SITE MANAGEMENT PLAN
DOBBS FERRY WATERFRONT PARK
DOBBS FERRY, NEW YORK

Prepared for:

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[Date]

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1.0 INTRODUCTION

: Project Location

This Site Management Plan (SMP) is for the management of subsurface materials currently present underneath the clean fill cap and for the long-term monitoring of groundwater quality conditions at the Dobbs Ferry Waterfront Park in Dobbs Ferry, New York. The regional location is shown as **Figure 1**. The Site Management Plan is intended to address the proper management of subsurface materials that may be brought to the surface from beneath the clean fill cap placed across the open field that was formerly a municipal landfill and establish the procedures for conducting the long-term groundwater quality monitoring program.

This Site Management Plan discusses the monitoring, inspection, and operations and maintenance requirements for the engineering control utilized at the Site as required by the institutional controls (Deed Restriction).

The work conducted by the Village of Dobbs Ferry is being conducted in accordance with the Voluntary Cleanup Agreement (VCA) between the Village of Dobbs Ferry and the New York State Department of Environmental Conservation (NYSDEC) dated July 3, 2003 and the Amendment to the Voluntary Cleanup Agreement executed on October 25, 2005.

(the date the Voluntary Cleanup Program application was approved and sitework commenced)

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2.0 DESCRIPTION OF INSTITUTIONAL CONTROLS

Institutional controls are required by the New York State Department of Environmental Conservation (NYSDEC) if the remedial action proposed includes allowing contaminants to remain at a site at concentrations exceeding the applicable remediation standards. At the Dobbs Ferry Waterfront Park, soil and groundwater contamination is present at the Site below the recently completed engineering cap.

Based on the implemented remedial action (capping), a use restriction is required. A draft Deed Restriction will be prepared for submission to NYSDEC. Upon approval, the Deed Restriction will be recorded for the Site. The purposes of the Deed Restriction are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the potential restriction of future uses of the land that are inconsistent with the above-stated purpose.

The Deed Restriction will:

- Restrict the contemplated use of the site to "active recreational use" which is a land use for the primary purpose of establishing an athletic playing field;
- Restrict any development that would impact the integrity of the engineered ~~cap~~ cover;

- Implementation of a Site Management Plan that requires appropriate management of any residual contaminated soils that are excavated during future activities; establishes a long term groundwater monitoring plan and an erosion control plan; and affirms the Village's commitment to maintain a vegetative cover over and eliminate and physical hazards on adjacent uncapped vacant lands also containing urban fill material.
- Restrict the use of ~~onsite~~ on-site groundwater; and
- Require operation, management and monitoring of the (cap) site in accordance with the provisions of the SMP approved by the NYSDEC.
- [see above insert]

3.0 DESCRIPTION OF ENGINEERING CONTROLS

The institutional control proposed for the Site requires the use of an engineering control to maintain the protection of the public health and safety and the environment. The engineering control utilized at the Site included the following:

- ~~Clearing and gru~~ The cover will extend from the eastern fence line to the top of the riverbank and from northern fence line of the recreational field area to the southern boundary of the parcel.
- ~~Installation of erosion controls and regrading to level the Site.~~
- Placement of a geotextile fabric as a demarcation barrier.
- Placement of a cover system to include 18 inches of imported fill, 6 inches of top soil and a covering of sod or seeded grass. Both the imported fill and the top soil will be sampled and shall meet all soil cleanup objectives stated in TAGM 4046.
- Installation of an entrance pathway from the parking lot.
- Installation of a six (6) foot perimeter fencing along the northern and eastern edges of the recreational field that will restrict public access to the remainder of the historic landfill site.

The area of the engineering control (voluntary cleanup area) is depicted in Appendix 1: Waterfront Park Recreational Field Voluntary Cleanup Area ~~appearing in Appendix~~.

As a requisite of the Deed Restriction, the integrity of the cap must be verified every year and a written statement provided to NYSDEC every year by an expert that NYSDEC finds acceptable; and NYSDEC must be notified of disturbances to the cap in accordance with the Deed Restriction to be filed for the Site.

