas addressed. Specifically, these actions included:

- Excavation and offsite disposal of grossly contaminated soil containing elevated concentrations of lead from the PAOC 7 and PAOC 29 areas
- Excavation and offsite disposal of grossly contaminated soil containing elevated concentrations of chromium and TCE from the PAOC 47 area
- Excavation and offsite disposal of petroleum-impacted soil from the Former 10,000-gallon UST Area

Figure 9 and Appendix E shows the areas where excavation was performed. The following soil IRMs were completed and documented in the Interim Remedial Measure Construction Completion Report (ARCADIS 2008):

IRM - Lead Impacted Soils (PAOC 7 & 29)

The IRM activities completed within PAOC 7 and PAOC 29 included excavation and offsite disposal of grossly contaminated soil containing elevated concentrations of lead. In total, approximately 4,800 cubic yards of lead contaminated soil (soils with concentrations greater than 5,000 ppm for lead above the water table in PAOCs 7 and 29, soils greater than 10,000 ppm for lead at targeted depths below the water table in PAOC 7, and affected depths below the water table in PAOC 29).

Following excavation, a demarcation barrier consisting of a black geotextile fabric was placed in the excavation to delineate soil left in place from the material used as backfill. The demarcation barrier was installed at the completed depth and horizontal extent of the excavations.

Following placement of the demarcation barrier, the PAOC 7 and PAOC 29 excavation areas were backfilled with imported 2-inch minus stone. Above the water table, the backfill was placed in 1-foot lifts and compacted to a minimum of 95 percent of the Standard Proctor density.

IRM - Chromium & TCE Impacted Area (PAOC 47)

The IRM activities completed within PAOC 47 included excavation and offsite disposal of soil contaminated with chromium and TCE that exceeded restricted residential and protection of groundwater soil cleanup objectives respectively. In total, approximately 3,700 cubic yards of chromium and TCE contaminated soil were removed from the PAOC 47 area.

Following excavation, a demarcation barrier was placed in the excavation to delineate soil left in place from the material used as backfill. The demarcation barrier consisted of a black geotextile fabric and was installed at the completed depth and horizontal extent of the excavation.

Following placement of the demarcation barrier, the PAOC 47 excavation area was backfilled with imported 2-inch minus stone. Above the water table, the backfill was placed in 1-foot lifts and compacted to a minimum of 95 percent of the Standard Proctor density.

IRM - Former UST Area

The IRM activities completed in the former UST area included excavation and offsite disposal of approximately 6,400 cubic yards of petroleum contaminated soil that exceeded restricted residential soil cleanup objectives. During excavation of petroleum contaminated soil, the remaining portion of a UST (that was partially removed in 1998) and two additional USTs were encountered within the excavation area and subsequently removed and properly disposed of as part of the IRM.

Following excavation, a demarcation barrier was placed in the excavation to delineate soil left in place from the material used as backfill. The demarcation barrier consisted of a black geotextile fabric and was installed at the completed depth and horizontal extent of the excavation.

Following placement of the demarcation barrier, the former UST excavation area was backfilled with imported 2-inch minus stone and concrete millings. Above the water table, the backfill was placed in 1-foot lifts and compacted to a minimum of 95 percent of the Standard Proctor density.

A combined total of more than 22,000 tons of soil were removed from the Site by these IRMs. Documentation of the final extent of these removal actions are described in the Interim Remedial Measure Construction Completion Report (ARCADIS, 2008). Record drawings showing the thickness of cut and backfill for each excavation area are provided in Appendix E.

The remaining goals are met through the combination of:

- In-situ oxidation and/or natural attenuation of organic contaminants in groundwater within the West Parcel (summarized in Section 1.4.2)
- IC/EC measures for the entire Site (Summarized in Section 2)
- Environmental easement to enforce adherence to the IC/EC measures (Appendix C)

1.4.2 Groundwater Interim Remedial Measures

Treatment of contaminated groundwater using ISCO was performed in the spring of 2008 at PAOC 47 (Figure 9), following the soil removal IRM.

The goal of the ISCO groundwater treatment program was to:

- Eliminate, to the extent practicable, the potential for offsite migration of residual contamination.
- Eliminate, to the extent practicable, the potential for exposure to residual contamination in groundwater.
- Eliminate, to the extent practicable, the potential for intrusion of volatile organic compound soil vapors into indoor air spaces in future buildings.

A total of 65 ISCO injection wells were installed in the PAOC 47 area. The injection wells were used to introduce approximately 40,500 gallons of sodium persulfate and sodium hydroxide between April 23 and May 1, 2008. Following injection, groundwater quality monitoring was completed to confirm the overall effectiveness of the ISCO injection.

ISCO was successful in remediating TCE in groundwater to levels meeting the Class GA drinking water standard with the exception of a few localized areas within the treatment zone. The observed trend in the post-injection groundwater monitoring data indicates some attenuated levels of TCE in

groundwater at concentrations marginally above the Class GA standard onsite, with groundwater typically meeting the Class GA standard along the downgradient property line.

The results of the post-injection monitoring were summarized in a PAOC 47 Post-Injection Monitoring Update memorandum to NYSDEC, dated October 6, 2011. Based on post-injection groundwater monitoring data obtained between June 2008 and May 2011, the TCE-affected area is remediated to the extent practicable and poses no exposure potential.

NYSDEC completed review of the October 6th memorandum and issued a letter stating "Based on the post-ISCO injection summary provided in this update, along with remedial actions summarized in previously submitted updates and remedial action documents, the October 6, 2011 memorandum serves as the final engineering report for this individual IRM and no further action is required in the PAOC-47 area (Operable Unit [OU] 01B). It is understood, however, that the PAOC-47 area is subject to the site-wide IC/EC described in the July 2007 IRM Decision Document (NYSDEC 2007)."

The IC/EC measures to be implemented, as well as the role of the environmental easement, are specified in this SMP. IC/EC measures, typically used to support redevelopment of Brownfield sites, will be used to prevent public exposure to historical fill, groundwater and soil gases.

1.4.3 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the Site remedy.

1.4.4 Remaining Contamination

Remaining contamination associated with historic fill and past industrial operations at the former GMC facility is present within the West Parcel area north of Beekman Avenue at levels exceeding Track 1 (unrestricted) SCOs. Table 3 summarizes the results of all soil samples remaining at the Site after completion of the Remedial Actions that exceed the Track 1 (unrestricted) SCOs. Because there is no defined area within the Site where Track 1 SCOs are confirmed to be met, Table 3 provides a range of constituent concentrations remaining within the West Parcel. Table 4 provides a similar range of constituent concentrations in West Parcel soils that exceed restricted residential SCOs after completion of Remedial Action. Figure 10 provides the locations of all samples from soil, historic fill and beneficial use materials remaining at concentrations exceeding unrestricted SCOs at the Site after completion of the IRMs. The available data for these samples is provided on a CD at the end of this SMP.

1.4.4.1 Soil

Soil and historic fill remaining at the Site contain metals (arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver and zinc), as well as pesticides, PCBs. SVOCs and VOCs at levels exceeding unrestricted use SCOs (Table 3). Following completion of the IRMs, lead

remains the most widespread metal detected in soil samples from historic fill on the West Parcel. Figure 10 provides the location of samples included in the "remaining soil contamination" database provided on a CD at the back of this SMP. These samples refer to historic fill and soils remaining after all previously completed removals. Characteristics of onsite beneficial use materials that have been used as Site backfill or stockpiled on the Site are summarized in Section 1.4.4.4.

The contaminated fill is found directly beneath the existing cover system. Fill thickness ranges from approximately 1 to 25 feet below the existing cover. The only active utilities on the Site, prior to redevelopment, are the Site storm drains and a sanitary sewer main that is owned by Westchester County. Historic buildup of sediments was removed from those parts of the Site storm drain system that remained in operation following the assembly plant demolition, as summarized in the Final Engineering Report (ARCADIS 2013). The removed sediments were stabilized for beneficial use and stockpiled onsite as summarized in Section 1.4.4.4.

1.4.4.2 Groundwater

IRMs were implemented to reduce impacts to onsite groundwater, however, groundwater at the Site does not meet Class GA groundwater standards (for drinking water use) after completion of the IRMs, nor will these standards be met through the required engineering controls.

As summarized in the Decision Document, prior to remediation, TCE, chromium, and petroleum-derived VOCs and SVOCs were the primary contaminants of concern identified in Site groundwater. TCE was detected beneath the Body Plant (PAOC 47) at concentrations up to 75 ppb and exceeding the groundwater SCG of 5 ppb. Chromium was detected in groundwater from this area at concentrations up to 42,100 ppb and above the groundwater SCG of 50 ppb. The IRM in 2007 involved excavation of soil around the former process pit to remove the TCE and chromium source area, and involved the injection of chemical oxidants to reduce residual groundwater contamination. Following excavation and ISCO injection, TCE was detected at a maximum groundwater concentration of 8.5 ppb and slightly above the drinking water standard of 5 ppb. Chromium groundwater concentrations outside of the IRM treatment area range from non-detect to 466 ppb.

Groundwater sampling shows that petroleum-derived VOCs are no longer detected above the laboratory detection limit in the remediated 10,000-gallon UST area and are present at low ppb concentrations downgradient from this area. Naphthalene, detected at a maximum concentration of 44 ppb and above the 10 ppb groundwater standard, was the VOC detected at the highest concentration downgradient of the former 10,000-gallon UST area. Fluoranthene was the SVOC detected at the highest concentration (68 ppb) and slightly above the groundwater standard of 50 ppb downgradient of the UST area. Overall, petroleum-derived VOCs and SVOCs, are effectively attenuated within the boundaries of the Site, approaching or meeting groundwater standards at the property line.

Although lead was a primary contaminant in historic fill material on the Site and required remediation, groundwater sampling across the Site indicates that the presence of lead in historic fill material is not

impacting groundwater quality. Lead was detected at concentrations ranging from non-detect to 21.2 ppb in groundwater and below the groundwater standard of 25 ppb near PAOC 7 and PAOC 29 where lead contaminated fill material was removed as part of IRMs (Figure 9).

Most monitoring wells, including temporary wells, and all ISCO injection wells, were decommissioned in 2012 per a NYSDEC-approved plan. Select monitoring wells were retained for future use in the groundwater monitoring plan described in Section 3.3.1.

As discussed in the IRM Decision Document, groundwater in the vicinity of the Site is not used as a potable water supply. As described in Section 2.3, institutional control measures specified in the Environmental Easement will prohibit the use of site groundwater without treatment and NYSDOH, Westchester County DOH, and NYSDEC approval.

1.4.4.3 Soil Gas

Soil gas/vapors remaining at the Site include methane attributable to decomposition of natural organic matter and volatile organic vapors associated with historic industrial operations.

Soil gas and vapors remaining onsite include:

- Methane (0.1% to 18%) limited to the northern corner of the West Parcel in an area where evidence of marsh vegetation (roots, organic mud) was noted in test borings.
- Petroleum-derived vapors were detected on the West Parcel within and near petroleum attenuation areas and chlorinated VOCs were detected primarily within and near PAOC 47, where TCE was found in groundwater. The overall extent of chlorinated VOCs in soil vapor was broader than the former footprint of groundwater contamination.

The locations of soil gas sampling and associated data are provided in Figure 8. The soil and groundwater sources of TCE were subsequently remediated as part of the IRMs performed in 2007-2008 (described in Section 1.4.4.2). No post-IRM soil gas data are available. Requirements to address potential soil vapor intrusion (SVI) associated with planned building construction are discussed in Section 2.3.2.

1.4.4.4 Beneficial Use Materials Onsite

Beneficial use materials remain onsite for future use as structural or grading fill at the Site. These materials include:

- concrete millings derived from the demolition of onsite concrete slabs from the former assembly plant complex
- sediments removed from the Hudson River and Site storm drains, and stabilized onsite during 2012-2013

The concrete millings were used as general grading fill following the demolition of the former assembly plant complex to fill in depressions remaining after buildings and related structures were demolished (during the 1998-1999 period). The balance, amounting to over 40,000 cubic yards, was stockpiled in a former above-ground wastewater storage tank containment area and used as excavation backfill and temporary cover (Figure 11) pursuant to a BUD from NYSDEC.

The millings contain metals and PAHs at levels greater than restricted residential SCOs, as well as detections of PCBs. Overall, the concrete millings onsite generally contain PCBs less than or equal to the SCO of 1 ppm in surface soil for restricted residential use, and samples are consistently below CP-51 Soil Cleanup Guidance of 10 ppm for subsurface soil on BCP sites designated for restricted residential use (i.e., beneath clean cover soil, permanent structures, pavement or other cover systems).

Approximately 5,600 cubic yards of the stockpiled millings were used as backfill above the groundwater table at two IRM excavation areas (UST Area and PAOC 7) in 2007 (Figure 9 and Appendix E). Approximately 1,900 cubic yards were used in 2013 as temporary cover over stabilized sediments removed from the Hudson River during remedy implementation, as described below. This use of millings was approved by NYSDEC in the form of a BUD, No. 894-3-60 granted on June 14, 2007 (Appendix F).

Sediment remediation materials, including Hudson River and West Parcel storm sewer sediments were stabilized and placed onsite for beneficial use (Figure 11). Based on the bulk sediment chemistry data obtained throughout the study area in the 2004 investigation, five metals (chromium, copper, lead, mercury, and zinc) were identified as sediment COPCs associated with the Site. A BUD for Site sediments was granted to GM LLC by NYSDEC on July 24, 2012 (Appendix F). The conditions for the NYSDEC-approved BUD were met as follows:

- Only materials dredged from the sediment removal area near Outfall-1 in the Hudson River and from onsite storm drains were used under the BUD. Total sediment quantities are as follows:
    - 4,635 cubic yards dredged Hudson River sediments
    - 705 cubic yards Site storm sewer sediments
- Sediments were stabilized with 270 tons of Portland cement and sampled for metals using the toxicity characteristic leaching procedure (TCLP) in accordance with the Sediment Remedial Work Plan (Sediment RWP).
- Sample results confirmed that the stabilized sediments are non-hazardous.
- Stabilized sediments met engineering requirements for intermediate fill (fill to be used beneath a cover system) and were placed in an area managed by institutional controls for the Brownfield cleanup Site.

Analytical data for the onsite beneficial use materials are included in Appendix F. In addition, a stockpile of NYSDEC-approved blended backfill from two quarry sources meeting SCOs for Protection of Ecological Resources is stored on the Site for future use (Figure 11).

2. Engineering and Institutional Control Plan

2.1 Introduction

2.1.1 General

In conformance with NYSDEC's final decision document for the Site, IC/ECs will be implemented to address the potential exposure of future site users to remaining contaminated soil, groundwater, and soil vapor that may exist beneath the Site. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The Engineering and Institutional Control Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan (Appendix A) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 Engineering Controls

2.2.1 Engineering Control Systems

2.2.1.1 Cover System

Existing Cover System

Exposure to remaining contamination in soil/fill at the Site is prevented by an existing pre-development cover system over the Site. This cover system: as shown on Figure 12, consists of the following:

West Parcel Site, north of Beekman Avenue

- Bituminous pavement and concrete parking or roadway surfaces
- Concrete slab-on-grade and slab above crawl space
- Concrete millings as grading fill and temporary cover, pursuant to a BUD, over certain IRM areas, demolished building footprints and former rail siding footprints
- Concrete millings as temporary erosion cover over BUD sediments)
- Concrete millings in a managed stockpile on a concrete pad
- Clean Item 4 stone backfill in certain IRM and pavement repair areas
- Rip rap along the Hudson River shoreline
- Vegetated soil strips along Beekman Avenue and the adjacent Ichabod's Landing townhouse community

West Parcel Site, south of Beekman Avenue (a.k.a. South Parcel)

- Bituminous pavement parking surfaces
- Vegetated strips on hillsides separating different parking levels within the property lines
- Clean Item 4 stone backfill in pavement repair areas

The existing cover system will be maintained by the Owner or Remedial Party until the parcels undergo final redevelopment. The final cover system requirements are summarized below.

Final Cover System

The cover system for the Site, to be completed during site redevelopment is described in the IRM Decision Document and summarized in the final June 2012 Decision Document . For this site, the cover system will consist of:

- A demarcation barrier consisting of a geotextile fabric or a structural surface (e.g., concrete or asphalt) over soil or historic fill material that does not meet 6 NYCRR Part 375 SCOs for unrestricted use (see Appendix G for unrestricted use SCOs).

- A final barrier cap system throughout the entire Site consisting of either or a combination of:

  - Two-foot-thick surface soil cover for landscaped or naturally vegetated areas. If necessary, based upon additional testing, portions of the soil cover may be designed to minimize infiltration through unsaturated soil exhibiting the potential to leach lead to groundwater.
  - Pavement (or similar hard surface) over non-vegetated areas.
  - Permanent buildings or similar structures.
  - Soils imported to the Site will meet the requirements set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use;(i.e., the lower of restricted residential SCOs or protection of

groundwater SCOs, as provided in Appendix 5 of DER-10 under "Restricted Residential Use" (See Appendix G).

The demarcation barrier in combination with a 2-foot-thick surface cover, pavement, or permanent structures is collectively referred to hereafter as the *final cover system*.

The approximate extent of the final cover system is expected to be consistent with the Riverfront Development Concept Plan shown on Figure 4. Components of the final cover system are generally described below.

Demarcation Barrier

Demarcation barriers will consist of either:

- highly visible synthetic geotextile or other approved synthetic material that identifies the interface between historical or intermediate fill that does not meet 6 NYCRR Part 375 SCOs for unrestricted use (see Appendix G for unrestricted use SCOs)and the permanent final soil cover system
- hard surface that also serves as the final cover system

A demarcation fabric will be placed beneath the final soil cover system to identify the limits of the barrier in order to alert persons conducting future intrusive activities (through visual controls). A demarcation fabric will not be required under building slabs, because the slabs and any underlying vapor barriers will satisfy the permanent demarcation function. Similarly, pavement will serve a dual function of demarcation barrier and final cover, except where specified below under public roads and right-of ways. Figure 13 shows the typical cross sections for each final remedial cover type to be used on the Site.

In accordance with the IRM Decision document, all new underground utilities constructed within public roads and public right-of-ways that overlay historic fill or soils that do not meet SCOs for restricted residential use (Table 1), will include an additional highly visible synthetic demarcation barrier throughout the trench to separate historical fill or other material that does not meet SCOs for restricted residential use from the installed approved trench backfill, described below. This additional demarcation barrier will also run beneath the pavement on all new public roads overlying historic fill and soil that does not meet restricted residential SCOs. Although pavement is an acceptable demarcation barrier, the addition of a highly visible barrier beneath the public pavement is intended to alert Village Department of Public Works (DPW) or utility workers who service or make connections to underground utilities that work beneath this demarcation is not permitted without adherence to the Excavation Work Plan (EWP) provided in Appendix A. Absence of the highly visible barrier under roadways (new utility corridors) indicates that the area being accessed contains "approved backfill", as defined in Appendix A, requiring no special handling. All excavations beneath the existing cover system or final demarcation barrier must adhere to the EWP (Appendix A).

Underground Utility Trench Backfill

In accordance with the IRM Decision Document, all materials used as backfill for underground utilities installed in public right-of-ways and service laterals during Site development and in the future will meet the Site SCOs for the surface soil cover system. Specifically, where underground utility installation or access requires excavation into existing historic fill or other material that does not meet the SCOs in Table 1, the excavated material will be replaced with approved backfill consisting of existing Site soils meeting the SCOs listed in 6 NYCRR Part 375, Table 375-6.8(b) for "restricted residential" use (see Table 1);or imported soils meeting SCOs for restricted residential use provided in Appendix 5 of DER-10 under "Restricted Residential Use" (see Appendix G). Prior to this backfill placement, a demarcation barrier will be placed along the bottom and sides of each affected utility trench (as practicable) to separate approved backfill materials from surrounding soil or fill. The installation will provide a minimum of 1 foot of approved backfill material between the invert of buried utilities and the bottom demarcation barrier, as well as a minimum of 2 feet of approved backfill material between the buried utilities and sidewall demarcation barriers. Approved backfill material will be brought up to the final cover system. The Owner or Remedial Party will be responsible for specifying the compaction requirements and drainage characteristics of backfill material needed to meet project design requirements and applicable building codes and confirming compatibility of the demarcation barrier material with the utility type. See the EWP (Appendix A) for additional requirements regarding soil management.

Existing utilities located in areas of historic fill at the Site that will continue to be used in their current condition and configuration, without disturbance by construction activities, will not be uncovered and backfilled with approved backfill material. The likelihood of damage to existing utilities significantly outweighs the potential benefits of replacing historic fill with approved backfill. However, maintenance and repair of retained existing underground utilities will be subject to the requirements of this SMP, including adherence to the EWP (Appendix A) and replacement of excavated material with approved backfill, if excavation beneath the cover system is required to access existing underground utilities.

Surface Soil Cover

The surface soil cover will consist of a minimum 2-foot-thick surface soil cap supporting grass, natural vegetation or other landscape features, and will be separated from historical fill by a synthetic demarcation barrier (described in Section 2.2.1.1). Fill and topsoil materials that make up the surface soil cover will consist of:

- Existing Site soils meeting the SCOs listed in 6 NYCRR Part 375, Table 375-6.8(b) for "restricted residential" use (see Table 1); and/or
- Imported soils meeting SCOs for restricted residential use provided in Appendix 5 of DER-10 under "Restricted Residential Use" (see Appendix G).

The required soil cover thickness will be verified by a licensed land surveyor and certified by a professional engineer at the time of installation. As described in Section 2.2, the soil cover system will be inspected, maintained and repaired as necessary to prevent public contact with the underlying historical fill or other soils not meeting the SCOs required for the soil cover system.

Soil Cover Supporting New Trees

Vegetation such as shrubs and trees with root balls that must be placed to a depth beneath the final cover system will be planted to provide a 1-foot minimum buffer around the root ball consisting of approved backfill consisting of existing Site soils meeting the SCOs listed in 6 NYCRR Part 375, Table 375-6.8(b) for "restricted residential" use (see Table 1);or imported soils meeting SCOs for restricted residential use provided in Appendix 5 of DER-10 under "Restricted Residential Use" (see Appendix G). A highly visible synthetic and water-permeable demarcation barrier will be installed between the clean soil buffer and historical fill or other material that does not meet SCOs for surface soil cover to provide a visible demarcation, if the shrub/tree must be replaced in the future. Handling soil or fill beneath the demarcation barrier, either during initial planting or subsequent tree replacement, will be performed in accordance with the EWP (Appendix A).

Hard Surface Cover

The hard surface cover system will consist of asphalt, concrete or other impervious surfaces meeting state and local building codes. Surfaces meeting this requirement may include building slabs, roadways, parking areas and walkways installed in accordance with applicable building codes and permits. Buildings and other impervious surfaces will serve a dual function as a demarcation barrier and final cover. However, as described above, an additional highly visible demarcation barrier will be required under all hard-surface public roads and public right-of-ways to demarcate the interface between historical or intermediate fill that does not meet 6 NYCRR Part 375 SCOs for restricted residential use use (Table 1) and the final cover system. The hard surface cover system will be maintained and repaired as necessary to prevent public contact with historical fill or other soils that do not meet the SCOs required for the soil cover system.

Low-Permeability Cover

As summarized in the IRM Decision Document, the physical conditions at the Site would change as a result of the proposed development project. Areas currently covered by asphalt or concrete slabs may be covered by a soil cover in the future, which could result in the potential for precipitation to more readily infiltrate through unsaturated soils containing residual contamination.

In accordance with the IRM Decision Document, additional testing of historic fill at PAOCs 7 and 29 will be conducted by the Owner or Remedial Party to evaluate the potential for infiltration of precipitation to cause leaching of lead from the historic fill to groundwater in the future. If it is determined [by NYSDEC] to be necessary, additional measures will be taken to protect groundwater.

Testing will include representative sampling and analysis of fill using the USEPA Synthetic Precipitation Leaching Procedure (SPLP) to simulate acid-rain conditions. SPLP results will be evaluated in conjunction with all available lead data for Site fill and groundwater to determine if additional measures, such as the placement of an impermeable layer beneath the final soil cap, are warranted.

Cover systems that may meet this requirement include:

- low-permeability soil barrier meeting the requirements specified in 6 NYCRR Part 360-2.13 (q), which provides for an 18-inch low-permeability soil barrier beneath a 2-foot vegetative soil cover
- low-permeability geomembrane meeting the requirements specified in 6 NYCRR Part 360-2.13 (r), which provides for a geomembrane barrier beneath a 2-foot vegetative soil cover
- impervious surfaces with positive drainage control such as asphalt, concrete or buildings, without the use of an underlying low-permeability barrier layer
- high-density polyethylene- (HDPE-) lined ponds or equivalent lined water features meeting the requirements for geomembrane liners specified in 6 NYCRR Part 360-2.13(k)

Trees and any other deep-rooted vegetation that may increase the overall permeability of the low-permeability cover system will not be permitted within designated low permeability areas. The Owner or Remedial party will provide the NYSDEC with the final site plan, global positioning system (GPS) coordinates and engineer's certification for the cover systems meeting the above requirements. The Owner or Remedial Party must obtain NYSDEC approval for any alternatives to the low-permeability covers described above, prior to construction.

2.2.1.2 Mitigation of Soil Vapor Intrusion

To address soil vapor intrusion (SVI), the final Decision Document (NYSDEC 2012) specifies the ECs outlined in the IRM Decision Document (NYSDEC 2007) and adds a provision for this SMP to include SVI evaluation. Collectively, the remedy includes:

- Mitigation measures, as necessary, to address potential intrusion of volatile organic vapors into future indoor air space.
- Mitigation measures, as necessary, to address the potential for intrusion of methane into future indoor air space.
- A provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion.

Basis for Evaluation and Mitigation

The phrase "soil vapor intrusion" refers to the process by which volatile chemicals migrate from a subsurface source into the indoor air of buildings. Soil vapor, also referred to as soil gas, is the air found in the pore spaces between soil particles. Primarily because of a difference between interior and exterior pressures, soil vapor can enter a building through cracks or perforations in slabs or basement floors and walls, and through openings around sump pumps or where pipes and electrical wires go through the foundation. For example, heating, ventilation and air conditioning (HVAC) systems and/or the operation of large mechanical appliances (e.g., exhaust fans, dryers) may create a negative pressure that can draw soil vapor into the building. This intrusion is similar to how radon gas enters buildings from the subsurface.

Volatile Organic Compounds

Soil vapor can become contaminated when chemicals evaporate from subsurface sources. Chemicals that can emit vapors are called "volatile chemicals." Volatile chemicals include VOCs, some SVOCs, and some inorganic substances such as elemental mercury. There are no known or suspected sources of elemental mercury on the Site. Potential sources of organic soil vapor contamination on the West Parcel are primarily associated with historical petroleum and solvent spills, as well as previously abandoned USTs. IRMs completed in 2007 removed the last known abandoned USTs, as well as the grossly contaminated soil/fill from the petroleum and solvent (TCE) source areas on the West Parcel. . TCE-contaminated groundwater has been treated by ISCO during 2008 to levels that meet or nearly meet drinking water standards; petroleum-derived VOCs have been largely remediated through source removal or attenuated during prior decades through natural biological degradation. However, contaminated soil vapors may persist in soil above the water table for some time after groundwater remediation, especially under impervious surfaces that impede their natural dissipation to the atmosphere.

When organic vapors are present in the zone directly next to or under the foundation of a building, vapor intrusion (into the building air space) is possible. Soil vapor can enter a building whether the building is old or new, or whether it is on a slab or has a crawl space or basement.

Although the major sources of VOC vapors have been removed from the Site or remediated, it is not practical to remediate the remaining low-strength residual organic contamination in soil, groundwater or vapor prior to building construction. However, buildings can be designed and constructed with proven precautionary controls, if needed, to mitigate the potential intrusion of soil vapors into indoor air space.

Methane

Methane gas was found beneath the asphalt on the northern end of the West Parcel Site, up to a maximum of concentration of 18%, as summarized in Sections 1.3.4 and 1.4.4.3. The observed

methane is likely attributable to natural biological decay of wetland vegetation buried under ash and soil fill at the northern end of the parcel. Methane is lighter than air, colorless, odorless, non-carcinogenic and flammable. Because methane is lighter than air, it has a tendency to rise from depth to the ground surface where it dissipates into the atmosphere. Where a relatively impermeable barrier (e.g., a concrete slab or asphalt) is present at the ground surface, the potential exists for methane to accumulate beneath that barrier. Methane has the potential to infiltrate through flooring material or cracks, accumulate under footings and in enclosed spaces (e.g., small rooms, vaults, wall spaces), and then cause a fire or explosion when an ignition source (e.g., pilot flame, electrical spark, cigarette) is present. As discussed above for mitigation of VOC vapor intrusion, buildings can be designed and constructed with proven precautionary controls, if needed, to mitigate the potential intrusion of methane gas into indoor air space.

In accordance with the Decision Document, a site-wide approach to soil vapor intrusion (SVI) evaluation, including methane, will be implemented on the West Parcel as discussed in Section 2.3.2. The results of the evaluation will provide a basis for location-specific mitigation requirements.

Mitigation Measures

The SVI evaluation to be performed prior to building construction may indicate the need for mitigation measures to eliminate potential exposure to soil vapors that may be present beneath proposed structures. At the discretion of the Owner or Remedial Party, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. Under this discretionary approach, the mitigation system for a slab-on-grade foundation design will include a vapor barrier and passive sub-slab depressurization system (SSDS) that is capable of being converted to an active system based on sampling (see Section 2.3.2 for design and approval requirements for SVI mitigation systems).

As described in NYSDOH's *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006), an active SSDS is a system that uses a fan-powered vent and piping to draw vapors from the soil beneath the building's slab (i.e., essentially creating a vacuum beneath the slab) and discharge them to the atmosphere. This results in lower sub-slab air pressure relative to indoor air pressure, which prevents the infiltration of sub-slab vapors into the building. USEPA has defined passive SSDS as a system designed to achieve lower sub-slab air pressure relative to indoor air pressure by use of a vent pipe routed through the conditioned space of a building and venting to the outdoor air, thereby relying solely on the convective flow of air upward in the vent to draw air from beneath the slab (http://www.epa.gov/radon/pubs/newconst.html).

Procedures for operating and maintaining the SSDS, if required, will be documented in an Operation and Maintenance Plan (see Section 4 of this SMP). Procedures for monitoring the system, if required, are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the Site, occurs.

2.2.2 Criteria for Completion of Remediation

Generally, the remedial processes will be considered to be completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives (RAOs) identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

2.2.2.1 Final Cover System

The final cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

2.2.2.2 Sub-slab Depressurization System (SSDS)

Active SSDS, if installed, will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the SSDS is no longer required, a proposal to discontinue the SSDS will be submitted by the property owner or Remedial Party to the NYSDEC and NYSDOH.

2.2.2.3 Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated. See Section 3.3.1 for Site areas where natural attenuation monitoring is specified.

2.3 Institutional Controls

A series of Institutional Controls is required by the Remedial Work Plan (RWP) and/or Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the Site to restricted residential uses, which includes commercial and recreational uses. Adherence to these Institutional Controls on the Site is required by the Environmental Easement and will be implemented under this SMP. These Institutional Controls, as listed in the Environmental Easement (Appendix C), are:

1. The Controlled Property may be used for: Restricted Residential as described in 6 NYCRR Part 375-1.8 (g) (2) (ii), Commercial as described in 6 NCYRR Part 375-1.8(g) (2) (iii) and Industrial as described in 6 NYCRR Part 375-1.8(g) (2) (iv) [although land use is subject to local zoning laws];

2. All Engineering Controls must be operated and maintained as specified in this SMP;

3. All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.

4. The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Westchester County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the NYSDEC;

5. Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;

6. Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

7. All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

9. Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

10. Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Environmental Easement specifies that the Controlled Property shall not be used for Residential purposes as defined in 6 NYCRR 375--1.8(g)(2)(i), and the above-stated controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

The Environmental Easement also requires compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns. Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Site has a series of Institutional Controls in the form of Site restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for restricted residential, commercial, and industrial, uses (subject to local zoning laws) provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a higher level of use, such as unrestricted use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP, as stated in the Environmental Easement;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use, as stated in the Environmental Easement;
- The potential for vapor intrusion must be evaluated for any buildings developed anywhere on the Site other than the South Parcel area (south of Beekman Avenue), and any potential impacts that are identified must be monitored or mitigated (see Section 2.3.2);
- Vegetable gardens and farming on the property are prohibited;
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The Site has been remediated for restricted residential use. Any future intrusive work that will penetrate the soil cover or cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the cover system will be performed in compliance with the EWP that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site. A sample HASP is attached as Appendix H to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. A site-specific CAMP, in a format previously approved by NYSDEC for use on the Site, is provided in Appendix I. The CAMP includes a typical location map for air monitoring stations, although actual monitoring station locations are to be based on the location of the intrusive work, prevailing wind directions, and the location of the nearest receptors. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the

periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The Site owner (or Remedial Party as identified in Appendix B), and parties performing this work at the site, are responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The Site owner or Remedial Party is responsible for conducting Site development activities in a manner that will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain remaining contamination and the potential for SVI has been identified (throughout the West Parcel, north of Beekman Avenue) an SVI evaluation will be performed to determine whether any mitigation measures are necessary to address potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive SSDS that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted by the Owner and/or Remedial Party specified in Appendix B to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH “Guidance for Evaluating Vapor Intrusion in the State of New York”. Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed prior to building occupancy, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

The pre-construction SVI evaluation may be designed to demonstrate the absence of contamination that could result in the potential for soil vapor intrusion in specific sub-areas of the site. Contamination with the potential for soil vapor intrusion may be present in Site soil, groundwater and/or soil vapor. If NYSDEC and NYSDOH approve a defined sub-area of the site to be excluded from SVI mitigation requirements based on the results of the pre-construction SVI investigation, no mitigation measures or post-construction testing requirements outlined in this SMP will apply to buildings in the excluded areas.

For this Site, NYSDOH has determined that sub-slab soil vapor samples (or their equivalent as approved by NYSDOH) will be collected post-construction and prior to occupancy of all slab-on-grade buildings. [This applies to all building not previously excluded by NYSDEC and NYSDOH from this requirement based a successful demonstration that there is no need for SVI mitigation associated with proposed buildings within a specific sub-area of the Site, as described above.] It is anticipated

that this post-construction sampling will be conducted via a built-in sampling port and gate valve in the vent pipe riser (or equivalent method) for buildings with passive SSDS installed. Absence of a passive SSDS in slab-on-grade construction in non-excluded areas does not remove this requirement. In the approach outlined by the NYSDOH (Appendix O), if the results of any of sub-slab soil vapor samples collected from a building outside the heating season indicate that SVI is not a concern, another [sub-slab] sample will be collected from the same structure during the heating season to verify the results. If the results of any of the sub-slab soil vapor samples indicate that SVI may be of concern, the [Owner and/or Remedial Party as identified in Appendix B to this SMP] will be advised to actively vent the SSDS installed when the building was constructed.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. If the property is owned by a third party, validated SVI data will be transmitted to the property owner within 30 days of validation. If any indoor air test results exceed NYSDOH guidelines, relevant NYSDOH fact sheets will be provided to all tenants and occupants of the property within 15 days of receipt of validated data.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

2.4 Inspections and Notifications

2.4.1 Inspections

Inspections of all remedial components installed at the Site will be conducted by the Owner and/or Remedial Party specified in Appendix B at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site- wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5.3).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner or Remedial Party to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the BCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or engineering control that reduces or has the potential to reduce the effectiveness of an Engineering Control and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the BCA and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. Emergencies that may cause an environmental release may occur during Site construction activities. Construction plans prepared by contractors will provide a contingency plan to address appropriate response to emergencies that may release Site contaminants, including but not limited to construction-related petroleum or chemical spills and releases.