4.0 OPERATION AND MAINTENANCE OF SOIL ENGINEERING CONTROL

The soil engineering control employed at the Site includes a geotextile fabric and a soil cap.

4.1 OPERATIONS

The remedial cap consists of a geotextile fabric underneath two feet of clean fill overlying the entire remedial area. The open field has been developed into a recreational playing field. No excavations for subsurface utilities or drains were conducted other than the installed sprinkler system which is located within the cap material and above the geotextile fabric. The recreational field does not have any bleachers, lights, backstops or other structures that would require excavation of soil to a depth of greater than two feet. The only excavation involved the installation of the additional fence posts around the final Site boundary as determined by the surveyed metes and bounds. The fence post excavations were approximately 10-12 inches in diameter every five feet to a depth of approximately 3 and ½ feet below grade. Nevertheless,

any future excavation conducted at the Site will have the potential to penetrate the cap. In all cases where the protective cap is or may be penetrated, special environmental and health and safety measures are required to be implemented.

In order to complete all required future excavation activities in a controlled manner and minimize environmental impacts and human exposure to contaminants beneath the cap, the following protocol has been developed for the performance of future excavations on the Site. In the event an unauthorized or unplanned excavation is observed, all activity shall be immediately stopped and the protocol implemented from the initial step.

All disturbances of the soil cap will be repaired within sixty days of observance of the disturbance.

Preparation

A "qualified environmental professional", as defined by the current 6 NYCRR Part 375-1.2 (ak) Definitions, will plan, [redacted] and oversee any [redacted] work that involves disturbance of the soil cap. The designated [redacted] shall review all proposed excavations at the Site prior to initiation of excavation activities. The review must include the following:

- Comparison of the location and vertical and horizontal extents of proposed excavation to the locations of existing engineering controls;
- Purpose of excavation;
- Proposed start date; and
- Duration of work effort.

Excavation

The person responsible for conducting the excavation (Contractor) must request a utility mark-out at least 72-hours prior to the proposed start of any subsurface activities.

Based on the specified location of the excavation, the [redacted] will determine the maximum depth of the excavation. If, based on field measurements, the excavation is within the two foot remediation soil cap, the Contractor will provide survey control of the location to verify that the geotextile fabric is not breached.

Any excavations, planned or otherwise, that extend through the soil cap and fabric will be subject to the Health and Safety requirements stipulated below. Such excavations into the cap will also require the requisite notification to NYSDEC in accordance with the requirements of the Deed Restriction as discussed below in Section 5.0. Reporting and repair of the soil cap will be conducted in accordance with Section 4.4 - Maintenance and Repair.

It is to be assumed in all cases that soils beneath the cap (henceforth referred to as "site soils") are contaminated. Site soils excavated from beneath the cap will be segregated from the clean cap by stockpiling on plastic sheeting.

Health and Safety

In all cases where the excavation is anticipated to penetrate or actually penetrates the cap and/or subjects workers to exposure to soils beneath the cap, the applicant will be required to adopt and adhere to a Site-Specific Health & Safety Plan. This plan shall include, at a minimum, the following:

- Site description
- Organizational responsibilities (i.e. key personnel and duties)
- Risk or Hazard Analysis
- Employee training requirements in accordance with 29 CFR 1910.120
- Provisions for Personnel Protection
- Provisions for Medical Surveillance
- Provisions for Air surveillance
- Decontamination Procedures
- Contingency Planning (i.e. Emergency Response)
- Excavation Safety

4.2 MONITORING

All subsurface activities will be reviewed and monitored by the designated Site Engineer. The Site Engineer shall review the proposed excavation location on the Site and determine the existing depth to the cap, and the potential for penetration of the cap.

The Site Engineer shall notify the applicant of the acceptability of the proposed excavation and any restrictions that may apply with respect to survey control, agency notification, health & safety issues, or other conditions.