Construction Health and Safety Plans will be developed consistent with this Section, including response to emergencies that may result in personal injury.

If active SSDS or any other active methane of organic vapor intrusion mitigation systems are installed and rely on electrical power after buildings are constructed, a contingency plan to provide temporary power to these systems will be included with the mitigation system designs and any required associated Operations & Maintenance (O&M) plans.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner and/or Remedial Party or Owner's and/or Remedial Party's representative(s) should contact the appropriate party from the contact lists below. For emergencies, appropriate emergency response personnel should be contacted (see Table 5). Prompt contact should also be made to the qualified environmental professional and the Owner's representative listed in Table 6, representing the Owner and/or Remedial Party identified in Appendix B. These emergency contact lists must be maintained in an easily accessible location at the Site.

Table 5: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 6: Other Contact Numbers

Raymond M. Kapp, ARCADIS of New York, Inc., Qualified Environmental Professional on behalf of General Motors, LLC	201-797-7400, Ext 4388
James F. Hartnett, General Motors, LLC – for Owner/Remedial Party	315-856-211

Note: Emergency contact numbers are subject to change and should be updated as necessary.

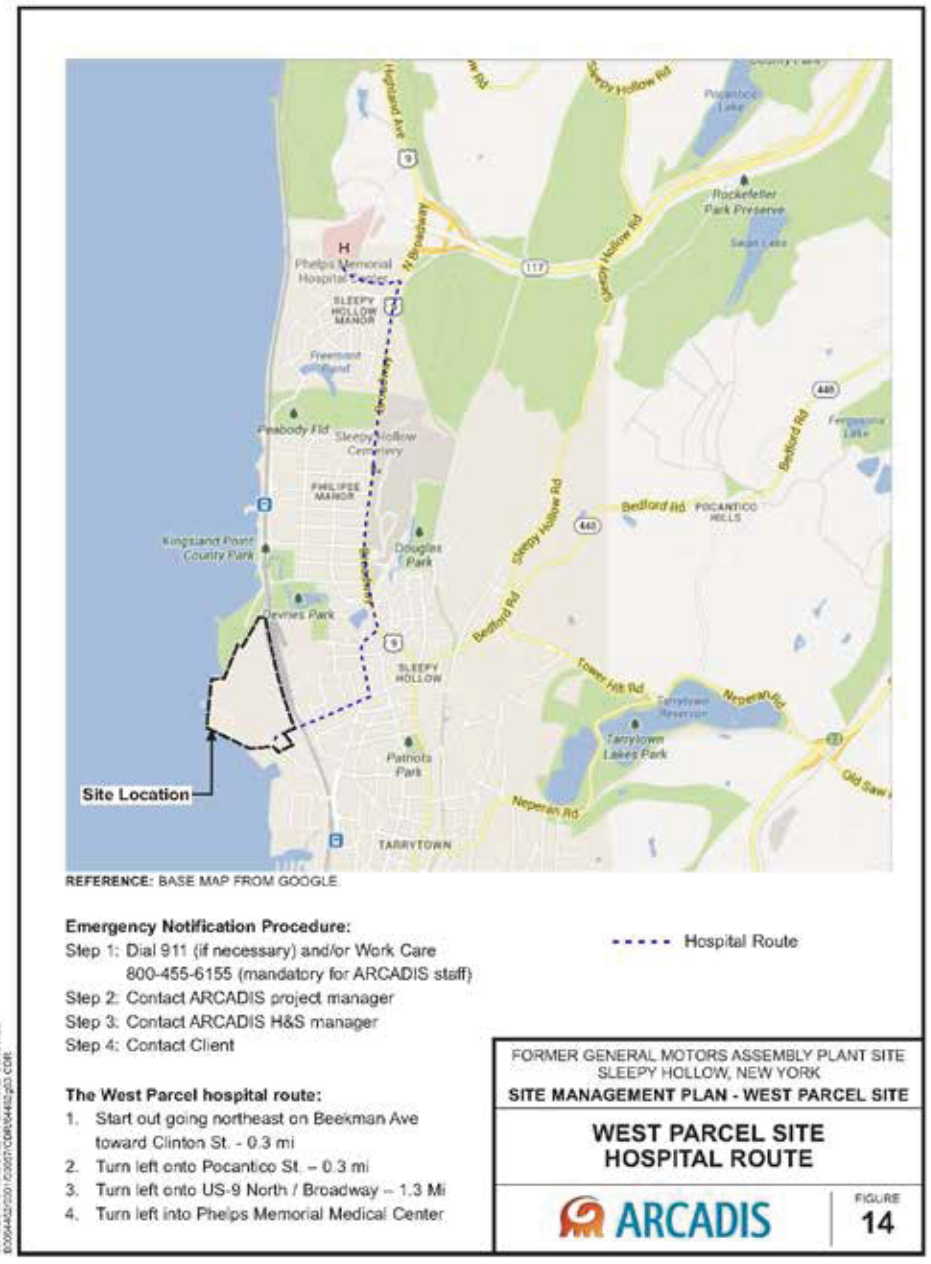
2.5.2 Map and Directions to Emergency Health Facility

Site Location: 199 Beekman Avenue, Sleepy Hollow, NY 10591
Nearest Hospital Name: Phelps Memorial Hospital
Hospital Location: 701 N Broadway, Sleepy Hollow, NY 10591
Hospital Telephone: (914) 366-3000
Directions to the Hospital:

1. Head north on Beekman Ave (0.3 miles);
2. Turn left onto Pocantico Street (0.3 miles);
3. Turn Left onto US-9 North/Broadway;
4. Entrance will be on the left (1.3 miles)

Total Distance: 2.3 miles
Total Estimated Time: 6 minutes
A map showing the route to the hospital is provided on Figure 14 and also below.

Map Showing Route from the Site to the Hospital:



2.5.3 Response Procedures

As appropriate, the fire department and other emergency response groups will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 5). The list will also be posted prominently at the Site and made readily available to all personnel at all times.

Contractor Contingency Plans for construction activities will also include:

- response procedures for spills
- emergency evacuation plans,
- amendments to the contingency plan for chemicals used on the site

3. Site Monitoring Plan

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the Site, the soil cover system, and all affected site media identified below. Monitoring of other Engineering Controls is described in Chapter 4, Operation, Monitoring and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

On-site environmental monitoring devices, including but not limited to, groundwater monitoring wells and vapor mitigation systems (if installed), must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria.
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Monitoring of the performance of the remedy and overall reduction in contamination onsite will be conducted for the first 2 to 5 years following the construction or installation of engineering controls, unless otherwise specified in Table 7 (below). The frequency thereafter will be determined by NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 7 and outlined in detail in Sections 3.2 through 3.3 below.

Table 7: Media Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Cover System	Annual	None	None
Groundwater Monitoring Wells	Annual (commencing during or after Site development)	Groundwater	Metals, VOCs and SVOCs

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 Cover System Monitoring

The cover system will be inspected, maintained and repaired as necessary to prevent public contact with historical fill or other soils that do not meet the SCOs required for the soil cover system. The cover system will be inspected annually (unless a more frequent inspection is required by NYSDEC during periods of major construction). In accordance with DER-10, certification that a soil cover or Site cap remains effective by inspection could be provided by a qualified environmental professional, while an engineering evaluation of settlement measurements for a composite cap (e.g., soil with synthetic liner) to determine whether a liner may be breached would require a professional engineer's certification.

The inspection of the surface cover system will typically include inspection of the following:

- Hard surface cover for evidence of deep cracks, potholes, cuts, depressions and/or rutting exposing demarcation barriers and historic fill.
- Surface soil cover to identify any areas where there is evidence of :
    - excessive settlement or erosion relative to the surrounding areas
    - excessive ponding of surface water that could damage the soil cover
    - exposed or damaged underlying demarcation barrier(s)
    - animal burrows or invasive deep-rooted vegetation that could compromise the integrity of the cover system
- Modifications to the surface cover system with respect to repairs or changes in cover system construction

The cover system inspection will be made part of the site-wide Inspection described in Section 3.4.

3.3 Media Monitoring Program

3.3.1 Groundwater monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy.

The network of monitoring wells has been installed to monitor both up-gradient and down-gradient groundwater conditions at the Site. The network of onsite wells has been designed based on the following criteria:

- Representative onsite locations along the property line downgradient of residual soil and or groundwater contamination to monitor the potential impact of changed conditions following completion of re-development
- Representative on-site locations to monitor the potential impact of changed conditions following completion of re-development on the natural attenuation of site related contamination (e.g., residual petroleum contamination, volatile and semi volatile organic compounds, and metals).

This groundwater monitoring program will be used to evaluate the effectiveness of the remedy in mitigating impacts to groundwater. In addition, this program will monitor the continued effectiveness of natural attenuation of contaminants of concern during and following the installation of the final cover system.

The groundwater monitoring program includes the collection of groundwater samples from wells designated for groundwater quality monitoring in Table 8 and on Figure 15. Sampling methods are provided in Appendix K. The monitoring well network makes use of existing wells to the extent possible and provides for the installation of additional wells, where needed, to meet the objectives of the GMP.

The areas of concern and groundwater quality parameters for each area included in the monitoring program are listed below:

- monitor PAOCs 7 and 29 for changes in lead
- monitor PAOC 47 for downgradient changes in TCE and chromium up to the property line
- monitor PAOC 34/37 for continuation of downgradient natural attenuation of VOCs and SVOCs
- monitor PAOC 43 for continuation of downgradient natural attenuation of VOCs and SVOCs
- monitor the former 10,000-gallon UST area for continuation of downgradient natural attenuation of VOCs and SVOCs

The purpose of the natural attenuation monitoring is not to establish that attenuation is occurring. Rather, because concentrations of VOCs and SVOCs meet or nearly meet Class GA standards, monitoring of these constituents will be performed to verify that natural attenuation will remain effective through installation of the final cover system.

Monitoring well construction logs are included in Appendix J. Overall, the monitoring wells are approximately 14 to 24 feet in depth and have 10 to 15 foot screened intervals.

Sampling Frequency

Monitoring wells will be sampled annually during or following site development, to monitor groundwater quality over seasonal changes in precipitation and groundwater elevation. The results of 2 years of monitoring will be reviewed to determine if the groundwater quality is relatively stable. If the groundwater analytical results indicate that groundwater quality is relatively stable or improving, the NYSDEC will determine if sample frequency may be reduced or removed from the program. Where monitoring is continued, the NYSDEC will re-evaluate the program no later than at the end of the fifth year of monitoring.

A schedule for groundwater monitoring well replacement or installation and sampling will be provided to NYSDEC by the Owner or Remedial Party and made part of this SMP.

The sampling frequency may be modified with NYSDEC approval. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log (presented in the Field Sampling Plan included as Appendix K). Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Groundwater samples collected for analysis of VOCs and SVOCs will be collected using low-flow methods and samples collected for analysis of metals will be collected using ultra-low flow sampling methods to minimize sample turbidity.

Sample collection, handling and analysis will be performed in accordance with the Field Sampling Plan (FSP) and the Quality Assurance Plan (QAP) provided in Appendices K and M, respectively. QA/QC samples will consist of matrix spikes (MSs) and matrix spike duplicates (MSDs), field duplicates, rinse blanks and trip blanks. One set of QA/QC samples will be collected at a minimum frequency of one in every 20 field samples. One trip blank, to be analyzed for VOCs, will be included with every cooler containing VOC samples.

All groundwater samples will be analyzed by a New York State Department of Health Environmental Laboratory Accreditation Program (ELAP)-certified laboratory following the methods listed on Table 9.

Groundwater elevation measurements will be collected at each of the monitoring wells included in the groundwater quality monitoring prior to sampling and at other select monitoring locations. Groundwater elevations will be measured to the nearest 0.01 ft. and will be used to generate groundwater contour maps, as needed.

3.3.1.2 Monitoring Well Installation

Two new monitoring wells will be installed as part of the groundwater monitoring program, if a low permeability cover is required (see description of low permeability cover under Section 2.2.1.1). It is anticipated that these wells will be installed in the PAOC 29 area to monitor localized lead concentrations in groundwater, following installation of the final cover system, to confirm effectiveness of the low permeability cover. The approximate locations of the new wells, as well as the surveyed locations of existing monitoring wells retained for the monitoring program, are shown on Figure 15. New monitoring wells will be installed using a hollow-stem auger. The wells will be constructed of 2-inch-diameter polyvinyl chloride (PVC) casing, and up to a 10-foot-long 0.010-inch slotted PVC screen in a suitable sand pack with seal. Wells will be finished at grade with a durable protective cover. These PAOC 29 wells will terminate at the top of the natural peat or clay unit, or to a maximum depth of 9 feet below the water table, whichever is first encountered. The top of screens will commence at 1 foot above the water table and bottom of the screen will terminate no deeper than 0.5 feet above the peat or clay unit. Soil samples will be collected and described continuously during drilling. These soil descriptions will be recorded on boring logs showing the well construction details.

New and replacement monitoring wells will be developed prior to sampling. Initial development will adequately surge and pump the well to remove a minimum of 10 well volumes and establish connection with the saturated zone. Initial development will be followed by low-flow pumping to achieve a target turbidity of less than 50 Nephelometric Turbidity Unit (NTU), consistent with TAGM 4015, or until the turbidity of the purged water is observed to stabilize above 50 NTU (i.e., no further reduction in turbidity is occurring with low-flow pumping). The target turbidity will be achieved each time the wells are sampled, except that a target turbidity of less than 10 NTU will be achieved, where feasible, prior to collecting unfiltered groundwater samples for lead analysis from monitoring wells associated with the designated low-permeability cover systems described in Section 2.2.1.1. Sampling conducted during the RI confirmed that the presence of lead in fine particulates in the fill can become suspended in groundwater samples and lead to false positive results.

3.3.1.3 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the onsite monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Because existing wells in the network were installed prior to redevelopment, it is anticipated that any number of monitoring wells may need to be repaired, replaced and possibly relocated to provide access for post-development sampling. Monitoring wells installed prior to site redevelopment will be protected or replaced in kind during Site development at locations that are readily accessible and outside of buildings (such as in roads, parking lots, lawns and curbside areas). Any proposed changes in monitoring well locations relative to the approved locations on Figure 15 will be subject to prior NYSDEC approval.

Repairs and/or replacement of wells in the monitoring well network will also be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3.2 Soil Vapor Intrusion Monitoring

There are no requirements for SVI monitoring prior to re-development. However, NYSDEC or NYSDOH will determine the need for an SVI monitoring plan following review of the SVI evaluations described in Section 2.3.2 as well as any SVI mitigation plans prepared by the Owner or Remedial Party. If a monitoring plan is required, it will be incorporated into the SMP by the Owner and/or Remedial Party.

Any required SVI monitoring will be performed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York".

3.4 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix L). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that Site records are up to date.

3.5 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the QAP prepared for the Site (Appendix M. Main Components of the QAP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
  - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with the NYSDEC Analytical Services Protocol (ASP) requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.

- Sample Tracking and Custody;
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method;
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file onsite. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in Section 5.3.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared, if required by NYSDEC, subsequent to each sampling event. The letter report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., groundwater, sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, inspection checklists, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Relevant observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Analytical data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 10 below.

Table 10: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Cover System/Site-wide Inspection	Annual
Groundwater Monitoring	Annual Letter Report/Annual Trend Report

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4. Operation and Maintenance Plan

NYSDEC or NYSDOH may require an active SSDS in certain buildings designed for occasional or continuous occupancy. If such systems are to be operated, an operations and maintenance plan (OMM Plan) will be required and will include the components outlined below where applicable to the system design. If no buildings rely on an active SSDS, or any other mechanical system to protect human health or the environment, an OMM plan will not be included in this SMP.

If required by NYSDEC, an OMM Plan for active mechanical mitigation/remedial systems installed in the future will be developed and made part of this SMP as outlined below:

- Includes the steps necessary to allow individuals unfamiliar with the Site to operate and maintain any sub slab depressurization systems;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in Site conditions or the manner in which any sub slab depressurization systems are operated and maintained.

Information on non-mechanical Engineering Controls (i.e. soil cover system) is provided in Section 2 - Engineering and Institutional Control Plan. A copy of the OMM plan, if required, along with the complete SMP, will be kept at the Site. An OMM Plan is not to be used as a stand-alone document, but as a component document of the SMP.

5. Inspections, Reporting and Certifications

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted whenever a severe condition has taken place, such as an erosion or flooding event that may affect the Engineering Controls.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective media which are contained in Appendix K. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix L). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the Periodic Review Report, as specified in Section 5.3.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The Site remedy continues to be protective of public health and the environment and is performing as designed in the RWP and FER.

Records maintained by the owner and or remedial party will be reviewed to support the annual certification. Relevant records will include, but may not be limited to:

- permits applied for or received for new construction and renovations
- notifications to the NYSDEC related to surface cover alterations and implementation of the EWP (Appendix A)

- certificates of occupancy and vapor mitigation system details for new construction or renovation initiated since the last certification inspection in areas where active or passive soil vapor mitigation is required
- underground utility repairs or alterations, public and private
- cover system repair and restoration documentation
- documentation of all activities that required implementation of the EWP (Appendix A), including daily CAMP reports, soil sampling results, waste transportation and disposal records, and construction water management records
- documentation of approved fill quality and delivered quantities
- records required in the O&M plans developed for any active mitigation systems
- records required in the groundwater monitoring program, including any authorized repairs, replacements or abandonment of monitoring wells

5.2 Certification of Engineering and Institutional Controls

After the last inspection of the reporting period, a qualified environmental professional, or where an engineering evaluation of the ECs is required to certify the IC/ECs, a Professional Engineer licensed to practice in New York State, will prepare the following certification on behalf of the Owner or Remedial Party identified in Appendix B:

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the Site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid; and

- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner, and/or Remedial Party or Owner's and/or Remedial Party's Designated Site Representative] (and if the site consists of multiple properties): [I have been authorized and designated by all site owners to sign this certification] for the Site.

Every five years the following certification will be added:

- The assumptions made in the qualitative exposure assessment remain valid.

The signed certification will be included in the Periodic Review Report described below.

5.3 Periodic Review Report

A Periodic Review Report will be submitted by the Owner or Remedial Party to the Department every year, beginning fifteen months after the Certificate of Completion is issued until NYSDEC approves an alternate schedule. Because the Site will remain in an undeveloped condition under an existing cover system until redevelopment work actively commences, the Periodic Review Report may be limited to an inspection of the existing cover system. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in Appendix D (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual Site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (e.g., groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;

A Site evaluation, which includes the following:

- The compliance of the remedy with the requirements of the site-specific RWP, IRM Decision Document and final Decision Document;
- Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the Site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

6. References

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Village of Sleepy Hollow. 2007. Resolution Adopting Environmental Findings Statement for Lighthouse Landing at Sleepy Hollow (Findings Statement), July 24, 2007.

Village of Sleepy Hollow. 2011a. Amended Findings Resolution for Lighthouse Landing at Sleepy Hollow , adopted January 25, 2011.

Village of Sleepy Hollow. 2011b. Special Permit and Concept Plan Approval adopted by the Village on June 7, 2011.

ARCADIS

Tables

Table 1
Soil Cleanup Objectives for the Site

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives		
Contaminant	**CAS Number**	**Protection of Public Health, Restricted-Residential Use**
Metals		
Arsenic	7440-38-2	16[f]
Barium	7440-39-3	400
Beryllium	7440-41-7	72
Cadmium	7440-43-9	4.3
Chromium, hexavalent [h]	18540-29-9	110
Chromium, trivalent [h]	16065-83-1	180
Copper	7440-50-8	270
Total Cyanide [h]		27
Lead	7439-92-1	400
Manganese	7439-96-5	2,000[f]
Total Mercury		0.81[j]
Nickel	7440-02-0	310
Selenium	7782-49-2	180
Silver	7440-22-4	180
Zinc	7440-66-6	10,000[d]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)	93-72-1	100[a]
4,4'-DDE	72-55-9	8.9
4,4'-DDT	50-29-3	7.9
4,4'-DDD	72-54-8	13
Aldrin	309-00-2	0.097
alpha-BHC	319-84-6	0.48
beta-BHC	319-85-7	0.36
Chlordane (alpha)	5103-71-9	4.2
delta-BHC	319-86-8	100[a]
Dibenzofuran	132-64-9	59
Dieldrin	60-57-1	0.2
Endosulfan I	959-98-8	24[i]
Endosulfan II	33213-65-9	24[i]
Endosulfan sulfate	1031-07-8	24[i]
Endrin	72-20-8	11
Heptachlor	76-44-8	2.1
Lindane	58-89-9	1.3
Polychlorinated biphenyls	1336-36-3	1

Table 1
Soil Cleanup Objectives for the Site

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Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives		
Contaminant	**CAS Number**	**Protection of Public Health, Restricted-Residential Use**
Semivolatiles		
Acenaphthene	83-32-9	100[a]
Acenapthylene	208-96-8	100[a]
Anthracene	120-12-7	100[a]
Benz(a)anthracene	56-55-3	1[f]
Benzo(a)pyrene	50-32-8	1[f]
Benzo(b)fluoranthene	205-99-2	1[f]
Benzo(g,h,i)perylene	191-24-2	100[a]
Benzo(k)fluoranthene	207-08-9	3.9
Chrysene	218-01-9	3.9
Dibenz(a,h)anthracene	53-70-3	0.33[e]
Fluoranthene	206-44-0	100[a]
Fluorene	86-73-7	100[a]
Indeno(1,2,3-cd)pyrene	193-39-5	0.5[f]
m-Cresol	108-39-4	100[a]
Naphthalene	91-20-3	100[a]
o-Cresol	95-48-7	100[a]
p-Cresol	106-44-5	100[a]
Pentachlorophenol	87-86-5	6.7
Phenanthrene	67580	100[a]
Phenol	108-95-2	100[a]
Pyrene	129-00-0	100[a]
Volatiles		
1,1,1-Trichloroethane	71-55-6	100[a]
1,1-Dichloroethane	75-34-3	26
1,1-Dichloroethene	75-35-4	100[a]
1,2-Dichlorobenzene	95-50-1	100[a]
1,2-Dichloroethane	107-06-2	3.1
cis-1,2-Dichloroethene	156-59-2	100[a]
trans-1,2-Dichloroethene	156-60-5	100[a]
1,3-Dichlorobenzene	541-73-1	49
1,4-Dichlorobenzene	106-46-7	13
1,4-Dioxane	123-91-1	13
Acetone	67-64-1	100[b]
Benzene	71-43-2	4.8
Butylbenzene	104-51-8	100[a]
Carbon tetrachloride	56-23-5	2.4
Chlorobenzene	108-90-7	100[a]
Chloroform	67-66-3	49
Ethylbenzene	100-41-4	41
Hexachlorobenzene	118-74-1	1.2

Table 1
Soil Cleanup Objectives for the Site

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives		
Contaminant	**CAS Number**	**Protection of Public Health, Restricted-Residential Use**
Methyl ethyl ketone	78-93-3	100[a]
Methyl tert-butyl ether	1634-04-4	100[a]
Methylene chloride	64164	100[a]
n-Propylbenzene	103-65-1	100[a]
sec-Butylbenzene	135-98-8	100[a]
tert-Butylbenzene	72477	100[a]
Tetrachloroethene	127-18-4	19
Toluene	108-88-3	100[a]
Trichloroethene	65386	21
1,2,4-Trimethylbenzene	95-63-6	52
1,3,5- Trimethylbenzene	108-67-8	52
Vinyl chloride	63923	0.9
Xylene (mixed)	1330-20-7	100[a]

All soil cleanup objectives (SCOs) are in parts per million (ppm).

Footnotes:

[a] The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

[b] The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

[c] The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

[d] The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

[g] This SCO is derived from data on mixed isomers of BHC.

[h] The SCO for this specific compound (or family of compounds) is considered to be m if the analysis for the total species of this contaminant is below the specific SCO.

[i] This SCO is for the sum of endosulfan I,endosulfan II, and endosulfan sulfate.

[j] This SCO is the lower of the values for mercury (elemental) or mercury (inorganic sa See TSD Table 5.6-1.

Table 2
Remedial Investigation Soil, Groundwater, and Soil Vapor Contaminant Summary

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Investigation Area	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)
1. Former Drum Pile Area	EMCON 1997-2001	TCL/TAL	C-PAHs	ND - 49.5	10
		Arsenic	Arsenic	ND - 8.56	7.5 or SB
		Lead	Copper	16.7 - 26.9	25 or SB
			Lead	6.95 - 1100	400
			Nickel	10.3 - 21.8	13 or SB
			Zinc	44.2 - 187	20 or SB
2. Former Garage Area	EMCON 1997-2001	TCL/TAL	Copper	14.5 - 27.4	25 or SB
		TCL VOCs	Nickel	12.2 - 14.8	13 or SB
			Zinc	29.8 - 61	20 or SB
3. Former Incinerator Area	EMCON 1997-2001	TCL/TAL	C-PAHs	ND - 11.9	10
		Arsenic	Arsenic	ND - 22.3	7.5 or SB
		Lead	Barium	377 - 3560	300 or SB
			Cadmium	ND - 14.4	10 or SB
			Chromium	17.4 - 297	50 or SB
			Copper	37.7 - 244	25 or SB
			Lead	34.3 - 3640	400
			Mercury	ND - 0.228	0.1
			Nickel	17.1 - 49.8	13 or SB
			Zinc	349 - 1130	20 or SB
4. Paint Storage Room - Body Plant	EcolSciences 2002	TAL	Copper	50	25 or SB
			Nickel	49.2	13 or SB
			Zinc	508	20 or SB
5. Internal Rail Spurs - Body Plant	EMCON 1997-2001	TCL/TAL	C-PAHs	4.95 - 51.6	10
			Arsenic	ND - 10.2	7.5 or SB
			Barium	47.27 - 480	300 or SB
			Beryllium	ND - 0.566	0.16 or SB
			Copper	22.9 - 380	25 or SB
			Mercury	ND - 0.835	0.1
			Nickel	7.96 - 48.7	13 or SB
			Zinc	26.8 - 249	20 or SB
6. Basement Below Welding Area - Body Plant /Fill Areas H, F, & G	EMCON 1997-2001	TCL/TAL	C-PAHs: Pre-IRM	ND - 98.7	10
		STARS SVOCs	C-PAHs: Post-IRM	ND - 104	10
		Arsenic	Arsenic	ND - 84.6	7.5 or SB
		Lead	Barium	65.5 - 5,550	300 or SB
			Cadmium	ND - 35.1	10 or SB
			Chromium	17.1 - 398	50 or SB
			Copper	97.9 - 10,200	25 or SB
			Lead	5.66 - 11,300	400
			Mercury	ND - 1.47	0.1
			Nickel	14.9 - 146	13 or SB
			Zinc	159 - 10,000	20 or SB
	EcolSciences 2002	TCL/TAL	C-PAHs	0.09 - 13.5	10
			Arsenic	1.6 - 97.1	7.5 or SB
			Barium	36.8 - 12,800	300 or SB
			Cadmium	0.088 - 9.4	10 or SB
			Chromium	12 - 96.2	50 or SB
			Copper	12.2 - 321	25 or SB
			Lead	11.6 - 30,900	400
			Mercury	ND - 0.33	0.1
			Nickel	14.9 - 65	13 or SB
			Selenium	0.92 - 2.7	2 or SB
			Zinc	47.1 - 708	20 or SB
	BBL 2006	TCL SVOCs	C-PAHs	ND - 63.4	10
		TAL	Arsenic	15.1	7.5 or SB
		Lead	Barium	1,300	300 or SB
			Cadmium	13.7	10 or SB
			Chromium	64.8	50 or SB
			Copper	995	25 or SB
			Lead	ND - 167,000	400
			Mercury	3.3	0.1
			Nickel	36.8	13 or SB
			Zinc	719	20 or SB

Table 2
Remedial Investigation Soil, Groundwater, and Soil Vapor Contaminant Summary

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Investigation Area	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)
7. ELPO Area Wastewater Leak - Body Plant	EMCON 1997-2001	TCL/TAL	Barium	9.39 - 414	300 or SB
		TAL	Chromium	9.68 - 978	10 or SB
		TCL SVOCs	Copper	9.99 - 137	25 or SB
		Arsenic	Pre-IRM Lead	ND - 807	400
		Lead	Post-IRM Lead	ND	400
			Nickel	13.2 - 1,870	13 or SB
			Zinc	34.8 - 21,400	20 or SB
8. Column E2X Wastewater Overflow - Body Plant	EMCON 1997-2000	TCL/TAL	C-PAHs	ND - 23.4	10
		TAL Metals	Arsenic	1.54 - 29.6	7.5 or SB
		TCL VOCs	Barium	176 - 10,000	300 or SB
		TCL SVOCs	Cadmium	ND - 4.42	10 or SB
		Arsenic	Chromium	15.8 - 552	50 or SB
		Lead	Copper	30.7 - 640	25 or SB
			Lead	5.51 - 10,500	400
			Mercury	ND - 0.308	0.1
			Nickel	15.1 - 259	13 or SB
			Zinc	139 - 4990	20 or SB
	BBL 2006	Lead	Lead	87.8 - 995	400
9. Remote Fill Port Location - Body Plant	EMCON 1997-2001	TAL	Copper	8.32 - 41.7	25 or SB
			Nickel	12.3 - 24	13 or SB
			Zinc	30.5 - 98.9	20 or SB
10. Basement Conveyor System - Body Plant	EMCON 1997-2001	TCL/TAL	Nickel	14.9 - 15.2	13 or SB
		STARS SVOCs	Zinc	36.9 - 68.4	20 or SB
11. North Basement - Chassis Plant	EMCON 1997-2001	TCL/TAL	C-PAHs: Pre-IRM	ND - 120	10
		TCL SVOCs	C-PAHs: Post-IRM	ND - 104	10
		Arsenic	Arsenic	ND - 28.6	7.5 or SB
		Lead	Barium	45.8 - 683	300 or SB
		Asbestos	Cadmium	ND - 17.2	10 or SB
		STARS SVOCs	Chromium	14.9 - 189	50 or SB
			Copper	14.2 - 337	25 or SB
			Lead: Pre-IRM	6.35 - 11,300	400
			Lead: Post-IRM	8.5 - 1,400	400
			Mercury	ND - 3.06	0.1
			Nickel	12.3 - 71	13 or SB
			Zinc	32.1 - 1,240	20 or SB
12. M12 Hydraulic Elevator - Chassis Plant	EMCON 1997-2001	TCL/TAL	C-PAHs: Pre-IRM	ND - 80.1	10
		TCL SVOCs	C-PAHs: Post-IRM	ND - 71.8	10
		STARS SVOCs	Nickel	13.4 - 16.9	13 or SB
			Zinc	45 - 163	20 or SB
13. East Rail Spur - Chassis Plant	EcolSciences 2002	TCL VOCa	Copper	50	25 or SB
		TCL SVOCs	Nickel	49.2	13 or SB
		PCBs	Zinc	508	20 or SB
		TAL			
14. Central Rail Spur - Chassis Plant	EMCON 1997-2001	TCL/TAL	C-PAHs	2.65 - 18.47	10
		TCL	Copper	17.9 - 105	25 or SB
			Nickel	9.6 - 17.3	13 or SB
			Zinc	36 - 289	20 or SB
15. Paint Tote and Central Sludge - Chassis Plant	EMCON 1997-2001	TCL/TAL	Cadmium	ND - 4.32	10 or SB
		TCL VOCs	Copper	8.56 - 33.1	25 or SB
		TAL	Nickel	9.32 - 17.9	13 or SB
			Zinc	27.6 - 81.6	20 or SB

Table 2
Remedial Investigation Soil, Groundwater, and Soil Vapor Contaminant Summary

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Investigation Area	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)
16. Basement Conveyor System - Chassis Plant	EMCON 1997-2001	TCL/TAL STARS SVOCs	C-PAHs: Pre-IRM C-PAHs: Post-IRM Copper Nickel Zinc	ND ND - 22.03 20.2 - 77.2 13.4 - 15.8 31 - 107	10 10 25 or SB 13 or SB 20 or SB
17. Column Q5 Wastewater Leak - Chassis Plant	EMCON 1997-2001	TCL/TAL	Copper Nickel Zinc	71 - 77.2 17.8 - 18 184 - 218	25 or SB 13 or SB 20 or SB
18. Column M23 Hydraulic Leak - Chassis Plant	EMCON 1997-2001	TCL/TAL PCBs STARS SVOCs	Pre-IRM PCBs Post-IRM PCBs Zinc	0.83 - 9.9 ND 29.9 - 296	1 / 10 (4) 1 / 10 (4) 20 or SB
19. Column S20 Hydraulic Leak - Chassis Plant	EMCON 1997-2001	TAL TCL VOCs TCL SVOCs PCBs STARS SVOCs	C-PAHs Cadmium Chromium Copper Nickel Zinc	12.48 0.684 - 5.6 17 - 51.2 32.4 - 150 11.4 - 17.6 123 - 287	10 10 or SB 50 or SB 25 or SB 13 or SB 20 or SB
20 Historic Power Plant, Dipping, Laundry and Transformers (Body Plant)	EcolSciences 2002	TCL VOCs TCL SVOCs TAL Metals	C-PAHs Beryllium Nickel Zinc *Groundwater* Phenol Benz(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene	25.1 0.54 14 137 13 ug/l 1.1 ug/l 1.2 ug/l 2.2 ug/l	10 0.16 or SB 13 or SB 20 or SB 1 0.002 ND 0.002
	BBL 2006	STARS VOCs STARS SVOCs	*Soil* Napthalene n-Butylbenzene *Groundwater* Benz(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,l)perylene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-CD)pyrene Phenanthrene	 0.061 - 19 0.002 - 25 3.4 - 6.1J ug/l 2.4 - 4.4J ug/l 2.4 - 4.4J ug/l 2.1 - 3.4J ug/l 2.5 - 4.6J ug/l 3.7 - 6.5J ug/l 2.0 - 3.1J ug/l 5.7J - 12 ug/l	 13 10 0.002 ND 0.002 0.002 0.002 0.002 0.002 0.4
21 Historic Gasoline UST (Chassis Plant)	EcolSciences 2002	TCL VOCs	VOCs	100% Compliance	TAGM 4046
22 Historic Gasoline UST (Body Plant)	EcolSciences 2002	TCL VOCs	VOCs	100% Compliance	TAGM 4046
23. Historic Service and Repair	EcolSciences 2002	TCL/TAL	Arsenic Beryllium Copper Nickel Zinc	15.5 0.66 122 15.4 22.1	7.5 or SB 0.16 or SB 25 or SB 13 or SB 20 or SB
24 Historic Machine Shop	EcolSciences 2002	TCL VOCs TCL SVOCs PCBs TAL	Beryllium Nickel Zinc	ND - 0.44 14.5 - 26 23.1 - 339	0.16 or SB 13 or SB 20 or SB

Table 2
Remedial Investigation Soil, Groundwater, and Soil Vapor Contaminant Summary