4.3 INSPECTION

In accordance with the requirements of the Deed Restriction, the soil cap on the Site will be visually inspected annually for signs of erosion and excavation. All soil cap inspection and maintenance activities will be recorded in the logbook. Areas where the geotextile fabric may be visible due to erosion will also be noted.

4.4 MAINTENANCE AND REPAIR

In general, if the engineering control is observed to be damaged or not functioning properly, the control will be repaired within sixty days of the initial observation. The following subsections detail specific maintenance and repair requirements for each type of engineering control.

Geotextile Fabric

The geotextile fabric used at the site for a demarcation layer If the fabric is breached at any time, the fabric must be repaired. The area of the breach will be over-excavated to expose the breach in the fabric, and a piece of fabric will be placed over the breach, overlapping the area around the breach. The soil cap will then be placed back over the fabric.

Soil Cap

Upon completion of subsurface work, excavations will be backfilled using the "last out is first in" method in all cases where Site Soils are disturbed. All Site Soils must be backfilled first and must be compacted to a level equal to or deeper than the original bottom of the cap. Any excess Site Soils that cannot be replaced beneath the cap must be disposed of as non-hazardous or hazardous waste, as applicable. Upon completion of the Site Soil backfilling and compaction, the cap must be replaced. If for any reason the original cap soils are unavailable, clean fill from an approved source must be utilized to repair and replace the cap.

The soil cap will be replaced and/or rebuilt only with certified clean fill from a virgin source or other tested and approved fill source.

In the event the remediation soil cap is found to be eroding, erosion control measures will be instituted to either contain or redirect storm waters to prevent additional erosion of the cap. The nature of the appropriate erosion control measure will be determined by the designated Site Engineer.

5.0 REPORTING

5.1 DISTURBANCE OF THE SOIL CAP

Non-Emergencies

In accordance with the requirements of the Deed Restriction, no alterations, improvements, or disturbances (collectively referred to as "disturbances" henceforth) to the soil cap are permitted without proper NYSDEC notification. The NYSDEC must be notified of the breach or suspected breach of any of the terms of the Deed Restriction, and the measures that will be taken to cure the breach. The breach must be cured within a reasonable period of time from the date of receipt of the notice. At the expiration of such period of time, the NYSDEC shall be notified of any failure to adequately cure the breach or suspected breach. The Village of Dobbs Ferry will then have a reasonable amount of time for receipt of such notice to cure the breach. At the expiration of said second period, the NYSDEC may commence any proceedings and take other appropriate action reasonably necessary to remedy any breach of the Deed Restriction in accordance with applicable laws to require compliance with the terms of the Deed Restriction. The following procedures should be taken to notify NYSDEC of a breach.

- Notify the NYSDEC at the start of the disturbance. Proper notice to NYSDEC will be given at least 15 days prior scheduled activities;
- Complete restoration of the engineering controls to pre-disturbance conditions within a reasonable time period of the initiation of the disturbance as requested by NYSDEC;
- Ensure all applicable health and safety procedures are followed during the disturbance and restoration;
- Ensure that exposure to contamination in excess of the applicable remediation standard does not occur;

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- Submit a written report describing the disturbance to NYSDEC after the end of the disturbance. The report will include the dates and duration of the disturbance, the names and affiliations of those conducting the disturbance, a description of the notice given to those persons prior to the disturbance, the amounts of soil generated for disposal (if any) and that soil's final disposition, and any precautions taken to prevent exposure.

When notice to the NYSDEC is required (other than annual certifications) or approval from the NYSDEC is required, the Village of Dobbs Ferry shall provide notice or seek approval by referencing the County tax map number or Liber and Page or computerized system tracking/identification number and address correspondence to:

Division of Environmental Enforcement
Office of General Counsel
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-5500

Emergencies

In the event that an emergency presents or may present an unacceptable risk to public health and safety or to the environment, an engineering control may be temporarily breached provided:

- The NYSDEC is notified immediately;
- The disturbance is limited in duration and extent to the minimum reasonably necessary to respond to the emergency;
- All measures necessary to limit the actual or potential risk of exposure to humans or the environment are implemented;
- The NYSDEC is notified when the emergency has ended;
- The engineering controls are restored to pre-emergency conditions as soon as possible; and
- Submits a report to NYSDEC within a reasonable period of time of completion of the restoration. The report will include all information pertinent to the emergency, potential discharges of contaminants, and restoration measures, including, at a minimum: the nature and likely cause of the emergency, the potential discharges or exposures to contaminants, the measures taken to mitigate the effects on human health and the environment, the measures utilized to restore the engineering control, and changes to the engineering control or site operation to prevent reoccurrence of such conditions in the future. The report will be submitted to:

  Division of Environmental Enforcement
  Office of General Counsel
  New York State Department of Environmental Conservation
  625 Broadway
  Albany, New York 12233-5500

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5.2 ANNUAL REPORT AND CERTIFICATION

Those responsible for maintaining and evaluating the engineering and institutional controls will prepare and submit to NYSDEC a report and certification every year.

The report will include the following information:

- Name, address, and telephone number of the person maintaining the engineering and institutional controls;
- County tax map number or Liber and Page or computerized system tracking/identification number for the Site
- Description of the physical characteristics of the Site and current site operations;
- Description of the remedial actions that included the Deed Restriction;
- Copies of the detailed logs (for the current year only) of how each control was monitored, maintained, and evaluated;
- Dates and results of inspections and maintenance, including all test and sampling results, for each engineering control;
- Description of any additional action taken to ensure the protectiveness of the remedial actions; and
- Conclusions as to whether the remedial action remains protective of the public health and safety and of the environment.

The persons responsible for monitoring the protectiveness of the remedial actions will provide a certification to the NYSDEC that:

- The Deed Restriction, including all engineering controls, is being properly maintained; and
- The remedial actions that include a Deed Restriction continue to be protective of the public health and safety and the environment.

The annual report and certification will be performed by a qualified environmental professional and shall be submitted to the following:

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, New York 12233-7014

6.0 LONG-TERM GROUNDWATER MONITORING PLAN

6.1 BACKGROUND

Three groundwater samples were obtained from temporary well points in March 2005. The analytical results were presented to NYSDEC in the Supplemental Site Investigation Report. The results were compared to the NYSDEC Groundwater Standards (GS). The results for all semi-volatile compounds, PCB's and cyanide were either reported as Not-Detected or at

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concentrations below the GS. The sample W1-W had concentrations that exceeded the GS for benzene, chlorobenzene, and toluene. The sample W2-W had concentrations that exceeded the GS for xylenes, 4,4'-DDD, and 4,4'-DDE. The sample W3-W had concentrations that exceeded the GS for benzene, chlorobenzene, and xylene. Based upon these results the NYSDEC indicated that groundwater use at the Site should be prohibited. Additionally, the approved Remedial Action Workplan contained a provision for long-term groundwater quality monitoring. This portion of the Site Management Plan stipulates procedures and methods that will be conducted to comply with the groundwater monitoring provision.

6.2 SCOPE OF WORK

Groundwater samples shall be collected from three Site monitoring wells, the locations of which are shown on **Figure 2**. The samples shall be collected on a semi-annual basis following the procedures and guidelines detailed in the following sections. In order to mimimize disruption to the activties at the Site, sampling shall be conducted in September and March.

6.3 SAMPLE COLLECTION

All sampling must be conducted in accordance with all applicable NYSDEC guidelines and regulations in effect at the time of sampling. Groundwater samples shall be collected from each well utilizing low-flow methodologies and from dedicated bailers. The samples collected for metals analysis shall be obtained using dedicated tubing and pumps specifically approved by the NYSDEC. In addition, groundwater samples for the remaining parameters shall be collected from a bailer in order to prevent sample volatilization.

6.4 DESIGNATED ANALYTICAL LABORATORY

All sample analyses conducted as part of this investigation shall be done by a New York State ASP/DOH certified laboratory.