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

	Investigation Area	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)
25	Historic Chassis Assembly and Spray	EcolSciences 2002	TCL/TAL TCL VOCs TAL	Beryllium Copper Lead Mercury Nickel Zinc	ND - 0.73 7.9 - 68.8 4.2 - 1540 ND - 0.12 9.7 - 22.5 12.5 - 419	0.16 or SB 25 or SB 400 0.1 13 or SB 20 or SB
26	Historic Solvent Recovery Building (1930 Body Plant)	EcolSciences 2002	TCL VOCs	VOCs	100 % Compliance	TAGM 4046
27	No. 6 Oil ASTs Removed 1965	EcolSciences 2002	TCL SVOCs TAL	C-PAHs	1.139 - 25.38	10
28	1945 Maintenance Building Demolished in 1971 (Including SB-2)	EcolSciences 2002	TCL VOCs TCL SVOCs PCBs TAL	Arsenic Barium Cadmium Chromium Copper Lead Mercury Nickel Zinc	5.1 - 26.2 195 - 8,270 0.76 - 19 21.7 - 104 72.4 - 413 1940 - 50,100 0.15 - 0.60 23.8 - 141 507 - 13,400	7.5 or SB 300 or SB 1 or SB 25 or SB 400 0.1 13 or SB 20 or SB
		BBL 2006	Lead	Lead	ND - 90,000	400
29.	Waste Water Treatment Plant Area	EcolSciences 2002	TCL VOCs TAL	Nickel Zinc	12 - 14.9 37 - 55.9	13 or SB 20 or SB
30	Millings Pile (Recycled Concrete Aggregate from Facility Demolition)	EcolSciences 2002	TCL/TAL	Phenanthrene Di-n-butylphthalate Fluoranthene Pyrene C-PAHs PCB's Barium Cadmium Chromium Copper Lead Mercury Nickel Zinc	13 - 140 ND - 9.6 23 - 150 23 - 160 63.9 - 373.1 0.39 - 1.69 96.2 - 1220 ND - 7.6 15.3 - 67.7 22.7 - 82.4 99.2 - 543 ND - 0.43 10.2 - 28.7 148 - 1460	50 8.1 50 50 10 1 300 or SB 1 or SB 50 or SB 25 or SB 400 0.1 13 or SB 20 or SB
31	Bulk Storage Tanks	EcolSciences 2002	TCL/TAL	C-PAHs Copper Mercury Nickel Zinc	ND - 38.99 9.5 - 61.6 ND - 0.91 15.1 - 25.7 38.6 - 409	10 25 or SB 0.1 13 or SB 20 or SB
32.	Historic South Lot Out Building (West Parcel)	EcolSciences 2002	TCL/TAL	Beryllium Nickel Zinc	0.51 21.7 65.9	0.16 or SB 13 or SB 20 or SB

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33 Historic Sprinfield Gas Machines - Underground	EcolSciences 2002	TCL VOCs TCL SVOCs TAL	C-PAHs	ND - 789	10
			Anthracene	ND - 58	50
			Fluoranthene	ND - 260	50
			Benzo(g,h,I)perylene	ND - 85	50
			Pyrene	ND - 310	50
			Phenanthrene	ND - 250	50
			Copper	10.5 - 79.5	25 or SB
			Mercury	ND - 0.24	0.1
			Nickel	11.3 - 15.8	13 or SB
			Zinc	15.7 - 715	20 or SB
	BBL 2006	TCL SVOCs	C-PAHs	ND - 167	10
			Fluoranthene	ND - 72	50
			Phenanthrene	ND - 53	50
			Pyrene	ND - 86	50
34 Historic Chemical Lab / Furnace Retorts	EcolSciences 2002	TCL/TAL	Copper	27.6 - 34.5	25 or SB
			Nickel	15.1 - 30.8	13 or SB
			Zinc	52.8 - 103	20 or SB
35 Historic Tar Kettle and Storage	EcolSciences 2002	TCL SVOCs TAL	C-PAHs	ND - 66.1	10
			Copper	20.8 - 25.2	25 or SB
			Nickel	17 - 21.5	13 or SB
			Zinc	45.3 - 56.5	20 or SB
36. Historic Machine Shop / Sheet Metal Working	EcolSciences 2002	TCL VOCs TCL SVOCs PCBs TAL	Copper	11.1 - 25.1	25 or SB
			Nickel	9.2 - 16.4	13 or SB
			Zinc	12.3 - 52.1	20 or SB
			C-PAHs	ND- 714	10
			Anthracene	ND - 58	50
			Fluoranthene	ND - 260	50
			Phenanthrene	ND - 250	50
			Pyrene	ND - 310	50
	BBL 2006	TCL SVOCs	C-PAHs	ND - 54.3	10
			1,2,4-Trimethylbenzene	11	10
			1,3,5-Trimethylbenzene	8.6	3.3
37 Historic Varnishing Room	EcolSciences 2002	TCL VOCs	VOCs	100% Compliance	TAGM 4046
38 Historic Painting and Assembly	EcolSciences 2002	TCL/TAL	CPAHs	ND - 48	10
			Barium	841 - 1180	300 or SB
			Beryllium	ND - 0.43	0.16 or SB
			Copper	19.9 - 41.8	25 or SB
			Lead	179 - 5180	400
			Mercury	0.06 - 0.18	0.1
			Nickel	14.5 - 22.0	13 or SB
			Zinc	360 - 760	20 or SB
39 Operations that Existed During WWII	EcolSciences 2002	TCL/TAL	C-PAHs	ND - 41.2	10
			Chromium	6.3 - 17.6	10 or SB
			Copper	5.3 - 57.3	25 or SB
			Nickel	ND - 19.9	13 or SB
			Mercury	ND - 0.12	0.1
			Selenium	ND - 3.5	2 or SB
			Zinc	17.7 - 194	20 or SB
40 Railroad Track Area (Sidings within Property)	EcolSciences 2002	TCL/TAL TCL SVOCs PCBs TAL	Chromium	10.4 20.9	10 or SB
			Copper	14.8 - 128	25 or SB
			Mercury	0.20 - 3.7	0.1
			Nickel	10.9 - 17.7	13 or SB
			Zinc	41.7 - 75.7	20 or SB

Table 2
Remedial Investigation Soil, Groundwater, and Soil Vapor Contaminant Summary

Site Management Plan
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Investigation Area	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)
41. East and West Tank Area	EcolSciences 2002	TCL VOCs TCL SVOCs	C-PAHs	66.6	10
42 Historic Fill Areas - Additional Sampling of Fill Areas - Pre-1914 Fill (SB-1, 3, 4 and 5) and Areas B, C, E, I, and J, including BH Series samples along waterfront. (See PAOC 7 for Fill Areas H, F &G, and see PAOC 29 for location SB-2).	EcolSciences 2002	TCL/TAL	C-PAHs Phenanthrene Fluoranthene Pyrene Arsenic Barium Cadmium Chromium Copper Lead Mercury Nickel Zinc	0.1- 456 ND -150 ND - 170 ND - 150 1.5 - 38.9 26.9 - 3,920 0.077 - 9 10.1 - 59.9 9.9 - 509 32.1 - 7,580 ND - 0.89 14.2 - 42.1 26.5 - 1,090	10 50 50 50 7.5 or SB 300 or SB 1 or SB 10 or SB 25 or SB 400 0.1 13 or SB 20 or SB
	BBL 2006 (Fill Areas A, C and D between Chassis and Body Plant)	TCL SVOCs	C-PAHs Total SVOCs Fluoranthene Fluorene Napthalene Phenanthrene Pyrene	ND - 1853 ND - 4682 ND - 750 ND - 160 ND - 100 ND - 710 ND - 660	10 500 50 50 13 50 50
43 Building Slabs (West Parcel)	EcolSciences 2002	PCBs	PCBs	ND - 0.57 (100% Compliance)	1 ppm at surface
44 Historic 10,000 Gal. Gasoline UST	BBL 2006	STARS VOCs	*Soil* STARS VOCs *Groundwater* STARS VOCs	100%Compliance 100% Compliance	TAGM 4046 Class GA Standards
45 Location of Alleged Automobile Battery Disposal (Chasis Plant)	BBL 2006	Lead	Lead	ND - 143 (100% Compliance)	400
46 Park Boundary Near OW-24 (Body Plant)	BBL 2006	TCL/TAL TCL VOCs Chromium	*Soil* Chromium Trichloroethene *Groundwater* Chromium Trichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethene	8.7 - 3,750 ND - 0.045 ND - 42,100 ug/l ND - 75 ug/l ND - 6.8 ug/l ND - 9.1	10 or SB 0.7 50 ug/l 5 ug/l 5 ug/l 5 ug/l
47 10,000-Gallon No. 6 Fuel Oil UST	BBL 2006	STARS VOCs STARS SVOCs	*Soil* Total VOCs Total CPAHs - Total SVOCs *Groundwater* Isopropyl benzene Napthalene n-Butyl benzene n-Propylbenzene sec-Butylbenzene	ND - 31.18 ND - 59.10 ND - 180 ND - 10 ug/l ND - 140 ug/l ND - 19 ug/l ND - 31 ug/l ND - 8.8 ug/l	10 10 500 5 ug/l 10 ug/l 5 ug/l 5 ug/l 5 ug/l
48 Bulkhead Area Sampling Requested by NYSDEC (West Parcel Waterfront)	EcolSciences 2002	TCL/TAL	Mercury Nickel Zinc	ND - 0.17 12.4 - 15.2 41.2 - 57.2	0.1 13 or SB 20 or SB

Table 2
Remedial Investigation Soil, Groundwater, and Soil Vapor Contaminant Summary

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Investigation Area	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)
49. Background Fill - West Parcel (Areas A, C, D, E, F, G, H, I, J, K and Pre-1914 Fill)	EMCON 1997-2001	TCL/TAL	C-PAHs	ND - 471	10
			Semi-VOCs	ND - 893.2	500 or SB
			Arsenic	ND - 39	7.5 or SB
			Barium	9.85 - 7700	300 or SB
			Cadmium	ND - 25.4	10 or SB
			Chromium	7.75 - 350	50 or SB
			Copper	6.34 - 340	25 or SB
			Lead	2.24 - 8,660	400
			Mercury	ND - 0.485	0.1
			Nickel	8.14 - 75.9	13 or SB
			Zinc	17.6 - 2740	20 or SB
50. Groundwater - West Parcel	EMCON 1997-2001	TCL/TAL	*VOCs (ug/l)*		
			Benzene	ND - 92 ug/l	1 ug/l
			Ethylbenzene	ND - 17 ug/l	5 ug/l
			m&p-Xylene	ND - 11 ug/l	5 ug/l
			Toluene	ND - 6.8 ug/l	5 ug/l
			Semi-VOCs		
			Naphthalene	ND - 11 ug/l	10 ug/l
			Total Metals (5)		
			Antimony	ND - 0.184	0.003
			Arsenic	ND - 0.112	0.025
			Barium	0.13 - 5.15	1
			Cadmium	ND-0.022	0.005
			Lead	ND-0.70	0.025
			Selenium	ND - 0.0602	0.010
			Dissolved Metals (6)		
			Antimony	ND - 0.0125	0.003
			Barium	0.02 - 2.87	1
			Selenium	ND - 0.0105	0.010
51 Groundwater - West Parcel (Continued)	EcolSciences 2002	TCL VOCs TCL SVOCs TAL	Benzene	ND - 6.2 ug/l	1 ug/l
			1,1-Dichloroethene	ND - 6.8 ug/l	5 ug/l
			1,1-Dichloroethane	ND - 10 ug/l	5 ug/l
			Chloroethane	ND - 16 ug/l	5 ug/l
			Xylenes (total)	ND - 20 ug/l	5 ug/l
			Phenol	ND - 13 ug/l	5 ug/l
			Benzo(a)anthracene	ND - 2.3 ug/l	0.002 ug/l
			Benzo(b)fluoranthene	ND - 4.2 ug/l	0.002 ug/l
			Benzo(a)pyrene	ND - 2.6 ug/l	ND
			Ideno(1,2,3-cd)pyrene	ND - 1.8 ug/l	0.002 ug/l
			Total Metals (5)		
			Antimony	ND - 94.3 ug/l	3 ug/l
			Arsenic	ND - 138 ug/l	25 ug/l
			Barium	ND - 15700 ug/l	1000 ug/l
			Cadmium	ND - 154 ug/l	5 ug/l
			Chromium	ND - 1390 ug/l	50 ug/l
			Copper	ND - 4160 ug/l	200 ug/l
			Lead	ND - 106000 ug/l	25 ug/l
			Mercury	ND - 22.6 ug/l	0.7 ug/l
			Nickel	ND - 762 ug/l	100 ug/l
			Selenium	ND - 13.3 ug/l	10 ug/l
			Dissolved Metals (6)		
			Antimony	ND - 24.8 ug/l	3 ug/l
			Arsenic	ND - 33.9 ug/l	25 ug/l
			Barium	ND - 7060 ug/l	1000 ug/l
			Lead	ND - 446 ug/l	25 ug/l

Table 2
Remedial Investigation Soil, Groundwater, and Soil Vapor Contaminant Summary

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

	Investigation Area	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)
52	Groundwater - West Parcel (Continued - Excluding PAOC 47)	BBL 2006	TAL	*Total Metals* (5)		
			STARS VOCs	Barium	ND - 6,560 ug/l	1,000 ug/l
			STARS SVOCs	Lead	ND - 27.2 ug/l	25 ug/l
				Dissolved Metals (6)		
				Barium	194 - 4,860 ug/l	1,000 ug/l
				STARS VOCs		
				Benzene	ND - 9.8 ug/l	1 ug/l
				Isopropylbenzene	ND - 20 ug/l	5 ug/l
				Naphthalene	ND - 140 ug/l	10 ug/l
				n-Propylbenzene	ND - 35 ug/l	5 ug/l
				sec-Butylbenzene	ND - 8.8 ug/l	5 ug/l
				STARS SVOCs		
				Acenaphthene	ND - 37 ug/l	20 ug/l
				Benzo(a)anthracene	ND - 50 ug/l	0.002 ug/l
				Benzo(a)pyrene	ND - 48 ug/l	ND
				Benzo(b)fluoranthene	ND - 32 ug/l	0.002 ug/l
				Benzo(k)flouranthene	ND - 39 ug/l	0.002 ug/l
				Chrysene	ND - 52 ug/l	0.002 ug/l
				Flouranthene	ND - 110 ug/l	50 ug/l
				Ideno(1,2,3-cd)pyrene	ND - 30 ug/l	0.002 ug/l
				Naphthalene	ND - 99 ug/l	10 ug/l
				Phenanthrene	ND - 140 ug/l	50 ug/l
				Pyrene	ND - 81 ug/l	50 ug/l
53.	Soil Gas- West Parcel	BBL 2006	Methane	Methane	ND - 18 %	NA
			TO-15 VOCs	1,1,1-Trichloroethane	ND - 410 ug/m3	NA
			Napthalene	1,1-Dichloroethene	ND - 44 ug/m3	NA
				1,2,4-Trimethylbenzene	ND - 83 ug/m3	NA
				1,3,5-Trimethylbenzene	ND - 46 ug/m3	NA
				1,3-Dichlorobenzene	ND - 34 ug/m3	NA
				1,4-Dioxane	ND - 160 ug/m3	NA
				2-Butanone (MEK)	ND - 73 ug/m3	NA
				2-Propanol	ND - 420 ug/m3	NA
				4-Ethyltoluene	ND - 97 ug/m3	NA
				Acetone	ND - 2500 ug/m3	NA
				Benzene	ND - 15 ug/m3	NA
				Carbon Disulfide	ND - 20 ug/m3	NA
				Chloroform	ND - 110 ug/m3	NA
				Cyclohexane	ND - 16 ug/m3	NA
				Ethanol	ND - 69 ug/m3	NA
				Ethyl Benzene	ND - 57 ug/m3	NA
				Freon 11	ND - 200 ug/m3	NA
				Freon 12	ND - 35 ug/m3	NA
				Heptane	ND - 22 ug/m3	NA
				Hexane	ND - 21 ug/m3	NA
				m,p-Xylene	ND - 200 ug/m3	NA
				Naphthalene	ND - 24 ug/m3	NA
				o-Xylene	ND - 73 ug/m3	NA
				Propylbenzene	ND - 5.3 ug/m3	NA
				Tetrachloroethene	ND - 55 ug/m3	NA
				Toluene	ND - 140 ug/m3	NA
				Trichloroethene	ND - 2900 ug/m3	NA

Acronyms and Abbreviations:

TCL/TAL - Target Compound List/Target Analyte List
C-PAHs - Carcinogenic polycyclic aromatic hydrocarbons
ND - Non Detect
NA - Not Analyzed
SB - Site Background
VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds
IRM - Interim Remedial Measure
STARS - Spill Technology and Remediation Series
BBL - Blasland, Bouck, & Lee, Inc.
TAGM 4046 - Technical and Administative Guidance Memorandum 4046
PCBs - Polychlorinated biphenyls
PAOC - Potential Area of Concern
ppm - parts per million
COCs - Constituents of Concern
µg/m^3 - microgram/cubic meter
µg/l - microgram/liter
USEPA - United States Environmental Protection Agency
TO-15 - USEPA Compendium Method TO-15
NYSDOH - New York State Department of Health

Notes:

(1) Constituents confirmed by Site sampling, with at least one concentration reported above screening value. List excludes abundant inorganic constituents (e.g., aluminum, calcium, iron, magnesium, manganese, potassium, sodium), inherent in most Site fill and soils. PAOCs with 100% of analyzed COCs below screening values are listed.
(2) Range reflects all results from references listed.
(3) Screening values for soil from TAGM 4046, as amended, and as utilized in the RI. Lead value of 400 ppm in soil, per USEPA, as specified by NYSDOH. Groundwater values per Class GA Standards and Guidance. For this site, TAGM 4046 screening values have been replaced by 6NYCRR Part 375 SCOs for Restricted Residential Use
(4) Total PCB values for surface / subsurface residential
(5) Analyses for Total Metals (unfiltered samples) may be biased high due to sample turbidity (suspended solids).
(6) Analyses for Dissolved Metals are from samples filtered in the field to remove suspended solids.

Table 3
Summary of Remaining Soil Contamination Above Unrestricted Levels

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Contaminant	Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives	Range Remaining in Soils (mg/kg)
Metals		
Arsenic	13 [c]	0.66 - 84.6
Barium	350 [c]	8.4 - 10,000
Beryllium	7.2	0.1 - 0.82
Cadmium	2.5 [c]	0.09 - 25.4
Chromium, hexavalent [e]	1 [b]	0.46 - 12.0
Chromium, trivalent [e]	30 [c]	5.7 - 978
Copper	50	3.7 - 640
Total Cyanide [e,f]	27	1.4 - 5.52
Lead	63 [c]	1.9 - 50,100 [g]
Manganese	1,600 [c]	29.6 - 3,410
Total Mercury	0.18 [c]	0.02 - 4.60
Nickel	30	6.5 - 1,870
Selenium	3.9 [c]	0.551 - 24.3
Silver	2	0.25 - 3.86
Zinc	109 [c]	12.3 - 21,400
PCBs/Pesticides		
2,4,5-TP Acid (Silvex) [f]	3.8	NA
4,4'-DDE	0.0033 [b]	0.012 - 0.083
4,4'-DDT	0.0033 [b]	0.015 - 0.080
4,4'-DDD	0.0033 [b]	ND - 0.016
Aldrin	0.005 [c]	ND
alpha-BHC	0.02	ND
beta-BHC	0.036	0.01 - 0.048
Chlordane (alpha)	0.094	ND
delta-BHC [g]	0.04	ND
Dibenzofuran [f]	7	0.0099 - 17
Dieldrin	0.005 [c]	ND
Endosulfan I [d,f]	2.4	ND
Endosulfan II [d,f]	2.4	ND
Endosulfan sulfate [d,f]	2.4	ND
Endrin	0.014	ND - 0.013
Heptachlor	0.042	ND
Lindane	0.1	ND
Polychlorinated biphenyls	0.1	0.069 - 6.25

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Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Contaminant	Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives	Range Remaining in Soils (mg/kg)
Semivolatile organic compounds		
Acenaphthene	20	0.0085 - 140
Acenapthylene [f]	100 [a]	0.012 - 23
Anthracene [f]	100 [a]	0.01 - 230
Benz(a)anthracene [f]	1 [c]	0.021 - 390
Benzo(a)pyrene	1 [c]	0.019 - 350
Benzo(b)fluoranthene [f]	1 [c]	0.013 - 250
Benzo(g,h,i)perylene [f]	100	0.0098 - 230
Benzo(k)fluoranthene [f]	0.8 [c]	0.012 - 260
Chrysene [f]	1 [c]	0.0094 - 370
Dibenz(a,h)anthracene [f]	0.33 [b]	0.027 - 83
Fluoranthene [f]	100 [a]	0.015 - 750
Fluorene	30	0.0078 - 160
Indeno(1,2,3-cd)pyrene [f]	0.5 [c]	0.01 - 200
m-Cresol [f]	0.33 [b]	NA
Naphthalene [f]	12	0.014 - 100
o-Cresol [f]	0.33 [b]	NA
p-Cresol [f]	0.33 [b]	NA
Pentachlorophenol	0.8 [b]	ND
Phenanthrene [f]	100	0.0094 - 710
Phenol	0.33 [b]	ND - 0.41
Pyrene [f]	100	0.0083 - 660
Volatile organic compounds		
1,1,1-Trichloroethane [f]	0.68	0.0004 - 0.013
1,1-Dichloroethane [f]	0.27	0.0012 - 0.0026
1,1-Dichloroethene [f]	0.33	0.0006 - 0.0025
1,2-Dichlorobenzene [f]	1.1	ND
1,2-Dichloroethane	0.02 [c]	ND
cis-1,2-Dichloroethene [f]	0.25	0.0005 - 0.0014
trans-1,2-Dichloroethene [f]	0.19	ND
1,3-Dichlorobenzene [f]	2.4	ND
1,4-Dichlorobenzene	1.8	ND
1,4-Dioxane	0.1 [b]	ND
Acetone	0.05	0.0026 - 1.7
Benzene	0.06	0.0005 - 3.9
n-Butylbenzene [f]	12	0.0014 - 25
Carbon tetrachloride [f]	0.76	ND
Chlorobenzene	1.1	ND - 0.001
Chloroform	0.37	0.0009 - 0.0012
Ethylbenzene [f]	1	0.0005 - 6.9
Hexachlorobenzene [f]	0.33 [b]	ND - 0.19

Table 3
Summary of Remaining Soil Contamination Above Unrestricted Levels

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Contaminant	Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives	Range Remaining in Soils (mg/kg)
Methyl ethyl ketone	0.12	NA
Methyl tert-butyl ether [f]	0.93	ND - 0.00035
Methylene chloride	0.05	0.0006 - 0.028
n-Propylbenzene [f]	3.9	0.0041 - 25
sec-Butylbenzene [f]	11	0.004 - 11
tert-Butylbenzene [f]	5.9	0.0062 - 0.64
Tetrachloroethene	1.3	0.008 - 0.0095
Toluene	0.7	0.0007 - 2
Trichloroethene	0.47	0.00036 - 0.012
1,2,4-Trimethylbenzene [f]	3.6	0.0031 - 11
1,3,5-Trimethylbenzene [f]	8.4	0.0031 - 12
Vinyl chloride [f]	0.02	ND
Xylene (mixed)	0.26	0.0036 - 18.1

All soil cleanup objectives (SCOs) are in parts per million (ppm).

General Notes:

Constituents with levels above Unrestricted Use SCO.

ND - Not Detected

NA - Not Analyzed

Footnotes:

[a] The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See Technical Support Document (TSD), section 9.3.

[b] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value

[c] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[f] Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

[g] Lead values above 10,000 ppm are from isolated sample locations and depth intervals beyond the extent of the IRM removals. These are sample locations AOC-29, BP-33, SI-7-B32, and SI-7-B34. Excluding these isolated samples, maximum lead concentration is 9,331 ppm (sample location C-29-36, at 4-6 ft. depth).

Table 4
Summary of Remaining Soil Contamination Above Restricted Residential Levels

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Contaminant	Table 375-6.8(b): Restricted Use Soil Cleanup Objectives - Restricted Residential	Range Remaining in Soils (mg/kg)
Metals		
Arsenic	16[d]	0.66 - 84.6
Barium	400	8.4 - 10,000
Beryllium	72	0.1 - 0.82
Cadmium	4.3	0.09 - 25.4
Chromium, hexavalent [e]	110	0.46 - 12.0
Chromium, trivalent [e]	180	5.7 - 978
Copper	270	3.7 - 640
Total Cyanide [e]	27	1.4 - 5.52
Lead	400	1.9 - 50,100 [h]
Manganese	2,000[d]	29.6 - 3,410
Total Mercury	0.81[g]	0.02 - 4.60
Nickel	310	6.5 - 1,870
Selenium	180	0.551 - 24.3
Silver	180	0.25 - 3.86
Zinc	10,000[c]	12.3 - 21,400
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)	100[a]	NA
4,4'-DDE	8.9	0.012 - 0.083
4,4'-DDT	7.9	0.015 - 0.080
4,4'-DDD	13	ND - 0.016
Aldrin	0.097	ND
alpha-BHC	0.48	ND
beta-BHC	0.36	0.01 - 0.048
Chlordane (alpha)	4.2	ND
delta-BHC	100[a]	ND
Dibenzofuran	59	0.0099 - 17
Dieldrin	0.2	ND
Endosulfan I	24[f]	ND
Endosulfan II	24[f]	ND
Endosulfan sulfate	24[f]	ND
Endrin	11	ND - 0.013
Heptachlor	2.1	ND
Lindane	1.3	ND
Polychlorinated biphenyls	1	0.069 - 6.25
Semivolatiles		
Acenaphthene	100[a]	0.0085 - 140
Acenapthylene	100[a]	0.012 - 23

Table 4
Summary of Remaining Soil Contamination Above Restricted Residential Levels

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Contaminant	Table 375-6.8(b): Restricted Use Soil Cleanup Objectives - Restricted Residential	Range Remaining in Soils (mg/kg)
Anthracene	100[a]	0.01 - 230
Benz(a)anthracene	1[d]	0.021 - 390
Benzo(a)pyrene	1[d]	0.019 - 350
Benzo(b)fluoranthene	1[d]	0.013 - 250
Benzo(g,h,i)perylene	100[a]	0.0098 - 230
Benzo(k)fluoranthene	3.9	0.012 - 260
Chrysene	3.9	0.0094 - 370
Dibenz(a,h)anthracene	0.33	0.027 - 83
Fluoranthene	100[a]	0.015 - 750
Fluorene	100[a]	0.0078 - 160
Indeno(1,2,3-cd)pyrene	0.5[d]	0.01 - 200
m-Cresol	100[a]	NA
Naphthalene	100[a]	0.014 - 100
o-Cresol	100[a]	NA
p-Cresol	100[a]	NA
Pentachlorophenol	6.7	ND
Phenanthrene	100[a]	0.0094 - 710
Phenol	100[a]	ND - 0.41
Pyrene	100[a]	0.0083 - 660
Volatile organic compounds		
1,1,1-Trichloroethane	100[a]	0.0004 - 0.013
1,1-Dichloroethane	26	0.0012 - 0.0026
1,1-Dichloroethene	100[a]	0.0006 - 0.0025
1,2-Dichlorobenzene	100[a]	ND
1,2-Dichloroethane	3.1	ND
cis-1,2-Dichloroethene	100[a]	0.0005 - 0.0014
trans-1,2-Dichloroethene	100[a]	ND
1,3-Dichlorobenzene	49	ND
1,4-Dichlorobenzene	13	ND
1,4-Dioxane	13	ND
Acetone	100[b]	0.0026 - 1.7
Benzene	4.8	0.0005 - 3.9
Butylbenzene	100[a]	0.0014 - 25
Carbon tetrachloride	2.4	ND
Chlorobenzene	100[a]	ND - 0.001
Chloroform	49	0.0009 - 0.0012
Ethylbenzene	41	0.0005 - 6.9
Hexachlorobenzene	1.2	ND - 0.19

Table 4
Summary of Remaining Soil Contamination Above Restricted Residential Levels

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Contaminant	Table 375-6.8(b): Restricted Use Soil Cleanup Objectives - Restricted Residential	Range Remaining in Soils (mg/kg)
Methyl ethyl ketone	100[a]	NA
Methyl tert-butyl ether	100[a]	ND - 0.00035
Methylene chloride	100[a]	0.0006 - 0.028
n-Propylbenzene	100[a]	0.0041 - 25
sec-Butylbenzene	100[a]	0.004 - 11
tert-Butylbenzene	100[a]	0.0062 - 0.64
Tetrachloroethene	19	0.008 - 0.0095
Toluene	100[a]	0.0007 - 2
Trichloroethene	21	0.00036 - 0.012
1,2,4-Trimethylbenzene	52	0.0031 - 11
1,3,5-Trimethylbenzene	52	0.0031 - 12
Vinyl chloride	0.9	ND
Xylene (mixed)	100[a]	0.0036 - 18.1

All soil cleanup objectives (SCOs) are in parts per million (ppm).

General Notes:

Constituents with levels above Restricted Residential Use SCO.

ND - Not Detected.

NA - Not Analyzed

Footnotes:

[a] The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

[b] The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

[c] The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

[d] For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

[e] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[f] This SCO is for the sum of endosulfan I,endosulfan II, and endosulfan sulfate.

[g] This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

[h] Lead values above 10,000 ppm are from isolated sample locations and depth intervals beyond the extent of the IRM removals. These are sample locations AOC-29, BP-33, SI-7-B32, and SI-7-B34. Excluding these isolated samples, maximum lead concentration is 9,331 ppm (sample location C-29-36, at 4-6 ft. depth).

Table 8
Groundwater Monitoring Plan Summary

Site Management Plan
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Monitoring well	Parameters	Objective
Upgradient Area		
OW-10	Lead, chromium, VOCs, and SVOCs	Monitoring upgradient quality of groundwater entering the site.
PAOC 7		
OW-6	Lead	Monitoring lead concentrations downgradient of PAOC 7 IRM excavation and outside the low permeability cover system.
OW-7	Lead	Monitoring lead concentrations downgradient of PAOC 7 IRM excavation and outside the low permeability cover system.
PAOC 29		
OW-11	Lead	Monitoring lead concentrations crossgradient/ downgradient of PAOC 29 IRM excavation and within or at edge of low-permeability cover system .
OW-52 -New future well	Lead	Monitoring lead concentrations downgradient of PAOC 29 IRM excavation, within or beyond low-permeability cover system.
OW-53 -New future well	Lead	Monitoring lead concentrations upgradient of PAOC 29 IRM excavation, within or adjacent to low-permeability cover system.
PAOC 47		
IT-47-MW-5	VOCs and chromium	Monitoring TCE and chromium concentrations at the downgradient property line at edge of IRM treatment area.
OW-24R	VOCs and chromium	Monitoring TCE and chromium concentrations at the downgradient property line at edge of IRM treatment area.
OX-47-MW-11	VOCs and chromium	Monitoring TCE and chromium concentrations at the downgradient property line at edge of IRM treatment area.
PAOC 34/37		
OW-36	VOCs and SVOCs	Monitoring petroleum constituents downgradient of natural attenuation area.
OW-37	VOCs and SVOCs	Monitoring petroleum constituents downgradient of natural attenuation area.
OW-38	VOCs and SVOCs	Monitoring petroleum constituents upgradient of natural attenuation area.
PAOC 43		
OW-8	VOCs and SVOCs	Monitoring petroleum constituents downgradient of natural attenuation area
OW-40	Lead, VOCs and SVOCs	Monitoring petroleum constituents downgradient of natural attenuation area, and upgradient of PAOC 7
OW-43	VOCs and SVOCs	Monitoring petroleum constituents within natural attenuation area.
Former UST Area		
OX-UST-MW-1	VOCs and SVOCs	Monitoring petroleum constituents upgradient of natural attenuation area.
OX-UST-MW-5	VOCs and SVOCs	Monitoring petroleum constituents within natural attenuation area.
OX-UST-MW-7	VOCs and SVOCs	Monitoring petroleum constituents within natural attenuation area.
OX-UST-MW-9	VOCs and SVOCs	Monitoring petroleum constituents within natural attenuation area.
Property Line- General		
OW-25	Lead, VOCs and SVOCs	General monitoring along general vicinity of the downgradient property line
OW-27	Lead, VOCs and SVOCs	General monitoring along general vicinity of the downgradient property line

Note:
VOCs and SVOCs include TCL constituents and all gasoline and fuel oil constituents listed in Commisioner Policy (CP) 51/Soil Cleanup Guidance - New York State Department of Environmental Conservation.

Acronyms and Abbreviations:
VOCs - Volatile Organic Compounds
SVOCs - Semi-Volatile Organic Compounds
PAOC - Potential Area of Concern
IRM - Interim Remedial Measure
TCE - Trichloroethylene

Table 9
Groundwater Monitoring Analysis Plan Summary

Site Management Plan
Former General Motors Assemebly Plant West Parcel Site, Sleepy Hollow, NY

Laboratory Analytical Parameter	Matrix	Analytical Method	Sample Preservation	Analytical Holding Time[1] (days)	Container
Lead, TAL Metals	Soil	USEPA SW-846 Method 6010B & 7471A (mercury)	Cool to 4°C	Analysis (180), except mercury (26)	4 oz glass, wide mouth container with Teflon® lined cap
TCL SVOCs; CP-51[2] Gasoline and Fuel Oil SVOCs	Soil	USEPA SW-846 Method 8270C	Cool to 4°C	Extraction (10); Analysis (40)	4 oz glass, wide mouth container with Teflon® lined cap
CP-51[2] Gasoline and Fuel Oil VOCs	Soil	USEPA SW-846 Method 8021B	Cool to 4°C; no headspace	Analysis (10)	4 oz glass, wide mouth container with Teflon® lined septum cap
TCL VOCs	Soil	USEPA SW-846 Method 8260B	Cool to 4°C; no headspace	Analysis (10)	4 oz glass, wide mouth container with Teflon® lined septum cap
PCBs; TCL Pesticides and PCBs	Soil	USEPA SW-846 Method 8082 (PCBs) & 8081A (Pesticides)	Cool to 4°C	Extraction (10); Analysis (40)	4 oz glass, wide mouth container with Teflon® lined cap
TAL Metals	Water	USEPA SW-846 Method 6010B & 7470A (mercury)	Cool to 4°C; HNO_3 to pH < 2	Analysis (180), except mercury (26)	500 mL polyethylene, wide-mouth containers
TCL SVOCs; CP-51[2] Gasoline and Fuel Oil SVOCS	Water	USEPA SW-846 Method 8270C	Cool to 4°C	Extraction (5); Analysis (40)	1 L glass, wide mouth container with Teflon® lined cap
CP-51[2] Gasoline and Fuel Oil VOcs	Water	USEPA SW-846 Method 8021B	Cool to 4°C; no headspace; HCL to pH < 2	Analysis (10)	3x 40 ml glass vial with Teflon® lined septum cap
TCL VOCs	Water	USEPA SW-846 Method 8260B	Cool to 4°C; no headspace; HCL to pH < 2	Analysis (10)	3x 40 ml glass vial with Teflon® lined septum cap
TCL Pesticides & PCBs	Water	USEPA SW-846 Method 8082 (PCBs) & 8081A (Pesticides)	Cool to 4°C	Extraction (5); Analysis (40)	1 L glass, wide mouth container with Teflon® lined cap
VOCs	Air	USEPA TO-15	Maintain Pressure	Analysis (5)	SUMMA Cannister

[1] Verified Time of Sample Receipt (at laboratory), per Analytical Services Protocol (ASP)

[2] Commissioner Policy (CP) 51/Soil Cleanup Guidance - New York State Department of Environmental Conservation

Acronyms and Abbreviations:

TAL Metals - Target Analyte List Metals
USEPA - United State Environmental Protection Agency
TCL - Target Compound List
VOCs - Volatile Organic Compounds
SVOCs - Semi-Volatile Organic Compounds
PCBs - Polychlorinated Biphenyls
HNO_3 - Nitric Acid
HCL - Hydrochloric Acid

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Figures

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Appendix A

Excavation Work Plan

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Appendix A – Excavation Work Plan

Former General Motors Assembly Plant
West Parcel Site
Sleepy Hollow, New York

December 2013

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Tables

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Acronyms and Abbreviations

SCOs	Soil Clean-up Objectives
SMP	Site Management Plan
BCA	Brownfield Cleanup Agreement
BUD	Beneficial Use Determination
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
COC	Certificate of Completion
DER	Division of Environmental Remediation
EWP	Excavation Work Plan
HASP	Health and Safety Plan
IC	Institutional Controls
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
PCB	polychlorinated biphenyl
RP	Remedial Party
RWP	Remedial Work Plan
SPDES	State Pollutant Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan
TAL	Target Analyte List
TCL	Target Compound List

1. Introduction

This Excavation Work Plan (EWP), prepared in support of the Site Management Plan (SMP), establishes procedures to follow in the event that soil excavation or other intrusive activities are required for specific areas at the Former General Motors Assembly Plant, West Parcel Site in Sleepy Hollow, New York Site (hereinafter referred to as the "Site"). The Site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index# C360070-12-10 administered by New York State Department of Environmental Conservation (NYSDEC) and executed on December 31, 2010 and amended August 20 , 2012.