6.5 SAMPLE CONTAINERS AND CHAIN OF CUSTODY PROCEDURES

Clean sample containers shall be supplied by the laboratory for all sampling events. The appropriate sample preservatives will be added to the sample bottles by the laboratory prior to shipment. Chain of custody procedures will be initiated by the person responsible for cleaning the sample containers. The chain of custody will accompany the bottles during transportation from the laboratory to the field, sample collection, transportation back to the laboratory, analysis and final disposal of the sample. Samples will be stored on ice at 4°C in a secure area until they are relinquished to a courier for delivery to the laboratory.

6.6 SAMPLE HANDLING

The sample containers shall be labeled with sample number, date, time of collection, analytical parameters and site name. The sample holding time will begin at the time of sample collection.

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6.7 FIELD INSTRUMENTATION

A PID shall be utilized to record well head space concentrations immediately after removing the well cap. The PID must be maintained in accordance with the manufactures recommended guidance.

The PID shall be calibrated at the beginning of each day of field use by comparing the response with a test atmosphere referenced to a primary calibration standard of known concentration. The calibration gas used for the PID is 100 ppm isobutylene in air.

6.8 RECORD KEEPING

Field measurements and observations shall be recorded in a bound field log book, including: documentation of all sampling locations, number of samples, sample depths, sample collection time, analytical parameters and documentation of all sample location landmarks, including the location of sample points on a map. Upon collection of samples for analysis, additional documentation will be completed on the chain of custody form.

6.9 ANALYTICAL METHODS/QA SUMMARY TABLE

Quality Assurance (QA) sampling shall be conducted to provide control over the collection of samples and subsequent review, interpretation and validation of analytical data. All samples shall be analyzed using standard USEPA SW-846 methodologies.

The following table presents a summary of the matrix type, number of samples, number of field and trip blanks, analytical parameters, and analytical methods.

# of Samples	Matrix	Parameter	EPA Method	Sample Duplicates	Field Blank/Trip Blank
3	Aqueous	TCL VO	624	1	1
3	Aqueous	TCL SVO	625	1	1
3	Aqueous	TCL Pesticide/ PCB	608	1	1
3	Aqueous	Cyanide	335.2	1	1
3	Aqueous	Phenols	420.1	1	1
3	Aqueous	TAL Metals	200.8	1	1

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6.10 FIELD BLANKS

A field blank shall be collected and analyzed for the same parameters as the samples analyzed that day. The field blank sample will be collected by pouring demonstrated analyte-free water over the dedicated sampling device (tubing/bailer) so that the rinsate flows into the empty sample container. The demonstrated analyte-free water used for the field blank will originate from one common source and physical location within the laboratory as the method blank water used by the laboratory performing the analyses.

Field blank water will arrive on-Site within one day of preparation in the lab, will be held on-site for no longer than two days, and will be shipped back to the laboratory at the end of the second day and will be received at the laboratory within one day. Blanks will be maintained at 4°C while on-Site and during shipment. One field blank will be collected for each day of sampling activity.

6.11 DUPLICATES

One duplicate sample shall be collected and analyzed for the same parameters as the samples analyzed that day.

6.12 RELIABILITY OF DATA

The laboratory data will be reviewed for accuracy and usability in accordance with the guidelines set forth in Appendix B of the NYSDEC's Voluntary Cleanup Guide dated May 2002.

6.13 DELIVERABLES

The sample analysis reporting level shall be the NYSDEC Analytical Services Protocol (ASP) Category B deliverables.

6.14 REPORTING

The results of the groundwater sampling events shall be reported to the NYSDEC within six weeks of the completed sampling event. The semi-annual report shall include at minimum: sample summary tables, analytical results tables, monitoring well location plan, groundwater contour map and a detailed evaluation of the results and a comparison to previously obtained results. The NYSDEC may be petitioned to suspend the long-term groundwater monitoring when contaminant concentrations fall below the NYSDEC Groundwater Standards for two consecutive sampling events or when a consistent downward trend in contaminant concentrations is observed over a minimum of four sampling events. In addition, the NYSDEC may be petitioned for reduced analytical parameters after two sampling events.