As described in the SMP, after completion of the remedial work, impacted materials, including soil, groundwater, soil gas/vapor, and beneficial use materials, remain at the Site. Beneficial use materials remain onsite for future use as structural or grading fill at the Site. These materials include:

- concrete millings derived from the demolition of onsite concrete slabs from the former assembly plant complex
- sediments removed from the Hudson River and Site storm drains, and stabilized onsite during 2012-2013

Note that simple excavations may only require compliance with a portion of the EWP. For example, excavation of a small volume of soil from above the water table that is directly loaded for off-site disposal would not require the stockpiling or fluids management provisions of this EWP.

Soils on the vegetated slopes may contain little to no historic fill, although no testing of slope soils was conducted during the RI or previous investigations to confirm soil quality. Unless data are provided to the Department to demonstrate that existing soils in certain areas of the site meet 6NYCRR Part 375 Soil Cleanup Objectives (SCOs) for Unrestricted Use, all excavation activities must adhere to this EWP.

2. Notification

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site owner or their representative will notify the Department. Currently, this notification will be made to:

Ms. Jamie Verrigni
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7014
jlverrig@gw.dec.state.ny.us

and

Site Control Section
Bureau of Technical Support
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7020

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,
- A statement that the work will be performed in compliance with this EWP and 29 Code of Federal Regulations (CFR) 1910.120,
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix H of this SMP document,
- Identification of disposal facilities for potential waste streams,

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

3. Soil Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the Certificate of Completion (COC).

Soils will be segregated based on previous environmental data and screening results into material that requires offsite disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

4. Stockpile Methods

Soil stockpiles of excavated materials will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

5. Materials Excavation and Load Out

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this SMP.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements).

A truck wash will be operated onsite. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of offsite soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

6. Materials Transport Offsite

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 New York Codes, Rules, and Regulations (NYCRR) Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of offsite in an appropriate manner.

Truck transport routes (Figure A-1) are as follows:

1. Start out south on Beekman Ave toward River St. – 100 ft.
2. Continue onto River St. – 0.1 Mi
3. Continue onto Division St. – 400 ft.
4. Continue onto Railroad Ave. – 0.1 Mi
5. Turn left to stay on Railroad Ave – 100 ft.
6. Turn left onto Division St. – 0.1 Mi
7. Turn right onto Wildey St. to US-9 / Broadway

All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting offsite queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; (g) community input (where necessary).

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Queuing of trucks will be performed onsite in order to minimize offsite disturbance. Offsite queuing will be prohibited.

7. Materials Disposal Offsite

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this Site is proposed for unregulated offsite disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated offsite management of materials from this Site will not occur without formal NYSDEC approval.

Offsite disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, Construction/Demolition recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken offsite will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted Soil Clean-up Objectives (SCOs) is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

8. Materials Reuse Onsite

Soil which exists at the Site, which is used to construct a soil cover, site cap system or as excavation backfill, or which may be exported offsite for reuse, must meet the requirements of DER-10, Section 5.4 (e), as applicable to the site. Chemical criteria for onsite reuse of material have been approved by NYSDEC and are listed in Table A-1 below.

Table A-1
Criteria for On-Site Reuse of Excavated Materials

Soil on Site	Reuse on Site	Offsite Export and Reuse
Meets Unrestricted Use SCOs (See Table A-2)	Without restrictions	Without restrictions
Meets Restricted Residential Use SCOs (See Table A-3)	In the soil cover or as backfill within the area of the site subject to institutional controls (IC)	Not allowed, unless going to a site with IC subject to a 6NYCRR Part 360 Beneficial Use Determination (BUD)
Exceeds Restricted Residential Use SCOs	Placement below the final cover system within the area subject to IC, except use as backfill for utility trenches in the public right of way	Not allowed, unless going to a site with IC subject to a 6NYCRR Part 360 Beneficial Use Determination (BUD)

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain onsite. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use onsite will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Based on the available database for remaining contamination, it may be assumed that existing site soil does not meet restricted residential use SCOs unless testing results demonstrate otherwise. Sampling and analysis of excavated backfill to qualify it for unrestricted or restricted residential uses or offsite reuse will be performed in

accordance with the Field Sampling Plan for the Site (Appendix K in this SMP). Representative sampling in accordance with Section 5.4 (e) 10 and Table 5.4 (e) 10 of DER-10 will be utilized to characterize excavated soil, where necessary, as described in Appendix K of this SMP.

Any site-derived demolition material, not already approved in a BUD and proposed for reuse onsite will be sampled for PCBs, lead, TAL metals, SVOCs, and PCBs if no prior data are available, and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing onsite will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused onsite as fill.

9. Fluids Management

All liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed offsite.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a State Pollutant Discharge Elimination System (SPDES) permit.

10. Cover System Restoration

After the completion of soil removal and any other invasive activities, the cover system will be restored in a manner that complies with the IRM Decision Document, the Final Decision Document and the final Remedial Work Plan (RWP).]. The demarcation layer, consisting of orange snow fencing material or equivalent material (e.g., orange or yellow geotextile) will be placed to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

11. Backfill from Off-Site Sources

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the Site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use (restricted residential with prohibited use of groundwater), the resulting soil quality standards are SCOs for restricted residential use provided in Appendix 5 of DER-10 under "Restricted Residential Use" (see Table A-4). Soil imported to a site for use in a soil cap, soil cover or as backfill must meet the criteria summarized in Table A-5 below.

Table A-5
Criteria for Imported Soils

Proposed Use	Criteria
Soil Cover System	Meets SCOs for restricted residential use provided in Appendix 5 of DER-10 under "Restricted Residential Use" (See Table A-4).
Public Utility Trench Backfill	Meets SCOs for restricted residential use provided in Appendix 5 of DER-10 under "Restricted Residential Use" (See Table A-4).
Fill beneath the Cover System	Meets SCOs for restricted residential use provided in Appendix 5 of DER-10 under "Restricted Residential Use"(See Table A-4) and is free of extraneous debris or solid waste, or is approved for use by a 6NYCRR Part 360 Beneficial Use Determination (BUD), or meets the definition of exempt fill under 6NYCRR Part 360.

The imported fill should be sampled and analyzed in accordance with Section 5.4(e) 10 and Table 5.4(e)10 of DER-10 , as described in Appendix K to this SMP.

Imported Materials Other Than Soils

Consistent with DER-10, Section 5.4(e), the following material may be imported, without chemical testing provided that it contains less than 10% by weight material which would pass through a size 80 sieve and consists of:

i. gravel, rock or stone, consisting of virgin material from a permitted mine or quarry; or

ii. for placement under the final cover system other than use in public utility trenches, recycled concrete or brick from a NYSDEC registered construction and demolition debris processing facility if the material conforms to the requirements of Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002).

The Owner must provide documentation of the source of fill to Division of Environmental Remediation (DER) for approval of the source of the material before it is used on the site, which should include:

iii. the name of the person providing the documentation and relationship to the source of the fill

iv. the location where the fill was obtained;

v. identification of any state or local approvals as a fill source; and

vi. if no prior approval is available for the source, a brief history of the use of the property which is the source of the fill.

Bills of lading should be provided to DER to document that the fill delivered was from a DER-approved source(s).

For use of such materials as fill under the final cover system, DER may issue site-specific exemption for one or more of the requirements described or referenced above, based upon site- specific conditions, such as:

vii. use and redevelopment of the site;

viii. depth of the placement of the backfill material relative to the surface or subsurface structures

ix. depth of the placement of the backfill material relative to groundwater;

x. volume of backfill material;

xi. potential for odor from the backfill material;

xii. presence of historic fill in the vicinity of the site;

xiii. NYSDEC-issued beneficial use determination, pursuant to 6 NYCRR Part 360;

xiv. background levels of contamination in areas surrounding the site.

Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

12. Stormwater Pollution Prevention

Permit Requirements

Construction activities in New York that disturb one or more acres of land must (with some exceptions for agricultural projects, silviculture projects and maintenance activities) be authorized under a SPDES Permit for Stormwater Discharges from Construction Activity.

An owner or operator of a construction activity that is subject to SPDES regulation must obtain permit coverage through either an individual SPDES permit that addresses the stormwater discharges, or obtain coverage under the current SPDES General Permit for Stormwater Discharges from Construction Activity prior to the commencement of construction activity. The current General Permit (GP-0-10-001) for New York State was issued in January 2010. An owner or operator of a construction activity that is eligible for coverage under General Permit GP-0-10-001 must obtain coverage under the permit prior to the commencement of construction activity. The NYSDEC will determine the eligibility of the Owner to obtain a General Permit, and may require that the Owner apply for and/or obtain either an individual SPDES permit or an alternative SPDES General Permit. However, if the Owner or Remedial Party (RP) is performing work that meets the definition of "remedial program" in 6 NYCRR Part 375, the substantive requirements of a SPDES permit would have to be met, but a formal permit would not be required for such work.

Municipal construction operations by the Village (including roadway and underground utility installation, maintenance and repair) are covered under their MS4 Permit issued through the SPDES program. The Village's MS4 Permit requires the use of best management practices for stormwater pollution prevention. However, the Village must comply with all other requirements of this SMP applicable to construction and maintenance associated with underground utilities, disruption and restoration of the final cover system, and dust control.

Stormwater Pollution Prevention Plan

A Stormwater Pollution Prevention Plan (SWPPP) will be required by any stormwater permit issued for construction activities, or alternatively, will be required by the Department for construction performed as a remedial activity (e.g., handling soil and fill until completion of the final cap system) by the Owner or RP performing this work under the BCA, regardless of the size of the construction project. An SWPPP is a plan for

controlling runoff and pollutants from a site during and after construction activities. The principle objective of an SWPPP is to comply with the NYSDEC SPDES Stormwater Permit (or equivalent) for construction activities by planning and implementing the following practices:

- reduction or elimination of erosion and sediment loading to water bodies during construction
- control of the impact of stormwater runoff on the water quality of receiving waters
- control of the increased volume and peak rate of runoff during and after construction
- maintenance of stormwater controls during and after completion of construction

An example site-specific SWPPP is provided in Appendix N of this SMP. General procedures, for disruption or handling of soil or backfill, are outlined below.

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

13. Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (Target Analyte List [TAL] metals; Target Compound List [TCL] volatiles and semi-volatiles, TCL pesticides and polychlorinated biphenyl [PCBs]), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

14. Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) will be implemented during all ground intrusive activities. The applicable CAMP is provided in Appendix I of this SMP, based on a previously implemented CAMP at the Site A figure showing the location of air sampling stations based on generally prevailing wind conditions is included in Appendix I. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and New York State Department of Health (NYSDOH) Project Managers.

15. Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site, if there are residents or tenants on the property. Specific odor control methods to be used on a routine basis will include:

- Performing activities that may generate odors during normal working hours
- Covering vehicles transporting materials on-site when possible and in accordance with Department of Transportation requirements when transporting materials offsite
- Maintaining covered/tarped stockpiles on site with covering at the end of each work shift, at a minimum.
- Loading trucks such that material will not be dropped from heights above the truck body
- Cleaning excavated material spills immediately
- Reporting and addressing odor complaints accordingly with appropriate follow-up

If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent onsite and offsite nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for offsite disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to onsite conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

16. Dust Control Plan

A dust suppression plan that addresses dust management during invasive onsite work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

17. Other Nuisances

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinance

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Tables

Table A-2

Soil Cleanup Objectives for the Site - Unrestricted Use

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Constituent	Unrestricted Use
Metals	
Arsenic	13
Barium	350
Beryllium	7.2
Cadmium	2.5
Chromium, Hexavalent[1]	1 [3]
Chromium, Trivalent[1]	30
Copper	50
Cyanide	27
Lead	63
Manganese	1600
Mercury (total)	0.18
Nickel	30
Selenium	3.9
Silver	2
Zinc	109
PCBs/Pesticides	
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	0.0033[3]
4,4'-DDT	0.0033[3]
4,4'-DDD	0.0033[3]
Aldrin	0.005
Alpha-BHC	0.02
Beta-BHC	0.036
Chlordane (alpha)	0.094
Delta-BHC	0.04
Dibenzofuran	7
Dieldrin	0.005
Endosulfan I	2.4[2]
Endosulfan II	2.4[2]
Endosulfan sulfate	2.4[2]
Endrin	0.014
Heptachlor	0.042
Lindane	0.1
Polychlorinated biphenyls	0.1

Table A-2

Soil Cleanup Objectives for the Site - Unrestricted Use

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Constituent	Unrestricted Use
Semi-volatile Organic Compounds	
Acenaphthene	20
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1
Benzo(g,h,i)perylene	100
Benzo(k)fluoranthene	0.8
Chrysene	1
Dibenz(a,h)anthracene	0.33[3]
Fluoranthene	100
Fluorene	30
Indeno(1,2,3-cd)pyrene	0.5
m-Cresol(s)	0.33[3]
Naphthalene	12
o-Cresol(s)	0.33[3]
p-Cresol(s)	0.33
Pentachlorophenol	0.8[3]
Phenanthrene	100
Phenol	0.33[3]
Pyrene	100
Volatile Organic Compounds	
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.33
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,2-Dichloroethene(cis)	0.25
1,2-Dichloroethene(trans)	0.19
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1[3]
Acetone	0.05
Benzene	0.06
Butylbenzene	12
Carbon tetrachloride	0.76
Chlorobenzene	1.1

Table A-2

Soil Cleanup Objectives for the Site - Unrestricted Use

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Constituent	Unrestricted Use
Chloroform	0.37
Ethylbenzene	1
Hexachlorobenzene	0.33[3]
Methyl ethyl ketone	0.12
Methyl tert-butyl ether	0.93
Methylene chloride	0.05
Propylbenzene-n	3.9
Sec-Butylbenzene	11
Tert-Butylbenzene	5.9
Tetrachloroethene	1.3
Toluene	0.7
Trichloroethene	0.47
Trimethylbenzene-1,2,4	3.6
Trimethylbenzene-1,3,5	8.4
Vinyl chloride	0.02
Xylene (mixed)	0.26

Source: This table is derived from soil cleanup objective (SCO) tables in 6 NYCRR 375. Table 375-6.8(a) is the source for unrestricted use.

All concentrations are in parts per million (ppm)

Footnotes:

[1]The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analusis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

[2]The SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[3]For constituents where the calcalated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

Table A-3

Soil Cleanup Objectives for the Site - Restricted Residential Use

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives		
Contaminant	**CAS Number**	**Protection of Public Health, Restricted-Residential Use**
Metals		
Arsenic	7440-38-2	16[f]
Barium	7440-39-3	400
Beryllium	7440-41-7	72
Cadmium	7440-43-9	4.3
Chromium, hexavalent [h]	18540-29-9	110
Chromium, trivalent [h]	16065-83-1	180
Copper	7440-50-8	270
Total Cyanide [h]		27
Lead	7439-92-1	400
Manganese	7439-96-5	2,000[f]
Total Mercury		0.81[j]
Nickel	7440-02-0	310
Selenium	7782-49-2	180
Silver	7440-22-4	180
Zinc	7440-66-6	10,000[d]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)	93-72-1	100[a]
4,4'-DDE	72-55-9	8.9
4,4'-DDT	50-29-3	7.9
4,4'-DDD	72-54-8	13
Aldrin	309-00-2	0.097
alpha-BHC	319-84-6	0.48
beta-BHC	319-85-7	0.36
Chlordane (alpha)	5103-71-9	4.2
delta-BHC	319-86-8	100[a]
Dibenzofuran	132-64-9	59
Dieldrin	60-57-1	0.2
Endosulfan I	959-98-8	24[i]
Endosulfan II	33213-65-9	24[i]
Endosulfan sulfate	1031-07-8	24[i]
Endrin	72-20-8	11
Heptachlor	76-44-8	2.1
Lindane	58-89-9	1.3
Polychlorinated biphenyls	1336-36-3	1

Table A-3

Soil Cleanup Objectives for the Site - Restricted Residential Use

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives		
Contaminant	**CAS Number**	**Protection of Public Health, Restricted-Residential Use**
Semivolatiles		
Acenaphthene	83-32-9	100[a]
Acenapthylene	208-96-8	100[a]
Anthracene	120-12-7	100[a]
Benz(a)anthracene	56-55-3	1[f]
Benzo(a)pyrene	50-32-8	1[f]
Benzo(b)fluoranthene	205-99-2	1[f]
Benzo(g,h,i)perylene	191-24-2	100[a]
Benzo(k)fluoranthene	207-08-9	3.9
Chrysene	218-01-9	3.9
Dibenz(a,h)anthracene	53-70-3	0.33[e]
Fluoranthene	206-44-0	100[a]
Fluorene	86-73-7	100[a]
Indeno(1,2,3-cd)pyrene	193-39-5	0.5[f]
m-Cresol	108-39-4	100[a]
Naphthalene	91-20-3	100[a]
o-Cresol	95-48-7	100[a]
p-Cresol	106-44-5	100[a]
Pentachlorophenol	87-86-5	6.7
Phenanthrene	67580	100[a]
Phenol	108-95-2	100[a]
Pyrene	129-00-0	100[a]
Volatiles		
1,1,1-Trichloroethane	71-55-6	100[a]
1,1-Dichloroethane	75-34-3	26
1,1-Dichloroethene	75-35-4	100[a]
1,2-Dichlorobenzene	95-50-1	100[a]
1,2-Dichloroethane	107-06-2	3.1
cis-1,2-Dichloroethene	156-59-2	100[a]
trans-1,2-Dichloroethene	156-60-5	100[a]
1,3-Dichlorobenzene	541-73-1	49
1,4-Dichlorobenzene	106-46-7	13
1,4-Dioxane	123-91-1	13
Acetone	67-64-1	100[b]
Benzene	71-43-2	4.8
Butylbenzene	104-51-8	100[a]
Carbon tetrachloride	56-23-5	2.4

Table A-3

Soil Cleanup Objectives for the Site - Restricted Residential Use

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives		
Contaminant	**CAS Number**	**Protection of Public Health, Restricted-Residential Use**
Chlorobenzene	108-90-7	100[a]
Chloroform	67-66-3	49
Ethylbenzene	100-41-4	41
Hexachlorobenzene	118-74-1	1.2
Methyl ethyl ketone	78-93-3	100[a]
Methyl tert-butyl ether	1634-04-4	100[a]
Methylene chloride	64164	100[a]
n-Propylbenzene	103-65-1	100[a]
sec-Butylbenzene	135-98-8	100[a]
tert-Butylbenzene	72477	100[a]
Tetrachloroethene	127-18-4	19
Toluene	108-88-3	100[a]
Trichloroethene	65386	21
1,2,4-Trimethylbenzene	95-63-6	52
1,3,5- Trimethylbenzene	108-67-8	52
Vinyl chloride	63923	0.9
Xylene (mixed)	1330-20-7	100[a]

All soil cleanup objectives (SCOs) are in parts per million (ppm).

Footnotes:

[a] The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

[b] The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

[c] The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

[d] The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

[g] This SCO is derived from data on mixed isomers of BHC.

[h] The SCO for this specific compound (or family of compounds) is considered to be me if the analysis for the total species of this contaminant is below the specific SCO.

[i] This SCO is for the sum of endosulfan I,endosulfan II, and endosulfan sulfate.

[j] This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salt See TSD Table 5.6-1.

Table A-4

Allowable Constituent Levels for Imported Fill or Soil

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Constituent	Restricted Residential Use
Metals	
Arsenic	16
Barium	400
Beryllium	47
Cadmium	4.3
Chromium, Hexavalent[1]	19
Chromium, Trivalent[1]	180
Copper	270
Cyanide	27
Lead	400
Manganese	2000
Mercury (total)	0.73
Nickel	130
Selenium	4
Silver	8.3
Zinc	2480
PCBs/Pesticides	
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	8.9
4,4'-DDT	7.9
4,4'-DDD	13
Aldrin	0.097
Alpha-BHC	0.02
Beta-BHC	0.09
Chlordane (alpha)	2.9
Delta-BHC	0.25
Dibenzofuran	59
Dieldrin	0.1
Endosulfan I	24
Endosulfan II	24
Endosulfan sulfate	24
Endrin	0.06
Heptachlor	0.38
Lindane	0.1
Polychlorinated biphenyls	1

Table A-4

Allowable Constituent Levels for Imported Fill or Soil

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Constituent	Restricted Residential Use
Semi-volatile Organic Compounds	
Acenaphthene	98
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1
Benzo(g,h,i)perylene	100
Benzo(k)fluoranthene	1.7
Chrysene	1
Dibenz(a,h)anthracene	0.33[3]
Fluoranthene	100
Fluorene	100
Indeno(1,2,3-cd)pyrene	0.5
m-Cresol(s)	0.33[3]
Naphthalene	12
o-Cresol(s)	0.33[3]
p-Cresol(s)	0.33
Pentachlorophenol	0.8[3]
Phenanthrene	100
Phenol	0.33[3]
Pyrene	100
Volatile Organic Compounds	
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.33
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,2-Dichloroethene(cis)	0.25
1,2-Dichloroethene(trans)	0.19
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1[3]
Acetone	0.05
Benzene	0.06
Butylbenzene	12
Carbon tetrachloride	0.76
Chlorobenzene	1.1

Table A-4

Allowable Constituent Levels for Imported Fill or Soil

Site Management Plan
Former General Motors Assembly Plant East Parcel Site, Sleepy Hollow, NY

Constituent	Restricted Residential Use
Chloroform	0.37
Ethylbenzene	1
Hexachlorobenzene	1.2
Methyl ethyl ketone	0.12
Methyl tert-butyl ether	0.93
Methylene chloride	0.05
Propylbenzene-n	3.9
Sec-Butylbenzene	11
Tert-Butylbenzene	5.9
Tetrachloroethene	1.3
Toluene	0.7
Trichloroethene	0.47
Trimethylbenzene-1,2,4	3.6
Trimethylbenzene-1,3,5	8.4
Vinyl chloride	0.02
Xylene (mixed)	1.6

Source: This table is derived from soil cleanup objective (SCO) tables in 6 NYCRR 375. Table 375.6.8(b) is the source for restricted use. Restricted Residential Use values represent the lower of restricted residential SCOs or protection of groundwater SCOs, as presented in DER-10, Appendix 5.

All concentrations are in parts per million (ppm)

Footnotes:

[1]The SCO for Hexavalent or Trivalent Chromium is

[3]For constituents where the calcalated SCO was lower than

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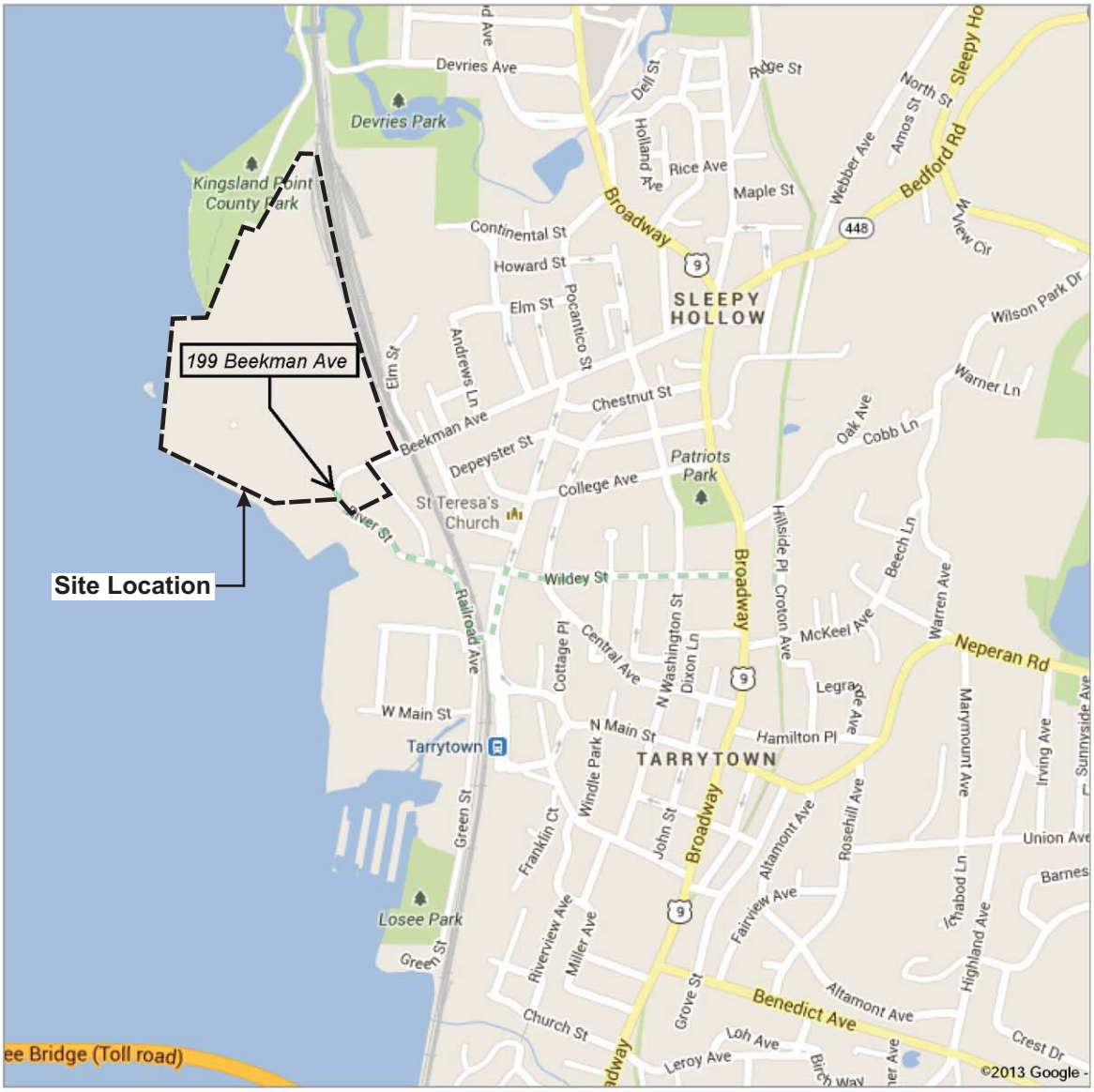
Figures

Village Truck Route to/from
199 Beekman Avenue to NY State Route 9



REFERENCE: BASE MAP FROM GOOGLE.

The West Parcel truck route:

1. Start out south on Beekman Ave toward River St. – 100 ft.
2. Continue onto River St. – 0.1 Mi
3. Continue onto Division St. – 400 ft.
4. Continue onto Railroad Ave. – 0.1 Mi
5. Turn left to stay on Railroad Ave – 100 ft.
6. Turn left onto Division St. – 0.1 Mi
7. Turn right onto Wildey St. to US-9 / Broadway

FORMER GENERAL MOTORS ASSEMBLY PLANT
WEST PARCEL SITE
SLEEPY HOLLOW, NEW YORK
SITE MANAGEMENT PLAN

TRUCK ROUTE

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FIGURE
A-1

08/06/2013 SYRACUSE, NY-ENV/CAD DJHOWES
B0064462/0001/00067/CDR/64462g01.CDR

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Appendix B

Responsibilities of Owner and Remedial Party

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Infrastructure · Water · Environment · Buildings

Imagine the result

General Motors LLC

Appendix B –

Responsibilities of Owner and Remedial Party

Former General Motors Assembly Plant
West Parcel Site
Sleepy Hollow, New York

December 2013

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Table of Contents

Attachments

ARCADIS

Former General Motors
Assembly Plant
West Parcel Site
Sleepy Hollow, New York

Acronyms and Abbreviations

BCA	Brownfield Cleanup Agreement
NYSDEC	New York State Department of Environmental Conservation
OSHA	Occupational Safety and Health Administration
RP	Remedial Party
SMP	Site Management Plan
TMPIDA	Town of Mount Pleasant Industrial Development Agency

1. Introduction

The responsibilities for implementing the Site Management Plan ("SMP") for the Former General Motors Assembly Plant West Parcel Site (the "Site"), number C360070, are divided between the Site owner(s) and a Remedial Party, as defined below. The owner is currently listed as:

Owners:

- Town of Mount Pleasant Industrial Development Agency ("TMPIDA"), having an office at One Town Hall Plaza, Valhalla, Westchester County, State of New York, 10595 (the "Fee Owner") and;
- General Motors LLC, having an office at 30200 Mound Road, Warren, Macomb County, State of Michigan, 48090, (the" Beneficial Owner").

General Motors LLC, as the Beneficial Owner of the Site, assumes all responsibilities of the site "owner" as described herein, until the property is sold to a new owner (see Section 4.7 of attached Lease Agreement, September 13, 1985).

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, Homeowners Association, Property Owners Association, and/or Master Association and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. The RP is:

- General Motors LLC, having an office at 30200 Mound Road, Warren, Macomb County, State of Michigan, 48090 ("the Applicant" to the BCA)

Nothing on this page shall supersede the provisions of an Environmental Easement, agreement, or other legally binding document that affects rights and obligations relating to the site.

2. Site Owner's Responsibilities

The Site Owner(s) responsibilities with regard to Subsection (2) through (10, below may be performed, with the assent of NYSDEC, by a Homeowners Association, Property Owners Association and/or Master Association. Such assent by NYSDEC and performance does not exempt the owner(s) from responsibility under the Environmental Easement, agreement, or other legally binding document that affects rights and obligations relating to the site.

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in an Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3) In the event the site is delisted, the owner remains bound by the Environmental Easement, and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement, is still in place and has been complied with.

4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and NYSDEC in accordance with the timeframes indicated in Section 2.4.2-Notifications.

6) In the event some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in Section 2.4.2 Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

7) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site properties. 6 NYCRR Part 375-1 contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) If an owner has a written agreement to perform work for the RP, a description of the activities may be inserted here. (The corresponding agreement should also be included in the SMP.)

9) NYSDEC and NYSDOH may require the owner to activate an existing passive vapor or methane mitigation system installed by the owner or RP during building construction, or to install an active mitigation system where no passive system is available to activate Until such time as the NYSDEC deems the vapor mitigation system unnecessary, the owner shall operate the system, pay for the utilities for the system's operation, and report any maintenance issues to the RP and the NYSDEC.

10) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

3. Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 2.4.2- Notifications of the SMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the site, as required in Section 4 of the SMP.

8) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

9) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

4. Future Conditions

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

Attachment 1

Lease Agreement, Town of Mount Pleasant Industrial Development Agency and General Motors Corporation, September 13, 1985. Liber 8231, Page 131.

ARCADIS

Appendix C

Environmental Easement

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Appendix D

Metes and Bounds

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Appendix E

IRM Record Drawings

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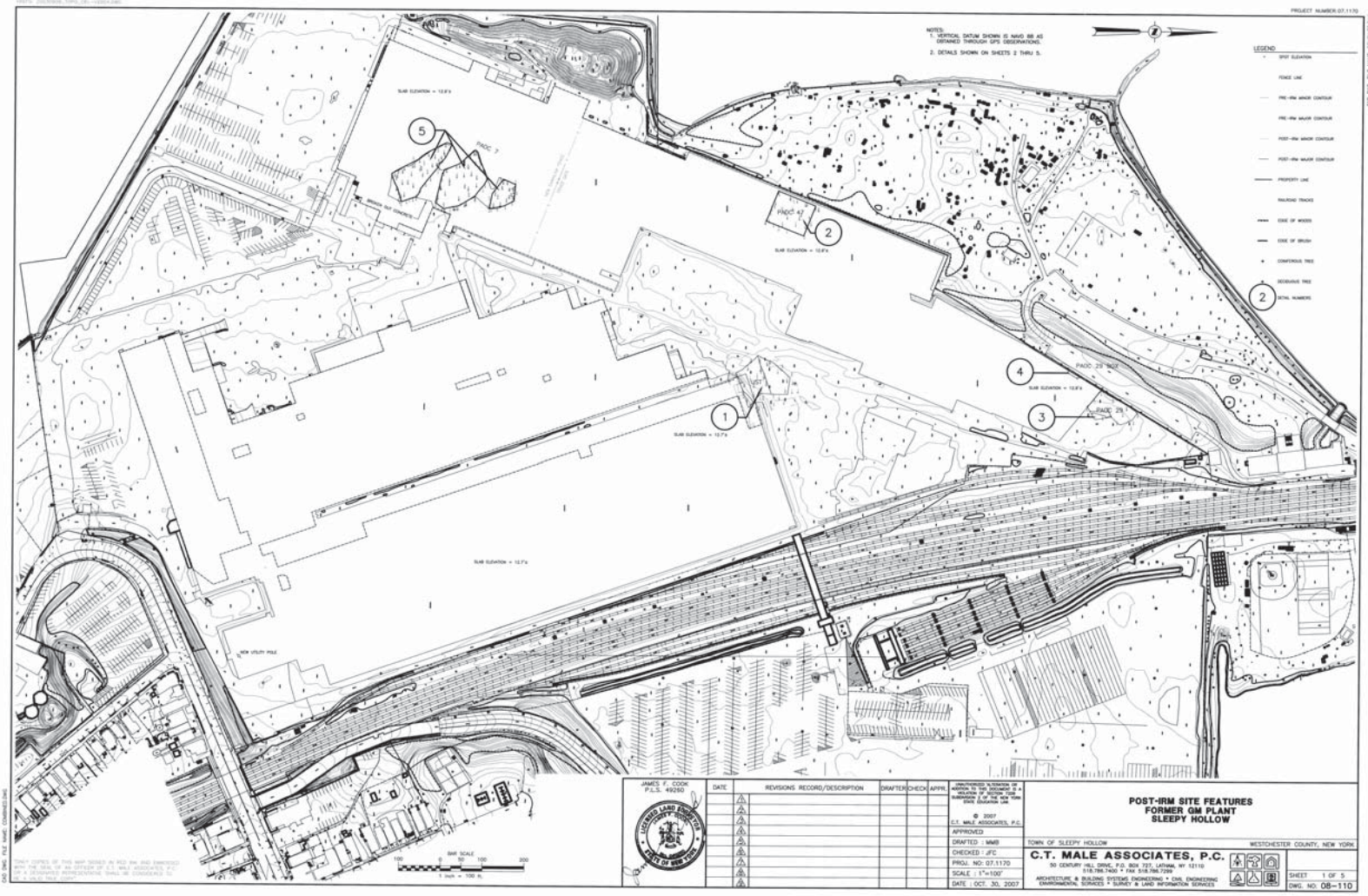
Appendix E

IRM Record Drawings



PROJECT NUMBER 07.1170

JAMES F. COOK
P.L.S. 49260

DATE	REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.
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APPROVED:
DRAFTED : MMB
CHECKED : JFC
PROJ. NO: 07.1170
SCALE : 1"=100'
DATE : OCT. 30, 2007

POST-IRM SITE FEATURES
FORMER GM PLANT
SLEEPY HOLLOW

TOWN OF SLEEPY HOLLOW — WESTCHESTER COUNTY, NEW YORK

C.T. MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, P.O. BOX 727, Latham, NY 12110
518.786.7400 • FAX 518.786.7299
ARCHITECTURE & BUILDING SYSTEMS, ENGINEERING • CIVIL ENGINEERING
ENVIRONMENTAL SERVICES • SURVEY & LAND INFORMATION SERVICES

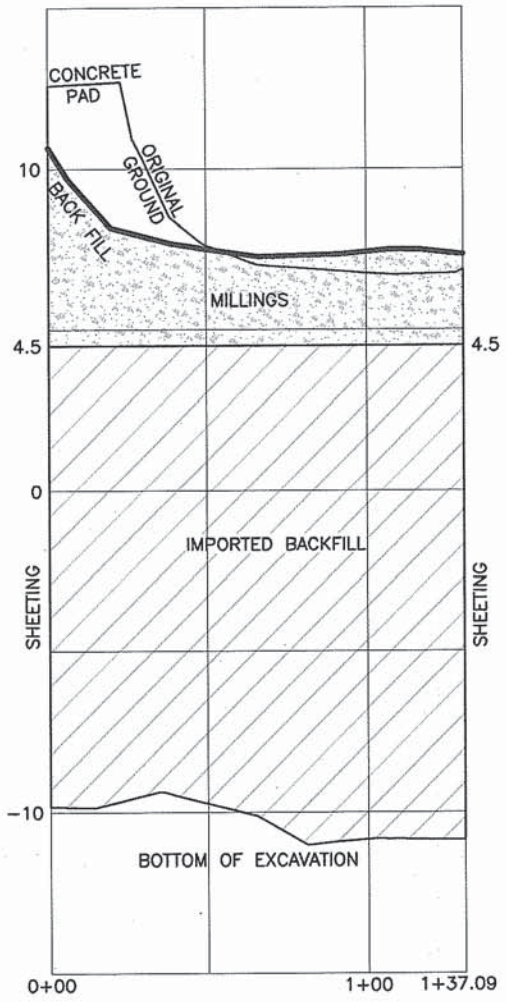
SHEET 1 OF 5
DWG. NO: 08-110

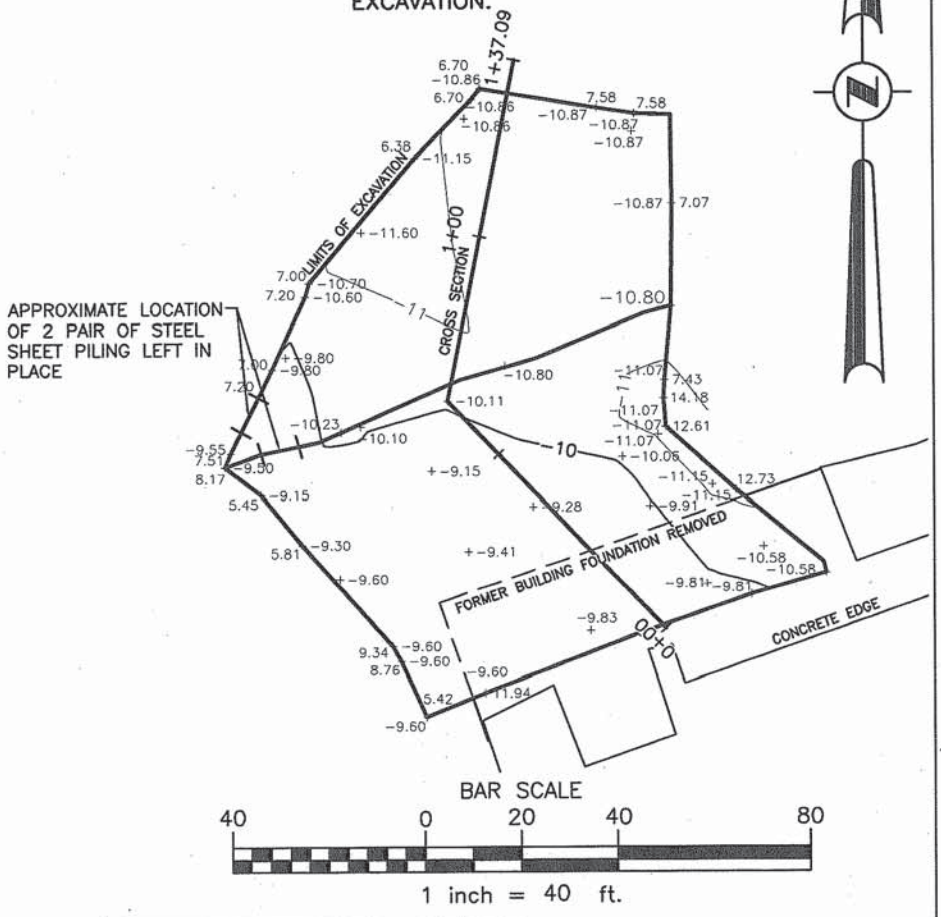
NONE :XREFS

NOTES:
1. VERTICAL DATUM SHOWN IS NAVD 88 AS OBTAINED THROUGH GPS OBSERVATIONS.
2. CONTOURS AND SPOT ELEVATIONS SHOWN REPRESENT THE LIMITS OF EXCAVATION.

1 UST EXCAVATION AREA

SCALE: HORZ. 1" = 60'
VERT. 1" = 6'
CROSS REFERENCE: NONE





BAR SCALE
40 0 20 40 80
1 inch = 40 ft.

LEGEND

+-9.15 SPOT ELEVATION

BAR SCALE
60 0 30 60 120
1 inch = 60 ft.

UST SITE
APPROXIMATE VOLUME OF EXCAVATION
6354 cu. yds. CUT
APPROXIMATE VOLUME OF IMPORTED BACKFILL
5035 cu. yds FILL
APPROXIMATE VOLUME OF MILLINGS
1133 cu. yds. FILL
APPROXIMATE TOTAL VOLUME OF BACKFILL
6168 cu. yds. FILL

JAMES F. COOK
P.L.S. 49260

LICENSED LAND SURVEYOR
JAMES F. COOK
049260
STATE OF NEW YORK

DWG. NO: 08-110
SHEET 2 OF 5

Date	RECORD OF WORK	Appr.

UST EXCAVATION AREA
FORMER GM PLANT
SLEEPY HOLLOW

TOWN OF SLEEPY HOLLOW | WESTCHESTER COUNTY, NEW YORK

C.T. MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, P.O. BOX 727, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299
Architecture & Building Systems Engineering * Civil Engineering
Environmental Services * Survey & Land Information Services

Drafter: MMB	Checker:
Appr. by:	Proj. No. 07.1170
SCALE: 1"=40'	DATE: 10/19/07

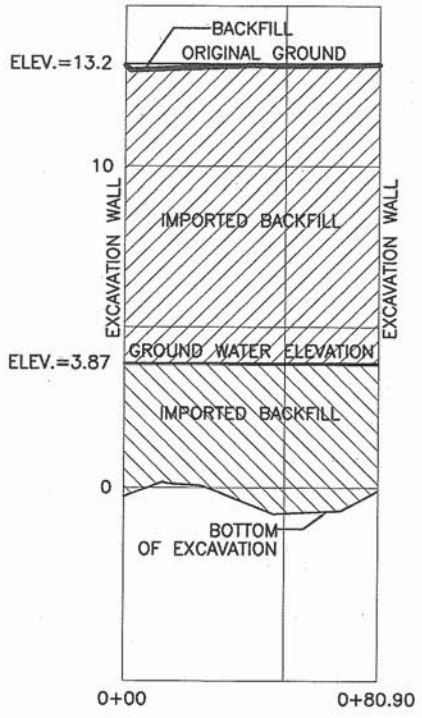
CAD DWG. FILE NAME: UST.DWG

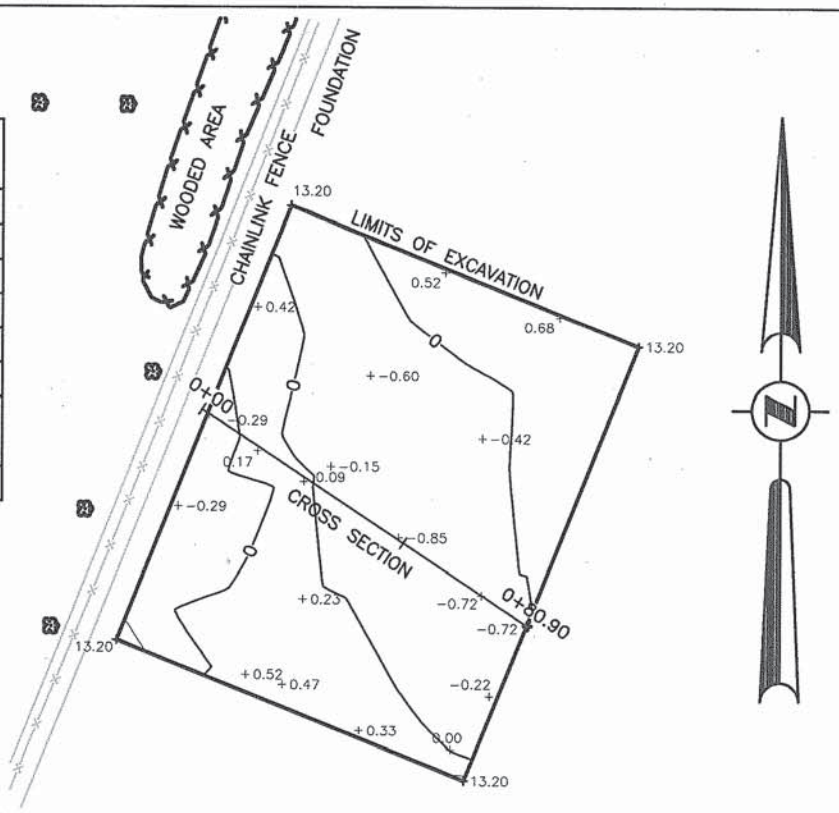
NONE :XREFS

APPROXIMATE VOLUME OF EXCAVATION	
TOP TO 3.87'	2687 cu.yds CUT
3.87' TO BOTTOM	1028 cu.yds CUT
TOP TO BOTTOM	3715 cu.yds CUT
APPROXIMATE VOLUME OF IMPORTED BACKFILL	
3774 cu. yds. FILL	

2 PAOC 47

SCALE: HORZ. 1" = 60'
VERT. 1" = 6'
CROSS REFERENCE: NONE





NOTES:
1. VERTICAL DATUM SHOWN IS NAVD 88 AS OBTAINED THROUGH GPS OBSERVATIONS.
2. CONTOURS AND SPOT ELEVATIONS SHOWN REPRESENT THE LIMITS OF EXCAVATION.

LEGEND

	DECIDUOUS TREE
+-0.60	SPOT ELEVATION
	FENCE LINE
	PROPERTY LINE

JAMES F. COOK
P.L.S. 49260

DWG. NO: 08-110
SHEET 3 OF 5

Date	RECORD OF WORK	Appr.

PAOC 47 EXCAVATION AREA
FORMER GM PLANT
SLEEPY HOLLOW

TOWN OF SLEEPY HOLLOW | WESTCHESTER COUNTY, NEW YORK

C.T. MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, P.O. BOX 727, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299
Architecture & Building Systems Engineering * Civil Engineering
Environmental Services * Survey & Land Information Services

Drafter: MMB	Checker: JFC
Appr. by: JFC	Proj. No. 07.1170
SCALE: AS NOTED	DATE: SEPTEMBER 8, 2007

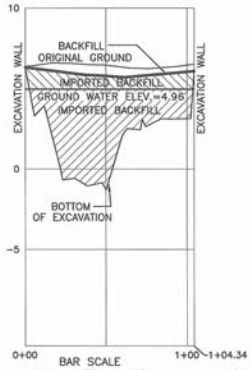
CAD DWG. FILE NAME: PAOC_47.DWG

PAOC 29	
APPROXIMATE VOLUME OF EXCAVATION	
TOP TO 4.96	259 cu.yds CUT
4.96' TO BOTTOM	809 cu.yds CUT
TOP TO BOTTOM	1068 cu.yds CUT
APPROXIMATE VOLUME OF IMPORTED BACKFILL	
974 cu. yds FILL	

3 PAOC 29

SCALE: HORZ. 1" = 60'
VERT. 1" = 6'
CROSS REFERENCE: NONE

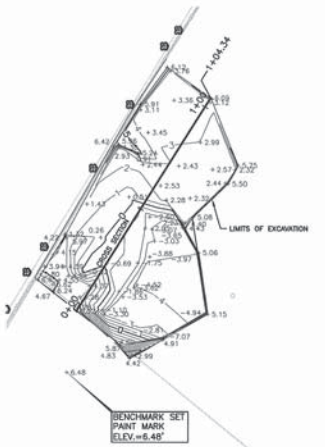
CROSS SECTION



BAR SCALE
60 0 30 60 120
1 inch = 60 ft.

"ONLY COPIES OF THIS MAP SIGNED IN RED INK AND EMBOSSED WITH THE SEAL OF AN OFFICER OF C.T. MALE ASSOCIATES, P.C. OR A DESIGNATED REPRESENTATIVE SHALL BE CONSIDERED TO BE A VALID TRUE COPY".

NOTES:
1. VERTICAL DATUM SHOWN IS NAVD 88 AS OBTAINED THROUGH GPS OBSERVATIONS.
2. CONTOURS AND SPOT ELEVATIONS SHOWN REPRESENT THE LIMITS OF EXCAVATION.

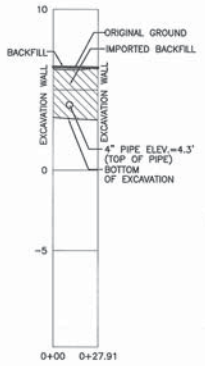


BAR SCALE
40 0 20 40 80
1 inch = 40 ft.

PAOC 29 BOX	
APPROXIMATE VOLUME OF EXCAVATION	
TOP TO BOTTOM	11 cu.yds CUT
APPROXIMATE VOLUME OF IMPORTED BACKFILL	
11 cu. yds. FILL	

4 PAOC 29 BOX EXCAVATION

SCALE: HORZ. 1" = 60'
VERT. 1" = 6'
CROSS REFERENCE: NONE



BAR SCALE
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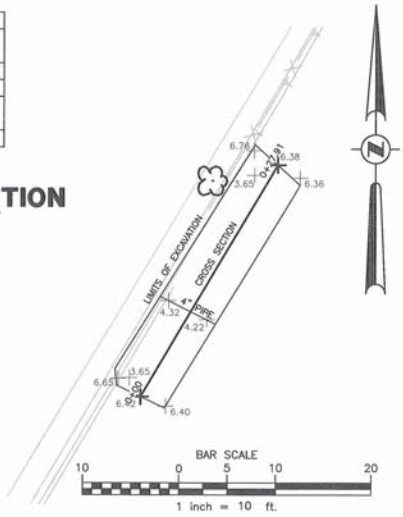
1 inch = 60 ft.



BAR SCALE
10 0 5 10 20
1 inch = 10 ft.

LEGEND
- DECIDUOUS TREE
- SPOT ELEVATION
- FENCE LINE
- PROPERTY LINE

JAMES F. COOK
P.L.S. 49260

LICENSED LAND SURVEYOR
JAMES F. COOK
No. 049260
STATE OF NEW YORK

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTED	CHECK	APPR.
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DRAFTED : MMB
CHECKED : JFC
PROJ. NO: 07.1170
SCALE : AS NOTED
DATE : OCT. 2, 2007

PAOC 29 EXCAVATION AREA

FORMER GM PLANT

SLEEPY HOLLOW

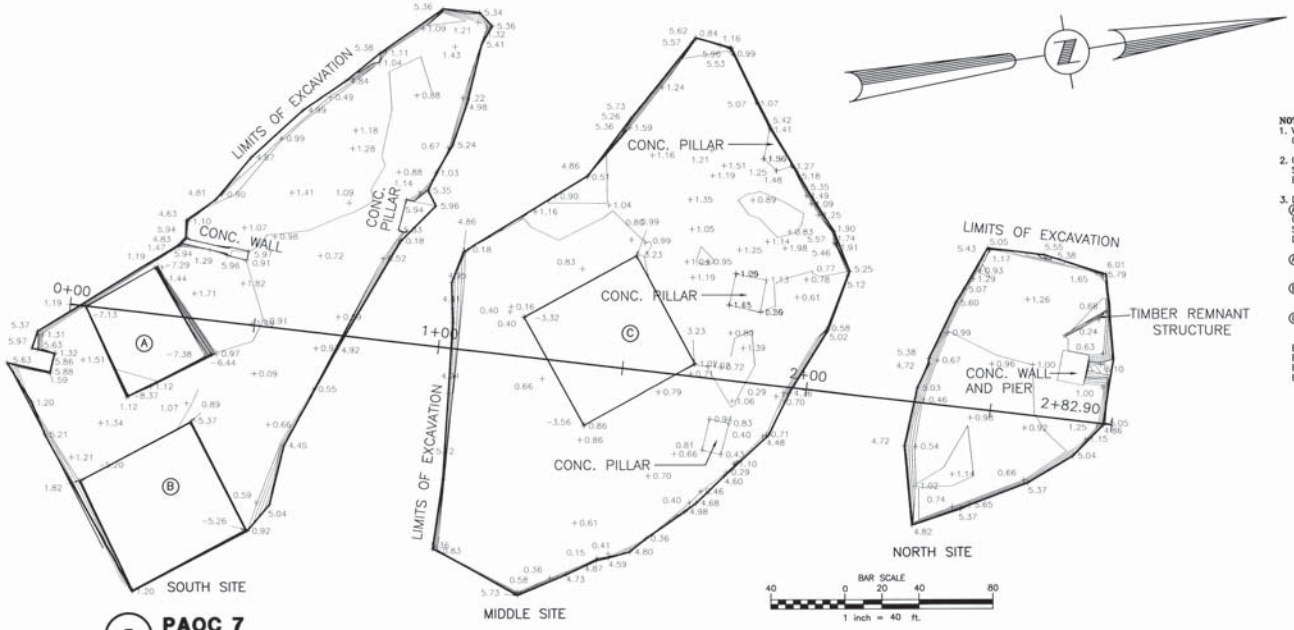
TOWN OF SLEEPY HOLLOW — WESTCHESTER COUNTY, NEW YORK

C.T. MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, P.O. BOX 727, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299
ARCHITECTURE & BUILDING SYSTEMS ENGINEERING * CIVIL ENGINEERING
ENVIRONMENTAL SERVICES * SURVEY & LAND INFORMATION SERVICES

CAD DWG. FILE NAME: PAOC_29.DWG

XREFS: NONE

PROJECT NUMBER: 07.1170



NOTES:

1. VERTICAL DATUM SHOWN IS NAVD 88 AS OBTAINED THROUGH GPS OBSERVATIONS.
2. CONTOURS AND SPOT ELEVATIONS SHOWN REPRESENT THE LIMITS OF EXCAVATION.
3. DEPTHS OF DEEP EXCAVATION AREAS (A), (B), AND (C) WERE VERIFIED ON EACH CORNER POINT USING STANDARD SURVEY METHODS. THE APPROXIMATE DEPTH OF THE DEEP EXCAVATIONS ARE:
   - (A) – APPROXIMATELY 12 FEET BELOW ORIGINAL GRADE
   - (B) – APPROXIMATELY 10 FEET BELOW ORIGINAL GRADE
   - (C) – APPROXIMATELY 8 FEET BELOW ORIGINAL GRADE

   EXCAVATION AREAS BEYOND DEEP EXCAVATIONS (A), (B), AND (C) WERE EXCAVATED TO APPROXIMATELY 4 FEET BELOW ORIGINAL GRADE.

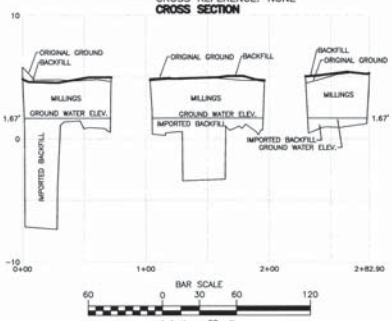
LEGEND

+-9.15 SPOT ELEVATION

5 PAOC 7

SCALE: HORZ. 1" = 60'
VERT. 1" = 6'
CROSS REFERENCE: NONE

CROSS SECTION



BAR SCALE
60 0 30 60 120
1 inch = 60 ft.

PAOC 7 SOUTH SITE
APPROXIMATE VOLUME OF EXCAVATION
1615 cu. yds. CUT
APPROXIMATE VOLUME OF IMPORTED BACKFILL
589 cu. yds. FILL
APPROXIMATE VOLUME OF MILLINGS
947 cu. yds. FILL
APPROXIMATE TOTAL VOLUME OF BACKFILL
1536 cu. yds. FILL

PAOC 7 MIDDLE SITE
APPROXIMATE VOLUME OF EXCAVATION
1699 cu. yds. CUT
APPROXIMATE VOLUME OF IMPORTED BACKFILL
476 cu. yds. FILL
APPROXIMATE VOLUME OF MILLINGS
1192 cu. yds. FILL
APPROXIMATE TOTAL VOLUME OF BACKFILL
1668 cu. yds FILL

PAOC 7 NORTH SITE
APPROXIMATE VOLUME OF EXCAVATION
420 cu. yds. CUT
APPROXIMATE VOLUME OF IMPORTED BACKFILL
39 cu. yds. FILL
APPROXIMATE VOLUME OF MILLINGS
339 cu. yds. FILL
APPROXIMATE TOTAL VOLUME OF BACKFILL
378 cu. yds. FILL

JAMES F. COOK
P.L.S. 49260

LICENSED LAND SURVEYOR
JAMES F. COOK
No. 049260
STATE OF NEW YORK

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APPROVED:
DRAFTED : MMB
CHECKED : JFC
PROJ. NO: 07.1170
SCALE : 1"=40'
DATE : DEC. 19, 2007

PAOC 7 EXCAVATION AREA
FORMER GM PLANT
SLEEPY HOLLOW

TOWN OF SLEEPY HOLLOW — WESTCHESTER COUNTY, NEW YORK

C.T. MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, P.O. BOX 727, LATHAM, NY 12110
518.786.7400 • FAX 518.786.7299
ARCHITECTURE & BUILDING SYSTEMS ENGINEERING • CIVIL ENGINEERING
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SHEET 5 OF 5
DWG. NO: 08–110

CAD DWG. FILE NAME: PAOC-7.DWG

CAD DWG. FILE NAME: PAOC-7.DWG

ARCADIS

Appendix F

BUD Applications and Approvals

ARCADIS of New York, Inc.
655 Third Avenue
12th Floor
New York
New York 10017
Tel 212.682.9271
Fax 212.682.9275
www.arcadis-us.com

Mr. James A. Moras, P.E.
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7017

Industrial

Subject:
Former General Motors North Tarrytown Assembly Plant Site
Brownfield Cleanup Agreement Index #s A3-0513-0305 and A3-0514-0305
Proposed Reuse of Concrete Millings

Date:
June 7, 2007

Dear Mr. Moras:

Contact:
Raymond M. Kapp

Phone:
212.682.9271

Email:
raymond.kapp
@arcadis-us.com

Our ref:
B0064462.0000

On behalf of General Motors Corporation and Roseland/Sleepy Hollow, LLC, this letter requests Department approval to reuse the existing stock of concrete aggregate millings prepared from on-site concrete slabs and related structures during the demolition of the former General Motors Assembly Plant buildings. It is estimated that approximately 40,000 cubic yards of concrete millings, produced solely from on-site structures, are stockpiled and ready to use as on-site structural fill. These materials were previously used at the time of demolition during 1998-99 to fill certain basements and trenches, and to level uneven terrain within the West Parcel.

The proposed use of this material is intermediate fill above the water table during preparation and restoration of excavations required for Interim Remedial Measures (IRM), and during general site redevelopment, as described below. The millings will be reused in this proposed manner under a generic Beneficial Use Determination (BUD) set forth in 6NYCRR Part 360-1.15 for "recognizable, uncontaminated concrete and concrete products, asphalt pavement, brick, glass, soil and rock placed in commerce for service as a substitute for conventional aggregate." The Part 360 regulations (6NYCRR Part 360-7.1) define “uncontaminated” as "C&D [construction and demolition] debris that is not mixed or commingled with other solid waste at the point of generation, processing or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste or industrial waste”. As supported by the information presented below, the millings were not commingled with other solid waste and were derived from concrete structures that were thoroughly inspected, cleaned where necessary, and certified ready for clean demolition and processing for on-site recycling.

Prior to demolition of the former Assembly Plant buildings, GM retained URS Greiner Woodward Clyde, Inc.(URS) to perform a Facility Deactivation Assessment and develop technical specifications for the removal and proper disposal of all regulated materials from the facilities, decontamination of process equipment, sewers and structures, asbestos abatement and lead-based paint removal. URS observed these activities on a continuous basis and certified to the completeness of decontamination and abatement. Relevant excerpts from URS's Final Facility Deactivation Report regarding concrete floors, pits and sumps are provided in Attachment 1. The entire document and supporting reports were previously provided to the Department when the Applicants entered the Voluntary Cleanup Program.

Representative sampling of the stockpiled millings was performed by EcolSciences, on behalf of Roseland/Sleepy Hollow, LLC. The results of their sampling, included in Appendix A-5 (Table 5) from the *Draft Preliminary Remedial Investigation Report, Former General Motors Assembly Plant Site, Sleepy Hollow, New York, December 2006* (Preliminary Draft RIR), are provided in Attachment 2. In addition, the results from several samples of these millings already recycled as on-site intermediate fill, collected during the Remedial Investigation (Preliminary Draft RIR Tables 5, 7 and 8), are provided as Attachment 3.

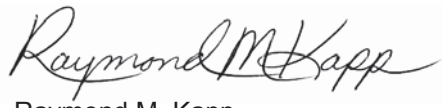
Based on the data provided in Attachments 2 and 3, the Applicants propose to limit the use of these millings to on-site intermediate fill above the water table, including use as temporary surface cover, beneath the final site cap system (i.e., under a minimum 2-foot soil cap or under buildings, asphalt or concrete surfaces). The final site cap will be applied during development of the Site for restricted-residential use.

The Applicants are requesting Department approval to reuse all existing recycled concrete millings at the Site, with the restrictions described herein. Approval is requested at this time so that these millings can be used during implementation of the IRM as backfill above the water table in PAOC 7 and the UST area. As we have previously discussed, millings are being used as temporary contour fill under containment liners, and as base material for related temporary work platforms in preparation for the IRM.

If you should have any questions regarding this request, please do not hesitate to contact me.

Sincerely,

ARCADIS of New York, Inc.



Raymond M. Kapp
Associate

Attachments:
Attachment 1
Attachment 2
Attachment 3

Copies:
J. Hartnett, General Motors
J. Stein, Roseland
W. Pendexter, EcolSciences
M. Carrillo-Sheridan, ARCADIS BBL
M. Hudson, ARCADIS BBL

Attachments

Attachment 1

Cover, Certification and Excerpts on Concrete from: Final Facility Deactivation Report (URS 1999)

FINAL FACILITY DEACTIVATION REPORT

FORMER GENERAL MOTORS MID-SIZE CAR DIVISION
TARRYTOWN ASSEMBLY PLANT
199 BEEKMAN AVENUE
SLEEPY HOLLOW, NEW YORK 10591

Prepared By:

URS GREINER WOODWARD CLYDE, INC.
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NEW YORK, NEW YORK 10119

Publish Date:

NOVEMBER 1999

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FINAL FACILITY DEACTIVATION REPORT
CERTIFICATION STATEMENT

The information contained in this report certifies that the following items of above grade environmental concern at the General Motors Corporation former Mid-Size Car Division Tarrytown (MCD Tarrytown) Assembly Plant located at 199 Beekman Avenue, Sleepy Hollow, New York, have been identified, resolved, reviewed, and inspected in accordance with sound environmental and engineering practices and in accordance with all applicable government regulations. The items were identified and their resolutions executed between June 28, 1996 and April 30, 1999 by seven contractors: Michigan Pumping Service, Inland Waters, Allstate Power Vac, National Air Filter, Hudson Technologies, Inc., Aqua-Tech Environmental, Inc. and Allied Erecting & Dismantling. All cleaning and other resolution activities were observed and documented by competent and qualified members of our staff. The following is a list of items of environmental concern addressed herein:

Mill & Drill Dust	Central Sludge	Industrial Sewer
ELPO System	Bunker C Line	Piping System
Isocyanate Booth	Modular Paint Exit Vestibule	Lighting Elements
Roadway Tanks	ELPO "T" Conveyor Incline	Mercury Devices
Body Shop Sealer Line	Modular Paint Fan Houses	PCB Capacitors and Ballasts
Paint Mix Room	Final Process Stack	Battery Removal
Modular Paint Shop	Fork Truck Repair	Lead Paint Removal
Prime Booth	Body Shop Lead Stacks	Redwood Cooling Towers
Wax Booth	Prime Roof Ductwork	Misc. Chemicals, Reagents, etc.
Final Repair	Prime Water Tunnels	Compressed Gas Cylinders
Overhead Tanks	Modular Paint Reclaim Tanks	Misc. Paints, Cleansers, etc.
Modular Paint Stacks	1300 Anticorrison Booth	Smoke Detector Disposal
Prime Paint Stacks	CFC Reclamation	UST & AST Tank closure
Tank Farm	Floors, Pits, and trenches	PCB Fluids, Transformers, etc.
Body Shop Basement Tanks	Sanitary Sewer	Asbestos Abatement

URS Greiner Woodward Clyde, Inc. hereby certifies that the information contained in this report is true, accurate and complete. The attached report provides a detailed description of the identified items and their methods of resolution.

Jay Gewirtzman, PE
Vice President, New York Office
URS Greiner Woodward Clyde, Inc.

Desirée Giler
Environmental Scientist
URS Greiner Woodward Clyde, Inc.

PRIVILEGED AND CONFIDENTIAL
PREPARED AT THE REQUEST OF GM COUNSEL

5.0 MISCELLANEOUS ENVIRONMENTAL REMOVAL CONTRACT

Aqua-Tech Environmental, Inc. (Aqua-Tech) or Allied Erecting and Dismantling, Inc. (AED) completed the following tasks to fully prepare the site buildings for demolition.

5.1 Establishment & Operation of Accumulation Area

The Accumulation Area (AA) was established in the loading dock area in West Chassis (First Floor, Column S14 through R18). This allowed for the delivery and loading of bulk containers under a protective roof as well as a staging area for drums and containers. All materials collected under this Contract were brought to the accumulation area for packaging, labeling, loading and manifesting. Renovations were made to the loading dock to make it compliant with RCRA, TSCA, and NYSDEC hazardous waste rules. These renovations included the installation of portable dikes, signs, eye wash stations, first aid equipment, spill prevention and response equipment, flammables cabinets, two-way radios, fire extinguishers, etc. The local fire department was advised of the AA's location and the materials that may be stored there.

AED, and Aqua-Tech before them, maintained inventory control on all waste brought to the AA. Wastes were stored with other compatible waste streams only. Wastes were also separated by statute (RCRA versus TSCA). AED and Aqua-Tech conducted weekly inspection to ensure that the AA remained in compliance with all applicable regulations. The inventory log and weekly inspection forms are included in Appendix Q.

Once all the containers were removed from site, the Accumulation Area was dismantled. Much of the equipment was saved by the contractor for use elsewhere on the site (fire extinguishers, eye wash station, first aid kit, spill equipment, construction fencing, etc.). As part of the Floor, Pit and Trench cleaning (See Section 5.2), AED cleaned the floor, truck bays and drainage trench. The O&C inspected the dismantled and cleaned Accumulation Area on December 12, 1998 and found no visible signs of contamination.

5.2 Cleaning Floors, Pits, and Trenches

All floors, pits, sumps, and trenches were cleaned so no process waste, oil, grease, nor other visual contaminants remained. Each floor was addressed on a floor by floor basis, in an order coordinated around the activities of the asbestos and demolition contracts. A sequential cleaning process was used to insure that previously decontaminated areas are not impacted by subsequent cleaning activities. To begin, appropriate workers (asbestos or demolition) removed asphalt and wood blocks from the floors. Select demolition of equipment was used in some areas as required to facilitate the work of this contract and/or the demolition scrap activities. Cleaning started with the floor areas and progressed on to sub-floor pits, sumps and trenches once the floor areas were completed. Each area underwent multi-phased cleaning until no visual contamination and/or adverse conditions remained so that:

1) the floors shall not negatively impact to surface water run-off; and
2) the concrete is clean enough to permit on-site recycling.

The first step in the multi-phased cleaning, was gross dry decontamination. This consisting of hand scraping, shoveling, and/or vacuuming to remove loose materials. All dry residues

were placed in labeled drums or similar containers and transferred to the Accumulation Area (AA) or bulked loaded into roll-off containers provided by SK Services.

After dry contamination pits, trenches and floor areas were evaluated to determine whether further cleaning efforts were necessary. In some areas, further cleaning was achieved using high pressure waster blasting. Waste waters were collected for pre-treatment at the on-site Waste Water Treatment Plant (WWTP) when possible. For certain contaminants (i.e., antifreeze) a vacuum tanker truck was brought in to collect the waste waters; the water was then discharged into drums for disposal by SK Services. Water blasting was primarily used before the shut down of the on-site WWTP.

In two areas, the former tire/wheel balancing area (East Chassis, First Floor, approximately Columns G22 through J25) and ELPO (South Body Second Floor, Columns X18X through Q15X) a portable shot blast machine was used. This method essentially removed up to the first ¼-inch of the floor surface, as required, along with any surface stains and contaminants. A vacuum attachment on the machine collected the fine particles of the former floor surface for appropriate landfill disposal by SK Services at Lone Mountain (LM97--0190GM).

The cleaning of pits was scheduled to start at the furthest pit from the WWTP and clean toward the WWTP and/or the Grit Separators. When water-blasting was used on non-draining pits, the waste water was vacuumed out of the pit and discharge directly into the WWTP or Grit Separator (which ever was closest). It was noted that many pits are deeper than the groundwater table and hence recharge with groundwater if not pumped. This was most obvious in the Powerhouse, North Body Basement and Grit Chambers System. Such pits were pumped to allow cleaning and inspection. Once these tasks were completed, the pits were left to recharge. The Demolition Contract will address the final disposition of these pits (i.e., filling, plating, crushing).

Eight elevator pits and their rails were determined to be contaminated with low levels of PCBs (less than 50 ppm). These were cleaned separately from the other pits. Although this equipment evidenced only trace amounts of PCB, GM took a conservative approach and specified that even the trace concentrations be handled in accordance with 40 CFR 761. The waste and PPE was not co-mingled. Some selective demotion of the elevator cabs was needed before cleaning could commence. Elevator cab floors, walls, and ceilings were cut by Demolition Contract workers to allow access. Once this preparation work was complete, the Environmental Contract workers cordoned off the elevator areas with barrier tape and posted the appropriate PCB notices. The elevator rails were hand-cleaned with solvent. The rails were accessed by ladder or man-lift, as appropriate. The elevator pits were cleaned as outlined above. Neither water blasting nor bead blasting was used in these pits. Note that the floor of the West Chassis Elevator at Column M-12 was removed by Aqua-Tech as part of the Site Remediation Contract. Also note that the North Body Elevator at Column B17 had to be pumped out by Marisol for reclamation. That elevator pit was located in the basement floor and had flooded with groundwater that became contaminated with oils and greases from the elevator itself.

Once AED considered a specific floor area or selection of pits and trenches to be complete the O&C visually inspected the area with the AED Environmental Supervisor or his representatives. Areas in need of additional cleaning were identified at this time and the methods to be used (i.e., water blasting or shot-blasting) were discussed. In some areas,

rinsate samples were collected in clear glass jars and observed in good light for sheen, discoloration and/or odor. Although certain areas required an extra cleaning, the above methods adequately addressed all floors on-site.

Note that in many areas, demolition activities followed the floor, pit and trench cleaning. Any additional cleaning required due to the use of demolition equipment on the slabs is the responsibility of the demolition contract and was not part of this Work.

5.3 Sanitary & Industrial Sewer Clean-out

All sanitary and industrial sewers were deluge flushed including piping, sewers and any manholes within the crawlspace below grade. The sanitary waste was discharged to the local sewer authority for appropriate treatment. For industrial waste, AED operated the WWTP in accordance with GM's existing pre-treatment permit prior to discharge to the local Publicly Owned Treatment Works (POTW).

Using the sewer location plan, AED developed a sequential cleaning plan staring work from the farthest upstream points down to the sewer connection (sanitary waste) or WWTP (industrial waste). Based on the sewer cleaning plan, each separate sewer line was isolated and flushed from the top down. The cleaning proceeded from the upper levels in the farthest buildings working down each floor to the sewer lines located in the crawlspace of the buildings. The cleaning then moved to buildings closer to the sewer connection (sanitary waste) or Grit Separator (industrial waste). Once all upstream, industrial sewer lines had been successfully flushed, the Grit Separator was emptied to the WWTP. Thus forcing all solid and liquid industrial waste residues to the WWTP.

The WWTP was operated by K Environmental, Inc., a subconsultant to AED who provided a licensed WWTP operator. The WWTP was run until all waters are treated and discharged to the POTW (December 5, 1997 through December 12, 1997 and again on June 8, 1998). After all the water was pre-treated and discharged to the POTW, the sludge was stabilized with sawdust and shipped offsite to SK Services for landfill at Echo Mountain (Waste Acceptance Code EM92-0492GM). Process beds were similarly disposed.

5.4 Decommissioning & Cleaning of Piping System

Piping addressed includes compressed air, non-potable water, cooling water, domestic sewers, process wastewater, condensate (return), non-petroleum products/antifreeze, flammable liquids (non-paint related), paint, thinners, purge thinner, "ELPO", sealers deadeners, lubricating greases, windshield wiper solvent, WWTP chemical feed lines, AST lines, and hydraulic lift systems. All process piping was drained, flushed or removed. All liquid lines were cut and drained from low points; high points were cut where appropriate to allow for proper venting of volatile compounds.

AED developed a sequential deactivation plan to determine the proper order of flushing and purging piping to prevent back-flow, blockage and/or recontamination of pipes already cleaned. The most appropriate low spots to drain lines were identified in lines containing water and sewers include non-potable water ("make-up" water), cooling water, process wastewater and condensate return. The liquids were then drained from low spots in all lines into suitable containers. Captured fluids were transferred to the on-site WWTP for pre-

Attachment 2

Analytical Results for Millings Stockpile from: Due Diligence Investigation (EcolSciences 2002)

Table 5
Soil Sampling Results
Former Genral Motors Site
Tarrytown, New York
AOC-31

Sample ID	AOC-31-1	AOC-31-2	AOC-31-3	AOC-31-4	AOC-31-5	AOC-31-6	AOC-31-7	AOC-31-8	AOC-31-9	AOC-31-10	AOC-31-11	AOC-31-12	AOC-31-13
Lab Sample Number	369422	369423	369737	369738	369739	369740	369741	369742	369743	369744	369746	369747	369748
Sampling Date	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/16/02	08/16/02	08/16/02
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
VOLATILE COMPOUNDS (GC/MS)													
Chloromethane	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Bromomethane	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
VinylChloride	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Chloroethane	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
MethyleneChloride	0.001 J	0.0016 J	0.0009 J	0.0013 J	0.0017 J	0.0021 J	0.0012 J	0.0012 J	0.0009 J	0.0018 J	0.0028 J	0.0024 J	0.0018 J
Acetone	0.060	0.096	0.042	0.069	0.054	0.058	0.05	0.055	0.061	0.058	0.074	0.067	0.054
CarbonDisulfide	0.002 J	0.0071	0.0016 J	0.002 J	0.001 J	0.0009 J	0.0018 J	0.0012 J	0.0013 J	0.0014 J	0.0013 J	0.0008 J	0.0008 J
1,1-Dichloroethene	0.0022 U	0.0022 U	0.0023 U	0.0024 U	0.0024 U	0.0023 U	0.0024 U	0.0023 U	0.0022 U	0.0022 U	0.0023 U	0.0023 U	0.0023 U
1,1-Dichloroethane	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
trans-1,2-Dichloroethene	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
cis-1,2-Dichloroethene	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Chloroform	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
1,2-Dichloroethane	0.0022 U	0.0022 U	0.0023 U	0.0024 U	0.0024 U	0.0023 U	0.0024 U	0.0023 U	0.0022 U	0.0022 U	0.0023 U	0.0023 U	0.0023 U
2-Butanone	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.052	0.0057 U	0.0057 U
1,1,1-Trichloroethane	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
CarbonTetrachloride	0.0022 U	0.0022 U	0.0023 U	0.0024 U	0.0024 U	0.0023 U	0.0024 U	0.0023 U	0.0022 U	0.0022 U	0.0023 U	0.0023 U	0.0023 U
Bromodichloromethane	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U
1,2-Dichloropropane	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U
cis-1,3-Dichloropropene	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Trichloroethene	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0011 U	0.0011 U	0.002	0.0012 U	0.0011 U	0.0011 U
Dibromochloromethane	0.0011 J	0.001 J	0.0008 J	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
1,1,2-Trichloroethane	0.0034 U	0.0033 U	0.0034 U	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.0034 U	0.0034 U	0.0033 U	0.0035 U	0.0034 U	0.0034 U
Benzene	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U
trans-1,3-Dichloropropene	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Bromoform	0.012	0.010	0.0073	0.0032 J	0.01	0.0048	0.0028 J	0.0018 J	0.0028 J	0.0027 J	0.0023 J	0.003 J	0.0032 J
4-Methyl-2-Pentanone	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0065	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
2-Hexanone	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Tetrachloroethene	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U
1,1,2,2-Tetrachloroethane	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U
Toluene	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Chlorobenzene	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Ethylbenzene	0.0045 U	0.0044 U	0.0045 U	0.0047 U	0.0047 U	0.0046 U	0.0047 U	0.0045 U	0.0045 U	0.0044 U	0.0047 U	0.0046 U	0.0046 U
Styrene	0.0056 U	0.0054 U	0.0057 U	0.0059 U	0.0059 U	0.0058 U	0.0059 U	0.0057 U	0.0056 U	0.0055 U	0.0059 U	0.0057 U	0.0057 U
Xylene(Total)	0.002 J	0.0018 J	0.0029 J	0.0059 U	0.0023 J	0.0028 J	0.0059 U	0.0057 U	0.0056 U	0.0031 J	0.0059 U	0.0057 U	0.0057 U
Total Confident Conc. VOAs (s)	0.072	0.113	0.049	0.069	0.071	0.063	0.05	0.055	0.061	0.06	0.126	0.067	0.054
Total Estimated Conc. VOA TICs (s)	0.0087	0.063	0.017	0.013	0.017	0.0093	0.018	0.011	0.042	0.107	0.042	0.015	0.023

U - The compound was not detected at the indicated concentration.
J - The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample.
NR - Not analyzed.
Source: EcolSciences (2002)

Table 5
Soil Sampling Results
Former Genral Motors Site
Tarrytown, New York
AOC-31

Sample ID	AOC-31-1	AOC-31-2	AOC-31-3	AOC-31-4	AOC-31-5	AOC-31-6	AOC-31-7	AOC-31-8	AOC-31-9	AOC-31-10	AOC-31-11	AOC-31-12	AOC-31-13
Lab Sample Number	369422	369423	369737	369738	369739	369740	369741	369742	369743	369744	369746	369747	369748
Sampling Date	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/16/02	08/16/02	08/16/02
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Dilution Factor	10	25	25.0	10.0	20.0	20.0	20.0	25.0	20.0	25.0	25.0	20.0	10.0
SEMIVOLATILE COMPOUNDS (GC/MS)													
Phenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2-Chlorophenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2-Methylphenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
4-Methylphenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2-Nitrophenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2,4-Dimethylphenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2,4-Dichlorophenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
4-Chloro-3-methylphenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2,4,6-Trichlorophenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2,4,5-Trichlorophenol	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2,4-Dinitrophenol	16 U	38 U	38 U	16 U	32 U	31 U	32 U	39 U	31 U	39 U	40 U	31 U	15 U
4-Nitrophenol	16 U	38 U	38 U	16 U	32 U	31 U	32 U	39 U	31 U	39 U	40 U	31 U	15 U
4,6-Dinitro-2-methylphenol	16 U	38 U	38 U	16 U	32 U	31 U	32 U	39 U	31 U	39 U	40 U	31 U	15 U
Pentachlorophenol	16 U	38 U	38 U	16 U	32 U	31 U	32 U	39 U	31 U	39 U	40 U	31 U	15 U
bis(2-Chloroethyl)ether	0.39 U	0.95 U	0.96 U	0.4 U	0.8 U	0.77 U	0.79 U	0.98 U	0.79 U	0.97 U	0.99 U	0.78 U	0.39 U
1,3-Dichlorobenzene	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
1,4-Dichlorobenzene	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
1,2-Dichlorobenzene	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
bis(2-chloroisopropyl)ether	0.39 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
N-Nitroso-di-n-propylamine	0.39 U	0.95 U	0.96 U	0.4 U	0.8 U	0.77 U	0.79 U	0.98 U	0.79 U	0.97 U	0.99 U	0.78 U	0.39 U
Hexachloroethane	0.39 U	0.95 U	0.96 U	0.4 U	0.8 U	0.77 U	0.79 U	0.98 U	0.79 U	0.97 U	0.99 U	0.78 U	0.39 U
Nitrobenzene	0.39 U	0.95 U	0.96 U	0.4 U	0.8 U	0.77 U	0.79 U	0.98 U	0.79 U	0.97 U	0.99 U	0.78 U	0.39 U
Isophorone	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
bis(2-Chloroethoxy)methane	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
1,2,4-Trichlorobenzene	0.39 U	0.95 U	0.96 U	0.4 U	0.8 U	0.77 U	0.79 U	0.98 U	0.79 U	0.97 U	0.99 U	0.78 U	0.39 U
Naphthalene	0.78 J	1 J	1.3 J	0.59 J	0.9 J	0.78 J	1.5 J	4.2 J	1.5 J	2.7 J	1.8 J	0.5 J	0.15 J
4-Chloroaniline	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
Hexachlorobutadiene	0.79 U	1.9 U	1.9 U	0.8 U	1.6 U	1.5 U	1.6 U	2 U	1.6 U	1.9 U	2 U	1.6 U	0.77 U
2-Methylnaphthalene	0.82 J	1.2 J	1.8 J	0.65 J	1.3 J	1 J	2.2 J	4.2 J	1.8 J	2 J	4.2 J	0.68 J	0.2 J

U - The compound was not detected at the indicated concentration.
J - The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample.
NR - Not analyzed.
Source: EcolSciences (2002)

Table 5
Soil Sampling Results
Former Genral Motors Site
Tarrytown, New York
AOC-31

Sample ID	AOC-31-1	AOC-31-2	AOC-31-3	AOC-31-4	AOC-31-5	AOC-31-6	AOC-31-7	AOC-31-8	AOC-31-9	AOC-31-10	AOC-31-11	AOC-31-12	AOC-31-13
Lab Sample Number	369422	369423	369737	369738	369739	369740	369741	369742	369743	369744	369746	369747	369748
Sampling Date	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/16/02	08/16/02	08/16/02
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Dilution Factor	10	25	25.0	10.0	20.0	20.0	20.0	25.0	20.0	25.0	25.0	20.0	10.0
Hexachlorocyclopentadiene	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2-Chloronaphthalene	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
2-Nitroaniline	7.9 U	19 U	19 U	8 U	16 U	15 U	16 U	20 U	16 U	19 U	20 U	16 U	7.7 U
Dimethylphthalate	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
Acenaphthylene	0.12 J	0.57 J	0.44 J	0.28 J	1.1 J	7.7 U	0.7 J	0.85 J	0.84 J	1.7 J	0.79 J	0.48 J	0.2 J
2,6-Dinitrotoluene	0.79 U	1.9 U	1.9 U	0.8 U	1.6 U	1.5 U	1.6 U	2 U	1.6 U	1.9 U	2 U	1.6 U	0.77 U
3-Nitroaniline	7.9 U	19 U	19 U	8 U	16 U	15 U	16 U	20 U	16 U	19 U	20 U	16 U	7.7 U
Acenaphthene	4	7.6 J	7.4 J	3.4 J	7.4 J	5.4 J	9.9	16	7.4 J	9.6 J	16	3.3 J	1 J
Dibenzofuran	1.8 J	3 J	4.1 J	1.7 J	3.2 J	2.5 J	5.2 J	8.9 J	3.7 J	4.9 J	9.6 J	1.5 J	0.53 J
2,4-Dinitrotoluene	0.79 U	1.9 U	1.9 U	0.8 U	1.6 U	1.5 U	1.6 U	2 U	1.6 U	1.9 U	2 U	1.6 U	0.77 U
Diethylphthalate	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
4-Chlorophenyl-phenylether	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
Fluorene	3.6 J	5.9 J	7.9 J	3.7 J	8.2	6.1 J	12	17	8.2	10	20	3.4 J	1.1 J
4-Nitroaniline	7.9 U	19 U	19 U	8 U	16 U	15 U	16 U	20 U	16 U	19 U	20 U	16 U	7.7 U
N-Nitrosodiphenylamine	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
4-Bromophenyl-phenylether	3.9 U	9.5 U	9.6 U	4 U	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	9.9 U	7.8 U	3.9 U
Hexachlorobenzene	0.39 U	0.95 U	0.96 U	0.4 U	0.8 U	0.77 U	0.79 U	0.98 U	0.79 U	0.97 U	0.99 U	0.78 U	0.39 U
Phenanthrene	29	62	74	36	73	47	92	120	68	69	140	30	13
Anthracene	8.1	17	26	10	24	15	26	33	24	21	40	10	4.5
Carbazole	4.4	7.4 J	6.4 J	4.4	8	5.3 J	9.8	16	8.1	8.5 J	13	3.8 J	1.3 J
Di-n-butylphthalate	3.9 U	9.5 U	9.6 U	9.6	8 U	7.7 U	7.9 U	9.8 U	7.9 U	9.7 U	3.6 J	7.8 U	3.9 U
Fluoranthene	35	80	120	53	130	74	120	140	120	100	150	54	23
Pyrene	29	84	100	55	130	73	120	140	140	99	160	68	23
Butylbenzylphthalate	2.6 J	9.5 U	9.6 U	2.2 J	8.6	7.1 J	11	9.5 J	8.6	7.5 J	13	4.4 J	1.1 J
3,3'-Dichlorobenzidine	7.9 U	19 U	19 U	8 U	16 U	15 U	16 U	20 U	16 U	19 U	20 U	16 U	7.7 U
Benzo(a)anthracene	15	36	49	27	64	41	57	71	70	51	80	33	12
Chrysene	14	38	53	32	66	41	63	75	76	58	81	35	13
bis(2-Ethylhexyl)phthalate	78	4.1 J	4.4 J	8.7	7.5 J	2.3 J	6.6 J	7.2 J	43	4.4 J	11	78	2 J
Di-n-octylphthalate	3.9 U	9.5 U	9.6 U	0.87 J	8 U	7.7 U	7.9 U	9.8 U	9.2	9.7 U	19	51	3.9 U
Benzo(b)fluoranthene	17	40	50	36	72	46	61	78	78	55	83	36	15
Benzo(k)fluoranthene	8.2	20	23	16	27	19	27	35	31	24	37	16	6.6
Benzo(a)pyrene	14	31	40	26	52	35	45	58	57	42	61	26	11
Indeno(1,2,3-cd)pyrene	7	12	23	11	26	18	22	27	24	23	23	11	4.8
Dibenz(a,h)anthracene	2	3.7	6.8	3.4	7.9	6.1	6.6	6.9	8.6	6.3	8.1	3.6	1.5
Benzo(g,h,i)perylene	6.6	10	22	8.8	23	16	16	20	21	18	18	10	4.4
Total Confident Conc. BNAs (s)	271.3	433.7	586.8	336.9	719.7	431.1	698.3	852.9	794.7	576.3	973.1	461.6	131.8
Total Estimated Conc. BNA TICs (s)	9.7	60.9	241.4	121.5	382.8	275.5	318.6	382	429.2	108.1	432	281.4	25.4

U - The compound was not detected at the indicated concentration.
J - The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample.
NR - Not analyzed.
Source: EcolSciences (2002)

Table 5
Soil Sampling Results
Former Genral Motors Site
Tarrytown, New York
AOC-31

Sample ID	AOC-31-1	AOC-31-2	AOC-31-3	AOC-31-4	AOC-31-5	AOC-31-6	AOC-31-7	AOC-31-8	AOC-31-9	AOC-31-10	AOC-31-11	AOC-31-12	AOC-31-13
Lab Sample Number	369422	369423	369737	369738	369739	369740	369741	369742	369743	369744	369746	369747	369748
Sampling Date	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/16/02	08/16/02	08/16/02
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCBs													
Aroclor-1016	0.079 U	0.077 U	0.077 U	0.08 U	0.08 U	0.077 U	0.08 U	0.079 U	0.079 U	0.078 U	0.079 U	0.079 U	0.078 U
Aroclor-1221	0.079 U	0.077 U	0.077 U	0.08 U	0.08 U	0.077 U	0.08 U	0.079 U	0.079 U	0.078 U	0.079 U	0.079 U	0.078 U
Aroclor-1232	0.079 U	0.077 U	0.077 U	0.08 U	0.08 U	0.077 U	0.32 U	0.079 U	0.079 U	0.078 U	0.079 U	0.079 U	0.078 U
Aroclor-1242	0.079 U	0.49	0.2	0.3	0.33	0.082 P*	0.2	0.29	0.25	0.22	0.31	0.25	0.12
Aroclor-1248	0.950	0.077 U	0.077 U	0.08 U	0.08 U	0.077 U	0.08 U	0.079 U	0.079 U	0.078 U	0.079 U	0.079 U	0.078 U
Aroclor-1254	0.079 U	0.077 U	0.077 U	0.08 U	0.08 U	0.077 U	0.08 U	0.079 U	0.079 U	0.078 U	0.079 U	0.079 U	0.078 U
Aroclor-1260	0.260	0.26	0.19	0.32	0.08 U	0.077 U	0.08 U	0.079 U	0.68	0.078 U	0.5	0.079 U	0.33
Aroclor-1262	0.079 U	0.077 U	0.077 U	0.08 U	0.88	0.35	0.32	0.44	0.079 U	0.27	0.079 U	0.26	0.078 U
Aroclor-1268	0.079 U	0.077 U	0.077 U	0.08 U	0.08 U	0.077 U	0.08 U	0.079 U	0.76	0.078 U	0.079 U	0.079 U	0.078 U
PESTICIDES													
Aldrin	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
alpha-BHC	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
beta-BHC	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
delta-BHC	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
gamma-BHC(Lindane)	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
Chlordane	0.079 U	0.077 U	0.077 U	0.4 U	0.16 U	0.077 U	0.16 U	0.16 U	0.4 U	0.39 U	0.079 U	0.39 U	0.078 U
4,4'-DDD	0.0079 U	0.012 P*	0.01	0.04 U	0.016 U	0.016	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
4,4'-DDE	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
4,4'-DDT	0.0079 U	0.0084 P*	0.0093 P*	0.04 U	0.016 U	0.014 P*	0.019 P*	0.026 P*	0.057	0.039 U	0.023 P*	0.039 U	0.0078 U
Dieldrin	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
EndosulfanI	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
EndosulfanII	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.049	0.0077 U	0.016 U	0.019 P*	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
Endosulfansulfate	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
Endrin	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
Endrinaldehyde	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
Endrinketone	0.022 P*	0.12 P*	0.049 P*	0.041 P*	0.15	0.12 P*	0.13	0.058 P*	0.14	0.096	0.058 P*	0.077	0.0078 U
Heptachlor	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
Heptachlorepoxide	0.0079 U	0.017	0.0077 U	0.04 U	0.016 U	0.0077 U	0.016 U	0.016 U	0.04 U	0.039 U	0.0079 U	0.039 U	0.0078 U
Methoxychlor	0.0079 U	0.0077 U	0.0077 U	0.04 U	0.55	0.0077 U	0.016 U	0.016 U	0.51 P*	0.46 P	0.0079 U	0.039 U	0.078 P*
Toxaphene	0.079 U	0.077 U	0.077 U	0.4 U	0.16 U	0.077 U	0.16 U	0.16 U	0.4 U	0.39 U	0.079 U	0.39 U	0.078 U
WET CHEMISTRY													
ChromiumVI - mg/kg	2.0 U	2.0 U	2.0 U	7.2	2.4	3.1	2.0 U	5.2	2.6	2.0 U	2.0 U	2.0 U	2.0 U
TotalCyanide - mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

P = For duel column analysis the % difference between the quantatated concentrations on the 2 columns is greater than 40%
* = For duel column analysis, the lowest quantitates concentration is being reported due to coeluting interference.

U - The compound was not detected at the indicated concentration.
J - The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample.
NR - Not analyzed.
Source: EcolSciences (2002)

Table 5
Soil Sampling Results
Former Genral Motors Site
Tarrytown, New York
AOC-31

Sample ID	AOC-31-1	AOC-31-2	AOC-31-3	AOC-31-4	AOC-31-5	AOC-31-6	AOC-31-7	AOC-31-8	AOC-31-9	AOC-31-10	AOC-31-11	AOC-31-12	AOC-31-13
Lab Sample Number	369422	369423	369737	369738	369739	369740	369741	369742	369743	369744	369746	369747	369748
Sampling Date	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/15/02	08/16/02	08/16/02	08/16/02
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METALS													
Aluminum	6350	7490	7420	6970	8500	7000	7180	6770	7480	6550	7310	6690	6210
Antimony	2.0 B	3.8	3.6	4.9	5.9	3.2	5.6	3.0	4.4	4.1	11.5	3.4	13.2
Arsenic	4.1	6.0	4.4	6.1	4.9	5.8	6.9	7.3	5.2	5.5	6.3	6.0	4.6
Barium	96.2	159	148	195	282	363	507	437	446	307	1220	275	251
Beryllium	0.27 B	0.42 B	0.36 B	0.47	0.32 B	0.31 B	0.38 B	0.40	0.35 B	0.34 B	0.36 B	0.29 B	0.36 B
Cadmium	0.48 B	1.1	1.1 B	2.3	7.6	1.3	2.1	2.0	2.6	2.0	2.6	1.5	2.2
Calcium	126300	112400	99100	102000	75800	100000	91300	65200	86100	90400	88400	92700	89100
Chromium	15.3	28.3	26.0	43.9	27.5	32.3	33.0	25.9	31.8	29.7	67.7	22.4	30.8
Cobalt	3.8 B	4.6 B	5.4 B	7.6 B	5.8 B	6.1 B	6.1 B	5.4 B	5.9 B	6.0 B	6.8 B	4.9 B	4.5 B
Copper	22.7	37.0	32.8	82.4	51.9	54.0	52.7	58.7	47.0	37.3	75.8	33.9	36.5
Iron	12200	16200	13800	30200	14100	18100	18500	16000	16500	13600	30000	15400	16600
Lead	99.2	184	168	543	244	185	266	226	279	228	357	263	234
Magnesium	34600	23700	14100	25400	11100	23600	9710	8010	11900	16400	13900	10500	13000
Manganese	309	349	265	436	255	696	387	447	322	269	365	236	336
Mercury	0.08	0.03	0.019 U	0.020 U	0.43	0.42	0.04 B	0.38	0.05	0.22	0.31	0.28	0.21
Nickel	10.2	14.9	16.1	28.1	28.7	21.2	22.2	18.7	23.8	25.0	19.7	17.9	15.6
Potassium	1400	1520	1440	1470	1240	1450	1430	1160	1190	1240	746 B	696 B	894 B
Selenium	0.99 U	0.96 U	0.97 U	1.0 U	1.0 U	0.97 U	1.0 U	0.83 U	0.99 U	1.0 B	1.00 U	0.99 U	0.97 U
Silver	0.33 U	0.32 U	0.32 U	0.42 B	0.34 U	0.32 U	0.33 U	0.30 B	0.34 B	0.35 B	0.39 B	0.40 B	0.32 U
Sodium	1130 B	1410	1250	1490	1310	1130	1170	881 B	1090 B	907 B	593 B	478 B	533 B
Thallium	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.93 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Vanadium	16.9	20.5	21.7	24.1	72.8	38.9	41.5	34.5	52.9	66.6	35.6	35.1	18.2
Zinc	148	392	349	693	1460	510	750	628	773	574	941	551	495

U - The compound not detected at the indicated concentration.
B - Approximate concentration
Source: EcolSciences (2002)

Attachment 3

Analytical Results for In-Place Millings Fill from: Draft Preliminary Remedial Investigation Report (BBL 2006)

TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Millings						
Field Sample ID	SI-14-S1-A-1	SI-14-S1-A-2	SI-14-S2-A-1	SI-15-S1-A-1	SI-15-S2-A-1	SI-32-S1-A-1	SI-32-S2-A-1
Depth Interval (ft)	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
SVOCs (mg/Kg) TCL, STARS, PAHs							
1,2,4-TRICHLOROBENZENE							
1,2-DICHLOROBENZENE							
1,3-DICHLOROBENZENE							
1,4-DICHLOROBENZENE							
2,4,5-TRICHLOROPHENOL							
2,4,6-TRICHLOROPHENOL							
2,4-DICHLOROPHENOL							
2,4-DIMETHYLPHENOL							
2,4-DINITROPHENOL							
2,4-DINITROTOLUENE							
2,6-DINITROTOLUENE							
2-CHLORONAPHTHALENE							
2-CHLOROPHENOL							
2-METHYLNAPHTHALENE							
2-METHYLPHENOL							
2-NITROANILINE							
2-NITROPHENOL							
3,3'-DICHLOROBENZIDINE							
3+4-METHYLPHENOL							
3-NITROANILINE							
4,6-DINITRO-2-METHYLPHENOL							
4-BROMOPHENYL PHENYL ETHER							
4-CHLORO-3-METHYLPHENOL							
4-CHLOROANILINE							
4-CHLOROPHENYL PHENYL ETHER							
4-NITROANILINE							
4-NITROPHENOL							
ACENAPHTHENE	2.1 J	2.6 J	2.8 J	2.9 J	ND	2.3 J	2.4 J
ACENAPHTHYLENE	ND	ND	2.9 J	ND	ND	ND	ND
ANTHRACENE	5.5 J	6.8 J	11	8.7 J	5.1 J	7.8 J	6.6 J
BENZO(A)ANTHRACENE	20	21	30	23	18 J	27	23
BENZO(A)PYRENE	19	19	26	24	18 J	25	20
BENZO(B)FLUORANTHENE	15	16	21	18 J	15 J	21	17
BENZO(G,H,I)PERYLENE	12	12	15	18 J	12 J	14 J	13
BENZO(K)FLUORANTHENE	15	16	21	19	14 J	20	17
BENZYL ALCOHOL							
BIS(1-CHLOROISOPROPYL) ETHER							

See Notes on Page 2

TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Millings						
Field Sample ID	SI-14-S1-A-1	SI-14-S1-A-2	SI-14-S2-A-1	SI-15-S1-A-1	SI-15-S2-A-1	SI-32-S1-A-1	SI-32-S2-A-1
Depth Interval (ft)	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
SVOCs (mg/Kg) TCL, STARS, PAHs							
BIS(2-CHLOROETHOXY)METHANE							
BIS(2-CHLOROETHYL) ETHER							
BIS(2-ETHYLHEXYL) PHTHALATE							
BUTYL BENZYL PHTHALATE							
CARBAZOLE							
CHRYSENE	19	20	31	22	18 J	25	23
DIBENZO(A,H)ANTHRACENE	4.3 J	3.8 J	5.5 J	5.6 J	3.5 J	4.8 J	4.5 J
DIBENZOFURAN							
DIETHYL PHTHALATE							
DIMETHYL PHTHALATE							
DI-N-BUTYL PHTHALATE							
DI-N-OCTYL PHTHALATE							
FLUORANTHENE	40	40	74	45	32 J	52	40
FLUORENE	1.8 J	2.6 J	5.2 J	2.5 J	ND	2.3 J	2.3 J
HEXACHLOROBENZENE							
HEXACHLOROBUTADIENE							
HEXACHLOROCYCLOPENTADIENE							
HEXACHLOROETHANE							
INDENO(1,2,3-CD)PYRENE	11	11 J	14	15 J	11 J	13 J	12
ISOPHORONE							
NAPHTHALENE	ND	ND	2 J	ND	ND	ND	ND
NITROBENZENE							
N-NITROSODIMETHYLAMINE							
N-NITROSODI-N-PROPYLAMINE							
N-NITROSODIPHENYLAMINE							
PENTACHLOROPHENOL (PCP)							
PHENANTHRENE	20	25	50	30	18 J	24	23
PHENOL							
PYRENE	28	32	49	33	24 J	38	37
Total C-PAHs	103.3	106.8	148.5	126.6	97.5	135.8	116.5
Total Semi-Volatile	212.7	227.8	360.4	266.7	188.6	276.2	240.8

Notes:
NA = Not available or not established.
ND = Not Detected.
J = Estimated value.
Source: Data for In-Place Milling Fill on West Parcel; from Draft Preliminary RIR (BBL 2006)

TABLE 7
PESTICIDE AND PCB COMPOUND ANALYSIS OF SOIL/MILLINGS

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Millings						
Field Sample ID	SI-14-S1-A-1	SI-14-S1-A-2	SI-14-S2-A-1	SI-15-S1-A-1	SI-15-S2-A-1	SI-32-S1-A-1	SI-32-S2-A-1
Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
TCL Pesticides (mg/Kg)							
4,4'-DDD							
4,4'-DDE							
4,4'-DDT							
ALDRIN							
ALPHA-BHC							
ALPHA-CHLORDANE							
BETA-BHC							
DELTA-BHC							
DIELDRIN							
ENDOSULFAN I							
ENDOSULFAN II							
ENDOSULFAN SULFATE							
ENDRIN							
ENDRIN ALDEHYDE							
ENDRIN KETONE							
GAMMA-BHC (LINDANE)							
GAMMA-CHLORDANE							
HEPTACHLOR							
HEPTACHLOR EPOXIDE							
METHOXYCHLOR							
TOXAPHENE							
TCL PCBs (mg/Kg)							
AROCLOR 1016	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1221	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1232	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1242	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1248	0.42	0.31	1.8	ND	0.34	0.44	0.66
AROCLOR 1254	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1260	0.47 J	0.38 J	2.6 J	ND	0.98	0.4	0.75
Total PCBs	0.89	0.69	4.4	ND	1.32	0.84	1.41

Notes:
NA = Not available or not established.
ND = Not Detected.
SB = Site Background.
Source: Data for In-Place Milling Fill on West Parcel; from Draft Preliminary RIR (BBL 2006)

TABLE 8
INORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Millings						
Field Sample ID	SI-14-S1-A-1	SI-14-S1-A-2	SI-14-S2-A-1	SI-15-S1-A-1	SI-15-S2-A-1	SI-32-S1-A-1	SI-32-S2-A-1
Depth Interval (ft)	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
TAL Inorganic Compounds (mg/Kg)							
ALUMINUM	7850	8540	8460	7420	7130	8000	8100
ANTIMONY	6.5	ND	ND	ND	64.9	ND	ND
ARSENIC	11.5	6.6	5.1	4.8	11.9	5.4	6.2
BARIUM	326 J	228 J	204 J	181 J	304 J	297 J	197 J
BERYLLIUM	ND	ND	ND	ND	ND	ND	ND
CADMIUM	1.2	1.1	1.2	1.9	2.6	1.7	1.8
CALCIUM	106000	111000	108000	79600	67100	97400	125000
CHROMIUM	28.3 J	28.5 J	21.3 J	35.3 J	71.7 J	24.1 J	25.1 J
COBALT	5.8	5.6	ND	7.8	10.1	6.2	6
COPPER	39.1 J	47.3 J	30 J	57 J	133 J	61.1 J	60.4 J
IRON	27800 J	20300 J	15400 J	28000 J	41700 J	16800 J	19900 J
LEAD	288	248	171	214	1900	213	175
MAGNESIUM	13500	9570	17200	9460	19800	12500	11900
MANGANESE	780	412	293	289	446	340	313
NICKEL	15.5	16.4	13.3	19.4	39.3	19	19.7
POTASSIUM	825	825	1000	1280	1500	999	952
SELENIUM	ND	ND	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND	ND	ND
SODIUM	468	419	472	559	653	488	491
THALLIUM	ND	ND	ND	ND	ND	ND	ND
VANADIUM	23.9	24	23.9	25.3	56.2	28.2	31.6
ZINC	552	430	378	468	564	776	651
MERCURY	0.43	0.51	0.29	0.09	0.14	0.24	4.6

Notes:
J = Estimated value.
ND = Not Detected.
Source: Data for In-Place Milling Fill on West Parcel; from Draft Preliminary RIR (BBL 2006)

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
Bureau of Solid Waste, Reduction and Recycling, 9th Floor
625 Broadway, Albany, New York 12233-7253
Phone: (518) 402-8704 • **FAX:** (518) 402-9024
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

MEMORANDUM

TO: James Moras, Section A, Remedial Bureau D, Divison of Environmental Remediation

FROM: Kathleen Prather, Beneficial Use and Special Projects Section, Bureau of Solid Waste, Reduction & Recycling

SUBJECT: GM Former Assembly Plant, Sleepy Hollow - BUD No. 894-3-60

DATE: JUN 1 4 2007

The Bureau of Solid Waste, Reduction & Recycling (BSWRR), Division of Solid & Hazardous Materials, has reviewed the June 7 petition by Arcadis, on behalf of General Motors Corporation, for beneficial use of "concrete millings," as described in the petition, as a structural or grading fill on the Former Assembly Plant Brownfield Cleanup Program (BCP) Site. The concrete millings cease to be a solid waste under 6 NYCRR Part 360-1.15(d) when they are used on the BCP Site under a Division of Enviromental Remediation (DER) - approved remedial work plan, and subject to all institutional and engineering controls required by DER pursuant to 6 NYCRR Part 375. Any millings taken off site must be managed as a solid waste under 6 NYCRR Part 360; the millings do not meet the criteria for the predetermined beneficial use under 360-1.15(b)(11) or the definition of "uncontaminated C&D debris" in 360-7.1(c)(4).

General Motors Corporation, on completion of the BCP remedy, must submit a report with the final volume of concrete millings used under this beneficial use determination (BUD), to the attention of DER and:

Thomas J. Lynch, P.E.
Division of Solid & Hazardous Materials
Bureau of Waste, Reduction & Recycling
625 Broadway, 9th Floor
Albany, NY 12233-7253

The Department may revoke or modify this BUD if it finds that one or more of the matters serving as the basis for the Department's determination was incorrect or is no longer valid, or the Department finds that there has been a violation of any condition or requirement established in the BUD.

This determination should be referenced as BUD No. 894-3-60, "GM Former Assembly Plant, Sleepy Hollow." Please contact me if you have any questions regarding this BUD.

ARCADIS
Infrastructure, environment, facilities

ARCADIS U.S., Inc.
17-17 Route 208 North
Fair Lawn
New Jersey 07410
Tel 201 797 7400
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www.arcadis-us.com

Mr. Jason Pelton, P.E.
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7017

Subject:
Former General Motors North Tarrytown Assembly Plant Site
Brownfield Cleanup Agreement Index #s A3-0513-0305, A3-0514-0305 and C360070-12-10
NYSDEC Site # C360070
Petition for Beneficial Use Determination for Site Sediments

Date:
June 26, 2012

Contact:
Raymond M. Kapp

Phone:
201.797.7400 Ext 4388

Email:
raymond.kapp
@arcadis-us.com

Our ref:
B0064462.0001

Dear Mr. Pelton:

On behalf of General Motors LLC (GM), this letter requests a Beneficial Use Determination (BUD) for sediments to be derived from a Division of Environmental Remediation approved project, for use during Site remediation and redevelopment under Brownfield Cleanup Agreement # A3-0513-0305. It is estimated that up to 5,000 cubic yards of sediment will be removed from the Hudson River near the mouth of a Site storm drain, and from the cleaning of storm sewers at the Site. These materials will be processed upland on the Site, before being secured for future beneficial onsite use. The materials to be removed from the Hudson River and associated storm drains within the project area are described in General Motors' Remedial Work Plan, approved by NYSDEC on June 8, 2012.

Consistent with 6NYCRR Part 360.1-15 (b)(8), this material would cease to be a solid waste because it is nonhazardous contaminated soil which will be excavated as part of a Department-approved Brownfield construction project (not an inactive hazardous waste disposal site), and it will be graded over historic fill material containing similar contaminants at the same site. Stabilizing agents (portland cement or equivalent binding agent) will be mixed into the sediments to improve handling, workability and placement, resulting in a stable engineered construction material to be used as a substitute for commercially available fill.

Information supporting this petition for site specific beneficial use is summarized below, followed by details and supporting information.

Material Description	Sediment from Hudson River and Site storm sewers from a 3-month project.
Chemical and Physical Characteristics	Non-hazardous sand, gravel, silt and clay with elevated metal concentrations, relative to aquatic life criteria. Similar concentrations are found in Site fill.
Suitability for Onsite Use	Site is already developed on hydraulic fill from the Hudson River. Proposed BUD materials will be compatible with existing materials and will supplement fill needed for site redevelopment.
Safety and Protection of Human Health, Environment and Natural Resources	Sediments will be handled in accordance with a DER-approved remedial work plan for sediments. SWPP and CAMP required by DER will provide monitoring and controls of surface water and air pathways during handling. A permanent cap will be applied over BUD materials during site redevelopment. Site groundwater use is prohibited per final Decision Document.
Storage of materials	Materials will be secured, with runoff controls, under DER approved work plan until final grading during redevelopment.

The proposed beneficial use of this stabilized material is intermediate fill between the water table elevation and the final cover system during future site redevelopment. Per the NYSDEC Decision Document for the Site (June 2012), the final cover system will consist of either a 2 foot landscaped soil cap or building foundations and

roadways. Based on the proposed use of the Site, it is expected that approximately 350,000 cubic yards of fill material will be required to reach the proposed roadway and building construction subgrade elevations, of which approximately 150,000 cubic yards is to be generated from onsite demolition materials and future construction activities, leaving a need for approximately 200,000 cubic yards of imported fill materials (Lighthouse Landing DEIS 2005, page II-71). The sediment to be included in this BUD would make up approximately 2.5% of the expected fill deficit.

The sediments to be removed from the Hudson River do not contain solid waste. Rather, the sediments are comprised of natural sand, gravel, silt and clay from the Hudson River bottom at the mouth of an historic (pre-1972) discharge. This sediment dredging has been proposed due to the presence of metals, many of which are former wastewater constituents. While this removal will reduce future potential exposure of aquatic life to these constituents, the upland part of the Site contains similar levels of constituents within the historic and recently approved beneficial use fill that remains onsite, now that NYSDEC approved Interim Remedial Measures have been completed. To manage these residual materials, the Decision Document approves Site redevelopment for "restricted residential use" as defined in 6NYCRR Part 375. Protection of human health and the environment will be provided by engineering and institutional controls, including, but not limited to, a final cover system, handling of sub-cover soils and fill in accordance with an NYSDEC approved Soils Management Plan, groundwater monitoring, and permanent prohibition of Site groundwater use. These controls will be enforced through an Environmental Easement granted to NYSDEC.

The constituent concentrations in sediments are highly variable within the proposed dredge area, based on 62 samples of bulk sediment analyzed (attached Table 1). Samples that provide the full depth coverage were analyzed for the 5 wastewater metals that drive the basis for removal. Other constituents on Table 1 (such as PAHs and PCBs) reflect ambient local river bottom conditions.

Because the materials will be dredged in the wet and handled ex-situ to promote draining and stabilization, the average concentrations of constituents (attached Table 2) are better predictors of the expected concentrations of the materials proposed for use as intermediate fill. Table 2 indicates that the constituents in the proposed beneficial use material are comparable to those in historic fill (post-IRM conditions) or previously approved intermediate fill (BUD 894-3-60). All constituent averages, including volume weighted averages, are within the current onsite material ranges.

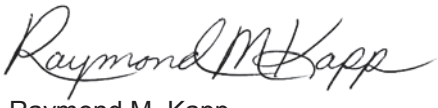
In anticipation of future beneficial use, sediment removed from the Hudson River, and the associated storm drains within the project area, will be gravity drained on a lined staging pad and blended with a stabilizing agent as needed to enhance drying and handling. Following adequate drying, the materials would likely be placed in existing unlined crawl spaces beneath building slabs that have not yet been demolished, where most of the fill is needed. Staging fill in these available below-grade spaces will also isolate the materials from runoff pathways. Locations of the final placements will be documented on a Site drawing in the Remedial Action Completion Report. Future management of the sediments will be conducted in accordance with the NYSDEC approved Soil Management Plan for intermediate fill, a component of the overall Site Management Plan.

All sediments will be removed and handled under NYSDEC oversight, pursuant to a NYSDEC approved work plan. These sediments will not be used as final cover soil for redevelopment. Only materials that meet soil cleanup objectives (SCOs) for "restricted residential use", as set forth in 6NYCRR Part 375-6.8(b), will be used for final soil cover. As evident in Table 2, the proposed beneficial use materials could not be used as final cover, but would meet industrial SCOs for limited exposure conditions, such as handling intermediate fill during Site redevelopment. As such, this petition seeks to limit the beneficial use to intermediate fill below the final cap.

If you should have any questions regarding this petition, please do not hesitate to contact me.

Sincerely,

ARCADIS of New York, Inc.



Raymond M. Kapp
Principal Scientist

Copies:
J. White, NYSDEC
J. Hartnett, General Motors LLC
L. Ketcham, ARCADIS

Table 1
Former General Motors Assembly Plant Site
BCP Site #C360070, Sleepy Hollow, NY
Petition for Beneficial Use Determination for Dredged Sediments

Summary of Bulk Sediment Chemistry Results for Samples Collected from Proposed Dredge Area

Sample ID:		**SED10A**	**SED10B**	**SED10C**	**T07A**	**T07B**	**T07C**	**T07D**	**T07E**	**T07F**	**T07G**	**T07H**
Sample Depth (ft):		**0-0.17**	**0.17-0.5**	**0.5-1.0**	**0-0.17**	**0-0.17**	**0-0.17**	**0-0.17**	**0-0.17**	**0-0.17**	**0-0.17**	**0-0.17**
Date Collected:	**Units**	**7/8/04**	**7/8/04**	**7/8/04**	**7/15/97**	**7/15/97**	**7/15/97**	**7/15/97**	**7/15/97**	**7/15/97**	**7/15/97**	**7/15/97**
Antimony	mg/kg	34.3 J	48.4	21.3	10.3 NJ	1.98 UNJ	2.77 UNJ	3.05 UNJ	2.14 UNJ	1.66 UNJ	1.69 UNJ	2.14 UNJ
Arsenic	mg/kg	6.4	10.2	9.6	17.7 *NJ	7.3	9.0	9.4	8.4	6.3	11.2	8.6
Barium	mg/kg	7880.0	8000.0	6620.0	830 *NJ	477.0	93.1	64.0	170.0	42.4	46.1	45.7
Cadmium	mg/kg	0.29 J	1.2 J	0.5 J	4.03 *NJ	2.26	2.62	2.56	2.7	1.5	2.05	2.33
Chromium (Total)	mg/kg	196.0	264.0	141.0	90.7 *NJ	88.9	62.0	59.8	62.7	29.6	45.6	53.6
Copper	mg/kg	65.8	43.2	65.8	146 *	74.5	74.0	65.2	71.5	32.7	77.6	61.3
Lead	mg/kg	1070.0	1470.0	938.0	1010 *	380.0	90.9	72.9	80.1	34.7	67.5	65.4
Manganese	mg/kg	250.0	279.0	462.0	350 *	483.0	978.0	1080.0	630.0	553.0	386.0	419.0
Mercury	mg/kg	0.1	0.3	0.6	0.19 U	0.3	0.7	0.6	0.8	0.4	0.9	0.8
Nickel	mg/kg	31.2	48.3	36.6	34.3 *	23.2	33.2	33.5	31.5	18.1	23.6	28.2
Zinc	mg/kg	2170.0	2300.0	901.0	374.0	257.0	216.0	184.0	187.0	93.7	146.0	148.0
Total PAH	mg/kg	3.56 J	14.74J	8.48J	--	--	--	--	--	--	--	--
Total PCB	mg/kg	1.0	2.7	4.8	--	--	--	--	--	--	--	--

Table 1
Former General Motors Assembly Plant Site
BCP Site #C360070, Sleepy Hollow, NY
Petition for Beneficial Use Determination for Dredged Sediments

Summary of Bulk Sediment Chemistry Results for Samples Collected from Proposed Dredge Area

Sample ID:		**SED126**	**SED126**	**SED140**	**SED141**	**SED141**	**SED141**	**SED141**	**SED142**	**SED142**	**SED142-DUP**	**SED142**
Sample Depth (ft):		**0 - 0.5**	**0 - 1**	**0 - 1.5**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**0 - 2**	**2 - 4**	**2 - 4**	**4 - 6**
Date Collected:	**Units**	**10/4/2006**	**10/11/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Chromium (Total)	mg/kg	148.0	257.0	437 J	147 J	298 J	145 J	27.4 J	59.7	63.6	74.0	91.4
Copper	mg/kg	111.0	124 J	72.0	73.6	77.3	40.4	19.9	64.4	66.2	74.5	41.6
Lead	mg/kg	1520.0	1530 J	8420.0	588.0	738.0	178.0	20.6	81.3	79.5	97.7	233.0
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	0.3	0.7	0.4	0.8	0.7	0.3	0.1	0.6	0.6	0.8	0.4
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	1260.0	3030 J	3080 J	806 J	1220 J	574 J	74.8 J	192.0	223.0	208.0	538.0
Total PAH	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Total PCB	mg/kg	--	--	--	--	--	--	--	--	--	--	--

Table 1
Former General Motors Assembly Plant Site
BCP Site #C360070, Sleepy Hollow, NY
Petition for Beneficial Use Determination for Dredged Sediments

Summary of Bulk Sediment Chemistry Results for Samples Collected from Proposed Dredge Area

Sample ID:		**SED142**	**SED143**	**SED143**	**SED144**	**SED144**	**SED144-DUP**	**SED144**	**SED144**	**SED144**	**SED145**	**SED145-DUP**
Sample Depth (ft):		**6 - 6.5**	**0 - 2**	**2 - 4**	**0 - 2**	**2 - 4**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**0 - 2**	**0 - 2**
Date Collected:	**Units**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/5/2006**	**10/5/2006**
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Chromium (Total)	mg/kg	13.2	206 J	18.9 J	769 J	332 J	778.0	1960 J	447 J	10.8	67.3 J	74.3
Copper	mg/kg	9.1	98.2	10.6	94.8	89.3	111.0	159.0	65.6	5.4	70.4	78.0
Lead	mg/kg	6.1	1130.0	24.9	980.0	798.0	1270.0	3280.0	1060.0	5.4 U	91.1	96.2
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	0.04 U	0.3	0.1	1.0	0.8	0.8	1.2	0.8	0.04 U	0.7	0.7
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	40.5	1060 J	55.7 J	2220 J	2470 J	4230.0	14500 J	3380 J	33.1	200 J	216.0
Total PAH	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Total PCB	mg/kg	--	--	--	--	--	--	--	--	--	--	--

Table 1
Former General Motors Assembly Plant Site
BCP Site #C360070, Sleepy Hollow, NY
Petition for Beneficial Use Determination for Dredged Sediments

Summary of Bulk Sediment Chemistry Results for Samples Collected from Proposed Dredge Area

Sample ID:		**SED145**	**SED145**	**SED145**	**SED146**	**SED146**	**SED149**	**SED149-DUP**	**SED149**	**SED149**	**SED149**	**SED151**
Sample Depth (ft):		**2 - 4**	**4 - 6**	**6 - 6.5**	**0 - 2**	**2 - 2.3**	**0 - 2**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**0 - 2**
Date Collected:	**Units**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/5/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Chromium (Total)	mg/kg	101 J	350 J	724.0	215 J	197 J	95.1	76.0	115.0	437.0	511.0	57.5
Copper	mg/kg	83.6	91.5	177.0	76.9	76.4	72.3	73.1	86.7	114.0	56.1	61.1
Lead	mg/kg	216 J	800.0	1200.0	927.0	494.0	132.0	115.0	334.0	1350.0	1120.0	74.3
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	1.0	1.3	2.4	0.8	0.9	0.7	0.7	0.9	1.0	1.4	0.6
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	407.0	1450 J	3300.0	1200 J	975 J	288.0	238.0	1170.0	3710.0	4440.0	191.0
Total PAH	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Total PCB	mg/kg	--	--	--	--	--	--	--	--	--	--	--

Table 1
Former General Motors Assembly Plant Site
BCP Site #C360070, Sleepy Hollow, NY
Petition for Beneficial Use Determination for Dredged Sediments

Summary of Bulk Sediment Chemistry Results for Samples Collected from Proposed Dredge Area

Sample ID:		**SED151**	**SED151**	**SED151**	**SED152**	**SED152**	**SED152**	**SED152**	**SED153**	**SED153**	**SED153**	**SED153**
Sample Depth (ft):		**2 - 4**	**4 - 6**	**6 - 8.25**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**
Date Collected:	**Units**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Chromium (Total)	mg/kg	91.0	261.0	468.0	756 J	33.4 J	13.3 J	14.2 J	65.8	82.8	149.0	396.0
Copper	mg/kg	80.5	114.0	162.0	111.0	21.5	5.7	8.1	67.7	97.5	122.0	120.0
Lead	mg/kg	149.0	524.0	1110.0	2680.0	144.0	5.6 U	6.6	92.1	108.0	235.0	2150.0
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	1.0	1.5	2.3	1.2	0.6	0.04 U	0.04 U	0.7	1.0	1.6	1.5
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	270.0	1140.0	4270.0	5910 J	185 J	31.2 J	43.2 J	204.0	216.0	469.0	1870.0
Total PAH	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Total PCB	mg/kg	--	--	--	--	--	--	--	--	--	--	--

Table 1
Former General Motors Assembly Plant Site
BCP Site #C360070, Sleepy Hollow, NY
Petition for Beneficial Use Determination for Dredged Sediments

Summary of Bulk Sediment Chemistry Results for Samples Collected from Proposed Dredge Area

Sample ID:		**SED153**	**SED154**	**SED154**	**SED155**	**SED155**	**SED155**	**SED155**
Sample Depth (ft):		**8 - 8.5**	**0 - 2**	**2 - 4**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**
Date Collected:	**Units**	**10/6/2006**	**10/5/2006**	**10/5/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**	**10/6/2006**
Antimony	mg/kg	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--
Chromium (Total)	mg/kg	362.0	160 J	281 J	72.3	196.0	66.5	99.3
Copper	mg/kg	102.0	160.0	158.0	75.7	139.0	71.4	117.0
Lead	mg/kg	843.0	269.0	729.0	111.0	317.0	102.0	245.0
Manganese	mg/kg	--	--	--	--	--	--	--
Mercury	mg/kg	1.1	0.9	2.0	0.7	3.5	1.8	3.5
Nickel	mg/kg	--	--	--	--	--	--	--
Zinc	mg/kg	1900.0	470 J	1240 J	379.0	895.0	190.0	392.0
Total PAH	mg/kg	--	--	--	--	--	--	--
Total PCB	mg/kg	--	--	--	--	--	--	--

Table 2
Former General Motors Assembly Plant Site
BCP Site # C360070, Sleepy Hollow, NY
Petition for Beneficial Use Determination for Dredged Sediments

Comparison of Constituents in Proposed Dredge Materials to Existing Fill and SCOs

Constituents		Sediment from Proposed Dredge Area								On-Site Historic Fill and Approved Fill		Comparison	Soil Cleanup Objectives		
Sample Depths		**Shallow 0-2 ft**	**Shallow 0-2 ft**	**Shallow 0-2 ft**	**Deep > 2ft**	**Deep > 2ft**	**Deep > 2ft**	**Average All Depths Combined**	**Volume Weighted Average [1]**	**Onsite Historic Fill West Parcel (All Depths) [2]**	**Onsite Approved Intermediate Fill - Concrete Millings [3]**	**Sediment Averages Within Historic or Approved Fill Ranges (Yes/No)**	**Part 375 Restricted Residential SCOs [6]**	**Part 375 Commercial SCOs**	**Part 375 Industrial SCOs**
	Units	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Avg**	**Avg**	**Range**	**Range**				
Antimony	mg/kg	48	2	20	--	--	--	**20**	NA	1.3 - 230	2 - 64.9	Yes	NA	NA	NA
Arsenic	mg/kg	18	6	10	--	--	--	**10**	NA	0.66 - 39	4.1 - 11.9	Yes	16	16	16
Barium	mg/kg	8000	93	3983	--	--	--	**3983**	NA	7.6 - 10000	96.2 - 1220	Yes	400	400	10000
Cadmium	mg/kg	4	0.3	2	--	--	--	**2**	NA	0.09 - 25.4	1.1 - 7.6	Yes	4.3	9.3	60
Chromium (Total)	mg/kg	769	58	196	1960	11	271	241	**345**	5.7 - 552	15.3 - 71.7	Yes	180	1500	6800
Copper	mg/kg	160	43	85	177	5.4	82	83	**114**	3.7 - 640	22.7 - 133	Yes	270	270	10000
Lead	mg/kg	8420	74	1035	3280	5.4	587	768	**975**	1.9 - 5000 [4]	99.2 - 1900	Yes	400	1000	3900
Manganese	mg/kg	978	250	467	0	0	--	**467**	NA	29.6 - 1120	236 - 696	Yes	2000	10000	10000
Mercury	mg/kg	1.2	0.1	0.6	3.5	0.04	1.1	0.9	**1.3**	0.02 - 3.7	0.03 - 0.51	Yes	0.81	2.8	5.7
Nickel	mg/kg	48	23	34	--	--	--	**34**	NA	6.5 - 259	10.2 - 39.3	Yes	310	310	10000
Zinc	mg/kg	5910	191	1181	14500	31	1650	1461	**2025**	12.3 - 4990	148 - 1460	Yes	10000	10000	10000
Total PAH	mg/kg	15	3.6	8.9	--	--	--	**8.9**	NA	0.012 - 1853 [5]	63.9 - 373.1 [5]	Yes	100	500	1000
Total PCB	mg/kg	4.8	1.0	2.8	--	--	--	**2.8**	NA	0.07 - 0.7	0.39 - 4.4	Yes	10 [7]	10 [7]	25

Notes:
1. Volume weighted averages were calculated where data were available throughout the full depth of sediment dredging.
2. Source: Remedial Investigation Report (ARACDIS 2012)Range excludes data for contaminated soil and fill removed during IRMs.
3. Concrete millings derived demolished on-site slabs were approved as intermediate fill per BUD # 894-3-60.
4. Historic fill was remediated to a maximum of 5,000 ppm lead above water table and 10,000 ppm
5. The onsite "Total PAH" range listed includes only total carcinogenic PAHs (C-PAHs).
6. Where the final cover system is comprised of vegetated soil, the top 2-feet of cover must meet Part 375 restricted residential SCOs.
7. Commissioner Policy-51 (CP-51) Soil Cleanup Guidance allows for a maximum of 10 ppm PCBs in subsurface soil (beneath cover system) on BCP sites designated for restricted residential use.

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau E, 12th Floor
625 Broadway, Albany, New York 12233-7017
Phone: (518) 402-9814 • **Fax:** (518) 402-9819
Website: www.dec.ny.gov

Joe Martens
Commissioner

July 24, 2012

Mr. James F. Hartnett
General Motors, LLC
1 General Motors Drive
Syracuse, New York 13206-1127

RE: Former General Motors North Tarrytown Site
Site ID No. C360070
Village of Sleepy Hollow, Westchester County
Beneficial Use Determination for Site Sediments

Dear Mr. Hartnett:

The New York State Department of Environmental Conservation (Department) has reviewed the June 26, 2012 *Petition for Beneficial Use Determination for Site Sediments* submitted by ARCADIS on behalf of General Motors LLC (GM) for the Former General Motors North Tarrytown Assembly Plant Site. In accordance with the Department-approved Remedial Work Plan, sediment will be removed from the Hudson River near a stormwater outfall and from the cleaning of storm sewer utilities at the site. It is understood that the petition for beneficial use was submitted to obtain Department approval for on-site reuse of the approximately 5,000 yd^3 of sediment. Specifically, following removal, the sediments will be gravity drained on site and mixed with a stabilizing agent prior to use as intermediate fill on site. The intermediate fill will be placed above the water table and below the final cover system on site. Based on this review, the Department approves of the use of sediments derived from the Hudson River and on-site storm sewers for beneficial use on site as intermediate fill material subject to the conditions summarized below.

1) Only materials dredged from the Hudson River area identified on "Figure 3: Conceptual Illustration of Selected Remedial Alternative" and from on-site storm drains, as discussed in the petition, may be used under this BUD. Dredged materials must be non-hazardous as defined in 6 NYCRR Part 371 and 40 CFR Section 26, and must be acceptable for importation to the site as intermediate (non-surficial) fill under provisions of the DER Decision Document for this site. All dredged materials must be placed within site areas covered by institutional controls for the Brownfield cleanup site.

2) Following stabilization and prior to use as intermediate fill, the material will be sampled for metals using the toxicity characteristic leaching procedure (TCLP) in accordance with a Department-approved work plan.

3) The petition states that portland cement "or [an] equivalent binding agent" will be used to stabilize (i.e., physically strengthen) dredged materials for use as fill on the site. If other

binding agents that are considered solid waste, e.g., coal fly ash or cement kiln dust, are proposed for use in place of portland cement, these will need to be reviewed and if acceptable, included in this BUD.

4) Stabilized dredged materials must meet engineering criteria for intermediate fill. Deleterious content must be screened or otherwise removed from the dredged materials and disposed off site. Any raw or stabilized dredged material not deemed usable as fill on the Former North Tarrytown Assembly Plant Brownfield site must be disposed off site in accordance with applicable requirements of 6 NYCRR Part 360 or Part 370 Series.

5) On completion of the remedial project, GM must submit a report of the total quantity of dredged materials used under this BUD. This report should be submitted to the DER project manager and also to:

Sally Rowland, Ph.D., P.E.
Bureau of Waste Reduction & Recycling
Division of Materials Management
NYSDEC
625 Broadway, 9th Floor
Albany, NY 12233-7253

6) The Department reserves the right to rescind or modify this BUD at any time, if it finds pursuant to 6 NYCRR 360-1.15(d)(4), that any matter serving as the basis for this BUD is incorrect or no longer valid, or the Department finds there has been a violation of the conditions of this BUD.

7) This determination does not exempt General Motors, LLC, from other local, state or federal requirements.

Please do not hesitate to contact me at (518) 402-9814 or jmpelton@gw.dec.state.ny.us with any questions or comments.

Sincerely,

Jason M. Pelton

Jason Pelton
Project Manager
Remedial Section C, Remedial Bureau E
Division of Environmental Remediation

ec: M. Cruden, NYSDEC
A.J. White, NYSDEC
K. Prather, NYSDEC
R. Kapp, ARCADIS

ARCADIS

Appendix G

Allowable Constituent Levels
for Imported Fill or Soil

Appendix G
Allowable Constituent Levels for Imported Fill or Soil From DER-10 Appendix 5

Site Management Plan
General Motors LLC
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Metals					
Arsenic	13	16	16	16	13
Barium	350	350	400	400	433
Beryllium	7.2	14	47	47	10
Cadmium	2.5	2.5	4.3	7.5	4
Chromium, Hexavalent[1]	1[3]	19	19	19	1[3]
Chromium, Trivalent[1]	30	36	180	1500	41
Copper	50	270	270	270	50
Cyanide	27	27	27	27	NS
Lead	63	400	400	450	63
Manganese	1600	2000	2000	2000	1600
Mercury (total)	0.18	0.73	0.73	0.73	0.18
Nickel	30	130	130	130	30
Selenium	3.9	4	4	4	3.9
Silver	2	8.3	8.3	8.3	2
Zinc	109	2200	2480	2480	109
PCBs/Pesticides					
2,4,5-TP Acid (Silvex)	3.8	3.8	3.8	3.8	NS
4,4'-DDE	0.0033[3]	1.8	8.9	17	0.0033[3]
4,4'-DDT	0.0033[3]	1.7	7.9	47	0.0033[3]
4,4'-DDD	0.0033[3]	2.6	13	14	0.0033[3]
Aldrin	0.005	0.019	0.097	0.19	0.14
Alpha-BHC	0.02	0.02	0.02	0.02	0.04[4]
Beta-BHC	0.036	0.072	0.09	0.09	0.6
Chlordane (alpha)	0.094	0.91	2.9	2.9	1.3
Delta-BHC	0.04	0.25	0.25	0.25	0.04[4]
Dibenzofuran	7	14	59	210	NS
Dieldrin	0.005	0.039	0.1	0.1	0.006
Endosulfan I	2.4[2]	4.8	24	102	NS
Endosulfan II	2.4[2]	4.8	24	102	NS
Endosulfan sulfate	2.4[2]	4.8	24	200	NS
Endrin	0.014	0.06	0.06	0.06	0.014
Heptachlor	0.042	0.38	0.38	0.38	0.14
Lindane	0.1	0.1	0.1	0.1	6
Polychlorinated biphenyls	0.1	1	1	1	1

Appendix G
Allowable Constituent Levels for Imported Fill or Soil From DER-10 Appendix 5

Site Management Plan
General Motors LLC
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Semi-volatile Organic Compounds					
Acenaphthene	20	98	98	98	20
Acenaphthylene	100	100	100	107	NS
Anthracene	100	100	100	500	NS
Benzo(a)anthracene	1	1	1	1	NS
Benzo(a)pyrene	1	1	1	1	2.6
Benzo(b)fluoranthene	1	1	1	1.7	NS
Benzo(g,h,i)perylene	100	100	100	500	NS
Benzo(k)fluoranthene	0.8	1	1.7	1.7	NS
Chrysene	1	1	1	1	NS
Dibenz(a,h)anthracene	0.33[3]	0.33[3]	0.33[3]	0.56	NS
Fluoranthene	100	100	100	500	NS
Fluorene	30	100	100	386	30
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	5.6	NS
m-Cresol(s)	0.33[3]	0.33[3]	0.33[3]	0.33[3]	NS
Naphthalene	12	12	12	12	NS
o-Cresol(s)	0.33[3]	0.33[3]	0.33[3]	0.33[3]	NS
p-Cresol(s)	0.33	0.33	0.33	0.33	NS
Pentachlorophenol	0.8[3]	0.8[3]	0.8[3]	0.8[3]	0.8[3]
Phenanthrene	100	100	100	500	NS
Phenol	0.33[3]	0.33[3]	0.33[3]	0.33[3]	30
Pyrene	100	100	100	500	NS
Volatile Organic Compounds					
1,1,1-Trichloroethane	0.68	0.68	0.68	0.68	NS
1,1-Dichloroethane	0.27	0.27	0.27	0.27	NS
1,1-Dichloroethene	0.33	0.33	0.33	0.33	NS
1,2-Dichlorobenzene	1.1	1.1	1.1	1.1	NS
1,2-Dichloroethane	0.02	0.02	0.02	0.02	10
1,2-Dichloroethene(cis)	0.25	0.25	0.25	0.25	NS
1,2-Dichloroethene(trans)	0.19	0.19	0.19	0.19	NS
1,3-Dichlorobenzene	2.4	2.4	2.4	2.4	NS
1,4-Dichlorobenzene	1.8	1.8	1.8	1.8	20
1,4-Dioxane	0.1[3]	0.1[3]	0.1[3]	0.1[3]	0.1
Acetone	0.05	0.05	0.05	0.05	2.2
Benzene	0.06	0.06	0.06	0.06	70
Butylbenzene	12	12	12	12	NS
Carbon tetrachloride	0.76	0.76	0.76	0.76	NS

Appendix G
Allowable Constituent Levels for Imported Fill or Soil From DER-10 Appendix 5

Site Management Plan
General Motors LLC
Former General Motors Assembly Plant West Parcel Site, Sleepy Hollow, NY

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Chlorobenzene	1.1	1.1	1.1	1.1	40
Chloroform	0.37	0.37	0.37	0.37	12
Ethylbenzene	1	1	1	1	NS
Hexachlorobenzene	0.33[3]	0.33[3]	1.2	3.2	NS
Methyl ethyl ketone	0.12	0.12	0.12	0.12	100
Methyl tert-butyl ether	0.93	0.93	0.93	0.93	NS
Methylene chloride	0.05	0.05	0.05	0.05	12
Propylbenzene-n	3.9	3.9	3.9	3.9	NS
Sec-Butylbenzene	11	11	11	11	NS
Tert-Butylbenzene	5.9	5.9	5.9	5.9	NS
Tetrachloroethene	1.3	1.3	1.3	1.3	2
Toluene	0.7	0.7	0.7	0.7	36
Trichloroethene	0.47	0.47	0.47	0.47	2
Trimethylbenzene-1,2,4	3.6	3.6	3.6	3.6	NS
Trimethylbenzene-1,3,5	8.4	8.4	8.4	8.4	NS
Vinyl chloride	0.02	0.02	0.02	0.02	NS
Xylene (mixed)	0.26	1.6	1.6	1.6	0.26

Source: This table is derived from soil cleanup objective (SCO) tables in 6 NYCRR 375. Table 375-6.8(a) is the source for unrestricted use and Table 375.6.8(b) is the source for restricted use. Restricted Residential Use values represent the lower of restricted residential SCOs or protection of groundwater SCOs.

Shaded values do not apply to the Site.

All concentrations are in parts per million (ppm).

NS - Not Specified

Footnotes:

[1]The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analusis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

[2]The SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[3]For constituents where the calcalated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

[4]This SCO is derived from data on mixed isomers of BHC.

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Appendix H

Health and Safety Plan

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Appendix I

Community Air Monitoring Plan

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Appendix J

Monitoring Well Boring and Construction Logs

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Imagine the result

General Motors LLC

Appendix K

Field Sampling Plan

Former General Motors Assembly Plant
West Parcel Site
Sleepy Hollow, New York

December 2013

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Appendix L

Site-wide Inspection Form

ANNUAL SITE-WIDE INSPECTION CHECKLIST
FORMER GENERAL MOTORS ASSEMBLY PLANT WEST PARCEL SITE

DOCUMENT REVIEW

Conducted By: _____
Representing: _____ Review Start Date: _____

1. ☐ Check here to confirm that the Environmental Easement (EE) has been reviewed.

2. ☐ Check here to confirm that the Plan of Restricted Area (as revised if appropriate) has been reviewed.

3. ☐ Check here to confirm that the description of this property in the Final Engineering Report and the as-built survey drawings covering this property included in the Final Engineering Report (and any alternative plan proposed for the comparison described in Item 8 on next page) have been reviewed.

4. Are there any recorded amendments to or releases from the EE, and/or any known conditional exceptions under the EE and of which the reviewing party has a copy, and/or any other documents in the Owner's possession relevant to the EE or the use of the property?
   ☐ No
   ☐ Yes – If yes, review those items for background information purposes and list them below (along with the book and page reference in the Registry of Deeds where applicable). (Note that the document reviewer has no obligation to verify the accuracy or completeness of any of these documents, either as of the time they were prepared or as compared to the current conditions.)

   _____
   _____
   _____
   _____
   _____

5. Review Completed Date: _____

VISUAL ON-SITE INSPECTION

Conducted By: _____
Representing _____ Inspection Start Date: _____

1. Weather

   _____

2. List other individuals and their company/agency that were present during the visual on-site inspection.

   _____
   _____
   _____

3. Is there any visual evidence of activities and uses of the property since the last inspection that are potentially contrary to the restrictions of the EE?
   ☐ No
   ☐ Yes - If yes, describe below.

   _____
   _____
   _____
   _____

4. Is there any visual evidence of utility work or building construction, modification, addition, or demolition at the property since the last inspection?
   ☐ No
   ☐ Yes - If yes, describe below and show the location(s) of such activity on a plan.

   _____
   _____
   _____
   _____

ANNUAL SITE-WIDE INSPECTION CHECKLIST
FORMER GENERAL MOTORS ASSEMBLY PLANT WEST PARCEL SITE

5. Is there any visual evidence of soil excavation at the property that generated more than 10 cubic yards of soil since the last inspection?
   - ☐ No
   - ☐ Yes - If yes, describe below and show the location(s) of such activity on a plan.

6. Is there any visual evidence of significant soil erosion at the property since the last inspection, specifically in the soil cover or clean fill areas and/or the riverbank area?
   - ☐ No
   - ☐ Yes - If yes, describe below and show the location(s) of such erosion on a plan.

7. Is there any visual evidence of significant pavement construction, disturbance, or excavations at the property since the last inspection?
   - ☐ No
   - ☐ Yes - If yes, describe below and show the location(s) of such activity on a plan.

8. Is there any visual evidence of significant distrubance to or movement of the riprap installed in the Riverbank Area?
   - ☐ No
   - ☐ Yes - If yes, describe below and show the location(s) of such activity on a plan.

10. If any of the conditions listed in the response to Questions 4 through 9 appears likely to have significantly altered the surface grade of the property compared to the surface grade shown on the as-built drawings included in the Final Engineering Report (or an alternative, more recent plan proposed by the Owner), identify the approximate area/location(s) of such grade change on a plan and compare the new surface grade in such area(s) to the surface grade shown on the above listed drawing and/or plan. (If the Owner proposes use of an alternative plan for this comparison, include a copy of that plan and describe the rationale for its proposed use.)

11. Inspection Completed: _____

**If necessary, attached additional pages for descriptions of any items observed related to the above questions.

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Appendix M

Quality Assurance Plan

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Appendix M
Quality Assurance Plan

Former General Motors Assembly Plant
West Parcel Site
Sleepy Hollow, New York

December 2013

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Appendix M
Quality Assurance Plan

Former General Motors Assembly Plant
West Parcel Site
Sleepy Hollow, New York

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Date:
December 2013

ARCADIS

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Tables

Acronyms and Abbreviations

ASP	Analytical Services Protocol
COC	constituent of concern
DQO	data quality objective
EDD	electronic data deliverable
ELAP	Environmental Laboratory Approval Program
FSP	Field Sampling Plan
MS/MSD	matrix spike/matrix spike duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
QAP	Quality Assurance Plan
QA/QC	quality assurance/quality control
Site	Former General Motors Assembly Plant West Parcel Site
SOP	Standard Operating Procedure
USEPA	United States Environmental Protection Agency

1. Introduction

This Quality Assurance Plan (QAP) has been prepared in support of the Site Management Plan (SMP), to support future soil excavation or other intrusive activities at the Former General Motors Assembly Plant, West Parcel Site in Sleepy Hollow, New York Site (hereinafter referred to as the "Site"). This QAP presents policy, functional activities, and quality assurance/quality control (QA/QC) protocols necessary to achieve data quality objectives (DQOs) dictated by the intended use of the data generated during sampling and analysis.

This QAP summarizes appropriate and applicable QA/QC elements and procedures for sampling activities, including:

- Discussion of project DQOs
- Sample handling, packaging, and documentation procedures
- Field QA/QC procedures
- Laboratory QA/QC procedures
- Data reduction, review, validation, and reporting procedures

The remainder of this section presents a description of the site location and a summary of anticipated site activities.

1.1 Site Description

The Site consists of two lots situated on the eastern shore of the Hudson River. The Site contains approximately 66.67acres of land above the high water mark, generally bounded by Kingsland Point Park to the north; River Street, Horan's Landing Park, Ichabod's Landing and various private and municipal properties to the south; the Metro North Hudson Line rail corridor and Hudson Street to the east; and the Hudson River and Kingsland Point Park to the west. The two on-site lots are bisected by Beekman Avenue.

1.2 Overview of Anticipated Site Activities

Soil excavation and other intrusive activities are anticipated for future Site development. Preparation of the Site for new construction may include the following anticipated activities:

- demolition of existing concrete slabs and foundations
- removal of asphalt cover
- reprocessing and on-site recycling of Site concrete and asphalt materials, including existing stockpiles

- removal of existing foundations, underground utilities and other subsurface obstructions
- installation of new utilities and foundations
- importation of fill materials
- surface grading and filling

Following Site preparation and throughout various stages of Site development and construction, a final cover system for the Site will be established. The final cover system provides a physical exposure barrier that must be restored if the cover is breached to permit additional construction of foundations or utilities, or for the maintenance and repair of utilities within or beneath the cover system. Once the final cover system is constructed, any future activity that disrupts the final cover system and exposes soil or fill materials beneath the cover system will be subject to general and specific requirements of the SMP.

This QAP will be used as a guide for the following sampling activities:

- Sampling Backfill from Off-Site Sources
- Sampling On-Site Materials
- Indoor Air Sampling
- Soil Vapor Intrusion Sampling
- Groundwater Sampling

2. DQOs

The overall QA objective for the site sampling activities is to generate valid and useable data. Project DQOs are identified in this section for the sampling activities so that the procedures for sampling, laboratory analysis and data review and reporting will be of adequate quality and sufficient quantity to form a sound basis for project decision-making.

2.1 DQO Process

The DQO process, as described in the USEPA's QA/G-4 FSP instruction document, is intended to provide a "logical framework" for planning field investigations. The following section addresses, in turn, each of the seven sequential steps in the USEPA QA/G-4 DQO process.

Step 1: State the Problem

Based on the available database for remaining contamination, it may be assumed that existing site materials do not meet criteria for future intended uses of the site unless testing results demonstrate otherwise. Sampling and analysis of site materials to qualify it for future onsite uses as final cover soil or offsite reuse will be performed in accordance with the Field Sampling Plan (Appendix K) for the site. The following sampling events may be required for anticipated site activities:

- Sampling Backfill from Off-Site Sources
- Sampling On-Site Materials
- Indoor Air Sampling
- Soil Vapor Intrusion Sampling
- Groundwater Sampling

Sampling and analysis activities are intended to generate data to supplement the existing site database and to support project decision-making activities at this Site. Criteria for imported backfill, on-site soils/materials, soil vapor/indoor air and groundwater are presented in the SMP.

Step 2: Identify the Goal of the Study

The initial use of the data is descriptive (concentration) and there is no decision point for this descriptive application. Subsequent to review of the descriptive information, an evaluation will be performed based on the data. The decision required in this case is to determine if analyzed constituents of concern (COCs) are present in levels above acceptable standards for the respective sample type.

Step 3: Identify Information Inputs

Information inputs incorporate both the concentration and distribution of COCs in site media. A fundamental basis for decision-making is that a sufficient number of data points of acceptable quality are available to support the project decisions. Thus, the necessary input for the decision is the proportion of non-rejected (usable) data points.

The data will be evaluated for completeness and general conformance with requirements of this QAP and the SMP, and consistency among data sets and with historical data, as appropriate.

Step 4: Define the Boundaries of the Study

The Site boundaries are shown on the figures presented in the SMP.

Step 5: Develop the Analytical Approach

The decision on whether data can be used will be based on the review of laboratory results and results of data review and evaluation (including data validation results if performed). Following review, evaluation, and validation, the data will be flagged, as appropriate, and any use restrictions noted.

Step 6: Specify Performance or Acceptance Criteria

Specifications for this step call for: 1) giving forethought to corrective actions to improve data usability; and 2) understanding the representative nature of the sampling design. This QAP has been designed to meet these specifications. Sampling and analysis activities have been developed based on a review of previous site data and knowledge of present site conditions. Corrective actions are described elsewhere in this QAP.

Step 7: Develop the Plan for Obtaining Data

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting that will provide results to support the evaluation of the site data. Specific procedures for sampling, chain-of-custody, laboratory instrument calibration, laboratory analysis, data reporting, internal QC, preventive maintenance of field equipment, and corrective action are described in other sections of this QAP.

2.2 Project DQOs

DQOs are qualitative and quantitative statements that specify the quality of the data required to support decisions made during site-related activities and are based on the end uses of the data to be collected. As such, different data uses may require different levels of data quality. The three analytical categories listed below address various data uses and the QA/QC effort and methods required to achieve the desired level of quality:

- Screening Data - Screening data affords a quick assessment of work area characteristics or conditions. Screening data is applicable for data collection activities that involve rapid, non-rigorous methods of analysis and QA. Screening data is generally applied to physical and/or chemical properties of samples, relative concentration differences, and preliminary health and safety assessment.

- Screening Data with Definitive Confirmation - Screening data provides rapid identification and quantitation; however, the quantitation may be relatively imprecise. Screening data with definitive confirmation is available for data collection activities that require qualitative and/or quantitative verification of a select portion of sample findings (10% or more). The data can also be used to verify less rigorous laboratory-based methods.

- Definitive Data - Definitive data are generated using rigorous analytical methods, such as approved USEPA reference methods, which produce tangible raw data (e.g., chromatograms, spectra, digital values) in the form of paper printouts or computer-generated electronic files. Data are analyte-specific, with confirmation of analyte identity and concentration.

It is anticipated that both the screening and definitive data categories will be used during anticipated site activities. For sampling activities, three levels of data reporting are available:

- Level 1 - Minimal Reporting - Minimal or “results only” reporting is used for analyses that, either due to their nature (e.g., field monitoring) or the intended data use (e.g., preliminary screening), do not generate or require extensive supporting documentation.

- Level 2 - Modified Reporting - Modified reporting is used for analyses performed following standard USEPA/NYSDEC-approved methods and QA/QC protocols and that, based on the intended data use, require some QC supporting documentation (but not, however, full ASP Category B reporting).

- Level 3 - Full Reporting - Full ASP Category B reporting is used for analyses that, based on the intended data use, require full documentation including back up, for review.

ARCADIS The table below summarizes stated DQOs for each sampling activity, relative to data uses, data reporting level, and data quantity.

Table M-1 – Summary of Sampling Data Quality Objectives

Sampling Activity	Data Use	Data Reporting Level
Sampling Backfill from Off-Site Sources	Determine if imported backfill meets criteria for on-site application.	Level 2
Sampling On-Site Material for Reuse	Determine if on-site materials meets criteria for on-site reuse of excavated materials as presented in the SMP and Excavation Work Plan (Appendix A).	Level 2
Sampling On-Site Material for Disposal	Characterize on-site materials for off-site disposal. Specific analytical parameters will be based on the requirements of the selected disposal facility(ies).	Level 2
Groundwater Sampling	Evaluate effectiveness of previously completed IRMs and final cover system in mitigating degradation of groundwater quality at the property boundary. Evaluate continued effectiveness of natural attenuation of petroleum constituents during and following installation of final cover system.	Level 2
Soil Vapor Intrusion Sampling	Determine whether mitigation measures are necessary to eliminate exposure to vapors in enclosed structures located over areas that contain remaining contamination, where the potential for SVI has been identified.	Level 2
Indoor Air Sampling	Determine whether mitigation measures are necessary to eliminate exposure to vapors in enclosed structures located over areas that contain remaining contamination, where the potential for SVI has been identified.	Level 2

3. Sample Handling, Packaging, and Shipping

This section describes handling, packaging, and shipping procedures for soil, water, and air samples subject to laboratory analyses. The FSP (Appendix K) presents the analytical parameters and methods, requirements for sample containers, sample preservation, and holding time.

3.1 Sample Containers and Preservation

Appropriate sample containers and preservation methods for soil/sediment, air, and water samples will be in accordance with the most recent ASP requirements (NYSDEC 2005), unless otherwise noted. All sample containers will meet the guidelines specified in Specification and Guidance for Obtaining Contaminant-Free Sample Containers (USEPA 540/R-93/051) and Office of Solid Waste and Emergency Response Directive 9240.0-05A (USEPA 1992). The New York State Department of Health (NYSDOH) ELAP-certified laboratory will supply appropriate sample containers in sealed cartons, as well as sample labels and preservatives.

3.2 Sample Labeling

The field personnel will be responsible for properly labeling containers. Sample labeling procedures are described in the Standard Operating Procedures for Packing, Handling, and Shipping Environmental Samples, which is included in the FSP (Appendix K, Attachment K-1).

3.3 Sample Packaging

Sample custody seals and packing materials for filled sample containers will be provided by the NYSDOH ELAP-certified laboratory. The filled, labeled, and sealed containers will be placed in a cooler, on ice, and carefully packed to minimize the possibility of container breakage. Procedures for packaging samples for transport are presented below:

1. Using duct tape, secure the outside and inside of the drain plug at the bottom of the cooler that is used for sample transport.

2. Wrap bottles in bubble wrap or other cushioning material.

3. Place 1 or 2 inches of cushioning material at the bottom of the cooler.

4. Place the sealed sample containers in the cooler.

5. Repackage ice in sealed plastic bags (ice will be double-bagged) and place loosely in the cooler.

6. Fill the remaining space in the cooler with cushioning material.

7. Place chain-of-custody forms in a sealed plastic bag, and tape the forms to the inside of the cooler lid.

8. Close the lid of the cooler and fasten with duct tape.

9. Wrap strapping tape around both ends of the cooler at least twice.

10. Mark the cooler on the outside with the following information: shipping address and return address. Cover the labels with clear plastic tape. Place two signed custody seal labels on the cooler, one each over the front and back of the cooler lid, to be evidence that the lid was not opened during shipment.

3.4 Sample Shipping

The packaged samples will be shipped via either express overnight carrier or courier (or hand-delivered by sampling personnel) to the laboratory within 48 hours of sample collection. Additional information regarding sample shipping for environmental samples is included in the Standard Operating Procedures for Packing, Handling, and Shipping Environmental Samples included in the FSP (Appendix K, Attachment K-1)

3.5 Sample Documentation

Field personnel will provide comprehensive documentation covering all aspects of field sampling and chain-of-custody. This documentation will constitute a record that will allow for the reconstruction of sampling events described in the FSP (Appendix K) to aid in the data review and interpretation process. All documents, records, and information relating to performance of the sampling events described in the FSP (Appendix K) will be retained in the project file onsite until project completion.

Daily documentation of sampling activities (when conducted) will be recorded in a field notebook (i.e., a waterproof, bound notebook) that will contain a record of sampling activities performed at the work area. Applicable notes will be made in the field notebook as to the location of sample collection, physical observations, sample depths, and weather conditions. Field personnel performing sampling activities will also document the activities and conditions using photos taken with a digital camera. A videotape recorder may also be used as necessary.

Chain-of-custody forms will provide the record of responsibility for sample collection, transport, and submittal to the laboratory. Chain-of-custody forms will be filled out at each sampling location, at a group of sampling locations, or at the end of each day of sampling by one of the field personnel designated to be responsible for sample custody. In the event that the samples are relinquished by the designated sampling person to other sampling or field personnel, the chain-of-custody form will be signed and dated by the appropriate personnel to document the sample transfer. The original chain-of-custody form will accompany the samples to the laboratory and copies will be forwarded to the project files. Persons will have custody of samples when the samples are in their physical possession, in their view after being in their possession, or in their physical possession and secured so they cannot be tampered with. In addition, when samples are secured in a restricted area accessible only to authorized personnel, they will be deemed to be in the custody of such authorized personnel.

4. Field QA/QC

This section summarizes the QA/QC requirements for field sampling activities associated with soil, groundwater, soil gas or air sampling.

4.1 Field Instrument Calibration and Preventive Maintenance

Field personnel will be responsible for maintaining a master calibration/maintenance log, following procedures specified in this QAP, for each measuring device. Each log will include at a minimum, where applicable:

- Name of device and/or instrument calibrated
- Device/instrument serial/ID number
- Device/instrument owner/supplier
- Frequency of calibration
- Date(s) of calibration(s)
- Results of calibration(s)
- Name of person(s) performing calibration(s)
- Identification of calibration gas (as applicable)
- Buffer solutions (pH meter only) and/or other solutions that may be used for measuring field parameters

Equipment to be used each day will be calibrated before beginning the day's activities or as suggested by the manufacturer. Health and safety monitoring equipment will be calibrated and maintained in accordance with the manufacturer's specifications.

In the event that an internally calibrated field instrument fails to meet calibration/ checkout procedures, it will be returned to the manufacturer for service. Equipment found to be out of tolerance during the period of use will be removed from the field.

All equipment that requires charging or batteries will be fully charged and have fresh batteries. Appropriate spare parts will be made available for field meters, as practicable.

4.2 Field QA/QC Samples

Field QC checks, including QC checks for field measurements, sample containers, field duplicates, and rinse blanks, are discussed below.

4.2.1 Sample Containers

New, certified-clean sample containers for soil, water, and air samples to be analyzed during the field sampling activities will be supplied by the analytical laboratory as described above.

4.2.2 Field Duplicates

Field duplicates will be collected to verify the reproducibility of the sampling methods. Field duplicates will be prepared by placing well-homogenized aliquots from the same sample location into individual sample containers, which are submitted blind to the laboratory. In general, field duplicates will be analyzed at a 5% frequency (every 20 samples) for each analytical parameter and sample matrix.

4.2.3 Rinse Blanks

Rinse blanks are used to monitor the cleanliness of re-usable sampling equipment and the effectiveness of the sampling device decontamination procedures. Rinse blanks will be prepared and submitted for analysis once for every 20 samples collected (or once per SDG if less than 20 samples in the SDG) with each pre-cleaned sampling device. Rinse blanks will be prepared by filling sample containers with analyte-free water (supplied by the laboratory) that has been routed through a cleaned sampling device. When dedicated sampling devices are used, or sample containers are used to collect the samples, rinse blanks will not be necessary.

4.2.4 Trip Blanks

For volatile organic compound (VOC) analysis, trip blanks will be prepared at a frequency of one per cooler containing samples for VOC analyses. Trip blanks are applied in sample validation to determine if cross-contamination has occurred between samples during shipment.

4.2.5 MS/MSD

As appropriate, triple sample volumes will be collected from select sample locations for each matrix to perform matrix spike/matrix spike duplicate (MS/MSD) analyses. MS/MSD samples will be collected at frequency of one per 20 samples.

5. Laboratory QA/QC

This section summarizes the QA/QC requirements for laboratory analytical activities associated with sampling activities. Laboratory QC procedures will be conducted in a manner consistent with relevant regulatory guidance. The laboratory will have current NYSDOH ELAP certification.

5.1 Laboratory Analytical Procedures

The FSP (Appendix K) summarizes the laboratory analytical requirements, and provides specifics related to each sample medium to be analyzed and methods to be used for this project. Methods specified in the most current ASP (NYSDEC 2005) will be used, where applicable.

Results from the analysis of soil or sediment samples will be reported as dry weight. The QC limits for samples with Level 3 reporting are presented in the most recent version of the ASP (NYSDEC 2005).

5.2 Laboratory QC

Internal laboratory QC checks will be used to monitor data integrity. These checks will include method blanks, MSs/MSDs, surrogate spikes, calibration standards, and laboratory control samples (LCS). One method blank will be analyzed with each analytical series associated with no more than 20 samples. MS/MSD pairs will be analyzed at a 5% frequency (every 20 samples). MS blanks will be analyzed at a frequency of one blank associated with no more than 20 samples. Surrogate spike compounds will be selected using the guidance provided in the analytical methods summarized in the FSP (Appendix K).

Instrument calibration procedures will follow the specifications provided by the instrument manufacturer or specific analytical method used. Instrument calibration procedures for all parameters will be as specified in the most recent ASP (NYSDEC 2005) or in the analytical method. Laboratory control charts will be used to determine long-term instrument trends.

6. Data Reduction, Reporting, and Review

After field and laboratory data are obtained, the data will be subject to the following activities:

- Reduction or manipulation mathematically or otherwise into meaningful and useful forms
- Review
- Organization, interpretation, and reporting
- Validation/data usability assessment (if necessary based on preliminary data review)

6.1 Field Data Reduction, Review, and Reporting

The reduction, review, and reporting of data collected in the field is discussed below.

6.1.1 Field Data Reduction/Review

Information collected in the field through visual observation, manual measurement, and/or field instrumentation will be recorded in field notebooks, data sheets, and/or on forms. Such data will be reviewed for adherence to this QAP and the FSP (Appendix K) and for consistency. Concerns identified as a result of this review will be discussed with field personnel, corrected if possible, and (as necessary) incorporated into the data evaluation process.

Field data calculations, transfers, and interpretations for data collected and conducted by the appropriate personnel and reviewed for accuracy by an appropriate project designee. All logs and documents will be checked for:

- General completeness
- Readability
- Use of appropriate procedures
- Appropriate instrument calibration and maintenance
- Reasonableness in comparison to present and past data collected
- Correct sample locations
- Correct calculations and interpretations

6.1.2 Field Data Reporting

Where appropriate, field data forms will be processed and included in appropriate reports. The original field logs, documents, and data reductions will be kept in the project file at the Site.

6.2 Laboratory Data Reduction, Review, and Reporting

The laboratory reduction, review, and reporting of analytical data are discussed below.

6.2.1 Laboratory Data Reduction/Review

The calculations used for data reduction are specified in each of the analytical methods previously referenced. Whenever possible, analytical data are transferred directly from the instrument to a computerized data system. Raw data are entered into permanently bound laboratory notebooks. The data entered are sufficient to document all factors used to arrive at the reported value.

Concentration calculations for chromatographic analyses are based on response factors. Quantitation is performed using either internal or external standards.

Inorganic analyses are based on regression analysis. Regression analysis is used to fit a curve through the calibration standard data. The sample concentrations are then calculated using the resulting regression equation.

6.2.2 Laboratory Data Reporting

Where appropriate, laboratory data forms will be processed and included in appropriate reports. The original logs, documents, and data reductions will be kept in the project file onsite.

Non-aqueous values are reported on a dry-weight basis. Unless otherwise specified, all values are reported uncorrected for blank contamination.

Analytical results for all samples will be delivered in electronic data deliverable (EDD) format and will also be provided in a full data package in a scanned electronic media (Adobe® Acrobat® .pdf). In addition, the final data will be uploaded to NYSDEC's Equis Database, in the format specified by NYSDEC at http://www.dec.ny.gov/chemical/62440.html.

6.2.3 Laboratory Data Review and Validation

Data verification and data validation will be conducted after samples have been collected and analyzed. Verification and validation will provide an understanding of the data quality and usability. If correctable data quality issues are discovered as a result of the data verification and validation activities, the findings must be immediately provided to the appropriate data generator so that appropriate corrective action can be taken to prevent the problem from recurring.

The usability of the analytical data will be assessed by using a tiered approach. Data will initially undergo data verification, which will provide the first test of the quality of the results. Criteria-based checking of the laboratory-reported QC results against the limits defined will be used to qualify data. Data verification will be performed on 100% of the data. The specific measures evaluated during verification and the associated criteria will include:

- Holding times
- Accuracy (by evaluating laboratory control spike recovery and MS recovery)
- Precision (by evaluating laboratory duplicate results)
- Blank contamination (laboratory method blanks and field generated blanks)
- Surrogate compound recoveries
- Calibration (this includes but is not limited to tuning and GC/MS calibration for organics or initial/continuing calibration for organics and inorganics, etc., for Level 3 data reporting only)
- Review of Matrix Spike/matrix spike duplicates and lab control samples
- Review of sample results (this includes but is not limited to compound identification, quantitation, and reported detection limit verification, for Level 3 data reporting only)

This verification process will provide an understanding of the data quality based on those QC indicators that have the most influence on qualification of data.

Full data validation (i.e., manual qualitative and quantitative checking) will be performed only on analytical results that are subject to question. Any data validation reports generated will be kept in the project file onsite until completion of the project.

7. References

NYSDEC. 1994. Technical and Administration Guidance Memorandum (TAGM) 4046, Determination of Soil Cleanup Objectives and Cleanup Levels.

NYSDEC. 2005. Analytical Services Protocol. July.

USEPA. 1992. Specification and Guidance for Obtaining Contaminant-Free Sample Containers (USEPA 540/R-93/051) and OSWER Directive 9240.0-05

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Appendix N

Stormwater Pollution Control Plan

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Appendix N
Storm Water Pollution Prevention Plan

Former General Motors Assembly Plant
West Parcel Site
Sleepy Hollow, New York

December 2013

Appendix N
Storm Water Pollution Prevention Plan

Former General Motors Assembly
Plant West Parcel Site
Sleepy Hollow, New York

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Our Ref.:
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Date:
December 2013

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Appendix N
Storm Water Pollution Prevention Plan

Former General Motors
Assembly Plant
West Parcel Site
Sleepy Hollow, New York

1. Introduction

1.1 General

This Storm Water Pollution Prevention Plan (SWPPP) prepared in support of the Site Management Plan (SMP), to support future soil excavation or other intrusive activities at the Former General Motors Assembly Plant, West Parcel Site in Sleepy Hollow, New York Site (hereinafter referred to as the "Site"). During future intrusive activities, storm water management practices will be implemented to 1) control potential impacts (i.e., erosion and sediment loading) to Site-related storm water runoff; and 2) achieve the following objectives:

- reduction or elimination of erosion and sediment loading to water bodies during construction
- control of the impact of stormwater runoff on the water quality of receiving waters
- control of the increased volume and peak rate of runoff during and after construction
- maintenance of stormwater controls during and after completion of construction

A project-specific SWPPP will be required by stormwater permits issued for construction activities, or alternatively, will be required by the Department for construction performed as a remedial activity (e.g., handling soil and fill until completion of the final cap system) by the Owner performing this work under the BCA. The NYSDEC may require that the project-specific SWPPP include post-construction stormwater management practices that will be used and/or constructed to reduce pollutants in stormwater discharges. The project-specific SWPPP will require proper selection, sizing and siting of stormwater management practices to protect water resources from stormwater impacts.

The project-specific SWPPP should be prepared in accordance with the minimum requirements of this SWPPP.

1.2 Site Description

The Site consists of two lots situated on the eastern shore of the Hudson River. The Site contains approximately 64.99 acres of land above the high water mark, generally bounded by Kingsland Point Park to the north; River Street, Horan's Landing Park, Ichabod's Landing and various private and municipal properties to the south; the Metro North Hudson Line rail corridor and Hudson Street to the east; and the Hudson River and Kingsland Point Park to the west. The two on-site lots are bisected by Beekman Avenue.

1.3 Overview of Anticipated On-Site Activities

Soil excavation and other intrusive activities are anticipated for future Site development. Preparation of the Site for new construction may include the following anticipated activities:

- demolition of existing concrete slabs and foundations
- removal of asphalt cover
- reprocessing and on-site recycling of Site concrete and asphalt materials, including existing stockpiles
- removal of existing foundations, underground utilities and other subsurface obstructions
- installation of new utilities and foundations
- importation of fill materials
- surface grading and filling

Following Site preparation and throughout various stages of Site development and construction, a final cover system for the Site will be established. The final cover system provides a physical exposure barrier that must be restored if the cover is breached to permit additional construction of foundations or utilities, or for the maintenance and repair of utilities within or beneath the cover system. Once the final cover system is constructed, any future activity that disrupts the final cover system and exposes soil or fill materials beneath the cover system will be subject to general and specific requirements of this SWPPP.

2. Erosion and Sediment Control Plan

2.1 General

Construction activities in New York that disturb one or more acres of land must (with some exceptions for agricultural projects, silviculture projects and maintenance activities) be authorized under a SPDES Permit for stormwater discharges from construction activity. Pursuant to Section 402 of the Clean Water Act (CWA), stormwater discharges from certain construction activities (including discharges through a municipal separate storm sewer system) are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York's SPDES is a NPDES-approved program with permits issued in accordance with the New York State Environmental Conservation Law (ECL).

An owner or operator of a construction activity that is subject to SPDES regulation must obtain permit coverage through either an individual SPDES permit that addresses the stormwater discharges, or obtain coverage under the current SPDES General Permit for Stormwater Discharges from Construction Activity prior to the commencement of construction activity. The current General Permit (GP-0-10-001) for New York State was issued in January 2010. An owner or operator of a construction activity that is eligible for coverage under General Permit GP-0-10-001 must obtain coverage under the permit prior to the commencement of construction activity. The NYSDEC will determine the eligibility of the Owner to obtain a General Permit, and may require that the Owner apply for and/or obtain either an individual SPDES permit or an alternative SPDES General Permit. However, if someone who has signed the BCA is performing work that meets the definition of "remedial program" in 6 NYCRR Part 375, the substantive requirements of a SPDES permit would have to be met, but a formal permit would not be required for such work.

Municipal construction operations by the Village (including roadway and underground utility installation, maintenance and repair) are covered under their MS4 Permit issued through the SPDES program. The Village's MS4 Permit requires the use of best management practices for stormwater pollution prevention. However, the Village must also comply with requirements of the SMP (other than obtaining a separate permit for construction stormwater) when handling historical fill.

2.2 Erosion and Sediment Control Measures

Erosion and sediment control measures will be installed prior to initiating intrusive activities as site preparation activities allow. Additional erosion and sediment control measures may be required during construction to achieve the storm water management objectives of this SWPPP.

The erosion and sediment control measures that maybe used during onsite construction include the following:

- Silt Fencing/Hay Bale Dikes: Silt fencing and/or hay bale dikes will be used to reduce the potential for migration of suspended sediments beyond the project work limits. Hay bale dikes may be installed in lieu of or in addition to silt fencing.

- Material Staging Areas: Material staging areas with perimeter berms and will be used to reduce the potential for migration of stockpiled materials (via storm water runoff) to adjacent areas. Materials will be staged in these areas will be covered with polyethylene tarps whenever the materials are not actively being placed.

- Equipment/Personnel Cleaning Areas: These areas will be used for the cleaning of personnel and equipment prior to leaving the Site.

- Temporary Seeding: Temporary seeding will be applied to provide a temporary protective cover in disturbed areas when construction activities have temporarily ceased (as deemed necessary by the Owner) or to provide cover when permanent seeding is likely to fail due to mid-summer heat and drought.

- Turbidity Controls: Water-based sedimentation (re-suspension) controls will be utilized during the performance of excavation activities in or near the river. These controls include operational and equipment controls and use of diversion barriers (e.g., Jersey barriers and water stilling techniques. Turbidity controls will be installed immediately upstream of active work areas, visually inspected on a daily basis, and maintained throughout the construction period. Turbidity monitoring will be performed. Additionally, turbidity curtains or silt fence may be used to provide additional turbidity control in the event that the water stilling techniques are not found to sufficiently control the effects of construction on the turbidity levels in the Hudson River. If monitoring results indicate that stilling techniques are not sufficiently controlling the effects of construction on the turbidity levels in the Hudson River, additional turbidity control measures, such as use of turbidity curtains or silt fence, will be implemented.

- Dust Controls: Dust control measures will be implemented to reduce the potential for the dust generation.

- Good Housekeeping Practices: Good housekeeping practices will be implemented to reduce the potential for construction materials becoming entrained in storm water discharges from the Site. Throughout construction, the Site will be maintained in a

neat and orderly condition. This will include routine waste management activities (e.g., the collection and disposal of trash, rubbish, construction waste, and sanitary wastes); prompt cleanup of spills liquid or dry; and prompt cleanup of materials tracked by construction vehicles.

2.3 Inspection and Maintenance of Erosion and Sediment Control Measures

Inspections of erosion and sediment controls will be performed to confirm that the erosion and sediment control plan is being implemented properly and remains functional relative to Site conditions. Erosion and sediment controls will be maintained in accordance with the NYS Standards and Specifications and to the satisfaction of the Owner and NYSDEC. Inspection reports that summarize the results of the weekly inspections will be prepared.

Maintenance of existing erosion and sediment controls and/or required installation of additional controls, as determined during inspections, will be initiated within 48 hours following the inspection and completed prior to the next scheduled inspection. If Site conditions (e.g., weather, ground conditions) prevent maintenance/installation activities from being completed prior to the next inspection, such conditions will be noted in the subsequent inspection report and maintenance/installation activities will be completed as soon as Site conditions permit. Erosion and sediment control measures will be maintained for the duration of the construction until such time that the Site has been stabilized (i.e., soil-disturbing activities at the Site have been completed, and a uniform vegetative cover has been established or equivalent stabilization measures, such as the use of mulches, woodchips, geotextiles, or stone cover have been installed.

2.4 Site Restoration

Areas disturbed by intrusive construction activities will be restored. A final Site inspection will be performed to verify that disturbed areas are stabilized with the prescribed soil cover, woodchips, or stone. If inadequacies are found during the inspection, measures will be implemented to correct inadequate areas and another final Site inspection will be performed. Following acceptance of final site stabilization, temporary erosion and sediment control features that are no longer needed (e.g., silt fencing, hay bale dikes, etc.) will be removed.

3. Pollution Prevention Plan

3.1 General

A project-specific Pollution Prevention Plan for the Site should be prepared in accordance with the minimum requirements listed below. In general, the project-specific Pollution Prevention Plan will outline measures to prevent spills from occurring (a Spill Prevention Plan) and measures to be implemented in the event of a spill or spill-related emergency (a Spill Response Plan). Each of these components is briefly described below.

3.2 Spill Prevention Plan

Prior to mobilization, each piece of equipment to be brought onsite will be visually inspected for potential sources of spills of hydraulic fluid, engine oil, transmission fluid, fuel, grease, etc. (by inspecting the condition of hydraulic cylinders, hoses, gaskets, fuel tanks, etc.). If a potential spill source is identified, the necessary repairs or replacement of equipment will be performed prior to mobilizing such equipment to the Site.

The following precautions will be taken to minimize potential spills of fuel during construction:

- Conduct refueling activities on level ground within a designated area away from steep slopes.
- Place on-site fuel storage tanks in containment areas.
- Do not leave equipment unattended during refueling.
- Do not re-fill internal combustion engine fuel tanks with a flammable liquid while the engine is running.
- Replace fuel caps before starting the engine.
- Secure (i.e., lock) fuel pump dispensers when not in use to avoid accidental fuel release.
- Conduct visual inspections of equipment/portable fuel tanks to check for leaks. If leaks are observed, transfer the tank contents to an alternate tank and replace or repair the leaking tank, as appropriate.
- Maintain equipment in accordance with the manufacturer's specifications.
- Operate vehicles and equipment safely, and park them a safe distance away from site hazards and sensitive resources, to the extent practicable.
- Locate and operate diesel-powered bypass pumps within a fully-lined containment area.

3.3 Spill Response Plan

Appropriate spill response procedures will be implemented when responding to unplanned releases of oil, products, or other materials to soil, surface water, or sediment during the project. Spills will be immediately reported. An emergency contact list will be maintained on Site with phone numbers for the following personnel throughout construction activities: the Sleepy Hollow Fire Department; ambulance service; local, county, and state police; and local hospital. Responsible personnel should be identified who will be in a position at all times to receive incoming phone calls and to dispatch personnel and equipment in the event of an emergency situation. A spill kit will also be maintained at the Site throughout construction that includes solid booms (harbor booms), sorbents, absorbent booms, and fire extinguishers.

The following spill response procedures will be implemented:

- Ceasing Operation of the Affected Equipment: This will consist of shutting off the equipment and/or closing any valves and stopping the leak, if possible.

- Containing the Spill: If the spilled material is floating on a water surface, spill-absorbent pads/booms will be placed across the path of the floating spill. If the spilled material sinks below the water surface, a dam, weir, or other containment method will be used to stop the flow of the spilled material. If the spill occurs on land, a containment unit will be constructed to stop the flow of the spilled material. Absorbent material will be applied as necessary.

- Cleaning Up the Spill: Spills in water will be recovered using pumps, sorbent material, etc. as necessary until the spilled material is recovered (and no sheen or other evidence related to the spill is observed on the water surface). Spills on land will be recovered using pumps, sorbent material, and heavy equipment, as necessary until the spilled material is recovered. Other activities to be conducted during spill cleanup activities include: removing impacted soil/sorbent pads; and using rags and cleaning solution to remove excess spilled material from equipment.

- Containerizing Spill Materials: Spill materials, impacted soil, sorbent pads, etc. will be containerized in New York State Department of Transportation (NYSDOT)-approved containers. The containers will be labeled with the waste type and date of accumulation in accordance with applicable regulations. Samples will be collected to characterize the spilled materials for disposal.

- Disposing of Spill Materials: Impacted materials and spill cleanup debris will be disposed of at a facility permitted to accept the materials.

- Performing Post-Spill Maintenance: Following cleanup of the spill, verification and documentation that used spill cleanup material and equipment have been disposed of or decontaminated, will be performed, as appropriate. If the equipment that caused the spill cannot be properly repaired, replacement equipment will be obtained.

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Appendix O

Letter from New York State Department of Health Re: Soil Vapor Intrusion Investigation

DOH STATE OF NEW YORK
DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

Richard F. Daines, M.D.
Commissioner

May 17, 2007

Mr. Frank Guido
Assistant Commissioner
Westchester County Health Department
145 Huguenot Street
New Rochelle, New York 10801

Re: Soil Vapor Intrusion Investigation
Former GM Tarrytown Site
Site #C360070
Sleepy Hollow (V), Westchester County

Dear Mr. Guido:

I am in receipt of your May 8, 2007 letter concerning the May 3, 2007 conference call with the New York State Department of Health (NYSDOH), the New York State Department of Environmental Conservation and the Westchester County Health Department (WCHD) to discuss the soil vapor intrusion (SVI) investigation proposed for the Former GM Tarrytown site. In review of your interpretation of said conference call, I am providing the following clarification of the State's position concerning the SVI Investigation of the referenced site.

During the investigation of the Former GM Tarrytown site, volatile organic compounds (VOCs) were detected in on-site groundwater, soil and/or soil gas. Due to the presence of VOCs in the aforementioned site media, the potential exists for SVI to occur in structures planned for this site. In order to evaluate this potential pathway of exposure, the NYSDOH will require the collection of sub-slab soil vapor samples from all buildings constructed slab on grade. The collection and evaluation of sub-slab soil vapor samples will be conducted in accordance with the State's October 2006, "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (State's Guidance).

The sub-slab soil vapor samples will be collected post construction and prior to building occupancy. At least one sample will be collected during the heating season as SVI may be enhanced in a closed, heated structure. If the results of the samples collected from a building outside of the heating season indicates that SVI is not a

concern, another sample will be collected from the same structure during the heating season to verify results. If the results of any of the sub-slab soil vapor samples indicate that SVI may be of concern, the developer will be advised to actively vent the sub-slab depressurization system installed when the building was constructed.

As was discussed during the May 3, 2007 conference call, this seasonal approach for evaluating SVI is consistent with the State's Guidance and is applied throughout New York State. The WCHD's concern that using the results of samples collected outside of the heating season to evaluate the potential for SVI to occur in a structure may allow residents "to be exposed to unacceptable concentrations of chemicals for up to 6-8 months" is not supported by data from SVI investigations conducted in the State of New York. In our experience, evaluating SVI conditions using the results of sub-slab soil vapor samples collected in the non-heating season has lead to similar recommendations as those based on sub-slab soil vapor samples collected during the heating season. However, until a complete analysis of these data is conducted, the seasonal sampling recommendation will be followed as per the State's Guidance.

The NYSDOH believes that the measures described to evaluate SVI in slab on grade structures proposed for this site and the provisions for activating the sub-slab depressurization systems are protective of public health. Should you have any questions, please call me at (518) 402-7880.

Sincerely,

Joseph P. Crua, PHS III, M.P.H.
Bureau of Environmental
Exposure Investigation

cc: Mr. G. Litwin/Mr. M. Rivara
Mr. J. White/Mr. J. Moras – NYSDEC
Mr. E. Belmore - NYSDEC
Mr. C. Torres/Mr. C. Lalak – WCHD
Mr. R. Pergadia – NYSDEC, Reg 3